

# Ball Bearing Units

## Pillow Blocks / Diamond Flanged

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## Cast Iron, Pillow Blocks / Bottom Mount



RoHS10

### ■Pillow Blocks

Set Screw Fixed  
**PBT** (Steel)

### Eccentric Ring Fixed

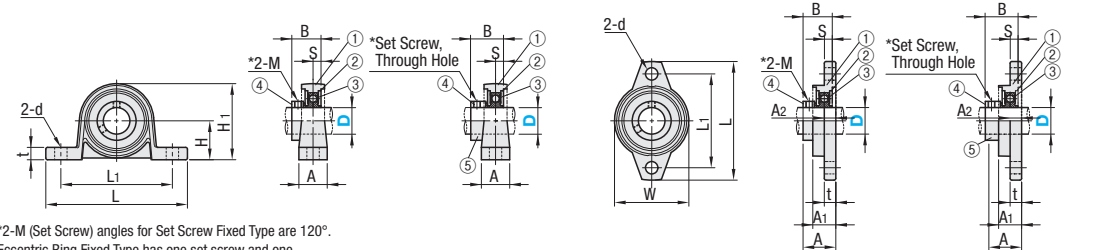
**PBR** (Steel)  
**PBRs** (Stainless Steel Bearing)  
**PBRsX** (Stainless Steel)

### ■Diamond Flanged

Set Screw Fixed  
**HBT** (Steel)

### Eccentric Ring Fixed

**HBR** (Steel)  
**HBRs** (Stainless Steel Bearing)  
**HBRsX** (Stainless Steel)



- ① \*2-M (Set Screw) angles for Set Screw Fixed Type are 120°.
  - ② Eccentric Ring Fixed Type has one set screw and one through hole, with an angle of 90°.
  - ③ Eccentric rings are used to secure shafts.
  - ④ Ball bearing moves slightly due to self-aligning function.
  - ⑤ To maintain transition fit, the fit between the main body and the bearing is designed slightly tight (Except Cast Iron Type). If the bearing is inclined when delivered, insert the shaft into the bearing to adjust the inclination.
  - ⑥ PBRsX and HBRsX (Cast Type) conform to JIS B 1559.
- Accuracy: JIS B 1558,  
Operating Temperature: -10 ~ +80°C

Type	Pillow Blocks	Diamond Flanged	Component					Material
			① Housing	② Bearing	③ Rubber Seal	④ Set Screw	⑤ Eccentric Ring	
Set Screw Fixed	<b>PBT</b>	<b>HBT</b>	Zinc Alloy Die Casting (ZDC)	SUJ2	Nitrile Rubber (NBR)	SCM435	-	
	<b>PBR</b>	<b>HBR</b>	Zinc Alloy Die Casting (ZDC)	SUJ2	Nitrile Rubber (NBR)	SCM435	S20C	
Eccentric Ring Fixed	<b>PBRs</b>	<b>HBRs</b>	Zinc Alloy Die Casting (ZDC)	SUS440C Equivalent	Nitrile Rubber (NBR)	SUS304	S20C	
	<b>PBRsX</b>	<b>HBRsX</b>	Stainless Steel Cast (SCS13)	SUS440C Equivalent	Nitrile Rubber (NBR)	SUS304	+ Nickel Chrome Plating SUS304	

Part Number	Type	D	H	L	L1	A	d	t	H1	B	S	Mass (g)			Unit Price				
												PBT	PBR	PBRsX	PBT	PBR	PBRsX		
<b>PBT</b> <b>PBR</b> <b>PBRs</b> <b>PBRsX</b> (D10~25)	10	18	67	53	16	7	6	5	35	34	14	17.5	4	70	77	79			
	12	19	71	56			6	6	38	37	14.5	18.5	4.5	80	91	98			
	15	22	80	63			7	7	43	42	16.5	20.5	5	140	156	170			
	17	24	85	67	18		9	8	47	46	17.5	21	6	210	230	258			
	20	28	100	80	20	10	10	9	55	53.5	21	24.5	6.5	270	294	333			
	25	32	112	90	26	13	11	-	70	-	24.5	25.5	6.5	410	454	-			

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Part Number	Type	D	L	L1	t	A2	A1	d	W	A		B		S	Mass (g)			Unit Price		
										HBT	HBR	HBRs	HBRsX		HBT	HBR	HBRs	HBRsX		
<b>HBR</b> (D=8 is for HBR only)	8	48	37	4	4.5	8.5	4.8	27	-	16	-	15	3.5	-	30	-	-	-	-	-
	10	60	45	5.5	5.5	11.5	7	36	15.5	19	14	17.5	4	50	60	77				
	12	63	48				7	38	16		14.5			70	76	87				
	15	67	53	6.5	6.5	13		42	18.5	20.5	16.5	18.5	4.5	90	100	115				
	17	71	56	7	7	14		46	19.5	22.5	17.5	20.5	5	115	129	146				
<b>HBT</b> <b>HBR</b> <b>HBRs</b> <b>HBRsX</b> (D10~25)	20	90	71	8	8	16	10	55	23	26.5	21	24.5	6	190	205	253				
	25	95	75	8	8	16	10	60	24.5	27.5	22.5	25.5	6	220	244	298				
	30	112	85	9	9	18	13	70	27	29	24.5	26.5	6.5	340	354	-				

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### ■Basic Load Rating

D	Basic Load Rating			
	PBT	PBRs	PBR	PBRsX
8	3300	-	1260	-
10	4600	3900	2000	1550
12	5100	4300	2400	1900
15	5600	4750	2800	2250
17	6000	5100	3300	2650
20	9350	7900	5100	4000
25	10100	8600	5800	4650
30	13200	11300	8300	6600

### ■Set Screw Detailed Dimensions

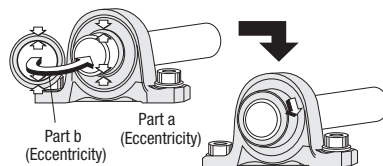
D	M		Tightening Torque (N·m)		Axial Load Capacity (kN)	
	PBT	PBR, PBRs, HBR, HBRs, HBRsX	PBT	PBR, PBRs, HBR, HBRs, HBRsX	PBT	PBR, PBRs, HBR, HBRs, HBRsX
8	-	M3x0.5	-	0.59	-	0.39
10	M3x0.35		0.59		0.35	0.88
12	M4x0.5	M4x0.7	1.47	1.5	0.43	
15	M4x0.5					
17	M5x0.5	M5x0.8	2.94	2.9	0.72	1.76
20						
25						
30						



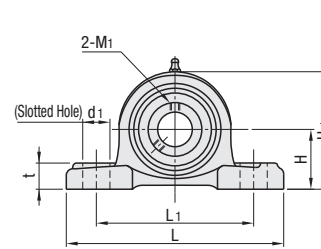
Fig.1 How to Tighten Eccentric Ring Type

### ■How to Secure the Shaft

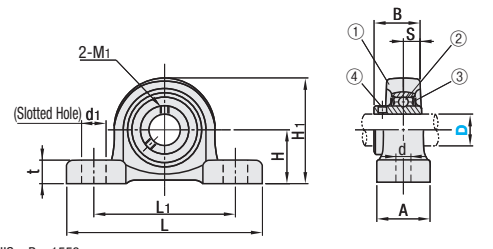
- Set Screw Fixed**
  - There are two set screws at the end face of the bearing inner ring (at 120°). The shaft is connected by tightening the set screws.
- Eccentric Ring Fixed**
  - Dissociate the centers of the convex outer surface at the end of the bearing inner race (part a) and the concave inner surface of the eccentric ring (part b), connect the shaft and the inner ring by forming a wedge on the circumference (Refer to Fig. 1).
  - Also, there is a set screw and a hole each (at the angle of 90°) on the end face of eccentric ring, which helps to prevent loosening by using the set screw as well as tightening as described above.
  - The D hole is for inserting a small diameter rod when loosening the connection.



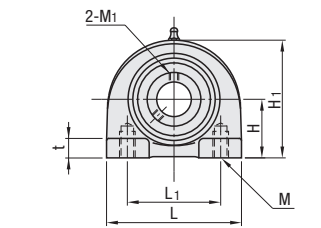
### PDR (Pillow Blocks)



### PDRCP (Compact Pillow Blocks)



### PDB (Bottom Mount)



Accuracy: JIS B 1558  
JIS B 1514  
JIS B 1559

- Bearing Inner Diameter Tolerance: H7 (Clearance Fit)
- ① Only PDRCP, J7 (Transition Fit)
- Operating Temperature: -15 ~ +100°C
- Grease Fitting Nominal Diameter: 1/4 to 28 UNF (Unified Standard)
- ② Ball bearing moves slightly due to self-aligning function.
- ③ For PDRCP, the fit between the main body and the bearing is designed to be slightly tight to maintain transition fit. If the bearing is skewed upon delivery, insert the shaft or similar into the bearing and adjust the inclination.
- ④ The lubrication-free version comes pre-filled with the correct amount of grease, and no lubrication is required for usage under normal conditions.

Component	Material
① Housing	FC200
② Bearing	SUJ2
③ Rubber Seal	Nitrile Rubber (NBR)
④ Set Screw	SCM435

Part Number	JIS Nominal	H	L	L1	A	d1	d	M	ℓ	t	H1	B	S	Basic Load Rating (kN)		Set Screw	Mass (g)		Unit Price					
														Cr (Dynamic)	Cor (Static)		M1	Tightening Torque (N·cm)		Axial Load Capacity (N)				
<b>PDR</b> <b>PDB</b>	12	UCP201														M6x0.75	392	640	650	550				
	15	UCP202	30.2	30.2	127	76	95	52	38	13	M10x1.5	12	15	8	62	62	31.0	12.7	12.8	6.6				
	17	UCP203																						
	20	UCP204	33.3																					
	25	UCP205	36.5	36.5	140	84	105	56	16															
	30	UCP206	42.9	42.9	165	94	121	66	48	21	17	M14x2.0	20	19	12	100	100	49.2	17.5	25.9	15.4			
	35	UCP207	47.6	47.6	167	110	127	80	54	25														
	40	UCP208	49.2	49.2	184	116	137	84	54	25														
	45	UCP209	54.0	54.2	190	120	146	90	60	25														
	50	UCP210	57.2	57.2	206	130	159	94	60	25	20	M16x2.0	25	22	14	114	116	51.6	35.5	23.2	M10x1.25	2350	3550	2590

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Part Number	Type	D	H	L	L1	A	d1	d	t	H1	B	S	Basic Load Rating (kN)		Set Screw	Mass (g)		Unit Price
													Cr (Dynamic)	Cor (Static)		M1	Tightening Torque (N·cm)	
<b>PDRCP</b>	12																	
	15	30.2	114	87	25													
	17																	
	20	33.3	125	97	27													
	25	36.5	130	100	29													
	30	42.9	156	120	33	21	14	15	83	30.3	8	19.6	11.3	M5x0.8	240	476	390	380

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