13.4 High Lead Ballscrews

High-lead Ballscrews are essential elements and parts for high-speed machine tools of next century.

Features:

It is important for a High-lead Ballscrew to be with characteristics of high rigidity, low noise and thermal control. PMI 's designs and treatments are taken for following:

High DN Value

The DN value can be 130,000 in normal case. For some special cases, for example in a fixed ends case, the DN value can be as high as 140,000. Please contact our engineers for this special application.

High Speed

PMI 's High-speed Ballscrews provide 100 *m/min* and even higher traverse speed for machine tools for high performance cutting.

High Rigidity

Both the screw and ballnut are surface hardened to a specific hardness and case depth to maintain high rigidity and durability.

Multiple thread starts are available to make more steel balls loaded in the ballnut for higher rigidity and durability.

Low Noise

Special design of ball circulation tubes offer smooth ball circulation inside the ballnut. It also makes safe ball fast running into the tubes without damaging the tubes.

Accurate ball circle diameter (BCD) through whole threads for consistent drag torque and low noise.

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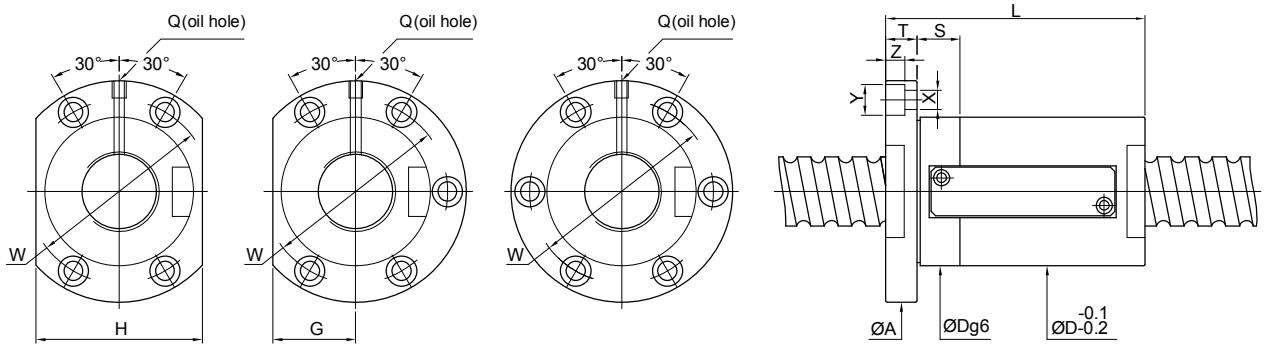
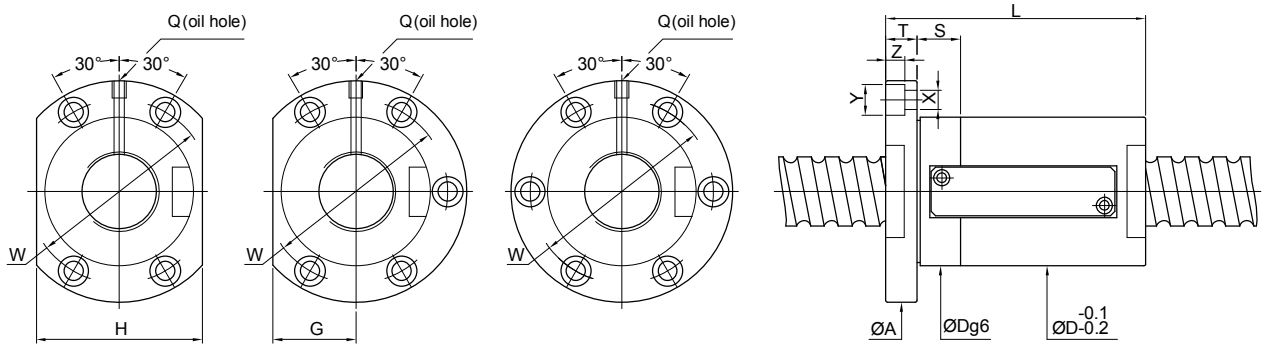


Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
12	10	2.381	2.5×1	420	720	30	50	50	10	40	16	32	10	4.5	8	4.4	M6×1P	20
20	10	3.969	2.5×1	1210	2380	46	63	73.5	13	59	25	50	10	5.5	9.5	5.5	M6×1P	34
			3.5×1	1580	3230		73											45
	16	3.969	1.5×1	830	1530	46	63	73.5	13	59	25	50	10	5.5	9.5	5.5	M6×1P	24
			2.5×1	1210	2380		79											34
	20	3.969	1.5×1	830	1530	46	70	73	13	59	25	50	10	5.5	9.5	5.5	M6×1P	24
25	16	3.969	1.5×1	920	1930	54	62	76	15	64	32	64	15	6.6	11	6.5	M6×1P	28
			2.5×1	1340	3000		78											40
	20	4.762	1.5×1	1170	2300	58	74	85	15	71	32	64	15	6.6	11	6.5	M6×1P	29
			2.5×1	1710	3580		94											42
			3.5×1	2220	4860		114											55
32	16	3.969	1.5×1	1010	2480	62	63	88	15	75	34	68	15	6.6	11	6.5	M8×1P	33
			2.5×1	1470	3860		79											48
			3.5×1	1910	5240		95											63
			5×1	2340	6620		111											77
	16	6.35	2.5×1	2830	6090	74	92	108	18	90	41	82	15	11	17.5	11	M8×1P	54
			3.5×1	3680	8270		108											69
			5×1	4490	10450		124											85
	20	3.969	1.5×1	1010	2480	62	70	88	15	75	34	68	15	6.6	11	6.5	M8×1P	33
			2.5×1	1470	3860		90											48
			3.5×1	1910	5240		110											63
			5×1	2350	6610		130											77
	20	6.35	2.5×1	2830	6090	74	104	108	18	90	41	82	15	11	17.5	11	M8×1P	54
			3.5×1	3680	8270		124											69
			5×1	4490	10450		144											85

FSWE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
36	10	6.35	3.5×1	3890	9390	75	84	118	18	98	45	90	15	11	17.5	11	M8×1P	76
			5×1	4750	11860		94											93
	12	6.35	2.5×1	2990	6920	75	85	118	18	98	45	90	15	11	17.5	11	M8×1P	58
			3.5×1	3890	9390		97											76
			5×1	4750	11860		109											93
	16	6.35	2.5×1	2990	6920	75	91	118	18	98	45	90	15	11	17.5	11	M8×1P	58
			3.5×1	3890	9390		107											76
			5×1	4750	11860		123											93
	20	6.35	1.5×1	2050	4450	75	91	118	18	98	45	90	15	11	17.5	11	PT1/8×	41
			2.5×1	2990	6920		111											58
			3.5×1	3890	9390		131											76
			5×1	4750	11860		151											93
40	10	6.35	3.5×1	4130	10560	86	86	128	18	106	49	98	15	11	17.5	11	PT1/8×	82
			5×1	5050	13340		96											101
	12	6.35	2.5×1	3180	7780	86	86	128	18	106	49	98	15	11	17.5	11	PT1/8×	63
			3.5×1	4130	10560		98											82
			5×1	5050	13340		110											101
	16	6.35	2.5×1	3180	7780	86	93	128	18	106	49	98	15	11	17.5	11	PT1/8×	63
			3.5×1	4130	10560		109											82
			5×1	5050	13340		125											101
	16	7.144	2.5×1	3740	8790	86	92	128	18	106	49	98	15	11	17.5	11	PT1/8×	65
			3.5×1	4870	11930		108											84
			5×1	5950	15070		124											103
	20	6.35	1.5×1	2180	5000	86	84	128	18	106	49	98	15	11	17.5	11	PT1/8×	43
			2.5×1	3180	7780		104											63
			3.5×1	4130	10560		124											82
			5×1	5050	13340		144											101
	40	6.35	1.5×1	2180	5000	86	130	128	18	106	49	98	15	11	17.5	11	PT1/8×	43

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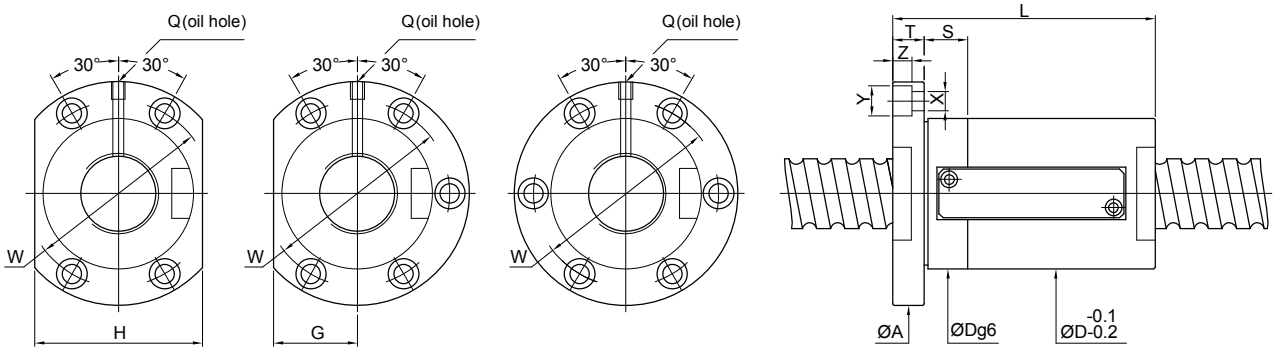

Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
50	10	6.35	3.5×1	4560	13230	93	85	135	18	113	51	102	20	11	17.5	11	PT1/8×	97
			5×1	5580	16710		95											119
	12	6.35	2.5×1	3510	9750	93	80	135	18	113	51	102	20	11	17.5	11	PT1/8×	74
			3.5×1	4560	13230		92											97
			5×1	5580	16710		104											119
	12	7.144	2.5×1	4080	11260	100	93	146	25	122	55	110	20	14	20	13	PT1/8×	75
			3.5×1	5300	15280		105											99
			5×1	6480	19300		117											121
	16	6.35	2.5×1	3510	9750	93	94	135	18	113	51	102	20	11	17.5	11	PT1/8×	74
			3.5×1	4560	13230		110											97
			5×1	5580	16710		126											119
	16	7.144	2.5×1	4080	11260	100	100	146	25	122	55	110	20	14	20	13	PT1/8×	75
			3.5×1	5300	15280		116											99
			5×1	6480	19300		132											121
	20	7.144	1.5×1	2790	7240	100	98	146	25	122	55	110	20	14	20	13	PT1/8×	52
			2.5×1	4080	11260		118											75
			3.5×1	5300	15280		138											99
			5×1	6480	19300		158											121
	20	7.938	2.5×1	4750	12090	105	119	152	25	128	58	116	20	14	20	13	PT1/8×	78
			3.5×1	6180	16400		139											101
			5×1	7550	20720		159											124
	50	7.938	1.5×1	3250	7770	105	157	152	25	128	58	116	20	14	20	13	PT1/8×	53

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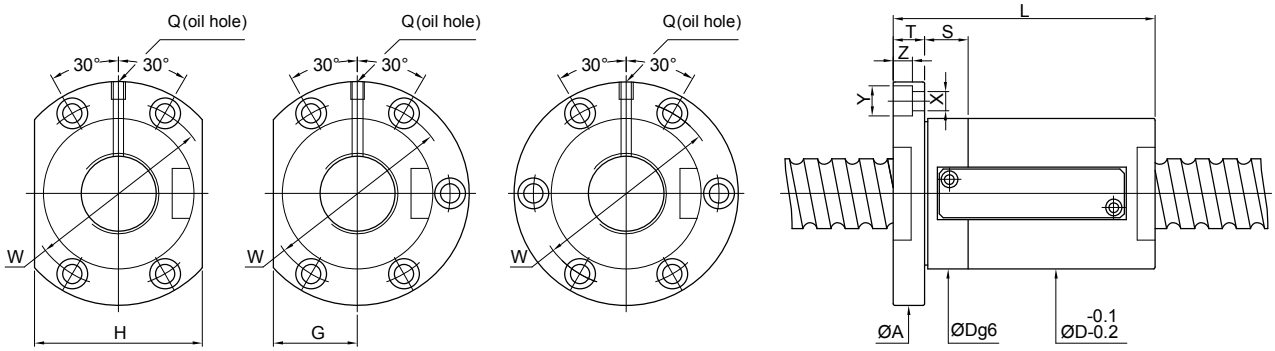

Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
63	10	6.35	3.5×1	5030	17020	108	86	154	22	130	58	116	20	14	20	13	PT1/8×	115
			5×1	6150	21500		96											141
	12	6.35	2.5×1	3870	12540	108	84	154	22	130	58	116	20	14	20	13	PT1/8×	87
			3.5×1	5030	17020		96											115
			5×1	6150	21500		108											141
	12	7.144	2.5×1	4540	14460	115	90	161	22	137	61	122	20	14	20	13	PT1/8×	89
			3.5×1	5900	19620		102											117
			5×1	7210	24780		114											145
	16	7.144	2.5×1	4540	14460	115	97	161	22	137	61	122	20	14	20	13	PT1/8×	89
			3.5×1	5900	19620		113											117
			5×1	7210	24780		129											145
	16	7.938	2.5×1	5260	15430	120	112	180	28	150	72	144	25	18	26	17.5	PT1/8×	91
			3.5×1	6840	20940		128											120
			5×1	8360	26450		144											147
	20	6.35	2.5×1	3870	12540	108	104	154	22	130	58	116	20	14	20	13	PT1/8×	87
			3.5×1	5030	17020		124											115
			5×1	6150	21500		144											141
	20	9.525	2.5×1	8870	25870	122	120	182	28	150	72	144	25	18	26	17.5	PT1/8×	105
			3.5×1	11530	35110		140											136
			5×1	14090	44350		160											167
80	10	6.35	3.5×1	5630	21660	130	90	176	22	152	66	132	20	14	20	13	PT1/8×	133
			5×1	6880	27360		100											164
	12	7.938	3.5×1	7670	27030	136	101	182	22	158	68	136	20	14	20	13	PT1/8×	143
			5×1	9380	34140		113											177
	16	9.525	2.5×1	9900	33200	143	108	204	28	172	77	154	30	18	26	17.5	PT1/8×	124
			3.5×1	12990	45050		124											162
			5×1	15880	56910		140											201
	20	9.525	2.5×1	9900	33200	143	120	204	28	172	77	154	30	18	26	17.5	PT1/8×	124
			3.5×1	12990	45050		140											162
			5×1	15880	56910		160											201
100	16	9.525	2.5×1	11320	41820	170	115	243	32	205	91	182	30	22	32	21.5	PT1/8×	139
			3.5×1	14720	56750		131											182
			5×1	17990	71690		147											226
	20	9.525	2.5×1	11320	41820	170	128	243	32	205	91	182	30	22	32	21.5	PT1/8×	139
			3.5×1	14720	56750		148											182
			5×1	17990	71690		168											226

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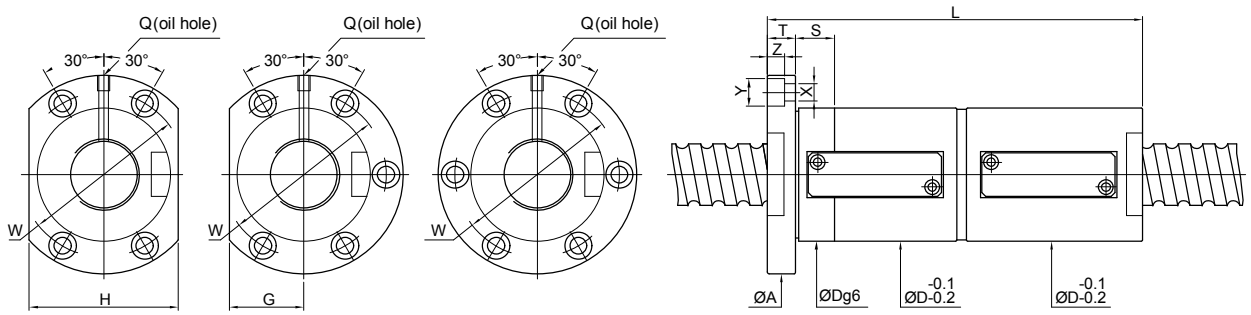

Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
12	10	2.381	2.5×1	420	720	30	102	50	10	40	16	32	10	4.5	8	4.4	M6×1P	30
20	10	3.969	2.5×1	1210	2380	46	113	73.5	13	59	25	50	10	5.5	9.5	5.5	M6×1P	51
			3.5×1	1580	3230		133											68
	16	3.969	1.5×1	830	1530	46	128	73.5	13	59	25	50	10	5.5	9.5	5.5	M6×1P	35
			2.5×1	1210	2380		160											51
	20	3.969	1.5×1	830	1530	46	130	73	13	59	25	50	10	5.5	9.5	5.5	M6×1P	35
25	16	3.969	1.5×1	920	1930	54	126	76	15	64	32	64	15	6.6	11	6.5	M6×1P	41
			2.5×1	1340	3000		158											61
	20	4.762	1.5×1	1170	2300	58	154	85	15	71	32	64	15	6.6	11	6.5	M6×1P	43
			2.5×1	1710	3580		194											63
			3.5×1	2220	4860		234											83
32	16	3.969	1.5×1	1010	2480	62	130	88	15	75	34	68	15	6.6	11	6.5	M8×1P	49
			2.5×1	1470	3860		162											73
			3.5×1	1910	5240		194											96
			5×1	2340	6620		226											120
	16	6.35	2.5×1	2830	6090	74	173	108	18	90	41	82	15	11	17.5	11	M8×1P	80
			3.5×1	3680	8270		205											105
			5×1	4490	10450		237											131
	20	3.969	1.5×1	1010	2480	62	93	88	15	75	34	68	15	6.6	11	6.5	M8×1P	49
			2.5×1	1470	3860		133											73
			3.5×1	1910	5240		173											96
			5×1	2350	6610		213											120
	20	6.35	2.5×1	2830	6090	74	204	108	18	90	41	82	15	11	17.5	11	M8×1P	80
			3.5×1	3680	8270		244											105
			5×1	4490	10450		284											131

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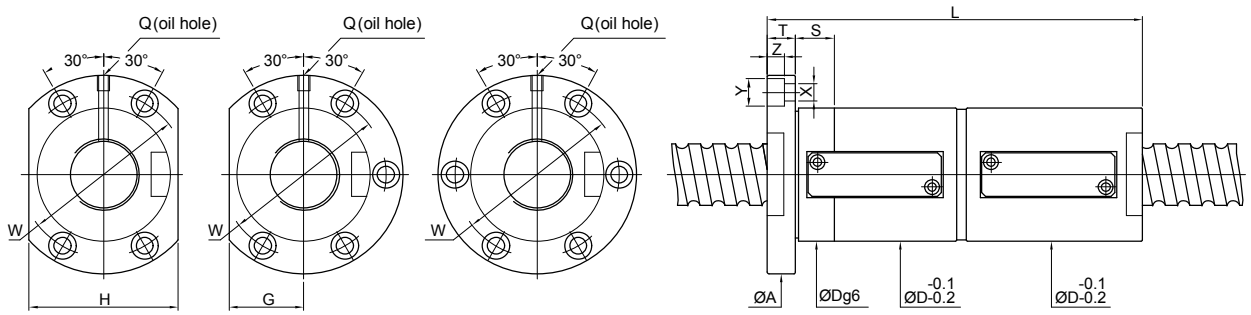
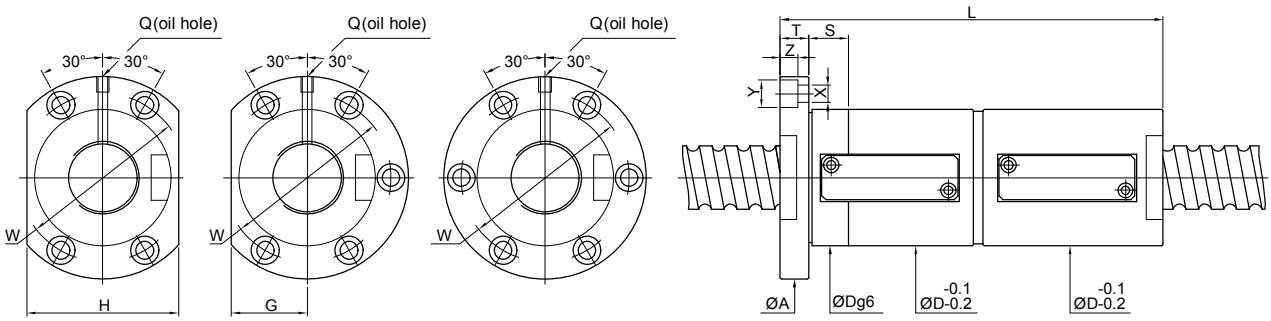


Unit: mm

SCREW SIZE		BALL	EFFECTIVE TURNS	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD	DIA.	circuit×row	Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
36	10	6.35	3.5×1	3890	9390	75	155	118	18	98	45	90	15	11	17.5	11	M8×1P	115
			5×1	4750	11860		175											143
	12	6.35	2.5×1	2990	6920	75	140	118	18	98	45	90	15	11	17.5	11	M8×1P	88
			3.5×1	3890	9390		164											115
			5×1	4750	11860		188											143
	16	6.35	2.5×1	2990	6920	75	171	118	18	98	45	90	15	11	17.5	11	M8×1P	88
			3.5×1	3890	9390		203											115
			5×1	4750	11860		235											143
	20	6.35	1.5×1	2050	4450	75	164	118	18	98	45	90	15	11	17.5	11	PT1/8×	59
			2.5×1	2990	6920		204											88
			3.5×1	3890	9390		244											115
			5×1	4750	11860		284											143
40	10	6.35	3.5×1	4130	10560	86	155	128	18	106	49	98	15	11	17.5	11	PT1/8×	125
			5×1	5050	13340		175											155
	12	6.35	2.5×1	3180	7780	86	141	128	18	106	49	98	15	11	17.5	11	PT1/8×	95
			3.5×1	4130	10560		165											125
			5×1	5050	13340		189											155
	16	6.35	2.5×1	3180	7780	86	173	128	18	106	49	98	15	11	17.5	11	PT1/8×	95
			3.5×1	4130	10560		205											125
			5×1	5050	13340		237											155
	16	7.144	2.5×1	3740	8790	86	173	128	18	106	49	98	15	11	17.5	11	PT1/8×	98
			3.5×1	4870	11930		205											128
			5×1	5950	15070		237											159
	20	6.35	1.5×1	2180	5000	86	164	128	18	106	49	98	15	11	17.5	11	PT1/8×	64
			2.5×1	3180	7780		204											95
			3.5×1	4130	10560		244											125
			5×1	5050	13340		284											155
	40	6.35	1.5×1	2180	5000	86	242	128	18	106	49	98	15	11	17.5	11	PT1/8×	64

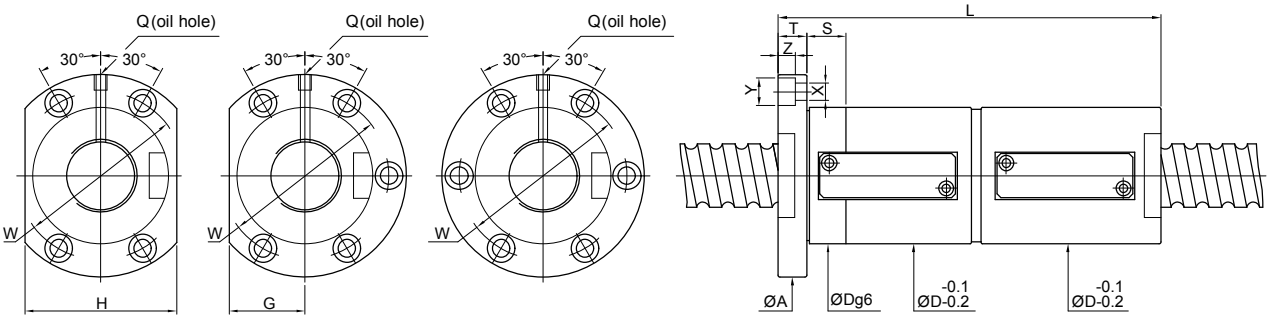
FDWE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10^6 REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
50	10	6.35	3.5×1	4560	13230	93	155	135	18	113	51	102	20	11	17.5	11	PT1/8×	149
			5×1	5580	16710		175											185
	12	6.35	2.5×1	3510	9750	93	141	135	18	113	51	102	20	11	17.5	11	PT1/8×	112
			3.5×1	4560	13230		165											149
			5×1	5580	16710		189											185
	12	7.144	2.5×1	4080	11260	100	161	146	25	122	55	110	20	14	20	13	PT1/8×	114
			3.5×1	5300	15280		185											151
			5×1	6480	19300		209											187
	16	6.35	2.5×1	3510	9750	93	174	135	18	113	51	102	20	11	17.5	11	PT1/8×	112
			3.5×1	4560	13230		206											149
			5×1	5580	16710		238											185
	16	7.144	2.5×1	4080	11260	100	180	146	25	122	55	110	20	14	20	13	PT1/8×	114
			3.5×1	5300	15280		212											151
			5×1	6480	19300		244											187
	20	7.144	1.5×1	2790	7240	100	179	146	25	122	55	110	20	14	20	13	PT1/8×	77
			2.5×1	4080	11260		219											114
			3.5×1	5300	15280		259											151
			5×1	6480	19300		299											187
	20	7.938	2.5×1	4750	12090	105	219	152	25	128	58	116	20	14	20	13	PT1/8×	117
			3.5×1	6180	16400		259											154
			5×1	7550	20720		299											191
	50	7.938	1.5×1	3250	7770	105	305	152	25	128	58	116	20	14	20	13	PT1/8×	79

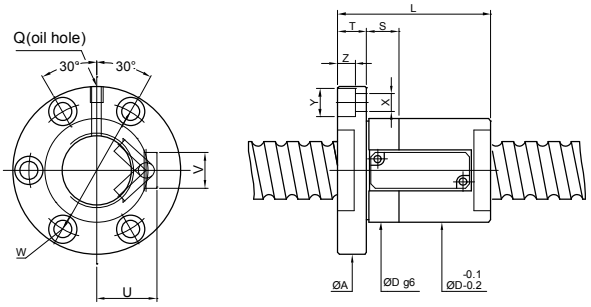
FDWE



Unit: mm

SCREW SIZE		BALL	EFFECTIVE TURNS	BASIC RATE LOAD(kgf)		NUT		FLANGE					FIT	BOLT			OIL HOLE	STIFFNESS
O.D.	LEAD	DIA.	circuit×row	Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	G	H	S	X	Y	Z	Q	kgf/μm
63	10	6.35	3.5×1	5030	17020	108	155	154	22	130	58	116	20	14	20	13	PT1/8×	178
			5×1	6150	21500		175											220
	12	6.35	2.5×1	3870	12540	108	153	154	22	130	58	116	20	14	20	13	PT1/8×	134
			3.5×1	5030	17020		177											178
			5×1	6150	21500		201											220
	12	7.144	2.5×1	4540	14460	115	158	161	22	137	61	122	20	14	20	13	PT1/8×	136
			3.5×1	5900	19620		182											180
			5×1	7210	24780		206											224
	16	7.144	2.5×1	4540	14460	115	177	161	22	137	61	122	20	14	20	13	PT1/8×	136
			3.5×1	5900	19620		209											180
			5×1	7210	24780		241											224
	16	7.938	2.5×1	5260	15430	120	207	180	28	150	72	144	25	18	26	17.5	PT1/8×	139
			3.5×1	6840	20940		239											184
			5×1	8360	26450		271											228
	20	6.35	2.5×1	3870	12540	108	205	154	22	130	58	116	20	14	20	13	PT1/8×	134
			3.5×1	5030	17020		245											178
			5×1	6150	21500		285											220
	20	9.525	2.5×1	8870	25870	122	219	182	28	150	72	144	25	18	26	17.5	PT1/8×	158
			3.5×1	11530	35110		259											208
			5×1	14090	44350		299											258
80	10	6.35	3.5×1	5630	21660	130	159	176	22	152	66	132	20	14	20	13	PT1/8×	207
			5×1	6880	27360		179											256
	12	7.938	3.5×1	7670	27030	136	184	182	22	158	68	136	20	14	20	13	PT1/8×	222
			5×1	9380	34140		208											275
	16	9.525	2.5×1	9900	33200	143	188	204	28	172	77	154	30	18	26	17.5	PT1/8×	189
			3.5×1	12990	45050		220											251
			5×1	15880	56910		252											311
	20	9.525	2.5×1	9900	33200	143	220	204	28	172	77	154	30	18	26	17.5	PT1/8×	189
			3.5×1	12990	45050		260											251
			5×1	15880	56910		300											311
100	16	9.525	2.5×1	11320	41820	170	211	243	32	205	91	182	30	22	32	21.5	PT1/8×	213
			3.5×1	14720	56750		243											283
			5×1	17990	71690		259											351
	20	9.525	2.5×1	11320	41820	170	228	243	32	205	91	182	30	22	32	21.5	PT1/8×	213
			3.5×1	14720	56750		268											283
			5×1	17990	71690		308											351

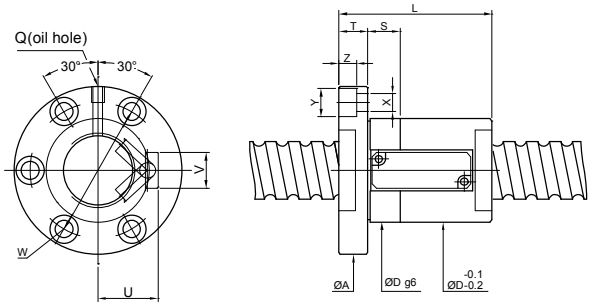
FSVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
12	10	2.381	2.5×1	420	720	25	50	48	10	36	10	4.5	8	4.4	14	12	M6×1P	20
20	10	3.969	2.5×1	1210	2380	38	63	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	34
			3.5×1	1580	3230		73											45
	16	3.969	1.5×1	830	1530	38	63	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	24
			2.5×1	1210	2380		79											34
	20	3.969	1.5×1	830	1530	38	70	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	24
25	16	3.969	1.5×1	920	1930	42	62	68	15	55	15	6.6	11	6.6	26	14	M6×1P	28
			2.5×1	1340	3000		78											40
	20	4.762	1.5×1	1170	2300	44	74	72	15	59	15	6.6	11	6.5	27	16	M6×1P	29
			2.5×1	1710	3580		94											42
			3.5×1	2220	4860		114											55
32	16	3.969	1.5×1	1010	2480	49	63	78	15	63	15	6.6	11	6.6	29	15	M8×1P	33
			2.5×1	1470	3860		79											48
			3.5×1	1910	5240		95											63
			5×1	2340	6610		111											77
	16	6.35	2.5×1	2830	8200	57	92	98	18	77	20	11	17.5	11	34	22	M8×1P	54
			3.5×1	3680	11120		108											69
			5×1	4490	14050		124											85
	20	3.969	1.5×1	1010	2480	49	70	78	15	63	15	6.6	11	6.6	29	15	M8×1P	33
			2.5×1	1470	3860		90											48
			3.5×1	1910	5240		110											63
			5×1	2350	6610		130											77
	20	6.35	2.5×1	2830	8200	57	104	98	18	77	20	11	17.5	11	34	22	M8×1P	54
			3.5×1	3680	11120		124											69
			5×1	4490	14050		144											85

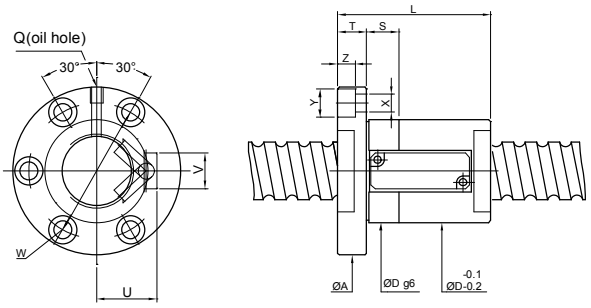
FSVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
36	10	6.35	3.5×1	3890	9390	60	84	100	18	80	20	11	17.5	11	36	22	M8×1P	76
			5×1	4750	11860		94											93
	12	6.35	2.5×1	2990	6920	60	85	100	18	80	20	11	17.5	11	36	22	M8×1P	58
			3.5×1	3890	9390		97											76
			5×1	4750	11860		109											93
	16	6.35	2.5×1	2990	6920	60	91	100	18	80	20	11	17.5	11	36	22	M8×1P	58
			3.5×1	3890	9390		107											76
			5×1	4750	11860		123											93
	20	6.35	1.5×1	2050	4450	60	91	100	18	80	20	11	17.5	11	36	22	M8×1P	41
			2.5×1	2990	6920		111											58
			3.5×1	3890	9390		131											76
			5×1	4750	11860		151											93
40	10	6.35	3.5×1	4130	10560	64	84	104	18	84	20	11	17.5	11	38	22	PT1/8×	82
			5×1	5050	13340		96											101
	12	6.35	2.5×1	3180	7780	64	86	104	18	84	20	11	17.5	11	38	22	PT1/8×	63
			3.5×1	4130	10560		98											82
			5×1	5050	13340		110											101
	16	6.35	2.5×1	3180	7780	64	93	104	18	84	20	11	17.5	11	38	22	PT1/8×	63
			3.5×1	4130	10560		109											82
			5×1	5050	13340		125											101
	16	7.144	2.5×1	3740	8790	64	92	104	18	84	15	11	17.5	11	38	22	PT1/8×	65
			3.5×1	4870	11930		108											84
			5×1	5950	15070		124											103
	20	6.35	1.5×1	2180	5000	64	84	104	18	84	20	11	17.5	11	38	22	PT1/8×	43
			2.5×1	3180	7780		104											63
			3.5×1	4130	10560		124											82
			5×1	5050	13340		144											101
	40	6.35	1.5×1	2180	5000	64	130	104	18	84	20	11	17.5	11	38	22	PT1/8×	43

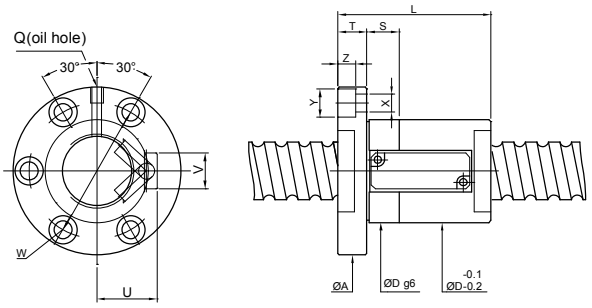
FSVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
50	10	6.35	3.5×1	4560	13230	73	85	118	18	96	20	11	17.5	11	43	22	PT1/8×	97
			5×1	5580	16710		95											119
	12	6.35	2.5×1	3510	9750	73	82	118	18	96	20	11	17.5	11	43	22	PT1/8×	74
			3.5×1	4560	13230		94											97
			5×1	5580	16710		106											119
	12	7.144	2.5×1	4080	11260	75	93	122	20	98	15	14	20	13	44	24	PT1/8×	75
			3.5×1	5300	15280		105											99
			5×1	6480	19300		117											121
	16	6.35	2.5×1	3510	9750	73	94	118	18	96	20	11	17.5	11	43	22	PT1/8×	74
			3.5×1	4560	13230		110											97
			5×1	5580	16710		126											119
	16	7.144	2.5×1	4080	11260	75	100	122	20	98	15	14	20	13	44	24	PT1/8×	75
			3.5×1	5300	15280		116											99
			5×1	6480	19300		132											121
	20	7.144	1.5×1	2790	7240	75	98	122	20	98	15	14	20	13	44	20	PT1/8×	52
			2.5×1	4080	11260		118											75
			3.5×1	5300	15280		138											99
			5×1	6480	19300		158											121
	20	7.938	2.5×1	4750	12090	76	119	123	25	99	20	14	20	13	46	25	PT1/8×	78
			3.5×1	6180	16400		139											101
			5×1	7550	20720		159											124
	50	7.938	1.5×1	3250	7770	76	157	123	25	99	20	14	20	13	46	25	PT1/8×	53

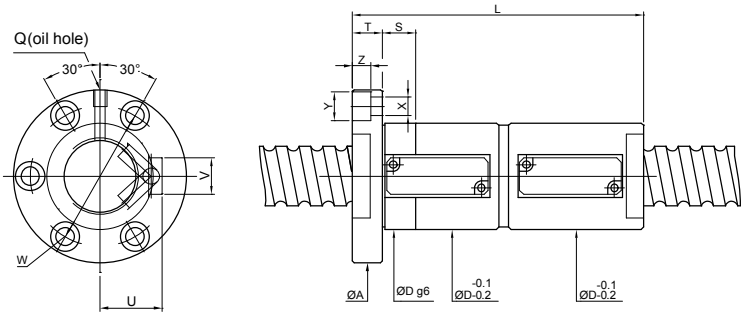
FSVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit×row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
63	10	6.35	3.5×1 5×1	5030 6150	17020 21500	86	86 96	133	22	108	20	14	20	13	49	24	PT1/8×	115 141
	12	6.35	2.5×1 3.5×1 5×1	3870 5030 6150	12540 17020 21500	86	84 96 108	133	22	108	20	14	20	13	49	24	PT1/8×	87 115 141
	12	7.144	2.5×1 3.5×1 5×1	4540 5900 7210	14460 19620 24780	87	90 102 114	134	22	110	20	14	20	13	50	25	PT1/8×	89 117 145
	16	7.144	2.5×1 3.5×1 5×1	4540 5900 7210	14460 19620 24780	87	97 113 129	134	22	110	20	14	20	13	50	25	PT1/8×	89 117 145
	16	7.938	2.5×1 3.5×1 5×1	5260 6840 8360	15430 20940 26450	89	112 128 144	148	28	118	25	18	26	17.5	52	25	PT1/8×	91 120 147
	20	6.35	2.5×1 3.5×1 5×1	3870 5030 6150	12540 17020 21500	86	104 124 144	133	22	108	20	14	20	13	49	24	PT1/8×	87 115 141
	20	7.938	2.5×1 3.5×1 5×1	5260 6840 8360	15430 20940 26450	89	120 140 160	148	28	118	25	18	26	17.5	52	25	PT1/8×	91 120 147
	20	9.525	2.5×1 3.5×1 5×1	8870 11530 14090	25870 35110 44350	93	120 140 160	152	28	122	25	18	26	17.5	54	28	PT1/8×	105 136 167
80	10	6.35	3.5×1 5×1	5630 6880	21660 27360	103	90 100	150	22	126	20	14	20	13	58	25	PT1/8×	133 164
	12	7.938	3.5×1 5×1	7670 9380	27030 34140	123	101 113	170	22	146	20	14	20	13	66	28	PT1/8×	143 177
	16	9.525	2.5×1 3.5×1 5×1	9900 12990 15880	33200 45050 56910	126	108 124 140	185	28	155	30	18	26	17.5	70	28	PT1/8×	124 162 201
	20	9.525	2.5×1 3.5×1 5×1	9900 12990 15880	33200 45050 56910	126	120 140 160	185	28	155	30	18	26	17.5	70	28	PT1/8×	124 162 201
100	16	9.525	2.5×1 3.5×1 5×1	11320 14720 17990	41820 56750 71690	146	115 131 147	217	32	181	30	22	32	21.5	82	35	PT1/8×	139 182 226
	20	9.525	2.5×1 3.5×1 5×1	11320 14720 17990	41820 56750 71690	146	128 148 168	217	32	181	30	22	32	21.5	82	35	PT1/8×	139 182 226

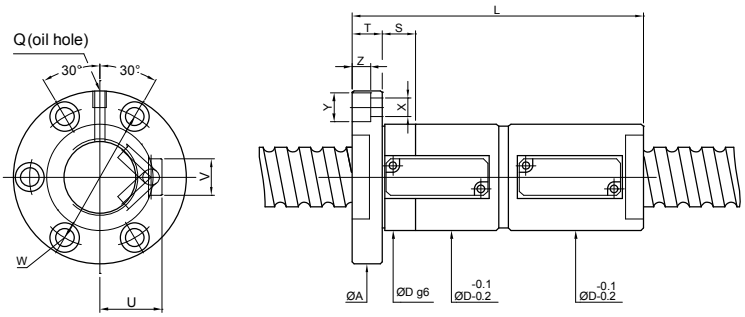
FDVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit×row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
12	10	2.381	2.5×1	420	720	25	102	48	10	36	10	4.5	8	4.4	14	12	M6×1P	30
20	10	3.969	2.5×1	1210	2380	38	113	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	51
			3.5×1	1580	3230		133											68
	16	3.969	1.5×1	830	1530	38	128	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	35
			2.5×1	1210	2380		160											51
	20	3.969	1.5×1	830	1530	38	130	62	13	50	10	5.5	9.5	5.5	23	15	M6×1P	35
25	16	3.969	1.5×1	920	1930	42	126	68	15	55	15	6.6	11	6.6	26	14	M6×1P	41
			2.5×1	1340	3000		158											61
	20	4.762	1.5×1	1170	2300	44	154	72	15	59	15	6.6	11	6.5	27	16	M6×1P	43
			2.5×1	1710	3580		194											63
			3.5×1	2220	4860		234											83
32	16	3.969	1.5×1	1010	2480	49	130	78	15	63	15	6.6	11	6.6	29	15	M8×1P	49
			2.5×1	1470	3860		162											73
			3.5×1	1910	5240		194											96
			5×1	2340	6610		226											120
	16	6.35	2.5×1	2830	8200	57	173	98	18	77	20	11	17.5	11	34	22	M8×1P	80
			3.5×1	3680	11120		205											105
			5×1	4490	14050		237											131
	20	3.969	1.5×1	1010	2480	49	133	78	15	63	15	6.6	11	6.6	29	15	M8×1P	49
			2.5×1	1470	3860		173											73
			3.5×1	1910	5240		213											96
			5×1	2350	6610		253											120
	20	6.35	2.5×1	2830	8200	57	204	98	18	77	20	11	17.5	11	34	22	M8×1P	80
			3.5×1	3680	11120		244											105
			5×1	4490	14050		284											131

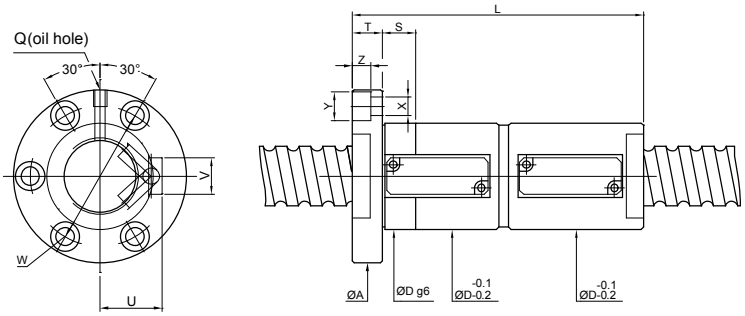
FDVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
36	10	6.35	3.5×1	3890	9390	60	155	100	18	80	20	11	17.5	11	36	22	M8×1P	115
			5×1	4750	11860		175											143
	12	6.35	2.5×1	2990	6920	60	152	100	18	80	20	11	17.5	11	36	22	M8×1P	88
			3.5×1	3890	9390		176											115
			5×1	4750	11860		200											143
	16	6.35	2.5×1	2990	6920	60	173	100	18	80	20	11	17.5	11	36	22	M8×1P	88
			3.5×1	3890	9390		205											115
			5×1	4750	11860		237											143
	20	6.35	1.5×1	2050	4450	60	164	100	18	80	20	11	17.5	11	36	22	M8×1P	59
			2.5×1	2990	6920		204											88
			3.5×1	3890	9390		244											115
			5×1	4750	11860		284											143
40	10	6.35	3.5×1	4130	10560	64	155	104	18	84	20	11	17.5	11	38	22	PT1/8×	125
			5×1	5050	13340		175											155
	12	6.35	2.5×1	3180	7780	64	141	104	18	84	20	11	17.5	11	38	22	PT1/8×	95
			3.5×1	4130	10560		165											125
			5×1	5050	13340		189											155
	16	6.35	2.5×1	3180	7780	64	173	104	18	84	20	11	17.5	11	38	22	PT1/8×	95
			3.5×1	4130	10560		205											125
			5×1	5050	13340		237											155
	16	7.144	2.5×1	3740	8790	64	173	104	18	84	15	11	17.5	11	38	22	PT1/8×	98
			3.5×1	4870	11930		205											128
			5×1	5950	15070		237											159
	20	6.35	1.5×1	2180	5000	64	164	104	18	84	20	11	17.5	11	38	22	PT1/8×	64
			2.5×1	3180	7780		204											95
			3.5×1	4130	10560		244											125
			5×1	5050	13340		284											155
	40	6.35	1.5×1	2180	5000	64	242	104	18	84	20	11	17.5	11	38	22	PT1/8×	64

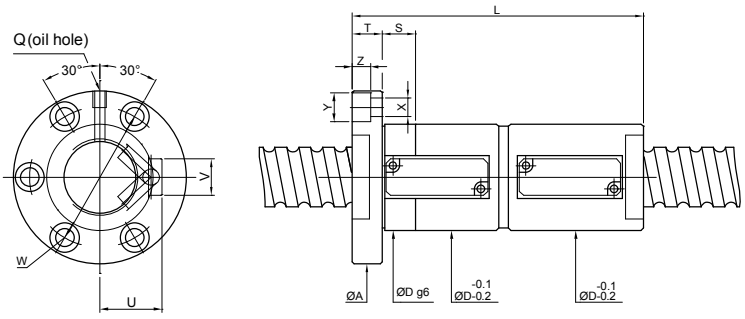
FDVE



Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10^6 REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
50	10	6.35	3.5×1	4560	13230	73	155	118	18	96	20	11	17.5	11	43	22	PT1/8×	149
			5×1	5580	16710		175											185
	12	6.35	2.5×1	3510	9750	73	152	118	18	96	20	11	17.5	11	43	22	PT1/8×	112
			3.5×1	4560	13230		176											149
			5×1	5580	16710		200											185
	12	7.144	2.5×1	4080	11260	75	161	122	20	98	15	14	20	13	44	24	PT1/8×	114
			3.5×1	5300	15280		185											151
			5×1	6480	19300		209											187
	16	6.35	2.5×1	3510	9750	73	174	118	18	96	20	11	17.5	11	43	22	PT1/8×	112
			3.5×1	4560	13230		206											149
			5×1	5580	16710		238											185
	16	7.144	2.5×1	4080	11260	75	180	122	20	98	15	14	20	13	44	24	PT1/8×	114
			3.5×1	5300	15280		212											151
			5×1	6480	19300		244											187
	20	7.144	1.5×1	2790	7240	75	179	122	20	98	15	14	20	13	44	20	PT1/8×	77
			2.5×1	4080	11260		219											114
			3.5×1	5300	15280		259											151
			5×1	6480	19300		299											187
	20	7.938	2.5×1	4750	12090	76	219	123	25	99	20	14	20	13	46	25	PT1/8×	117
			3.5×1	6180	16400		259											154
			5×1	7550	20720		299											191
	50	7.938	1.5×1	3250	7770	76	305	123	25	99	20	14	20	13	46	25	PT1/8×	79

FDVE

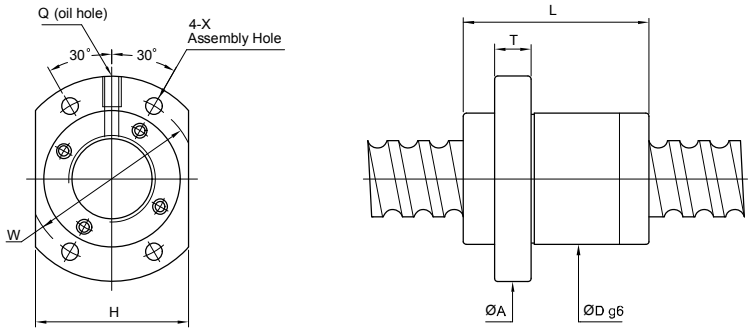


Unit: mm

SCREW SIZE		BALL DIA.	EFFECTIVE TURNS circuit × row	BASIC RATE LOAD(kgf)		NUT		FLANGE			FIT	BOLT			RETURN TUBE		OIL HOLE	STIFFNESS
O.D.	LEAD			Dynamic (1×10⁶ REV.) Ca	Static Co	Dg6	L	A	T	W	S	X	Y	Z	U	V	Q	kgf/μm
63	10	6.35	3.5×1 5×1	5030 6150	17020 21500	86	155 175	133	22	108	20	14	20	13	49	24	PT1/8×	178 220
	12	6.35	2.5×1 3.5×1 5×1	3870 5030 6150	12540 17020 21500	86	153 177 201	133	22	108	20	14	20	13	49	24	PT1/8×	134 178 220
	12	7.144	2.5×1 3.5×1 5×1	4540 5900 7210	14460 19620 24780	87	158 182 206	134	22	110	20	14	20	13	50	25	PT1/8×	136 180 224
	16	7.144	2.5×1 3.5×1 5×1	4540 5900 7210	14460 19620 24780	87	177 209 241	134	22	110	20	14	20	13	50	25	PT1/8×	139 184 228
	16	7.938	2.5×1 3.5×1 5×1	5260 6840 8360	15430 20940 26450	89	207 239 271	148	28	118	25	18	26	17.5	52	25	PT1/8×	134 178 220
	20	6.35	2.5×1 3.5×1 5×1	3870 5030 6150	12540 17020 21500	86	205 245 285	133	22	108	20	14	20	13	49	24	PT1/8×	134 178 220
	20	7.938	2.5×1 3.5×1 5×1	5260 6840 8360	15430 20940 26450	89	221 261 301	148	28	118	25	18	26	17.5	52	25	PT1/8×	139 184 228
	20	9.525	2.5×1 3.5×1 5×1	8870 11530 14090	25870 35110 44350	93	219 259 299	152	28	122	25	18	26	17.5	54	28	PT1/8×	158 208 258
80	10	6.35	3.5×1 5×1	5630 6880	21660 27360	103	159 179	150	22	126	20	14	20	13	58	25	PT1/8×	207 256
	12	7.938	3.5×1 5×1	7670 9380	27030 34140	123	184 208	170	22	146	20	14	20	13	66	28	PT1/8×	222 275
	16	9.525	2.5×1 3.5×1 5×1	9900 12990 15880	33200 45050 56910	126	188 220 252	185	28	155	30	18	26	17.5	70	28	PT1/8×	189 251 311
	20	9.525	2.5×1 3.5×1 5×1	9900 12990 15880	33200 45050 56910	126	220 260 300	185	28	155	30	18	26	17.5	70	28	PT1/8×	189 251 311
100	16	9.525	2.5×1 3.5×1 5×1	11320 14720 17990	41820 56750 71690	146	211 243 259	217	32	181	30	22	32	21.5	82	35	PT1/8×	213 283 351
	20	9.525	2.5×1 3.5×1 5×1	11320 14720 17990	41820 56750 71690	146	228 268 308	217	32	181	30	22	32	21.5	82	35	PT1/8×	213 283 351

13.5 End Cap Series

FSKC



Unit: mm

SCREW SIZE		BALL DIA	EFFECTIVE TURNS circuit × number of thread	BASIC RATE LOAD(kgf)		BALLNUT DIMENSION								
				Dynamic	Static	NUT		FLANGE				BOLT	OIL HOLE	STIFFNESS
O.D.	LEAD			(1×10^6 REV.) Ca	Co	Dg6	L	A	T	H	W	X	Q	kgf/μm
15	10	3.715	2.8×2	1410	2800	34	44	57	10	40	45	5.5	M6×1P	34
16	16	3.175	1.8×2	700	1400	32	38	53	10	38	42	4.5	M6×1P	18
20	20	3.175	1.8×2	1100	2500	39	52	62	10	46	50	5.5	M6×1P	29
25	25	3.969	1.8×2	1650	3900	47	62	74	12	56	60	6.6	M6×1P	35
			1.8×4	2830	7800									69
32	32	4.762	1.8×2	2360	5940	58	78	92	15	68	74	9	M6×1P	44
			1.8×4	4280	11800									87
36	24	7.144	2.8×2	6450	15220	75	94	115	18	86	94	11	M6×1P	77
40	40	6.35	1.8×2	3860	9900	73	95	114	17	84	93	11	M6×1P	55
			1.8×4	7000	19880									108
50	50	7.938	1.8×2	5800	15800	90	120	135	20	104	112	14	M6×1P	68
			1.8×4	10520	31600									135