Ballscrew

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3. Classification of Standard Ballscrews

3.1 Standard Ballscrew Spindle

HIWIN recommends our standard regular ballscrews for your design. However, high lead, miniature or other special types of ballscrews, may also be available upon your request. Table 3.1 shows the standard ballscrew spindles that are available.

3.2 Nut Configuration

The circuiting systems of the nut of a HIWIN ball screw can be divided into: Super S, Super T, Super Z, external circuit, internal circuit, and end caps. The features of these types are specified below.

3.2.1 Type of return tube design

(1) Super S Series

a. application

CNC Machinery, Industrial Machinery, Electronic Machinery, Precision Machine and other High Speed Machinery.

b. features

(a)Low noise (5~7dB lower than traditional series):
Return unit can absorb noises caused by the impact of the steel balls, thus greatly reducing noise intensity.

(b)Space-saving and weight-lightening design:
The ballnut diamenter is 18%~32% smaller than traditional series.

(c)Dm-N value up to 220,000:
The return unit can improve the strength of the return structure, achieving a Dm-N value of up to 220,000.

(d)High acceleration and deceleration velocity:
The pathway of the specialized return unit, as well as the ballnut's strengthened design diminish the impact experienced by the balls, So, it can sustain peak performance in more rigorous operating environments, such as high acceleration and deceleration.

(e)Accuracy grade:
Precision ground ballscrews available in JIS Grade C0~C7; Rolled ballscrews available in JIS Grade C6~C10.

c. performance

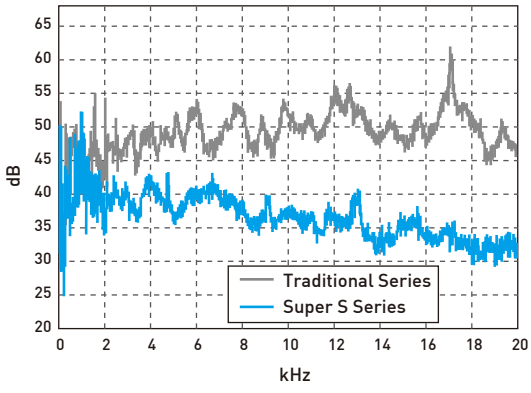
Specification: 2R40 - 40K4 - DFSC - 1200 -1600 - 0.008
Lead: 40 mm
Acceleration: 1g (9.8m/sec2)
Dm-N Value: 120,000

d. pattern nomenclature

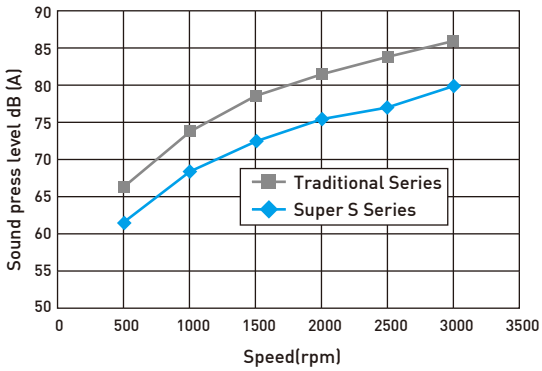
Ex: R40-10K4 -FSC -1200 -1600 - 0.008

- 4 turns
- Cassette type
- Single nut
- Nut with flange

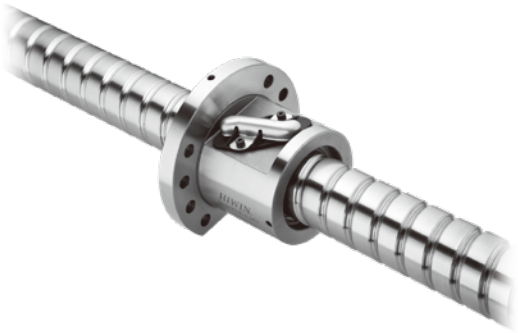




Noise Frequency Analysis



(2) Super T Series

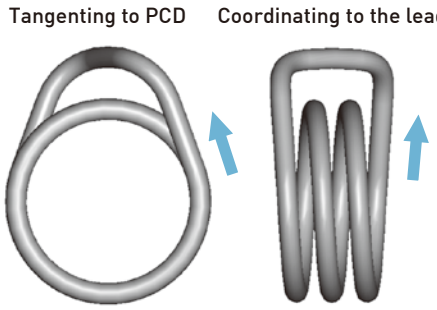


a. application

CNC machinery, precision machine tools, industrial machinery, electrical machinery, high speed machinery.

b. design principles:

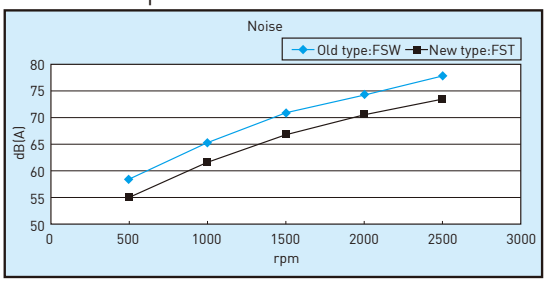
Optimal design of the recirculation path can reduce noise generated by impact of balls to reduce noise level. (Note: the DN value should be defined by ball diameters and using conditions)



c. features

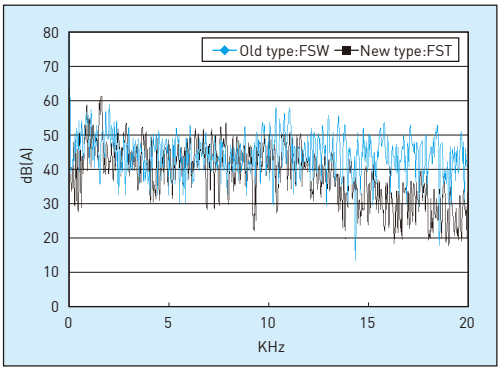
(a)Low noise (lower 3~5dB than general series)

Finest design of recirculation can absorb noise from the impact of balls to reduce noise level.



(b)Qualified tone

Super T recirculating components not only can reduce the sound pressure level, but also efficiently lower the middle and high frequency range better than conventional ballscrews, producing no shrill fricative and better sound quality.



(c) Low vibration and smooth operation

The tangent recirculation substantially reduces impact force of running balls and the resistance of guiding balls, so the vibration of the nut is gentler and the rotation is smoother and more stable.

(3) Super Z Series



a. application

Miniature Ballscrew is suitable for outer diameter smaller than 20.

The suitable application is :

Semiconductor / Inspection machine / Medical equipment / LCD / Robot / SPM / Special environment machine / Electric machine

b. features:

(a) Long Service Life: Dynamic loading 20~30% higher

(b) Compact Design: Nut diameter 15~30% smaller

(c) Smooth: Drag torque variation 20~30% lower

(d) High Speed & High Acceleration/Deceleration: Dm-N value 160,000. MAX. acceleration 1.5G

(e) Accuracye: C0~C10

5. Specification Illustration

HIWIN manufactures ballscrews according to customers' blueprints or specifications. Please read the following information for an understanding of ballscrew design.

1. Nominal diameter.
2. Thread lead.
3. Thread length, total length.
4. End journal configuration.
5. Nut configuration
6. Accuracy grade (lead deviation, geometrical tolerance).
7. Working speed.
8. Maximum static load, working load, preload drag torque.
9. Nut safety requirements.
10. Lubrication hole position.

HIWIN Ballscrew Nomenclature

1R40 - 10B2 - PFDWE2 - 800 - 1000 - 0.0035 - M

Start type
1.Single start
2.Double start
3.Triple start
4.Four start
5:Five Start

Right hand screw

Nominal diameter

Lead

Number of turns

Preload type
P : Compression type
O : Offset type

Nut Start type
D : High lead double start
T : High lead triple start
Q : High lead quatemary start
F : High lead five start

Nut shape
S : Square nut
R : Round
F : Nut with flange

Note :
D : Biaxial Movement
M : Stainless
H : Hollow Shaft
L : Heavy Load

Lead deviation in random 300mm travel path thread length

Total length

Thread length

Optional Functions :
E2 : Self-lubrication
R1 : Rotating Nut
C1,C2 : Cool Type
Q1 : Spacer

Circulation type
V : Tubes above nut body
(Re-circulation Tube above the nut body)
W : Tubes within nut body
(Re-circulation Tube within the nut body)
B : Bonded tube
I : Internal cap
H : End cap
C : Super S series
T : Super T series
P : RD series
(Re-circulation Tube above the nut body)
S : RD series
(Re-circulation Tube within the nut body)

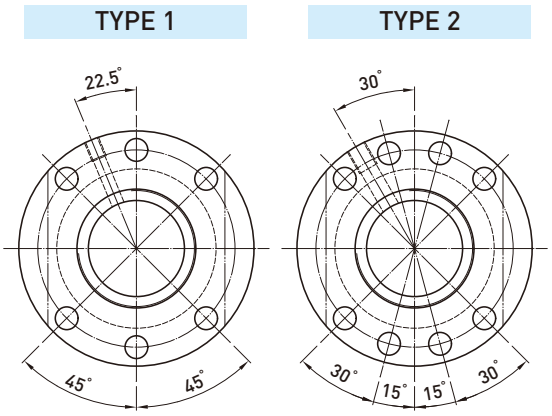
Nut type
S : Single nut
D : Double nut

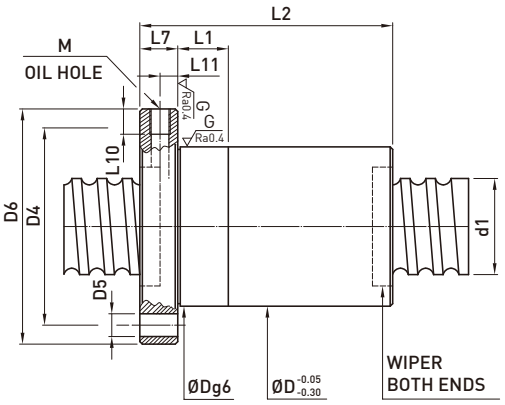
Number of turns

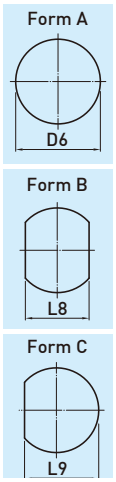
A : 1.5, B: 2.5, C: 3.5	T3 : 3	S1 : 1.8x1	U1 : 2.8x1	K2 : 2	X : 2.8, Y : 3.8, Z : 4.8
A2 : 1.5x2	T4 : 4	S2 : 1.8x2	U2 : 2.8x2	K3 : 3	X2 : 2.8x2
B2 : 2.5x2	T5 : 5	S4 : 1.8x4	V2 : 0.8x2	K4 : 4	Y2 : 3.8x2
C1 : 3.5x1	T6 : 6				Z2 : 4.8x2

Note : 1. Different diameters and leads are available upon request.
2. Right hand thread is standard, left hand thread is available upon request.
3. Longer lengths are available upon request.
4. Stainless steel is available upon request, please contact HIWIN engineer.
5. Complete ballscrew Inquiry on page 197~198 and please contact HIWIN engineer.
6. If you need to order DIN 69051 type, please mark "DIN".

FSC Type ◀ Standard Product





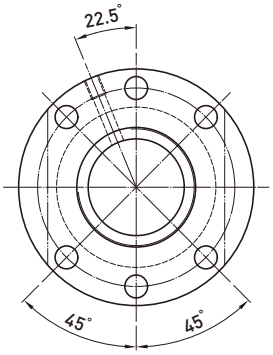


Model	Size		P.C.D.	RD	Ball Dia.	Circuits	Stiffness K (kgf/μm)	Dynamic Load C(kgf)	Static Load Co(kgf)	Nut			Flange							Oil Hole			Double Starts	Incomplete Thread
	Nominal Dia.	Lead								D	L1	L2	TYPE	Form A (D6)	Form B (L8)	Form C (L9)	L7	D4	D5	M	L10	L11		
14-10K3	14	10	14.6	10.724	3.175	3	24	920	1790	28	10	46	1	48	40	44	10	38	5.5	M5×0.8P	6	5		
15-10K3	15	10	16	12.869	3	3	26	930	1970	28	10	45	1	48	40	44	10	38	5.5	M5×0.8P	6	5		
15-16K2	15	16	16	12.869	3	2	16	610	1230	28	10	45	1	48	40	44	10	38	5.5	M5×0.8P	6	5		
15-10K3	15	10	15.6	12.324	3.175	3	25	960	1930	34	10	44	1	57	43	50	10	45	5.5	M5×0.8P	6	5		
15-20K2	15	20	15.6	12.324	3.175	2	15	630	1256	34	10	50	1	57	43	50	10	45	5.5	M5×0.8P	6	5		
16-16K2	16	16	16.4	13.124	3.175	2	17	680	1385	34	10	47	1	57	43	50	10	45	5.5	M5×0.8P	6	5		●
20-10K4	20	10	21	17.868	3	4	43	1390	3560	34	10	55	1	57	43	50	10	45	5.5	M5×0.8P	6	5		
20-5K4	20	5	20.6	17.324	3.175	4	42	1490	3640	36	10	40	1	58	44	51	10	47	6.6	M6×1P	8	5		
20-10K3	20	10	20.6	17.324	3.175	3	32	1130	2660	36	10	47	1	58	44	51	10	47	6.6	M6×1P	8	5		
20-20K2	20	20	20.6	17.324	3.175	2	21	760	1730	36	10	57	1	58	44	51	10	47	6.6	M6×1P	8	5	●	
20-6K5	20	6	20.8	16.744	3.969	5	58	2420	5660	42	10	49	1	64	50	57	10	53	6.6	M6×1P	8	5		●
20-8K5	20	8	21	16.132	4.763	5	58	2960	6505	45	10	64	1	65	51	58	10	54	6.6	M6×1P	8	5		●
25-5K4	25	5	25.6	22.324	3.175	4	49	1650	4612	40	10	43	1	62	48	55	10	51	6.6	M6×1P	8	5		
25-10K3	25	10	25.6	22.324	3.175	3	38	1260	3370	40	10	50	1	62	48	55	10	51	6.6	M6×1P	8	5		
25-15K5	25	15	25.6	22.324	3.175	5	63	1980	5730	40	10	90	1	62	48	55	10	51	6.6	M6×1P	8	5		
25-20K3	25	20	25.6	22.324	3.175	3	39	1260	3436	40	10	80	1	62	48	55	10	51	6.6	M6×1P	8	5	●	
25-25K2	25	25	25.6	22.324	3.175	2	25	840	2170	40	10	69	1	62	48	55	10	51	6.6	M6×1P	8	5	●	
25-6K5	25	6	25.8	21.744	3.969	5	68	2720	7192	45	10	50	1	65	51	58	10	54	6.6	M6×1P	8	5		
25-8K5	25	8	25.8	21.744	3.969	5	70	2710	7170	48	10	62	1	68	54	61	10	57	6.6	M6×1P	8	5		
25-10K4	25	10	25.8	21.744	3.969	4	56	2210	5660	45	10	60	1	65	51	58	10	54	6.6	M6×1P	8	5		
25-12K4	25	12	25.8	21.744	3.969	4	56	2200	5640	45	10	67	1	65	51	58	10	54	6.6	M6×1P	8	5		●
25-16K3	25	16	25.8	21.744	3.969	3	42	1670	4127	45	10	71	1	65	51	58	10	54	6.6	M6×1P	8	5		●
25-20K3	25	20	25.8	21.744	3.969	3	43	1710	4290	45	10	80	1	65	51	58	10	54	6.6	M6×1P	8	5		
25-8K5	25	8	26	21.132	4.763	5	72	3480	8683	50	10	64	1	70	56	64	10	60	6.6	M6×1P	8	5		●
28-6K5	28	6	28.8	24.744	3.969	5	74	2840	7966	50	10	49	1	80	62	71	12	65	6.6	M6×1P	8	6		●
28-8K5	28	8	29	24.132	4.763	5	79	3690	9780	50	10	62	1	80	62	71	12	65	6.6	M6×1P	8	6		●
28-10K5	28	10	29	24.132	4.763	5	80	3680	9760	52	10	72	1	80	62	71	12	65	6.6	M6×1P	8	6		●
28-16K4	28	16	29	24.132	4.763	4	64	2970	7661	50	10	92	1	80	62	71	12	65	6.6	M6×1P	8	6	●	●
32-5K4	32	5	32.6	29.324	3.175	4	57	1840	5960	48	10	38	1	70	54	62	12	59	6.6	M6×1P	8	6		●
32-5.08K4	32	5.08	32.6	29.324	3.175	4	57	1840	5940	48	10	39	1	70	54	62	12	59	6.6	M6×1P	8	6		●
32-6K5	32	6	32.8	28.744	3.969	5	83	3090	9480	56	10	48	1	86	65	75.5	12	71	6.6	M6×1P	8	6		●
32-8K5	32	8	32.8	28.744	3.969	5	85	3080	9430	53	10	59	1	83	62	72.5	12	68	6.6	M6×1P	8	6		
32-8K5	32	8	32.8	28.744	3.969	5	84	3080	9460	50	10	59	1	80	62	71	12	65	9	M6×1P	8	6		
32-10K5	32	10	32.8	28.744	3.969	5	85	3080	9450	50	10	73	1	80	62	71	12	65	9	M6×1P	8	6		
32-15K4	32	15	32.8	28.744	3.969	4	69	2500	7440	50	10	90	1	80	62	71	12	65	9	M6×1P	8	6	●	
32-20K3	32	20	32.8	28.744	3.969	3	52	1900	5430	50	20	87	1	80	62	71	12	65	9	M6×1P	8	6		
32-32K2	32	32	32.8	28.744	3.969	2	34	1280	3530	50	20	87	1	80	62	71	12	65	9	M6×1P	8	6	●	
32-40K2	32	40	32.8	28.744	3.969	2	32	1240	3440	50	20	94	1	80	62	71	12	65	9	M6×1P	8	6	●	
32-8K5	32	8	33	28.132	4.763	5	84	3860	10914	55	10	64	1	86	65	75.5	14	71	9	M6×1P	8	7		●
32-10K5	32	10	33	28.132	4.763	5	86	3850	10890	56	10	79	1	86	65	75.5	14	71	9	M6×1P	8	7		
32-12K5	32	12	33	28.132	4.763	5	87	3840	10870	56	20	88	1	86	65	75.5	14	71	9	M6×1P	8	7		
32-20K4	32	20	33	28.132	4.763	4	72	3190	8914	54	20	106	1	86	65	75.5	14	71	9	M6×1P	8	7	●	●
32-25K3	32	25	33	28.132	4.763	3	53	2420	6500	54	20	97	1	86	65	75.5	14	71	9	M6×1P	8	7	●	●
32-32K2	32	32	33	28.132	4.763	2	34	1620	4100	54	20	88	1	86	65	75.5	14	71	9	M6×1P	8	7	●	●
32-10K5	32	10	33.4	26.91	6.35	5	90	5640	14480	62	10	77	1	92	74	83	14	77	9	M6×1P	8	7		●
32-12K5	32	12	33.4	26.91	6.35	5	90	5620	14450	62	20	87	1	92	74	83	14	77	9	M6×1P	8	7		●
32-16K4	32	16	33.4	26.91	6.35	4	73	4570	11390	62	20	92	1	92	74	83	14	77	9	M6×1P	8	7		●
32-20K4	32	20	33.4	26.91	6.35	4	70	4240	10854	57	20	107	1	87	66	78	14	72	9	M6×1P	8	7		
36-6K5	36	6	36.8	32.744	3.969	5	88	3240	10632	56	10	51	2	86	65	77	14	71	9	M6×1P	8	7		●
36-10K5	36	10	37.4	30.91	6.35	5	98	6010	16440	66	20	80	2	96	73	84.5	14	81	9	M8×1P	10	7		●
36-12K5	36	12	37.4	30.91	6.35	5	99	5990	16420	66	20	87	2	96	73	84.5	14	81	9	M8×1P	10	7		
36-16K5	36	16	37.4	30.91	6.35	5	100	5960	16350	66	20	109	2	96	73	84.5	14	81	9	M8×1P	10	7		●
36-20K4	36	20	37.4	30.91	6.35	4	80	4840	12880	65	20	108	2	95	72	83.5	14	80	9	M8×1P	10	7	●	●
36-20K4	36	20	37.4	30.91	6.35	4	79	4840	12880	61	20	108	2	91	68	79.5	14	76	9	M8×1P	10	7		
36-36K2	36	36	37.4	30.91	6.35	2	39	2540	6240	61	20	95	2	91	68	79.5	14	76	9	M8×1P	10	7	●	
38-8K5	38	8	39	34.132	4.763	5	96	4190	13110	61	20	64	2	91	68	79.5	14	76	9	M8×1P	10	7		●
38-10K4	38	10	39.4	32.91	6.35	4	81	5050	13790	63	20	70	2	93	70	81.5	14	78	9	M8×1P	10	7		
38-15K4	38	15	39.4	32.91	6.35	4	83	5020	13740	63	20	88	2	93	70	81.5	14	78	9	M8×1P	10	7		
38-16K5	38	16	39.4	32.91	6.35	5	104	6140	17340	63	20	108	2	93	70	81.5	14	78	9	M8×1P	10	7		
38-20K4	38	20	39.4	32.91	6.35	4	83	4990	13660	63	25	108	2	93	70	81.5	14	78	9	M8×1P	10	7	●	
38-25K4	38	25	39.4	32.91	6.35	4	83	4940	13560	63	25	127	2	93	70	81.5	14	78	9	M8×1P	10	7	●	●
38-40K2	38	40	39.4	32.91	6.35	2	40	2590	6560	63	25	103	2	93	70	81.5	14	78	9	M8×1P	10	7	●	

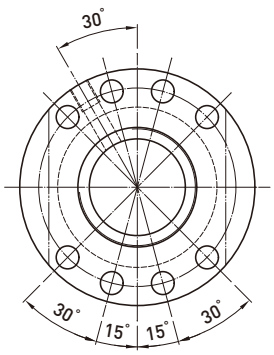
Note: 1. Rigidity without preload: The axial load is calculated by 30% of dynamic load.
2. Circuits less than K5 also available.

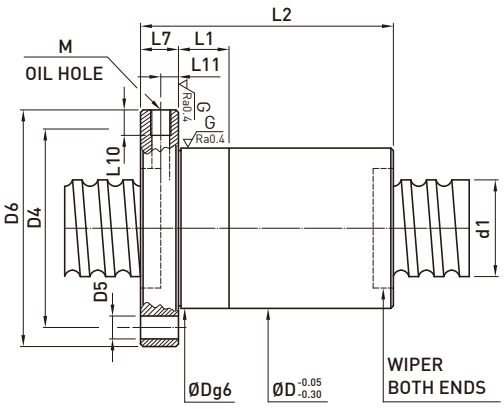
FSC Type ◀ Standard Product

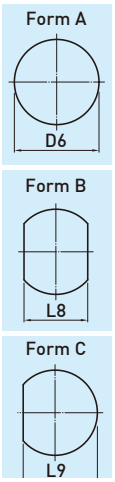
TYPE 1



TYPE 2







Model	Size		P.C.D.	RD	Ball Dia.	Circuits	Stiffness K (kgf/μm)	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	L10	L11		
40-5K5	40	5	40.6	37.324	3.175	5	85	2470	9490	63	20	45	2	93	70	81.5	14	78	9	M8×1P	10	7		
40-6K5	40	6	40.8	36.744	3.969	5	95	3370	11780	63	20	52	2	93	70	81.5	14	78	9	M8×1P	10	7		
40-8K5	40	8	41	36.132	4.763	5	101	4360	14200	63	20	68	2	93	70	81.5	14	78	9	M8×1P	10	7		●
40-10K5	40	10	41	36.132	4.763	5	102	4350	14180	61	20	80	2	91	68	79.5	14	76	9	M8×1P	10	7		
40-20K4	40	20	41	36.132	4.763	4	84	3520	11130	61	20	110	2	91	68	79.5	14	76	9	M8×1P	10	7		
40-16K5	40	16	41.2	35.522	5.556	5	107	5170	15510	68	20	108	2	98	75	86.5	14	83	9	M8×1P	10	7		
40-10K5	40	10	41.4	34.91	6.35	5	106	6340	18400	70	20	83	2	100	75	87.5	14	85	9	M8×1P	10	7		●
40-12K5	40	12	41.4	34.91	6.35	5	108	6330	18380	70	20	86	2	100	75	87.5	14	85	9	M8×1P	10	7		●
40-16K5	40	16	41.4	34.91	6.35	5	109	6300	18320	70	20	108	2	100	75	87.5	14	85	9	M8×1P	10	7		●
40-20K4	40	20	41.4	34.91	6.35	4	87	5130	14440	70	20	110	2	100	75	87.5	14	85	9	M8×1P	10	7	●	
40-30K3	40	30	41.4	34.91	6.35	3	67	4000	11010	70	20	117	2	100	75	87.5	14	85	9	M8×1P	10	7	●	●
40-25K4	40	25	41.4	34.91	6.35	4	86	5080	14350	65	25	127	2	95	72	83.5	14	80	9	M8×1P	10	7	●	●
40-40K2	40	40	41.4	34.91	6.35	2	42	2660	6940	65	25	101	2	95	72	83.5	14	80	9	M8×1P	10	7	●	
40-12K5	40	12	41.6	34.299	7.144	5	110	7430	20790	75	20	90	2	110	85	97.5	14	93	9	M8×1P	10	7		●
40-16K5	40	16	41.6	34.299	7.144	5	112	7400	20720	75	20	109	2	110	85	97.5	14	93	9	M8×1P	10	7		●
45-8K5	45	8	46	41.132	4.763	5	109	4550	15860	70	20	66	2	105	80	92.5	16	90	11	M8×1P	10	8		●
45-10K5	45	10	46.4	39.91	6.35	5	118	6810	21320	75	20	78	2	110	85	97.5	16	93	11	M8×1P	10	8		●
45-12K5	45	12	46.4	39.91	6.35	5	119	6800	21290	75	20	89	2	110	85	97.5	16	93	11	M8×1P	10	8		●
45-16K5	45	16	46.4	39.91	6.35	5	121	6780	21240	75	20	108	2	110	85	97.5	16	93	11	M8×1P	10	8		
45-20K4	45	20	46.4	39.91	6.35	4	98	5520	16760	75	25	108	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
45-25K4	45	25	46.4	39.91	6.35	4	98	5480	16670	75	25	129	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
45-40K3	45	40	46.4	39.91	6.35	3	71	4100	12020	75	25	145	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
45-12K5	45	12	46.6	39.299	7.144	5	119	7830	23290	80	20	88	2	117	92	104.5	16	100	11	M8×1P	10	8		●
45-16K5	45	16	46.6	39.299	7.144	5	120	7810	23230	80	20	119	2	117	92	104.5	16	100	11	M8×1P	10	8		
45-20K4	45	20	46.6	39.299	7.144	4	97	6360	18330	80	25	113	2	117	92	104.5	16	100	11	M8×1P	10	8		
50-5K5	50	5	50.6	47.324	3.175	5	95	2700	11940	70	20	45	2	100	75	87.5	16	85	11	M8×1P	10	8		
50-8K5	50	8	51	46.132	4.763	5	116	4730	17530	75	20	74	2	110	85	97.5	16	93	11	M8×1P	10	8		●
50-10K5	50	10	51.4	44.91	6.35	5	125	7050	23300	82	25	80	2	118	92	105	16	100	11	M8×1P	10	8		
50-12K5	50	12	51.4	44.91	6.35	5	127	7040	23280	82	25	90	2	118	92	105	16	100	11	M8×1P	10	8		●
50-15K5	50	15	51.4	44.91	6.35	5	129	7030	23250	82	25	104	2	118	92	105	16	100	11	M8×1P	10	8		
50-16K5	50	16	51.4	44.91	6.35	5	129	7020	23230	82	25	109	2	118	92	105	16	100	11	M8×1P	10	8		●
50-20K4	50	20	51.4	44.91	6.35	4	104	5720	18340	82	25	106	2	118	92	105	16	100	11	M8×1P	10	8	●	
50-25K4	50	25	51.4	44.91	6.35	4	104	5690	18260	75	25	129	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
50-30K4	50	30	51.4	44.91	6.35	4	104	5650	18170	75	25	147	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
50-35K3	50	35	51.4	44.91	6.35	3	80	4430	13840	75	25	133	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
50-40K3	50	40	51.4	44.91	6.35	3	79	4390	13750	75	25	145	2	110	85	97.5	16	93	11	M8×1P	10	8	●	
50-30K2	50	30	51.6	44.299	7.144	2	53	3560	9960	82	25	92	2	118	92	105	16	100	11	M8×1P	10	8	●	●
50-12K5	50	12	51.8	43.688	7.938	5	130	9480	28776	85	25	97	2	121	95	108	16	103	11	M8×1P	10	8		●
50-16K5	50	16	51.8	43.688	7.938	5	132	9450	28710	85	25	112	2	121	95	108	16	103	11	M8×1P	10	8		●
50-20K5	50	20	51.8	43.688	7.938	5	134	9420	28630	85	25	138	2	121	95	108	16	103	11	M8×1P	10	8		●
50-50K2	50	50	51.8	43.688	7.938	2	52	3980	10860	85	25	124	2	121	95	108	16	103	11	M8×1P	10	8		●
50-20K4	50	20	52.2	42.466	9.525	4	113	9870	27420	86	25	120	2	121	95	108	16	103	11	M8×1P	10	8		
55-16K5	55	16	56.4	49.91	6.35	5	139	7420	26157	82	25	104	2	118	92	105	20	100	13.5	M8×1P	10	10		●
63-10K5	63	10	64.4	57.91	6.35	5	144	7720	29190	95	25	84	2	135	100	117.5	20	115	13.5	M8×1P	10	10		●
63-12K5	63	12	64.4	57.91	6.35	5	147	7720	29180	95	25	94	2	135	100	117.5	20	115	13.5	M8×1P	10	10		●
63-20K5	63	20	64.4	57.91	6.35	5	157	7850	30020	95	25	132	2	135	100	117.5	20	115	13.5	M8×1P	10	10		●
63-40K2	63	40	64.4	57.91	6.35	2	62	3310	11100	95	25	110	2	135	100	117.5	20	115	13.5	M8×1P	10	10	●	
63-12K5	63	12	64.8	56.688	7.938	5	152	10520	36440	98	25	94	2	138	103	120.5	20	118	13.5	M8×1P	10	10		●
63-16K4	63	16	65.2	55.466	9.525	4	132	11010	34520	107	25	100	2	147	112	129.5	20	127	13.5	M8×1P	10	10		
63-20K5	63	20	65.2	55.466	9.525	5	168	13430	43530	107	25	140	2	147	112	129.5	20	127	13.5	M8×1P	10	10		
63-25K5	63	25	65.2	55.466	9.525	5	166	13390	43420	110	25	165	2	150	115	132.5	20	130	13.5	M8×1P	10	10	●	●
70-16K4	70	16	72.2	62.466	9.525	4	141	11470	38040	115	25	105	2	155	120	137.5	25	135	13.5	M8×1P	10	12.5		
70-20K4	70	20	72.2	62.466	9.525	4	143	11450	37990	115	25	122	2	155	120	137.5	25	135	13.5	M8×1P	10	12.5		
80-10K5	80	10	81.4	74.91	6.35	5	166	8620	37980	110	25	80	2	150	115	132.5	25	130	13.5	M8×1P	10	12.5		
80-12K5	80	12	81.8	73.688	7.938	5	177	11740	47130	115	25	102	2	155	120	137.5	25	135	13.5	M8×1P	10	12.5		
80-16K4	80	16	82.2	72.466	9.525	4	155	12410	44960	125	25	105	2	170	135	152.5	25	150	13.5	M8×1P	10	12.5		●
80-20K4	80	20	82.2	72.466	9.525	4	160	12400	44910	120	25	122	2	165	130	147.5	25	145	13.5	M8×1P	10	12.5		
80-25K4	80	25	82.2	72.466	9.525	4	159	12370	44840	120	25	145	2	65	130	147.5	25	145	13.5	M8×1P	10	12.5		●
80-30K4	80	30	82.2	72.466	9.525	4	161	12340	44750	120	25	165	2	65	130	147.5	25	145	13.5	M8×1P	10	12.5		●

Note: 1. Rigidity without preload: The axial load is calculated by 30% of dynamic load.
2. Circuits less than K5 also available.