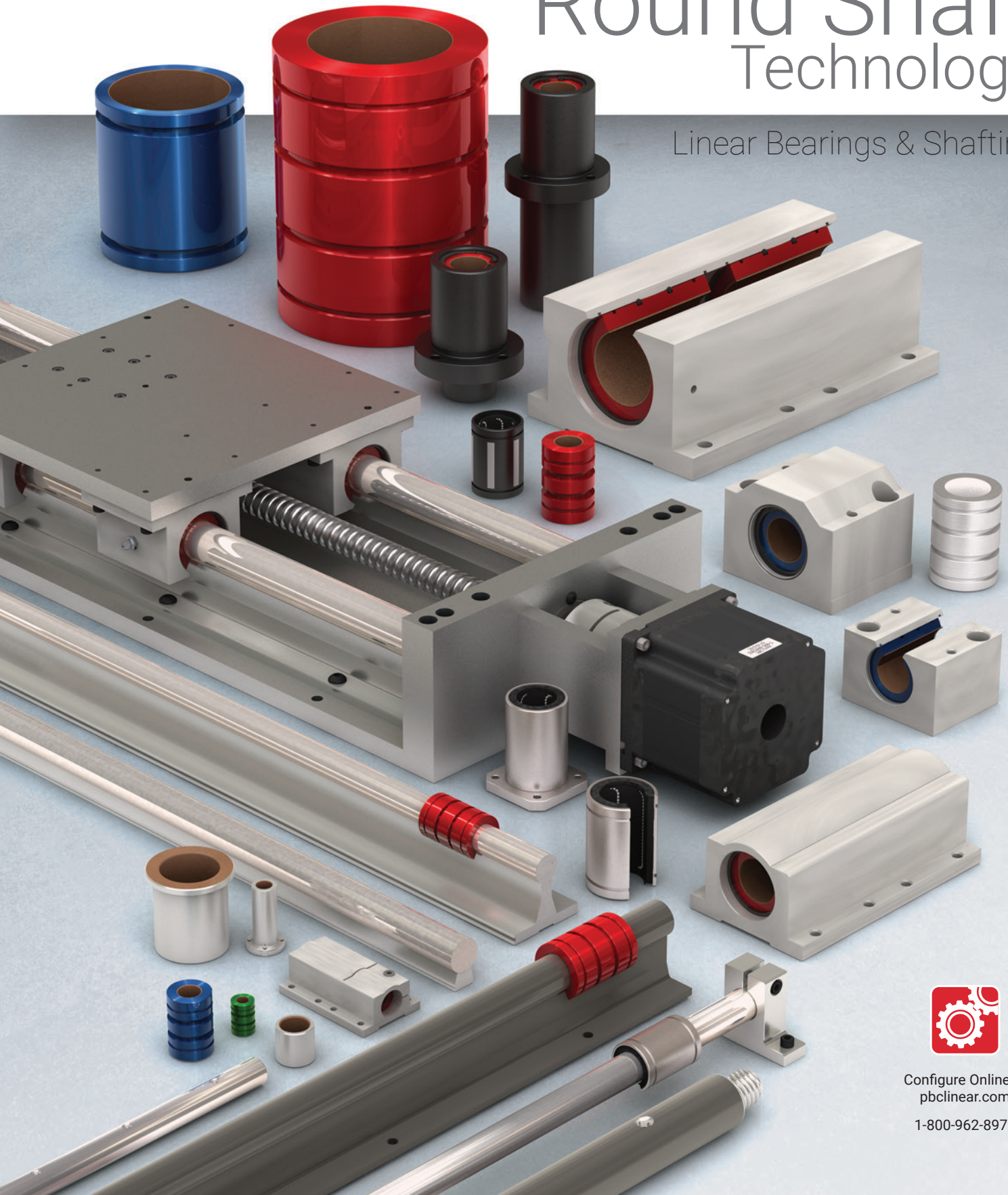




# Round Shaft Technology

Linear Bearings & Shafting



Configure Online at  
[pbclinear.com](http://pbclinear.com)

1-800-962-8979



# Linear Shafting

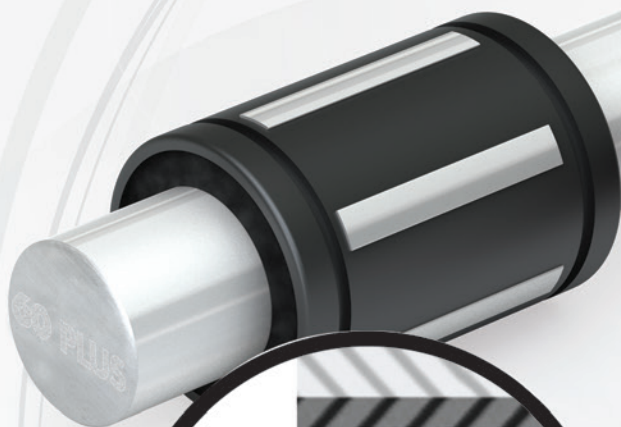
Engineered for Maximum Linear Bearing Performance

Inch Series—page 40 ISO Metric Series—page 72

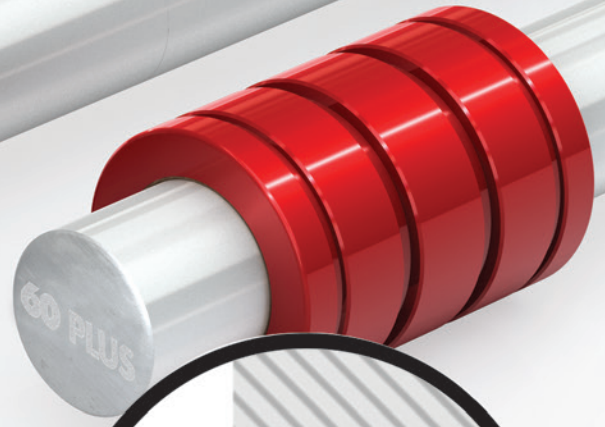
## simplicity® 60 PLUS® S H A F T I N G



Only certified *Simplicity 60 Plus Shafting* provides maximum bearing performance.



Optimized shaft finish for ball bearings



Optimized shaft finish for plain bearings.

### Linear Ball Bearings

The right amount of microscopic surface texture holds lubrication for consistent smooth ball rotation minimizing the effects of metal-to-metal contact.

- **Excellent rigidity**—providing smooth, quiet operation
- **Extremely low friction**—rolling elements provide consistent anti-friction movement
- **Outer shell**—Available with steel jacket or self-aligning super bearing shell

### Simplicity® Plain Bearings

The Frelon® break-in and transfer process operates at maximum efficiency with Simplicity 60 Plus Shafting resulting in true self-lubrication and the longest life possible.

- **Self-lubricating**—maintenance-free, additional lubrication optional
- **Wide temperature ranges**—(-400°F/+400°F), (-240°C/+204°C)
- **Vibration damping**—eliminates fretting corrosion



# Product Selection Guide

| SHAPE                        | SIZES       | PRODUCT TYPE & DESCRIPTION  | AVAILABLE IN:  |        |      | FOUND ON PAGE       |                    |                    |
|------------------------------|-------------|---|--|--------|------|---------------------|--------------------|--------------------|
|                              |             |   | OPEN   | CLOSED | WIDE | I                   | M                  | J                  |
| ROUND BEARINGS               | I<br>M<br>J | <b>PLAIN</b><br><br>Materials: aluminum alloy, stainless steel<br>Self lubricating bearing with patented compound of PTFE developed for improved performance over other bearings. Standard sizes in stock.   | •  | •      |      | <a href="#">26</a>  | <a href="#">58</a> | <a href="#">86</a> |
|                              | I<br>M<br>J | <b>BALL</b><br><br>Materials: steel and polymer<br>Each ball bearing consists of an outer cylinder, ball retainer, balls, and double seals.  | •  | •      | •    | <a href="#">28</a>  | <a href="#">60</a> | <a href="#">88</a> |
|                              | M           | <b>THIN WALL</b><br><br>Materials: aluminum alloy housing anodized or steel with polymer retainer<br>Both plain and ball bearing versions of European metric sizes.  |  | •      |      | <a href="#">66</a>  |                    |                    |
|                              | I<br>M      | <b>SLEEVE &amp; SLEEVE WITH FLANGE</b><br><br>Materials: aluminum alloy housing<br>Replaces Oilite, bronze, and plastic bearings. Ideal for slow or moderate speeds for oscillating or rotary motion.  |  | •      |      | <a href="#">42</a>  | <a href="#">79</a> |                    |
| ROUND BEARINGS WITH HOUSINGS | I<br>M      | <b>OPEN &amp; CLOSED PILLOW BLOCKS</b><br><br>Materials: aluminum alloy housing with clear anodized coating<br>Available with either plain or ball bearings. Self aligning for ease of mounting. Standard sizes in stock.   | •  | •      | •    | <a href="#">32</a>  | <a href="#">63</a> |                    |
|                              | I           | <b>FLANGE MOUNT</b><br><br>Materials: aluminum alloy housing with clear anodized coating and inner plain bearing<br>Ease of mounting. Compact design.  | •  |        | •    | <a href="#">38</a>  |                    |                    |
|                              | M<br>J      | <b>FLANGE BEARING</b><br><br>Materials: aluminum alloy housing with clear anodized coating or steel with polymer retainer<br>Both plain and ball bearing available. Ease of mounting. Compact design.  |  | •      | •    | <a href="#">69</a>  | <a href="#">90</a> |                    |
|                              | I<br>M      | <b>DIE SET FLANGE BUSHINGS</b><br><br>Materials: aluminum housing with black anodized coating and inner plain bearing<br>Mounting precision. Size interchangeable with industry standard die sets.   |  | •      | •    | <a href="#">39</a>  | <a href="#">78</a> |                    |
|                              | ROUND SHAFT | I<br>M  | <b>ROUND SHAFTING</b><br><br>Materials: ceramic coated aluminum, hardened steel, 440 stainless steel<br>Cut to length, random lengths, machined, pre-drilled, or tapped. Shaft assemblies and support rails also available. |        |      |                     | <a href="#">44</a> | <a href="#">81</a> |
| I                            |             | <b>LINEAR SLIDE ASSEMBLIES</b><br><br>Materials: alloy steel, 440 stainless steel, ceramic coated, or chrome plated 303 SSS shafts, aluminum support rails, standard Simplicity pillowblocks<br>Plain bearing and ball bearing slide assemblies. Standard components include mounting plate, pillow block assemblies, steel shafts, and support rails. Options include shaft materials, lead screws, ball screws, hand cranks, and motors. |  |        |      | <a href="#">100</a> |                    |                    |
| SQUARE BEARINGS              | I           | <b>SQUARE BEARINGS &amp; SHAFTING</b><br><br>Materials: aluminum alloy housing with red anodized coating and stainless steel square shafting<br>Resists torque and eliminates extra costly components in parallel shafts.  |  | •      |      | <a href="#">53</a>  |                    |                    |

# Contents

**I** Inch Series

**M** ISO Metric Series

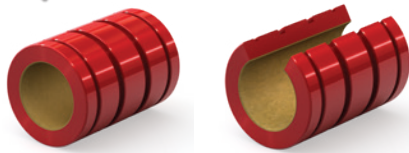
**J** JIS Metric Series

- 8** Applications
- 12** Plain Bearings – Performance Benefits
- 22** Ball Bearings – Overview
- 10** Product Overview – Plain & Ball Bearing
- 20** Plain Bearings – Ordering Information
- 25** Ball Bearings – Ordering Information

## **I** INCH SERIES

### **I** Simplicity® Linear Plain Bearings

- 26** Closed FL
- Open FLN



### **I** Linear Precision Ball Bearings

- 28** Closed IP
- Adjustable IPxx-AJ
- Open IPxx-OP



### **I** Linear Ball Bearings – Precision Plus Self-Aligning

- 29** Closed IPS
- Open IPSxx-OP



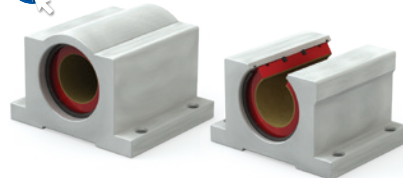
### **I** Linear Ball Bearings – Double Wide

- 30** IP-W



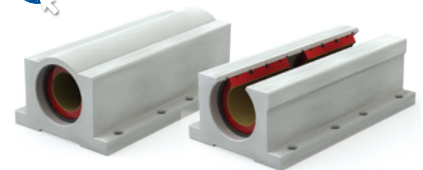
### **I** Simplicity Pillow Blocks

- 32** Closed P
- Open PN



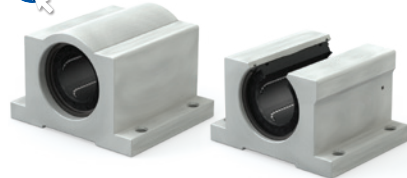
### **I** Simplicity Pillow Blocks – Twin

- 33** Closed PW
- Open PWN



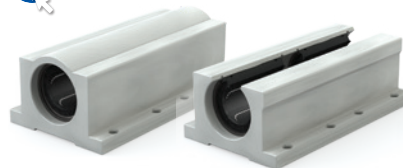
### **I** Linear Ball Bearing Pillow Blocks

- 34** Closed IPP
- Open IPPN



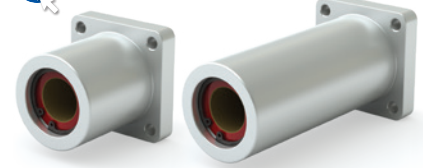
### **I** Linear Ball Bearing Pillow Blocks – Twin

- 35** Closed IPPW
- Open IPPWN



### **I** Simplicity Flange Mounts

- 38** Single SFP
- Double DFP



### **I** Die Set Flange Mounts

- 39** Single SDS
- Double DDS



### **I** Die Set Bushings

- 40** PAC



### **I** Simplicity Sleeve Bearings

- 42** PS
- With Flange PSF





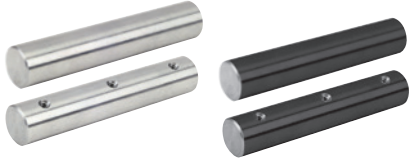
I Inch Series

M ISO Metric Series

J JIS Metric Series

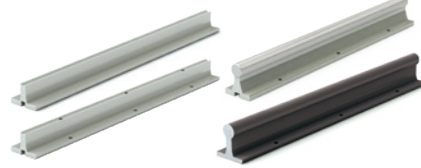
I Simplicity® 60 Plus® Shafting

- 45 RC60 Steel  
Stainless Steel  
NIL & NILxSS
- 46 Predrilled Shafts  
Ceramic Coated  
CC & CCPDL



I Support Rails & Assemblies

- 48 Aluminum  
SR & SRxxPD
- 49 Aluminum SRA  
Ceramic Coated  
CCR



I Square Shafting, Bearings & Plugs

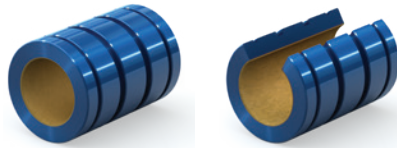
- 53 Square Shafting  
PST
- Square Bearings  
SB



M ISO METRIC SERIES

M Simplicity Linear Plain Bearings

- 58 Closed  
FM
- Open  
FMN



M Linear Ball Bearings – Precision Plus Self-Aligning

- 60 Closed  
IPS
- Open  
IPSxx-OP



M Linear Precision Ball Bearings

- 61 Closed  
EP
- Adjustable  
EPxx-AJ
- Open  
EPxx-OP



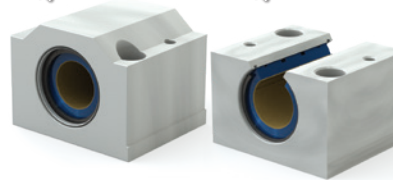
M Linear Ball Bearings – Double Wide

- 62 EP-W



M Simplicity Pillow Blocks

- 63 Closed  
PM
- 64 Open  
PMN



M Linear Ball Bearing Pillow Blocks

- 65 Closed  
EPPM
- Open  
EPPMN



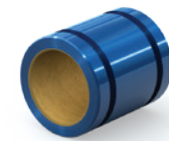
M Thin Wall Ball Bearings

- 66 KHP



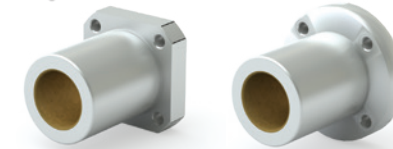
M Thin Wall Plain Bearings

- 67 FG & FMT



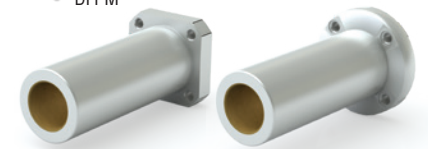
M Simplicity Flange Bearings – Single

- 69 Square Flange  
SFPM
- Round Flange  
SFPMR



M Simplicity Flange Bearings – Double

- 70 Square Flange  
DFPM
- Round Flange  
DFPMR



Email an Application Engineer

# Contents

**I** Inch Series

**M** ISO Metric Series

**J** JIS Metric Series

**M** Simplicity Flange Bearings – Center Flange

- 71** Square Flange CFPM
- Round Flange CFPMR



**M** Linear Ball Bearings – Single

- 72** Square Flange EPK
- 73** Round Flange EPF



**M** Linear Ball Bearings – Double

- 74** Square Flange EPK-W
- 75** Round Flange EPF-W



**M** Linear Ball Bearings – Center Flange

- 76** Square Flange EPKC
- 77** Round Flange EPFC



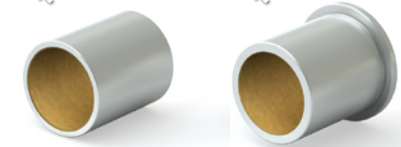
**M** Die Set Bushings

- 78** PACM



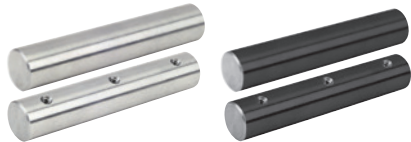
**M** Simplicity Sleeve Bearings

- 79** PSM
- 80** With Flange PSFM



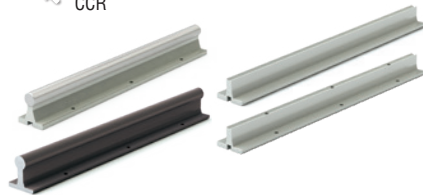
**M** Simplicity® 60 Plus® Shafting

- 82** RC60 Steel, Stainless Steel, NIM & NIMxxSS
- 83** Predrilled Shafts, Ceramic Coated, CCM & CCMDL



**M** Support Rails & Assemblies

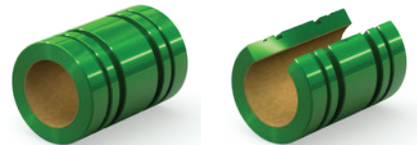
- 84** Aluminum SRA, Ceramic Coated, CCR
- Aluminum SR & SRxxPD



**J** JIS METRIC SERIES

**J** Simplicity Linear Plain Bearings

- 86** Closed FJ
- Open FJN



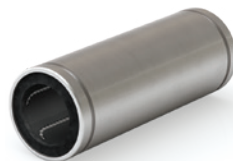
**J** Linear Precision Ball Bearings

- 88** Closed JP
- Adjustable JPxx-AJ
- Open JPxx-OP



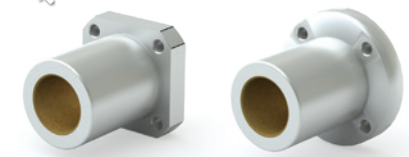
**J** Linear Ball Bearings – Double Wide

- 89** JP-W



**J** Simplicity Flange Bearings – Single

- 90** Square Flange SFPJ
- Round Flange SFPJR





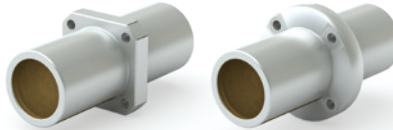
J Simplicity Flange Bearings – Double

- 91 Square Flange DFPJ
- Round Flange DFPJR



J Simplicity Flange Bearings – Center Flange

- 92 Square Flange CFPJ
- Round Flange CFPJR



J Linear Ball Bearings – Single

- 93 Square Flange JPK
- 94 Round Flange JPF



J Linear Ball Bearings – Double

- 95 Square Flange JPK-W
- 96 Round Flange JPF-W



J Linear Ball Bearings – Center Flange

- 97 Square Flange JPKC
- 98 Round Flange JPFC



**INCH SERIES PLAIN BEARING & BALL BEARING LINEAR SLIDES**

Ordering information found on product pages

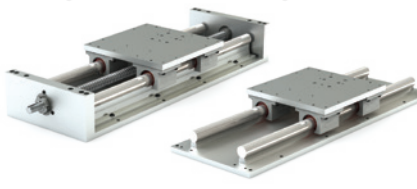
I Simplicity Linear Slides

- 106 RS
- 108 Plate Supported RPS



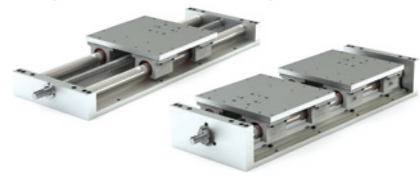
I Simplicity Linear Slides

- 112 Ball Screw Driven 2RPS
- 114 Low Profile LRPS



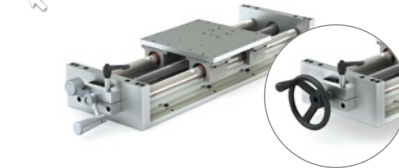
I Simplicity Linear Slides

- 116 Low Profile 2LRPS
- 118 Self Centering SC2RPS



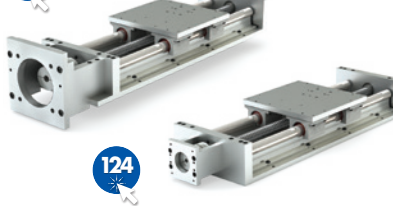
I Simplicity Linear Slides

- 120 Hand Crank 2HCR
- Hand Wheel 2HWL



I Simplicity Linear Slides

- 122 NEMA Drive Kit 2Nxx



**TECHNICAL INFORMATION**

**Simplicity Linear Plain Bearings**

- P129 - Ratings for Plain Bearings
- P130 - Types & Effects of Lubrication
- P131 - Load Capacity
- P132 - Wear Rate

P133 - Coefficient of Friction

P134 - Cantilevered Loads

P136 - Shaft Deflection

P138 - Installation

P142 - Chemical Reaction Chart

**Linear Ball Bearings**

P144 - Load Ratings

P145 - Rating Life

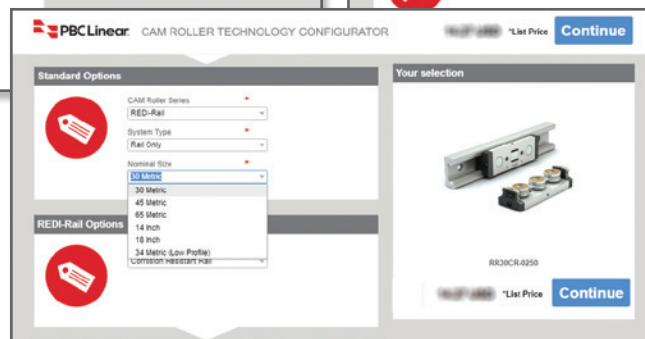
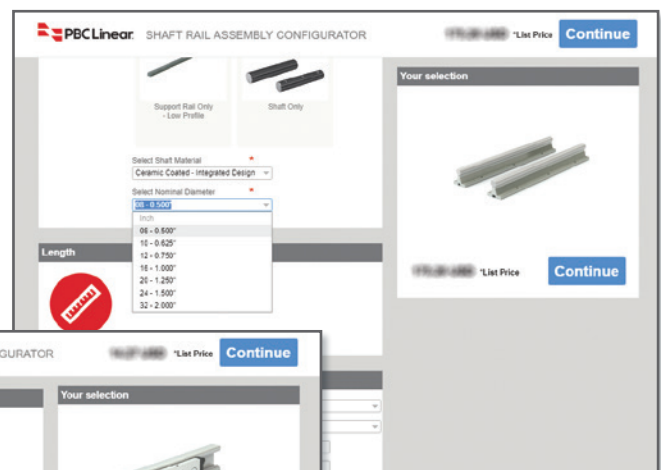
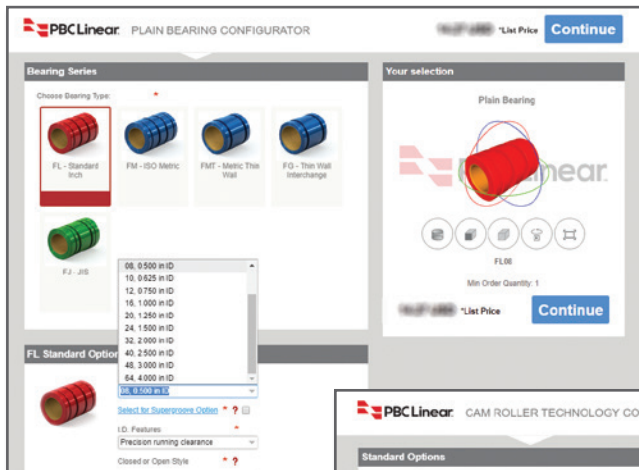
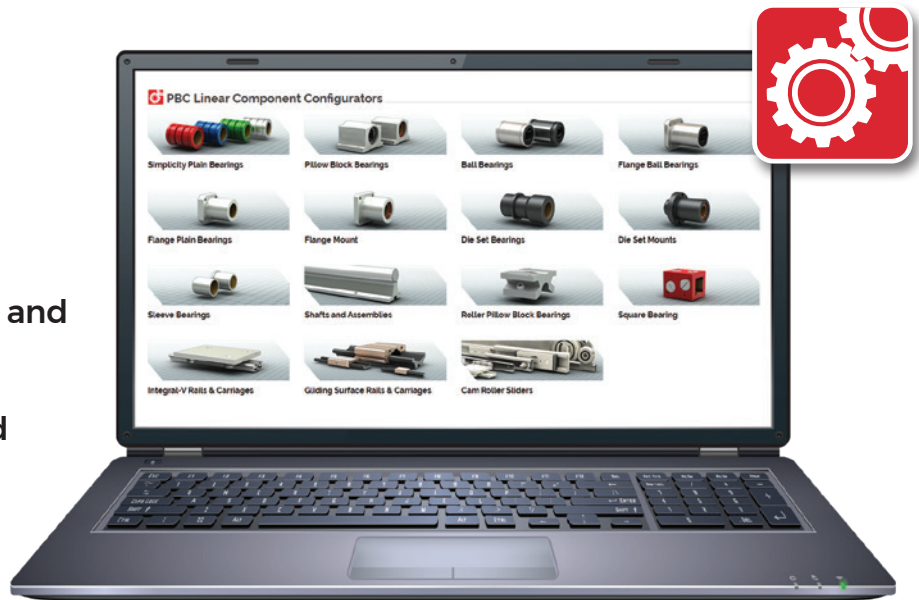
P146 - Clearance & Mounting

# Check Out PBC Linear Configurators

Shafting • Roller Pillow Block • Support Rail Assembly

The PBC Linear configuration tools allow you to customize and configure linear components to exact specifications.

- Simple steps to configure and select product offerings
- Custom CAD file delivered in minutes
- Custom quote generated quickly and easily
- Visit [pblinear.com/Configure-Price-Quote](http://pblinear.com/Configure-Price-Quote) and start designing!





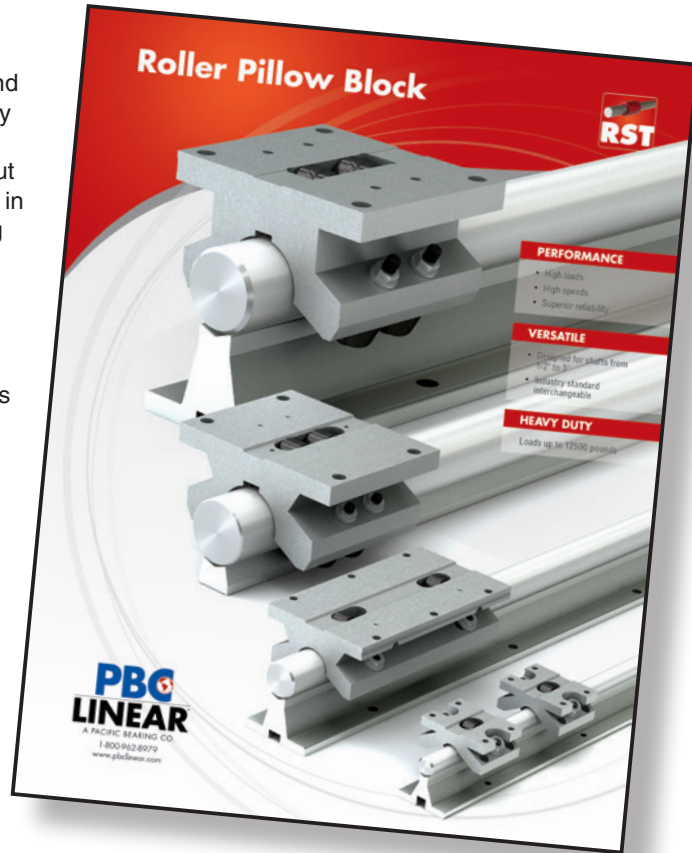
# Roller Pillow Block Bearings for Shaft Systems

## Roller Pillow Block

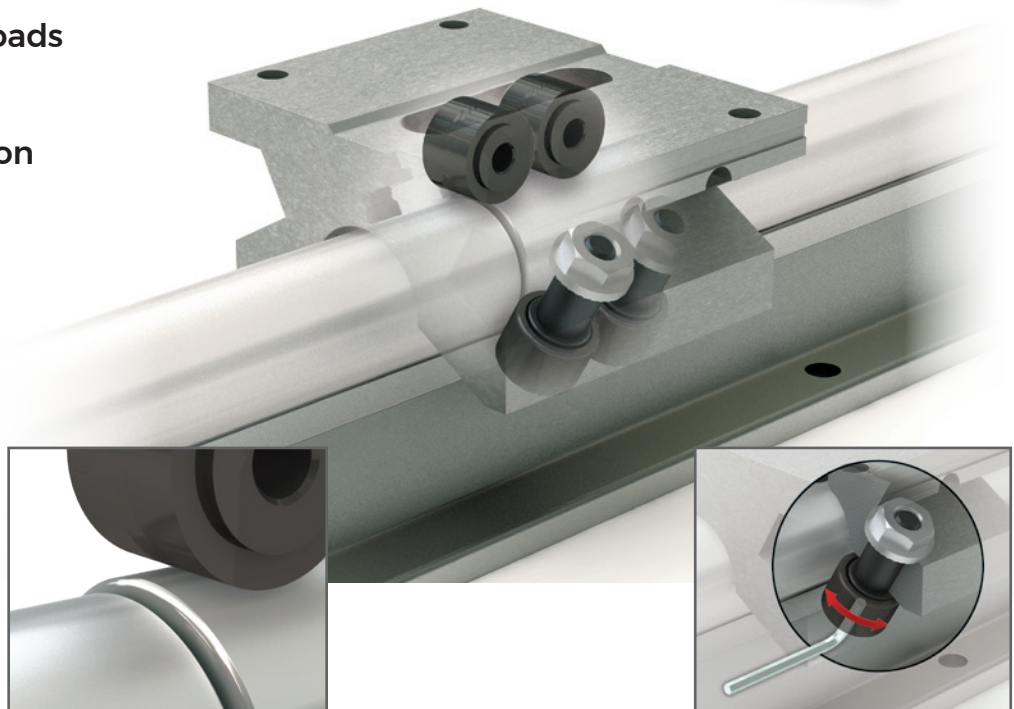
The Roller Pillow Block provides key performance benefits such as high load capacities, high speeds, and design compatibility—providing size interchangeability with industry standard blocks. In contaminated environments, the roller bearings push particulates out of the way or roll seamlessly over them. Large rollers in the Roller Pillow Block system are well suited for long travel applications, minimizing vibration and providing smooth and quiet travel over joined shafts.

The Roller Pillow Block solution is available for shaft diameters from 0.5" – 3.0" and in three standard configurations—single, double, and twin. This provides dynamic load ratings ranging from 800 to 12500 pounds, a low coefficient of friction, and high speed capabilities.

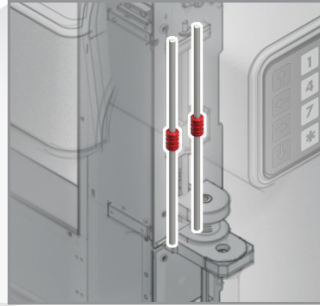
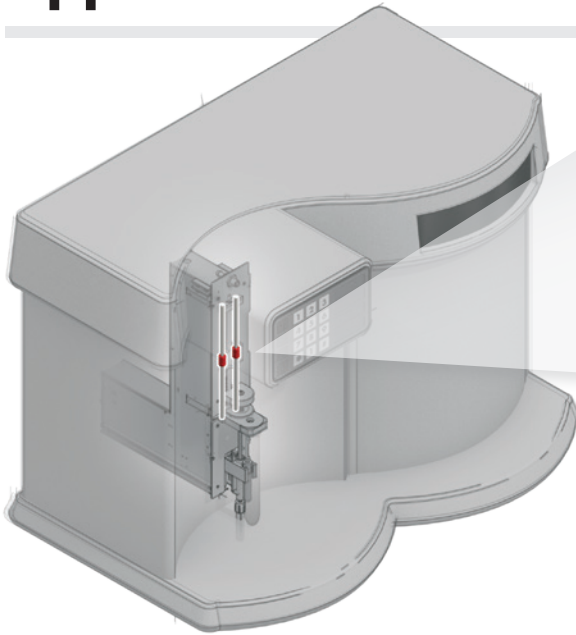
The Roller Pillow Block system is well suited for a wide range of applications, including material handling, transfer lines, welding equipment, architectural and structural doors, and much more.



- Superior for joined rail applications
- Designed for high loads and/or speeds
- Simplified installation and alignment
- Visit [pbclinear.com](http://pbclinear.com) to see the catalog or configure a product solution with the configurator

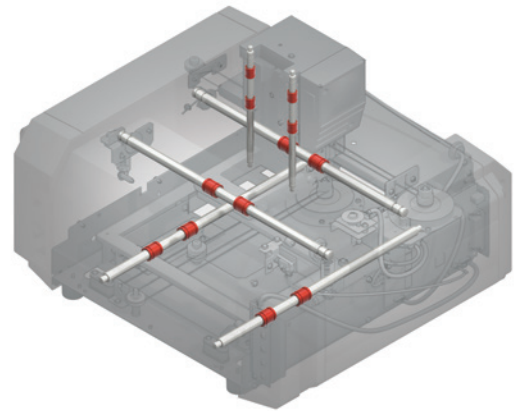


# Applications

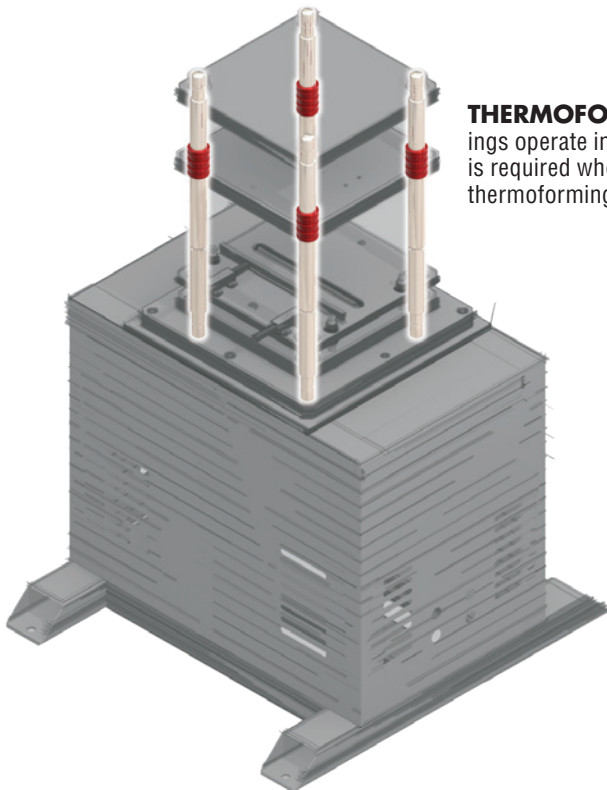


**LAB EQUIPMENT:** This blood analyzer utilizes Simplicity® plain bearings because they are self-lubricating and do not require additional grease, which can cause contamination.

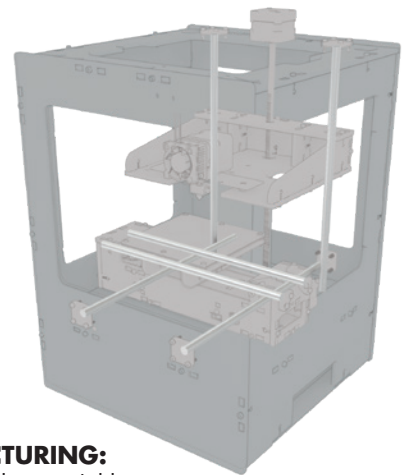
**PRINTING:** Commercial printers, 3D printers, laser printers, and deskjets all require smooth, precise, and quiet linear motion, which Simplicity linear plain bearings provide.



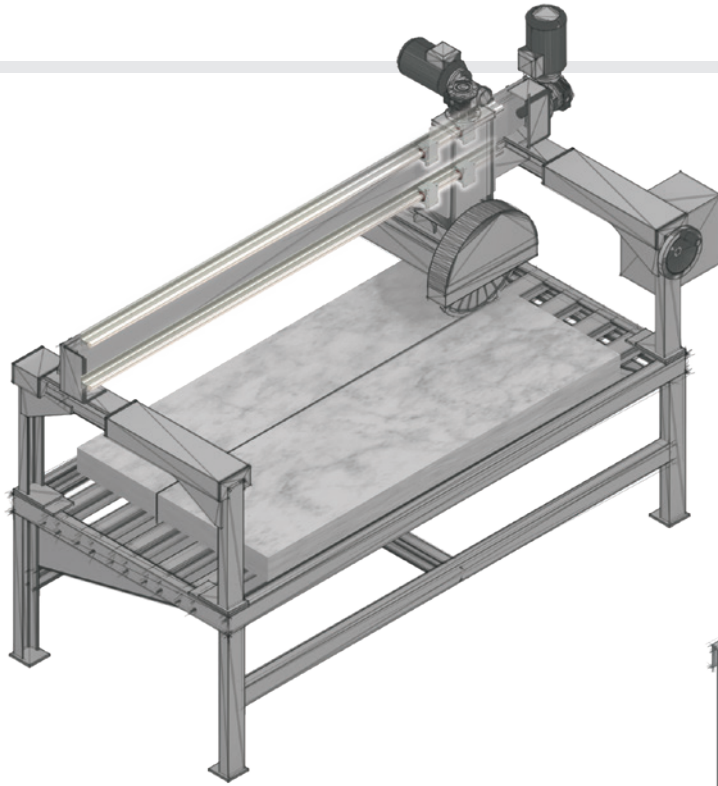
**THERMOFORMING:** Simplicity linear plain bearings operate in a wide range of temperatures, which is required when molding heated plastic sheeting in thermoforming machines.



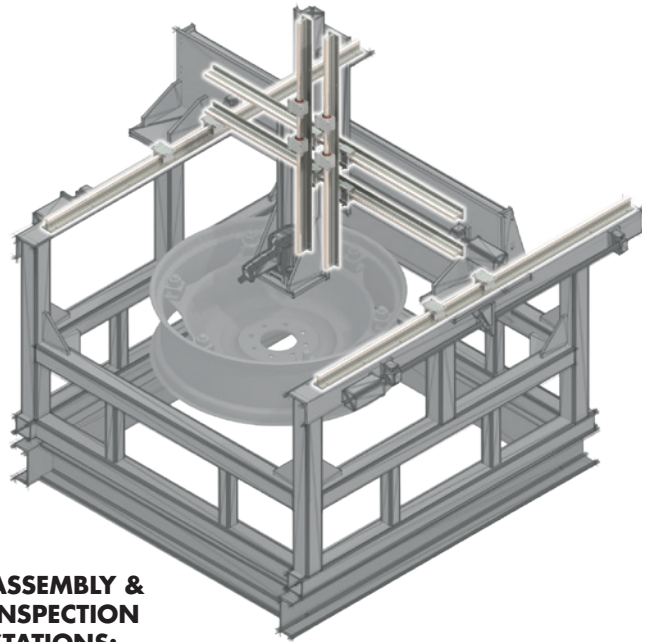
**ADDITIVE MANUFACTURING:** 3D printers require smooth, repeatable linear motion, which is achieved with Frelon®-lined linear plain bearings.







**STONE SAWS & HEAVY DUTY CUTTERS:** Simplicity® linear plain bearings are self lubricating and excel in dirty or contaminated environments such as saws and cutters.

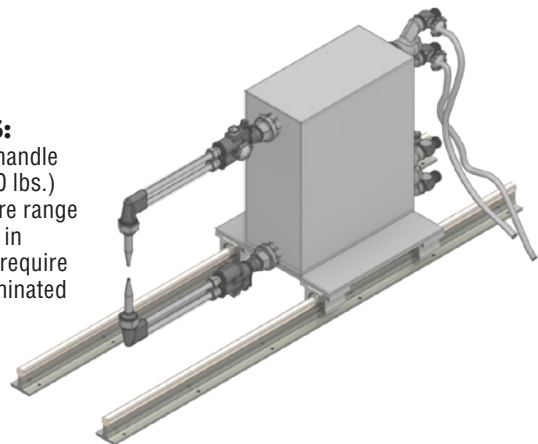


**ASSEMBLY & INSPECTION STATIONS:** Round Shaft Technology utilizes precision round shafting as a guideway and combines linear plain or ball bearings for movement – providing a low maintenance solution in assembly stations.

**SEAT ADJUSTMENT & SHOCK ABSORPTION:** Not all applications are easily accessible for maintenance or repair, including tough military vehicle seating. This is one reason Simplicity plain bearings, with Frelon® self-lubricating liner, is the best choice. Simplicity provides long-lasting linear motion that will not catastrophically fail.



**WELDING MACHINES:** Simplicity linear bearings handle loads over 700 kN (157,000 lbs.) and have a high temperature range (up to 204°C). As required in welding applications, they require low maintenance in contaminated environments.



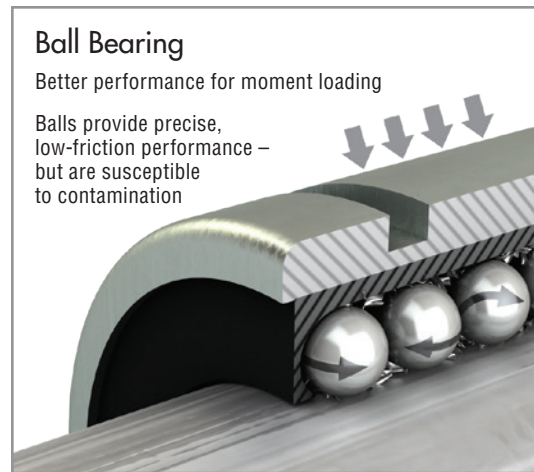
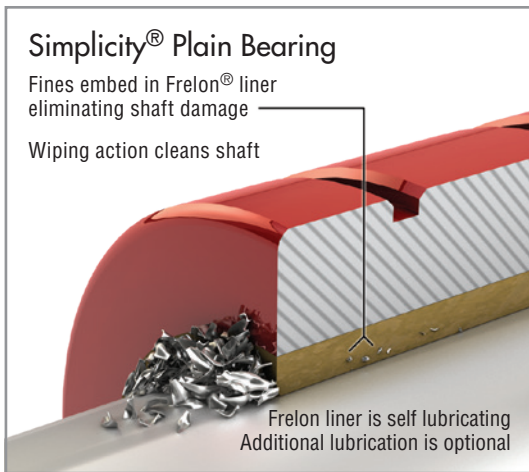
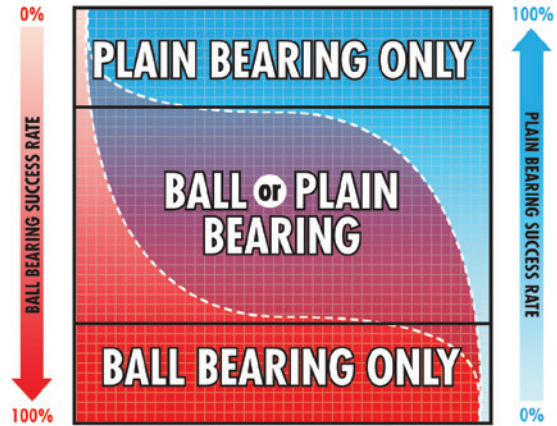
# Product Overview

## Linear Plain & Ball Bearings




Good engineering principles dictate that the best bearing design be utilized for any given bearing application. Each type of bearing has advantages and disadvantages. Strengths or limitations can make it a clear choice depending on the application environment. At other times, an engineer will have a choice because multiple types of bearings can meet the need.

In 1983, PBC Linear® created the self-lubricating Simplicity® linear bearing – a technology that solves problems in dirt, vibration, shock loading, cleanrooms, welding, foundry, and washdown situations where linear ball bearings regularly fail.

Today, PBC Linear provides a full range of linear motion solutions for both plain bearing and ball bearing applications – giving engineers the versatility to choose the right bearing for the application. Chart to the right here is intended to help guide in that decision making process.



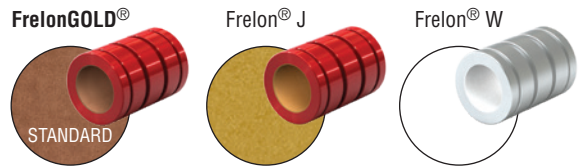
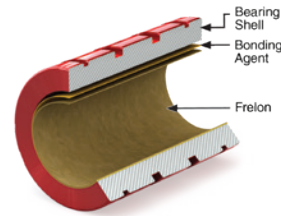
PERFORMANCE

| BEARING TYPE   | LOAD  | MOMENT LOADS   | LINEAR SPEED   | COEFFICIENT OF FRICTION  | PRECISION   | ENVIRONMENT   |
|--|---|--|--|--|---|---|
| <br>Plain | Up to 20x ball bearings                                 | Limited due to 2:1 ratio<br><br><a href="#">Link to 2:1 Ratio</a> | Up to 300 sfm (1.524 m/sec) dry running<br>Up to 825 sfm (4.19 m/sec) with lubrication | FrelonGOLD® = .125<br>Consistent over life and in a variety of environments    | Precision running clearance = .0005" (.0127 mm) per side              | Excels in contaminated, wet, dry, and clean room applications |
| <br>Ball  | Limited due to point-to-point contact of balls to shaft | Moderate to good<br>High moment loads can cause increased wear and shorten bearing life  | Up to 3 m/sec (590 sfm)<br>Always requires lubrication                                 | Average = .05<br>Can change dramatically dependent on environmental conditions | Can be preloaded, virtually eliminating play<br>This can shorten life | Will corrode and fail in contamination                        |

# Performance Benefits Simplicity® Plain Bearings

## Frelon® + Precision Bearing Technology = Simplicity®

- The Frelon liner is bonded to the bearing shell at the molecular level, which transfers the load and dissipates heat buildup throughout the bearing
- Will not rust or corrode due to anodized aluminum or 316 stainless steel shell
- Patented self-aligning capabilities are standard
- Provides both linear, oscillating, rotary, or any combination of motions
- Maintenance free operation
- Smooth and quiet operation – plus long life
- Highly accurate – all critical surfaces are ground on precision bearing grinders
- Will not catastrophically fail or damage shaft

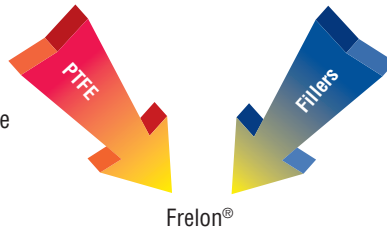


## Frelon Bearing Liner Materials

The Frelon liners are compounds of PTFE and fillers developed for improved performance over other bearings. They provide low wear, low friction, self-lubrication, and high strength.

### PTFE FEATURES:

- Self-lubricating (runs without added lubricant)
- Embeddability of hard particulate
- Wide temperature range (-400°F to +400°F) (-240°C to +204°C)
- Chemically inert
- Vibration damping (no metal-to-metal contact)



- FrelonGOLD® – dark gold high performance material compatible with RC60 hardened steel shafting, RC70 ceramic coated, and 440 stainless steel shafting.
- Frelon J – yellow material formulated to provide the optimum performance with 300 series stainless steel and softer shafting such as bare aluminum.
- Frelon W – white color, food-grade liner, FDA compliant, compatible with stainless steel and softer metal shafting.
- PBC Linear's unique bonding process facilitates the ability to provide solutions for applications with a range of additional bearing liner materials. Contact PBC Linear to discuss your specific application.

### FILLER BENEFITS:

- High load capacity
- High strength
- Low wear rate vs. other materials



Email an Application Engineer

## Simplicity® 60 Plus® Shafting

PBC Linear's development team, working in close conjunction with engineers from Lee Linear®, have together formulated a linear shaft designed specifically for optimal bearing performance – *Simplicity 60 Plus Shafting*. Advanced process capabilities maintain the ideal surface finish resulting in the longest life and highest performing shaft-to-bearing combination.

Don't be misled—all shafting is not alike! Don't settle for below average performance. The smoothest shafting is NOT always the best for all situations. **In most applications, smoother does not equal better; in fact, it means decreased performance and shortened life.** A shaft surface finish of 8-12 Ra is the optimal smoothness for linear plain and ball bearings.

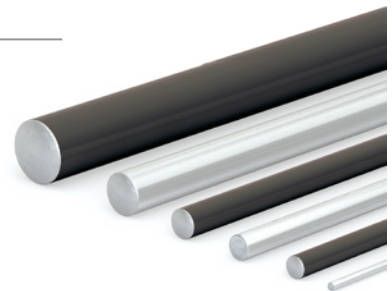
**Simplicity 60 Plus Shafting provides maximum linear bearing performance and the following features:**

- Optimized shaft surface finish for plain bearings
- Customizable length and machined features via the configurator with no minimum quantities
- Faster Made in the USA



**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

[Inch Series—page 44](#) [Metric Series—page 81](#)





# Plain Bearings Simplicity®

## Running Clearance

Simplicity bearings are available with two classes of running clearance:

### PRECISION—"FL":

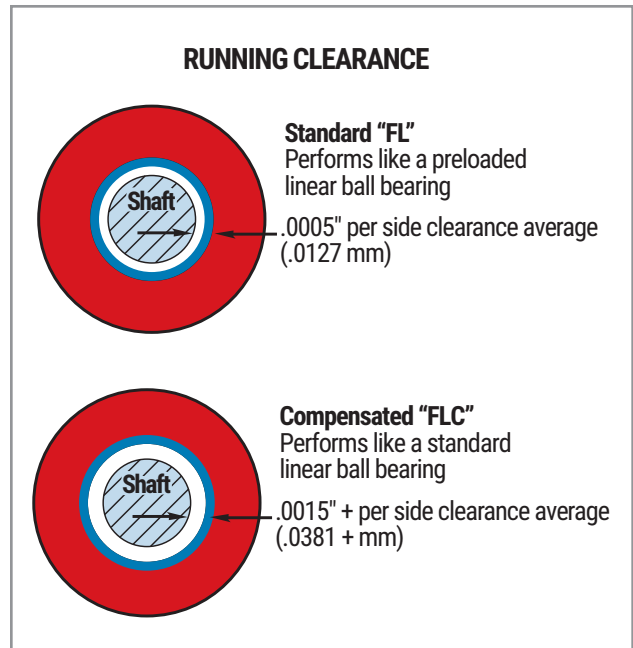
- Performs like a preloaded ball bearing
- Tightest running clearance approximately .001" (.025 mm)
- Used in applications that require high precision

**CAUTION** *Not recommended for all parallel shaft applications. Any misalignment can cause binding on the shaft. Recommend: Compensated—"FLC" (see below).*

### COMPENSATED—"FLC":

- Performs like a standard ball bearing
- Additional clearance built into the I.D.—all other dimensions are the same as the precision bearings
- Ideally suited for parallel shaft applications

**Note:** Many parallel shaft applications will run "FL" precision on one rail and "FLC" compensation on the opposite rail to accommodate slight misalignments.



## Bearing Shell

Simplicity bearings are available in a variety of configurations to help meet specific application needs:

- Standard is aluminum alloy with anodized finish
- 316 stainless steel (no plating)

### MATERIALS:

**Aluminum Alloy** – Is a heat treated and artificially aged aluminum with good strength and corrosion resistance.

**316 Stainless Steel** – Has an excellent corrosion resistance and is widely used by the paper, food, and other industries.

### FINISHES:

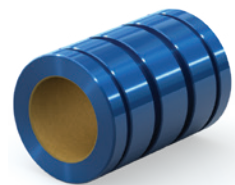
**Standard Anodized** – A sulfuric bath anodizing with a nickel acetate seal that will stand up to 14 days exposure in a 5% salt spray solution at 96°F. It is applied at a .0002" thickness.



### Standard



Inch Series

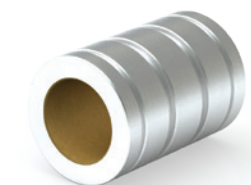


ISO Metric Series



JIS Metric Series

### Optional



316 Stainless Steel

PERFORMANCE

[Link to the Simplicity Video](#)

[More Information about Simplicity's Chemical Resistance](#)



**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

[Inch Series—page 44](#) [Metric Series—page 81](#)

# Plain Bearings Simplicity®

## Self-Alignment Feature

Simplicity bearings are available with a standard straight O.D. or a crowned self-aligning O.D.

### FL – (Standard):

- Straight O.D.
- Standard pillow blocks have the self-aligning capability designed into the block using standard “FL” bearings for the final assembly

### FLA – (Self-aligning O.D.):

- Has a crown on the O.D. allowing the bearing to re-align itself in binding situations
- Specifically designed to easily retrofit straight bore housings
- The bearing will allow 1/2° of misalignment capability from centerline (1° overall)
- O-rings are used on either side of the crown to cushion and eliminate clatter in operation

## Pillow Blocks

- Made of aluminum alloy
- Pillow blocks are interchangeable with industry standard ball bearing pillow blocks
- Critical centerline dimensions hold accuracy within  $\pm .001$ " on inch sizes and  $\pm .015$  mm on metric sizes

### FINISHES:

- Clear anodized finish (Standard)

### Standard pillow blocks have built-in self-alignment in all directions:

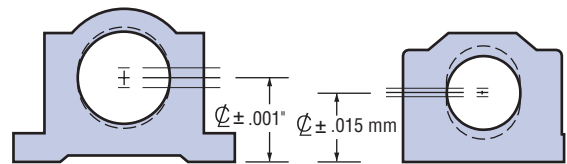
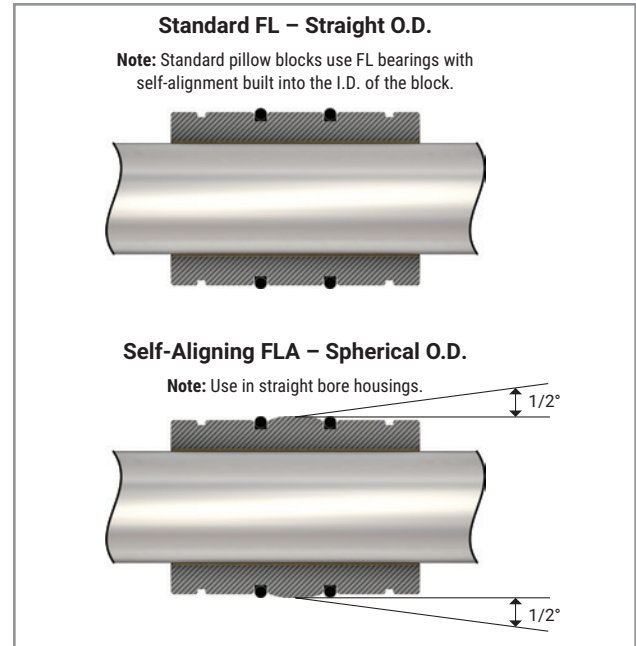
- Standard pillow blocks have 1/2° misalignment from centerline
- This feature is built into the housing with a spherical radius at the midpoint of the block
- This self-aligning capability will allow for some shaft deflection and misalignment

### Rigid or straight bore housings are available:

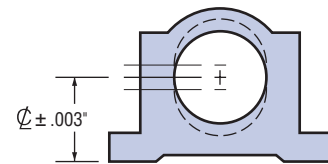
- This does not allow for any self-alignment and provides a very rigid assembly
- They are typically used in single shaft applications

## Open Bearings Orientation

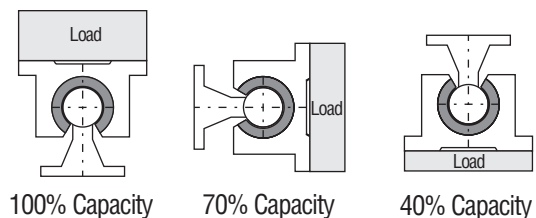
Simplicity bearings can operate in any orientation. Load capacities will vary on open bearings depending on the orientation in which they are being used.



**SIMPLICITY = TIGHTER TOLERANCES**



**INDUSTRY STANDARD**



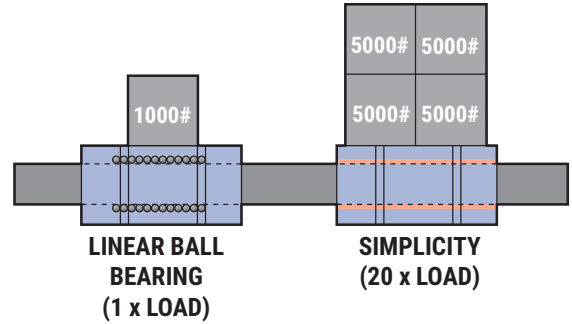
# Plain Bearings Simplicity®

## Load Capacity Of Liner

Simplicity bearings can carry from 4 to 20 times the load of a linear ball bearing.

| BEARING MATERIAL      | STATIC LOAD CAPACITY                   |
|-----------------------|--|
| FrelonGOLD®           | 3000 psi or 210.9 kgf/cm <sup>2</sup>  |
| Frelon® J / Frelon® W | 1500 psi or 105.45 kgf/cm <sup>2</sup> |

- Allows the engineer to maintain performance in a smaller designed package  
**Example:** Simplicity 1/2" I.D. = 1" I.D. linear ball bearing
- Shock loads and vibration are absorbed
- Metal-to-metal contact is eliminated providing a smoother, quieter running assembly

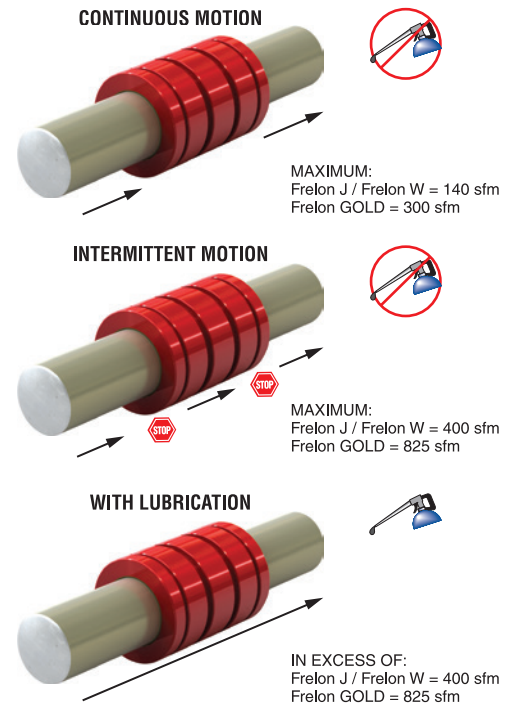


## Speed Characteristics

Exceeding these speeds causes frictional heat and accelerates liner wear.

| BEARING MATERIAL      | NO LUBE CONTINUOUS MOTION | NO LUBE INTERMITTENT MOTION | WITH LUBRICATION* |
|-----------------------|---------------------------|-----------------------------|-------------------|
| FrelonGOLD®           | 300 sfm                   | 825 sfm                     | 825 sfm           |
|                       | 60 in./sec.               | 165 in./sec.                | 165 in./sec.      |
|                       | 1.524 m/sec.              | 4.19 m/sec.                 | 4.19 m/sec.       |
| Frelon® J / Frelon® W | 140 sfm                   | 400 sfm                     | 400 sfm           |
|                       | 28 in./sec.               | 80 in./sec.                 | 80 in./sec.       |
|                       | .711 m/sec.               | 2.03 m/sec.                 | 2.03 m/sec.       |

\*Depending on the lubrication used, loads, and frequency of continuous or intermittent motion, speeds can be in excess of the numbers shown.



## Performance Ratings (for Linear Motion)

Plain bearings are rated by their limiting PV, which is a combination of load over a given surface area and the velocity.

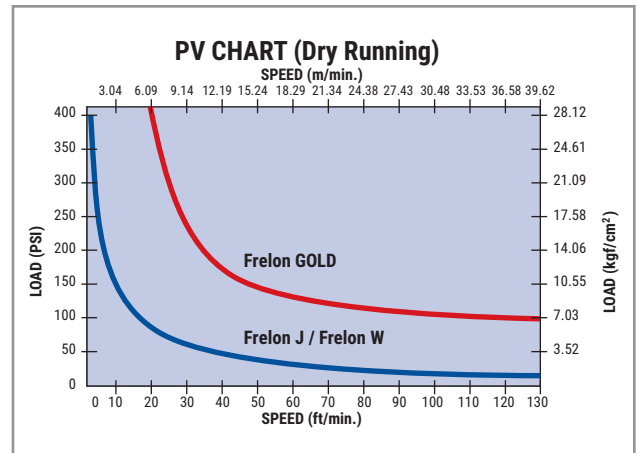
| BEARING MATERIAL      | MAX. "PV"                          | MAX. "P"                   | MAX. "V" (NO LUBRICATION) |
|-----------------------|------------------------------------|----------------------------|---------------------------|
| FrelonGOLD®           | 20000 (psi x ft./min.)             | 3000 psi                   | 300 sfm                   |
|                       | 430 (kgf/cm <sup>2</sup> x m/min.) | 210.9 kgf/cm <sup>2</sup>  | 91.44 m/min.              |
| Frelon® J / Frelon® W | 10000 (psi x ft./min.)             | 1500 psi                   | 140 sfm                   |
|                       | 215 (kgf/cm <sup>2</sup> x m/min.) | 105.45 kgf/cm <sup>2</sup> | 42.66 m/min.              |

PV = The performance measurement of plain bearings

PV = P x V where P = pressure (load) in psi (kgf/cm<sup>2</sup>)

V = velocity (speed) in sfm (m/min.)

**Note:** All three parameters must be met by an application for the bearing to perform properly.



PERFORMANCE



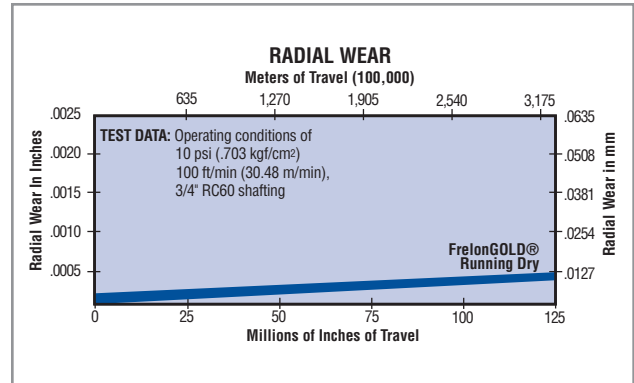
# Plain Bearings Simplicity®

## Wear Rate/Life Expectancy

The life expectancy of a Simplicity bearing is dependent on application parameters:

- Shaft hardness, surface finish, and preparation
- Length of travel
- Temperature
- Contamination
- Running clearance
- Lubrication
- Speed

The Radial Wear chart gives a guideline for a typical application at 10 psi (.703 kgf/cm<sup>2</sup>) traveling at 100 ft./min. (30.48 m/min.).



## Factors Affecting Wear Rate/Life

Shafting requirements for Frelon® bearing materials include:

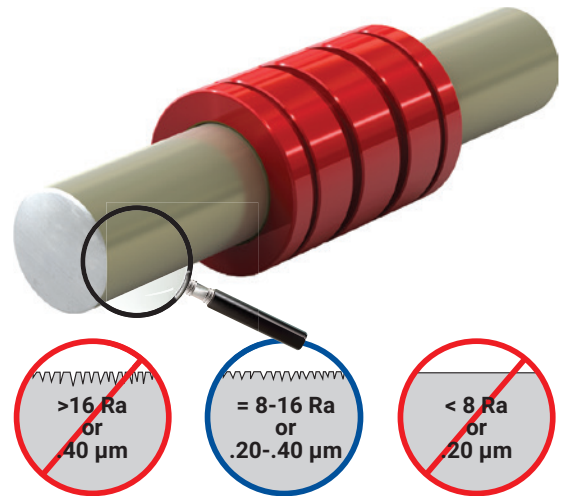
### BEST PERFORMANCE:

- Finish of 8–12 Ra
- Hardness of RC 60

### ACCEPTABLE PERFORMANCE:

- Finish of 8–16 Ra
- Hardness of RC 35
- Surface finish requirements apply to all Frelon bearing materials
- Rougher shafting can be used, but both bearing and shafting will wear at accelerated rates and binding may occur

**Note:** Consult factory if using chrome plated shafting that is polished to < 8 Ra.

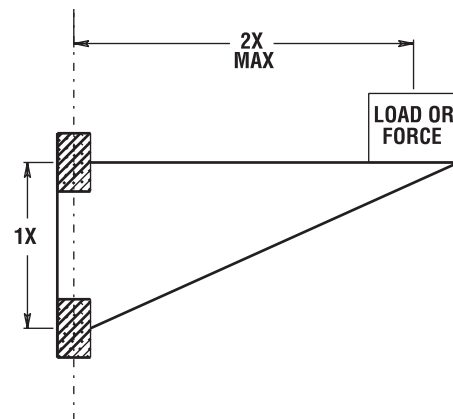


## Cantilevered Loads

- Maximum 2:1 ratio
- 1x = bearing separation on same shaft
- 2x = distance from shaft to load or force

**Example:** If 2x equals 10" then 1x must be at least 5"

**CAUTION** Binding will occur if the 2:1 ratio is exceeded.



PERFORMANCE

# Plain Bearings Simplicity®

## Transfer Process Of Liner To Shaft

The interaction of the Frelon® material and the shafting creates a natural, microscopic transfer of the Frelon to the running surface. A thin film is deposited on the shaft, and the valleys in the surface finish are filled in with Frelon material during the initial break-in period. This transfer creates the self-lubricating condition of Frelon riding on Frelon.

This break-in period varies depending on several criteria:

1. Preparation of the shafting prior to installation – it is best to clean the shafting with a 3-in-1 type oil before installing the bearings. This ensures that the surface will receive a full transfer of material.
2. Speed, load, and length of stroke specific to the application – typically the initial transfer process will take approximately 50-100 strokes of continuous operation. The running clearance on the bearing will increase an average of .0002" to .0005", depending on the length of the stroke and surface requiring the transfer.
3. How often the shafting is cleaned – if the shafting is cleaned regularly, increased wear will be seen in the bearings. This is due to the transfer process being performed over and over again.

**CAUTION** Do not repeatedly clean the shafting with alcohol. This will remove the previously transferred material entirely and increase the wear to the bearing liner.

**CAUTION** Do not use smooth chrome shafting with Frelon bearings. The surface finish is less than 8 Ra and does not maintain proper transfer of Frelon material. This will result in accelerated wear.

## Lubrication

- Reduce friction up to 50%
- Minimize wear of liner
- Reduce heat buildup allowing greater speeds – actual speeds achieved are dependent on type of lubricant and frequency of application
- Aid in cleaning the shafting for a proper transfer process. – a minimum of initial lubrication of Simplicity bearings is strongly recommended

## Chemical Resistance

Simplicity bearings stand up to harsh environments and provide excellent performance in a submerged condition.

**FrelonGOLD®** – the fillers in the material can be attacked by deionized water and other harsh chemicals

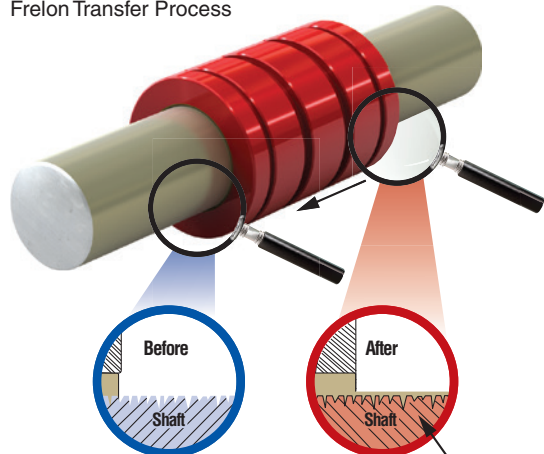
**Frelon J** – almost universal chemical inertness: Only molten sodium and flourine at elevated temperatures and pressures show any signs of attack

**Frelon W** – A white colored food-grade liner that is FDA compliant

**Anodized Aluminum Shell (Standard)** – good chemical resistance in most industrial applications

**316 Stainless Steel Shell (Optional)** – excellent chemical and corrosion resistance in harsh environments

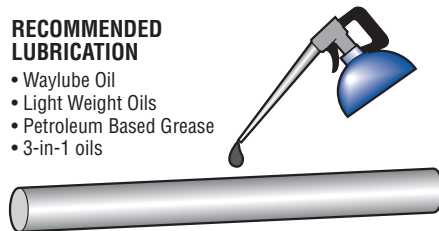
Frelon Transfer Process



At break-in, Frelon deposits a microscopic film on the shaft and fills the valleys in the surface finish creating a Frelon-on-Frelon running condition that is true self-lubrication.

## RECOMMENDED LUBRICATION

- Waylube Oil
- Light Weight Oils
- Petroleum Based Grease
- 3-in-1 oils



## NOT RECOMMENDED

- WD-40
- PTFE Sprays
- Fluorocarbons
- Silicon Oils, Grease or Spray

WD40® is a registered trademark of the WD40 company



[More Information about Simplicity's Chemical Resistance](#)

# Plain Bearings Simplicity®

## Temperature

Simplicity bearings can operate in a wide range of temperatures (-400°F to +400°F) (-240°C to +204°C). Depending on the materials housed in the pillow block and the size of bearing

- Maintains the same performance characteristics
- The thin liner allows heat to dissipate through the bearing shell

## Thermal Expansion

The standard bearing I.D. options are designed for use in most industrial applications.

For temperatures below 0°F, the standard I.D. is recommended (FL series).

For extreme high temperatures, the Compensated I.D. bearing is recommended (FLC) for the increased running clearance.



*It is always best to inspect actual size at extreme temperatures to ensure proper running clearance.*

## Rotary Applications

Simplicity bearings will operate very well in rotary applications if applied properly.

Stationary rotary applications do not allow the heat to be spread over an extended area. It is retained in the I.D. of the bearing limiting speed and load.

- MAX rotary speed (No lube/continuous motion)
- 40 sfm (12.2 m/min.) for standard precision I.D. clearances
- 140 sfm (42.6 m/min.) for compensated I.D. clearances

$$V(\text{sfm}) = .262 \times d \times \text{RPM}$$

d = shaft diameter (inches)  
RPM = revolutions per minute

- Properly maintained lubrication can increase these speeds dramatically



*It is always best to do specific testing for rotary applications above these limits where lubrication is to be used.*

## Vacuums/Outgassing/Cleanrooms

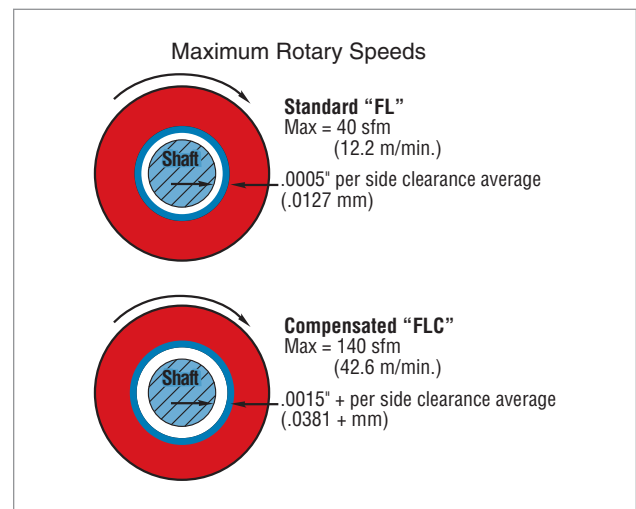
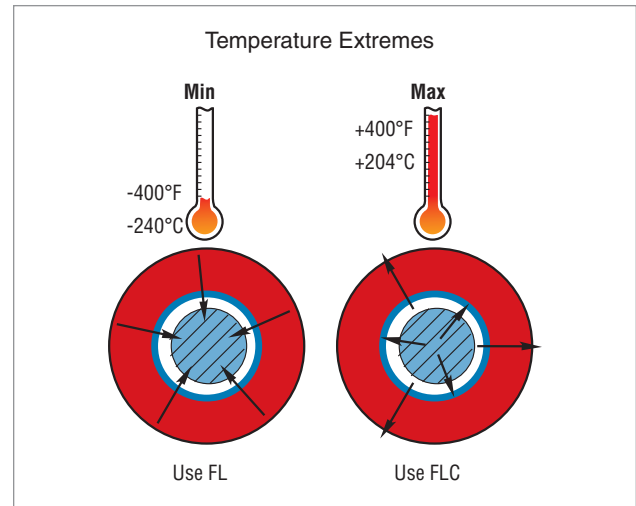
Due to self-lubrication, low outgassing, and a minimum of particulate (buildup), Simplicity bearings are excellent in clean rooms and vacuums.

Testing has been done on the Frelon® materials in accordance with ASTM E-595-90 with acceptable maximums of 1.00% TML and .10% CVCM.

| MATERIAL    | %TML | %CVCM |
|-------------|------|-------|
| FrelonGOLD® | 0.00 | 0.00  |
| Frelon J    | 0.18 | 0.01  |

TML = Total Mass Loss

CVCM = Collected Volatile Condensable Materials



## Submerged Applications

Simplicity bearings will provide excellent performance in a submerged condition.

The bearings will employ the fluid as a lubricant showing increased velocities and wear life. Oils and non-salt water are especially effective.

**Note:** Please contact factory before specifying FrelonGOLD for submerged applications.



# Plain Bearings Simplicity®

## O-Rings

Used in standard pillow blocks and with self-aligning bearings.

**Nitrile Buna 70 (standard)** – A good general purpose rubber that is used in 98% of applications (-65°F to 275°F (-54°C to 135°C)).

**Viton (special – designate with “V”)** – Used only in high temperature applications up to 400°F (up to 204°C).



## Seals

Use only in the most contaminated environments.

**Polymod® (standard)** – A high performance polymer modified material that reduces friction of a standard buna material by 50% and increases wear life.

Polymod is a registered trademark of Polymod Technologies, Inc.

**Temperature:** -20°F to +212°F

**Urethane (special - designate with “U”)** – A moly-impregnated urethane scraper that is only for the severest applications - friction is greatly increased!

**Temperature:** -40 to +200°F

**Viton™ (special - designate with “V”)** – A brand of synthetic rubber and fluoropolymer elastomer used only in high temperature applications.

**Temperature:** Up to +400°F

**Attention:** 90% of applications do not require seals when using Simplicity bearings. The liner has a natural ability to wipe particles from the shafting. Any particulate (metal, sand, etc.) that does enter the bearing will embed itself into the soft liner not scoring the shafting or locking mechanical parts.

When ordering a bearing with any internal features (seals or internal lubrication), the bearing may or may not be shipped with extra internal grooves in addition to those needed for the ordered option. Low volume orders are more likely to have additional grooves. The extra grooves will not negatively impact the performance of the bearing.

Also, internal grooves are typically an anodized surface; however, in the interest of the quickest possible delivery, the internal grooves may not be anodized.

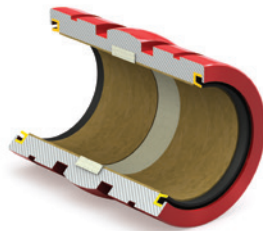
## Lubrication System

Order with “JKM” modifier

**Lubrication system includes:**

**Felt wick** – Retains oil lubricants (remove when using grease lubrication). Wicks are glued in place on open bearings while they just sit in place on closed bearings.

**Zerk fitting** – Installed into pillow block, other housing, or directly into die sets PAC, PACM. (Standard lube fitting with 1/4-28 thread)



## Bearing Alignment

Linear ball bearings will continue to operate in a misaligned condition, but can cause damage to the shafting and catastrophically fail.

Simplicity bearings DO NOT tolerate misalignment. They simply stop moving without any damage to the shafting. Self-aligning housings aid in misalignment – up to 1/2° from centerline.

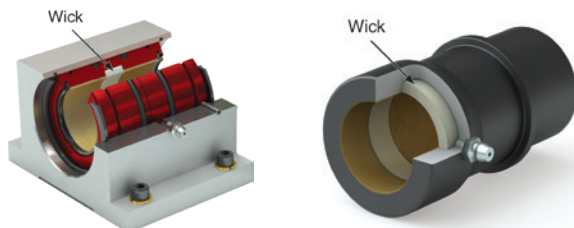
**Note:** Please refer to the tables in the installation section for possible solutions to misalignment.



[Misalignment Considerations—page 141](#)

PERFORMANCE

### ZERK FITTING IN HOUSING



# Plain Bearings Accessories

## Retaining Rings (External)

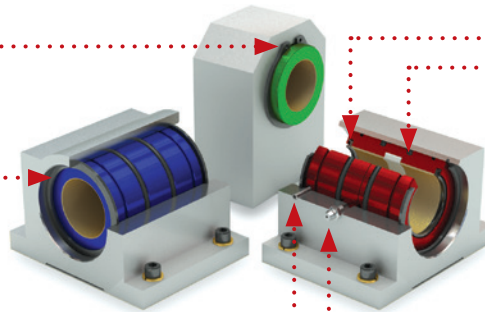
| FL SERIES | PART NO. |
|-----------|----------|
| FL03      | 6010001  |
| FL04      | 6010002  |
| FL06      | 6010003  |
| FL08      | 6010004  |
| FL10      | 6010005  |
| FL12      | 6010006  |
| FL16      | 6010007  |
| FL20      | 6010008  |
| FL24      | 6010009  |
| FL32      | 6010010  |
| FL40      | 6010011  |
| FL48      | 6010012  |
| FL64      | 6010013  |
| FM SERIES | PART NO. |
| FM05      | 6010014  |
| FM08      | 6010015  |
| FM10      | 6010016  |
| FM12      | 6010017  |
| FM16      | 6010018  |
| FM20      | 6010019  |
| FM25      | 6010020  |
| FM30      | 6010021  |
| FM40      | 6010022  |
| FM50      | 6010023  |
| FM60      | 6010024  |
| FM80      | 6010025  |

## Seals

| FL SERIES    | PART NO. |         |          |
|--------------|----------|---------|----------|
|              | POLYMOD  | VITON   | URETHANE |
| FL08         | 6030001  | 6030009 | 6030017  |
| FL10         | 6030002  | 6030010 | 6030018  |
| FL12         | 6030003  | 6030011 | 6030019  |
| FL16         | 6030004  | 6030012 | 6030020  |
| FL20         | 6030005  | 6030013 | 6030021  |
| FL24         | 6030006  | 6030014 | 6030022  |
| FL32         | 6030007  | 6030015 | 6030023  |
| FL40         | 6030008  | 6030016 | 6030024  |
| FL48         | N/A      | N/A     | 6030025  |
| FL64         | N/A      | N/A     | 6030026  |
| FM/FJ SERIES | PART NO. |         |          |
| FM20/FJ20    | N/A      | N/A     | 6030027  |
| FM25/FJ25    | N/A      | N/A     | 6030028  |
| FM30/FJ30    | N/A      | N/A     | 6030029  |
| FJ35         | N/A      | N/A     | 6030030  |
| FJ38         | N/A      | N/A     | 6030030  |
| FM40/FJ40    | N/A      | N/A     | 6030031  |
| FM50/FJ50    | N/A      | N/A     | 6030032  |
| FM60/FJ60    | N/A      | N/A     | 6030033  |
| FM80/FJ80    | N/A      | N/A     | 6030034  |
| FJ100        | N/A      | N/A     | 6030052  |
| FJ120        | N/A      | N/A     | 6030053  |

## O-Rings

| FL SERIES    | PART NO.        |         |
|--------------|-----------------|---------|
|              | NITRILE BUNA 70 | VITON   |
| FL04         | 6000001         | N/A     |
| FL06         | 6000002         | 6000037 |
| FL08         | 6000003         | 6000038 |
| FL10         | 6000004         | 6000039 |
| FL12         | 6000005         | 6000040 |
| FL16         | 6000006         | 6000041 |
| FL20         | 6000007         | 6000042 |
| FL24         | 6000008         | 6000043 |
| FL32         | 6000009         | 6000044 |
| FL40         | 6000010         | 6000045 |
| FL48         | 6000011         | 6000046 |
| FL64         | 6000012         | 6000047 |
| FM/FJ SERIES | PART NO.        |         |
| FM05         | 6000013         | N/A     |
| FM08         | 6000014         | N/A     |
| FM10         | 6000015         | N/A     |
| FM12         | 6000016         | N/A     |
| FM16         | 6000017         | N/A     |
| FM20         | 6000018         | N/A     |
| FM25         | 6000019         | N/A     |
| FM30         | 6000020         | N/A     |
| FM40         | 6000021         | N/A     |
| FM50         | 6000022         | N/A     |
| FM60         | 6000023         | N/A     |
| FM80         | 6000024         | N/A     |



## Retaining Rings (Internal)

| *INCH OPEN | PART NO. |                 | *METRIC OPEN | PART NO. |                  |
|------------|----------|-----------------|--------------|----------|------------------|
|            | STEEL    | STAINLESS STEEL |              | STEEL    | *STAINLESS STEEL |
| PN08       | 6010035  | 6010064         | PMN12        | 6010044  | N/A              |
| PN10       | 6010036  | 6010066         | PMN16        | 6010045  | 6010107          |
| PN12       | 6010037  | 6010068         | PMN20        | 6010046  | N/A              |
| PN16       | 6010038  | 6010070         | PMN25        | 6010047  | N/A              |
| PN20       | 6010039  | 6010072         | PMN30        | 6010048  | 6010083          |
| PN24       | 6010040  | 6010074         | PMN40        | 6010049  | N/A              |
| PN32       | 6010041  | 6010076         | PMN50        | 6010050  | N/A              |
| CLOSED     | PART NO. |                 | CLOSED       | PART NO. |                  |
| P04        | 6010026  | 6010052         | PM08         | 6010042  | N/A              |
| P06        | 6010027  | 6010053         | PM10         | 6010043  | N/A              |
| P08        | 6010028  | 6010054         | PM12         | 6010044  | N/A              |
| P10        | 6010029  | 6010055         | PM16         | 6010045  | 6010107          |
| P12        | 6010030  | 6010056         | PM20         | 6010046  | N/A              |
| P16        | 6010031  | 6010057         | PM25         | 6010047  | N/A              |
| P20        | 6010032  | 6010058         | PM30         | 6010048  | 6010083          |
| P24        | 6010033  | 6010059         | PM40         | 6010049  | N/A              |
| P32        | 6010034  | 6010060         | PM50         | 6010050  | N/A              |

## Zerk Fittings

| INCH              | PART NO. |
|-------------------|----------|
| 1/4-28" Steel     | 6050002  |
| 1/4-28" Stainless | 6050003  |
| METRIC            | PART NO. |
| M8 x 1.0 Steel    | 6050001  |

## Roll Pin

| INCH OPEN   | PART NO. |
|-------------|----------|
| PN08        | 6060001  |
| PN10        | 6060002  |
| PN12        | 6060003  |
| PN16        | 6060004  |
| PN20        | 6060005  |
| PN24        | 6060006  |
| PN32        | 6060007  |
| METRIC OPEN | PART NO. |
| PMN12       | 6060010  |
| PMN16       | 6060009  |
| PMN20       | 6060009  |
| PMN25       | 6060010  |
| PMN30       | 6060010  |
| PMN40       | 6060012  |
| PMN50       | 6060012  |

\* Stainless steel rings for open bearings are trimmed/cut prior to shipping.

# Ordering Information Plain Bearings

## Plain Bearings



Configure Online

### Series

- FL** - Standard Inch Series
- FLR** - Supergroove Interchange  
Available only with **FL06, 08, 12, 16**
- FM** - ISO Metric Series
- FMT** - Compact ISO Metric Thin Wall Series
- FG** - "FAG™" Thin Wall Interchange
- FJ** - JIS Standard Series
- PS** - Inch Series Sleeve Bearings
- PSF** - Inch Series Flange Bearings
- PSM** - ISO Metric Series Sleeve Bearings
- PSFM** - ISO Metric Series Flange Bearings

### O.D. Features

- No Entry** - Standard straight O.D. bearing
- A** - Crowned "self-aligning" O.D. bearing (closed only)  
Available only on **FL, FM, FJ** series

### I.D. Features

- No Entry** - Standard precision running clearance on the I.D.
- C** - Compensated running clearance on the I.D.  
Does NOT apply to **PS, PSF, PSM, PSFM**

### Closed or Open Style

- No Entry** - Standard closed bearing
- N** - Open series bearing (not available in **FLA, FMA, and FJA**)  
Available only on **FL, FM, FJ** series

### Bearing Shell Material

- Available ONLY on the **FL, FM, FMT, FG, FJ** series
- No Entry** - Standard aluminum alloy
- \*S** - 316 Stainless Steel  
\*Made to order. No finish plating or anodize available.

### Nominal Shaft Diameter

- English units in 16ths of an inch
- Metric units in mm



### Seal Options

- D** - Double seals of standard Polymod® material
- DU** - Double seals of moly impregnated urethane material
- DV** - Double seals of viton - high temperature material
- D, DU, and DV seals available with **FL08-FL32**
- DU seals available with **FM20-FM80, FJ20-FJ120**

### Bearing Liner Material

- No Entry** - Standard Frelon GOLD® liner for hardened steel, ceramic coated, and 440 stainless steel shafting
- \*E** - Frelon J® liner for soft shafting (aluminum, 300 series stainless steel, etc.)  
\* Limited availability may require special quote
- W** - Food grade liner (contact PBC Linear before ordering)

### Internal Lubrication

- No Entry** - Standard bearing - No lube system
- JKM** - Thru hole, and internal felt wick to help lubrication retention and flow.  
JKM available with **FL08-FL64, FM12-FM80, FJ20-FJ150**

### Special Modifications

- No Entry** - Standard Options
- Q** - Shipped Oil Free  
(contact PBC Linear before ordering)



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

ORDERING

The data and specifications in this publication have been carefully compiled and are believed to be accurate and correct. However, it is the responsibility of the user to determine and ensure the suitability of PBC Linear® products for a specific application. PBC Linear's only obligation will be to repair or replace without charge, any defective components if returned promptly. No liability is assumed beyond such replacement. Specifications are subject to change without notice. Consult [www.pbclinear.com](http://www.pbclinear.com) for the latest technical updates.



# Ordering Information Plain Bearings

## Plain Bearings With Housings



Configure  
Online

### Series

- P** - Standard Inch Pillow Blocks (FL)
- PW** - Inch Twin Pillow Blocks (FL)
- PM** - ISO Metric Pillow Blocks (FM)
- SFP** - Inch Single Flange Mounts (FL)
- DFP** - Inch Double Flange Mounts (FL)
- SDSZ** - Single Flange Mount Die Set (FLA)
- DDSZ** - Double Flange Mount Die Set (FLA)
- PACZ** - Inch Die Set Bearings
- PACMZ** - ISO Metric Die Set Bearings
- SFPM** - ISO Metric Single Flange Bearings
- DFPM** - ISO Metric Double Flange Bearings
- CFPM** - ISO Metric Double Center Flange Bearings
- SFPJ** - JIS Metric Single Flange Bearings
- DFPJ** - JIS Metric Double Flange Bearings
- CFPJ** - JIS Metric Double Center Flange Bearings

**Note:** Standard Simplicity® bearings are installed in housings.

Metric flange bearings do not have bearing inserts

### Closed or Open Style

- No Entry** - Standard Closed Series
- N** - Open Series

Available only on **P, PW, PM** series

### Housing I.D. Features

- No Entry** - Standard spherical "self-aligning" I.D. in the housing. (Uses standard straight O.D. bearings.)
- B** - Straight I.D. housing. (For rigid fit use standard bearing. For self-alignment use FLA bearings.)

Available only on **P, PW, PM, SFP, DFP, SDS, DDS** series

- No Entry** - Standard Square Flange
- R** - Round Flange

Available only on **SFPM, DFPM, CFPM, SFPJ, DFPJ, CFPJ** series

### Housings Only

- No Entry** - Housings with bearing included
- E** - Empty Housings with NO bearing included

### Material

- Z** - Aluminum, Available only on **PAC/PACM** Diesets

**Note:** Steel no longer offered

- S** - SST Pillow Blocks (use **FLA BRG, PB, Retainer**)

### Nominal Shaft Diameter

English units in 16ths of an inch  
Metric units in mm



### Bearing I.D. Features

- No Entry** - Standard Precision running clearance on the I.D.
- C** - Compensated running clearance on the I.D.

### Seal Options

- D** - Double seals of standard Polymod® material
- DU** - Double seals of moly impregnated urethane material
- DV** - Double seals of viton - high temperature material
- PAC** and **PACM** available only as:
- S** - Single seals of standard Polymod® material
- SU** - Single seals of moly impregnated urethane material
- SV** - Single seals of viton - high temperature material

### Bearing Liner Material

- No Entry** - Standard Frelon GOLD® liner for hardened steel or ceramic coated aluminum
- \*E** - Special Frelon J® liner for soft shafting (aluminum, 300 series stainless steel, etc.)
- \* Limited availability may require special quote
- W** - Food grade liner (contact PBC Linear before ordering)

### Internal Lubrication

- No Entry** - Standard pillowblock assembly with no lubrication system
- JKM** - Thru holes and internal felt wick to help lubrication retention and flow 1/4-28 Zerk
- Note:** Zerk fitting installed into pillow block, other housing, or directly into die sets **PAC** & **PACM**.

### Special Modifications

- No Entry** - Standard Options
- Q** - Shipped Oil Free (contact PBC Linear before ordering)



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

This catalog and part numbering system is designed to represent all possibilities which may not be standard parts. These are options only—combinations could lead to unavailable parts. Contact PBC Linear at 800-962-8979 for information.

# Ball Bearings Overview

## Product Overview

### High Precision and Rigidity

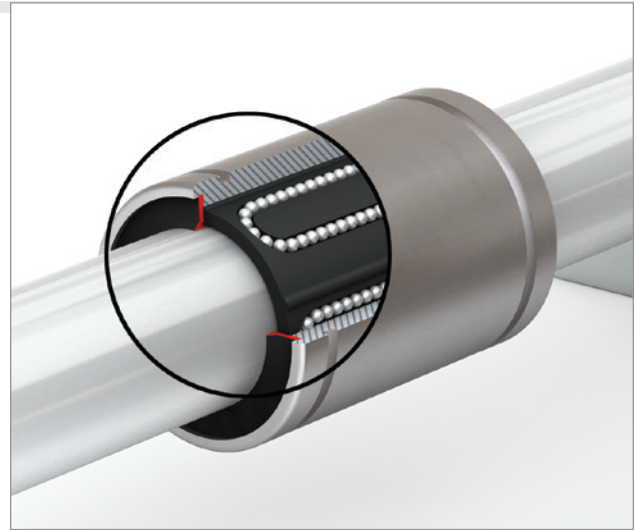
The Simplicity® ball bearing is produced from a solid steel outer cylinder and incorporates an industrial strength polymer retainer.

### Ease of Assembly

The standard type of linear ball bearing can be loaded from any direction. Precision control is possible using only the shaft supporter, and the mounting surface can be machined easily.

### Ease of Replacement

Linear ball bearings of each type are completely interchangeable because of their standardized dimensions and strict precision control. Replacement because of wear or damage is therefore easy and accurate.



### Materials

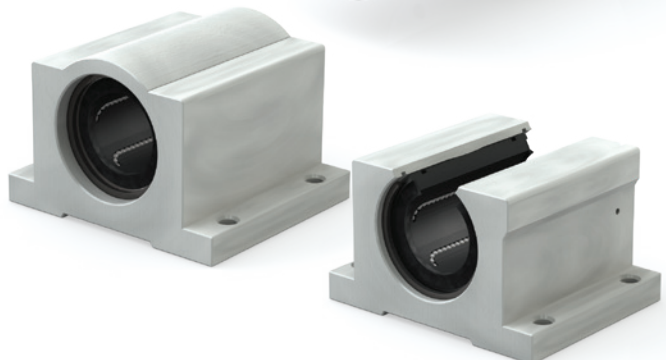
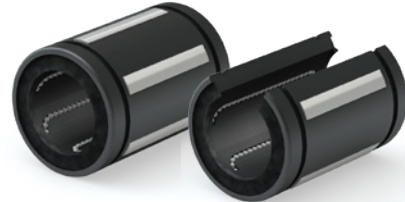
Ball bearings consist of an outer cylinder, ball retainer, balls, double seals, and two end rings. The ball retainer which holds the balls in the recirculating tracks is held inside the outer cylinder by end rings.

- Parts are assembled to optimize their required functions.
- The outer shell is heat treated to ensure long life.
- The ball retainer is molded from a durable polymer to ensure smooth and quiet motion.
- Double seals are standard.

### Variety of Types

PBC offers a full line of ball bearings that include:

- Inch, ISO Metric, and JIS Metric sizes
- Self-aligning super ball bearings in Inch sizes
- Double wide in Inch, ISO Metric, and JIS Metric sizes
- Square and round flange in ISO Metric and JIS Metric sizes
- Double wide square and round flange in ISO Metric and JIS Metric sizes
- Double wide with center flange location in ISO Metric and JIS Metric sizes
- Pillow blocks, open and closed, in Inch and ISO Metric
- Double wide pillow blocks in Inch sizes



PERFORMANCE



**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

[Inch Series—page 44](#) [Metric Series—page 81](#)

# Ball Bearings Overview

Simplicity® linear ball bearings are available in a variety of configurations designed to meet a range of application needs.

## Bearings – IP, EP, and JP Series (Inch, ISO, and JIS Metric)

- Solid steel outer shell

## Pillow Blocks – IPP and EPP (Inch and ISO Metric)

- Aluminum housing with bearing insert
- Industrial strength polymer ball retainer
- End rings with integrated seals standard
- Used in standard PBC pillow blocks that supply 1/2° self-alignment in all directions
- Excellent rigidity while providing smooth, quiet operation

## IPS and EPS Series

- Outer shell is of high strength polymer
- Ball bearing raceway inserts are hardened steel
- Inserts allow smooth ball rotation while maintaining even preload with the shaft or inner race
- Inserts provide 1/2° self-alignment in all directions when used in a straight bore pillow block or housing
- Provide increased load capacity and life in a lightweight design

## Flanged Bearings – EP, and JP Series (ISO, and JIS Metric)

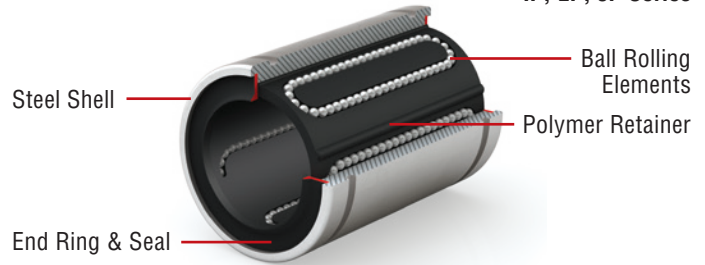
- Solid steel outer shell
- Industrial strength polymer ball retainer
- End rings with integrated seals standard
- Excellent rigidity while providing smooth, quiet operation

## Self-Aligning Pillow Blocks

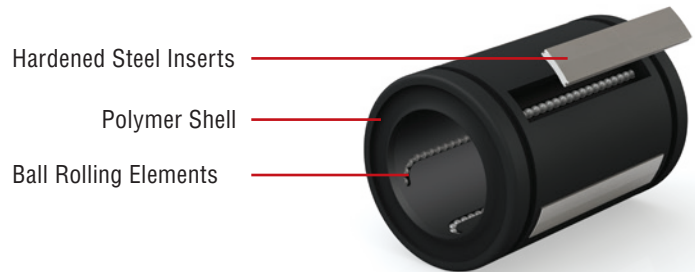
Pillow blocks combine linear ball bearings with PBC's self-aligning pillow block to compensate for misalignment or shaft deflection in the application

- Straight OD bearings are used in standard PBC pillow blocks that supply 1/2° self-alignment in all directions
- Straight bore pillow blocks are also available for applications which demand more rigidity
- PBC Linear's bearings are size interchangeable with industry standard ball bearings and with Simplicity plain bearings

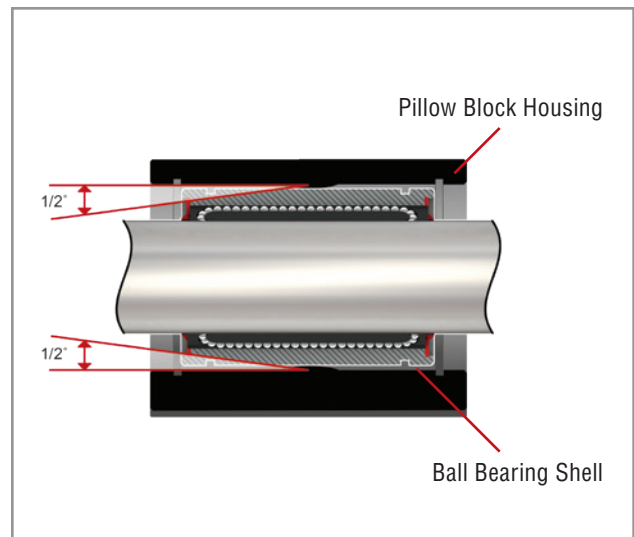
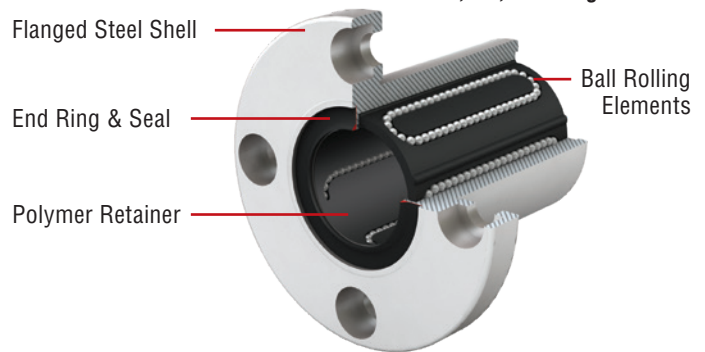
### IP, EP, JP Series



### IPS Series



### IP, EP, JP Flanged Series








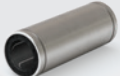




# Ball Bearings Selection Guide

**I** Inch Series

**M** ISO Metric Series

**J** JIS Metric Series

PERFORMANCE

| SIZES                            | PRODUCT TYPE & DESCRIPTION   |   | AVAILABLE IN: |        |      | FOUND ON PAGE |           |           |
|----------------------------------|--|---|---------------|--------|------|---------------|-----------|-----------|
|                                  |  |   | OPEN          | CLOSED | WIDE | <b>I</b>      | <b>M</b>  | <b>J</b>  |
| <b>I</b><br><b>M</b><br><b>J</b> | <b>PRECISION</b><br>  | Materials: steel with polymer retainer  | ●             | ●      |      | <b>28</b>     | <b>60</b> | <b>88</b> |
|                                  |  | Each ball bearing consists of an outer cylinder, ball retainer, balls, and two double seals.  |               |        |      |               |           |           |
| <b>I</b><br><b>M</b>             | <b>PILLOW BLOCKS</b><br>  | Materials: aluminum housing with clear anodized coating, inner steel, and polymer bearing   | ●             | ●      |      | <b>34</b>     | <b>64</b> |           |
|                                  |  | Size interchangeable, industry standard pillow block housing.   |               |        |      |               |           |           |
| <b>I</b>                         | <b>PILLOW BLOCKS – DOUBLE WIDE</b><br>  | Materials: aluminum housing with clear anodized coating, inner steel, and polymer bearing   | ●             | ●      | ●    | <b>35</b>     |           |           |
| <b>I</b>                         | <b>PRECISION PLUS SELF-ALIGNING</b><br>   | Materials: steel and polymer  | ●             | ●      |      | <b>29</b>     | <b>60</b> |           |
|                                  | Interchangeable with industry standard super-type ball bearings. Inserts provide 1/2° self-alignment in all directions when used in a straight bore pillow block or housing. |   |               |        |      |               |           |           |
| <b>M</b>                         | <b>THIN WALL</b><br>   | Materials: steel with polymer retainer  |               | ●      |      |               | <b>66</b> |           |
| <b>I</b><br><b>M</b><br><b>J</b> | <b>DOUBLE WIDE</b><br>  | Materials: steel with polymer retainer  |               | ●      | ●    | <b>30</b>     | <b>62</b> | <b>89</b> |
|                                  |  | Extended length ball bearings consisting of steel outer cylinder, ball retainer, balls, and two double seals.   |               |        |      |               |           |           |
| <b>M</b><br><b>J</b>             | <b>FLANGE MOUNT</b><br>   | Materials: steel with polymer retainer  |               | ●      |      |               | <b>72</b> | <b>93</b> |
|                                  |  | Standard ball bearing with either a square or round flange.   |               |        |      |               |           |           |
| <b>M</b><br><b>J</b>             | <b>FLANGE MOUNT – DOUBLE WIDE</b><br>   | Materials: steel with polymer retainer  |               | ●      | ●    |               | <b>74</b> | <b>95</b> |
|                                  |  | Extended length standard ball bearing with either a square or round flange.   |               |        |      |               |           |           |
| <b>M</b><br><b>J</b>             | <b>FLANGE MOUNT – CENTER</b><br>  | Materials: aluminum alloy housing with clear anodized coating, inner bearing steel, and polymer retainer  |               | ●      |      |               | <b>76</b> | <b>97</b> |
|                                  |  | Extended length standard ball bearing with a center located square or round flange.   |               |        |      |               |           |           |
| <b>I</b>                         | <b>LINEAR SLIDE ASSEMBLIES</b><br>  | Materials: alloy steel, 440 stainless steel, or chrome plated shafts, aluminum support rails, standard self-aligning pillowblocks   |               |        |      | <b>100</b>    |           |           |
|                                  |  | Ball bearing slide assemblies. Standard components include: mounting plate, pillow block assemblies, steel shafts, and support rails. Options include shaft materials, lead screws, ball screws, hand cranks, and motors. |               |        |      |               |           |           |
| <b>I</b><br><b>M</b>             | <b>ROUND SHAFTING</b><br>   | Materials: hardened steel, 440 stainless steel  |               |        |      | <b>44</b>     | <b>81</b> |           |
|                                  |  | Cut to length, random lengths, machined, pre-drilled, or tapped. Shaft assemblies and support rails also available.   |               |        |      |               |           |           |



# Ordering Information Linear Ball Bearings

## Ball Bearings



Configure  
Online

### SERIES

- IP - Standard Inch Series
- IPS - Self-Aligning Inch Series
- EP - ISO Metric Series
- KHP - ISO Metric Thin Wall Series
- JP - JIS Metric Series

### Flange Type

- No Entry - No Flange
  - F - Round Flange
  - K - Square Flange
- Flange available only on EP, and JP series

### Center Flange Location

- No Entry - No Flange
  - C - Flange Center Mount
- Flange available only on EP, and JP series

### Nominal Shaft Diameter

English units in 16ths of an inch  
Metric units in mm



### Retainer Material

- G - Polymer cage
  - No Entry - Not available
- G available only on IP, EP, and JP series

### Width

- No Entry - Standard width
  - W - Double wide
- Available only on IP, EP, and JP series

### Modification

- No Entry - Standard closed
  - AJ - Adjustable
  - OP - Open
- IPS available only closed or open  
KHP available only closed

**Note:** Precision of inscribed circle diameters and outside diameters for the clearance adjustable type (...-AJ) and the open type (...-OP) indicates the value obtained before the corresponding type is subjected to cutting process.

## Ball Bearing Pillow Blocks



### Pillow Block Type

- IPP - Closed Inch Series
- IPPN - Open Inch Series
- IPPW - Twin Closed Inch Series
- IPAWN - Twin Open Inch Series
- EPPM - Closed ISO Metric Series
- EPPMN - Open ISO Metric Series

### Retainer Material

- G - Polymer cage

### Nominal Shaft Diameter

English units in 16ths of an inch  
Metric units in mm

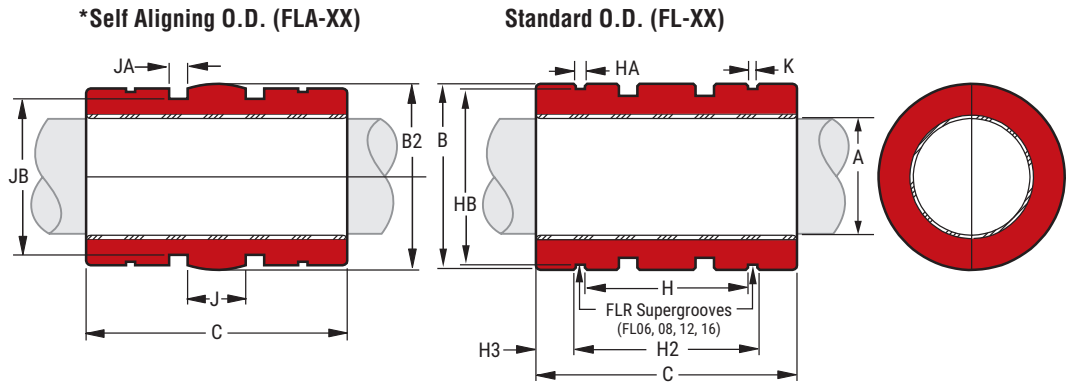
### Housing/Bearing Type

- B - Straight bore housing
- S - Self-aligning bearing and straight bore housing

ORDERING

# Simplicity® Linear Plain Bearings

INCH  
ISO METRIC  
JIS METRIC



\*Except for the O.D., bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are for use in a straight bore bearings.

## DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |        |                |        | COMPENSATED I.D. SERIES<br>ALLOWS ADDITIONAL RUNNING CLEARANCE |         |                |        | NOMINAL SIZE | B STANDARD O.D. |        |        | B2 SELF-ALIGNING FLA CROWN O.D. |        | C LENGTH |        | CON-CENTRIC MAX. | BEARING WEIGHT LBS. | K FLR RET. RING GRV. |
|--|--------|----------------|--------|--|---------|----------------|--------|--------------|-----------------|--------|--------|---------------------------------|--------|----------|--------|------------------|---------------------|----------------------|
| PART NO.   |        | A BEARING I.D. |        | PART NO.   |         | A BEARING I.D. |        |              | MIN.            | MAX.   | MIN.   | MAX.                            | MIN.   | MAX.     |        |                  |                     |                      |
| CLOSED   | OPEN   | MIN.           | MAX.   | CLOSED   | OPEN    | MIN.           | MAX.   | IN           | MIN.            | MAX.   | MIN.   | MAX.                            | MIN.   | MAX.     | MAX.   | LBS.             |                     |                      |
| FL 03  | N/A    | 0.1877         | 0.1884 | FLC 03   | N/A     | 0.1897         | 0.1904 | 3/16         | 0.3740          | 0.3750 | 0.3725 | 0.3735                          | 0.5470 | 0.5620   | 0.0010 | 0.0030           | N/A                 |                      |
| FL 04  | FLN 04 | 0.2502         | 0.2511 | FLC 04   | FLCN 04 | 0.2522         | 0.2531 | 1/4          | 0.4990          | 0.5000 | 0.4975 | 0.4985                          | 0.7350 | 0.7500   | 0.0010 | 0.0090           | N/A                 |                      |
| FL 06  | FLN 06 | 0.3752         | 0.3761 | FLC 06   | FLCN 06 | 0.3772         | 0.3781 | 3/8          | 0.6240          | 0.6250 | 0.6225 | 0.6235                          | 0.8600 | 0.8750   | 0.0010 | 0.0160           | 0.0720              |                      |
| FL 08  | FLN 08 | 0.5002         | 0.5013 | FLC 08   | FLCN 08 | 0.5022         | 0.5033 | 1/2          | 0.8740          | 0.8750 | 0.8725 | 0.8735                          | 1.2350 | 1.2500   | 0.0010 | 0.0410           | 0.0800              |                      |
| FL 10  | FLN 10 | 0.6252         | 0.6263 | FLC 10   | FLCN 10 | 0.6272         | 0.6283 | 5/8          | 1.1240          | 1.1250 | 1.1225 | 1.1235                          | 1.4850 | 1.5000   | 0.0010 | 0.0910           | N/A                 |                      |
| FL 12  | FLN 12 | 0.7503         | 0.7516 | FLC 12   | FLCN 12 | 0.7533         | 0.7546 | 3/4          | 1.2490          | 1.2500 | 1.2475 | 1.2485                          | 1.6100 | 1.6250   | 0.0010 | 0.1090           | 0.1710              |                      |
| FL 16  | FLN 16 | 1.0003         | 1.0016 | FLC 16   | FLCN 16 | 1.0033         | 1.0046 | 1            | 1.5613          | 1.5625 | 1.5599 | 1.5609                          | 2.2350 | 2.2500   | 0.0010 | 0.2280           | 0.1330              |                      |
| FL 20  | FLN 20 | 1.2504         | 1.2519 | FLC 20   | FLCN 20 | 1.2544         | 1.2559 | 1-1/4        | 1.9988          | 2.0000 | 1.9974 | 1.9984                          | 2.6100 | 2.6250   | 0.0010 | 0.4590           | N/A                 |                      |
| FL 24  | FLN 24 | 1.5004         | 1.5019 | FLC 24   | FLCN 24 | 1.5044         | 1.5059 | 1-1/2        | 2.3738          | 2.3750 | 2.3724 | 2.3734                          | 2.9850 | 3.0000   | 0.0010 | 0.7250           | N/A                 |                      |
| FL 32  | FLN 32 | 2.0004         | 2.0022 | FLC 32   | FLCN 32 | 2.0054         | 2.0072 | 2            | 2.9986          | 3.0000 | 2.9973 | 2.9983                          | 3.9850 | 4.0000   | 0.0010 | 1.4420           | N/A                 |                      |
| FL 40  | FLN 40 | 2.5004         | 2.5022 | FLC 40   | FLCN 40 | 2.5054         | 2.5072 | 2-1/2        | 3.7484          | 3.7500 | 3.7472 | 3.7482                          | 4.9850 | 5.0000   | 0.0013 | 2.8160           | N/A                 |                      |
| FL 48  | FLN 48 | 3.0004         | 3.0022 | FLC 48   | FLCN 48 | 3.0064         | 3.0082 | 3            | 4.4980          | 4.5000 | 4.4970 | 4.4980                          | 5.9850 | 6.0000   | 0.0015 | 4.9140           | N/A                 |                      |
| FL 64  | FLN 64 | 4.0005         | 4.0026 | FLC 64   | FLCN 64 | 4.0065         | 4.0086 | 4            | 5.9980          | 6.0000 | 5.9970 | 5.9980                          | 7.9850 | 8.0000   | 0.0020 | 11.8360          | N/A                 |                      |

## MOUNTING DIMENSIONS

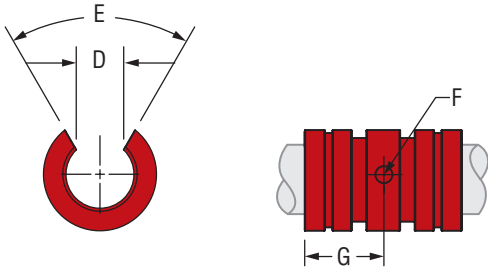
| PART NO. |        | NOMINAL SIZE IN | H                  | HA                   | HB                  | TRUARC RET. RING PART NO. | J                    | JA                | JB               | PARKER O'RING PART NO. | H2                | H3            |
|----------|--------|-----------------|--------------------|----------------------|---------------------|---------------------------|----------------------|-------------------|------------------|------------------------|-------------------|---------------|
| CLOSED   | OPEN   |                 | BETWEEN RET. RINGS | RET. RING GRV. WIDTH | RET. RING GRV. DIA. |                           | BETWEEN O'RING GRVS. | O'RING GRV. WIDTH | O'RING GRV. DIA. |                        | FLR BETWEEN RINGS | FLR RING EDGE |
| FL 03    | N/A    | 3/16            | 0.375              | 0.030                | 0.352               | N 5100-37                 | N/A                  | N/A               | N/A              | N/A                    | N/A               | N/A           |
| FL 04    | FLN 04 | 1/4             | 0.437              | 0.041                | 0.467               | N 5100-50                 | 0.125                | 0.080             | 0.399            | 2-010                  | N/A               | N/A           |
| FL 06    | FLN 06 | 3/8             | 0.562              | 0.041                | 0.587               | N 5100-62                 | 0.187                | 0.080             | 0.524            | 2-012                  | .711/.701         | 0.081         |
| FL 08    | FLN 08 | 1/2             | 0.875              | 0.048                | 0.820               | N 5100-87                 | 0.250                | 0.125             | 0.712            | 2-113                  | 1.042/1.032       | 0.103         |
| FL 10    | FLN 10 | 5/8             | 1.000              | 0.058                | 1.060               | N 5100-112                | 0.312                | 0.125             | 0.962            | 2-117                  | N/A               | N/A           |
| FL 12    | FLN 12 | 3/4             | 1.062              | 0.058                | 1.177               | N 5100-125                | 0.312                | 0.125             | 1.087            | 2-119                  | 1.281/1.271       | 0.171         |
| FL 16    | FLN 16 | 1               | 1.625              | 0.070                | 1.471               | N 5100-156                | 0.500                | 0.125             | 1.399            | 2-123                  | 1.895/1.885       | 0.176         |
| FL 20    | FLN 20 | 1-1/4           | 1.875              | 0.070                | 1.889               | N 5100-200                | 0.625                | 0.125             | 1.837            | 2-129                  | N/A               | N/A           |
| FL 24    | FLN 24 | 1-1/2           | 2.250              | 0.089                | 2.241               | N 5100-237                | 0.750                | 0.162             | 2.152            | 2-225                  | N/A               | N/A           |
| FL 32    | FLN 32 | 2               | 3.000              | 0.105                | 2.839               | N 5100-300                | 1.000                | 0.189             | 2.775            | 2-229                  | N/A               | N/A           |
| FL 40    | FLN 40 | 2-1/2           | 3.750              | 0.123                | 3.553               | N 5100-375                | 1.250                | 0.250             | 3.408            | 2-340                  | N/A               | N/A           |
| FL 48    | FLN 48 | 3               | 4.500              | 0.123                | 4.309               | N 5100-450                | 1.500                | 0.287             | 4.158            | 2-346                  | N/A               | N/A           |
| FL 64    | FLN 64 | 4               | 6.000              | 0.145                | 5.748               | N 5100-600                | 2.000                | 0.287             | 5.660            | 2-356                  | N/A               | N/A           |

Note: FLR is only available on FL06, FL08, FL12 and FL16.

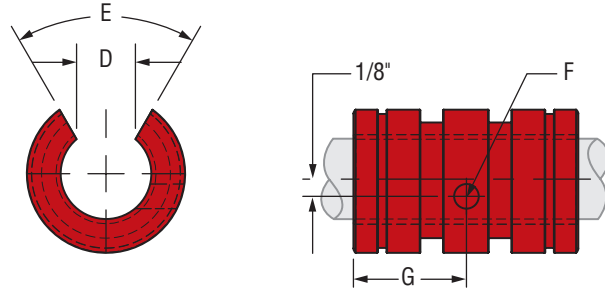
# Simplicity<sup>®</sup> Linear Plain Bearings

## Linear Plain Bearings FL & FLN

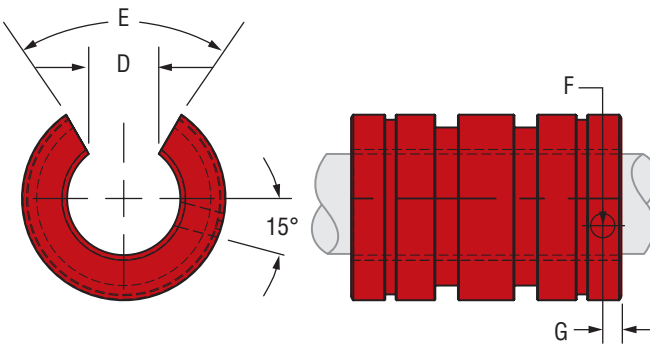
### FLN 04 - FLN 06



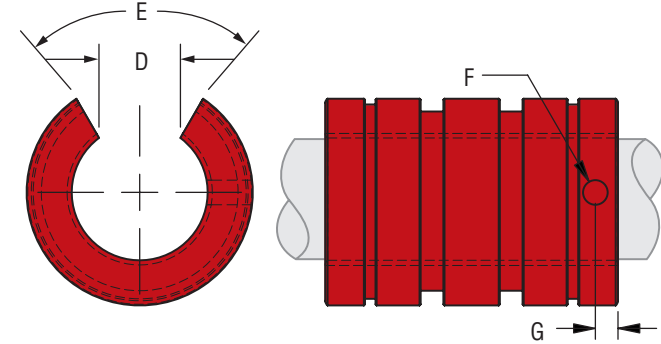
### FLN 08



### FLN 10



### FLN 12 THRU FLN 64



## OPEN DIMENSIONAL INFORMATION

| PART NO.  |             | NOMINAL SIZE | D SLOT WIDE MIN. | E SLOT ANGLE | F RETAINING HOLE DIA. | G RETAINING HOLE LOCATE | BEARING WEIGHT |
|-----------|-------------|--------------|------------------|--------------|-----------------------|-------------------------|----------------|
| PRECISION | COMPENSATED | IN           |                  |              |                       | IN                      | LBS.           |
| FLN 04    | FLCN 04     | 1/4          | 0.188            | 60°          | 0.094                 | 3/8                     | 0.008          |
| FLN 06    | FLCN 06     | 3/8          | 0.250            | 60°          | 0.094                 | 7/16                    | 0.013          |
| FLN 08    | FLCN 08     | 1/2          | 0.313            | 60°          | 0.136                 | 5/8                     | 0.034          |
| FLN 10    | FLCN 10     | 5/8          | 0.375            | 60°          | 0.136                 | 1/8                     | 0.072          |
| FLN 12    | FLCN 12     | 3/4          | 0.438            | 60°          | 0.136                 | 1/8                     | 0.091          |
| FLN 16    | FLCN 16     | 1            | 0.563            | 60°          | 0.136                 | 1/8                     | 0.184          |
| FLN 20    | FLCN 20     | 1-1/4        | 0.625            | 60°          | 0.201                 | 3/16                    | 0.381          |
| FLN 24    | FLCN 24     | 1-1/2        | 0.750            | 60°          | 0.201                 | 3/16                    | 0.603          |
| FLN 32    | FLCN 32     | 2            | 1.000            | 60°          | 0.265                 | 5/16                    | 1.192          |
| FLN 40    | FLCN 40     | 2-1/2        | 1.250            | 60°          | 0.265                 | 5/16                    | 2.334          |
| FLN 48    | FLCN 48     | 3            | 1.500            | 60°          | 0.265                 | 5/16                    | 4.080          |
| FLN 64    | FLCN 64     | 4            | 2.000            | 60°          | 0.265                 | 5/16                    | 9.870          |

Note: All other dimensions same as closed bearing.  
FrelonGOLD<sup>®</sup> and Frelon<sup>®</sup> J are registered trademarks of PBC Linear<sup>®</sup>.



Plain Bearing Accessories: Retaining Rings, Seals, O-Rings—page 19



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

## LOAD & SPEED DATA

| PART NO. | EFFECTIVE SURFACE AREA | MAX. STATIC LOAD LBS. |       |
|----------|------------------------|-----------------------|-------|
|          |                        | FRELON                |       |
|          | SQ. IN                 | GOLD                  | J & W |
| FL 03    | 0.110                  | 220                   | 100   |
| FL 04    | 0.200                  | 600                   | 300   |
| FL 06    | 0.340                  | 1020                  | 510   |
| FL 08    | 0.650                  | 1950                  | 975   |
| FL 10    | 0.980                  | 2940                  | 1470  |
| FL 12    | 1.270                  | 3810                  | 1905  |
| FL 16    | 2.350                  | 7050                  | 3525  |
| FL 20    | 3.430                  | 10830                 | 5415  |
| FL 24    | 4.700                  | 14100                 | 7050  |
| FL 32    | 8.350                  | 25050                 | 12525 |
| FL 40    | 13.000                 | 39000                 | 19500 |
| FL 48    | 18.800                 | 56400                 | 28200 |
| FL 64    | 33.500                 | 100500                | 50250 |

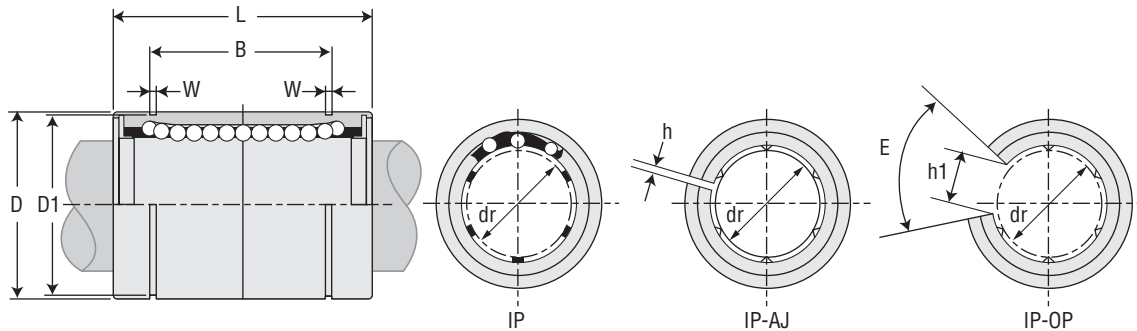
Note: MAX PV (ft./min. \* psi)  
FrelonGOLD = 20000 PV Frelon J = 10000 PV

MAX Speed Running Dry (ft./min.)  
FrelonGOLD = 300 sfm Frelon J = 140 sfm

MAX Speed Running with Lubrication (ft./min.)  
FrelonGOLD = 825 sfm Frelon J = 400 sfm

# Linear Ball Bearings Precision

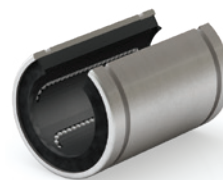
## Ball Bearings IP



IP – Standard Closed

IPxx-AJ – Adjustable

IPxx-OP – Standard Open



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.        |            |               | NOMINAL DIAMETER |         |                | BALL CIRCUIT | WEIGHT G | MAJOR DIMENSIONS & TOLERANCES |                |        |                |        |                |
|-----------------|------------|---------------|------------------|---------|----------------|--------------|----------|-------------------------------|----------------|--------|----------------|--------|----------------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE INCH        | dr INCH | TOLERANCE INCH |              |          | D INCH                        | TOLERANCE INCH | L INCH | TOLERANCE INCH | B INCH | TOLERANCE INCH |
| IP4G            | -          | -             | 1/4              | 0.2500  | 0/- .0005      | 4            | 8        | 0.5000                        | 0/- .00045     | 0.7500 | 0/- .008       | 0.5110 | 0/- .008       |
| IP6G            | -          | -             | 3/8              | 0.3750  | 0/- .0005      | 4            | 15       | 0.6250                        | 0/- .00050     | 0.8750 | 0/- .008       | 0.6358 | 0/- .008       |
| IP8G            | IP8G-AJ    | IP8G-OP       | 1/2              | 0.5000  | 0/- .0005      | 4            | 42       | 0.8750                        | 0/- .00050     | 1.2500 | 0/- .008       | 0.9625 | 0/- .008       |
| IP10G           | IP10G-AJ   | IP10G-OP      | 5/8              | 0.6250  | 0/- .0005      | 5            | 85       | 1.1250                        | 0/- .00050     | 1.5000 | 0/- .008       | 1.1039 | 0/- .008       |
| IP12G           | IP12G-AJ   | IP12G-OP      | 3/4              | 0.7500  | 0/- .0005      | 5            | 104      | 1.2500                        | 0/- .00065     | 1.6250 | 0/- .008       | 1.1657 | 0/- .008       |
| IP16G           | IP16G-AJ   | IP16G-OP      | 1                | 1.0000  | 0/- .0005      | 6            | 220      | 1.5625                        | 0/- .00065     | 2.2500 | 0/- .12        | 1.7547 | 0/- .12        |
| IP20G           | IP20G-AJ   | IP20G-OP      | 1-1/4            | 1.2500  | 0/- .0006      | 6            | 465      | 2.0000                        | 0/- .00075     | 2.6250 | 0/- .12        | 2.0047 | 0/- .12        |
| IP24G           | IP24G-AJ   | IP24G-OP      | 1-1/2            | 1.5000  | 0/- .0006      | 6            | 720      | 2.3750                        | 0/- .00075     | 3.0000 | 0/- .12        | 2.4118 | 0/- .12        |
| IP32G           | IP32G-AJ   | IP32G-OP      | 2                | 2.0000  | 0/- .0008      | 6            | 1310     | 3.0000                        | 0/- .00090     | 4.0000 | 0/- .12        | 3.1917 | 0/- .12        |

| PART NO.        |            |               | NOMINAL DIAMETER |         |                | MAJOR DIMENSIONS & TOLERANCES |         |        |         |               |                       |                           | LOAD RATINGS  |               |
|-----------------|------------|---------------|------------------|---------|----------------|-------------------------------|---------|--------|---------|---------------|-----------------------|---------------------------|---------------|---------------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE INCH        | dr INCH | TOLERANCE INCH | W INCH                        | D1 INCH | h INCH | h1 INCH | E SLOTT ANGLE | MAX ECCENTRICITY INCH | MAX RADIAL CLEARANCE INCH | DYNAMIC C LBF | STATIC Co LBF |
| IP4G            | -          | -             | 1/4              | 0.2500  | 0/- .0005      | .0390                         | 0.4687  | -      | -       | -             | 0.0004                | -0.0001                   | 46            | 59            |
| IP6G            | -          | -             | 3/8              | 0.3750  | 0/- .0005      | .0390                         | 0.5880  | -      | -       | -             | 0.0004                | -0.0001                   | 50            | 70            |
| IP8G            | IP8G-AJ    | IP8G-OP       | 1/2              | 0.5000  | 0/- .0005      | .0459                         | 0.8209  | .06    | 0.3400  | 80°           | 0.0004                | -0.0001                   | 114           | 176           |
| IP10G           | IP10G-AJ   | IP10G-OP      | 5/8              | 0.6250  | 0/- .0005      | .0559                         | 1.0590  | .06    | 0.3750  | 80°           | 0.0004                | -0.0001                   | 174           | 265           |
| IP12G           | IP12G-AJ   | IP12G-OP      | 3/4              | 0.7500  | 0/- .0005      | .0559                         | 1.1760  | .06    | 0.4375  | 60°           | 0.0005                | -0.0002                   | 193           | 307           |
| IP16G           | IP16G-AJ   | IP16G-OP      | 1                | 1.0000  | 0/- .0005      | .0679                         | 1.4687  | .06    | 0.5625  | 50°           | 0.0005                | -0.0002                   | 220           | 352           |
| IP20G           | IP20G-AJ   | IP20G-OP      | 1-1/4            | 1.2500  | 0/- .0006      | .0679                         | 1.8859  | .10    | 0.6250  | 50°           | 0.0007                | -0.0003                   | 352           | 615           |
| IP24G           | IP24G-AJ   | IP24G-OP      | 1-1/2            | 1.5000  | 0/- .0006      | .0859                         | 2.2389  | .12    | 0.7500  | 50°           | 0.0007                | -0.0003                   | 490           | 903           |
| IP32G           | IP32G-AJ   | IP32G-OP      | 2                | 2.0000  | 0/- .0008      | .1029                         | 2.8379  | .12    | 1.000   | 50°           | 0.0009                | -0.0005                   | 858           | 1784          |



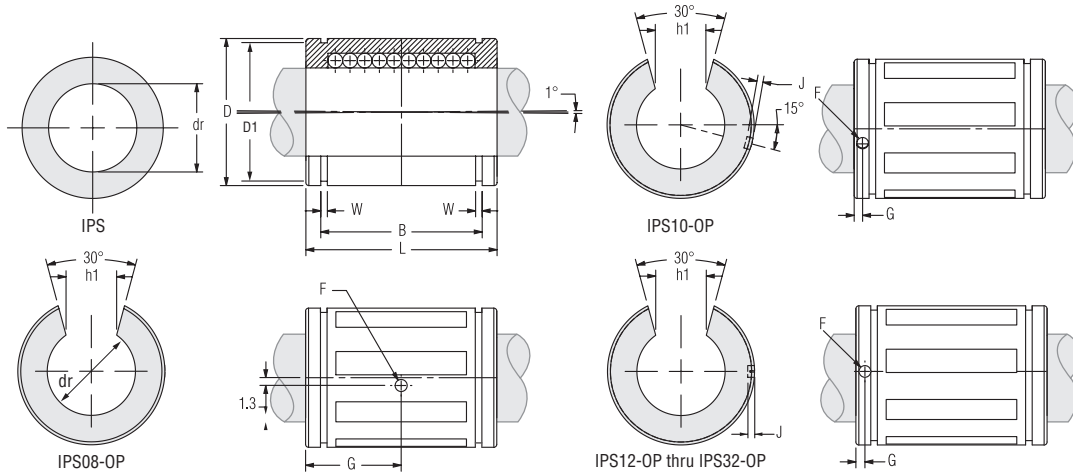
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81



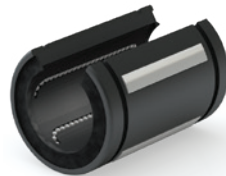
# Linear Ball Bearings Precision Plus Self Aligning

## Precision Plus Self Aligning Ball bearings IPS & IPSXX-OP



IPS – Self Aligning Closed

IPSxx-OP – Self Aligning Open



### DIMENSIONAL INFORMATION

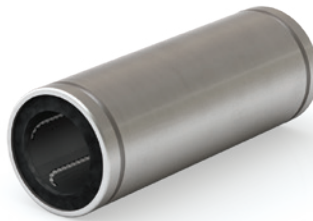
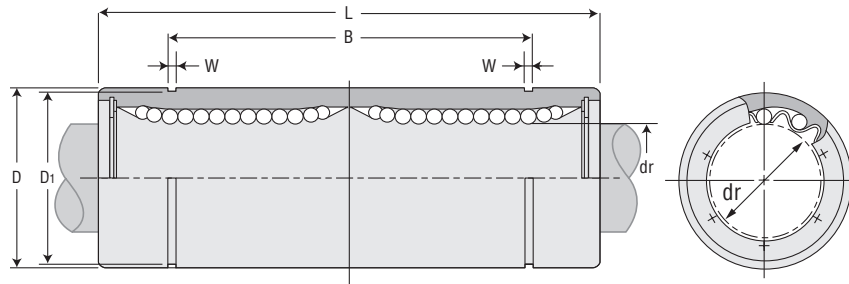
| PART NO.             | NOMINAL DIAMETER |        |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |        |           |       |           |        |        | LOAD RATINGS |           |
|----------------------|------------------|--------|-----------|--------------|--------|-------------------------------|--------|-----------|-------|-----------|--------|--------|--------------|-----------|
|                      | SIZE             | dr     | TOLERANCE |              |        | D                             | L      | TOLERANCE | B     | TOLERANCE | W      | D1     | DYNAMIC C    | STATIC Co |
| SELF ALIGNING CLOSED | INCH             | INCH   | INCH      | LBS          | INCH   | INCH                          | INCH   | INCH      | INCH  | INCH      | INCH   | INCH   | LBF          | LBF       |
| IPS04                | 1/4              | 0.2500 | 0/- .0005 | 4            | .009   | 0.5000                        | 0.7500 | 0/- .015  | 0.515 | 0/- .015  | 0.0390 | 0.4687 | 60           | 80        |
| IPS06                | 3/8              | 0.3750 | 0/- .0005 | 4            | .014   | 0.6250                        | 0.8750 | 0/- .015  | 0.703 | 0/- .015  | 0.0390 | 0.5880 | 95           | 120       |
| IPS08                | 1/2              | 0.5000 | 0/- .0005 | 4            | .043   | 0.8750                        | 1.2500 | 0/- .020  | 1.032 | 0/- .020  | 0.0459 | 0.8209 | 230          | 290       |
| IPS10                | 5/8              | 0.6250 | 0/- .0005 | 5            | .103   | 1.1250                        | 1.5000 | 0/- .020  | 1.112 | 0/- .020  | 0.0559 | 1.0590 | 400          | 500       |
| IPS12                | 3/4              | 0.7500 | 0/- .0005 | 6            | .123   | 1.2500                        | 1.6250 | 0/- .020  | 1.272 | 0/- .020  | 0.0559 | 1.1760 | 470          | 590       |
| IPS16                | 1                | 1.0000 | 0/- .0005 | 6            | .265   | 1.5625                        | 2.2500 | 0/- .020  | 1.886 | 0/- .020  | 0.0679 | 1.4687 | 850          | 1060      |
| IPS20                | 1-1/4            | 1.2500 | 0/- .0006 | 6            | .485   | 2.0000                        | 2.6250 | 0/- .025  | 2.011 | 0/- .025  | 0.0679 | 1.8859 | 1230         | 1530      |
| IPS24                | 1-1/2            | 1.5000 | 0/- .0006 | 6            | .750   | 2.3750                        | 3.0000 | 0/- .030  | 2.422 | 0/- .030  | 0.0859 | 2.2389 | 1480         | 1850      |
| IPS32                | 2                | 2.0000 | 0/- .0008 | 6            | 1.411  | 3.0000                        | 4.0000 | 0/- .040  | 3.206 | 0/- .040  | 0.1029 | 2.8379 | 2430         | 3040      |

### DIMENSIONAL INFORMATION

| PART NO.           | NOMINAL DIAMETER |        |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |        |           |       |           |        |        |       |      |       |         | LOAD RATINGS |           |
|--------------------|------------------|--------|-----------|--------------|--------|-------------------------------|--------|-----------|-------|-----------|--------|--------|-------|------|-------|---------|--------------|-----------|
|                    | SIZE             | dr     | TOLERANCE |              |        | D                             | L      | TOLERANCE | B     | TOLERANCE | W      | D1     | h1    | F    | G     | J       | DYNAMIC C    | STATIC Co |
| SELF ALIGNING OPEN | INCH             | INCH   | INCH      | LBS          | INCH   | INCH                          | INCH   | INCH      | INCH  | INCH      | INCH   | INCH   | INCH  | INCH | INCH  | LBF     | LBF          |           |
| IPS08-OP           | 1/2              | 0.5000 | 0/- .0005 | 3            | .033   | 0.8750                        | 1.2500 | 0/- .020  | 1.032 | 0/- .020  | 0.0459 | 0.8209 | .313  | .136 | .6250 | through | 230          | 290       |
| IPS10-OP           | 5/8              | 0.6250 | 0/- .0005 | 4            | .083   | 1.1250                        | 1.5000 | 0/- .020  | 1.112 | 0/- .020  | 0.0559 | 1.0590 | .375  | .105 | .1250 | .0390   | 400          | 500       |
| IPS12-OP           | 3/4              | 0.7500 | 0/- .0005 | 5            | .102   | 1.2500                        | 1.6250 | 0/- .020  | 1.272 | 0/- .020  | 0.0559 | 1.1760 | .438  | .136 | .1250 | .0590   | 470          | 590       |
| IPS16-OP           | 1                | 1.0000 | 0/- .0005 | 5            | .220   | 1.5625                        | 2.2500 | 0/- .020  | 1.886 | 0/- .020  | 0.0679 | 1.4687 | .563  | .136 | .1250 | .0470   | 850          | 1060      |
| IPS20-OP           | 1-1/4            | 1.2500 | 0/- .0006 | 5            | .419   | 2.0000                        | 2.6250 | 0/- .025  | 2.011 | 0/- .025  | 0.0679 | 1.8859 | .625  | .201 | .1875 | .0900   | 1230         | 1530      |
| IPS24-OP           | 1-1/2            | 1.5000 | 0/- .0006 | 5            | .639   | 2.3750                        | 3.0000 | 0/- .030  | 2.422 | 0/- .030  | 0.0859 | 2.2389 | .750  | .201 | .1875 | .0900   | 1480         | 1850      |
| IPS32-OP           | 2                | 2.0000 | 0/- .0008 | 5            | 1.168  | 3.0000                        | 4.0000 | 0/- .040  | 3.206 | 0/- .040  | 0.1029 | 2.8379 | 1.000 | .265 | .3125 | through | 2430         | 3040      |

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings IP-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.        | NOMINAL DIAMETER |        |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |            |        |           |        |           |
|-----------------|------------------|--------|-----------|--------------|--------|-------------------------------|------------|--------|-----------|--------|-----------|
|                 | SIZE             | dr     | TOLERANCE |              |        | D                             | TOLERANCE  | L      | TOLERANCE | B      | TOLERANCE |
| STANDARD CLOSED | INCH             | INCH   | INCH      | G            | INCH   | INCH                          | INCH       | INCH   | INCH      | INCH   |           |
| IP8GW           | 1/2              | 0.5000 | 0/- .0004 | 4            | 80     | 0.8750                        | 0/- .00065 | 2.3750 | 0/- .012  | 1.9250 | 0/- .012  |
| IP10GW          | 5/8              | 0.6250 | 0/- .0004 | 4            | 160    | 1.1250                        | 0/- .00065 | 2.8125 | 0/- .012  | 2.2079 | 0/- .012  |
| IP12GW          | 3/4              | 0.7500 | 0/- .0005 | 5            | 195    | 1.2500                        | 0/- .00075 | 3.0937 | 0/- .012  | 2.3314 | 0/- .012  |
| IP16GW          | 1                | 1.0000 | 0/- .0005 | 6            | 410    | 1.5625                        | 0/- .00075 | 4.2813 | 0/- .016  | 3.5094 | 0/- .016  |
| IP20GW          | 1-1/4            | 1.2500 | 0/- .0006 | 6            | 820    | 2.0000                        | 0/- .00090 | 5.0000 | 0/- .016  | 4.0094 | 0/- .016  |
| IP24GW          | 1-1/2            | 1.5000 | 0/- .0006 | 6            | 1250   | 2.3750                        | 0/- .00090 | 5.6875 | 0/- .016  | 4.8236 | 0/- .016  |
| IP32GW          | 2                | 2.0000 | 0/- .0006 | 6            | 2350   | 3.0000                        | 0/- .00100 | 7.7500 | 0/- .016  | 6.3834 | 0/- .016  |

| PART NO.        | NOMINAL DIAMETER |        |           | MAJOR DIMENSIONS & TOLERANCES |        |                  | LOAD RATINGS |           |
|-----------------|------------------|--------|-----------|-------------------------------|--------|------------------|--------------|-----------|
|                 | SIZE             | dr     | TOLERANCE | W                             | D1     | MAX ECCENTRICITY | DYNAMIC C    | STATIC Co |
| STANDARD CLOSED | INCH             | INCH   | INCH      | INCH                          | INCH   | INCH             | LBF          | LBF       |
| IP8GW           | 1/2              | 0.5000 | 0/- .0004 | .0459                         | 0.8209 | 0.0005           | 182          | 352       |
| IP10GW          | 5/8              | 0.6250 | 0/- .0004 | .0559                         | 1.0590 | 0.0005           | 276          | 528       |
| IP12GW          | 3/4              | 0.7500 | 0/- .0005 | .0559                         | 1.1760 | 0.0007           | 307          | 615       |
| IP16GW          | 1                | 1.0000 | 0/- .0005 | .0679                         | 1.4687 | 0.0007           | 352          | 705       |
| IP20GW          | 1-1/4            | 1.2500 | 0/- .0006 | .0679                         | 1.8859 | 0.0009           | 562          | 1234      |
| IP24GW          | 1-1/2            | 1.5000 | 0/- .0006 | .0859                         | 2.2389 | 0.0009           | 771          | 1807      |
| IP32GW          | 2                | 2.0000 | 0/- .0006 | .1029                         | 2.8379 | 0.0011           | 1366         | 3574      |



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Dept.: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Company: \_\_\_\_\_ Machine Type/Name: \_\_\_\_\_  
Email: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_



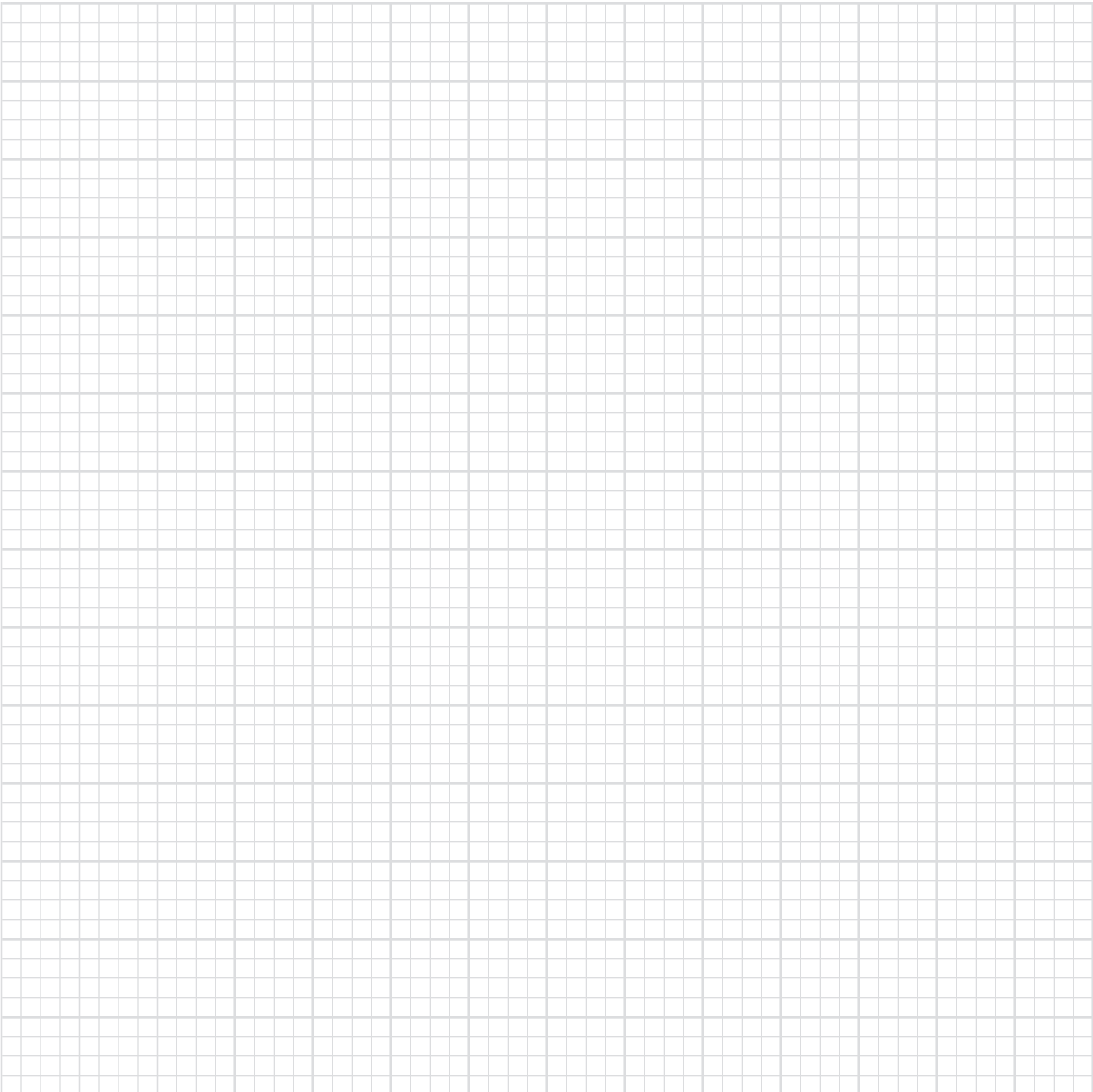
Ordering Info: Plain Bearings—page 20



Ordering Info: Ball Bearings—page 25

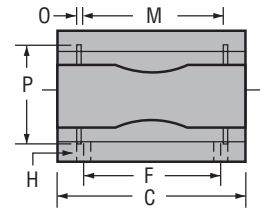
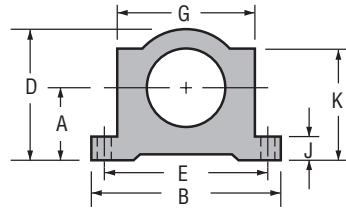
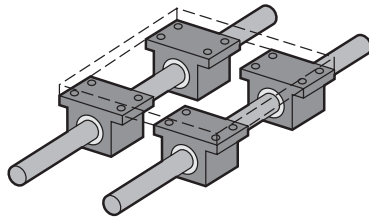
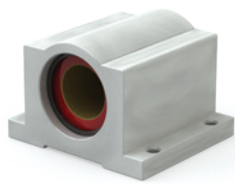


Email an Application Engineer



# Simplicity® Pillow Blocks

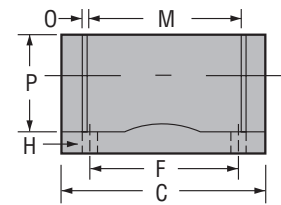
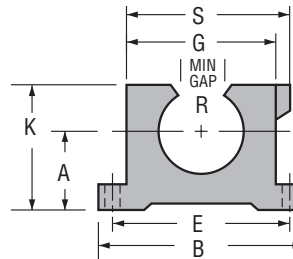
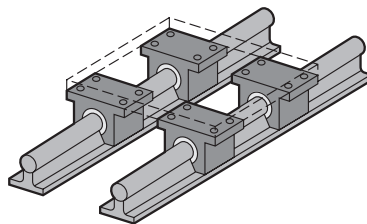
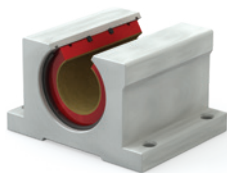
## Plain Bearings – Closed Pillow Blocks P



| PART NO.  |             | NOM. BRG. I.D. | A          |       | B      | C      | D        | E        | F     | G    |        | J     |       | M     | O     | P     | RETAINING RING PART NO. | MAX. STATIC LOAD LBS. |       |       |
|-----------|-------------|----------------|------------|-------|--------|--------|----------|----------|-------|------|--------|-------|-------|-------|-------|-------|-------------------------|-----------------------|-------|-------|
| CLOSED    |             |                | CENTERLINE |       |        |        |          |          |       |      |        | BODY  | H     |       |       |       |                         | FLANGE                |       | GRV.  |
| PRECISION | COMPENSATED | INCH           | +/- .001   | WIDTH | LENGTH | HEIGHT | +/- .010 | +/- .010 | WIDTH | BOLT | HOLE   | THICK | K     | SPACE | WIDTH | DIA.  |                         | GOLD                  | J & W | LBS.  |
| P 04      | P 04C       | 1/4            | 0.437      | 1.625 | 1.19   | 0.813  | 1.312    | 0.750    | 1.000 | #6   | 5/32"  | 0.188 | 0.750 | 0.750 | 0.039 | 0.532 | 6010026                 | 600                   | 300   | 0.099 |
| P 06      | P 06C       | 3/8            | 0.500      | 1.750 | 1.31   | 0.938  | 1.437    | 0.875    | 1.125 | #6   | 5/32"  | 0.188 | 0.875 | 0.875 | 0.039 | 0.665 | 6010027                 | 1020                  | 510   | 0.129 |
| P 08      | P 08C       | 1/2            | 0.687      | 2.000 | 1.69   | 1.250  | 1.688    | 1.000    | 1.375 | #6   | 5/32"  | 0.250 | 1.125 | 1.250 | 0.046 | 0.931 | 6010028                 | 1950                  | 975   | 0.250 |
| P 10      | P 10C       | 5/8            | 0.875      | 2.500 | 1.94   | 1.625  | 2.125    | 1.125    | 1.750 | #8   | 3/16"  | 0.281 | 1.438 | 1.500 | 0.056 | 1.197 | 6010029                 | 2940                  | 1470  | 0.500 |
| P 12      | P 12C       | 3/4            | 0.937      | 2.750 | 2.06   | 1.750  | 2.375    | 1.250    | 1.875 | #8   | 3/16"  | 0.313 | 1.563 | 1.625 | 0.056 | 1.330 | 6010030                 | 3710                  | 1905  | 0.580 |
| P 16      | P 16C       | 1              | 1.187      | 3.250 | 2.81   | 2.188  | 2.875    | 1.750    | 2.375 | #10  | 7/32"  | 0.375 | 1.938 | 2.250 | 0.068 | 1.671 | 6010031                 | 7050                  | 3525  | 1.000 |
| P 20      | P 20C       | 1-1/4          | 1.500      | 4.000 | 3.63   | 2.813  | 3.500    | 2.000    | 3.000 | #10  | 7/32"  | 0.438 | 2.500 | 2.625 | 0.068 | 2.122 | 6010032                 | 10290                 | 5145  | 2.000 |
| P 24      | P 24C       | 1-1/2          | 1.750      | 4.750 | 4.00   | 3.250  | 4.125    | 2.500    | 3.500 | 1/4" | 9/32"  | 0.500 | 2.875 | 3.000 | 0.086 | 2.519 | 6010033                 | 14100                 | 7050  | 3.000 |
| P 32      | P 32C       | 2              | 2.125      | 6.000 | 5.00   | 4.063  | 5.250    | 3.250    | 4.500 | 3/8" | 13/32" | 0.625 | 3.625 | 4.000 | 0.103 | 3.182 | 6010034                 | 25050                 | 12525 | 6.500 |

- Notes: (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.
- (2) All standard pillow blocks use standard FL series bearings.
- (3) Straight bore, pre-assembled pillow blocks use standard FL series bearings.

## Plain Bearings – Open Pillow Blocks PN



| PART NO.  |             | NOM. BRG. I.D. | A          |       | B      | C        | E        | F     | G    |        | J     |        | M     | O     | P     | R     | RETAINING RING PART NO. | MAX. STATIC LOAD LBS. |       |       |           |
|-----------|-------------|----------------|------------|-------|--------|----------|----------|-------|------|--------|-------|--------|-------|-------|-------|-------|-------------------------|-----------------------|-------|-------|-----------|
| OPEN      |             |                | CENTERLINE |       |        |          |          |       |      |        | BODY  | H      |       |       |       |       |                         | FLANGE                | K     | GRV.  | GRV.      |
| PRECISION | COMPENSATED | INCH           | +/- .001   | WIDTH | LENGTH | +/- .010 | +/- .010 | WIDTH | BOLT | HOLE   | THICK | HEIGHT | SPACE | WIDTH | DIA.  | OPEN  |                         | GOLD                  | J & W | LBS.  | OVERALL S |
| PN 08     | PN 08C      | 1/2            | 0.687      | 2.000 | 1.50   | 1.688    | 1.000    | 1.375 | #6   | 5/32"  | 0.250 | 1.125  | 1.250 | 0.046 | 0.931 | 0.313 | 6010035                 | 1950                  | 975   | 0.250 | 1.438     |
| PN 10     | PN 10C      | 5/8            | 0.875      | 2.500 | 1.75   | 2.125    | 1.125    | 1.750 | #8   | 3/16"  | 0.281 | 1.438  | 1.500 | 0.056 | 1.197 | 0.375 | 6010036                 | 2940                  | 1470  | 0.500 | 1.750     |
| PN 12     | PN 12C      | 3/4            | 0.937      | 2.750 | 1.88   | 2.375    | 1.250    | 1.875 | #8   | 3/16"  | 0.313 | 1.563  | 1.625 | 0.056 | 1.330 | 0.438 | 6010037                 | 3710                  | 1905  | 0.580 | 1.938     |
| PN 16     | PN 16C      | 1              | 1.187      | 3.250 | 2.63   | 2.875    | 1.750    | 2.375 | #10  | 7/32"  | 0.375 | 1.938  | 2.250 | 0.068 | 1.671 | 0.563 | 6010038                 | 7050                  | 3525  | 1.000 | 2.438     |
| PN 20     | PN 20C      | 1-1/4          | 1.500      | 4.000 | 3.38   | 3.500    | 2.000    | 3.000 | #10  | 7/32"  | 0.438 | 2.500  | 2.625 | 0.068 | 2.122 | 0.625 | 6010039                 | 10290                 | 5145  | 2.000 | 3.125     |
| PN 24     | PN 24C      | 1-1/2          | 1.750      | 4.750 | 3.75   | 4.125    | 2.500    | 3.500 | 1/4" | 9/32"  | 0.500 | 2.875  | 3.000 | 0.086 | 2.519 | 0.750 | 6010040                 | 14100                 | 7050  | 3.000 | 3.625     |
| PN 32     | PN 32C      | 2              | 2.125      | 6.000 | 4.75   | 5.250    | 3.250    | 4.500 | 3/8" | 13/32" | 0.625 | 3.625  | 4.000 | 0.103 | 3.182 | 1.000 | 6010041                 | 25050                 | 12525 | 6.500 | 4.688     |

- Notes: (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.
- (2) All standard pillow blocks use standard FL series bearings.



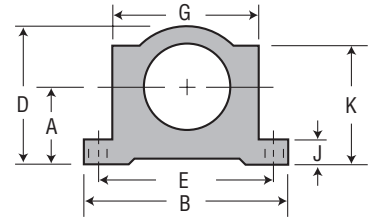
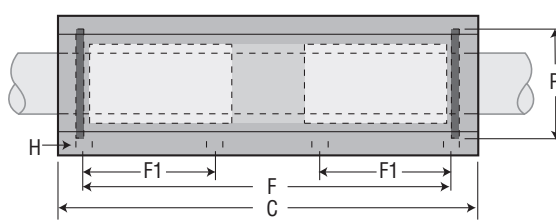
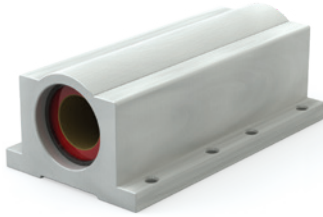
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.  
Inch Series—page 44 Metric Series—page 81

INCH  
ISO  
METRIC



# Simplicity® Twin Pillow Blocks

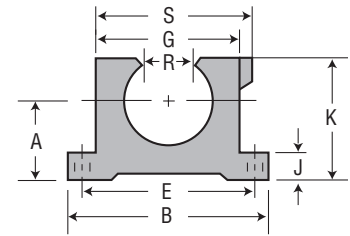
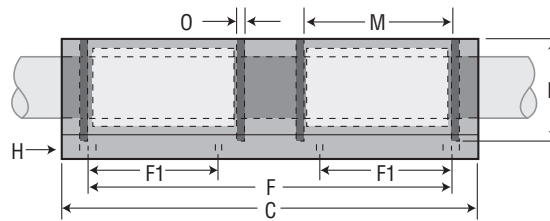
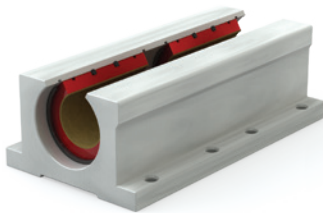
## Plain Bearings – Closed Twin Pillow Blocks PW



| PART NO.  |             | NOM. BRG. I.D. | A          |       | B      | C     | D        | E        | F        | F1    | G      |        | J     |       | K     | P       | RETAINING RING PART NO. | MAX. STATIC LOAD LBS. |        | ASSEM. WT. LBS. |
|-----------|-------------|----------------|------------|-------|--------|-------|----------|----------|----------|-------|--------|--------|-------|-------|-------|---------|-------------------------|-----------------------|--------|-----------------|
| CLOSED    |             |                | CENTERLINE | WIDTH |        |       |          |          |          |       | LENGTH | HEIGHT | WIDTH | BOLT  |       |         |                         | HOLE                  | FLANGE |                 |
| PRECISION | COMPENSATED | INCH           | +/- .001   |       |        |       | +/- .010 | +/- .010 | +/- .010 |       |        |        |       |       | DIA.  |         |                         |                       |        |                 |
| PW 04     | PW 04C      | 1/4            | 0.437      | 1.625 | 2.500  | 0.813 | 1.3120   | 2.0000   | .750     | 1.000 | #6     | 5/32"  | 0.188 | 0.750 | 0.532 | 6010026 | 1200                    | 600                   | 0.197  |                 |
| PW 06     | PW 06C      | 3/8            | 0.500      | 1.750 | 2.750  | 0.938 | 1.4370   | 2.2500   | .875     | 1.125 | #6     | 5/32"  | 0.188 | 0.875 | 0.665 | 6010027 | 2040                    | 1020                  | 0.258  |                 |
| PW 08     | PW 08C      | 1/2            | 0.687      | 2.000 | 3.500  | 1.250 | 1.6880   | 2.5000   | 1.000    | 1.375 | #6     | 5/32"  | 0.250 | 1.125 | 0.931 | 6010028 | 3900                    | 1950                  | 0.500  |                 |
| PW 10     | PW 10C      | 5/8            | 0.875      | 2.500 | 4.000  | 1.625 | 2.1250   | 3.0000   | 1.125    | 1.750 | #8     | 3/16"  | 0.281 | 1.438 | 1.197 | 6010029 | 5880                    | 2940                  | 1.000  |                 |
| PW 12     | PW 12C      | 3/4            | 0.937      | 2.750 | 4.500  | 1.750 | 2.3750   | 3.5000   | 1.250    | 1.875 | #8     | 3/16"  | 0.313 | 1.563 | 1.330 | 6010030 | 7620                    | 3810                  | 1.125  |                 |
| PW 16     | PW 16C      | 1              | 1.187      | 3.250 | 6.000  | 2.188 | 2.8750   | 4.5000   | 1.750    | 2.375 | #10    | 7/32"  | 0.375 | 1.938 | 1.671 | 6010031 | 14100                   | 7050                  | 2.188  |                 |
| PW 20     | PW 20C      | 1-1/4          | 1.500      | 4.000 | 7.500  | 2.813 | 3.5000   | 5.5000   | 2.000    | 3.000 | #10    | 7/32"  | 0.438 | 2.500 | 2.122 | 6010032 | 20580                   | 10290                 | 4.250  |                 |
| PW 24     | PW 24C      | 1-1/2          | 1.750      | 4.750 | 9.000  | 3.250 | 4.1250   | 6.5000   | 2.500    | 3.500 | 1/4"   | 9/32"  | 0.500 | 2.875 | 2.519 | 6010033 | 28200                   | 14100                 | 6.375  |                 |
| PW 32     | PW 32C      | 2              | 2.125      | 6.000 | 10.000 | 4.063 | 5.2500   | 8.2500   | 3.250    | 4.500 | 3/8"   | 13/32" | 0.625 | 3.625 | 3.182 | 6010034 | 50100                   | 25050                 | 13.500 |                 |

- Notes:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.  
 (2) All standard pillow blocks use standard FL series bearings.  
 (3) Twin Closed Pillow Blocks use a spacer to separate the bearings.  
 (4) Twin pillow blocks, closed, with no seal option: Use two standard bearings, based on compensated or standard option.  
 (5) Twin pillow blocks, closed, with double seal option: Use two single seal bearings.

## Plain Bearings – Open Twin Pillow Blocks PWN



| PART NO.  |             | NOM. BRG. I.D. | A          |       | B      | C     | E        | F        | F1       | G      |        | J     |       | M     | O     | P     | R     | RETAINING RING PART NO. | MAX. STATIC LOAD LBS. |        | ASSEM. WT. LBS. | S OVERALL WIDTH |
|-----------|-------------|----------------|------------|-------|--------|-------|----------|----------|----------|--------|--------|-------|-------|-------|-------|-------|-------|-------------------------|-----------------------|--------|-----------------|-----------------|
| OPEN      |             |                | CENTERLINE | WIDTH |        |       |          |          |          | LENGTH | HEIGHT | WIDTH | BOLT  |       |       |       |       |                         | HOLE                  | FLANGE |                 |                 |
| PRECISION | COMPENSATED | INCH           | +/- .001   |       |        |       | +/- .010 | +/- .010 | +/- .010 |        |        |       |       |       |       |       |       |                         |                       |        |                 |                 |
| PWN 08    | PWN 08C     | 1/2            | 0.687      | 2.000 | 3.500  | 1.688 | 2.500    | 1.000    | 1.375    | #6     | 5/32"  | 0.250 | 1.125 | 1.250 | 0.046 | 0.931 | 0.313 | 6010035                 | 3900                  | 1950   | 0.400           | 1.438           |
| PWN 10    | PWN 10C     | 5/8            | 0.875      | 2.500 | 4.000  | 2.125 | 3.000    | 1.125    | 1.750    | #8     | 3/16"  | 0.281 | 1.438 | 1.500 | 0.056 | 1.197 | 0.375 | 6010036                 | 5880                  | 2940   | 0.910           | 1.813           |
| PWN 12    | PWN 12C     | 3/4            | 0.937      | 2.750 | 4.500  | 2.375 | 3.500    | 1.250    | 1.875    | #8     | 3/16"  | 0.313 | 1.563 | 1.625 | 0.056 | 1.330 | 0.438 | 6010037                 | 7620                  | 3810   | 1.060           | 1.938           |
| PWN 16    | PWN 16C     | 1              | 1.187      | 3.250 | 6.000  | 2.875 | 4.500    | 1.750    | 2.375    | #10    | 7/32"  | 0.375 | 1.938 | 2.250 | 0.068 | 1.671 | 0.563 | 6010038                 | 14100                 | 7050   | 1.970           | 2.438           |
| PWN 20    | PWN 20C     | 1-1/4          | 1.500      | 4.000 | 7.500  | 3.500 | 5.500    | 2.000    | 3.000    | #10    | 7/32"  | 0.438 | 2.500 | 2.625 | 0.068 | 2.122 | 0.625 | 6010039                 | 20580                 | 10290  | 3.725           | 3.125           |
| PWN 24    | PWN 24C     | 1-1/2          | 1.750      | 4.750 | 9.000  | 4.125 | 6.500    | 2.500    | 3.500    | 1/4"   | 9/32"  | 0.500 | 2.875 | 3.000 | 0.086 | 2.519 | 0.750 | 6010040                 | 28200                 | 14100  | 5.800           | 3.625           |
| PWN 32    | PWN 32C     | 2              | 2.125      | 6.000 | 10.000 | 5.250 | 8.250    | 3.250    | 4.500    | 3/8"   | 13/32" | 0.625 | 3.625 | 4.000 | 0.103 | 3.182 | 1.000 | 6010041                 | 50100                 | 25050  | 12.125          | 4.688           |

- Notes:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.  
 (2) All standard pillow blocks use standard FL series bearings.  
 (3) Twin pillow blocks, open, with no seal option: Use two standard open bearings, based on compensated or standard option.  
 (4) Twin pillow blocks, open, with double seal option: Use two double seal bearings.

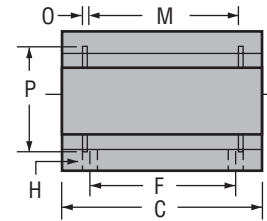
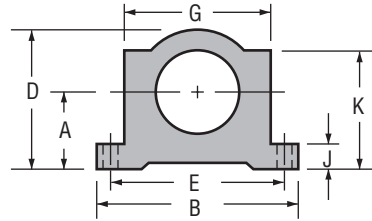
INCH

ISO METRIC

JIS METRIC

# Linear Ball Bearings Precision Plus Pillow Blocks

## Closed Pillow Blocks IPPS

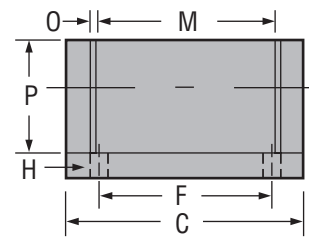
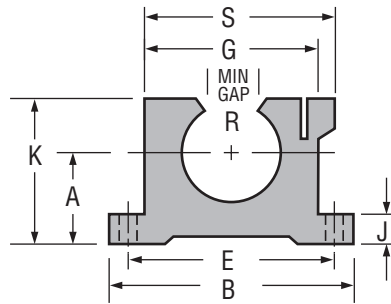


**NEW**

### Dimensional Information

| Part No. | NOM. BRG. I.D.<br>IN. | A                      | B<br>WIDTH | C<br>LENGTH | D<br>HEIGHT | E<br>+/- .010 | F<br>+/- .010 | G     | H    |       | J               | K     | M             | O             | P            | Mass<br>(b) | Load Rating<br>(lbf) |
|----------|-----------------------|------------------------|------------|-------------|-------------|---------------|---------------|-------|------|-------|-----------------|-------|---------------|---------------|--------------|-------------|----------------------|
|          |                       | CENTERLINE<br>+/- .001 |            |             |             |               |               | BODY  | BOLT | HOLE  | FLANGE<br>THICK |       | GRV.<br>SPACE | GRV.<br>WIDTH | GRV.<br>DIA. |             |                      |
|          |                       |                        |            |             |             |               |               |       |      |       |                 |       |               |               |              |             |                      |
| IPPS08G  | 1/2                   | 0.687                  | 2.000      | 1.69        | 1.250       | 1.688         | 1.000         | 1.375 | #6   | 5/32" | 0.250           | 1.125 | 1.250         | 0.046         | 0.931        | 0.200       | 230                  |
| IPPS10G  | 5/8                   | 0.875                  | 2.500      | 1.94        | 1.625       | 2.125         | 1.125         | 1.750 | #8   | 3/16" | 0.281           | 1.438 | 1.500         | 0.056         | 1.197        | 0.500       | 400                  |
| IPPS12G  | 3/4                   | 0.937                  | 2.750      | 2.06        | 1.750       | 2.375         | 1.250         | 1.875 | #8   | 3/16" | 0.313           | 1.563 | 1.625         | 0.056         | 1.330        | 0.600       | 470                  |
| IPPS16G  | 1                     | 1.187                  | 3.250      | 2.81        | 2.188       | 2.875         | 1.750         | 2.375 | #10  | 7/32" | 0.375           | 1.938 | 2.250         | 0.068         | 1.671        | 1.200       | 850                  |
| IPPS20G  | 1-1/4                 | 1.500                  | 4.000      | 3.63        | 2.813       | 3.500         | 2.000         | 3.000 | #10  | 7/32" | 0.438           | 2.500 | 2.625         | 0.068         | 2.122        | 2.500       | 1230                 |
| IPPS24G  | 1-1/2                 | 1.750                  | 4.750      | 4.00        | 3.250       | 4.125         | 2.500         | 3.500 | 1/4" | 9/32" | 0.500           | 2.875 | 3.000         | 0.086         | 2.519        | 3.800       | 1480                 |

## Open Pillow Blocks IPPSN

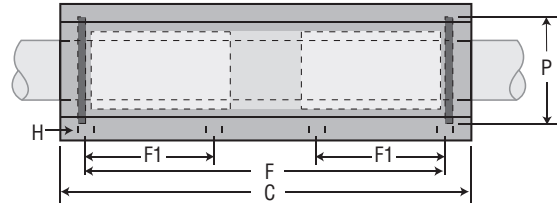
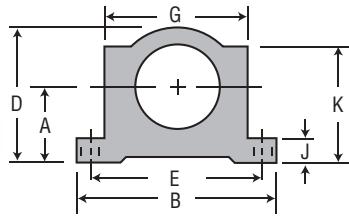


### Dimensional Information

| Part No. | NOM. BRG. I.D.<br>IN. | A                      | B<br>WIDTH | C<br>LENGTH | E<br>+/- .010 | F<br>+/- .010 | G     | H    |       | J               | K<br>HEIGHT | M<br>GRV. SPACE | O<br>GRV. WIDTH | P<br>GRV. DIA. | R           | Mass<br>(b) | Load Rating<br>(lbf) |
|----------|-----------------------|------------------------|------------|-------------|---------------|---------------|-------|------|-------|-----------------|-------------|-----------------|-----------------|----------------|-------------|-------------|----------------------|
|          |                       | CENTERLINE<br>+/- .001 |            |             |               |               | BODY  | BOLT | HOLE  | FLANGE<br>THICK |             |                 |                 |                | MIN<br>OPEN |             |                      |
|          |                       |                        |            |             |               |               |       |      |       |                 |             |                 |                 |                |             |             |                      |
| IPPSN08G | 1/2                   | 0.687                  | 2.000      | 1.50        | 1.688         | 1.000         | 1.375 | #6   | 5/32" | 0.250           | 1.125       | 1.250           | 0.046           | 0.931          | 0.313       | 0.200       | 230                  |
| IPPSN10G | 5/8                   | 0.875                  | 2.500      | 1.75        | 2.125         | 1.125         | 1.750 | #8   | 3/16" | 0.281           | 1.438       | 1.500           | 0.056           | 1.197          | 0.375       | 0.400       | 400                  |
| IPPSN12G | 3/4                   | 0.937                  | 2.750      | 1.88        | 2.375         | 1.250         | 1.875 | #8   | 3/16" | 0.313           | 1.563       | 1.625           | 0.056           | 1.330          | 0.438       | 0.500       | 470                  |
| IPPSN16G | 1                     | 1.187                  | 3.250      | 2.63        | 2.875         | 1.750         | 2.375 | #10  | 7/32" | 0.375           | 1.938       | 2.250           | 0.068           | 1.671          | 0.563       | 1.000       | 850                  |
| IPPSN20G | 1-1/4                 | 1.500                  | 4.000      | 3.38        | 3.500         | 2.000         | 3.000 | #10  | 7/32" | 0.438           | 2.500       | 2.625           | 0.068           | 2.122          | 0.625       | 2.100       | 1230                 |
| IPPSN24G | 1-1/2                 | 1.750                  | 4.750      | 3.75        | 4.125         | 2.500         | 3.500 | 1/4" | 9/32" | 0.500           | 2.875       | 3.000           | 0.086           | 2.519          | 0.750       | 3.200       | 1480                 |

# Linear Ball Bearings Precision Plus Twin Pillow Blocks

## Closed Twin Pillow Blocks IPPSW

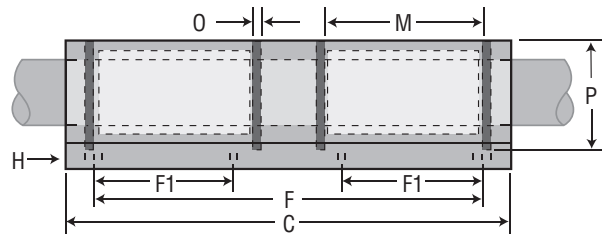
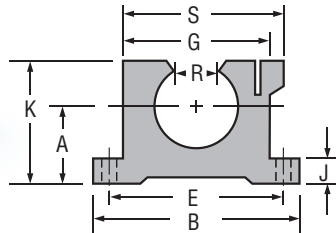


**NEW**

### Dimensional Information

| Part No. | NOM. BRG. I.D.<br>IN. | A                      | B     | C     | D     | E      | F      | F1    | G             | H    |       | J               | K     | P            | Mass (b) | Load Rating (lbf) |
|----------|-----------------------|------------------------|-------|-------|-------|--------|--------|-------|---------------|------|-------|-----------------|-------|--------------|----------|-------------------|
|          |                       | CENTERLINE<br>+/- .001 |       |       |       |        |        |       | BODY<br>WIDTH | BOLT | HOLE  | FLANGE<br>THICK |       | GRV.<br>DIA. |          |                   |
| IPPSW08G | 1/2                   | 0.687                  | 2.000 | 3.500 | 1.250 | 1.6880 | 2.5000 | 1.000 | 1.375         | #6   | 5/32" | 0.250           | 1.125 | 0.931        | 0.50     | 460               |
| IPPSW10G | 5/8                   | 0.875                  | 2.500 | 4.000 | 1.625 | 2.1250 | 3.0000 | 1.125 | 1.750         | #8   | 3/16" | 0.281           | 1.438 | 1.197        | 1.00     | 800               |
| IPPSW12G | 3/4                   | 0.937                  | 2.750 | 4.500 | 1.750 | 2.3750 | 3.5000 | 1.250 | 1.875         | #8   | 3/16" | 0.313           | 1.563 | 1.330        | 1.20     | 940               |
| IPPSW16G | 1                     | 1.187                  | 3.250 | 6.000 | 2.188 | 2.8750 | 4.5000 | 1.750 | 2.375         | #10  | 7/32" | 0.375           | 1.938 | 1.671        | 2.20     | 1700              |
| IPPSW20G | 1-1/4                 | 1.500                  | 4.000 | 7.500 | 2.813 | 3.5000 | 5.5000 | 2.000 | 3.000         | #10  | 7/32" | 0.438           | 2.500 | 2.122        | 4.50     | 2460              |
| IPPSW24G | 1-1/2                 | 1.750                  | 4.750 | 9.000 | 3.250 | 4.1250 | 6.5000 | 2.500 | 3.500         | 1/4" | 9/32" | 0.500           | 2.875 | 2.519        | 6.30     | 2958              |

## Open Twin Pillow Blocks IPPSWN



### Dimensional Information

| Part No.  | NOM. BRG. I.D.<br>IN. | A                      | B     | C     | E     | F     | F1    | G             | H    |       | J               | K     | M             | O             | P            | R           | Mass (b) | Load Rating (lbf) |
|-----------|-----------------------|------------------------|-------|-------|-------|-------|-------|---------------|------|-------|-----------------|-------|---------------|---------------|--------------|-------------|----------|-------------------|
|           |                       | CENTERLINE<br>+/- .001 |       |       |       |       |       | BODY<br>WIDTH | BOLT | HOLE  | FLANGE<br>THICK |       | GRV.<br>SPACE | GRV.<br>WIDTH | GRV.<br>DIA. | MIN<br>OPEN |          |                   |
| IPPSWN08G | 1/2                   | 0.687                  | 2.000 | 3.500 | 1.688 | 2.500 | 1.000 | 1.375         | #6   | 5/32" | 0.250           | 1.125 | 1.250         | 0.046         | 0.931        | 0.313       | 0.40     | 460               |
| IPPSWN10G | 5/8                   | 0.875                  | 2.500 | 4.000 | 2.125 | 3.000 | 1.125 | 1.750         | #8   | 3/16" | 0.281           | 1.438 | 1.500         | 0.056         | 1.197        | 0.375       | 0.80     | 800               |
| IPPSWN12G | 3/4                   | 0.937                  | 2.750 | 4.500 | 2.375 | 3.500 | 1.250 | 1.875         | #8   | 3/16" | 0.313           | 1.563 | 1.625         | 0.056         | 1.330        | 0.438       | 1.00     | 940               |
| IPPSWN16G | 1                     | 1.187                  | 3.250 | 6.000 | 2.875 | 4.500 | 1.750 | 2.375         | #10  | 7/32" | 0.375           | 1.938 | 2.250         | 0.068         | 1.671        | 0.563       | 2.00     | 1700              |
| IPPSWN20G | 1-1/4                 | 1.500                  | 4.000 | 7.500 | 3.500 | 5.500 | 2.000 | 3.000         | #10  | 7/32" | 0.438           | 2.500 | 2.625         | 0.068         | 2.122        | 0.625       | 4.00     | 2460              |
| IPPSWN24G | 1-1/2                 | 1.750                  | 4.750 | 9.000 | 4.125 | 6.500 | 2.500 | 3.500         | 1/4" | 9/32" | 0.500           | 2.875 | 3.000         | 0.086         | 2.519        | 0.750       | 6.00     | 2958              |

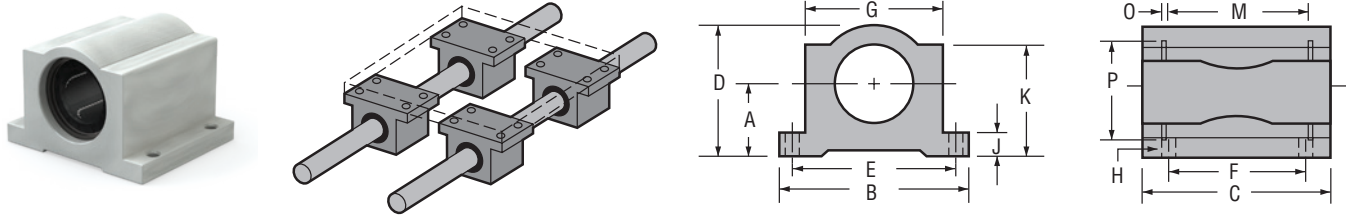
INCH

ISO  
METRIC

JIS  
METRIC

# Linear Ball Bearings Precision Pillow Blocks

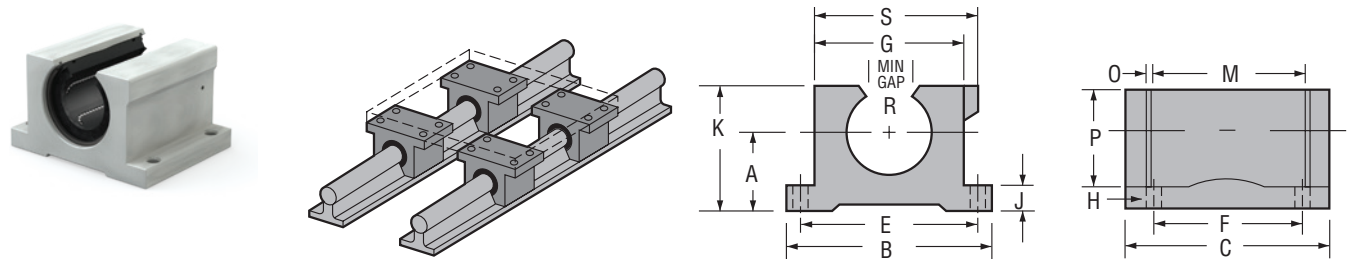
## Ball Bearings – Closed Pillow Blocks IPP



| PART NO.  | NOM. BRG. DIA. | A                   | B     | C      | D      | E        | F        | G          | H    | J      | K           | M          | O          | P         | SMALLEY RET. RING PART NO. | ASSEM. WT. | LOAD RATINGS |           |      |
|-----------|----------------|---------------------|-------|--------|--------|----------|----------|------------|------|--------|-------------|------------|------------|-----------|----------------------------|------------|--------------|-----------|------|
|           |                |                     |       |        |        |          |          |            |      |        |             |            |            |           |                            |            | DYNAMIC C    | STATIC Co |      |
| PRECISION | INCH           | CENTERLINE +/- .001 | WIDTH | LENGTH | HEIGHT | +/- .010 | +/- .010 | BODY WIDTH | BOLT | HOLE   | FLNG. THICK | GRV. SPACE | GRV. WIDTH | GRV. DIA. |                            |            |              |           |      |
| IPP04G    | 1/4            | 0.437               | 1.625 | 1.19   | 0.813  | 1.3120   | 0.7500   | 1.000      | #6   | 5/32"  | 0.188       | 0.750      | 0.750      | 0.039     | 0.532                      | WH-51      | 0.099        | 46        | 59   |
| IPP06G    | 3/8            | 0.500               | 1.750 | 1.31   | 0.938  | 1.4370   | 0.8750   | 1.125      | #6   | 5/32"  | 0.188       | 0.875      | 0.875      | 0.039     | 0.665                      | WH-65      | 0.129        | 50        | 70   |
| IPP08G    | 1/2            | 0.687               | 2.000 | 1.69   | 1.250  | 1.6880   | 1.0000   | 1.375      | #6   | 5/32"  | 0.250       | 1.125      | 1.250      | 0.046     | 0.931                      | WH-90      | 0.250        | 114       | 176  |
| IPP10G    | 5/8            | 0.875               | 2.500 | 1.94   | 1.625  | 2.1250   | 1.1250   | 1.750      | #8   | 3/16"  | 0.281       | 1.438      | 1.500      | 0.056     | 1.197                      | WH-115     | 0.500        | 174       | 265  |
| IPP12G    | 3/4            | 0.937               | 2.750 | 2.06   | 1.750  | 2.3750   | 1.2500   | 1.875      | #8   | 3/16"  | 0.313       | 1.563      | 1.625      | 0.056     | 1.330                      | WH-128     | 0.580        | 193       | 307  |
| IPP16G    | 1              | 1.187               | 3.250 | 2.81   | 2.188  | 2.8750   | 1.7500   | 2.375      | #10  | 7/32"  | 0.375       | 1.938      | 2.250      | 0.068     | 1.671                      | WH-156     | 1.000        | 220       | 352  |
| IPP20G    | 1-1/4          | 1.500               | 4.000 | 3.63   | 2.813  | 3.5000   | 2.0000   | 3.000      | #10  | 7/32"  | 0.438       | 2.500      | 2.625      | 0.068     | 2.122                      | WH-200     | 2.000        | 352       | 615  |
| IPP24G    | 1-1/2          | 1.750               | 4.750 | 4.00   | 3.250  | 4.1250   | 2.5000   | 3.500      | 1/4" | 9/32"  | 0.500       | 2.875      | 3.000      | 0.086     | 2.519                      | WH-237     | 3.000        | 490       | 903  |
| IPP32G    | 2              | 2.125               | 6.000 | 5.00   | 4.063  | 5.2500   | 3.2500   | 4.500      | 3/8" | 13/32" | 0.625       | 3.625      | 4.000      | 0.103     | 3.182                      | WH-300     | 6.500        | 858       | 1784 |

- Notes:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.  
 (2) All standard pillow blocks use standard IP series bearings.  
 (3) Straight bore, pre-assembled pillow blocks use standard IP series bearing.

## Ball Bearings – Open Pillow Blocks IPPN



| PART NO.  | NOM. BRG. DIA. | A                   | B              | C      | E        | F        | G          | H    | J      | K          | M      | O          | P          | R         | EATON RET. RING PART NO. | ASSEM. WT. | S     | LOAD RATINGS |           |      |
|-----------|----------------|---------------------|----------------|--------|----------|----------|------------|------|--------|------------|--------|------------|------------|-----------|--------------------------|------------|-------|--------------|-----------|------|
|           |                |                     |                |        |          |          |            |      |        |            |        |            |            |           |                          |            |       | DYNAMIC C    | STATIC Co |      |
| PRECISION | INCH           | CENTERLINE +/- .001 | WIDTH +/- .010 | LENGTH | +/- .010 | +/- .010 | BODY WIDTH | BOLT | HOLE   | FLNG THICK | HEIGHT | GRV. SPACE | GRV. WIDTH | GRV. DIA. | MIN. OPEN                |            |       |              |           |      |
| IPPN08G   | 1/2            | 0.687               | 2.000          | 1.50   | 1.6880   | 1.0000   | 1.375      | #6   | 5/32"  | 0.250      | 1.125  | 1.250      | 0.046      | 0.931     | 0.313                    | MNAN-87    | 0.250 | 1.438        | 114       | 176  |
| IPPN10G   | 5/8            | 0.875               | 2.500          | 1.75   | 2.1250   | 1.1250   | 1.750      | #8   | 3/16"  | 0.281      | 1.438  | 1.500      | 0.056      | 1.197     | 0.375                    | MNAN-112   | 0.500 | 1.813        | 174       | 265  |
| IPPN12G   | 3/4            | 0.937               | 2.750          | 1.88   | 2.3750   | 1.2500   | 1.875      | #8   | 3/16"  | 0.313      | 1.563  | 1.625      | 0.056      | 1.330     | 0.438                    | MNAN-125   | 0.580 | 1.938        | 193       | 307  |
| IPPN16G   | 1              | 1.187               | 3.250          | 2.63   | 2.8750   | 1.7500   | 2.375      | #10  | 7/32"  | 0.375      | 1.938  | 2.250      | 0.068      | 1.671     | 0.563                    | MNAN-156   | 1.000 | 2.438        | 220       | 352  |
| IPPN20G   | 1-1/4          | 1.500               | 4.000          | 3.38   | 3.5000   | 2.0000   | 3.000      | #10  | 7/32"  | 0.438      | 2.500  | 2.625      | 0.068      | 2.122     | 0.625                    | MNAN-200   | 2.000 | 3.125        | 352       | 615  |
| IPPN24G   | 1-1/2          | 1.750               | 4.750          | 3.75   | 4.1250   | 2.5000   | 3.500      | 1/4" | 9/32"  | 0.500      | 2.875  | 3.000      | 0.086      | 2.519     | 0.750                    | MNAN-237   | 3.000 | 3.625        | 490       | 903  |
| IPPN32G   | 2              | 2.125               | 6.000          | 4.75   | 5.2500   | 3.2500   | 4.500      | 3/8" | 13/32" | 0.625      | 3.625  | 4.000      | 0.103      | 3.182     | 1.000                    | MNAN-300   | 6.500 | 4.688        | 858       | 1784 |

- Notes:** (1) Standard, pre-assembled pillow blocks include self-aligning housing and precision bearing.  
 (2) All standard pillow blocks use standard IP series bearings.



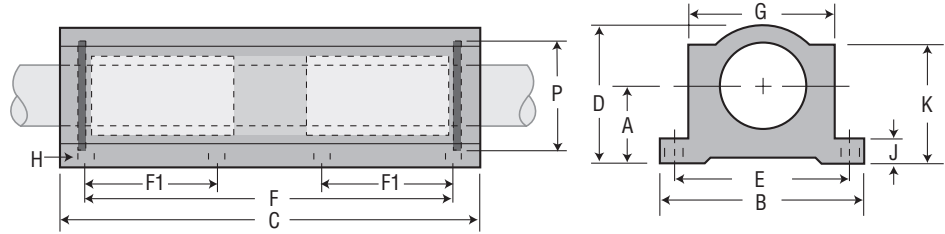
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81



# Linear Ball Bearings Precision Twin Pillow Blocks

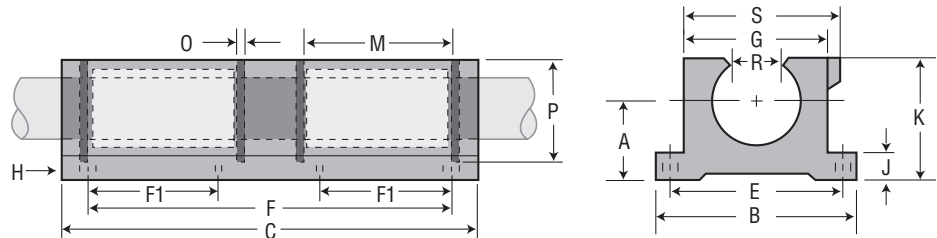
## Ball Bearings – Twin Closed Pillow Blocks IPPW



| PART NO.  | NOM. BRG. DIA. | A                   | B     | C      | D      | E        | F        | F1       | G          | H    |            | J     | K     | P         | SMALLEY RET. RING PART NO. | ASSEM. WT. | LOAD RATINGS LBF |           |
|-----------|----------------|---------------------|-------|--------|--------|----------|----------|----------|------------|------|------------|-------|-------|-----------|----------------------------|------------|------------------|-----------|
|           |                |                     |       |        |        |          |          |          |            | BOLT | HOLE THICK |       |       |           |                            |            | DYNAMIC C        | STATIC Co |
| PRECISION | INCH           | CENTERLINE +/- .001 | WIDTH | LENGTH | HEIGHT | +/- .010 | +/- .010 | +/- .010 | BODY WIDTH |      |            |       |       | GRV. DIA. |                            |            |                  |           |
| IPPW04G   | 1/4            | 0.437               | 1.625 | 2.500  | 0.813  | 1.3120   | 2.0000   | .750     | 1.000      | #6   | 5/32"      | 0.188 | 0.750 | 0.532     | WH-51                      | 0.197      | 92               | 118       |
| IPPW06G   | 3/8            | 0.500               | 1.750 | 2.750  | 0.938  | 1.4370   | 2.2500   | .875     | 1.125      | #6   | 5/32"      | 0.188 | 0.875 | 0.665     | WH-65                      | 0.258      | 100              | 140       |
| IPPW08G   | 1/2            | 0.687               | 2.000 | 3.500  | 1.250  | 1.6880   | 2.5000   | 1.000    | 1.375      | #6   | 5/32"      | 0.250 | 1.125 | 0.931     | WH-90                      | 0.500      | 228              | 352       |
| IPPW10G   | 5/8            | 0.875               | 2.500 | 4.000  | 1.625  | 2.1250   | 3.0000   | 1.125    | 1.750      | #8   | 3/16"      | 0.281 | 1.438 | 1.197     | WH-115                     | 1.000      | 348              | 530       |
| IPPW12G   | 3/4            | 0.937               | 2.750 | 4.500  | 1.750  | 2.3750   | 3.5000   | 1.250    | 1.875      | #8   | 3/16"      | 0.313 | 1.563 | 1.330     | WH-128                     | 1.125      | 386              | 614       |
| IPPW16G   | 1              | 1.187               | 3.250 | 6.000  | 2.188  | 2.8750   | 4.5000   | 1.750    | 2.375      | #10  | 7/32"      | 0.375 | 1.938 | 1.671     | WH-156                     | 2.188      | 440              | 704       |
| IPPW20G   | 1-1/4          | 1.500               | 4.000 | 7.500  | 2.813  | 3.5000   | 5.5000   | 2.000    | 3.000      | #10  | 7/32"      | 0.438 | 2.500 | 2.122     | WH-200                     | 4.250      | 704              | 1230      |
| IPPW24G   | 1-1/2          | 1.750               | 4.750 | 9.000  | 3.250  | 4.1250   | 6.5000   | 2.500    | 3.500      | 1/4" | 9/32"      | 0.500 | 2.875 | 2.519     | WH-237                     | 6.375      | 980              | 1806      |
| IPPW32G   | 2              | 2.125               | 6.000 | 10.000 | 4.063  | 5.2500   | 8.2500   | 3.250    | 4.500      | 3/8" | 13/32"     | 0.625 | 3.625 | 3.182     | WH-300                     | 13.500     | 1716             | 3568      |

Notes: (1) All standard pillow blocks use standard IP series bearings.  
 (2) Twin closed pillow blocks are not self-aligning.

## Ball Bearings – Twin Open Pillow Blocks IPPWN



| PART NO. | NOM. BRG. DIA. | A     | B     | C      | E      | F      | F1    | G     | H    |        | J     | K     | M     | O     | P     | R     | EATON RET. RING PART NO. | ASSEM. WT. | S     | LOAD RATINGS LBF |        |
|----------|----------------|-------|-------|--------|--------|--------|-------|-------|------|--------|-------|-------|-------|-------|-------|-------|--------------------------|------------|-------|------------------|--------|
|          |                |       |       |        |        |        |       |       | BOLT | HOLE   |       |       |       |       |       |       |                          |            |       | FLNG. THICK      | HEIGHT |
| IPPWN08G | 1/2            | 0.687 | 2.000 | 3.500  | 1.6880 | 2.5000 | 1.000 | 1.375 | #6   | 5/32"  | 0.250 | 1.125 | 1.250 | 0.046 | 0.931 | 0.313 | MNAN-87                  | 0.400      | 1.438 | 228              | 352    |
| IPPWN10G | 5/8            | 0.875 | 2.500 | 4.000  | 2.1250 | 3.0000 | 1.125 | 1.750 | #8   | 3/16"  | 0.281 | 1.438 | 1.500 | 0.056 | 1.197 | 0.375 | MNAN-112                 | 0.910      | 1.813 | 348              | 530    |
| IPPWN12G | 3/4            | 0.937 | 2.750 | 4.500  | 2.3750 | 3.5000 | 1.250 | 1.875 | #8   | 3/16"  | 0.313 | 1.563 | 1.625 | 0.056 | 1.330 | 0.438 | MNAN-125                 | 1.060      | 1.938 | 386              | 614    |
| IPPWN16G | 1              | 1.187 | 3.250 | 6.000  | 2.8750 | 4.5000 | 1.750 | 2.375 | #10  | 7/32"  | 0.375 | 1.938 | 2.250 | 0.068 | 1.671 | 0.563 | MNAN-156                 | 1.970      | 2.438 | 440              | 704    |
| IPPWN20G | 1-1/4          | 1.500 | 4.000 | 7.500  | 3.5000 | 5.5000 | 2.000 | 3.000 | #10  | 7/32"  | 0.438 | 2.500 | 2.625 | 0.068 | 2.122 | 0.625 | MNAN-200                 | 3.725      | 3.125 | 704              | 1230   |
| IPPWN24G | 1-1/2          | 1.750 | 4.750 | 9.000  | 4.1250 | 6.5000 | 2.500 | 3.500 | 1/4" | 9/32"  | 0.500 | 2.875 | 3.000 | 0.086 | 2.519 | 0.750 | MNAN-237                 | 5.800      | 3.625 | 980              | 1806   |
| IPPWN32G | 2              | 2.125 | 6.000 | 10.000 | 5.2500 | 8.2500 | 3.250 | 4.500 | 3/8" | 13/32" | 0.625 | 3.625 | 4.000 | 0.103 | 3.182 | 1.000 | MNAN-300                 | 12.125     | 4.688 | 1716             | 3568   |

Note: All standard pillow blocks use standard IP series bearings.

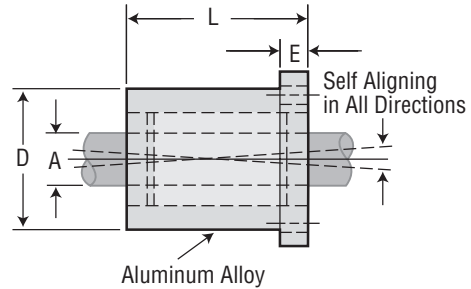
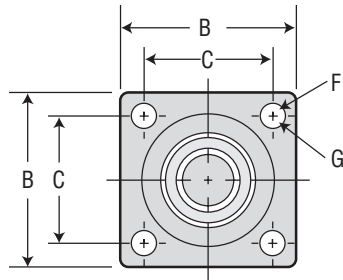
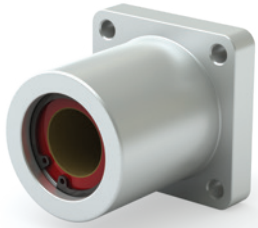
INCH

ISO METRIC

JIS METRIC

# Simplicity® Flange Mounts

## Flange Mounts SFP

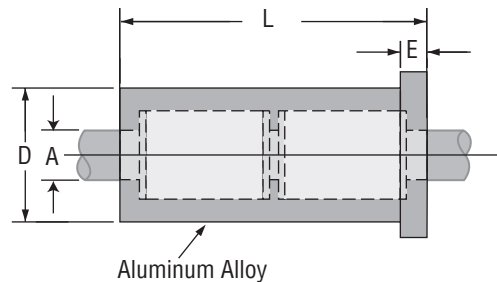
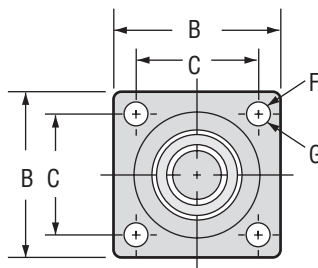
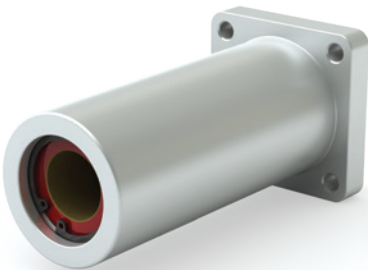


### DIMENSIONAL INFORMATION

| PART NO.  |             | A<br>NOMINAL<br>BEARING<br>SIZE | B<br>FLANGE<br>SQUARE | C<br>HOLE<br>SPACING | D<br>BARREL<br>DIA. | E<br>FLANGE<br>LENGTH | F<br>BOLT<br>SIZE | G<br>HOLE<br>SIZE | L<br>LENGTH<br>OVERALL | MAX STATIC<br>LOAD LBS. |       | ASSEMBLY<br>WEIGHT<br>LBS. |
|-----------|-------------|---------------------------------|-----------------------|----------------------|---------------------|-----------------------|-------------------|-------------------|------------------------|-------------------------|-------|----------------------------|
|           |             |                                 |                       |                      |                     |                       |                   |                   |                        | FRELON®                 |       |                            |
| PRECISION | COMPENSATED |                                 |                       |                      |                     |                       |                   |                   |                        | GOLD                    | J & W |                            |
| SFP 06    | SFP 06 C    | 3/8"                            | 1.25                  | 1.00                 | 0.875               | 0.188                 | #4                | 0.125             | 1.31                   | 1020                    | 510   | 0.070                      |
| SFP 08    | SFP 08 C    | 1/2"                            | 1.63                  | 1.25                 | 1.25                | 0.250                 | #8                | 0.187             | 1.687                  | 1950                    | 975   | 0.175                      |
| SFP 12    | SFP 12 C    | 3/4"                            | 2.38                  | 1.75                 | 1.75                | 0.375                 | #10               | 0.219             | 2.067                  | 2940                    | 1470  | 0.463                      |
| SFP 16    | SFP 16 C    | 1"                              | 2.75                  | 2.125                | 2.25                | 0.500                 | 1/4"              | 0.281             | 2.812                  | 3810                    | 1905  | 1.206                      |
| SFP 20    | SFP 20 C    | 1 1/4"                          | 3.88                  | 3.00                 | 2.62                | 0.625                 | 3/8"              | 0.386             | 3.625                  | 10830                   | 5415  | 1.830                      |

**Notes:** (1) All standard, pre-assembled SFP assemblies include a self-aligning housing and standard FL bearings - allowing the bearing to self-align.  
 (2) SFPB assemblies include a straight bore housing and standard FL bearings - allowing for a more rigid fit.

## Flange Mounts DFP



### DIMENSIONAL INFORMATION

| PART NO.  |             | A<br>NOMINAL<br>BEARING<br>SIZE | B<br>FLANGE<br>SQUARE | C<br>HOLE<br>SPACING | D<br>BARREL<br>DIA. | E<br>FLANGE<br>LENGTH | F<br>BOLT<br>SIZE | G<br>HOLE<br>SIZE | L<br>LENGTH<br>OVERALL | MAX STATIC<br>LOAD LBS. |       | ASSEMBLY<br>WEIGHT<br>LBS. |
|-----------|-------------|---------------------------------|-----------------------|----------------------|---------------------|-----------------------|-------------------|-------------------|------------------------|-------------------------|-------|----------------------------|
|           |             |                                 |                       |                      |                     |                       |                   |                   |                        | FRELON®                 |       |                            |
| PRECISION | COMPENSATED |                                 |                       |                      |                     |                       |                   |                   |                        | GOLD                    | J & W |                            |
| DFP 08    | DFP 08 C    | 1/2"                            | 1.63                  | 1.25                 | 1.25                | 0.250                 | #8                | 0.187             | 3.375                  | 3900                    | 1950  | 0.325                      |
| DFP 12    | DFP 12 C    | 3/4"                            | 2.38                  | 1.75                 | 1.75                | 0.375                 | #10               | 0.219             | 4.188                  | 5880                    | 2940  | 0.825                      |
| DFP 16    | DFP 16 C    | 1"                              | 2.75                  | 2.125                | 2.25                | 0.500                 | 1/4"              | 0.281             | 5.625                  | 7620                    | 3810  | 1.750                      |

**Notes:** (1) All standard, pre-assembled DFP assemblies include a self-aligning housing and standard FL bearings - allowing the bearing to self-align.  
 (2) Straight bore DFPB assemblies include a straight bore housing and standard FL bearings - allowing for a more rigid fit.



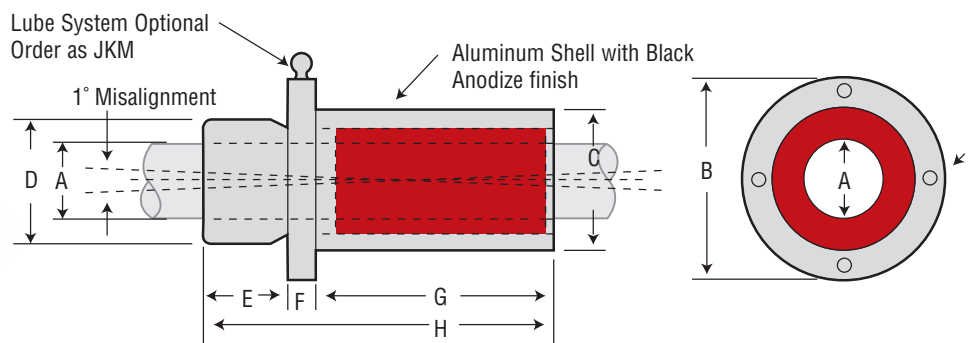
**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

[Inch Series—page 44](#) [Metric Series—page 81](#)

INCH  
ISO  
METRIC  
JIS  
METRIC

# Simplicity® Die Set Flange Mounts

## Flange Mounts SDS

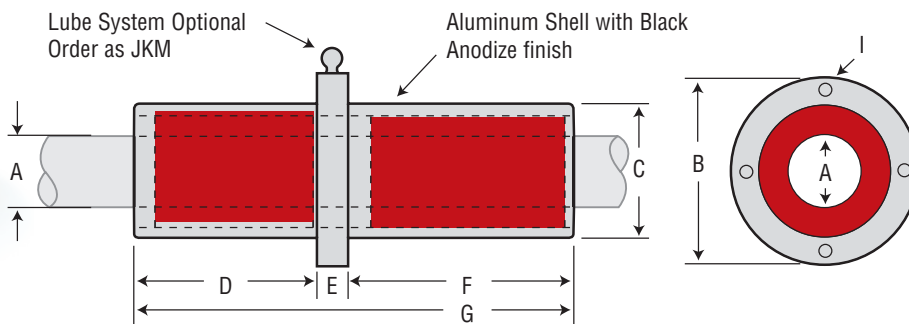


### DIMENSIONAL INFORMATION

| PART NO.  |             | A<br>NOMINAL<br>BEARING<br>SIZE | B      | C           |       | D          |       | E               | F                | G              | H                 | I                          |              |        | MAX STATIC<br>LOAD LBS. |       | ASSEMBLY<br>WEIGHT<br>LBS. |
|-----------|-------------|---------------------------------|--------|-------------|-------|------------|-------|-----------------|------------------|----------------|-------------------|----------------------------|--------------|--------|-------------------------|-------|----------------------------|
| PRECISION | COMPENSATED |                                 | FLANGE | BARREL DIA. |       | PILOT DIA. |       | PILOT<br>LENGTH | FLANGE<br>LENGTH | HEAD<br>LENGTH | OVERALL<br>LENGTH | MOUNTING HOLES<br>4 PLACES |              |        | FRELON®                 |       |                            |
|           |             |                                 | O.D.   | MIN.        | MAX.  | MIN.       | MAX.  |                 |                  |                |                   | BOLT<br>SIZE               | HOLE<br>SIZE | CIRCLE | GOLD                    | J & W |                            |
| SDSZ16    | SDSZ16C     | 1"                              | 3.00   | 2.098       | 2.100 | 1.4995     | 1.500 | 0.875           | 0.562            | 2.500          | 3.927             | 1/4"                       | 0.281        | 2.550  | 7050                    | 3525  | 0.941                      |
| SDSZ20    | SDSZ20C     | 1-1/4"                          | 3.50   | 2.598       | 2.600 | 1.7495     | 1.750 | 1.125           | 0.750            | 3.000          | 4.875             | 1/4"                       | 0.281        | 3.050  | 10290                   | 5145  | 1.852                      |
| SDSZ24    | SDSZ24C     | 1-1/2"                          | 4.25   | 2.998       | 3.000 | 1.9990     | 2.000 | 1.375           | 1.000            | 3.500          | 5.875             | 3/8"                       | 0.406        | 3.650  | 14100                   | 7050  | 2.983                      |
| SDSZ32    | SDSZ32C     | 2"                              | 5.00   | 3.748       | 3.750 | 2.4990     | 2.500 | 1.625           | 1.000            | 4.500          | 7.125             | 3/8"                       | 0.406        | 4.400  | 25050                   | 12525 | 5.032                      |

- Notes:** (1) Shell material is aluminum.  
 (2) All standard, pre-assembled SDS assemblies include a straight bore housing and standard FLA bearings - allowing the bearing to self-align.  
 (3) SDSB assemblies include a straight bore housing and standard FL bearings - allowing for a more rigid fit.

## Flange Mounts DDS



### DIMENSIONAL INFORMATION

| PART NO.  |             | A<br>NOMINAL<br>BEARING<br>SIZE | B      | C           |       | D      | E                | F      | G                 | I                          |              |        | MAX STATIC<br>LOAD LBS. |       | ASSEMBLY<br>WEIGHT<br>LBS. |
|-----------|-------------|---------------------------------|--------|-------------|-------|--------|------------------|--------|-------------------|----------------------------|--------------|--------|-------------------------|-------|----------------------------|
| PRECISION | COMPENSATED |                                 | FLANGE | BARREL DIA. |       | LENGTH | FLANGE<br>LENGTH | LENGTH | OVERALL<br>LENGTH | MOUNTING HOLES<br>4 PLACES |              |        | FRELON®                 |       |                            |
|           |             |                                 | O.D.   | MIN.        | MAX.  |        |                  |        |                   | BOLT<br>SIZE               | HOLE<br>SIZE | CIRCLE | GOLD                    | J & W |                            |
| DDSZ16    | DDSZ16C     | 1"                              | 3.00   | 2.098       | 2.100 | 2.5    | 0.562            | 3.500  | 6.563             | 1/4"                       | 0.281        | 2.550  | 14100                   | 7050  | 1.785                      |
| DDSZ20    | DDSZ20C     | 1-1/4"                          | 3.50   | 2.598       | 2.600 | 3      | 0.750            | 4.250  | 8.000             | 1/4"                       | 0.281        | 3.050  | 20580                   | 10290 | 3.203                      |
| DDSZ24    | DDSZ24C     | 1-1/2"                          | 4.25   | 2.998       | 3.000 | 3.5    | 1.000            | 5.000  | 9.500             | 3/8"                       | 0.406        | 3.650  | 28200                   | 14100 | 5.128                      |
| DDSZ32    | DDSZ32C     | 2"                              | 5.00   | 3.748       | 3.750 | 4.5    | 1.000            | 6.500  | 12.000            | 3/8"                       | 0.406        | 4.400  | 50100                   | 25050 | 9.015                      |

- Notes:** (1) Shell material is aluminum.  
 (2) All standard, pre-assembled DDS assemblies include a straight bore housing and standard FLA bearings - allowing the bearing to self-align.  
 (3) All straight bore, pre-assembled DDSB assemblies include a straight bore housing and standard FL bearings - allowing for a more rigid fit.

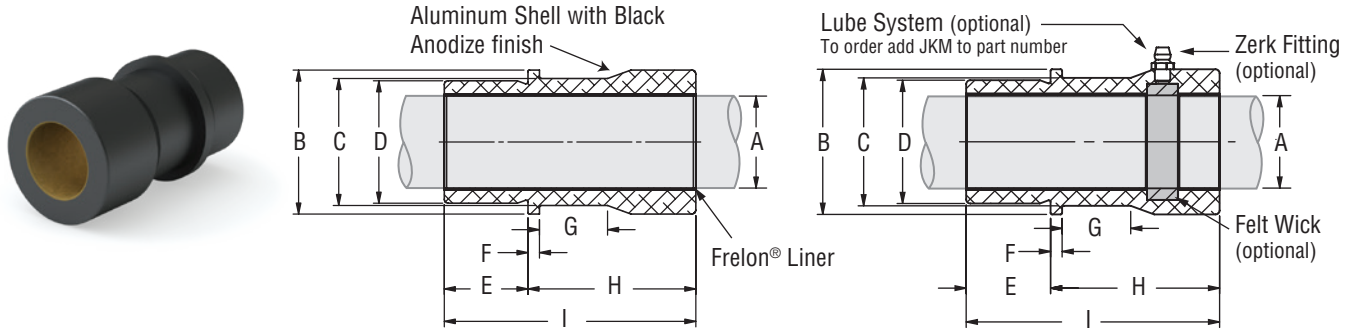
INCH

ISO  
METRIC

JIS  
METRIC

# Simplicity® Die Set Bushings

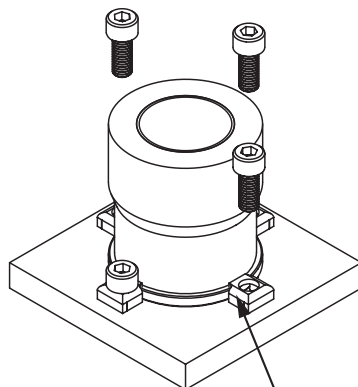
## Die Set Bushings PAC



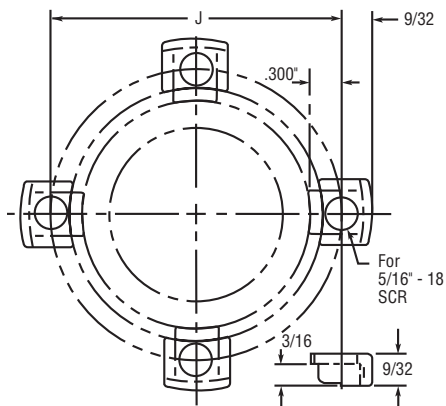
### DIMENSIONAL INFORMATION

| P = PRECISION<br>C = COMPENSATED | PART NO. | NOMINAL SIZE<br>IN | A BEARING I.D. |        | B FLANGE & BARREL O.D. |       | C CLAMP DIA. | D PILOT O.D. |        | E PILOT LENGTH | F FLANGE LENGTH | G RECESS LENGTH | H HEAD LENGTH | I OVERALL LENGTH | EFFECTIVE SURFACE AREA<br>SQ. IN. | MAX STATIC LOAD LBS. |         | BEARING WEIGHT<br>LBS. |
|----------------------------------|----------|--------------------|----------------|--------|------------------------|-------|--------------|--------------|--------|----------------|-----------------|-----------------|---------------|------------------|-----------------------------------|----------------------|---------|------------------------|
|                                  |          |                    | MIN            | MAX    | MIN                    | MAX   |              | MIN          | MI.    |                |                 |                 |               |                  |                                   | MAX                  | FRELON® |                        |
| P                                | PACZ750  | 3/4                | 0.750          | 0.7510 | 1.285                  | 1.300 | 1.012        | 1.1245       | 1.1250 | 0.812          | 0.188           | 0.712           | 2.000         | 2.812            | 2.209                             | 6626                 | 3313    | 0.625                  |
| C                                | PACZ750C |                    | 0.7530         | 0.7540 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ100  | 1                  | 1.000          | 1.0010 | 1.723                  | 1.738 | 1.450        | 1.4995       | 1.5000 | 0.875          | 0.188           | 0.812           | 2.250         | 3.125            | 3.272                             | 9817                 | 4909    | 1.000                  |
| C                                | PACZ100C |                    | 1.0030         | 1.0040 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ125  | 1-1/4              | 1.250          | 1.2510 | 2.097                  | 2.112 | 1.825        | 1.7495       | 1.7500 | 1.125          | 0.188           | 0.812           | 2.375         | 3.500            | 4.581                             | 13744                | 6872    | 1.500                  |
| C                                | PACZ125C |                    | 1.2540         | 1.2550 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ150  | 1-1/2              | 1.500          | 1.5012 | 2.346                  | 2.361 | 2.075        | 1.9995       | 2.0000 | 1.375          | 0.188           | 1.112           | 2.750         | 4.125            | 6.480                             | 19439                | 9719    | 2.000                  |
| C                                | PACZ150C |                    | 1.5040         | 1.5050 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ200  | 2                  | 2.000          | 2.0014 | 3.095                  | 3.110 | 2.825        | 2.4995       | 2.5000 | 1.625          | 0.188           | 1.112           | 3.000         | 4.625            | 9.687                             | 29060                | 14530   | 4.188                  |
| C                                | PACZ200C |                    | 2.0050         | 2.0064 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ250  | 2-1/2              | 2.500          | 2.5016 | 3.595                  | 3.610 | 3.325        | 2.9995       | 3.0000 | 1.875          | 0.188           | 1.112           | 3.500         | 5.375            | 14.072                            | 42215                | 21108   | 6.000                  |
| C                                | PACZ250C |                    | 2.5050         | 2.5065 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |
| P                                | PACZ300  | 3                  | 3.000          | 3.0020 | 4.345                  | 4.360 | 4.075        | 3.6245       | 3.6250 | 1.875          | 0.188           | 1.112           | 4.000         | 5.875            | 18.457                            | 55371                | 27685   | 10.000                 |
| C                                | PACZ300C |                    | 3.0060         | 3.0080 |                        |       |              |              |        |                |                 |                 |               |                  |                                   |                      |         |                        |

- Notes:** (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) Shell material is aluminum.  
 (3) For lubrication system add JKM, example: PACZ750JKM.  
 (4) Max static load is effective surface area times max load for FrelonGOLD®.  
 (5) - 3000 psi is the rating for FrelonGOLD®: 1500 psi is the rating for Frelon J & W.



4 PAC clamps are shipped with each die set.  
 Extra clamps can be ordered using part # PACCLAMP.



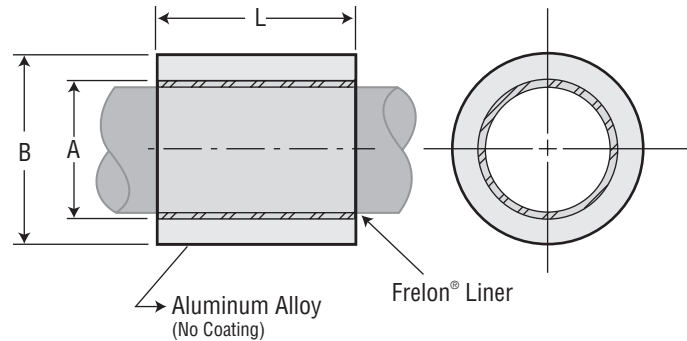
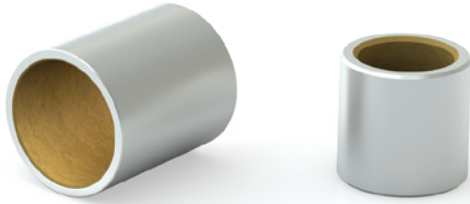
Dimension for calculating bolt circle:  $J = C + .600''$





# Simplicity® Sleeve Bearings

## Sleeve Bearings PS



### DIMENSIONAL INFORMATION

| PART NO.  | NOMINAL BEARING SIZE |        |        | A BEARING I.D. |        | B O.D. |        | L LENGTH |       | MAX. STATIC LOAD LBS. |       | BEARING WEIGHT OZ. | RECOMMENDED HOUSING BORE |        |           |        |
|-----------|----------------------|--------|--------|----------------|--------|--------|--------|----------|-------|-----------------------|-------|--------------------|--------------------------|--------|-----------|--------|
|           | I.D.                 | O.D.   | LENGTH | MIN            | MAX    | MIN    | MAX    | MIN      | MA.   | FRELON®               |       |                    | SLIP FIT & EPOXY         |        | PRESS FIT |        |
|           |                      |        |        |                |        |        |        |          |       | GOLD                  | J & W |                    | MIN                      | MAX    | MIN       | MAX    |
| PS0305-02 | 3/16"                | 5/16"  | 1/4"   | 0.1890         | 0.1900 | 0.3135 | 0.3145 | 0.230    | 0.250 | 130                   | 65    | 0.02               | 0.3145                   | 0.3155 | 0.3125    | 0.3130 |
| PS0305-04 | 3/16"                | 5/16"  | 1/2"   | 0.1890         | 0.1900 | 0.3135 | 0.3145 | 0.480    | 0.500 | 272                   | 136   | 0.04               | 0.3145                   | 0.3155 | 0.3125    | 0.3130 |
| PS0406-02 | 1/4"                 | 3/8"   | 1/4"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.230    | 0.250 | 174                   | 87    | 0.03               | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PS0406-03 | 1/4"                 | 3/8"   | 3/8"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.355    | 0.375 | 268                   | 134   | 0.04               | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PS0406-04 | 1/4"                 | 3/8"   | 1/2"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.480    | 0.500 | 362                   | 181   | 0.05               | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PS0610-04 | 3/8"                 | 5/8"   | 1/2"   | 0.3765         | 0.3775 | 0.6260 | 0.6270 | 0.480    | 0.500 | 542                   | 271   | 0.14               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PS0610-06 | 3/8"                 | 5/8"   | 3/4"   | 0.3765         | 0.3775 | 0.6260 | 0.6270 | 0.730    | 0.750 | 824                   | 412   | 0.20               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PS0710-06 | 7/16"                | 5/8"   | 3/4"   | 0.4390         | 0.4400 | 0.6260 | 0.6270 | 0.730    | 0.750 | 962                   | 481   | 0.23               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PS0812-04 | 1/2"                 | 3/4"   | 1/2"   | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 0.480    | 0.500 | 722                   | 361   | 0.15               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PS0812-06 | 1/2"                 | 3/4"   | 3/4"   | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 0.730    | 0.750 | 1098                  | 549   | 0.25               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PS0812-08 | 1/2"                 | 3/4"   | 1"     | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 0.980    | 1.000 | 1474                  | 737   | 0.35               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PS1014-06 | 5/8"                 | 7/8"   | 3/4"   | 0.6265         | 0.6275 | 0.8760 | 0.8770 | 0.730    | 0.750 | 1372                  | 686   | 0.30               | 0.8770                   | 0.8780 | 0.8750    | 0.8755 |
| PS1014-08 | 5/8"                 | 7/8"   | 1"     | 0.6265         | 0.6275 | 0.8760 | 0.8770 | 0.980    | 1.000 | 1842                  | 921   | 0.45               | 0.8770                   | 0.8780 | 0.8750    | 0.8755 |
| PS1216-08 | 3/4"                 | 1"     | 1"     | 0.7515         | 0.7525 | 1.0010 | 1.0020 | 0.980    | 1.000 | 2210                  | 1105  | 0.50               | 1.0020                   | 1.0030 | 0.9995    | 1.0000 |
| PS1216-10 | 3/4"                 | 1"     | 1.25"  | 0.7515         | 0.7525 | 1.0010 | 1.0020 | 1.230    | 1.250 | 2777                  | 1389  | 0.65               | 1.0020                   | 1.0030 | 0.9995    | 1.0000 |
| PS1620-12 | 1"                   | 1-1/4" | 1-1/2" | 1.0015         | 1.0025 | 1.2510 | 1.2520 | 1.480    | 1.500 | 4446                  | 2223  | 0.95               | 1.2520                   | 1.2530 | 1.2490    | 1.2500 |
| PS2024-16 | 1-1/4"               | 1-1/2" | 2"     | 1.2515         | 1.2525 | 1.5010 | 1.5020 | 1.980    | 2.000 | 7434                  | 3717  | 1.55               | 1.5020                   | 1.5030 | 1.4990    | 1.5000 |
| PS2428-16 | 1-1/2"               | 1-3/4" | 2"     | 1.5015         | 1.5025 | 1.7510 | 1.7520 | 1.980    | 2.000 | 8918                  | 4459  | 1.80               | 1.7520                   | 1.7530 | 1.7490    | 1.7500 |
| PS2832-24 | 1-3/4"               | 2"     | 3"     | 1.7515         | 1.7525 | 2.0010 | 2.0020 | 2.980    | 3.000 | 15658                 | 7829  | 3.15               | 2.0020                   | 2.0030 | 1.9990    | 2.0000 |
| PS3236-24 | 2"                   | 2-1/4" | 3"     | 2.0015         | 2.0025 | 2.2510 | 2.2520 | 2.980    | 3.000 | 17894                 | 8947  | 3.55               | 2.2520                   | 2.2530 | 2.2490    | 2.2500 |
| PS4044-24 | 2-1/2"               | 2-3/4" | 3"     | 2.5015         | 2.5025 | 2.7510 | 2.7520 | 2.980    | 3.000 | 22364                 | 11182 | 4.85               | 2.7520                   | 2.7530 | 2.7490    | 2.7500 |
| PS4852-28 | 3"                   | 3-1/4" | 3-1/2" | 3.0015         | 3.0025 | 3.2510 | 3.2520 | 3.480    | 3.500 | 31336                 | 15668 | 6.10               | 3.2520                   | 3.2530 | 3.2485    | 3.2495 |

### ORDERING INFORMATION

|                                 |                          |                          |                           |    |
|---------------------------------|--------------------------|--------------------------|---------------------------|----|
| PS                              | 12                       | 16                       | -                         | 08 |
| Type                            | I.D.                     | O.D.                     | Length                    |    |
| PS:<br>Precision Sleeve Bearing | I.D. in 1/16" Increments | O.D. in 1/16" Increments | Length in 1/8" Increments |    |

Note: Lengths not listed above must be specially quoted.



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

### INSTALLATION INSTRUCTIONS

- Slip the bearing sleeve into the housing and epoxy into place with Loctite® or similar type bonding agent.

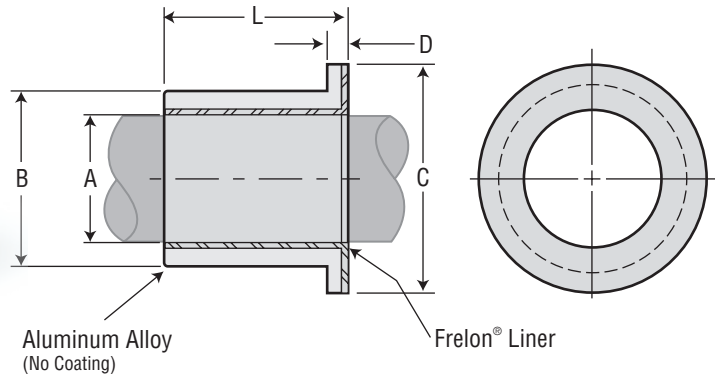


Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.

- Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

# Simplicity® Sleeve Bearings with Flange

## Sleeve Bearings with Flange PSF



### DIMENSIONAL INFORMATION

| PART NO.   | NOMINAL BEARING SIZE |        |        | A BEARING I.D. |        | B O.D. |        | C FLANGE O.D. | D FLANGE WIDTH | L LENGTH |       | MAX. STATIC LOAD LBS. |       | BEARING WEIGHT OZ. | RECOMMENDED HOUSING BORE |        |           |        |
|------------|----------------------|--------|--------|----------------|--------|--------|--------|---------------|----------------|----------|-------|-----------------------|-------|--------------------|--------------------------|--------|-----------|--------|
|            | I.D.                 | O.D.   | LENGTH | MIN            | MAX    | MIN    | MAX    |               |                | MIN      | MAX   | FRELON®               |       |                    | SLIP FIT & EPOXY         |        | PRESS FIT |        |
|            |                      |        |        |                |        |        |        |               |                |          |       | GOLD                  | J & W |                    | MIN                      | MAX    | MIN       | MAX    |
| PSF0305-02 | 3/16"                | 5/16"  | 1/4"   | 0.1890         | 0.1900 | 0.3135 | 0.3145 | 0.4370        | 0.0625         | 0.230    | 0.250 | 130                   | 65    | 0.023              | 0.3145                   | 0.3155 | 0.3125    | 0.3130 |
| PSF0305-04 | 3/16"                | 5/16"  | 1/2"   | 0.1890         | 0.1900 | 0.3135 | 0.3145 | 0.4370        | 0.0625         | 0.480    | 0.500 | 272                   | 136   | 0.044              | 0.3145                   | 0.3155 | 0.3125    | 0.3130 |
| PSF0406-02 | 1/4"                 | 3/8"   | 1/4"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.5000        | 0.0625         | 0.230    | 0.250 | 174                   | 87    | 0.031              | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PSF0406-03 | 1/4"                 | 3/8"   | 3/8"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.5000        | 0.0625         | 0.355    | 0.375 | 268                   | 134   | 0.044              | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PSF0406-04 | 1/4"                 | 3/8"   | 1/2"   | 0.2515         | 0.2525 | 0.3760 | 0.3770 | 0.5000        | 0.0625         | 0.480    | 0.500 | 362                   | 181   | 0.055              | 0.3770                   | 0.3780 | 0.3750    | 0.3755 |
| PSF0610-04 | 3/8"                 | 5/8"   | 1/2"   | 0.3765         | 0.3775 | 0.6260 | 0.6270 | 0.8750        | 0.1250         | 0.480    | 0.500 | 542                   | 271   | 0.20               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PSF0610-06 | 3/8"                 | 5/8"   | 3/4"   | 0.3765         | 0.3775 | 0.6260 | 0.6270 | 0.8750        | 0.1250         | 0.730    | 0.750 | 824                   | 412   | 0.25               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PSF0710-06 | 7/16"                | 5/8"   | 3/4"   | 0.4390         | 0.4400 | 0.6260 | 0.6270 | 0.9375        | 0.1250         | 0.730    | 0.750 | 962                   | 481   | 0.20               | 0.6270                   | 0.6280 | 0.6250    | 0.6255 |
| PSF0812-04 | 1/2"                 | 3/4"   | 1/2"   | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 1.0000        | 0.1250         | 0.480    | 0.500 | 722                   | 361   | 0.25               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PSF0812-06 | 1/2"                 | 3/4"   | 3/4"   | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 1.0000        | 0.1250         | 0.730    | 0.750 | 1098                  | 549   | 0.30               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PSF0812-08 | 1/2"                 | 3/4"   | 1"     | 0.5015         | 0.5025 | 0.7510 | 0.7520 | 1.0000        | 0.1250         | 0.980    | 1.000 | 1474                  | 737   | 0.40               | 0.7520                   | 0.7530 | 0.7500    | 0.7505 |
| PSF1014-06 | 5/8"                 | 7/8"   | 3/4"   | 0.6265         | 0.6275 | 0.8760 | 0.8770 | 1.0000        | 0.1250         | 0.730    | 0.750 | 1372                  | 686   | 0.35               | 0.8770                   | 0.8780 | 0.8750    | 0.8755 |
| PSF1014-08 | 5/8"                 | 7/8"   | 1"     | 0.6265         | 0.6275 | 0.8760 | 0.8770 | 1.0000        | 0.1250         | 0.980    | 1.000 | 1842                  | 921   | 0.45               | 0.8770                   | 0.8780 | 0.8750    | 0.8755 |
| PSF1216-08 | 3/4"                 | 1"     | 1"     | 0.7515         | 0.7525 | 1.0010 | 1.0020 | 1.2500        | 0.1250         | 0.980    | 1.000 | 2210                  | 1105  | 0.55               | 1.0020                   | 1.0030 | 0.9995    | 1.0000 |
| PSF1620-12 | 1"                   | 1-1/4" | 1-1/2" | 1.0015         | 1.0025 | 1.2510 | 1.2520 | 1.5000        | 0.1250         | 1.480    | 1.500 | 4446                  | 2223  | 1.05               | 1.2520                   | 1.2530 | 1.2490    | 1.2500 |
| PSF2024-16 | 1-1/4"               | 1-1/2" | 2"     | 1.2515         | 1.2525 | 1.5010 | 1.5020 | 1.7500        | 0.1250         | 1.980    | 2.000 | 7434                  | 3717  | 1.80               | 1.5020                   | 1.5030 | 1.4990    | 1.5000 |
| PSF2428-16 | 1-1/2"               | 1-3/4" | 2"     | 1.5015         | 1.5025 | 1.7510 | 1.7520 | 2.0000        | 0.1250         | 1.980    | 2.000 | 8918                  | 4459  | 2.16               | 1.7520                   | 1.7530 | 1.7490    | 1.7500 |
| PSF2832-24 | 1-3/4"               | 2"     | 3"     | 1.7515         | 1.7525 | 2.0010 | 2.0020 | 2.2500        | 0.1250         | 2.980    | 3.000 | 15658                 | 7829  | 3.30               | 2.0020                   | 2.0030 | 1.9990    | 2.0000 |
| PSF3236-24 | 2"                   | 2-1/4" | 3"     | 2.0015         | 2.0025 | 2.2510 | 2.2520 | 2.5000        | 0.1250         | 2.980    | 3.000 | 17894                 | 8947  | 3.75               | 2.2520                   | 2.2530 | 2.2490    | 2.2500 |
| PSF4044-24 | 2-1/2"               | 2-3/4" | 3"     | 2.5015         | 2.5025 | 2.7510 | 2.7520 | 3.0000        | 0.1250         | 2.980    | 3.000 | 22364                 | 11182 | 4.60               | 2.7520                   | 2.7530 | 2.7490    | 2.7500 |
| PSF4852-28 | 3"                   | 3-1/4" | 3-1/2" | 3.0015         | 3.0025 | 3.2510 | 3.2520 | 3.5000        | 0.1250         | 3.480    | 3.500 | 31336                 | 15668 | 6.30               | 3.2520                   | 3.2530 | 3.2485    | 3.2495 |

### ORDERING INFORMATION

|   |                             |                             |                              |    |
|---|-----------------------------|-----------------------------|------------------------------|----|
| PSF   | 12                          | 16                          | -                            | 08 |
| Type  | I.D.                        | O.D.                        | Length                       |    |
| PSF:<br>Precision Sleeve<br>Bearing with Flange | I.D. in 1/16"<br>Increments | O.D. in 1/16"<br>Increments | Length in 1/8"<br>Increments |    |

Note: Lengths not listed above must be specially quoted.



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

### INSTALLATION INSTRUCTIONS

- Slip the bearing sleeve into the housing and epoxy into place with Loctite® or similar type bonding agent.



Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.

- Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.



# Round Shafting

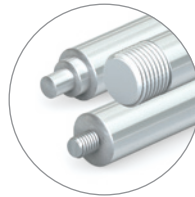
## Simplicity 60 Plus® Shafting

PBC Linear® formulated a linear shaft designed specifically for optimal bearing performance – 60 Plus Shafting. Advanced process capabilities maintain the ideal surface finish for linear bearings resulting in the longest life and highest performing shaft-to-bearing combination available:  
Optimized surface finish

Faster break-in and better Frelon® transfer for plain bearings

Longest life possible, less down time and maintenance

Straight to within .001" to .002" per foot cumulative, except on 3/8" diameter and smaller



See Pages 51–52 for machining options.

INCH  
ISO METRIC  
JIS METRIC

## Inch Shaft Part • Numbering Chart



Configure Online

### Special

**CM** - Custom Machine  
**SL** - Specified Length

### Shaft Length

**Inch** - 000.000

### Shaft Material

**Blank** - 1060 CS

**SS** - 440 SS

**SS316** - 316 SS\*

**CP** - Chrome plate\*\*

**AR** - Armoloy\*\*

\* 300 Series available in most diameters

\*\*Available as special quotes

**Note:** Chrome will have a guaranteed thickness of 0.0001" to 0.0005". Chrome thickness will be in addition to the catalog diameter of the shaft.

| CLASS |  |
|-------|--|
| CODE  | DESCRIPTION                            |
| NIL   | Inch Class L Shaft (Steel)             |
| NIPDL | Inch Class L Predrill (Steel)          |
| CC    | Feather Inch (Aluminum)                |
| CCPDL | Feather Inch Predrill (Aluminum)       |
| SR    | Inch Support Rail (Aluminum)           |
| SRA   | Inch Support Rail Assembly (Aluminum)  |
| CCR   | Feather Rail Assembly (Aluminum)       |
| LSRA  | Inch Low Support Rail Assembly (Steel) |
| LSR   | Inch Low Support Rail (Steel)          |
| LSG   | Inch Low Support Rail Assembly (Steel) |
| NIS   | Inch Class S Shaft (Steel)             |
| NIN   | Inch Class N Shaft (Steel)             |

| DIAMETER |        |
|----------|--------|
| CODE     | DESC.  |
| 03       | 3/16"  |
| 04       | 1/4"   |
| 06       | 3/8"   |
| 08       | 1/2"   |
| 10       | 5/8"   |
| 12       | 3/4"   |
| 16       | 1"     |
| 20       | 1 1/4" |
| 24       | 1 1/2" |
| 32       | 2"     |
| 40       | 2 1/2" |
| 48       | 3"     |
| 64       | 4"     |

| SAMPLE PART NUMBERS  |
|--|
| Feather inch, 1" diameter and 15" long<br><b>CC16-015.000-SL</b>                                     |
| Support rail assembly 1.5" diameter<br>440 stainless steel and 12" long<br><b>SRA24SS-012.000-SL</b> |

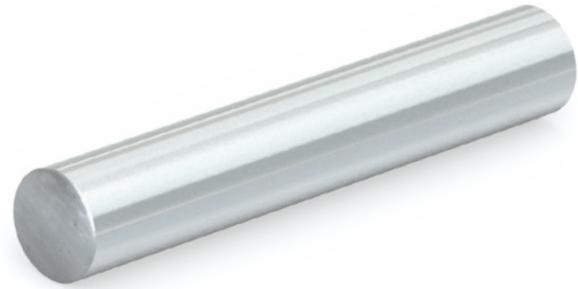
# Round Shafting Steel & Stainless Steel



## Simplicity RC60 Steel Solid Shafting NI

RC 60 Plus case hardened steel shafting  
 Optimized for Simplicity bearings and linear ball bearings  
 Available cut-to-length or full lengths

Length tolerance:  
 3/16" – 1-1/4" shaft = +/- 0.030"  
 1-3/8" – 2" shaft = +/- 0.060"  
 2-1/2" – 4" shaft = +/- 0.125"



INCH

ISO  
METRIC

JIS  
METRIC

| PART NO.        | NOMINAL DIA. | DIA. TOLERANCE CLASS L* |        | DIA. TOLERANCE CLASS S* |           | DIA. TOLERANCE CLASS N* |           | MAX LENGTH | MIN HARDNESS DEPTH | WEIGHT PER IN. |
|-----------------|--------------|-------------------------|--------|-------------------------|-----------|-------------------------|-----------|------------|--------------------|----------------|
|                 | IN.          | MIN                     | MAX**  | MIN                     | MAX**     | MIN                     | MAX*      |            |                    |                |
| NI_* 03-xxx.xxx | 3/16"        | 0.1865                  | 0.1870 | –                       | –         | –                       | –         | 252        | N/A                | 0.008          |
| NI_* 04-xxx.xxx | 1/4"         | 0.2490                  | 0.2495 | 0.2485***               | 0.2490*** | 0.2498***               | 0.2500*** | 252        | 0.040              | 0.014          |
| NI_* 06-xxx.xxx | 3/8"         | 0.3740                  | 0.3745 | 0.3735***               | 0.3740*** | 0.3748***               | 0.3750*** | 252        | 0.060              | 0.031          |
| NI_* 08-xxx.xxx | 1/2"         | 0.4990                  | 0.4995 | 0.4985                  | 0.4990    | 0.4998                  | 0.5000    | 180        | 0.060              | 0.055          |
| NI_* 10-xxx.xxx | 5/8"         | 0.6240                  | 0.6245 | 0.6235                  | 0.6240    | 0.6248                  | 0.6250    | 180        | 0.060              | 0.086          |
| NI_* 12-xxx.xxx | 3/4"         | 0.7490                  | 0.7495 | 0.7485                  | 0.7490    | 0.7498                  | 0.7500    | 180        | 0.060              | 0.125          |
| NI_* 14-xxx.xxx | 7/8"         | 0.8740                  | 0.8745 | --                      | --        | 0.8748                  | 0.8750    | 180        | 0.060              | 0.170          |
| NI_* 16-xxx.xxx | 1"           | 0.9990                  | 0.9995 | 0.9985                  | 0.9990    | 0.9998                  | 1.0000    | 192        | 0.080              | 0.222          |
| NI_* 18-xxx.xxx | 1-1/8"       | 1.1240                  | 1.1245 | --                      | --        | 1.1248                  | 1.1250    | 180        | 0.080              | 0.281          |
| NI_* 20-xxx.xxx | 1-1/4"       | 1.2490                  | 1.2495 | 1.2485                  | 1.2490    | 1.2498                  | 1.2500    | 180        | 0.080              | 0.348          |
| NI_* 22-xxx.xxx | 1-3/8"       | 1.3740                  | 1.3745 | --                      | --        | 1.3747                  | 1.3750    | 180        | 0.080              | 0.420          |
| NI_* 24-xxx.xxx | 1-1/2"       | 1.4989                  | 1.4994 | 1.4984                  | 1.4989    | 1.4997                  | 1.5000    | 180        | 0.080              | 0.500          |
| NI_* 28-xxx.xxx | 1-3/4"       | 1.7490                  | 1.7495 | --                      | --        | 1.7497                  | 1.7500    | 180        | 0.100              | 0.681          |
| NI_* 32-xxx.xxx | 2"           | 1.9987                  | 1.9994 | 1.9980                  | 1.9987    | 1.9997                  | 2.0000    | 180        | 0.100              | 0.890          |
| NI_* 40-xxx.xxx | 2-1/2"       | 2.4985                  | 2.4993 | 2.4977                  | 2.4985    | 2.4996                  | 2.5000    | 180        | 0.100              | 1.391          |
| NI_* 48-xxx.xxx | 3"           | 2.9983                  | 2.9992 | 2.9974                  | 2.9983    | 2.9996                  | 3.0000    | 140        | 0.100              | 2.003          |
| NI_* 64-xxx.xxx | 4"           | 3.9976                  | 3.9988 | –                       | –         | –                       | –         | 140        | 0.100              | 3.560          |

\*Third letter of Part No. reflects the shaft class (NIL for Class L, NIS for Class S, and NIN for Class N).

\*\*MAX length subject to change.

\*\*\*1/4" and 3/8" shafting are available in class S and N for volume requests only.

- Notes: (1) Specify length in part number using inches.  
 (2) Example: for 1/2" class T shafting total length 15" = NIL08-015.000  
 (3) Surface finish bearing recommended 8–10 Ra.

## 440 Stainless Steel Solid Shafting NI\_SS

| PART NO.          | NOMINAL DIA. | DIA. TOLERANCE CLASS L |        | DIA. TOLERANCE CLASS S* |           | MAX LENGTH | MIN HARDNESS DEPTH | WEIGHT PER IN. |
|-------------------|--------------|------------------------|--------|-------------------------|-----------|------------|--------------------|----------------|
|                   | IN.          | MIN                    | MAX    | MIN                     | MAX**     |            |                    |                |
| NI_* 03SS-xxx.xxx | 3/16"        | 0.1865                 | 0.1870 | N/A                     | N/A       | 252        | N/A                | 0.008          |
| NI_* 04SS-xxx.xxx | 1/4"         | 0.2490                 | 0.2495 | 0.2485***               | 0.2490*** | 252        | 0.040              | 0.014          |
| NI_* 06SS-xxx.xxx | 3/8"         | 0.3740                 | 0.3745 | 0.3735***               | 0.3740*** | 252        | 0.040              | 0.031          |
| NI_* 08SS-xxx.xxx | 1/2"         | 0.4990                 | 0.4995 | 0.4985                  | 0.4990    | 154        | 0.060              | 0.055          |
| NI_* 10SS-xxx.xxx | 5/8"         | 0.6240                 | 0.6245 | 0.6235                  | 0.6240    | 154        | 0.060              | 0.087          |
| NI_* 12SS-xxx.xxx | 3/4"         | 0.7490                 | 0.7495 | 0.7485                  | 0.7490    | 154        | 0.060              | 0.125          |
| NI_* 16SS-xxx.xxx | 1"           | 0.9990                 | 0.9995 | 0.9985                  | 0.9990    | 176        | 0.080              | 0.222          |
| NI_* 20SS-xxx.xxx | 1-1/4"       | 1.2490                 | 1.2495 | 1.2485                  | 1.2490    | 154        | 0.080              | 0.348          |
| NI_* 24SS-xxx.xxx | 1-1/2"       | 1.4989                 | 1.4994 | 1.4984                  | 1.4989    | 154        | 0.080              | 0.498          |
| NI_* 32SS-xxx.xxx | 2"           | 1.9987                 | 1.9994 | 1.9980                  | 1.9987    | 154        | 0.100              | 0.886          |

440 stainless steel RC 50 Plus™ hardness  
 Optimized for Simplicity bearings and linear ball bearings

Available cut-to-length or random lengths

Length tolerance:  
 3/16" – 1-1/4" shaft = +/- 0.030"  
 1-3/8" – 2" shaft = +/- 0.060"  
 2-1/2" – 4" shaft = +/- 0.125"



Email an Application Engineer

\*Third letter of Part No. reflects the shaft class (NIL for Class L, NIS for Class S, and NIN for Class N).

\*\*MAX length subject to change.

\*\*\*1/4" and 3/4" shafting are available in class S for volume requests only.

# Shafting Steel, Stainless Steel & Ceramic Coated

## Pre-Drilled & Tapped

### Steel NIPDL • 440 stainless steel NIPDLxxSS

| PART NO.        |                   | NOMINAL DIA. | DIA. TOLERANCE CLASS L IN. |        | STANDARD HOLE SPACING |   | THREAD  | MAX LENGTH | WEIGHT PER INCH |
|-----------------|-------------------|--------------|----------------------------|--------|-----------------------|---|---------|------------|-----------------|
| STEEL           | STAINLESS STEEL   | IN.          | MIN                        | MAX    | x                     | y |         | IN.        | LBS.            |
| NIPDL08-xxx.xxx | NIPDL08SS-xxx.xxx | 1/2"         | 0.4990                     | 0.4995 | 4                     | 2 | 6-32    | 144        | 0.055           |
| NIPDL10-xxx.xxx | NIPDL10SS-xxx.xxx | 5/8"         | 0.6240                     | 0.6245 | 4                     | 2 | 8-32    | 144        | 0.086           |
| NIPDL12-xxx.xxx | NIPDL12SS-xxx.xxx | 3/4"         | 0.7490                     | 0.7495 | 6                     | 3 | 10-32   | 144        | 0.125           |
| NIPDL16-xxx.xxx | NIPDL16SS-xxx.xxx | 1"           | 0.9990                     | 0.9995 | 6                     | 3 | 1/4-20  | 144        | 0.222           |
| NIPDL20-xxx.xxx | NIPDL20SS-xxx.xxx | 1-1/4"       | 1.2490                     | 1.2495 | 6                     | 3 | 5/16-18 | 144        | 0.348           |
| NIPDL24-xxx.xxx | NIPDL24SS-xxx.xxx | 1-1/2"       | 1.4989                     | 1.4994 | 8                     | 4 | 3/8-16  | 132        | 0.500           |
| NIPDL32-xxx.xxx | NIPDL32SS-xxx.xxx | 2"           | 1.9987                     | 1.9994 | 8                     | 4 | 1/2-13  | 132        | 0.890           |
| NIPDL48-xxx.xxx | *                 | 3"           | 2.9983                     | 2.9992 | 8                     | 4 | 3/4-10  | 132        | 2.003           |

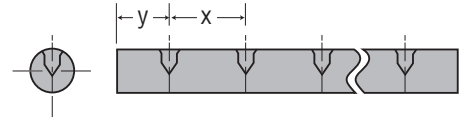
\*Special orders available on this option.

**Notes:** (1) Specify length in part number using inches.

(2) Example: for 1/2" shafting total length 15" = NIPDL08-015.000

(3) Customer specifies 'y' dimension, if different than standard. Hole-to-hole tolerance = +/- .015"

(4) Consult factory for chrome plated, 303, or 316 stainless steel shafting.



## Ceramic Coated

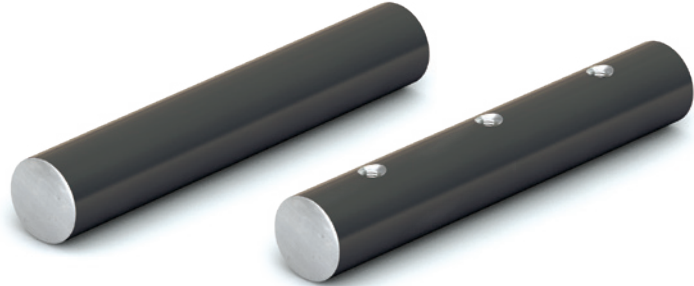
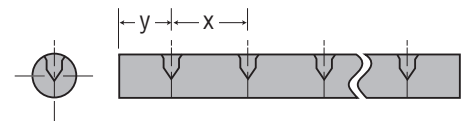
- Aluminum alloy base material
- RC 70 ceramic coated finish
- Designed to run with Simplicity FrelonGOLD® lined bearings
- Interchanges with solid and pre-drilled shafting
- Non-magnetic and vibration resistant
- Weld splatter, paints, and contaminants will not stick
- NOT compatible with linear ball bearings

Length tolerance:

3/16" – 1-1/4" shaft = +/- 0.030"

1-3/8" – 2" shaft = +/- 0.060"

2-1/2" – 4" shaft = +/- 0.125"



## Solid Shafting cc

| PART NO.     | NOMINAL DIA. | DIAMETER TOLERANCE |        | MAX LENGTH | WEIGHT   |
|--------------|--------------|--------------------|--------|------------|----------|
|              | IN.          | MIN                | MAX    | IN.        | LBS./IN. |
| CC03-xxx.xxx | 3/16"        | 0.1863             | 0.1871 | 138        | 0.003    |
| CC04-xxx.xxx | 1/4"         | 0.2488             | 0.2496 | 138        | 0.005    |
| CC06-xxx.xxx | 3/8"         | 0.3738             | 0.3746 | 138        | 0.010    |
| CC08-xxx.xxx | 1/2"         | 0.4988             | 0.4996 | 138        | 0.019    |
| CC10-xxx.xxx | 5/8"         | 0.6238             | 0.6246 | 138        | 0.030    |
| CC12-xxx.xxx | 3/4"         | 0.7488             | 0.7496 | 138        | 0.043    |
| CC16-xxx.xxx | 1"           | 0.9988             | 0.9996 | 138        | 0.077    |
| CC20-xxx.xxx | 1-1/4"       | 1.2488             | 1.2496 | 138        | 0.120    |
| CC24-xxx.xxx | 1-1/2"       | 1.4987             | 1.4995 | 138        | 0.173    |
| CC32-xxx.xxx | 2"           | 1.9985             | 1.9995 | 138        | 0.308    |

**Notes:** (1) Specify length in part number using inches.

Example: for 1/2" shafting total length 36" long = CC08-036.000.

(2) Ends of cut-to-length shafting are not coated.

(3) Fully coated shafting is available on special request.

## Pre-Drilled & Tapped CCPDL

| PART NO.        | NOMINAL DIA. | DIAMETER TOLERANCE |        | STANDARD HOLE SPACING |   | THREAD  | MAX LENGTH | WEIGHT   |
|-----------------|--------------|--------------------|--------|-----------------------|---|---------|------------|----------|
|                 | IN.          | MIN                | MAX    | x                     | y |         | IN.        | LBS./IN. |
| CCPDL08-xxx.xxx | 1/2"         | 0.4988             | 0.4996 | 4                     | 2 | 6-32    | 138        | 0.019    |
| CCPDL10-xxx.xxx | 5/8"         | 0.6238             | 0.6246 | 4                     | 2 | 8-32    | 138        | 0.030    |
| CCPDL12-xxx.xxx | 3/4"         | 0.7488             | 0.7496 | 6                     | 3 | 10-32   | 138        | 0.043    |
| CCPDL16-xxx.xxx | 1"           | 0.9988             | 0.9996 | 6                     | 3 | 1/4-20  | 138        | 0.077    |
| CCPDL20-xxx.xxx | 1-1/4"       | 1.2488             | 1.2496 | 6                     | 3 | 5/16-18 | 138        | 0.120    |
| CCPDL24-xxx.xxx | 1-1/2"       | 1.4987             | 1.4995 | 8                     | 4 | 3/8-16  | 138        | 0.173    |
| CCPDL32-xxx.xxx | 2"           | 1.9985             | 1.9995 | 8                     | 4 | 1/2-13  | 138        | 0.308    |

**Notes:** (1) Specify length in part number using inches.

Example: for 1/2" shafting total length 36" long = CCPDL08-036.000.

(2) Ends of cut-to-length shafting are not coated.

(3) Fully coated shafting is available on special request.

(4) Counterbore .063" from top.

(5) Customer specifies 'y' dimension, if different than standard.



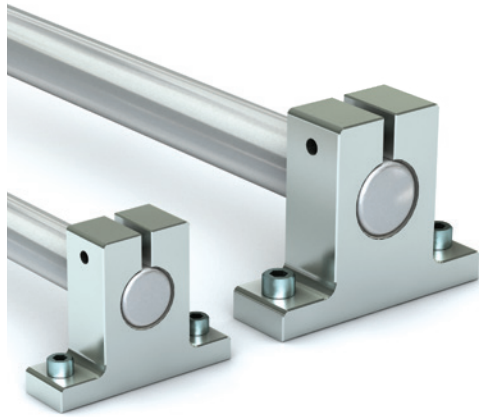
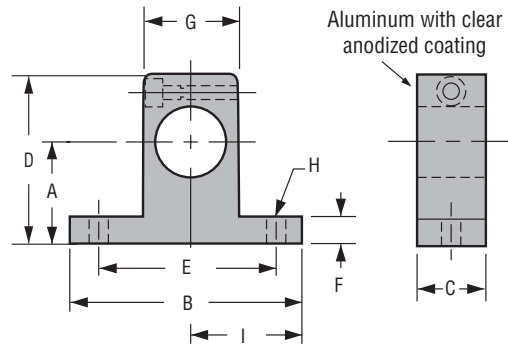
# Shafting End Support Blocks

## Aluminum End Support Block NSB

End support blocks can be used for end or intermittent shaft support. The aluminum end support block is lightweight and strong, and can be used with all shaft types. Ideally, they should be used where deflection between supports is not a problem.

Available in inch sizes from 1/4" - 2"

Instant bolt-down installation

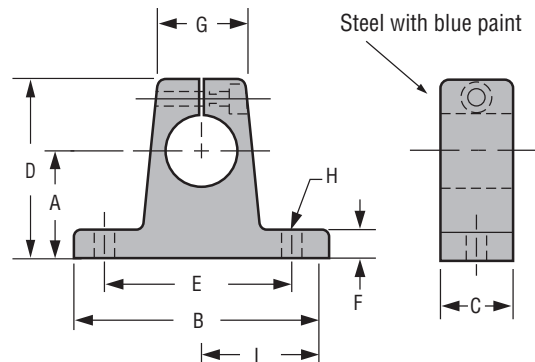


| PART NO. | NOMINAL DIA.<br>IN. | A<br>+/- .001 | B     | C     | D     | E<br>+/- .001 | F     | G     | H     |        | I<br>+/- .001 | WEIGHT<br>LB. |
|----------|---------------------|---------------|-------|-------|-------|---------------|-------|-------|-------|--------|---------------|---------------|
|          |                     |               |       |       |       |               |       |       | BOLT  | HOLE   |               |               |
| NSB04    | 1/4"                | 0.687         | 1.500 | 0.500 | 1.050 | 1.125         | 0.250 | 0.500 | #6    | 5/32"  | 0.750         | 0.038         |
| NSB06    | 3/8"                | 0.750         | 1.625 | 0.563 | 1.175 | 1.250         | 0.250 | 0.688 | #6    | 5/32"  | 0.800         | 0.044         |
| NSB08    | 1/2"                | 1.000         | 2.000 | 0.625 | 1.625 | 1.500         | 0.250 | 0.875 | #8    | 3/16"  | 1.000         | 0.079         |
| NSB10    | 5/8"                | 1.000         | 2.500 | 0.688 | 1.750 | 1.875         | 0.313 | 1.000 | #10   | 7/32"  | 1.250         | 0.112         |
| NSB12    | 3/4"                | 1.250         | 2.500 | 0.750 | 2.055 | 2.000         | 0.313 | 1.250 | #10   | 7/32"  | 1.375         | 0.148         |
| NSB16    | 1"                  | 1.500         | 3.055 | 1.000 | 2.500 | 2.500         | 0.375 | 1.500 | 1/4"  | 9/32"  | 1.625         | 0.313         |
| NSB20    | 1-1/4"              | 1.750         | 3.750 | 1.125 | 3.000 | 3.000         | 0.438 | 2.000 | 5/16" | 11/32" | 2.000         | 0.527         |
| NSB24    | 1-1/2"              | 2.000         | 4.375 | 1.250 | 3.435 | 3.500         | 0.500 | 2.250 | 5/16" | 11/32" | 2.375         | 0.755         |
| NSB32    | 2"                  | 2.500         | 5.500 | 1.500 | 4.375 | 4.500         | 0.625 | 3.000 | 3/8"  | 13/32" | 3.000         | 1.464         |

## Steel End Support Block LSB



**NEW**



| Part No. | Retired Part No. | Nom. Shaft Diameter | A<br>±.002 | B     | C     | D     | E<br>±.005 | F     | G     | H    |       | Weight (lbs.) |
|----------|------------------|---------------------|------------|-------|-------|-------|------------|-------|-------|------|-------|---------------|
|          |                  |                     |            |       |       |       |            |       |       | Bolt | Hole  |               |
| LSB08    | SB-8             | 1/2                 | 1.000      | 2.000 | 0.625 | 1.625 | 1.500      | 0.250 | 0.750 | #10  | 7/32  | 0.270         |
| LSB10    | SB-10            | 5/8                 | 1.000      | 2.500 | 0.750 | 1.750 | 1.875      | 0.312 | 0.875 | #10  | 7/32  | 0.400         |
| LSB12    | SB-12            | 3/4                 | 1.250      | 2.750 | 0.750 | 2.125 | 2.000      | 0.375 | 1.000 | 1/4  | 9/32  | 0.520         |
| LSB16    | SB-16            | 1                   | 1.500      | 3.312 | 1.000 | 2.625 | 2.500      | 0.375 | 1.375 | 1/4  | 9/32  | 1.110         |
| LSB20    | SB-20            | 1-1/4               | 1.750      | 4.000 | 1.250 | 3.000 | 3.000      | 0.437 | 1.750 | 5/16 | 11/32 | 1.910         |
| LSB24    | SB-24            | 1-1/2               | 2.000      | 4.750 | 1.250 | 3.500 | 3.500      | 0.500 | 2.000 | 5/16 | 11/32 | 2.520         |
| LSB32    | SB-32            | 2                   | 2.500      | 6.000 | 1.500 | 4.500 | 5.000      | 0.625 | 2.625 | 3/8  | 13/32 | 5.100         |

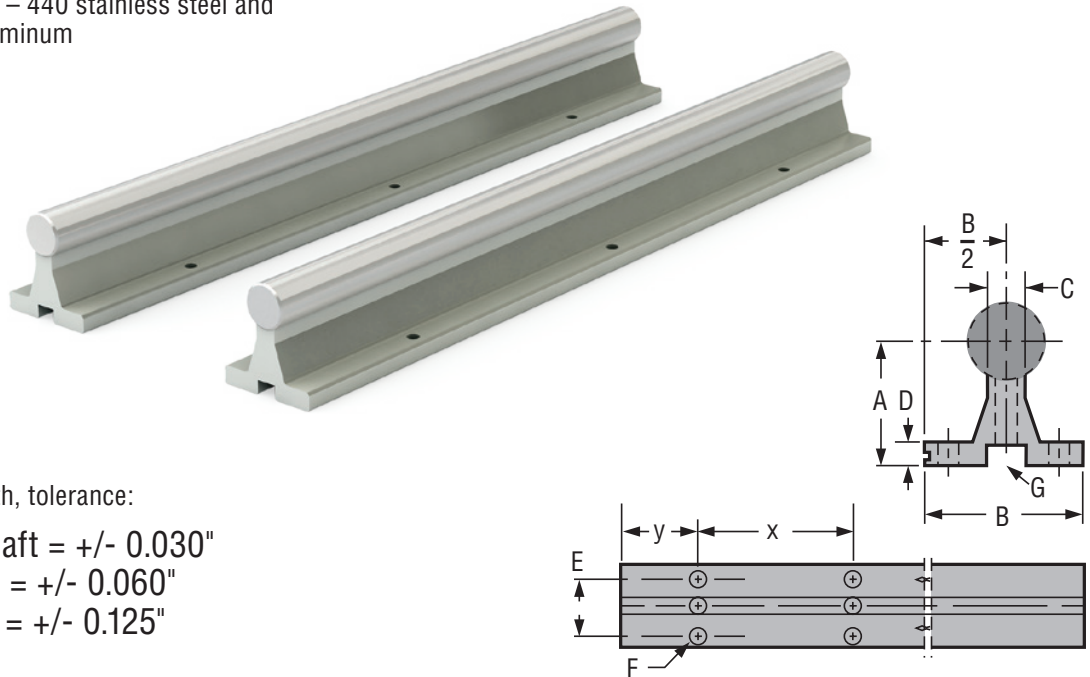
# Shafting Rail Assemblies

## Rail Assembly – Aluminum Support Rail SRA

Two piece assembly RC60 steel shaft and aluminum support rail standard

Other shaft materials – 440 stainless steel and ceramic coated aluminum

No coating



Available cut-to-length, tolerance:

3/16" – 1-1/4" shaft = +/- 0.030"

1-3/8" – 2" shaft = +/- 0.060"

2-1/2" – 4" shaft = +/- 0.125"

| SHAFTING TYPE        |                                   |                              | NOMINAL DIA. | DIAMETER TOLERANCE |        | A     | B     | C     | D     | E     | F     |          | STANDARD HOLE SPACING |      | WEIGHT |
|----------------------|-----------------------------------|------------------------------|--------------|--------------------|--------|-------|-------|-------|-------|-------|-------|----------|-----------------------|------|--------|
| STEEL SHAFT PART NO. | CERAMIC COATED SHAFTING* PART NO. | 440 STAINLESS STEEL PART NO. |              | IN.                | MIN    |       |       |       |       |       | MAX   | +/- .002 | BOLT                  | HOLE |        |
| SRA08-xxx.xxx        | SRA08CC-xxx.xxx                   | SRA08SS-xxx.xxx              | 1/2          | 0.4988             | 0.4996 | 1.125 | 1.500 | 0.250 | 0.188 | 1.000 | #6    | 0.169    | 4                     | 2    | 0.101  |
| SRA10-xxx.xxx        | SRA10CC-xxx.xxx                   | SRA10SS-xxx.xxx              | 5/8          | 0.6238             | 0.6246 | 1.125 | 1.625 | 0.313 | 0.250 | 1.125 | #8    | 0.193    | 4                     | 2    | 0.145  |
| SRA12-xxx.xxx        | SRA12CC-xxx.xxx                   | SRA12SS-xxx.xxx              | 3/4          | 0.7488             | 0.7496 | 1.500 | 1.750 | 0.375 | 0.250 | 1.250 | #10   | 0.221    | 6                     | 3    | 0.202  |
| SRA16-xxx.xxx        | SRA16CC-xxx.xxx                   | SRA16SS-xxx.xxx              | 1            | 0.9988             | 0.9996 | 1.750 | 2.125 | 0.500 | 0.250 | 1.500 | 1/4"  | 0.281    | 6                     | 3    | 0.328  |
| SRA20-xxx.xxx        | SRA20CC-xxx.xxx                   | SRA20SS-xxx.xxx              | 1-1/4        | 1.2488             | 1.2496 | 2.125 | 2.500 | 0.563 | 0.313 | 1.875 | 5/16" | 0.343    | 6                     | 3    | 0.493  |
| SRA24-xxx.xxx        | SRA24CC-xxx.xxx                   | SRA24SS-xxx.xxx              | 1-1/2        | 1.4987             | 1.4995 | 2.500 | 3.000 | 0.688 | 0.375 | 2.250 | 5/16" | 0.343    | 8                     | 4    | 0.711  |
| SRA32-xxx.xxx        | SRA32CC-xxx.xxx                   | SRA32SS-xxx.xxx              | 2            | 1.9985             | 1.9995 | 3.250 | 3.750 | 0.875 | 0.500 | 2.750 | 3/8"  | 0.406    | 8                     | 4    | 1.231  |
| SRA48-xxx.xxx        | SRA48CC-xxx.xxx                   | SRA48SS-xxx.xxx              | 3            | 2.9983             | 2.9992 | 4.000 | 6.000 | 1.400 | 0.750 | 4.250 | 3/4"  | 0.630    | 8                     | 4    | 2.641  |

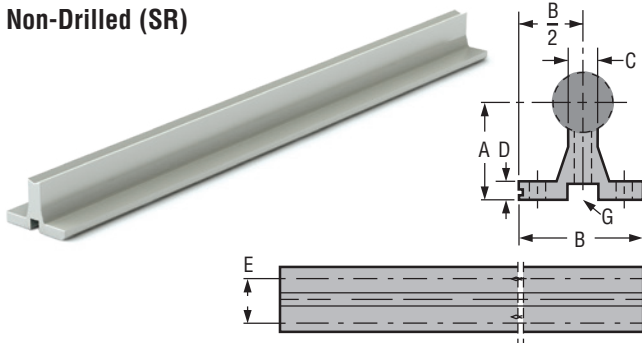
**Note:** Specify length in part number using inches. Example: for 1/2" shafting total length 36" long = SRA08-036.000.  
Customer specifies 'y' dimension, if different than standard.

\* For diameter tolerances on Ceramic Coated Shafting, see tables at the bottom page 46

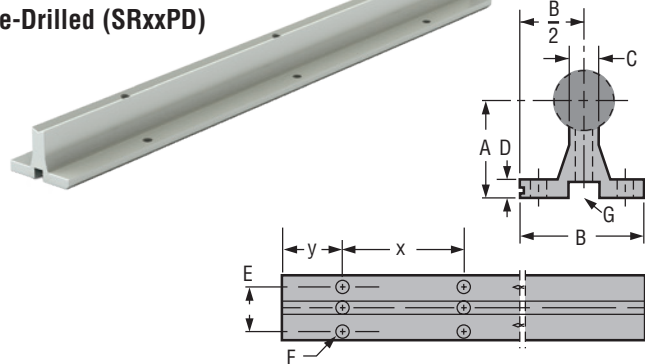
# Shafting Rail Assemblies

## Support Rail - Aluminum SR & SR\_PD

### Non-Drilled (SR)



### Pre-Drilled (SRxxPD)

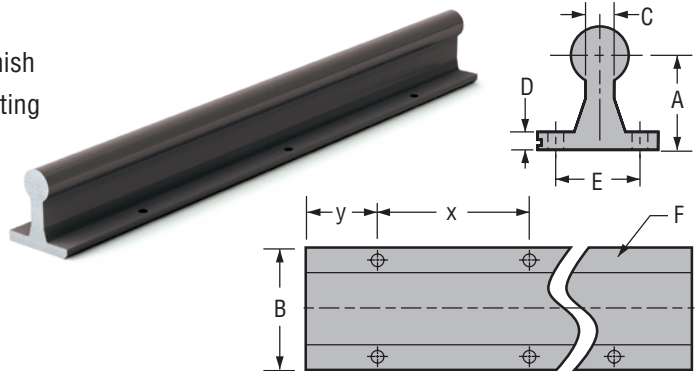


| PART NO.     |                | NOMINAL DIA. | A        | B     | C     | D     | E     | STANDARD HOLE SPACING |   | G RECOMMENDED MOUNTING HOLE SIZE |                  | MAX LENGTH | WEIGHT |                 |
|--------------|----------------|--------------|----------|-------|-------|-------|-------|-----------------------|---|----------------------------------|------------------|------------|--------|-----------------|
| NON-DRILLED  | PRE-DRILLED    | IN.          | +/- .002 |       |       |       |       | X                     | Y | HOLE                             | SCREW            |            |        | FASTENER LENGTH |
| SR08-xxx.xxx | SR08PD-xxx.xxx | 1/2"         | 1.125    | 1.500 | 0.250 | 0.188 | 1.000 | 4                     | 2 | 0.169                            | 6-32 x 7/8"      | 7/8"       | 48     | 0.045           |
| SR10-xxx.xxx | SR10PD-xxx.xxx | 5/8"         | 1.125    | 1.625 | 0.313 | 0.250 | 1.125 | 4                     | 2 | 0.193                            | 8-32 x 7/8"      | 7/8"       | 48     | 0.058           |
| SR12-xxx.xxx | SR12PD-xxx.xxx | 3/4"         | 1.500    | 1.750 | 0.375 | 0.250 | 1.250 | 6                     | 3 | 0.221                            | 10-32 x 7/8"     | 7/8"       | 48     | 0.077           |
| SR16-xxx.xxx | SR16PD-xxx.xxx | 1"           | 1.750    | 2.125 | 0.500 | 0.250 | 1.500 | 6                     | 3 | 0.281                            | 1/4-20 x 1-1/2"  | 1-1/2"     | 48     | 0.104           |
| SR20-xxx.xxx | SR20PD-xxx.xxx | 1-1/4"       | 2.125    | 2.500 | 0.563 | 0.313 | 1.875 | 6                     | 3 | 0.343                            | 5/16-18 x 1-3/4" | 1-3/4"     | 48     | 0.145           |
| SR24-xxx.xxx | SR24PD-xxx.xxx | 1-1/2"       | 2.500    | 3.000 | 0.688 | 0.375 | 2.250 | 8                     | 4 | 0.406                            | 3/8-16 x 2"      | 2"         | 48     | 0.210           |
| SR32-xxx.xxx | SR32PD-xxx.xxx | 2"           | 3.250    | 3.750 | 0.875 | 0.500 | 2.750 | 8                     | 4 | 0.531                            | 1/2-13 x 2-1/2"  | 2-1/2"     | 48     | 0.342           |
| SR48-xxx.xxx | SR48PD-xxx.xxx | 3"           | 4.000    | 6.000 | 1.400 | 0.750 | 4.250 | 8                     | 4 | 0.625                            | 3/4-10 x 3-1/4"  | 3"         | 48     | 0.638           |

- Notes:** (1) Specify length in part number. Example: for 1/2" shafting support rail to 24" length = SR08-024.000 (Aluminum alloy construction, no coating).  
 (2) Shafts and support rails sold separately. Customer specifies 'y' dimension. Shaft rails and assemblies are available in long lengths, consult factory.

## Rail Assembly - Ceramic Coated CCR

- Aluminum alloy base material and RC70 ceramic coated finish
- Economical, lightweight alternative to traditional steel shafting
- One-piece integrated design eliminates assembly time
- Weld splatter, paints, and contaminants will not stick
- Non-magnetic and vibration resistant
- Optimized for Simplicity FrelonGOLD® lined bearings
- Pre-drilled with stand X hole spacing\*
- NOT compatible with linear ball bearings



| PART NO.      | NOMINAL DIA. |        | DIAMETER TOLERANCE |       | A     | B     | C     | D     | E     | F     |      | STANDARD HOLE SPACING |     | MAX LENGTH | WEIGHT |
|---------------|--------------|--------|--------------------|-------|-------|-------|-------|-------|-------|-------|------|-----------------------|-----|------------|--------|
|               | IN.          | MIN    | MAX                | .002  |       |       |       |       |       | BOLT  | HOLE | X                     | Y   |            |        |
| CCR08-xxx.xxx | 1/2          | 0.4988 | 0.4996             | 1.125 | 1.500 | 0.250 | 0.188 | 1.000 | #6    | 0.169 | 4    | 2                     | 120 | 0.019      |        |
| CCR10-xxx.xxx | 5/8          | 0.6238 | 0.6246             | 1.125 | 1.625 | 0.313 | 0.250 | 1.125 | #8    | 0.193 | 4    | 2                     | 120 | 0.030      |        |
| CCR12-xxx.xxx | 3/4          | 0.7488 | 0.7496             | 1.500 | 1.750 | 0.375 | 0.250 | 1.250 | #10   | 0.221 | 6    | 3                     | 120 | 0.043      |        |
| CCR16-xxx.xxx | 1            | 0.9988 | 0.9996             | 1.750 | 2.125 | 0.500 | 0.250 | 1.500 | 1/4"  | 0.281 | 6    | 3                     | 120 | 0.076      |        |
| CCR20-xxx.xxx | 1-1/4        | 1.2488 | 1.2496             | 2.125 | 2.500 | 0.563 | 0.313 | 1.875 | 5/16" | 0.343 | 6    | 3                     | 120 | 0.119      |        |
| CCR24-xxx.xxx | 1-1/2        | 1.4987 | 1.4995             | 2.500 | 3.000 | 0.688 | 0.375 | 2.250 | 5/16" | 0.343 | 8    | 4                     | 120 | 0.172      |        |
| CCR32-xxx.xxx | 2            | 1.9985 | 1.9995             | 3.250 | 3.750 | 0.875 | 0.500 | 2.750 | 3/8"  | 0.406 | 8    | 4                     | 120 | 0.305      |        |

- Notes:** (1) Specify length in part number using inches.  
 Example: for 1/2" shafting total length 36" long = CCR08-036.000.  
 (2) Cut-to-length rails may not be coated on the ends.

DO NOT use with linear ball bearings.  
 \*Customer specified 'Y' dimension.

INCH

ISO  
METRIC

JIS  
METRIC

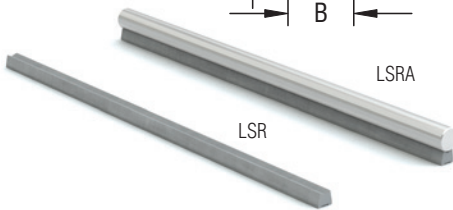
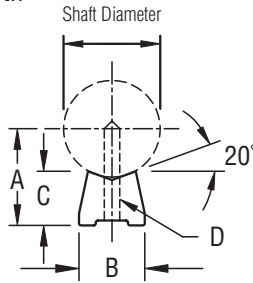
# Shafting Low Support Rails

## Low Support Rail - Steel LSR

The AISI C-1018 steel LSR shaft support is a low support rail with a reduced footprint, and 40% lower profile than other support rails. This is an excellent choice for applications requiring compact low shaft support. The standard length for LSR type supports is 48".

No coating

Length tolerance +0", -1/8".



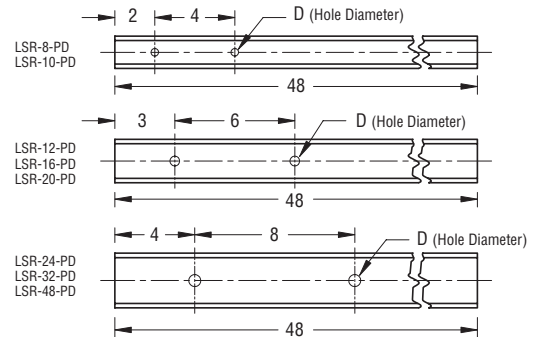
| PART NO.  | ASSEMBLY PART NO. | SHAFT DIA. |          | B     | C     | D       | HOLE SPACING FOR LSR-PD PRE-DRILLED |   | WEIGHT PER 48" (APPROXIMATE) | ASSEMBLY WEIGHT PER 48" (APPROXIMATE) |               |
|-----------|-------------------|------------|----------|-------|-------|---------|-------------------------------------|---|------------------------------|---------------------------------------|---------------|
|           |                   | IN.        | +/- .002 |       |       |         | Y                                   | X |                              |                                       | LBS. +/- .001 |
| LSR-8     | LSRA-8            | 1/2        | 0.562    | 0.370 | 0.341 | 6-32    | 0.169                               | 2 | 4                            | 1.320                                 | 3.960         |
| LSR-8-PD  |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-10    | LSRA-10           | 5/8        | 0.687    | 0.450 | 0.412 | 8-32    | 0.193                               | 2 | 4                            | 1.950                                 | 6.078         |
| LSR-10-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-12    | LSRA-12           | 3/4        | 0.750    | 0.510 | 0.420 | 10-32   | 0.221                               | 3 | 6                            | 2.250                                 | 8.250         |
| LSR-12-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-16    | LSRA-16           | 1          | 1.000    | 0.690 | 0.560 | 1/4-20  | 0.281                               | 3 | 6                            | 4.250                                 | 14.910        |
| LSR-16-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-20    | LSRA-20           | 1-1/4      | 1.187    | 0.780 | 0.626 | 5/16-18 | 0.343                               | 3 | 6                            | 5.080                                 | 21.780        |
| LSR-20-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-24    | LSRA-24           | 1-1/2      | 1.375    | 0.930 | 0.703 | 3/8-16  | 0.406                               | 4 | 8                            | 6.720                                 | 30.720        |
| LSR-24-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-32    | LSRA-32           | 2          | 1.750    | 1.180 | 0.845 | 1/2-13  | 0.531                               | 4 | 8                            | 11.000                                | 53.720        |
| LSR-32-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |
| LSR-48    | LSRA-48           | 3          | 2.750    | 1.875 | 1.404 | 3/4-10  | 0.812                               | 4 | 8                            | 27.920                                | 124.060       |
| LSR-48-PD |                   |            |          |       |       |         |                                     |   |                              |                                       |               |

### How to order

When ordering standard 48" long low shaft rails without mounting holes, order by part number. For example, LSR-12.

If standard mounting holes are required, specify low shaft rails with pre-drilled mounting holes by part number. For example, LSR-12-PD. Hole sizes and spacings are shown in the table.

If other than standard hole spacing is required, please provide drawings with all dimensions, tolerances, and quantity. With or without mounting holes, low shaft rails will be supplied in 48" lengths when ordered by part number.



## Low Support Rail & Shaft Set LSG

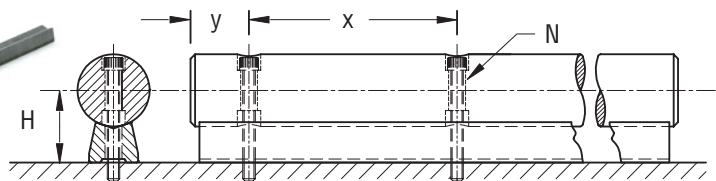
Precision case hardened and ground shaft, plus an LSR steel support rail, effectively doubles the life of the shaft by allowing it to be turned over for a fresh surface when wear becomes evident. Both sides of the shaft are counterbored so the shaft may be rotated 180°, and rebolted for use on the new side. This guide is sold as a two-piece set; the shaft and support are not assembled. The guide is then bolted down through the top of the shaft to reduce installation time. The shafts are also available in 440C stainless steel. Drilled through and counterbored shafts may not be suitable for all linear bearings.

No coating



| PART NO. | SHAFT DIA. | H     | B     | Y   | X   | N    | WEIGHT PER IN. |
|----------|------------|-------|-------|-----|-----|------|----------------|
|          | IN.        | IN.   | IN.   | IN. | IN. | IN.  | LBS.           |
| LSG-10   | 5/8        | 0.687 | 0.450 | 2   | 4   | #5   | 0.132          |
| LSG-12   | 3/4        | 0.750 | 0.510 | 3   | 6   | #6   | 0.171          |
| LSG-16   | 1          | 1.000 | 0.690 | 3   | 6   | #10  | 0.311          |
| LSG-20   | 1-1/4      | 1.187 | 0.780 | 3   | 6   | 5/16 | 0.454          |
| LSG-24   | 1-1/2      | 1.375 | 0.930 | 4   | 8   | 3/8  | 0.640          |
| LSG-32   | 2          | 1.750 | 1.180 | 4   | 8   | 1/2  | 1.119          |

Note: Customer specifies 'y' dimension.



# Custom Machining Options for Shafts

Configure Now



## Special Machining

Standard 60 Plus shafting, which is available from stock, can be cut with special length tolerances. 60 Plus shafting may also be drilled with a variety of radial holes and tapped if needed. Shafts can be supplied with flats, keyways, and reduced diameters. Shafts can also be plated.

There is an extra charge for all special machining operations. For specific prices, send your drawing or technical description to PBC Linear.

## Special Length Tolerances

Standard length tolerances for shafting are:

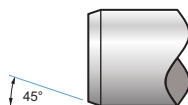
|                    |                             |
|--------------------|-----------------------------|
| < 1 1/4" diameter  | $\pm 1/32"$ ( $\pm 0.03"$ ) |
| 1 3/8"-2" diameter | $\pm 1/16"$ ( $\pm 0.06"$ ) |
| > 2" diameter      | $\pm 1/8"$ ( $\pm 0.125"$ ) |

All SR, LSR, SRA, LSRA, and CCR are  $+0.000"/-0.125"$ . Contact us with special requirements.

## Special Straightness Tolerances

PBC Linear standard length tolerances are .001 to .002"/foot cumulative. Except for 3/8" diameters and less. Contact us with special requirements.

## Standard Chamfers



| Diameter    | Size        | Tolerance                |
|-------------|-------------|--------------------------|
| $\leq 3/8"$ | Break Edge  | $\pm 0.005-0.010"$ x 45° |
| 12 mm-7/8"  | 1/32" x 45° | $\pm 0.005"$             |
| 1"-2"       | 1/16" x 45° | $\pm 0.010"$             |
| 2 1/2"-3"   | 1/8" x 45°  | $\pm 0.010"$             |

Special chamfer at any angle can be supplied for an additional charge.

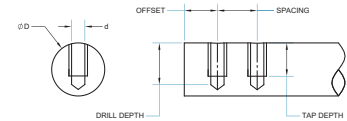
## Machining Shaft Ends

For all machining requirements with turned ends, PBC Linear will anneal the end. The annealing process may cause approximately 1/4" to 1/2" of heat travel from machined area (depending on major shaft O.D.). Hardness of major shaft diameter near the machined area will be below the Rockwell for the material. If annealing effects are objectionable, alternate machining processes can be used which prevent major diameter softening.

Contact factory for special options.

## Radial Holes Drilled and Tapped to Center of Shaft

U.N.C. or U.N.F.  
Class 2-B thread.

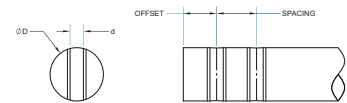


|                    |                              |
|--------------------|------------------------------|
| Hole to Hole       | $\pm 0.010"$ Non-Accum       |
| Hole to Centerline | $\pm 0.0075"$                |
| Hole to End        | $\pm 0.030"$ ( $\pm .06$ mm) |

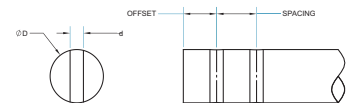
Note: Hole depth full threads to 1/2" of the shaft diameter.

## Radial Holes Drilled and Tapped through Shaft

Annealed and soft around circumference in hole area.



## Radial Holes Drilled through Shaft



|                    |                        |
|--------------------|------------------------|
| Hole Diameter      | $\pm 0.005"$           |
| Hole to Hole       | $\pm 0.010"$ Non-Accum |
| Hole to Centerline | $\pm 0.0075"$          |
| Hole to End        | $\pm 0.030"$           |

## Radial Holes Drilled and Reamed through Shafts

Annealed and soft around circumference in hole area.



|                    |                        |
|--------------------|------------------------|
| Hole Diameter      | $\pm 0.001"$           |
| Hole to Hole       | $\pm 0.010"$ Non-Accum |
| Hole to Centerline | $\pm 0.0075"$          |
| Hole to End        | $\pm 0.030"$           |

## Threaded Shaft Diameter

Standard threads are either Unified National Coarse or Unified National Fine, Class 2-A fit. Shafts will be annealed and soft around the circumference of threaded areas within the case



|                  |                      |
|------------------|----------------------|
| Standard Threads | UNC or UNF Class 2-A |
|------------------|----------------------|

Note: Threading area will be annealed and soft.

INCH

ISO  
METRIC

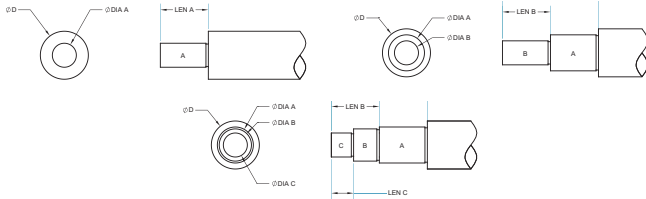
JIS  
METRIC



INCH  
ISO METRIC  
JIS METRIC

### Reduced Shaft Diameter

Standard diameter tolerances on turned down diameters are  $\pm .001"$ . Special tolerances of  $\pm .0001"$  are available. Runout is within  $.001"$  total indicator reading. Shafts are annealed and soft in turned down sections within case. Two-step shaft diameter reduction is also available.



|                  |                         |
|------------------|-------------------------|
| Normal Tolerance | $\pm .001"$             |
| Concentricity    | $\pm 0.002"$ MAX T.I.R. |

Note: Shafts turned down require annealing.

### Coaxial Holes Drilled and Tapped in Center of End of Shaft



|                      |                  |
|----------------------|------------------|
| Concentricity        | 0.01"            |
| Diameter of Holes    | $\pm 0.006"$     |
| Bored Holes          | $\pm 0.001"$     |
| Bolt Circles         | $\pm 2^\circ$    |
| Coaxial on Both Ends | OAL $\pm 0.015"$ |
| Axial on One End     | OAL $\pm 0.030"$ |

Note: Depth is twice the diameter of the tap minimum.

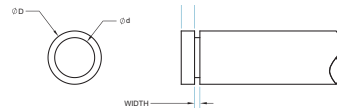
### Dowel Joints



|                                       |               |
|---------------------------------------|---------------|
| Match over joint of 0.002 Maximum TIR |               |
| All Linear Dimensions                 | $\pm 0.010"$  |
| First Hole                            | $\pm 0.0075"$ |
| Shaft Diameter                        | 5/8" to 3"    |

Note: Ends machined square without chamfer.

### Retaining Ring Groove



|                    |  |
|--------------------|--|
| Location Tolerance | $\pm 0.062"$ Standard<br>$\pm 0.005"$ Custom |
|--------------------|--|

Note: Retaining ring location will be annealed.

### Butted Joints

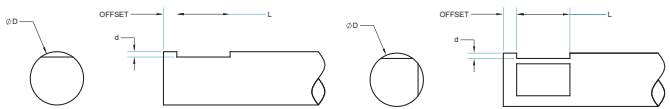
Ends machined square, no chamfer. Available for all Nominal shaft diameters.

|                       |                  |
|-----------------------|------------------|
| Perpendicularity      | $\pm 0.001"$ MAX |
| All Linear Dimensions | $\pm 0.010"$     |

Note: Ends machined square without chamfer.

### Flat(s) on Shaft

Flats are available. Flats extending over large portion of shaft or entire length of shaft are not available. Cutting into hardened layer would cause considerable warping and subsequent straightening costs would be prohibitive.



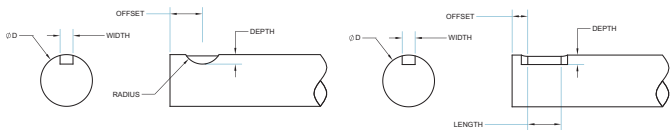
|                    |              |
|--------------------|--------------|
| Location Tolerance | $\pm 0.010"$ |
|--------------------|--------------|

### Keyways

Keyways may be square, flat or American Standard Woodruff. Available for Nominal shaft diameters from 1/2" through 4".



Other options available. Contact us for a quote.



|                  |                             |
|------------------|-----------------------------|
| Width            | $\pm 0.001"$                |
| Length           | $\pm 0.010"$                |
| Linear Locations | $\pm 0.010"$                |
| Location to C/L  | $\pm 0.0075"$               |
| Depth            | 1/2" width + "M" on table 8 |

Note: Square or American Standard Woodruff. Maximum length in house is 48".

# Simplicity® Square Bearings and Shafting

## Product Overview

- Runs on a single, square shaft eliminating costly components
- Maintains radial integrity and can eliminate the need for parallel shafting
- Can be mounted in any orientation
- Housings are aluminum alloy with a standard anodized finish
- Utilizes standard bearing plugs
- Adjustable to maintain tight running clearances, contingent upon shafting
- Bearing plugs are easily replaced

## SAME CHARACTERISTICS OF THE STANDARD ROUND-WAY SIMPLICITY BEARINGS:

- Self-lubricating
- High load capacity
- Wide temperature range:  
(-400°F/+400°F)  
(-240°C/+204°C)
- Excel in contaminated environments
- High shock loading abilities
- Low wear rates

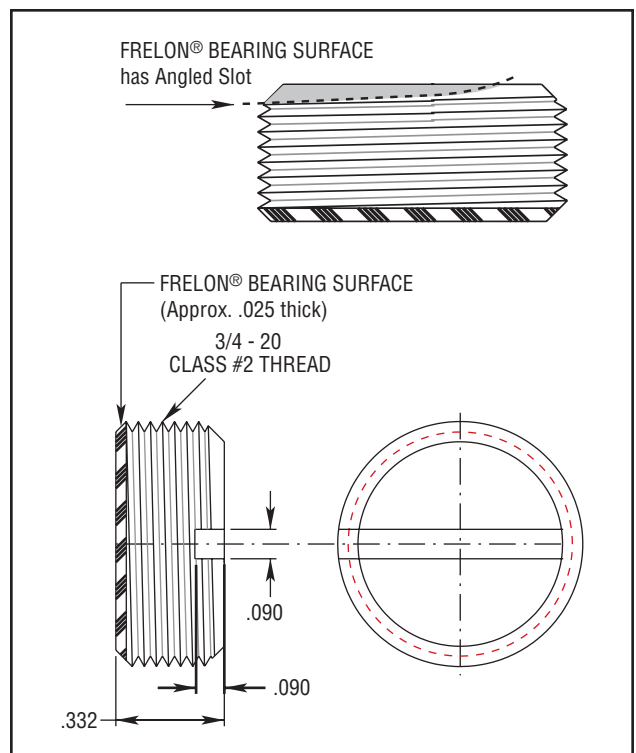
## Adjustable Bearing Plugs

**BEARING MATERIAL:** Part number APN16E plug with Frelon® J is standard for PST stainless steel square shafting. Part number APN16 plug with FrelonGOLD® is also available for applications to be run on steel. Plug material is 316 stainless steel.

- Bearing plugs can be purchased separately
- Ideal for use in many applications as a wear pad
- Bearing surface area = .300 in<sup>2</sup>
- Max static load capacity per plug (Frelon J) = 450 lbs.
- The use of green Loctite or similar is recommended to hold the adjustable bearing plugs in position while allowing relative ease of adjustment

## ORDERING INFORMATION

| PART NO. | DESCRIPTION  |
|----------|--|
| APN16E   | Standard: Adjustable bearing plug with Frelon J bearing liner. Use with 300 series stainless or soft shafting. |
| APN16    | Optional: Adjustable bearing plug with FrelonGOLD bearing liner. Use with steel shafting.                      |



**FrelonGOLD  
APN16**

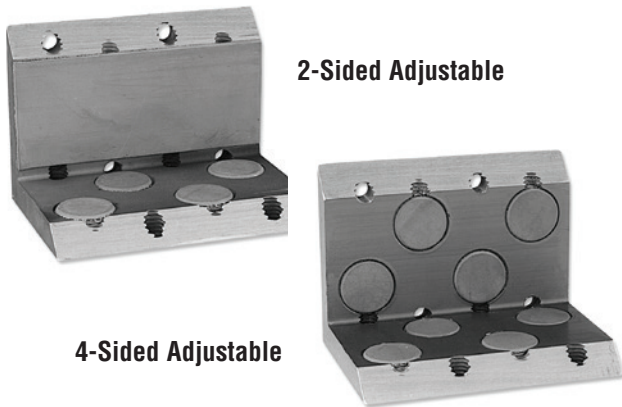


**Frelon J  
APN16E**



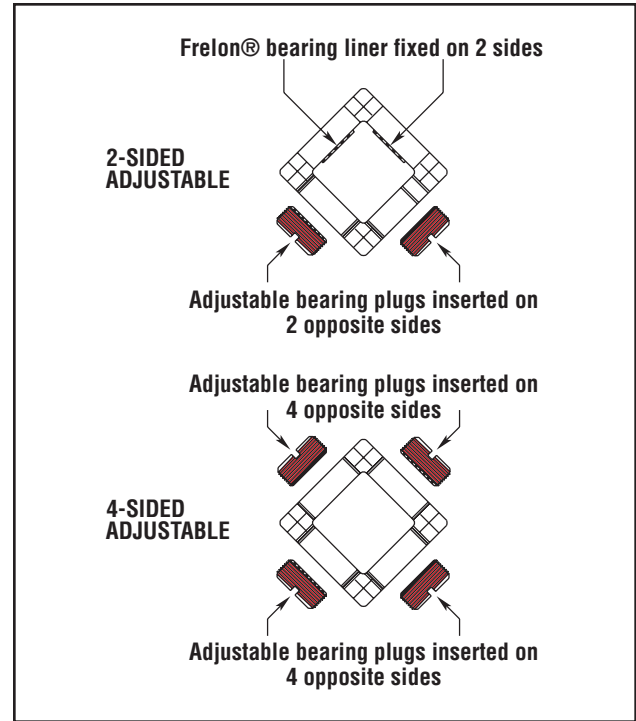
# Simplicity® Square Shafting, Bearings & Plugs

## Square Bearing Cutaway View



2-Sided Adjustable

4-Sided Adjustable



### APPLICATION NOTE

Use removable Loctite thread locker to hold the adjustable bearing plugs in position.

Two parameters must be met in the design and use of square bearings:

1. The 2:1 ratio for cantilevered loads applies to square bearings in the same way as roundway Simplicity® bearings. Binding will occur if the ratio is not met.

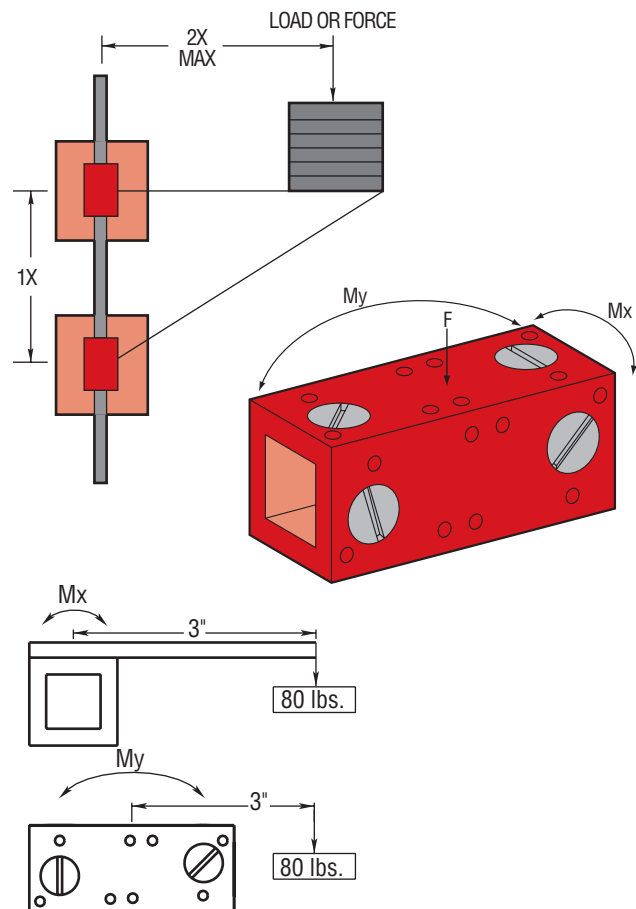
**Note:** If only one bearing is used, the 2:1 applies from plug centers.

2. The maximum load and moment load must be met. To calculate the acceptable cantilever or lever arm, multiply the length (from center of the bearing to the center of the load) times the weight. The result must be less than the moment load for that orientation.

**Example:** Distance of cantilever = 3"  
 Amount of load = 40 lbs.  
 3" x 80 lbs. = 240 in-lbs.

### SQUARE BEARING LOAD INFORMATION

| PART NO. | MAX MOMENTS TORSIONAL CAPACITIES IN.-LBS. |      | MAX FORCE LBS. |
|----------|---|------|----------------|
|          | Mx  | My   | F              |
| SB16     | 74  | 165  | 920            |
| SBL16    | 74  | 475  | 920            |
| SB24     | 416                                       | 402  | 1840           |
| SBL24    | 416                                       | 1413 | 1840           |



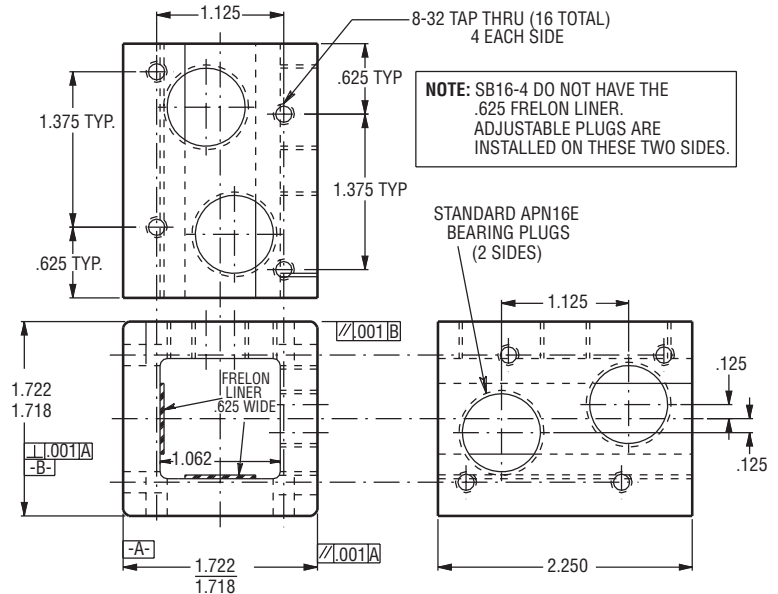
# Simplicity<sup>®</sup> Square Bearings • 1.0 Inch

## ORDERING INFORMATION

| PART NO. | DESCRIPTION   | BEARING WEIGHT LBS. |
|----------|---|---------------------|
| SB16-2E  | Standard 1.0" two-sided adjustable square bearing with Frelon <sup>®</sup> J plugs for stainless steel shafting.      | .48                 |
| SB16-2   | Optional 1.0" two-sided adjustable square bearing with FrelonGOLD <sup>®</sup> plugs for steel shafting.              | .48                 |
| SB16-4E  | Standard 1.0" four-sided adjustable square bearing with Frelon J plugs for stainless steel shafting.                  | .56                 |
| SB16-4   | Optional 1.0" four-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.                          | .56                 |
| SBL16-2E | Standard 1.0" extended length, two-sided adjustable square bearing with Frelon J plugs for stainless steel shafting.  | .77                 |
| SBL16-2  | Optional 1.0" extended length, two-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.          | .77                 |
| SBL16-4E | Standard 1.0" extended length, four-sided adjustable square bearing with Frelon J plugs for stainless steel shafting. | .85                 |
| SBL16-4  | Optional 1.0" extended length, four-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.         | .85                 |

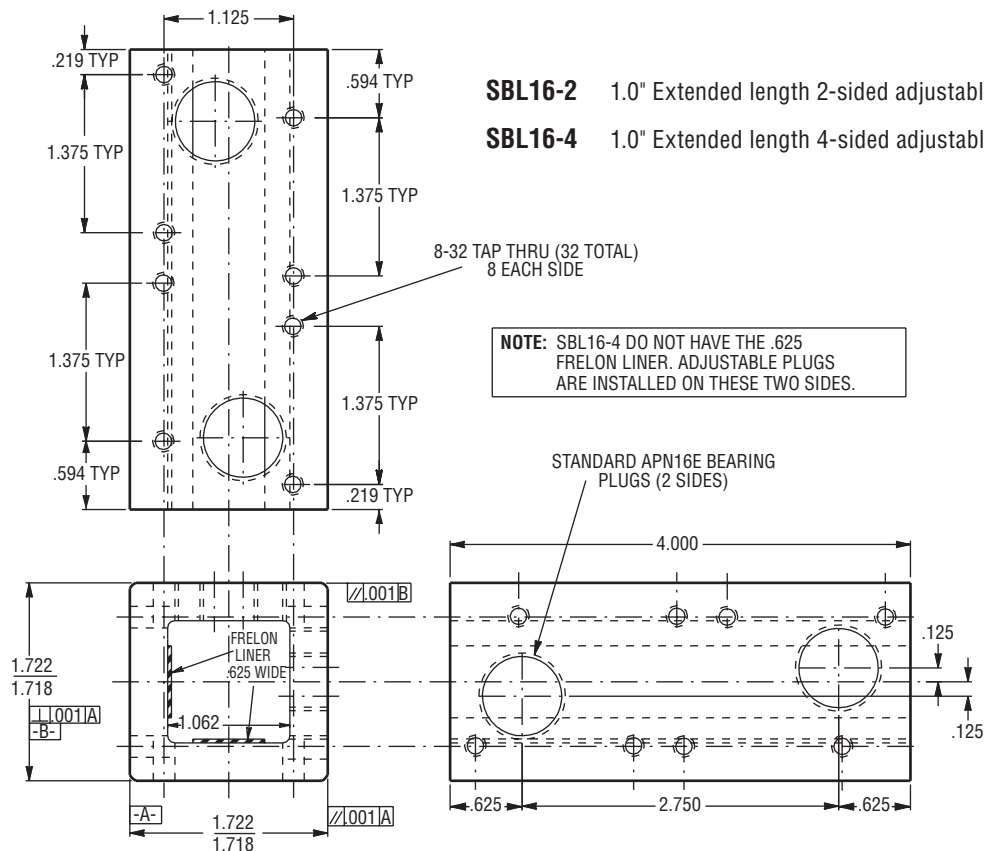
**SB16-2** 1.0" 2-sided adjustable square bearing

**SB16-4** 1.0" 4-sided adjustable square bearing



**SBL16-2** 1.0" Extended length 2-sided adjustable square bearing

**SBL16-4** 1.0" Extended length 4-sided adjustable square bearing



INCH

ISO METRIC

JIS METRIC

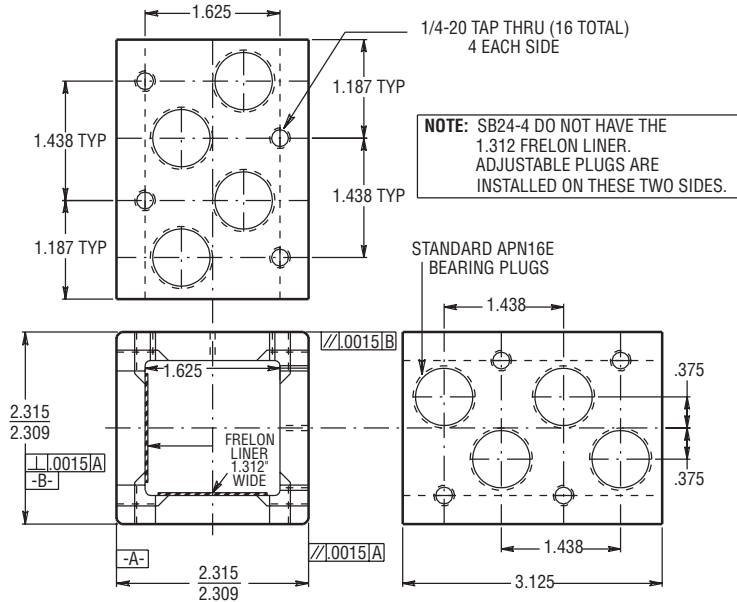
# Simplicity® 1.5 Inch • Square Bearings

## ORDERING INFORMATION

| PART NO. | DESCRIPTION   | BEARING WEIGHT LBS. |
|----------|---|---------------------|
| SB24-2E  | Standard 1.5" two-sided adjustable square bearing with Frelon® J plugs for stainless steel shafting.                  | .96                 |
| SB24-2   | Optional 1.5" two-sided adjustable square bearing with FrelonGOLD® plugs for steel shafting.                          | .96                 |
| SB24-4E  | Standard 1.5" four-sided adjustable square bearing with Frelon J plugs for stainless steel shafting.                  | 1.12                |
| SB24-4   | Optional 1.5" four-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.                          | 1.12                |
| SBL24-2E | Standard 1.5" extended length, two-sided adjustable square bearing with Frelon J plugs for stainless steel shafting.  | 1.71                |
| SBL24-2  | Optional 1.5" extended length, two-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.          | 1.71                |
| SBL24-4E | Standard 1.5" extended length, four-sided adjustable square bearing with Frelon J plugs for stainless steel shafting. | 1.84                |
| SBL24-4  | Optional 1.5" extended length, four-sided adjustable square bearing with FrelonGOLD plugs for steel shafting.         | 1.84                |

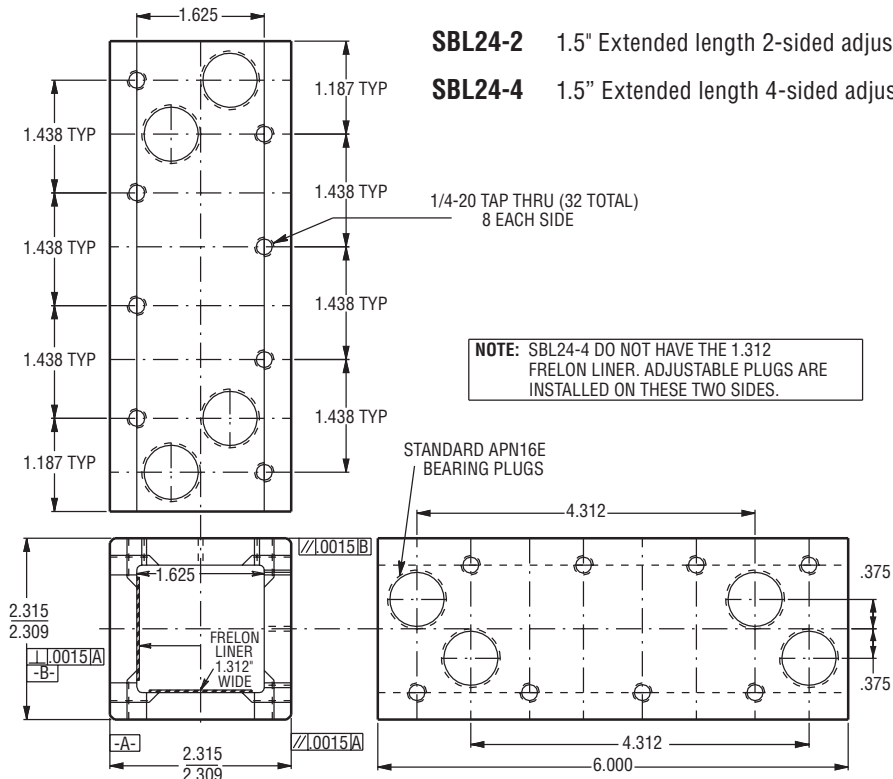
**SB24-2** 1.5" 2-Sided adjustable square bearing

**SB24-4** 1.5" 4-Sided adjustable square bearing



**SBL24-2** 1.5" Extended length 2-sided adjustable square bearing

**SBL24-4** 1.5" Extended length 4-sided adjustable square bearing





# Simplicity® Square Shafting & Accessories

## Square Shafting

- 304 Stainless steel (standard) is highly corrosion resistant
- Buffed and polished to provide an excellent running surface for Frelon® J
- Both 1" and 1.5" available cut to any length up to 20 feet
- Wall thickness is  $\approx .120$ "

| PART NO.      | DESCRIPTION  | WEIGHT<br>LBS./IN. |
|---------------|--|--------------------|
| PST16-xxx.xxx | Standard 1.0" 304 stainless steel square shafting. | 0.12               |
| PST24-xxx.xxx | Standard 1.5" 304 stainless steel square shafting. | 0.18               |

**Note:** Specify length in part number using inches.  
Example: for 1.0" shafting total length 15" = PST16-015.000.

## Steel Shafting PST

Specify length in inches

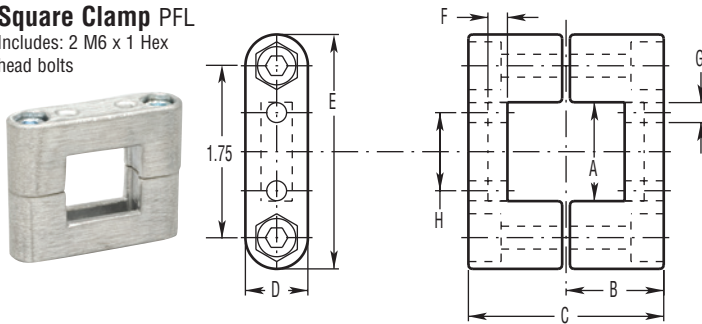


## Mounting Accessories

All mounting accessories are made from cast 356-T6 aluminum for good strength and corrosion resistance.

### Square Clamp PFL

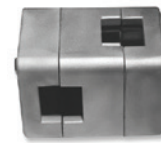
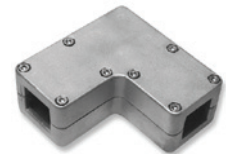
Includes: 2 M6 x 1 Hex head bolts



| PART NO. | A    | B     | C     | D     | E     | F     | G     | H     |
|----------|------|-------|-------|-------|-------|-------|-------|-------|
| PFL1000  | 1.00 | 0.984 | 1.968 | 0.630 | 2.362 | 0.197 | 0.200 | 0.787 |
| PFL1500  | 1.50 | 1.338 | 2.677 | 0.787 | 2.953 | 0.276 | 0.256 | 1.024 |

### Angle Bracket PAN1515

1-1/2" only

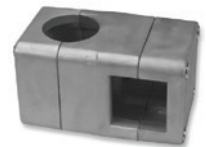


### Cross Mount P XK1515

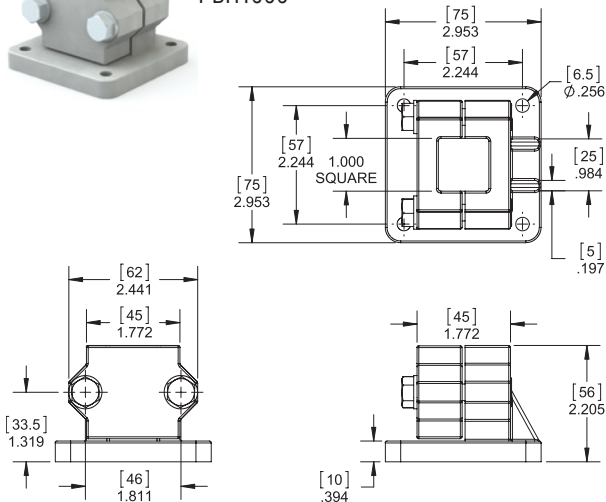
1-1/2" only

### Cross Mount Round & Square PXM1515

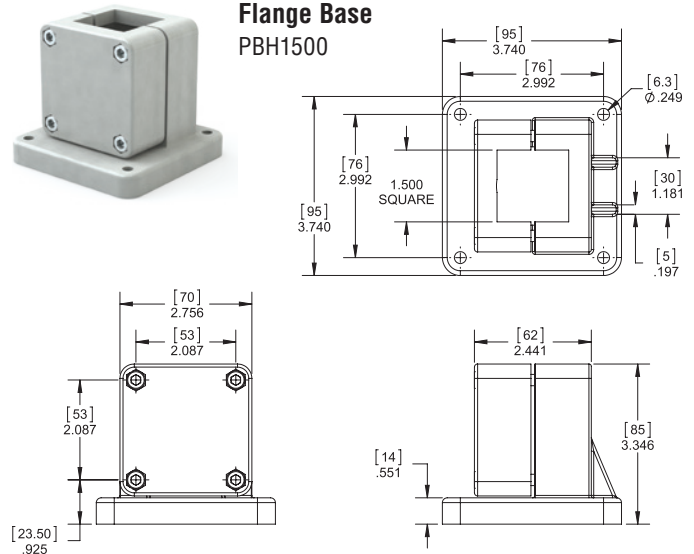
1-1/2" only



### Flange Base PBH1000

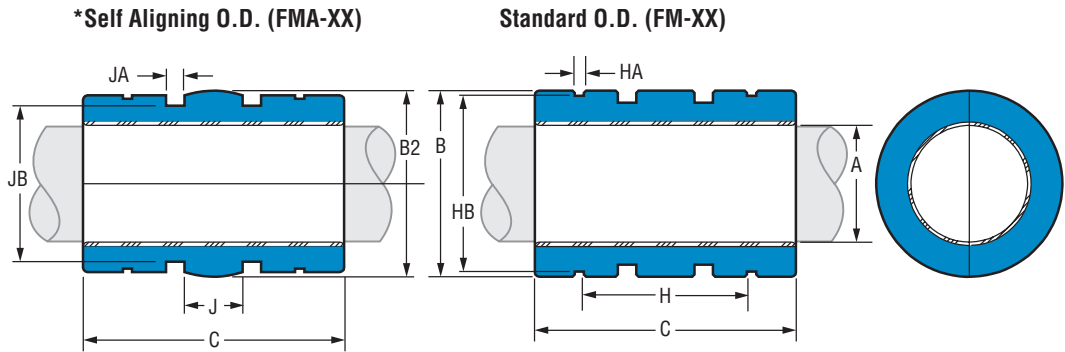
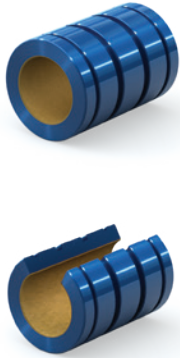


### Flange Base PBH1500



# Simplicity® Linear Plain Bearings

INCH  
 ISO METRIC  
 JIS METRIC



\*Except for the O.D., bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are for use in a straight bore housing. Add an "A" to the part number for self-aligning bearings.

## DIMENSIONAL INFORMATION

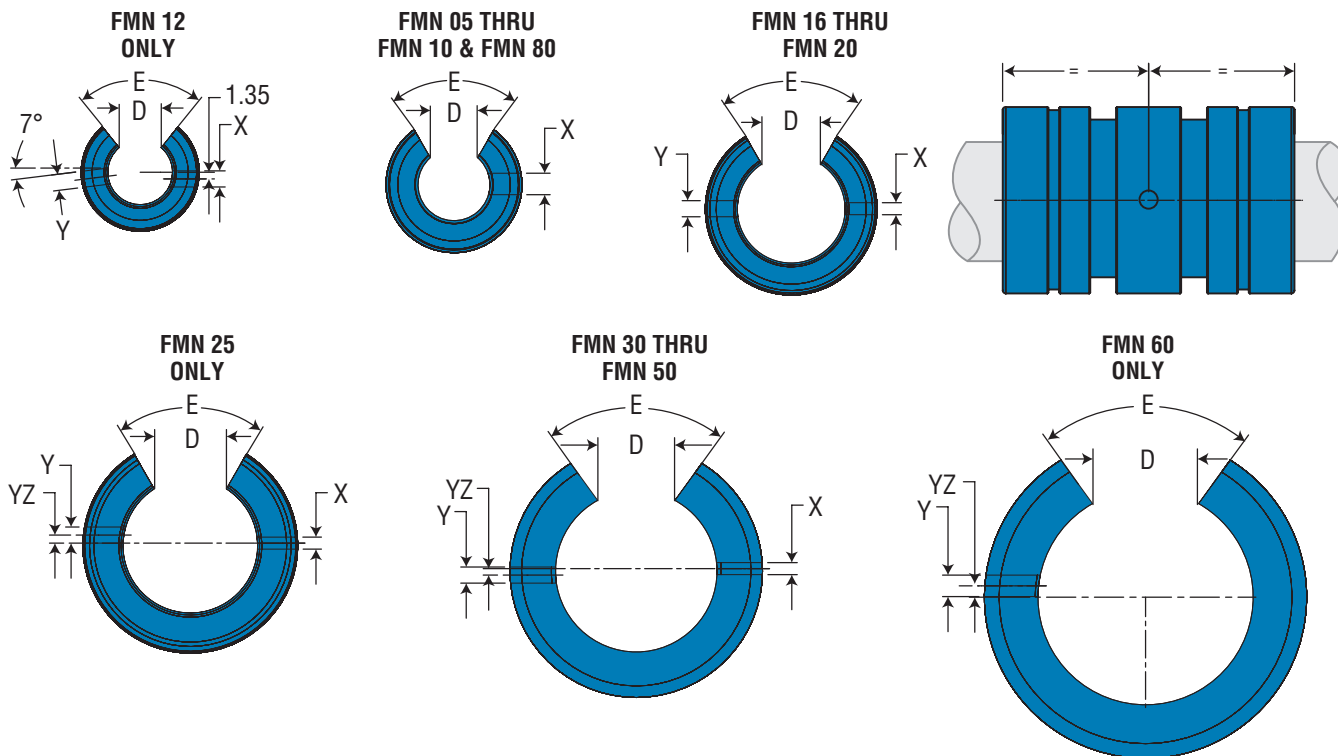
| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |        |                       |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |         |                   |        | B                   |     | B2      |         | C<br>LENGTH |     | CONCENTRIC<br>MAX MM | BEARING<br>WEIGHT<br>KG. |
|--|--------|-----------------------|----------------------|--------|---|---------|-------------------|--------|---------------------|-----|---------|---------|-------------|-----|----------------------|--------------------------|
| PART NO.   |        | NOMINAL<br>SIZE<br>MM | A<br>BEARING I.D. F8 |        | PART NO.  |         | A<br>BEARING I.D. |        | STANDARD<br>O.D. h7 | MIN | MAX     | MIN     |             |     |                      |                          |
| CLOSED   | OPEN   |                       | MIN                  | MAX    | CLOSED  | OPEN    | MIN               | MAX    | MIN                 | MAX | MIN     | MAX     | MIN         | MAX |                      |                          |
| FM 05  | FMN 05 | 5                     | 5.010                | 5.028  | FMC 05  | FMCN 05 | 5.060             | 5.078  | 11.982              | 12  | 11.941  | 11.966  | 21.619      | 22  | 0.0254               | 0.004                    |
| FM 08  | FMN 08 | 8                     | 8.013                | 8.035  | FMC 08  | FMCN 08 | 8.063             | 8.085  | 15.982              | 16  | 15.941  | 15.966  | 24.619      | 25  | 0.0254               | 0.009                    |
| FM 10  | FMN 10 | 10                    | 10.013               | 10.035 | FMC 10  | FMCN 10 | 10.063            | 10.085 | 18.979              | 19  | 18.938  | 18.964  | 28.619      | 29  | 0.0254               | 0.014                    |
| FM 12  | FMN 12 | 12                    | 12.016               | 12.043 | FMC 12  | FMCN 12 | 12.066            | 12.093 | 21.979              | 22  | 21.938  | 21.963  | 31.619      | 32  | 0.0254               | 0.017                    |
| FM 16  | FMN 16 | 16                    | 16.016               | 16.043 | FMC 16  | FMCN 16 | 16.066            | 16.093 | 25.979              | 26  | 25.938  | 25.964  | 35.619      | 36  | 0.0254               | 0.028                    |
| FM 20  | FMN 20 | 20                    | 20.020               | 20.053 | FMC 20  | FMCN 20 | 20.096            | 20.129 | 31.975              | 32  | 31.938  | 31.963  | 44.619      | 45  | 0.0254               | 0.054                    |
| FM 25  | FMN 25 | 25                    | 25.020               | 25.053 | FMC 25  | FMCN 25 | 25.096            | 25.129 | 39.975              | 40  | 39.936  | 39.962  | 57.619      | 58  | 0.0254               | 0.109                    |
| FM 30  | FMN 30 | 30                    | 30.020               | 30.053 | FMC 30  | FMCN 30 | 30.096            | 30.129 | 46.975              | 47  | 46.937  | 46.962  | 67.619      | 68  | 0.0254               | 0.176                    |
| FM 40  | FMN 40 | 40                    | 40.025               | 40.064 | FMC 40  | FMCN 40 | 40.127            | 40.166 | 61.970              | 62  | 61.935  | 61.961  | 79.619      | 80  | 0.0254               | 0.356                    |
| FM 50  | FMN 50 | 50                    | 50.025               | 50.064 | FMC 50  | FMCN 50 | 50.127            | 50.166 | 74.970              | 75  | 74.935  | 74.960  | 99.619      | 100 | 0.0254               | 0.628                    |
| FM 60  | FMN 60 | 60                    | 60.030               | 60.076 | FMC 60  | FMCN 60 | 60.182            | 60.228 | 89.965              | 90  | 89.931  | 89.957  | 124.619     | 125 | 0.0380               | 1.117                    |
| FM 80  | FMN 80 | 80                    | 80.030               | 80.076 | FMC 80  | FMCN 80 | 80.182            | 80.228 | 119.965             | 120 | 119.931 | 119.957 | 164.619     | 165 | 0.0510               | 2.679                    |

## MOUNTING DIMENSIONS

| PART NO. |        | NOMINAL<br>SIZE<br>MM | H                     | HA                      | HB                     | RET. RING<br>PART NO.<br>DIN 471 | J                       | JA                   | JB                  | METRIC<br>O'RING<br>SIZE |
|----------|--------|-----------------------|-----------------------|-------------------------|------------------------|----------------------------------|-------------------------|----------------------|---------------------|--------------------------|
| CLOSED   | OPEN   |                       | BETWEEN<br>RET. RINGS | RET. RING<br>GRV. WIDTH | RET. RING<br>GRV. DIA. |                                  | BETWEEN<br>O'RING GRVS. | O'RING<br>GRV. WIDTH | O'RING<br>GRV. DIA. |                          |
| FM 05    | FMN 05 | 5                     | 12                    | 1.14                    | 11.5                   | 12                               | 5                       | 2                    | 9.86                | 9.7 x 1.3                |
| FM 08    | FMN 08 | 8                     | 14                    | 1.14                    | 15.2                   | 16                               | 5.33                    | 2                    | 13.2                | 13 x 1.7                 |
| FM 10    | FMN 10 | 10                    | 19.4                  | 1.32                    | 18.0                   | 19                               | 5.63                    | 2.44                 | 15.7                | 15.5 x 2                 |
| FM 12    | FMN 12 | 12                    | 20                    | 1.32                    | 21.0                   | 22                               | 6                       | 3.17                 | 17.9                | 17.5 x 2.5               |
| FM 16    | FMN 16 | 16                    | 22                    | 1.32                    | 24.9                   | 26                               | 8                       | 3.17                 | 21.9                | 21.5 x 2.5               |
| FM 20    | FMN 20 | 20                    | 28                    | 1.63                    | 30.3                   | 32                               | 10                      | 3.17                 | 27.9                | 27.5 x 2.5               |
| FM 25    | FMN 25 | 25                    | 40                    | 1.90                    | 37.5                   | 40                               | 12.5                    | 3.17                 | 35.9                | 35.5 x 2.5               |
| FM 30    | FMN 30 | 30                    | 48                    | 1.90                    | 44.5                   | 47                               | 15                      | 3.17                 | 42.7                | 42.52 x 2.62             |
| FM 40    | FMN 40 | 40                    | 56                    | 2.20                    | 59.0                   | 62                               | 20                      | 4.1                  | 56.3                | 56 x 3.5                 |
| FM 50    | FMN 50 | 50                    | 72                    | 2.70                    | 72.0                   | 75                               | 25                      | 4.1                  | 69.2                | 69 x 3.5                 |
| FM 60    | FMN 60 | 60                    | 95                    | 3.20                    | 86.4                   | 90                               | 30                      | 7.1                  | 81.7                | 81 x 5                   |
| FM 80    | FMN 80 | 80                    | 125                   | 4.17                    | 116.1                  | 120                              | 40                      | 7.1                  | 111.7               | 111 x 5                  |

# Simplicity® Linear Plain Bearings

## Linear Plain Bearings FMN



INCH  
 ISO METRIC  
 JIS METRIC

### OPEN DIMENSIONAL INFORMATION

| PART NO. | NOMINAL SIZE<br>MM | D SLOT WIDE MIN | E SLOT ANGLE | X RET. HOLE DIA. | Y RET. HOLE DIA. | YZ RET. HOLE LOCATE | BEARING WT.<br>KG. |
|----------|--------------------|-----------------|--------------|------------------|------------------|---------------------|--------------------|
|          |                    |                 |              |                  |                  |                     |                    |
| FMN 08   | 8                  | 5.1             | 60           | 3.0              | N/A              | N/A                 | 0.0077             |
| FMN 10   | 10                 | 6.4             | 60           | 3.0              | N/A              | N/A                 | 0.0119             |
| FMN 12   | 12                 | 7.6             | 78           | 3.0              | 3.0              | 7.0                 | 0.0156             |
| FMN 16   | 16                 | 10.4            | 78           | 2.2              | 3.0              | 0                   | 0.0213             |
| FMN 20   | 20                 | 10.8            | 60           | 2.2              | 3.0              | 0                   | 0.0439             |
| FMN 25   | 25                 | 13.2            | 60           | 3.0              | 3.0              | 1.5                 | 0.0893             |
| FMN 30   | 30                 | 14.2            | 72           | 3.0              | 3.0              | 2.0                 | 0.1460             |
| FMN 40   | 40                 | 19.5            | 72           | 3.0              | 3.0              | 1.5                 | 0.2948             |
| FMN 50   | 50                 | 24.0            | 72           | 3.0              | 5.0              | 2.5                 | 0.5202             |
| FMN 60   | 60                 | 29.6            | 72           | N/A              | 6.0              | 0                   | 0.9199             |
| FMN 80   | 80                 | 39.0            | 72           | N/A              | 8.0              | 0                   | 2.2269             |

### LOAD & SPEED DATA

| PART NO. | EFFECTIVE SURFACE AREA<br>SQ. IN. | MAX STATIC LOAD<br>LBS.<br>FRELON® |       | EFFECTIVE SURFACE AREA<br>CM² | MAX STATIC LOAD N<br>FRELON |        |
|----------|-----------------------------------|------------------------------------|-------|-------------------------------|-----------------------------|--------|
|          |                                   | GOLD                               | J     |                               | GOLD                        | J & W  |
|          |                                   | FMN 05                             | 0.171 |                               | 511                         | 256    |
| FMN 08   | 0.310                             | 926                                | 463   | 2.00                          | 4120                        | 2060   |
| FMN 10   | 0.450                             | 1345                               | 672   | 2.90                          | 5984                        | 2992   |
| FMN 12   | 0.589                             | 1777                               | 888   | 3.80                          | 7907                        | 3953   |
| FMN 16   | 0.899                             | 2667                               | 1334  | 5.80                          | 11870                       | 5935   |
| FMN 20   | 1.395                             | 4167                               | 2083  | 9.00                          | 18541                       | 9270   |
| FMN 25   | 2.248                             | 6715                               | 3358  | 1.450                         | 29881                       | 14941  |
| FMN 30   | 3.162                             | 9444                               | 4722  | 2.040                         | 42026                       | 21013  |
| FMN 40   | 4.960                             | 14814                              | 7407  | 3.200                         | 65923                       | 32962  |
| FMN 50   | 7.750                             | 23147                              | 11574 | 5.000                         | 103005                      | 51503  |
| FMN 60   | 11.625                            | 34721                              | 17360 | 7.500                         | 154508                      | 77254  |
| FMN 80   | 20.460                            | 61120                              | 30554 | 13.200                        | 271933                      | 135967 |

**Note:** MAX PV (m/min. \* kg/sq. cm)  
 FrelonGOLD® = 430 PV  
 Frelon J = 215 PV

MAX Speed Running Dry (m/min.)  
 FrelonGOLD = 91.4  
 Frelon J = 42.6

MAX Speed Running with Lubrication (m/min.)  
 FrelonGOLD = 251.5  
 Frelon J = 122

MAX PV (m/s. \* N/mm²)  
 FrelonGOLD = 0.70 PV  
 Frelon J = 0.35 PV

MAX Speed Running Dry (m/s)  
 FrelonGOLD = 1.52  
 Frelon J = 0.71

MAX Speed Running with Lubrication (m/s)  
 FrelonGOLD = 4.19  
 Frelon J = 2.03



Plain Bearing Accessories:  
 Retaining Rings, Seals, O-Rings—page 19

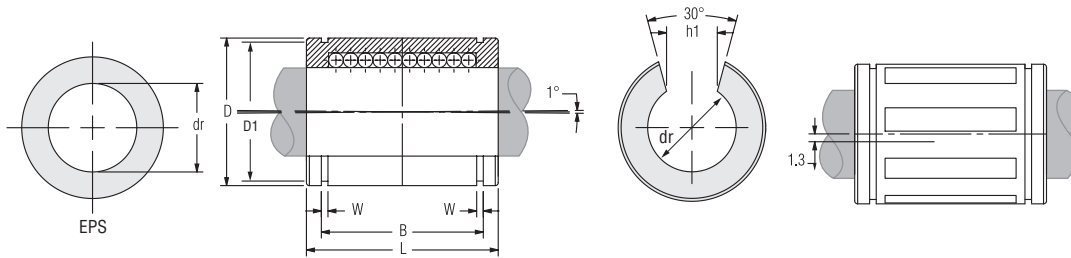


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

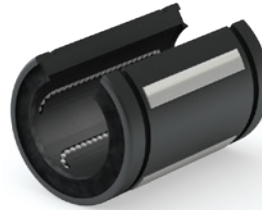
# Linear Ball Bearings Precision Plus Self Aligning

## Self Aligning Ball Bearings EPS & EPS\_OP



EPS – Self Aligning Closed

EPSxx-OP – Self Aligning Open



**NEW**

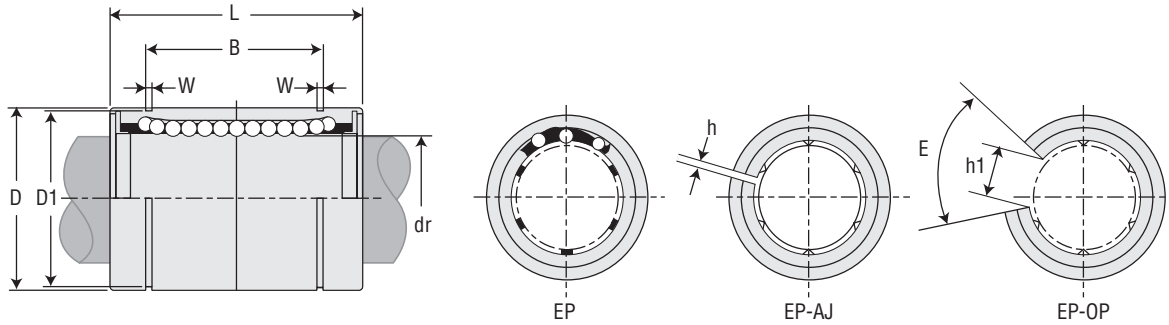
### DIMENSIONAL INFORMATION

| PART NO.<br>SELF<br>ALIGNING<br>CLOSED | NOMINAL DIAMETER |    |           | BALL<br>CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |     |           |      |           |      | LOAD RATINGS |              |              |
|--|------------------|----|-----------|-----------------|--------|-------------------------------|-----|-----------|------|-----------|------|--------------|--------------|--------------|
|  | SIZE             | dr | TOLERANCE |                 |        | D                             | L   | TOLERANCE | B    | TOLERANCE | W    | D1           | DYNAMIC<br>C | STATIC<br>CO |
|  | MM               | MM | MM        |                 |        | MM                            | MM  | MM        | MM   | MM        | MM   | MM           | N            | N            |
| EPS16                                  | 16               | 16 | 0/-0.013  | 5               | 26     | 26                            | 36  | 0/-0.51   | 24.6 | 0/-0.51   | 1.30 | 24.9         | 1176         | 607          |
| EPS20                                  | 20               | 20 | 0/-0.013  | 6               | 60     | 32                            | 45  | 0/-0.51   | 31.2 | 0/-0.51   | 1.60 | 30.5         | 2352         | 1254         |
| EPS25                                  | 25               | 25 | 0/-0.013  | 6               | 120    | 40                            | 58  | 0/-0.51   | 43.7 | 0/-0.51   | 1.85 | 38.5         | 4508         | 2195         |
| EPS30                                  | 30               | 30 | 0/-0.013  | 6               | 184    | 47                            | 68  | 0/-0.64   | 51.7 | 0/-0.64   | 1.85 | 44.5         | 5586         | 2959         |
| EPS40                                  | 40               | 40 | 0/-0.013  | 6               | 342    | 62                            | 80  | 0/-0.76   | 60.3 | 0/-0.76   | 2.15 | 58.5         | 9310         | 4312         |
| EPS50                                  | 50               | 50 | 0/-0.013  | 6               | 586    | 75                            | 100 | 0/-1.02   | 77.3 | 0/-1.02   | 2.65 | 71.5         | 13720        | 6762         |

| PART NO.<br>SELF<br>ALIGNING<br>OPEN | NOMINAL DIAMETER |    |           | BALL<br>CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |     |           |      |           |      |      |      |         | LOAD RATINGS |              |
|--------------------------------------|------------------|----|-----------|-----------------|--------|-------------------------------|-----|-----------|------|-----------|------|------|------|---------|--------------|--------------|
|                                      | SIZE             | dr | TOLERANCE |                 |        | D                             | L   | TOLERANCE | B    | TOLERANCE | W    | D1   | H1   | J       | DYNAMIC<br>C | STATIC<br>CO |
|                                      | MM               | MM | MM        |                 |        | MM                            | MM  | MM        | MM   | MM        | MM   | MM   | MM   | MM      | N            | N            |
| EPS16-OP                             | 16               | 16 | 0/-0.013  | 4               | 20     | 26                            | 36  | 0/-0.51   | 24.6 | 0/-0.51   | 1.30 | 24.9 | .313 | through | 1332         | 715          |
| EPS20-OP                             | 20               | 20 | 0/-0.013  | 5               | 50     | 32                            | 45  | 0/-0.51   | 31.2 | 0/-0.51   | 1.60 | 30.5 | .375 | .0390   | 2371         | 1276         |
| EPS25-OP                             | 25               | 25 | 0/-0.013  | 5               | 100    | 40                            | 58  | 0/-0.51   | 43.7 | 0/-0.51   | 1.85 | 38.5 | .438 | .0590   | 4557         | 2234         |
| EPS30-OP                             | 30               | 30 | 0/-0.013  | 5               | 154    | 47                            | 68  | 0/-0.64   | 51.7 | 0/-0.64   | 1.85 | 44.5 | .563 | .0470   | 5644         | 3018         |
| EPS40-OP                             | 40               | 40 | 0/-0.013  | 5               | 286    | 62                            | 80  | 0/-0.76   | 60.3 | 0/-0.76   | 2.15 | 58.5 | .625 | .0900   | 9398         | 4410         |
| EPS50-OP                             | 50               | 50 | 0/-0.013  | 5               | 486    | 75                            | 100 | 0/-1.02   | 77.3 | 0/-1.02   | 2.65 | 71.5 | .750 | .0900   | 13857        | 6860         |

# Linear Ball Bearings Precision

## Ball Bearings EP



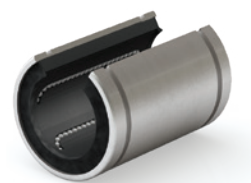
EP – Standard Closed



EPxx-AJ – Adjustable



EPxx-OP – Standard Open



## DIMENSIONAL INFORMATION

(Standard Steel Finish)

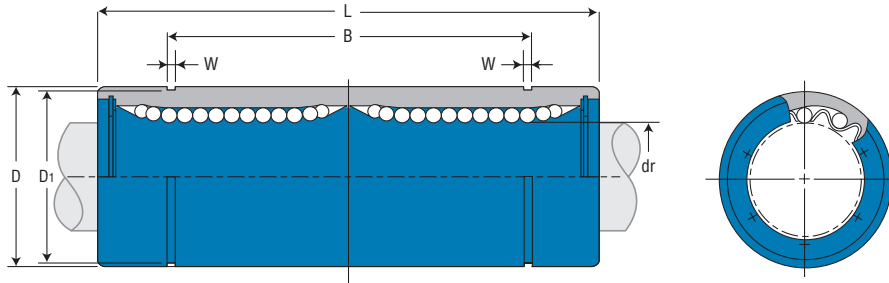
| PART NO.        |            |               | NOMINAL DIAMETER |    |               | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |      |           |
|-----------------|------------|---------------|------------------|----|---------------|--------------|--------|-------------------------------|-----------|-----|-----------|------|-----------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE             | dr | TOLERANCE     |              |        | D                             | TOLERANCE | L   | TOLERANCE | B    | TOLERANCE |
|                 |            |               | MM               | MM | MM            | G            | MM     | MM                            | MM        | MM  | MM        | MM   |           |
| EP5G            | -          | -             | 5                | 5  | +0.008/0      | 4            | 11     | 12                            | 0/-0.008  | 22  | 0/-0.2    | 14.5 | 0/-0.2    |
| EP8G            | -          | -             | 8                | 8  | +0.008/0      | 4            | 20     | 16                            | 0/-0.008  | 25  | 0/-0.2    | 16.5 | 0/-0.2    |
| EP10G           | -          | -             | 10               | 10 | +0.008/0      | 4            | 36     | 19                            | 0/-0.009  | 29  | 0/-0.2    | 22   | 0/-0.2    |
| EP12G           | EP12G-AJ   | EP12G-OP      | 12               | 12 | +0.008/0      | 5            | 41     | 22                            | 0/-0.009  | 32  | 0/-0.2    | 22.9 | 0/-0.2    |
| EP16G           | EP16G-AJ   | EP16G-OP      | 16               | 16 | +0.009/-0.001 | 5            | 65     | 26                            | 0/-0.009  | 36  | 0/-0.2    | 24.9 | 0/-0.2    |
| EP20G           | EP20G-AJ   | EP20G-OP      | 20               | 20 | +0.009/-0.001 | 5            | 91     | 32                            | 0/-0.011  | 45  | 0/-0.2    | 31.5 | 0/-0.2    |
| EP25G           | EP25G-AJ   | EP25G-OP      | 25               | 25 | +0.011/-0.001 | 6            | 215    | 40                            | 0/-0.011  | 58  | 0/-0.3    | 44.1 | 0/-0.3    |
| EP30G           | EP30G-AJ   | EP30G-OP      | 30               | 30 | +0.011/-0.001 | 6            | 325    | 47                            | 0/-0.011  | 68  | 0/-0.3    | 52.1 | 0/-0.3    |
| EP40G           | EP40G-AJ   | EP40G-OP      | 40               | 40 | +0.013/-0.002 | 6            | 705    | 62                            | 0/-0.013  | 80  | 0/-0.3    | 60.6 | 0/-0.3    |
| EP50G           | EP50G-AJ   | EP50G-OP      | 50               | 50 | +0.013/-0.002 | 6            | 1130   | 75                            | 0/-0.013  | 100 | 0/-0.3    | 77.6 | 0/-0.3    |

| PART NO.        |            |               | NOMINAL DIAMETER |    |               | MAJOR DIMENSIONS & TOLERANCES |      |     |      |            |                  | LOAD RATINGS         |           |           |
|-----------------|------------|---------------|------------------|----|---------------|-------------------------------|------|-----|------|------------|------------------|----------------------|-----------|-----------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE             | dr | TOLERANCE     | W                             | D1   | h   | h1   | E          | MAX ECCENTRICITY | MAX RADIAL CLEARANCE | DYNAMIC C | STATIC Co |
|                 |            |               | MM               | MM | MM            | MM                            | MM   | MM  | MM   | SLOT ANGLE | μM               | μM                   | N         | N         |
| EP5G            | -          | -             | 5                | 5  | +0.008/0      | 1.1                           | 11.5 | -   | -    | -          | 12               | -5                   | 200       | 260       |
| EP8G            | -          | -             | 8                | 8  | +0.008/0      | 1.1                           | 15.2 | -   | -    | -          | 12               | -5                   | 260       | 400       |
| EP10G           | -          | -             | 10               | 10 | +0.008/0      | 1.3                           | 18   | -   | -    | -          | 12               | -5                   | 372       | 549       |
| EP12G           | EP12G-AJ   | EP12G-OP      | 12               | 12 | +0.008/0      | 1.3                           | 21   | 1.5 | 7.5  | 78°        | 12               | -7                   | 410       | 590       |
| EP16G           | EP16G-AJ   | EP16G-OP      | 16               | 16 | +0.009/-0.001 | 1.3                           | 24.9 | 1.5 | 10   | 78°        | 12               | -7                   | 770       | 1170      |
| EP20G           | EP20G-AJ   | EP20G-OP      | 20               | 20 | +0.009/-0.001 | 1.6                           | 30.3 | 2   | 10   | 60°        | 15               | -9                   | 860       | 1370      |
| EP25G           | EP25G-AJ   | EP25G-OP      | 25               | 25 | +0.011/-0.001 | 1.85                          | 37.5 | 2   | 12.5 | 60°        | 15               | -9                   | 980       | 1560      |
| EP30G           | EP30G-AJ   | EP30G-OP      | 30               | 30 | +0.011/-0.001 | 1.85                          | 44.5 | 2   | 12.5 | 50°        | 15               | -9                   | 1560      | 2740      |
| EP40G           | EP40G-AJ   | EP40G-OP      | 40               | 40 | +0.013/-0.002 | 2.15                          | 59   | 3   | 16.8 | 50°        | 17               | -13                  | 2150      | 4010      |
| EP50G           | EP50G-AJ   | EP50G-OP      | 50               | 50 | +0.013/-0.002 | 2.65                          | 72   | 3   | 21   | 50°        | 17               | -13                  | 3820      | 7930      |



# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings EP-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.        | NOMINAL DIAMETER |    |               | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |       |           |
|-----------------|------------------|----|---------------|--------------|--------|-------------------------------|-----------|-----|-----------|-------|-----------|
|                 | SIZE             | dr | TOLERANCE     |              |        | D                             | TOLERANCE | L   | TOLERANCE | B     | TOLERANCE |
| STANDARD CLOSED | MM               | MM | MM            | G            | MM     | MM                            | MM        | MM  | MM        | MM    |           |
| EP8GW           | 8                | 8  | +0.009/-0.001 | 4            | 40     | 16                            | 0/-0.009  | 45  | 0/-0.3    | 33    | 0/-0.3    |
| EP12GW          | 12               | 12 | +0.009/-0.001 | 4            | 80     | 22                            | 0/-0.011  | 57  | 0/-0.3    | 45.8  | 0/-0.3    |
| EP16GW          | 16               | 16 | +0.011/-0.001 | 5            | 115    | 26                            | 0/-0.011  | 70  | 0/-0.3    | 49.8  | 0/-0.3    |
| EP20GW          | 20               | 20 | +0.011/-0.001 | 5            | 180    | 32                            | 0/-0.013  | 80  | 0/-0.3    | 61    | 0/-0.3    |
| EP25GW          | 25               | 25 | +0.013/-0.002 | 6            | 430    | 40                            | 0/-0.013  | 112 | 0/-0.4    | 82    | 0/-0.4    |
| EP30GW          | 30               | 30 | +0.013/-0.002 | 6            | 615    | 47                            | 0/-0.013  | 123 | 0/-0.4    | 104.2 | 0/-0.4    |
| EP40GW          | 40               | 40 | +0.016/-0.004 | 6            | 1400   | 62                            | 0/-0.015  | 154 | 0/-0.4    | 121.2 | 0/-0.4    |
| EP50GW          | 50               | 50 | +0.016/-0.004 | 6            | 2320   | 75                            | 0/-0.020  | 192 | 0/-0.4    | 155.2 | 0/-0.4    |

| PART NO.        | NOMINAL DIAMETER |    |               | MAJOR DIMENSIONS & TOLERANCES |      |                  | LOAD RATINGS |           |
|-----------------|------------------|----|---------------|-------------------------------|------|------------------|--------------|-----------|
|                 | SIZE             | dr | TOLERANCE     | W                             | D1   | MAX ECCENTRICITY | DYNAMIC C    | STATIC Co |
| STANDARD CLOSED | MM               | MM | MM            | MM                            | MM   | μM               | N            | N         |
| EP8GW           | 8                | 8  | +0.009/-0.001 | 1.1                           | 15.2 | 15               | 421          | 804       |
| EP12GW          | 12               | 12 | +0.009/-0.001 | 1.3                           | 21   | 15               | 813          | 1570      |
| EP16GW          | 16               | 16 | +0.011/-0.001 | 1.3                           | 24.9 | 15               | 921          | 1780      |
| EP20GW          | 20               | 20 | +0.011/-0.001 | 1.6                           | 30.3 | 17               | 1370         | 2740      |
| EP25GW          | 25               | 25 | +0.013/-0.002 | 1.85                          | 38   | 17               | 1570         | 3140      |
| EP30GW          | 30               | 30 | +0.013/-0.002 | 1.85                          | 44.5 | 17               | 2500         | 5490      |
| EP40GW          | 40               | 40 | +0.016/-0.004 | 2.15                          | 59   | 20               | 3430         | 8040      |
| EP50GW          | 50               | 50 | +0.016/-0.004 | 2.65                          | 72   | 20               | 6080         | 15900     |

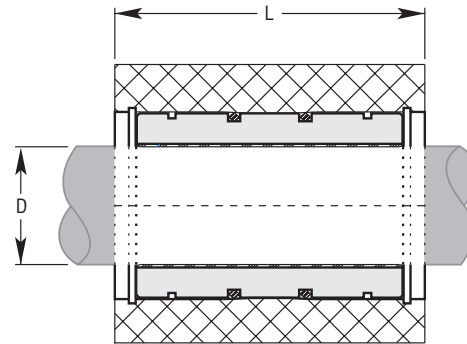
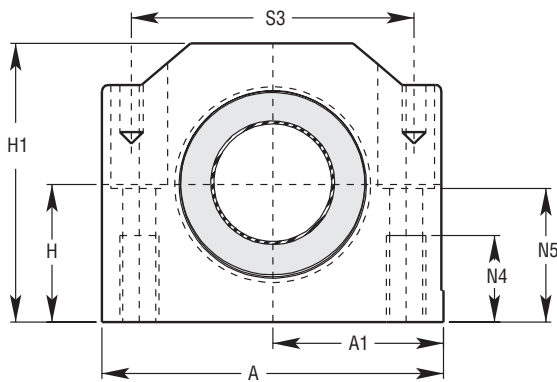
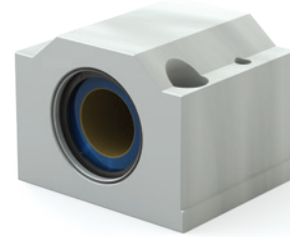
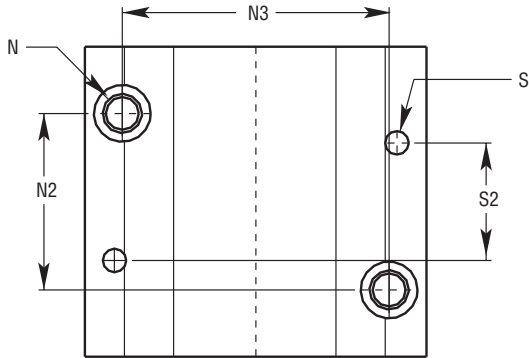


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Closed Pillow Blocks

## Plain Bearings – Closed Pillow Blocks PM



INCH

ISO  
METRIC

JIS  
METRIC

### DIMENSIONAL INFORMATION

| PART NO.  | D<br>NOM.<br>BRG. | H  | H1   | A      | A1    | L    | N      | N2         | N3    | N4     | N5 | S    | S2  | S3  | MAX STATIC<br>LOAD LBS. |       | MAX STATIC<br>LOAD N |        | ASSEM.<br>WT. |       |
|-----------|-------------------|----|------|--------|-------|------|--------|------------|-------|--------|----|------|-----|-----|-------------------------|-------|----------------------|--------|---------------|-------|
|           |                   |    |      |        |       |      |        |            |       |        |    |      |     |     | FRELON®                 | J & W | FRELON               | J & W  |               |       |
| PRECISION | COMPENSATED       | MM | .015 | HEIGHT | WIDTH | .013 | LENGTH | BOLT       |       |        |    |      |     |     | GOLD                    | J & W | GOLD                 | J & W  | KG.           |       |
| PM 08     | PM 08 C           | 8  | 15   | 28     | 35    | 17.5 | 32     | M4 x 0.7   | 20.15 | 25.15  | 9  | 14.5 | N/A | N/A | 926                     | 463   | 4120                 | 2060   | 0.069         |       |
| PM 10     | PM 10 C           | 10 | 16   | 31.5   | 40    | 20   | 36     | M5 x 0.8   | 20.15 | 29.15  | 11 | 15   | 4   | 29  | 31                      | 1345  | 672                  | 5984   | 2992          | 0.095 |
| PM 12     | PM 12 C           | 12 | 18   | 35     | 43    | 21.5 | 39     | M5 x 0.8   | 23.15 | 32.15  | 11 | 16.5 | 4   | 32  | 34                      | 1777  | 888                  | 7907   | 3953          | 0.118 |
| PM 16     | PM 16 C           | 16 | 22   | 42     | 53    | 26.5 | 43     | M6 x 1.0   | 26.15 | 40.15  | 13 | 21   | 4   | 35  | 42                      | 2667  | 1334                 | 11870  | 5935          | 0.200 |
| PM 20     | PM 20 C           | 20 | 25   | 50     | 59.3  | 30   | 54     | M8 x 1.25  | 32.15 | 45.15  | 18 | 24   | 5   | 45  | 50                      | 4167  | 2083                 | 18541  | 9270          | 0.329 |
| PM 25     | PM 25 C           | 25 | 30   | 60     | 78    | 39   | 67     | M10 x 1.5  | 40.15 | 60.15  | 22 | 29   | 6   | 20  | 64                      | 6715  | 3358                 | 29881  | 14941         | 0.655 |
| PM 30     | PM 30 C           | 30 | 35   | 71     | 87    | 43.5 | 79     | M10 x 1.5  | 45.15 | 68.15  | 22 | 34   | 6   | 30  | 72                      | 9444  | 4722                 | 42026  | 21013         | 1.020 |
| PM 40     | PM 40 C           | 40 | 45   | 91     | 108   | 54   | 91     | M12 x 1.75 | 58.15 | 86.15  | 26 | 44   | 8   | 35  | 90                      | 14814 | 7407                 | 65923  | 32962         | 1.846 |
| PM 50     | PM 50 C           | 50 | 50   | 105    | 132   | 66   | 113    | M16 x 2.0  | 50.20 | 108.20 | 34 | 49   | 10  | 42  | 108                     | 23147 | 11574                | 103005 | 51503         | 3.169 |

- Notes:** (1) Standard pillow block assembly includes self-aligning housing and precision bearing.  
 (2) All standard metric pillow blocks use standard FM series bearings.  
 (3) Straight bore pillow block assembly includes standard O.D. FM series bearing in straight bore housing.

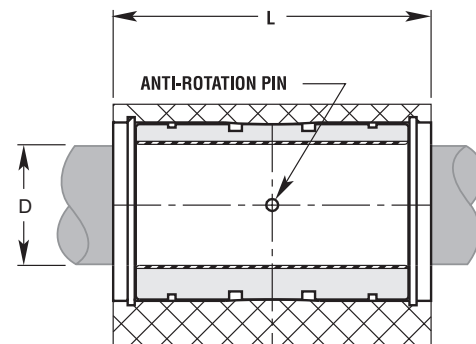
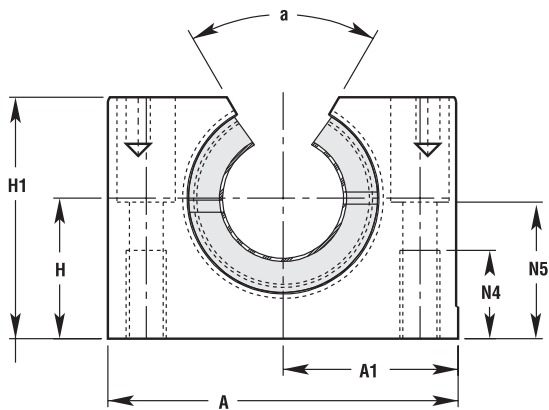
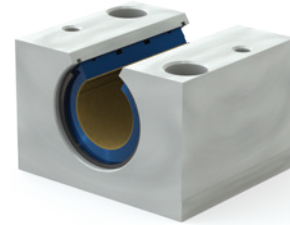
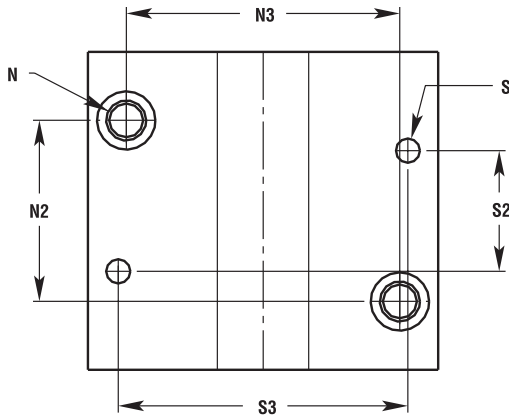


**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

**Inch Series—page 44 Metric Series—page 81**

# Simplicity® Open Pillow Blocks

## Plain Bearings – Open Pillow Blocks PMN



### DIMENSIONAL INFORMATION

| PART NO.  |             | D<br>NOM.<br>BRG.<br>I.D. | H<br>CENTERLINE | H1<br>HEIGHT | A<br>WIDTH | A1<br>.013 | L<br>LENGTH | N<br>BOLT  | N2    | N3     | N4 | N5   | S  | S2 | S3  | a<br>MM | MAX STATIC LOAD LBS. |       | MAX STATIC LOAD N |       | ASSEM.<br>WT.<br>KG. |
|-----------|-------------|---------------------------|-----------------|--------------|------------|------------|-------------|------------|-------|--------|----|------|----|----|-----|---------|----------------------|-------|-------------------|-------|----------------------|
| PRECISION | COMPENSATED |                           |                 |              |            |            |             |            |       |        |    |      |    |    |     |         | FRELON®              |       | FRELON            |       |                      |
| PMN 12    | PMN 12C     | 12                        | 18              | 28           | 43         | 21.5       | 39          | M5 x 0.8   | 23.15 | 32.15  | 11 | 16.5 | 4  | 32 | 34  | 66      | 1777                 | 888   | 7907              | 3953  | 0.096                |
| PMN 16    | PMN 16C     | 16                        | 22              | 35           | 53         | 26.5       | 43          | M6 x 1.0   | 26.15 | 40.15  | 13 | 21   | 4  | 35 | 42  | 68      | 2667                 | 1334  | 11870             | 5935  | 0.162                |
| PMN 20    | PMN 20C     | 20                        | 25              | 42           | 60         | 30         | 54          | M8 x 1.25  | 32.15 | 45.15  | 18 | 24   | 5  | 45 | 50  | 60      | 4167                 | 2083  | 18541             | 9270  | 0.267                |
| PMN 25    | PMN 25C     | 25                        | 30              | 51           | 78         | 39         | 67          | M10 x 1.5  | 40.15 | 60.15  | 20 | 29   | 6  | 20 | 64  | 60      | 6715                 | 3358  | 29881             | 14941 | 0.536                |
| PMN 30    | PMN 30C     | 30                        | 35              | 60           | 87         | 43.5       | 79          | M10 x 1.5  | 45.15 | 68.15  | 22 | 34   | 6  | 30 | 72  | 60      | 9444                 | 4722  | 42026             | 21013 | 0.831                |
| PMN 40    | PMN 40C     | 40                        | 45              | 77           | 108        | 54         | 91          | M12 x 1.75 | 58.15 | 86.15  | 26 | 44   | 8  | 35 | 90  | 60      | 14814                | 7407  | 65923             | 32962 | 1.499                |
| PMN 50    | PMN 50C     | 50                        | 50              | 88           | 132        | 66         | 113         | M16 x 2.0  | 50.20 | 108.20 | 34 | 49   | 10 | 42 | 108 | 60      | 23147                | 11574 | 103005            | 51503 | 2.539                |



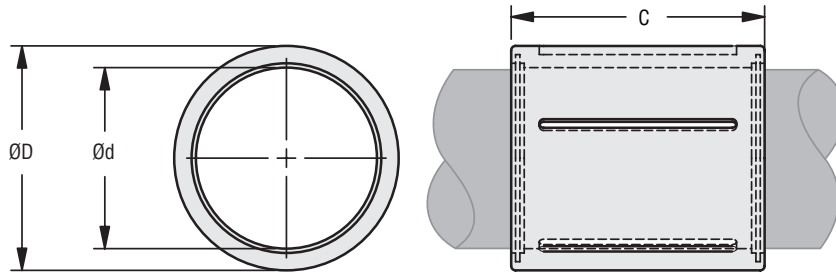
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

[Inch Series—page 44](#) [Metric Series—page 81](#)



# Linear Ball Bearings Compact Thin Wall

## Ball Bearings – Compact Thin Wall KHP



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | DIMENSIONS |           |    |           |    |           | LOAD RATING |           |           |
|----------|------------|-----------|----|-----------|----|-----------|-------------|-----------|-----------|
|          | Ød         | TOLERANCE | ØD | TOLERANCE | C  | TOLERANCE | WEIGHT      | DYNAMIC C | STATIC Co |
|          | MM         | µm        | MM | µm        | MM | µm        | G           | N         | N         |
| KHP6     | 6          | 0/+12     | 12 | -11/0     | 22 | -520/0    | 7           | 400       | 239       |
| KHP8     | 8          | 0/+15     | 15 | -11/0     | 24 | -520/0    | 12          | 435       | 280       |
| KHP10    | 10         | 0/+15     | 17 | -11/0     | 26 | -520/0    | 14.5        | 500       | 370       |
| KHP12    | 12         | 0/+18     | 19 | -13/0     | 28 | -520/0    | 18.5        | 620       | 510       |
| KHP14    | 14         | 0/+18     | 21 | -13/0     | 28 | -520/0    | 20.5        | 620       | 520       |
| KHP16    | 16         | 0/+18     | 24 | -13/0     | 30 | -520/0    | 27.5        | 800       | 620       |
| KHP20    | 20         | 0/+21     | 28 | -13/0     | 30 | -520/0    | 32.5        | 950       | 790       |
| KHP25    | 25         | 0/+21     | 35 | -16/0     | 40 | -620/0    | 66          | 1990      | 1670      |
| KHP30    | 30         | 0/+21     | 40 | -16/0     | 50 | -620/0    | 95          | 2880      | 2700      |
| KHP40    | 40         | 0/+25     | 52 | -19/0     | 60 | -740/0    | 182         | 4400      | 4450      |
| KHP50    | 50         | 0/+25     | 62 | -19/0     | 70 | -740/0    | 252         | 5500      | 6300      |



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

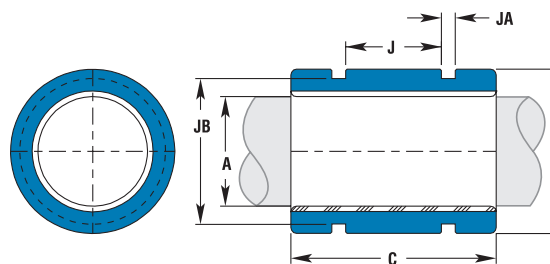
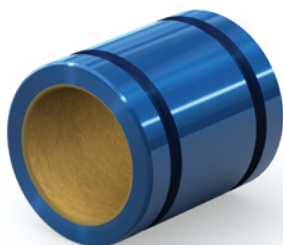
Inch Series—page 44 Metric Series—page 81

INCH  
 ISO METRIC  
 JIS METRIC



# Simplicity® Thin Wall Bearings

## Plain Bearings – Compact Thin Wall FG



### DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |                 |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |                   |        | B<br>O.D.<br>h7 |     | C<br>LENGTH |     | CONCENTRIC<br>MAX MM | BEARING<br>WEIGHT<br>KG. |
|--|-----------------|----------------------|--------|---|-------------------|--------|-----------------|-----|-------------|-----|----------------------|--------------------------|
| PART NO.   | NOMINAL<br>SIZE | A<br>BEARING I.D. F8 |        | PART NO.  | A<br>BEARING I.D. |        |                 |     |             |     |                      |                          |
| CLOSED   | MM              | MIN                  | MAX    | CLOSED  | MIN               | MAX    | MIN             | MAX | MIN         | MAX |                      |                          |
| FG 06  | 6               | 6.010                | 6.028  | FGC 06  | 6.060             | 6.078  | 11.98           | 12  | 17.619      | 18  | 0.0254               | 0.004                    |
| FG 08  | 8               | 8.013                | 8.035  | FGC 08  | 8.063             | 8.085  | 14.98           | 15  | 19.619      | 20  | 0.0254               | 0.006                    |
| FG 10  | 10              | 10.013               | 10.035 | FGC 10  | 10.063            | 10.085 | 16.98           | 17  | 21.619      | 22  | 0.0254               | 0.008                    |
| FG 12  | 12              | 12.016               | 12.043 | FGC 12  | 12.066            | 12.093 | 21.98           | 22  | 26.619      | 27  | 0.0254               | 0.018                    |
| FG 15  | 15              | 15.016               | 15.043 | FGC 15  | 15.066            | 15.093 | 24.98           | 25  | 27.619      | 28  | 0.0254               | 0.022                    |
| FG 16  | 16              | 16.016               | 16.043 | FGC 16  | 16.066            | 16.093 | 25.98           | 26  | 29.619      | 30  | 0.0254               | 0.025                    |
| FG 18  | 18              | 18.020               | 18.053 | FGC 18  | 18.096            | 18.129 | 27.98           | 28  | 29.619      | 30  | 0.0254               | 0.027                    |
| FG 20  | 20              | 20.020               | 20.053 | FGC 20  | 20.096            | 20.129 | 31.98           | 32  | 34.619      | 35  | 0.0254               | 0.044                    |
| FG 25  | 25              | 25.020               | 25.053 | FGC 25  | 25.096            | 25.129 | 39.98           | 40  | 44.619      | 45  | 0.0254               | 0.091                    |
| FG 30  | 30              | 30.020               | 30.053 | FGC 30  | 30.096            | 30.129 | 44.98           | 45  | 53.619      | 54  | 0.0254               | 0.127                    |
| FG 35  | 35              | 35.025               | 35.064 | FGC 35  | 35.127            | 35.166 | 51.98           | 52  | 61.619      | 62  | 0.0254               | 0.189                    |
| FG 40  | 40              | 40.025               | 40.064 | FGC 40  | 40.127            | 40.166 | 59.98           | 60  | 71.619      | 72  | 0.0254               | 0.301                    |
| FG 50  | 50              | 50.025               | 50.064 | FGC 50  | 50.127            | 50.166 | 74.98           | 75  | 89.619      | 90  | 0.0254               | 0.596                    |

### MOUNTING DIMENSIONS

| PART NO.  |             | NOMINAL<br>SIZE | J<br>BETWEEN<br>O-RING<br>GRVS. | JA<br>O-RING<br>GRV.<br>WIDTH | JB<br>O-RING<br>GRV.<br>DIA. | O-RING<br>SIZE | O-RING<br>PART<br>NUMBER |
|-----------|-------------|-----------------|---------------------------------|-------------------------------|------------------------------|----------------|--------------------------|
| PRECISION | COMPENSATED |                 |                                 |                               |                              |                |                          |
| FG 06     | FGC 06      | 6               | N/A                             | N/A                           | N/A                          | N/A            | N/A                      |
| FG 08     | FGC 08      | 8               | 8.0                             | 2.032                         | 12.201                       | 12 x 1.7       | 6000025                  |
| FG 10     | FGC 10      | 10              | 8.3                             | 2.032                         | 14.415                       | 14 x 1.6       | 6000026                  |
| FG 12     | FGC 12      | 12              | 12.0                            | 3.175                         | 17.907                       | 17.5 x 2.5     | 6000016                  |
| FG 15     | FGC 15      | 15              | 12.7                            | 3.175                         | 20.671                       | 20 x 2.65      | 6000029                  |
| FG 16     | FGC 16      | 16              | 12.7                            | 3.175                         | 21.882                       | 21.5 x 2.5     | 6000017                  |
| FG 18     | FGC 08      | 18              | 14.0                            | 3.175                         | 23.885                       | 23.5 x 2.5     | 6000031                  |
| FG 20     | FGC 20      | 20              | 17.0                            | 3.175                         | 27.864                       | 27.5 x 2.5     | 6000018                  |
| FG 25     | FGC 25      | 25              | 24.0                            | 3.175                         | 35.865                       | 35.5 x 2.5     | 6000019                  |
| FG 30     | FGC 30      | 30              | 30.0                            | 3.175                         | 40.895                       | 40 x 2.5       | 6000034                  |
| FG 35     | FGC 35      | 35              | 36.0                            | 4.115                         | 46.200                       | 46 x 3.5       | 6000035                  |
| FG 40     | FGC 40      | 40              | 37.3                            | 4.115                         | 54.255                       | 53 x 3.5       | 6000036                  |
| FG 50     | FGC 50      | 50              | 50                              | 4.115                         | 69.215                       | 69 x 3.5       | 6000022                  |

### LOAD & SPEED DATA

| PART<br>NO. | EFFECTIVE<br>SURFACE<br>AREA<br>CM <sup>2</sup> | MAX STATIC LOAD LBS. |       | EFFECTIVE<br>SURFACE<br>AREA<br>CM <sup>2</sup> | MAX STATIC LOAD N |       |
|-------------|---|----------------------|-------|---|-------------------|-------|
|             |   | FRELON®              |       |   | FRELON            |       |
|             |   | GOLD                 | J & W |   | GOLD              | J & W |
| FG 06       | 1.1   | 498                  | 249   | 1.10  | 2217              | 1109  |
| FG 08       | 1.6   | 741                  | 370   | 1.60  | 3296              | 1648  |
| FG 10       | 2.2   | 1018                 | 509   | 2.20  | 4532              | 2266  |
| FG 12       | 3.2   | 1499                 | 749   | 3.20  | 6671              | 3335  |
| FG 15       | 4.2   | 1944                 | 972   | 4.20  | 8652              | 4326  |
| FG 16       | 4.8   | 2222                 | 1111  | 4.80  | 9888              | 4944  |
| FG 18       | 5.4   | 2500                 | 1250  | 5.40  | 11125             | 5562  |
| FG 20       | 7.0   | 3241                 | 1620  | 7.00  | 14421             | 7210  |
| FG 25       | 11.3  | 5207                 | 2604  | 11.30   | 23171             | 11586 |
| FG 30       | 16.2  | 7500                 | 3750  | 16.20   | 33374             | 16687 |
| FG 35       | 21.7  | 10048                | 5024  | 21.70   | 44714             | 22357 |
| FG 40       | 28.8  | 13333                | 6666  | 28.80   | 59331             | 29665 |
| FG 50       | 45.0  | 20833                | 10416 | 45.00   | 92705             | 46352 |

Note: MAX PV (m/min. \* kg/sq. cm)

FrelonGOLD® = 430 PV

Frelon J = 215 PV

MAX Speed Running Dry (m/min.)

FrelonGOLD = 91.4

Frelon J = 42.6

MAX Speed Running

with Lubrication (m/min.)

FrelonGOLD = 251.5

Frelon J = 122

MAX PV (m/s. \* N/mm<sup>2</sup>)

FrelonGOLD = 0.70 PV

Frelon J = 0.35 PV

MAX Speed Running Dry (m/s)

FrelonGOLD = 1.52

Frelon J = 0.71

MAX Speed Running

with Lubrication (m/s)

FrelonGOLD = 4.19

Frelon J = 2.03



Plain Bearing Accessories: Retaining Rings, Seals, O-Rings—page 19

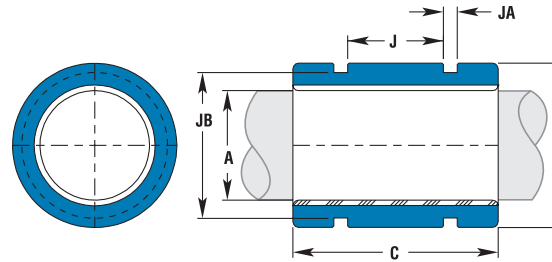
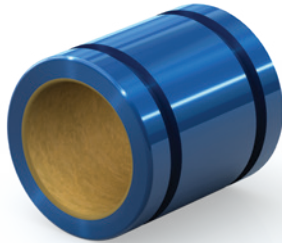


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Thin Wall Bearings

## Plain Bearings – Compact Thin Wall FMT



### DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |              |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |                   |        | B<br>O.D.<br>h7 |     | C<br>LENGTH |     | CONCENTRIC | BEARING WEIGHT |
|--|--------------|----------------------|--------|---|-------------------|--------|-----------------|-----|-------------|-----|------------|----------------|
| PART NO.   | NOMINAL SIZE | A<br>BEARING I.D. F8 |        | PART NO.  | A<br>BEARING I.D. |        |                 |     |             |     |            |                |
| CLOSED   | MM           | MIN                  | MAX    | CLOSED  | MIN               | MAX    | MIN             | MAX | MIN         | MAX | MAX MM     | KG.            |
| FMT 06   | 6            | 6.010                | 6.028  | FMTC 06   | 6.060             | 6.078  | 11.982          | 12  | 21.619      | 22  | 0.0254     | 0.0057         |
| FMT 08   | 8            | 8.013                | 8.035  | FMTC 08   | 8.063             | 8.085  | 14.982          | 15  | 23.619      | 24  | 0.0254     | 0.0071         |
| FMT 10   | 10           | 10.013               | 10.035 | FMTC 10   | 10.063            | 10.085 | 16.982          | 17  | 25.619      | 26  | 0.0254     | 0.0085         |
| FMT 12   | 12           | 12.016               | 12.043 | FMTC 12   | 12.066            | 12.093 | 18.979          | 19  | 27.619      | 28  | 0.0254     | 0.0113         |
| FMT 14   | 14           | 14.016               | 14.043 | FMTC 14   | 14.066            | 14.093 | 20.979          | 21  | 27.619      | 28  | 0.0254     | 0.0128         |
| FMT 16   | 16           | 16.016               | 16.043 | FMTC 16   | 16.066            | 16.093 | 23.979          | 24  | 29.619      | 30  | 0.0254     | 0.0184         |
| FMT 20   | 20           | 20.020               | 20.053 | FMTC 20   | 20.096            | 20.129 | 27.979          | 28  | 29.619      | 30  | 0.0254     | 0.0227         |
| FMT 25   | 25           | 25.020               | 25.053 | FMTC 25   | 25.096            | 25.129 | 34.975          | 35  | 39.619      | 40  | 0.0254     | 0.0439         |
| FMT 30   | 30           | 30.020               | 30.053 | FMTC 30   | 30.096            | 30.129 | 39.975          | 40  | 49.619      | 50  | 0.0254     | 0.0652         |
| FMT 40   | 40           | 40.025               | 40.064 | FMTC 40   | 40.127            | 40.166 | 51.970          | 52  | 59.619      | 60  | 0.0254     | 0.1233         |
| FMT 50   | 50           | 50.025               | 50.064 | FMTC 50   | 50.127            | 50.166 | 61.970          | 62  | 69.619      | 70  | 0.0254     | 0.1772         |

### MOUNTING DIMENSIONS

| PART NO.  |             | NOMINAL SIZE | J                    | JA                | JB               | O-RING SIZE | O-RING PART NUMBER |
|-----------|-------------|--------------|----------------------|-------------------|------------------|-------------|--------------------|
| PRECISION | COMPENSATED |              | BETWEEN O-RING GRVS. | O-RING GRV. WIDTH | O-RING GRV. DIA. |             |                    |
| FMT 06    | FMTC 06     | 6            | N/A                  | N/A               | N/A              | N/A         | N/A                |
| FMT 08    | FMTC 08     | 8            | 10.0                 | 2.000             | 12.200           | 12 x 1.7    | 6000025            |
| FMT 10    | FMTC 10     | 10           | 12.0                 | 2.000             | 14.400           | 14 x 1.6    | 6000026            |
| FMT 12    | FMTC 12     | 12           | 14.0                 | 2.000             | 16.600           | 16 x 1.5    | 6000027            |
| FMT 14    | FMTC 14     | 14           | 14.0                 | 2.000             | 18.500           | 18 x 1.5    | 6000028            |
| FMT 16    | FMTC 16     | 16           | 14.0                 | 2.000             | 21.300           | 21.1 x 1.6  | 6000030            |
| FMT 20    | FMTC 20     | 20           | 14.0                 | 2.000             | 25.500           | 25 x 1.5    | 6000032            |
| FMT 25    | FMTC 25     | 25           | 22.0                 | 3.200             | 30.900           | 30.5 x 2.5  | 6000033            |
| FMT 30    | FMTC 30     | 30           | 30.0                 | 3.200             | 35.900           | 35.5 x 2.5  | 6000019            |
| FMT 40    | FMTC 40     | 40           | 40.0                 | 4.100             | 46.200           | 46 x 3.5    | 6000035            |
| FMT 50    | FMTC 50     | 50           | 50.0                 | 4.100             | 56.300           | 26 x 3.5    | 6000021            |

### LOAD & SPEED DATA

| PART NO. | EFFECTIVE SURFACE AREA | MAX STATIC LOAD LBS. |       | EFFECTIVE SURFACE AREA | MAX STATIC LOAD N |       |
|----------|------------------------|----------------------|-------|------------------------|-------------------|-------|
|          |                        | FRELON®              |       |                        | FRELON            |       |
|          |                        | GOLD                 | J & W |                        | GOLD              | J & W |
| FMT 06   | 0.202                  | 613                  | 307   | 1.3                    | 2727              | 1364  |
| FMT 08   | 0.295                  | 891                  | 445   | 1.9                    | 3963              | 1982  |
| FMT 10   | 0.403                  | 1204                 | 602   | 2.6                    | 5356              | 2678  |
| FMT 12   | 0.527                  | 1556                 | 778   | 3.4                    | 6926              | 3463  |
| FMT 14   | 0.605                  | 1816                 | 908   | 3.9                    | 8083              | 4042  |
| FMT 16   | 0.744                  | 2222                 | 1111  | 4.8                    | 9888              | 4944  |
| FMT 20   | 0.930                  | 2778                 | 1389  | 6.0                    | 12361             | 6180  |
| FMT 25   | 1.550                  | 4629                 | 2315  | 10.0                   | 20601             | 10301 |
| FMT 30   | 2.325                  | 6944                 | 3472  | 15.0                   | 30902             | 15451 |
| FMT 40   | 3.720                  | 11111                | 5555  | 24.0                   | 49442             | 24721 |
| FMT 50   | 5.425                  | 16203                | 8102  | 35.0                   | 72104             | 36052 |

Note: MAX PV (m/min. \* kg/sq. cm)

FrelonGOLD® = 430 PV

Frelon J = 215 PV

MAX Speed Running Dry (m/min.)

FrelonGOLD = 91.4

Frelon J = 42.6

MAX Speed Running with Lubrication (m/min.)

FrelonGOLD = 251.5

Frelon J = 122

MAX PV (m/s. \* N/mm²)

FrelonGOLD = 0.70 PV

Frelon J = 0.35 PV

MAX Speed Running Dry (m/s)

FrelonGOLD = 1.52

Frelon J = 0.71

MAX Speed Running with Lubrication (m/s)

FrelonGOLD = 4.19

Frelon J = 2.03



Plain Bearing Accessories: Retaining Rings, Seals, O-Rings—page 19

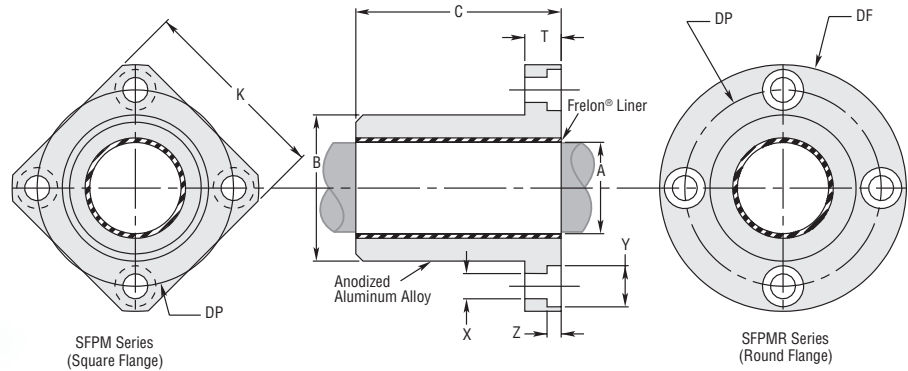


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Flange Bearings

## Flange Bearings SFPM



## DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                   |        | NOMINAL<br>SIZE | B<br>BODY O.D.<br>h7 |     |       | C<br>LENGTH<br>h13 |                 | EFFECTIVE<br>SURFACE<br>AREA<br>CM <sup>2</sup> | MAX STATIC<br>LOAD N |         |
|--|----------|----------------------|--------|---|-----------|-------------------|--------|-----------------|----------------------|-----|-------|--------------------|-----------------|---|----------------------|---------|
| PART NO.   |          | A<br>BEARING I.D. F8 |        | PART NO.  |           | A<br>BEARING I.D. |        |                 | MIN                  | MAX | MIN   | MAX                | MIN             |   | MAX                  | FRELON® |
| SQUARE   | ROUND    | MIN                  | MAX    | SQUARE  | ROUND     | MIN               | MAX    | MM              | MIN                  | MAX | MIN   | MAX                | CM <sup>2</sup> | GOLD  | J & W                |         |
| SFPM 08  | SFPMR 08 | 8.013                | 8.035  | SFPM 08C  | SFPMR 08C | 8.063             | 8.085  | 8               | 15.982               | 16  | 24.8  | 25                 | 2.094           | 4316  | 2168                 |         |
| SFPM 12  | SFPMR 12 | 12.016               | 12.043 | SFPM 12C  | SFPMR 12C | 12.066            | 12.093 | 12              | 21.979               | 22  | 31.8  | 32                 | 4.021           | 8280  | 4159                 |         |
| SFPM 16  | SFPMR 16 | 16.016               | 16.043 | SFPM 16C  | SFPMR 16C | 16.066            | 16.093 | 16              | 25.979               | 26  | 35.8  | 36                 | 6.032           | 12429   | 6239                 |         |
| SFPM 20  | SFPMR 20 | 20.020               | 20.053 | SFPM 20C  | SFPMR 20C | 20.096            | 20.129 | 20              | 31.975               | 32  | 44.8  | 45                 | 9.425           | 19414   | 9751                 |         |
| SFPM 25  | SFPMR 25 | 25.020               | 25.053 | SFPM 25C  | SFPMR 25C | 25.096            | 25.129 | 25              | 39.975               | 40  | 57.7  | 58                 | 15.184          | 31284   | 15706                |         |
| SFPM 30  | SFPMR 30 | 30.020               | 30.053 | SFPM 30C  | SFPMR 30C | 30.096            | 30.129 | 30              | 46.975               | 47  | 67.7  | 68                 | 21.363          | 44008   | 22102                |         |
| SFPM 40  | SFPMR 40 | 40.025               | 40.064 | SFPM 40C  | SFPMR 40C | 40.127            | 40.166 | 40              | 61.970               | 62  | 79.7  | 80                 | 33.510          | 69033   | 34669                |         |
| SFPM 50  | SFPMR 50 | 50.025               | 50.064 | SFPM 50C  | SFPMR 50C | 50.127            | 50.166 | 50              | 74.970               | 75  | 99.7  | 100                | 52.360          | 107871  | 54161                |         |
| SFPM 60  | SFPMR 60 | 60.030               | 60.076 | SFPM 60C  | SFPMR 60C | 60.182            | 60.228 | 60              | 89.965               | 90  | 124.6 | 125                | 78.540          | 161796  | 81246                |         |
| SFPM 80  | SFPMR 80 | 80.030               | 80.076 | SFPM 80C  | SFPMR 80C | 80.182            | 80.228 | 80              | 119.965              | 120 | 164.6 | 165                | 138.230         | 284765  | 142991               |         |

- Notes: (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) Max static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.

## MOUNTING DIMENSIONS

| PART NO. |          | K<br>SQUARE | DF<br>O.D. | T<br>LENGTH | DP<br>BOLT<br>CIRCLE | X<br>HOLE | Y<br>C'BORE<br>DEPTH | Z<br>C'BORE<br>DEPTH | CLAMPING<br>BOLT | CONCENTRICITY | SQUARENESS | SFPM<br>WEIGHT | SFPMR<br>WEIGHT |
|----------|----------|-------------|------------|-------------|----------------------|-----------|----------------------|----------------------|------------------|---------------|------------|----------------|-----------------|
| SQUARE   | ROUND    | MAX.        | MAX.       | MAX.        |                      |           |                      |                      |                  |               |            | KG.            | KG.             |
| SFPM 08  | SFPMR 08 | 25          | 32         | 8           | 24                   | 3.5       | 6                    | 3.1                  | M 3              | 0.012         | 0.012      | 0.018          | 0.022           |
| SFPM 12  | SFPMR 12 | 32          | 42         | 9           | 32                   | 4.5       | 7.5                  | 4.1                  | M 4              | 0.012         | 0.012      | 0.037          | 0.046           |
| SFPM 16  | SFPMR 16 | 35          | 46         | 9           | 36                   | 4.5       | 7.5                  | 4.1                  | M 4              | 0.012         | 0.012      | 0.047          | 0.058           |
| SFPM 20  | SFPMR 20 | 42          | 54         | 11          | 43                   | 5.5       | 9                    | 5.1                  | M 5              | 0.015         | 0.015      | 0.085          | 0.101           |
| SFPM 25  | SFPMR 25 | 50          | 62         | 11          | 51                   | 5.5       | 9                    | 5.1                  | M 5              | 0.015         | 0.015      | 0.156          | 0.172           |
| SFPM 30  | SFPMR 30 | 60          | 76         | 14          | 62                   | 6.6       | 11                   | 6.1                  | M 6              | 0.015         | 0.015      | 0.257          | 0.293           |
| SFPM 40  | SFPMR 40 | 75          | 98         | 18          | 80                   | 9.0       | 14                   | 8.1                  | M 8              | 0.017         | 0.017      | 0.500          | 0.595           |
| SFPM 50  | SFPMR 50 | 88          | 112        | 18          | 94                   | 9.0       | 14                   | 8.1                  | M 8              | 0.017         | 0.017      | 0.825          | 0.930           |
| SFPM 60  | SFPMR 60 | 106         | 134        | 24          | 112                  | 11.0      | 17                   | 11.1                 | M 10             | 0.020         | 0.020      | 1.506          | 1.697           |
| SFPM 80  | SFPMR 80 | 136         | 164        | 24          | 142                  | 11.0      | 17                   | 11.1                 | M 10             | 0.020         | 0.020      | 3.308          | 3.483           |

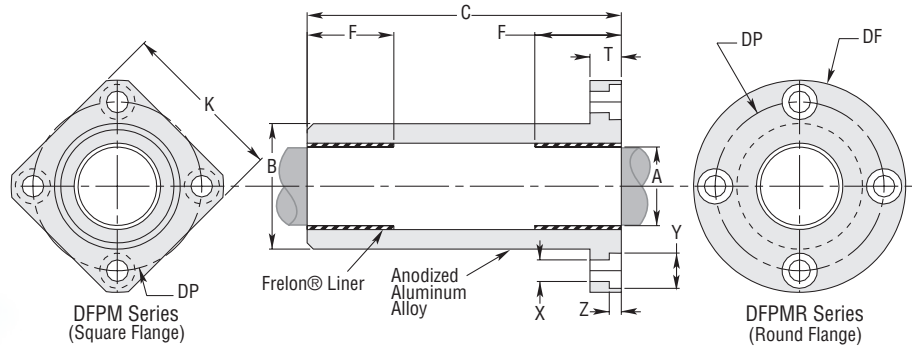


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Flange Bearings

## Flange Bearings DFPM



### DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                   |        | NOMINAL<br>SIZE | B<br>BODY O.D.<br>h7 |     | C<br>LENGTH |     | F<br>LENGTH<br>EACH END | EFFECTIVE<br>SURFACE<br>AREA<br>CM <sup>2</sup> | MAX STATIC<br>LOAD N |       |
|--|----------|----------------------|--------|---|-----------|-------------------|--------|-----------------|----------------------|-----|-------------|-----|-------------------------|---|----------------------|-------|
| PART NO.   |          | A<br>BEARING I.D. F8 |        | PART NO.  |           | A<br>BEARING I.D. |        |                 | MIN                  | MAX | MIN         | MAX |                         |   | GOLD                 | J & W |
| SQUARE   | ROUND    | MIN                  | MAX    | SQUARE  | ROUND     | MIN               | MAX    | MM              |                      |     |             |     |                         |   |                      |       |
| DFPM 08  | DFPMR 08 | 8.013                | 8.035  | DFPM 08C  | DFPMR 08C | 8.063             | 8.085  | 8               | 15.982               | 16  | 44.7        | 45  | 12.1                    | 2.027   | 4179                 | 2099  |
| DFPM 12  | DFPMR 12 | 12.016               | 12.043 | DFPM 12C  | DFPMR 12C | 12.066            | 12.093 | 12              | 21.979               | 22  | 56.7        | 57  | 15.4                    | 3.870   | 7976                 | 4002  |
| DFPM 16  | DFPMR 16 | 16.016               | 16.043 | DFPM 16C  | DFPMR 16C | 16.066            | 16.093 | 16              | 25.979               | 26  | 69.7        | 70  | 20.4                    | 6.836   | 14087                | 7073  |
| DFPM 20  | DFPMR 20 | 20.020               | 20.053 | DFPM 20C  | DFPMR 20C | 20.096            | 20.129 | 20              | 31.975               | 32  | 79.7        | 80  | 22.1                    | 9.257   | 19071                | 9575  |
| DFPM 25  | DFPMR 25 | 25.020               | 25.053 | DFPM 25C  | DFPMR 25C | 25.096            | 25.129 | 25              | 39.975               | 40  | 111.6       | 112 | 33.1                    | 17.331  | 35708                | 17933 |
| DFPM 30  | DFPMR 30 | 30.020               | 30.053 | DFPM 30C  | DFPMR 30C | 30.096            | 30.129 | 30              | 46.975               | 47  | 122.6       | 123 | 35                      | 21.991  | 45303                | 22749 |
| DFPM 40  | DFPMR 40 | 40.025               | 40.064 | DFPM 40C  | DFPMR 40C | 40.127            | 40.166 | 40              | 61.970               | 62  | 150.6       | 151 | 44                      | 36.861  | 75939                | 38131 |
| DFPM 50  | DFPMR 50 | 50.025               | 50.064 | DFPM 50C  | DFPMR 50C | 50.127            | 50.166 | 50              | 74.970               | 75  | 191.6       | 192 | 69.5                    | 72.780  | 149936               | 75282 |
| DFPM 60  | DFPMR 60 | 60.030               | 60.076 | DFPM 60C  | DFPMR 60C | 60.182            | 60.228 | 60              | 89.965               | 90  | 208.6       | 209 | 73                      | 91.735  | 188980               | 94892 |

- Notes: (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) MAX static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD®; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.  
 (4) Frelon pads in each end (F dimension).

### MOUNTING DIMENSIONS

| PART NO. |          | K<br>SQUARE | DF<br>O.D. | T<br>LENGTH | DP<br>BOLT<br>CIRCLE | X<br>HOLE | Y<br>C'BORE<br>DEPTH | Z<br>C'BORE<br>DEPTH | CLAMPING<br>BOLT | CONCENTRICITY | SQUARENESS | DFPM<br>WEIGHT<br>KG. | DFPMR<br>WEIGHT<br>KG. |
|----------|----------|-------------|------------|-------------|----------------------|-----------|----------------------|----------------------|------------------|---------------|------------|-----------------------|------------------------|
| SQUARE   | ROUND    | MAX         | MAX        | MAX         |                      |           |                      |                      |                  |               |            |                       |                        |
| DFPM 08  | DFPMR 08 | 25          | 32         | 8           | 24                   | 3.5       | 6                    | 3.1                  | M 3              | 0.015         | 0.015      | 0.027                 | 0.031                  |
| DFPM 12  | DFPMR 12 | 32          | 42         | 9           | 32                   | 4.5       | 7.5                  | 4.1                  | M 4              | 0.015         | 0.015      | 0.055                 | 0.064                  |
| DFPM 16  | DFPMR 16 | 35          | 46         | 9           | 36                   | 4.5       | 7.5                  | 4.1                  | M 4              | 0.015         | 0.015      | 0.078                 | 0.089                  |
| DFPM 20  | DFPMR 20 | 42          | 54         | 11          | 43                   | 5.5       | 9                    | 5.1                  | M 5              | 0.017         | 0.017      | 0.133                 | 0.149                  |
| DFPM 25  | DFPMR 25 | 50          | 62         | 11          | 51                   | 5.5       | 9                    | 5.1                  | M 5              | 0.017         | 0.017      | 0.270                 | 0.286                  |
| DFPM 30  | DFPMR 30 | 60          | 76         | 14          | 62                   | 6.6       | 11                   | 6.1                  | M 6              | 0.017         | 0.017      | 0.413                 | 0.450                  |
| DFPM 40  | DFPMR 40 | 75          | 98         | 18          | 80                   | 9.0       | 14                   | 8.1                  | M 8              | 0.020         | 0.020      | 0.846                 | 0.942                  |
| DFPM 50  | DFPMR 50 | 88          | 112        | 18          | 94                   | 9.0       | 14                   | 8.1                  | M 8              | 0.020         | 0.020      | 1.450                 | 1.556                  |
| DFPM 60  | DFPMR 60 | 106         | 134        | 24          | 112                  | 11.0      | 17                   | 11.1                 | M 10             | 0.025         | 0.025      | 2.329                 | 2.519                  |

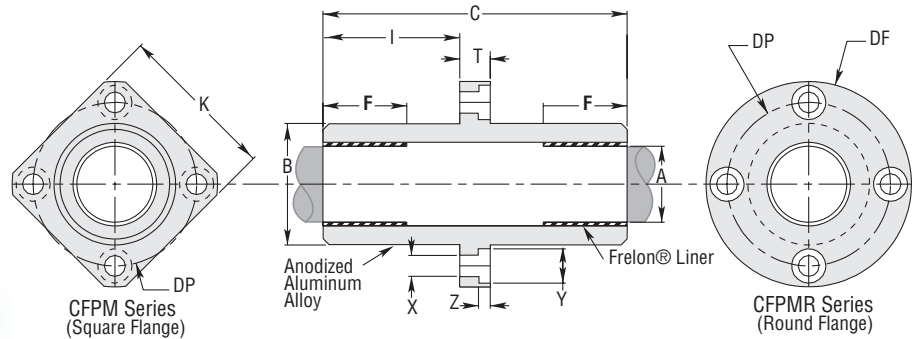


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Flange Bearings

## Flange Bearings CFPM



## DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                |        | NOMINAL SIZE | B BODY O.D.<br>h7 |     | C LENGTH |       | I LENGTH TO FLNG. | F LENGTH EACH END | EFFECTIVE SURFACE AREA | MAX STATIC LOAD N |         |
|--|----------|----------------------|--------|---|-----------|----------------|--------|--------------|-------------------|-----|----------|-------|-------------------|-------------------|------------------------|-------------------|---------|
| PART NO.   |          | A BEARING I.D.<br>F8 |        | PART NO.  |           | A BEARING I.D. |        |              | MIN               | MAX | MIN      | MAX   |                   |                   |                        | CM <sup>2</sup>   | FRELON® |
| SQUARE   | ROUND    | MIN                  | MAX    | SQUARE  | ROUND     | MIN            | MAX    | MM           | MIN               | MAX | MIN      | MAX   |                   |                   | GOLD                   | J & W             |         |
| CFPM 08  | CFPMR 08 | 8.013                | 8.035  | CFPM 08C  | CFPMR 08C | 8.063          | 8.085  | 8            | 15.982            | 16  | 45.7     | 46.3  | 19.0              | 12.1              | 2.027                  | 4179              | 2099    |
| CFPM 12  | CFPMR 12 | 12.016               | 12.043 | CFPM 12C  | CFPMR 12C | 12.066         | 12.093 | 12           | 21.979            | 22  | 60.7     | 61.3  | 26.0              | 15.4              | 3.870                  | 7976              | 4002    |
| CFPM 16  | CFPMR 16 | 16.016               | 16.043 | CFPM 16C  | CFPMR 16C | 16.066         | 16.093 | 16           | 25.979            | 26  | 67.7     | 68.3  | 29.5              | 20.4              | 6.836                  | 14087             | 7073    |
| CFPM 20  | CFPMR 20 | 20.020               | 20.053 | CFPM 20C  | CFPMR 20C | 20.096         | 20.129 | 20           | 31.975            | 32  | 79.7     | 80.3  | 34.5              | 22.1              | 9.257                  | 19071             | 9575    |
| CFPM 25  | CFPMR 25 | 25.020               | 25.053 | CFPM 25C  | CFPMR 25C | 25.096         | 25.129 | 25           | 39.975            | 40  | 111.7    | 112.3 | 50.5              | 33.1              | 17.331                 | 35708             | 17933   |
| CFPM 30  | CFPMR 30 | 30.020               | 30.053 | CFPM 30C  | CFPMR 30C | 30.096         | 30.129 | 30           | 46.975            | 47  | 122.7    | 123.3 | 54.5              | 35                | 21.991                 | 45303             | 22749   |
| CFPM 40  | CFPMR 40 | 40.025               | 40.064 | CFPM 40C  | CFPMR 40C | 40.127         | 40.166 | 40           | 61.970            | 62  | 150.7    | 151.3 | 66.5              | 44                | 36.861                 | 75939             | 38131   |
| CFPM 50  | CFPMR 50 | 50.025               | 50.064 | CFPM 50C  | CFPMR 50C | 50.127         | 50.166 | 50           | 74.970            | 75  | 191.7    | 192.3 | 87.0              | 69.5              | 72.780                 | 149936            | 75282   |
| CFPM 60  | CFPMR 60 | 60.030               | 60.076 | CFPM 60C  | CFPMR 60C | 60.182         | 60.228 | 60           | 89.965            | 90  | 208.7    | 209.3 | 92.5              | 73                | 91.735                 | 188980            | 94892   |

- Notes:** (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) MAX static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD®; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.  
 (4) Frelon pads in each end (F dimension).

## MOUNTING DIMENSIONS

| PART NO. |          | K SQUARE | DF O.D. | T LENGTH | DP BOLT CIRCLE | X HOLE | Y C'BORE DEPTH | Z C'BORE DEPTH | CLAMPING BOLT | CONCENTRICITY | SQUARENESS | CFPM WEIGHT | CFPMR WEIGHT |
|----------|----------|----------|---------|----------|----------------|--------|----------------|----------------|---------------|---------------|------------|-------------|--------------|
| SQUARE   | ROUND    | MAX      | MAX     | MAX      |                |        |                |                |               |               |            | KG.         | KG.          |
| CFPM 08  | CFPMR 08 | 25       | 32      | 8        | 24             | 3.5    | 6              | 3.1            | M 3           | 0.015         | 0.015      | 0.027       | 0.031        |
| CFPM 12  | CFPMR 12 | 32       | 42      | 9        | 32             | 4.5    | 7.5            | 4.1            | M 4           | 0.015         | 0.015      | 0.058       | 0.067        |
| CFPM 16  | CFPMR 16 | 35       | 46      | 9        | 36             | 4.5    | 7.5            | 4.1            | M 4           | 0.015         | 0.015      | 0.077       | 0.088        |
| CFPM 20  | CFPMR 20 | 42       | 54      | 11       | 43             | 5.5    | 9              | 5.1            | M 5           | 0.017         | 0.017      | 0.133       | 0.149        |
| CFPM 25  | CFPMR 25 | 50       | 62      | 11       | 51             | 5.5    | 9              | 5.1            | M 5           | 0.017         | 0.017      | 0.270       | 0.286        |
| CFPM 30  | CFPMR 30 | 60       | 76      | 14       | 62             | 6.6    | 11             | 6.1            | M 6           | 0.017         | 0.017      | 0.413       | 0.450        |
| CFPM 40  | CFPMR 40 | 75       | 98      | 18       | 80             | 9.0    | 14             | 8.1            | M 8           | 0.020         | 0.020      | 0.846       | 0.942        |
| CFPM 50  | CFPMR 50 | 88       | 112     | 18       | 94             | 9.0    | 14             | 8.1            | M 8           | 0.020         | 0.020      | 1.450       | 1.556        |
| CFPM 60  | CFPMR 60 | 106      | 134     | 24       | 112            | 11.0   | 17             | 11.1           | M 10          | 0.025         | 0.025      | 2.329       | 2.519        |



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

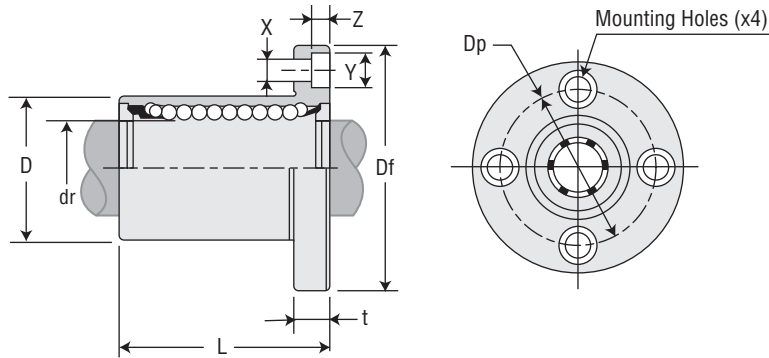
Inch Series—page 44 Metric Series—page 81





# Linear Ball Bearings Round Flange Mount

## Ball Bearings – Round Flange Mount EPF



INCH

ISO  
METRIC

JIS  
METRIC

### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL DIAMETER |    |               | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------|----|---------------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE             | dr | TOLERANCE     |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                  |    |               |              |        |                               |           |     |           |
| EPF8G    | 8                | 8  | +0.008/0      | 4            | 41     | 16                            | 0/-0.013  | 25  | ±0.3      |
| EPF12G   | 12               | 12 | +0.008/0      | 4            | 80     | 22                            | 0/-0.016  | 32  | ±0.3      |
| EPF16G   | 16               | 16 | +0.009/-0.001 | 5            | 103    | 26                            | 0/-0.016  | 36  | ±0.3      |
| EPF20G   | 20               | 20 | +0.009/-0.001 | 5            | 182    | 32                            | 0/-0.019  | 45  | ±0.3      |
| EPF25G   | 25               | 25 | +0.011/-0.001 | 6            | 335    | 40                            | 0/-0.019  | 58  | ±0.3      |
| EPF30G   | 30               | 30 | +0.011/-0.001 | 6            | 560    | 47                            | 0/-0.019  | 68  | ±0.3      |
| EPF40G   | 40               | 40 | +0.013/-0.002 | 6            | 1175   | 62                            | 0/-0.022  | 80  | ±0.3      |
| EPF50G   | 50               | 50 | +0.013/-0.002 | 6            | 1745   | 75                            | 0/-0.022  | 100 | ±0.3      |

| PART NO. | NOMINAL DIAMETER |    |               | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------|----|---------------|--|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE             | dr | TOLERANCE     | Df                                     | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                  |    |               |  |    |    |     |     |     |              |            |              |           |
| EPF8G    | 8                | 8  | +0.008/0      | 32                                     | 5  | 24 | 3.5 | 6.5 | 3.1 | 12           | 12         | 265          | 402       |
| EPF12G   | 12               | 12 | +0.008/0      | 42                                     | 6  | 32 | 4.5 | 8   | 4.1 | 12           | 12         | 510          | 784       |
| EPF16G   | 16               | 16 | +0.009/-0.001 | 46                                     | 6  | 36 | 4.5 | 8   | 4.1 | 12           | 12         | 578          | 892       |
| EPF20G   | 20               | 20 | +0.009/-0.001 | 54                                     | 8  | 43 | 5.5 | 9.3 | 5.1 | 15           | 15         | 862          | 1370      |
| EPF25G   | 25               | 25 | +0.011/-0.001 | 62                                     | 8  | 51 | 5.5 | 9.3 | 5.1 | 15           | 15         | 980          | 1570      |
| EPF30G   | 30               | 30 | +0.011/-0.001 | 76                                     | 10 | 62 | 6.6 | 11  | 6.1 | 15           | 15         | 1570         | 2740      |
| EPF40G   | 40               | 40 | +0.013/-0.002 | 98                                     | 13 | 80 | 9   | 14  | 8.1 | 17           | 17         | 2160         | 4020      |
| EPF50G   | 50               | 50 | +0.013/-0.002 | 112                                    | 13 | 94 | 9   | 14  | 8.1 | 17           | 17         | 3820         | 7940      |

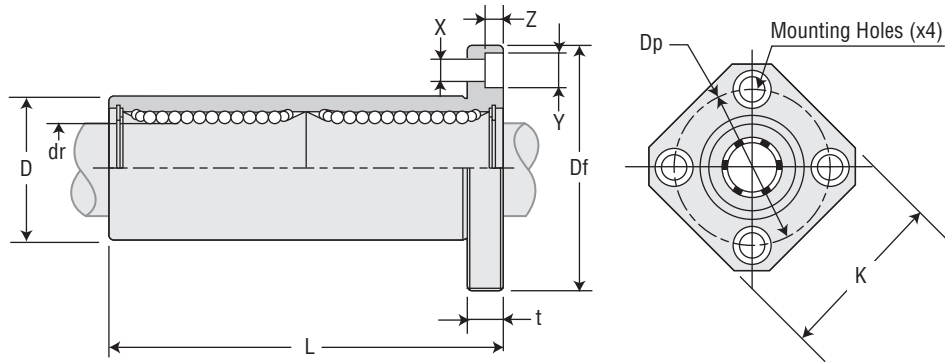


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings – Square Flange Mount EPK-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL DIAMETER |    |               | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------|----|---------------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE             | dr | TOLERANCE     |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                  |    |               |              |        |                               |           |     |           |
| EPK8GW   | 8                | 8  | +0.009/-0.001 | 4            | 51     | 16                            | 0/-0.013  | 45  | ±0.3      |
| EPK12GW  | 12               | 12 | +0.009/-0.001 | 4            | 90     | 22                            | 0/-0.016  | 57  | ±0.3      |
| EPK16GW  | 16               | 16 | +0.011/-0.001 | 5            | 135    | 26                            | 0/-0.016  | 70  | ±0.3      |
| EPK20GW  | 20               | 20 | +0.011/-0.001 | 5            | 225    | 32                            | 0/-0.019  | 80  | ±0.3      |
| EPK25GW  | 25               | 25 | +0.013/-0.002 | 6            | 500    | 40                            | 0/-0.019  | 112 | ±0.3      |
| EPK30GW  | 30               | 30 | +0.013/-0.002 | 6            | 720    | 47                            | 0/-0.019  | 123 | ±0.3      |
| EPK40GW  | 40               | 40 | +0.016/-0.004 | 6            | 1600   | 62                            | 0/-0.022  | 154 | ±0.3      |
| EPK50GW  | 50               | 50 | +0.016/-0.004 | 6            | 2620   | 75                            | 0/-0.022  | 192 | ±0.3      |

| PART NO. | NOMINAL DIAMETER |    |               | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------|----|---------------|--|----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE             | dr | TOLERANCE     | Df                                     | K  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                  |    |               |  |    |    |    |     |     |     |              |            |              |           |
| EPK8GW   | 8                | 8  | +0.009/-0.001 | 32                                     | 25 | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 421          | 804       |
| EPK12GW  | 12               | 12 | +0.009/-0.001 | 42                                     | 32 | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| EPK16GW  | 16               | 16 | +0.011/-0.001 | 46                                     | 35 | 6  | 36 | 4.5 | 8   | 4.1 | 15           | 15         | 921          | 1780      |
| EPK20GW  | 20               | 20 | +0.011/-0.001 | 54                                     | 42 | 8  | 43 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1370         | 2740      |
| EPK25GW  | 25               | 25 | +0.013/-0.002 | 62                                     | 50 | 8  | 51 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1570         | 3140      |
| EPK30GW  | 30               | 30 | +0.013/-0.002 | 76                                     | 60 | 10 | 62 | 6.6 | 11  | 6.1 | 17           | 17         | 2500         | 5490      |
| EPK40GW  | 40               | 40 | +0.016/-0.004 | 98                                     | 75 | 13 | 80 | 9   | 14  | 8.1 | 20           | 20         | 3430         | 8040      |
| EPK50GW  | 50               | 50 | +0.016/-0.004 | 112                                    | 88 | 13 | 94 | 9   | 14  | 8.1 | 20           | 20         | 6080         | 15900     |

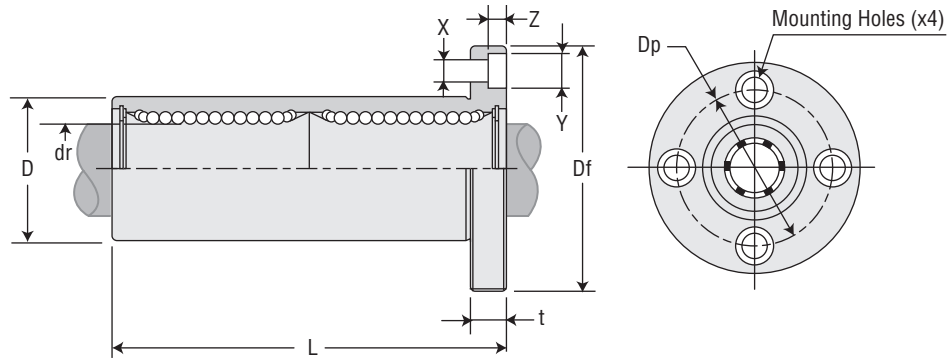


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings – Round Flange Mount EPF-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL DIAMETER |    |               | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------|----|---------------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE             | dr | TOLERANCE     |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                  |    |               |              |        |                               |           |     |           |
| EPF8GW   | 8                | 8  | +0.009/-0.001 | 4            | 59     | 16                            | 0/-0.013  | 45  | ±0.3      |
| EPF12GW  | 12               | 12 | +0.009/-0.001 | 4            | 110    | 22                            | 0/-0.016  | 57  | ±0.3      |
| EPF16GW  | 16               | 16 | +0.011/-0.001 | 5            | 160    | 26                            | 0/-0.016  | 70  | ±0.3      |
| EPF20GW  | 20               | 20 | +0.011/-0.001 | 5            | 260    | 32                            | 0/-0.019  | 80  | ±0.3      |
| EPF25GW  | 25               | 25 | +0.013/-0.002 | 6            | 540    | 40                            | 0/-0.019  | 112 | ±0.3      |
| EPF30GW  | 30               | 30 | +0.013/-0.002 | 6            | 815    | 47                            | 0/-0.019  | 123 | ±0.3      |
| EPF40GW  | 40               | 40 | +0.016/-0.004 | 6            | 1805   | 62                            | 0/-0.022  | 154 | ±0.3      |
| EPF50GW  | 50               | 50 | +0.016/-0.004 | 6            | 2820   | 75                            | 0/-0.022  | 192 | ±0.3      |

| PART NO. | NOMINAL DIAMETER |    |               | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------|----|---------------|--|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE             | dr | TOLERANCE     | Df                                     | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                  |    |               |  |    |    |     |     |     |              |            |              |           |
| EPF8GW   | 8                | 8  | +0.009/-0.001 | 32                                     | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 421          | 804       |
| EPF12GW  | 12               | 12 | +0.009/-0.001 | 42                                     | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| EPF16GW  | 16               | 16 | +0.011/-0.001 | 46                                     | 6  | 36 | 4.5 | 8   | 4.1 | 15           | 15         | 921          | 1780      |
| EPF20GW  | 20               | 20 | +0.011/-0.001 | 54                                     | 8  | 43 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1370         | 2740      |
| EPF25GW  | 25               | 25 | +0.013/-0.002 | 62                                     | 8  | 51 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1570         | 3140      |
| EPF30GW  | 30               | 30 | +0.013/-0.002 | 76                                     | 10 | 62 | 6.6 | 11  | 6.1 | 17           | 17         | 2500         | 5490      |
| EPF40GW  | 40               | 40 | +0.016/-0.004 | 98                                     | 13 | 80 | 9   | 14  | 8.1 | 20           | 20         | 3430         | 8040      |
| EPF50GW  | 50               | 50 | +0.016/-0.004 | 112                                    | 13 | 94 | 9   | 14  | 8.1 | 20           | 20         | 6080         | 15900     |

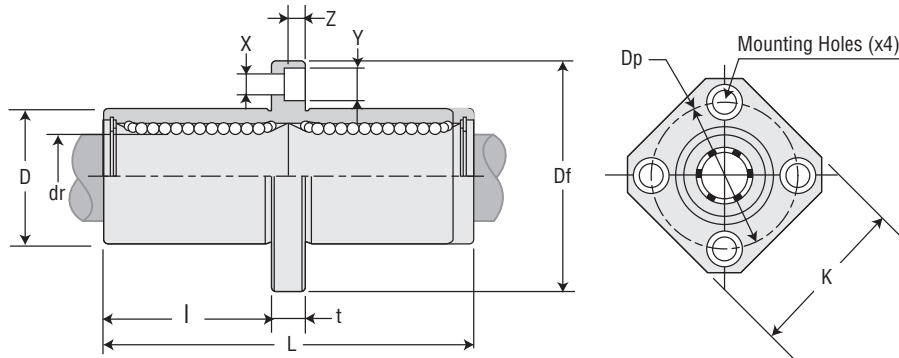


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Linear Ball Bearings Square Flange Center Mount

## Ball Bearings – Square Flange Center Mount EPKC



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE             | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                  |    |           |              |        |                               |           |     |           |
| EPKC8G   | 8                | 8  | +9/-1     | 4            | 51     | 16                            | 0/-13     | 45  | ±300      |
| EPKC12G  | 12               | 12 | +9/-1     | 4            | 90     | 22                            | 0/-16     | 57  | ±300      |
| EPKC16G  | 16               | 16 | +11/-1    | 5            | 135    | 26                            | 0/-16     | 70  | ±300      |
| EPKC20G  | 20               | 20 | +11/-1    | 5            | 225    | 32                            | 0/-19     | 80  | ±300      |
| EPKC25G  | 25               | 25 | +13/-2    | 6            | 500    | 40                            | 0/-19     | 112 | ±300      |
| EPKC30G  | 30               | 30 | +13/-2    | 6            | 720    | 47                            | 0/-19     | 123 | ±300      |
| EPKC40G  | 40               | 40 | +16/-4    | 6            | 1600   | 62                            | 0/-22     | 154 | ±300      |
| EPKC50G  | 50               | 50 | +16/-4    | 6            | 2620   | 75                            | 0/-22     | 192 | ±300      |

| PART NO. | NOMINAL DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |     |    |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------|----|-----------|--|-----|----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE             | dr | TOLERANCE | I                                      | Df  | K  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                  |    |           |  |     |    |    |    |     |     |     |              |            |              |           |
| EPKC8G   | 8                | 8  | +9/-1     | 20.5                                   | 32  | 25 | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 421          | 804       |
| EPKC12G  | 12               | 12 | +9/-1     | 27.5                                   | 42  | 32 | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| EPKC16G  | 16               | 16 | +11/-1    | 31                                     | 46  | 35 | 6  | 36 | 4.5 | 8   | 4.1 | 15           | 15         | 921          | 1780      |
| EPKC20G  | 20               | 20 | +11/-1    | 36                                     | 54  | 42 | 8  | 43 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1370         | 2740      |
| EPKC25G  | 25               | 25 | +13/-2    | 52                                     | 62  | 50 | 8  | 51 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1570         | 3140      |
| EPKC30G  | 30               | 30 | +13/-2    | 56.5                                   | 76  | 60 | 10 | 62 | 6.6 | 11  | 6.1 | 17           | 17         | 2500         | 5490      |
| EPKC40G  | 40               | 40 | +16/-4    | 69                                     | 98  | 75 | 13 | 80 | 9   | 14  | 8.1 | 20           | 20         | 3430         | 8040      |
| EPKC50G  | 50               | 50 | +16/-4    | 89.5                                   | 112 | 88 | 13 | 94 | 9   | 14  | 8.1 | 20           | 20         | 6080         | 15900     |



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

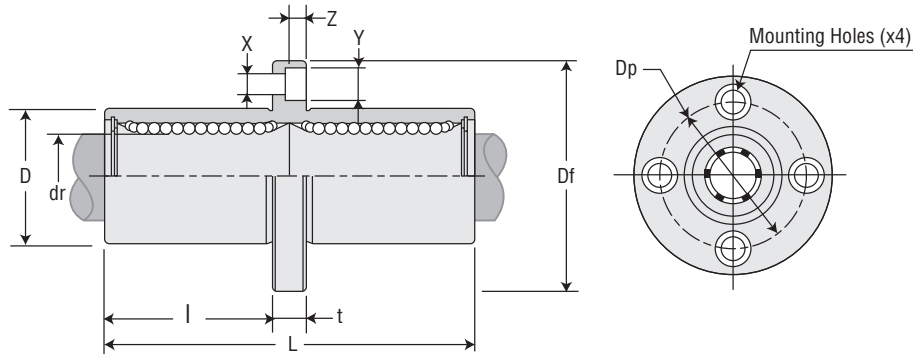
Inch Series—page 44 Metric Series—page 81

INCH  
 ISO METRIC  
 JIS METRIC



# Linear Ball Bearings Round Flange Center Mount

## Ball Bearings – Round Flange Center Mount EPFC



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE             | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                  |    |           |              |        |                               |           |     |           |
| EPFC8G   | 8                | 8  | +9/-1     | 4            | 59     | 16                            | 0/-13     | 45  | $\pm 300$ |
| EPFC12G  | 12               | 12 | +9/-1     | 4            | 110    | 22                            | 0/-16     | 57  | $\pm 300$ |
| EPFC16G  | 16               | 16 | +11/-1    | 5            | 160    | 26                            | 0/-16     | 70  | $\pm 300$ |
| EPFC20G  | 20               | 20 | +11/-1    | 5            | 260    | 32                            | 0/-19     | 80  | $\pm 300$ |
| EPFC25G  | 25               | 25 | +13/-2    | 6            | 540    | 40                            | 0/-19     | 112 | $\pm 300$ |
| EPFC30G  | 30               | 30 | +13/-2    | 6            | 815    | 47                            | 0/-19     | 123 | $\pm 300$ |
| EPFC40G  | 40               | 40 | +16/-4    | 6            | 1805   | 62                            | 0/-22     | 154 | $\pm 300$ |
| EPFC50G  | 50               | 50 | +16/-4    | 6            | 2820   | 75                            | 0/-22     | 192 | $\pm 300$ |

| PART NO. | NOMINAL DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |     |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------|----|-----------|--|-----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE             | dr | TOLERANCE | l                                      | Df  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                  |    |           |  |     |    |    |     |     |     |              |            |              |           |
| EPFC8G   | 8                | 8  | +9/-1     | 20.5                                   | 32  | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 421          | 804       |
| EPFC12G  | 12               | 12 | +9/-1     | 27.5                                   | 42  | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| EPFC16G  | 16               | 16 | +11/-1    | 31                                     | 46  | 6  | 36 | 4.5 | 8   | 4.1 | 15           | 15         | 921          | 1780      |
| EPFC20G  | 20               | 20 | +11/-1    | 36                                     | 54  | 8  | 43 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1370         | 2740      |
| EPFC25G  | 25               | 25 | +13/-2    | 52                                     | 62  | 8  | 51 | 5.5 | 9.3 | 5.1 | 17           | 17         | 1570         | 3140      |
| EPFC30G  | 30               | 30 | +13/-2    | 56.5                                   | 76  | 10 | 62 | 6.6 | 11  | 6.1 | 17           | 17         | 2500         | 5490      |
| EPFC40G  | 40               | 40 | +16/-4    | 69                                     | 98  | 13 | 80 | 9   | 14  | 8.1 | 20           | 20         | 3430         | 8040      |
| EPFC50G  | 50               | 50 | +16/-4    | 89.5                                   | 112 | 13 | 94 | 9   | 14  | 8.1 | 20           | 20         | 6080         | 15900     |

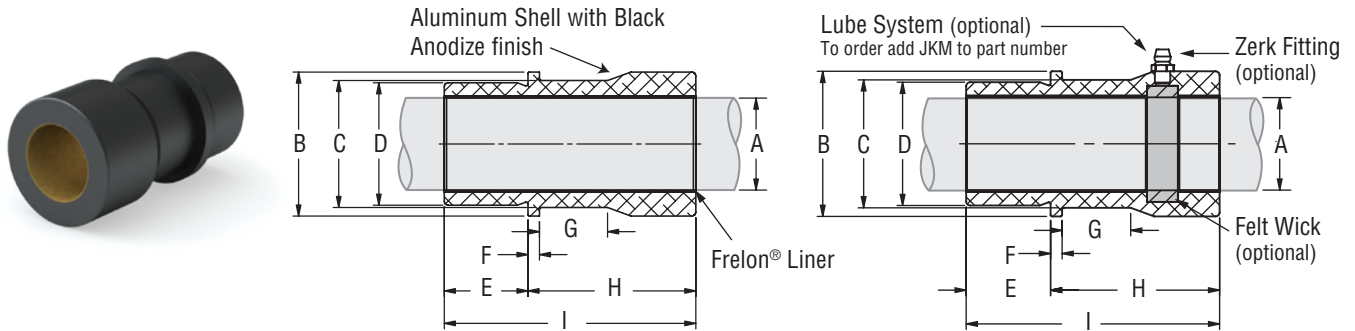


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Die Set Bushings

## Die Set Bushings PACM



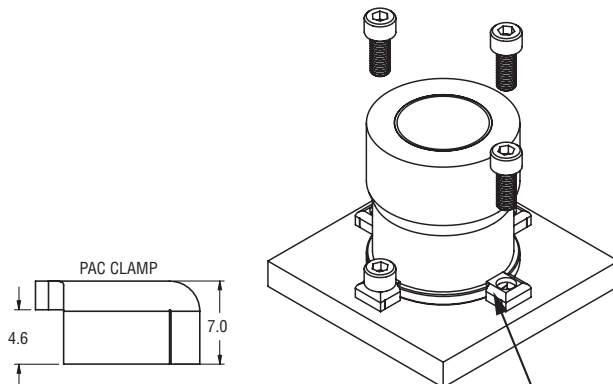
### DIMENSIONAL INFORMATION

| P = PRECISION<br>C = COMPENSATED | PART NO. | NOMINAL SIZE<br>MM | A BEARING I.D. |        | B FLANGE & BARREL O.D. h7 |     | C CLAMP DIA. | D PILOT O.D. h7 |     | E PILOT LENGTH | F FLANGE LENGTH | G RECESS LENGTH | H HEAD LENGTH | I OVERALL LENGTH | EFFECTIVE SURFACE AREA<br>CM <sup>2</sup> | MAX STATIC LOAD N |       | BEARING WEIGHT<br>KG. |
|----------------------------------|----------|--------------------|----------------|--------|---------------------------|-----|--------------|-----------------|-----|----------------|-----------------|-----------------|---------------|------------------|---|-------------------|-------|-----------------------|
|                                  |          |                    | MIN            | MAX    | MIN                       | MAX |              | MIN             | MAX |                |                 |                 |               |                  |   | FRELON®<br>GOLD   | J & W |                       |
| P                                | PACMZ19  | 19                 | 19.020         | 19.053 | 33.975                    | 34  | 29           | 27.979          | 28  | 18             | 18              | 52              | 70            | 13.928           | 28694                                     | 14411             | 0.282 |                       |
| C                                | PACMZ19C |                    | 19.096         | 19.129 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ25  | 25                 | 25.020         | 25.053 | 43.975                    | 44  | 39           | 37.975          | 38  | 23             | 20              | 57              | 80            | 20.944           | 43144                                     | 21670             | 0.551 |                       |
| C                                | PACMZ25C |                    | 25.096         | 25.129 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ32  | 32                 | 32.020         | 32.053 | 52.970                    | 53  | 48           | 44.975          | 45  | 26             | 20              | 64              | 90            | 30.159           | 62127                                     | 31196             | 0.834 |                       |
| C                                | PACMZ32C |                    | 32.096         | 32.129 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ40  | 40                 | 40.025         | 40.064 | 62.970                    | 63  | 58           | 53.970          | 54  | 30             | 25              | 70              | 100           | 41.888           | 86289                                     | 43331             | 1.229 |                       |
| C                                | PACMZ40C |                    | 40.127         | 40.166 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ50  | 50                 | 50.025         | 50.064 | 78.970                    | 79  | 74           | 64.970          | 65  | 35             | 25              | 75              | 110           | 57.596           | 118652                                    | 59576             | 2.055 |                       |
| C                                | PACMZ50C |                    | 50.127         | 50.166 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ63  | 63                 | 63.030         | 63.076 | 91.965                    | 92  | 87           | 80.970          | 81  | 48             | 25              | 82              | 130           | 85.765           | 106056                                    | 88722             | 2.984 |                       |
| C                                | PACMZ63C |                    | 63.182         | 63.228 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |
| P                                | PACMZ80  | 80                 | 80.030         | 80.076 | 110.965                   | 111 | 106          | 99.965          | 100 | 48             | 25              | 102             | 150           | 125.664          | 258876                                    | 129992            | 4.772 |                       |
| C                                | PACMZ80C |                    | 80.182         | 80.228 |                           |     |              |                 |     |                |                 |                 |               |                  |   |                   |       |                       |

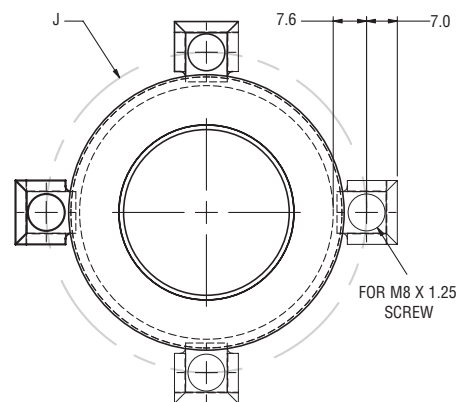
- Notes: (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) Shell material is aluminum..  
 (3) For lubrication system add JKM, example: PACMZ750JKM.  
 (4) MAX static load is effective surface area times max load for FrelonGOLD®.  
 (5) – 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD;  
 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.  
 Inch Series—page 44 Metric Series—page 81



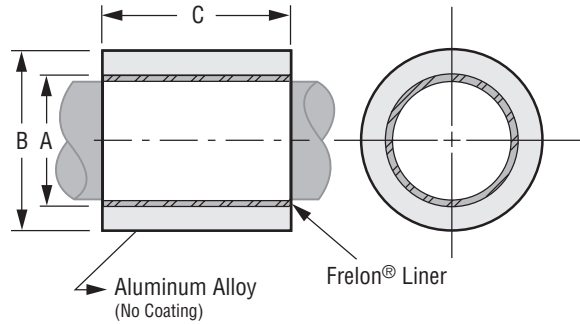
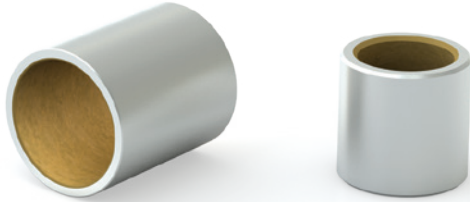
4 PAC clamps are shipped with each die set.  
 Extra clamps can be ordered using part # PACCLAMP.



Dimension for calculating bolt circle: J = C + 15.8 mm.

# Simplicity® Sleeve Bearings

## Sleeve Bearings PSM



## DIMENSIONAL INFORMATION

| PART NO.   | NOMINAL BEARING SIZE |      |        | A BEARING I.D. |        | B O.D. S7 |        | C LENGTH |     | MAX STATIC LOAD KG. |       | MAX STATIC LOAD N |       | BEARING WEIGHT | RECOMMENDED HOUSING BORE |                  |        |           |
|------------|----------------------|------|--------|----------------|--------|-----------|--------|----------|-----|---------------------|-------|-------------------|-------|----------------|--------------------------|------------------|--------|-----------|
|            | I.D.                 | O.D. | LENGTH | MIN            | MAX    | MIN       | MAX    | MIN      | MAX | FRELON®             |       | FRELON            |       |                | KG                       | SLIP FIT & EPOXY |        | PRESS FIT |
|            |                      |      |        |                |        |           |        |          |     | GOLD                | J & W | GOLD              | J & W | MIN.           |                          | MAX              | MIN    | MAX       |
| PSM0610-06 | 6                    | 10   | 6      | 6.028          | 6.058  | 10.023    | 10.038 | 5.75     | 6   | 76                  | 38    | 745               | 373   | 0.00084        | 10.038                   | 10.063           | 10.000 | 10.015    |
| PSM0610-10 | 6                    | 10   | 10     | 6.028          | 6.058  | 10.023    | 10.038 | 9.75     | 10  | 126                 | 63    | 1236              | 618   | 0.00140        | 10.038                   | 10.063           | 10.000 | 10.015    |
| PSM0812-08 | 8                    | 12   | 8      | 8.033          | 8.066  | 12.028    | 12.046 | 7.75     | 8   | 134                 | 67    | 1314              | 657   | 0.00140        | 12.046                   | 12.071           | 12.000 | 12.018    |
| PSM0812-12 | 8                    | 12   | 12     | 8.033          | 8.066  | 12.028    | 12.046 | 11.75    | 12  | 202                 | 101   | 1981              | 990   | 0.00210        | 12.046                   | 12.071           | 12.000 | 12.018    |
| PSM0814-08 | 8                    | 14   | 8      | 8.033          | 8.066  | 14.028    | 14.046 | 7.75     | 8   | 134                 | 67    | 1314              | 657   | 0.00231        | 14.046                   | 14.071           | 14.000 | 14.018    |
| PSM0814-12 | 8                    | 14   | 12     | 8.033          | 8.066  | 14.028    | 14.046 | 11.75    | 12  | 202                 | 101   | 1981              | 990   | 0.00347        | 14.046                   | 14.071           | 14.000 | 14.018    |
| PSM1014-10 | 10                   | 14   | 10     | 10.033         | 10.066 | 14.028    | 14.046 | 9.75     | 10  | 210                 | 105   | 2059              | 1030  | 0.00210        | 14.046                   | 14.071           | 14.000 | 14.018    |
| PSM1014-16 | 10                   | 14   | 16     | 10.033         | 10.066 | 14.028    | 14.046 | 15.75    | 16  | 336                 | 168   | 3295              | 1647  | 0.00336        | 14.046                   | 14.071           | 14.000 | 14.018    |
| PSM1216-12 | 12                   | 16   | 12     | 12.034         | 12.070 | 16.028    | 16.046 | 11.75    | 12  | 302                 | 151   | 2961              | 1481  | 0.00294        | 16.046                   | 16.071           | 16.000 | 16.018    |
| PSM1216-16 | 12                   | 16   | 16     | 12.034         | 12.070 | 16.028    | 16.046 | 15.75    | 16  | 404                 | 202   | 3962              | 1981  | 0.00392        | 16.046                   | 16.071           | 16.000 | 16.018    |
| PSM1519-16 | 15                   | 19   | 16     | 15.034         | 15.070 | 19.035    | 19.056 | 15.75    | 16  | 504                 | 252   | 4942              | 2471  | 0.00476        | 19.046                   | 19.071           | 19.000 | 19.018    |
| PSM1620-12 | 16                   | 20   | 12     | 16.041         | 16.080 | 20.035    | 20.056 | 11.50    | 12  | 404                 | 202   | 3962              | 1981  | 0.00378        | 20.056                   | 20.081           | 20.000 | 20.021    |
| PSM1620-16 | 16                   | 20   | 16     | 16.041         | 16.080 | 20.035    | 20.056 | 15.50    | 16  | 538                 | 269   | 5276              | 2638  | 0.00505        | 20.056                   | 20.081           | 20.000 | 20.021    |
| PSM1620-25 | 16                   | 20   | 25     | 16.041         | 16.080 | 20.035    | 20.056 | 24.50    | 25  | 840                 | 420   | 8237              | 4119  | 0.00788        | 20.056                   | 20.081           | 20.000 | 20.021    |
| PSM2025-16 | 20                   | 25   | 16     | 20.042         | 20.084 | 25.034    | 25.057 | 15.50    | 16  | 672                 | 336   | 6590              | 3295  | 0.00787        | 20.056                   | 25.081           | 25.000 | 25.021    |
| PSM2025-20 | 20                   | 25   | 20     | 20.042         | 20.084 | 25.034    | 25.057 | 19.50    | 20  | 840                 | 420   | 8237              | 4119  | 0.00984        | 20.056                   | 25.081           | 25.000 | 25.021    |
| PSM2025-25 | 20                   | 25   | 25     | 20.042         | 20.084 | 25.034    | 25.057 | 24.50    | 25  | 1050                | 525   | 10296             | 5148  | 0.01230        | 20.056                   | 25.081           | 25.000 | 25.021    |
| PSM2025-30 | 20                   | 25   | 30     | 20.042         | 20.084 | 25.034    | 25.057 | 29.50    | 30  | 1260                | 630   | 12356             | 6178  | 0.01476        | 20.056                   | 25.081           | 25.000 | 25.021    |
| PSM2530-20 | 25                   | 30   | 20     | 25.050         | 25.096 | 30.035    | 30.056 | 19.50    | 20  | 1050                | 525   | 10296             | 5148  | 0.01202        | 30.056                   | 30.081           | 30.000 | 30.021    |
| PSM2530-25 | 25                   | 30   | 25     | 25.050         | 25.096 | 30.035    | 30.056 | 24.50    | 25  | 1312                | 656   | 12865             | 6433  | 0.01503        | 30.056                   | 30.081           | 30.000 | 30.021    |
| PSM2530-30 | 25                   | 30   | 30     | 25.050         | 25.096 | 30.035    | 30.056 | 29.50    | 30  | 1576                | 788   | 15454             | 7727  | 0.01803        | 30.056                   | 30.081           | 30.000 | 30.021    |
| PSM2535-25 | 25                   | 35   | 25     | 25.050         | 25.096 | 35.043    | 35.068 | 24.50    | 25  | 1312                | 656   | 12865             | 6433  | 0.03276        | 35.068                   | 35.093           | 35.000 | 35.021    |
| PSM2535-35 | 25                   | 35   | 35     | 25.050         | 25.096 | 35.043    | 35.068 | 34.50    | 35  | 1838                | 919   | 18023             | 9012  | 0.04586        | 35.068                   | 35.093           | 35.000 | 35.021    |
| PSM3035-25 | 30                   | 35   | 25     | 30.050         | 30.096 | 35.043    | 35.068 | 24.50    | 25  | 1576                | 788   | 15454             | 7727  | 0.01777        | 35.068                   | 35.093           | 35.000 | 35.021    |
| PSM3035-30 | 30                   | 35   | 30     | 30.050         | 30.096 | 35.043    | 35.068 | 29.50    | 30  | 1890                | 945   | 18533             | 9267  | 0.02133        | 35.068                   | 35.093           | 35.000 | 35.021    |
| PSM3040-35 | 30                   | 40   | 35     | 30.050         | 30.096 | 40.043    | 40.068 | 34.50    | 35  | 2206                | 1103  | 21632             | 10816 | 0.05349        | 40.068                   | 40.093           | 40.000 | 40.025    |
| PSM3040-50 | 30                   | 40   | 50     | 30.050         | 30.096 | 40.043    | 40.068 | 49.50    | 50  | 3150                | 1575  | 30889             | 15444 | 0.07641        | 40.068                   | 40.093           | 40.000 | 40.025    |
| PSM3545-25 | 35                   | 45   | 25     | 35.052         | 35.102 | 45.041    | 45.067 | 24.50    | 25  | 1838                | 919   | 18023             | 9012  | 0.04365        | 45.068                   | 45.093           | 45.000 | 45.025    |
| PSM3545-40 | 35                   | 45   | 40     | 35.052         | 35.102 | 45.041    | 45.067 | 39.50    | 40  | 2940                | 1470  | 28830             | 14415 | 0.06983        | 45.068                   | 45.093           | 45.000 | 45.025    |
| PSM3545-50 | 35                   | 45   | 50     | 35.052         | 35.102 | 45.041    | 45.067 | 49.50    | 50  | 3676                | 1838  | 36047             | 18023 | 0.08729        | 45.068                   | 45.093           | 45.000 | 45.025    |
| PSM4050-30 | 40                   | 50   | 30     | 40.052         | 40.102 | 50.043    | 50.068 | 29.50    | 30  | 2520                | 1260  | 24711             | 12356 | 0.05891        | 50.068                   | 50.093           | 50.000 | 50.025    |
| PSM4050-40 | 40                   | 50   | 40     | 40.052         | 40.102 | 50.043    | 50.068 | 39.50    | 40  | 3360                | 1680  | 32948             | 16474 | 0.07855        | 50.068                   | 50.093           | 50.000 | 50.025    |
| PSM5060-35 | 50                   | 60   | 35     | 50.062         | 50.133 | 60.053    | 60.099 | 34.50    | 35  | 3676                | 1838  | 36047             | 18023 | 0.08419        | 60.099                   | 60.124           | 60.000 | 60.030    |
| PSM5060-50 | 50                   | 60   | 50     | 50.062         | 50.133 | 60.053    | 60.099 | 49.50    | 50  | 5250                | 2625  | 51482             | 25741 | 0.12027        | 60.099                   | 60.124           | 60.000 | 60.030    |
| PSM6070-60 | 60                   | 70   | 60     | 60.063         | 60.139 | 70.053    | 70.099 | 59.50    | 60  | 7560                | 3780  | 74133             | 37067 | 0.17052        | 70.099                   | 70.124           | 70.000 | 70.030    |



Consult Factory • 800-962-8979



Email an Application Engineer

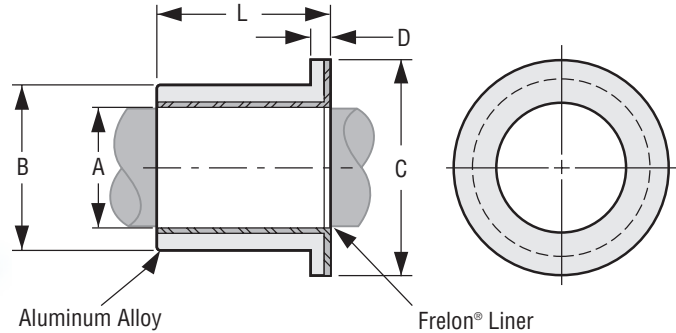
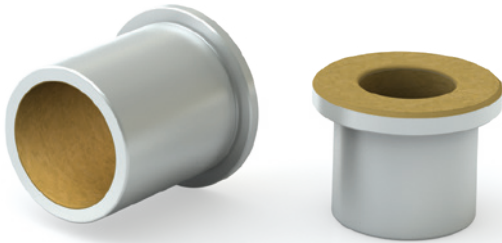
INCH

ISO METRIC

JIS METRIC

# Simplicity® Sleeve Bearings with Flange

## Sleeve Bearings with Flange PSFM



### DIMENSIONAL INFORMATION

| PART NO.    | NOMINAL BEARING SIZE<br>MM |      |        | A<br>BEARING I.D. |        | B<br>O.D. S7 |        | C<br>FLANGE<br>O.D. | D<br>FLANGE<br>WIDTH | L<br>LENGTH |     | MAX STATIC<br>LOAD KG. |                  | MAX STATIC<br>LOAD N |                  | BEARING<br>WEIGHT<br>KG | RECOMMENDED HOUSING BORE |        |           |        |
|-------------|----------------------------|------|--------|-------------------|--------|--------------|--------|---------------------|----------------------|-------------|-----|------------------------|------------------|----------------------|------------------|-------------------------|--------------------------|--------|-----------|--------|
|             | I.D.                       | O.D. | LENGTH | MIN               | MAX    | MIN          | MAX    |                     |                      | MIN         | MAX | FRELON®<br>GOLD        | FRELON®<br>J & W | FRELON®<br>GOLD      | FRELON®<br>J & W |                         | SLIP FIT &<br>EPOXY      |        | PRESS FIT |        |
|             |                            |      |        |                   |        |              |        |                     |                      |             |     |                        |                  |                      | MIN              | MAX                     | MIN                      | MAX    |           |        |
| PSFM0610-06 | 6                          | 10   | 6      | 6.028             | 6.058  | 10.023       | 10.038 | 14                  | 2                    | 5.75        | 6   | 76                     | 38               | 745                  | 373              | 0.00126                 | 10.038                   | 10.063 | 10.000    | 10.015 |
| PSFM0610-10 | 6                          | 10   | 10     | 6.028             | 6.058  | 10.023       | 10.038 | 14                  | 2                    | 9.75        | 10  | 126                    | 63               | 1236                 | 618              | 0.00182                 | 10.038                   | 10.063 | 10.000    | 10.015 |
| PSFM0812-06 | 8                          | 12   | 6      | 8.033             | 8.066  | 12.028       | 12.046 | 16                  | 2                    | 5.75        | 6   | 100                    | 50               | 981                  | 490              | 0.00153                 | 12.046                   | 12.071 | 12.000    | 12.018 |
| PSFM0812-08 | 8                          | 12   | 8      | 8.033             | 8.066  | 12.028       | 12.046 | 16                  | 2                    | 7.75        | 8   | 134                    | 67               | 1314                 | 657              | 0.00189                 | 12.046                   | 12.071 | 12.000    | 12.018 |
| PSFM0812-12 | 8                          | 12   | 12     | 8.033             | 8.066  | 12.028       | 12.046 | 16                  | 2                    | 11.75       | 12  | 202                    | 101              | 1981                 | 990              | 0.00259                 | 12.046                   | 12.071 | 12.000    | 12.018 |
| PSFM1016-08 | 10                         | 16   | 8      | 10.033            | 10.066 | 16.028       | 16.046 | 22                  | 3                    | 7.75        | 8   | 168                    | 84               | 1647                 | 824              | 0.00421                 | 16.046                   | 16.071 | 16.000    | 16.018 |
| PSFM1016-10 | 10                         | 16   | 10     | 10.033            | 10.066 | 16.028       | 16.046 | 22                  | 3                    | 9.75        | 10  | 210                    | 105              | 2059                 | 1030             | 0.00489                 | 16.046                   | 16.071 | 16.000    | 16.018 |
| PSFM1016-16 | 10                         | 16   | 16     | 10.033            | 10.066 | 16.028       | 16.046 | 22                  | 3                    | 15.75       | 16  | 336                    | 168              | 3295                 | 1647             | 0.00694                 | 16.046                   | 16.071 | 16.000    | 16.018 |
| PSFM1218-08 | 12                         | 18   | 8      | 12.034            | 12.070 | 18.028       | 18.046 | 24                  | 3                    | 7.75        | 8   | 202                    | 101              | 1981                 | 990              | 0.00478                 | 18.046                   | 18.071 | 18.000    | 18.018 |
| PSFM1218-12 | 12                         | 18   | 12     | 12.034            | 12.070 | 18.028       | 18.046 | 24                  | 3                    | 11.75       | 12  | 302                    | 151              | 2961                 | 1481             | 0.00636                 | 18.046                   | 18.071 | 18.000    | 18.018 |
| PSFM1519-16 | 15                         | 19   | 16     | 15.034            | 15.070 | 19.028       | 19.046 | 25                  | 3                    | 15.50       | 16  | 504                    | 252              | 4942                 | 2471             | 0.00647                 | 19.046                   | 19.071 | 19.000    | 19.018 |
| PSFM1620-16 | 16                         | 20   | 16     | 16.041            | 16.080 | 20.035       | 20.056 | 27                  | 3                    | 15.55       | 16  | 538                    | 269              | 5276                 | 2638             | 0.00718                 | 20.056                   | 20.081 | 20.000    | 20.021 |
| PSFM1620-20 | 16                         | 20   | 20     | 16.041            | 16.080 | 20.035       | 20.056 | 27                  | 3                    | 19.50       | 20  | 672                    | 336              | 6590                 | 3295             | 0.00844                 | 20.056                   | 20.081 | 20.000    | 20.021 |
| PSFM1620-25 | 16                         | 20   | 25     | 16.041            | 16.080 | 20.035       | 20.056 | 27                  | 3                    | 24.50       | 25  | 840                    | 420              | 8237                 | 4119             | 0.01002                 | 20.056                   | 20.081 | 20.000    | 20.021 |
| PSFM2026-20 | 20                         | 26   | 20     | 20.042            | 20.084 | 26.035       | 26.056 | 32                  | 3                    | 19.50       | 20  | 840                    | 420              | 8237                 | 4119             | 0.01432                 | 26.056                   | 26.081 | 26.000    | 26.021 |
| PSFM2026-30 | 20                         | 26   | 30     | 20.042            | 20.084 | 26.035       | 26.056 | 32                  | 3                    | 29.50       | 30  | 1260                   | 630              | 12356                | 6178             | 0.02035                 | 26.056                   | 26.081 | 26.000    | 26.021 |
| PSFM2530-20 | 25                         | 30   | 20     | 25.042            | 25.084 | 30.035       | 30.056 | 39                  | 3.5                  | 19.50       | 20  | 1050                   | 525              | 10296                | 5148             | 0.01672                 | 30.056                   | 30.081 | 30.000    | 30.021 |
| PSFM2530-25 | 25                         | 30   | 25     | 25.042            | 25.084 | 30.035       | 30.056 | 39                  | 3.5                  | 24.50       | 25  | 1312                   | 656              | 12865                | 6433             | 0.01973                 | 30.056                   | 30.081 | 30.000    | 30.021 |
| PSFM2530-32 | 25                         | 30   | 32     | 25.042            | 25.084 | 30.035       | 30.056 | 39                  | 3.5                  | 31.50       | 32  | 1680                   | 840              | 16474                | 8237             | 0.02394                 | 30.056                   | 30.081 | 30.000    | 30.021 |
| PSFM3038-30 | 30                         | 38   | 30     | 30.050            | 30.096 | 38.043       | 38.068 | 46                  | 4                    | 29.50       | 30  | 1890                   | 945              | 18533                | 9267             | 0.04145                 | 38.068                   | 38.093 | 38.000    | 38.021 |
| PSFM3545-35 | 35                         | 45   | 35     | 35.052            | 35.102 | 45.043       | 45.068 | 55                  | 5                    | 34.50       | 35  | 2572                   | 1286             | 25221                | 12611            | 0.07192                 | 45.068                   | 45.093 | 45.000    | 45.025 |
| PSFM4050-40 | 40                         | 50   | 40     | 40.052            | 40.102 | 50.043       | 50.068 | 60                  | 5                    | 39.50       | 40  | 3360                   | 1680             | 32948                | 16474            | 0.09044                 | 50.068                   | 50.093 | 50.000    | 50.025 |
| PSFM5060-50 | 50                         | 60   | 50     | 50.062            | 50.133 | 60.053       | 60.099 | 70                  | 5                    | 49.50       | 50  | 5250                   | 2625             | 51482                | 25741            | 0.13429                 | 60.099                   | 60.124 | 60.000    | 60.030 |

### ORDERING INFORMATION

|  |            |            |              |
|--|------------|------------|--------------|
| PSM  | 16         | 20         | 16           |
| Type                                       | I.D.       | O.D.       | Length       |
| PSM: Precision Sleeve Bearing              | I.D. in mm | O.D. in mm | Length in mm |
| PSFM: Precision Sleeve Bearing with Flange | I.D. in mm | O.D. in mm | Length in mm |

Note: Lengths not listed above must be specially quoted.



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

### INSTALLATION INSTRUCTIONS

1. Slip the bearing sleeve into the housing and epoxy into place with Loctite® or similar type bonding agent.



**CAUTION** Do NOT let any of the adhesive touch the bearing liner. It will harden and interfere with the running clearance.

2. Freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

# Metric Round Shafting Steel & Stainless Steel



## Simplicity 60 Plus® Shafting

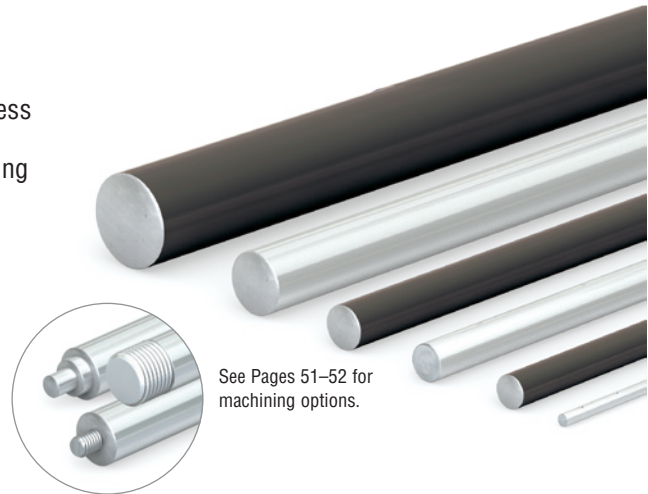
PBC Linear®, formulated a linear shaft designed specifically for optimal bearing performance – 60 Plus Shafting. Advanced process capabilities maintain the ideal surface finish for linear bearings resulting in the longest life and highest performing shaft-to-bearing combination available.

Optimized surface finish

Faster break-in and better Frelon® transfer for plain bearings

Longest life possible, less down time, and maintenance

Straight to within .001" to .002" per foot cumulative, except on 3/8" diameter and smaller



See Pages 51–52 for machining options.

INCH

ISO  
METRIC

JIS  
METRIC

## Metric Shaft Part • Numbering Chart



Configure Online

### Special

**CM** - Custom Machine

**SL** - Specified Length

### Shaft Length

**Millimeter** - 0000

### Shaft Material

**Blank** - 1060 CS

**SS** - 440 SS

**SS316** - 316 SS\*

**CP** - Chrome plate\*\*

**AR** - Armoloy\*\*

\* 300 Series available in most diameters

\*\*Available as special quotes

**Note:** Chrome will have a guaranteed thickness of 0.0001" to 0.0005".

Chrome thickness will be in addition to the catalog diameter of the shaft.

| CLASS |  |
|-------|--|
| CODE  | DESCRIPTION                              |
| NIM   | Metric Shaft (Steel)                     |
| NIPDM | Metric Predrill (Steel)                  |
| CCM   | Feather Metric (Aluminum)                |
| CCMDL | Feather Metric Predrill (Aluminum)       |
| SRM   | Metric Support Rail (Aluminum)           |
| SRAM  | Metric Support Rail Assembly (Aluminum)  |
| LSRM  | Metric Low Support Rail (Steel)          |
| LSGM  | Metric Low Support Rail Assembly (Steel) |

| DIAMETER |       |
|----------|-------|
| CODE     | DESC. |
| 04       | 4 mm  |
| 05       | 5 mm  |
| 06       | 6 mm  |
| 08       | 8 mm  |
| 10       | 10 mm |
| 12       | 12 mm |
| 16       | 16 mm |
| 20       | 20 mm |
| 25       | 25 mm |
| 30       | 30 mm |
| 40       | 40 mm |
| 50       | 50 mm |
| 60       | 60 mm |
| 80       | 80 mm |

| SAMPLE PART NUMBERS   |
|---|
| Carbon steel 20 mm diameter and 300 mm long<br><b>NIM20SS-0300-SL</b> |
| Feather metric 12 mm diameter and 150 mm long<br><b>CCM12-0150-SL</b> |



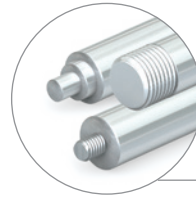
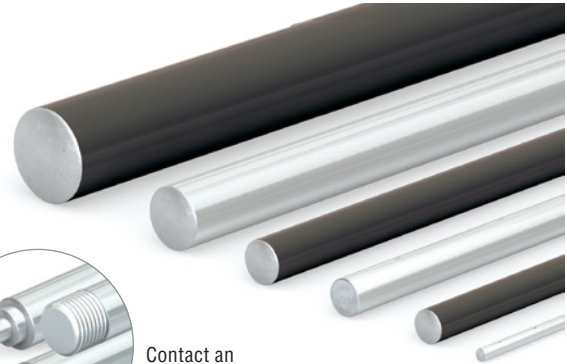


# Round Shafting RC60 Steel & Stainless Steel

## Simplicity® 60 Plus® Shafting

PBC Linear's® development team, working in close conjunction with engineers from Lee Linear®, have together formulated a linear shaft designed specifically for optimal bearing performance – Simplicity 60 Plus Shafting. Advanced process capabilities maintain the ideal surface finish for linear bearings resulting in the longest life and highest performing shaft-to-bearing combination available.

- Optimized surface finish
- Faster break-in and better Frelon® transfer for plain bearings
- Longest life possible, less down time, and maintenance
- Straight to within .001" to .002" per foot cumulative, except on 3/8" diameter and smaller



Contact an Application Engineer for machining options.

## RC60 Steel Solid Shafting NIM

| PART NO.   | NOMINAL DIA. | DIA. TOLERANCE MM |     | MAX LENGTH MM | MIN HARDNESS DEPTH MM | WEIGHT KG/M |
|------------|--------------|-------------------|-----|---------------|-----------------------|-------------|
|            | MM           | MIN               | MAX |               |                       |             |
| NIM04-xxxx | 4            | 3.987             | 4   | 6400.8        | thru                  | 0.10        |
| NIM05-xxxx | 5            | 4.987             | 5   | 6400.8        | thru                  | 0.15        |
| NIM06-xxxx | 6            | 5.987             | 6   | 1981.2        | 1.02                  | 0.23        |
| NIM08-xxxx | 8            | 7.987             | 8   | 4368.8        | 1.02                  | 0.39        |
| NIM10-xxxx | 10           | 9.987             | 10  | 4673.6        | 1.02                  | 0.62        |
| NIM12-xxxx | 12           | 11.987            | 12  | 4673.6        | 1.52                  | 0.89        |
| NIM16-xxxx | 16           | 15.987            | 16  | 4673.6        | 1.52                  | 1.57        |
| NIM20-xxxx | 20           | 19.987            | 20  | 4673.6        | 1.52                  | 2.45        |
| NIM25-xxxx | 25           | 24.987            | 25  | 4978.4        | 2.03                  | 3.80        |
| NIM30-xxxx | 30           | 29.987            | 30  | 4673.6        | 2.03                  | 5.50        |
| NIM40-xxxx | 40           | 39.984            | 40  | 4673.6        | 2.03                  | 9.80        |
| NIM50-xxxx | 50           | 49.984            | 50  | 4673.6        | 2.54                  | 15.30       |
| NIM60-xxxx | 60           | 59.981            | 60  | 5029.2        | 3.70                  | 22.20       |
| NIM80-xxxx | 80           | 79.981            | 80  | 5029.2        | 3.70                  | 39.50       |

**Notes:** (1) Specify length in part number using millimeters.  
 Example: for 25 mm shafting total length 900 mm = NIM25-0900.  
 (2) Surface finish bearing recommended 8 Ra.

- RC 60 Plus case hardened steel shafting
- Optimized for Simplicity® bearings and linear ball bearings
- Available cut-to-length or full lengths
- Length tolerance:  
 4 mm – 30 mm shaft = +/- 0.8 mm  
 40 mm – 50 mm shaft = +/- 1.6 mm  
 60 mm – 80 mm shaft = +/- 3.2 mm
- Joinable for longer lengths
- Available as solid shafting or pre-drilled (See pre-drilled NIPDM on next page)



## 440 Stainless Steel Solid Shafting NIMxxSS

| PART NO.      | NOMINAL SIZE | DIA. TOLERANCE MM |     | MAX LENGTH MM | MIN HARDNESS DEPTH MM | WEIGHT KG/M |
|---------------|--------------|-------------------|-----|---------------|-----------------------|-------------|
|               | MM           | MIN               | MAX |               |                       |             |
| NIM04SS-xxxx  | 4            | 3.987             | 4   | 6400.8        | thru                  | 0.10        |
| NIM05SS-xxxx* | 5            | 4.987             | 5   | 6400.8        | thru                  | 0.15        |
| NIM06SS-xxxx  | 6            | 5.987             | 6   | 1981.2        | 1.02                  | 0.23        |
| NIM08SS-xxxx  | 8            | 7.987             | 8   | 3911.6        | 1.02                  | 0.39        |
| NIM10SS-xxxx  | 10           | 9.987             | 10  | 3911.6        | 1.02                  | 0.62        |
| NIM12SS-xxxx  | 12           | 11.987            | 12  | 3911.6        | 1.52                  | 0.89        |
| NIM16SS-xxxx  | 16           | 15.987            | 16  | 3911.6        | 1.52                  | 1.57        |
| NIM20SS-xxxx  | 20           | 19.987            | 20  | 3911.6        | 1.52                  | 2.45        |
| NIM25SS-xxxx  | 25           | 24.987            | 25  | 4318          | 2.03                  | 3.80        |
| NIM30SS-xxxx  | 30           | 29.987            | 30  | 2997.2        | 2.03                  | 5.50        |
| NIM40SS-xxxx  | 40           | 39.984            | 40  | 2997.2        | 2.03                  | 22.20       |
| NIM50SS-xxxx  | 50           | 49.984            | 50  | 3911.6        | 2.54                  | 39.50       |

\*Limited availability on NIM05SS, please contact factory.

- 440 stainless steel RC 50 Plus™ hardness
- Optimized for Simplicity bearings and linear ball bearings
- Available cut-to-length or random lengths
- Length tolerance:  
 4 mm – 30 mm shaft = +/- 0.8 mm  
 40 mm – 50 mm shaft = +/- 1.6 mm  
 60 mm – 80 mm shaft = +/- 3.2 mm
- Available as solid shafting or pre-drilled (See NIPDMxxSS on next page)



Email an Application Engineer

INCH  
 ISO METRIC  
 JIS METRIC

# Round Shafting Stainless Steel & Ceramic Coated

## Pre-Drilled & Tapped

### Steel NIPDM • 440 Stainless Steel NIPDMxxSS

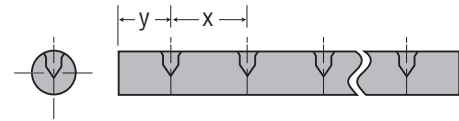
| PART NO.     |                 | NOMINAL DIA.<br>MM | DIA. TOLERANCE<br>MM |     | STANDARD HOLE SPACING |     | THREAD     | MAX LENGTH<br>MM | WEIGHT<br>KG/M |
|--------------|-----------------|--------------------|----------------------|-----|-----------------------|-----|------------|------------------|----------------|
| STEEL        | STAINLESS STEEL |                    | MIN                  | MAX | X                     | Y   |            |                  |                |
| NIPDM12-xxxx | NIPDM12SS-xxxx  | 12                 | 11.9888              | 12  | 120                   | 60  | M4 x .7    | 4597             | 0.89           |
| NIPDM16-xxxx | NIPDM16SS-xxxx  | 16                 | 15.9893              | 16  | 150                   | 75  | M5 x .8    | 4597             | 1.57           |
| NIPDM20-xxxx | NIPDM20SS-xxxx  | 20                 | 19.9873              | 20  | 150                   | 75  | M6 x 1.0   | 4597             | 2.45           |
| NIPDM25-xxxx | NIPDM25SS-xxxx  | 25                 | 24.9885              | 25  | 200                   | 100 | M8 x 1.25  | 4902             | 3.80           |
| NIPDM30-xxxx | NIPDM30SS-xxxx  | 30                 | 29.9872              | 30  | 200                   | 100 | M10 x 1.5  | 4597             | 5.50           |
| NIPDM40-xxxx | NIPDM40SS-xxxx  | 40                 | 39.9872              | 40  | 200                   | 100 | M10 x 1.5  | 4496             | 9.80           |
| NIPDM50-xxxx | NIPDM50SS-xxxx  | 50                 | 49.9846              | 50  | 200                   | 100 | M12 x 1.75 | 4496             | 15.30          |

Notes: (1) Specify length in part number using mm.

Example: for 12 mm shafting total length 97 mm = NIPDM12-0097.

(2) Customer specifies 'y' dimension, if different than standard. Hole-to-hole tolerance = +/- .015".

(3) Consult factory for chrome plated, 303, or 316 stainless steel shafting.



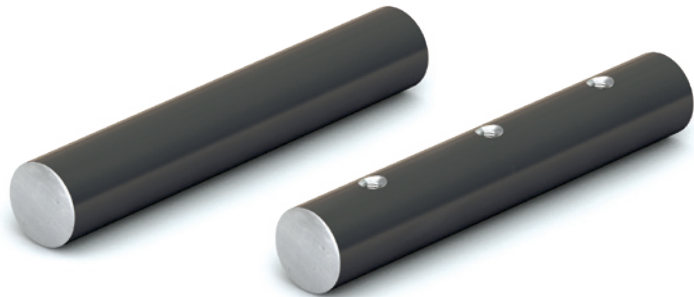
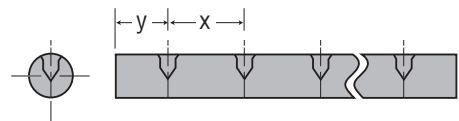
INCH

ISO  
METRIC

JIS  
METRIC

## Ceramic Coated

- Aluminum alloy base material
- RC 70 ceramic coated finish
- Designed to run with Simplicity® FrelonGOLD® lined bearings
- Interchanges with solid and pre-drilled shafting
- Non-magnetic and vibration resistant
- Weld splatter, paints, and contaminants will not stick
- NOT compatible with linear ball bearings
- Length tolerance:
  - 4 mm – 30 mm shaft = +/- 0.8 mm
  - 40 mm – 50 mm shaft = +/- 1.6 mm
  - 60 mm – 80 mm shaft = +/- 3.2 mm



## Solid Shafting CCM

| PART NO.   | NOMINAL DIA. | DIA. TOLERANCE<br>MM |     | MAX LENGTH<br>MM | WEIGHT<br>KG/M |
|------------|--------------|----------------------|-----|------------------|----------------|
|            | MM           | MIN                  | MAX |                  |                |
| CCM06-xxxx | 6            | 5.992                | 6   | 3500             | 0.04           |
| CCM08-xxxx | 8            | 7.991                | 8   | 3500             | 0.07           |
| CCM10-xxxx | 10           | 9.991                | 10  | 3500             | 0.10           |
| CCM12-xxxx | 12           | 11.989               | 12  | 3500             | 0.15           |
| CCM16-xxxx | 16           | 15.989               | 16  | 3500             | 0.26           |
| CCM20-xxxx | 20           | 19.987               | 20  | 3500             | 0.41           |
| CCM25-xxxx | 25           | 24.987               | 25  | 3500             | 0.63           |
| CCM30-xxxx | 30           | 29.987               | 30  | 3500             | 0.92           |
| CCM40-xxxx | 40           | 39.984               | 40  | 3500             | 1.63           |
| CCM50-xxxx | 50           | 49.984               | 50  | 3500             | 2.55           |

Notes: (1) Specify length in part number using mm.

Example: for 8 mm shafting total length 97 mm = CCM08-0097.

(2) Ends of cut-to-length shafting are not coated.

(3) Fully coated shafting is available on special request.

## Pre-Drilled & Tapped CCMDL

| PART NO.     | NOMINAL DIA.<br>MM | DIA. TOLERANCE<br>MM |     | STANDARD HOLE SPACING |      | THREAD    | MAX LENGTH<br>MM | WEIGHT<br>KG/M |
|--------------|--------------------|----------------------|-----|-----------------------|------|-----------|------------------|----------------|
|              |                    | MIN                  | MAX | x                     | y    |           |                  |                |
| CCMDL08-xxxx | 8                  | 7.991                | 8   | 101.6                 | 50.8 | M2 x .4   | 3500             | 0.07           |
| CCMDL10-xxxx | 10                 | 9.991                | 10  | 101.6                 | 50.8 | M3 x .5   | 3500             | 0.10           |
| CCMDL12-xxxx | 12                 | 11.989               | 12  | 120                   | 60   | M4 x .7   | 3500             | 0.15           |
| CCMDL16-xxxx | 16                 | 15.989               | 16  | 150                   | 75   | M5 x .8   | 3500             | 0.26           |
| CCMDL20-xxxx | 20                 | 19.987               | 20  | 150                   | 75   | M6 x 1.0  | 3500             | 0.41           |
| CCMDL25-xxxx | 25                 | 24.987               | 25  | 200                   | 100  | M8 x 1.25 | 3500             | 0.63           |
| CCMDL30-xxxx | 30                 | 29.987               | 30  | 200                   | 100  | M10 x 1.5 | 3500             | 0.92           |

Notes: (1) Specify length in part number using mm.

Example: for 10 mm shafting total length 97 mm = CCMDL08-0097.

(2) Ends of cut-to-length shafting are not coated.

(3) Fully coated shafting is available on special request.

(4) Customer specifies 'y' dimension, if different than standard.

# Shafting Rail Assemblies

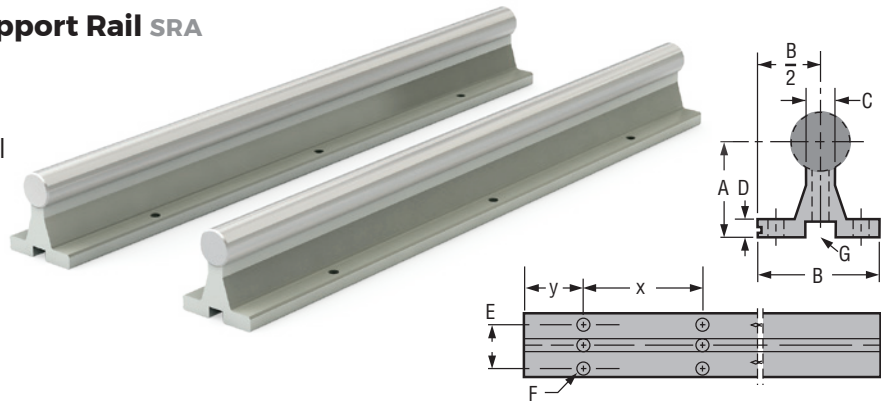
## Rail Assembly - Aluminum Support Rail SRA

Two piece assembly RC60 steel shaft and aluminum support rail standard

Other shaft materials – 440 stainless steel and ceramic coated aluminum

Standard length tolerances are provided on page 51

No coating

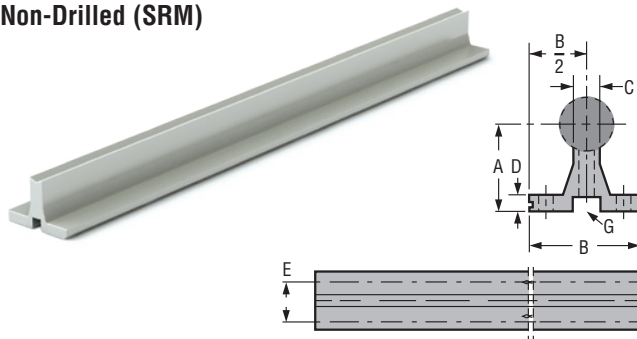


| SHAFTING TYPE           |  |                                    | NOMINAL DIA.<br>MM | DIAMETER TOLERANCE |     | A<br>+/- .05 | B     | C     | D     | E  | F<br>HOLE SIZE | STANDARD HOLE SPACING |     | WEIGHT<br>Kg/M |
|-------------------------|--|------------------------------------|--------------------|--------------------|-----|--------------|-------|-------|-------|----|----------------|-----------------------|-----|----------------|
| STEEL SHAFT<br>PART NO. | CERAMIC COATED<br>SHAFTING<br>PART NO. | 440 STAINLESS<br>STEEL<br>PART NO. |                    | MIN                | MAX |              |       |       |       |    |                | X                     | Y   |                |
| SRAM12                  | SRAM12CC                               | SRAM12SS                           | 12                 | 11.9888            | 12  | 28.00        | 38.10 | 6.60  | 4.76  | 25 | M4             | 120                   | 60  | 1.80           |
| SRAM16                  | SRAM16CC                               | SRAM16SS                           | 16                 | 15.9893            | 16  | 28.50        | 41.28 | 7.94  | 6.35  | 28 | M5             | 150                   | 75  | 2.59           |
| SRAM20                  | SRAM20CC                               | SRAM20SS                           | 20                 | 19.9873            | 20  | 38.00        | 44.45 | 9.53  | 6.35  | 32 | M6             | 150                   | 75  | 3.61           |
| SRAM25                  | SRAM25CC                               | SRAM25SS                           | 25                 | 24.9885            | 25  | 42.00        | 53.98 | 12.70 | 6.35  | 38 | M8             | 200                   | 100 | 5.86           |
| SRAM30                  | SRAM30CC                               | SRAM30SS                           | 30                 | 29.9872            | 30  | 53.00        | 63.50 | 14.29 | 7.94  | 46 | M10            | 200                   | 100 | 8.80           |
| SRAM40                  | N/A                                    | SRAM40SS                           | 40                 | 39.9872            | 40  | 64.00        | 76.20 | 17.46 | 9.53  | 58 | M10            | 200                   | 100 | 12.70          |
| SRAM50                  | N/A                                    | SRAM50SS                           | 50                 | 49.9846            | 50  | 70.00        | 82.00 | 20.30 | 10.50 | 62 | M12            | 200                   | 100 | 21.98          |

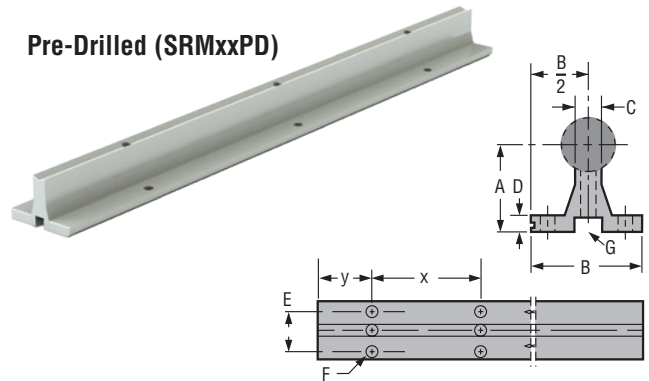
**Note:** Specify length in part number using inches. Example: for 20 mm shafting total length 914 mm long = SRAM20-0914-SL.  
Customer specifies 'y' dimension, if different than standard.

## Support Rail - Aluminum SR & SR\_PD

### Non-Drilled (SRM)



### Pre-Drilled (SRMxxPD)



| PART NO.    |             | NOMINAL DIA.<br>MM | A<br>+/- .05 | B     | C     | D     | E  | H<br>HOLE SIZE | G<br>MOUNTING BOLT SIZE |                    | MAX LENGTH<br>+0/-3.2 mm | STANDARD HOLE SPACING |     | WEIGHT<br>Kg/M |
|-------------|-------------|--------------------|--------------|-------|-------|-------|----|----------------|-------------------------|--------------------|--------------------------|-----------------------|-----|----------------|
| NON-DRILLED | PRE-DRILLED |                    |              |       |       |       |    |                | SCREW                   | FASTENER LENGTH MM |                          | X                     | Y   |                |
| SRM12       | SRM12PD     | 12                 | 28.00        | 38.10 | 6.60  | 4.76  | 25 | M4             | M4 x 0.70               | 20                 | 1200                     | 120                   | 60  | 0.803          |
| SRM16       | SRM16PD     | 16                 | 28.50        | 41.28 | 7.94  | 6.35  | 28 | M5             | M5 x 0.80               | 20                 | 1200                     | 150                   | 75  | 1.040          |
| SRM20       | SRM20PD     | 20                 | 38.00        | 44.45 | 9.53  | 6.35  | 32 | M6             | M6 x 1.00               | 30                 | 1200                     | 150                   | 75  | 1.380          |
| SRM25       | SRM25PD     | 25                 | 42.00        | 53.98 | 12.70 | 6.35  | 38 | M8             | M8 x 1.25               | 40                 | 1200                     | 200                   | 100 | 1.860          |
| SRM30       | SRM30PD     | 30                 | 53.00        | 63.50 | 14.29 | 7.94  | 46 | M10            | M10 x 1.5               | 40                 | 1200                     | 200                   | 100 | 2.590          |
| SRM40       | SRM40PD     | 40                 | 64.00        | 76.20 | 17.46 | 9.53  | 58 | M10            | M10 x 1.5               | 50                 | 1200                     | 200                   | 100 | 3.750          |
| SRM50       | SRM50PD     | 50                 | 70.00        | 82.00 | 20.30 | 10.50 | 62 | M12            | M12 x 1.75              | 70                 | 1200                     | 200                   | 100 | 6.110          |

**Notes:** (1) Specify length in part number. Example: for 12 mm shafting support rail to 609 mm length = SRM12-0609 (Aluminum alloy construction, no coating).  
(2) Shafts and support rails sold separately. Customer specifies 'y' dimension. Shaft rails and assemblies are available in long lengths, consult factory.

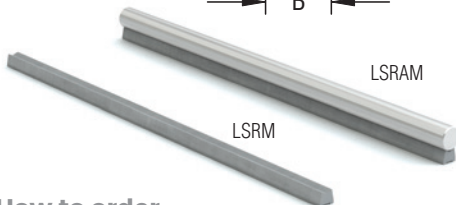
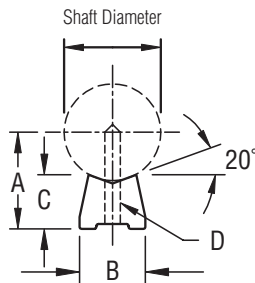
# Shafting Low Support Rails

## Low Support Rail - Steel LSRM

The AISI C-1018 steel LSRM shaft support is a low support rail with a reduced footprint, and 40% lower profile than other support rails. This is an excellent choice for applications requiring compact low shaft support. The standard length for LSRM type supports is 1200 mm.

No coating

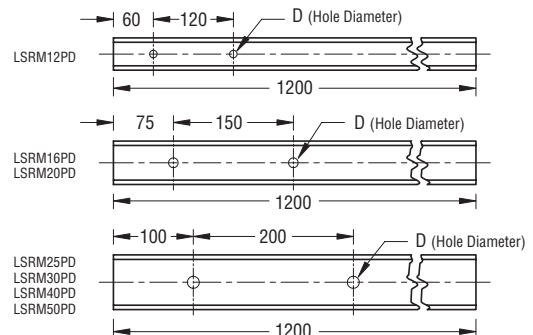
Length tolerance  
+0 mm/3 mm.



| PART NO. | ASSEMBLY PART NO. | SHAFT DIA.<br>MM | A<br>+/- .05 | B<br>+/- .05 | C<br>+/- .05 | D<br>HOLE SIZE | STANDARD HOLE SPACING<br>PRE-DRILLED |     | WEIGHT PER 1219 MM<br>(APPROXIMATE)<br>Kg | ASSEMBLY WEIGHT PER 1200 MM<br>(APPROXIMATE)<br>Kg |
|----------|-------------------|------------------|--------------|--------------|--------------|----------------|--------------------------------------|-----|---|--|
|          |                   |                  |              |              |              |                | X                                    | Y   |   |  |
| LSRM12   | LSRAM-12          | 12               | 13.91        | 9.40         | 8.66         | M4             | 120                                  | 60  | 0.599                                     | 1.79   |
| LSRM12PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM16   | LSRAM-16          | 16               | 17.54        | 11.43        | 10.46        | M5             | 150                                  | 75  | 0.884                                     | 2.76   |
| LSRM16PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM20   | LSRAM-20          | 20               | 19.58        | 12.95        | 10.46        | M6             | 150                                  | 75  | 1.020                                     | 3.61   |
| LSRM20PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM25   | LSRAM-25          | 25               | 25.22        | 17.53        | 14.22        | M8             | 200                                  | 100 | 5.086                                     | 5.86   |
| LSRM25PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM30   | LSRAM-30          | 30               | 29.26        | 19.81        | 15.9         | M10            | 200                                  | 100 | 8.800                                     | 8.80   |
| LSRM30PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM40   | LSRAM-40          | 40               | 35.96        | 23.62        | 17.86        | M10            | 200                                  | 100 | 12.700                                    | 12.70  |
| LSRM40PD |                   |                  |              |              |              |                |                                      |     |   |  |
| LSRM50   | LSRAM-50          | 50               | 44.02        | 29.97        | 21.46        | M12            | 200                                  | 100 | 21.980                                    | 21.98  |
| LSRM50PD |                   |                  |              |              |              |                |                                      |     |   |  |

### How to order

- When ordering standard 1200 mm long low shaft rails without mounting holes, order by part number. For example, LSRM12-1200.
- If standard mounting holes are required, specify low shaft rails with pre-drilled mounting holes by part number. For example, LSRM12PD. Hole sizes and spacings are shown in the table.
- If other than standard hole spacing is required, please provide drawings with all dimensions, tolerances, and quantity. With or without mounting holes, low shaft rails will be supplied in 1200 mm lengths when ordered by part number.



## Low Support Rail & Shaft Set LSG

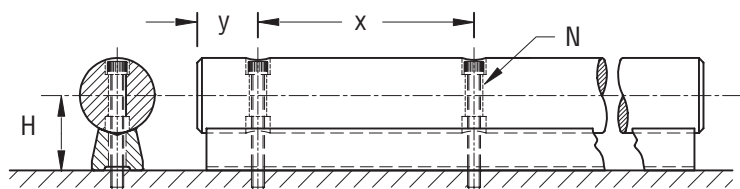
Precision case hardened and ground shaft, plus an LSR steel support rail, effectively doubles the life of the shaft by allowing it to be turned over for a fresh surface when wear becomes evident. Both sides of the shaft are counterbored so the shaft may be rotated 180°, and rebolted for use on the new side. This guide is sold as a two-piece set; the shaft and support are not assembled. The guide is then bolted down through the top of the shaft to reduce installation time. The shafts are also available in 440C stainless steel. Drilled through and counterbored shafts may not be suitable for all linear bearings.

No coating



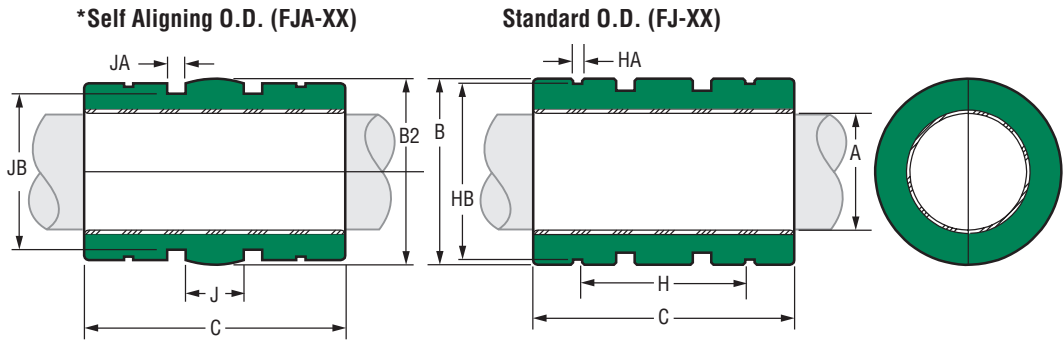
| PART NO. | SHAFT DIA.<br>MM | H<br>MM | B<br>MM | Y<br>MM | X<br>MM | N<br>MM | WEIGHT PER IN. |
|----------|------------------|---------|---------|---------|---------|---------|----------------|
|          |                  |         |         |         |         |         | Kg             |
| LSGM16   | 16               | 17.54   | 11.43   | 75      | 150     | #5      | 2.36           |
| LSGM20   | 20               | 19.58   | 12.95   | 75      | 150     | #6      | 3.05           |
| LSGM25   | 25               | 25.22   | 17.53   | 100     | 200     | #10     | 5.55           |
| LSGM30   | 30               | 29.26   | 19.81   | 100     | 200     | 5/16    | 8.11           |
| LSGM40   | 40               | 35.96   | 23.62   | 100     | 200     | 3/8     | 11.43          |
| LSGM50   | 50               | 44.02   | 29.97   | 100     | 200     | 1/2     | 19.98          |

Note: Customer specifies 'y' dimension.



# Simplicity® Linear Plain Bearings

ISO METRIC INCH



\* Except for the O.D., bearings with the self-aligning feature have the same dimensions and tolerances as the standard bearing. There is a spherical crown on the O.D. to create the self-aligning feature. They are for use in a straight bore housing. Add an "A" to the part number for self-aligning bearings.

## DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |         |              |                |         | COMPENSATED I.D. SERIES<br>ALLOWS ADDITIONAL RUNNING CLEARANCE |          |                |         | B             |     | B2                     |         | C       |     | CONCENTRIC | BEARING WEIGHT |
|--|---------|--------------|----------------|---------|--|----------|----------------|---------|---------------|-----|------------------------|---------|---------|-----|------------|----------------|
| PART NO.   |         | NOMINAL SIZE | A BEARING I.D. |         | PART NO.   |          | A BEARING I.D. |         | STANDARD O.D. |     | SELF-ALIGNING O.D. FJA |         | LENGTH  |     | MAX        | KG.            |
| CLOSED   | OPEN    | MM           | MIN            | MAX     | CLOSED   | OPEN     | MIN            | MAX     | MIN           | MAX | MIN                    | MAX     | MIN     | MAX |            |                |
| FJ06   | N/A     | 6            | 6.010          | 6.028   | FJC 06   | FJCN 06  | 6.06           | 6.078   | 11.989        | 12  | 11.943                 | 11.968  | 18.619  | 19  | 0.0254     | 0.004          |
| FJH 08   | FJHN 08 | 8            | 8.013          | 8.035   | FJCH 08  | FJCHN 08 | 8.063          | 8.085   | 14.989        | 15  | 14.943                 | 14.968  | 16.619  | 17  | 0.0254     | 0.005          |
| FJ 08  | FJN 08  | 8            | 8.013          | 8.035   | FJC 08   | FJCN 08  | 8.063          | 8.085   | 14.989        | 15  | 14.943                 | 14.968  | 23.619  | 24  | 0.0254     | 0.008          |
| FJ 10  | FJN 10  | 10           | 10.013         | 10.035  | FJC 10   | FJCN 10  | 10.063         | 10.086  | 18.987        | 19  | 18.936                 | 18.969  | 28.619  | 29  | 0.0254     | 0.015          |
| FJ 12  | FJN 12  | 12           | 12.016         | 12.043  | FJC 12   | FJCN 12  | 12.066         | 12.093  | 20.987        | 21  | 20.942                 | 20.968  | 29.619  | 30  | 0.0254     | 0.018          |
| FJ 13  | FJN 13  | 13           | 13.016         | 13.043  | FJC 13   | FJCN 13  | 13.066         | 13.093  | 22.987        | 23  | 22.944                 | 22.969  | 31.619  | 32  | 0.0254     | 0.024          |
| FJ 16  | FJN 16  | 16           | 16.016         | 16.043  | FJC 16   | FJCN 16  | 16.066         | 16.093  | 27.988        | 28  | 27.943                 | 27.968  | 36.619  | 37  | 0.0254     | 0.039          |
| FJ 20  | FJN 20  | 20           | 20.020         | 20.053  | FJC 20   | FJCN 20  | 20.096         | 20.129  | 31.984        | 32  | 31.941                 | 31.966  | 41.619  | 42  | 0.0254     | 0.052          |
| FJ 25  | FJN 25  | 25           | 25.025         | 25.053  | FJC 25   | FJCN 25  | 25.096         | 25.129  | 39.984        | 40  | 39.942                 | 39.967  | 58.619  | 59  | 0.0254     | 0.119          |
| FJ 30  | FJN 30  | 30           | 30.020         | 30.053  | FJC 30   | FJCN 30  | 30.096         | 30.129  | 44.984        | 45  | 44.940                 | 44.966  | 63.619  | 64  | 0.0254     | 0.149          |
| FJ 35  | FJN 35  | 35           | 35.020         | 35.053  | FJC 35   | FJCN 35  | 35.100         | 35.136  | 51.981        | 52  | 51.940                 | 51.966  | 69.619  | 70  | 0.0254     | 0.212          |
| FJ 38  | FJN 38  | 38           | 38.025         | 38.064  | FJC 38   | FJCN 38  | 38.127         | 38.166  | 56.981        | 57  | 56.940                 | 56.966  | 75.619  | 76  | 0.0254     | 0.284          |
| FJ 40  | FJN 40  | 40           | 40.025         | 40.064  | FJC 40   | FJCN 40  | 40.127         | 40.166  | 59.981        | 60  | 59.939                 | 59.964  | 79.619  | 80  | 0.0254     | 0.333          |
| FJ 50  | FJN 50  | 50           | 50.025         | 50.064  | FJC 50   | FJCN 50  | 50.127         | 50.166  | 79.981        | 80  | 79.939                 | 79.964  | 99.619  | 100 | 0.0254     | 0.823          |
| FJ 60  | FJN 60  | 60           | 60.030         | 60.076  | FJC 60   | FJCN 60  | 60.182         | 60.228  | 89.978        | 90  | 89.939                 | 89.964  | 109.619 | 110 | 0.0254     | 1.024          |
| FJ 80  | FJN 80  | 80           | 80.030         | 80.076  | FJC 80   | FJCN 80  | 80.182         | 80.228  | 119.978       | 120 | 119.939                | 119.964 | 139.619 | 140 | 0.0380     | 2.359          |
| FJ 100   | FJN 100 | 100          | 100.030        | 100.076 | FJC 100  | FJCN 100 | 100.182        | 100.228 | 149.975       | 150 | 149.936                | 149.962 | 174.619 | 175 | 0.0510     | 4.651          |
| FJ 120   | FJN 120 | 120          | 120.035        | 120.089 | FJC 120  | FJCN 120 | 120.190        | 120.236 | 179.975       | 180 | 179.936                | 179.962 | 199.619 | 200 | 0.0510     | 7.706          |
| FJ 150   | FJN 150 | 150          | 150.035        | 150.089 | FJC 150  | FJCN 150 | 150.190        | 150.236 | 209.971       | 210 | 209.934                | 209.959 | 239.619 | 240 | 0.0510     | 11.104         |

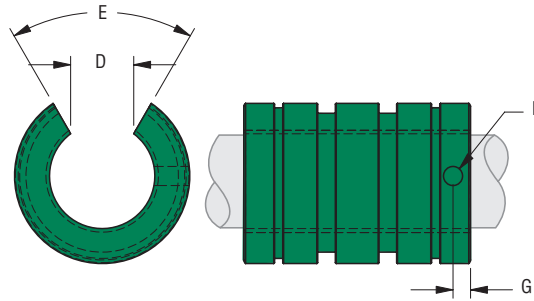
## MOUNTING DIMENSIONS

| PART NO. |         | NOMINAL SIZE | H                  | HA                   | HB                  | RET. RING PART NO. | J                    | JA                | JB               | METRIC O'RING SIZE |
|----------|---------|--------------|--------------------|----------------------|---------------------|--------------------|----------------------|-------------------|------------------|--------------------|
| CLOSED   | OPEN    | MM           | BETWEEN RET. RINGS | RET. RING GRV. WIDTH | RET. RING GRV. DIA. | JIS B 2904         | BETWEEN O'RING GRVS. | O'RING GRV. WIDTH | O'RING GRV. DIA. |                    |
| FJ06     | N/A     | 6            | 11.3               | 1.15                 | 11.5                | STW - 12           | 4.293                | 2.032             | 9.859            | 9.7 x 1.3          |
| FJH 08   | FJHN08  | 8            | 9.2                | 1.15                 | 14.3                | STW - 15           | 2.540                | 2.362             | 12.243           | 12 x 1.7           |
| FJ 08    | FJN08   | 8            | 15.2               | 1.15                 | 14.3                | STW - 15           | 7.493                | 2.362             | 12.243           | 12 x 1.7           |
| FJ 10    | FJN 10  | 10           | 19.3               | 1.35                 | 18.0                | STW - 19           | 9.500                | 2.362             | 15.700           | 15.5 x 2           |
| FJ 12    | FJN 12  | 12           | 20.3               | 1.35                 | 20.0                | STW - 20           | 10.490               | 2.362             | 18.546           | 18 x 1.5           |
| FJ 13    | FJN 13  | 13           | 20.3               | 1.35                 | 22.0                | STW - 23           | 11.481               | 2.362             | 20.544           | 20 x 1.5           |
| FJ 16    | FJN 16  | 16           | 23.2               | 1.65                 | 26.6                | STW - 28           | 11.100               | 3.556             | 23.978           | 23.5 x 2.5         |
| FJ 20    | FJN 20  | 20           | 27.2               | 1.65                 | 30.3                | STW - 32           | 15.977               | 3.556             | 27.864           | 27.5 x 2.5         |
| FJ 25    | FJN 25  | 25           | 37.2               | 1.85                 | 38.0                | STW - 40           | 19.990               | 3.556             | 35.865           | 35.5 x 2.5         |
| FJ 30    | FJN 30  | 30           | 40.7               | 1.85                 | 42.5                | STW - 45           | 22.479               | 3.556             | 40.843           | 40 x 2.5           |
| FJ 35    | FJN 35  | 35           | 44.8               | 2.20                 | 49.0                | STW - 52           | 25.984               | 4.115             | 46.200           | 46 x 3.5           |
| FJ 38    | FJN 38  | 38           | 54.3               | 2.20                 | 54.5                | STW - 58           | 28.499               | 4.115             | 51.200           | 51 x 3.5           |
| FJ 40    | FJN 40  | 40           | 56.1               | 2.20                 | 57.0                | STW - 60           | 29.997               | 4.115             | 54.225           | 53 x 3.5           |
| FJ 50    | FJN 50  | 50           | 68.6               | 2.70                 | 76.5                | STW - 80           | 39.980               | 4.750             | 74.193           | 73 x 3.5           |
| FJ 60    | FJN 60  | 60           | 78.7               | 3.15                 | 86.5                | STW - 90           | 44.983               | 7.036             | 81.738           | 81 x 5             |
| FJ 80    | FJN 80  | 80           | 97.2               | 4.15                 | 116.0               | STW - 120          | 59.995               | 7.137             | 111.727          | 111 x 5            |
| FJ 100   | FJN 100 | 100          | 117.2              | 4.15                 | 145.0               | STW - 150          | 74.981               | 7.137             | 141.199          | 140 x 5.3          |
| FJ 120   | FJN 120 | 120          | 150.3              | 4.15                 | 175.0               | STW - 180          | 89.992               | 7.137             | 171.740          | 170 x 5            |
| FJ 150   | FJN 150 | 150          | 160.3              | 5.15                 | 204.0               | STW - 210          | 104.978              | 7.137             | 201.193          | 200 x 5.3          |



# Simplicity<sup>®</sup> Linear Plain Bearings

## Linear Plain Bearing FJ & FJN



### OPEN DIMENSIONAL INFORMATION

| PART NO.  |             | NOMINAL SIZE | D SLOT WIDTH MIN. | E SLOT ANGLE | F RET. HOLE DIA. | G RET. HOLE LOC. | BEARING WEIGHT |
|-----------|-------------|--------------|-------------------|--------------|------------------|------------------|----------------|
| PRECISION | COMPENSATED | MM           |                   |              |                  |                  | KG.            |
| FJHN 08   | FJHCN 08    | 8            | 5.1               | 60           | 2.200            | 8.460            | 0.004          |
| FJN 08    | FJCN 08     | 8            | 5.1               | 60           | 2.200            | 11.940           | 0.006          |
| FJN 10    | FJCN 10     | 10           | 7.0               | 80           | 3.454            | 1.941            | 0.012          |
| FJN 12    | FJCN 12     | 12           | 8.0               | 80           | 3.454            | 1.941            | 0.014          |
| FJN 13    | FJCN 13     | 13           | 9.0               | 80           | 3.454            | 2.441            | 0.018          |
| FJN 16    | FJCN 16     | 16           | 11.0              | 80           | 3.454            | 3.019            | 0.030          |
| FJN 20    | FJCN 20     | 20           | 11.0              | 60           | 3.454            | 3.175            | 0.044          |
| FJN 25    | FJCN 25     | 25           | 12.0              | 50           | 3.454            | 3.175            | 0.102          |
| FJN 30    | FJCN 30     | 30           | 15.0              | 50           | 5.105            | 4.763            | 0.128          |
| FJN 35    | FJCN 35     | 35           | 17.0              | 50           | 5.105            | 4.763            | 0.182          |
| FJN 38    | FJCN 38     | 38           | 18.0              | 50           | 5.105            | 4.763            | 0.245          |
| FJN 40    | FJCN 40     | 40           | 20.0              | 50           | 5.105            | 4.763            | 0.286          |
| FJN 50    | FJCN 50     | 50           | 25.0              | 50           | 6.731            | 7.938            | 0.709          |
| FJN 60    | FJCN 60     | 60           | 30.0              | 50           | 6.731            | 7.938            | 0.882          |
| FJN 80    | FJCN 80     | 80           | 40.0              | 50           | 6.731            | 13.181           | 2.031          |
| FJN 100   | FJCN 100    | 100          | 50.0              | 50           | 6.731            | 14.500           | 4.005          |
| FJN 120   | FJCN 120    | 120          | 85.0              | 80           | 6.731            | 16.103           | 5.994          |
| FJN 150   | FJCN 150    | 150          | 105.0             | 80           | 6.731            | 17.350           | 8.637          |

### LOAD & SPEED DATA

| PART NO. | EFFECTIVE SURFACE AREA<br>CM <sup>2</sup> | MAX STATIC LOAD KG  |       | EFFECTIVE SURFACE AREA<br>CM <sup>2</sup> | MAX STATIC LOAD N |        |
|----------|---|---------------------|-------|---|-------------------|--------|
|          |   | FRELON <sup>®</sup> |       |   | FRELON            |        |
|          |   | GOLD                | J & W |   | GOLD              | J & W  |
| FJ 06    | 1.1                                       | 528                 | 264   | 1.14                                      | 2348              | 1174   |
| FJH 08   | 1.4                                       | 630                 | 315   | 1.40                                      | 2805              | 1402   |
| FJ 08    | 1.9                                       | 890                 | 445   | 1.90                                      | 3962              | 1981   |
| FJ 10    | 2.9                                       | 1344                | 672   | 2.90                                      | 5982              | 2991   |
| FJ 12    | 3.6                                       | 1666                | 833   | 3.60                                      | 7413              | 3707   |
| FJ 13    | 4.0                                       | 1926                | 963   | 4.00                                      | 8570              | 4285   |
| FJ 16    | 5.9                                       | 2741                | 1371  | 5.90                                      | 12199             | 6099   |
| FJ 20    | 8.4                                       | 3887                | 1944  | 8.40                                      | 17298             | 8649   |
| FJ 25    | 15.0                                      | 6827                | 3413  | 15.00                                     | 30379             | 15189  |
| FJ 30    | 19.0                                      | 8885                | 4442  | 19.00                                     | 39538             | 19769  |
| FJ 35    | 25.0                                      | 11340               | 5670  | 25.00                                     | 50462             | 25231  |
| FJ 38    | 29.0                                      | 13363               | 6681  | 29.00                                     | 59464             | 29732  |
| FJ 40    | 32.0                                      | 14808               | 7404  | 32.00                                     | 65896             | 32948  |
| FJ 50    | 50.0                                      | 23138               | 11569 | 50.00                                     | 102963            | 51482  |
| FJ 60    | 66.0                                      | 30542               | 15721 | 66.00                                     | 135911            | 67956  |
| FJ 80    | 112.0                                     | 51829               | 25914 | 112.00                                    | 230637            | 115319 |
| FJ 100   | 175.0                                     | 80982               | 40491 | 175.00                                    | 360371            | 180185 |
| FJ 120   | 240.0                                     | 111061              | 55531 | 240.00                                    | 494222            | 247111 |
| FJ 150   | 360.0                                     | 166592              | 83296 | 360.00                                    | 741334            | 370667 |

**Note:** MAX PV (m/min. \* kg/sq. cm)

FrelonGOLD<sup>®</sup> = 430 PV

Frelon J = 215 PV

MAX Speed Running Dry (m/min.)

FrelonGOLD = 91.4

Frelon J = 42.6

MAX Speed Running  
with Lubrication (m/min.)

FrelonGOLD = 251.5

Frelon J = 122

MAX PV (m/s. \* N/mm<sup>2</sup>)

FrelonGOLD = 0.70 PV

Frelon J = 0.35 PV

MAX Speed Running Dry (m/s)

FrelonGOLD = 1.52

Frelon J = 0.71

MAX Speed Running  
with Lubrication (m/s)

FrelonGOLD = 4.19

Frelon J = 2.03



Plain Bearing Accessories: Retaining Rings, Seals, O-Rings—page 19



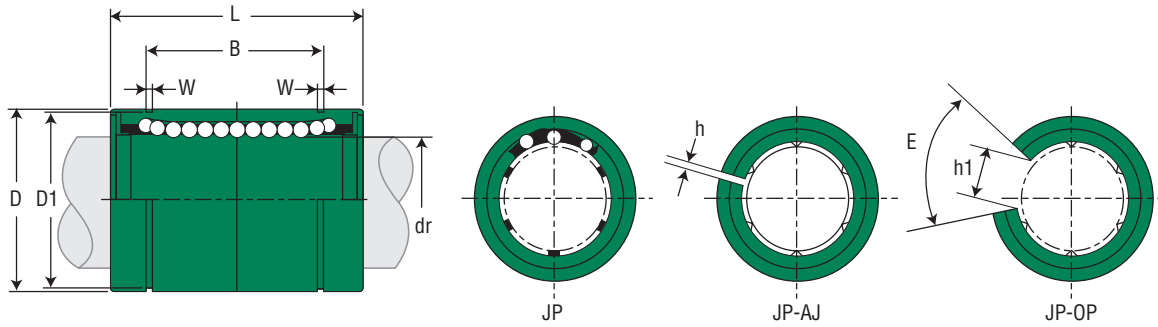
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81



# Linear Ball Bearings Precision

## Ball Bearings JP



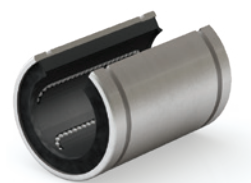
JP – Standard Closed



JPxx-AJ – Adjustable



JPxx-OP – Standard Open



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

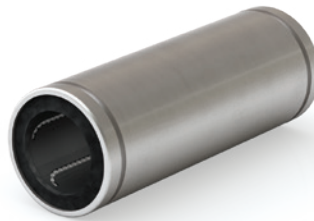
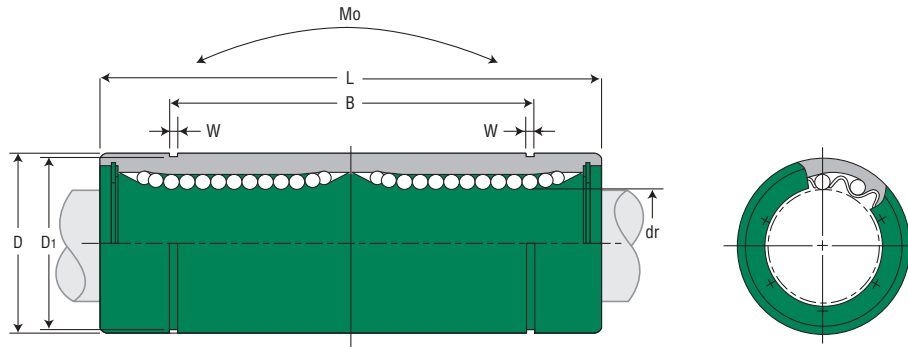
| PART NO.        |            |               | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |      |           |
|-----------------|------------|---------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|------|-----------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE | B    | TOLERANCE |
|                 |            |               | MM                     | MM | MM        | MM           | MM     | MM                            | MM        | MM  | MM        | MM   |           |
| JP8G            | -          | -             | 8                      | 8  | 0/-0.009  | 4            | 16     | 15                            | 0/-0.011  | 24  | 0/-0.2    | 17.5 | 0/-0.2    |
| JP10G           | -          | -             | 10                     | 10 | 0/-0.009  | 4            | 30     | 19                            | 0/-0.013  | 29  | 0/-0.2    | 22   | 0/-0.2    |
| JP12G           | JP12G-AJ   | JP12G-OP      | 12                     | 12 | 0/-0.009  | 4            | 31.5   | 21                            | 0/-0.013  | 30  | 0/-0.2    | 23   | 0/-0.2    |
| JP13G           | JP13G-AJ   | JP13G-OP      | 13                     | 13 | 0/-0.009  | 4            | 43     | 23                            | 0/-0.013  | 32  | 0/-0.2    | 23   | 0/-0.2    |
| JP16G           | JP16G-AJ   | JP16G-OP      | 16                     | 16 | 0/-0.009  | 5            | 69     | 28                            | 0/-0.013  | 37  | 0/-0.2    | 26.5 | 0/-0.2    |
| JP20G           | JP20G-AJ   | JP20G-OP      | 20                     | 20 | 0/-0.010  | 5            | 87     | 32                            | 0/-0.016  | 42  | 0/-0.2    | 30.5 | 0/-0.2    |
| JP25G           | JP25G-AJ   | JP25G-OP      | 25                     | 25 | 0/-0.010  | 6            | 220    | 40                            | 0/-0.016  | 59  | 0/-0.3    | 41   | 0/-0.3    |
| JP30G           | JP30G-AJ   | JP30G-OP      | 30                     | 30 | 0/-0.010  | 6            | 250    | 45                            | 0/-0.016  | 64  | 0/-0.3    | 44.5 | 0/-0.3    |
| JP35G           | JP35G-AJ   | JP35G-OP      | 35                     | 35 | 0/-0.012  | 6            | 390    | 52                            | 0/-0.019  | 70  | 0/-0.3    | 49.5 | 0/-0.3    |
| JP40G           | JP40G-AJ   | JP40G-OP      | 40                     | 40 | +0/-0.012 | 6            | 585    | 60                            | 0/-0.019  | 80  | 0/-0.3    | 60.5 | 0/-0.3    |
| JP50G           | JP50G-AJ   | JP50G-OP      | 50                     | 50 | +0/-0.015 | 6            | 1580   | 80                            | 0/-0.022  | 100 | 0/-0.3    | 74   | 0/-0.3    |

| PART NO.        |            |               | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES |      |     |    |            |                  |                      | LOAD RATINGS |           |
|-----------------|------------|---------------|------------------------|----|-----------|-------------------------------|------|-----|----|------------|------------------|----------------------|--------------|-----------|
| STANDARD CLOSED | ADJUSTABLE | STANDARD OPEN | SIZE                   | dr | TOLERANCE | W                             | D1   | h   | h1 | E          | MAX ECCENTRICITY | MAX RADIAL CLEARANCE | DYNAMIC C    | STATIC Co |
|                 |            |               | MM                     | MM | MM        | MM                            | MM   | MM  | MM | SLOT ANGLE | μM               | μM                   | N            | N         |
| JP8G            | -          | -             | 8                      | 8  | 0/-0.009  | 1.1                           | 14.3 | 1   | -  | -          | 12               | -5                   | 260          | 400       |
| JP10G           | -          | -             | 10                     | 10 | 0/-0.009  | 1.3                           | 18   | 1   | -  | -          | 12               | -5                   | 370          | 540       |
| JP12G           | JP12G-AJ   | JP12G-OP      | 12                     | 12 | 0/-0.009  | 1.3                           | 20   | 1.5 | 8  | 80°        | 12               | -5                   | 410          | 590       |
| JP13G           | JP13G-AJ   | JP13G-OP      | 13                     | 13 | 0/-0.009  | 1.3                           | 22   | 1.5 | 9  | 80°        | 12               | -5                   | 500          | 770       |
| JP16G           | JP16G-AJ   | JP16G-OP      | 16                     | 16 | 0/-0.009  | 1.6                           | 27   | 1.5 | 11 | 80°        | 12               | -7                   | 770          | 1170      |
| JP20G           | JP20G-AJ   | JP20G-OP      | 20                     | 20 | 0/-0.010  | 1.6                           | 30.5 | 1.5 | 11 | 60°        | 15               | -7                   | 860          | 1370      |
| JP25G           | JP25G-AJ   | JP25G-OP      | 25                     | 25 | 0/-0.010  | 1.85                          | 38   | 2   | 12 | 50°        | 15               | -9                   | 980          | 1560      |
| JP30G           | JP30G-AJ   | JP30G-OP      | 30                     | 30 | 0/-0.010  | 1.85                          | 43   | 2.5 | 15 | 50°        | 15               | -9                   | 1560         | 2740      |
| JP35G           | JP35G-AJ   | JP35G-OP      | 35                     | 35 | 0/-0.012  | 2.1                           | 49   | 2.5 | 17 | 50°        | 20               | -9                   | 1660         | 3130      |
| JP40G           | JP40G-AJ   | JP40G-OP      | 40                     | 40 | +0/-0.012 | 2.1                           | 57   | 3   | 20 | 50°        | 20               | -13                  | 2150         | 4010      |
| JP50G           | JP50G-AJ   | JP50G-OP      | 50                     | 50 | +0/-0.015 | 2.6                           | 76.5 | 3   | 25 | 50°        | 20               | -13                  | 3820         | 7930      |

INCH  
 ISO METRIC  
 JIS METRIC

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings JP-W



INCH

ISO  
METRIC

JIS  
METRIC

### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE | B   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | G            | MM     | MM                            | MM        | MM  | MM        | MM  |           |
| JP8GW                 | 8                      | 8  | 0/- .010  | 4            | 31     | 15                            | 0/- .013  | 45  | 0/- .3    | 35  | 0/- .3    |
| JP12GW                | 12                     | 12 | 0/- .010  | 4            | 80     | 21                            | 0/- .016  | 57  | 0/- .3    | 46  | 0/- .3    |
| JP16GW                | 16                     | 16 | 0/- .010  | 5            | 145    | 28                            | 0/- .016  | 70  | 0/- .3    | 53  | 0/- .3    |
| JP20GW                | 20                     | 20 | 0/- .012  | 5            | 180    | 32                            | 0/- .019  | 80  | 0/- .3    | 61  | 0/- .3    |
| JP25GW                | 25                     | 25 | 0/- .012  | 6            | 440    | 40                            | 0/- .019  | 112 | 0/- .4    | 82  | 0/- .4    |
| JP30GW                | 30                     | 30 | 0/- .012  | 6            | 580    | 45                            | 0/- .019  | 123 | 0/- .4    | 89  | 0/- .4    |
| JP40GW                | 40                     | 40 | 0/- .015  | 6            | 1170   | 60                            | 0/- .022  | 151 | 0/- .4    | 121 | 0/- .4    |
| JP50GW                | 50                     | 50 | 0/- .015  | 6            | 3100   | 80                            | 0/- .022  | 192 | 0/- .4    | 148 | 0/- .4    |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES |      |                  | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|-------------------------------|------|------------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | W                             | D1   | MAX ECCENTRICITY | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | MM                            | MM   | μM               | N            | N         |
| JP8GW                 | 8                      | 8  | 0/- .010  | 1.1                           | 14.3 | 15               | 431          | 784       |
| JP12GW                | 12                     | 12 | 0/- .010  | 1.3                           | 20   | 15               | 657          | 1200      |
| JP16GW                | 16                     | 16 | 0/- .010  | 1.6                           | 27   | 15               | 1230         | 2350      |
| JP20GW                | 20                     | 20 | 0/- .012  | 1.6                           | 30.5 | 20               | 1400         | 2750      |
| JP25GW                | 25                     | 25 | 0/- .012  | 1.85                          | 38   | 20               | 1560         | 3140      |
| JP30GW                | 30                     | 30 | 0/- .012  | 1.85                          | 43   | 20               | 2490         | 5490      |
| JP40GW                | 40                     | 40 | 0/- .015  | 2.1                           | 57   | 25               | 3430         | 8040      |
| JP50GW                | 50                     | 50 | 0/- .015  | 2.6                           | 76.5 | 25               | 6080         | 15900     |

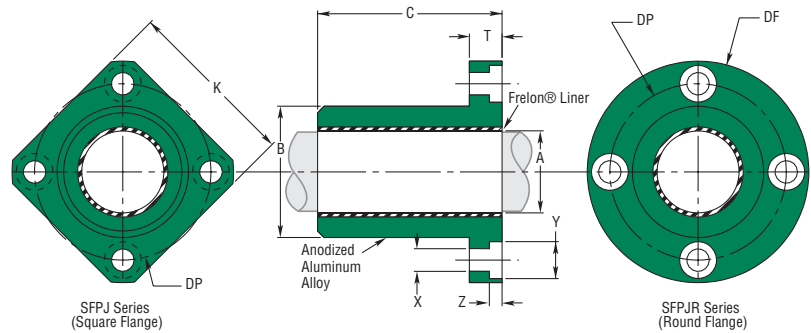


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Simplicity® Flange Bearings

## Flange Bearings SFPJ



### DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |                 |                      |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                   |        | B<br>BODY O.D.<br>h7 |     | C<br>LENGTH<br>h13 |     | EFFECTIVE<br>SURFACE<br>AREA | MAX STATIC<br>LOAD N |        |
|--|----------|-----------------|----------------------|--------|---|-----------|-------------------|--------|----------------------|-----|--------------------|-----|------------------------------|----------------------|--------|
| PART NO.   |          | NOMINAL<br>SIZE | A<br>BEARING I.D. F8 |        | PART NO.  |           | A<br>BEARING I.D. |        |                      |     |                    |     |                              | FRELON®              |        |
| SQUARE   | ROUND    | MM              | MIN                  | MAX    | SQUARE  | ROUND     | MIN               | MAX    | MIN                  | MAX | MIN                | MAX | CM <sup>2</sup>              | GOLD                 | J & W  |
| SFPJ 06  | SFPJR 06 | 6               | 6.010                | 6.028  | SFPJ 06C  | SFPJR 06C | 6.060             | 6.078  | 11.982               | 12  | 18.8               | 19  | 1.194                        | 2462                 | 1236   |
| SFPJ 08  | SFPJR 08 | 8               | 8.013                | 8.035  | SFPJ 08C  | SFPJR 08C | 8.063             | 8.085  | 14.982               | 15  | 23.8               | 24  | 2.011                        | 4140                 | 2080   |
| SFPJ 10  | SFPJR 10 | 10              | 10.013               | 10.035 | SFPJ 10C  | SFPJR 10C | 10.063            | 10.085 | 18.979               | 19  | 28.8               | 29  | 3.037                        | 6259                 | 3139   |
| SFPJ 12  | SFPJR 12 | 12              | 12.016               | 12.043 | SFPJ 12C  | SFPJR 12C | 12.066            | 12.093 | 20.979               | 21  | 29.8               | 30  | 3.770                        | 7770                 | 3904   |
| SFPJ 13  | SFPJR 13 | 13              | 13.016               | 13.043 | SFPJ 13C  | SFPJR 13C | 13.066            | 13.093 | 22.979               | 23  | 31.8               | 32  | 4.356                        | 8976                 | 4503   |
| SFPJ 16  | SFPJR 16 | 16              | 16.016               | 16.043 | SFPJ 16C  | SFPJR 16C | 16.066            | 16.093 | 27.979               | 28  | 36.8               | 37  | 6.199                        | 12773                | 6416   |
| SFPJ 20  | SFPJR 20 | 20              | 20.020               | 20.053 | SFPJ 20C  | SFPJR 20C | 20.096            | 20.129 | 31.975               | 32  | 41.8               | 42  | 8.796                        | 18119                | 9104   |
| SFPJ 25  | SFPJR 25 | 25              | 25.020               | 25.053 | SFPJ 25C  | SFPJR 25C | 25.096            | 25.129 | 39.975               | 40  | 58.7               | 59  | 15.446                       | 31824                | 15980  |
| SFPJ 30  | SFPJR 30 | 30              | 30.020               | 30.053 | SFPJ 30C  | SFPJR 30C | 30.096            | 30.129 | 44.975               | 45  | 63.7               | 64  | 20.106                       | 41418                | 20797  |
| SFPJ 35  | SFPJR 35 | 35              | 35.020               | 35.053 | SFPJ 35C  | SFPJR 35C | 35.096            | 35.129 | 51.970               | 52  | 69.7               | 70  | 25.656                       | 52856                | 26536  |
| SFPJ 40  | SFPJR 40 | 40              | 40.025               | 40.064 | SFPJ 40C  | SFPJR 40C | 40.127            | 40.166 | 59.970               | 60  | 79.7               | 80  | 33.510                       | 69033                | 34669  |
| SFPJ 50  | SFPJR 50 | 50              | 50.025               | 50.064 | SFPJ 50C  | SFPJR 50C | 50.127            | 50.166 | 79.965               | 80  | 99.7               | 100 | 52.360                       | 107871               | 54161  |
| SFPJ 60  | SFPJR 60 | 60              | 60.030               | 60.076 | SFPJ 60C  | SFPJR 60C | 60.182            | 60.228 | 89.965               | 90  | 109.6              | 110 | 69.115                       | 142382               | 71495  |
| SFPJ 80  | SFPJR 80 | 80              | 80.030               | 80.076 | SFPJ 80C  | SFPJR 80C | 80.182            | 80.228 | 119.965              | 120 | 139.6              | 140 | 117.286                      | 241620               | 121330 |

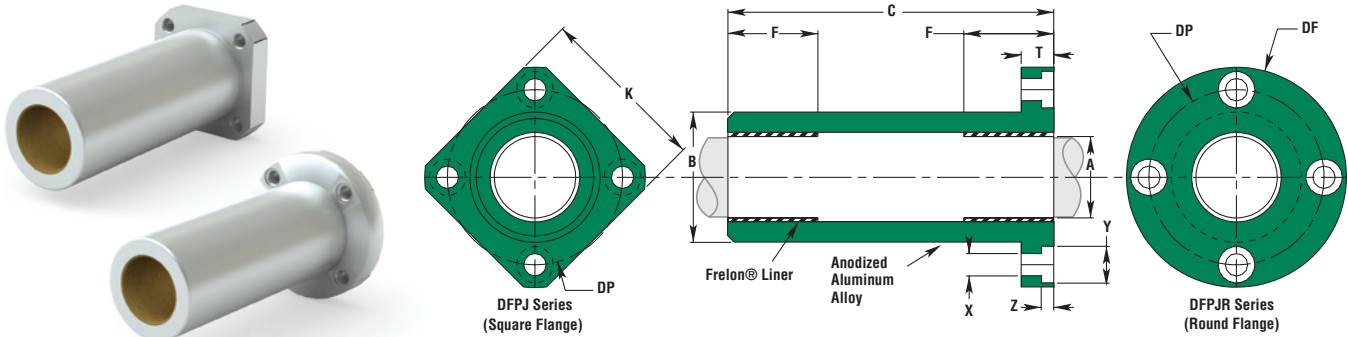
- Notes: (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) MAX static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kg/cm<sup>2</sup> is the rating for FrelonGOLD®; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.

### MOUNTING DIMENSIONS

| PART NO. |          | K             | DF          | T             | DP             | X    | Y              | Z               | CLAMPING<br>BOLT | CONCENTRICITY | SQUARENESS | SFPJ<br>WEIGHT | SFPJR<br>WEIGHT |
|----------|----------|---------------|-------------|---------------|----------------|------|----------------|-----------------|------------------|---------------|------------|----------------|-----------------|
| SQUARE   | ROUND    | SQUARE<br>MAX | O.D.<br>MAX | LENGTH<br>MAX | BOLT<br>CIRCLE | HOLE | C'BORE<br>DIA. | C'BORE<br>DEPTH |                  |               |            | KG             | KG              |
| SFPJ 06  | SFPJR 06 | 22            | 28          | 8             | 20             | 3.5  | 6              | 3.1             | M 3              | 0.012         | 0.012      | 0.011          | 0.014           |
| SFPJ 08  | SFPJR 08 | 25            | 32          | 8             | 24             | 3.5  | 6              | 3.1             | M 3              | 0.012         | 0.012      | 0.017          | 0.021           |
| SFPJ 10  | SFPJR 10 | 30            | 40          | 9             | 29             | 4.5  | 7.5            | 4.1             | M 4              | 0.012         | 0.012      | 0.029          | 0.038           |
| SFPJ 12  | SFPJR 12 | 32            | 42          | 9             | 32             | 4.5  | 7.5            | 4.1             | M 4              | 0.012         | 0.012      | 0.033          | 0.042           |
| SFPJ 13  | SFPJR 13 | 34            | 43          | 9             | 33             | 4.5  | 7.5            | 4.1             | M 4              | 0.012         | 0.012      | 0.041          | 0.048           |
| SFPJ 16  | SFPJR 16 | 37            | 48          | 9             | 38             | 4.5  | 7.5            | 4.1             | M 4              | 0.012         | 0.012      | 0.058          | 0.069           |
| SFPJ 20  | SFPJR 20 | 42            | 54          | 11            | 43             | 5.5  | 9              | 5.1             | M 5              | 0.015         | 0.015      | 0.081          | 0.097           |
| SFPJ 25  | SFPJR 25 | 50            | 62          | 11            | 51             | 5.5  | 9              | 5.1             | M 5              | 0.015         | 0.015      | 0.158          | 0.174           |
| SFPJ 30  | SFPJR 30 | 58            | 74          | 14            | 60             | 6.6  | 11             | 6.1             | M 6              | 0.015         | 0.015      | 0.216          | 0.252           |
| SFPJ 35  | SFPJR 35 | 64            | 82          | 14            | 67             | 6.6  | 11             | 6.1             | M 6              | 0.017         | 0.017      | 0.292          | 0.338           |
| SFPJ 40  | SFPJR 40 | 75            | 96          | 18            | 78             | 9.0  | 14             | 8.1             | M 8              | 0.017         | 0.017      | 0.467          | 0.547           |
| SFPJ 50  | SFPJR 50 | 92            | 116         | 18            | 98             | 9.0  | 14             | 8.1             | M 8              | 0.017         | 0.017      | 0.999          | 1.104           |
| SFPJ 60  | SFPJR 60 | 106           | 134         | 24            | 112            | 11.0 | 17             | 11.1            | M 10             | 0.020         | 0.020      | 1.359          | 1.550           |
| SFPJ 80  | SFPJR 80 | 136           | 164         | 24            | 142            | 11.0 | 17             | 11.1            | M 10             | 0.020         | 0.020      | 2.873          | 3.048           |

# Simplicity® Flange Bearings

## Flange Bearings DFPJ



## DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |              |                   |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                |        | B BODY O.D.<br>h7 |     | C LENGTH |     | F LENGTH EACH END | EFFECTIVE SURFACE AREA | MAX STATIC LOAD N |       |
|--|----------|--------------|-------------------|--------|---|-----------|----------------|--------|-------------------|-----|----------|-----|-------------------|------------------------|-------------------|-------|
| PART NO.   |          | NOMINAL SIZE | A BEARING I.D. F8 |        | PART NO.  |           | A BEARING I.D. |        | MIN               | MAX | MIN      | MAX |                   | CM <sup>2</sup>        | FRELON®           |       |
| SQUARE   | ROUND    | MM           | MIN               | MAX    | SQUARE  | ROUND     | MIN            | MAX    |                   |     |          |     |                   | GOLD                   | J & W             |       |
| DFPJ 06  | DFPJR 06 | 6            | 6.010             | 6.028  | DFPJ 06C  | DFPJR 06C | 6.060          | 6.078  | 11.982            | 12  | 34.7     | 35  | 12                | 1.508                  | 3110              | 1560  |
| DFPJ 08  | DFPJR 08 | 8            | 8.013             | 8.035  | DFPJ 08C  | DFPJR 08C | 8.063          | 8.085  | 14.982            | 15  | 44.7     | 45  | 12                | 2.011                  | 4140              | 2080  |
| DFPJ 10  | DFPJR 10 | 10           | 10.013            | 10.035 | DFPJ 10C  | DFPJR 10C | 10.063         | 10.085 | 18.979            | 19  | 54.7     | 55  | 14                | 2.932                  | 6043              | 3031  |
| DFPJ 12  | DFPJR 12 | 12           | 12.016            | 12.043 | DFPJ 12C  | DFPJR 12C | 12.066         | 12.093 | 20.979            | 21  | 56.7     | 57  | 15                | 3.770                  | 7770              | 3904  |
| DFPJ 13  | DFPJR 13 | 13           | 13.016            | 13.043 | DFPJ 13C  | DFPJR 13C | 13.066         | 13.093 | 22.979            | 23  | 60.7     | 61  | 16                | 4.356                  | 8976              | 4503  |
| DFPJ 16  | DFPJR 16 | 16           | 16.016            | 16.043 | DFPJ 16C  | DFPJR 16C | 16.066         | 16.093 | 27.979            | 28  | 69.7     | 70  | 20                | 6.702                  | 13803             | 6936  |
| DFPJ 20  | DFPJR 20 | 20           | 20.020            | 20.053 | DFPJ 20C  | DFPJR 20C | 20.096         | 20.129 | 31.975            | 32  | 79.7     | 80  | 22                | 9.215                  | 18982             | 9535  |
| DFPJ 25  | DFPJR 25 | 25           | 25.020            | 25.053 | DFPJ 25C  | DFPJR 25C | 25.096         | 25.129 | 39.975            | 40  | 111.6    | 112 | 33                | 17.279                 | 35600             | 17874 |
| DFPJ 30  | DFPJR 30 | 30           | 30.020            | 30.053 | DFPJ 30C  | DFPJR 30C | 30.096         | 30.129 | 44.975            | 45  | 122.6    | 123 | 35                | 21.991                 | 45303             | 22749 |
| DFPJ 35  | DFPJR 35 | 35           | 35.020            | 35.053 | DFPJ 35C  | DFPJR 35C | 35.096         | 35.129 | 51.970            | 52  | 134.6    | 135 | 40                | 29.322                 | 60410             | 30333 |
| DFPJ 40  | DFPJR 40 | 40           | 40.025            | 40.064 | DFPJ 40C  | DFPJR 40C | 40.127         | 40.166 | 59.970            | 60  | 150.6    | 151 | 44                | 36.861                 | 75939             | 38131 |
| DFPJ 50  | DFPJR 50 | 50           | 50.025            | 50.064 | DFPJ 50C  | DFPJR 50C | 50.127         | 50.166 | 79.965            | 80  | 191.6    | 192 | 70                | 73.304                 | 151015            | 75831 |
| DFPJ 60  | DFPJR 60 | 60           | 60.030            | 60.076 | DFPJ 60C  | DFPJR 60C | 60.182         | 60.228 | 89.965            | 90  | 208.6    | 209 | 73                | 91.735                 | 188980            | 94892 |

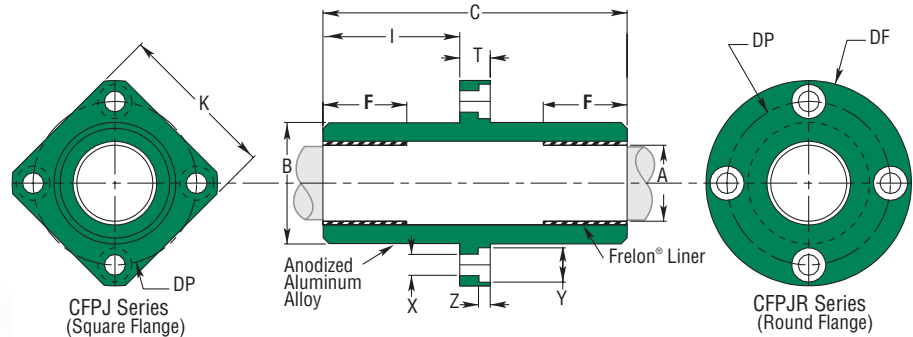
- Notes:** (1) Formula used for effective surface area is  $(\pi * ID * L)/3$ .  
 (2) MAX static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD®; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.  
 (4) Frelon pads in each end (F dimension).

## MOUNTING DIMENSIONS

| PART NO. |          | K SQUARE | DF O.D. | T LENGTH | DP BOLT CIRCLE | X HOLE | Y C'BORE DIA. | Z C'BORE DEPTH | CLAMPING BOLT | CONCENTRICITY | SQUARENESS | DFPJ WEIGHT KG | DFPJR WEIGHT KG |
|----------|----------|----------|---------|----------|----------------|--------|---------------|----------------|---------------|---------------|------------|----------------|-----------------|
| SQUARE   | ROUND    | MAX      | MAX     | MAX      |                |        |               |                |               |               |            |                |                 |
| DFPJ 06  | DFPJR 06 | 22       | 28      | 8        | 20             | 3.5    | 6             | 3.1            | M 3           | 0.015         | 0.015      | 0.015          | 0.018           |
| DFPJ 08  | DFPJR 08 | 25       | 32      | 8        | 24             | 3.5    | 6             | 3.1            | M 3           | 0.015         | 0.015      | 0.024          | 0.028           |
| DFPJ 10  | DFPJR 10 | 30       | 40      | 9        | 29             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.044          | 0.053           |
| DFPJ 12  | DFPJR 12 | 32       | 42      | 9        | 32             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.051          | 0.060           |
| DFPJ 13  | DFPJR 13 | 34       | 43      | 9        | 33             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.063          | 0.071           |
| DFPJ 16  | DFPJR 16 | 37       | 48      | 9        | 38             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.096          | 0.107           |
| DFPJ 20  | DFPJR 20 | 42       | 54      | 11       | 43             | 5.5    | 9             | 5.1            | M 5           | 0.017         | 0.017      | 0.133          | 0.149           |
| DFPJ 25  | DFPJR 25 | 50       | 62      | 11       | 51             | 5.5    | 9             | 5.1            | M 5           | 0.017         | 0.017      | 0.270          | 0.286           |
| DFPJ 30  | DFPJR 30 | 58       | 74      | 14       | 60             | 6.6    | 11            | 6.1            | M 6           | 0.017         | 0.017      | 0.360          | 0.397           |
| DFPJ 35  | DFPJR 35 | 64       | 82      | 14       | 67             | 6.6    | 11            | 6.1            | M 6           | 0.020         | 0.020      | 0.501          | 0.547           |
| DFPJ 40  | DFPJR 40 | 75       | 96      | 18       | 78             | 9.0    | 14            | 8.1            | M 8           | 0.020         | 0.020      | 0.776          | 0.856           |
| DFPJ 50  | DFPJR 50 | 92       | 116     | 18       | 98             | 9.0    | 14            | 8.1            | M 8           | 0.020         | 0.020      | 1.780          | 1.885           |
| DFPJ 60  | DFPJR 60 | 106      | 134     | 24       | 112            | 11.0   | 17            | 11.1           | M 10          | 0.025         | 0.025      | 2.329          | 2.519           |

# Simplicity® Flange Bearings

## Flange Bearings CFPJ



### DIMENSIONAL INFORMATION

| PRECISION I.D. SERIES<br>SIMILAR TO PRELOADED BALL BEARING |          |              |                   |        | COMPENSATED I.D. SERIES<br>SIMILAR TO STANDARD BALL BEARING |           |                |        |        | BODY O.D. h7 |       | C LENGTH |      | I LENGTH TO FLNG. | F LENGTH EACH END | EFFECTIVE SURFACE AREA<br>CM <sup>2</sup> | MAX STATIC LOAD N |     |
|--|----------|--------------|-------------------|--------|---|-----------|----------------|--------|--------|--------------|-------|----------|------|-------------------|-------------------|---|-------------------|-----|
| PART NO.   |          | NOMINAL SIZE | A BEARING I.D. F8 |        | PART NO.  |           | A BEARING I.D. |        | MIN    |              |       |          |      |                   |                   |   | MAX               | MIN |
| CFPJ 06  | CFPJR 06 | 6            | 6.010             | 6.028  | CFPJ 06C  | CFPJR 06C | 6.060          | 6.078  | 11.982 | 12           | 34.7  | 35.3     | 13.5 | 12                | 1.508             | 3110                                      | 1560              |     |
| CFPJ 08  | CFPJR 08 | 8            | 8.013             | 8.035  | CFPJ 08C  | CFPJR 08C | 8.063          | 8.085  | 14.982 | 15           | 44.7  | 45.3     | 18.5 | 12                | 2.011             | 4140                                      | 2080              |     |
| CFPJ 10  | CFPJR 10 | 10           | 10.013            | 10.035 | CFPJ 10C  | CFPJR 10C | 10.063         | 10.085 | 18.979 | 19           | 54.7  | 55.3     | 23.0 | 14                | 2.932             | 6043                                      | 3031              |     |
| CFPJ 12  | CFPJR 12 | 12           | 12.016            | 12.043 | CFPJ 12C  | CFPJR 12C | 12.066         | 12.093 | 20.979 | 21           | 56.7  | 57.3     | 24.0 | 15                | 3.770             | 7770                                      | 3904              |     |
| CFPJ 13  | CFPJR 13 | 13           | 13.016            | 13.043 | CFPJ 13C  | CFPJR 13C | 13.066         | 13.093 | 22.979 | 23           | 60.7  | 61.3     | 26.0 | 16                | 4.356             | 8976                                      | 4503              |     |
| CFPJ 16  | CFPJR 16 | 16           | 16.016            | 16.043 | CFPJ 16C  | CFPJR 16C | 16.066         | 16.093 | 27.979 | 28           | 69.7  | 70.3     | 30.5 | 20                | 6.702             | 13803                                     | 6936              |     |
| CFPJ 20  | CFPJR 20 | 20           | 20.020            | 20.053 | CFPJ 20C  | CFPJR 20C | 20.096         | 20.129 | 31.975 | 32           | 79.7  | 80.3     | 34.5 | 22                | 9.215             | 18982                                     | 9535              |     |
| CFPJ 25  | CFPJR 25 | 25           | 25.020            | 25.053 | CFPJ 25C  | CFPJR 25C | 25.096         | 25.129 | 39.975 | 40           | 111.7 | 112.3    | 50.5 | 33                | 17.279            | 35600                                     | 17874             |     |
| CFPJ 30  | CFPJR 30 | 30           | 30.020            | 30.053 | CFPJ 30C  | CFPJR 30C | 30.096         | 30.129 | 44.975 | 45           | 122.7 | 123.3    | 54.5 | 35                | 21.991            | 45303                                     | 22749             |     |
| CFPJ 35  | CFPJR 35 | 35           | 35.020            | 35.053 | CFPJ 35C  | CFPJR 35C | 35.096         | 35.129 | 51.970 | 52           | 134.7 | 135.3    | 60.5 | 40                | 29.322            | 60410                                     | 30333             |     |
| CFPJ 40  | CFPJR 40 | 40           | 40.025            | 40.064 | CFPJ 40C  | CFPJR 40C | 40.127         | 40.166 | 59.970 | 60           | 150.7 | 151.3    | 66.5 | 44                | 36.861            | 75939                                     | 38131             |     |
| CFPJ 50  | CFPJR 50 | 50           | 50.025            | 50.064 | CFPJ 50C  | CFPJR 50C | 50.127         | 50.166 | 79.965 | 80           | 191.7 | 192.3    | 87.0 | 70                | 73.304            | 151015                                    | 75831             |     |
| CFPJ 60  | CFPJR 60 | 60           | 60.030            | 60.076 | CFPJ 60C  | CFPJR 60C | 60.182         | 60.228 | 89.965 | 90           | 208.7 | 209.3    | 92.5 | 73                | 91.735            | 188980                                    | 94892             |     |

- Notes:** (1) Formula used for effective surface area is (pi \* ID \* L)/3.  
 (2) MAX static load is effective surface area times MAX load for FrelonGOLD®.  
 (3) - 210 kgf/cm<sup>2</sup> is the rating for FrelonGOLD®; 105.45 kgf/cm<sup>2</sup> is the rating for Frelon J.  
 (4) Frelon pads in each end (F dimension).



**Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.**

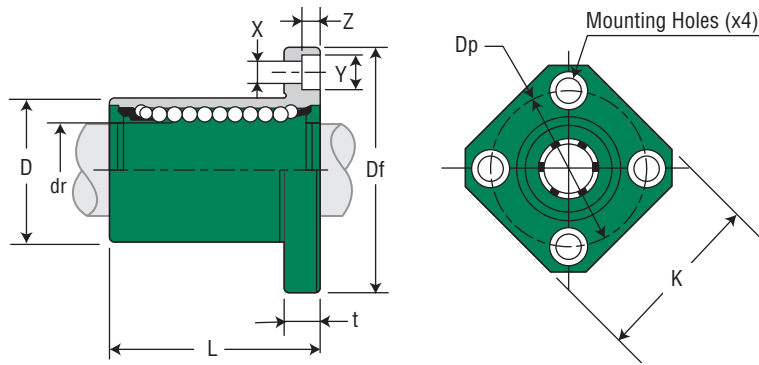
[Inch Series—page 44](#) [Metric Series—page 81](#)

### MOUNTING DIMENSIONS

| PART NO. |          | K SQUARE | DF O.D. | T LENGTH | DP BOLT CIRCLE | X HOLE | Y C'BORE DIA. | Z C'BORE DEPTH | CLAMPING BOLT | CONCENTRICITY | SQUARENESS | CFPJ WEIGHT KG. | CFPJR WEIGHT KG. |
|----------|----------|----------|---------|----------|----------------|--------|---------------|----------------|---------------|---------------|------------|-----------------|------------------|
| CFPJ 06  | CFPJR 06 | 22       | 28      | 8        | 20             | 3.5    | 6             | 3.1            | M 3           | 0.015         | 0.015      | 0.015           | 0.018            |
| CFPJ 08  | CFPJR 08 | 25       | 32      | 8        | 24             | 3.5    | 6             | 3.1            | M 3           | 0.015         | 0.015      | 0.024           | 0.028            |
| CFPJ 10  | CFPJR 10 | 30       | 40      | 9        | 29             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.044           | 0.053            |
| CFPJ 12  | CFPJR 12 | 32       | 42      | 9        | 32             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.051           | 0.060            |
| CFPJ 13  | CFPJR 13 | 34       | 43      | 9        | 33             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.063           | 0.071            |
| CFPJ 16  | CFPJR 16 | 37       | 48      | 9        | 38             | 4.5    | 7.5           | 4.1            | M 4           | 0.015         | 0.015      | 0.096           | 0.107            |
| CFPJ 20  | CFPJR 20 | 42       | 54      | 11       | 43             | 5.5    | 9             | 5.1            | M 5           | 0.017         | 0.017      | 0.133           | 0.149            |
| CFPJ 25  | CFPJR 25 | 50       | 62      | 11       | 51             | 5.5    | 9             | 5.1            | M 5           | 0.017         | 0.017      | 0.270           | 0.286            |
| CFPJ 30  | CFPJR 30 | 58       | 74      | 14       | 60             | 6.6    | 11            | 6.1            | M 6           | 0.017         | 0.017      | 0.360           | 0.397            |
| CFPJ 35  | CFPJR 35 | 64       | 82      | 14       | 67             | 6.6    | 11            | 6.1            | M 6           | 0.020         | 0.020      | 0.501           | 0.547            |
| CFPJ 40  | CFPJR 40 | 75       | 96      | 18       | 78             | 9.0    | 14            | 8.1            | M 8           | 0.020         | 0.020      | 0.776           | 0.856            |
| CFPJ 50  | CFPJR 50 | 92       | 116     | 18       | 98             | 9.0    | 14            | 8.1            | M 8           | 0.020         | 0.020      | 1.780           | 1.885            |
| CFPJ 60  | CFPJR 60 | 106      | 134     | 24       | 112            | 11.0   | 17            | 11.1           | M 10          | 0.025         | 0.025      | 2.329           | 2.519            |

# Linear Ball Bearings Square Flange Mount

## Ball Bearings – Square Flange Mount JPK



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | G            | MM     | MM                            | MM        | MM  |           |
| JPK8G                 | 8                      | 8  | 0/-0.009  | 4            | 37     | 15                            | 0/-0.013  | 24  | ±0.3      |
| JPK12G                | 12                     | 12 | 0/-0.009  | 4            | 76     | 21                            | 0/-0.016  | 30  | ±0.3      |
| JPK16G                | 16                     | 16 | 0/-0.009  | 5            | 120    | 28                            | 0/-0.016  | 37  | ±0.3      |
| JPK20G                | 20                     | 20 | 0/-0.010  | 5            | 180    | 32                            | 0/-0.019  | 42  | ±0.3      |
| JPK25G                | 25                     | 25 | 0/-0.010  | 6            | 340    | 40                            | 0/-0.019  | 59  | ±0.3      |
| JPK30G                | 30                     | 30 | 0/-0.010  | 6            | 470    | 45                            | 0/-0.019  | 64  | ±0.3      |
| JPK40G                | 40                     | 40 | 0/-0.012  | 6            | 1060   | 60                            | 0/-0.022  | 80  | ±0.3      |
| JPK50G                | 50                     | 50 | 0/-0.012  | 6            | 2200   | 80                            | 0/-0.022  | 100 | ±0.3      |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |    |     |     |     |              |            | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|--|----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | Df                                     | K  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | MM                                     | MM | MM | MM | MM  | MM  | MM  | μM           | μM         | N            | N         |
| JPK8G                 | 8                      | 8  | 0/-0.009  | 32                                     | 25 | 5  | 24 | 3.5 | 6.5 | 3.1 | 12           | 12         | 274          | 392       |
| JPK12G                | 12                     | 12 | 0/-0.009  | 42                                     | 32 | 6  | 32 | 4.5 | 8   | 4.1 | 12           | 12         | 510          | 784       |
| JPK16G                | 16                     | 16 | 0/-0.009  | 48                                     | 37 | 6  | 38 | 4.5 | 8   | 4.1 | 12           | 12         | 774          | 1180      |
| JPK20G                | 20                     | 20 | 0/-0.010  | 54                                     | 42 | 8  | 43 | 5.5 | 9.3 | 5.1 | 15           | 15         | 882          | 1370      |
| JPK25G                | 25                     | 25 | 0/-0.010  | 62                                     | 50 | 8  | 51 | 5.5 | 9.3 | 5.1 | 15           | 15         | 980          | 1570      |
| JPK30G                | 30                     | 30 | 0/-0.010  | 74                                     | 58 | 10 | 60 | 6.6 | 11  | 6.1 | 15           | 15         | 1570         | 2740      |
| JPK40G                | 40                     | 40 | 0/-0.012  | 96                                     | 75 | 13 | 78 | 9   | 14  | 8.1 | 20           | 20         | 2160         | 4020      |
| JPK50G                | 50                     | 50 | 0/-0.012  | 116                                    | 92 | 13 | 98 | 9   | 14  | 8.1 | 20           | 20         | 3820         | 7940      |



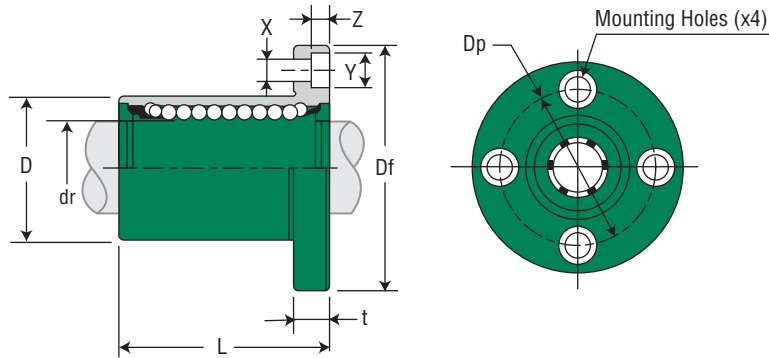
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81



# Linear Ball Bearings Round Flange Mount

## Ball Bearings – Round Flange Mount JPF



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | G            | MM     | MM                            | MM        | MM  |           |
| JPF8G                 | 8                      | 8  | 0/-0.009  | 4            | 37     | 15                            | 0/-0.013  | 24  | ±0.3      |
| JPF12G                | 12                     | 12 | 0/-0.009  | 4            | 76     | 21                            | 0/-0.016  | 30  | ±0.3      |
| JPF16G                | 16                     | 16 | 0/-0.009  | 5            | 120    | 28                            | 0/-0.016  | 37  | ±0.3      |
| JPF20G                | 20                     | 20 | 0/-0.010  | 5            | 180    | 32                            | 0/-0.019  | 42  | ±0.3      |
| JPF25G                | 25                     | 25 | 0/-0.010  | 6            | 340    | 40                            | 0/-0.019  | 59  | ±0.3      |
| JPF30G                | 30                     | 30 | 0/-0.010  | 6            | 470    | 45                            | 0/-0.019  | 64  | ±0.3      |
| JPF40G                | 40                     | 40 | 0/-0.012  | 6            | 1060   | 60                            | 0/-0.022  | 80  | ±0.3      |
| JPF50G                | 50                     | 50 | 0/-0.012  | 6            | 2200   | 80                            | 0/-0.022  | 100 | ±0.3      |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |     |     |     |              |            | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|--|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | Df                                     | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | MM                                     | MM | MM | MM  | MM  | MM  | μM           | μM         | N            | N         |
| JPF8G                 | 8                      | 8  | 0/-0.009  | 32                                     | 5  | 24 | 3.5 | 6.5 | 3.1 | 12           | 12         | 274          | 392       |
| JPF12G                | 12                     | 12 | 0/-0.009  | 42                                     | 6  | 32 | 4.5 | 8   | 4.1 | 12           | 12         | 510          | 784       |
| JPF16G                | 16                     | 16 | 0/-0.009  | 48                                     | 6  | 38 | 4.5 | 8   | 4.1 | 12           | 12         | 774          | 1180      |
| JPF20G                | 20                     | 20 | 0/-0.010  | 54                                     | 8  | 43 | 5.5 | 9.3 | 5.1 | 15           | 15         | 882          | 1370      |
| JPF25G                | 25                     | 25 | 0/-0.010  | 62                                     | 8  | 51 | 5.5 | 9.3 | 5.1 | 15           | 15         | 980          | 1570      |
| JPF30G                | 30                     | 30 | 0/-0.010  | 74                                     | 10 | 60 | 6.6 | 11  | 6.1 | 15           | 15         | 1570         | 2740      |
| JPF40G                | 40                     | 40 | 0/-0.012  | 96                                     | 13 | 78 | 9   | 14  | 8.1 | 20           | 20         | 2160         | 4020      |
| JPF50G                | 50                     | 50 | 0/-0.012  | 116                                    | 13 | 98 | 9   | 14  | 8.1 | 20           | 20         | 3820         | 7940      |



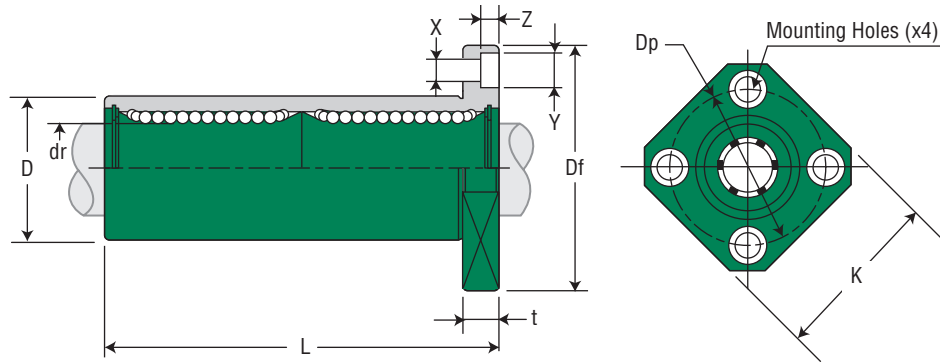
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

[Inch Series—page 44](#) [Metric Series—page 81](#)

INCH  
 ISO METRIC  
 JIS METRIC

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings – Square Flange Mount JPK-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO. | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|----------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|          | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
|          |                        |    |           |              |        |                               |           |     |           |
| JPK8GW   | 8                      | 8  | 0/-0.010  | 4            | 43     | 15                            | 0/-0.013  | 45  | ±0.3      |
| JPK12GW  | 12                     | 12 | 0/-0.010  | 4            | 90     | 21                            | 0/-0.016  | 57  | ±0.3      |
| JPK16GW  | 16                     | 16 | 0/-0.010  | 5            | 165    | 28                            | 0/-0.016  | 70  | ±0.3      |
| JPK20GW  | 20                     | 20 | 0/-0.010  | 5            | 225    | 32                            | 0/-0.019  | 80  | ±0.3      |
| JPK25GW  | 25                     | 25 | 0/-0.012  | 6            | 500    | 40                            | 0/-0.019  | 112 | ±0.3      |
| JPK30GW  | 30                     | 30 | 0/-0.012  | 6            | 590    | 45                            | 0/-0.019  | 123 | ±0.3      |
| JPK40GW  | 40                     | 40 | 0/-0.015  | 6            | 1380   | 60                            | 0/-0.022  | 154 | ±0.3      |
| JPK50GW  | 50                     | 50 | 0/-0.015  | 6            | 3400   | 80                            | 0/-0.025  | 192 | ±0.3      |

| PART NO. | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |    |     |     |     |              |            | LOAD RATINGS |           |
|----------|------------------------|----|-----------|--|----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|          | SIZE                   | dr | TOLERANCE | Df                                     | K  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
|          |                        |    |           |  |    |    |    |     |     |     |              |            |              |           |
| JPK8GW   | 8                      | 8  | 0/-0.010  | 32                                     | 25 | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 431          | 784       |
| JPK12GW  | 12                     | 12 | 0/-0.010  | 42                                     | 32 | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| JPK16GW  | 16                     | 16 | 0/-0.010  | 48                                     | 37 | 6  | 38 | 4.5 | 8   | 4.1 | 15           | 15         | 1230         | 2350      |
| JPK20GW  | 20                     | 20 | 0/-0.010  | 54                                     | 42 | 8  | 43 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1400         | 2740      |
| JPK25GW  | 25                     | 25 | 0/-0.012  | 62                                     | 50 | 8  | 51 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1560         | 3140      |
| JPK30GW  | 30                     | 30 | 0/-0.012  | 74                                     | 58 | 10 | 60 | 6.6 | 11  | 6.1 | 20           | 20         | 2490         | 5490      |
| JPK40GW  | 40                     | 40 | 0/-0.015  | 96                                     | 75 | 13 | 78 | 9   | 14  | 8.1 | 25           | 25         | 3430         | 8040      |
| JPK50GW  | 50                     | 50 | 0/-0.015  | 116                                    | 92 | 13 | 98 | 9   | 14  | 8.1 | 25           | 25         | 6080         | 15900     |

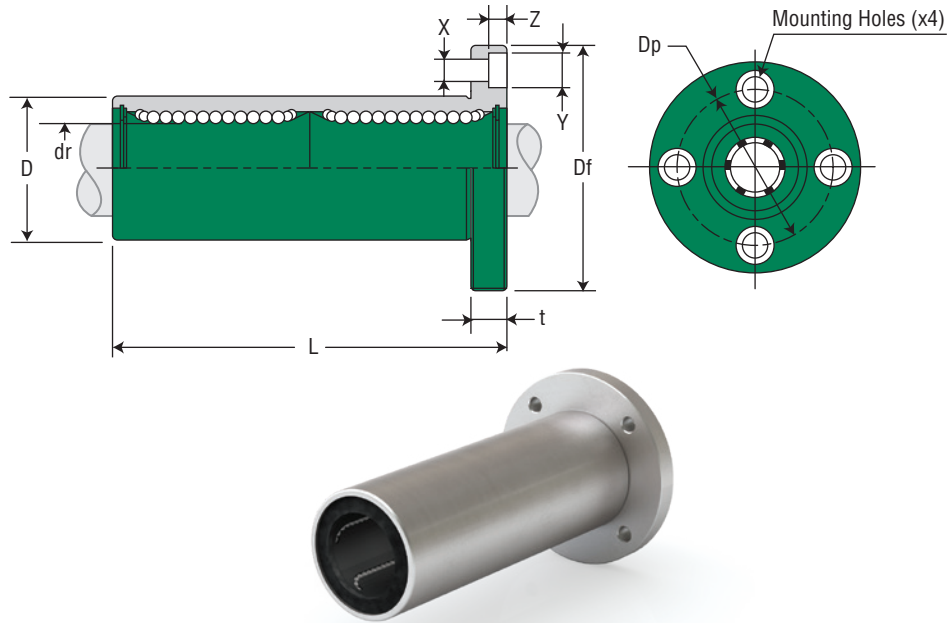


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

# Linear Ball Bearings Double Wide

## Double Wide Ball Bearings – Round Flange Mount JPF-W



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | G            | MM     | MM                            | MM        | MM  |           |
| JPF8GW                | 8                      | 8  | 0/-0.10   | 4            | 51     | 15                            | 0/-0.13   | 45  | ±0.3      |
| JPF12GW               | 12                     | 12 | 0/-0.10   | 4            | 110    | 21                            | 0/-0.16   | 57  | ±0.3      |
| JPF16GW               | 16                     | 16 | 0/-0.10   | 5            | 190    | 28                            | 0/-0.16   | 70  | ±0.3      |
| JPF20GW               | 20                     | 20 | 0/-0.10   | 5            | 260    | 32                            | 0/-0.19   | 80  | ±0.3      |
| JPF25GW               | 25                     | 25 | 0/-0.12   | 6            | 540    | 40                            | 0/-0.19   | 112 | ±0.3      |
| JPF30GW               | 30                     | 30 | 0/-0.12   | 6            | 680    | 45                            | 0/-0.19   | 123 | ±0.3      |
| JPF40GW               | 40                     | 40 | 0/-0.15   | 6            | 1570   | 60                            | 0/-0.22   | 154 | ±0.3      |
| JPF50GW               | 50                     | 50 | 0/-0.20   | 6            | 3600   | 80                            | 0/-0.25   | 192 | ±0.3      |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |    |    |     |     |     |              |            | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|--|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | Df                                     | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | MM        | MM                                     | MM | MM | MM  | MM  | MM  | μM           | μM         | N            | N         |
| JPF8GW                | 8                      | 8  | 0/-0.10   | 32                                     | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 431          | 784       |
| JPF12GW               | 12                     | 12 | 0/-0.10   | 42                                     | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| JPF16GW               | 16                     | 16 | 0/-0.10   | 48                                     | 6  | 38 | 4.5 | 8   | 4.1 | 15           | 15         | 1230         | 2350      |
| JPF20GW               | 20                     | 20 | 0/-0.10   | 54                                     | 8  | 43 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1400         | 2740      |
| JPF25GW               | 25                     | 25 | 0/-0.12   | 62                                     | 8  | 51 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1560         | 3140      |
| JPF30GW               | 30                     | 30 | 0/-0.12   | 74                                     | 10 | 60 | 6.6 | 11  | 6.1 | 20           | 20         | 2490         | 5490      |
| JPF40GW               | 40                     | 40 | 0/-0.15   | 96                                     | 13 | 78 | 9   | 14  | 8.1 | 25           | 25         | 3430         | 8040      |
| JPF50GW               | 50                     | 50 | 0/-0.20   | 116                                    | 13 | 98 | 9   | 14  | 8.1 | 25           | 25         | 6080         | 15900     |



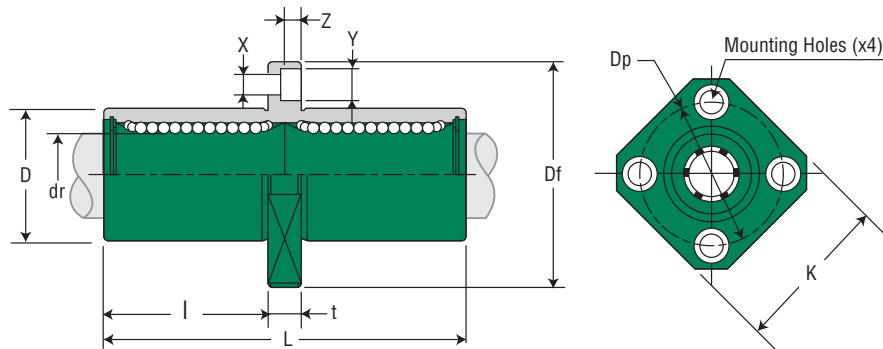
Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

Inch Series—page 44 Metric Series—page 81

INCH  
 ISO METRIC  
 JIS METRIC

# Linear Ball Bearings Square Flange Center Mount

## Ball Bearings – Square Flange Center Mount JPKC



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | μM        | G            | MM     | μM                            | MM        | μM  |           |
| JPKC8G                | 8                      | 8  | 0/-10     | 4            | 43     | 15                            | 0/-13     | 45  | ±300      |
| JPKC12G               | 12                     | 12 | 0/-10     | 4            | 90     | 21                            | 0/-16     | 57  | ±300      |
| JPKC16G               | 16                     | 16 | 0/-10     | 5            | 165    | 28                            | 0/-16     | 70  | ±300      |
| JPKC20G               | 20                     | 20 | 0/-12     | 5            | 225    | 32                            | 0/-19     | 80  | ±300      |
| JPKC25G               | 25                     | 25 | 0/-12     | 6            | 500    | 40                            | 0/-19     | 112 | ±300      |
| JPKC30G               | 30                     | 30 | 0/-12     | 6            | 590    | 45                            | 0/-19     | 123 | ±300      |
| JPKC40G               | 40                     | 40 | 0/-15     | 6            | 1380   | 60                            | 0/-22     | 154 | ±300      |
| JPKC50G               | 50                     | 50 | 0/-15     | 6            | 3400   | 80                            | 0/-22     | 192 | ±300      |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |     |    |    |    |     |     |     |              |            | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|--|-----|----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | I                                      | Df  | K  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | μM        | MM                                     | MM  | MM | MM | MM | MM  | MM  | MM  | μM           | μM         | N            | N         |
| JPKC8G                | 8                      | 8  | 0/-10     | 20                                     | 32  | 25 | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 431          | 784       |
| JPKC12G               | 12                     | 12 | 0/-10     | 25.5                                   | 42  | 32 | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| JPKC16G               | 16                     | 16 | 0/-10     | 32                                     | 48  | 37 | 6  | 38 | 4.5 | 8   | 4.1 | 15           | 15         | 1230         | 2350      |
| JPKC20G               | 20                     | 20 | 0/-12     | 36                                     | 54  | 42 | 8  | 43 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1400         | 2740      |
| JPKC25G               | 25                     | 25 | 0/-12     | 52                                     | 62  | 50 | 8  | 51 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1560         | 3140      |
| JPKC30G               | 30                     | 30 | 0/-12     | 56.5                                   | 74  | 58 | 10 | 60 | 6.6 | 11  | 6.1 | 20           | 20         | 2490         | 5490      |
| JPKC40G               | 40                     | 40 | 0/-15     | 69                                     | 96  | 75 | 13 | 78 | 9   | 14  | 8.1 | 25           | 25         | 3430         | 8040      |
| JPKC50G               | 50                     | 50 | 0/-15     | 89.5                                   | 116 | 92 | 13 | 98 | 9   | 14  | 8.1 | 25           | 25         | 6080         | 15900     |

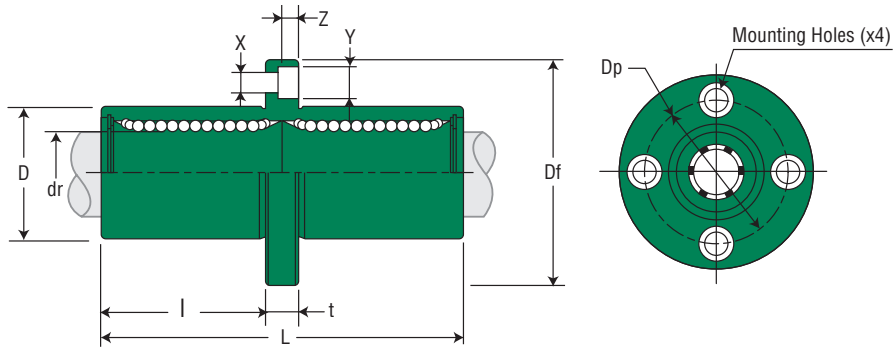


Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

[Inch Series—page 44](#) [Metric Series—page 81](#)

# Linear Ball Bearings Round Flange Center Mount

## Ball Bearings – Round Flange Center Mount JPFC



### DIMENSIONAL INFORMATION

(Standard Steel Finish)

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | BALL CIRCUIT | WEIGHT | MAJOR DIMENSIONS & TOLERANCES |           |     |           |
|-----------------------|------------------------|----|-----------|--------------|--------|-------------------------------|-----------|-----|-----------|
|                       | SIZE                   | dr | TOLERANCE |              |        | D                             | TOLERANCE | L   | TOLERANCE |
| STANDARD POLYMER CAGE | MM                     | MM | μM        | G            | MM     | μM                            | MM        | μM  |           |
| JPFC8G                | 8                      | 8  | 0/-10     | 4            | 51     | 15                            | 0/-13     | 45  | ±300      |
| JPFC12G               | 12                     | 12 | 0/-10     | 4            | 110    | 21                            | 0/-16     | 57  | ±300      |
| JPFC16G               | 16                     | 16 | 0/-10     | 5            | 190    | 28                            | 0/-16     | 70  | ±300      |
| JPFC20G               | 20                     | 20 | 0/-12     | 5            | 260    | 32                            | 0/-19     | 80  | ±300      |
| JPFC25G               | 25                     | 25 | 0/-12     | 6            | 540    | 40                            | 0/-19     | 112 | ±300      |
| JPFC30G               | 30                     | 30 | 0/-12     | 6            | 680    | 45                            | 0/-19     | 123 | ±300      |
| JPFC40G               | 40                     | 40 | 0/-15     | 6            | 1570   | 60                            | 0/-22     | 154 | ±300      |
| JPFC50G               | 50                     | 50 | 0/-15     | 6            | 3600   | 80                            | 0/-22     | 192 | ±300      |

| PART NO.              | NOMINAL SHAFT DIAMETER |    |           | MAJOR DIMENSIONS & TOLERANCES – FLANGE |     |    |    |     |     |     |              |            | LOAD RATINGS |           |
|-----------------------|------------------------|----|-----------|--|-----|----|----|-----|-----|-----|--------------|------------|--------------|-----------|
|                       | SIZE                   | dr | TOLERANCE | I                                      | Df  | t  | Dp | X   | Y   | Z   | ECCENTRICITY | SQUARENESS | DYNAMIC C    | STATIC Co |
| STANDARD POLYMER CAGE | MM                     | MM | μM        | MM                                     | MM  | MM | MM | MM  | MM  | MM  | μM           | μM         | N            | N         |
| JPFC8G                | 8                      | 8  | 0/-10     | 20.0                                   | 32  | 5  | 24 | 3.5 | 6.5 | 3.1 | 15           | 15         | 431          | 784       |
| JPFC12G               | 12                     | 12 | 0/-10     | 25.5                                   | 42  | 6  | 32 | 4.5 | 8   | 4.1 | 15           | 15         | 813          | 1570      |
| JPFC16G               | 16                     | 16 | 0/-10     | 32.0                                   | 48  | 6  | 38 | 4.5 | 8   | 4.1 | 15           | 15         | 1230         | 2350      |
| JPFC20G               | 20                     | 20 | 0/-12     | 36.0                                   | 54  | 8  | 43 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1400         | 2740      |
| JPFC25G               | 25                     | 25 | 0/-12     | 52.0                                   | 62  | 8  | 51 | 5.5 | 9.3 | 5.1 | 20           | 20         | 1560         | 3140      |
| JPFC30G               | 30                     | 30 | 0/-12     | 56.5                                   | 74  | 10 | 60 | 6.6 | 11  | 6.1 | 20           | 20         | 2490         | 5490      |
| JPFC40G               | 40                     | 40 | 0/-15     | 69.0                                   | 96  | 13 | 78 | 9   | 14  | 8.1 | 25           | 25         | 3430         | 8040      |
| JPFC50G               | 50                     | 50 | 0/-15     | 89.5                                   | 116 | 13 | 98 | 9   | 14  | 8.1 | 25           | 25         | 6080         | 15900     |



Only certified Simplicity 60 Plus Shafting provides maximum linear bearing performance.

[Inch Series—page 44](#) [Metric Series—page 81](#)





# Simplicity® Linear Slides Overview

## product overview

Available with plain or ball bearings, Simplicity slides provide solutions in the toughest environments:

- Fiberglass manufacturing and processing plants
- Stone cutters and other quarry applications
- Auto manufacturing facilities
- Welding and assembly lines
- Foundries
- Machine tools

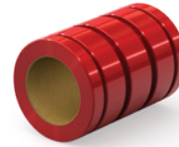
### Standard components include:

- Mounting plate
- Four pillow block assemblies
- Two steel shafts
- Two aluminum support rails

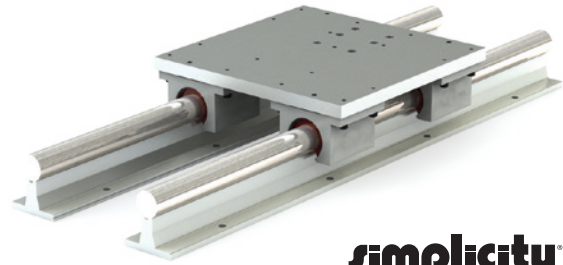


Custom Solutions Available!  
Call 800-962-8979

Plain Bearing



Ball Bearing



**simplicity**

## Modular components

- **SRB** – pre-assembled shaft, rail and bearing
- **SRB2** – support rail, guide bar, and two standard Simplicity pillow blocks
- **SRBT** – support rail, guide bar, and one standard Simplicity pillow block



SRB



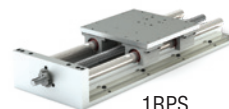
RS



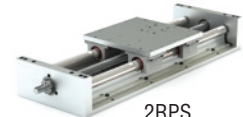
RPS

## High profile

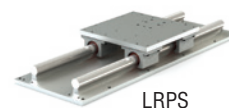
- **RS** – comes with standard components
- **RPS** – comes with standard components and includes bottom support plate with precision alignment
- **1RPS** – same as RPS with ball screw and one end supported with end plate
- **2RPS** – same as RPS with ball screw and both ends supported with end plates



1RPS



2RPS



LRPS



2LRPS

## Low profile

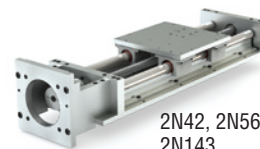
- **LRPS** – low profile support rail version of a standard RPS
- **2LRPS** – low profile support rail version of a standard 2RPS



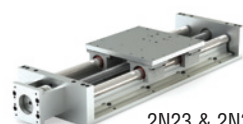
SC2RPS



2HCR & 2HWL



2N42, 2N56,  
2N143



2N23 & 2N34

## Accessories:

- Hand crank with ball screw lock rotational lock
- Handwheel (foldaway)
- Direct drive NEMA 23 & 34 motor bracket kit
- N42, 56, and 143 bracket options available

# Simplicity<sup>®</sup> Linear Slides

## Slide Selection Information

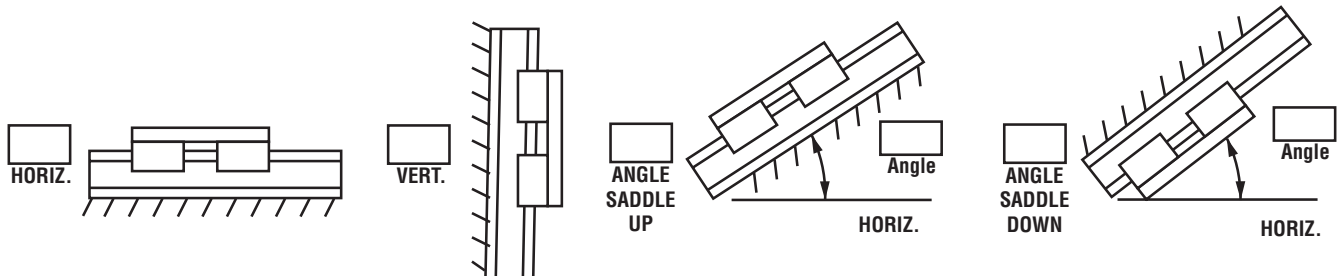
1. Determine the size and stroke of slide
2. Is a lube system required?
3. Please furnish the following to the factory:
  - a. Model designation
  - b. Lube system requirements
  - c. Mounting orientation, saddle position if mounted at an angle
  - d. Load to be carried and approximate center of gravity from saddle center
  - e. Location and magnitude of any force which resists the motion of the slide
  - f. Acceleration rate and maximum velocity of the saddle
  - g. Deceleration rate
  - h. Service life requirements
  - i. Type of environment the slide will operate in

## Model Number

\_\_\_\_\_  
 Series Code      Size Code      Length Code      Ball Screw Lead Code

## Mounting Orientation

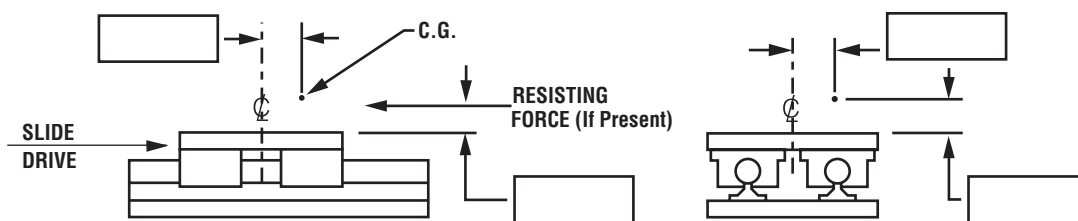
Please indicate the parameters of your application in the boxes below:



|                      |                      |                              |                      |             |                      |
|----------------------|----------------------|------------------------------|----------------------|-------------|----------------------|
| Cycle Rate:          | <input type="text"/> | Per Hour:                    | <input type="text"/> | Per Minute: | <input type="text"/> |
| MAX Saddle Velocity: | <input type="text"/> | Inch/Second:                 | <input type="text"/> |             |                      |
| Acceleration Rate:   | <input type="text"/> | Inches/Second <sup>2</sup> : | <input type="text"/> |             |                      |
| Deceleration Rate:   | <input type="text"/> | Inches/Second <sup>2</sup> : | <input type="text"/> |             |                      |
| Load:                | <input type="text"/> | lbs.                         | <input type="text"/> |             |                      |

## Location of Center of Gravity from Saddle Center

Please indicate the parameters of your application in the boxes below:



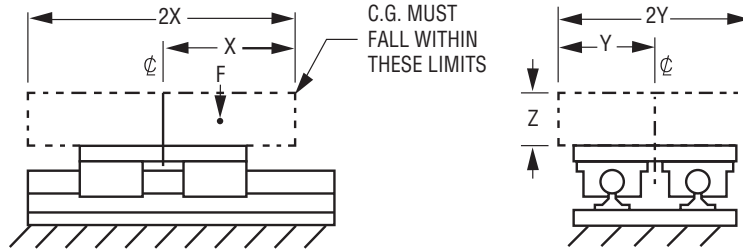
**Note:** Example of "Resisting Force" would be tool thrust for a drill head mounted on slide.

|                   |                      |                                     |
|-------------------|----------------------|-------------------------------------|
| Resisting Force:  | <input type="text"/> | lbs.                                |
| Life Requirement: | <input type="text"/> | Strokes: <input type="text"/> Hours |

# Simplicity® Linear Slides Load Capacities

The safe loading recommendations shown apply to plain bearing, non-lubricated slide applications. All slides are to be fully supported and rigidly mounted. **Load capacities shown reflect the use of Simplicity linear plain bearings.** Contact PBC Linear for load capacities for linear slides with ball bearings.

## Standard Mounting

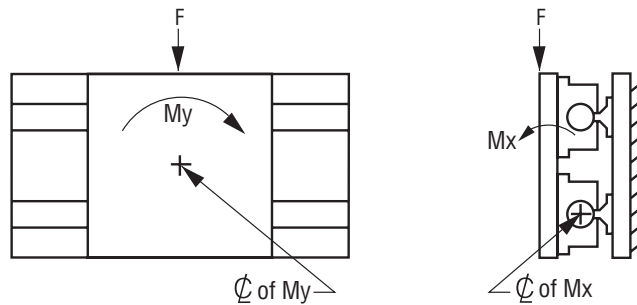


### RECOMMENDED SAFE LOADING

| Size | F MAX | F MAX | X     | Y    | Z    |
|------|-------|-------|-------|------|------|
|      | LBS.  | N     |       |      |      |
| 08   | 1450  | 6450  | 4.00  | 2.37 | 3.00 |
| 10   | 2200  | 9786  | 4.75  | 2.76 | 3.50 |
| 12   | 2850  | 12677 | 5.00  | 2.85 | 4.00 |
| 16   | 5275  | 23464 | 5.50  | 3.37 | 4.50 |
| 20   | 7750  | 34473 | 6.75  | 4.05 | 5.50 |
| 24   | 10600 | 47151 | 7.86  | 4.90 | 6.50 |
| 32   | 18750 | 83400 | 10.75 | 6.00 | 9.00 |

**Note:** Load ratings apply to Simplicity plain bearings only.

## Side Mounting



### RECOMMENDED SAFE LOADING

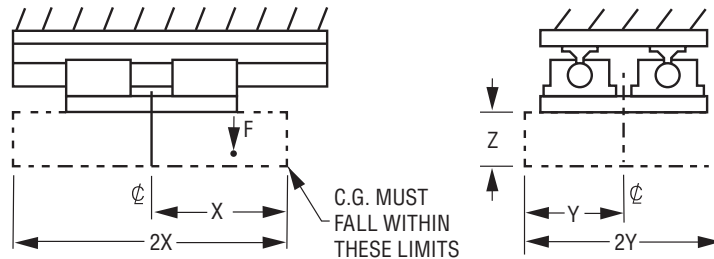
| Size | F MAX | My       | Mx       | F Max | My   | Mx   |
|------|-------|----------|----------|-------|------|------|
|      | LBS.  | IN.-LBS. | IN.-LBS. | N     | NM   | NM   |
| 08   | 540   | 910      | 1500     | 2402  | 103  | 169  |
| 10   | 760   | 1680     | 2750     | 3381  | 190  | 311  |
| 12   | 840   | 1710     | 2875     | 3737  | 193  | 325  |
| 16   | 1050  | 3300     | 4430     | 4671  | 373  | 501  |
| 20   | 1750  | 6175     | 8750     | 7784  | 698  | 989  |
| 24   | 2100  | 9600     | 12600    | 9341  | 1085 | 1424 |
| 32   | 3300  | 19000    | 28050    | 14679 | 2147 | 3169 |

**Note:** Load ratings apply to Simplicity plain bearings only.

INCH  
ISO  
METRIC  
JIS  
METRIC

# Simplicity® Linear Slides Load Capacities

## Inverted Mounting

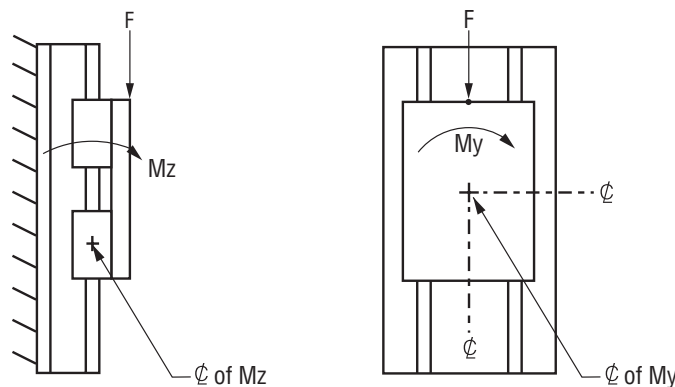


### RECOMMENDED SAFE LOADING

| Size | F MAX | F MAX | X     | Y    | Z    |
|------|-------|-------|-------|------|------|
|      | LBS.  | N     | IN.   | IN.  | IN.  |
| 08   | 195   | 867   | 4.85  | 2.91 | 3.00 |
| 10   | 285   | 1268  | 5.69  | 3.33 | 3.50 |
| 12   | 315   | 1401  | 6.52  | 3.75 | 4.00 |
| 16   | 450   | 2002  | 7.31  | 4.58 | 4.50 |
| 20   | 712   | 3167  | 8.84  | 5.42 | 5.50 |
| 24   | 900   | 4003  | 10.50 | 6.67 | 6.50 |
| 32   | 1425  | 6339  | 14.67 | 8.33 | 9.00 |

**Note:** Load ratings apply to Simplicity plain bearings only.

## Vertical Mounting



### RECOMMENDED SAFE LOADING

| Size | F MAX <sup>1,2</sup> | My       | Mz       | F MAX | My   | Mz   |
|------|----------------------|----------|----------|-------|------|------|
|      | LBS.                 | IN.-LBS. | IN.-LBS. | N     | NM   | NM   |
| 08   | 260                  | 1445     | 1500     | 1157  | 163  | 169  |
| 10   | 300                  | 2750     | 2750     | 1334  | 311  | 311  |
| 12   | 300                  | 2875     | 2875     | 1334  | 325  | 325  |
| 16   | 600                  | 5000     | 4430     | 2669  | 565  | 501  |
| 20   | 675                  | 9500     | 8750     | 3003  | 1073 | 989  |
| 24   | 710                  | 14400    | 12600    | 3158  | 1627 | 1424 |
| 32   | 900                  | 32300    | 28050    | 4003  | 3649 | 3169 |

**Note:** Load ratings apply to Simplicity plain bearings only. <sup>1</sup> Applies only when using 2RPS and 2LRPS slides. <sup>2</sup> If "F" is exceeded consult factory. For RPS, FMAX is dependent upon customer's method of moving the slide.

INCH

ISO  
METRIC

JIS  
METRIC

# Simplicity® Linear Slides Assembly

## Preassembled Shaft, Rail & Bearing SRB

### Ordering Example:

To order an assembly with a 0.750 diameter linear shaft, support rail, and one twin double sealed Simplicity bearing with FrelonGOLD®, with a rail length of 96.00", specify part number SRBTD-1200-096.000.

To order an assembly with a 0.625 diameter shaft, support rail, and two single Simplicity bearings without seals, with a rail length of 73.25", specify part number SRB2-1000-073.250.

**Note:** For lengths over 48", guide bars will be continuous, but rail supports will have a minimum of one break every 48".



## PART NUMBER

| Series |   |     | Size |    |   | L       |
|--------|---|-----|------|----|---|---------|
| SRBXY  | X | XXX | - 08 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 10 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 12 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 16 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 20 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 24 | XX | - | XXX.XXX |
| SRBXY  | X | XXX | - 32 | XX | - | XXX.XXX |



Custom Solutions Available!  
Call 800-962-8979

↑↑↑ Enter rail length in inches XXX.XXX (EX: 96" = 096.000)

Shafting material: **00** = Alloy Steel (Standard)      **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel      **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard)      **JKM** = Thru hole and internal felt wick

Seals: **Blank** = None      **S** = Single Seals      **D** = Double Seals  
**Note:** "D" double seals are included with standard ball bearings.

Pillow Block Style: **2** = Two single PN bearings      **T** = One Twin PWN bearing  
**3** = Three single PN bearings      **T2** = Two Twin PWN bearings  
**C** = Compensated      **S1** = One SST PN bearing  
**S2** = Two SST PN bearings

Bearing Type: **Blank** = Simplicity FrelonGOLD      **E** = Simplicity Frelon® J      **B** = Ball Bearing

## standard length table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 |  |  |  |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 |  |  |  |
| 12   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     |  |  |  |
| 16   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     |  |  |  |
| 20   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     |  |  |  |
| 24   |   |     | 016 |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     |  |  |  |
| 32   |   |     |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     |  |  |  |

\*Contact factory for longer or non-standard lengths – see non-standard lengths ordering example.

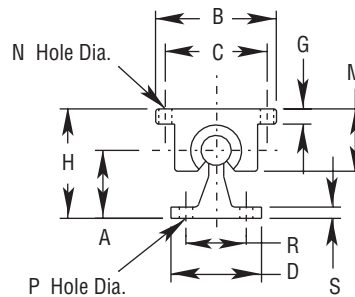
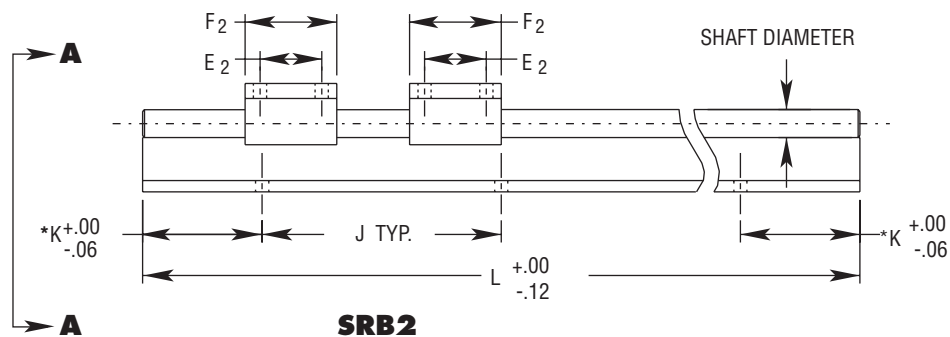
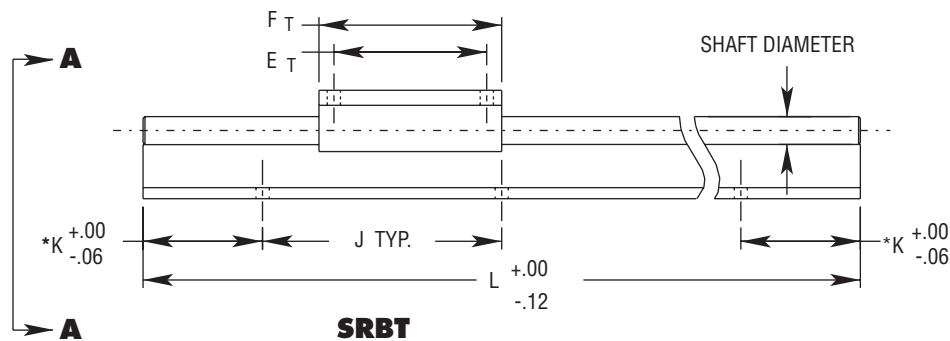
INCH  
ISO  
METRIC

# Assembly **Simplicity**® Linear Slides

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | A     | B    | C     | D    | E <sub>T</sub> | F <sub>T</sub> | E <sub>2</sub> | F <sub>2</sub> | G    | H     | J     | K    | M     | N    | P    | R     | S    |
|--------|------|-------------------|-------|------|-------|------|----------------|----------------|----------------|----------------|------|-------|-------|------|-------|------|------|-------|------|
| SRBXY  | 08   | .500              | 1.125 | 2.00 | 1.688 | 1.50 | 2.500          | 3.500          | 1.000          | 1.687          | .250 | 1.812 | 4.000 | 2.00 | 1.125 | .156 | .169 | 1.000 | .188 |
| SRBXY  | 10   | .625              | 1.125 | 2.50 | 2.125 | 1.62 | 3.000          | 4.000          | 1.125          | 1.937          | .281 | 2.000 | 4.000 | 2.00 | 1.437 | .188 | .193 | 1.125 | .250 |
| SRBXY  | 12   | .750              | 1.500 | 2.75 | 2.375 | 1.75 | 3.500          | 4.500          | 1.250          | 2.062          | .312 | 2.438 | 6.000 | 3.00 | 1.562 | .188 | .221 | 1.250 | .250 |
| SRBXY  | 16   | 1.000             | 1.750 | 3.25 | 2.875 | 2.12 | 4.500          | 6.000          | 1.750          | 2.812          | .375 | 2.938 | 6.000 | 3.00 | 1.937 | .219 | .281 | 1.500 | .250 |
| SRBXY  | 20   | 1.250             | 2.125 | 4.00 | 3.500 | 2.50 | 5.500          | 7.500          | 2.000          | 3.625          | .437 | 3.625 | 6.000 | 3.00 | 2.500 | .219 | .343 | 1.875 | .312 |
| SRBXY  | 24   | 1.500             | 2.500 | 4.75 | 4.125 | 3.00 | 6.500          | 9.000          | 2.500          | 4.000          | .500 | 4.250 | 8.000 | 4.00 | 2.875 | .281 | .343 | 2.250 | .375 |
| SRBXY  | 32   | 2.000             | 3.250 | 6.00 | 5.250 | 3.75 | 8.250          | 10.000         | 3.250          | 5.000          | .625 | 5.375 | 8.000 | 4.00 | 3.625 | .406 | .406 | 2.750 | .500 |

Dimensions in inches.



**VIEW A - A**

\* For standard length dimensions consult chart for "K" dimension.

\* For non-standard length dimensions "K" can be calculated with the following formula (in all cases equal on both ends).

$$K (\text{non-std}) = (K (\text{from chart}) - (\Delta L / 2)). \text{ Where } \Delta L = \text{next longer standard length} - \text{desired length}.$$



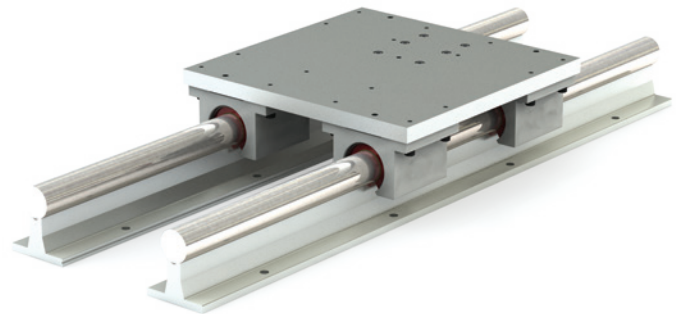
# Simplicity® Linear Slides Rail Mounted

## Rail Mounted Slide Assembly RS

### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft, Simplicity bearings with FrelonGOLD® and 28" rail length, specify part number RS-1000-028.000

Note: For lengths over 48", guide bars will be continuous, but rail supports will have a minimum of one break every 48". Lengths and mounting provisions to your specifications are available – consult factory.



### Part Number

| Series |                 | Size    |  | L |
|--------|-----------------|---------|--|---|
| RS     | X XXX - 08 XX - | XXX.XXX |  |   |
| RS     | X XXX - 10 XX - | XXX.XXX |  |   |
| RS     | X XXX - 12 XX - | XXX.XXX |  |   |
| RS     | X XXX - 16 XX - | XXX.XXX |  |   |
| RS     | X XXX - 20 XX - | XXX.XXX |  |   |
| RS     | X XXX - 24 XX - | XXX.XXX |  |   |
| RS     | X XXX - 32 XX - | XXX.XXX |  |   |



Custom Solutions Available!  
Call 800-962-8979

- ↑ Enter rail length in inches XXX.XXX (EX: 28" = 028.000)
- ↑ Shafting material: **00** = Alloy Steel (Standard)      **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel      **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with stainless steel or chrome plate shafting
- ↑ Shaft diameter dimension in 1/16" increments
- ↑ Internal Lubrication: **Blank** = None (Standard)      **JKM** = Thru hole and internal felt wick
- ↑ Bearing Type: **Blank** = Simplicity FrelonGOLD      **E** = Simplicity Frelon® J      **B** = Ball Bearing

### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |  |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |  | 044 | 048 | 052 |     | 056 | 060 | 064 |  | 068 | 072 | 076 |  | 080 | 084 | 088 |  | 092 | 096 |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |  | 044 | 048 | 052 |     | 056 | 060 | 064 |  | 068 | 072 | 076 |  | 080 | 084 | 088 |  | 092 | 096 |
| 12   |   | 012 |     | 018 | 024 |     | 030 |     | 036 |     | 042 |  | 048 |     | 054 |     | 060 |     | 066 |  | 072 |     | 078 |  | 084 |     | 090 |  | 096 |     |
| 16   |   | 012 |     | 018 | 024 |     | 030 |     | 036 |     | 042 |  | 048 |     | 054 |     | 060 |     | 066 |  | 072 |     | 078 |  | 084 |     | 090 |  | 096 |     |
| 20   |   | 012 |     | 018 | 024 |     | 030 |     | 036 |     | 042 |  | 048 |     | 054 |     | 060 |     | 066 |  | 072 |     | 078 |  | 084 |     | 090 |  | 096 |     |
| 24   |   |     | 016 |     | 024 |     |     | 032 |     | 040 |     |  | 048 |     |     | 056 |     | 064 |     |  | 072 |     |     |  | 080 |     | 088 |  | 096 |     |
| 32   |   |     |     |     | 024 |     |     | 032 |     | 040 |     |  | 048 |     |     | 056 |     | 064 |     |  | 072 |     |     |  | 080 |     | 088 |  | 096 |     |

\*Contact factory for longer or non-standard lengths.

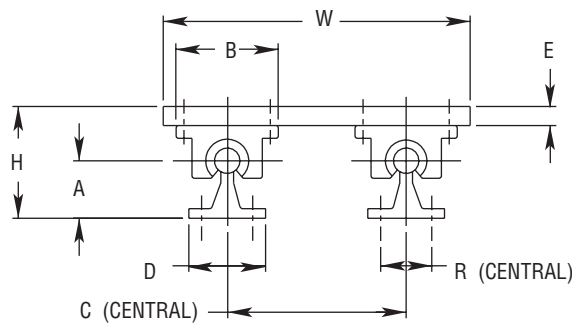
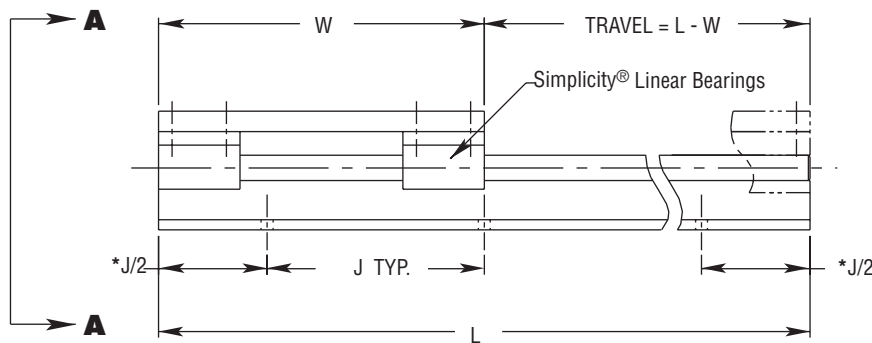
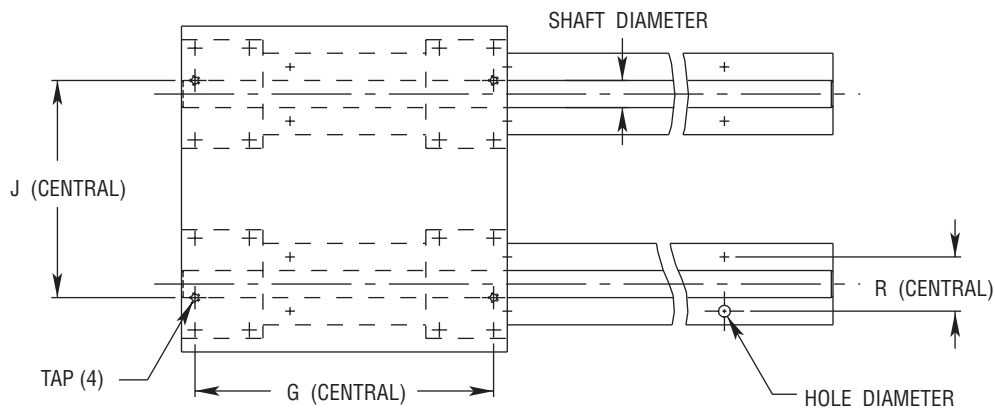
INCH  
ISO  
METRIC

# Simplicity® Linear Slides Rail Mounted

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D     | E     | G      | J     | R     | Tap     | Hole Dia. |
|--------|------|-------------------|--------|-------|-------|------|--------|-------|-------|--------|-------|-------|---------|-----------|
| RS     | 08   | .500              | 6.000  | 2.188 | 1.125 | 2.00 | 3.500  | 1.500 | .375  | 5.500  | 4.000 | 1.000 | 10-24   | .17       |
| RS     | 10   | .625              | 7.000  | 2.375 | 1.125 | 2.50 | 4.000  | 1.625 | .375  | 6.312  | 4.000 | 1.125 | 1/4-20  | .19       |
| RS     | 12   | .750              | 8.000  | 2.938 | 1.500 | 2.75 | 4.500  | 1.750 | .500  | 7.125  | 6.000 | 1.250 | 1/4-20  | .22       |
| RS     | 16   | 1.000             | 9.000  | 3.438 | 1.750 | 3.25 | 5.500  | 2.125 | .500  | 8.312  | 6.000 | 1.500 | 1/4-20  | .28       |
| RS     | 20   | 1.250             | 11.000 | 4.375 | 2.125 | 4.00 | 6.500  | 2.500 | .750  | 10.000 | 6.000 | 1.875 | 5/16-18 | .34       |
| RS     | 24   | 1.500             | 13.000 | 5.000 | 2.500 | 4.75 | 8.000  | 3.000 | .750  | 12.000 | 8.000 | 2.250 | 5/16-18 | .34       |
| RS     | 32   | 2.000             | 18.000 | 6.375 | 3.250 | 6.00 | 10.000 | 3.750 | 1.000 | 15.880 | 8.000 | 2.750 | 3/8-16  | .41       |

Dimensions in inches.



**VIEW A - A**

\*Hole distance to each end is equal unless specified at time of order.

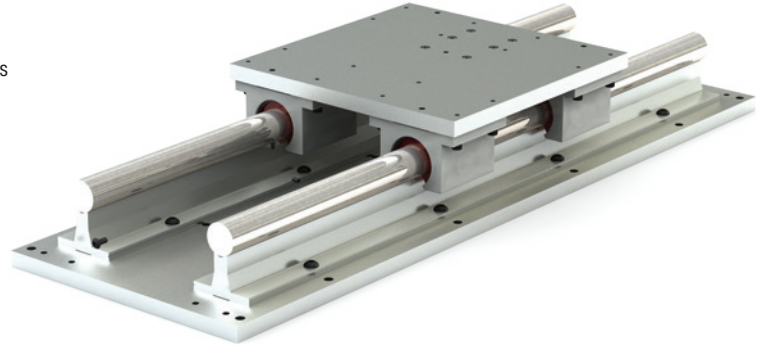
# Simplicity® Linear Slides Assembly

## Rail Mounted & Plate Supported Slide Assembly RPS

### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft and 28" rail length, specify part number RPS-1000-028.000

**Note:** For lengths over 48", guide bars will be continuous, but rail supports will have a minimum of one break every 48". Lengths and mounting provisions to your specifications are available – consult factory.

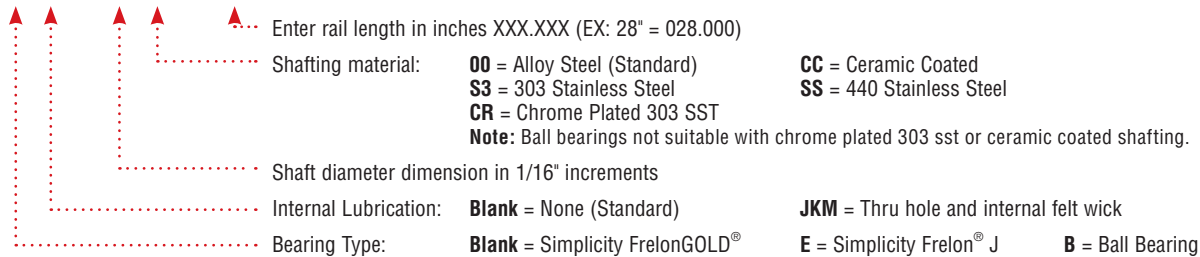


### Part Number

| Series |                 | Size    |  | L |
|--------|-----------------|---------|--|---|
| RPS    | X XXX - 08 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 10 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 12 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 16 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 20 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 24 XX - | XXX.XXX |  |   |
| RPS    | X XXX - 32 XX - | XXX.XXX |  |   |



Custom Solutions Available!  
Call 800-962-8979



### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |     |     |     |     |     |     |     |     |  |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |  | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |  | 092 | 096 |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |  | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |  | 092 | 096 |
| 12   |   | 012 |     | 018 | 024 |     | 030 |     | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |     | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 16   |   | 012 |     | 018 | 024 |     | 030 |     | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |     | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 20   |   | 012 |     | 018 | 024 |     | 030 |     | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |     | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 24   |   |     | 016 |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     | 056 |  | 064 |     |     | 072 |     |     | 080 |     | 088 |     | 096 |  |     |     |
| 32   |   |     |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     | 056 |  | 064 |     |     | 072 |     |     | 080 |     | 088 |     | 096 |  |     |     |

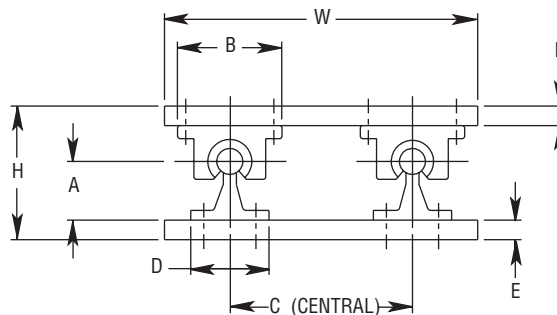
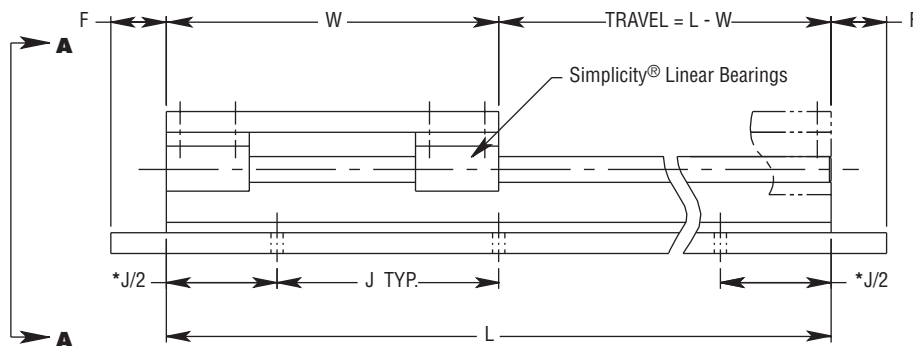
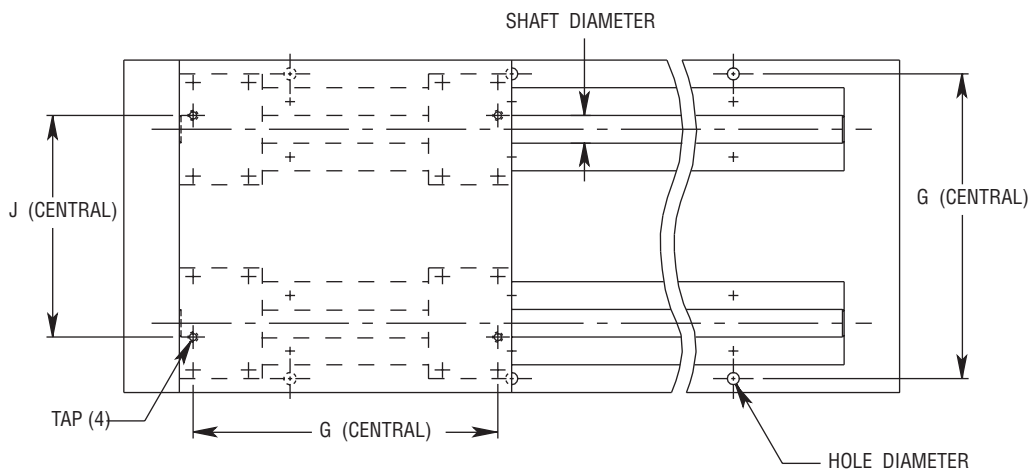
\*Contact factory for longer or non-standard lengths.

# Simplicity® Linear Slides Assembly

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D     | E     | F    | G      | J     | Tap     | Hole Dia. |
|--------|------|-------------------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|---------|-----------|
| RPS    | 08   | .500              | 6.000  | 2.562 | 1.125 | 2.00 | 3.500  | 1.500 | .375  | 1.00 | 5.500  | 4.000 | 10-24   | .22       |
| RPS    | 10   | .625              | 7.000  | 2.750 | 1.125 | 2.50 | 4.000  | 1.625 | .375  | 1.00 | 6.312  | 4.000 | 1/4-20  | .28       |
| RPS    | 12   | .750              | 8.000  | 3.438 | 1.500 | 2.75 | 4.500  | 1.750 | .500  | 1.25 | 7.125  | 6.000 | 1/4-20  | .28       |
| RPS    | 16   | 1.000             | 9.000  | 3.938 | 1.750 | 3.25 | 5.500  | 2.125 | .500  | 1.25 | 8.312  | 6.000 | 1/4-20  | .28       |
| RPS    | 20   | 1.250             | 11.000 | 5.125 | 2.125 | 4.00 | 6.500  | 2.500 | .750  | 1.50 | 10.000 | 6.000 | 5/16-18 | .34       |
| RPS    | 24   | 1.500             | 13.000 | 5.750 | 2.500 | 4.75 | 8.000  | 3.000 | .750  | 1.50 | 12.000 | 8.000 | 5/16-18 | .34       |
| RPS    | 32   | 2.000             | 18.000 | 7.375 | 3.250 | 6.00 | 10.000 | 3.750 | 1.000 | 1.75 | 15.875 | 8.000 | 3/8-16  | .41       |

Dimensions in inches.



VIEW A - A

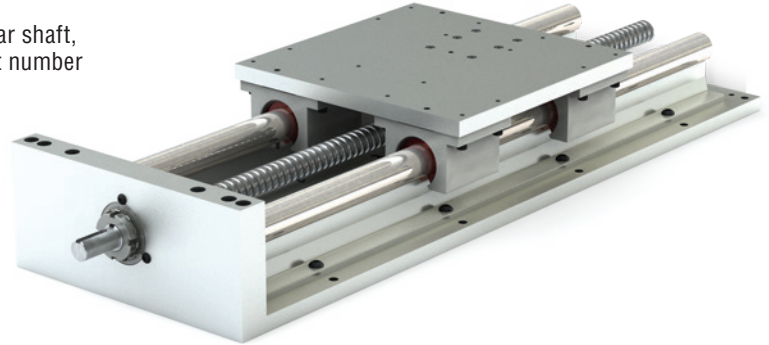
\*Hole distance to each end is equal unless specified at time of order.

# Simplicity® Linear Slides One End Support

## Rail Mounted & Plate Supported – Ball Screw Driven 1RPS SUPPORTED ON ONE END

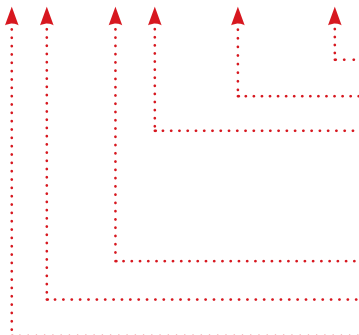
### Ordering Example:

To order a slide with a 0.625 diameter 440 stainless steel linear shaft, 28" rail length, .200" right hand select ball screw, specify part number 1RPS-10SS-028.000-AA7R.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| 1RPS   | X | XXX | - 08 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 10 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 12 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 24 | XX | - XXX.XXX | - YYYY |
| 1RPS   | X | XXX | - 32 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard)      **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel      **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard)      **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD®      **E** = Simplicity Frelon® J  
**B** = Ball Bearing

### STANDARD LEAD TABLE

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AAXR                 | AAXL |      |      |      |      |
| 10   | AAXR                 | AAXL |      |      |      |      |
| 12   | AAXR                 | AAXL |      |      |      |      |
| 16   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 20   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 24   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 32   |                      |      | ABXR | ABXL | ACXR | ADXR |

AAXR = .200 Right Hand  
AAXL = .200 Left Hand  
ABXR = .250 Right Hand  
ABXL = .250 Left Hand  
ACXR = .500 Right Hand  
ADXR = 1.000 Right Hand  
ADXL = 1.000 Left Hand  
AEXR = 1.875 Right Hand

### SELECT lead table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AA7R                 | AA7L |      |      |      |      |
| 10   | AA7R                 | AA7L |      |      |      |      |
| 12   | AA7R                 | AA7L |      |      |      |      |
| 16   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 20   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 24   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 32   |                      |      | AB7R | AB7L | AC7R | AD7R |

AA7R = .200 Right Hand  
AA7L = .200 Left Hand  
AB7R = .250 Right Hand  
AB7L = .250 Left Hand  
AC7R = .500 Right Hand  
AD7R = 1.000 Right Hand  
AD7L = 1.000 Left Hand  
AE7R = 1.875 Right Hand

### standard length table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 |     |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 |     |
| 12   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |
| 16   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |
| 20   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |
| 24   |   |     | 016 |     |     | 024 |     | 032 |     | 040 |
| 32   |   |     |     |     |     | 024 |     | 032 |     | 040 |

\*Contact factory for longer or non-standard lengths.



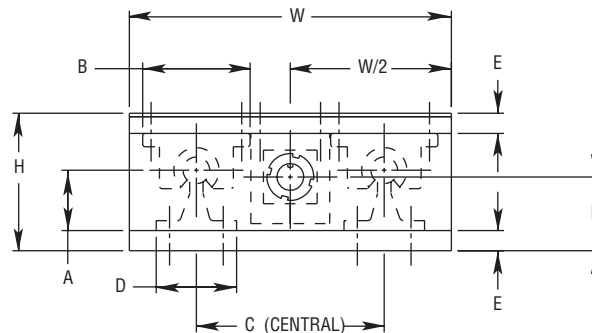
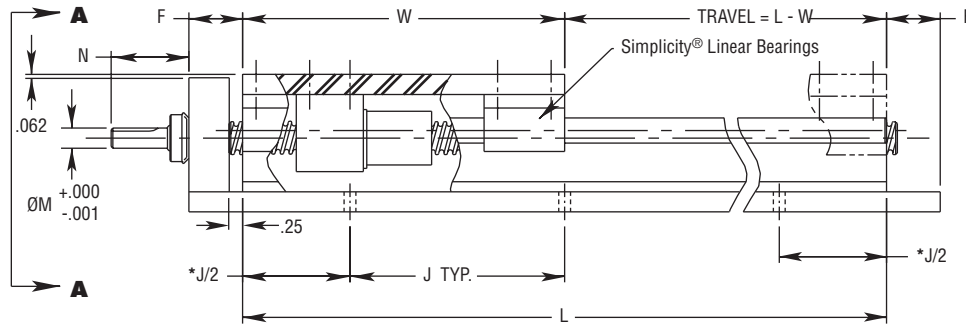
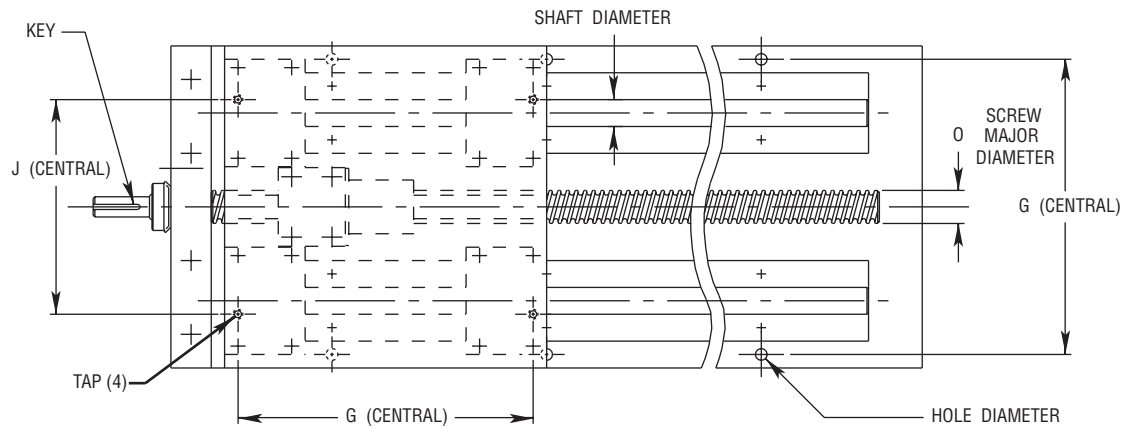
Custom Solutions Available!  
Call 800-962-8979

# One End Support **Simplicity**® Linear Slides

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D     | E     | F    | G      | J     | K     | M    | N    | O    | Tap     | Hole Dia. | Key              |
|--------|------|-------------------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|-------|------|------|------|---------|-----------|------------------|
| 1RPS   | 08   | .500              | 6.000  | 2.562 | 1.125 | 2.00 | 3.500  | 1.500 | .375  | 1.00 | 5.500  | 4.000 | 1.375 | .375 | 1.45 | .63  | 10-24   | .22       | 3/32 sq x 5/8 lg |
| 1RPS   | 10   | .625              | 7.000  | 2.750 | 1.125 | 2.50 | 4.000  | 1.625 | .375  | 1.00 | 6.312  | 4.000 | 1.375 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| 1RPS   | 12   | .750              | 8.000  | 3.438 | 1.500 | 2.75 | 4.500  | 1.750 | .500  | 1.25 | 7.125  | 6.000 | 1.500 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| 1RPS   | 16   | 1.000             | 9.000  | 3.938 | 1.750 | 3.25 | 5.500  | 2.125 | .500  | 1.25 | 8.312  | 6.000 | 2.125 | .625 | 1.76 | 1.00 | 1/4-20  | .28       | 3/16 sq x 1" lg  |
| 1RPS   | 20   | 1.250             | 11.000 | 5.125 | 2.125 | 4.00 | 6.500  | 2.500 | .750  | 1.50 | 10.000 | 6.000 | 2.375 | .625 | 1.76 | 1.00 | 5/16-18 | .34       | 3/16 sq x 1" lg  |
| 1RPS   | 24   | 1.500             | 13.000 | 5.750 | 2.500 | 4.75 | 8.000  | 3.000 | .750  | 1.50 | 12.000 | 8.000 | 2.875 | .875 | 2.31 | 1.50 | 5/16-18 | .34       | 1/4 sq x 1.62 lg |
| 1RPS   | 32   | 2.000             | 18.000 | 7.375 | 3.250 | 6.00 | 10.000 | 3.750 | 1.000 | 1.75 | 15.875 | 8.000 | 3.875 | .875 | 2.31 | 1.50 | 3/8-16  | .41       | 1/4 sq x 1.62 lg |

Dimensions in inches.



**VIEW A - A**

\*Hole distance to each end is equal unless specified at time of order.

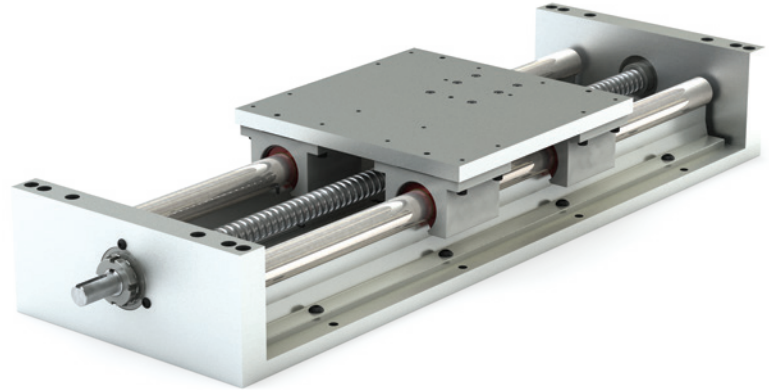


# Simplicity® Linear Slides Both Ends Supported

## Rail Mounted & Plate Supported – Ball Screw Driven 2RPS SUPPORTED ON BOTH ENDS

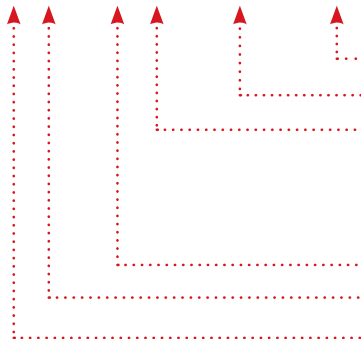
### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft, 28" rail length, .200" right hand select ball screw, specify part number 2RPS-1000-028.000-AA7R.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| 2RPS   | X | XXX | - 08 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 10 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 12 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 24 | XX | - XXX.XXX | - YYYY |
| 2RPS   | X | XXX | - 32 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard)      **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel      **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard)      **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD®      **E** = Simplicity Frelon® J  
**B** = Ball Bearing

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |           |
|------|----------------------|------|------|------|------|------|-----------|
| 08   | AAXR                 | AAXL |      |      |      |      |           |
| 10   | AAXR                 | AAXL |      |      |      |      |           |
| 12   | AAXR                 | AAXL |      |      |      |      |           |
| 16   |                      |      | ABXR | ABXL | ACXR | ADXR |           |
| 20   |                      |      | ABXR | ABXL | ACXR | ADXR |           |
| 24   |                      |      | ABXR | ABXL | ACXR | ADXR | ADXL AEXR |
| 32   |                      |      | ABXR | ABXL | ACXR | ADXR | ADXL AEXR |

AAXR = .200 Right Hand  
 AAXL = .200 Left Hand  
 ABXR = .250 Right Hand  
 ABXL = .250 Left Hand  
 ACXR = .500 Right Hand  
 ADXR = 1.000 Right Hand  
 ADXL = 1.000 Left Hand  
 AEXR = 1.875 Right Hand

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |           |
|------|----------------------|------|------|------|------|------|-----------|
| 08   | AA7R                 | AA7L |      |      |      |      |           |
| 10   | AA7R                 | AA7L |      |      |      |      |           |
| 12   | AA7R                 | AA7L |      |      |      |      |           |
| 16   |                      |      | AB7R | AB7L | AC7R | AD7R |           |
| 20   |                      |      | AB7R | AB7L | AC7R | AD7R |           |
| 24   |                      |      | AB7R | AB7L | AC7R | AD7R | AD7L AE7R |
| 32   |                      |      | AB7R | AB7L | AC7R | AD7R | AD7L AE7R |

AA7R = .200 Right Hand  
 AA7L = .200 Left Hand  
 AB7R = .250 Right Hand  
 AB7L = .250 Left Hand  
 AC7R = .500 Right Hand  
 AD7R = 1.000 Right Hand  
 AD7L = 1.000 Left Hand  
 AE7R = 1.875 Right Hand

### Standard Length Table

| Size | Available Rail Lengths – L * (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 008                                      | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 10   | 008                                      | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 12   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 16   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 20   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 24   |  |     | 016 |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     | 096 |     |
| 32   |  |     |     |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     | 096 |     |

\*Contact factory for longer or non-standard lengths.

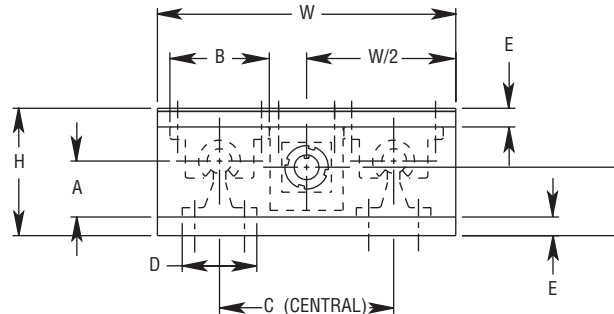
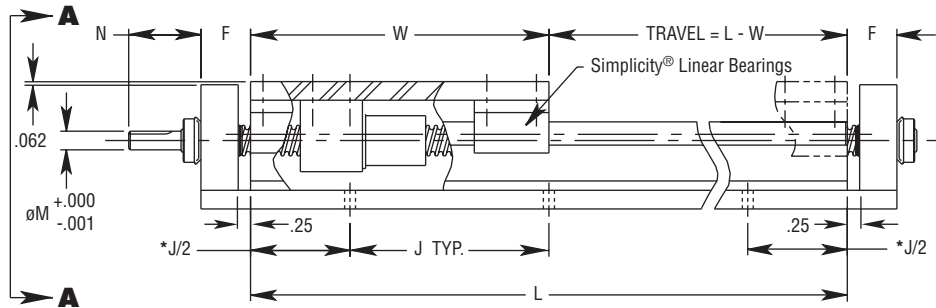
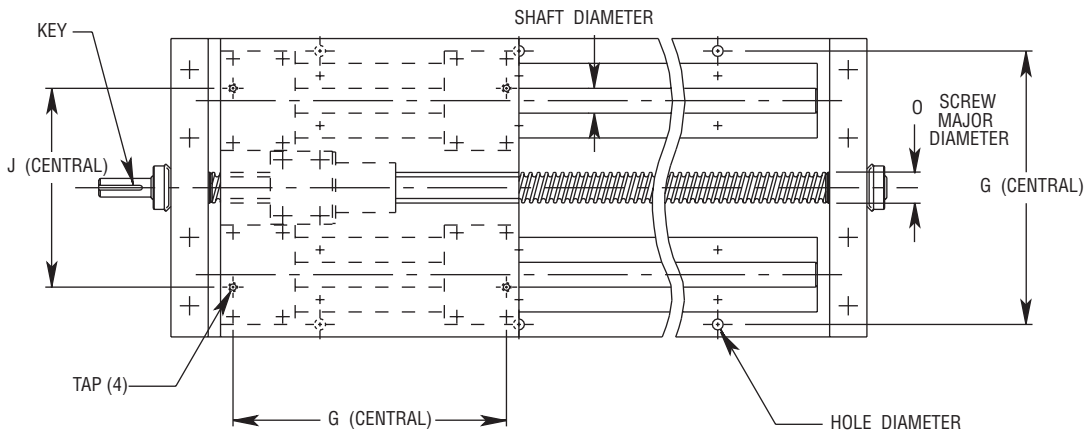
INCH  
ISO  
METRIC

# Simplicity® Linear Slides Both Ends Supported

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D     | E     | F    | G      | J     | K     | M    | N    | O    | Tap     | Hole Dia. | Key              |
|--------|------|-------------------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|-------|------|------|------|---------|-----------|------------------|
| 2RPS   | 08   | .500              | 6.000  | 2.562 | 1.125 | 2.00 | 3.500  | 1.500 | .375  | 1.00 | 5.500  | 4.000 | 1.375 | .375 | 1.45 | .63  | 10-24   | .22       | 3/32 sq x 5/8 lg |
| 2RPS   | 10   | .625              | 7.000  | 2.750 | 1.125 | 2.50 | 4.000  | 1.625 | .375  | 1.00 | 6.312  | 4.000 | 1.375 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| 2RPS   | 12   | .750              | 8.000  | 3.438 | 1.500 | 2.75 | 4.500  | 1.750 | .500  | 1.25 | 7.125  | 6.000 | 1.500 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| 2RPS   | 16   | 1.000             | 9.000  | 3.938 | 1.750 | 3.25 | 5.500  | 2.125 | .500  | 1.25 | 8.312  | 6.000 | 2.125 | .625 | 1.76 | 1.00 | 1/4-20  | .28       | 3/16 sq x 1" lg  |
| 2RPS   | 20   | 1.250             | 11.000 | 5.125 | 2.125 | 4.00 | 6.500  | 2.500 | .750  | 1.50 | 10.000 | 6.000 | 2.375 | .625 | 1.76 | 1.00 | 5/16-18 | .34       | 3/16 sq x 1" lg  |
| 2RPS   | 24   | 1.500             | 13.000 | 5.750 | 2.500 | 4.75 | 8.000  | 3.000 | .750  | 1.50 | 12.000 | 8.000 | 2.875 | .875 | 2.31 | 1.50 | 5/16-18 | .34       | 1/4 sq x 1.62 lg |
| 2RPS   | 32   | 2.000             | 18.000 | 7.375 | 3.250 | 6.00 | 10.000 | 3.750 | 1.000 | 1.75 | 15.875 | 8.000 | 3.875 | .875 | 2.31 | 1.50 | 3/8-16  | .41       | 1/4 sq x 1.62 lg |

Dimensions in inches.



**VIEW A - A**

\*Hole distance to each end is equal unless specified at time of order.

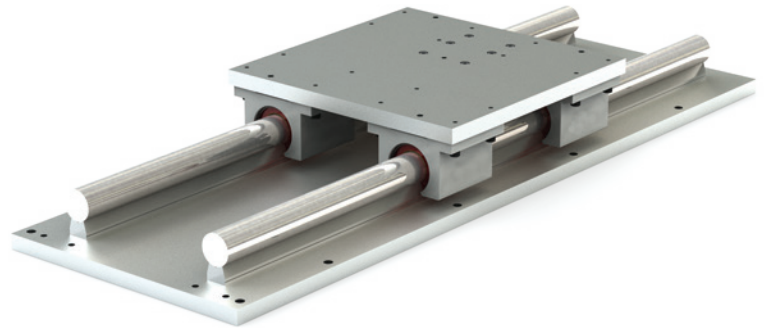
# Simplicity® Linear Slides Low Profile

## Rail Mounted & Plate Supported Slide Assembly LRPS

### LOW PROFILE

#### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft and 28" rail length, specify part number LRPS-1000-028.000.

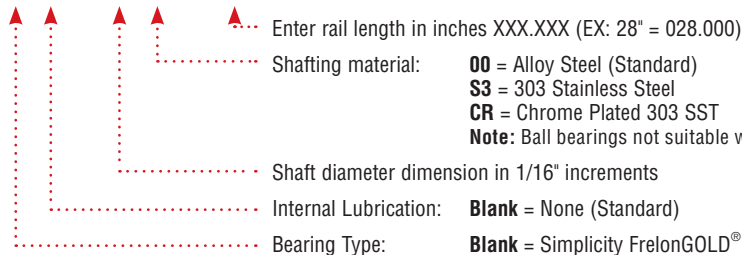


### Part Number

| Series |   | Size     |    | L       |
|--------|---|----------|----|---------|
| LRPS   | X | XXX - 08 | XX | XXX.XXX |
| LRPS   | X | XXX - 10 | XX | XXX.XXX |
| LRPS   | X | XXX - 12 | XX | XXX.XXX |
| LRPS   | X | XXX - 16 | XX | XXX.XXX |
| LRPS   | X | XXX - 20 | XX | XXX.XXX |
| LRPS   | X | XXX - 24 | XX | XXX.XXX |
| LRPS   | X | XXX - 32 | XX | XXX.XXX |



Custom Solutions Available!  
Call 800-962-8979



Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick  
 Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J **B** = Ball Bearing

### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |  |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |     |     |     |     |  |     |     |
|------|---|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |  | 032 | 036 | 040 |     | 044 | 048 | 052 |  | 056 | 060 | 064 |  | 068 | 072 | 076 |     | 080 | 084 | 088 |  | 092 | 096 |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |  | 032 | 036 | 040 |     | 044 | 048 | 052 |  | 056 | 060 | 064 |  | 068 | 072 | 076 |     | 080 | 084 | 088 |  | 092 | 096 |
| 12   |   | 012 |     | 018 | 024 |     | 030 |  | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |  | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 16   |   | 012 |     | 018 | 024 |     | 030 |  | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |  | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 20   |   | 012 |     | 018 | 024 |     | 030 |  | 036 | 042 |     | 048 | 054 |     | 060 |  | 066 |     | 072 |  | 078 | 084 |     | 090 |     | 096 |     |  |     |     |
| 24   |   |     | 016 |     | 024 |     | 032 |  | 040 |     | 048 |     | 056 |     | 064 |  | 072 |     | 080 |  | 088 |     | 096 |     |     |     |     |  |     |     |
| 32   |   |     |     |     | 024 |     | 032 |  | 040 |     | 048 |     | 056 |     | 064 |  | 072 |     | 080 |  | 088 |     | 096 |     |     |     |     |  |     |     |

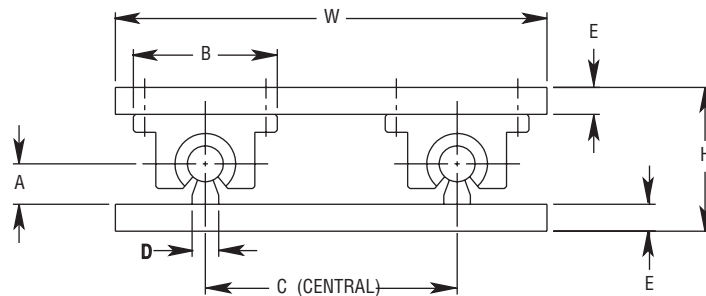
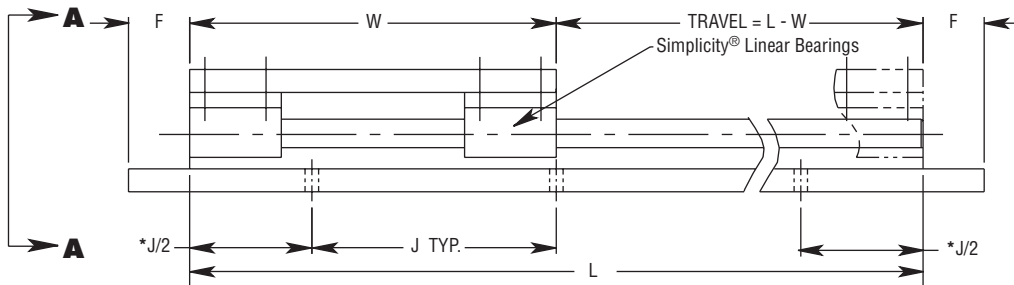
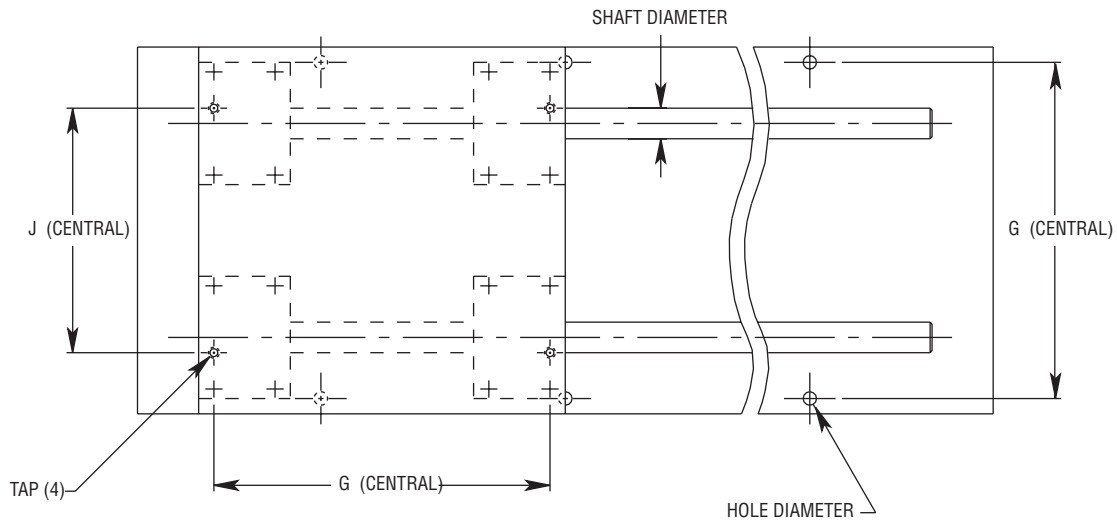
\*Contact factory for longer or non-standard lengths.

# Simplicity® Linear Slides Low Profile

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D    | E     | F    | G      | J     | Tap     | Hole Dia. |
|--------|------|-------------------|--------|-------|-------|------|--------|------|-------|------|--------|-------|---------|-----------|
| LRPS   | 08   | .500              | 6.000  | 2.000 | .563  | 2.00 | 3.500  | .37  | .375  | 1.00 | 5.500  | 4.000 | 10-24   | .22       |
| LRPS   | 10   | .625              | 7.000  | 2.313 | .688  | 2.50 | 4.000  | .45  | .375  | 1.00 | 6.312  | 4.000 | 1/4-20  | .28       |
| LRPS   | 12   | .750              | 8.000  | 2.688 | .750  | 2.75 | 4.500  | .51  | .500  | 1.25 | 7.125  | 6.000 | 1/4-20  | .28       |
| LRPS   | 16   | 1.000             | 9.000  | 3.188 | 1.000 | 3.25 | 5.500  | .69  | .500  | 1.25 | 8.312  | 6.000 | 1/4-20  | .28       |
| LRPS   | 20   | 1.250             | 11.000 | 4.188 | 1.188 | 4.00 | 6.500  | .78  | .750  | 1.50 | 10.000 | 6.000 | 5/16-18 | .34       |
| LRPS   | 24   | 1.500             | 13.000 | 4.625 | 1.375 | 4.75 | 8.000  | .93  | .750  | 1.50 | 12.000 | 8.000 | 5/16-18 | .34       |
| LRPS   | 32   | 2.000             | 18.000 | 5.875 | 1.750 | 6.00 | 10.000 | 1.18 | 1.000 | 1.75 | 15.875 | 8.000 | 3/8-16  | .41       |

Dimensions in inches.



**VIEW A - A**

\*Hole distance to each end is equal unless specified at time of order.

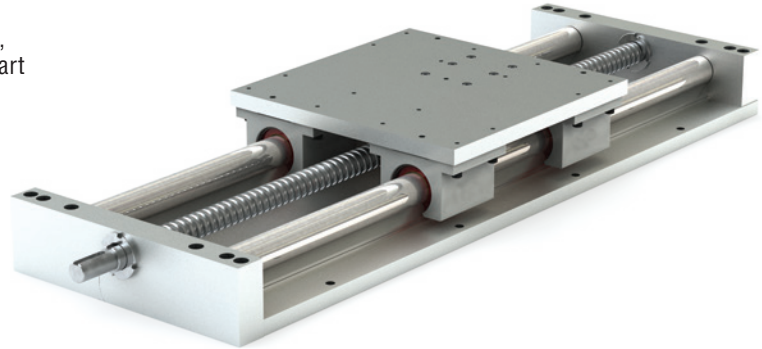
# Simplicity® Linear Slides Low Profile Ball Screw

## Rail Mounted & Plate Ball Screw Driven 2LRPS

LOW PROFILE – SUPPORTED ON BOTH ENDS

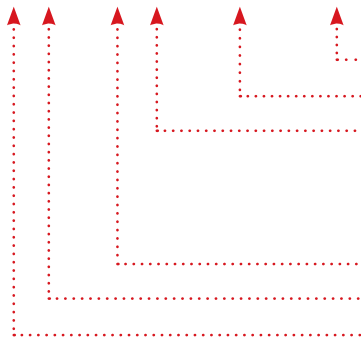
### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft, 28" rail length, .200" right hand select ball screw – specify part number, 2LRPS-1000-028.000-AA7R.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| 2LRPS  | X | XXX | - 08 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 10 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 12 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 24 | XX | - XXX.XXX | - YYYY |
| 2LRPS  | X | XXX | - 32 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J  
**B** = Ball Bearing

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AAXR                 | AAXL |      |      |      |      |
| 10   | AAXR                 | AAXL |      |      |      |      |
| 12   | AAXR                 | AAXL |      |      |      |      |
| 16   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 20   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 24   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 32   |                      |      | ABXR | ABXL | ACXR | ADXR |

AAXR = .200 Right Hand  
 AAXL = .200 Left Hand  
 ABXR = .250 Right Hand  
 ABXL = .250 Left Hand  
 ACXR = .500 Right Hand  
 ADXR = 1.000 Right Hand  
 ADXL = 1.000 Left Hand  
 AEXR = 1.875 Right Hand

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AA7R                 | AA7L |      |      |      |      |
| 10   | AA7R                 | AA7L |      |      |      |      |
| 12   | AA7R                 | AA7L |      |      |      |      |
| 16   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 20   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 24   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 32   |                      |      | AB7R | AB7L | AC7R | AD7R |

AA7R = .200 Right Hand  
 AA7L = .200 Left Hand  
 AB7R = .250 Right Hand  
 AB7L = .250 Left Hand  
 AC7R = .500 Right Hand  
 AD7R = 1.000 Right Hand  
 AD7L = 1.000 Left Hand  
 AE7R = 1.875 Right Hand

### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 12   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 16   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 20   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 24   |   |     | 016 |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     |     | 096 |
| 32   |   |     |     |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     |     | 096 |

\*Contact factory for longer or non-standard lengths.

INCH  
ISO  
METRIC



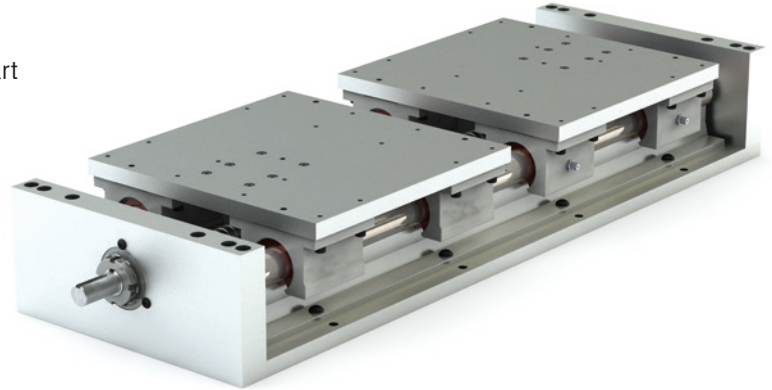


# Simplicity® Linear Slides Self Centering

## Self-Centering Slide Assembly SC2RPS

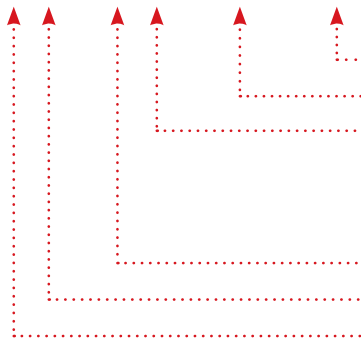
### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft, 56" rail length, .200" right hand select lead screw – specify part number, SC2RPS-1000-056.000-AA7LR.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| SC2RPS | X | XXX | - 08 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 10 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 12 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 24 | XX | - XXX.XXX | - YYYY |
| SC2RPS | X | XXX | - 32 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J  
**B** = Ball Bearing

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |       |       |
|------|----------------------|-------|-------|
| 08   | AAXLR                |       |       |
| 10   | AAXLR                |       |       |
| 12   | AAXLR                |       |       |
| 16   |                      | ABXLR |       |
| 20   |                      | ABXLR |       |
| 24   |                      | ABXLR | ADXLR |
| 32   |                      | ABXLR | ADXLR |

AAXLR = .200 Leads  
 ABXLR = .250 Leads  
 ADXLR = 1.000 Leads

One left and one right hand lead ballscrew on each self-centering slide assembly.

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |       |       |
|------|----------------------|-------|-------|
| 08   | AA7LR                |       |       |
| 10   | AA7LR                |       |       |
| 12   | AA7LR                |       |       |
| 16   |                      | AB7LR |       |
| 20   |                      | AB7LR |       |
| 24   |                      | AB7LR | AD7LR |
| 32   |                      | AB7LR | AD7LR |

AA7LR = .200 Leads  
 AB7LR = .250 Leads  
 AD7LR = 1.000 Leads

One left and one right hand lead ballscrew on each self-centering slide assembly.

### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 016                                     |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 10   | 016                                     |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 12   |   | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 16   |   |     |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 20   |   |     |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 |     | 096 |
| 24   |   |     |     |     |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     |     | 096 |
| 32   |   |     |     |     |     |     |     |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     | 072 |     |     | 080 |     | 088 |     |     | 096 |

\*Contact factory for longer or non-standard lengths.

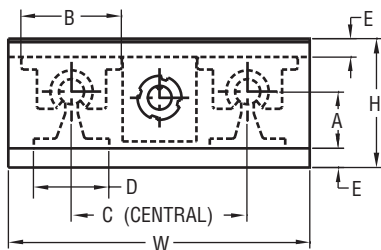
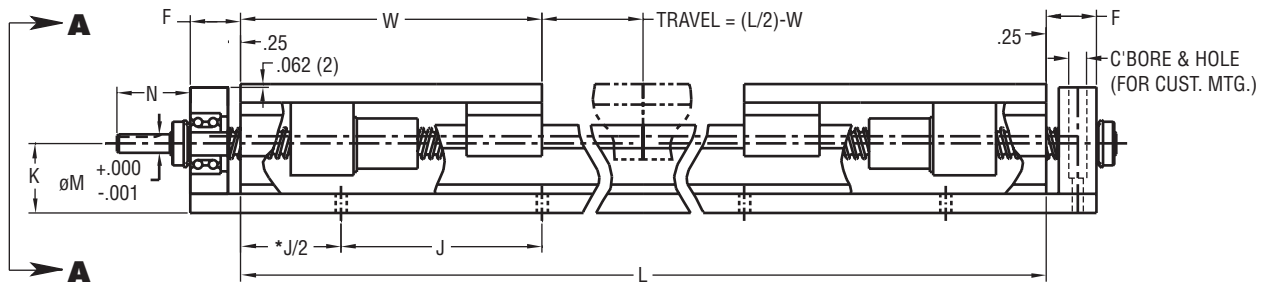
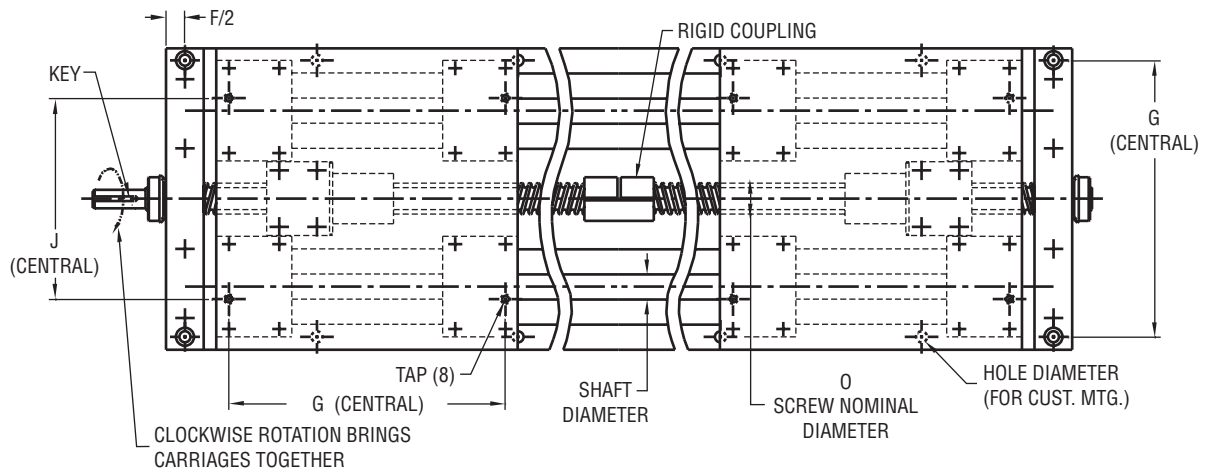
INCH  
ISO  
METRIC

# Simplicity<sup>®</sup> Linear Slides Self Centering

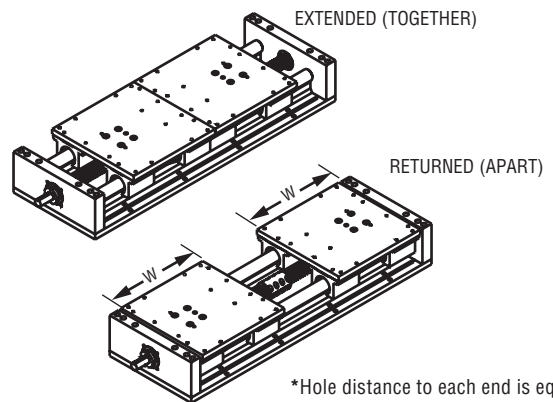
## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C      | D     | E     | F    | G      | J     | K     | M    | N    | O    | Tap     | Hole Dia. | Key              |
|--------|------|-------------------|--------|-------|-------|------|--------|-------|-------|------|--------|-------|-------|------|------|------|---------|-----------|------------------|
| SC2RPS | 08   | .500              | 6.000  | 2.562 | 1.125 | 2.00 | 3.500  | 1.500 | .375  | 1.00 | 5.500  | 4.000 | 1.375 | .375 | 1.45 | .63  | 10-24   | .22       | 3/32 sq x 5/8 lg |
| SC2RPS | 10   | .625              | 7.000  | 2.750 | 1.125 | 2.50 | 4.000  | 1.625 | .375  | 1.00 | 6.312  | 4.000 | 1.375 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| SC2RPS | 12   | .750              | 8.000  | 3.438 | 1.500 | 2.75 | 4.500  | 1.750 | .500  | 1.25 | 7.125  | 6.000 | 1.500 | .375 | 1.45 | .63  | 1/4-20  | .28       | 3/32 sq x 5/8 lg |
| SC2RPS | 16   | 1.000             | 9.000  | 3.938 | 1.750 | 3.25 | 5.500  | 2.125 | .500  | 1.25 | 8.312  | 6.000 | 2.125 | .625 | 1.76 | 1.00 | 1/4-20  | .28       | 3/16 sq x 1" lg  |
| SC2RPS | 20   | 1.250             | 11.000 | 5.125 | 2.125 | 4.00 | 6.500  | 2.500 | .750  | 1.50 | 10.000 | 6.000 | 2.375 | .625 | 1.76 | 1.00 | 5/16-18 | .34       | 3/16 sq x 1" lg  |
| SC2RPS | 24   | 1.500             | 13.000 | 5.750 | 2.500 | 4.75 | 8.000  | 3.000 | .750  | 1.50 | 12.000 | 8.000 | 2.875 | .875 | 2.31 | 1.50 | 5/16-18 | .41       | 1/4 sq x 1.62 lg |
| SC2RPS | 32   | 2.000             | 18.000 | 7.375 | 3.250 | 6.00 | 10.000 | 3.750 | 1.000 | 1.75 | 15.875 | 8.000 | 3.875 | .875 | 2.31 | 1.50 | 3/8-16  | .41       | 1/4 sq x 1.62 lg |

Dimensions in inches.



**VIEW A - A**



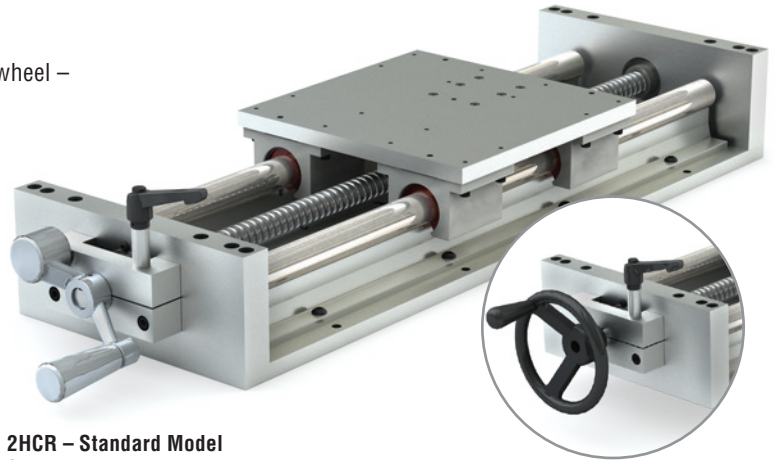
\*Hole distance to each end is equal unless specified at time of order.

# Simplicity® Linear Slides Handcrank & Wheel

## Slide Assembly with Hand Crank & Ball Screw Rotational Lock 2HCR & 2HWL

### Ordering Example:

To order a slide with a 0.625 diameter alloy steel linear shaft, 28" rail length, .200" right hand select ball screw and a hand wheel – specify part number, 2HWL-1000-028.000-AA7R.



### 2HCR – Standard Model

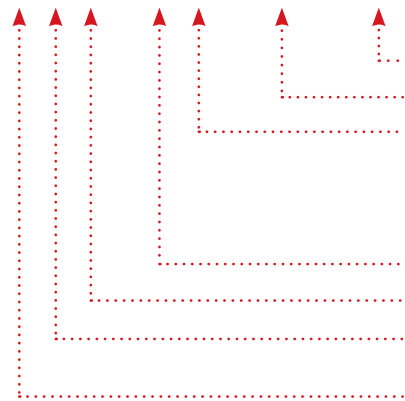
Cast aluminum counter balanced hand crank. 24 and 32 (only) spoked cast iron hand wheel with rigid, revolving crank handle.

### 2HWL –Deluxe Model

Aluminum hand wheel with fold-away composite handle.

### Part Number

| Series |                               | Size |  | L | Lead |
|--------|-------------------------------|------|--|---|------|
| 2HXX   | X XXX - 08 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 10 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 12 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 16 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 20 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 24 XX - XXX.XXX - YYY |      |  |   |      |
| 2HXX   | X XXX - 32 XX - XXX.XXX - YYY |      |  |   |      |



Substitute standard or select lead code from table for “YYYY”

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J  
**B** = Ball Bearing

Handle Type: **CR** = Standard Model **WL** = Deluxe Model  
(See table below)

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|------|------|
| 08   | AAXR                 | AAXL |      |      |      |      |      |      |
| 10   | AAXR                 | AAXL |      |      |      |      |      |      |
| 12   | AAXR                 | AAXL |      |      |      |      |      |      |
| 16   |                      |      | ABXR | ABXL | ACXR | ADXR |      |      |
| 20   |                      |      | ABXR | ABXL | ACXR | ADXR |      |      |
| 24   |                      |      | ABXR | ABXL | ACXR | ADXR | ADXL | AEXR |
| 32   |                      |      | ABXR | ABXL | ACXR | ADXR | ADXL | AEXR |

AAXR = .200 Right Hand  
AAXL = .200 Left Hand  
ABXR = .250 Right Hand  
ABXL = .250 Left Hand  
ACXR = .500 Right Hand  
ADXR = 1.000 Right Hand  
ADXL = 1.000 Left Hand  
AEXR = 1.875 Right Hand

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|------|------|
| 08   | AA7R                 | AA7L |      |      |      |      |      |      |
| 10   | AA7R                 | AA7L |      |      |      |      |      |      |
| 12   | AA7R                 | AA7L |      |      |      |      |      |      |
| 16   |                      |      | AB7R | AB7L | AC7R | AD7R |      |      |
| 20   |                      |      | AB7R | AB7L | AC7R | AD7R |      |      |
| 24   |                      |      | AB7R | AB7L | AC7R | AD7R | AD7L | AE7R |
| 32   |                      |      | AB7R | AB7L | AC7R | AD7R | AD7L | AE7R |

AA7R = .200 Right Hand  
AA7L = .200 Left Hand  
AB7R = .250 Right Hand  
AB7L = .250 Left Hand  
AC7R = .500 Right Hand  
AD7R = 1.000 Right Hand  
AD7L = 1.000 Left Hand  
AE7R = 1.875 Right Hand

### Standard Length Table

| Size | Available Rail Lengths – L* (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 10   | 008                                     | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 12   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 16   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 20   |   | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 24   |   |     | 016 |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     |     | 072 |     |     | 080 |     | 088 |     | 096 |     |
| 32   |   |     |     |     | 024 |     |     | 032 |     | 040 |     |     | 048 |     |     | 056 |     | 064 |     |     |     | 072 |     |     | 080 |     | 088 |     | 096 |     |

\*Contact factory for longer or non-standard lengths.

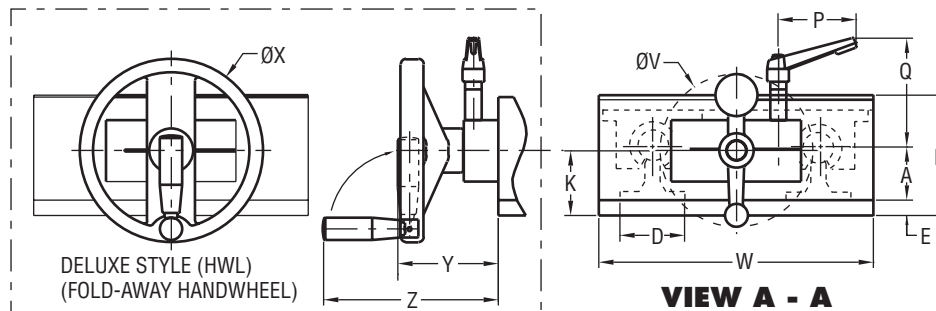
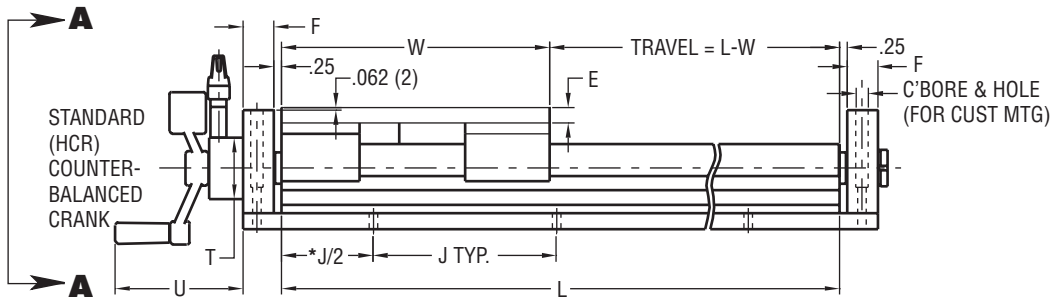
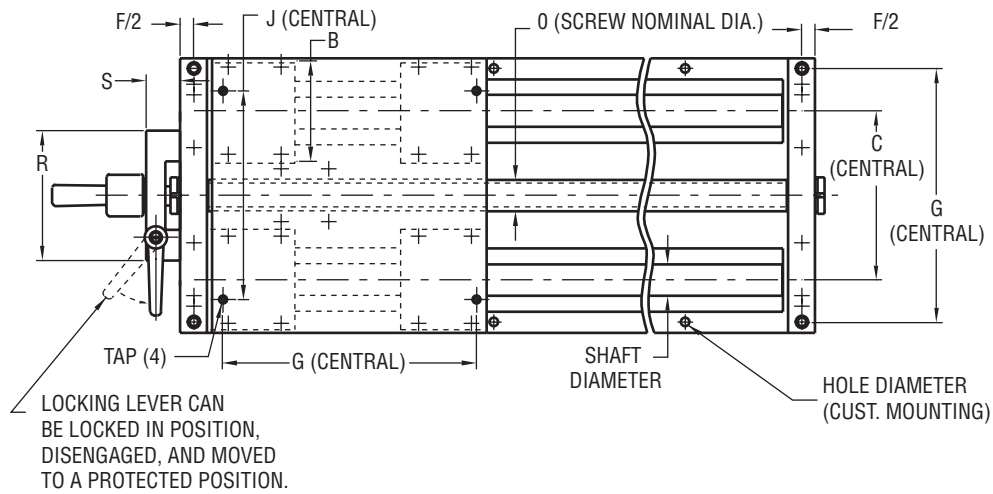
INCH  
ISO  
METRIC

# Simplicity<sup>®</sup> Linear Slides Handcrank & Wheel

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W     | H     | A     | B    | C     | D     | E     | F    | G      | J    | K     | O     | P    | Q    | R    | S     | T     | U    | V    | X    | Y     | Z     | Tap     | Hole Dia. |
|--------|------|-------------------|-------|-------|-------|------|-------|-------|-------|------|--------|------|-------|-------|------|------|------|-------|-------|------|------|------|-------|-------|---------|-----------|
| 2HXX   | 08   | .500              | 6.00  | 2.562 | 1.125 | 2.00 | 3.50  | 1.500 | .375  | .75  | 5.500  | 4.00 | 1.375 | .631  | 2.56 | 3.85 | 3.00 | .875  | 1.312 | 4.00 | 4.00 | 4.00 | 2.655 | 4.855 | 10-24   | .22       |
| 2HXX   | 10   | .625              | 7.00  | 2.750 | 1.125 | 2.50 | 4.00  | 1.625 | .375  | .75  | 6.312  | 4.00 | 1.375 | .631  | 2.56 | 3.85 | 3.00 | .875  | 1.312 | 4.00 | 4.00 | 4.00 | 2.655 | 4.855 | 1/4-20  | .28       |
| 2HXX   | 12   | .750              | 8.00  | 3.438 | 1.500 | 2.75 | 4.50  | 1.750 | .500  | 1.00 | 7.125  | 6.00 | 1.500 | .631  | 2.56 | 3.85 | 3.00 | .875  | 1.312 | 4.00 | 4.00 | 4.00 | 2.655 | 4.855 | 1/4-20  | .28       |
| 2HXX   | 16   | 1.000             | 9.00  | 3.938 | 1.750 | 3.25 | 5.50  | 2.125 | .500  | 1.00 | 8.312  | 6.00 | 2.125 | 1.000 | 2.56 | 3.69 | 4.25 | 1.125 | 2.000 | 4.25 | 5.00 | 6.00 | 3.185 | 5.745 | 1/4-20  | .28       |
| 2HXX   | 20   | 1.250             | 11.00 | 5.125 | 2.125 | 4.00 | 6.50  | 2.500 | .750  | 1.25 | 10.000 | 6.00 | 2.375 | 1.000 | 2.56 | 3.69 | 4.25 | 1.125 | 2.000 | 4.25 | 5.00 | 6.00 | 3.185 | 5.745 | 5/16-18 | .34       |
| 2HXX   | 24   | 1.500             | 13.00 | 5.750 | 2.500 | 4.75 | 8.00  | 3.000 | .750  | 1.25 | 12.000 | 8.00 | 2.875 | 1.500 | 3.15 | 5.81 | 6.50 | 1.500 | 3.000 | 6.90 | 8.00 | 8.00 | 4.310 | 7.460 | 5/16-18 | .34       |
| 2HXX   | 32   | 2.000             | 18.00 | 7.375 | 3.250 | 6.00 | 10.00 | 3.750 | 1.000 | 1.50 | 15.875 | 8.00 | 3.875 | 1.500 | 3.15 | 5.81 | 6.50 | 1.500 | 3.000 | 6.90 | 8.00 | 8.00 | 4.310 | 7.460 | 3/8-16  | .41       |

Dimensions in inches.



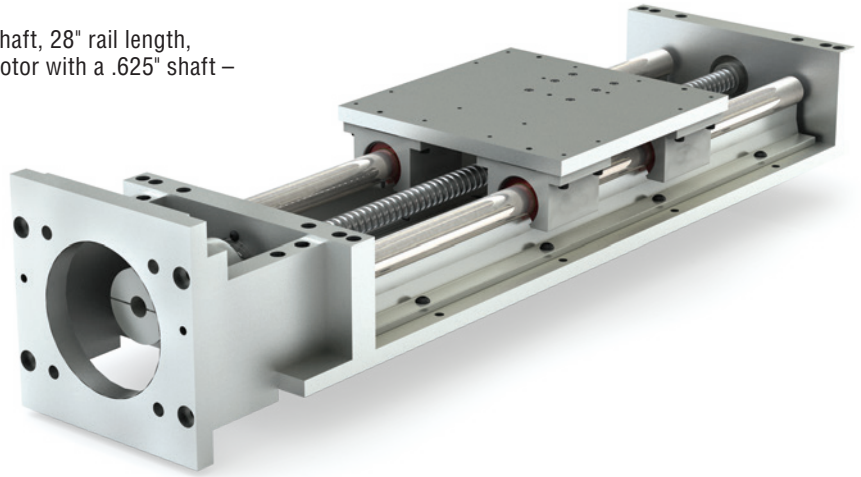
\*Hole distance to each end is equal unless specified at time of order.

# Simplicity® Linear Slides Nema Drive Kit

## Slide Assembly & Nema Drive Kit 2N42, 56, 143

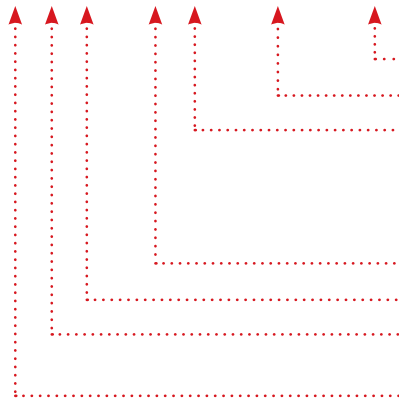
### Ordering Example:

To order a slide with a 1" diameter alloy steel linear shaft, 28" rail length, .250" right hand select ball screw, and a NEMA 56 motor with a .625" shaft – specify part number, 2N56-1600-028.000-AB7R.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| 2NXX   | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 24 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 32 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J  
**B** = Ball Bearing

Motor Mounting Dimensions: See table below

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 16   | ABXR                 | ABXL | ACXR | ADXR |      |      |
| 20   | ABXR                 | ABXL | ACXR | ADXR |      |      |
| 24   | ABXR                 | ABXL | ACXR | ADXR | ADXL | AEXR |
| 32   | ABXR                 | ABXL | ACXR | ADXR | ADXL | AEXR |

ABXR = .250 Right Hand  
 ABXL = .250 Left Hand  
 ACXR = .500 Right Hand  
 ADXR = 1.000 Right Hand  
 ADXL = 1.000 Left Hand  
 AEXR = 1.875 Right Hand

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 16   | AB7R                 | AB7L | AC7R | AD7R |      |      |
| 20   | AB7R                 | AB7L | AC7R | AD7R |      |      |
| 24   | AB7R                 | AB7L | AC7R | AD7R | AD7L | AE7R |
| 32   | AB7R                 | AB7L | AC7R | AD7R | AD7L | AE7R |

AB7R = .250 Right Hand  
 AB7L = .250 Left Hand  
 AC7R = .500 Right Hand  
 AD7R = 1.000 Right Hand  
 AD7L = 1.000 Left Hand  
 AE7R = 1.875 Right Hand

### Motor Mounting Dimensions

Coupling MAX\* Torque Dynamic Capacity = 200 in.-lbs.

| Size | Drive        | R     | S    | V     | X       | Y     | Z     |
|------|--------------|-------|------|-------|---------|-------|-------|
| 42A  | NEMA 32      | 3.000 | .375 | 5.000 | .28     | 3.750 | 2.652 |
| 42B  | NEMA 42      | 2.188 | .625 | 5.000 | 5/16-18 | 4.950 | 3.500 |
| 56   | NEMA 56      | 4.500 | .625 | 7.000 | .41     | 5.875 | 4.154 |
| 143  | NEMA 143/145 | 4.500 | .875 | 7.000 | .41     | 5.875 | 4.154 |

**Note:** Contact factory for international drives and low profile slide assembly availability.

\*Due to ball screw and nut life/torque capacities for 16 and 20 size slides, do not exceed 100 in.-lbs. of input torque without consulting factory.

### Standard Length Table

| Size | Available Rail Lengths – L** (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 16   | 012                                      | 018 | 024 | 030 | 036 | 042 | 048 | 054 | 060 | 066 | 072 | 078 | 084 | 090 | 096 |
| 20   | 012                                      | 018 | 024 | 030 | 036 | 042 | 048 | 054 | 060 | 066 | 072 | 078 | 084 | 090 | 096 |
| 24   | 016                                      | 024 | 032 | 040 | 048 | 056 | 064 | 072 | 080 | 088 | 096 |     |     |     |     |
| 32   | 024                                      | 032 | 040 | 048 | 056 | 064 | 072 | 080 | 088 | 096 |     |     |     |     |     |

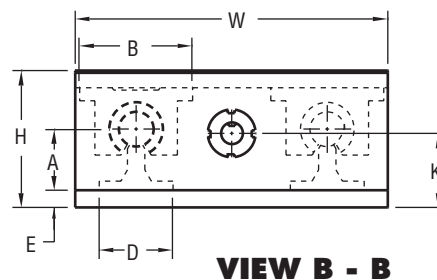
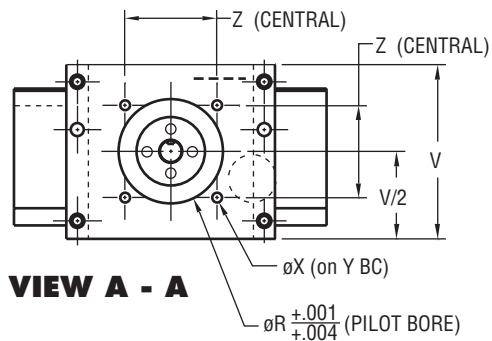
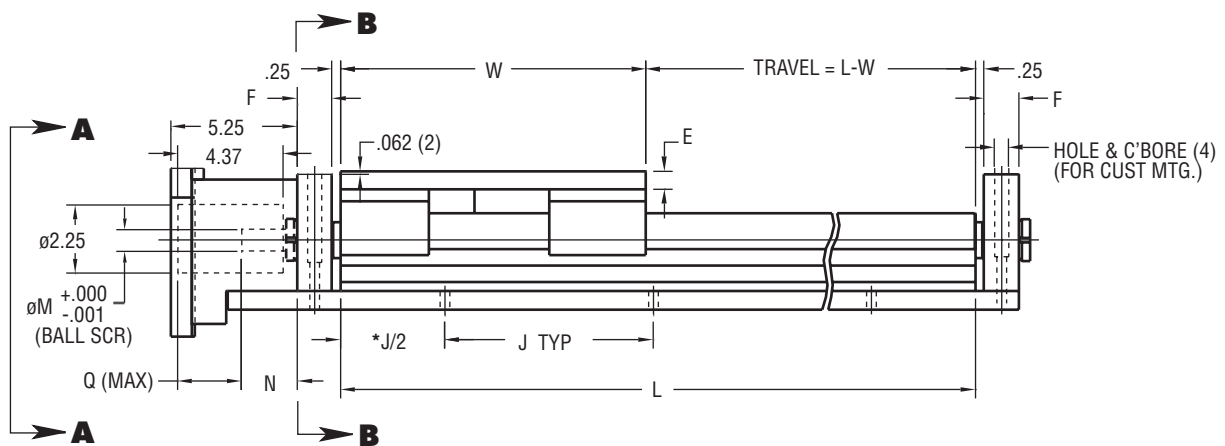
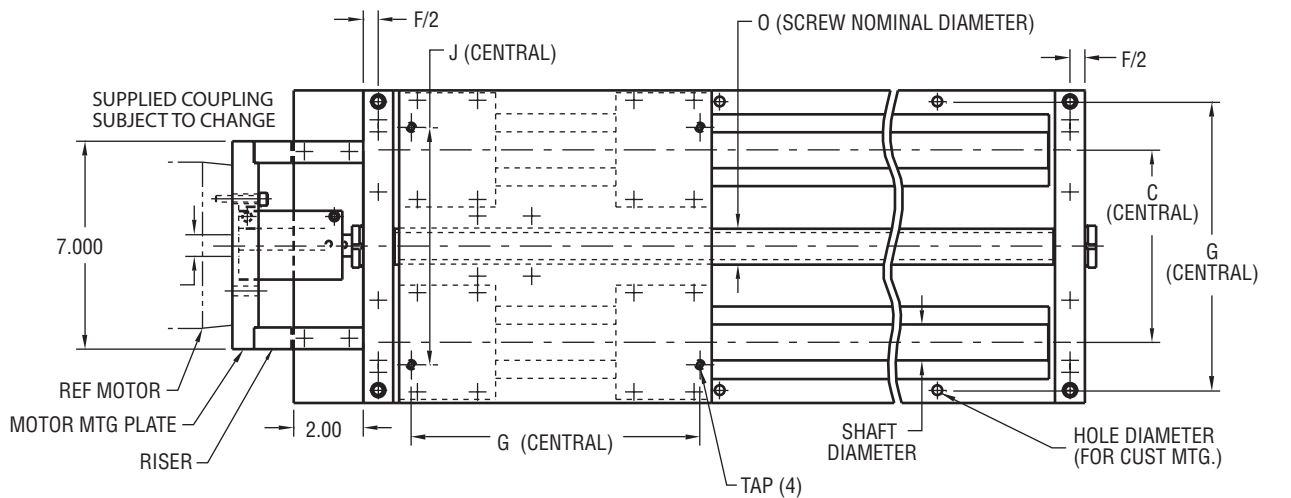
\*\*Contact factory for longer or non-standard lengths.

# Simplicity<sup>®</sup> Linear Slides Nema Drive Kit

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W      | H     | A     | B    | C     | D    | E     | F    | G      | J    | K     | M    | N    | O     | Q    | Tap     | Hole Dia. |
|--------|------|-------------------|--------|-------|-------|------|-------|------|-------|------|--------|------|-------|------|------|-------|------|---------|-----------|
| 2NXX   | 16   | 1.00              | 9.000  | 3.938 | 1.750 | 3.25 | 5.50  | 2.12 | 0.500 | 1.00 | 8.312  | 6.00 | 2.125 | .625 | 1.76 | 1.000 | 3.00 | 1/4-20  | .28       |
| 2NXX   | 20   | 1.25              | 11.000 | 5.125 | 2.125 | 4.00 | 6.50  | 2.50 | 0.750 | 1.25 | 10.000 | 6.00 | 2.375 | .625 | 1.76 | 1.000 | 3.00 | 5/16-18 | .34       |
| 2NXX   | 24   | 1.50              | 13.000 | 5.750 | 2.500 | 4.75 | 8.00  | 3.00 | 0.750 | 1.25 | 12.000 | 8.00 | 2.875 | .875 | 2.31 | 1.500 | 2.62 | 5/16-18 | .34       |
| 2NXX   | 32   | 2.00              | 18.000 | 7.375 | 3.250 | 6.00 | 10.00 | 3.75 | 1.000 | 1.75 | 15.875 | 8.00 | 3.875 | .875 | 2.31 | 1.500 | 2.62 | 3/8-16  | .41       |

Dimensions in inches.



\*Hole distance to each end is equal unless specified at time of order.

INCH

ISO  
METRIC

JIS  
METRIC

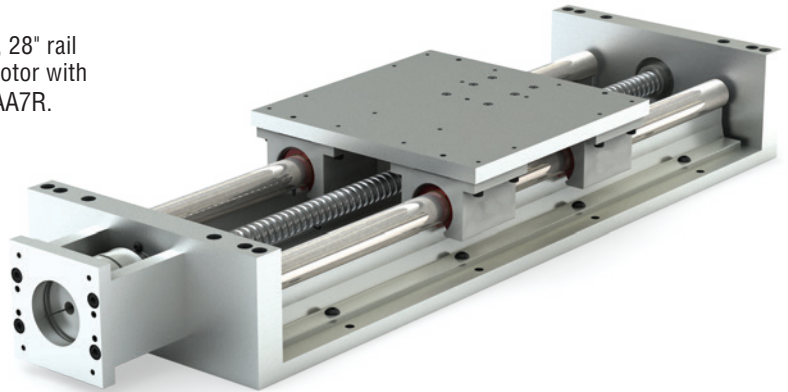


# Simplicity® Linear Slides Nema Drive Kit

## Slide Assembly & NEMA Drive Kit 2N23 & 2N34

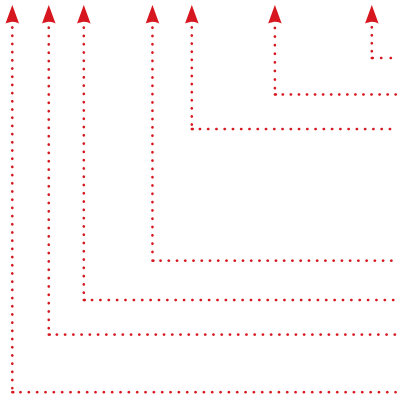
### Ordering Example:

To order a slide with a .625" diameter alloy steel linear shaft, 28" rail length, .200" right hand select ball screw, and a NEMA 23 motor with a .250" shaft – specify part number, 2N23A-1000-028.000-AA7R.



### Part Number

| Series |   |     | Size |    | L         | Lead   |
|--------|---|-----|------|----|-----------|--------|
| 2NXX   | X | XXX | - 08 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 10 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 12 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 16 | XX | - XXX.XXX | - YYYY |
| 2NXX   | X | XXX | - 20 | XX | - XXX.XXX | - YYYY |



Substitute standard or select lead code from table for "YYYY"

Enter rail length in inches XXX.XXX (EX: 28" = 028.000)

Shafting material: **00** = Alloy Steel (Standard) **CC** = Ceramic Coated  
**S3** = 303 Stainless Steel **SS** = 440 Stainless Steel  
**CR** = Chrome Plated 303 SST  
**Note:** Ball bearings not suitable with chrome plated 303 sst or ceramic coated shafting.

Shaft diameter dimension in 1/16" increments

Internal Lubrication: **Blank** = None (Standard) **JKM** = Thru hole and internal felt wick

Bearing Type: **Blank** = Simplicity FrelonGOLD® **E** = Simplicity Frelon® J  
**B** = Ball Bearing

Motor Mounting Dimensions: See table below

### Standard Lead Table

Accurate to less than .007" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AAXR                 | AAXL |      |      |      |      |
| 10   | AAXR                 | AAXL |      |      |      |      |
| 12   | AAXR                 | AAXL |      |      |      |      |
| 16   |                      |      | ABXR | ABXL | ACXR | ADXR |
| 20   |                      |      | ABXR | ABXL | ACXR | ADXR |

AAXR = .200 Right Hand  
 AAXL = .200 Left Hand  
 ABXR = .250 Right Hand  
 ABXL = .250 Left Hand  
 ACXR = .500 Right Hand  
 ADXR = 1.000 Right Hand

### Select Lead Table

Accurate to less than .003" per foot accumulative

| Size | Available Lead Codes |      |      |      |      |      |
|------|----------------------|------|------|------|------|------|
| 08   | AA7R                 | AA7L |      |      |      |      |
| 10   | AA7R                 | AA7L |      |      |      |      |
| 12   | AA7R                 | AA7L |      |      |      |      |
| 16   |                      |      | AB7R | AB7L | AC7R | AD7R |
| 20   |                      |      | AB7R | AB7L | AC7R | AD7R |

AA7R = .200 Right Hand  
 AA7L = .200 Left Hand  
 AB7R = .250 Right Hand  
 AB7L = .250 Left Hand  
 AC7R = .500 Right Hand  
 AD7R = 1.000 Right Hand

### Motor Mounting Dimensions

Coupling MAX\* Torque  
 Dynamic Capacity = 50 in.-lbs.

| Size       | Drive   | R     | S    | V     | X     | Y     | Z     |
|------------|---------|-------|------|-------|-------|-------|-------|
| <b>23A</b> | NEMA 23 | 1.502 | .250 | 2.500 | 10-32 | 2.625 | 1.856 |
| <b>23B</b> | NEMA 23 | 1.502 | .375 | 2.500 | 10-32 | 2.625 | 1.856 |
| <b>34A</b> | NEMA 34 | 2.875 | .375 | 3.500 | 10-32 | 3.875 | 2.740 |
| <b>34B</b> | NEMA 34 | 2.875 | .500 | 3.500 | 10-32 | 3.875 | 2.740 |

**Note:** Contact factory for international drives and low profile slide assembly availability.

\*Due to ball screw and nut life/torque capacities for 08, 10, or 12 size slides, do not exceed 30 in.-lbs. of input torque without consulting factory.

### Standard Length Table

| Size | Available Rail Lengths – L** (in inches) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 08   | 008                                      | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 10   | 008                                      | 012 | 016 |     | 020 | 024 | 028 |     | 032 | 036 | 040 |     | 044 | 048 | 052 |     | 056 | 060 | 064 |     | 068 | 072 | 076 |     | 080 | 084 | 088 |     | 092 | 096 |
| 12   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 16   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |
| 20   |  | 012 |     | 018 |     | 024 |     | 030 |     | 036 |     | 042 |     | 048 |     | 054 |     | 060 |     | 066 |     | 072 |     | 078 |     | 084 |     | 090 | 096 |     |

\*\*Contact factory for longer or non-standard lengths.

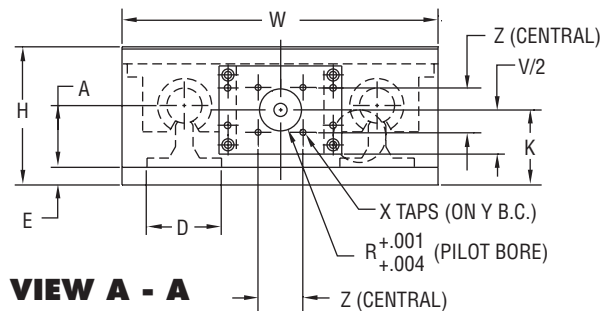
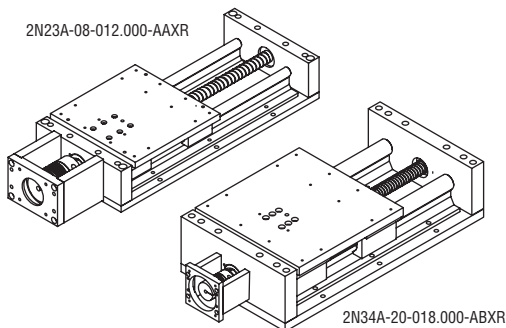
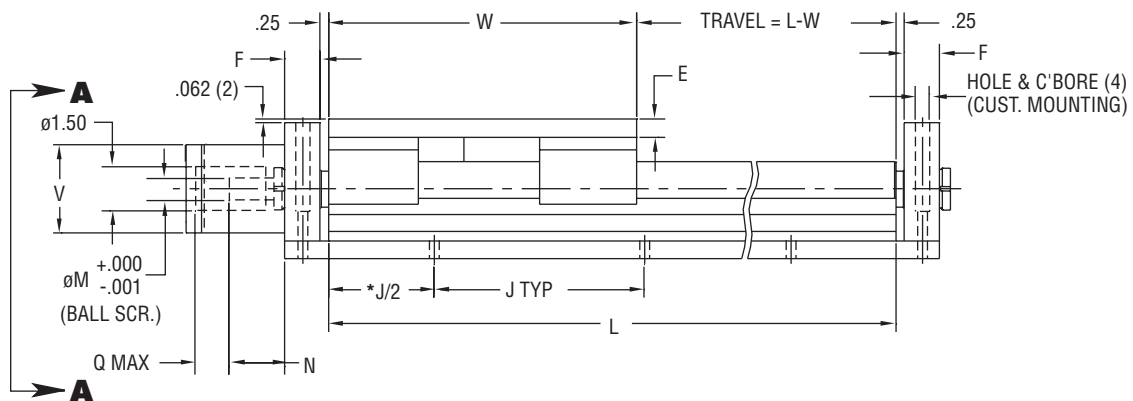
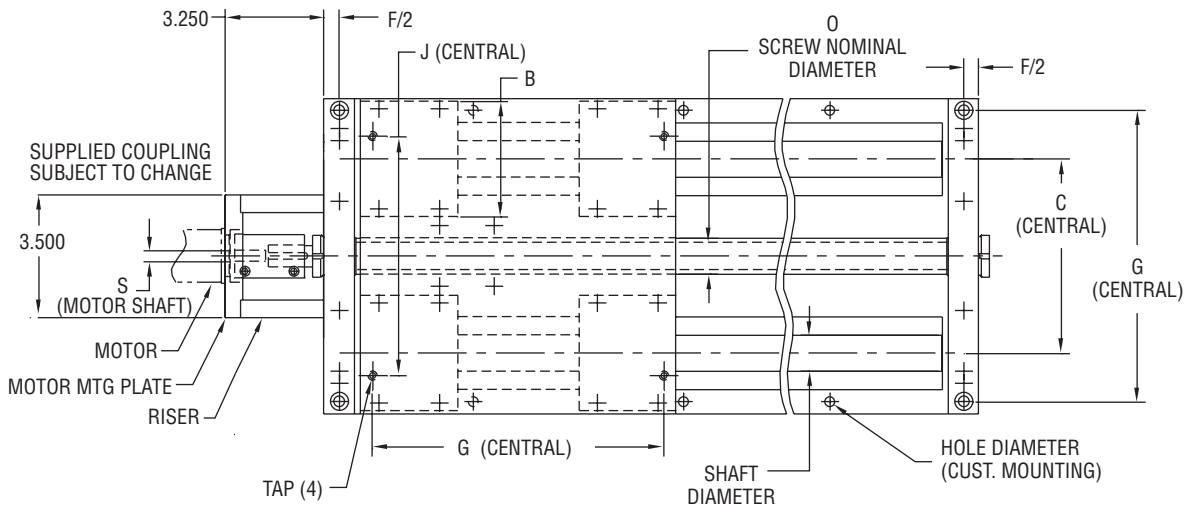
INCH  
ISO  
METRIC

# Simplicity<sup>®</sup> Linear Slides Nema Drive Kit

## DIMENSIONAL INFORMATION

| Series | Size | Linear Shaft Dia. | W     | H     | A     | B    | C    | D     | E    | F    | G      | J    | K     | M    | N    | O     | Q    | Tap     | Hole Dia. |
|--------|------|-------------------|-------|-------|-------|------|------|-------|------|------|--------|------|-------|------|------|-------|------|---------|-----------|
| 2NXX   | 08   | .500              | 6.00  | 2.562 | 1.125 | 2.00 | 3.50 | 1.500 | .375 | .75  | 5.500  | 4.00 | 1.375 | .375 | 1.45 | .631  | 1.31 | 10-24   | .22       |
| 2NXX   | 10   | .625              | 7.00  | 2.750 | 1.125 | 2.50 | 4.00 | 1.625 | .375 | .75  | 6.312  | 4.00 | 1.375 | .375 | 1.45 | .631  | 1.31 | 1/4-20  | .28       |
| 2NXX   | 12   | .750              | 8.00  | 3.438 | 1.500 | 2.75 | 4.50 | 1.750 | .500 | 1.00 | 7.125  | 6.00 | 1.500 | .375 | 1.45 | .631  | 1.31 | 1/4-20  | .28       |
| 2NXX   | 16   | 1.000             | 9.00  | 3.938 | 1.750 | 3.25 | 5.50 | 2.125 | .500 | 1.00 | 8.312  | 6.00 | 2.125 | .625 | 1.76 | 1.000 | 1.19 | 1/4-20  | .28       |
| 2NXX   | 20   | 1.250             | 11.00 | 5.125 | 2.125 | 4.00 | 6.50 | 2.500 | .750 | 1.25 | 10.000 | 6.00 | 2.375 | .625 | 1.76 | 1.000 | 1.19 | 5/16-18 | .34       |

Dimensions in inches.



\*Hole distance to each end is equal unless specified at time of order.

INCH

ISO METRIC

JIS METRIC

# Simplicity® Linear Slides Column Load Chart

## Compression (Column) Load

Compression-column load is a load that tends to buckle or compress the screw shaft.

### How To Use Chart:

1. Determine maximum compression load (lbs.)
2. Determine slide length. ("L" dimension)
3. Determine end fixity and slide designation (2RPS and 2LRPS)
4. Find the point at which load and length intersect
5. Select a slide above or to the right of the intersecting point

**Note:** Applies primarily to vertical applications.

## Column Load Formulas:

$$P_C = C_C \cdot 14.03 \times 10^6 \cdot \left( \frac{D^4}{L^2} \right)$$

$P_C$  = Critical column load (lbs.)

$D$  = Root diameter of screw (in.) (See chart)

$L$  = Slide length (in.)

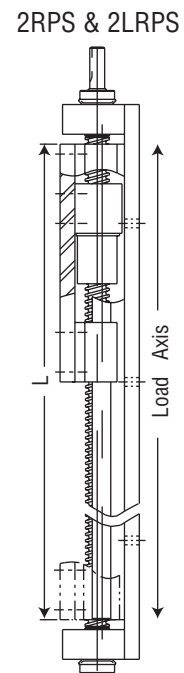
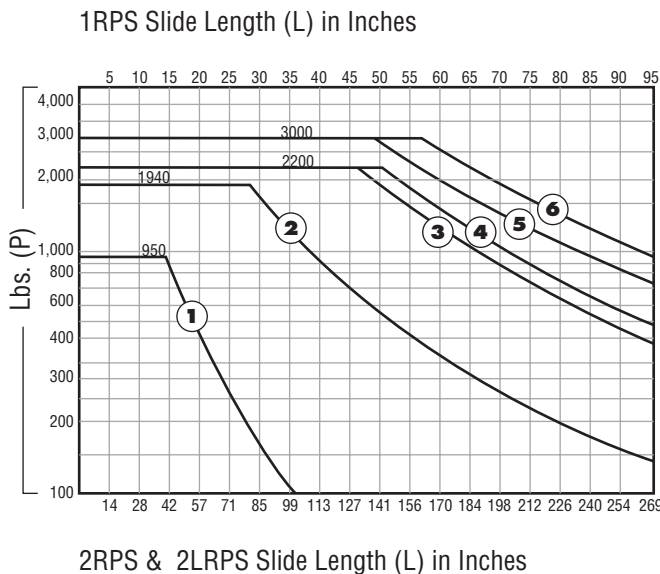
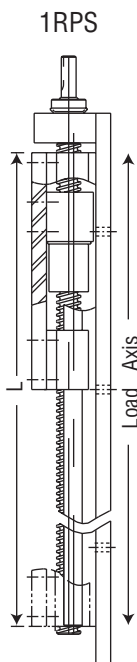
$C_C$  = End fixity factor

$C_C$  = .25 for 1RPS

$C_C$  = 2.0 for 2RPS and 2LRPS

**Note:** Chart figures at 80% of actual load. Do not exceed these figures.

| Curve #              | Slide Series         | Lead  | D (in.) |
|----------------------|----------------------|-------|---------|
| 1                    | 1 & 2RPS-08 2LRPS-08 |       | .500    |
|                      | 1 & 2RPS-10 2LRPS-10 | A Axx |         |
|                      | 1 & 2RPS-12 2LRPS-12 |       |         |
| 2                    | 1 & 2RPS-16 2LRPS-16 | A Bxx | .840    |
|                      | 1 & 2RPS-20 2LRPS-20 |       |         |
|                      | 1 & 2RPS-16 2LRPS-16 | A Dxx |         |
|                      | 1 & 2RPS-20 2LRPS-20 |       |         |
|                      | 1 & 2RPS-16 2LRPS-16 | A Cxx |         |
| 1 & 2RPS-20 2LRPS-20 |                      |       |         |
| 3                    | 1 & 2RPS-24 2LRPS-24 | A Dxx | 1.140   |
|                      | 1 & 2RPS-32 2LRPS-32 |       |         |
| 4                    | 1 & 2RPS-24 2LRPS-24 | A Exx | 1.190   |
|                      | 1 & 2RPS-32 2LRPS-32 |       |         |
| 5                    | 1 & 2RPS-24 2LRPS-24 | A Cxx | 1.260   |
|                      | 1 & 2RPS-32 2LRPS-32 |       |         |
| 6                    | 1 & 2RPS-24 2LRPS-24 | A Bxx | 1.375   |
|                      | 1 & 2RPS-32 2LRPS-32 |       |         |



INCH  
 ISO METRIC  
 JIS METRIC

# Simplicity® Linear Slides Critical Speed Chart

## Critical Speed

The maximum speed at which a ball screw or ball nut can rotate without producing destructive resonant vibrations. The critical speed is a function of the ball screw diameter, the unsupported length of the screw, rigidity of the bearing supports, and RPM.

### How To Use Chart:

1. Determine end fixity. How many ends are fixed? (Slide designation, 2RPS and 2LRPS)
2. Determine slide length. ("L" dimension)
3. Find the length – fixity vertical line, read up to find the intersecting, at the required travel rate
4. Select a slide above or to the right of the intersection point
5. Higher speeds and/or longer lengths are available as cost effective specials, having a larger ball screw and bearings

## Critical Speed Formulas:

$$N = C_s \cdot 7.93 \times 10^4 \cdot \left( \frac{DH}{L^2} \right)$$

**N** = Critical speed (MAX) (expressed in in./sec.)

**D** = Root diameter of screw (See chart)

**H** = Lead of screw (in.) (See chart)

**L** = Slide length (in.)

**C<sub>s</sub>** = End fixity factor

**C<sub>s</sub>** = 0.36 for 1RPS

**C<sub>s</sub>** = 1.47 for 2RPS and 2LRPS

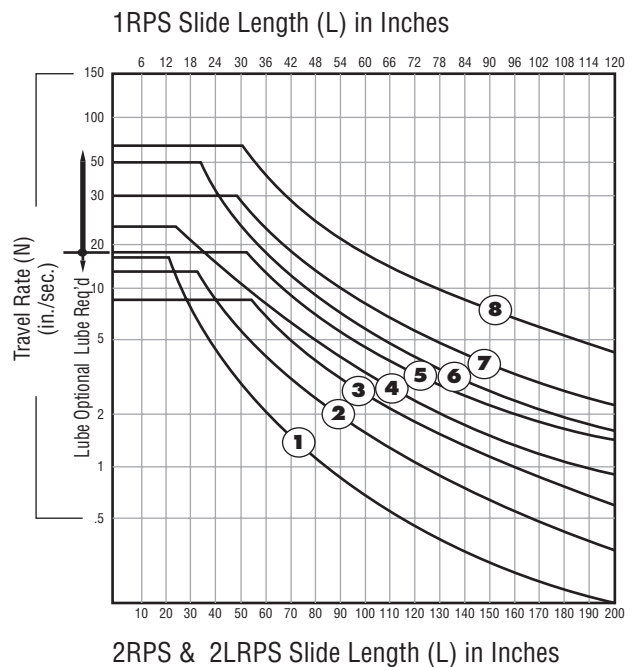
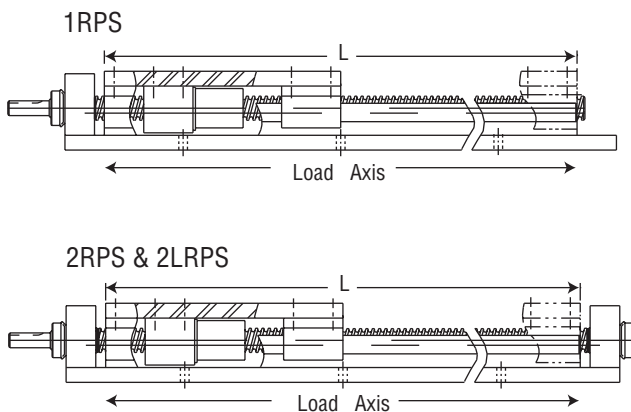
**Note:** Chart figures at 80% of actual load. Do not exceed these figures.

| Curve # | Slide Series | Lead     | D (in.) | H (in.) |
|---------|--------------|----------|---------|---------|
| 1       | 1 & 2RPS-08  | 2LRPS-08 | AAxx    | .500    |
|         | 1 & 2RPS-10  | 2LRPS-10 |         |         |
|         | 1 & 2RPS-12  | 2LRPS-12 |         |         |
| 2       | 1 & 2RPS-16  | 2LRPS-16 | ABxx    | .840    |
|         | 1 & 2RPS-20  | 2LRPS-20 |         |         |
| 3       | 1 & 2RPS-24  | 2LRPS-24 | ABxx    | 1.375   |
|         | 1 & 2RPS-32  | 2LRPS-32 |         |         |
| 4       | 1 & 2RPS-16  | 2LRPS-16 | ACxx    | .870    |
|         | 1 & 2RPS-20  | 2LRPS-20 |         |         |
| 5       | 1 & 2RPS-24  | 2LRPS-24 | ACxx    | 1.260   |
|         | 1 & 2RPS-32  | 2LRPS-32 |         |         |
| 6       | 1 & 2RPS-16  | 2LRPS-16 | ADxx    | .840    |
|         | 1 & 2RPS-20  | 2LRPS-20 |         |         |
| 7       | 1 & 2RPS-24  | 2LRPS-24 | ADxx    | 1.140   |
|         | 1 & 2RPS-32  | 2LRPS-32 |         |         |
| 8       | 1 & 2RPS-24  | 2LRPS-24 | AExx    | 1.190   |
|         | 1 & 2RPS-32  | 2LRPS-32 |         |         |

INCH

ISO  
METRIC

JIS  
METRIC



# Round Shaft Technology Technical

## TABLE OF CONTENTS

### Simplicity® Linear Plain Bearings

|  |     |
|--|-----|
| Ratings for plain bearings . . . . .     | 117 |
| Types & effects of lubrication . . . . . | 118 |
| Load capacity . . . . .                  | 119 |
| Wear rate . . . . .                      | 120 |
| Coefficient of friction . . . . .        | 121 |
| Cantilevered loads . . . . .             | 122 |
| Shaft deflection . . . . .               | 124 |
| Installation . . . . .                   | 126 |
| Chemical reaction chart . . . . .        | 130 |

### Linear Ball Bearings

|  |     |
|--|-----|
| Load rating . . . . .                    | 131 |
| Life expectancy & calculations . . . . . | 132 |
| Clearance & mounting . . . . .           | 134 |



Email an Application Engineer



# Ratings Simplicity® Plain Bearings

## Classes of Plain Bearings

Simplicity bearings are in a class of bearings known as Plain bearings, which means that they have no rolling elements. There are three classes of Plain bearings:

- Class I** – Require an outside source of lubrication (oil, grease, etc.).
- Class II** – Lubrication is impregnated within the walls of the bearing. (Bronze, powder metal, etc.) Typically, these bearings require an added lubricant also.
- Class III** – Self-lubricating bearings, which do not require added lubricants.

Simplicity bearings are Class III Plain bearings and are self-lubricating.

## Rating a Plain Bearing

Plain bearing performance capacity is rated by PV.

**P** = Pressure or load in pounds per square inch (psi) or kilograms per square centimeter (kg/cm<sup>2</sup>).

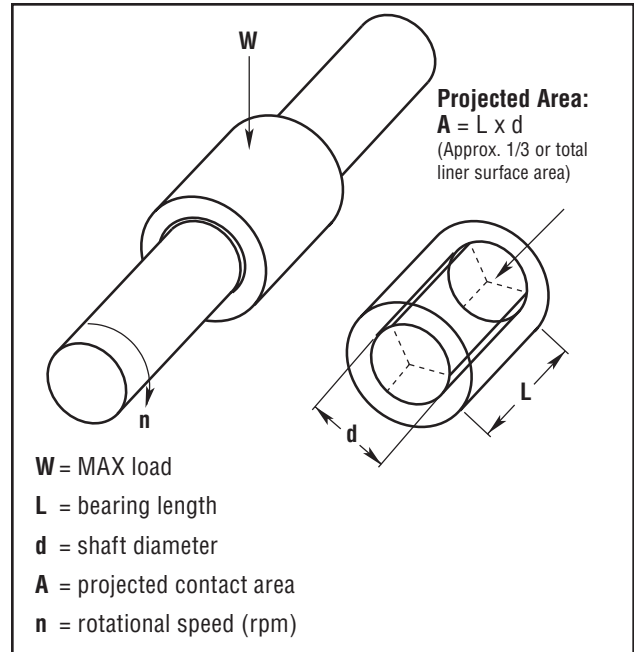
**V** = Velocity or surface speed in feet per minute (fpm or sfm) or meters per minute (m/min.).

**PV** = Pressure velocity value (Pressure x Velocity).

## Simplicity Maximum Parameters

| MAXIMUM PARAMETERS | P  | V<br>RUNNING DRY              | PV  |
|--------------------|--|-------------------------------|---|
| Frelon® J          | 1500 psi<br>or<br>105.45 kgf/cm <sup>2</sup> | 140 sfm<br>or<br>42.67 m/min. | 10,000 psi x ft./min.<br>or<br>215 kgf/cm <sup>2</sup> x m/min. |
| FrelonGOLD®        | 3000 psi<br>or<br>210.9 kgf/cm <sup>2</sup>  | 300 sfm<br>or<br>91.44 m/min. | 20,000 psi x ft./min.<br>or<br>430 kgf/cm <sup>2</sup> x m/min. |

**Note:** All three parameters must be met by an application for the bearing to perform properly.



## Formulas for Ratings

**Pressure is over the projected area of load:**

$$A = L \cdot d$$

$$P = \frac{W \text{ psi (or kg/cm}^2\text{)}}{A}$$

**Velocity:**

Linear = total distance traveled in one minute

**Rotational Velocity:**

$$V = \frac{\pi \cdot d \cdot n \text{ fpm (or m/min.)}}{12}$$

**Pressure velocity value (PV):**

$$PV = P \cdot V \text{ psi} \cdot \text{fpm (or kg/cm}^2 \cdot \text{m/min.)}$$

## PV equivalents

|                   | INCH       | TECHNICAL METRIC          | INT'L METRIC (SI)       |
|-------------------|------------|---------------------------|-------------------------|
| LOAD              | 1 psi      | .0703 kgf/cm <sup>2</sup> | .0069 N/mm <sup>2</sup> |
| VELOCITY          | 1 ft./min. | .3048 m/min.              | .00508 m/sec.           |
| PV                | 1 PV       | .0214 PV                  | .000036 PV              |
| FrelonGOLD MAX PV | 20,000     | 430                       | .72                     |
| Frelon J MAX PV   | 10,000     | 215                       | .36                     |



# Types & Effects of Lubrication Simplicity® Plain Bearings

## Types and Effects of Lubrication

Lubrication is any outside technique used for reducing the friction, wear, or both of a bearing. **Proper lubrication of Simplicity bearings is critical.** Evaluate lubrication needs on an application-by-application basis to determine whether or not it should be used at all, what type is needed, and how it is applied. Below are some criteria on which to base the lubricant decision:

Do not use WD40™, PTFE sprays, or other oils, greases, or sprays that contain fluorocarbons or silicone. In testing, these lubricants have proven to cause long-term stick-slip problems with the Frelon lined bearings. They tend to become a gummy substance that ultimately increases friction.

WD40™ is a registered trademark of the WD40 Corporation.

### Recommended Lubricants:

- Waylube oils
- Lightweight oils
- 3-in-1 type oils
- Lightweight petroleum based greases

## Using Oils with Simplicity

**DO NOT USE ANY TYPE OF MOTOR OIL OR OILS WITH ADDITIVES!** These types of oils work well short term, but quickly become ineffective, and will cause stick-slip reactions in the bearing. As a rule of thumb, the less additives in the oil, the better the performance. Recommended oils are Mobil Vactra #2 (a way lube oil) and any standard 3-in-1 oil. The 3-in-1 oils are tremendous cleaning oils and are the best in preparing for a proper transfer of teflon to the shafting.

## Grease Products

**DO NOT USE A MOLY FILLED OR OTHER TYPE FILLED GREASES!** They become like a lapping compound on the ID of the bearing and increase wear dramatically.

## Proper Use of Greases

Proper use of grease is critical for trouble-free operation.

Be sure the felt wick is removed from a “FL-xx-JKM” bearing because grease inserted through the zerk will cause the wick to act like a brake.

### Do not fill all of the running clearance with grease!

The temptation is to treat it like a rolling element bearing and fill it until it weeps from the end. This will cause greater friction and binding.

The rule of thumb for the bearing liner that “thin is better” applies to the use of grease also.

If grease is used and does not work in the application, it is possible to salvage the bearing with minimal work and to continue to operate. Follow the steps below:

1. If possible, remove the bearing from the housing, wipe the grease from the liner, use a 3-in-1 type oil to clean the excess remaining grease, and reinstall.
2. If it is not possible to remove the bearing, wipe as much grease as possible away from the ends of the bearing, then start to fill with a 3-in-1 type oil for cleaning the liner. To speed the cleaning process, apply forced air to the bearing through the zerk hole and continue using oil lubrication.

## Effects of Lubrication

Lubrication can greatly increase the performance of a bearing when applied properly as noted earlier. Actual performance results for specific applications are difficult to predict due to the number of elements involved (temperature change with lube, useable life, or aging of lubricant, etc.). Specific application testing is recommended to establish specific performance parameters.

# Load Capacity Simplicity® Plain Bearings

## Load Capacity (Pressure)

Depending upon the material used, a plain bearing's load capacity can greatly exceed a rolling element bearing. There are three basic reasons for this:

1. The area of surface contact with the shaft is far greater than rolling element bearings, which have point-to-point contact with a given number of balls.
2. A rolling element bearing must be oriented properly for the ball tracks to carry the load adequately, while a Plain bearing can be mounted in any orientation.
3. Only one or two of the tracks in a rolling element bearing will actually carry any of the load applied.

Simplicity bearings have a thin liner that is bonded to a metal shell at the molecular level, allowing the load to be transferred throughout the bearing. This gives it an advantage over other Plain bearings of solid plastic or polymer materials. These other materials will tend to "cold flow" under pressure. "Cold flow" means to deform or lose shape. The idea is similar to pressing your finger into a bar of soap – material will move or deform as pressure is applied.

---

## Linear Surface Speeds (Velocity)

In typical applications, speed is a known quantity and easily converted. Typically feet per minute or meters per minute are used. The most important factor that speed (along with friction) produces is heat buildup. This is not a critical factor in most linear applications because the heat is dissipated over the length of travel, and it does not affect the bearing. Short stroke or extremely high speed applications may see the effects of heat buildup in thermal expansion and the bearing ID locking on the shaft. A compensated ID bearing (FLC) is recommended in these applications.

## Factors that Contribute to Wear Life

Plain bearings are rated by the wear rate of the bearing material. Wear is greatly dependent upon the proper application of the bearing and material used.

- Proper mating of shaft and liner materials.
- Surface finish 8-16 Ra (.20-.40 mm) is required. Peaks in the surface that are polished to a radius provide the best running surface. Sharp peaks in the finish will be like a fine lapping compound wearing the I.D. of the bearing.

**Note:** Shafting damaged by use with ball bearings can be salvaged and used with Simplicity bearings. Spin in a lathe and polish with sand papers in this order: 120 grit, 180 grit, and 300 grit. This will also remove sharp peaks in the surface finish.

- **Surface speed** - at high speeds, heat buildup will affect liner wear.
- **Break-in transfer** - proper transfer process of the liner to the shaft.
- **Lubrication** - proper lubrication can greatly improve the wear rate of a bearing. At the same time, improper lubrication can increase wear and failure.
- **Load & Wear Relationship** - wear rate is proportional to load to the third power: wear rate  $\propto$  (load)<sup>3</sup>.

If load is reduced to 1/2, wear will be reduced to (1/2)<sup>3</sup>.

- **Contamination** - while migrating into the bearing and embedding into the liner, certain types of contamination may, over time, cause increased wear to the liner.

**Note:** This is not an all inclusive list. There are many more factors within an application that can affect wear to different degrees. These are the major issues and the first things to address in a design.

# Wear Rate Simplicity® Plain Bearings

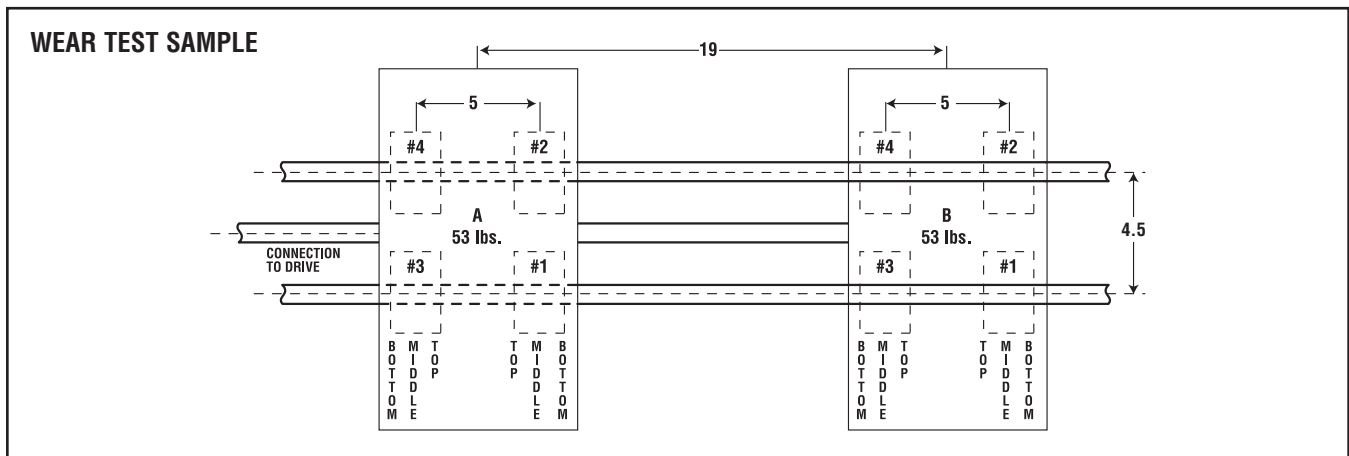
## Wear Rate vs. Life Expectancy

A rolling element linear bearing's life expectancy is usually expressed in total inches or meters. A rolling element rotary bearing's life expectancy is expressed in hours of operation. Both are also rated for average (L-50) and minimum (L-10) life. L-50 life is the average life that can be expected from 50% of rolling element bearings. In other words, 50% will not reach the average life expectancy. L-10 life is the minimum life (1/5 the average life) expected from 90% of rolling element bearings. In other words, 10% will not reach the minimum life expectancy. Theoretically they could fail upon installation.

Plain bearings are not rated by a life expectancy but by the wear rate of the bearing material. Wear is greatly dependent upon the proper application of the bearing and material used.

If it is not properly applied, it will fail. Failure, however, is subjective and dependent upon specific application requirements. 0.002" running clearance may not be acceptable in one application while another may be able to run a bearing until the liner is completely worn through. The user may then rotate it 30 degrees and continue to run it. This broad range of acceptability makes it difficult to determine life expectancy.

The first step is to determine what wear is acceptable for your application. Then utilizing the test data below, you can estimate the wear expected for your given application.



**CONDUCTED BY:** Pacific Bearing® Company

**BEARING MATERIAL:** FrelonGOLD®

**SHAFT MATERIAL:** Standard RC60 steel shafting

**SURFACE FINISH:** 8-12 Ra

**SPEED:** 140 fpm (70 cycles/min.; 1,680"/min.; 100,800"/hour; 2,419,200"/day)

**STROKE:** 12"

**LOAD:** 10.87 psi (53 lbs.)

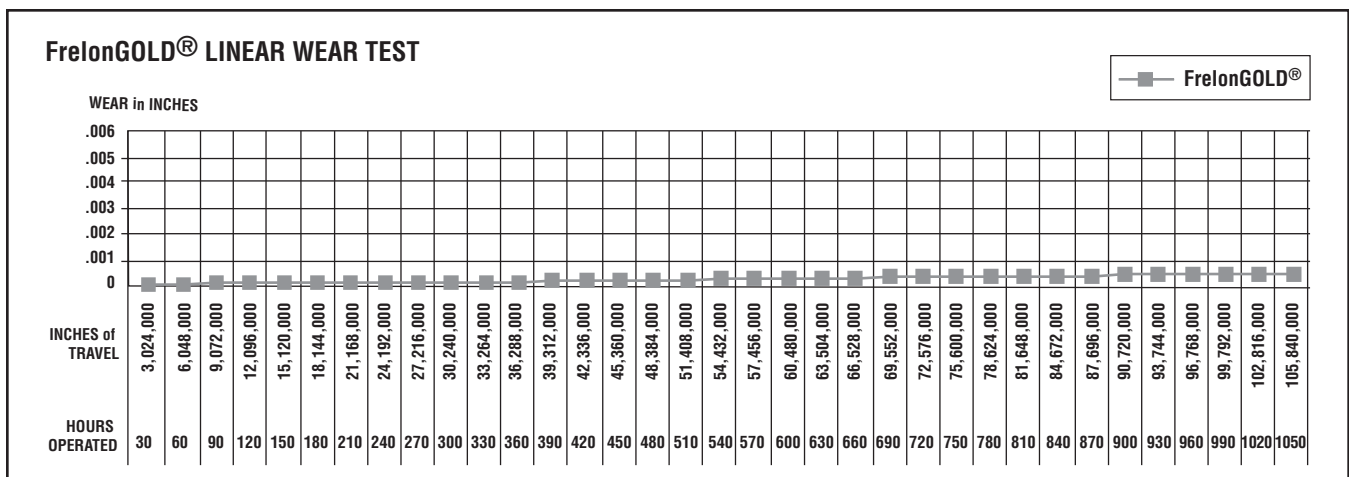
**BEARINGS USED:** FLN12 (3/4" open style bearings)

**LUBRICATION:** None

**TOTAL WEAR TO BEARING MATERIAL:**  
FrelonGOLD® = .00042"

**Note:** Wear is an average of totals taken from 4 bearings per carriage.

TECHNICAL

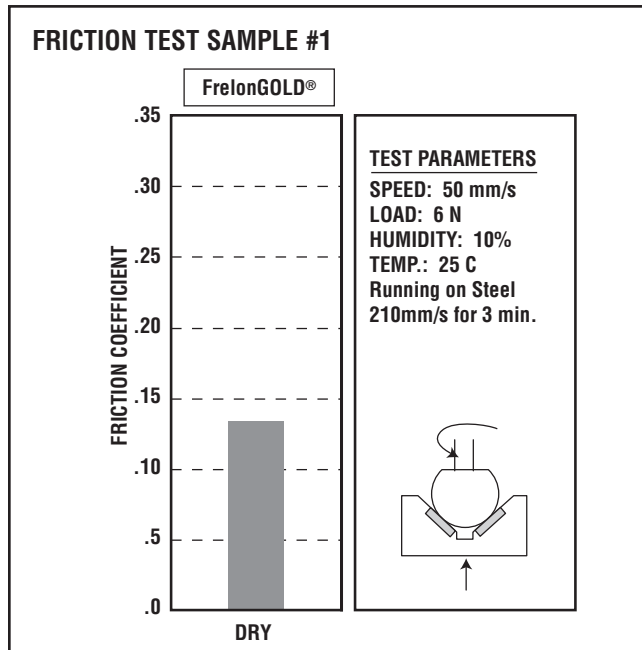


# Coefficient of Friction Simplicity® Plain Bearings

## Coefficient of Friction

A frequent misconception of Plain bearings is that wear and friction are basically synonymous, in that, high friction equals high wear or that low friction equals low wear. While there can be a relation between the two, they should be addressed as separate issues in the design process.

For example, dry running virgin (unfilled) Teflon® on steel's coefficient of friction (c.o.f.) is approximately .1 while filled Teflon's c.o.f. can range from .125 to .4 depending on the fillers used. By comparison, however, the virgin Teflon will wear at a much greater rate.



**CONDUCTED BY:** Dr. Tillwich GmbH

**MANAGING DIRECTOR:** Mr. Werner Stehr (World leading tribologist with a seat on the ISOTC123 Committee establishing standards for tribological testing)

**BEARING MATERIAL:** FrelonGOLD®

**SHAFT MATERIAL:** Standard RC60 steel shafting

**SURFACE FINISH:** 8-12 Ra

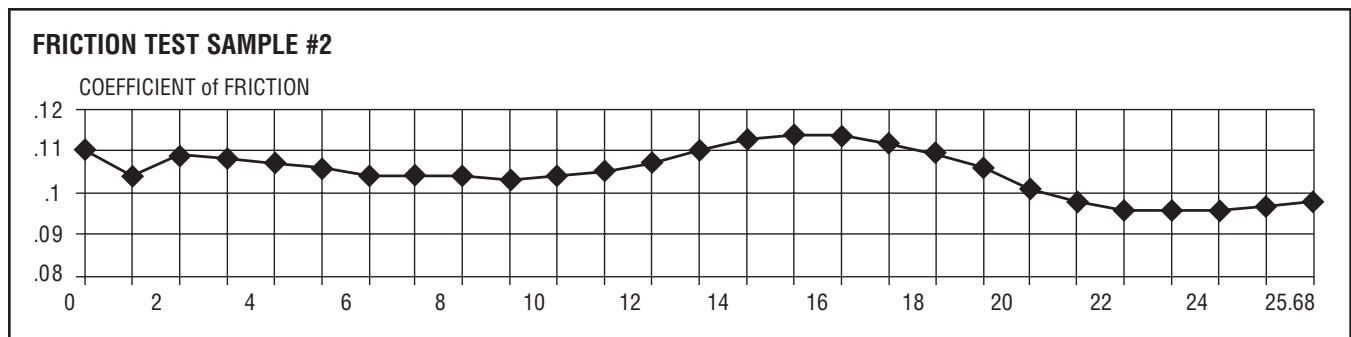
**SPEED:** 50 mm/sec.

**LOAD:** 6 N

**TEMPERATURE:** 25° C

**LUBRICATION:** None

**AVERAGE COEFFICIENT OF FRICTION:**  
 FrelonGOLD = .125



**CONDUCTED BY:** FrelonGOLD material processor

**BEARING MATERIAL:** FrelonGOLD

**SHAFT MATERIAL:** CRS 1018

**SPEED:** 100 fpm

**LOAD:** 100 psi

**DURATION:** 25.68 hours

**LUBRICATION:** None

**SURFACE FINISH:** 8 Ra

**AVERAGE COF:** 0.10

**MAX. COF:** 0.15

**MIN. COF:** 0.08

**AVERAGE RUNNING TEMPERATURE:** 95.40° F

# Cantilevered Loads Simplicity® Plain Bearings

## Cantilevered Loads

- Maximum 2:1 ratio
- 1x = bearing separation on same shaft
- 2x = distance from shaft to load or force

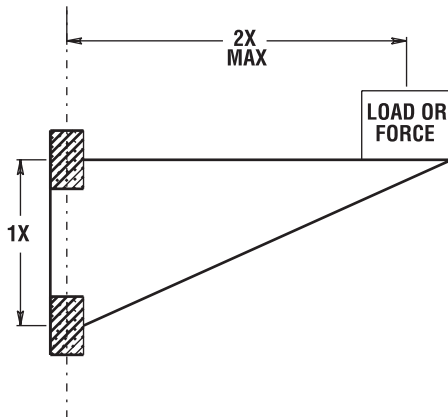
**Example:** If 2x equals 10" then 1x must be at least 5"

**CAUTION** Binding will occur if the 2:1 ratio is exceeded!!

This principle is NOT load dependent. It is NOT due to edge loading. It is also NOT dependent on the driving force used. The bearings will bind whether hand or mechanically driven. This principle is a product of friction.

**Working through the following equation will explain why this is a product of friction:**

- P = force being applied
- L = distance out from shaft that P is being applied
- s = center to center spacing of bearings
- f = resultant force on bearings by shaft
- F = friction force on each bearing
- $\mu$  = coefficient of friction (about .25 when not moving)



**Balance the moments:**  $f \cdot s = L \cdot P$   
 $L / s = f / P$

**Compute friction force:**  $F = f \cdot \mu$

**Note:** Total friction force pushing up is  $2 \cdot F$ . To lock up the slide, the total friction force must be equal to (or greater than) P.

$$P = 2 \cdot F = 2 \cdot f \cdot \mu$$

**Substitute for P:**

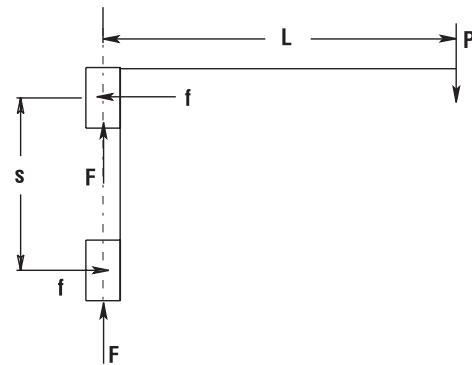
$$L / s = f / (2 \cdot f \cdot \mu) = 1 / (2 \cdot \mu) \Rightarrow L / s = 1 / (2 \cdot \mu)$$

**Note:** The forces drop out of the equation.

Assume static coefficient of friction is .25 ( $\mu = .25$ ) then  $L / s = 2$  That is the 2:1 ratio.

There may be other factors that add to the braking effect, but the coefficient of friction is the main cause.

**Note:** Proper lubrication can help to drop friction and extend the 2:1 ratio.



# Cantilevered Loads Simplicity® Plain Bearings

## Counterbalance

If holding the 2:1 ratio is not possible, one method of preventing binding problems is using a counter balance.

For efficient counter balances in horizontal applications, use this formula:  $M \cdot Y = W \cdot Z$

**Note:** To avoid problems when running without mass:

$$(M) Z = 1-1/2 s$$

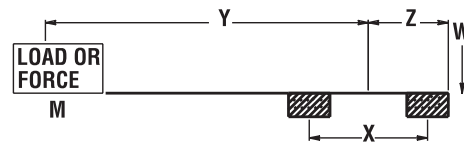
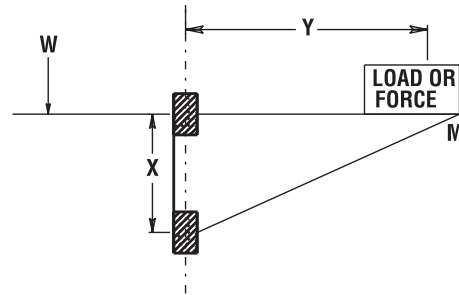
W can be calculated. Load on bearing will be:

$$\frac{M + W}{\# \text{ of bearings}}$$

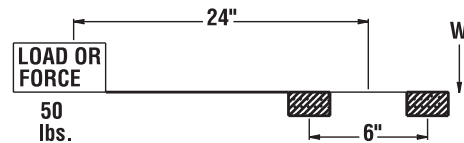
**Example:**  $50 \cdot 24 = W \cdot Z$  ( $Z = 1-1/2 \cdot 6 = 9$ )

$$W = \frac{50 \cdot 24}{9} = 133 \text{ lbs.}$$

Load per bearing:  $\frac{50 + 133}{4} = 45.75 \text{ lbs. / bearing}$



**EXAMPLE:**



## Cantilever Loads and Drive Force Location without Counterbalance

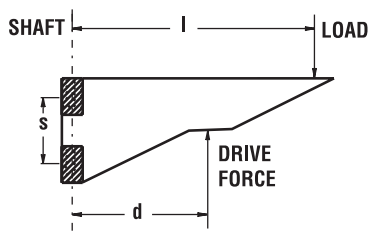
d = distance from shaft to Drive Force

l = distance from shaft to the load center of gravity

s = center-to-center spacing of the bearings on the shaft  
(If non-self-aligning, then outside to outside distance should be used.)

L = l / s = Load Force Ratio

D = d / s = Drive Force Ratio

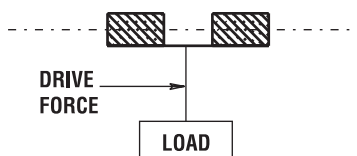


## Hanging or "Top Heavy" Horizontal Applications with High Acceleration Rates:

If your application will have high acceleration forces, use this formula for the value of the Drive Force Ratio:

$$D = 0.8 \cdot L \times \sqrt{a}$$

where a is acceleration in g's.



## General Rules:

1. Drive Force Ratio (D) should never be larger than 2. A Drive Force Ratio (D) larger than 2 can cause the slide to lock up.
2. Load Force Ratio (L) can be larger than 2, but as this ratio increases, the drive force required to move the slide increases dramatically. A Load Force Ratio (L) larger than 4 is not recommended.
3. If the slide is occasionally operated unloaded, use the distance to the slide's center of gravity as the distance to the load (l).

## Vertical Applications:

1. If L is between 0 and 2, the lowest drive forces occur when the value of D is about 90% of L ( $D = .9 \cdot L$ ). However, D values between 0 and L will work fine.
2. If L is between 2 and 4, use this equation:  $D = 4 - L$

## Horizontal Applications:

For best results, the drive force should be applied as close to the shaft as possible no matter what the value of the Load Force Ratio (L) is.

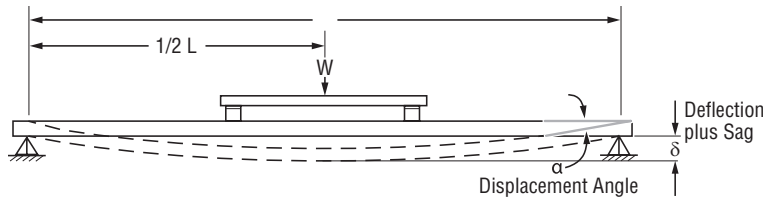


# Shaft Deflection

## Single Point Shaft Deflection

In applications where a support rail is not used, shaft deflection can become critical in the function of the bearing. If deflection is greater than the misalignment capabilities of a standard pillow block, binding can occur. Solutions would be to increase shaft and bearing size (to lessen the amount of deflection) or to use an open bearing configuration with a support rail. Follow the formulas below to check shaft deflection and sag.

### Deflection at Center



## FORMULA FOR INCH AND METRIC SHAFTING DEFLECTION

Total shaft deflection in horizontal applications:

**Total Deflection** ( $\delta$ ) = Def + Sag

**Deflection** =  $w \times L^3 / D$

**Sag** =  $L^4 / S$

**Deflection** = Pure deflection due to load at center of shaft (in. or mm)

**Sag** = Deflection of shaft due to its own weight (in. or mm)

**L** = Shaft unsupported length (in. or mm)

**W** = load being applied at center of shaft (lbs. or N)

**D** = Deflection coefficient ( $D = 48 \cdot E \times l$ )

**S** = Sag coefficient ( $S = E \cdot I \cdot 384 / (5 \cdot sw)$ )

$\alpha$  = Displacement angle

**Notes:**  $I = \pi \cdot \text{diam}^4 / 64$

$sw = \pi \cdot \text{diam}^2 / 4 \cdot \text{density}$

$E$  = Modulus of Elasticity (Young's modulus)

## Total Deflection

$\phi 1$  in. Shaft

24 in. Length (L)

250 lbs. load (W)

$$\begin{aligned} \text{Deflection} &= \frac{W \cdot L^3}{D \text{ (from table)}} \\ &= \frac{250 \text{ lbs.} \cdot (24 \text{ in.})^3}{6.83 \cdot 10^7} \\ &= \frac{3,456,000 \text{ in}^3 \text{ lbs.}}{68,300,000 \text{ in}^2 \text{ lbs.}} \end{aligned}$$

Deflection = 0.0506 in.

SAG =  $\frac{L^4}{S \text{ (from table)}}$

=  $\frac{(24)^4}{4.92 \cdot 10^8}$

SAG =  $\frac{331,776 \text{ in}^4}{492,000,000 \text{ in}^3}$

SAG = .000674 in.

Total Deflection ( $\delta$ ) = Deflection + SAG  
= 0.0506 in. + .000674 in.

Total Deflection ( $\delta$ ) = 0.0513 in.

## Inch Shafting

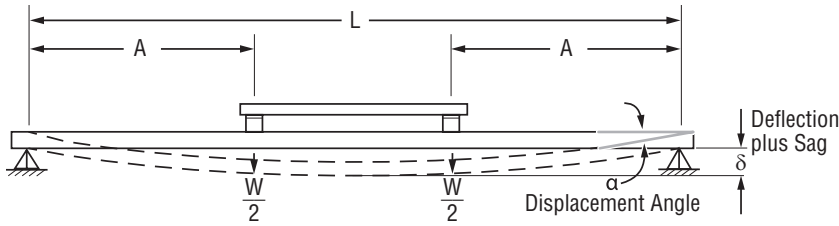
| SHAFT DIAMETER | HARDENED STEEL          |                        | STAINLESS STEEL         |                        | CERAMIC COATED ALUMINUM SHAFT |          |
|----------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------------|----------|
|                | D                       | S                      | D                       | S                      | D                             | S        |
| 3/16"          | 8.4 x 10 <sup>4</sup>   | 1.7 x 10 <sup>7</sup>  | 8.0 x 10 <sup>4</sup>   | 1.6 x 10 <sup>7</sup>  | 2.9 x 10 <sup>4</sup>         | 1.65E+05 |
| 1/4"           | 2.67 x 10 <sup>5</sup>  | 3.1 x 10 <sup>7</sup>  | 2.54 x 10 <sup>5</sup>  | 2.9 x 10 <sup>7</sup>  | 9.2 x 10 <sup>4</sup>         | 2.93E+05 |
| 3/8"           | 1.35 x 10 <sup>6</sup>  | 6.9 x 10 <sup>7</sup>  | 1.29 x 10 <sup>6</sup>  | 6.5 x 10 <sup>7</sup>  | 4.7 x 10 <sup>5</sup>         | 6.58E+05 |
| 1/2"           | 4.27 x 10 <sup>6</sup>  | 1.23 x 10 <sup>8</sup> | 4.06 x 10 <sup>6</sup>  | 1.16 x 10 <sup>8</sup> | 1.5 x 10 <sup>6</sup>         | 1.17E+06 |
| 5/8"           | 1.04 x 10 <sup>7</sup>  | 1.92 x 10 <sup>8</sup> | 9.92 x 10 <sup>6</sup>  | 1.81 x 10 <sup>8</sup> | 3.6 x 10 <sup>6</sup>         | 1.83E+06 |
| 3/4"           | 2.16 x 10 <sup>7</sup>  | 2.77 x 10 <sup>8</sup> | 2.06 x 10 <sup>7</sup>  | 2.61 x 10 <sup>8</sup> | 7.5 x 10 <sup>6</sup>         | 2.63E+06 |
| 1"             | 6.83 x 10 <sup>7</sup>  | 4.92 x 10 <sup>8</sup> | 6.5 x 10 <sup>7</sup>   | 4.63 x 10 <sup>8</sup> | 2.4 x 10 <sup>7</sup>         | 4.68E+06 |
| 1-1/4"         | 1.67 x 10 <sup>8</sup>  | 7.69 x 10 <sup>8</sup> | 1.59 x 10 <sup>8</sup>  | 7.24 x 10 <sup>8</sup> | 5.8 x 10 <sup>7</sup>         | 7.31E+06 |
| 1-1/2"         | 3.46 x 10 <sup>8</sup>  | 1.11 x 10 <sup>9</sup> | 3.29 x 10 <sup>8</sup>  | 1.04 x 10 <sup>9</sup> | 1.22 x 10 <sup>8</sup>        | 1.05E+07 |
| 2"             | 1.09 x 10 <sup>9</sup>  | 1.97 x 10 <sup>9</sup> | 1.04 x 10 <sup>9</sup>  | 1.85 x 10 <sup>9</sup> | 3.8 x 10 <sup>8</sup>         | 1.87E+07 |
| 2-1/2"         | 2.67 x 10 <sup>9</sup>  | 3.07 x 10 <sup>9</sup> | 2.54 x 10 <sup>9</sup>  | 2.9 x 10 <sup>9</sup>  | N/A                           | N/A      |
| 3"             | 5.53 x 10 <sup>9</sup>  | 4.43 x 10 <sup>9</sup> | 5.27 x 10 <sup>9</sup>  | 4.17 x 10 <sup>9</sup> | N/A                           | N/A      |
| 4"             | 1.75 x 10 <sup>10</sup> | 7.87 x 10 <sup>9</sup> | 1.66 x 10 <sup>10</sup> | 7.41 x 10 <sup>9</sup> | N/A                           | N/A      |

## Metric Shafting

| SHAFT DIAMETER | HARDENED STEEL          |                         | STAINLESS STEEL         |                         |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                | D                       | S                       | D                       | S                       |
| 5 mm           | 2.94 x 10 <sup>8</sup>  | 3.12 x 10 <sup>11</sup> | 2.8 x 10 <sup>8</sup>   | 2.94 x 10 <sup>11</sup> |
| 6 mm           | 6.11 x 10 <sup>8</sup>  | 4.5 x 10 <sup>11</sup>  | 5.81 x 10 <sup>8</sup>  | 4.24 x 10 <sup>11</sup> |
| 8 mm           | 1.93 x 10 <sup>9</sup>  | 8.0 x 10 <sup>11</sup>  | 1.84 x 10 <sup>9</sup>  | 7.53 x 10 <sup>11</sup> |
| 10 mm          | 4.71 x 10 <sup>9</sup>  | 1.25 x 10 <sup>12</sup> | 4.48 x 10 <sup>9</sup>  | 1.18 x 10 <sup>12</sup> |
| 12 mm          | 9.77 x 10 <sup>9</sup>  | 1.8 x 10 <sup>12</sup>  | 9.3 x 10 <sup>9</sup>   | 1.69 x 10 <sup>12</sup> |
| 13 mm          | 1.35 x 10 <sup>10</sup> | 2.11 x 10 <sup>12</sup> | 1.28 x 10 <sup>11</sup> | 1.99 x 10 <sup>12</sup> |
| 14 mm          | 1.81 x 10 <sup>10</sup> | 2.45 x 10 <sup>12</sup> | 1.72 x 10 <sup>11</sup> | 2.31 x 10 <sup>12</sup> |
| 16 mm          | 3.09 x 10 <sup>10</sup> | 3.2 x 10 <sup>12</sup>  | 2.94 x 10 <sup>11</sup> | 3.01 x 10 <sup>12</sup> |
| 20 mm          | 7.54 x 10 <sup>10</sup> | 5.0 x 10 <sup>12</sup>  | 7.17 x 10 <sup>11</sup> | 4.71 x 10 <sup>12</sup> |
| 25 mm          | 1.84 x 10 <sup>11</sup> | 7.81 x 10 <sup>12</sup> | 1.75 x 10 <sup>11</sup> | 7.35 x 10 <sup>12</sup> |
| 30 mm          | 3.82 x 10 <sup>11</sup> | 1.12 x 10 <sup>13</sup> | 3.63 x 10 <sup>11</sup> | 1.06 x 10 <sup>13</sup> |
| 35 mm          | 7.07 x 10 <sup>11</sup> | 1.53 x 10 <sup>13</sup> | 6.73 x 10 <sup>11</sup> | 1.44 x 10 <sup>13</sup> |
| 38 mm          | 9.82 x 10 <sup>11</sup> | 1.8 x 10 <sup>13</sup>  | 9.35 x 10 <sup>11</sup> | 1.7 x 10 <sup>13</sup>  |

# Shaft Deflection

## Dual Point Shaft Deflection



$$\delta = \frac{WA(3L^2 - 4A^2)}{48EI} + \frac{5SL^4}{384EI}$$

- $\delta$  = Deflection
- $L$  = Distance between the shaft support (in.)
- $E$  = Modulus of elasticity (lb/in.<sup>2</sup>) ( $30 \cdot 10^6$ )
- $I$  = Shaft moment of inertia (in.<sup>4</sup>)
- $S$  = Unit weight of shaft; reference the table below
- $W$  = Load applied (including carriage weight) (lbf)
- $A$  = Distance to end (in.)
- $\alpha$  = Displacement angle

## Inch Shafting

| STEEL SHAFT    |                           |            |
|----------------|---------------------------|------------|
| SHAFT DIAMETER | EI (lb/in. <sup>2</sup> ) | S (lb/in.) |
| 1/4"           | $5.75 \times 10^3$        | 0.014      |
| 3/8"           | $2.91 \times 10^4$        | 0.031      |
| 1/2"           | $9.20 \times 10^4$        | 0.055      |
| 5/8"           | $2.25 \times 10^5$        | 0.086      |
| 3/4"           | $4.66 \times 10^5$        | 0.125      |
| 7/8"           | $8.63 \times 10^5$        | 0.170      |
| 1"             | $1.47 \times 10^6$        | 0.222      |
| 1-1/8"         | $2.36 \times 10^6$        | 0.281      |
| 1-1/4"         | $3.60 \times 10^6$        | 0.348      |
| 1-3/8"         | $5.26 \times 10^6$        | 0.420      |
| 1-1/2"         | $7.46 \times 10^6$        | 0.500      |
| 1-3/4"         | $1.38 \times 10^7$        | 0.681      |
| 2"             | $2.36 \times 10^7$        | 0.890      |
| 3"             | $1.19 \times 10^8$        | 2.003      |

## Metric Shafting

| STEEL SHAFT    |                    |       |
|----------------|--------------------|-------|
| SHAFT DIAMETER | EI                 | S     |
| 8              | $1.45 \times 10^4$ | 0.022 |
| 12             | $7.34 \times 10^4$ | 0.050 |
| 16             | $2.32 \times 10^5$ | 0.088 |
| 20             | $5.66 \times 10^5$ | 0.138 |
| 25             | $1.38 \times 10^6$ | 0.216 |
| 30             | $2.87 \times 10^6$ | 0.311 |
| 40             | $9.06 \times 10^6$ | 0.552 |
| 50             | $2.21 \times 10^7$ | 0.863 |

## Displacement Angle (values calculated on previous page)

$$\pm = \tan^{-1} \frac{\delta}{A}$$

$$\pm = \tan^{-1} \frac{0.0513 \text{ in.}}{12 \text{ in.}}$$

$$\pm = 0.2449^\circ \text{ Displacement Angle}$$

0.2449° < 1/2° Allowable = Good Design

# Installation Simplicity® Linear Plain Bearings

## Installing Simplicity® Bearings

Applies to standard linear bearing series.

For sleeve and flange bearings, see product pages 38–39, 60–62, 70–71, and 78–80.

### STRAIGHT BORE HOUSING – PRESS FIT BEARING

This type of configuration is NOT recommended for the vast majority of applications using Simplicity bearings.

It does NOT allow for any misalignment or shaft deflection.

Misalignment or shaft deflection will cause the bearing to bind on the shafting.

Extremely high precision applications may be able to employ this type of mounting. Typically the shafting has been aligned with a laser or some other highly precise equipment.

Due to bore closure in the pressing process, use a “C” series (compensated I.D.) bearing.

**Example:** FLC24, FMC30, FJC30.

The recommended installation procedure is to freeze the bearings at 0°F (-17.75°C) for 30-45 minutes. Using gloves, remove the bearings from the freezer and slip them into the housing. As they heat to room temperature, full contact between bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

This type of mounting will not allow for misalignment or shaft deflection. Both are very critical in the smooth operation of Simplicity bearings. A rolling element bearing may appear to initially operate in this condition, but it is operating in an extremely preloaded condition and will prematurely fail and in most cases destroy the shafting. Simplicity bearings will indicate the problem immediately upon installation by failing to move due to the binding condition. There are alternative mounting options that work extremely well.

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | IN.              | IN.              |
| FLC03    | 0.3729           | 0.3737           |
| FLC04    | 0.4978           | 0.4986           |
| FLC06    | 0.6228           | 0.6236           |
| FLC08    | 0.8725           | 0.8734           |
| FLC10    | 1.1224           | 1.1234           |
| FLC12    | 1.2474           | 1.2484           |
| FLC16    | 1.5596           | 1.5607           |
| FLC20    | 1.9970           | 1.9981           |
| FLC24    | 2.3717           | 2.3729           |
| FLC32    | 2.9965           | 2.9977           |
| FLC40    | 3.7461           | 3.7473           |
| FLC48    | 4.4953           | 4.4966           |
| FLC64    | 5.9949           | 5.9963           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FMC05    | 11.972           | 11.995           |
| FMC08    | 15.954           | 15.972           |
| FMC10    | 18.948           | 18.969           |
| FMC12    | 21.944           | 21.965           |
| FMC16    | 25.944           | 25.965           |
| FMC20    | 31.940           | 31.961           |
| FMC25    | 39.932           | 39.957           |
| FMC30    | 46.932           | 46.957           |
| FMC40    | 61.917           | 61.947           |
| FMC50    | 74.917           | 74.947           |
| FMC60    | 89.906           | 89.936           |
| FMC80    | 119.886          | 119.921          |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FMTC06   | 11.954           | 11.972           |
| FMTC08   | 14.954           | 14.972           |
| FMTC10   | 16.954           | 16.972           |
| FMTC12   | 18.948           | 18.969           |
| FMTC14   | 20.944           | 20.965           |
| FMTC16   | 23.944           | 23.965           |
| FMTC20   | 27.944           | 27.965           |
| FMTC25   | 34.940           | 34.961           |
| FMTC30   | 39.932           | 39.957           |
| FMTC40   | 51.932           | 51.957           |
| FMTC50   | 61.917           | 61.947           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FGC06    | 11.952           | 11.970           |
| FGC08    | 14.952           | 14.970           |
| FGC10    | 16.952           | 16.970           |
| FGC12    | 21.945           | 21.966           |
| FGC15    | 24.945           | 24.966           |
| FGC16    | 25.945           | 25.966           |
| FGC18    | 27.945           | 27.966           |
| FGC20    | 31.945           | 31.966           |
| FGC25    | 39.937           | 39.962           |
| FGC30    | 44.937           | 44.962           |
| FGC35    | 51.937           | 51.962           |
| FGC40    | 59.927           | 59.957           |
| FGC50    | 74.927           | 74.957           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FJC06    | 11.961           | 11.979           |
| FJHC08   | 14.961           | 14.979           |
| FJC08    | 14.961           | 14.979           |
| FJC10    | 18.952           | 18.973           |
| FJC12    | 20.952           | 20.997           |
| FJC13    | 22.952           | 22.973           |
| FJC16    | 27.952           | 27.973           |
| FJC20    | 31.950           | 31.971           |
| FJC25    | 39.941           | 39.966           |
| FJC30    | 44.941           | 44.966           |
| FJC35    | 51.938           | 51.963           |
| FJC38    | 56.938           | 56.963           |
| FJC40    | 59.928           | 59.958           |
| FJC50    | 79.922           | 79.952           |
| FJC60    | 89.919           | 89.949           |
| FJC80    | 119.899          | 119.934          |
| FJC100   | 149.896          | 149.931          |
| FJC120   | 179.875          | 179.915          |
| FJC150   | 209.849          | 209.895          |

TECHNICAL

# Installation Simplicity® Linear Plain Bearings

## Straight Bore Housing - Slip Fit Bearing

There are three basic configurations that work well, depending on the misalignment and shaft deflection in the application:

### 1. VIRTUALLY NO MISALIGNMENT

This method allows for NO or very little shaft deflection and misalignment. Standard I.D. bearings will need tighter alignment than a “C” series (compensated I.D.) bearing. Standard retention methods are acceptable.

**Example:** snap rings, epoxy, etc.

**Note:** If using epoxy, do not touch the bearing liner with the bonding agent.

This type of mounting will allow for minimum misalignment or shaft deflection. Both are very critical in the smooth operation of Simplicity bearings. A rolling element bearing may appear to initially operate in this condition, but it is operating in an extremely preloaded condition and will prematurely fail and in most cases destroy the shafting. Simplicity bearings will indicate the problem immediately upon installation by failing to move due to the binding condition.

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | IN.              | IN.              |
| FL03     | 0.3755           | 0.3764           |
| FL04     | 0.5006           | 0.5017           |
| FL06     | 0.6256           | 0.6267           |
| FL08     | 0.8758           | 0.8771           |
| FL10     | 1.1258           | 1.1271           |
| FL12     | 1.2510           | 1.2525           |
| FL16     | 1.5635           | 1.5650           |
| FL20     | 2.0012           | 2.0030           |
| FL24     | 2.3762           | 2.3780           |
| FL32     | 3.0012           | 3.0030           |
| FL48     | 3.7514           | 3.7535           |
| FL48     | 4.5014           | 4.5035           |
| FL64     | 6.0017           | 6.0042           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FM05     | 12.016           | 12.043           |
| FM08     | 16.016           | 16.043           |
| FM10     | 19.020           | 19.053           |
| FM12     | 22.020           | 22.053           |
| FM16     | 26.020           | 26.053           |
| FM20     | 32.025           | 32.064           |
| FM25     | 40.025           | 40.064           |
| FM30     | 47.025           | 47.064           |
| FM40     | 62.030           | 60.076           |
| FM50     | 75.030           | 75.076           |
| FM60     | 90.036           | 90.090           |
| FM80     | 120.036          | 120.090          |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FMT06    | 12.016           | 12.043           |
| FMT08    | 15.016           | 15.043           |
| FMT10    | 17.016           | 17.043           |
| FMT12    | 19.020           | 19.053           |
| FMT14    | 21.020           | 21.053           |
| FMT16    | 24.020           | 24.053           |
| FMT20    | 28.020           | 28.053           |
| FMT25    | 35.025           | 35.064           |
| FMT30    | 40.025           | 40.064           |
| FMT40    | 52.030           | 52.076           |
| FMT50    | 62.030           | 62.076           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FG06     | 12.016           | 12.043           |
| FG08     | 15.016           | 15.043           |
| FG10     | 17.016           | 17.043           |
| FG12     | 22.020           | 22.053           |
| FG15     | 25.020           | 25.053           |
| FG16     | 26.020           | 26.053           |
| FG18     | 28.020           | 28.053           |
| FG20     | 32.025           | 32.064           |
| FG25     | 40.025           | 40.064           |
| FG30     | 45.025           | 45.064           |
| FG35     | 52.030           | 52.076           |
| FG40     | 60.030           | 60.076           |
| FG50     | 75.030           | 75.076           |

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|
|          | MM               | MM               |
| FJ06     | 12.016           | 12.043           |
| FJH08    | 15.016           | 15.043           |
| FJ08     | 15.016           | 15.043           |
| FJ10     | 19.020           | 19.053           |
| FJ12     | 21.020           | 21.053           |
| FJ13     | 23.020           | 23.053           |
| FJ16     | 28.020           | 28.053           |
| FJ20     | 32.025           | 32.064           |
| FJ25     | 40.025           | 40.064           |
| FJ30     | 45.025           | 45.064           |
| FJ35     | 52.030           | 52.076           |
| FJ38     | 57.030           | 57.076           |
| FJ40     | 60.030           | 60.076           |
| FJ50     | 80.030           | 80.076           |
| FJ60     | 90.036           | 90.090           |
| FJ80     | 120.036          | 120.090          |
| FJ100    | 150.043          | 150.106          |
| FJ120    | 180.043          | 180.106          |
| FJ150    | 210.050          | 210.122          |

# Installation Simplicity® Linear Plain Bearings

## Straight Bore Housing – Slip Fit Bearing

### 2. STANDARD APPLICATIONS WITH AVERAGE MISALIGNMENT

A self-aligning O.D. bearing is recommended. **Example:** FLA24, FMA30, FJA30.

The recommended method of retention for this mounting is a snap ring at each end.

**Note:** Do not use epoxy in this configuration. It will lock the bearing in place not allowing it to self-align. Be sure to install the o-rings around the O.D. of the bearing to reduce noise while the bearing is in operation. FMT and FG series are NOT available with a self-aligning O.D.

| PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. | PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. | PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. | PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. | PART NO. | MIN HOUSING I.D. | MAX HOUSING I.D. |
|----------|------------------|------------------|----------|------------------|------------------|----------|------------------|------------------|----------|------------------|------------------|----------|------------------|------------------|
|          | IN.              | IN.              |          | MM               | MM               |          | MM               | MM               |          | MM               | MM               |          | MM               | MM               |
| FLA03    | 0.3755           | 0.3764           | FMA05    | 12.016           | 12.043           | FMT06    | N/A              | N/A              | FG06     | N/A              | N/A              | FJA06    | 12.016           | 12.043           |
| FLA04    | 0.5006           | 0.5017           | FMA08    | 16.016           | 16.043           | FMT08    | N/A              | N/A              | FG08     | N/A              | N/A              | FJHA08   | 15.016           | 15.043           |
| FLA06    | 0.6256           | 0.6267           | FMA10    | 19.020           | 19.053           | FMT10    | N/A              | N/A              | FG10     | N/A              | N/A              | FJA08    | 15.016           | 15.043           |
| FLA08    | 0.8758           | 0.8771           | FMA12    | 22.020           | 22.053           | FMT12    | N/A              | N/A              | FG12     | N/A              | N/A              | FJA10    | 19.020           | 19.053           |
| FLA10    | 1.1258           | 1.1271           | FMA16    | 26.020           | 26.053           | FMT14    | N/A              | N/A              | FG15     | N/A              | N/A              | FJA12    | 21.020           | 21.053           |
| FLA12    | 1.2510           | 1.2525           | FMA20    | 32.025           | 32.064           | FMT16    | N/A              | N/A              | FG16     | N/A              | N/A              | FJA13    | 23.020           | 23.053           |
| FLA16    | 1.5635           | 1.5650           | FMA25    | 40.025           | 40.064           | FMT20    | N/A              | N/A              | FG18     | N/A              | N/A              | FJA16    | 28.020           | 28.053           |
| FLA20    | 2.0012           | 2.0030           | FMA30    | 47.025           | 47.064           | FMT25    | N/A              | N/A              | FG20     | N/A              | N/A              | FJA20    | 32.025           | 32.064           |
| FLA24    | 2.3762           | 2.3780           | FMA40    | 62.030           | 60.076           | FMT30    | N/A              | N/A              | FG25     | N/A              | N/A              | FJA25    | 40.025           | 40.064           |
| FLA32    | 3.0012           | 3.0030           | FMA50    | 75.030           | 75.076           | FMT40    | N/A              | N/A              | FG30     | N/A              | N/A              | FJA30    | 45.025           | 45.064           |
| FLA40    | 3.7514           | 3.7535           | FMA60    | 90.036           | 90.090           | FMT50    | N/A              | N/A              | FG35     | N/A              | N/A              | FJA35    | 52.030           | 52.076           |
| FLA48    | 4.5014           | 4.5035           | FMA80    | 120.036          | 120.090          |          |                  |                  | FG40     | N/A              | N/A              | FJA38    | 57.030           | 57.076           |
| FLA64    | 6.0017           | 6.0042           |          |                  |                  |          |                  |                  | FG50     | N/A              | N/A              | FJA40    | 60.030           | 60.076           |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA50    | 80.030           | 80.076           |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA60    | 90.036           | 90.090           |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA80    | 120.036          | 120.090          |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA100   | 150.043          | 150.106          |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA120   | 180.043          | 180.106          |
|          |                  |                  |          |                  |                  |          |                  |                  |          |                  |                  | FJA150   | 210.050          | 210.122          |

# Installation Simplicity® Linear Plain Bearings

## Straight Bore Housing – Slip Fit Bearing

### 3. SEVERE MISALIGNMENT

#### POSSIBLE SOLUTIONS for use with Standard “FL”:

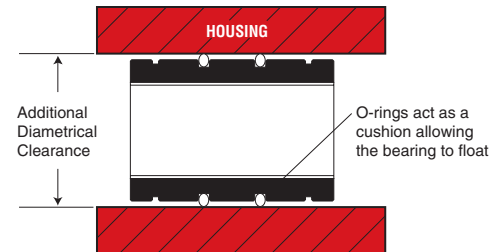
1. Undersize the bearing O.D. (see chart) and install o-rings.
2. Oversize the housing I.D. (see chart) and install the standard bearing with o-rings.

The additional clearance created by either method will allow the bearing to float in the housing and match the non-parallelism of the shafting.

**CAUTION** This solution is only for SEVERE cases that the standard self-aligning will not accommodate.

The recommended method of retention for this mounting is a snap ring at each end. Accessories, including o-rings can be found on [page 17](#).

**Note:** Do not use epoxy in this configuration. It will lock the bearing in place, not allowing it to self-align.



| PART NO. | MAX ADDITIONAL CLEARANCE IN. | PART NO. | MAX ADDITIONAL CLEARANCE MM | PART NO. | MAX ADDITIONAL CLEARANCE MM | PART NO. | MAX ADDITIONAL CLEARANCE MM | PART NO. | MAX ADDITIONAL CLEARANCE MM |
|----------|------------------------------|----------|-----------------------------|----------|-----------------------------|----------|-----------------------------|----------|-----------------------------|
| FL03     | 0.0070                       | FM05     | 0.203                       | FMT06    | 0.203                       | FG06     | 0.203                       | FJ06     | 0.203                       |
| FL04     | 0.0080                       | FM08     | 0.203                       | FMT08    | 0.203                       | FG08     | 0.203                       | FJ08     | 0.203                       |
| FL06     | 0.0080                       | FM10     | 0.203                       | FMT10    | 0.203                       | FG10     | 0.203                       | FJ10     | 0.203                       |
| FL08     | 0.0080                       | FM12     | 0.203                       | FMT12    | 0.203                       | FG12     | 0.203                       | FJ12     | 0.203                       |
| FL10     | 0.0100                       | FM16     | 0.254                       | FMT14    | 0.203                       | FG15     | 0.254                       | FJ16     | 0.254                       |
| FL12     | 0.0100                       | FM20     | 0.254                       | FMT16    | 0.254                       | FG16     | 0.254                       | FJ20     | 0.254                       |
| FL16     | 0.0120                       | FM25     | 0.305                       | FMT20    | 0.254                       | FG18     | 0.254                       | FJ25     | 0.305                       |
| FL20     | 0.0120                       | FM30     | 0.305                       | FMT25    | 0.254                       | FG20     | 0.254                       | FJ30     | 0.305                       |
| FL24     | 0.0120                       | FM40     | 0.305                       | FMT30    | 0.305                       | FG25     | 0.305                       | FJ35     | 0.305                       |
| FL32     | 0.0120                       | FM50     | 0.305                       | FMT40    | 0.305                       | FG30     | 0.305                       | FJ38     | 0.305                       |
| FL40     | 0.0160                       | FM60     | 0.406                       | FMT50    | 0.305                       | FG35     | 0.305                       | FJ40     | 0.305                       |
| FL48     | 0.0160                       | FM80     | 0.508                       |          |                             | FG40     | 0.305                       | FJ50     | 0.406                       |
| FL64     | 0.0200                       |          |                             |          |                             | FG50     | 0.305                       | FJ60     | 0.406                       |
|          |                              |          |                             |          |                             |          |                             | FJ80     | 0.508                       |
|          |                              |          |                             |          |                             |          |                             | FJ100    | 0.610                       |
|          |                              |          |                             |          |                             |          |                             | FJ120    | 0.610                       |
|          |                              |          |                             |          |                             |          |                             | FJ150    | 0.610                       |



# Chemical Reaction Chart

The original Frelon® J has almost universal chemical inertness. Only molten sodium and fluorine at elevated temperatures and pressures show any signs of attack. It is approved for use with liquid oxygen, N2O2 hydrazine, UDMH, hydrocarbon fuels, high strength hydrogen peroxide, etc.

The FrelonGOLD® material is a composite of PTFE and a bearing filler. The PTFE is chemically inert. The chemical resistance shown in the chart below is defined by the compatibility of the filler with the various chemicals.

Other data in the chart below applies to the bearing shell and pillow block materials. The table is provided as a reference only. The data given will be affected by factors such as temperature, PV, degree of contact, strength of solution, etc. In each specific application, it is always advisable to conduct specific testing to determine suitability of use. This table only addresses general corrosion, NOT galvanic, SCC, or other types of corrosion. Corrosion rates are at room temperature unless otherwise noted.

Standard and hard coat data only apply when the coating is intact. If the coating is worn through or damaged, an area of galvanic and pitting corrosion will be created. Then use the bare aluminum data.

Standard Simplicity® products use aluminum alloy, which is known to have the best corrosion resistance of the high strength aluminum alloys. The sulfuric bath anodizing and nickel acetate sealing provide the best corrosion resistance available in anodized coatings. They can withstand a rigorous 14-day exposure in a 5% salt spray solution at 96°F per military specifications without significant damage. With the coating intact, it is considered to be inert in most fluids with a pH value between 5 and 8. Hard coat anodizing provides the same chemical resistance but is applied to a .002" thickness, providing a more durable surface that will stand up to greater abuse. However, if the coating is penetrated, the resistance is reduced.

Special stainless steel bearings use AISI 316 stainless, which has superior resistance over 303, 304, 420, 440, 17-4PH, and most other common stainless grades. 316 is generally considered to be the most corrosion resistant of conventional stainless steels.

**Note:** This information was compiled for Pacific Bearing® Company by Materials Engineering, Inc. of Virgil, IL. This specification information is believed to be accurate and reliable, however, no liability is assumed. Information is for reference only. User must test specific applications.

**E = < .002" per year**

**G = < .020" per year**

**S = <.050" per year**

**U = > .050" per year**

| CHEMICAL                     | FRELONGOLD® | BARE ALUMINUM | STANDARD & HARD COAT ANODIZED ALUMINUM | 316 STAINLESS STEEL | CHEMICAL                 | FRELONGOLD® | BARE ALUMINUM | STANDARD & HARD COAT ANODIZED ALUMINUM | 316 STAINLESS STEEL |
|------------------------------|-------------|---------------|--|---------------------|--------------------------|-------------|---------------|--|---------------------|
| Acetic Acid, 20%             | U           | G             | G                                      | E                   | Hydrogen sulfide, dry    | U           | G             | E                                      | E                   |
| Acetone                      | G           | E             | E                                      | E                   | JP-4                     | G           | G             | G                                      | G                   |
| Ammonia, anhydrous           | G           | E             | E                                      | E                   | Kerosene                 | G           | G             | G                                      | G                   |
| Ammonium hydroxide, 10%      | U           | U             | U                                      | E                   | Lactic acid, 10%         | G           | G             | G                                      | E                   |
| Ammonium chloride, 10%       | U           | U             | U                                      | G                   | Magnesium chloride, 50%  | G           | U             | U                                      | G                   |
| Ammyl acetate (122°F / 50°C) | G           | E             | E                                      | E                   | Mercury                  | U           | U             | U                                      | E                   |
| Barium hydroxide             | U           | U             | U                                      | G                   | Methyl alcohol           | G           | G             | G                                      | G                   |
| Beer                         | G           | E             | E                                      | E                   | Methyl ethyl ketone      | G           | G             | G                                      | G                   |
| Boric acid solutions         | G           | E             | E                                      | G                   | Methylene chloride       | G           | E             | E                                      | G                   |
| Butane                       | G           | G             | G                                      | G                   | Mineral oil              | G           | G             | G                                      | G                   |
| Calcium chloride, 20%        | G           | G             | G                                      | G                   | Naptha                   | G           | G             | G                                      | G                   |
| Calcium hydroxide, 10%       | G           | G             | G                                      | G                   | Nitric acid, 70%         | U           | U             | U                                      | E                   |
| Carbon dioxide               | G           | E             | E                                      | G                   | Phosphoric acid, 10%     | U           | U             | U                                      | E                   |
| Carbon monoxide              | G           | E             | E                                      | E                   | Sodium chloride          | G           | U             | U                                      | E                   |
| Chlorine gas, dry            | G           | G             | G                                      | G                   | Sodium hydroxide, 20%    | G           | U             | U                                      | G                   |
| Chlorine gas, wet            | U           | U             | U                                      | U                   | Sodium hypochlorite, 20% | U           | G             | G                                      | U                   |
| Chromic acid, 10%            | U           | G             | E                                      | E                   | Sodium peroxide, 10%     | U           | G             | G                                      | G                   |
| Citric acid, 5%              | G           | E             | E                                      | E                   | Steam (see water)        | -           | -             | -                                      | -                   |
| Ethyl acetate                | G           | E             | E                                      | G                   | Sulfur dioxide, wet      | U           | U             | U                                      | G                   |
| Ethyl alcohol                | G           | E             | E                                      | G                   | Sulfur dioxide, dry      | G           | G             | G                                      | G                   |
| Ethylene glycol              | G           | E             | E                                      | G                   | Sulfur trioxide          | U           | G             | G                                      | G                   |
| Ferric chloride, 50%         | U           | U             | U                                      | U                   | Sulfuric acid, 50%       | U           | U             | U                                      | U                   |
| Formic acid - Anhydrous      | U           | E             | E                                      | E                   | Sulfurous acid           | U           | G             | G                                      | E                   |
| Gasoline, Unleaded           | G           | G             | G                                      | G                   | Toluene (122°F / 50°C)   | G           | E             | E                                      | E                   |
| Hydrochloric acid, 20%       | U           | U             | U                                      | U                   | Turpentine               | G           | G             | E                                      | E                   |
| Hydrochloric acid, 35%       | U           | U             | U                                      | U                   | Water, demineralized     | U           | G             | E                                      | E                   |
| Hydrocyanic acid, 10%        | U           | G             | G                                      | G                   | Water, distilled         | G           | U             | S                                      | G                   |
| Hydrofluoric acid - dilute   | U           | U             | U                                      | U                   | Sea Water                | G           | G             | E                                      | G                   |
| Hydrofluoric acid, 48%       | I           | U             | U                                      | U                   | Water, sewage            | G           | U             | S                                      | G                   |
| Hydrogen                     | G           | E             | E                                      | E                   | Xylene                   | G           | G             | G                                      | G                   |
| Hydrogen peroxide - dilute   | U           | E             | E                                      | G                   | Zinc chloride solutions  | U           | U             | U                                      | G                   |

TECHNICAL

# Linear Ball Bearings Technical Information

## Load Rating and Life Expectancy

The life (L) of a linear bearing can be obtained from the following equation with the basic dynamic load rating and the load applied to the bearing:

$$L = \left( \frac{f_H \cdot f_T \cdot f_C \cdot C}{f_W \cdot P} \right)^3 \cdot 50 \quad (1)$$

- L:** Rated life (km)
- C:** Basic dynamic load rating (N/lbf)
- P:** Working load (N/lbf)
- f<sub>w</sub>:** Load coefficient
- f<sub>H</sub>:** Hardness factor
- f<sub>T</sub>:** Temperature coefficient
- f<sub>C</sub>:** Contact coefficient

The lifespan (L<sub>h</sub>) of a linear ball bearing in hours can be obtained by calculating the traveling distance per unit time. The lifespan can be obtained from the following equation if the stroke length and the number of strokes are constant:

$$L_h = \left( \frac{L \cdot 10^3}{2 \cdot s \cdot n_1 \cdot 60} \right) \quad (2)$$

- L<sub>h</sub>:** Lifespan (hr)
- L:** Rated life (km)
- s:** Stroke length (m)
- n<sub>1</sub>:** Number of strokes per minute (cpm)
- 50:** Constant base line (km)

## Sample Calculations

1. Obtaining the rated life L and lifespan L<sub>h</sub> of the Simplicity® linear ball bearing used in the following conditions:

- Linear ball bearing EP20G
- Stroke length 50 mm
- Number of strokes per minute 50 cpm
- Load per bush 490 N

The basic dynamic load rating of the linear ball bearing is 882 N from the dimension tables. From equation (1), therefore, the rated life L is obtained as follows:

$$L = \left( \frac{f_H \cdot f_T \cdot f_C \cdot C}{f_W \cdot P} \right)^3 \cdot 50 \quad f_H=f_T=f_C=f_W=1.0$$

$$= \left( \frac{882}{490} \right)^3 \cdot 50 = 292 \text{ km}$$

From equation (2), the lifespan L<sub>h</sub> is obtained as follows:

$$L_h = \frac{L \cdot 10^3}{2 \cdot s \cdot n_1 \cdot 60} = \frac{292 \cdot 10^3}{2 \cdot 0.05 \cdot 50 \cdot 60} = 973 \text{ hr}$$

## Relation Between Ball Circuits and Load Rating

Linear ball bearings are constructed so that the ball circuits are spaced equally. The load rating varies according to the loaded position. The load ratings of the linear ball bearings from the dimensional tables are per track and increased loading can be achieved by equally sharing the load between the tracks.

The table shows the increased value by the number of ball circuits in such cases.

- Notes:** (1) 3 track bearing is equal.  
(2) Open bearing load is de-rated by 50% if going against the opening.

| Number of Rows  | 4     | 5     | 6     |
|---|-------|-------|-------|
| <b>C<sub>0</sub></b><br>Load Rating Specified on the Tables |       |       |       |
| <b>C<sub>0max</sub></b><br>MAX Load Rating                  |       |       |       |
| <b>Load Ratio</b><br>C <sub>0max</sub> /C <sub>0</sub>      | 1.414 | 1.463 | 1.280 |

2. Select the ball bearing type by satisfying the following conditions:

- Number of linear bushing used 4
- Stroke length 1 m
- Traveling speed 10 m/min.
- Number of strokes per minute 5 cpm
- Lifespan 10,000 hr
- Total load 980 N

From equation (2), the traveling distance within the lifespan is obtained as follows:

$$L = 2 \cdot L_s \cdot n_1 \cdot 60 \cdot L_h = 6,000 \text{ km}$$

From equation (1), the basic dynamic load rating is obtained as follows:

$$C = \sqrt[3]{\frac{L}{50} \cdot \left( \frac{f_W}{f_H \cdot f_T \cdot f_C} \right) \cdot P} = 1492 \text{ N}$$

Assume the following with a pair of shafts each with two linear ball bearings: f<sub>C</sub> = 0.81 f<sub>w</sub> = f<sub>T</sub> = f<sub>H</sub> = 1

As a result, EP20G is selected from the dimension table as the Simplicity® linear ball bearing type satisfying the value of C.

# Load Rating & Rating Life Linear Ball Bearings

## Load Rating

### Basic Dynamic Load Rating (C) –

This term is arrived at based on an evaluation of a number of identical linear systems individually run in the same conditions, if 90% of them can run with the load (with a constant value in a constant direction) for a distance of 50 km without damage caused by rolling fatigue. This is the basis of the rating.

### Allowable Static Moment (M) –

This term defines the allowable limit value of static moment load, with reference to the amount of permanent deformation similar to that used for evaluation of basic rated load (Co).

### Static Safety Factor (fs) –

This factor is used based on the application condition.

### STATIC SAFETY FACTORS Table 1

| CONDITION OF USE  | LOW LIMIT OF FS |
|---|-----------------|
| When the shaft has less deflection and shock                                  | 1 to 2          |
| When elastic deformation should be considered with respect to cantilever load | 2 to 4          |
| When the equipment is subject to vibration and impacts                        | 3 to 5          |

### Basic Static Load Rating (Co) –

This term defines a static load such that, at the contacting position where the maximum stress is exercised, the sum of the permanent deformation of the rolling elements and that of the rolling plain is 0.0001 times of the diameter of the rolling elements.

## Rating Life

### Rating Life of the Linear System

As long as the linear system reciprocates while being loaded, continuous stress can cause flaking on the rolling bodies and planes due to material fatigue. The system's distance of travel until the first flaking occurs is called the life of the system. The life of the system varies even when similar conditions are used – dimensions, structure, material, heat treatment, and processing method. The material fatigue causes the essential variations. The rating life defined below is used as an index for the life expectancy of the linear system.

### Rating Life (L)

Rating life is the total travelling distance that 90% of a group of systems of the same size can reach without causing any flaking when they operate under the same conditions. The rating life can be obtained from the following equation with the basic dynamic load rating and the load on the linear system:

For ball type:

$$L = \left(\frac{C}{p}\right)^3 \cdot 50 \text{ ————— (1)}$$

L: Rating life (km)

C: Basic dynamic load rating (N)

p: Load (N)

Consideration and influence of vibration impact loads and distribution of load should be taken into account when designing a linear motion system. It is difficult to calculate the actual load. The rating life is also affected by the operating temperature. In these conditions, the expression (1) is arranged as follows:

For ball type:

$$L = \left(\frac{f_H \cdot f_T \cdot f_C \cdot C}{f_W \cdot p}\right)^3 \cdot 50$$

L: Rating life (km)

f<sub>H</sub>: Hardness factor (See Fig.1)

C: Basic dynamic load rating (N)

f<sub>T</sub>: Temperature coefficient (See Fig.2)

p: Load (N)

f<sub>C</sub>: Contact coefficient (See Table 2)

f<sub>W</sub>: Load coefficient (See Table 3)

The rating life in hours can be calculated by obtaining the travelling distance per unit time. The rating life in hours can be obtained from the following expression when the stroke length and the number of strokes are constant:

$$L_h = \left(\frac{L \cdot 10^3}{2\ell_s \cdot n_1 \cdot 60}\right)$$

L<sub>h</sub> : Rating life in hours (hr)

ℓ<sub>s</sub> : Stroke length (m)

L : Rating life (km)

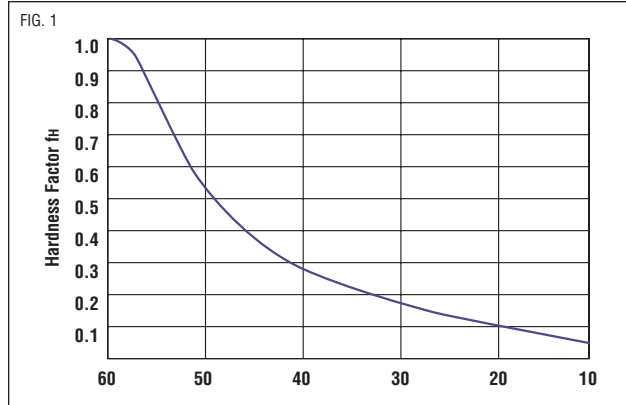
n<sub>1</sub> : No. of strokes per minute (cpm)

# Rating Life Linear Ball Bearings

## Rating Life

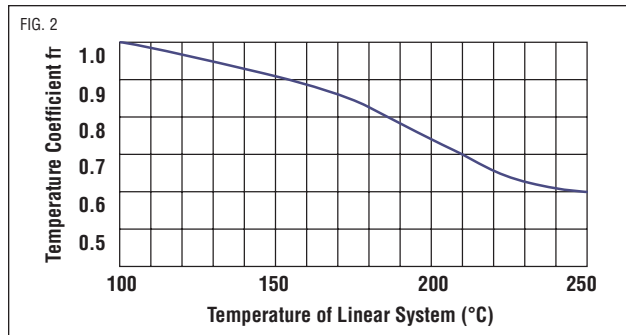
### Hardness Factor (fH)

The shaft must be sufficiently hardened when a linear bushing is used. If not properly hardened, permissible load is lowered and the life of the linear ball bearings will be shortened.



### Temperature Coefficient (fT)

If the temperature of the linear system exceeds 100°C, hardness of the linear system and the shaft lowers to decrease the permissible load compared to that of the linear system used at room temperature. As a result, the abnormal temperature rise shortens the rating life.



**Notes:** Maximum temperature of plastic retainer 212°F or 100°C.  
Maximum temperature 176° per Table 6 on page 134.

### Contact Coefficient (fc) – Table 2

Generally two or more linear bearings are used on one shaft. Thus, the load on each linear system differs depending on each processing accuracy. Because the linear bushings are not loaded equally, the number of linear bushings per shaft changes the permissible load off the system.

#### CONTACT COEFFICIENT Table 2

| NUMBER OF LINEAR SYSTEMS PER SHAFT | CONTACT COEFFICIENT FC |
|------------------------------------|------------------------|
| 1                                  | 1.00                   |
| 2                                  | 0.81                   |
| 3                                  | 0.72                   |
| 4                                  | 0.66                   |
| 5                                  | 0.61                   |

### Load Coefficient (fw) – Table 3

When calculating the load on the linear system, it is necessary to accurately obtain object weight, inertial force based on motion speed, moment load, and each transition as time passes. However, it is difficult to calculate those values accurately because reciprocating motion involves the repetition of start and stop as well as vibration and impact. A more practical approach is to obtain the load coefficient by taking the actual operating conditions into account.

#### LOAD COEFFICIENT Table 3

| OPERATING CONDITIONS  | FW         |
|---|------------|
| Operation at low speed (15 m/min. or less) without impulsive shock from outside | 1.0 to 1.5 |
| Operation at intermediate speed (60 m/min. or less) without impulsive shock     | 1.5 to 2.0 |
| Operation at high speed (over 60 m/min.) with impulsive shock from outside      | 2.0 to 3.5 |

# Clearance & Mounting Linear Ball Bearings

## Frictional Resistance

The static frictional resistance of the Simplicity® linear system is so low that it is only slightly different from the kinetic frictional resistance, enabling smooth linear movement from low to high speeds. In general, the frictional resistance is expressed by the following equation.

$$F = \mu \cdot W + f$$

F : Frictional resistance      $\mu$  : Coefficient of friction

W : Load weight                 f : Sealing resistance

The frictional resistance of each PBC Linear system depends on the model, load weight, speed, and lubricant. The sealing resistance depends on the lip interference and lubricant, regardless of the load weight. The sealing resistance of one linear system is about 200 to 500 gf. The coefficient of friction depends on the load weight, moment load, and preload.

**COEFFICIENT OF LINEAR SYSTEM FRICTION ( $\mu$ )** Table 5

| LINEAR SYSTEM TYPE | MODELS     | COEFFICIENT OF FRICTION ( $\mu$ ) |
|--------------------|------------|-----------------------------------|
| Linear Bearing     | JP, EP, IP | 0.002 to 0.003                    |

## Ambient Working Temperature

The ambient working temperature range for each PBC linear system depends on the model. Consult PBC on use outside the recommended temperature range.

Temperature conversion equation:

$$C = \frac{5}{9} (F - 32) \quad F = 32 + \frac{9}{5} C$$

**AMBIENT WORKING TEMPERATURE** Table 6

| LINEAR SYSTEM TYPE  | MODELS     | AMBIENT WORKING TEMPERATURE |
|---------------------|------------|-----------------------------|
| Linear Ball Bearing | JP, EP, IP | -20 to 80°C, -4 to 176°F    |

## Lubrication and Dust Prevention

Using PBC Linear systems without lubrication increases the abrasion of the rolling elements, shortening the life span. Systems, therefore, require appropriate lubrication. PBC Linear ball bearings are shipped with an anti-corrosion treatment, which must be cleaned prior to applying grease or oil. For lubrication, PBC Linear recommends turbine oil conforming to ISO Standards G32 to G68 or lithium base soap grease No.2. Prior to usage, apply lubricant directly inside the linear bearing and shaft, and re-lubricate periodically according to the operating conditions. Some systems from PBC Linear are sealed to block dust out and seal lubricant in. If used in a harsh or corrosive environment a protective cover should be used.

# Clearance & Mounting Linear Ball Bearings

## Clearance & Fit

Standard-type Simplicity® linear ball bearings matched to a shaft that provides inadequate clearance may result in early bearing failure and/or rough linear motion. The clearance adjustable linear ball bearings and open linear ball bearings can be adjusted when assembled in the housing by controlling

the housing bore. However, too much clearance will increase the deformation of the linear ball bearing, which will affect its precision and life. Therefore, the appropriate clearance between the ball bearing and shaft, and the appropriate linear ball bearing housing bore are required based on application.

## RECOMMENDED FIT OF LINEAR BALL BEARINGS

| MODEL | DIVISION       | SHAFT      |              | HOUSING   |           |
|-------|----------------|------------|--------------|-----------|-----------|
|       |                | NORMAL FIT | TRANSITIONAL | LOOSE FIT | TIGHT FIT |
| JP    | High Precision | g6         | h6           | H7        | J7        |
| IP    | High Precision | g6         | h6           | H7        | J7        |
| EP    | High Precision | h6         | j6           | H7        | J7        |

## Shaft & Housing

To optimize performance of the Simplicity® linear ball bearing it is recommended that a high precision shaft and pillow block are required.

### Shaft

The rolling balls in linear ball bearings are in-line contact with the shaft surface. Therefore, the shaft dimensions, tolerance, surface finish, and hardness greatly affect the performance of the linear ball bearing. The shaft should be manufactured to the following tolerances:

1. Surface finish critically affects the smooth rolling of balls; shaft surface finish should be Ra 8-10.

2. Shaft hardness should be HRC 60 to 64. Hardness less than HRC 60 will decrease the life/load.
3. Preload increases the frictional resistance slightly. If the preload is too tight, the deformation of the bearing sleeve will shorten the linear ball bearing's life.

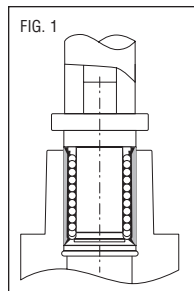
### Housing

There are a wide variety of housings differing in design, machining, and mounting. See mounting requirements below.

## Mounting

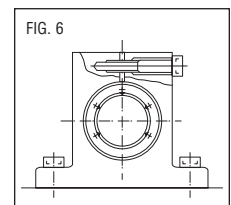
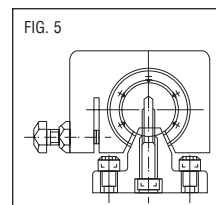
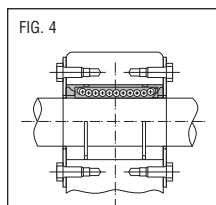
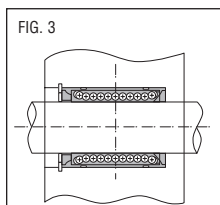
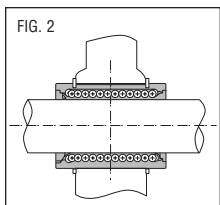
When inserting the linear ball bearing into the housing, do not hit the linear ball bearing on the end-retaining ring, but apply pressure either by hand or arbor on the linear ball bearing sleeve (See Fig.1) To insert the shaft into the mounted linear ball bearing, make sure the shaft is chamfered and be careful not to push on the balls by inserting the shaft at an angle.

**Note:** If two shafts are used in parallel, the parallelism is an important factor to assure smooth linear movement and not damage the linear ball bearings.



### Examples of Mounting

The popular way to mount linear ball bearings is with a slight preload. PBC Linear recommends a slight clearance fit-up to ensure proper life. The examples, Figs. 2 to 6, show the inserted linear ball bearing using a variety of retention methods.





# Round Shaft Technology Modified Standards



**simplicity**®

## A SOLUTION BUILT FOR ALL EXTREMES

Temperature extremes, heavy particulate, wash-down/submersion, and shock vibration are all common obstacles that cause failing ball bearings.

PBC Linear designed the Simplicity linear bearing as the solution. With no rolling elements to cause stick-slip, the maintenance-free Simplicity bearing CANNOT catastrophically fail, and ensures a long wear life – even in the most demanding environments.

No additional lubrication required; the Simplicity bearing is a clean, green, and widely applicable linear motion solution.

Simplicity is available in a host of linear motion components—pillow block assemblies, flange mounts, precision bushings—and in ISO and Japanese metric sizes. Simplicity technology can be implemented into almost any application to improve performance, extend wear life and save on cost.

## Modified Standards

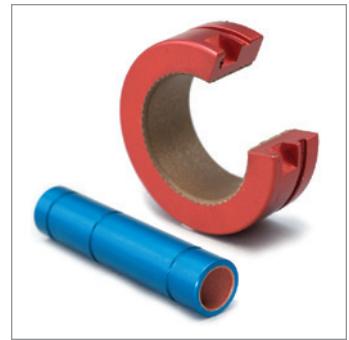
Need a special adjustment to an existing product? PBC Linear is up to the task. We can specially modify, integrate or adjust our products to custom-fit your application. From additional tap holes, lengths and mounting to fully optimized bearing solutions.

Custom bearings and bearing assemblies can be designed (or re-designed) to solve specific application problems, lengthen service intervals, improve equipment performance, or save energy. PBC Linear welcomes the opportunity to explore how a new design, or an existing updated design, can result in lower cost, longer bearing life, and better system performance.

# MODIFIED STANDARDS

### CUSTOM ID, OD & LENGTHS

- Inside diameter lengths ranging from 1 mm - 400 mm
- Outside diameter lengths ranging from 3 mm - 500 mm
- Cut-to-length products made to order



### FLANGE, SPLIT & PILLOWBLOCK CONFIGURATIONS

- Full assortment of size interchangeable flange, die set, sleeve, and pillow block housing assemblies
- Customized for ensured application fit
- Capable of tight tolerances

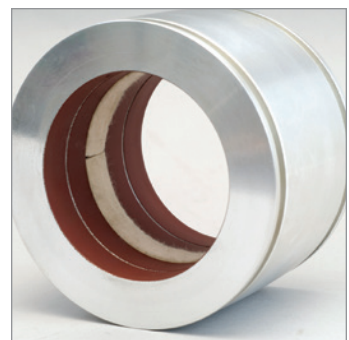
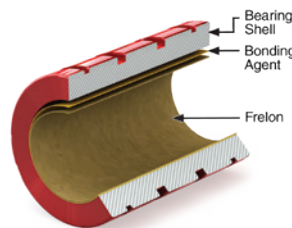


### MILLING, TURNING & MACHINING

- Limitless mounting, tap hole, and dowel options provide superior assembly and installation

### FRELON® LINER SURFACE MODIFICATION

- Improved machine performance with Simplicity technology
- Custom milled oil reservoirs and chevrons enhance Frelon®'s self-lubrication and life



### ACCESSORIES (SEALS, O-RINGS ETC.)

- Complete stock of seals, scrapers, o-rings, zerk fittings, and felt wicks to optimize application performance



Consult Factory • 800-962-8979



Email an Application Engineer

# Round Shaft Technology Optimized Solutions

## Optimized Solutions

How about a fully optimized bearing assembly? Put our engineering team and in-house manufacturing resources to the test. PBC Linear can work with you to create a solution that simplifies assembly, improves performance and reduces cost.

PBC Linear's engineers come from a wide range of disciplines in R&D, product design, and application specific engineering. PBC Linear's engineers are experienced in linear motion applications across the board and take a problem solving approach to every project—seeking innovative ideas and solutions to meet your design requirements and deadlines.

## OPTIMIZED SOLUTIONS



### CASE 1: Simplicity® Doctor Bearing for Paper Mill

**Problem:** A paper mill's rolling element doctor bearings were pre-maturely failing; causing high replacement costs and unplanned machine downtime on a monthly basis.

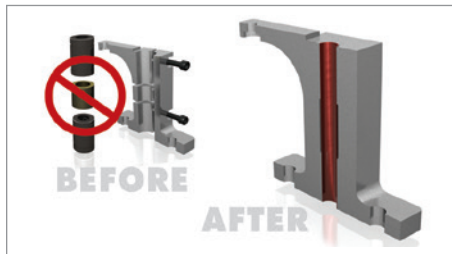
#### Optimized Solution:

- Custom doctor bearings with Frelon® liner
- Specially milled oil reservoirs for product longevity
- Double-lip seals contain lubrication

**Result:** The paper mill noticed immediate and long-term improvement in running performance. 16 years later, the bearing was still operating at full capacity.



[Link to Custom Bearings Video](#)



### CASE 2: Simplified Specialty Bearing Assembly

**Problem:** A linear bearing assembly containing numerous components was costing a specialty equipment manufacturer thousands of dollars in annual parts and labor costs.

#### Optimized Solution:

- PBC Engineers worked with manufacturer to simplify design
- Custom bearing assembly eliminated mounting components and alignment steps
- Integrated Frelon® liner provides smooth performance

**Result:** The complex assembly process was reduced down to a single step, single component installation to decrease labor costs and enhance application fit.

### CASE 3: Roller Bearing vs. Custom Plain Bearing on Wood Sander

**Problem:** Misalignment and heavy shock loads led to failed roller bearings, unplanned downtime, and constant replacement costs for the wood-working manufacturer.

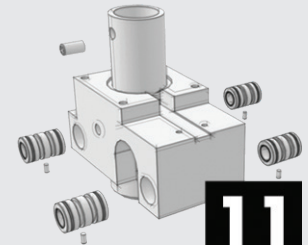
#### Optimized Solution:

- Custom mounting clamps eliminate misalignment
- Simplicity Frelon liner absorbs shock and tolerates extreme heat
- Specially milled oil reservoirs ensure long operation under continuous use

**Result:** The wood sander's operational lifetime was increased from 1 week to 1 year under continuous use, saving the manufacturer \$15,000.00 in parts and labor.



## PROBLEM



**11**  
COMPONENTS

### Application:

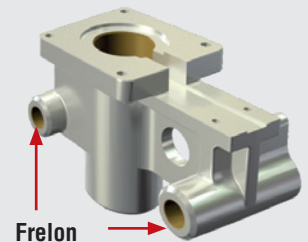
A manufacturer of precision engraving equipment developed a new design for simplified assembly and dramatically reduced costs.

#### Initial Design Problems:

- Numerous parts
- Multiple complex machining operations
- Complex assembly
- Several vendors

**vs.**

## SOLUTION



Frelon Liner

**1**

COMPONENT

### Design on a Diet Solution

- One-piece, multi-axis casting
- Frelon bonded liner allows for high load capacity, low wear, and no maintenance
- Reduced part count
- Collaborative engineered design
- Reduced assembly time
- **40% cost savings**





**PBC Linear  
Worldwide Headquarters**

6402 E. Rockton Road  
Roscoe, Illinois 61073  
USA

Tel: +1.815.389.5600  
Toll-Free: +1.800.962.8979  
Fax: +1.815.389.5790

[sales@pbclinear.com](mailto:sales@pbclinear.com)  
[pbclinear.com](http://pbclinear.com)

**PBC Linear Europe GmbH  
European Headquarters**

Bonner Straße 363  
40589 Duesseldorf  
Germany

Tel: +49 211 545590 20  
Fax: +49 211 545590 39

[info@pbclinear.eu](mailto:info@pbclinear.eu)  
[pbclinear.eu](http://pbclinear.eu)

**PBC-MOONS  
China Headquarters**

168 Mingjia Road, Minhang District,  
Shanghai 201107,  
P.R. China

Tel: +86 21 52634688  
Fax: +86 21 52634098

[info@moons.com.cn](mailto:info@moons.com.cn)  
[www.moons.com.cn](http://www.moons.com.cn)

PBC Linear has a global network of distributors with thousands of locations worldwide.  
Visit [pbclinear.com](http://pbclinear.com) to find a distributor near you.



[pbclinear.com](http://pbclinear.com)