

FLURO



HIWIN[®]
Ball Screw & Guideways



www.atlantagmbh.de

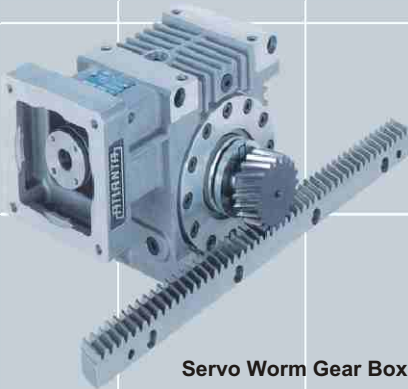
Leader in Servo Drive Systems



Rack & Pinion



Motorised Linear Actuator



Servo Worm Gear Box



Screw Jack Gear Box

World Leader in Precision Planetary Gear Boxes



www.neugart.de



WPLS Angular Gear Box

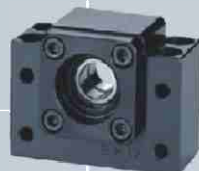


PLSR Powerful Diversity

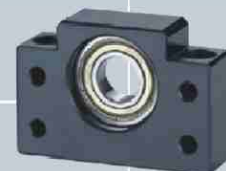
NEW



PLN - Precision at Highest Level



Ball Screw Support Unit BK Type



Ball Screw Support Unit BF Type

INTRODUCTION

With the fast development in the field of industrial automation and rapid progress in production techniques, it is necessary to implement flexible and compatible systems in production. **FLURO** advocates a Total Solution approach to all your needs.

FLURO with its 25 years experience in linear motion and automation products, is positioned to source high quality products at

economical prices from various parts of the world. We also provides solutions custom tailored to specific needs.

Our dedicated team of Technical & Sales people keep an eye on ever changing demands of Industries. Our technical expertise is always focused on the customer, recommending right components and the right systems suitable for various applications.

These products are widely used by popular manufacturers in fields of

- Machine Tools
- Measuring / Inspection Machines
- SPM's
- Welding Automation
- Robotics
- Diamond Processing
- Electronics
- Printing
- Painting
- Pharmaceutical
- Packaging
- General Engineering Industry & similar related Industrial Machineries.

Certificate of Registration



The Governing Board of
Q.A. International Certification Limited
hereby grants to:

Fluro Engineering Pvt. Ltd.

Registration No. : QAIC / IN / 114

(hereinafter called the Registered Company) the right to be listed in the Directory of Registered Companies in respect of the services listed below. These services shall be offered by the Registered Company at or from only the address given below in accordance with the quality management system in compliance with ISO 9001:2000.

Address to which this Certificate refers :

**Arenja Chambers - II, Unit No.1101, Eleventh Floor,
Plot No.7, Sector 15, C.B.D. Belapur Navi Mumbai - 400 701, India**

and factory at

Plot No. B-29/1, M.I.D.C., Taloja - 410 208, India

Approved Scope to which this Certificate refers.

Importing, Sizing and Supplying of Linear Motion & High Precision Engineering Products.

(Further clarification regarding the Scope of this Certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organisation)

Signed for and on behalf of the Board

CHAIRMAN

SCHEME MANAGER

A. J. Duffield

A. Carter

Certificate Issue Date : 5th September 2006 - Certificate Expiry Date : 31st May 2007

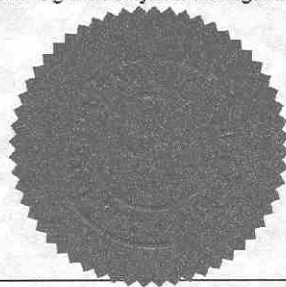
Date of Initial Registration : 17th May 2005 - Re-assessment Date : 31st May 2008

This Certificate of Registration is granted subject to the Regulations approved by the Board.

QA INTERNATIONAL

Q.A. International Certification Ltd.
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DL1 2PF

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The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 046.

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LINEAR SHAFT GUIDANCE SYSTEMS



- Linear Shafts
- Linear Bearing & Housing Units
- Shaft Supports & Accessories

LM SHAFTS

Linear Motion Shafts have high surface hardness, exceptional straightness and surface finish which are the basic needs for Linear Ball Bushings.

Above qualities of Shafts incredibly reduce friction and wear, enhancing Shaft and Machine life.

A wide variety of Custom Designed Shafts can be delivered, including Tapped Holes, Inch Sizes, Special Machining and keyways along the length or at the ends of the Shaft.

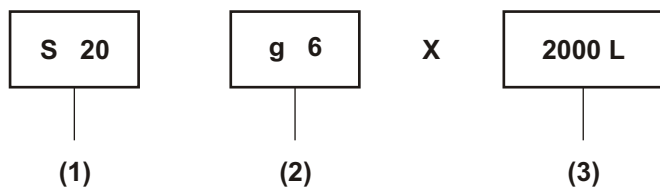
Shafts are **Hard Chrome Plated** ensuring maximum safety against corrosion. This is a standard feature available from stock.

LM-SHAFT SPECIFICATIONS :

- | | | |
|-------------------------|---|---------------------------------------|
| 1. Main Material | : | CF 53 |
| 2. Heat Treatment | : | High Frequency
Induction hardening |
| 3. Hardness | : | Hrc 58-62 |
| 4. Surface Roughness | : | Polished, Ra<= 0.8μ |
| 5. Shaft Straightness | : | Within 50μ
per 300mm |
| 6. Tolerance | : | g6 / h6 |
| 7. Corrosion Protection | : | Hard Chrome
Plating |

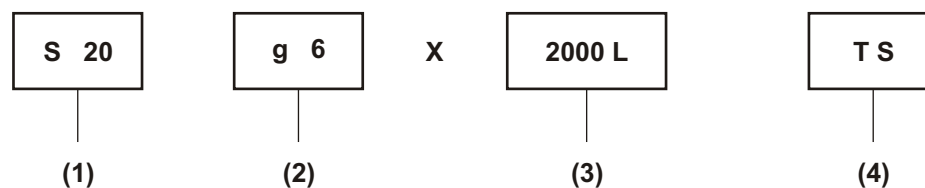
ORDERING EXAMPLE

Plain Shafts



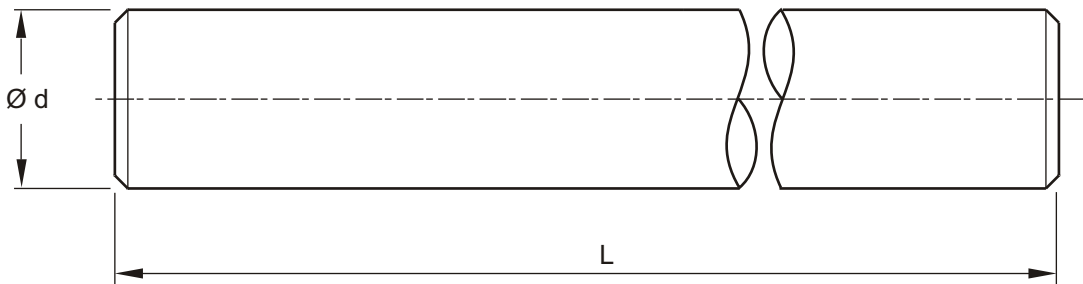
1. Model number (Shaft outside diameter 20 mm).
2. Shaft outer diameter Tolerance.
3. Total Shaft Length in mm.

Tapped Shafts



1. Model number (Shaft outer Diameter 20 mm)
2. Shaft outer Diameter Tolerance.
3. Total Shaft Length in mm.
4. Tapped Shaft

PLAIN SHAFTS

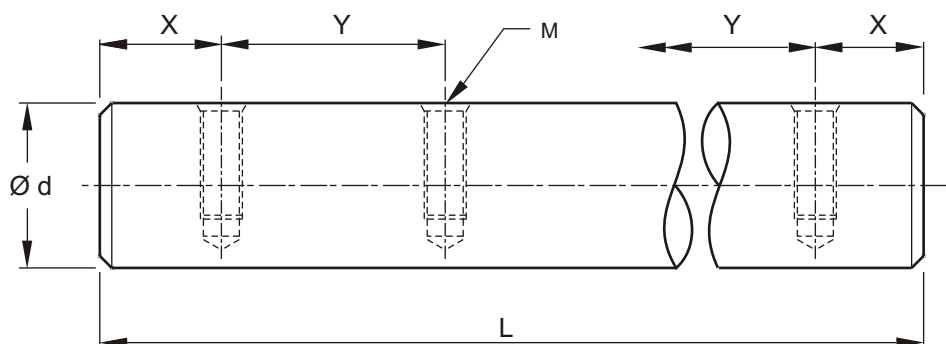
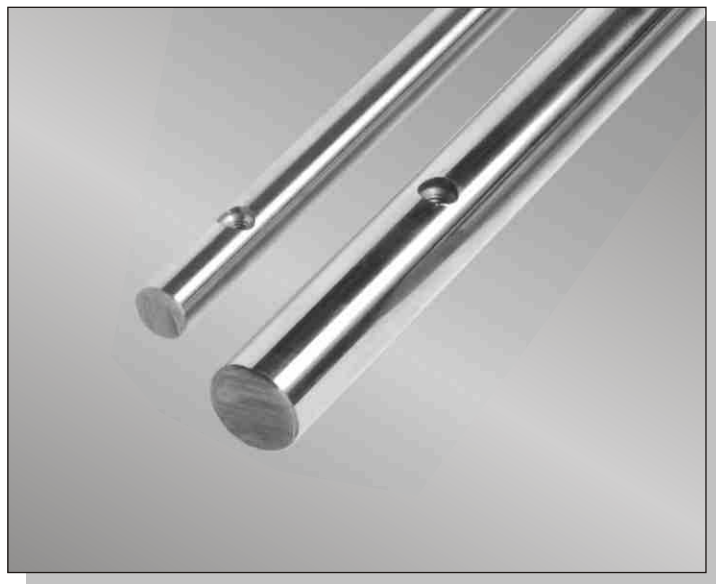


Model No.	Diameter d	Tolerance 0.001 mm		Max Length L mm	Depth of effective hardness layer tolerance ± 0.5	Weight kg/m
		g6	h6			
S 8	8	- 5	0	6000	1.0	0.4
S 10	10	-14	-9			0.62
S 12	12	- 6	0			0.89
S 13	13		-11			1.05
S 16	16	- 7	0			1.58
S 20	20		-13			2.47
S 25	25	-20	0		3.85	
S 30	30	- 9	0		5.55	
S 35	35		-16		7.55	
S 40	40	-25	0		9.87	
S 50	50	-10	0		15.41	
S 60	60		-19		22.2	
S 80	80	-29	0		39.46	
S 100	100	-34	-22		61.66	

Hollow Shafts upon request.

LM SHAFTS

TAPPED SHAFTS



Model No.	Diameter d	Tolerance 0.001 mm		Depth of effective hardness layer tolerance ± 0.5	L Max	X	Y	M
		g6	h6					
T S 16	16	-6 -17	0 -11	1.0	6000	75	150	M5
T S 20	20	-7 -20	0 -13	1.2				M6
T S 25	25			1.8				M8
T S 30	30	-9 -25	0 -16	2.0				M10
T S 40	40			2.2				M12
T S 50	50			2.4				
T S 60	60	-10 -29	0 -19	2.8				

LINEAR BALL BEARINGS



Example **SM 16 G UU AJ OP**

Standard
Inner contact diameter

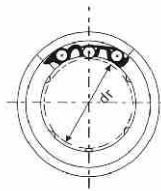
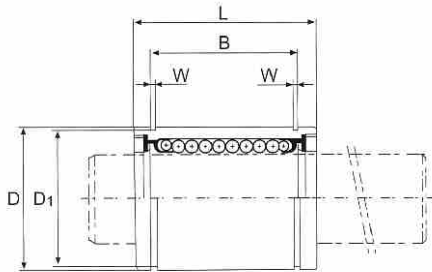
Open type
Clearance-adjustable type

Retainer material

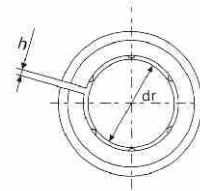
Blank	Steel
G	Resin

Seal

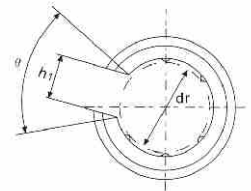
Blank	Without seal
U	Seal on one side
UU	Seals on both sides



SM



SM...AJ

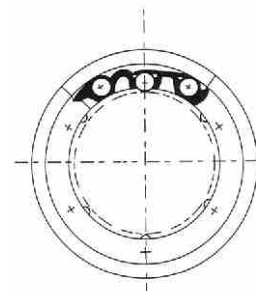
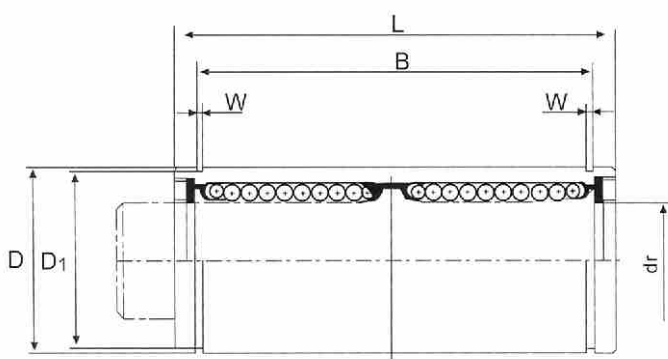
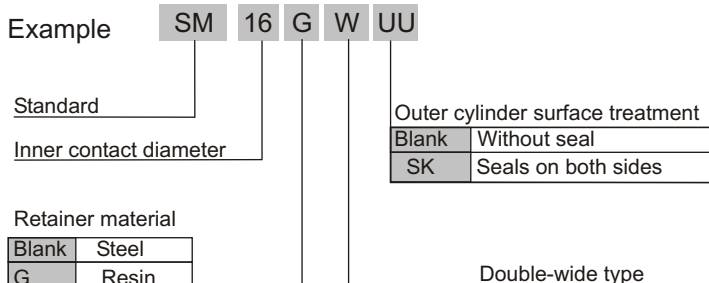


SM...OP

Nominal Part No.				Nominal Shaft Diameter (mm)	Major Dimensions and Tolerance (mm)										Eccentricity (max) μm	Radial Clearance (max) Mm	Basic Load Rating CN	Basic Rating CoN	Nominal Part No
Steel Retainer	Ball Weight	Adjustable Type	Open Type		dr Tolerance	D Tolerance	L Tolerance	B Tolerance	W	D _i	h	h	θ						
SM 4 SM4G SM5 SM5G	4 1.4 4 4	— — — —	— — — —	4 $\frac{0}{-0.008}$ 5	8 $\frac{0}{-0.009}$ 10	12 $\frac{0}{-0.12}$ 15	10.2 $\frac{0}{-0.01}$	1.1	9.6	—	—	—	—	8	-3	167	206	SM 5	
SM 6 SM6G SM8S SM8SG SM8 SM8G	4 8 4 11 4 16	SM 6-AJ SM 6G-AJ SM 8S-AJ SM8S-AJ SM 8-AJ SM 8G-AJ	— — — — — —	6 $\frac{0}{-0.008}$ 8 8	12 $\frac{0}{-0.011}$ 15 15	19 $\frac{0}{-0.12}$ 17 24	13.5 11.5 17.5	1.1 1.1 1.1	11.5 14.3 14.3	1 1 1	— — —	— — —	— — —	12 12 12	-5 -5 -5	200 170 260	260 220 400	SM 6 SM 8S SM 8	
SM10 SM10G SM12 SM12G SM13 SM13G	4 30 4 31.5 4 43	SM 10-AJ SM10G-AJ SM 12-AJ SM12G-AJ SM 13-AJ SM13G-AJ	— — SM12-OP SM12G-OP SM13-OP SM13G-OP	10 0 12 -0.009 13	19 $\frac{0}{-0.013}$ 21 23	29 30 0 32 -0.2	22 0 23 -0.2 23	1.3 1.3 1.3	18 20 22	1 1.5 1.5	8 8 9	80° 80° 80°	12 12 12	-5 -5 -5	370 410 500	540 590 770	SM 10 SM 12 SM 13		
SM16 SM16G SM20 SM20G SM25 SM25G	5 69 5 87 6 220	SM 16-AJ SM 16G-AJ SM 20-AJ SM20G-AJ SM 25-AJ SM25G-AJ	SM16-OP SM16G-OP SM20-OP SM20G-OP SM25-OP SM25G-OP	16 $\frac{0}{-0.010}$ 20 $\frac{0}{-0.010}$ 25 -0.010	28 $\frac{0}{-0.016}$ 32 0 40 -0.016	37 42 59 $\frac{0}{-0.016}$	26.5 30.5 41 $\frac{0}{-0.016}$	1.6 1.6 1.85	27 30.5 38	1.5 1.5 2	11 11 12	80° 60° 50°	12 15 15	-7 -9 -9	770 860 980	1170 1370 1560	SM 16 SM 20 SM 25		
SM30 SM30G SM35 SM35G	6 250 6 390	SM 30-AJ SM 30G-AJ SM 35-AJ SM35G-AJ	SM30-OP SM30G-OP SM35-OP SM35G-OP	30 $\frac{0}{-0.012}$ 35 0 38 -0.012	45 $\frac{0}{-0.019}$ 52 0 70 -0.019	64 70 0 70 -0.3	44.5 49.5 0 49.5 -0.3	1.85 2.1 2.1	43 49 49	2.5 2.5 2.5	15 17 17	50° 50° 50°	15 20 20	-9 -13 -13	1560 1660 1660	2740 3130 3130	SM 30 SM 35 SM 35		
SM40SM40G SM50SM50G SM60SM60G	6 585 6 1580 6 2000	SM 40-AJ SM 40G-AJ SM 50-AJ SM50G-AJ SM 60-AJ SM60G-AJ	SM40-OP SM40G-OP SM50-OP SM50G-OP SM60-OP SM60G-OP	40 $\frac{0}{-0.015}$ 50 0 60 -0.015	60 $\frac{0}{-0.022}$ 80 0 90 -0.022	80 100 110 $\frac{0}{-0.022}$	60.5 74 85 $\frac{0}{-0.022}$	2.1 2.6 3.15	57 76.5 86.5	3 3 3	20 25 30	50° 50° 50°	20 20 25	-13 -13 -16	2150 3820 4700	4010 7930 9990	SM 40 SM 50 SM 60		

SI Unit IN= 0. 102 kgf

LINEAR BALL BEARINGS

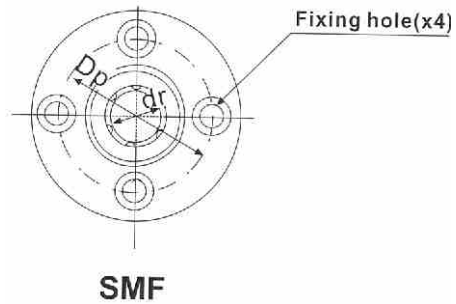
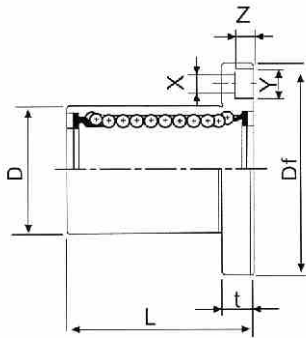
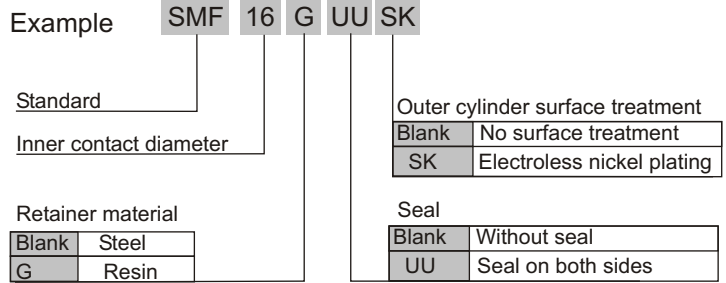


SM···W

Nominal Part No				Major Dimensions and Tolerance (mm)								Eccentricity μm	Basic load Rating		Nominal Part No		
Steel Retainer	Resin Retainer	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	B	Tolerance		W	D ₁		Dynamic C(N)	Static Co(N)
SM6W	SM6GW	4	16	6		12	0	35		27		1.1	11.5	15	323	530	SM 6W
SM8W	SM8GW	4	31	8		15	-0.013	45		35		1.1	14.3	15	431	784	SM 8W
SM10W	SM10GW	4	62	10	0	19		55		44		1.3	18	15	588	1,100	SM 10W
SM12W	SM12GW	4	80	12	-0.010	21	0	57	0	46	0	1.3	20	15	657	1,200	SM 12W
SM13W	SM13GW	4	90	13		23	-0.016	61	-0.3	46	-0.3	1.3	22	15	813	1,570	SM 13W
SM16W	SM16GW	5	145	16		28		70		53		1.6	27	15	1,230	2,350	SM 16W
SM20W	SM20GW	5	180	20		32	0	80		61		1.6	30.5	20	1,400	2,750	SM 20W
SM25W	SM25GW	6	440	25	0	40	-0.019	112		82		1.85	38	20	1,560	3,140	SM 25W
SM30W	SM30GW	6	580	30	-0.012	45		123		89		1.85	43	20	2,490	5,490	SM 30W
SM35W	SM35GW	6	795	35		52	0	135		99		2.1	49	25	2,650	6,270	SM 35W
SM40W	SM40GW	6	1,170	40	0	60	-0.022	154	0	121	0	2.1	57	25	3,430	8,040	SM 40W
SM50W	SM50GW	6	3,100	50	-0.015	80		192	-0.4	148	-0.4	2.6	76.5	25	6,080	15,900	SM 50W
SM60W	SM60GW	6	3,500	60	0	90	0	211		170		3.15	86.5	25	7,650	20,000	SM 60W

SI Unit IN= 0. 102 kgf

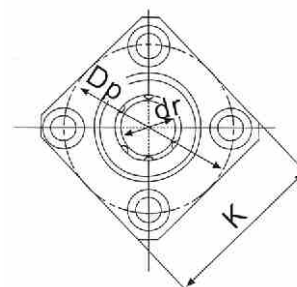
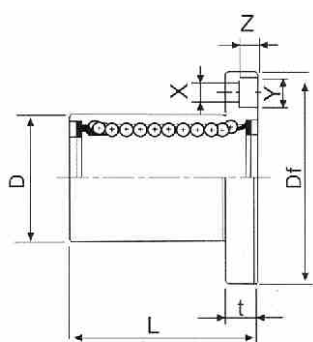
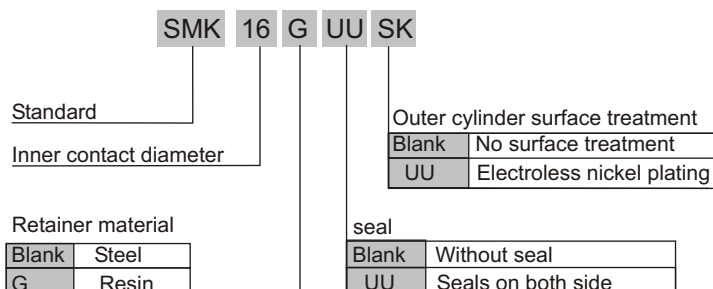
LINEAR BALL BEARINGS



Nominal Part No				Major Dimensions and Tolerance (mm)												Eccentricity μm	Squareness μm	Basic load Rating		Nominal Part No
Steel Retainer	Resin Retainer	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Df	t	Dp	X	Y	Z			Dynamic C(N)	Static Co(N)	
SMF6	SMF6G	4	24	6		12	0	19		28	5	20	3.5	6	3.1	12	12	206	265	SMF6
SMF8S	SMF8SG	4	32	8		15	-0.013	17		32	5	24	3.5	6	3.1	12	12	176	216	SMF8S
SMF8	SMF8G	4	37	8	0	15		24		32	5	24	3.5	6	3.1	12	12	274	392	SMF8
SMF10	SMF10G	4	72	10	-0.009	19		29		40	6	29	4.5	7.5	4.1	12	12	372	549	SMF10
SMF12	SMF12G	4	76	12		21	0	30		42	6	32	4.5	7.5	4.1	12	12	510	784	SMF12
SMF13	SMF13G	4	88	13		23	-0.016	32		43	6	33	4.5	7.5	4.1	12	12	510	784	SMF13
SMF16	SMF16G	5	120	16		28		37		48	6	38	4.5	7.5	4.1	12	12	774	1,180	SMF16
SMF20	SMF20G	5	180	20		32		42	±0.3	54	8	43	5.5	9	5.1	15	15	882	1,370	SMF20
SMF25	SMF25G	6	340	25	0	40	0	59		62	8	51	5.5	9	5.1	15	15	980	1,570	SMF25
SMF30	SMF30G	6	470	30	-0.010	45	-0.019	64		74	10	60	6.6	11	6.1	15	15	1,570	2,740	SMF30
SMF35	SMF35G	6	650	35		52		70		82	10	67	6.6	11	6.1	20	20	1,670	3,140	SMF35
SMF40	SMF40G	6	1,060	40	0	60	0	80		96	13	78	9	14	6.1	20	20	2,160	4,020	SMF40
SMF50	SMF50G	6	2,200	50	-0.012	80	-0.022	100		166	13	98	9	14	8.1	20	20	3,820	7,940	SMF50
SMF60	SMF60G	6	3,000	60	0 -0.015	90	0 -0.025	110		134	18	112	11	17	11.1	25	25	4,700	10,000	SMF60

SI Unit IN= 0. 102 kgf

LINEAR BALL BEARINGS



SMF

Nominal Part No				Major Dimensions and Tolerance (mm)										Eccentricity μm	Squarness μm	Basic load Rating		Nominal Part No	
Steel Retainer	Resin Retainer	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange						Dynamic C(N)			Static Co(N)			
							Df	t	Dp	X	Y	Z							
SMK 6	SMK6G	4	24	6		12	0	19	28	5	20	3.5	6	3.1	12	12	206	265	SMK6
SMK8	SSMK8SG	4	32	8		15	-0.013	17	32	5	24	3.5	6	3.1	12	12	176	216	SMK8S
SMK8	SMK8G	4	37	8	0	15		24	32	5	24	3.5	6	3.1	12	12	274	392	SMK8
SMK10	SMK10G	4	72	10	-0.009	19		29	40	6	29	4.5	7.5	4.1	12	12	372	549	SMK10
SMK12	SMK12G	4	76	12		21	0	30	42	6	32	4.5	7.5	4.1	12	12	510	784	SMK12
SMK13	SMK13G	4	88	13		23	-0.016	32	43	6	33	4.5	7.5	4.1	12	12	510	784	SMK13
SMK16	SMK16G	5	120	16		28		37	48	6	38	4.5	7.5	4.1	12	12	774	1,180	SMK16
SMK20	SMK20G	5	180	20		32		42	±0.3	8	43	5.5	9	5.1	15	15	882	1,370	SMK20
SMK25	SMK25G	6	340	25	0	40	0	59	62	8	51	5.5	9	5.1	15	15	980	1,570	SMK25
SMK30	SMK30G	6	470	30	-0.010	45	-0.019	64	74	10	60	6.6	11	6.1	15	15	1,570	2,740	SMK30
SMK35	SMK35G	6	650	35		52		70	82	10	67	6.6	11	6.1	20	20	1,670	3,140	SMK35
SMK40	SMK40G	6	1,060	40	0	60	0	80	96	13	78	9	14	8.1	20	20	2,160	4,020	SMK40
SMK50	SMK50G	6	2,200	50	-0.012	80	-0.022	100	116	13	98	9	14	8.1	20	20	3,820	7,940	SMK50
SMK60	SMK60G	6	3,000	60	0 -0.015	90	0 -0.025	110	134	18	112	11	17	11.1	25	25	4,700	10,000	SMK60

SI Unit IN= 0. 102 kgf

LINEAR BALL BEARINGS



Example **SMF 16 G W UU SK**

Standard

Inner contact diameter

Retainer material

Blank	Steel
G	Resin

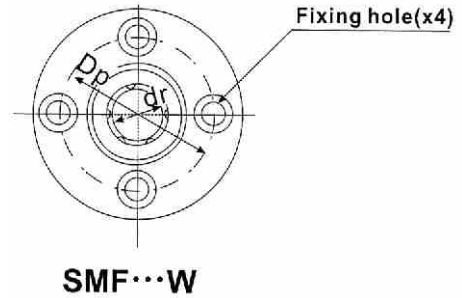
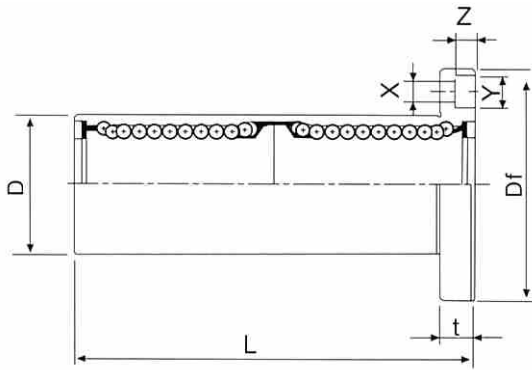
Double-wide type

Outer cylinder surface treatment

Blank	No surface treatment
SK	Electroless nickel plating

Seal

Blank	Without seal
UU	Seal on both sides



Nominal Part No				Major Dimensions and Tolerance (mm)												Eccentricity μm	Squareness μm	Basic load Rating		Nominal Part No
Steel Retainer	Resin Retainer	Ball Circuit	Weight g	dr	Tolerance	D	Tolerance	L	Tolerance	Df	t	Dp	X	Y	Z			Dynamic C(N)	Static Co(N)	
SMF6W	SMF6LW	4	31	6		12	0	35		28	5	20	3.5	6.5	3.1	15	15	323	530	SMF6W
SMF8W	SMF8GW	4	51	8		15	-0.010	45		32	5	24	3.5	6.5	3.1	15	15	431	784	SMF8W
SMF10W	SMF10GW	4	98	10	0	19	0	55		40	6	29	4.5	8	4.1	15	15	588	1,100	SMF10W
SMF12W	SMF12GW	4	110	12	-0.010	21	0	57		42	6	32	4.5	8	4.1	15	15	813	1,570	SMF12W
SMF13W	SMF13GW	4	130	13		12	-0.016	61		43	6	33	4.5	8	4.1	15	15	813	1,570	SMF13W
SMF16W	SMF16GW	5	190	16		28	0	70	-0.3	48	6	38	4.5	8	4.1	15	15	1,230	2,350	SMF16W
SMF20W	SMF20GW	5	260	20		32	0	80		54	8	43	5.5	9.5	5.1	20	20	1,400	2,740	SMF20W
SMF25W	SMF25GW	6	540	25	0	40	0	112		62	8	51	5.5	9.5	5.1	20	20	1,560	3,140	SMF25W
SMF30W	SMF30GW	6	680	30	-0.012	45	-0.019	123		74	10	60	6.6	11	6.1	20	20	2,490	5,490	SMF30W
SMF35W	SMF35GW	6	1,020	35	0	52	0	135		82	10	67	6.6	11	6.1	25	25	2,650	6,270	SMF35W
SMF40W	SMF40GW	6	1,570	40	-0.015	60	-0.022	154		96	13	78	9	14	8.1	25	25	3,430	8,040	SMF40W
SMF50W	SMF50GW	6	3,600	50	0	80	0	192		116	13	89	9	14	8.1	25	25	6,080	15,900	SMF50W
SMF60W	SMF60GW	6	4,500	60	-0.020	90	-0.025	211		134	18	112	11	17.5	11.1	30	30	7,550	20,000	SMF60W

SI Unit IN= 0. 102 kgf

LINEAR BALL BEARINGS



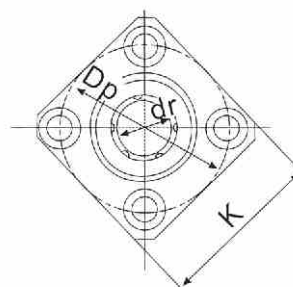
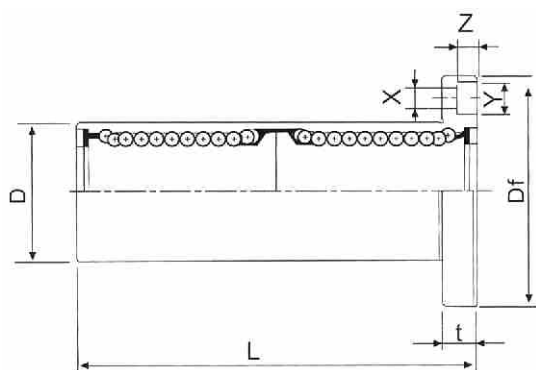
Example **SMK 16 G W UU SK**

Standard	SMK
Inner contact diameter	16
Retainer material	G
Double-wide type	W
Outer cylinder surface treatment	UU
Seal	SK

Blank	No surface treatment
SK	Electroless nickel plating

Blank	Steel
G	Resin

Blank	Without seal
UU	Seals on both sides

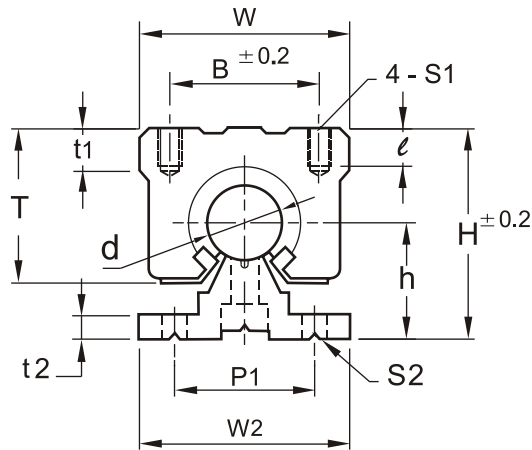
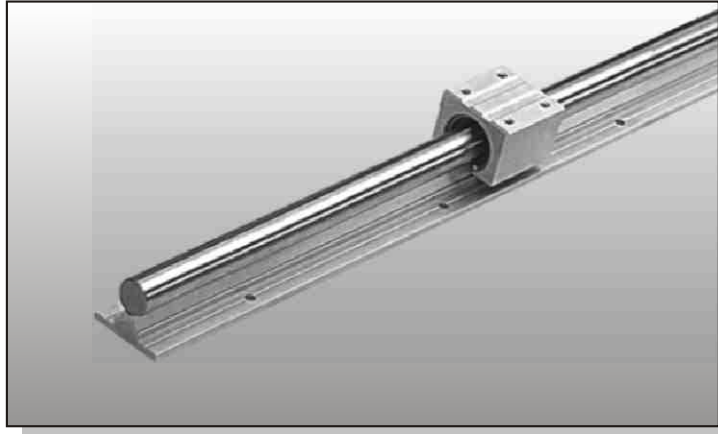


SMK...W

Nominal Part No				Major Dimensions and Tolerance (mm)										Eccentricity µm	Squarness µm	Basic load Rating		Nominal Part No
Steel Retainer	Resin Retainer	Ball Circuit	Weight g	dr Tolerance	D Tolerance	L Tolerance	Flange						Dynamic C(N)			Static Co(N)		
							Df	t	Dp	X	Y	Z						
SMK 6W	SMK 6GW	4	25	6	12	35	28	5	20	3.5	6.5	3.1	15	15	323	530	SMK 6W	
SMK 8W	SMK 8GW	4	43	8	15	45	32	5	24	3.5	6.5	3.1	15	15	431	784	SMK 8W	
SMK 10W	SMK 10GW	4	78	10	19	55	40	6	29	4.5	8	4.1	15	15	588	1,100	SMK 10W	
SMK 12W	SMK 12GW	4	90	12	21	57	42	6	32	4.5	8	4.1	15	15	813	1,570	SMK 12W	
SMK 13W	SMK 13GW	4	108	13	12	61	43	6	33	4.5	8	4.1	15	15	813	1,570	SMK 13W	
SMK 16W	SMK 16GW	5	165	16	28	70	48	6	38	4.5	8	4.1	15	15	1,230	2,350	SMK 16W	
SMK 20W	SMK 20GW	5	225	20	32	80	54	8	43	5.5	9.5	5.1	20	20	1,400	2,740	SMK 20W	
SMK 25W	SMK 25GW	6	500	25	40	112	62	8	51	5.5	9.5	5.1	20	20	1,560	3,140	SMK 25W	
SMK 30W	SMK 30GW	6	590	30	45	123	74	10	60	6.6	11	6.1	20	20	2,490	5,490	SMK 30W	
SMK 35W	SMK 35GW	6	930	35	52	135	82	10	67	6.6	11	6.1	25	25	2,650	6,270	SMK 35W	
SMK 40W	SMK 40GW	6	1,380	40	60	154	96	13	78	9	14	8.1	25	25	3,430	8,040	SMK 40W	
SMK 50W	SMK 50GW	6	3,400	50	80	192	116	13	89	9	14	8.1	25	25	6,080	15,900	SMK 50W	
SMK 60W	SMK 60GW	6	4,060	60	90	211	134	18	112	11	17.5	11.1	30	30	7,550	20,000	SMK 60W	

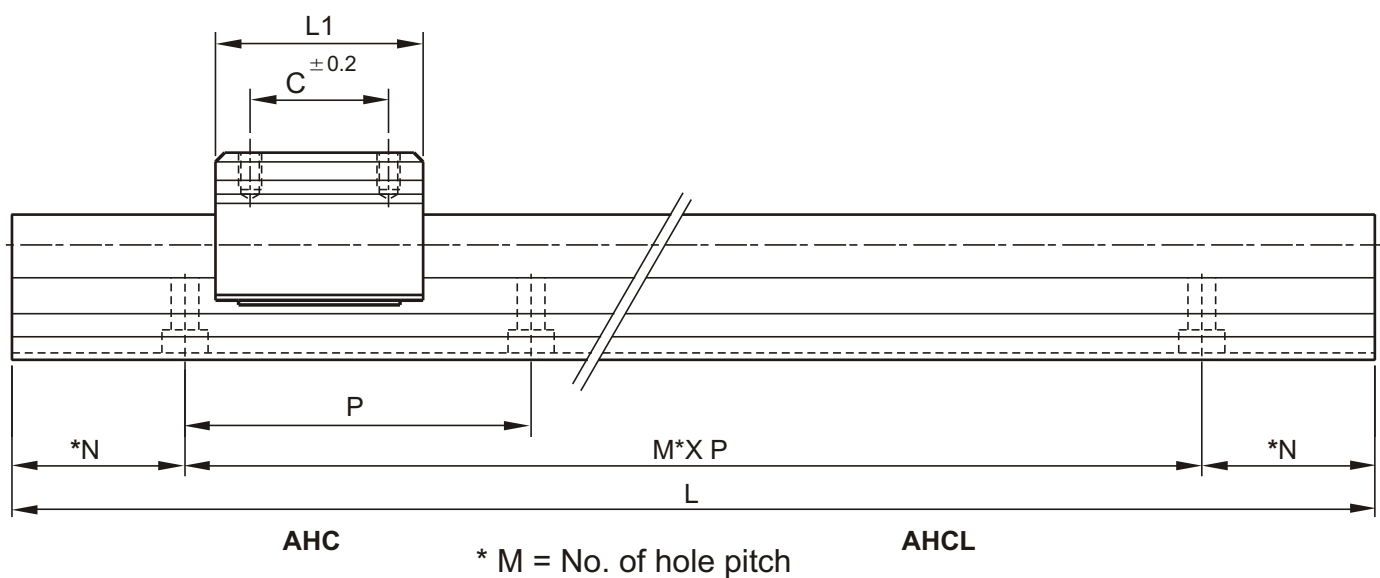
SI Unit IN= 0. 102 kgf

LM SLIDE UNITS



Model No.	Shaft Diameter d	Dimensions of assembly			Dimensions of Block						
		H	h	W	L1	B	C	t1	ℓ	S1	T
AHC - 16	16	45	24.9	45	45	32	30	9	12	M5	33
AHC - 20	20	50	27	48	50	35	35	11		M6	39
AHC - 25	25	60	33	60	65	40	40	14		M6	47
AHC - 30	30	70	37	70	70	50	50	16.8	18	M8	56
AHC - 40	40	90	48	90	90	65	65	22	20	M10	72

SHAFTS WITH SUPPORT SYSTEMS



Dimensions of track rail							Basics dynamic load rating	Basics static load rating	Model No.
W2	P1	t2	N	M X P	S2	L(max)	C (kg)	Co (kg)	
45	30	5	50	6 x 150	Ø5.5	1,000	79	120	AHC - 16
							90	140	AHC - 20
55	35	6			Ø6.5		100	160	AHC - 25
60	40	7					160	280	AHC - 30
75	55	9			Ø9		220	410	AHC - 40

HOUSING UNITS



HOUSINGS - OPEN TYPE (HC -- UU SERIES):

FPL HC--UU Series are light weight but heavy duty extruded aluminum housings, fitted with sealed standard Ball Bushings for high running accuracy and extremely low friction. When mounting these open type of aluminum housings, the four securing holes should be provided with bolts to achieve the maximum load capacity and the best rigidity for every mounting position.

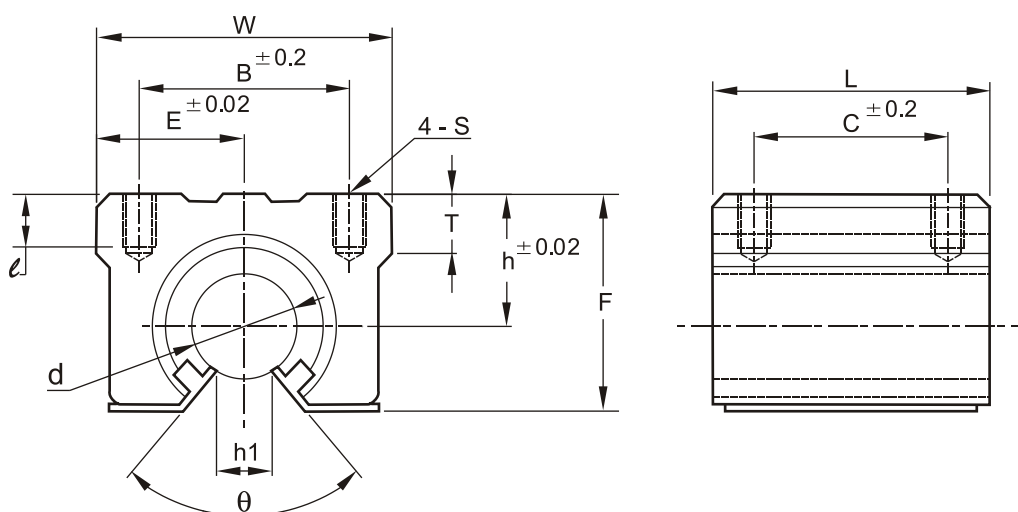
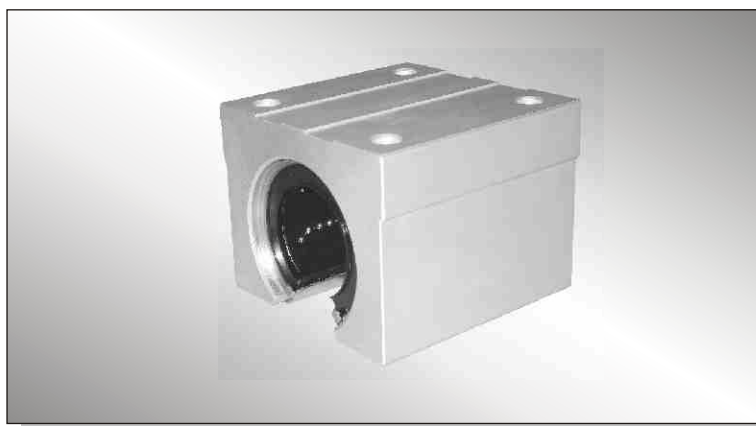
Standard Coating : Anodized.

HOUSINGS STANDARD TYPE (HF -- UU SERIES):

FPL HF--UU Series are made of high quality extruded aluminum alloy. These units consist of sealed Ball Bushings for higher running accuracy and extremely low friction.

Standard Coating : Anodized

HOUSING UNITS

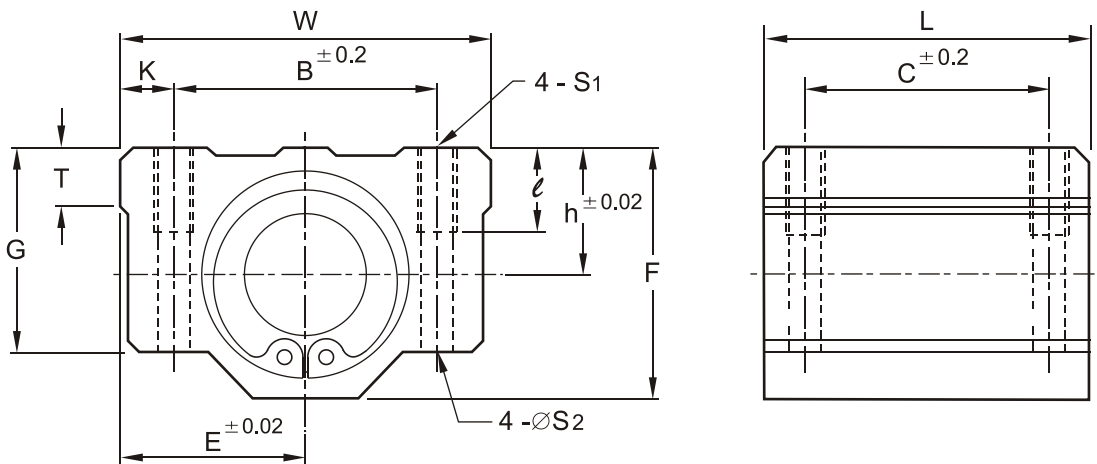
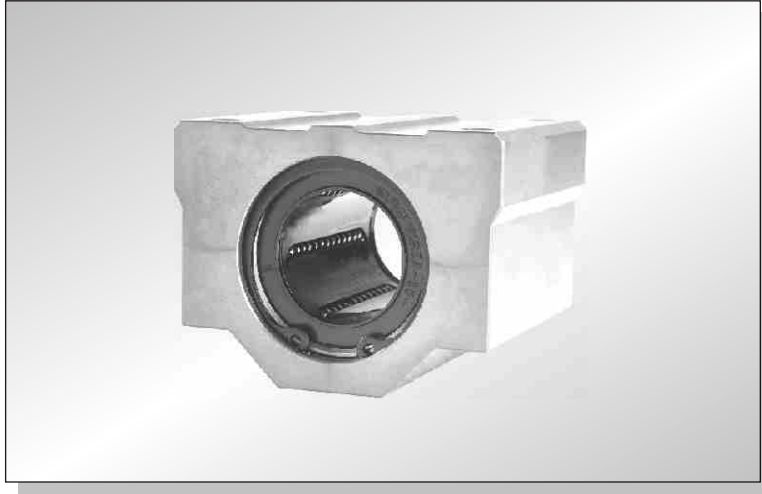


HOUSING-OPEN TYPE (HC -- UU SERIES)

Model No.	Shaft Dia d	Main Dimensions.						Mounting Dimensions.					Linear ball bearing							
		h ± 0.02	E ± 0.02	W	L	F	T	h1	B ± 0.2	C ± 0.2	S	ℓ	LM Bearing No.	Basic dynamic load rating C(kg)	Basic Static load rating Co(kg)	*Unit Weight g				
HC 16	16	20.1	22.5	45	45	33	9	10	80°	32	30	M 5	12	LM 16UU OP	79	120	150			
HC 20	20	23	24	48	50	39	11		60°	35	35			M 6	LM 20UU OP	90	140	200		
HC 25	25	27	30	60	65	47	14	11.5	50°	40	40	M 8	18		LM 25UU OP	100	160	450		
HC 30	30	33	35	70	70	56	16.8			14	50			50	M 8	18	LM 30UU OP	160	280	630
HC 40	40	42	45	90	90	72	22			19	65			65			M 10	20	LM 40UU OP	220

* Includes weight of LM Bearing.

HOUSING UNITS



HOUSING-CLOSE TYPE (HF- - UU SERIES)

Model No.	Nominal shaft diameter	Main Dimensions							Mounting Dimensions					LM Bearing Model No.	dynamic C (kg)	static Co (kg)	* Unit Weight g		
		h	E	W	L	F	G	T	B	C	K	S ₁	S ₂					ℓ	
HF16	16	19	25	50	44	38.5	32.5	9	36	34	7	M5	4.3	12	LM16UU	79	120	200	
HF20	20	21	27	54	50	41	35	11	40	40		M6	5.2		LM20UU	90	140	255	
HF25	25	26	38	76	67	51.5	42	12	54	50	10	M8	7	18	LM25UU	100	160	600	
HF30	30	30	39	78	72	59.5	49	15	58	58					LM30UU	160	280	735	
HF35	35	34	45	90	80	68	54	18	70	70					LM35UU	170	320	1100	
HF40	40	40	51	102	90	78	62	20	80	80	60	11	M10	8.7	25	LM40UU	220	410	1590

* Includes weight of LM Bearing.

SUPPORT UNITS



SHAFT END SUPPORTS (E SERIES) :

Shaft end supports are economical & made of high quality aluminum alloy or steel, offering high rigidity and geometrical accuracy. They are used for end support of plain shafts.

Standard Coating :

For Aluminum - Anodized
For steel - Zinc Plating.

SHAFT SUPPORT RAILS :

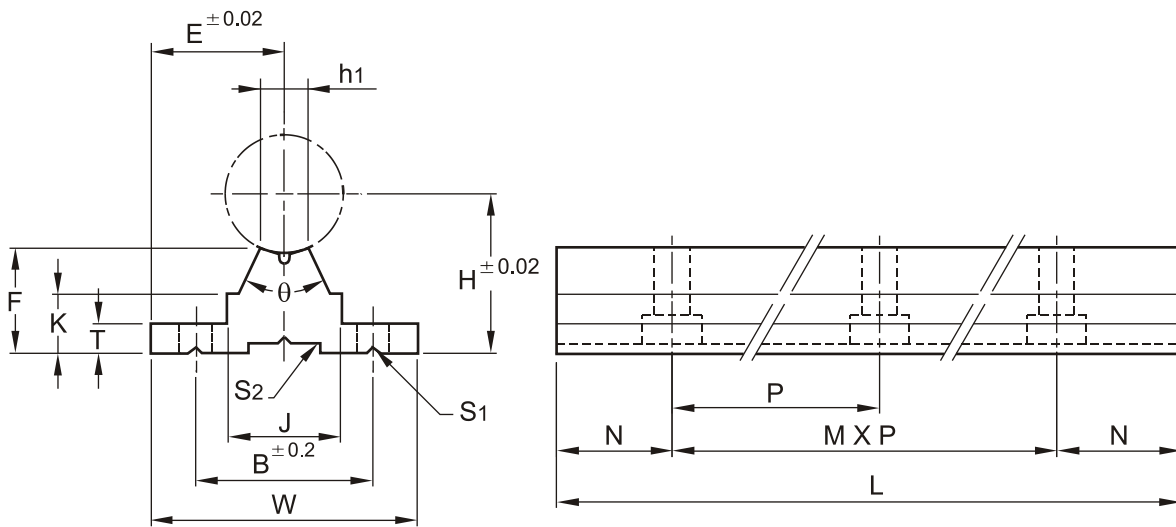
Shaft support assemblies prevent shaft deflection ensuring efficient running of linear slides and also saves time and expensive designs by offering ready to use supports from stock.

Shaft support rails of series 'A' are made of high quality extruded aluminum alloy. Mounting holes are provided at standard pitch.

Shaft support rails of series 'P' are steel supports for high rigidity and compact design.

Special designs as per customer drawings are also manufactured.

SHAFT SUPPORT UNITS



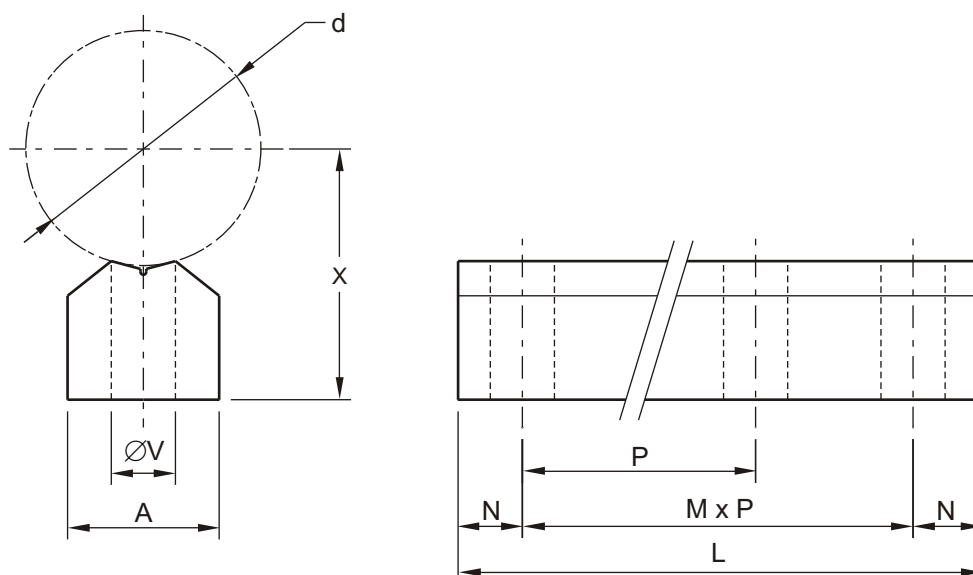
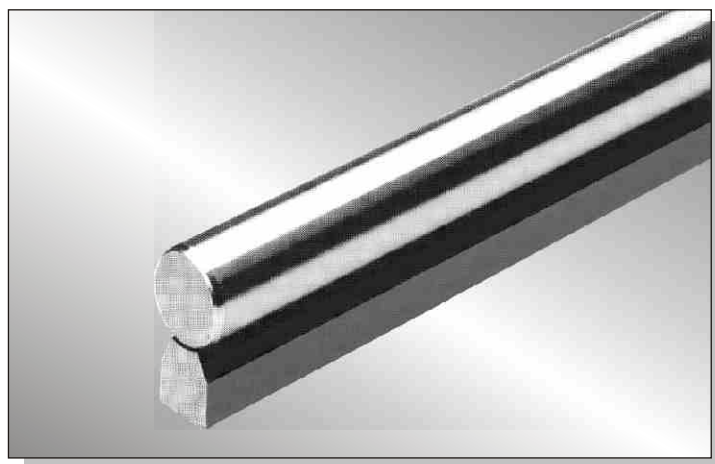
SHAFT SUPPORT RAILS (A - - SERIES)

Model No.	Shaft diameter	Main dimensions										Mounting dimensions			Weight g (per meter)					
		± 0.02 H	± 0.02 E	W	L	F	T	J	K	h_1	θ	B	N	M X P		S1	S2			
A 16	16	24.9	22.5	45	1000	17.8	5	19	10	8	50°	30	50	6X150	5.5	M5	1,042			
A 20	20	27				21	6	21.5	12			35			6.5	M6	1,456			
A 25	25	33				22.8	7	26.5	10.3			40			9	M8	1,84			
A 30	30	37				29.47	9	38	16			55					3,127			
A 40	40	48				37.5	75	29.47	9			38			16	15.5	55	9	M8	3,127
A 50*	50	67				55	110	43.34	12			47.5			24.74	17.61	75	13	M10	6,377

Material : Aluminum Alloy (Extruded)
: As per customer requirement on request.

* : Check for availability

SHAFT SUPPORT UNITS

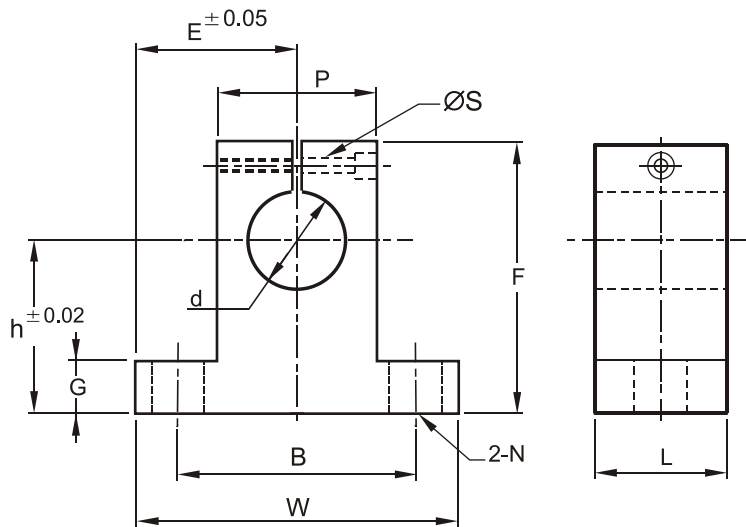


SHAFT SUPPORT UNIT (P - - SERIES)

Model NO.	Shaft d	A	X	L Max.	ØV	N	M x P
P 16	16	12	18	600	6	75	3 x 150
P 20	20	16	20		7		
P 25	25		25		9		
P 30	30	20	30		11		
P 40	40	26	36				
P 50*	50	32	45				

● Other sizes upon request. ● * Check for availability

END SUPPORT UNITS



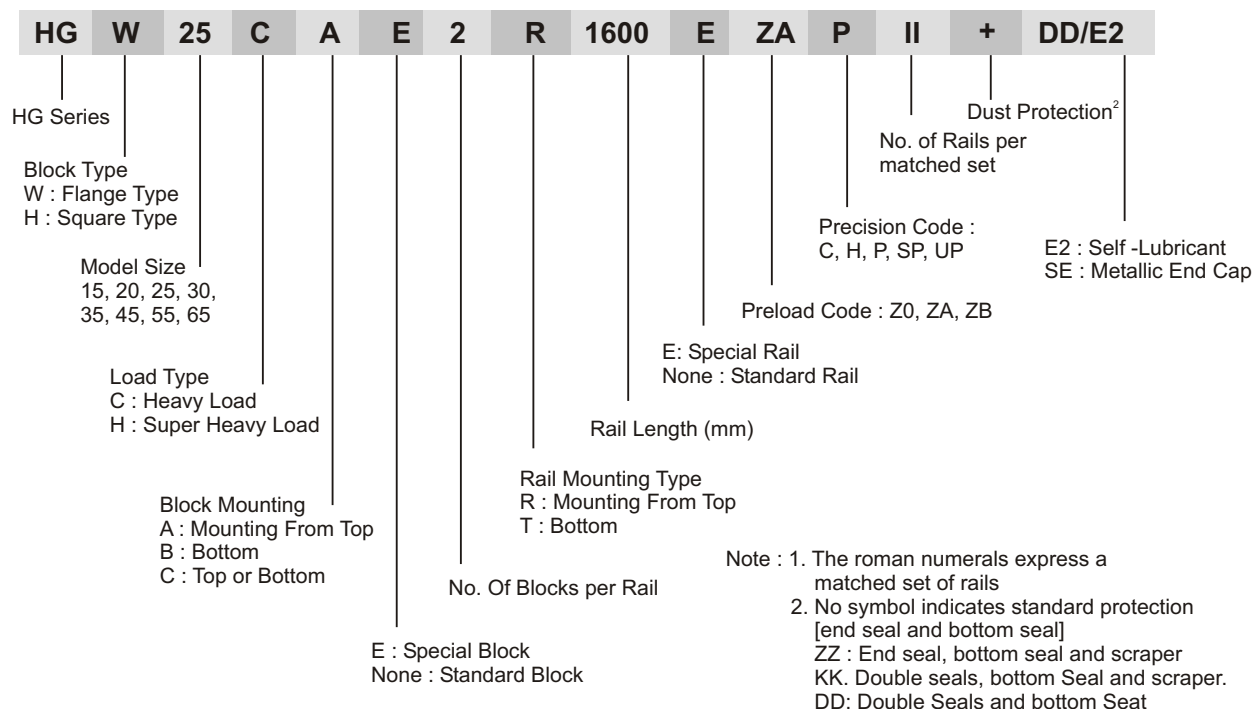
SHAFT END SUPPORT (E - - SERIES)

MODEL NO	Shaft diameter d	h ±0.02	E ±0.05	W	L	F	G	P	B	ØS	Locking bolt S	Mounting bolt N	Unit Weight g
E16	16	27	24	48	16	44	8	25	38	5.5	M4	M5	40
E20	20	31	30	60	20	51	10	30	45	6.6	M5	M6	70
E25	25	35	35	70	24	60	12	38	56		M6		130
E30	30	42	42	84	28	70		15	44	64	9	M8	M10
E35	35	50	49	98	32	82	50		74	11	M8		
E40	40	60	57	114	36	96	60	90	11	M8	M10	420	
E50*	50	70	63	126	40	120	18	74	100	14	M12	M12	750

- Other sizes upon request.
- * Check for availability

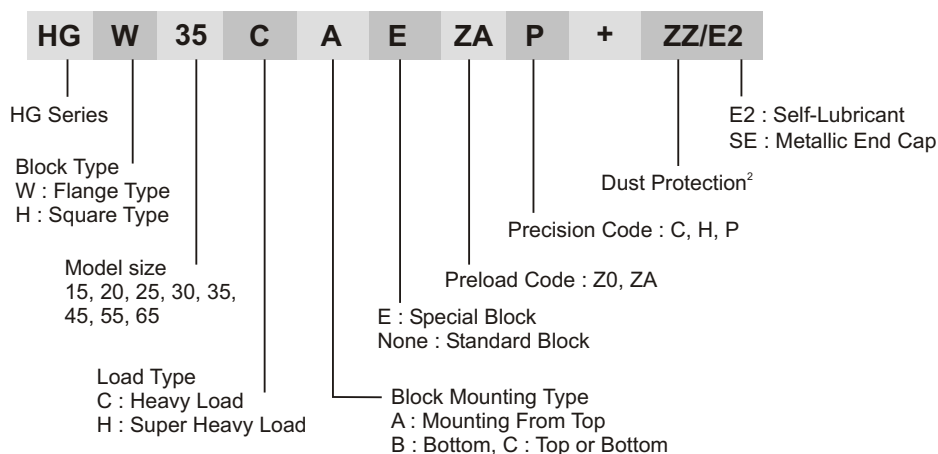
LINEAR GUIDEWAYS

[1] Non-interchangeable type

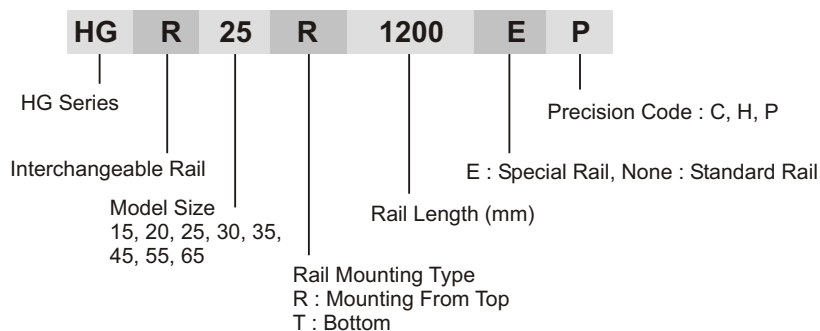


[2] Interchangeable type

O Model Number of HG Block



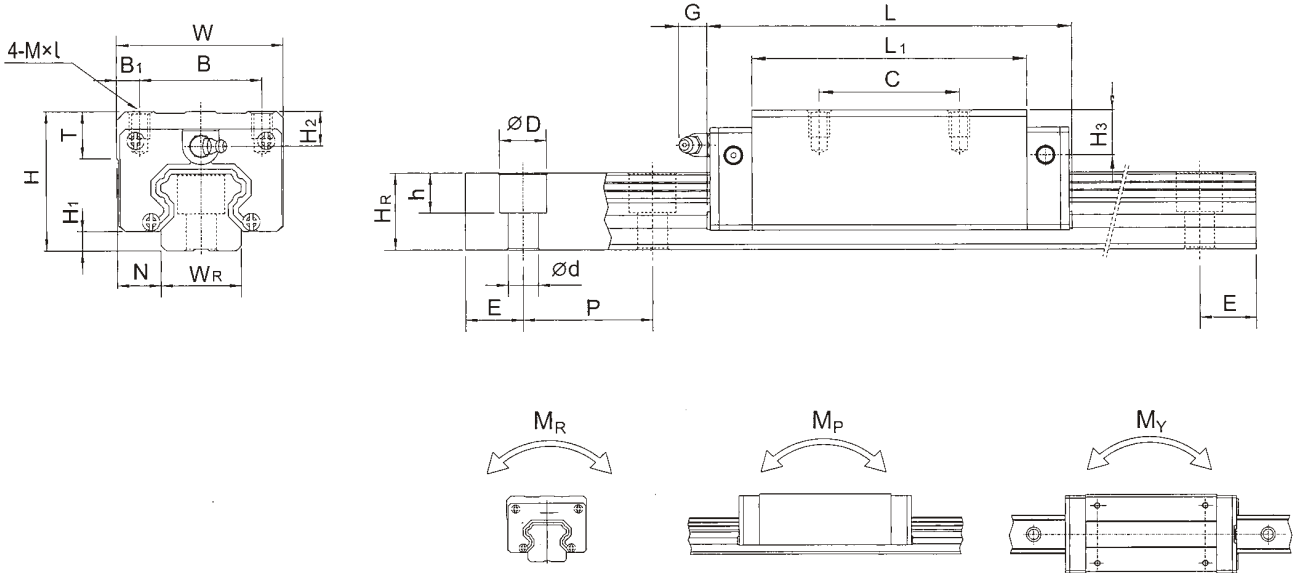
O Model Number of HG Rail



LINEAR GUIDEWAYS

Dimensions for HIWIN HG Series

HGH - CA / HGH - HA



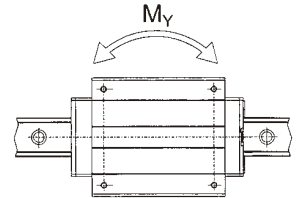
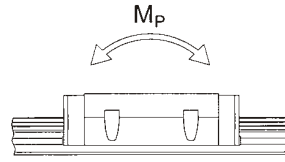
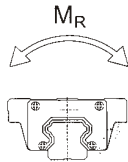
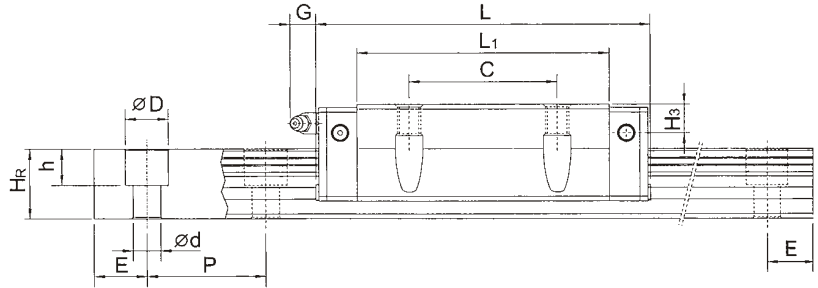
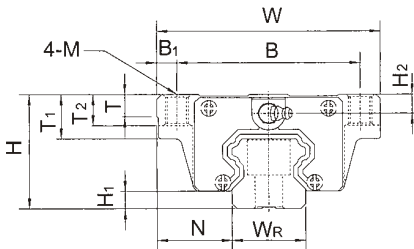
Model No.	Dimensions of Assembly (mm)			Dimensions of Block [mm]											Dimensions of Rail [mm]											Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
																													Mr	Mp	Mv	Block	Rail
	H	H1	N	W	B	B1	C	L1	L	G	Mxl	T	H2	H3	WR	Hr	D	h	d	P	E	[mm]	C[kN]	C0[kN]	kN-m				kN-m	kN-m	kg	kg/m	
HGH 15CA	28	4.3	9.5	34	26	4	26	39.4	61.4	5.3	M4x5	6	8.5	9.5	15	15	7.5	5.3	4.5	60	20	M4x16	11.38	25.31	0.17	0.15	0.15	0.18	1.45				
HGH 20CA	30	4.6	12	44	32	6	36	50.5	77.5	12	M5x6	8	6	7	20	17.5	9.5	8.5	6	60	20	M5x16	17.75	37.84	0.38	0.27	0.27	0.30	2.21				
HGH 20HA							50	65.2	92.2														35	58	84	21.18	48.84	0.48		0.47	0.47	0.39	
HGH 25CA	40	5.5	12.5	48	35	6.5	35	58	84	12	M6x8	8	10	13	23	22	11	9	7	60	20	M6x20	26.48	56.19	0.64	0.51	0.51	0.51	3.21				
HGH 25HA							50	78.6	104.6														32.75	76.00	0.87	0.88	0.88	0.69					
HGH 30CA	45	6	16	60	40	10	40	70	97.4	12	M8x10	8.5	9.5	13.8	28	26	14	12	9	80	20	M8x25	38.74	83.06	1.06	0.85	0.85	0.88	4.47				
HGH 30HA							60	93	120.4														47.27	110.13	1.40	1.47	1.47	1.16					
HGH 35CA	55	7.5	18	70	50	10	50	80	112.4	12	M8x12	10.2	16	19.6	34	29	14	12	9	80	20	M8x25	49.52	102.87	1.73	1.20	1.20	1.45	6.30				
HGH 35HA							72	105.8	138.2														60.21	136.31	2.29	2.08	2.08	1.92					
HGH 45CA	70	9.5	20.5	86	60	13	60	97	139.4	12.9	M10x17	16	18.5	30.5	45	38	20	17	14	105	22.5	M12x35	77.57	155.93	3.01	2.35	2.35	2.73	10.41				
HGH 45HA							80	128.8	171.2														94.54	207.12	4.00	4.07	4.07	3.61					
HGH 55CA	80	13	23.5	100	75	12.5	75	117.7	166.7	12.9	M12x18	17.5	22	29	53	44	23	20	16	120	30	M14x45	114.44	227.81	5.66	4.06	4.06	4.17	15.08				
HGH 55HA							95	155.8	204.8														139.35	301.26	7.49	7.01	7.01	5.49					
HGH 65CA	90	15	31.5	126	76	25	70	144.2	200.2	12.9	M16x20	25	15	15	63	53	26	22	18	150	35	M16x50	163.63	324.71	10.02	6.44	6.44	7.00	21.18				
HGH 65HA							120	203.6	259.6														208.36	457.15	14.15	11.12	11.12	9.82					

Note : 1 kgf = 9.81 N

LINEAR GUIDEWAYS

Dimensions for HIWIN HG Series

HGW - CC / HGW - HC

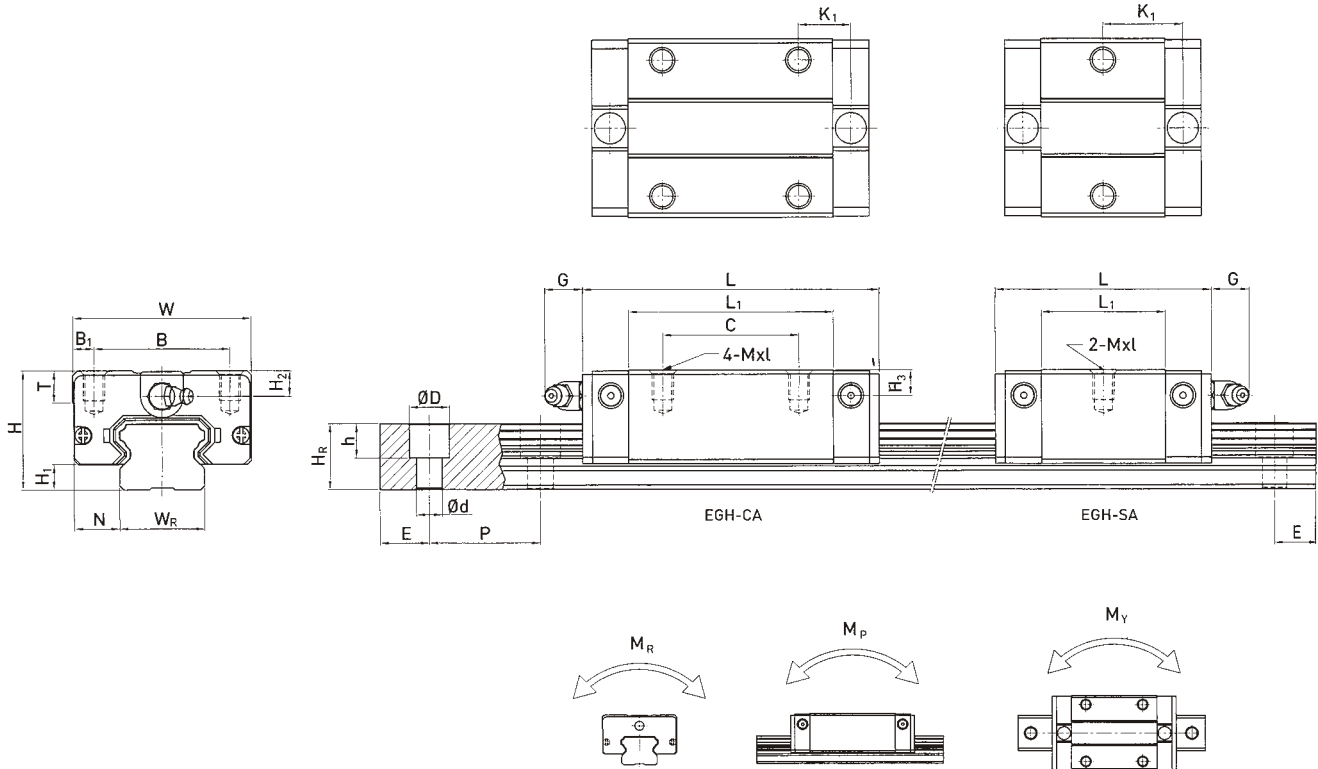


Model No.	Dimensions of Assembly (mm)		Dimensions of Block [mm]															Dimensions of Rail [mm]					Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C _k [kN]	Basic Static Load Rating C ₀ [kN]	Static Rated Moment			Weight					
			H	H ₁	N	W	B	B ₁	C	L ₁	L	G	M	T	T ₁	T ₂	H ₂	H ₃	W _R	H _R	D	h				d	P	E	M _r	M _p	M _y	Block	Rail	
	kgf	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
HGW 15CC	24	4.3	16	47	38	4.5	30	39.4	61.4	5.3	M5	6	8.9	6.95	4.5	5.5	15	15	7.5	5.3	4.5	60	20	M4x16	11.38	25.31	0.17	0.15	0.15	0.17	1.45			
HGW 20CC	30	4.6	21.5	63	53	5	40	50.5	77.5	12	M6	8	10	9.5	6	7	20	17.5	9.5	8.5	6	60	20	M5 x 16	17.75	37.84	0.38	0.27	0.27	0.40	2.21			
HGW 20HC	36	5.5	23.5	70	57	6.5	45	58	84	12	M8	8	14	10	6	9	23	22	11	9	7	60	20	M6x20	21.18	48.84	0.48	0.47	0.47	0.52	3.21			
HGW 25CC	42	6	31	90	72	9	52	78.6	104.6	12	M10	8.5	16	10	6.5	10.8	28	26	14	12	9	80	20	M8x25	26.48	56.19	0.64	0.51	0.51	0.59	4.47			
HGW 25HC	48	7.5	33	100	82	9	62	80	112.4	12	M10	10.1	18	13	9	12.6	34	29	14	12	9	80	20	M8x25	32.75	76.00	0.87	0.88	0.88	0.80	6.30			
HGW 30CC	60	9.5	37.5	120	100	10	80	97	139.4	12.9	M12	15.1	22	15	8.5	20.5	45	38	20	17	14	105	22.5	M12x35	38.74	83.06	1.06	0.85	0.85	1.09	10.41			
HGW 30HC	70	13	43.5	140	116	12	95	128.8	171.2	12.9	M14	17.5	26.5	17	12	19	53	44	23	20	16	120	30	M14x45	47.27	110.13	1.40	1.47	1.47	1.44	15.08			
HGW 35CC	90	15	53.5	170	142	14	110	144.2	200.2	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	49.52	102.87	1.73	1.20	1.20	1.56	21.18			
HGW 35HC	90	15	53.5	170	142	14	110	155.8	204.8	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	77.57	155.93	3.01	2.35	2.35	2.79	21.18			
HGW 45CC	90	15	53.5	170	142	14	110	128.8	171.2	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	94.54	207.12	4.00	4.07	4.07	3.69	21.18			
HGW 45HC	90	15	53.5	170	142	14	110	117.7	166.7	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	114.44	227.81	5.66	4.06	4.06	4.52	21.18			
HGW 55CC	90	15	53.5	170	142	14	110	155.8	204.8	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	139.35	301.26	7.49	7.01	7.01	5.96	21.18			
HGW 55HC	90	15	53.5	170	142	14	110	144.2	200.2	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	163.63	324.71	10.02	6.44	6.44	9.17	21.18			
HGW 65CC	90	15	53.5	170	142	14	110	203.6	259.6	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	208.36	457.15	14.15	11.12	11.12	12.89	21.18			
HGW 65HC	90	15	53.5	170	142	14	110	203.6	259.6	12.9	M16	25	37.5	23	15	15	63	53	26	22	18	150	35	M16x50	208.36	457.15	14.15	11.12	11.12	12.89	21.18			

Note : 1kgf = 9.81 N

LINEAR GUIDEWAYS

Dimensions for HIWIN EG Series
EGH - SA / EGH - CA



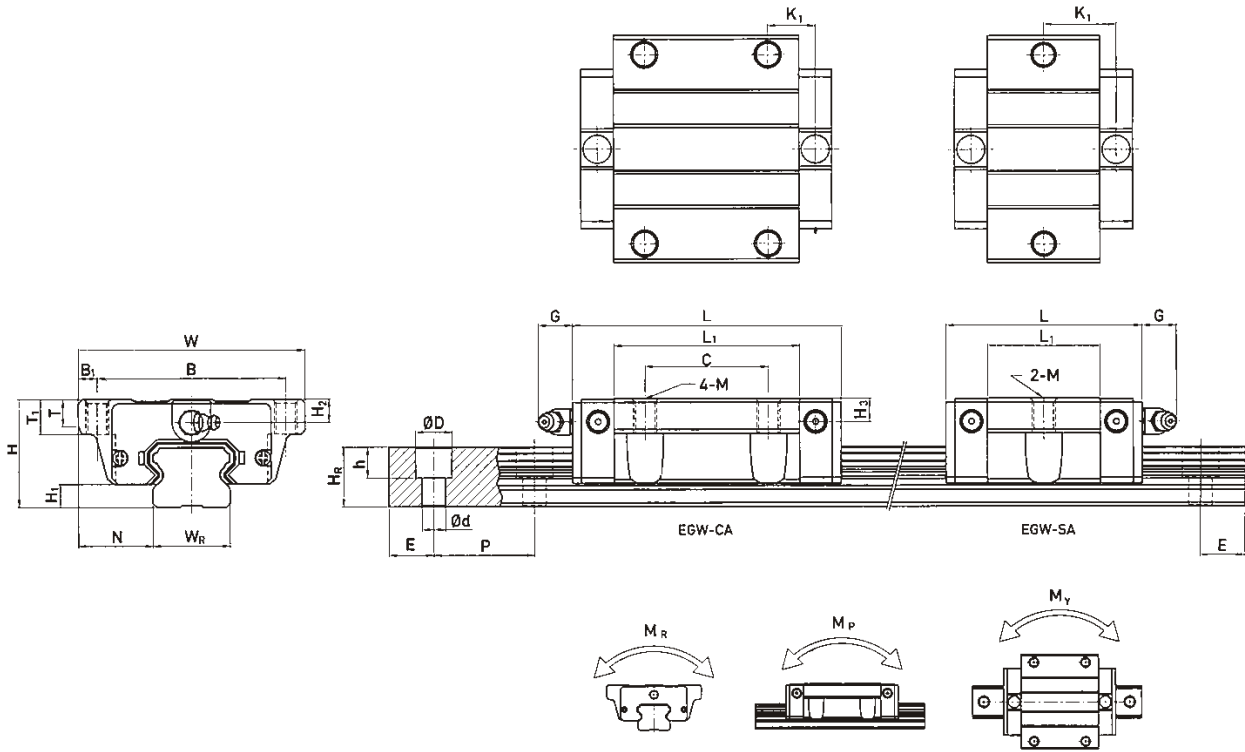
Model No.	Dimensions of Assembly (mm)		Dimensions of Block [mm]													Dimensions of Rail [mm]					Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C _d [kN]	Basic Static Load Rating C ₀ [kN]	Static Rated Moment			Weight			
	H	H ₁	N	W	B	B ₁	C	L ₁	L	K ₁	G	Mxl	T	H ₂	H ₃	W _R	H _R	D	h	d				P	E	M _R	M _P	M _Y	Block	Rail
																											kN-m	kN-m	kN-m	kg
EGH15SA	24	4.5	9.5	34	26	4	-	23.1	40.1	14.8	5.7	M4x6	6	5.5	6	15	12.5	6	4.5	3.5	60	20	M3x16	5.35	9.40	0.08	0.04	0.04	0.09	1.25
EGH15CA							26	39.8	56.8	10.15														7.83	16.19	0.13	0.10	0.10	0.15	
EGH20SA	28	6	11	42	32	5	-	29	50	18.75	12	M5x7	7.5	6	6	20	15.5	9.5	8.5	6	60	20	M5x16	7.23	12.74	0.13	0.06	0.06	0.15	2.08
EGH20CA							32	48.1	69.1	12.3														10.31	21.13	0.22	0.16	0.16	0.24	
EGH25SA	33	7	12.5	48	35	6.5	-	35.5	59.1	21.9	12	M6x9	8	8	8	23	18	11	9	7	60	20	M6x20	11.40	19.50	0.23	0.12	0.12	0.25	2.67
EGH25CA							35	59	82.6	16.15														16.27	32.40	0.38	0.32	0.32	0.41	
EGH30SA	42	10	16	60	40	10	-	41.5	69.5	26.75	12	M8x12	9	8	9	28	23	11	9	7	80	20	M6x25	16.42	28.10	0.40	0.21	0.21	0.45	4.35
EGH30CA							40	70.1	98.1	21.05														23.70	47.46	0.68	0.55	0.55	0.76	

Note : 1kgf = 9.81 N

LINEAR GUIDEWAYS

Dimensions for HIWIN EG Series

EGW - SA / EGW - CA



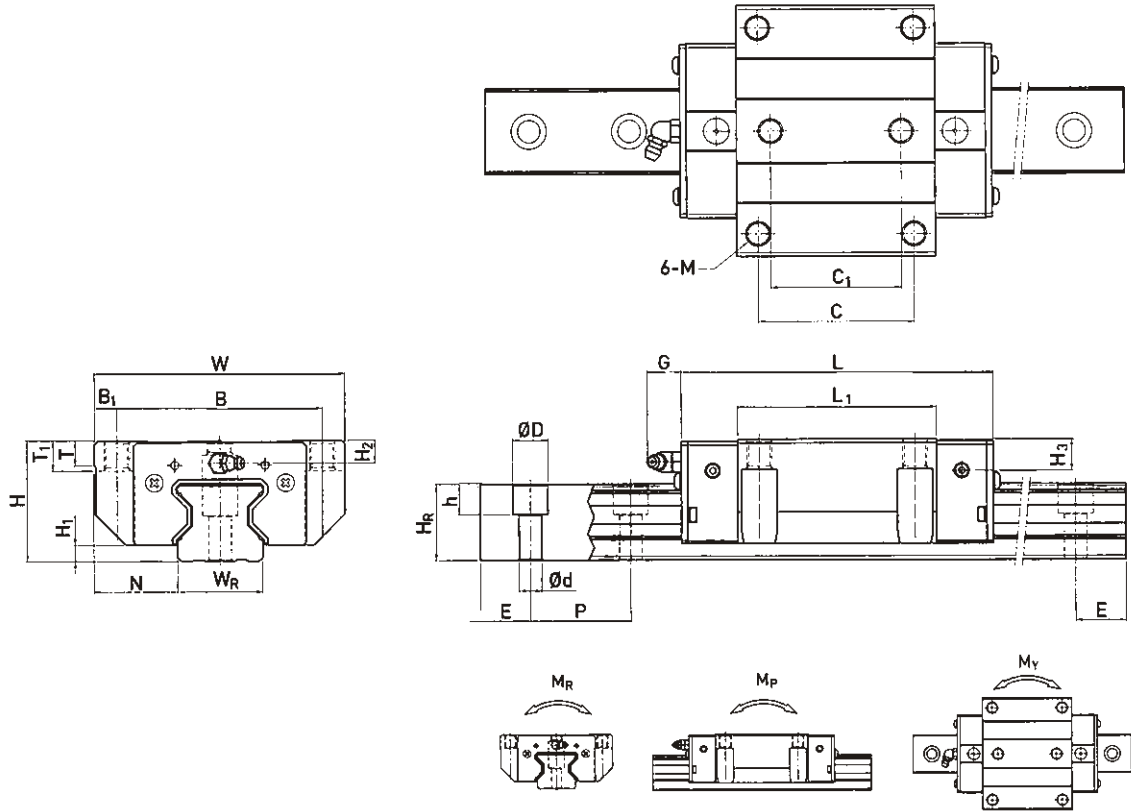
Model No.	Dimensions of Assembly (mm)		Dimensions of Block [mm]															Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C _d [kN]	Basic Static Load Rating C ₀ [kN]	Static Rated Moment			Weight							
			H	H ₁	N	W	B	B ₁	C	L ₁	L	K ₁	G	M	T	T ₁	H ₂				H ₃	W _R	H _R	D	h	d	P	E	M _R	M _P	M _Y
	kg	kg/m																													
EGW 15SA	24	4.5	18.5	52	41	5.5	-	23.1	40.1	14.8	5.7	M5	5	7	5.5	6	15	12.5	6	4.5	3.5	60	20	M3x16	5.35	9.40	0.08	0.04	0.04	0.12	1.25
EGW 15CA							26	39.8	56.8	10.15															0.13	0.10	0.10	0.21			
EGW 20SA	28	6	19.5	59	49	5	-	29	50	18.75	12	M6	7	9	6	6	20	15.5	9.5	8.5	6	60	20	M5x16	7.23	12.74	0.13	0.06	0.06	0.19	2.08
EGW 20CA							32	48.1	69.1	12.3															0.22	0.16	0.16	0.32			
EGW 25SA	33	7	25	73	60	6.5	-	35.5	59.1	21.9	12	M8	7.5	10	8	8	23	18	11	9	7	60	20	M6x20	11.40	19.50	0.23	0.12	0.12	0.35	2.67
EGW 25CA							35	59	82.6	16.15															0.38	0.32	0.32	0.59			
EGW 30SA	42	10	31	90	72	9	-	41.5	69.5	26.75	12	M10	7	10	8	9	28	23	11	9	7	80	20	M6x25	16.42	28.10	0.40	0.21	0.21	0.62	4.35
EGW 30CA							40	70.1	98.1	21.05															0.68	0.55	0.55	1.04			

Note : 1kgf = 9.81 N

LINEAR GUIDEWAYS

Dimensions for HIWIN RG Series

RGW - CC / RGW - HC



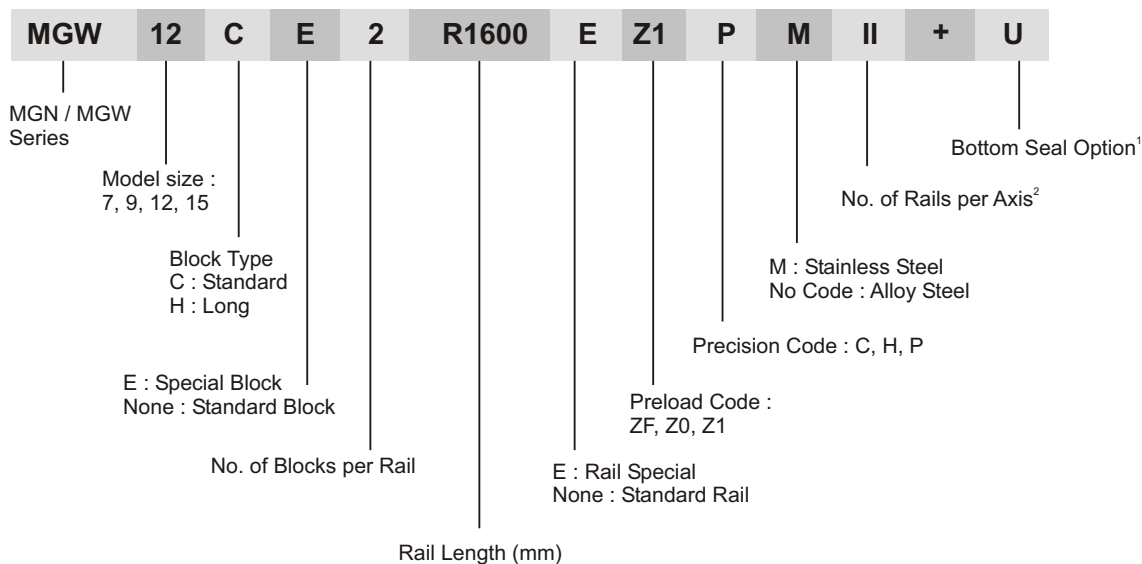
Model No.	Dimensions of Assembly (mm)			Dimensions of Block [mm]													Dimensions of Rail [mm]						Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C [Kn]	Basic Static Load Rating C0 [KN]	Static Rated Moment			Weight		
	H	H1	N	W	B	B1	C	C1	L1	L	G	M	T	T1	H2	H3	WR	Hr	D	h	d	P				E	Mr	Mp	Mv	Block	Rail
	Kn-m	kN-m	kN-m	kg	kg/m																										
RGW 25CC	36	5.5	23.5	70	57	6.5	45	40	64.5	97.9	12	M8	9.5	10	6.2	6	23	23.6	11	9	7	30	20	M6x20	27.7	57.1	0.758	0.605	0.605	0.67	3.08
RGW 25HC									81	114.4															33.9	73.4	0.975	0.991	0.991	0.86	
RGW 30CC									71	109.8															39.1	82.1	1.445	1.06	1.06	1.06	
RGW 30HC	42	6	31	90	72	9	52	44			12	M10	9.5	10	6.5	10.8	28	28	14	12	9	40	20	M8x25	48.1	10.5	1.846	1.712	1.712	1.42	4.41
RGW 35CC									93	131.8															57.9	105.2	2.17	1.44	1.44	1.61	
RGW 35HC	48	6.5	33	100	82	9	62	52			12	M10	12	13	9	12.6	34	30.2	14	12	9	40	20	M8x25	73.1	142	2.93	2.6	2.6	2.21	6.06
RGW 45CC									106.5	151.5															92.6	178.8	4.52	3.05	3.05	3.22	
RGW 45HC	60	8	37.5	120	100	10	80	60			12.9	M12	14	15	10	14	45	38	20	17	14	52.5	22.5	M12x35	116	230.9	6.33	5.47	5.47	4.41	9.97
RGW 55CC									139.8	187															116	230.9	6.33	5.47	5.47	4.41	
RGW 55HC	70	10	43.5	140	116	12	95	70			12.9	M14	16	17	12	17.5	53	44	23	20	16	60	30	M14x45	130.5	252	8.01	5.4	5.4	5.18	13.98
RGW 65CC									173.8	232															167.8	348	11.15	10.25	10.25	7.34	
RGW 65HC	90	12	53.5	170	142	14	110	82			12.9	M16	22	23	15	15	63	53	26	22	18	75	35	M16 X50	213	411.6	16.20	11.59	11.59	11.04	20.22
RGW 65HC									160	232															275.3	572.7	22.55	22.17	22.17	15.75	

Note : 1kgf = 9.81 N

LINEAR GUIDEWAYS

MG Series

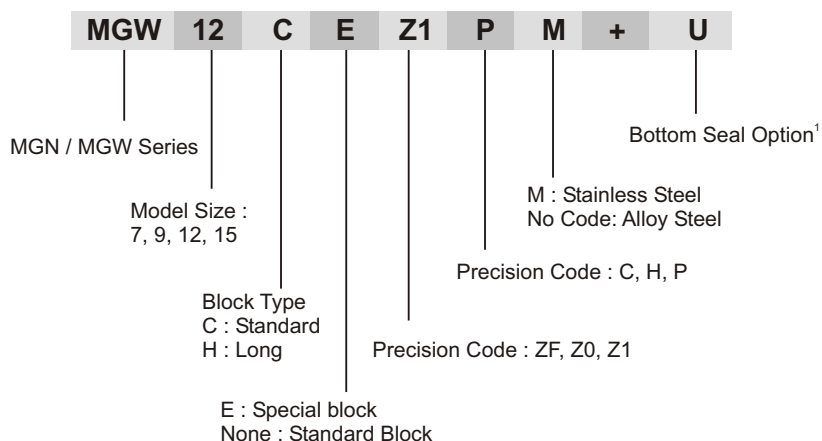
(1) Non-interchangeable type



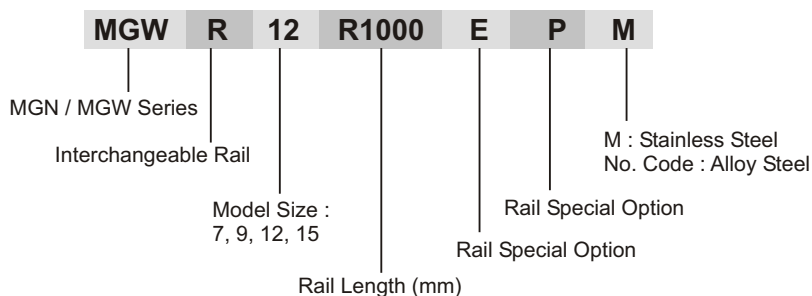
Note: 1. The bottom seal is available for MGN & MGW 9,12, 15.
2. The roman numerals express the number of rails used in one axis. No symbol indicates single rail in an axis.

[2] Interchangeable type

O Interchangeable Block



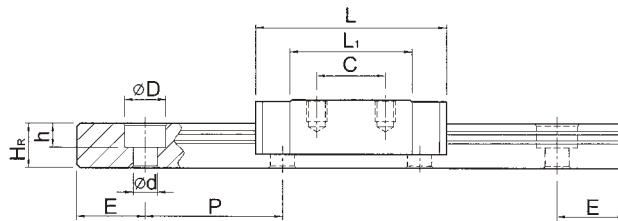
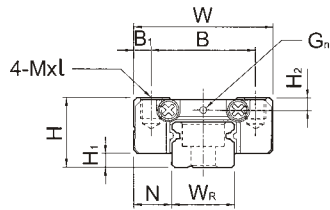
O Interchangeable Rail



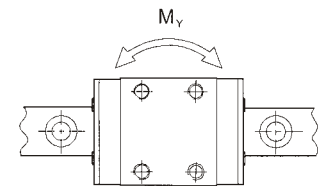
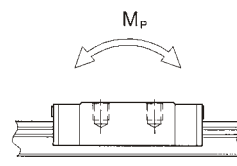
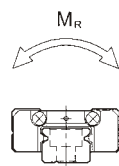
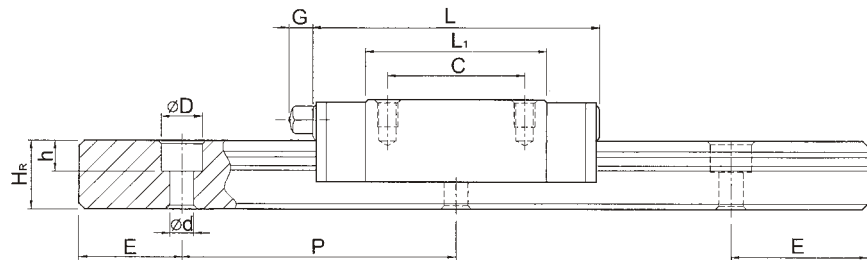
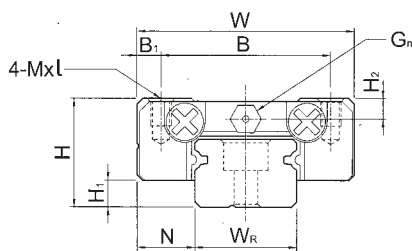
LINEAR GUIDEWAYS

Dimensions for HIWIN MGN Series

MGN 7 - 12



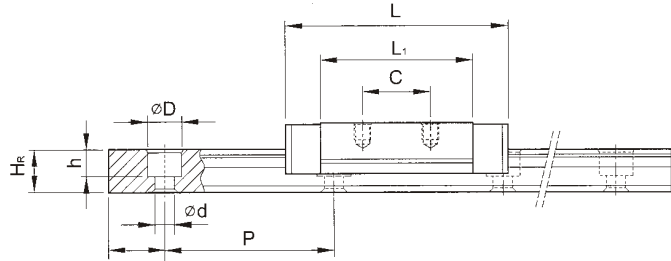
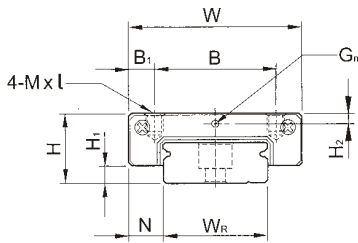
MGN15



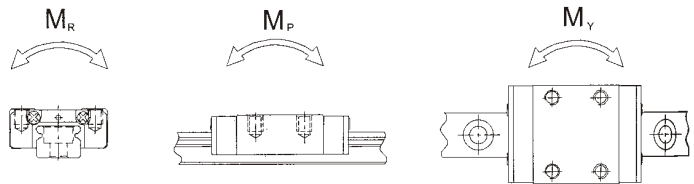
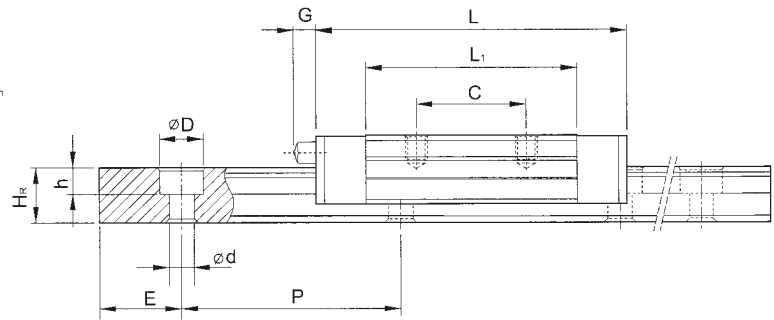
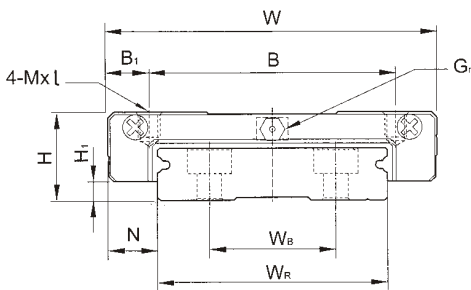
Model No.	Dimensions of Assembly (mm)		Dimensions of Block [mm]										Dimensions of Rail [mm]						Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C[kgf]	Basic Static Load Rating C1[kgf]	Static Rated Moment			Weight			
	H	H1	N	W	B	B1	C	L1	L	G	G1	Mxl	H2	WR	Hr	D	h	d				P	E	Mr	Mp	Mv	Block g	Rail kg/m
																								kgf-m	kgf-m	kgf-m		
MGN 7C	8	1.5	5	17	12	2.5	8	13.5	22.5	-	Ø1.2	M2x2.5	1.5	7	4.8	4.2	2.3	2.4	15	5	M2x6	100	127	0.48	0.29	0.29	10	0.22
MGN 7H							13	21.8	30.8													140	200	0.78	0.49	0.49	15	
MGN 9C							10	18.9	28.9													190	260	1.2	0.75	0.75	16	
MGN 9H	10	2	5.5	20	15	2.5	16	29.9	39.9	-	Ø 1.2	M3x3	1.8	9	6.5	6	3.5	3.5	20	7.5	M3x8	260	410	2	1.9	1.9	26	0.38
MGN 12C							15	21.7	34.7													290	400	2.6	1.4	1.4	34	
MGN 12H	13	3	7.5	27	20	3.5	20	32.4	45.4	-	Ø 1.4	M3x3.5	2.5	12	8	6	4.5	3.5	25	10	M3x8	380	600	3.9	3.7	3.7	54	
MGN 15C	16	4	8.5	32	25	3.5	20	26.7	42.1													470	570	4.6	2.2	2.2	59	1.06
MGN 15H							25	43.4	58.8	4.5	M3	M3x4	3	15	10	6	4.5	3.5	40	15	M3x10	650	930	7.5	5.9	5.9	92	

LINEAR GUIDEWAYS

Dimensions for HIWIN MGWSeries
MGW 7 - 12



MGW15



Model No.	Dimensions of Assembly (mm)		Dimensions of Block [mm]										Dimensions of Rail [mm]						Mounting Bolt for Rail [mm]	Basic Dynamic Load Rating C[Kgf]	Basic Static Load Rating C ₀ [Kgf]	Static Rated Moment			Weight				
	H	H ₁	N	W	B	B ₁	C	L ₁	L	G	G _n	Mxl	H ₂	W _R	W _B	H _R	D	h				d	P	E	M _R Kgf-m	M _P Kgf-m	M _Y Kgf-m	Block g	Rail kg/m
MGW 7C	9	1.9	5.5	25	19	3	10	21	31.2	-	Ø1.2	M3x3	1.85	14	-	5.2	6	3.2	3.5	30	10	M3x6	140	210	1.6	0.73	0.73	20	0.51
MGW 7H							19	30.8	41													180	320	2.39	1.58	1.58	29		
MGW 9C	12	2.9	6	30	21	4.5	12	27.5	39.3	-	Ø1.4	M3x3	2.4	18	-	7	6	4.5	3.5	30	10	M3x8	280	420	4.09	1.93	1.93	40	0.91
MGW 9H							23	38.5	50.7													350	600	5.56	3.47	3.47	57		
MGW 12C	14	3.4	8	40	28	6	15	31.3	46.1	-	Ø1.4	M3x3.6	2.8	24	-	8.5	8	4.5	4.5	40	15	M4x8	400	570	7.17	2.83	2.83	71	1.49
MGW 12H							28	45.6	60.4													520	840	10.47	5.85	5.85	103		
MGW 15C	16	3.4	9	60	45	7.5	20	38	54.8	5.2	M3	M4x4.2	3.2	42	23	9.5	8	4.5	4.5	40	15	M4x10	690	940	20.32	5.78	5.78	143	2.86
MGW 15H							35	57	73.8													910	1410	30.48	12.5	12.5	215		

Specification Illustration

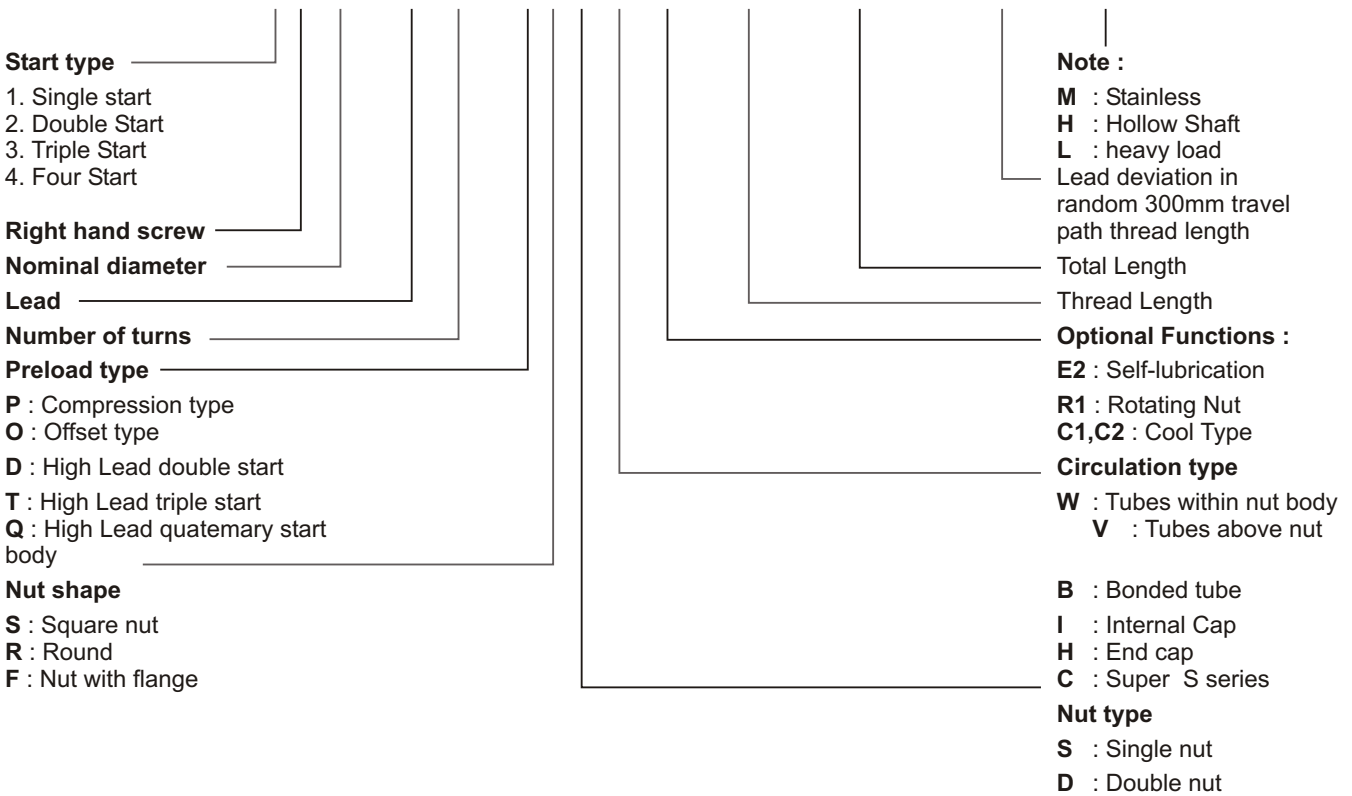
HIWIN manufactures ballscrews according to customers blueprints or specifications. Please read the following information for understanding out ballscrew designing.

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

HIWIN ballscrews can be specified as follows :

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



Number of turns

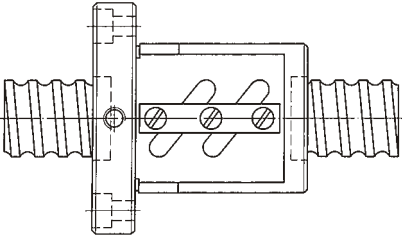
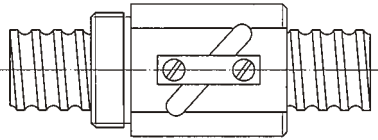
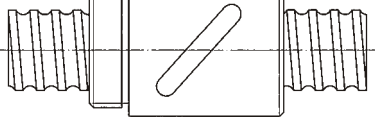
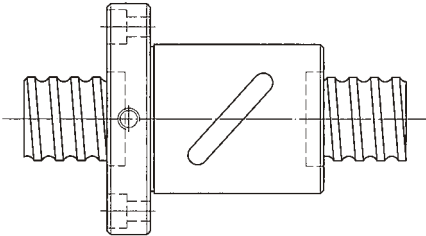
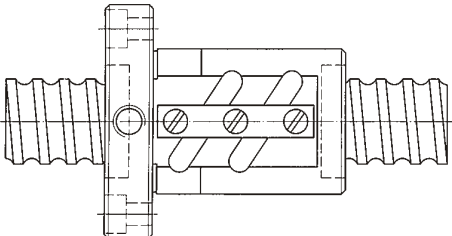
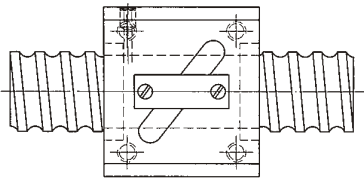
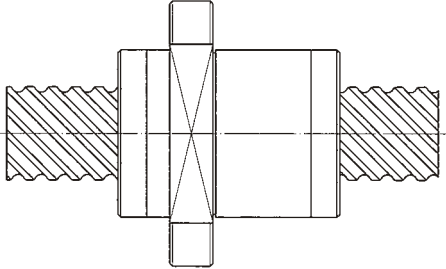
A : 1.5, B : 2.5, C : 3.5	T3 : 3	S1 : 1.8 x 1	U1 : 2.8 x 1	K2 : 2
A2 : 1.5 x 2	T4 : 4	S2 : 1.8 x 2	U2 : 2.8 x 2	K3 : 3
B2 : 2.5 x 2	T5 : 5	S4 : 1.8 x 4	V2 : 0.7 x 2	K4 : 4
C1 : 3.5 x 1	T6 : 6			

- Note :
1. Different diameters and leades 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, only if the ball size is less than 2.381 mm.
 5. Complete questionnaire on page 170~171 and consult with HIWIN engineers.
 6. If you need to order DIN 69051 type, please mark "DIN".
 7. Number of turns = turns per circuit x number of circuits.
Please refer to page 6 for detailed illustration.

ROLLED BALL SCREWS

General Type of Rolled Ballscrews

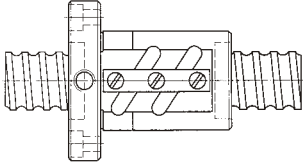
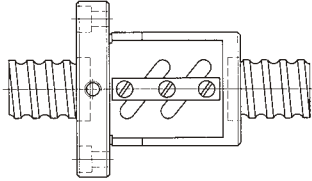
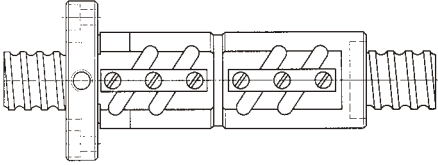
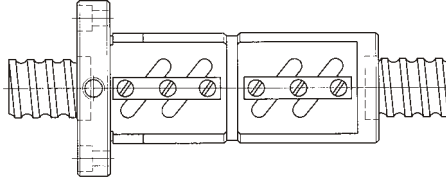
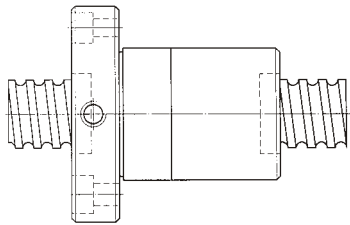
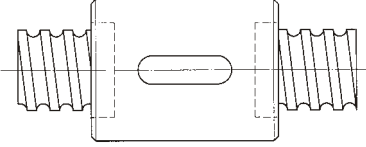
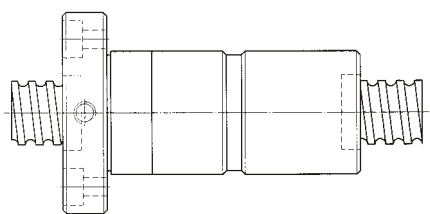
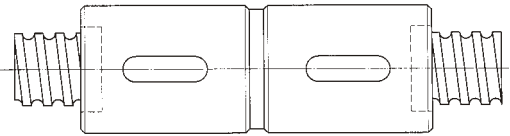
General Type

<p>FSW</p>  <p>Flange end, single nut, tube within the nut diameter</p>	<p>RSV</p>  <p>Round, single nut, tube above the nut diameter</p>
<p>RSB</p>  <p>Round, single nut, bonded return tube</p>	<p>FSB</p>  <p>Flange end, single nut, bonded return tube</p>
<p>FSV</p>  <p>Flange end, single nut, tube above the nut diameter</p>	<p>SSV</p>  <p>Square, single nut, tube above the nut diameter</p>
<p>FSH</p>  <p>Large lead, flange mounted, single nut, end cap</p>	

PRECISION GROUND BALL SCREWS

Ground Ballscrew Series

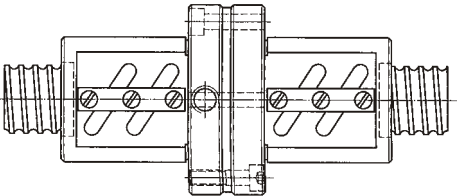
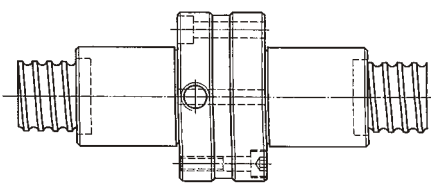
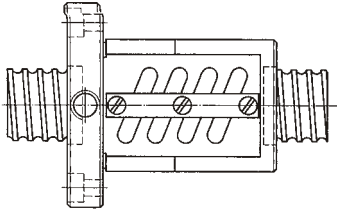
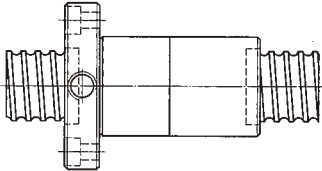
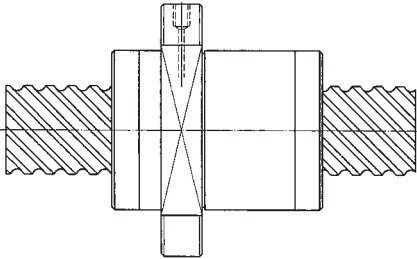
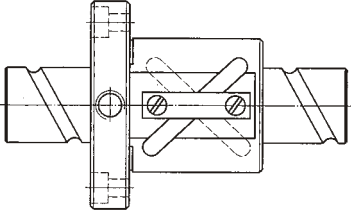
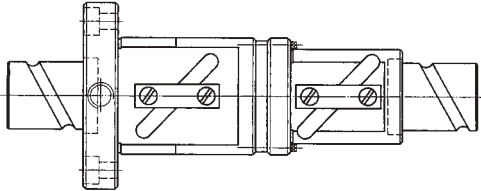
General Type

<p style="text-align: center;">FSV</p>  <p style="text-align: center;">Flange end, single nut, tube above the nut diameter</p>	<p style="text-align: center;">FSW</p>  <p style="text-align: center;">Flange end, single nut, tube within the nut diameter</p>
<p style="text-align: center;">FDV</p>  <p style="text-align: center;">Flange end, double nut, tube above the nut diameter</p>	<p style="text-align: center;">FDW</p>  <p style="text-align: center;">Flange end, double nut, tube within the nut diameter</p>
<p style="text-align: center;">FSI</p>  <p style="text-align: center;">Flange end, single nut, internal recirculation cap</p>	<p style="text-align: center;">RSI</p>  <p style="text-align: center;">Round, single nut, internal recirculation cap</p>
<p style="text-align: center;">FDI</p>  <p style="text-align: center;">Flange end, double nut, internal recirculation cap</p>	<p style="text-align: center;">RDI</p>  <p style="text-align: center;">Round, double nut, Internal recirculation cap</p>

PRECISION GROUND BALL SCREWS

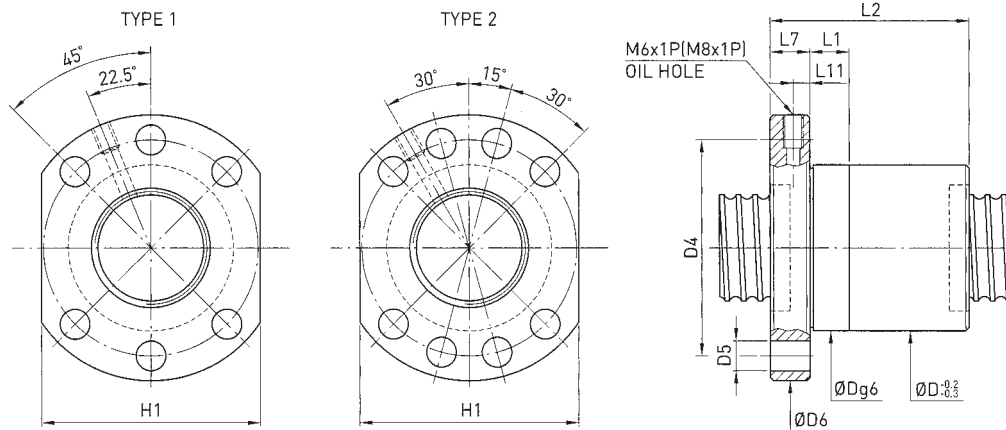
Ground Ballscrew Series

General Type

<p>PFDW -Type 1</p>  <p>Flange to flange, double nut, tube within the nut diameter</p>	<p>PFDI</p>  <p>Flange to flange, double nut, internal recirculation cap</p>
<p>OFSW</p>  <p>Offset pitch preload, flange end, single nut, tube within the nut diameter</p>	<p>OFSI</p>  <p>Offset pitch preload, flange end, single nut, internal recirculation cap</p>
<p>FSH</p>  <p>Large lead, flange mounted, single nut, end cap</p>	<p>DFSV</p>  <p>Double start, flange end, single nut, tube above the nut diameter</p>
<p>PFDW -Type 2</p>  <p>Large lead, flange end, compression preload, double nut, tube within nut diameter</p>	

BALL SCREWS (FSI TYPE)

STOCK ROLLED BALL SCREWS

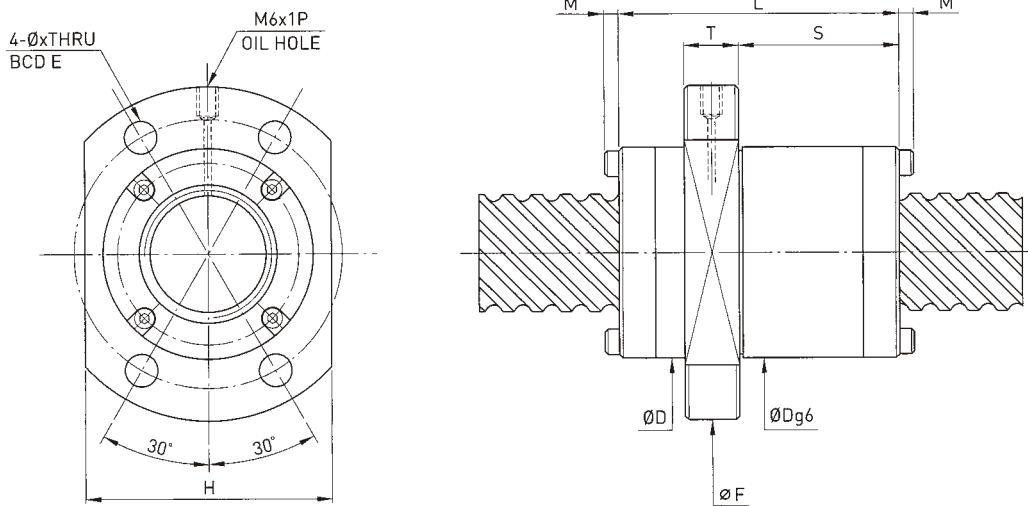


Model	Size		Ball Dia.	Circuits	Dynamic Load kgf / μm C (kgf)	Static Load Co (kgf)	D	D4	Flange Hole No.	D5	D6	H1	L1	L2	L7	L11	M-Oil Hole
	Nominal Dia.	Lead															
16-5T3	16	5	3.175	3	900	1700	28	38	6	5.5	48	40	10	40	10	5	M6x1P
20-5T3	20			3	1100	2300	36	47	6	6.6	58	44	10	44	10	5	M6x1P
20-5T4	20			4	1300	3100	36	47	6	6.6	58	44	10	52	10	5	M6x1P
25-5T3	25			3	1200	3000	40	51	6	6.6	62	48	10	44	10	5	M6x1P
25-5T4		4	1500	4000	40	51	6	6.6	62	48	12	52	10	5	M6x1P		
25-10T3	25	10	4.763	3	1900	4200	40	51	6	6.6	62	48	16	65	10	5	M6x1P
32-5T3	32	5	3.175	3	1300	4000	50	65	6	9	80	62	10	46	12	6	M6x1P
32-5T4				4	1700	5300	50	65	6	9	80	62	10	53	12	6	M6x1P
32-5T6				6	2400	7900	50	65	6	9	80	62	10	66	12	6	M6x1P
32-10T3				3	3100	6800	50	65	6	9	80	62	16	74	12	6	M6x1P
32-10T4	32	10	6.350	4	3900	9100	50	65	6	9	80	62	16	85	12	6	M6x1P
40-5T4	40	5	3.175	4	1900	6800	63	78	8	9	93	70	10	53	14	7	M8x1P
40-5T6				6	2700	10200	63	78	8	9	93	70	10	66	14	7	M8x1P
40-10T3				3	3500	9100	63	78	8	9	93	70	16	74	14	7	M8x1P
40-10T4				4	4500	12100	63	78	8	9	93	70	16	87	14	7	M8x1P
50-5T4	50	5	3.175	4	2100	8700	75	93	8	11	110	85	10	57	16	8	M8x1P
50-5T6				6	2900	13000	75	93	8	11	110	85	10	70	16	8	M8x1P
50-10T3				3	4000	11900	75	93	8	11	110	85	16	78	16	8	M8x1P
50-10T4				4	5100	15800	75	93	8	11	110	85	16	89	16	8	M8x1P
50-10T6	50	10	6.350	6	7300	23700	75	93	8	11	110	85	16	112	16	8	M8x1P

*The calculation for dynamic load and static load is based on DIN69051.

BALL SCREWS (FSH TYPE)

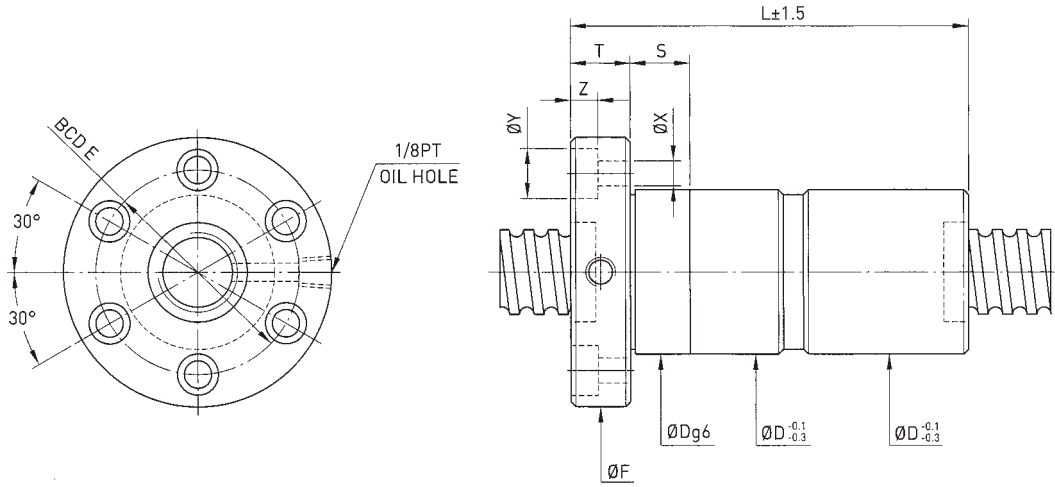
ROLLED LARGE LEAD BALL SCREWS



Model	Size		Ball Dia.	Circuits	Dynamic Load 1 x 10 ⁶ revs C (kgf)	Static Load Co (kgf)	Nut		Flange				Bolt X	Fit		
	Nominal Dia.	Lead					D	L	F	T	BCD-E	H		S	M	
16-16S2	16	16	3.175	1.8x2	710	1380	32	48	53	10	42	38	4.5	26	0	
16-16S4				1.8x4	1290	2760										
16-16S2				1.8x2	710	1380	33	48	58	10	45	38	6.6	26	0	
16-16S4				1.8x4	1290	2760										
20-20S2	20	20		1.8x2	800	1740	39	48	62	10	50	46	5.5	27.5	0	
20-20S2				1.8x2	800	1740										
20-20S4				1.8x4	1450	3480	38	58	62	10	50	46	5.5	32.5	3	
25-25S2				1.8x2	1210	2800										
25-25S4	1.8x4	2190	5600	47	67	74	12	60	56	6.6	39.5	3				
32-32S2	32	32	4.763	1.8x2	1720	4280	58	85	92	15	74	68	9	48	0	
32-32S4				1.8x4	3110	8530										
40-40S2				1.8x2	2810	7170	72	102	114	17	93	84	11	60	0	
40-40-S4				1.8x4	5100	14330										
50-50S2	50	50		7.938	1.8x2	4120	10890	90	125	135	20	112	104	14	83.5	0
50-50S4					1.8x4	7470	21780									

BALL SCREWS (FDI TYPE)

GROUND BALL SCREWS

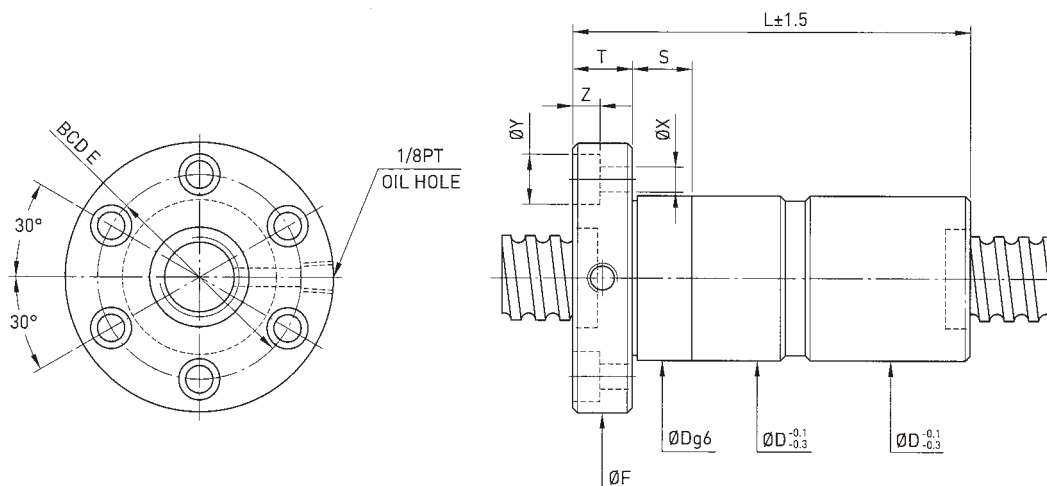


Model	Size		Ball Dia.	PCD	RD	Circuits	Stiffness kgf / μm K	Dynamic Load 1×10^5 revs C (kgf)	Static Load Co (kgf)	Nut				Flange		Bolt			Fit		
	Nominal Dia.	Lead								D	L	F	T	BCD-E	X	Y	Z	S			
16-5T3	16	5	3.175	16.6	13.324	3	20	731	1331	28	30	78	54	12	41	5.5	9.5	5.5	24		
16-5T4				16.6	13.324	4	23	936	1775	28	30	90	54	12	41	5.5	9.5	5.5	24		
20-5T3	20	6		20.6	17.324	3	39	852	1767	32	34	78	57	12	45	5.5	9.5	5.5	24		
20-5T4				20.6	17.324	4	54	1091	2356	32	34	92	57	12	45	5.5	9.5	5.5	24		
20-6T3			20.8	16.744	3	39	1091	2081	34	36	89	60	12	48	5.5	9.5	5.5	24			
20-6T4			20.8	16.744	4	54	1398	2774	34	36	109	60	12	48	5.5	9.5	5.5	24			
25-2.5T5	25	2.5	2.000	25.2	23.136	5	66	716	2117	35	40	87	65	10	51	6.6	11	6.5	24		
25-5T3		5	3.175	25.6	22.324	3	55	977	2314	37	40	78	64	12	52	5.5	9.5	5.5	24		
25-5T4				20.6	22.324	4	73	1252	3085	37	40	96	64	12	52	5.5	9.5	5.5	24		
25-6T3		6	3.969	25.8	21.744	3	56	1272	2762	38	42	89	65	12	52	5.5	9.5	5.5	24		
25-6T4	25.8			21.744	4	75	1628	3682	38	42	109	65	12	53	5.5	9.5	5.5	24			
25-10T3	10	4.763	26	21.132	3	49	1643	3265	47	51	140	74	15	60	6.6	11	6.5	24			
28-5T5	28	5	3.175	28.6	25.324	5	86	1619	4404	45	50	110	74	12	62	5.5	9.5	5.5	24		
28-10T4		10	4.763	29	24.132	4	70	2199	4969	45	50	150	74	12	61	6.6	11	6.5	24		
32-2.5T6	32	2.5	2.000	32.2	30.136	6	97	928	3339	45	51	106	74	12	62	5.5	9.5	5.5	24		
32-5T3		5	3.175	32.6	29.324	3	64	1117	3081	44	48	78	74	12	60	6.6	11	6.5	24		
32-5T4				32.6	29.324	4	82	1431	4108	44	48	96	74	12	60	6.6	11	6.5	24		
32-5T6				32.6	29.324	6	121	2027	6162	44	48	118	74	12	60	6.6	11	6.5	24		
32-5.08T4				5.08	32.6	29.324	4	82	1430	4108	44	48	96	74	12	60	6.6	11	6.5	24	
32-6T3		6	3.969	32.8	36.856	3	65	1446	3620	45	50	89	76	12	62	6.6	11	6.5	24		
32-6T4				32.8	36.856	4	84	1852	4826	45	50	109	76	12	62	6.6	11	6.5	24		
32-6T6				32.8	36.856	6	125	2625	7239	45	50	137	76	12	62	6.6	11	6.5	24		
32-8T3				8	4.763	33	37.868	3	68	1810	4227	47	52	110	78	16	64	6.6	11	6.5	24
32-8T4		33	37.868			4	82	2317	5635	47	52	136	78	16	64	6.6	11	6.5	24		
32-10T3		10	6.350			33.4	39.89	3	68	2539	5327	51	56	129	82	16	68	6.6	11	6.5	24
32-10T4						33.4	39.89	4	82	3252	7102	51	56	155	82	16	68	6.6	11	6.5	24
40-5T4	40	5	3.175	40.6	37.324	4	99	1599	5280	51	54	96	80	16	66	6.6	11	6.5	24		
40-5T6				40.6	37.324	6	146	2265	7919	51	54	122	80	16	66	6.6	11	6.5	24		
40-6T4				6	3.969	40.8	36.744	4	100	2136	6420	53	56	113	88	16	72	9	14	8.5	30
40-6T6						40.8	36.744	6	148	3028	9630	53	56	141	88	16	72	9	14	8.5	30
40-8T4		8	4.763	41	36.132	4	102	2728	7596	55	60	136	92	16	75	9	14	8.5	30		
40-8T6				41	36.132	6	150	3866	11394	55	60	178	92	16	75	9	14	8.5	30		
40-10T3				10	6.350	41.4	34.91	3	76	2959	7069	60	65	133	96	16	80	9	14	8.5	30
40-10T4						41.4	34.91	4	101	3789	9426	60	65	155	96	16	80	9	14	8.5	30
40-10T5		10	6.350			41.4	34.91	5	119	4590	1178	60	65	192	96	16	80	9	14	8.5	30
40-12T3						41.4	34.91	3	73	2958	7069	58	6	160	96	18	80	9	14	8.5	30
40-12T4		12	41.4	34.91	4	101	3789	9425	58	60	186	96	18	80	9	14	8.5	30			

Remark : Stiffness values listed above are derived from theoretical formula while preload is 10% of dynamic load rating.

BALL SCREWS (FDI TYPE)

GROUND BALL SCREWS

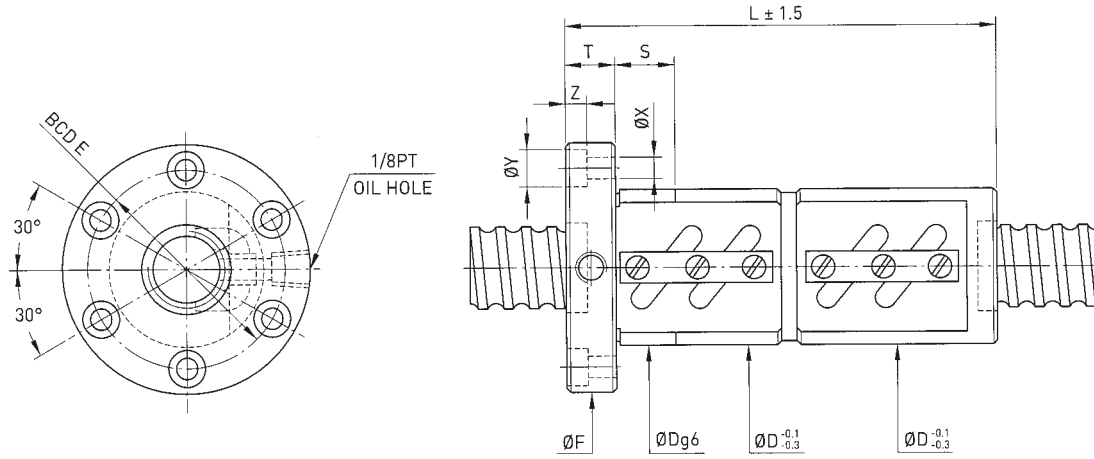


Model	Size		Ball Dia.	PCD	RD	Circuits	Stiffness kgf / μm K	Dynamic Load 1×10^5 revs C (kgf)	Static Load Co (kgf)	Nut			Flange		Bolt			Fit			
	Nominal Dia.	Lead								D	L	F	T	BCD-E	X	Y	Z	S			
45-10T4	45	10	7.144	46.6	39.299	4	108	4683	11930	68	70	160	110	18	90	11	17.5	11	30		
45-12T3		12	6.350	46.4	39.91	3	80	3115	7952	68	70	183	110	16	90	11	17.5	11	30		
45-16T3		16	7.144	46.6	39.299	3	82	3656	8947	68	70	183	110	16	90	11	17.5	11	30		
50-5T4	50	5	3.175	50.6	47.324	4	121	1757	6745	62	65	96	96	16	80	9	14	8.5	30		
50-5T6				50.6	47.324	6	177	2490	10117	62	65	122	96	16	80	9	14	8.5	30		
50-6T4		6	3.969	50.8	46.744	4	123	2388	8250	64	68	113	100	16	84	9	14	8.5	30		
50-6T6				50.8	46.744	6	179	3384	12375	64	68	147	100	16	84	9	14	8.5	30		
50-8T4				8	4.763	51	46.132	4	122	2998	9578	65	70	136	102	16	85	9	14	8.5	30
50-8T6		51	46.132			6	178	4249	14367	65	70	178	102	16	85	9	14	8.5	30		
50-10T3		10	6.350	51.4	44.91	3	95	3397	9256	69	74	135	114	18	92	11	17.5	11	40		
50-10T4				51.4	44.91	4	124	4350	12341	69	74	157	114	18	92	11	17.5	11	40		
50-10T6				51.4	44.91	6	184	6165	18511	69	74	203	114	18	92	11	17.5	11	40		
50-12T3				12	7.938	51.8	43.688	3	94	4420	11047	73	78	158	118	18	96	11	17.5	11	40
50-12T4	51.8	43.688	4			124	5660	14730	73	78	184	118	18	96	11	17.5	11	40			
63-6T4	63	6	3.969	63.8	59.744	4	148	2674	10542	78	80	115	119	18	98	11	17.5	11	40		
63-6T6				63.8	59.744	6	220	3704	15813	78	80	143	119	18	98	11	17.5	11	40		
63-8T4		8	4.763	64	59.132	4	152	3395	12541	79	82	138	122	18	100	11	17.5	11	40		
63-8T6				64	59.132	6	222	4812	18811	79	82	180	122	18	100	11	17.5	11	40		
63-10T4		10	6.350	64.4	57.91	4	158	4860	15858	82	88	159	134	20	110	14	20	13	40		
63-10T6				64.4	57.91	6	228	6887	23786	82	88	205	134	20	110	14	20	13	40		
63-12T4				12	7.938	64.8	56.688	4	152	6479	19293	86	92	186	138	20	114	14	20	13	40
63-12T6						64.8	56.688	6	224	9182	28939	86	92	242	138	20	114	14	20	13	40
80-10T4		80	10	6.350	81.4	74.91	4	190	5559	21118	99	105	172	152	20	127	14	20	13	40	
80-10T6					81.4	74.91	6	277	7879	31677	99	105	214	152	20	127	14	20	13	40	
80-12T4	12		7.938	81.8	73.688	4	192	7430	25681	103	110	190	170	24	138	18	26	17.5	50		
80-12T6				81.8	73.688	6	280	10530	38521	103	110	246	170	24	138	18	26	17.5	50		
80-16T3				16	9.525	82.2	72.466	3	188	9663	31622	108	115	208	174	24	143	18	26	17.5	50
80-16T4						82.2	72.466	4	254	12375	42162	108	115	244	174	24	143	18	26	17.5	50
80-20T3	20		9.525	82.2	72.466	3	189	9663	31622	108	115	250	174	24	143	18	26	17.5	50		
80-20T4				82.2	72.466	4	248	12375	42162	108	115	296	174	24	143	18	26	17.5	50		
100-12T4	100		12	7.938	101.8	93.688	4	206	8306	33001	123	130	190	190	24	158	18	26	17.5	50	
100-12T6					101.8	93.688	6	343	11772	49502	123	130	246	190	24	158	18	26	17.5	50	
100-16T4		16	9.525	102.2	92.466	4	212	13569	53161	135	135	244	194	24	163	18	26	17.5	60		
100-16T6				102.2	92.466	6	276	19230	79741	135	135	318	194	24	163	18	26	17.5	60		
100-20T4		20	9.525	102.2	92.466	4	300	13569	53161	135	135	296	194	24	163	18	26	17.5	60		

Remark : Stiffness values listed above are derived from theoretical formula while preload is 10% of dynamic load rating.

BALL SCREWS (FDW TYPE)

GROUND BALL SCREWS

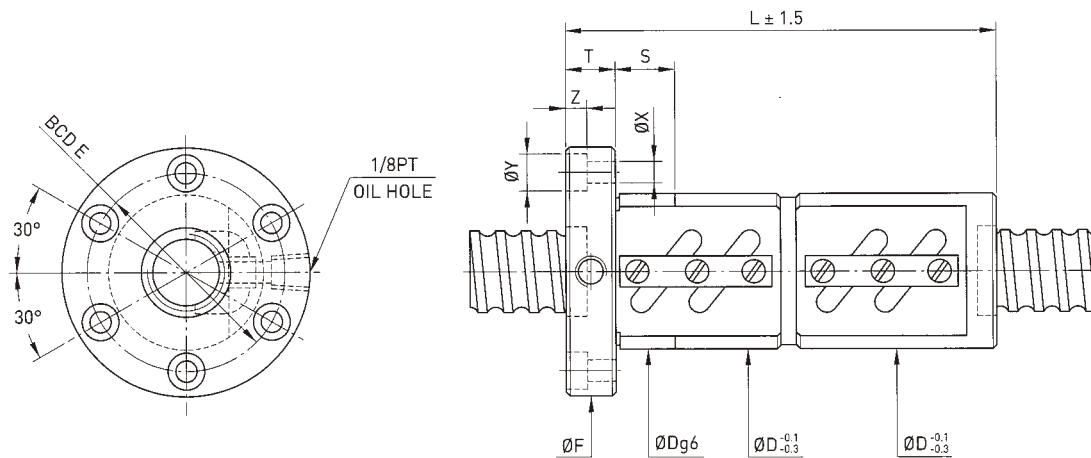


Model	Size		Ball Dia.	PCD	RD	Circuits	Stiffness kgf / μm K	Dynamic Load 1×10^6 revs C (kgf)	Static Load Co (kgf)	Nut		Flange			Bolt			Fit	
	Nominal Dia.	Lead								D	L	F	T	BCD-E	X	Y	Z		S
16-5B2	16	5	3.175	16.6	13.324	2.5x2	65	1385	2799	40	110	64	12	51	5.5	9.5	5.5	24	
16-5B1				16.6	13.324	2.5x1	32	763	1400	40	80	64	12	51	5.5	9.5	5.5	24	
16-5C1				16.6	13.324	3.5x1	46	1013	1946	40	90	64	12	51	5.5	9.5	5.5	24	
20-5B1	20	5	3.175	20.6	17.324	2.5x1	38	837	1733	44	80	68	12	55	5.5	9.5	5.5	24	
20-5B2				20.6	17.324	2.5x2	76	1519	3465	44	110	68	12	55	5.5	9.5	5.5	24	
20-6B1				20.8	16.744	2.5x1	40	1139	2187	48	92	72	12	59	5.5	9.5	5.5	24	
20-6C1	6	3.969	3.969	20.8	16.744	3.5x1	55	1512	3041	48	104	72	12	59	5.5	9.5	5.5	24	
25-5A2	25	5	3.175	25.6	22.324	1.5x2	54	1092	2622	50	102	73	11	61	5.5	9.5	5.5	24	
25-5B1				25.6	22.324	2.5x1	46	939	2209	50	80	74	12	62	5.5	9.5	5.5	24	
25-5B2				25.6	22.324	2.5x2	90	1704	4417	50	110	74	12	62	5.5	9.5	5.5	24	
25-5C1		25.6	22.324	3.5x1	68	1252	3085	50	90	74	12	62	5.5	9.5	5.5	24			
25-6B2		25.8	21.744	2.5x2	94	2304	5524	56	128	82	12	69	6.6	11	6.5	24			
25-6C1		6	3.969	3.969	25.8	21.744	3.5x1	66	1690	3844	56	104	82	12	69	6.6	11	6.5	24
25-10B1	10	4.763	4.763	26	21.132	2.5x1	48	1592	3237	60	122	86	16	73	6.6	11	6.5	24	
28-5B1	28	5	3.175	28.6	25.324	2.5x1	51	984	2466	55	80	85	12	69	6.6	11	6.5	24	
28-5B2				28.6	25.324	2.5x2	98	1785	4932	55	110	85	12	69	6.6	11	6.5	24	
28-6A2				28.6	25.324	1.5x2	59	1150	2960	55	110	85	12	69	6.6	11	6.5	24	
28-6B2				28.6	25.324	2.5x2	98	1776	4980	55	123	85	12	69	6.6	11	6.5	24	
32-4B2	4	2.381	2.381	32.25	29.792	2.5x2	91	1071	3582	54	93	81	12	67	6.6	11	6.5	24	
32-5B1	5	3.175	3.175	32.6	29.324	2.5x1	55	1039	2833	58	80	84	12	71	6.6	11	6.5	24	
32-5B2				32.6	29.324	2.5x2	109	1886	5666	58	110	84	12	71	6.6	11	6.5	24	
32-5C1				32.6	29.324	3.5x1	76	1388	3967	58	90	84	12	71	6.6	11	6.5	24	
32-6B1	6	3.969	3.969	32.8	28.744	2.5x1	57	1409	3510	62	92	88	12	75	6.6	11	6.5	24	
32-6B2				32.8	28.744	2.5x2	112	2556	7020	62	128	88	12	75	6.6	11	6.5	24	
32-6C1				32.8	28.744	3.5x1	78	1888	4936	62	104	88	12	75	6.6	11	6.5	24	
32-8A2	32	8	4.763	33	28.132	1.5x2	70	2082	5151	66	135	100	15	82	9	14	8.5	30	
32-8B1				33	28.132	2.5x1	58	1810	4227	66	110	100	16	82	9	14	8.5	30	
32-8B2				33	28.132	2.5x2	115	3284	8453	66	158	100	16	82	9	14	8.5	30	
32-8B3		33	28.132	2.5x3	168	4653	12678	74	205	108	16	90	9	14	8.5	30			
32-8C1		33	28.132	3.5x1	82	2428	5948	66	126	100	16	82	9	14	8.5	30			
32-10A2		10	6.350	6.350	33.4	26.91	1.5x2	72	3051	6612	74	167	108	15	90	9	14	8.5	30
32-10B1	33.4				26.91	2.5x1	58	2651	5600	74	122	108	16	90	9	14	8.5	30	
32-10B2	33.4				26.91	2.5x2	118	4810	11199	74	182	108	16	90	9	14	8.5	30	
32-10C1	33.4		26.91	3.5x1	86	3519	7785	74	142	108	16	90	9	14	8.5	30			
32-12B1	12		6.350	6.350	33.4	26.91	2.5x1	62	2602	5510	74	153	108	18	90	9	14	8.5	30
32-12B2					33.4	26.91	2.5x2	118	4810	11199	74	232	108	16	90	9	14	8.5	30
32-12C1		33.4			26.91	3.5x1	84	3518	7784	74	166	108	16	90	9	14	8.5	30	

Remark : Stiffness values listed above are derived from theoretical formula while preload is 10% of dynamic load rating.

BALL SCREWS (FDW TYPE)

GROUND BALL SCREWS

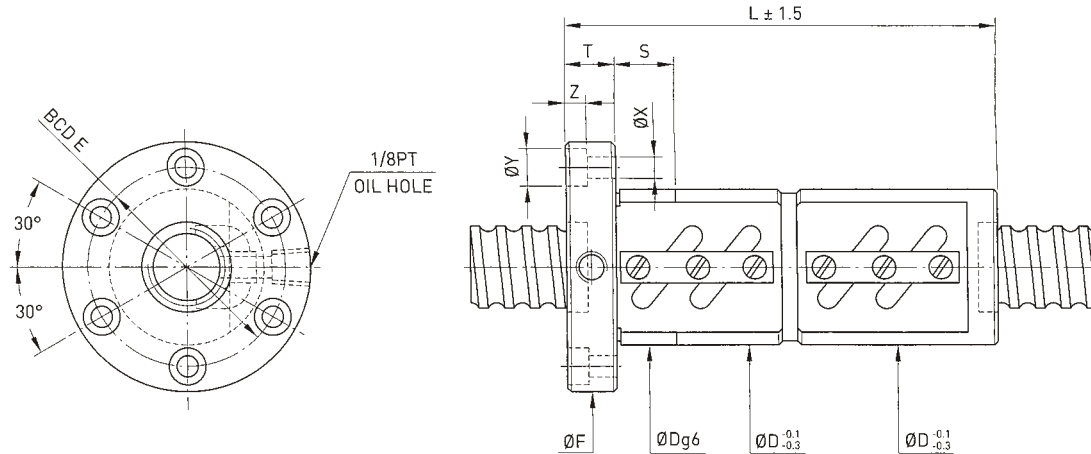


Model	Size		Ball Dia.	PCD	RD	Circuits	Stiffness kgf / μm K	Dynamic Load 1×10^7 revs C (kgf)	Static Load Co (kgf)	Nut		Flange		Bolt				Fit			
	Nominal Dia.	Lead								D	L	F	T	BCD-E	X	Y	Z		S		
36-6B1	36	6	3.969	36.8	32.744	2.5x1	62	1486	3969	65	92	100	12	82	6.6	11	6.5	24			
36-6B2				36.8	32.744	2.5x2	121	2696	7937	65	128	100	12	82	6.6	11	6.5	24			
36-12A2		12	4.763	37	32.132	1.5x2	80	2557	6693	70	155	108	15	90	9	14	8.5	30			
36-12B1				37.4	30.91	2.5x1	67	2812	6334	75	126	120	16	98	11	17.5	11	30			
36-10B2		10	6.350	6.350	37.4	30.91	2.5x2	132	5105	12669	75	184	120	18	98	11	17.5	11	30		
36-12B2		12			37.4	30.91	2.5x2	130	5105	12668	75	206	120	18	98	11	17.5	11	30		
36-8A2		8	4.763	4.763	37	32.132	1.5x2	77	2217	5669	70	135	108	15	90	9	14	8.5	30		
36-8B2					37	32.132	2.5x2	126	3489	9606	70	158	108	15	90	9	14	8.5	30		
40-5B1	40	5	3.175	40.6	37.324	2.5x1	65	1141	3567	68	84	102	16	84	9	14	8.5	30			
40-5B2				40.6	37.324	2.5x2	132	2071	7134	68	114	102	16	84	9	14	8.5	30			
40-6B2		6	3.969	3.969	40.8	36.744	2.5x2	136	2817	8855	70	132	104	16	86	9	14	8.5	30		
40-8B1					8	4.763	41	36.132	2.5x1	69	2003	5302	74	110	108	16	90	9	14	8.5	30
40-8B2		41	36.132	2.5x2			137	3634	10603	74	158	108	16	90	9	14	8.5	30			
40-8B3		41	36.132	2.5x3			200	5150	15904	74	210	108	15	90	9	14	8.5	30			
40-8C1		10	6.350	6.350	41	36.322	3.5x1	96	2679	7438	74	126	108	16	90	9	14	8.5	30		
40-10A2					41.4	34.91	1.5x2	87	3418	8398	82	170	124	18	102	11	17.5	11	30		
40-10B1					41.4	34.91	2.5x1	72	2959	7069	84	132	125	18	104	11	17.5	11	30		
40-10B2					41.4	34.91	2.5x2	145	5370	14138	84	192	125	18	104	11	17.5	11	30		
40-10C1		12	7.144	7.144	41.4	34.91	3.5x1	102	3932	9841	84	152	125	18	104	11	17.5	11	30		
40-12A2					41.6	34.299	1.5x2	88	4006	9404	86	160	128	18	106	11	17.5	11	30		
40-12B1					41.6	34.299	2.5x1	70	3425	7837	86	153	128	18	106	11	17.5	11	40		
40-12B2					41.6	34.299	2.5x2	141	6217	15674	86	225	128	18	106	11	17.5	11	40		
40-12C1					41.6	34.299	3.5x1	103	4637	11146	86	179	128	18	106	11	17.5	11	30		
40-16A2					16	4.763	4.763	41.6	34.299	1.5x2	83	4007	9405	86	214	128	18	106	11	17.5	11
40-16B1	41.6							34.299	2.5x1	72	3425	7837	86	182	128	18	106	11	17.5	11	40
40-16B2	41.6				34.299	2.5x2	143	6216	15674	86	272	128	22	106	11	17.5	11	30			
45-10B1	45	10	6.350	46.4	39.91	2.5x1	76	3111	7953	88	134	132	18	110	11	17.5	11	30			
45-10B2				46.4	39.91	2.5x2	156	5655	15905	88	194	132	18	110	11	17.5	11	30			
45-12B2		12	7.938	7.938	46.8	38.688	2.5x2	162	7627	19799	96	230	142	22	117	13	20	13	40		
45-16B2					16	7.144	46.6	39.299	2.5x2	158	6636	17895	90	278	132	18	110	11	17.5	11	30
50-5A2	50	5	3.175	50.6	47.324	1.5x2	96	1447	5382	80	107	114	16	96	9	14	8.5	30			
50-5A3				50.6	47.324	1.5x3	143	2051	8072	80	127	114	16	96	9	14	8.5	30			
50-6B2		6	3.969	3.969	50.8	46.744	2.5x2	161	3093	11149	84	134	118	16	100	9	14	8.5	30		
50-6B3					50.8	46.744	2.5x3	235	4384	16723	84	170	118	16	100	9	14	8.5	30		
50-8B1		8	4.763	4.763	51	46.132	2.5x1	81	2206	6705	87	112	128	18	107	11	17.5	11	30		
50-8B2					51	46.132	2.5x2	165	4004	13409	87	160	128	18	107	11	17.5	11	30		
50-8B3					51	46.132	2.5x3	244	5674	20114	87	208	128	18	107	11	17.5	11	30		
50-10B1					10	6.350	6.350	51.4	44.91	2.5x1	88	3245	8918	93	133	135	18	113	11	17.5	11

Remark : Stiffness values listed above are derived from theoretical formula while preload is 10% of dynamic load rating.

BALL SCREWS (FDW TYPE)

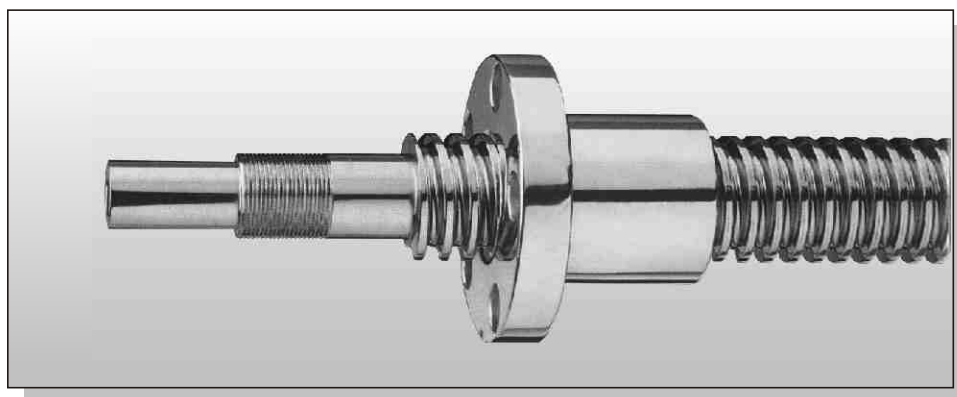
GROUND BALL SCREWS



Model	Size		Ball Dia.	PCD	RD	Circuits	Stiffness kgf / μm K	Dynamic Load 1×10^6 revs C (kgf)	Static Load Co (kgf)	Nut		Flange		Bolt			Fit		
	Nominal Dia.	Lead								D	L	F	T	BCD-E	X	Y	Z	S	
50-10B2	50	10	6.350	51.4	44.91	2.5x2	173	5923	17670	94	194	135	18	114	11	17.5	11	30	
50-10B3				51.4	44.91	2.5x3	255	8394	26505	94	254	135	18	114	11	17.5	11	30	
50-10C1				51.4	44.91	3.5x1	120	4393	12481	94	154	135	18	114	11	17.5	11	30	
50-12B1		12	7.938	51.8	43.688	2.5x1	90	4367	10918	100	159	146	22	122	14	20	13	40	
50-12B2				51.8	43.688	2.5x2	178	8022	22094	102	232	150	22	125	13	20	13	40	
50-12C1				51.8	43.688	3.5x1	123	5875	15380	102	184	150	22	125	13	20	13	40	
50-16B2				51.8	43.688	2.5x2	174	7918	21837	100	280	146	22	122	14	20	13	40	
50-20B1				51.8	43.688	2.5x1	90	4367	10918	100	227	146	28	122	14	20	13	40	
55-10C1	55	10	6.350	56.4	49.91	3.5x1	132	4562	13661	100	154	140	18	118	11	17.5	11	40	
55-12B2		12	7.938	56.8	48.688	2.5x2	185	8392	24390	105	232	154	22	127	13	20	13	40	
63-8A2	63	8	4.763	64	59.132	1.5x2	107	2826	10129	104	142	146	18	124	11	17.5	11	40	
63-8A3				64	59.132	1.5x3	154	4004	15193	104	174	146	18	124	11	17.5	11	40	
63-10B2				64.4	57.91	2.5x2	206	6533	22371	110	196	152	20	130	11	17.5	11	30	
63-10B3				64.4	57.91	2.5x3	305	9258	33556	110	256	152	20	130	11	17.5	11	30	
63-12B2		12	7.938	64.8	56.688	2.5x2	214	8943	28062	118	232	166	22	141	13	20	13	40	
63-16B2		16	9.525	65.2	55.466	2.5x2	280	14862	46009	124	296	172	22	147	13	20	13	40	
63-20B2		20	9.525	65.2	55.466	2.5x2	280	14862	46009	124	334	172	22	147	13	20	13	40	
70-10B2		70	10	6.350	71.4	64.91	2.5x2	228	6843	25011	124	196	170	20	145	13	20	13	40
70-10B3	71.4				64.91	2.5x3	334	9698	37516	124	296	170	20	145	13	20	13	40	
70-12B2	71.8				63.688	2.5x2	236	9382	31275	130	232	178	22	152	13	20	13	40	
70-12B3	71.8		63.688	2.5x3	336	13296	46912	130	302	178	22	152	13	20	13	40			
70-20B2	20		9.525	72.2	62.466	2.5x2	300	15644	51502	130	325	186	28	158	18	26	17.5	60	
80-10B2	80		10	6.350	81.4	74.91	2.5x2	251	7202	28538	130	200	178	22	152	13	20	13	40
80-10B3		81.4			74.91	2.5x3	368	10207	42807	130	260	178	22	152	13	20	13	40	
80-12B2		81.8			73.688	2.5x2	257	9797	35422	136	232	185	22	159	13	20	13	40	
80-12B3		81.8			73.688	2.5x3	380	13884	53132	136	302	185	22	159	13	20	13	40	
80-16B2		82.2			72.466	2.5x2	340	16485	58851	145	302	210	28	174	18	26	17.5	50	
80-16B3		82.2	72.466	2.5x3	498	23363	88276	145	398	210	28	174	18	26	17.5	50			
80-20B2		82.2	72.466	2.5x2	338	16485	58851	145	345	210	28	174	18	26	17.5	50			
80-20B3		82.2	72.466	2.5x3	498	23363	88276	145	470	210	28	174	18	26	17.5	50			
100-12B2		100	12	7.938	101.8	93.688	2.5x2	301	10761	44596	160	240	224	28	188	18	26	17.5	50
100-12B3					101.8	93.688	2.5x3	452	15251	66894	160	312	224	28	188	18	26	17.5	50
100-16B2	102.2				92.466	2.5x2	400	18123	74425	170	308	248	32	205	22	32	21.5	60	
100-16B3	102.2		92.466	2.5x3	595	25684	111637	170	404	248	32	205	22	32	21.5	60			
100-20B2	102.2		92.466	2.5x2	400	18123	74425	170	350	248	32	205	22	32	21.5	60			
100-20B3	102.2		92.466	2.5x3	595	25684	111637	170	475	248	32	205	22	32	21.5	60			

Remark : Stiffness values listed above are derived from theoretical formula while preload is 10% of dynamic load rating.

LEAD SCREWS



FEATURES TRAPEZOIDAL SCREWS AND NUTS

Trapezoidal screws are precision rolled. Continuous search for improvement and many years of experience in the development of the cold plastic deformation process which characterizes rolling allow us to offer our customers trapezoidal screws with excellent features.

MATERIALS

Steel used in trapezoidal screws		After Rolling
C15E - 1.1141 EN 10084 - C15E	Carbon Steel	160/180 HB
1C45 - 1.0503 EN 10083 - 1C45	Carbon Steel	App. 250 HB
A2 - 1.4301 - X5CrNi18-10 EN 10088	Stainless steel	App. 260 HB
A4 - AISI 316 1.4401 X5CrNiMo17-12-2 EN 10088	Stainless steel	App. 280 Hb

C45 and A2 stainless steel were chosen because in addition to their natural qualities as good construction materials, after rolling they give very good surface hardness and finish on the thread sides. A4 stainless steel also has excellent corrosion resistance. C15 is an excellent quality - price compromise. After rolling, the C15 has surface hardness of approximately 160/180 HB, C45 approximately 250 HB, A2 Stainless approximately 260 HB and A4 stainless approximately 280 HB while roughness is less than 1 m Ra for all. These two features are decisive factors for qualitative appraisal of trapezoidal screws because they give very

small friction coefficients, much lower than those obtainable with machined screws where other conditions such as speed, load and lubrication are equal. Our trapezoidal screws with bronze nuts give traversing systems with efficiency, and quietness compared with coupling with machined screws because of the low friction coefficient the amount of heat generated during movement is limited with resulting smaller nut heating. Nut life is also increased. We make nuts with 10 kinds of material to better meet the various requirements.

POSITIONING ACCURACY

Screw Type	Lead Accuracy / 300mm	Material
KQX	200	C15E - EN 10084 C15E 1.1141
KTS		1 C45 - EN 10083 - 1C45 - 1.0503
KFH	100	1 C45 - EN 10083 - 1C45 - 1.0503
KKA	50	1 C45 - EN 10083 - 1C45 - 1.0503
KRP	200	Stainless steel A2 - AISI 304 - EN 10088 1.4301
KAM		Stainless steel A4 - AISI 316 - EN 10088 1.4401

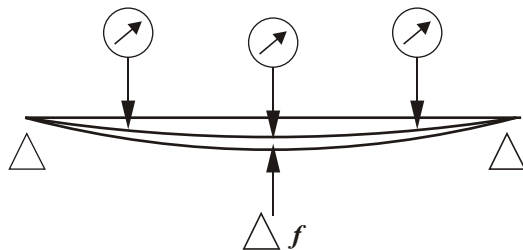
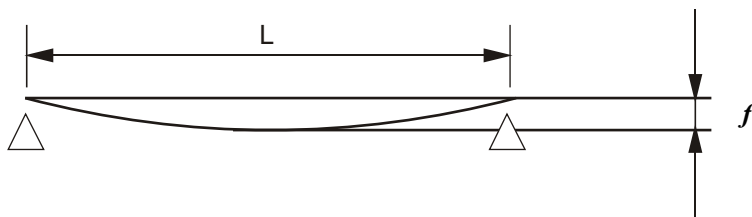
STRAIGHTNESS

These screws are produced with controlled straight lines.

Screw straightness is appraised by measuring the variation of the deflection " f " when the screw is supported at the ends on two constraints and rotated slightly.

For example, the screw KKA Tr 30 A (threading Tr 30 x 6 with 1 start) has straightness of 0.3 on 3000 mm.

This means that a screw Tr 30x6 3000 mm long resting on two constraints at the ends and slightly rotated displays a camber variation " Δf " less than 0.3 mm at all points of the screw



f = screw weight camber

for screws Tr 30x6 with $L = 3000$ mm
 Δf maximum : 0.3

Good screw straightness gives operation with load always centered on the axis, hence uniform distribution of surface contact pressure between screw and nut with resulting smooth running, and regular rotation and traversing.

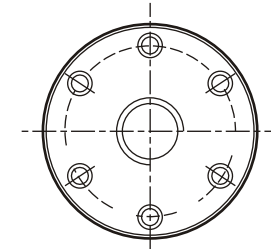
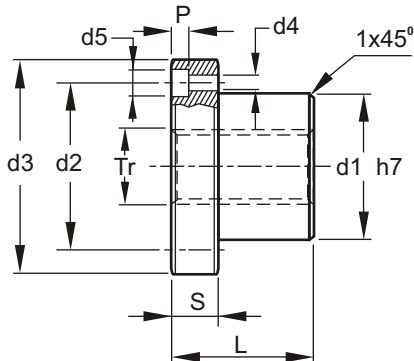
LEAD SCREWS

TRAPEZOIDAL SCREW TYPE KQX LEAD ACCURACY 200 - STEEL C15 1. 1141

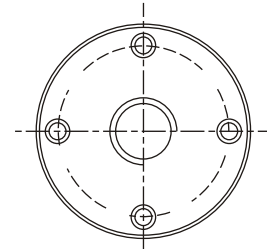
Stock no. for screw RIGHT	Stock no. for screw LEFT	Diameter x Lead	Thread starts	Lead accuracy $\mu\text{m} / 300 \text{ mm}$	Straightness mm / mm	Weight kg / mt
KQX 10 A R	KQX 10 A L	Tr 10x3	1	200	0.7 / 1000	0.42
KQX 12 A R	KQX 12 A L	Tr 12x3				0.65
KQX 12 B R	--	Tr 12x6 (P3)	2			0.86
KQX 14 A R	KQX 14 A L	Tr 14x4	1		0.7 / 1500	1.17
KQX 16 A R	KQX 16 A L	Tr 16x4				1.53
KQX 16 B R	--	Tr 16x8 (P4)	2			1.94
KQX 18 A R	KQX 18 A L	Tr 18x4	1		0.6 / 2000	1.84
KQX 20 A R	KQX 20 A L	Tr 20x4				2.29
KQX 20 B R	--	Tr 20x8 (P4)	2			2.79
KQX 20 D R	--	Tr 20x20 (P5)	4		0.4 / 2000	3.05
KQX 22 A R	KQX 22 A L	Tr 22x5	1			3.33
KQX 24 A R	KQX 24 A L	Tr 24x5				3.92
KQX 25 A R	KQX 25 A L	Tr 25x5	2		0.4 / 3000	4.38
KQX 25 B R	--	Tr 25x10 (P5)				5.06
KQX 25 E R	--	Tr 25x25 (P5)	5			6.16
KQX 26 A R	KQX 26 A L	Tr 26x5	1		0.3 / 3000	6.56
KQX 28 A R	KQX 28 A L	Tr 28x5				8.03
KQX 28 B R	--	Tr 28x10 (P5)	2			7.90
KQX 30 A R	KQX 30 A L	Tr 30x6	1		9.90	
KQX 30 B R	--	Tr 30x12 (P6)	2			10.23
KQX 30 F R	--	Tr 30x30 (P5)	6		12.90	
KQX 32 A R	KQX 32 A L	Tr 32x6	1		15.51	
KQX 35 A R	KQX 35 A L	Tr 35x6				18.74
KQX 36 A R	KQX 36 A L	Tr 36x6	2		25.80	
KQX 40 A R	KQX 40 A L	Tr 40x7				34.39
KQX 40 B R	--	Tr 40x14 (P7)	5			
KQX 40 E R	--	Tr 40x40 (P8)	5			
KQX 44 A R	KQX 44 A L	Tr 44x7	1			
KQX 45 A R	KQX 45 A L	Tr 45x8				
KQX 50 A R	KQX 50 A L	Tr 50x8	1			
KQX 55 A R	--	Tr 55x9				
KQX 60 A R	KQX 60 A L	Tr 60x9	1			
KQX 70 A R	--	Tr 70x10				
KQX 80 A R	--	Tr 80x10	1			

LEAD SCREWS

TRAPEZOIDAL NUT TYPE FTN-FLANGED BRONZE



From Tr 24x5 to Tr 60x9
6 holes



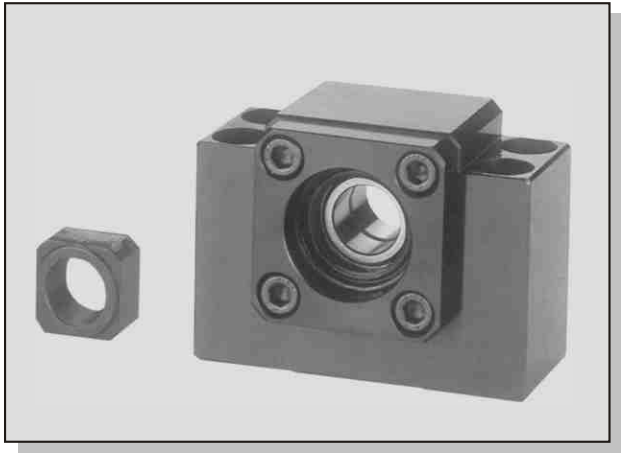
From Tr 10x3 to Tr 22x5
4 holes

Nut stock no. RIGHT	Nut stock no. LEFT	Diameter x Lead	Thread starts	d1	d2	d3	d4	d5	P	L	S	no. screw holes	Fastening screw holes	Wt. kg/cad.	At mm ² (1)
FTN 10 A R	FTN 10 A L	Tr 10x3	1	18	26	37	4.5	7.5	4.2	22	8	4	M4	0.088	294
FTN 12 A R	FTN 12 A L	Tr 12x3		20	30	42	5.5	9	5.2	25	10			M5	0.082
FTN 14 A R	FTN 14 A L	Tr 14x4		22	32	45							25		30
FTN 16 A R	FTN 16 A L	Tr 16x4		25	35	48	30	35	0.149	660					
FTN 18 A R	FTN 18 A L	Tr 18x4		30	40	52	35	40	0.188	880					
FTN 20 A R	FTN 20 A L	Tr 20x4		35	48	62	40	45	0.267	1130					
FTN 22 A R	FTN 22 A L	Tr 22x5		40	53	68	45	50	0.247	1225					
FTN 25 A R	FTN 25 A L	Tr 25x5		50	63	78	50	60	0.393	1590					
FTN 28 A R	FTN 28 A L	Tr 28x5		55	68	84	55	65	0.532	2000					
FTN 30 R R	FTN 30 R L	Tr 30x3		60	75	90	6.5	11	6.5	50	12	6	M6	0.482	2238
FTN 30 Q R	FTN 30 Q L	Tr 30x4		40	53	68	6.5	11	6.5	50	12			0.487	2200
FTN 30 P R	FTN 30 P L	Tr 30x5		50	63	78	6.5	11	6.5	50	12			0.492	2160
FTN 30 A R	FTN 30 A L	Tr 30x6		55	68	84	6.5	11	6.5	50	12			0.497	2120
FTN 35 R R	FTN 35 R L	Tr 35x3		65	80	100	8.5	14	8.5	60	15	6	M8	0.862	3160
FTN 35 Q R	FTN 35 Q L	Tr 35x4		50	63	78	8.5	14	8.5	60	15			0.869	3110
FTN 35 P R	FTN 35 P L	Tr 35x5		55	68	84	8.5	14	8.5	60	15			0.876	3060
FTN 35 A R	FTN 35 A L	Tr 35x6		60	75	90	8.5	14	8.5	60	15			0.883	3015
FTN 35 M R	-	Tr 35x8		65	80	100	8.5	14	8.5	60	15			0.898	2920
FTN 40 R R	FTN 40 R L	Tr 40x3		70	85	110	10.5	17	10.5	65	20			1.030	3930
FTN 40 Q R	FTN 40 Q L	Tr 40x4		55	68	84	10.5	17	10.5	65	20			1.039	3880
FTN 40 P R	FTN 40 P L	Tr 40x5		60	75	90	10.5	17	10.5	65	20			1.048	3828
FTN 40 O R	FTN 40 O L	Tr 40x6		65	80	100	10.5	17	10.5	65	20	1.057	3778		
FTN 40 A R	FTN 40 A L	Tr 40x7		70	85	110	10.5	17	10.5	65	20	1.066	3727		
FTN 40 M R	-	Tr 40x8		75	90	120	12.5	19	12.5	70	25	1.075	3675		
FTN 45 A R	FTN 45 A L	Tr 45x8		80	95	125	12.5	19	12.5	70	25	0.999	4186		
FTN 50 R R	FTN 50 R L	Tr 50x3		85	100	130	15	21	15	80	30	6	M10	1.679	6095
FTN 50 Q R	FTN 50 Q L	Tr 50x4		65	80	100	15	21	15	80	30			1.693	6030
FTN 50 P R	FTN 50 P L	Tr 50x5		70	85	110	15	21	15	80	30			1.707	5970
FTN 50 O R	FTN 50 O L	Tr 50x6	75	90	120	15	21	15	80	30	1.721			5905	
FTN 50 A R	FTN 50 A L	Tr 50x8	80	95	125	15	21	15	80	30	1.749			5780	
FTN 55 A R	-	Tr 55x9	85	100	130	17.5	23	17.5	90	35	1.475			6345	
FTN 60 O R	FTN 60 O L	Tr 60x6	90	105	135	17.5	23	17.5	90	35	2.865			8950	
FTN 60 N R	FTN 60 N L	Tr 60x7	95	110	140	17.5	23	17.5	90	35	2.886			8875	
FTN 60 A R	FTN 60 A L	Tr 60x9	100	115	145	17.5	23	17.5	90	35	2.927	8718			

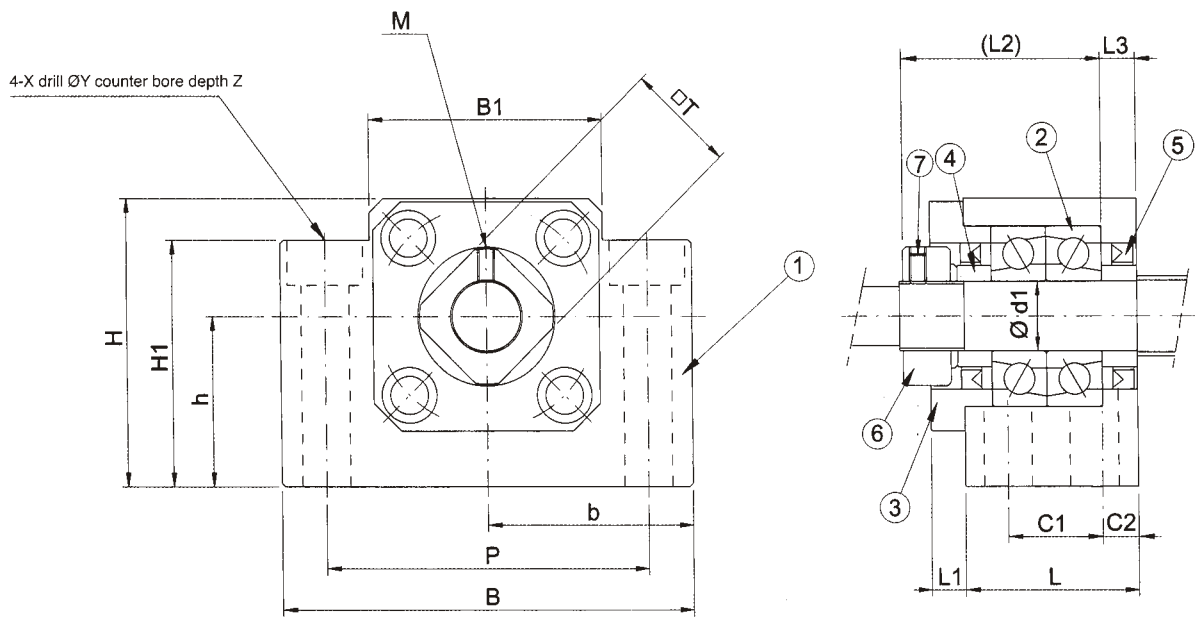
(1) Total bearing surface between screw and nut teeth on plan perpendicular to axis.

Note: These Nuts can be supplied which are manufactured indigenously.

SUPPORT UNIT BK (fixed-side rectangular type)



Park No.	Part name	Qty
1	Housing	1
2	Bearing	1 set
3	Holding lid	1
4	Collar	2
5	Seal	2
6	Lock nut	1 set
7	Hexagon socket-head Setscrew(with set piece)	2

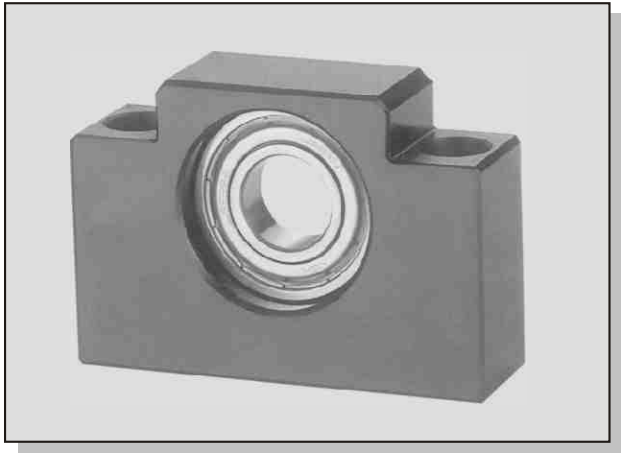


Unit : mm

Model No.	Shaft diameter d1	L	L1	L2	L3	B	H	b	h	B1	H1	P	C1	C2	X	Y	Z	M	T
								±0.02	±0.02										
BK10	10	25	5	29	5	60	39	30	22	34	32.5	46	13	6	6.6	10.8	5	M3	16
BK12	12	25	5	29	5	60	43	30	25	35	32.5	46	13	6	6.6	10.8	1.5	M3	19
BK15	15	27	6	32	6	70	48	35	28	40	38	54	15	6	6.6	11	6.5	M3	22
BK17	17	35	9	44	7	86	64	43	39	50	55	68	19	8	9	14	8.5	M4	24
BK20	20	35	8	43	8	88	60	44	34	52	50	70	19	8	9	14	8.5	M4	32
BK25	25	42	12	54	9	106	80	53	48	64	70	85	22	10	11	17.5	11	M5	35
BK30	30	45	14	61	9	128	89	64	51	76	78	102	23	11	14	20	13	M6	40
BK35	35	50	14	67	12	140	96	70	52	88	79	114	26	12	14	20	13	M8	50
BK40	40	61	18	76	15	160	110	80	60	100	90	130	33	14	18	26	17.5	M8	50

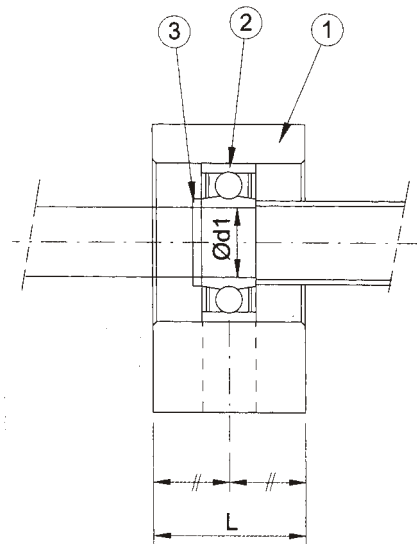
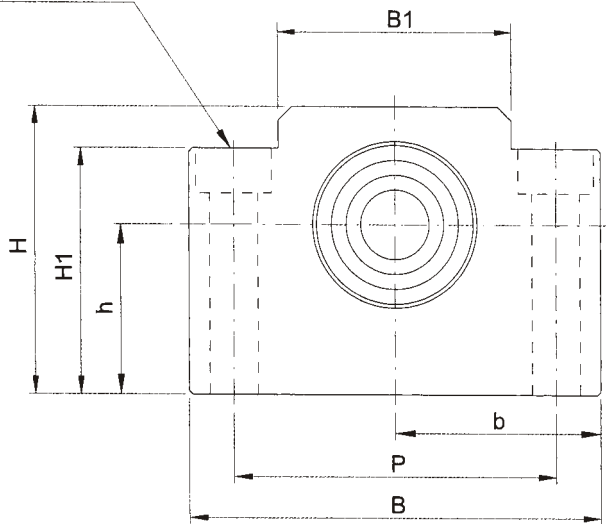
Surface Special treatment is available

SUPPORT UNIT BF (Supported-side rectangular type)



Park No.	Part name	Qty
1	Housing	1
2	Bearing	1 set
3	Snap ring	1

2-X drill ØY counter bore depth Z

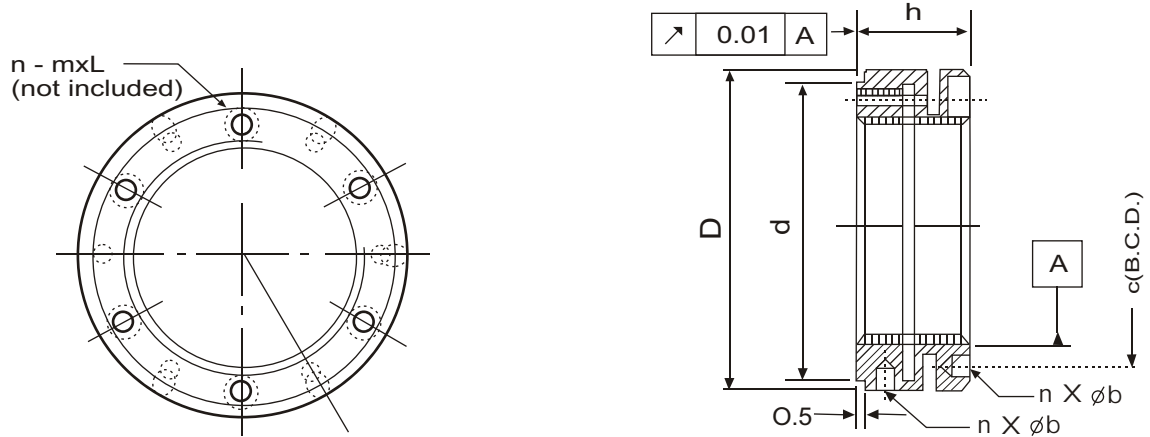


Unit : mm

Model No.	Shaft diameter d1	L	B	H	b	h	B1	H1	P	X	Y	Z	Bearing	Snap ring
					±0.02	±0.02								
BF10	8	20	60	39	30	22	34	32.5	46	6.6	10.8	5	608ZZ	S8
BF12	10	20	60	43	30	25	35	32.5	46	6.6	10.8	1.5	6000ZZ	S10
BF15	15	20	70	48	35	28	40	38	54	6.6	11	6.5	6002ZZ	S15
BF17	17	23	86	64	43	39	50	55	68	9	14	8.5	6203ZZ	S17
BF20	20	26	88	60	44	34	52	50	70	9	14	8.5	6004ZZ	S20
BF25	25	30	106	80	53	48	64	70	85	11	17.5	11	6205ZZ	S25
BF30	30	32	128	89	64	51	76	78	102	14	20	13	6206ZZ	S30
BF35	35	32	140	96	70	52	88	79	114	14	20	13	6207ZZ	S35
BF40	40	37	160	110	80	60	100	90	130	18	26	17.5	6208ZZ	S40

Surface Special treatment is available

YSK SERIES LOCK NUTS

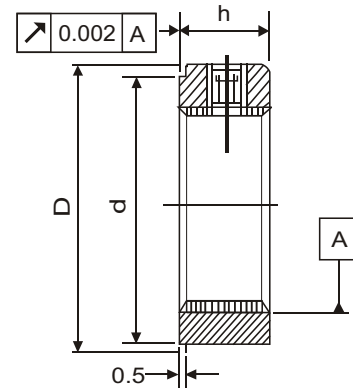
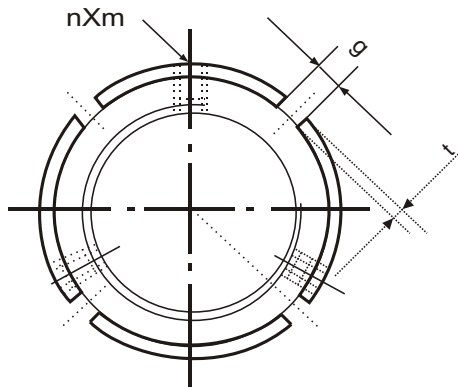


For Ball Screws & Spindles

Thread	D	h	d	n x m-l	b	c	Part NO.
YSK M 20X1.0	40	18	35	4 X M4-12	4 X $\phi 4$	30	YSK 20
YSK M 20X1.5	40	18	35	4 X M4-12	4 X $\phi 4$	30	YSK 20
YSK M 25X1.5	45	20	40	4 X M4-12	4 X $\phi 5$	35	YSK 25
YSK M 30X1.5	48		45	4 X M4-14		39	YSK 30
YSK M 35X1.5	53	22	50	4 X M4-16		44	YSK 35
YSK M 40X1.5	58		55	4 X M4-16	49	YSK 40	
YSK M 45X1.5	68	25	63	6 X M4-16	6 X $\phi 6$	57	YSK 45
YSK M 50X1.5	70		66	6 X M4-18		60	YSK 50
YSK M 55X2.0	75		71	6 X M4-18		65	YSK 55
YSK M 60X2.0	84	26	79	6 X M5-20		72	YSK 60
YSK M 65X2.0	88	28	84	6 X M5-20	6 X $\phi 7$	77	YSK 65
YSK M 70X2.0	95		89	6 X M5-20		82	YSK 70
YSK M 75X2.0	100		94	6 X M5-20		87	YSK 75
YSK M 80X2.0	110	32	103	6 X M6-22		6 X $\phi 8$	95
YSK M 85X2.0	115		108	6 X M6-22	100		YSK 85
YSK M 90X2.0	120		113	6 X M6-22	105		YSK 90
YSK M 95X2.0	125		118	6 X M6-22	110		YSK 95
YSK M 100X2.0	130		123	6 X M6-22	115		YSK 100
YSK M 110X2.0	140	36	133	6 X M6-22	125		YSK 110
YSK M 120X2.0	155		146	6 X M4-25	136	YSK 120	

Remarks : (1) The data are for reference only. (2) 1 Nm = 10.2 kgf.cm=0.73lb.ft

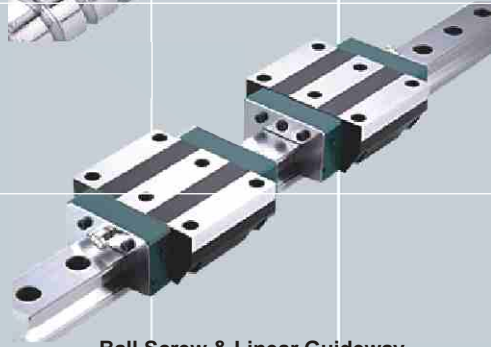
YSR SERIES LOCK NUTS



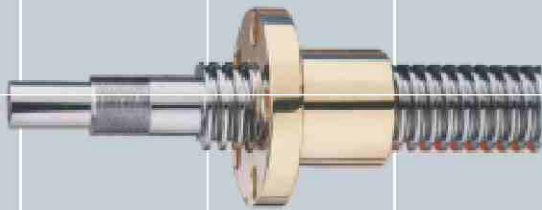
Thread	D	h	g	t	d	n X m	Max. Nm
YSR M 8X0.75	16	8	3	2	11	2 X M4	3.5
YSR M 10X0.75	18				13		
YSR M 12X1	20				16		
YSR M 15X1	25				21		
YSR M 17X1	28	4	4	2	23	2 X M5	8.0
YSR M 20X1	32	10			27	3 X M5	8.0
YSR M 20X1.5					27	3 X M6	8.0
YSR M 25X1.5	38	12			5		
YSR M 30X1.5	45		40				
YSR M 35X1.5	52	14	6	2.5	47		
YSR M 40X1.5	58				52		
YSR M 45X1.5	65				59		
YSR M 50X1.5	70				64		
YSR M 55X2	75	16	7	3	68	3 X M8	18.0
YSR M 60X2	80				73		
YSR M 65X2	85				78		
YSR M 70X2	92				84		
YSR M 75X2	98	18	8	3.5	90	3 X M8	18.0
YSR M 80X2	105				96		
YSR M 85X2	110				102		
YSR M 90X2	120				108		
YSR M 95X2	125	20	10	4	113	3 X M8	18.0
YSR M 100X2	130				118		
YSR M 105X2	140				125		
YSR M 110X2	145				132		
YSR M 115X2	150	22	12	5	137	3 X M8	18.0
YSR M 120X2	155				142		
YSR M 125X2	160				147		
YSR M 130X2	165				152		
YSR M 135X3	175	24	14	6	160	3 X M10	35
YSR M 140X3	180				165		
YSR M 145X3	190				175		
YSR M 150X3	195				180		
YSR M 155X3	200	26	16	7	180	3 X M10	35
YSR M 160X3	210				190		
YSR M 165X3	210				190		
YSR M 170X3	220				200		
YSR M 180X3	230	28	18	8	205	3 X M12	60.0
YSR M 190X3	240				215		
YSR M 200X3	250				225		

Remarks:(1) The data are for reference only. (2) 1 Nm= 10.2kgf.cm=0.73lb.ft

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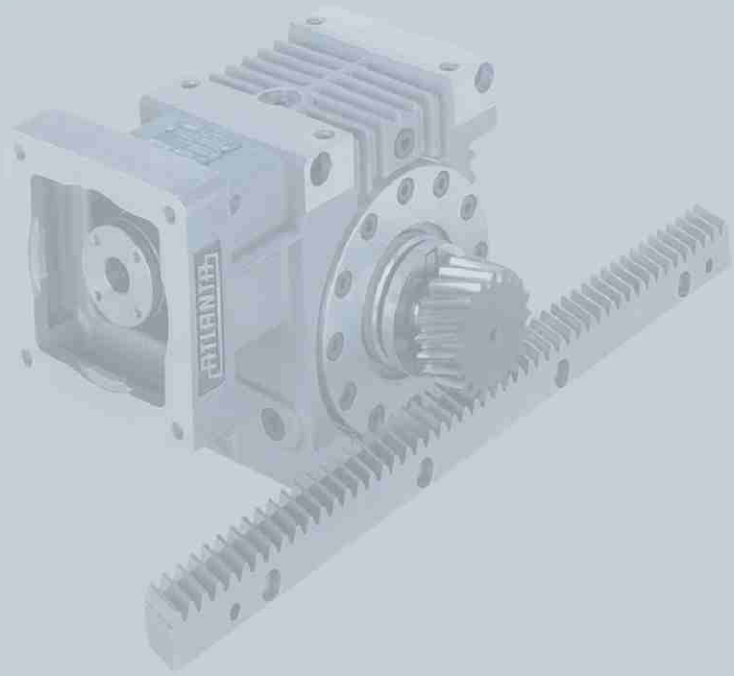
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