

7. Rolled Ballscrews

7.1 Introduction

HIWIN Rolled Ballscrews are made by a rolling process of the screw spindle instead of a grinding process. Rolled ballscrews not only have the benefit of low friction and smooth running for the linear feed system compared with traditional screws, but also can be supplied with quick stock delivery and lower production price.

HIWIN uses the most advanced technology in the ballscrew rolling process, and maintains the homogeneous manufacturing procedure of selecting materials, rolling, heat treating, machining and assembling.

In general, rolled ballscrews use the same preload method as the precision ground ballscrews, except that there are some differences in the lead error definition and the geometric tolerance. The grade of the rolled ballscrews can be ordered according to the same nut dimension of the precision ground ballscrew. If the ends of the spindle are unmachined, the geometric tolerance does not apply. The production scale of each type of the ballscrews and the accuracy classification are described in the following sections (the unit of length used is in mm).

7.2 Precision Rolled Ballscrews

Table 7.1 gives the lead accuracy of the precision rolled ballscrews. The lead accuracy is measured by the accumulated lead error of any portion of 300 mm in length. The maximum axial plays of the precision rolled ballscrews are shown in Table 7.2. These ballscrews can be preloaded as the precision ground ones. The categories of the precision rolled ballscrews are listed in Table 7.3.

Fig. 7.1 shows the geometric tolerance of the general rolled ballscrews. HIWIN has a variety of precision rolled ballscrews for our customers' urgent requirements.

Table 7.1 Accuracy grade of precision rolled ballscrew

Unit : 0.001mm

Cumulative	C6	C7	C8	C10
v_{300}	23	50	100	210
e_p	$e_p = \frac{\text{length measured}}{300} \times v_{300}$			

Cumulative v_{300} length measured	C6	C7	C8	C10
	0~100	18	44	84
101~200	20	48	92	194
201~315	23	50	100	210

Measuring length unit: mm

Table 7.2 Maximum axial play of precision rolled ballscrew

Unit : mm

Ball diameter	≤ 2	2.381 3.175	3.969	4.763	6.35	7.144	7.938	9.525
Axial play	0.06	0.07	0.10	0.12	0.15	0.16	0.17	0.18

Table 7.3 Category of HIWIN precision rolled ballscrew

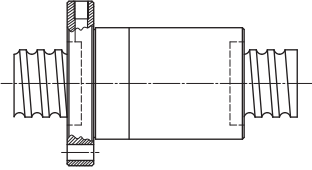
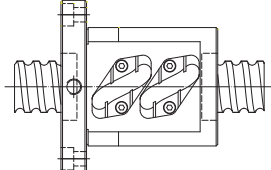
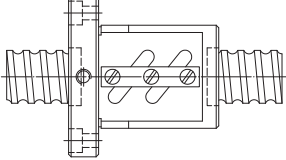
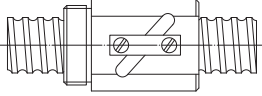
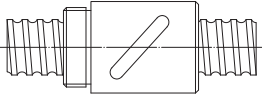
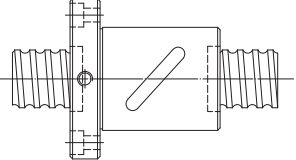
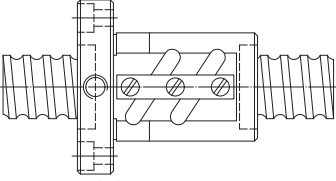
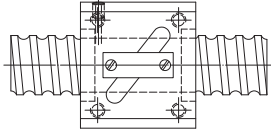
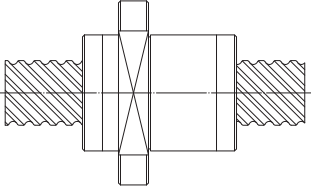
Unit : mm

Nominal diameter do (mm)	Lead														Max.screw length								
	1	1.25	2	2.5	3	4	5	5.08	6	8	10	12	16	20		25	30	32	36	40	50	63	
6	●	●																					800
8	●		●	■	●		●																800
10			●	■	●	●	●		●		●												1000
12			●	■	●	■	●	●		●	●	●											1200
14					●	●	●				●												2000
15											●				●								2000
16	●		■	■		●	■	●	●	●	■	●	●					●					3000
18										●													3000
20				■		●	■	■	●	●	●						■			●			3000
22						●					●												3000
25				●		●	■	■	●	●	■							●					4000
28						●			●														4000
32						■	■	■	●	●	■						●			●			4500
36						●		●	●	●	●	●					●			●			4500
38										■		●	●							●			5600
40						■		●	●	■	●	●	●		●					●			5600
45											●	●			●								5600
48											●				●								5600
50						●		●		■	●	●	●			●				●	●		5600
55								●			●												5600
63											■	●	●	■						●		●	5600
80											●		●	●		●							6500

■ : Right turn and left turn ● : Right turn only. Please contact Hiwin for special request

Note: The maximum length for ballscrew is based on grade C7. For rolled ballscrew, the maximum length varies according to lead accuracy grade.

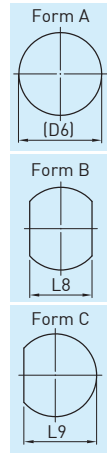
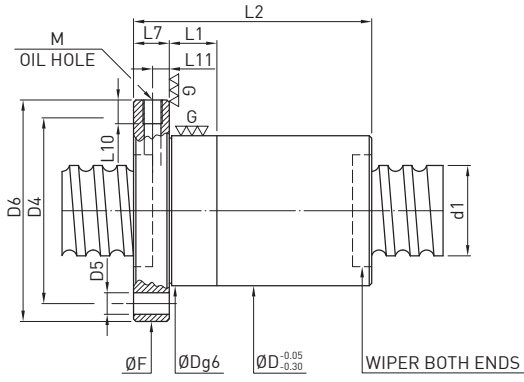
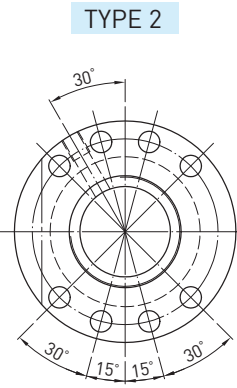
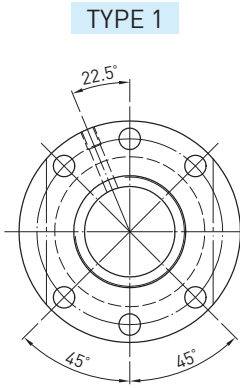
7.3 General Type of Rolled Ballscrews

page	General Type		page
154	<p>FSC</p>  <p>(F)Flange end, (S)single nut, (C)Super S</p>	<p>FST</p>  <p>(F)Flange end, (S)single nut, (T)Super T</p>	155
156	<p>FSW</p>  <p>(F)Flange end, (S)single nut, (W)tube within the nut diameter</p>	<p>RSV</p>  <p>(R)Round, (S)single nut, (V)tube above the nut diameter</p>	157
158	<p>RSB</p>  <p>(R)Round, (S)single nut, (B)bonded return tube</p>	<p>FSB</p>  <p>(F)Flange end, (S)single nut, (B)bonded return tube</p>	159
160	<p>FSV</p>  <p>(F)Flange end, (S)single nut, (V)tube above the nut diameter</p>	<p>SSV</p>  <p>(S)Square, (S)single nut, (V)tube above the nut diameter</p>	161
page	High Lead Type		page
162	<p>FSH</p>  <p>Large lead, (F)flange mounted, (S)single nut, (H)end cap</p>		162

7.4 Dimensions for Rolled Ballscrews

F S C TYPE

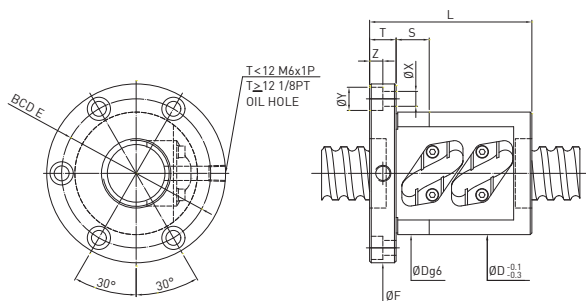
◀ Standard Product



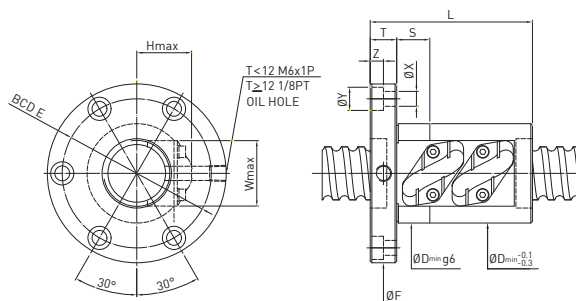
Model	Size		Ball Dia.	Circuits	Dynamic Load C(kgf)	Static Load Co(kgf)	Nut			Flange				Oil Hole			Double starts	Incomplete Thread	
	Nominal Dia.	Lead					D	L1	L2	TYPE	Form A (D6)	Form B (L8)	Form C (L9)	L7	D4	D5			M
14-10K3	14	10	3.175	3	830	1610	28	10	46										
15-16K2	15	16	3	2	550	1110	10	45		48	40	44							
15-20K2	15	20	3.175	2	570	1130	10	50											
16-16K2	16	16	3	2	620	1240	34	10	47	57	43	50		45	5.5	M5×0.8P	6		
20-10K4	20	10	3	4	1220	3050	10	55											
20-20K2	20	20	3.175	2	690	1560	36	10	57	58	44	51	10	47				5	
20-8K5	20	8	4.763	5	2670	5850	45	10	64	65	51	58		54					
25-25K2	25	25	3.175	2	760	1950	40	10	69	62	48	55		51					
25-6K5	25	6	4.763	5	2440	6470	42	10	50										
25-20K3	25	20	3.969	3	1490	3670	45	10	80	65	51	58		54					
25-8K5	25	8	4.763	5	3130	7820	50	10	64	70	56	63		60					
28-6K5	28	6	3.969	5	2620	7500	50	10	49	80	62	71		65					
32-20K3	32	20	3	3	1710	4890	20	87											
32-32K2	32	32	3.969	2	1160	3170	50	20	87	80	62	71	12	65				6	
32-40K2	32	40	4.763	2	1120	3100	20	94											
32-25K2	32	25	2	2	1490	3760	54	20	72	86	65	75.5		71					
32-32K2	32	32	2	2	1450	3700	54	20	88										
32-10K5	32	10	6.35	5	5270	13880	62	10	77	92	74	83		77					
32-20K4	32	20	4	4	4240	10850	57	20	107	87	69	78		72					
36-6K5	36	6	3.969	5	2860	9230	56	10	51	86	65	75.5		71					
36-10K5	36	10	6.35	5	5400	14800	66	20	80	96	73	84.5		81					
36-20K4	36	20	4	4	4360	11590	65	20	108	95	72	83.5		80					
38-40K2	38	40	6.35	2	2330	5910	25	102											
40-6K5	40	6	3.969	5	3040	10600	63	20	52	93	70	81.5		78					
40-8K5	40	8	4.763	5	3830	12300	20	68											
40-10K5	40	10	5	5	5690	16580	20	83											
40-16K5	40	16	5	5	5670	16490	70	20	108	100	75	87.5		85					
40-20K4	40	20	4	4	4600	13010	20	110											
40-40K2	40	40	2	2	2390	6260	67	25	101	95	72	83.5		80					
40-12K5	40	12	7.144	5	6680	18730	75	20	90	110	85	97.5		93					
45-10K5	45	10	6.35	5	6130	19180	75	20	78	110	85	97.5		93					
45-12K5	45	12	5	5	7040	20960	20	88											
45-20K4	45	20	7.144	4	5720	16490	80	25	113	117	92	104.5		100					
50-10K5	50	10	6.35	5	6330	20980	25	80											
50-16K5	50	16	5	5	6310	20910	25	109											
50-12K5	50	12	5	5	8760	27250	25	97											
50-50K2	50	50	7.938	2	3580	9800	25	124		121	95	108		103					
50-20K4	50	20	9.525	4	8850	24750	88	25	120										
63-10K5	63	10	6.35	5	6950	26280	25	84											
63-40K2	63	40	2	2	2980	9990	95	25	110	135	100	117.5		115					
63-12K5	63	12	7.938	5	9690	34130	98	25	94	138	103	120.5	20	118					
63-16K4	63	16	4	4	10180	32600	109	25	100	147	112	129.5		127					
63-20K5	63	20	5	5	12430	41100	107	25	140										
80-10K5	80	10	6.35	5	7760	34180	110	25	80	150	115	132.5		130					
80-16K4	80	16	4	4	11140	40490	125	25	105	170	135	152.5	25	150					
80-20K4	80	20	9.525	4	11140	40440	120	25	122	165	130	147.5		145					

F S T TYPE

◀ Standard Product



Re-circulation plate below the nut body

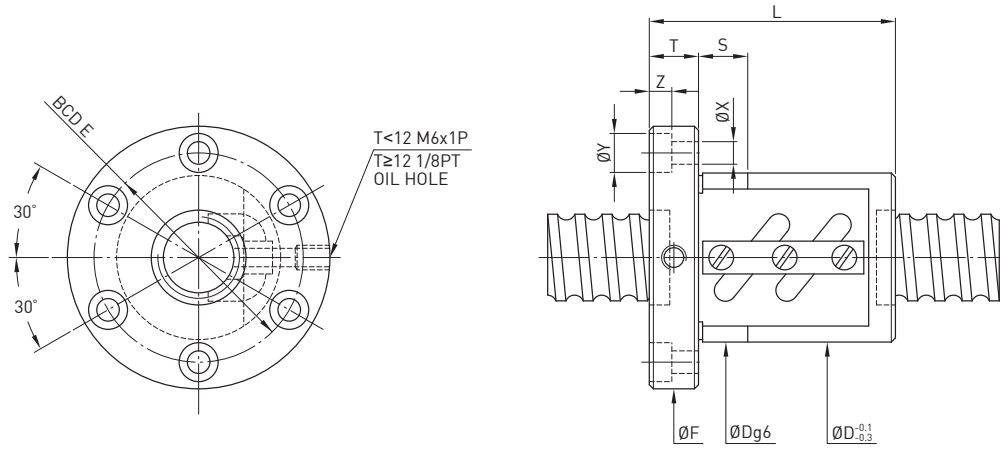


Re-circulation plate above the nut body

Model	Size		Ball Dia.	Circuits	Dynamic Load C(kgf)	Static Load Co(kgf)	Nut			Flange			Return Tube		Bolt			Fit
	Nominal Dia.	Lead					D	D _{min}	L	F	T	BCD-E	W	H	X	Y	Z	
R8-3A1	8	3	2	1.6x1	200	310	21	17	28	36	5	28	14	12	4.5	0	0	0
R8-5B1	8	5	2	2.6X1	320	540	24	18	37	44	8	34	15	13	4.5	8	4	0
R10-4B1	10	4	2	2.6X1	350	650	24	20	39	46	10	36	16	13	4.5	8	4	10
R10-5A1	10	5	2	1.6x1	230	390	23	19	30	46	10	36	15	13	4.5	8	4	10
R10-4B1	10	4	2.381	2.6X1	450	780	27	23	41	49	10	37	17	16	4.5	8	4	10
R12-5B1	12	5	2.381	2.6X1	510	980	31	24	40	50	10	40	18	18	4.5	8	4	12
R12-6B1	12	6	2.381	2.6X1	500	980	29	24	43	50	10	40	20	16	4.5	8	4	12
R12-10A1	12	10	2.381	1.6x1	320	590	30	24	42	50	10	40	17	17	4.5	8	4	12
R12-10B1	12	10	2.381	2.6X1	490	960	31	25	50	50	10	40	19	18	4.5	8	4	12
R14-4B1	14	4	2.381	2.6X1	540	1120	32	26	41	52	10	42	20	17	4.5	8	4	12
R15-10B1	15	10	3.175	2.6X1	810	1620	40	30	55	57	11	45	24	19	5.5	9.5	5.5	12
R15-20A1	15	20	3.175	1.6x1	520	1000	40	32	64	60	11	47	25	22	5.5	9.5	5.5	12
R16-5B1	16	5	3.175	2.6X1	860	1760	38	31	45	64	12	51	24	20	5.5	9.5	5.5	12
R16-5B2	16	5	3.175	2.6X2	1560	3520	38	31	60	64	12	51	24	20	5.5	9.5	5.5	12
R20-5B1	20	5	3.175	2.6X1	970	2230	42	37	45	68	12	55	26	23	5.5	9.5	5.5	12
R20-5B2	20	5	3.175	2.6X2	1760	4470	42	37	60	68	12	55	26	23	5.5	9.5	5.5	12
R25-4B2	25	4	2.381	2.6X2	1290	4130	45	41	48	69	11	57	29	23	5.5	9.5	5.5	12
R25-5B2	25	5	3.175	2.6X2	1950	5670	49	44	60	74	12	62	33	25	5.5	9.5	5.5	12
R25-25A1	25	25	3.969	1.6X1	930	2170	55	50	78	82	12	69	37	29	6.6	11	6.5	12
R25-10A2	25	10	4.763	1.6X2	2200	5190	55	49	75	86	15	73	35	30	6.6	11	6.5	12
R25-10B1	25	10	4.763	2.6X1	1840	4220	55	49	65	86	15	73	35	30	6.6	11	6.5	12
R25-10B2	25	10	4.763	2.6X2	3340	8440	55	49	97	86	15	73	35	30	6.6	11	6.5	12
R28-5B1	28	5	3.175	2.6X1	1130	3190	54	48	45	85	12	69	34	28	6.6	11	6.5	12
R28-5B2	28	5	3.175	2.6X2	2050	6390	54	48	60	85	12	69	34	28	6.6	11	6.5	12
R32-4B2	32	4	2.381	2.6X2	1430	5340	52	49	40	84	12	71	34	27	6.6	11	6.5	12
R32-5B2	32	5	3.175	2.6X2	2180	7340	57	52	60	84	12	71	34	29	6.6	11	6.5	12
R32-6B2	32	6	3.969	2.6X2	2970	9240	60	56	63	88	12	75	39	31	6.6	11	6.5	12
R32-10B2	32	10	3.969	2.6X2	2890	8850	58	54	87	84	12	71	38	31	6.6	11	6.5	12
R32-8B2	32	8	4.763	2.6X2	3710	10640	62	58	86	96	16	78	40	33	9	14	8.5	15
R32-25B1	32	25	4.763	2.6X1	2040	5430	63	58	110	102	16	84	41	32	9	14	8.5	15
R32-10B2	32	10	6.35	2.6X2	5640	15040	74	65	98	108	16	90	48	39	9	14	8.5	15
R36-10B2	36	10	6.35	2.6X2	5790	16030	72	65	102	125	18	98	45	38	11	17.5	11	15
R36-20B1	36	20	6.35	2.6X1	3140	7930	76	66	100	120	18	98	47	39	11	17.5	11	15
R40-8B2	40	8	4.763	2.6X2	4100	13320	75	72	86	108	16	90	47	37	9	14	8.5	15
R40-10B2	40	10	6.35	2.6X2	6100	17960	78	74	102	125	18	104	53	41	11	17.5	11	15
R40-16B2	40	16	6.35	2.6X2	6070	17860	81	73	139	128	18	106	48	41	11	17.5	11	15
R40-12B1	40	12	7.144	2.6X1	3940	10140	82	74	81	128	18	106	51	42	11	17.5	11	20
R40-12B2	40	12	7.144	2.6X2	7150	20290	82	74	117	128	18	106	51	42	11	17.5	11	20
R45-10B1	45	10	6.35	2.6X1	3620	10390	84	77	74	132	18	110	53	44	11	17.5	11	15
R45-10B2	45	10	6.35	2.6X2	6570	20780	84	77	104	132	18	110	53	44	11	17.5	11	15
R55-10B2	55	10	6.35	2.6X2	7000	24650	95	92	103	144	18	122	62	48	11	17.5	11	20

F S W TYPE

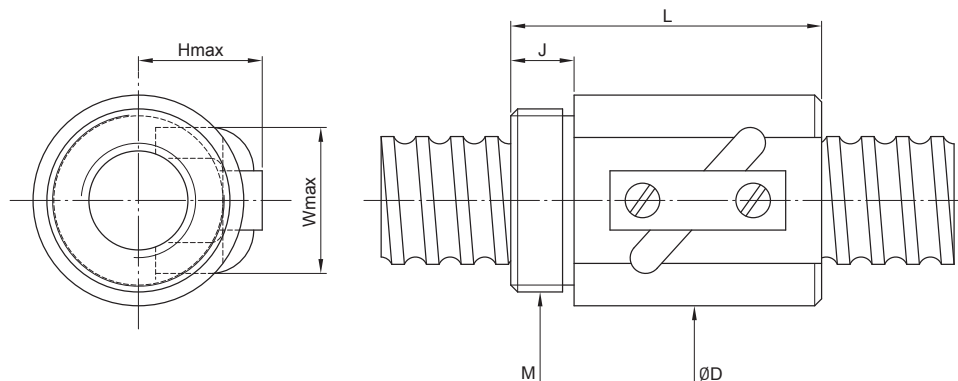
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C [kgf]	Static Load Co [kgf]	Nut		Flange					Fit		
	Nominal Dia.	Lead					L	D	F	BCD-E	T	Bolt				
												X	Y		Z	S
8-2.5B1	8	2.5	2.000	2.5x1	218	317	34	26	47	35	8	5.5	9.5	5.5	8	
10-2.5B1	10	2.5	2.000	2.5x1	252	405	34	28	52	38	8	5.5	9.5	5.5	8	
10-4B1	10	4	2.381	2.5x1	304	466	41	30	53	41	10	5.5	9.5	5.5	10	
12-4B1	12	4	2.381	2.5x1	344	574	41	30	50	40	10	5.5	9.5	5.5	12	
16-4B1	16	4	2.381	2.5x1	390	744	39	36	59	48	10	5.5	9.5	5.5	12	
16-5B1	16	5	3.175	2.5x1	678	1226	45	40	64	51	12	5.5	9.5	5.5	12	
16-10B1	16	10	3.175	2.5x1	667	1194	60	42	66	54	10	5.5	9.5	5.5	12	
20-5B1	20	5	3.175	2.5x1	746	1526	45	44	68	55	12	5.5	9.5	5.5	12	
20-5B2	20	5	3.175	2.5x2	1353	3052	60	44	68	55	12	5.5	9.5	5.5	12	
20-5C1	20	5	3.175	3.5x1	1001	2149	50	44	68	55	12	5.5	9.5	5.5	12	
20-10B1	20	10	4.763	2.5x1	1280	2314	54	46	74	59	13	6.6	11	6.5	12	
25-5B2	25	5	3.175	2.5x2	1534	3975	60	50	74	62	12	5.5	9.5	5.5	12	
25-10B1	25	10	4.763	2.5x1	1459	2983	65	60	86	73	16	6.6	11	6.5	12	
25-10B2	25	10	4.763	2.5x2	2652	5966	97	58	85	71	15	6.6	11	6.5	12	
28-5B1	28	5	3.175	2.5x1	893	2252	43	54	76	64	12	6.6	11	6.5	12	
28-5B2	28	5	3.175	2.5x2	1621	4503	58	54	76	64	12	6.6	11	6.5	12	
28-6A2	28	6	3.969	1.5x2	1395	3337	55	55	85	65	12	6.6	11	6.5	12	
32-5B2	32	5	3.175	2.5x2	1702	5098	60	58	84	71	12	6.6	11	6.5	12	
32-5C1	32	5	3.175	3.5x1	1200	3205	50	58	84	71	12	6.6	11	6.5	12	
32-6B2	32	6	3.969	2.5x2	2328	6317	63	62	89	75	12	6.6	11	6.5	12	
32-10B1	32	10	6.350	2.5x1	2416	5172	68	74	108	90	16	9	14	8.5	15	
32-10B2	32	10	6.350	2.5x2	4379	10345	98	74	108	90	16	9	14	8.5	15	
40-5B2	40	5	3.175	2.5x2	1859	6354	65	68	102	84	16	9	14	8.5	15	
40-6B2	40	6	3.969	2.5x2	2542	7967	72	70	104	86	16	9	14	8.5	15	
40-10B2	40	10	6.350	2.5x2	4812	12732	102	84	125	104	18	11	17.5	11	15	
40-12B2	40	12	7.144	2.5x2	5675	14433	117	90	130	110	18	11	17.5	11	15	
40-16A2	40	16	6.350	1.5x2	3059	7486	118	86	128	106	15	11	17.5	11	15	
40-16B1	40	16	6.350	2.5x1	2660	6363	102	86	128	106	15	11	17.5	11	15	
50-6B3	50	6	3.969	2.5x3	3954	15048	93	84	118	100	16	9	14	8.5	15	
50-6C2	50	6	3.969	3.5x2	3726	14045	80	84	118	100	18	9	14	8.5	15	
50-12B2	50	12	7.938	2.5x2	7247	20315	123	100	152	125	22	13	20	13	20	
50-20A2	50	20	6.350	1.5x2	3436	9597	114	94	135	114	18	11	17.5	11	15	
63-10B2	63	10	6.350	2.5x2	5873	20135	130	110	154	130	22	11	17.5	11	15	
63-10B3	63	10	6.350	2.5x3	8324	30202	137	110	152	130	20	11	17.5	11	15	
63-10C2	63	10	6.350	3.5x2	7868	28291	128	110	152	130	20	11	17.5	11	15	
63-20B2	63	20	9.525	2.5x2	13494	42233	176	124	172	147	22	13	20	13	20	
80-10B3	80	10	6.350	2.5x3	9189	38525	137	130	176	152	22	13	20	13	20	
80-10B4	80	10	6.350	2.5x4	11768	51366	169	130	178	152	22	13	20	13	20	
80-12B3	80	12	7.144	2.5x3	10811	43246	159	136	185	159	22	13	20	13	20	
80-16B3	80	16	9.525	2.5x3	21186	80675	204	145	192	166	28	13	20	13	25	
80-20B2	80	20	9.525	2.5x2	14976	53774	185	144	210	174	28	18	26	17.5	25	

R S V TYPE

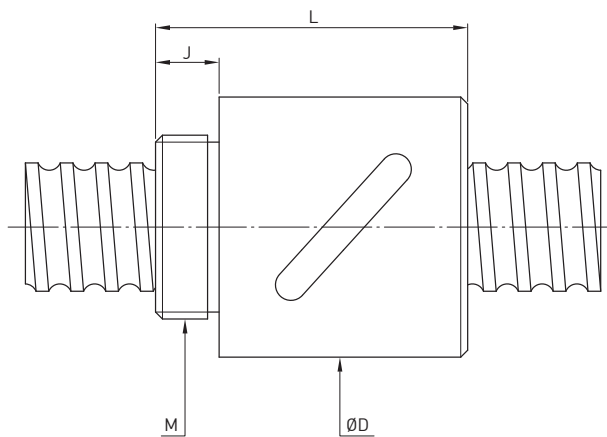
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C [kgf]	Static Load Co [kgf]	Nut		Mounting Thread M	Mounting Thread Length J	Return Tube Width W	Return Tube Height H
	Nominal Dia.	Lead					L	D				
8-2.5B1	8	2.5	2.000	2.5x1	218	317	28	18	M18x1P	10	15	15
10-2.5B1	10	2.5	2.000	2.5x1	252	405	30	20	M18x1P	10	17	17
10-4B1	10	4	2.381	2.5x1	305	466	32	23	M22x1P	10	20	20
12-4B1	12	4	2.381	2.5x1	344	574	32	25	M24x1P	10	22	21
16-5B1	16	5	3.175	2.5x1	679	1226	40	31	M28x1.5P	10	23	25
16-5.08B1	16	5.08	3.175	2.5x1	678	1226	45	30	M25x1.5P	13	24	21
16-5.08C1	16	5.08	3.175	3.5x1	905	1717	45	30	M25x1.5P	13	24	21
20-5C1	20	5	3.175	3.5x1	1001	2149	45	35	M32x1.5P	12	27	22
25-5B2	25	5	3.175	2.5x2	1534	3975	58	40	M38x1.5P	16	31	25
25-10B2	25	10	4.763	2.5x2	2663	6123	94	45	M38x1.5P	16	38	32
32-5B2	32	5	3.175	2.5x2	1702	5098	60	54	M50x2P	18	38	29
32-10B2	32	10	6.350	2.5x2	4379	10345	95	58	M52x2P	18	44	36
40-10B2	40	10	6.350	2.5x2	4812	12732	102	65	M60x2P	25	52	41
50-10C2	50	10	6.350	3.5x2	7146	22477	130	80	M75x2P	30	62	46
63-10C2	63	10	6.350	3.5x2	7869	28290	132	95	M90x2P	40	74	52
63-12C3	63	12	7.938	3.5x3	16828	58535	205	102	M95x3P	35	75	59

R S B TYPE

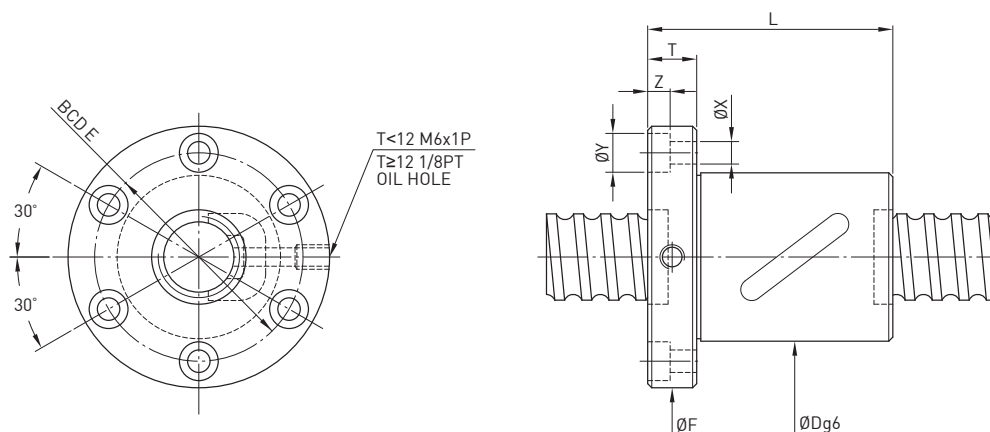
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C (kgf)	Static Load Co (kgf)	Nut		Mounting Thread	Mounting Thread Length
	Nominal Dia.	Lead					L	D		
8-2.5B1	8	2.5	2.000	2.5x1	218	317	24	22	M18x1P	7.5
10-2.5B1	10	2.5	2.000	2.5x1	252	405	24	24	M20x1P	7.5
10-4B1	10	4	2.381	2.5x1	305	466	34	26	M22x1P	10
12-4B1	12	4	2.381	2.5x1	344	574	34	25.5	M20x1P	10
12-5B1	12	5	2.000	2.5x1	275	481	38	26	M20x1P	8
16-5B1	16	5	3.175	2.5x1	678	1226	42	36	M30x1.5P	12
16-10B1	16	10	3.175	2.5x1	667	1194	57	36	M30x1.5P	12
20-5B1	20	5	3.175	2.5x1	746	1526	45	38	M35x1.5P	15
20-5C1	20	5	3.175	3.5x1	1001	2149	54	40	M36x1.5P	14
20-10B1	20	10	4.763	2.5x1	1280	2314	60	52	M40x1.5P	15
25-5B2	25	5	3.175	2.5x2	1534	3975	69	46	M42x1.5P	19
32-5B2	32	5	3.175	2.5x2	1702	5098	69	54	M50x2P	19
32-10B2	32	10	6.350	2.5x2	4384	10345	105	68	M62x2P	19
40-5B2	40	5	3.175	2.5x2	1859	6354	62	66	M62x2P	19
40-10B2	40	10	6.350	2.5x2	4812	12732	110	76	M70x2P	24
50-5B2	50	5	3.175	2.5x2	2004	7941	70	79	M70x2P	24
50-10C2	50	10	6.350	3.5x2	7145	22477	135	88	M82x2P	29
63-10C2	63	10	6.350	3.5x2	7868	28291	135	104	M95x2P	29

F S B TYPE

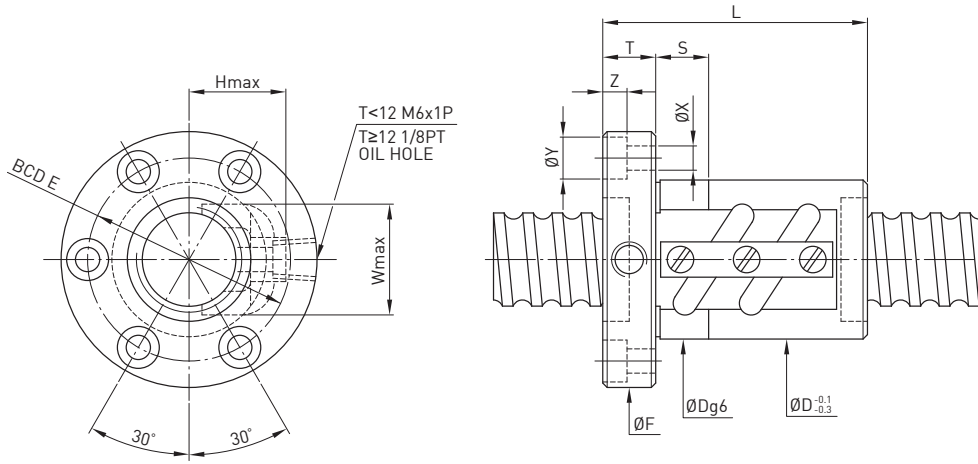
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C (kgf)	Static Load Co (kgf)	Nut		Flange					
	Nominal Dia.	Lead					L	D	F	BCD-E	T	Bolt		
											X	Y	Z	
8-2.5B1	8	2.5	2.000	2.5x1	218	317	34	22	43	31	8	5.5	9.5	5.5
10-2.5B1	10	2.5	2.000	2.5x1	252	405	34	24	46	34	8	5.5	9.5	5.5
10-4B1	10	4	2.381	2.5x1	304	466	41	26	49	37	10	5.5	9.5	5.5
12-4B1	12	4	2.381	2.5x1	344	574	41	28	51	39	10	5.5	9.5	5.5
12-4C1	12	4	2.381	3.5x1	459	803	44	30	50	40	10	4.5	8	4.5
14-4C1	14	4	2.381	3.5x1	498	943	40	31	50	40	10	4.5	8	4.5
14-5B1	14	5	3.175	2.5x1	636	1095	40	32	50	40	10	4.5	8	4.5
16-4B1	16	4	2.381	2.5x1	390	744	41	35	56	43	10	5.5	9.5	5.5
16-5B1	16	5	3.175	2.5x1	679	1226	43	36	60	47	10	5.5	9.5	5.5
16-10B1	16	10	3.175	2.5x1	667	1194	52	36	60	47	12	6.6	11	6.5
20-4C1	20	4	2.381	3.5x1	582	1329	40	40	60	50	10	4.5	8	4.5
20-5B1	20	5	3.175	2.5x1	745	1526	40	40	60	50	10	4.5	8	4.5
20-5C1	20	5	3.175	3.5x1	1001	2149	50	40	64	51	12	5.5	9.5	5.5
20-10B1	20	10	4.763	2.5x1	1280	2314	61	52	82	67	12	6.6	11	6.5
25-5B1	25	5	3.175	2.5x1	845	1987	40	43	67	55	10	5.5	9.5	5.5
25-5B2	25	5	3.175	2.5x2	1534	3975	60	46	70	58	12	5.5	9.5	5.5
25-10B2	25	10	4.763	2.5x2	2652	5966	98	60	96	78	15	5.5	9.5	5.5
32-5B2	32	5	3.175	2.5x2	1702	5098	60	54	80	67	12	6.6	11	6.5
32-10B1	32	10	6.350	2.5x1	2416	5172	68	68	102	84	16	9	14	8.5
32-10B2	32	10	6.350	2.5x2	4379	10345	98	68	102	84	16	9	14	8.5
40-10B2	40	10	6.350	2.5x2	4812	12732	102	76	117	96	18	11	17.5	11
50-10C2	50	10	6.350	3.5x2	7146	22477	126	88	129	108	18	11	17.5	11
63-10C2	63	10	6.350	3.5x2	7869	28290	128	104	146	124	20	11	17.5	11

F S V TYPE

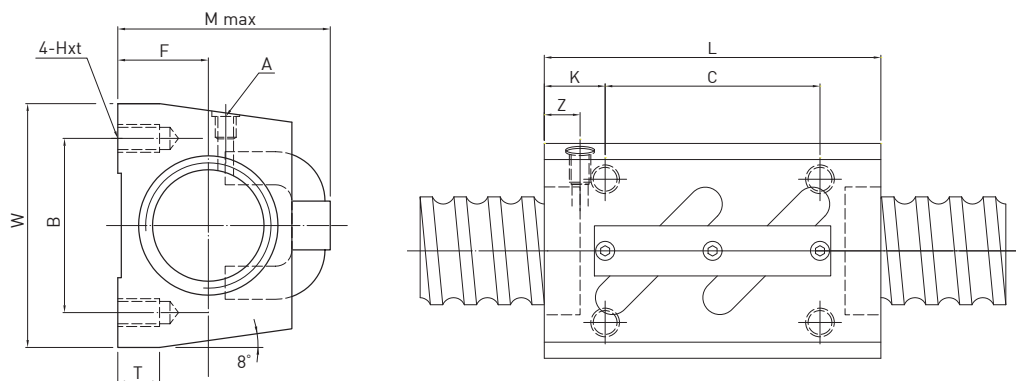
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C [kgf]	Static Load Co [kgf]	Nut		Flange		Return Tube			Bolt		Fit	
	Nominal Dia.	Lead					L	D	F	BCD-E	T	X	Y	Z	W		H
8-2.5B1	8	2.5	2.000	2.5x1	218	317	34	18	41	29	8	5.5	9.5	5.5	15	15	8
10-2.5B1	10	2.5	2.000	2.5x1	252	405	34	20	43	31	8	5.5	9.5	5.5	17	17	8
10-4B1	10	4	2.381	2.5x1	304	466	41	23	46	34	10	5.5	9.5	5.5	20	20	10
12-4B1	12	4	2.381	2.5x1	344	574	41	25	48	36	10	5.5	9.5	5.5	22	21	12
16-5B1	16	5	3.175	2.5x1	679	1226	43	31	55	42	10	5.5	9.5	5.5	23	25	12
16-10B1	16	10	3.175	2.5x1	667	1194	54	30	53	41	10	5.5	9.5	5.5	23	22	12
20-5B1	20	5	3.175	1.5x1	746	1526	46	34	58	46	12	5.5	9.5	5.5	28	25	12
20-5B2	20	5	3.175	2.5x2	1353	3052	60	34	58	46	12	5.5	9.5	5.5	28	25	12
20-5C1	20	5	3.175	3.5x1	1001	2149	50	35	59	46	12	5.5	9.5	5.5	27	22	12
25-5B2	25	5	3.175	2.5x2	1534	3975	60	40	64	52	12	5.5	9.5	5.5	31	25	12
32-5B2	32	5	6.350	2.5x2	1702	5098	60	54	80	67	12	6.6	11	6.5	38	29	12
32-10B2	32	10	6.350	2.5x2	4379	10345	98	58	92	74	16	9	14	8.5	44	36	15
32-20B1	32	20	6.350	2.5x1	2415	5173	100	54	88	70	15	9	14	8.5	43	35	15
40-5B2	40	5	3.175	2.5x2	1859	6354	65	58	92	72	16	9	14	8.5	46	34	15
40-10B2	40	10	6.350	2.5x2	4812	12732	102	65	106	85	18	11	17.5	11	52	41	15
40-10C2	40	10	6.350	3.5x2	6473	17975	120	65	114	90	20	11	17.5	11	53	42	15
50-10C2	50	10	6.350	3.5x2	7146	22477	126	80	121	100	18	11	17.5	11	62	46	20
63-10C2	63	10	6.350	3.5x2	7869	28290	128	95	137	115	20	11	17.5	11	74	52	20
63-16B2	63	16	9.525	2.5x2	13676	43030	153	100	150	123	22	13	20	13	78	62	20
80-10B3	80	10	6.350	2.5x3	9189	38525	139	115	163	137	22	14	20	13	90	64	20
80-20B2	80	20	9.525	2.5x2	14976	53774	225	125	190	152	28	18	26	17.5	95	75	20
80-20B3	80	20	9.525	2.5x3	21224	80661	245	125	190	152	28	18	26	17.5	95	72	20

S S V TYPE

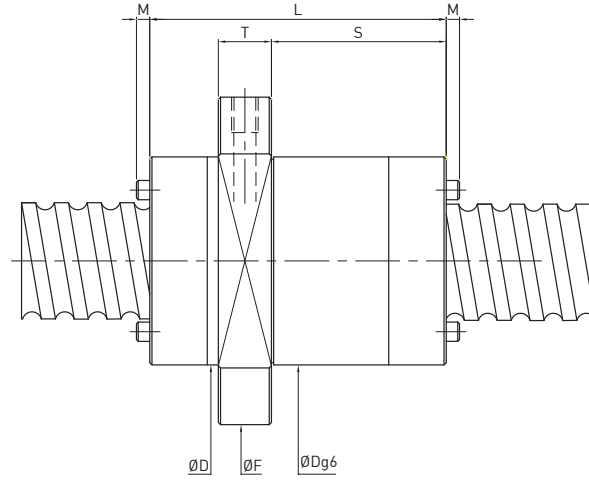
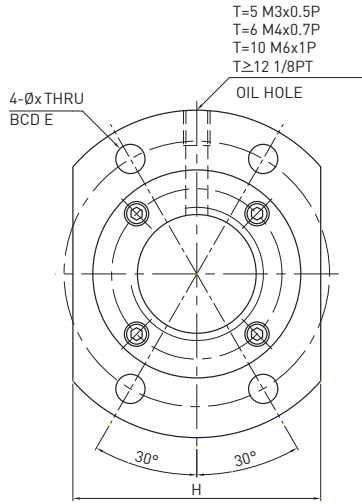
◀ Standard Product



Model	Size		Ball Dia.	Circuits	Dynamic Load C (kgf)	Static Load Co (kgf)	W	Hxt	F	L	B	C	K	T	A	M (max)	Z
	Nominal Dia.	Lead															
14-4B1	14	4	2.381	2.5x1	376	682	34	M4x7	13	35	26	22	6.5	6	M6	30	6
14-4C1	14	4	2.381	3.5x1	498	943	34	M4x7	13	35	26	22	6.5	6	M6	30	6
14-5B1	14	5	3.175	2.5x1	636	1095	34	M4x7	13	35	26	22	6.5	6	M6	31	6
16-5B1	16	5	3.175	2.5x1	679	1226	42	M5x8	16	36	32	22	7	21.5	M6	36	6
20-5B1	20	5	3.175	2.5x1	745	1526	48	M6x10	17	35	35	22	6.5	9	M6	39	5
20-10B1	20	10	4.763	2.5x1	1280	2314	48	M6x10	18	58	35	35	11.5	9	M6	46	10
25-5B1	25	5	3.175	2.5x1	845	1987	60	M8x12	20	35	40	22	6.5	9.5	M6	45	7
25-10B2	25	10	6.350	2.5x2	3816	7968	60	M8x12	23	94	40	60	17	10	M6	54	10
28-6B1	28	6	3.969	2.5x1	1203	2796	60	M8x12	22	42	40	18	12	10	M6	50	8
28-6B2	28	6	3.969	2.5x2	2184	5592	60	M8x12	22	67	40	40	13.5	10	M6	50	8
32-10B1	32	10	6.350	2.5x1	2413	5172	70	M8x12	26	64	50	45	9.5	12	M6	62	10
32-10B2	32	10	6.350	2.5x2	4379	10345	70	M8x12	26	94	50	60	17	12	M6	67	10
36-10B2	36	10	6.350	2.5x2	4592	11403	86	M10x16	29	96	60	60	18	17	M6	67	11
45-12B2	45	12	7.144	2.5x2	5963	16110	100	M12x20	36	115	75	75	20	20.5	M6	80	13

D F S H TYPE

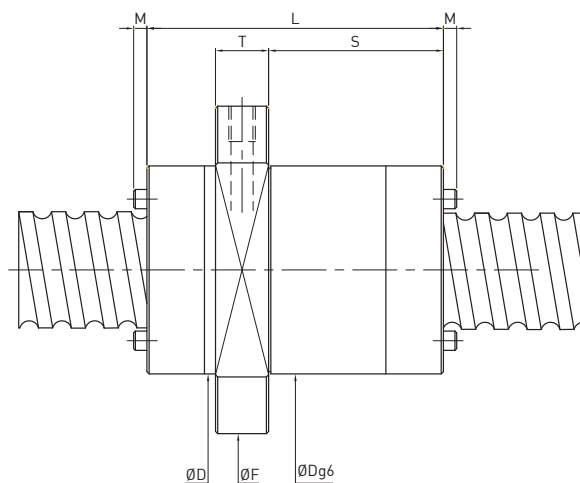
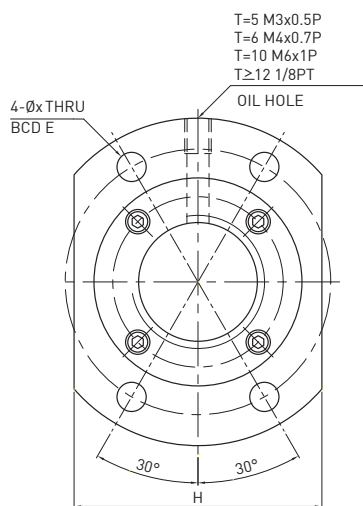
◀ High Lead



Model	Size		Ball Dia.	Circuits	Dynamic Load C [kgf]	Static Load Co [kgf]	Nut		Flange			Bolt X	Fit		
	Nominal Dia.	Lead					D	L	F	T	BCD-E		H	S	M
10-20V2	10	20	1.5	0.8x2	100	240	20	23	37	5	29	22	4.5	13	0
12-12S2	12	12	2.381	1.8x2	460	1030	26	30	44	6	35	28	4.5	15	0
15-10U2	15	10	3.175	2.8x2	1090	2570	34	44	57	10	45	40	5.5	24	0
15-30S2	15	30	3.175	1.8x2	700	1720	34	63	51	10	42	36	4.5	43	0
16-16S2	16	16	3.175	1.8x2	780	1830	32	38	53	10	42	38	4.5	21.5	0
16-16S2	16	16	3.175	1.8x2	780	1830	32	48	53	10	42	38	4.5	26	0
16-16S2	16	16	3.175	1.8x2	780	1830	33	48	58	10	45	38	6.6	26	0
16-32V2	16	32	3.175	0.8x2	340	760	34	34	55	10	45	36	5.5	13.5	0
20-20S2	20	20	3.175	1.8x2	870	2290	38	45	62	10	50	46	5.5	23.6	0
20-20S2	20	20	3.175	1.8x2	870	2290	38	58	62	10	50	46	5.5	32.5	3
20-40V2	20	40	3.175	0.8x2	390	980	35	41	58	10	48	40	5.5	20	0
25-20S2	25	20	3.969	1.8x2	1280	3470	47	53	74	12	60	49	6.6	30	0
25-25S2	25	25	3.969	1.8x2	1300	3600	47	55	74	12	60	56	6.6	35	0
25-25S2	25	25	3.969	1.8x2	1300	3600	47	67	74	12	60	56	6.6	39.5	3
32-32S2	32	32	4.763	1.8x2	1840	5450	58	70	92	12	74	60	9	42	0
32-32S2	32	32	4.763	1.8x2	1840	5450	58	85	92	15	74	68	9	48	0
32-64V2	32	64	4.763	0.8x2	860	2460	58	62	89	15	71	58	9	37	0
38-40S2	38	40	3.969	1.8x2	1530	5360	63	85	93	14	78	70	9	64	0
40-40S2	40	40	6.350	1.8x2	3030	9220	72	102	114	17	93	84	11	60	0
50-50S2	50	50	7.938	1.8x2	4520	14440	90	107	135	20	112	92	14	66.5	0
50-50S2	50	50	7.938	1.8x2	4520	14440	90	125	135	20	112	104	14	83.5	0

Q F S H TYPE

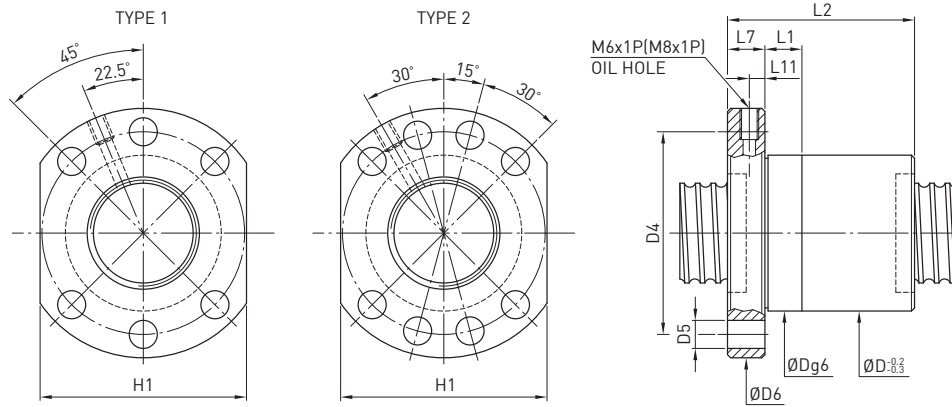
◀ High Lead



Model	Size		Ball Dia.	Circuits	Dynamic Load C [kgf]	Static Load Co [kgf]	Nut		Flange				Bolt X	Fit	
	Nominal Dia.	Lead					D	L	F	T	BCD-E	H		S	M
10-20V4	10	20	1.5	0.8x4	190	480	20	23	37	5	29	22	4.5	13	0
12-12S4	12	12	2.381	1.8x4	840	2060	26	30	44	6	35	28	4.5	15	0
15-30S4	15	30	3.175	1.8x4	1280	3450	34	63	51	10	42	36	4.5	43	0
16-16S4	16	16	3.175	1.8x4	1420	3670	32	38	53	10	42	38	4.5	21.5	0
16-16S4	16	16	3.175	1.8x4	1420	3670	32	48	53	10	42	38	4.5	26	0
16-16S4	16	16	3.175	1.8x4	1420	3670	33	48	58	10	45	38	6.6	26	0
16-32V4	16	32	3.175	0.8x4	620	1520	34	34	55	10	45	36	5.5	13.5	0
20-20S4	20	20	3.175	1.8x4	1580	4590	38	45	62	10	50	46	5.5	23.6	0
20-20S4	20	20	3.175	1.8x4	1580	4590	38	58	62	10	50	46	5.5	32.5	3
20-40V4	20	40	3.175	0.8x4	710	1970	35	41	58	10	48	40	5.5	20	0
25-25S4	25	25	3.969	1.8x4	2360	7200	47	55	74	12	60	56	6.6	35	0
25-25S4	25	25	3.969	1.8x4	2360	7200	47	67	74	12	60	56	6.6	39.5	3
32-32S4	32	32	4.763	1.8x4	3340	10900	58	70	92	12	74	60	9	42	0
32-32S4	32	32	4.763	1.8x4	3340	10900	58	85	92	15	74	68	9	48	0
32-64V4	32	64	4.763	0.8x4	1560	4930	58	62	89	15	71	58	9	37	0
38-40S4	38	40	3.969	1.8x4	2790	10720	63	85	93	14	78	70	9	64	0
40-40S4	40	40	6.350	1.8x4	5500	18450	72	102	114	17	93	84	11	60	0
50-50S4	50	50	7.938	1.8x4	8220	28880	90	107	135	20	112	92	14	66.5	0
50-50S4	50	50	7.938	1.8x4	8220	28880	90	125	135	20	112	104	14	83.5	0

7.5 Dimensions for DIN Rolled Ballscrews

F S C / F S I TYPE (DIN 69051 part 5 form B) ◀ Stock



Model	Size		Ball Dia.	Circuits	Dynamic Load 1x10 ⁶ revs C (kgf)	Static Load Co (kgf)	Nut		Flange										PCD
	Nominal Dia.	Lead					L2	D	D4	D5	D6	H1	L7	TYPE	L1	L11	M-Oil Hold		
15-5K3	15	5	3	3	990	1580	38	28	38	5.5	48	40	10	1	10	5	M6×1P	14.93	
16-5T3	16	5	3.175	3	1000	2000	40	28	38	5.5	48	40	10	1	10	5	M6×1P	16.175	
20-5K3	20	5	3.175	3	1280	2410	36	36	47	6.6	58	44	10	1	10	5	M6×1P	20.2	
20-5K4	20	5	3.175	4	1670	3270	40	36	47	6.6	58	44	10	1	10	5	M6×1P	20.2	
25-5K3	25	5	3.175	3	1420	3050	38	40	51	6.6	62	48	10	1	10	5	M6×1P	25.57	
25-5K4	25	5	3.175	4	1850	4150	43	40	51	6.6	62	48	10	1	10	5	M6×1P	25.57	
25-10K5	25	10	3.175	5	2260	5200	70	40	51	6.6	62	48	10	1	10	5	M6×1P	25.1	
32-5K4	32	5	3.175	4	2070	5360	38	50	65	9	80	62	12	1	10	6	M6×1P	32.4	
32-5K6	32	5	3.175	6	2980	8190	48	50	65	9	80	62	12	1	10	6	M6×1P	32.4	
32-10T3	32	10	6.35	3	3650	8660	74	50	65	9	80	62	16	1	16	6	M6×1P	34.25	
32-10T4	32	10	6.35	4	4680	11550	85	50	65	9	80	62	16	1	16	6	M6×1P	34.26	
32-10K5	32	10	3.969	5	3390	8160	73	50	65	9	80	62	12	1	10	6	M6×1P	32.62	
32-10K6	32	10	3.969	6	3990	9860	83	50	65	9	80	62	12	1	10	6	M6×1P	32.62	
40-5K4	40	5	3.175	4	2240	6590	40	63	78	9	93	70	14	2	10	7	M8×1P	40.03	
40-5K6	40	5	3.175	6	3220	10060	50	63	78	9	93	70	14	2	10	7	M8×1P	40.03	
38-10K3	38	10	6.35	3	4350	9140	60	63	78	9	93	70	14	2	20	7	M8×1P	39.3	
40-10T3	40	10	6.35	3	4030	10680	74	63	78	9	93	70	16	2	16	7	M8×1P	41.85	
38-10K4	38	10	6.35	4	5660	12410	70	63	78	9	93	70	14	2	20	7	M8×1P	39.3	
40-10T4	40	10	6.35	4	5170	14240	87	63	78	9	93	70	16	2	16	7	M8×1P	41.85	
50-5K4	50	5	3.175	4	2450	8330	40	75	93	11	110	85	16	2	10	8	M8×1P	50.05	
50-5K6	50	5	3.175	6	3530	12720	50	75	93	11	110	85	16	2	10	8	M8×1P	50.05	
50-10K3	50	10	6.35	3	4960	12240	60	75	93	11	110	85	16	2	20	8	M8×1P	51.93	
50-10K4	50	10	6.35	4	6450	16610	70	75	93	11	110	85	16	2	20	8	M8×1P	51.93	
50-10K6	50	10	6.35	6	9280	25350	90	75	93	11	110	85	16	2	20	8	M8×1P	51.93	
63-10K6	63	10	6.35	6	10180	31750	94	90	108	11	125	95	18	2	10	9	M8×1P	64.534	