Ball Screw Bearing

NEW

Spec.	Allowable rpm (rpm)	basic dynamic rating load (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.
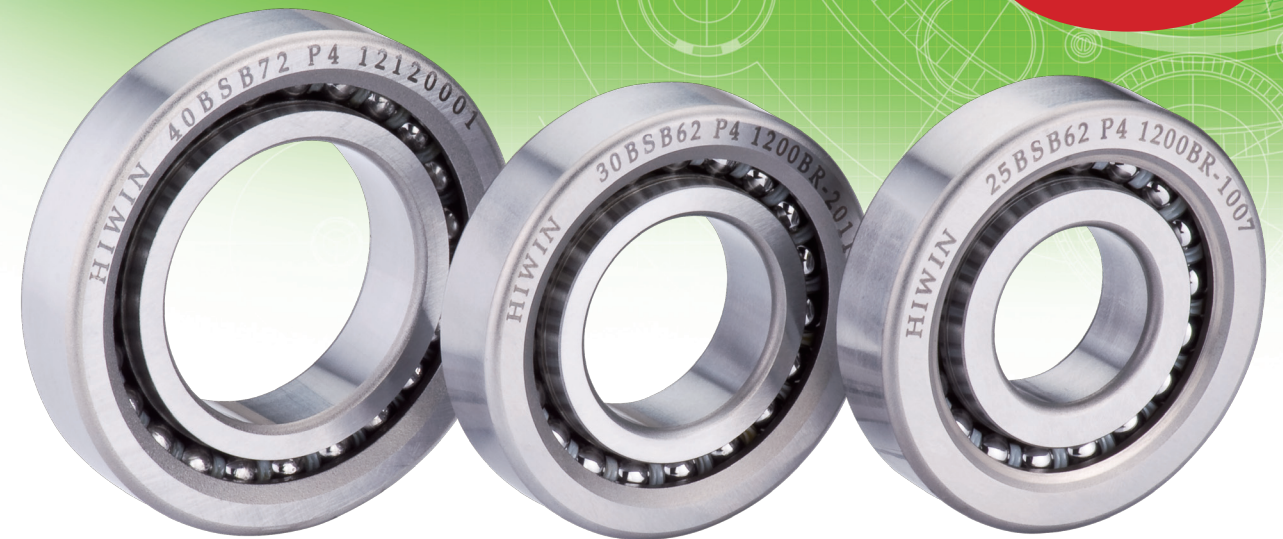
Introduction：

HIWIN Ball Screw Bearings consist mainly of outer ring, inner ring, and an array of steel balls with spacers. The steel balls between the inner ring and outer ring. The spacer is placed between the steel balls to eliminate the friction caused between them. Also, in order to meet ballscrew loading requirements, the Ball Screw Bearings could be designed into sets of two, three, four or other various combinations. Ball Screw Bearings could be arranged into either a face-to-face or a back-to-back duplex bearing. These types of ball bearings could handle the loading force from both the axial and radial directions. Also, by increasing the number of ball bearing sets would improve the loading capability in either the axial or radial direction.

For a back to back configuration, the distance between the acting load center of the bearing is large resulting in a higher moment load capacity. Therefore, this kind of bearing combination 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 Ball Screw Bearings have a contact angle of 60°. This type of bearing could 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 to shift when loaded . The functionality of Ball Screw Bearings could make ballscrew reach the best accuracy .

Product Features：

◆ Rotational accuracy is better than the international standards.
◆ Outstanding rotating smoothness.
◆ Smaller size space saving.
◆ Easy to install and adjust.
◆ Be supplied this Ball Screw Bearing with Hiwin ballscrews for a total solution.

Product Specification：

30　BSB　62　P4

- Accuracy class
- Bearing O.D.
- Bearing Type
- Bearing I.D.
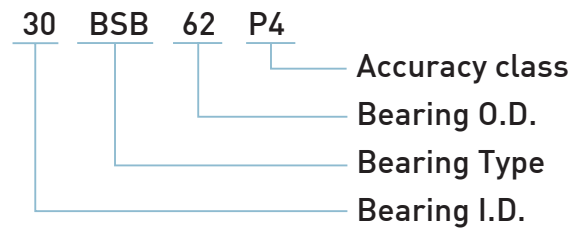
□□BSB△△P4

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

Assembly Combination：

DB　DF　DT　DBD　DFD　DTD　DFF　DFT
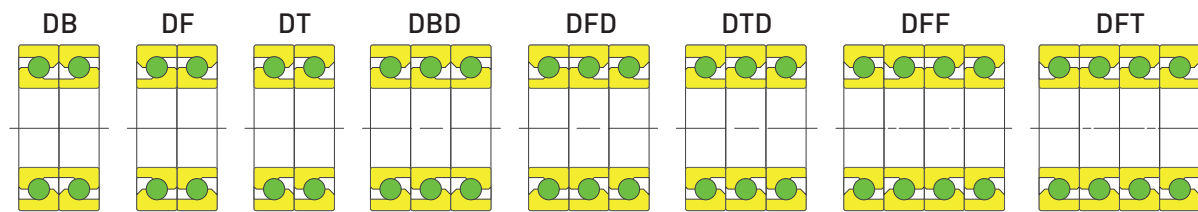
◆ Table 1　Standard BSB dimensional tolerances

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 and Support bearing bore dimensional tolerances

Unit: μm

Shaft dia./ Support bearing bore dimension (mm)		tolerance of Shaft dia.		tolerance of Support 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

$$Pa=XFr+YFa$$

Assembly row		set of 2		set of 3			set of 4		
Assembly combination		DB/ DF	DT	DBD/ DFD		DTD	DFT	DFF	DFT
e=2.17	Axial load	1 row	2 rows	1 row	2 rows	3 rows	1 row	2 rows	3 rows
$F_a/F_r \leqq e$	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：
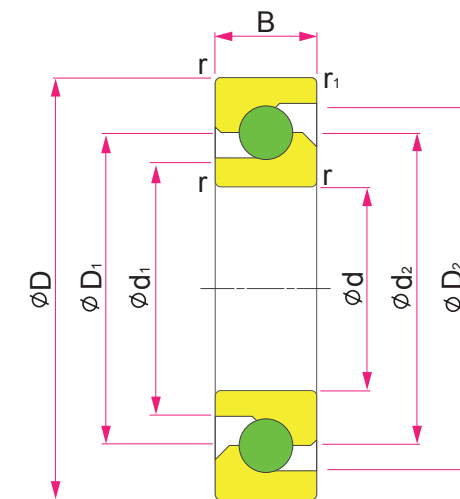
Spec.	Main Dimensions (mm)					Dimensions (mm)			
	d	D	B	r(min)	r_1(min)	d_1	d_2	D_1	D_2
15 BSB 47	15	47	15	1	0.6	27.2	34	34	39.7
17 BSB 47	17	47	15	1	0.6	27.2	34	34	39.7
20 BSB 47	20	47	15	1	0.6	27.2	34	34	39.7
25 BSB 62	25	62	15	1	0.6	37	44.6	44.6	50.8
30 BSB 62	30	62	15	1	0.6	39.5	47.1	47.1	53.3
35 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