# Super Smart Ball Bushing Bearing Products

**Thomson Super Smart Ball Bushing Bearing products offer:**

- Up to six times the load capacity or 216 times the travel life of conventional linear bearings.
- Twice the load capacity or eight times the travel life of industry standard Thomson Super Ball Bushing bearings.
- A precision super finished, dual track bearing plate for optimum system smoothness and performance.
- A universal self-alignment feature, that compensates for misalignment of housing bores and 60 Case LinearRace shaft deflection, optimizes load distribution between ball tracks and assures uniform ball loading over the entire length of the bearing plate. Installation time and cost is minimized while bearing performance and life is maximized.
- A technologically advanced design that allows the bearing to maintain its diametrical fit-up when installed in a housing that is slightly out-of-round.
- Longer travel life and minimal machine downtime when replacing conventional linear bearings or the industry standard Super Ball Bushing bearing.
- The RoundRail Advantage combined with universal self-alignment eliminating the need for derating factors commonly required when using linear guides.
- A coefficient of friction as low as .001. This allows the use of smaller less expensive motors, belts, gears and ball screws, when replacing high friction, plain bearings.
- Closed and open configurations.
- Double lip integral wipers that keep out dirt while retaining lubrication. Travel life is maximized.
- Worldwide availability from over 1500 authorized distributors.

## Super Smart Ball Bushing Bearings

The new Super Smart Ball Bushing Bearing represents a major advancement in linear bearing technology worldwide. The Super Smart Ball Bushing Bearing offers twice the load capacity or eight times the travel life of the industry standard Thomson Super Ball Bushing bearing. An enormous technological breakthrough, considering the Super Ball Bushing bearing already offers three times the load capacity or twenty-seven times the travel life of conventional linear bearings.

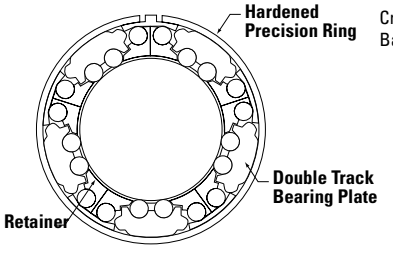



Figure 1

Cross-section of Super Smart Ball Bushing Bearing

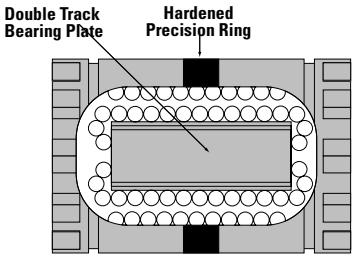



Figure 2

### Technologically Advanced Design

The load carrying component of the Super Smart Ball Bushing Bearing is the combination of four hardened bearing quality steel components (Figures 1 & 2).

The first component is the steel outer ring, which allows the bearing to maintain its diametrical fit-up even when installed in a housing that is slightly out-of-round. The unique ring design also allows for bearing adjustment and the removal of diametrical clearance. The second component is the precision super finished double track bearing plate that provides twice the load capacity and features universal self-alignment.

The third component is the rolling element. Each Super Smart Ball Bushing Bearing utilizes precision ground balls manufactured to the highest quality standards for roundness and sphericity. The result is maximum load capacity, travel life and performance.

The last component is the 60 Case LinearRace shaft that acts as the inner race to the Super Smart Ball Bushing Bearing. Each 60 Case LinearRace shaft is manufactured to the highest quality standards for roundness, straightness, surface finish and hardness. Roundness is held under eighty millionths of an inch; straightness to .002 inches per foot; surface finish under twelve microinch and hardness between 60-65 HRC. The combination of inner and outer race or 60 Case LinearRace shaft and Super Smart Ball Bushing Bearing provides the basis for the RoundRail Advantage.

### The RoundRail Advantage

The RoundRail Advantage is the inherent ability of a Super Smart Ball Bushing Bearing system to accommodate torsional misalignment (caused by inaccuracies in carriage or base machining or by machine deflection) with little increase in stress to bearing components. Installation time and cost are minimized and system performance is maximized.

# Super Smart Ball Bushing Bearings

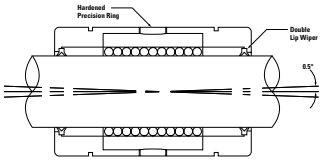



Figure 3

## Universal Self-Alignment

The bearing plate of the Super Smart Ball Bushing Bearing is designed with many unique and technologically advanced features. The universal self-alignment feature assures that the Super Smart Ball Bushing Bearing will achieve maximum performance regarding load capacity, travel life, smooth operation and coefficient of friction. The three components that make up universal self-alignment are **Rock**, **Roll** and **Yaw**.

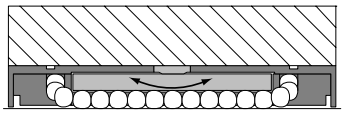


Figure 4

Close-up of hardened precision ring, showing how the bearing plate self-aligns (rocks) about the curved surface of the ring.

## Rock

The bearing plate is designed to rock 0.5° about the hardened precision ground outer ring (Figures 3 & 4). This self-aligning feature allows the Super Smart Ball Bushing Bearing to absorb misalignment caused by inaccuracies in housing bore alignment or 60 Case LinearRace shaft deflection. This rocking capability provides smooth entry and exit of the precision balls into and out of the load zone assuring a constant low coefficient of friction. By compensating for misalignment, each bearing ball in the load carrying area is uniformly loaded providing maximum load capacity.

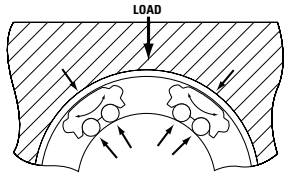



Figure 5

Close-up of double track bearing plates showing how they self-align (roll) to evenly distribute the load on each of their two ball tracks.

## Roll

The second key design feature of the Super Smart Ball Bushing Bearing plate is its ability to **Roll**. The bearing plate is designed with the radius of its outer surface smaller than the inside radius of the precision outer ring (Figure 5). This allows the bearing plate to compensate for torsional misalignment and evenly distribute the load on each of its two ball tracks. The roll component assures maximum load capacity and travel life.

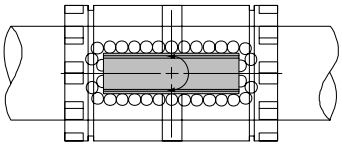


Figure 6

Bearing plates rotate about their center to prevent skewing relative to the 60 Case LinearRace shaft.

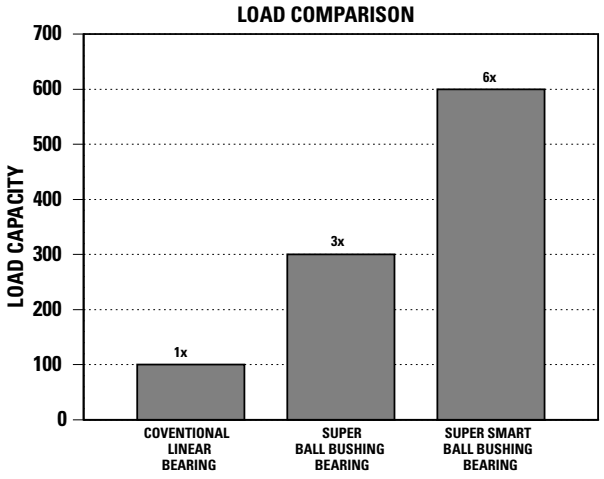
## Yaw

The shape formed by the **Rock** and **Roll** features allows the Super Smart Ball Bushing Bearing plate to rotate about its center (Figure 6). This allows the Super Smart Ball Bushing Bearing to absorb skew caused by misalignment. The result is a constant low coefficient of friction and maximum bearing performance.

# The Super Smart Advantage

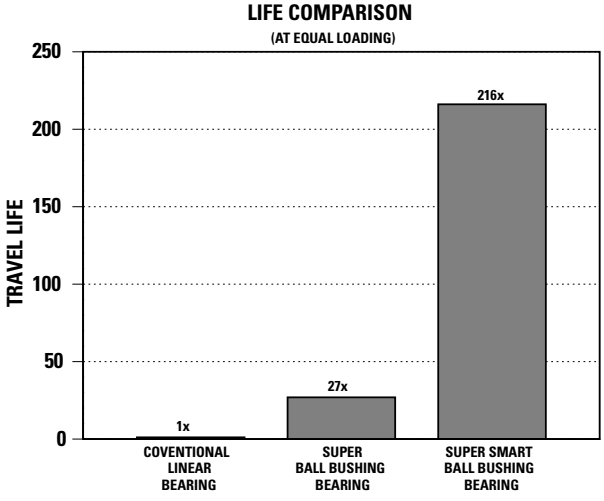
## Advantage: Load Capacity

The Super Smart Ball Bushing Bearing provides twice the load capacity of the industry standard Thomson Super Ball Bushing bearing and six times the load capacity of conventional linear bearings.




## Advantage: Travel Life

The Super Smart Ball Bushing Bearing provides eight times the travel life of the industry standard Thomson Super Ball Bushing bearing and 216 times the travel life of conventional linear bearings.



## Inch – Super Smart Ball Bushing Bearings

# Part Number Description and Specification

### Super Smart Ball Bushing Bearings (Closed Type) for End Supported Applications

**SSU-16-WW-CR**

| Type | Description |
|---|---|
| SSU | Super Smart Ball Bushing bearings |

| Size | Nominal Diameter |
|---|---|
| 8 | .500 |
| 10 | .625 |
| 12 | .750 |
| 16 | 1.000 |
| 20 | 1.250 |
| 24 | 1.500 |

| Option | Description |
|---|---|
| – | No Wipers |
| W | One Integral Wiper |
| WW | Two Integral Wipers |

| Option | Description |
|---|---|
| – | Standard |
| CR | Corrosion Resistant |
| NB | Nylon Balls |
| DP | Dry Packed |

### Super Smart Ball Bushing Pillow Blocks (Closed Type) for End Supported Applications

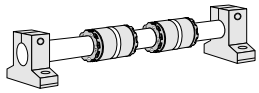
**SSUPB-16-CR**

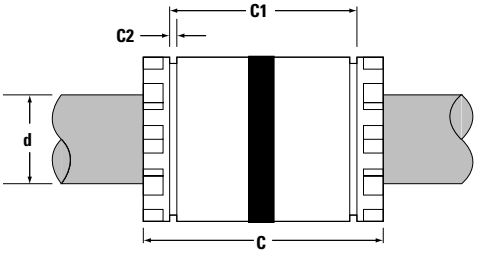
| Type | Description |
|---|---|
| SSUPB | Super Smart Ball Bushing Pillow Blocks |
| SSUPBA | Super Smart Ball Bushing Adjustable Pillow Blocks |
| SSUTWN | Super Smart Ball Bushing Twin Pillow Blocks |
| SSUTWNA | Super Smart Ball Bushing Twin Adjustable Pillow Blocks |
| SSUFB | Super Smart Ball Bushing Flanged Pillow Blocks |
| SSUTFB | Super Smart Ball Bushing Flanged Twin Pillow Blocks |

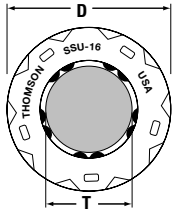
| Size | Nominal Diameter |
|---|---|
| 8 | .500 |
| 10 | .625 |
| 12 | .750 |
| 16 | 1.000 |
| 20 | 1.250 |
| 24 | 1.500 |

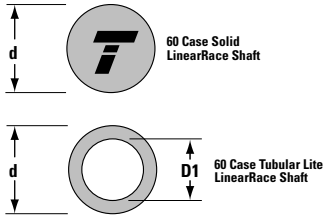
| Option | Description |
|---|---|
| – | Standard |
| CR | Corrosion Resistant |
| NB | Nylon Balls |

# Super Smart Ball Bushing Bearings
## (Closed Type) for End Supported Applications






### Super Smart Ball Bushing Bearings (Closed Type) and 60 Case LinearRace Shafting (Dimensions in inches)

| Part Number [2] | | | | Nominal Diameter | Length C | C1 | C2 min. | Number of Ball Circuits | Ball Bushing bearing Mass lb | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace ID D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Without Integral Wipers | With one Integral Wiper | With two Integral Wipers | 60 Case Linear Race | | | | | | | | | | |
| SS6U-8 | SS6U-8-W | SS6U-8-WW | 1/2 L | .500 | 1.250/1.230 | 1.032/1.012 | .050 | 6 | .07 | .04 | .06 | – | – |
| SSU-10 | SSU-10-W | SSU-10-WW | 5/8 L | .625 | 1.500/1.480 | 1.125/1.095 | .055 | 10 | .12 | .04 | .09 | – | – |
| SSU-12 | SSU-12-W | SSU-12-WW | 3/4 L | .750 | 1.625/1.605 | 1.285/1.255 | .055 | 10 | .16 | .06 | .13 | .08 | .46/.41 |
| SSU-16 | SSU-16-W | SSU-16-WW | 1 L | 1.000 | 2.250/2.230 | 1.901/1.871 | .068 | 10 | .29 | .08 | .22 | .16 | .62/.56 |
| SSU-20 | SSU-20-W | SSU-20-WW | 1 1/4 L | 1.250 | 2.625/2.600 | 2.031/1.991 | .068 | 10 | .52 | .08 | .35 | – | – |
| SSU-24 | SSU-24-W | SSU-24-WW | 1 1/2 L | 1.500 | 3.000/2.970 | 2.442/2.402 | .086 | 10 | .99 | .08 | .50 | .33 | .93/.84 |

| Part Number [2] | | | Working Bore Diameter T | Recommended Housing Bore | | 60 Case LinearRace Diameter d | Ball Bushing bearing/60 Case LinearRace Fit Up ‡ | | Dynamic [1] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|
| Without Integral Wipers | With one Integral Wiper | With two Integral Wipers | | Fixed D | Adjustable D | | Fixed Diameter Housing | Adjustable Diameter Housing (Before Adjustment) | |
| SS6U-8 | SS6U-8-W | SS6U-8-WW | .5000/.4995 | .8755/.8750 | .8760/.8750 | .4995/.4990 | .0015C/.0000 | .002C/.0000 | 265 |
| SSU-10 | SSU-10-W | SSU-10-WW | .6250/.6245 | 1.1255/1.1250 | 1.1260/1.1250 | .6245/.6240 | .0015C/.0000 | .002C/.0000 | 620 |
| SSU-12 | SSU-12-W | SSU-12-WW | .7500/.7495 | 1.2505/1.2500 | 1.2510/1.2500 | .7495/.7490 | .0015C/.0000 | .002C/.0000 | 1130 |
| SSU-16 | SSU-16-W | SSU-16-WW | 1.0000/.9995 | 1.5630/1.5625 | 1.5635/1.5625 | .9995/.9990 | .0015C/.0000 | .002C/.0000 | 1900 |
| SSU-20 | SSU-20-W | SSU-20-WW | 1.2500/1.2494 | 2.0008/2.0000 | 2.0010/2.0000 | 1.2495/1.2490 | .0018C/.0001P | .002C/.0001P | 2350 |
| SSU-24 | SSU-24-W | SSU-24-WW | 1.5000/1.4994 | 2.3760/2.3750 | 2.3760/2.3750 | 1.4994/1.4989 | .0021C/.0000 | .0021C/.0000 | 3880 |

‡ P = Preload, C = Clearance

(1) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below.

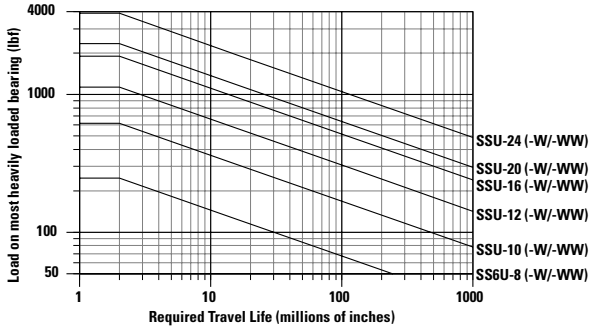
(2) For part number description and specifications see page 24. For specifications on seals and retaining rings see the Accessories section.

Note: For additional technical information, see the Engineering section beginning on page 245.

# Inch – Super Smart Ball Bushing Bearings

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

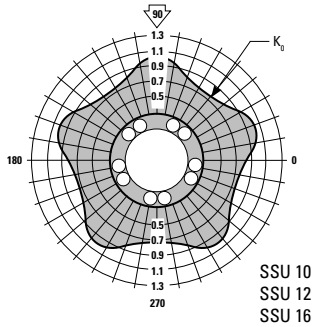
**Note: For the purpose of using this chart.**

**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

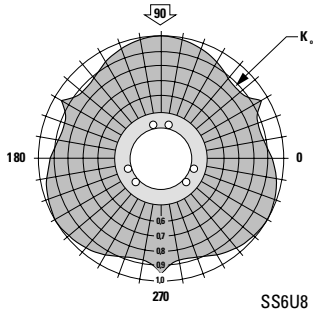
Where $K_0$ can be determined from the Polar Graph to the right.

## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

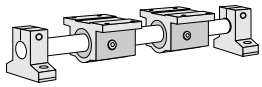


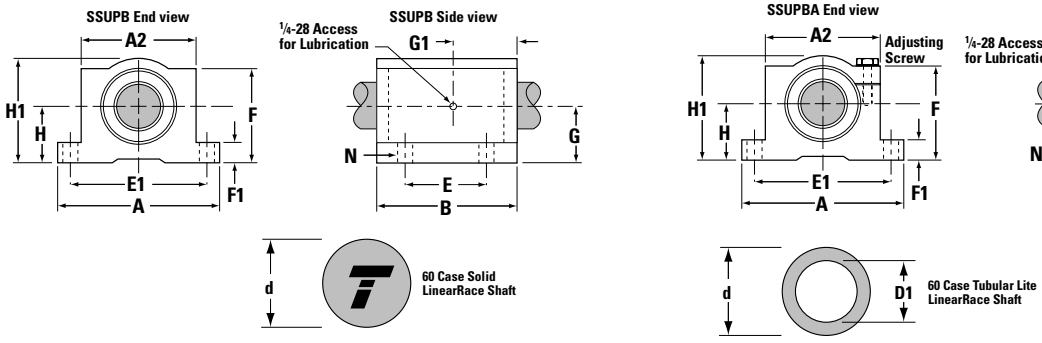

SSU 10
SSU 12
SSU 16
SSU 20
SSU 24




SS6U8

# Super Smart Ball Bushing Pillow Blocks
## (Closed and Adjustable Type) for End Supported Applications






### Super Smart Ball Bushing Pillow Blocks (Closed & Adjustable Types, seal at both ends) and LinearRace (Dim. in inches)

| Part Number [2] | | | Nominal Diameter | H ±.003 | H1 | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace ID D1 |
|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | 60 Case LinearRace | | | | | | | | |
| Fixed | Adjustable | | | | | | | | | |
| SS6UPB-8 | SS6UPBA-8 | 1/2 L | .500 | .687 | 1.25 | .4995/.4990 | .04 | .06 | – | – |
| SSUPB-10 | SSUPBA-10 | 5/8 L | .625 | .875 | 1.63 | .6245/.6240 | .04 | .09 | – | – |
| SSUPB-12 | SSUPBA-12 | 3/4 L | .750 | .937 | 1.75 | .7495/.7490 | .06 | .13 | .08 | .46/.41 |
| SSUPB-16 | SSUPBA-16 | 1 L | 1.000 | 1.187 | 2.19 | .9995/.9990 | .08 | .22 | .16 | .62/.56 |
| SSUPB-20 | SSUPBA-20 | 1 1/4 L | 1.250 | 1.500 | 2.81 | 1.2495/1.2490 | .08 | .35 | – | – |
| SSUPB-24 | SSUPBA-24 | 1 1/2 L | 1.500 | 1.750 | 3.25 | 1.4994/1.4989 | .08 | .50 | .33 | .93/.84 |

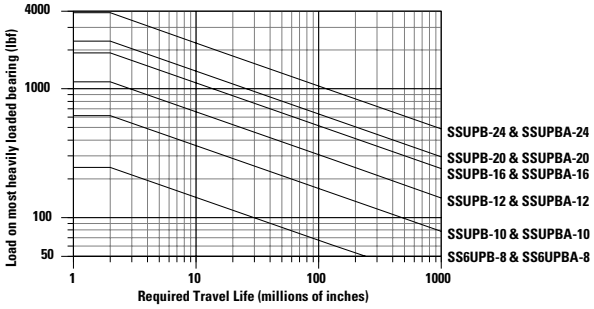
| Part Number [2] | | A | A2 | B | E ±.010 | E1 ±.010 | F | F1 | G | G1 | N | | Pillow Block Mass lb | Dynamic [1] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | | | | | | | | | | | | | |
| Fixed | Adjustable | | | | | | | | | | Hole | Bolt | | |
| SS6UPB-8 | SS6UPBA-8 | 2.00 | 1.38 | 1.69 | 1.000 | 1.688 | 1.13 | .25 | .97 | .44 | .16 | #6 | .23 | 265 |
| SSUPB-10 | SSUPBA-10 | 2.50 | 1.75 | 1.94 | 1.125 | 2.125 | 1.44 | .28 | 1.17 | .68 | .19 | #8 | .51 | 620 |
| SSUPB-12 | SSUPBA-12 | 2.75 | 1.88 | 2.06 | 1.250 | 2.375 | 1.56 | .31 | .94 | .72 | .19 | #8 | .62 | 1130 |
| SSUPB-16 | SSUPBA-16 | 3.25 | 2.38 | 2.81 | 1.750 | 2.875 | 1.94 | .38 | 1.20 | .86 | .22 | #10 | 1.24 | 1900 |
| SSUPB-20 | SSUPBA-20 | 4.00 | 3.00 | 3.63 | 2.000 | 3.500 | 2.50 | .44 | 1.50 | 1.20 | .22 | #10 | 2.57 | 2350 |
| SSUPB-24 | SSUPBA-24 | 4.75 | 3.50 | 4.00 | 2.500 | 4.125 | 2.88 | .50 | 1.75 | 1.25 | .28 | .25 | 3.94 | 3880 |

(1) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below.
(2) For part number description and specifications see page 24.
Note: For additional technical information, see the Engineering section beginning on page 245.

# Inch – Super Smart Ball Bushing Bearings

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

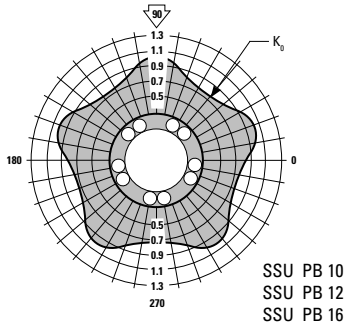
**Note: For the purpose of using this chart.**

**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

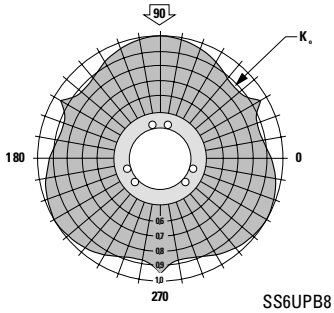
Where $K_0$ can be determined from the Polar Graph to the right.

## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.



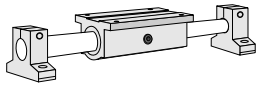

SSU PB 10
SSU PB 12
SSU PB 16
SSU PB 20
SSU PB 24

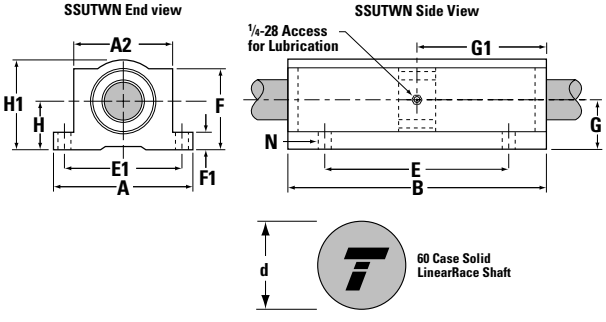



SS6UPB8

# Super Smart Ball Bushing Twin Pillow Blocks

## (Closed and Adjustable Type) for End Supported Applications






### Super Smart Ball Bushing Twin Pillow Blocks (Closed Type, seal at both ends) and 60 Case LinearRace Shaft (Dim. in in.)

| Part Number [2] | | | Nominal Diameter | H ±.003 | H1 | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace ID D1 |
|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | 60 Case LinearRace | | | | | | | | |
| Fixed | Adjustable | | | | | | | | | |
| SS6UTWN-8 | SS6UTWNA-8 | 1/2 L | .500 | .687 | 1.25 | .4995/.4990 | .04 | .06 | – | – |
| SSUTWN-10 | SSUTWNA-10 | 5/8 L | .625 | .875 | 1.63 | .6245/.6240 | .04 | .09 | – | – |
| SSUTWN-12 | SSUTWNA-12 | 3/4 L | .750 | .937 | 1.75 | .7495/.7490 | .06 | .13 | .08 | .46/.41 |
| SSUTWN-16 | SSUTWNA-16 | 1 L | 1.000 | 1.187 | 2.19 | .9995/.9990 | .08 | .22 | .16 | .62/.56 |
| SSUTWN-20 | SSUTWNA-20 | 1 1/4 L | 1.250 | 1.500 | 2.81 | 1.2495/1.2490 | .08 | .35 | – | – |
| SSUTWN-24 | SSUTWNA-24 | 1 1/2 L | 1.500 | 1.750 | 3.25 | 1.4994/1.4989 | .08 | .50 | .33 | .93/.84 |

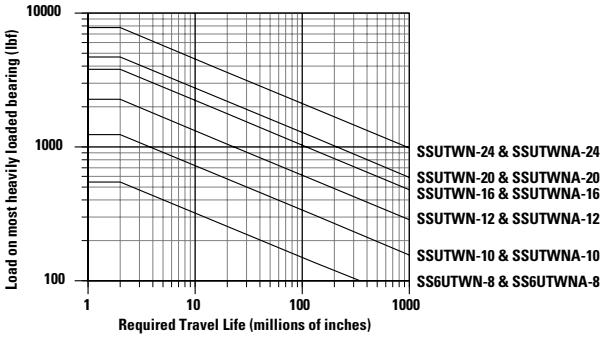
| Part Number [2] | | A | A2 | B | E ±.010 | E1 ±.010 | F | F1 | G | G1 | N | | Pillow Block Mass lb | Dynamic [1] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | | | | | | | | | | | | | |
| Fixed | Adjustable | | | | | | | | | | Hole | Bolt | | |
| SS6UTWN-8 | SS6UTWNA-8 | 2.00 | 1.38 | 3.50 | 2.500 | 1.688 | 1.13 | .25 | .59 | 1.75 | .16 | #6 | .46 | 530 |
| SSUTWN-10 | SSUTWNA-10 | 2.50 | 1.75 | 4.00 | 3.000 | 2.125 | 1.44 | .28 | .85 | 2.00 | .19 | #8 | 1.02 | 1240 |
| SSUTWN-12 | SSUTWNA-12 | 2.75 | 1.88 | 4.50 | 3.500 | 2.375 | 1.56 | .31 | .94 | 2.25 | .19 | #8 | 1.24 | 2260 |
| SSUTWN-16 | SSUTWNA-16 | 3.25 | 2.38 | 6.00 | 4.500 | 2.875 | 1.94 | .38 | 1.19 | 3.00 | .22 | #10 | 2.48 | 3800 |
| SSUTWN-20 | SSUTWNA-20 | 4.00 | 3.00 | 7.50 | 5.500 | 3.500 | 2.50 | .44 | 1.50 | 3.75 | .22 | #10 | 5.14 | 4700 |
| SSUTWN-24 | SSUTWNA-24 | 4.75 | 3.50 | 9.00 | 6.500 | 4.125 | 2.88 | .50 | 1.75 | 4.50 | .28 | .25 | 8.08 | 7760 |

(1) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below. Dynamic load capacity is based on two bearings equally loaded.
(2) For part number description and specifications see page 24.
Note: For additional technical information, see the Engineering section beginning on page 245.

# Inch – Super Smart Ball Bushing Bearings

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

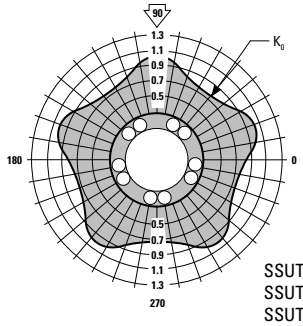
**Note: For the purpose of using this chart.**

**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

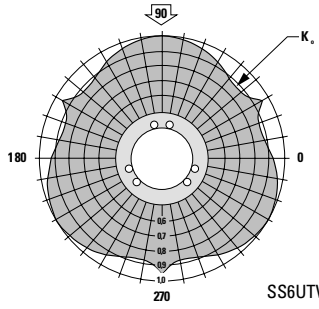
Where $K_0$ can be determined from the Polar Graph to the right.

## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

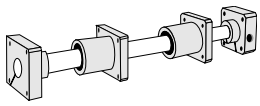



SSUTWN 10
SSUTWN 12
SSUTWN 16
SSUTWN 20
SSUTWN 24

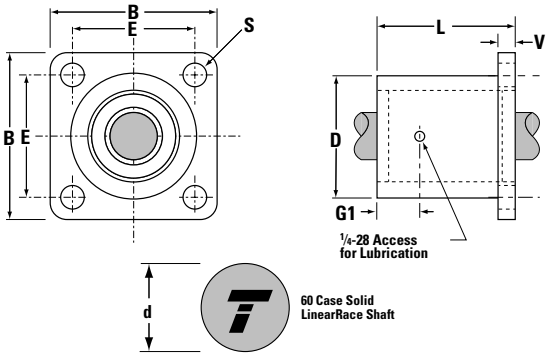



SS6UTWN8

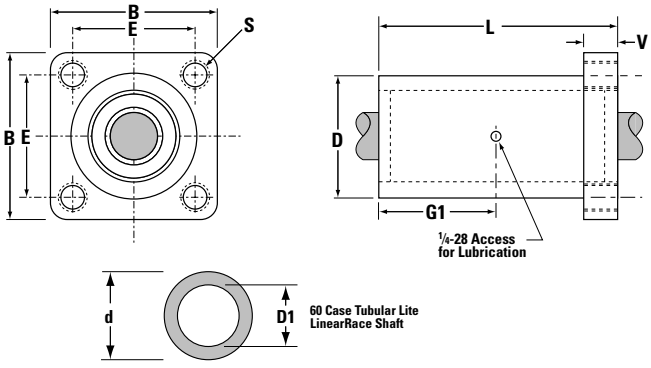
# Super Smart Ball Bushing Flanged Single and Twin Pillow Blocks for End Supported Applications



Single Pillow Block




Twin Pillow Block




## Super Smart Ball Bushing Flanged Pillow Blocks and 60 Case LinearRace Shaft (Dimensions in inches)

| Part Number [2] | | Nominal Diameter | B | E ±.010 | L | D | V | G1 | S Hole Dia. | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace ID D1 | Pillow Block Mass lb | Dyn. [1] Load Cap. $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Flanged Pillow Block | 60 Case LinearRace | | | | | | | | | | | | | | | |
| SS6UFB-8 | 1/2 L | .500 | 1.63 | 1.250 | 1.69 | 1.25 | .25 | .72 | .19 | .4995/.4990 | .04 | .06 | – | – | .23 | 265 |
| SSUFB-12 | 3/4 L | .750 | 2.38 | 1.750 | 2.06 | 1.75 | .38 | .89 | .22 | .7495/.7490 | .06 | .13 | .08 | .460/.416 | .52 | 1130 |
| SSUFB-16 | 1 L | 1.000 | 2.75 | 2.125 | 2.81 | 2.25 | .50 | 1.27 | .28 | .9995/.9990 | .08 | .22 | .16 | .629/.569 | 1.04 | 1900 |
| SSUFB-20 | 1 1/4 L | 1.250 | 3.50 | 2.750 | 3.63 | 3.00 | .63 | 1.67 | .35 | 1.2495/1.2490 | .08 | .35 | – | – | – | 2350 |
| SSUFB-24 | 1 1/2 L | 1.500 | 4.00 | 3.125 | 4.00 | 3.62 | .75 | 1.86 | .41 | 1.4994/1.4989 | .08 | .50 | .33 | .93/.84 | – | 3880 |

## Super Smart Ball Bushing Flanged Twin Pillow Blocks and 60 Case LinearRace Shaft (Dimensions in inches)

| Part Number [2] | | Nominal Diameter | B | E ±.010 | L | D | V | G1 | S Thread | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace Mass lb/in | 60 Case Tubular Lite LinearRace ID D1 | Pillow Block Mass lb | Dyn. [1] Load Cap. $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Flanged Twin Pillow Block | 60 Case LinearRace | | | | | | | | | | | | | | | |
| SS6UTFB-8 | 1/2 L | .500 | 1.63 | 1.250 | 3.20 | 1.25 | .90 | 1.48 | 1/4-20 | .4995/.4990 | .04 | .06 | – | – | – | 530 |
| SSUTFB-12 | 3/4 L | .750 | 2.38 | 1.750 | 3.95 | 1.75 | .90 | 1.98 | 1/4-20 | .7495/.7490 | .06 | .13 | .08 | .460/.416 | 1.05 | 2260 |
| SSUTFB-16 | 1 L | 1.000 | 2.75 | 2.125 | 5.33 | 2.25 | .90 | 2.67 | 5/16-18 | .9995/.9990 | .08 | .22 | .16 | .629/.569 | 1.95 | 3800 |
| SSUTFB-20 | 1 1/4 L | 1.250 | 3.50 | 2.750 | 6.70 | 3.00 | .90 | 3.35 | 5/16-18 | 1.2495/1.2490 | .08 | .35 | – | – | – | 4700 |
| SSUTFB-24 | 1 1/2 L | 1.500 | 4.00 | 3.125 | 7.50 | 3.62 | 1.00 | 3.75 | 3/8-16 | 1.4994/1.4989 | .08 | .50 | .33 | .93/.84 | – | 7760 |

(1) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below. Dynamic load capacity of Twin Super Smart Flanged Pillow blocks is based on two bearings equally loaded.

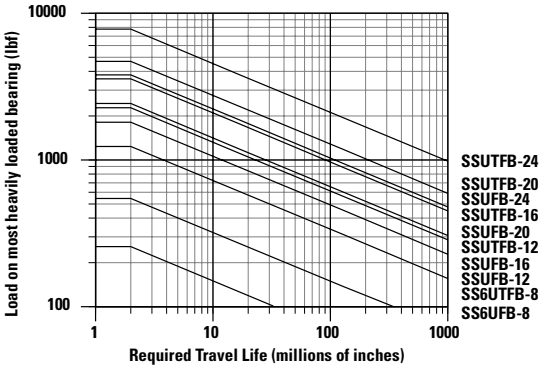
(2) For part number description and specifications see page 24.

Note: For additional technical information, see the Engineering section beginning on page 245.

# Inch – Super Smart Ball Bushing Bearings

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

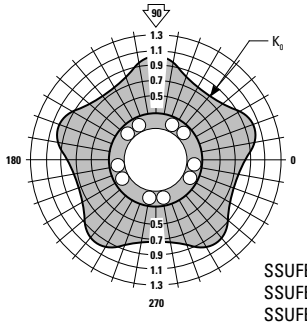
**Note: For the purpose of using this chart.**

**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

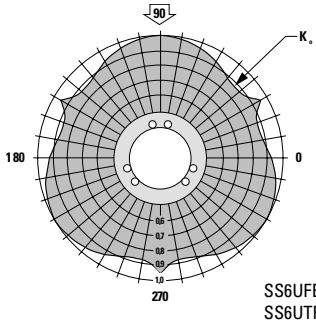
Where $K_0$ can be determined from the Polar Graph to the right.

## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.




SSUFB-12
SSUFB-16
SSUFB-20
SSUFB-24
SSUTFB-12
SSUTFB-16
SSUTFB-20
SSUTFB-24




SS6UFB-8
SS6UTFB-8

# Part Number Description and Specification

## Super Smart Ball Bushing Bearings (Open Type) for Continuously Supported Applications

**SSU-16-OPN-WW-CR**

| Type | Description |
|---|---|
| SSU | Super Smart Ball Bushing bearings |

| Size | Nominal Diameter |
|---|---|
| 8 | .500 |
| 10 | .625 |
| 12 | .750 |
| 16 | 1.000 |
| 20 | 1.250 |
| 24 | 1.500 |

| Type | Description |
|---|---|
| OPN | Open for continuously supported applications |

| Option | Description |
|---|---|
| – | No Wipers |
| W | One Integral Wiper |
| WW | Two Integral Wipers |

| Option | Description |
|---|---|
| – | Standard |
| CR | Corrosion Resistant |
| NB | Nylon Balls |

## Super Smart Ball Bushing Pillow Blocks (Open Type) for Continuously Supported Applications

**SSUPBO-16-CR**

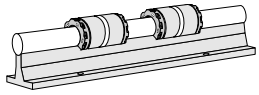
| Type | Description |
|---|---|
| SSUPBO | Super Smart Ball Bushing Pillow Blocks (Open Type) |
| SSUTWNO | Super Smart Ball Bushing Twin Pillow Blocks (Open Type) |
| SSURPBO | Super Smart Ball Bushing Rigid Steel Pillow Blocks (Open Type) |

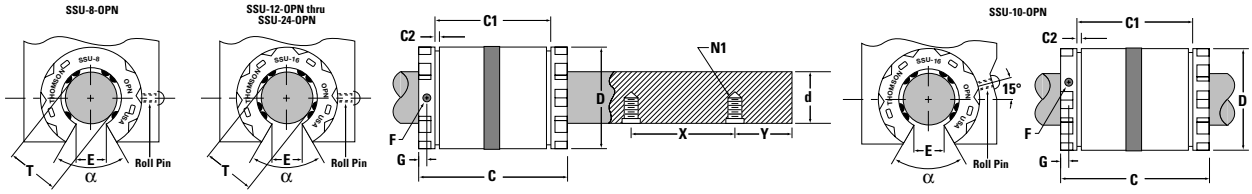
| Size | Nominal Diameter |
|---|---|
| 8 | .500 |
| 10 | .625 |
| 12 | .750 |
| 16 | 1.000 |
| 20 | 1.250 |
| 24 | 1.500 |

| Option | Description |
|---|---|
| – | Standard |
| CR | Corrosion Resistant |
| NB | Nylon Balls |

## Inch – Super Smart Ball Bushing Bearings

# Super Smart Ball Bushing Bearings
### (Open Type) for Continuously Supported Applications






### Super Smart Ball Bushing Bearings (Open Type) and 60 Case LinearRace Shafting (Dimensions in inches)

| Part Number [3] | | | | Nom. Dia. | Length C | C1 | C2 min. | Min. Slot Width E | Retention Hole | | Angle deg α | Number of Ball Circuits | Ball Bushing bearing Mass lb | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case LinearRace Mounting Holes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Without Integral Wipers | With one Integral Wiper | With two Integral Wipers | 60 Case Linear Race | | | | | | Dia. F | Loc. G | | | | | | X | Y | N1 |
| SSU-8-OPN | SSU-8-OPN-W | SSU-8-OPN-WW | 1/2 L PD | .500 | 1.250/1.230 | 1.032/1.012 | .050 | .31 | .13 | .62 | 40 | 6 | .07 | .04 | .06 | 4 | 2 | #6-32 |
| SSU-10-OPN | SSU-10-OPN-W | SSU-10-OPN-WW | 5/8 L PD | .625 | 1.500/1.480 | 1.125/1.095 | .055 | .34 | .11 | .13 | 30 | 8 | .09 | .04 | .09 | 4 | 2 | #8-32 |
| SSU-12-OPN | SSU-12-OPN-W | SSU-12-OPN-WW | 3/4 L PD | .750 | 1.625/1.605 | 1.285/1.255 | .055 | .41 | .14 | .13 | 30 | 8 | .13 | .06 | .13 | 6 | 3 | #10-32 |
| SSU-16-OPN | SSU-16-OPN-W | SSU-16-OPN-WW | 1 L PD | 1.000 | 2.250/2.230 | 1.901/1.871 | .068 | .53 | .14 | .13 | 30 | 8 | .24 | .08 | .22 | 6 | 3 | 1/4-20 |
| SSU-20-OPN | SSU-20-OPN-W | SSU-20-OPN-WW | 1 1/4 L PD | 1.250 | 2.625/2.600 | 2.031/1.991 | .068 | .62 | .20 | .19 | 30 | 8 | .43 | .08 | .35 | 6 | 3 | 5/16-18 |
| SSU-24-OPN | SSU-24-OPN-W | SSU-24-OPN-WW | 1 1/2 L PD | 1.500 | 3.000/2.970 | 2.442/2.402 | .086 | .74 | .20 | .19 | 30 | 8 | .80 | .08 | .50 | 8 | 4 | 3/8-16 |

| Part Number [3] | | | Working Bore Diameter T | Recommended Housing Bore Dia. | | 60 Case LinearRace Diameter d | Ball Bushing bearing/LinearRace Fit Up ‡ | | Dynamic [‡‡] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|
| Without Integral Wipers | With one Integral Wiper | With two Integral Wipers | | Fixed D | Adjustable D | | Fixed Diameter Housing | Adjustable Diameter Housing (Before Adjustment) | |
| SSU-8-OPN | SSU-8-OPN-W | SSU-8-OPN-WW | .5000/.4995 | .8755/.8750 | .8760/.8750 | .4995/.4990 | .0015C/.0000 | .002C/.0000 | 360 |
| SSU-10-OPN | SSU-10-OPN-W | SSU-10-OPN-WW | .6250/.6245 | 1.1255/1.1250 | 1.1260/1.1250 | .6245/.6240 | .0015C/.0000 | .002C/.0000 | 620 |
| SSU-12-OPN | SSU-12-OPN-W | SSU-12-OPN-WW | .7500/.7495 | 1.2505/1.2500 | 1.2510/1.2500 | .7495/.7490 | .0015C/.0000 | .002C/.0000 | 1130 |
| SSU-16-OPN | SSU-16-OPN-W | SSU-16-OPN-WW | 1.0000/.9995 | 1.5630/1.5625 | 1.5635/1.5625 | .9995/.9990 | .0015C/.0000 | .002C/.0000 | 1900 |
| SSU-20-OPN | SSU-20-OPN-W | SSU-20-OPN-WW | 1.2500/1.2494 | 2.0008/2.0000 | 2.0010/2.0000 | 1.2495/1.2490 | .0018C/.0001P | .002C/.0001P | 2350 |
| SSU-24-OPN | SSU-24-OPN-W | SSU-24-OPN-WW | 1.5000/1.4994 | 2.3760/2.3750 | 2.3760/2.3750 | 1.4994/1.4989 | .0021C/.0000 | .0021C/.0000 | 3880 |

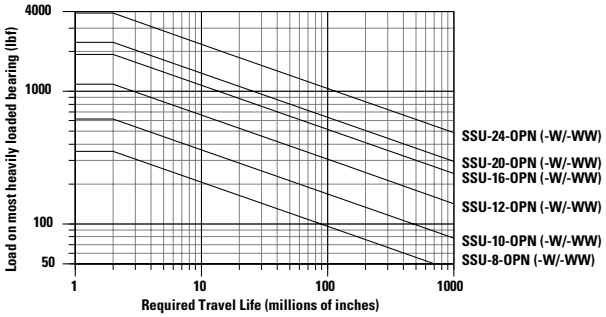
‡ P = Preload, C = Clearance

(††) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs to the right.

(3) For part number description and specifications see page 33.

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

**Note: For the purpose of using this chart.**

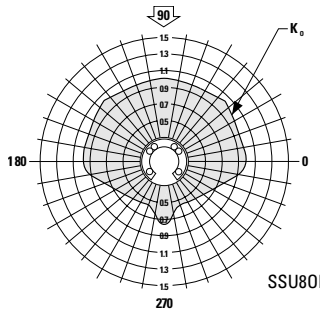
**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

Where $K_0$ can be determined from the Polar Graph to the right.

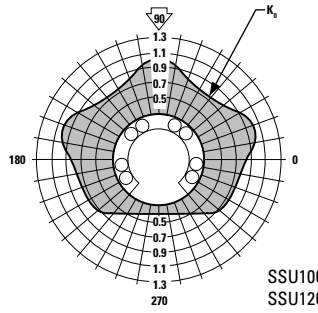
## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

Note: For Super Smart Ball Bushing bearings and other extremely high load bearings, the bearing load capacity as indicated by the polar charts may be be practically limited by the degree of shaft flexure acceptable, or the capacity of the shaft rail assembly fasteners. In such cases, the loads should be kept below these practical limits, however, the full corresponding life capacity benefits are still realized!



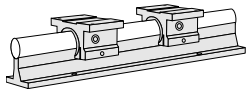

SSU80PN



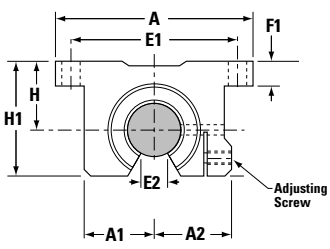

SSU100PN
SSU120PN
SSU160PN
SSU200PN
SSU240PN

## Inch – Super Smart Ball Bushing Bearings

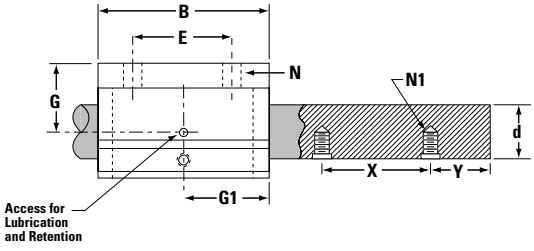
# Super Smart Ball Bushing Pillow Blocks
## (Open Type) for Continuously Supported Applications



SSUPBO End view




SSUPBO Side view




### Super Smart Ball Bushing Pillow Blocks (Open Type) and 60 Case LinearRace (Dimensions in inches)

| Part Number [3] | | Nominal Diameter | H ±.003 | H1 | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case LinearRace Mounting Holes | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | 60 Case LinearRace | | | | | | | X | Y | N1 |
| SSUPBO-8 | 1/2 L PD | .500 | .687 | 1.13 | .4995/.4990 | .04 | .06 | 4 | 2 | #6-32 |
| SSUPBO-10 | 5/8 L PD | .625 | .875 | 1.44 | .6245/.6240 | .04 | .09 | 4 | 2 | #8-32 |
| SSUPBO-12 | 3/4 L PD | .750 | .937 | 1.56 | .7495/.7490 | .06 | .13 | 6 | 3 | #10-32 |
| SSUPBO-16 | 1 L PD | 1.000 | 1.187 | 2.00 | .9995/.9990 | .08 | .22 | 6 | 3 | 1/4-20 |
| SSUPBO-20 | 1 1/4 L PD | 1.250 | 1.500 | 2.56 | 1.2495/1.2490 | .08 | .35 | 6 | 3 | 5/16-18 |
| SSUPBO-24 | 1 1/2 L PD | 1.500 | 1.750 | 2.94 | 1.4994/1.4989 | .08 | .50 | 8 | 4 | 3/8-16 |

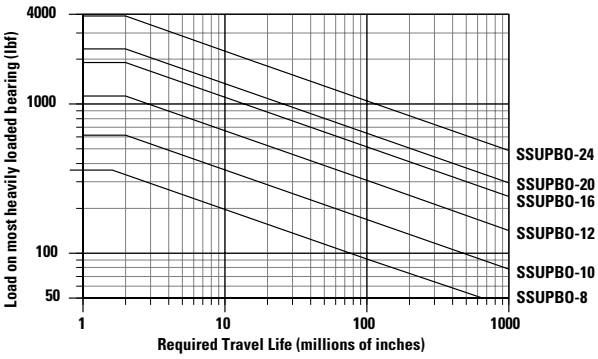
| Part Number [3] | A | A1 | A2 | B | E ±.010 | E1 ±.010 | E2 min. | F1 | G | G1 | N | N1 | Pillow Block Mass lb | Dynamic [††] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | | | | | | | | | | Hole | Bolt | | |
| SSUPBO-8 | 2.00 | .69 | .75 | 1.50 | 1.000 | 1.688 | .31 | .25 | .69 | .69 | .16 | #6 | .23 | 360 |
| SSUPBO-10 | 2.50 | .88 | .94 | 1.75 | 1.125 | 2.125 | .34 | .28 | .88 | .88 | .19 | #8 | .41 | 620 |
| SSUPBO-12 | 2.75 | .94 | 1.00 | 1.88 | 1.250 | 2.375 | .41 | .31 | .94 | .94 | .19 | #8 | .51 | 1130 |
| SSUPBO-16 | 3.25 | 1.19 | 1.25 | 2.63 | 1.750 | 2.875 | .53 | .38 | 1.19 | 1.32 | .22 | #10 | 1.03 | 1900 |
| SSUPBO-20 | 4.00 | 1.50 | 1.63 | 3.38 | 2.000 | 3.500 | .62 | .44 | 1.50 | 1.69 | .22 | #10 | 2.15 | 2350 |
| SSUPBO-24 | 4.75 | 1.75 | 1.88 | 3.75 | 2.500 | 4.125 | .74 | .50 | 1.75 | 1.88 | .28 | .25 | 3.29 | 3880 |

(††) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below.

(3) For part number description and specifications see page 33.

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

**Note: For the purpose of using this chart.**

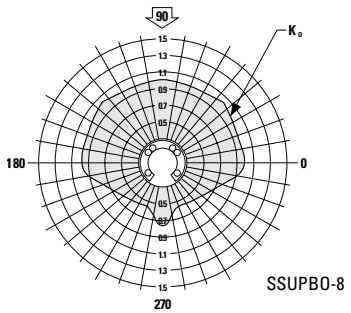
**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

Where $K_0$ can be determined from the Polar Graph to the right.

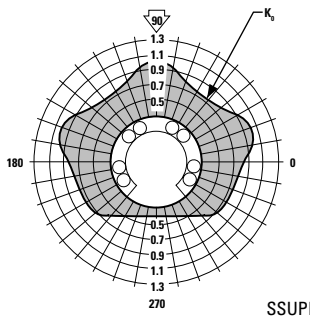
## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

Note: For Super Smart Ball Bushing bearings and other extremely high load bearings, the bearing load capacity as indicated by the polar charts may be be practically limited by the degree of shaft flexure acceptable, or the capacity of the shaft rail assembly fasteners. In such cases, the loads should be kept below these practical limits, however, the full corresponding life capacity benefits are still realized!



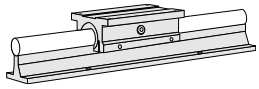

SSUPBO-8



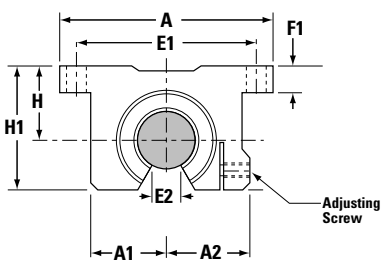

SSUPBO-10
SSUPBO-12
SSUPBO-16
SSUPBO-20
SSUPBO-24

## Inch – Super Smart Ball Bushing Bearings

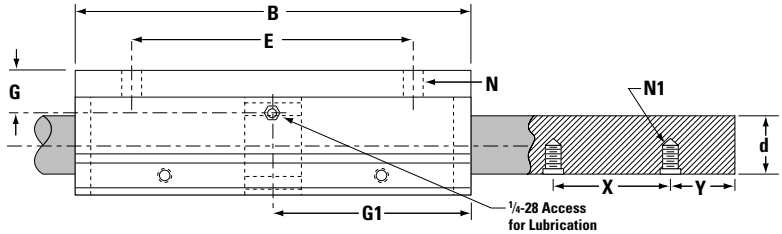
# Super Smart Ball Bushing Twin Pillow Blocks
## (Open Type) for Continuously Supported Applications



SSUTWNO End view




SSUTWNO Side view




### Super Smart Ball Bushing Twin Pillow Blocks (Open Type, seal at both ends) and 60 Case LinearRace (Dimensions in inches)

| Part Number [3] | | Nominal Diameter | H ±.003 | H1 | 60 Case LinearRace Diameter d | 60 Case LinearRace Minimum Depth of Hardness | 60 Case Solid LinearRace Mass lb/in | 60 Case LinearRace Mounting Holes | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | 60 Case LinearRace | | | | | | | X | Y | N1 |
| SSUTWNO-8 | 1/2 L PD | .500 | .687 | 1.13 | .4995/.4990 | .04 | .06 | 4 | 2 | #6-32 |
| SSUTWNO-10 | 5/8 L PD | .625 | .875 | 1.44 | .6245/.6240 | .04 | .09 | 4 | 2 | #8-32 |
| SSUTWNO-12 | 3/4 L PD | .750 | .937 | 1.56 | .7495/.7490 | .06 | .13 | 6 | 3 | #10-32 |
| SSUTWNO-16 | 1 L PD | 1.000 | 1.187 | 2.00 | .9995/.9990 | .08 | .22 | 6 | 3 | 1/4-20 |
| SSUTWNO-20 | 1 1/4 L PD | 1.250 | 1.500 | 2.56 | 1.2495/1.2490 | .08 | .35 | 6 | 3 | 5/16-18 |
| SSUTWNO-24 | 1 1/2 L PD | 1.500 | 1.750 | 2.94 | 1.4994/1.4989 | .08 | .50 | 8 | 4 | 3/8-16 |

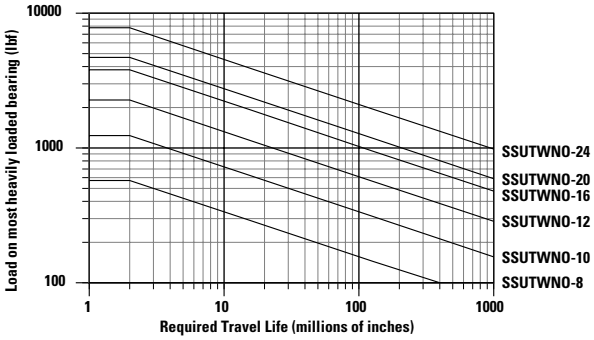
| Part Number [3] | A | A1 | A2 | B | E ±.010 | E1 ±.010 | E2 min. | F1 | G | G1 | N | N1 | Pillow Block Mass lb | Dynamic [††] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Pillow Block | | | | | | | | | | | Hole | Bolt | | |
| SSUTWNO-8 | 2.00 | .69 | .75 | 3.50 | 2.500 | 1.688 | .31 | .25 | .56 | 1.75 | .16 | #6 | .46 | 720 |
| SSUTWNO-10 | 2.50 | .88 | .94 | 4.00 | 3.000 | 2.125 | .34 | .28 | .67 | 2.00 | .19 | #8 | .82 | 1240 |
| SSUTWNO-12 | 2.75 | .94 | 1.00 | 4.50 | 3.500 | 2.375 | .41 | .31 | .94 | 2.25 | .19 | #8 | 1.02 | 2260 |
| SSUTWNO-16 | 3.25 | 1.19 | 1.25 | 6.00 | 4.500 | 2.875 | .53 | .38 | 1.20 | 3.00 | .22 | #10 | 2.06 | 3800 |
| SSUTWNO-20 | 4.00 | 1.50 | 1.63 | 7.50 | 5.500 | 3.500 | .62 | .44 | 1.50 | 3.75 | .22 | #10 | 4.30 | 4700 |
| SSUTWNO-24 | 4.75 | 1.75 | 1.88 | 9.00 | 6.500 | 4.125 | .74 | .50 | 1.75 | 4.50 | .28 | .25 | 6.88 | 7760 |

(††) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below.

(3) For part number description and specifications see page 33.

## Load/Life Graph

(Lines indicate limiting load for given Ball Bushing bearing)




**Determining Ball Bushing bearing Size**
To determine the proper Ball Bushing bearing size enter the chart with the maximum load of the most heavily loaded bearing and the required travel life. Mark where the two lines intersect. All Ball Bushing bearing sizes that pass through or above and to the right of this point may be suitable for this application.

**Note: For the purpose of using this chart.**

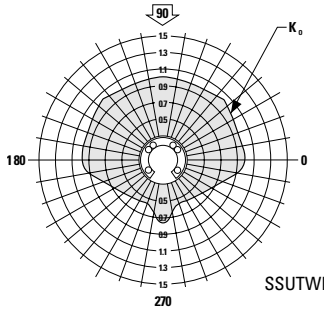
**Load on most heavily loaded bearing = maximum applied load/$K_0$.**

Where $K_0$ can be determined from the Polar Graph to the right.

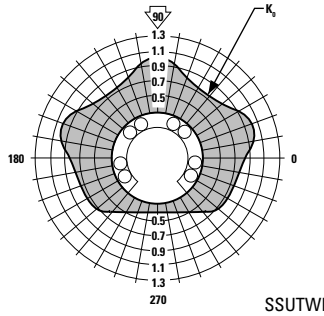
## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

Note: For Super Smart Ball Bushing bearings and other extremely high load bearings, the bearing load capacity as indicated by the polar charts may be be practically limited by the degree of shaft flexure acceptable, or the capacity of the shaft rail assembly fasteners. In such cases, the loads should be kept below these practical limits, however, the full corresponding life capacity benefits are still realized!




SSUTWNO-8

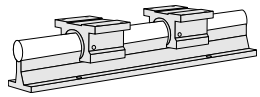



SSUTWNO-10
SSUTWNO-12
SSUTWNO-16
SSUTWNO-20
SSUTWNO-24

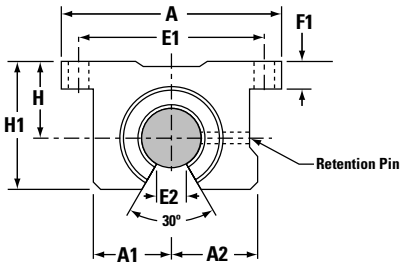
## Inch – Super Smart Ball Bushing Bearings

# Super Smart Ball Bushing Rigid Steel Pillow Blocks

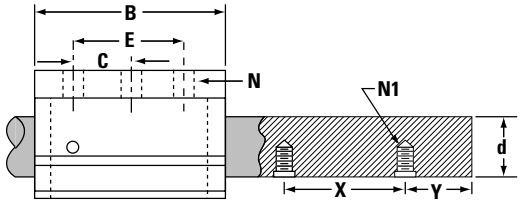
### (Open Type) for Continuously Supported Applications



End view




Side view




**Rigid steel housing and high performance Super Smart Ball Bushing Bearing combine to reduce deflection and cost up to 66%.**

**Super Smart Ball Bushing Bearing Rigid Steel Pillow Blocks (Open Type, seal at both ends) and LinearRace** (Dim. in in.)

| Part Number [3] | | Nominal Diameter | H ±.003 | H1 | A | A1 | A2 | B | 60 Case LinearRace Shaft Minimum Depth of Hardness | 60 Case Solid LinearRace Shaft Mass lb/in | 60 Case LinearRace Shaft Mounting Holes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Rigid Steel Pillow Block | 60 Case LinearRace Shaft | | | | | | | | | | X | Y | N1 |
| SSURPBO12 | 3/4 L PD | .750 | .937 | 1.56 | 2.75 | .94 | 1.00 | 1.88 | .06 | .13 | 6 | 3 | #10-32 |
| SSURPBO16 | 1 L PD | 1.000 | 1.187 | 2.00 | 3.25 | 1.19 | 1.25 | 2.63 | .08 | .22 | 6 | 3 | 1/4-20 |
| SSURPBO24 | 1 1/2 L PD | 1.500 | 1.750 | 2.94 | 4.75 | 1.75 | 1.88 | 3.75 | .08 | .50 | 8 | 4 | 3/8-16 |

| Part Number [3] | 60 Case LinearRace Diameter | E ±.010 | C ±.010 | E1 ±.010 | E2 min. | F1 | N | | Pillow Block Mass lb | Dynamic [††] Load Capacity $lb_f$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Super Smart Ball Bushing Rigid Steel Pillow Block | d | | | | | | Hole | Bolt | | |
| SSURPBO12 | .7495/.7490 | 1.250 | .625 | 2.375 | .43 | .31 | .19 | #8 | 1.10 | 1130 |
| SSURPBO16 | .9995/.9990 | 1.750 | .875 | 2.875 | .56 | .38 | .22 | #10 | 2.30 | 1900 |
| SSURPBO24 | 1.4994/1.4989 | 2.500 | 1.250 | 4.125 | .81 | .50 | .28 | .25 | 7.00 | 3880 |

(††) The Dynamic Load Capacity is based on a rated travel life of 2 million inches. The actual Dynamic Load Capacity can be affected by the orientation of the bearing or the direction of the applied load. For dynamic load correction factors see polar graphs below.

(3) For part number description and specifications see page 33.

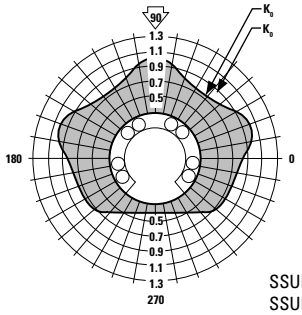
**Super Smart Ball Bushing Rigid Steel Pillow Blocks provide:**

- **Faster settling time…Greater Productivity**
- **Less deflection…Greater Accuracy**
- **Highest Load Capacity…Smallest Envelope**
- **Longest Bearing Life…Greater Reliability**

## Polar Graphs

The actual Dynamic Load Capacity of a Ball Bushing bearing is determined by the orientation of the bearing or direction of the applied load. The load Correction Factor $K_0$ is found by knowing the direction of the applied load relative to the orientation of the bearings ball tracks and referring to the polar graph. To determine the actual Dynamic Load Capacity, multiply the proper correction factor by the Dynamic Load Capacity listed in the product table on the previous page.

Note: For Super Smart Ball Bushing bearings and other extremely high load bearings, the bearing load capacity as indicated by the polar charts may be be practically limited by the degree of shaft flexure acceptable, or the capacity of the shaft rail assembly fasteners. In such cases, the loads should be kept below these practical limits, however, the full corresponding life capacity benefits are still realized!




SSURPBO12
SSURPBO16
SSURPBO24

**Inch – Super Smart Ball Bushing Bearings**

# Pick and Place X-Y System

## Objective
Build an X-Y System that transfers the work piece between two separate machining stations.

## Solution
Assemble the X-Y System utilizing Super Smart pillow blocks on end supported 60 Case LinearRace for the X-axis and continuously supported 60 Case LinearRace on the Y-axis. Utilize Thomson Ball Screw Assemblies for high speed positioning.

## Benefits
The 60 Case LinearRace and 60 Case LinearRace end support blocks provided an important bridge between machining stations. The Super Smart Ball Bushing pillow blocks and Thomson ball screws provided uninterrupted high speed movement of the work piece. Productivity increased by 200%.

## Products Specified
**X-axis**
2 - 1 1⁄2 L CTL x 48.00 in (60 Case LinearRace)
4 - SB24 (60 Case LinearRace End Support Blocks)
4 - SSUPB-24 (Super Smart Ball Bushing Pillow Blocks)
1 - 1 1⁄4 x .200 (Thomson Ball Screw Assembly)

**Y-axis**
2 - LSR-20 x 48.00 in (Low Profile 60 Case LinearRace Support Rail)
4 - SSUPBO-20 (Super Smart Ball Bushing Pillow Blocks)
1 - 1 1⁄4 x .200 (Thomson Ball Screw Assembly)
2 - 1 1⁄4 L CTL x 48.00 in (60 Case LinearRace)