

# Ballscrew Bearing

**NEW**



## Introduction :

HIWIN ballscrew bearings could be designed into sets of two, three, four or various other combinations in order to meet a ballscrews loading requirements. Ballscrew bearings can be arranged into either a face-to-face or a back-to-back duplex bearing. These types of ball bearings can handle the loading force from both the axial and radial directions, and by increasing the number of ball bearing sets will improve their loading capacity.

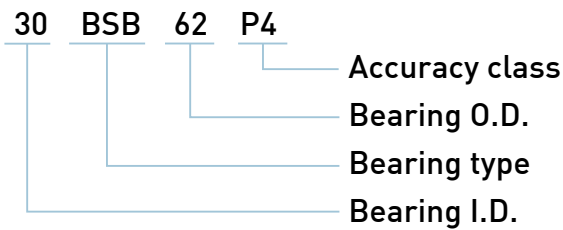
For a back to back configuration, there is a large distance between the acting load center of the bearings resulting in a higher moment load capacity. Therefore, this kind of bearing arrangement is commonly used in machine center spindles. Although the moment load capacity for a face-to-face configuration is smaller, it has an advantage of having a larger misalignment angle.

HIWIN ballscrew bearings have a contact angle of 60°. This type of bearing can handle larger axial loads when compared to the normal type. It is specially designed to be used in ballscrew assembly. Since the axial load capacity is high, this also provides a high axial stiffness . This could prevent the ballscrew from shifting when loaded . The functionality of ballscrew bearings is to help the ballscrew reach it's best accuracy .

## Product Features :

- ◆ Rotational accuracy is better than the international standards.
- ◆ Smooth rotation.
- ◆ Smaller size reduces space.
- ◆ Easy to install and adjust.
- ◆ Can be supplied with HIWIN ballscrews for a total solution.

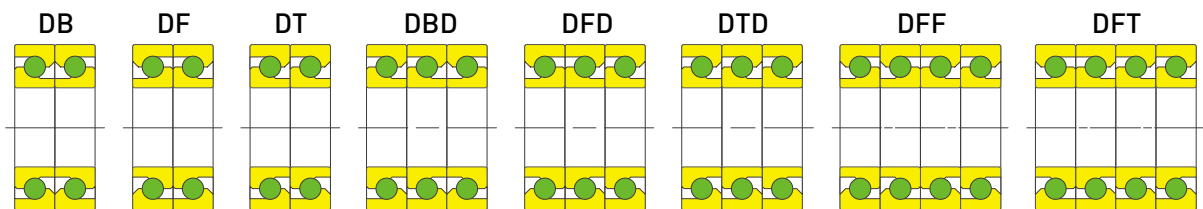
## Product Specification :



□□BSB△△P4

1. □□ : Bearing I.D., two digit designation(Unit: mm).
2. BSB : Bearing type, ballscrew bearing in angular contact with a 60° contact angle.
3. △△ : Bearing O.D., two digit designation(Unit: mm).
4. P4 : Accuracy class.

## Assembly Arrangement :



◆ Table 1 Standard BSB dimensional tolerances

Unit: μm

Nominal Bearing I.D. or O.D. (mm)		Inside diameter deviations		Outside diameter deviations		Deviations of width		Outer or inner ring axial run out
		P4		P4		P4		P4
Over	Include	high	low	high	low	high	low	Max
10	18	0	-4	-	-	0	-80	2.5
18	30	0	-5	-	-	0	-120	2.5
30	50	0	-6	0	-6	0	-120	2.5
50	80	0	-7	0	-7	0	-150	2.5
80	120	0	-8	0	-8	0	-200	2.5

Note : The run out accuracy shown in the table is based on ISO 492.

◆ **Table 2 Standard Shaft diameter and Bearing bore dimensional tolerances**

Unit:  $\mu\text{m}$

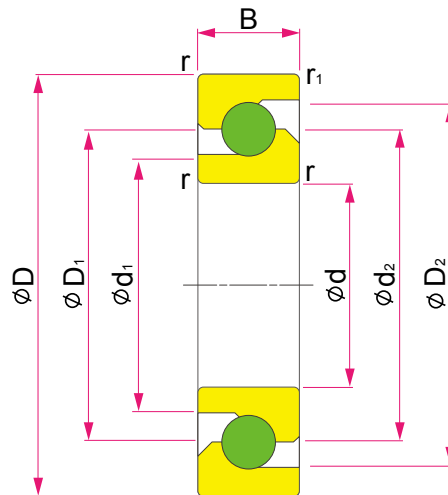
Shaft dia./ Bearing bore dimension (mm)		Tolerance of shaft dia.		Tolerance of bearing bore	
		h5		H6	
Over	Include	high	low	high	low
10	18	0	-8	-	-
18	30	0	-9	-	-
30	50	0	-11	+16	0
50	80	0	-13	+19	0
80	120	0	-15	+22	0

◆ **Table 3 Dynamic Equivalent Load**

$$P_a = X F_r + Y F_a$$

Assembly row Assembly arrangement Load carrying row(s) e=2.17		Set of 2		Set of 3			Set of 4		
		DB/ DF	DT	DBD/ DFD		DTD	DFT	DFF	DFT
		1 row	2 rows	1 row	2 rows	3 rows	1 row	2 rows	3 rows
$F_a/F_r \leq e$	X	1.9	-	1.43	2.33	-	1.17	2.33	2.53
	Y	0.54	-	0.77	0.35	-	0.89	0.35	0.26
$F_a/F_r > e$	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1

**Bearing Specification Table :**



Spec.	Main Dimensions (mm)					Dimensions (mm)			
	d	D	B	r(min)	r <sub>1</sub> (min)	d <sub>1</sub>	d <sub>2</sub>	D <sub>1</sub>	D <sub>2</sub>
15 BSB 47	15	47	15	1	0.6	27.2	34	34	39.7
17 BSB 47	17	47	15	1	0.6	27.2	34	34	39.7
20 BSB 47	20	47	15	1	0.6	27.2	34	34	39.7
25 BSB 62	25	62	15	1	0.6	37	44.6	44.6	50.8
30 BSB 62	30	62	15	1	0.6	39.5	47.1	47.1	53.3
35 BSB 72	35	72	15	1	0.6	49.4	57	57	63.2
40 BSB 72	40	72	15	1	0.6	49.4	57	57	63.2

Spec.	Allowable rpm (rpm)	Basic dynamic load rating (kN)			Max axial load (kN)		
		1 row	2 rows	3 rows	1 row	2 rows	3 rows
15 BSB 47	6000	21.9	35.5	47.5	26.6	53	79.5
17 BSB 47	6000	21.9	35.5	47.5	26.6	53	79.5
20 BSB 47	6000	21.9	35.5	47.5	26.6	53	79.5
25 BSB 62	4500	28.5	46.5	61.5	40.5	81.5	122
30 BSB 62	4300	29.2	47.5	63	43	86	129
35 BSB 72	3600	31.5	51.5	68.5	52	104	157
40 BSB 72	3600	31.5	51.5	68.5	52	104	157

Spec.	Set of 2 (DF)			Set of 3 (DFD)			Set of 4 (DFF)		
	Preload (kN)	Rigidity (kN/μm)	Drag torque (N-cm)	Preload (kN)	Rigidity (kN/μm)	Drag torque (N-cm)	Preload (kN)	Rigidity (kN/μm)	Drag torque (N-cm)
15 BSB 47	2.1	0.75	14	2.9	1.1	20	4.3	1.4	29
17 BSB 47	2.1	0.75	14	2.9	1.1	20	4.3	1.4	29
20 BSB 47	2.1	0.75	14	2.9	1.1	20	4.3	1.4	29
25 BSB 62	3.1	1.0	23	4.3	1.4	31	6.2	1.9	46
30 BSB 62	3.3	1.0	24	4.5	1.5	33	6.6	2.0	49
35 BSB 72	3.9	1.2	28	5.3	1.8	37	7.8	2.4	55
40 BSB 72	3.9	1.2	28	5.3	1.8	38	7.8	2.4	57

\*The specifications in this catalog are subject to change without notification.

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