




Linear Motion

t e c h n o l o g y





ABBA Linear Tech, established in 1999, was the first professional linear guideway manufacturer in Taiwan, putting patent self-lubricant and four-row linear guides into mass production. Having accumulated 18-year experience of making precise ball screws, ABBA Linear Tech possessed critical techniques, combined R&D achievements with National Taiwan University of Science Technology, and launched the production successfully in 2000. With several international patents,  is thriving worldwide with its own name and having channels in Taiwan, China, Korea, Japan, Europe, America, etc.

Since the beginning, ABBA Linear Tech has been making every endeavor on both marketing and product quality, and was recognized by The Creative Innovation Prize, The Rising Star Award, The National Business Start-up Award, and The Taiwan Symbol of Excellence in 2002 and 2004. Besides, ABBA obtained an investment approval in accordance with the encouragement to significant strategic industries by the Industrial Development Bureau of the Ministry of Economic Affairs. What ABBA strived for in the past four years has been identified and supported by clients, suppliers, and the academia.

In 2006 ABBA Linear Tech set up a global operation center and R&D department in the Ta-Tung Industrial Park to devote to the technological research of high-precise transmission components. Meanwhile, it is always ABBA's spirit to offer the best quality and professional service in order to integrate the global operation resources, fulfill clients' demands, and become a high-class linear guideway supplier within the coming five years.



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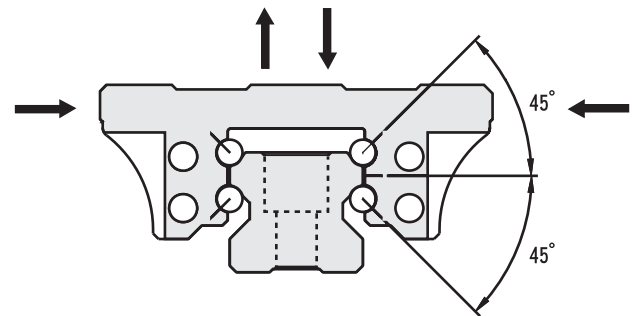
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1.1 Ten Characteristics

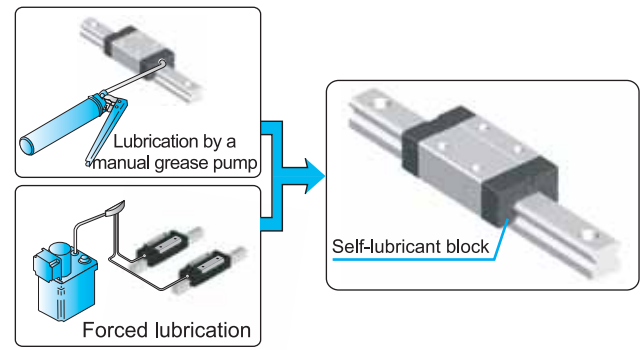
- Built-in long life lubrication (patent)
- Equivalent loading capacity in four directions
- Smooth running due to new ball re-circulation (patent)
- High rigidity : 4-row angular contact
- International standard dimension
- High accuracy, low friction, low maintenance
- High speed, low noise
- Integral all-round sealing
- Interchangeability
- Green production



1.2 Four Advantages of Self-Lubricant Block

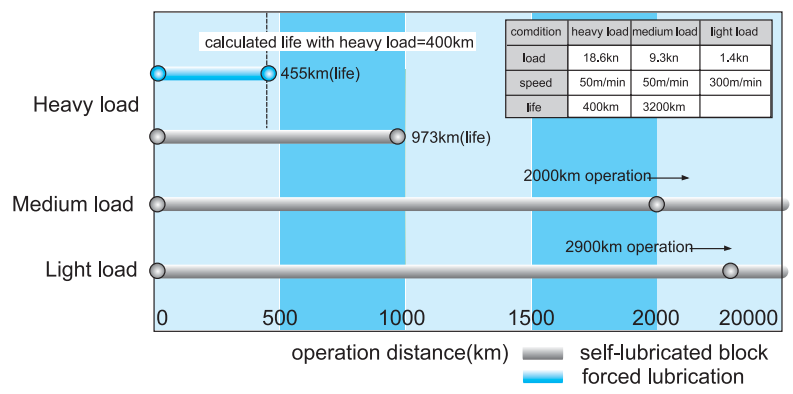
Advantage 1

Maintenance free - No need for frequent periodic lubrication or automatic lubrication systems.



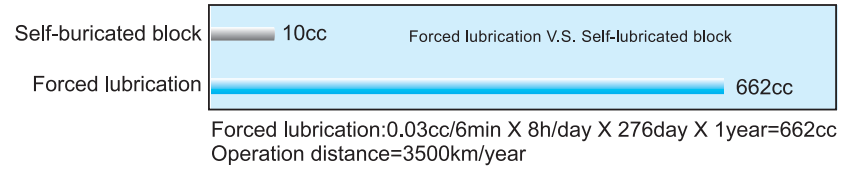
Advantage 2

Extended intervals between maintenance.



Advantage 3

Curtailing lubrication cost.

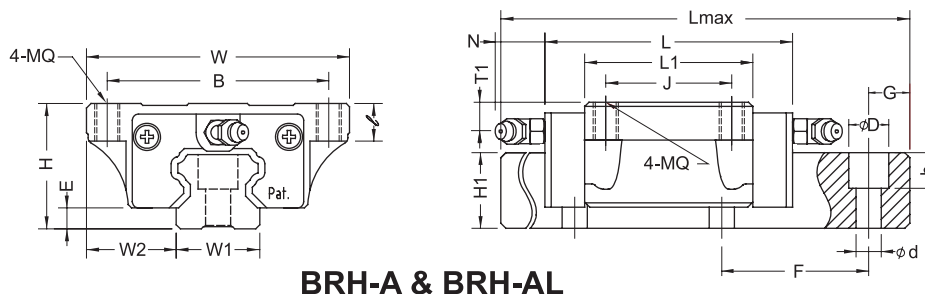


Advantage 4

No oil leakage concern, easy for cleaning.

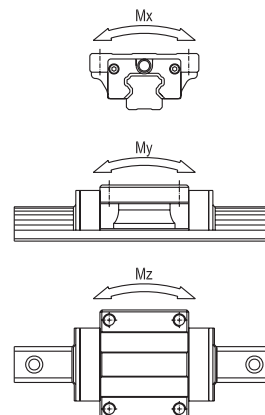


1.3 Interchangeability Notice



BRH-A & BRH-AL

1. Check the mounting height (H)
2. Check the mounting width (W)
3. Check the block length(L)
4. Check the block's body size (L1)
5. Check the hole Diameter and pitches on the block (BXJ)
6. Check the rail width(W1)
7. Check the pitch of the rail (F)
8. Check the hole Diameter and rail size (d X D X h)
9. When a specific length is required, please advise the (G) values in your order.



1.4 Accuracy Selection

We have five grades for your selection:

Normal/ High/ Precision/ Super-Precision/ Ultra Precision

	Application	Accuracy Grade						Application	Accuracy Grade					
		N	H	P	SP	UP			N	H	P	SP	UP	
NC Machine tools	Machining Center			○	○		Industrial Robots	Orthogonal Type	○	○	○			
	Lathe			○	○			Multi-joint Type	○	○				
	Milling Machine			○	○			Semiconductor Machine	Wire Bonder			○	○	
	Boring Machine			○	○	○			Prober			○	○	○
	Jig Borer				○	○	Insertion Machine			○	○			
	Grinding Machine			○	○	○	PCB Driller			○	○	○		
	Electro-discharge Machine			○	○	○	Other Machines	Measuring Machine	○	○				
	Punching Press Machine		○	○				Business Machine	○	○				
	Laser Cutting Machine		○	○	○			Transporting Machine	○	○				
	Wood Working Machine	○		○				X-Y Table		○	○	○		
	NC Drilling Machine		○	○				Painting Machine	○	○				
	Milling Center		○	○				Welding Machine	○	○				
	Packaging Machine	○						Medical Equipment	○	○				
	ATC	○						Digitizer		○	○	○		
	Wire Cut Machine			○	○			Test Equipment			○	○	○	
	Grinding Wheel Machine				○	○								

1.5 Accuracy Standard

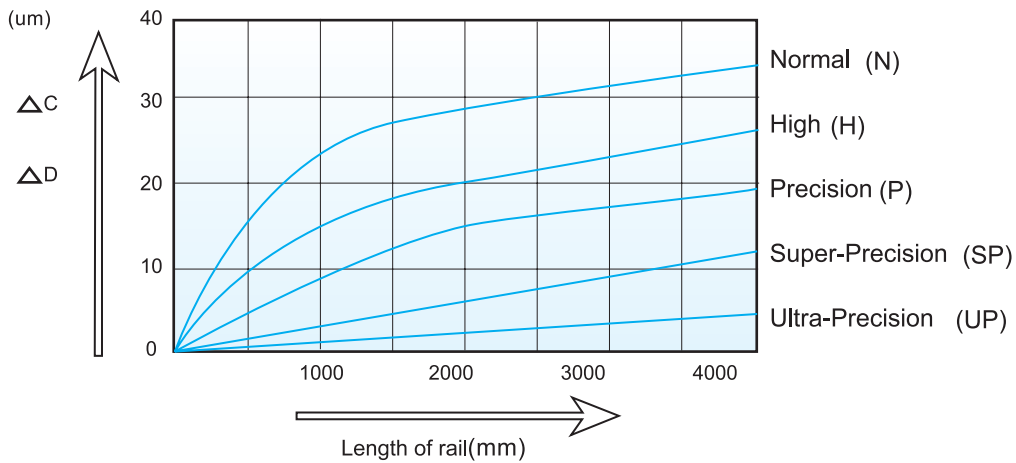
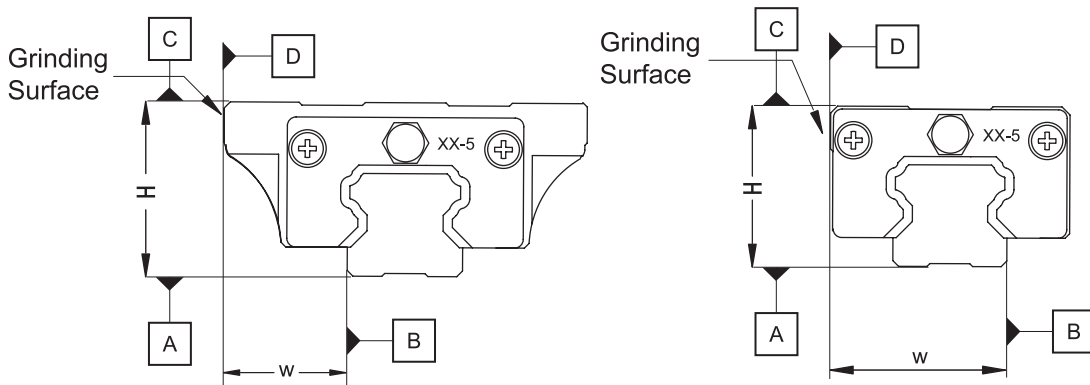
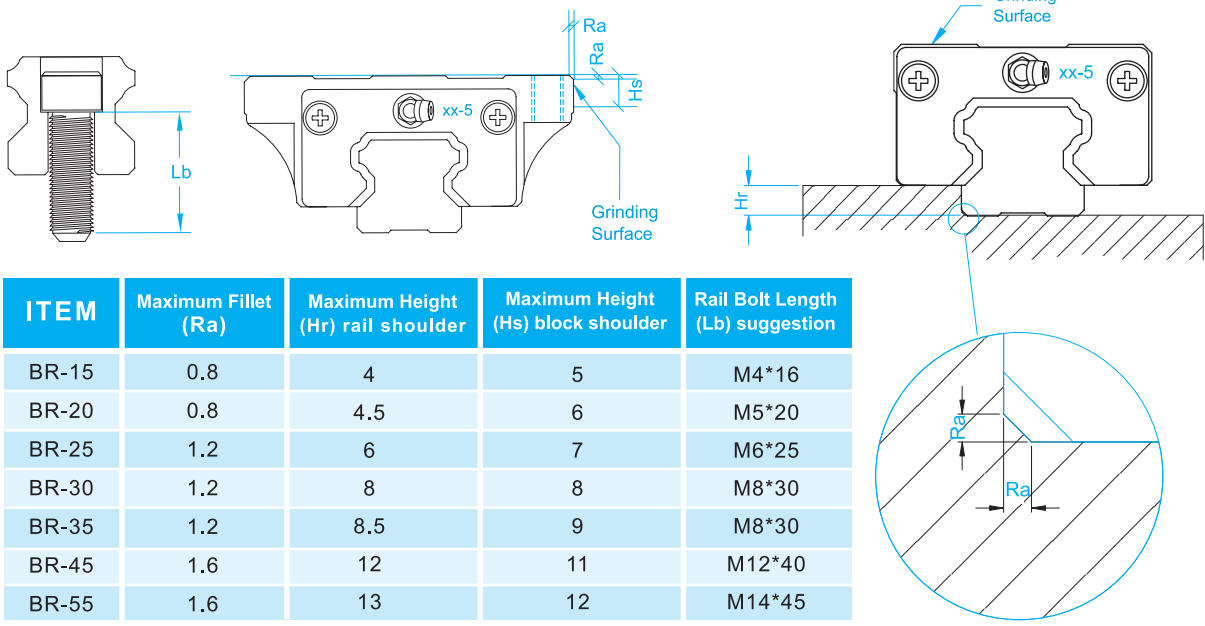


Fig.1 BR rail length and running parallelism

ITEM	GRADE				
	Normal (N)	High (H)	Precision (P)	Super-Precision (SP)	Ultra-Precision (UP)
Tolerance of height(H)	±0.1	±0.04	⁰ _{-0.04}	⁰ _{-0.02}	⁰ _{-0.01}
Tolerance of width(W)	±0.1	±0.04	⁰ _{-0.04}	⁰ _{-0.02}	⁰ _{-0.01}
Difference of heights (ΔH)	0.03	0.02	0.01	0.005	0.003
Difference of widths (ΔW)	0.03	0.02	0.01	0.005	0.003
Running parallelism of BR Block between surface [A] & [C]	ΔC Refer to Fig.1				
Running parallelism of BR Block between surface [B] & [D]	ΔD Refer to Fig.1				

1.6 Technical Information

Suggestion in Assembly



ITEM	Maximum Fillet (Ra)	Maximum Height (Hr) rail shoulder	Maximum Height (Hs) block shoulder	Rail Bolt Length (Lb) suggestion
BR-15	0.8	4	5	M4*16
BR-20	0.8	4.5	6	M5*20
BR-25	1.2	6	7	M6*25
BR-30	1.2	8	8	M8*30
BR-35	1.2	8.5	9	M8*30
BR-45	1.6	12	11	M12*40
BR-55	1.6	13	12	M14*45

Unit : mm

Preload grade

Basic static load rating: C0

We define the basic static load rating C0 as a static load of constant magnitude acting in one direction under which the sum of the permanent deformations of rolling elements and raceway equals 0.0001 times of the diameter of the rolling elements.

Basic dynamic load rating: C

When each group of identical linear motion system is applied independently under the same condition, basic dynamic load rating C is the load of constant magnitude acting in one direction that results in a nominal life of 50 km.

GRADE	ITEM	
	Symbol	Preload force
Clearance	ZF	0
No Preload	Z0	0
Light Preload	Z1	0.02 C
Middle Preload	Z2	0.05 C
Heavy Preload	Z3	0.07 C

Static safety coefficient : fs

Static safety factor fs is the ratio of the basic static load rating C0 to the load acting on the linear motion system.

$$fs = (fc * C0) / P \quad \text{or} \quad fs = (fc * M0) / M$$

fs : static safety factor fc : Contact factor
 C0 : basic static load rating
 M0 : static permissible moment
 P : design load M : design moment

Reference value of static safety factor fs shown below :

Operating condition	Load condition	Minimum fs
Normally stationary	Small impact and deflection	1.0 ~ 1.3
	Impact or twisting load is applied	2.0 ~ 3.0
Normally moving	Small impact or twisting load is applied	1.0 ~ 1.5
	Impact or twisting load is applied	2.5 ~ 5.0

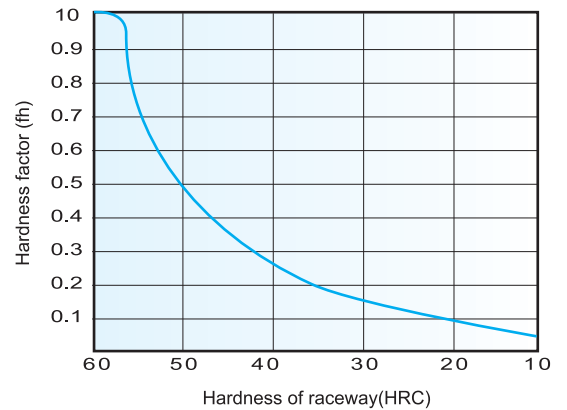
Contact coefficient : fc

In linear motion system, it is hard to obtain identical load distribution due to moments, errors and other factors on the mounting surfaces. When multiple blocks on a rail are used in close contact, the basic load ratings C and C0 corresponding with contact coefficients are shown below.

Number of blocks in close contact	Contact factor
2	0.81
3	0.72
4	0.66
5	0.61
Normal operation	1

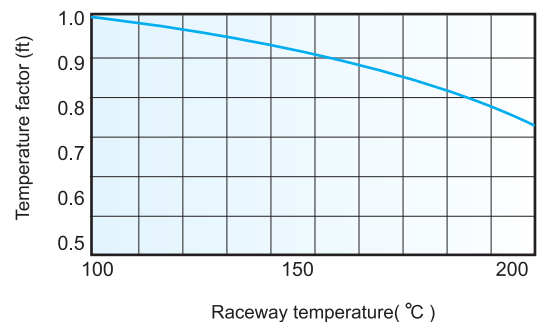
Hardness coefficient : fh

For linear motion system, its optimum load carrying capacity is HRC 58 to 64 hardness on the raceways.
 If the hardness is under HRC 58, both the basic dynamic load rating and basic static load rating should be multiplied by hardness coefficient fh.



Temperature coefficient : fT

When a linear motion system is subject to temperature above 100 C, the temperature factor should be taken into consideration.



Note 1: When being used in the environment over 80 °C, the seals and end plates should be designed for high temperature operation.

Note 2: When used in above 120 °C, special treatment should be designed for stabilizing the dimension.

Load coefficient : fw

Impacts and vibrations	Speed (V)	Measured vibration (G)	fw
Without external Impacts or Vibrations	At low speed V<=15m/min	G<=0.5	1~1.5
Without significant Impacts or Vibrations	At medium speed 15<V<=60m/min	0.5<G<=1.0	1.5~2.0
With external Impacts or Vibrations	At high speed V>60m/min	1.0<G<=2.0	2.0~3.5

Formula of nominal life : L

Given the basic dynamic load rating C and the applied load P, the following formulas shows the nominal life L of a linear motion system using steel balls.

$$L = \left(\frac{f_h \cdot f_T \cdot f_c}{f_w} \right) * \left(\frac{C}{P} \right)^3 * 50$$

L : nominal life

C : basic dynamic load rating

P : applied load

f_h : Hardness factor

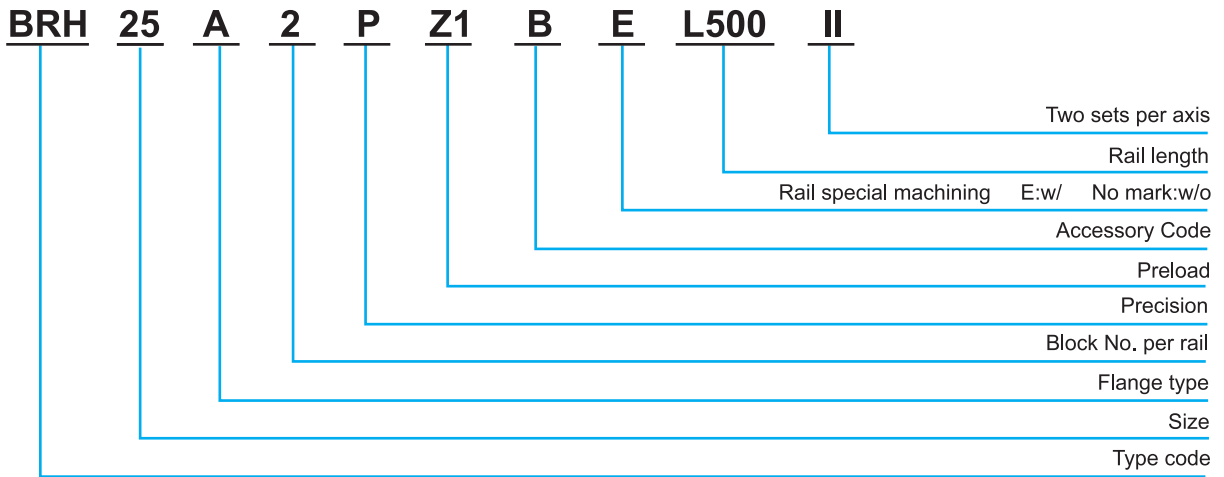
f_T : Temperature factor

f_c : Contact factor

f_w : Load factor



1.7 The Model Code of BR Series



Type Code	
BRH:	International Standard
BRS:	Low assembly
BRX:	Special design

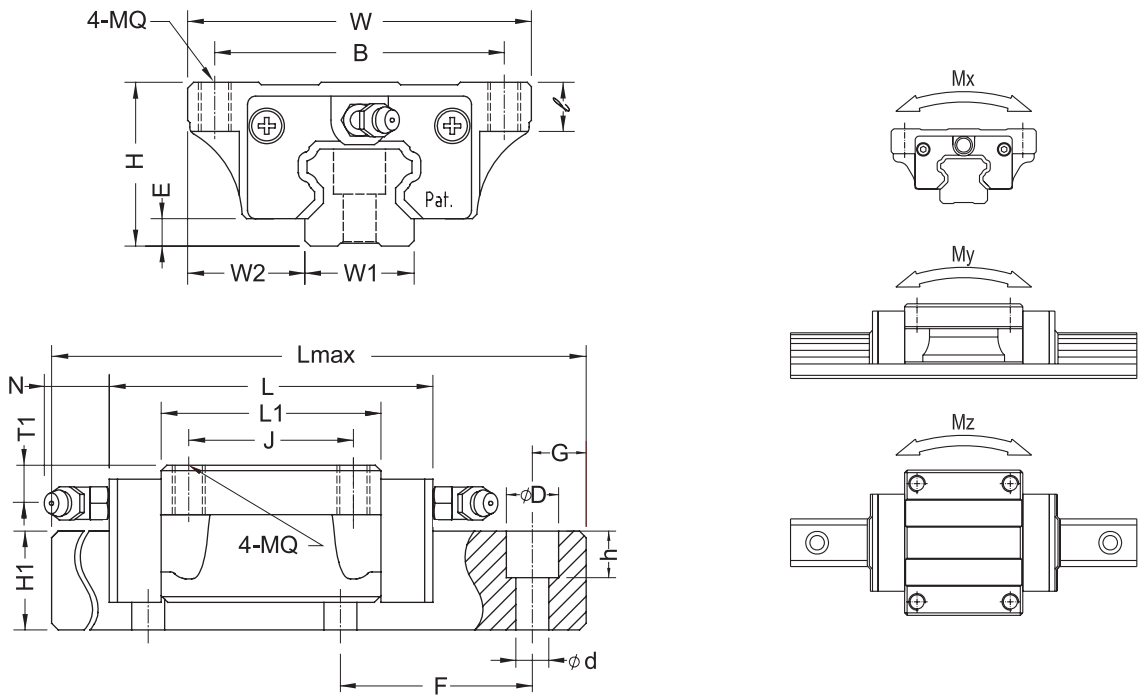
Flange type			
A :	With flange	AL :	Long type with flange
B :	Without flange	BL :	Long type without flange
C :	Through hole with flange	CL :	Long type through hole with flange
AS :	Short type with flange	BS :	Short type without flange
CS :	Short type through hole with flange		

Size	Accessory Code	Precision	Preload
15	A: With top seal & side seal (applicable to BR20, 25, 30)	N: Normal	ZF: Clearance
20	B: With metal scrappers	H: High	Z0: Nopreload
25	C: With top seal, side seal, and metal scrappers	P: Precision	Z1: Light preload
30	T: With oil tank on one end (see P.27)	SP: Super-precision	Z2: Medium preload
35	U: With oil tank on both ends (see P.27)	UP: Ultra-precision	Z3: Heavy preload
45			

e.g. **BRH 30 BL 2 L300 P Z0 AT K II**
 with top seal, side seal, and oil tank on one end.

■ Remark : BR35 and BR45 are not equipped with self-lubricant parts.

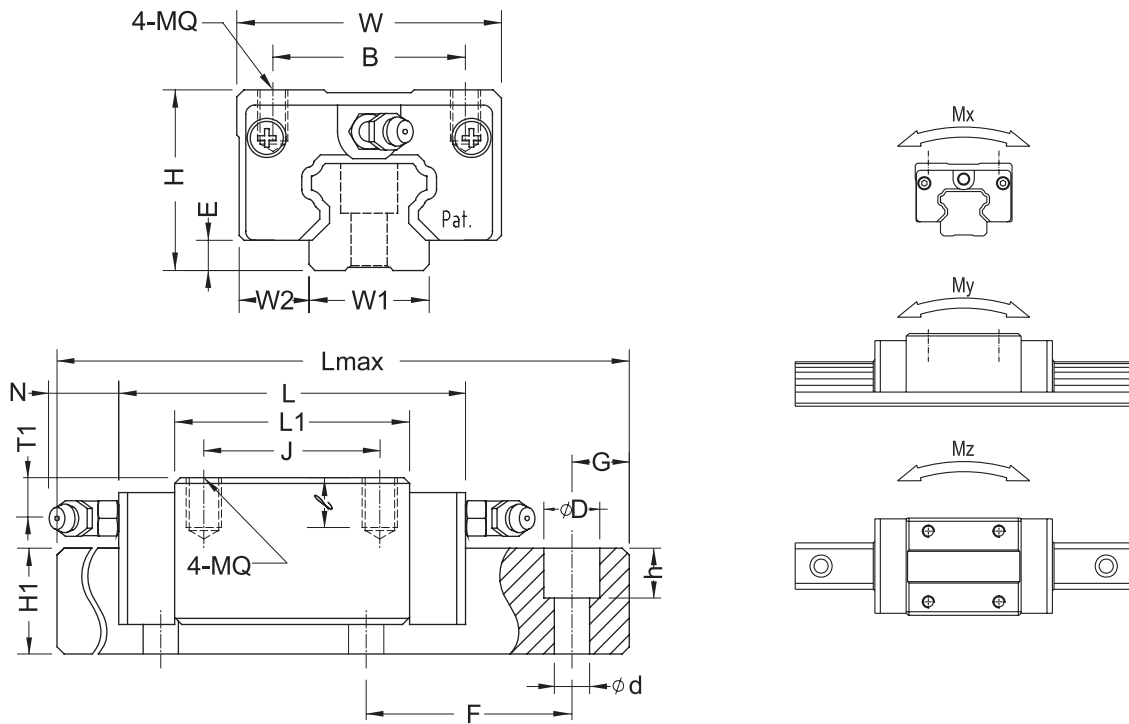
1.8 BRH-A/AL



Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)			
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh
BRH15A	24	47	16	4.6	66	38X30	M5X8	40	∅3	4.3	5	15	14	60	4.5X7.5X5.3
BRH20A	30	63	21.5	5	77.8	53X40	M6X9	48.8	M6X1	7	15.6	20	18	60	6X9.5X8.5
BRH20AL					92.4			63.4							
BRH25A	36	70	23.5	7	88	57X45	M8X12	57	M6X1	7.8	15.6	23	22	60	7X11X9
BRH25AL					110.1			79.1							
BRH30A	42	90	31	9	109	72X52	M10X12	72	M6X1	7	15.6	28	26	80	9X14X12
BRH30AL					131.3			94.3							
BRH35A	48	100	33	9.5	109	82X62	M10X13	80	M6X1	8	15.6	34	29	80	9X14X12
BRH35AL					134.8			105.8							
BRH45A	60	120	37.5	14	138.2	100X80	M12X15	105	M8X1	8.5	16	45	38	105	14X20X17
BRH45AL					163			129.8							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRH15A	4000	20	850	1650	10	8	8	0.21	1.4
BRH20A	4000	20	1450	2560	22	18	18	0.4	2.6
BRH20AL			1900	3330	28.6	23.4	23.4	0.52	
BRH25A	4000	20	2140	4000	36	32	31	0.57	3.6
BRH25AL			2996	5600	50.4	44.8	43.4	0.72	
BRH30A	4000	20	2980	5490	60	50	49	1.1	5.2
BRH30AL			3900	7190	78.5	65	65	1.4	
BRH35A	4000	20	3960	7010	96	75	73	1.6	7.2
BRH35AL			5230	9270	125	95	95	2	
BRH45A	4000	22.5	6740	12100	216	170	168	2.7	12.3
BRH45AL			8330	14950	267	210	210	3.6	

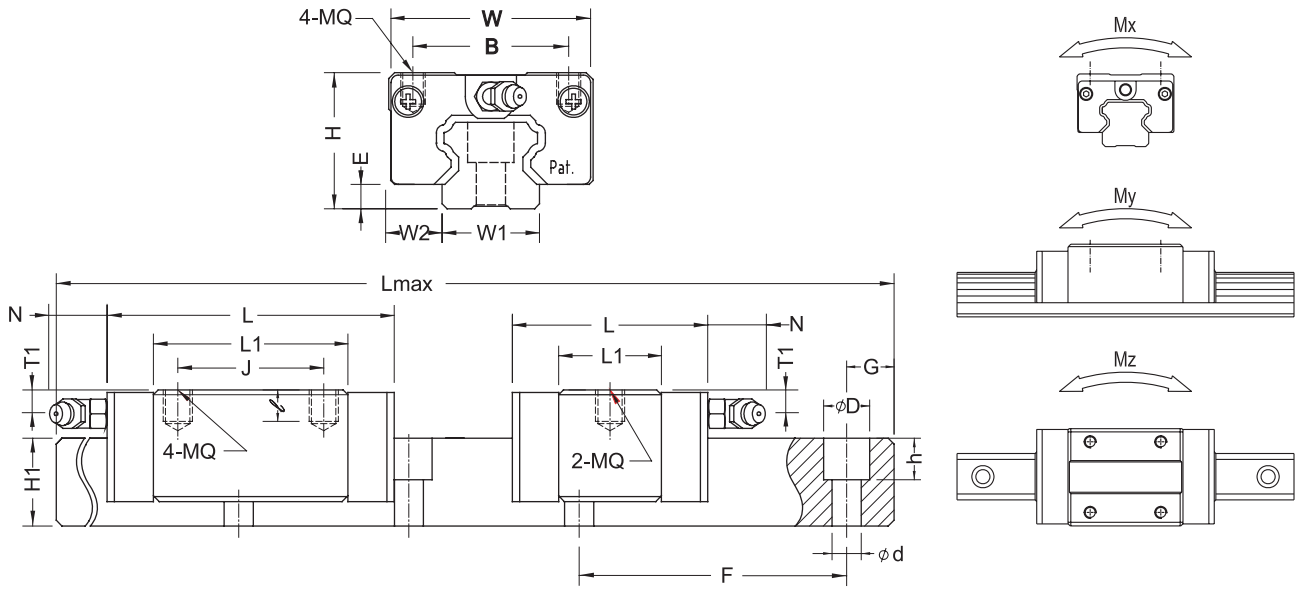
1.9 BRH-B/BL



Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)				
	H	W	W2	E	L	BXJ	MQx	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh	
BRH15B	28	34	9.6	4.6	66	26X26	M4X6	40	∅3	8.3	5	15	14	60	4.5X7.5X5.3	
BRH20B	30	44	12	5	77.8	32X36	M5X8	48.8	M6X1	7	15.6	20	18	60	6X9.5X8.5	
BRH20BL					92.4	32X50		63.4								
BRH25B	40	48	12.5	7	88	35X35	M6X10	57	M6X1	11.8	15.6	23	22	60	7X11X9	
BRH25BL					110.1	35X50		79.1								
BRH30B	45	60	16	9	109	40X40	M8X13	72	M6X1	10	15.6	28	26	80	9X14X12	
BRH30BL					131.3	40X60		94.3								
BRH35B	55	70	18	9.5	109	50X50	M8X13	80	M6X1	15	15.6	34	29	80	9X14X12	
BRH35BL					134.8	50X72		105.8								
BRH45B	70	86	20.5	14	138.2	60X60	M10X16.5	105	M8X1	18.5	16	45	38	105	14X20X17	
BRH45BL					163	60X80		129.8								

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRH15B	4000	20	850	1650	10	8	8	0.19	1.4
BRH20B			1450	2560	22	18	18	0.31	2.6
BRH20BL	1900	3330	28.6	23.4	23.4	0.47			
BRH25B	4000	20	2140	4000	36	32	31	0.45	3.6
BRH25BL			2996	5600	50.4	44.8	43.4	0.56	
BRH30B	4000	20	2980	5490	60	50	49	0.91	5.2
BRH30BL			3900	7190	78.5	65	65	1.2	
BRH35B	4000	20	3960	7010	96	75	73	1.5	7.2
BRH35BL			5230	9270	125	95	95	1.9	
BRH45B	4000	22.5	6740	12100	216	170	168	2.3	12.3
BRH45BL			8330	14950	267	210	210	2.8	

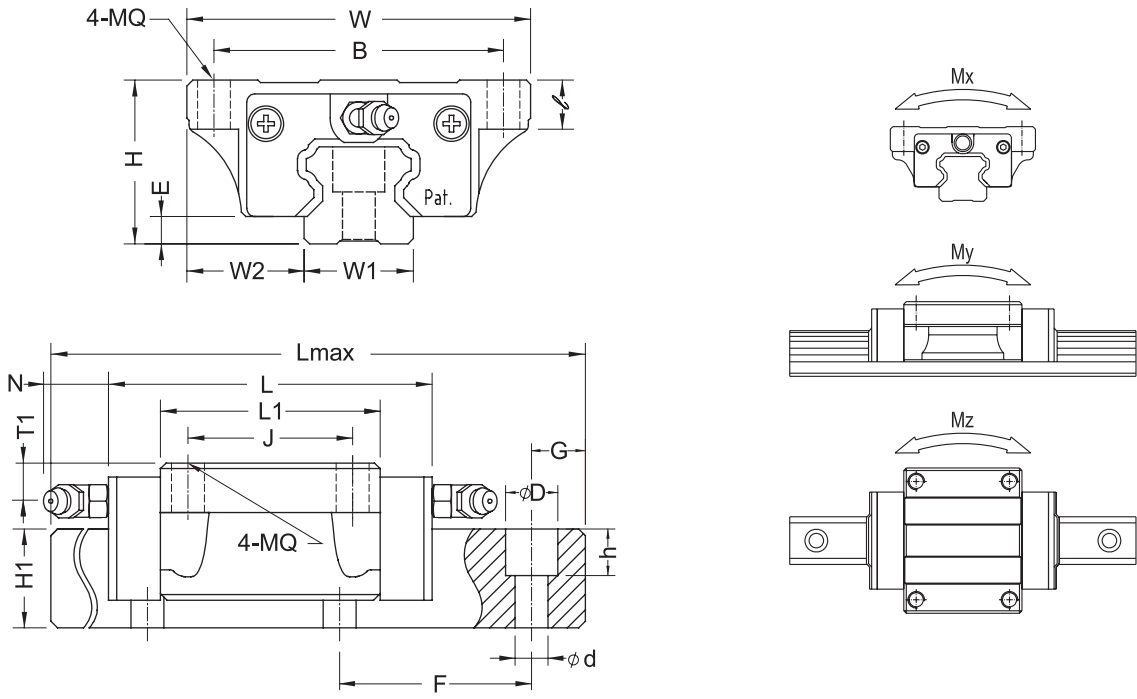
1.10 BRS-B/BS/BL



Model No.	Assembly (mm)				BR block (mm)						BR rail (mm)				
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dDXh
BRS15B	24	34	9.5	4.6	66	26X26	M4X5.6	40	∅3	4.3	5	15	14	60	4.5X7.5X5.3
BRS15BS					47.6	26X -		21.6							
BRS20B	28	42	11	5	77.8	32X32	M5X6.4	48.8	M6X1	5	15.6	20	18	60	6X9.5X8.5
BRS20BS					57	32X -		28							
BRS25B	33	48	12.5	7	88	35X35	M6X8	57	M6X1	4.8	15.6	23	22	60	7X11X9
BRS25BS					62.5	35X -		31.5							
BRS25BL					110.1	35X50		79.1							
BRS30B	42	60	16	9	109	40X40	M8X11.5	72	M6X1	7	15.6	28	26	80	9X14X12
BRS30BS					75.6	40X -		38.6							
BRS30BL					131.3	40X60		94.3							
BRS35B	48	70	18	9.5	109	50X50	M8X11.2	80	M6X1	8	15.6	34	29	80	9X14X12
BRS35BS					74.7	50X -		45.7							
BRS35BL					134.8	50X72		105.8							
BRS45B	60	86	20.5	14	138.2	60X60	M10X13	105	M8X1	8.5	16	45	38	105	14X20X17
BRS45BL					163	60X80		129.8							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight		
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)	
BRS15B	4000	20	850	1650	10	8	8	0.17	1.4	
BRS15BS			510	950	6	4.8	4.8			0.1
BRS20B	4000	20	1450	2560	22	18	18	0.26	2.6	
BRS20BS			830	1470	12.6	10.3	10.3			0.17
BRS25B	4000	20	2140	4000	36	32	31	0.38	3.6	
BRS25BS			1190	2230	20	17.5	17.2			0.21
BRS25BL			2996	5600	50.4	44.8	43.4			0.53
BRS30B	4000	20	2980	5490	60	50	49	0.81	5.2	
BRS30BS			1595	2940	32	27	27			0.48
BRS30BL			3900	7190	78.5	65	65			1.06
BRS35B	4000	20	3960	7010	96	75	73	1.2	7.2	
BRS35BS			2260	4000	54.5	42.5	41.5			0.8
BRS35BL			5230	9270	125	95	95			1.6
BRS45B	4000	22.5	6740	12100	216	170	168	2.1	12.3	
BRS45BL			8330	14950	267	210	210			2.6

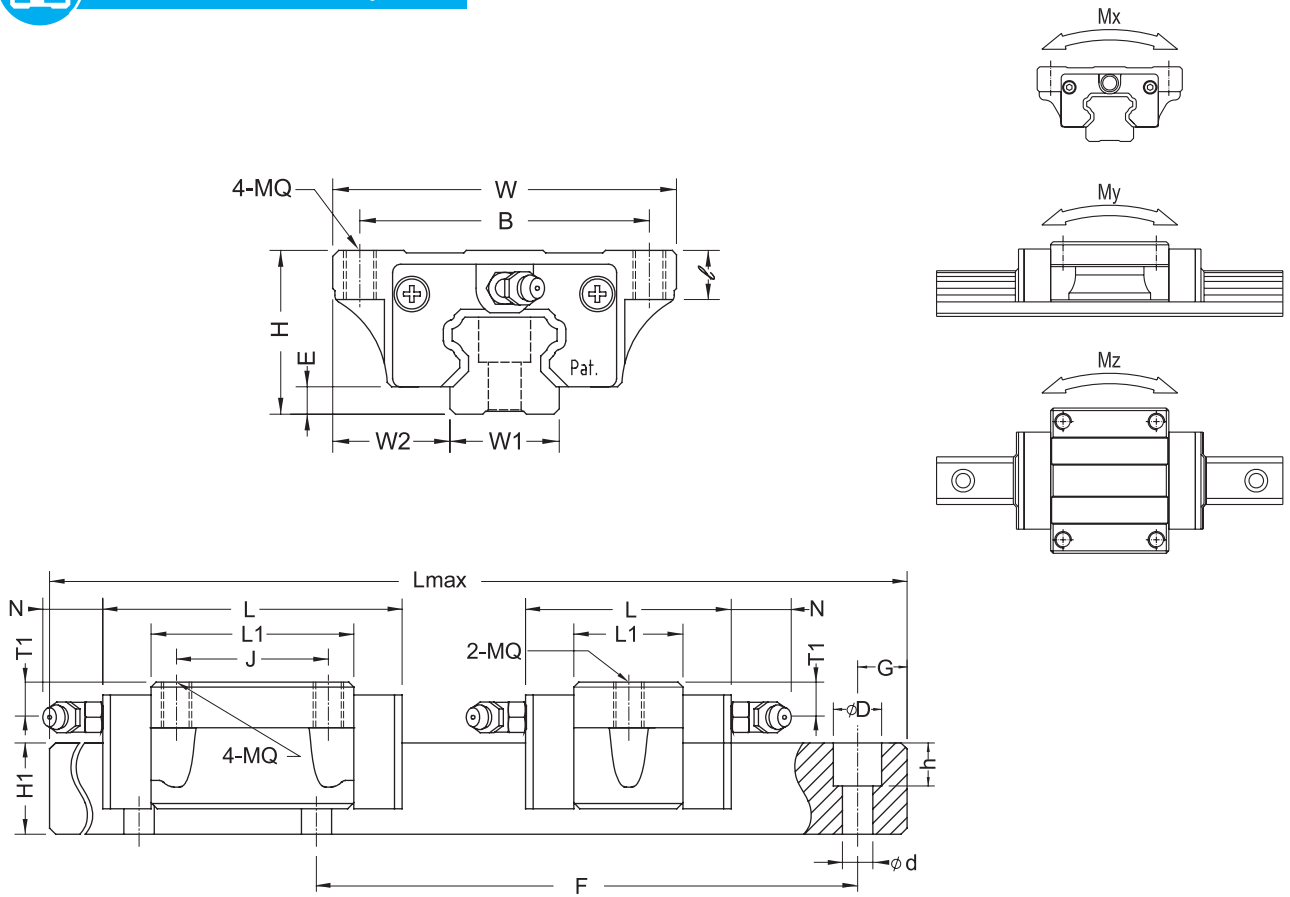
1.11 BRH-C/CL



Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)			
	H	W	W2	E	L	BXJ	MQx	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh
BRH15C	24	47	16	4.6	66	38X30	ø4.5X8	40	ø3	4.3	5	15	14	60	4.5X7.5X5.3
BRH20C	30	63	21.5	5	77.8	53X40	ø6X9	48.8	M6X1	7	15.6	20	18	60	6X9.5X8.5
BRH20CL					92.4			63.4							
BRH25C	36	70	23.5	7	88	57X45	ø7X12	57	M6X1	7.8	15.6	23	22	60	7X11X9
BRH25CL					110.1			79.1							
BRH30C	42	90	31	9	109	72X52	ø9X12	72	M6X1	7	15.6	28	26	80	9X14X12
BRH30CL					131.3			94.3							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRH15C	4000	20	850	1650	10	8	8	0.21	1.4
BRH20C	4000	20	1450	2560	22	18	18	0.4	2.6
BRH20CL			1900	3330	28.6	23.4	23.4	0.52	
BRH25C	4000	20	2140	4000	36	32	31	0.57	3.6
BRH25CL			2996	5600	50.4	44.8	43.4	0.72	
BRH30C	4000	20	2980	5490	60	50	49	1.1	5.2
BRH30CL			3900	7190	78.5	65	65	1.4	

1.12 BRS-A/AS

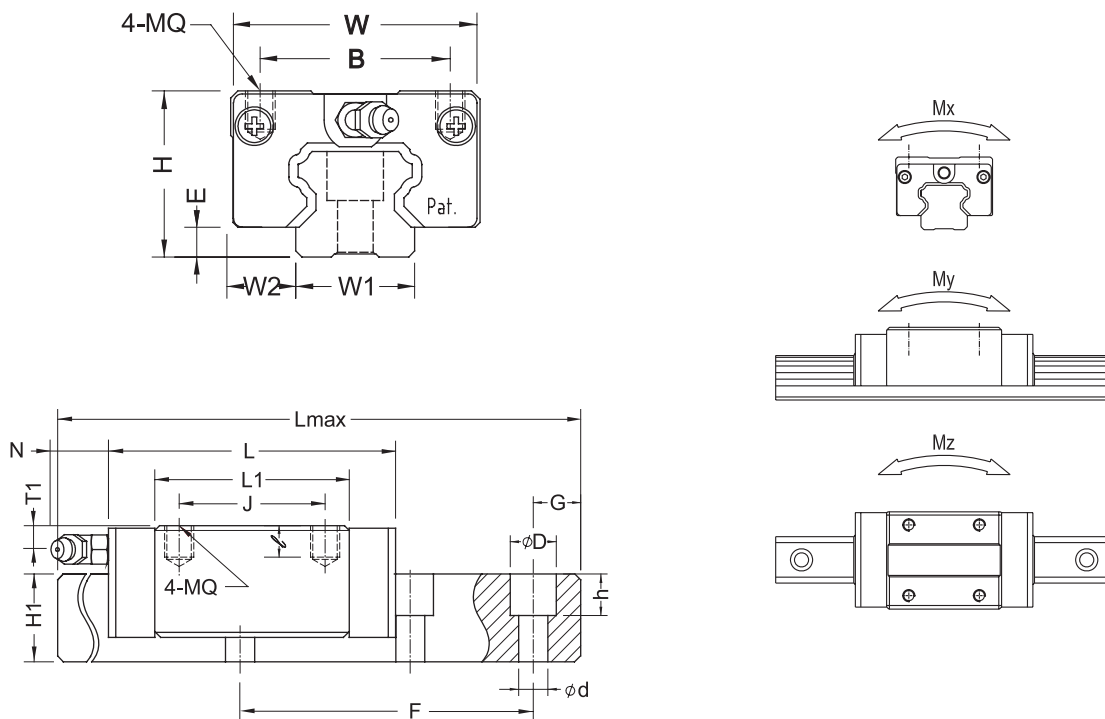


Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)			
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDxh
BRS20AS	28	59	19.5	5	57	49	M6X7	28	M6X1	5	15.6	20	18	60	6X9.5X8.5
BRS25A	33	73	25	7	88	60X35	M8X9	57	M6X1	4.8	15.6	23	22	60	7X11X9
BRS25AS					62.5			60							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRS20AS	4000	20	830	1470	12.6	10.3	10.3	0.17	2.6
BRS25A	4000	20	2140	4000	36	32	32	0.5	3.6
BRS25AS			1190	2230	20	17.5	17.2		



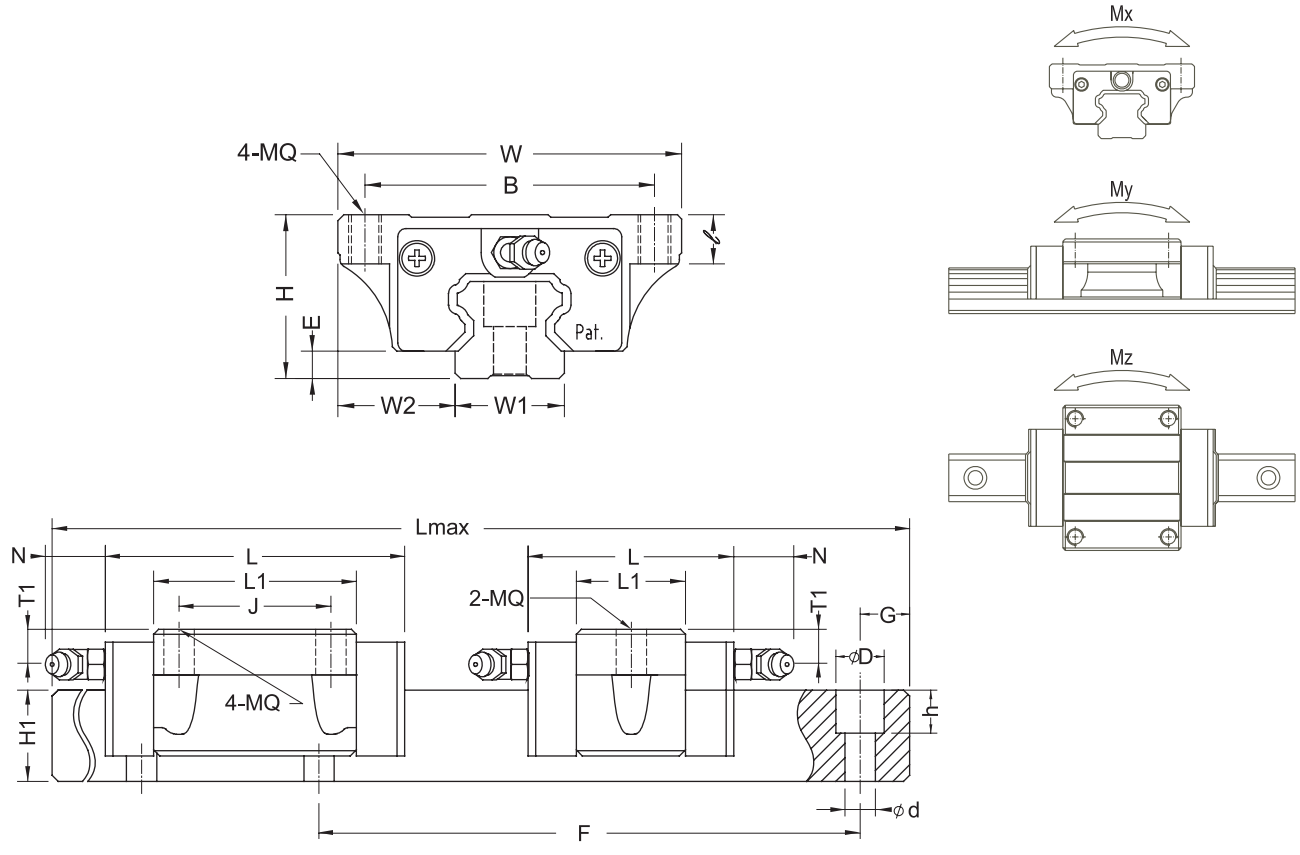
1.13 BRX-B/BL



Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)			
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh
BRX25B	36	48	12.5	7	88	35X35	M6X10	57	M6X1	7	15.6	23	22	60	7X11X9
BRX25BL					110.1	35X50		79.1							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRX25B	4000	20	2140	4000	36	32	31	0.4	3.6
BRX25BL			2996	5600	50.4	44.8	43.4		

1.14 BRS-C/CS



Model No.	Assembly (mm)				BR block (mm)							BR rail (mm)			
	H	W	W2	E	L	BXJ	MQx	L1	Oil hole	T1	(N)	W1	H1	F	dXDh
BRS20CS	28	59	19.5	5	57	49	∅ 5.5X7	28	M6X1	5	15.6	20	18	60	6X9.5X8.5
BRS25C	33	73	25	7	88	60X35	∅7X9	57	M6X1	4.8	15.6	23	22	60	7X11X9
BRS25CS					62.5	60		31.5							

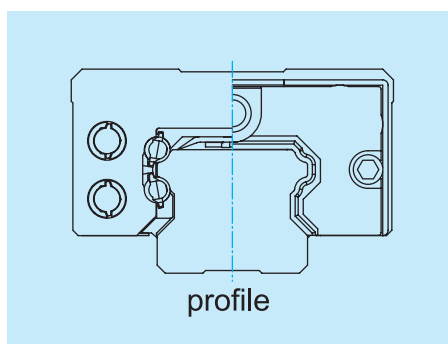
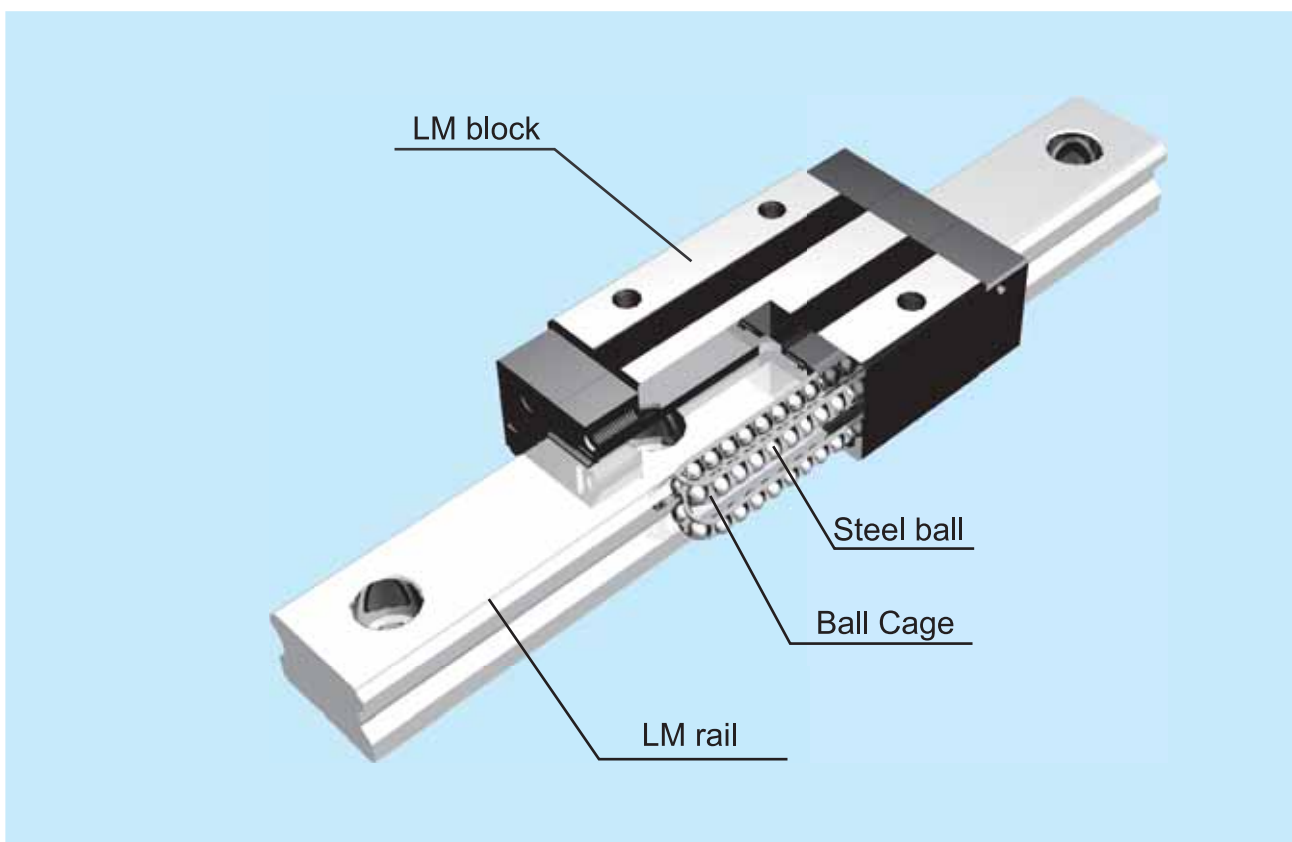
Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BRS20CS	4000	20	830	1470	12.6	10.3	10.3	0.17	2.6
BRS25C	4000	20	2140	4000	36	32	32	0.5	3.6
BRS25CS			1190	2230	20	17.5	17.2		

2.1 Ball Cage Linear Guideway

Features

- Perfect smoothness, free of maintenance and greasing work.
- Equivalent loading, long service life.
- Equipped with ball cage, lower noise and smoother running.

BC Series Component Display

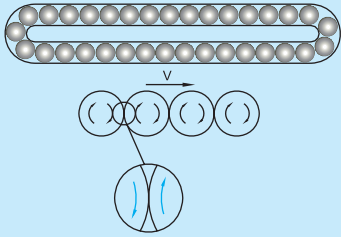
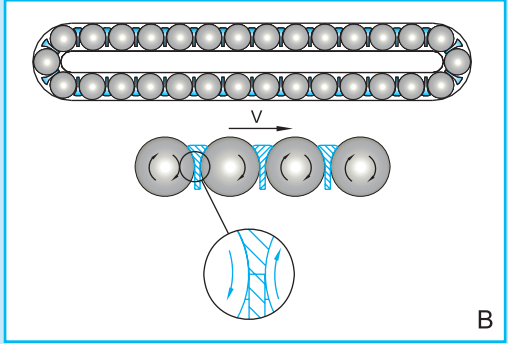


BC series is equipped with **ABBA**'s latest developed Ball Cage, which lowers the noise, and enables high-speed running, longer life time, and outstanding accuracy.



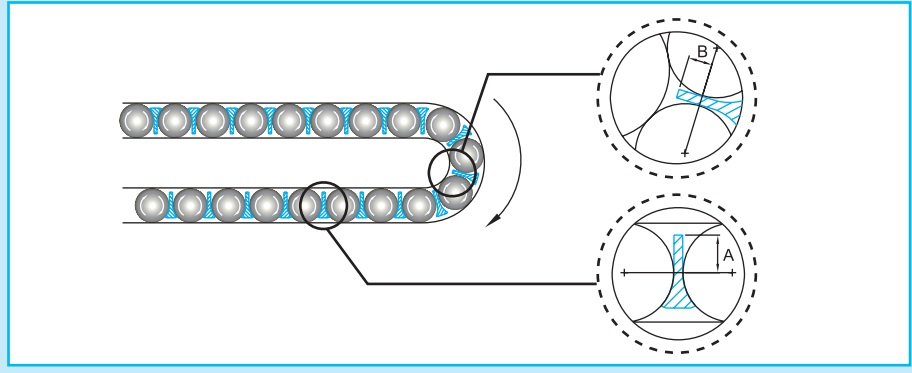
The Characteristic of BC Series

New (with ball cage)



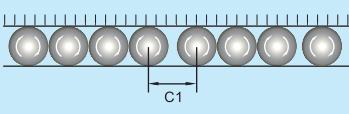
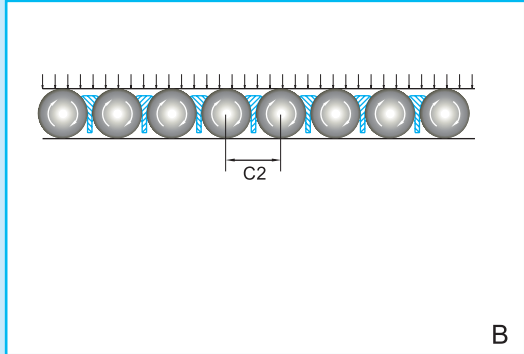
A

1. Steel balls chafe against each other in drawing A, in which the friction is two times larger than in drawing B, so that the life time in B is longer than in A.



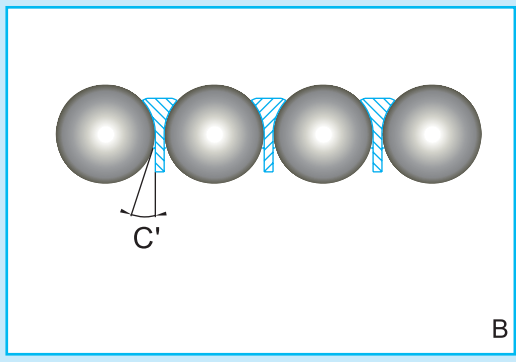
2. The difference between ABBA's ball cage and others' is that there will be no press and intervention from the inner part of the ball cage when it is turning that friction is lowered and life time extends.

New (with ball cage)

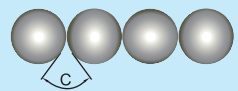


A

3. It shows in drawing B that due to the ball cage, steel balls are loaded equivalently that their service life could be longer.



Oil membrane adheres easily between the ball cage and steel balls.

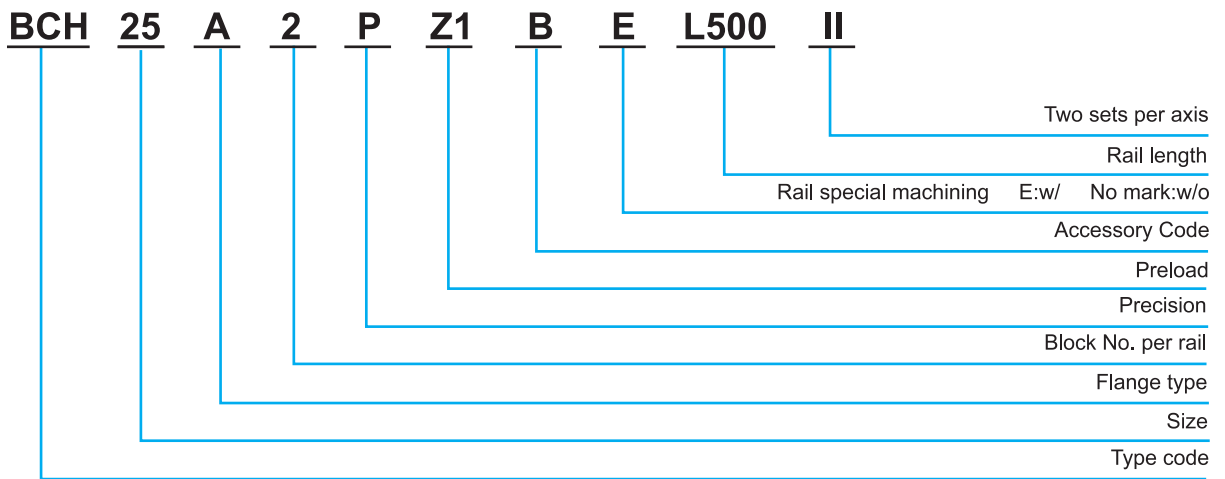


A

4. As demonstrated above, the included angle in drawing A(C) is larger than the one in drawing B(C') with ball cage. Therefore, oil membrane adheres easily in the structure of BC series.



2.2 The Model Code of BC Series



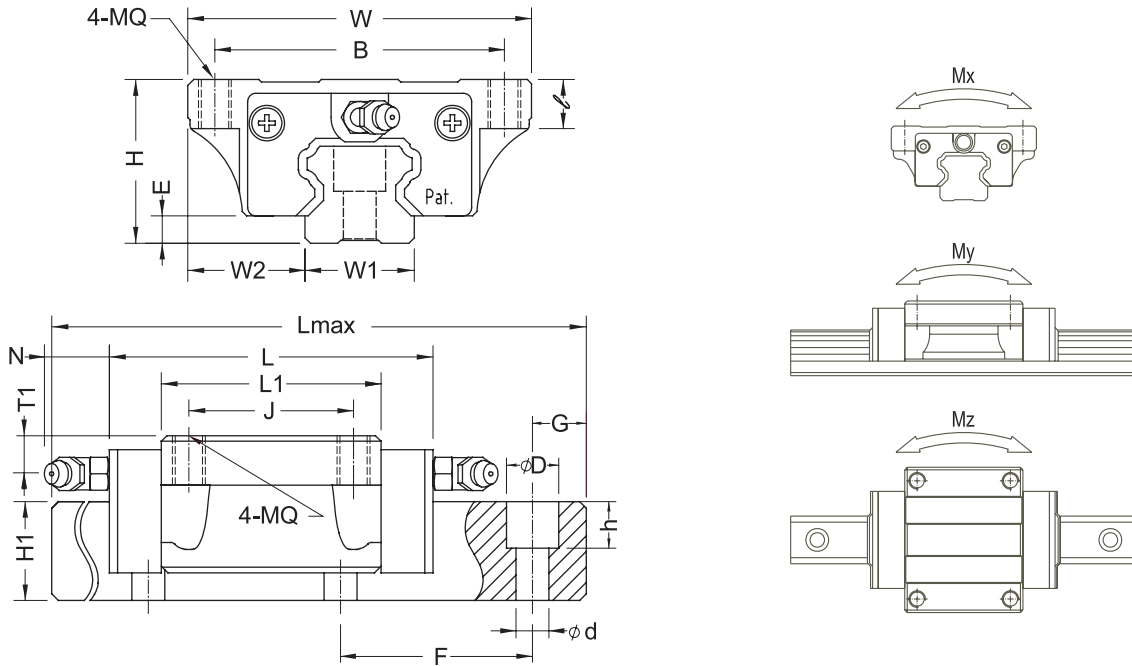
Type Code	
BCH:	International Standard with cage
BCS:	Low assembly with cage
BCN:	High rigidity series with cage

Flange type			
A :	With flange	AL :	Long type with flange
B :	Without flange	BL :	Long type without flange

Size	Accessory Code	Precision	Preload
15	A: With top seal & side seal	N: Normal	ZF: Clearance
20	B: With metal scrappers	H: High	Z0: Nopreload
25	C: With top seal, side seal, and metal scrappers	P: Precision	Z1: Light preload
30	T: With oil tank on one end (see P.27)	SP: Super-precision	Z2: Medium preload
35	U: With oil tank on both ends (see P.27)	UP: Ultra-precision	Z3: Heavy preload
45			
55			

e.g. BCH 30 BL 2 L300 P Z0 AT K II
 with top seal, side seal, and oil tank on one end.

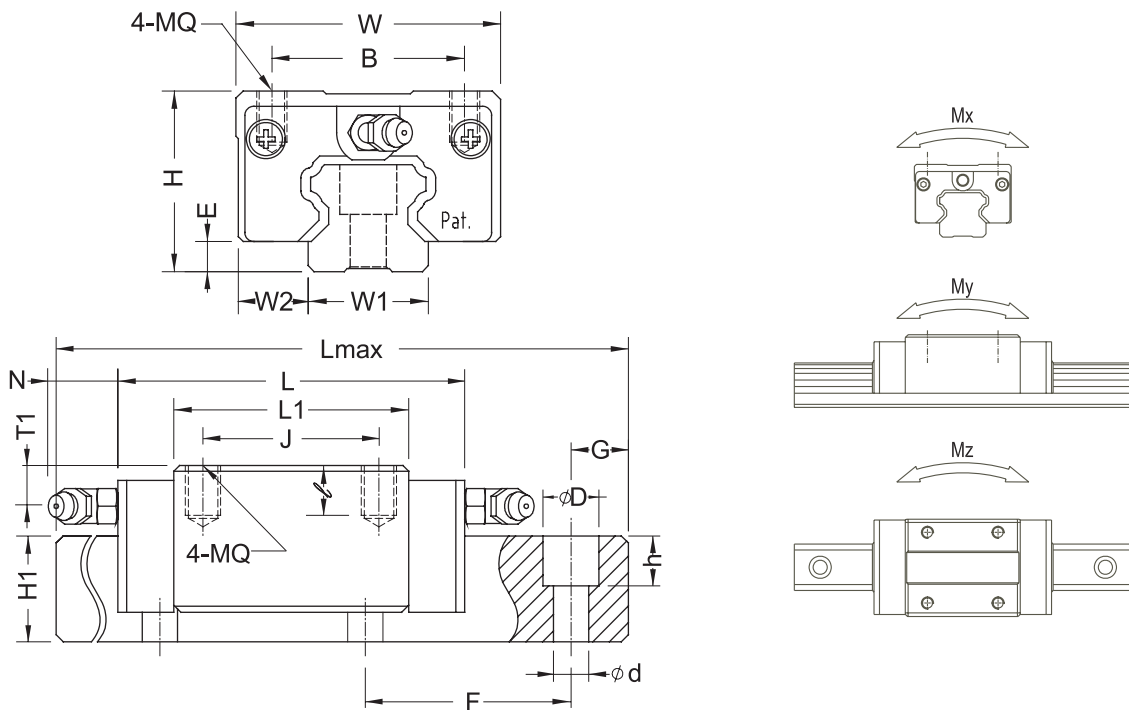
2.3 BCH-A/AL



Model No.	Assembly (mm)				BC block (mm)							BC rail (mm)			
	H	W	W2	E	L	BXJ	MQx	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh
BCH15A	24	47	16	3	78	38X30	M5X8	48	∅3	5.8	5	15	13	60	4.5X7.5X5.3
BCH15AL					93			63							
BCH20A	30	63	21.5	6	87	53X40	M6X10	59	M6X1	7.5	15.6	20	16.5	60	6X9.5X8.5
BCH20AL					106			78							
BCH25A	36	70	23.5	6	102	57X45	M8X12	71	M6X1	10	15.6	23	20	60	7X11X9
BCH25AL					119			88							
BCH30A	42	90	31	7	116	72X52	M10X15	80	M6X1	12	15.6	28	23	80	9X14X12
BCH30AL					141			105							
BCH35A	48	100	33	7.5	132	82X62	M10X17	93	M6X1	12	15.6	34	26	80	9X14X12
BCH35AL					162			123							
BCH45A	60	120	37.5	8.9	150	100X80	M12X17	106	M8X1	16	16	45	32	105	14X20X17
BCH45AL					184			140							
BCH55A	70	140	43.5	12.7	181	116X95	M14X21	131	M8X1	20	16	53	38	120	16X23X20
BCH55AL					223			173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCH15A	4000	20	1350	2310	14.5	15.8	15.8	0.22	1.3
BCH15AL			1620	3060	19.1	27	27	0.29	
BCH20A	4000	20	2120	3680	32.9	30.4	30.4	0.45	2.3
BCH20AL			2680	4830	43	52	52	0.62	
BCH25A	4000	20	3030	5040	51.3	51.8	51.8	0.75	3.2
BCH25AL			3520	6230	63.5	77.2	77.2	0.9	
BCH30A	4000	20	4300	6410	79	72	72	1.31	4.5
BCH30AL			5210	8550	105	124	124	1.55	
BCH35A	4000	20	6000	9320	140	126	126	1.9	6.2
BCH35AL			7020	12260	184	214	214	2.55	
BCH45A	4000	22.5	7980	12150	245	187	187	3.3	10.4
BCH45AL			9650	16040	320	315	315	4.2	
BCH55A	4000	30	12350	19000	446	355	355	5.4	14.5
BCH55AL			15500	24900	580	600	600	7.1	

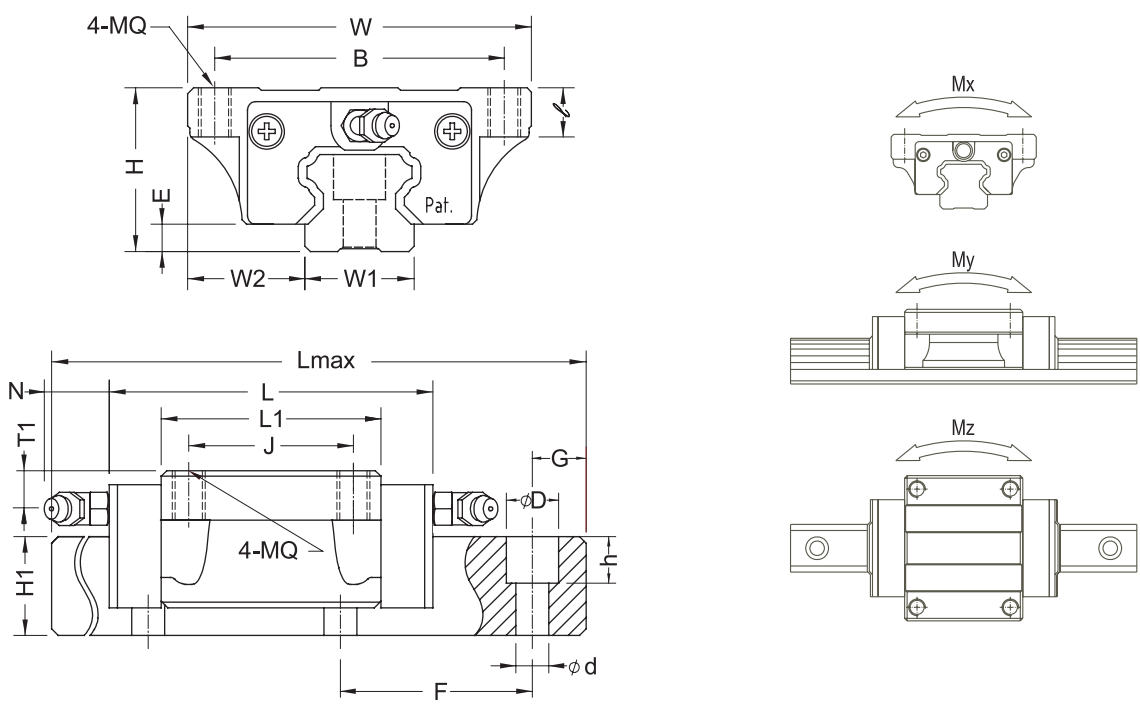
2.4 BCH-B/BL



Model No.	Assembly (mm)				BC block (mm)							BC rail (mm)			
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDXh
BCH15B	28	34	9.5	3	78	26X26	M4X5.5	48	∅3	9.8	5	15	13	60	4.5X7.5X5.3
BCH20B	30	44	12	6	87	32X36	M5X7	59	M6X1	7.5	15.6	20	16.5	60	6X9.5X8.5
BCH20BL					106	32X50		78							
BCH25B	40	48	12.5	6	102	35X35	M6X10	71	M6X1	14	15.6	23	20	60	7X11X9
BCH25BL					119	35X50		88							
BCH30B	45	60	16	7	116	40X40	M8X12	80	M6X1	15	15.6	28	23	80	9X14X12
BCH30BL					141	40X60		105							
BCH35B	55	70	18	7.5	132	50X50	M8X14	93	M6X1	19	15.6	34	26	80	9X14X12
BCH35BL					162	50X72		123							
BCH45B	70	86	20.5	8.9	150	60X60	M10X16	106	M8X1	26	16	45	32	105	14X20X17
BCH45BL					184	60X80		140							
BCH55B	80	100	23.5	12.7	181	75X75	M12X19	131	M8X1	30	16	53	38	120	16X23X20
BCH55BL					223	75X95		173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCH15B	4000	20	1350	2310	14.5	15.8	15.8	0.2	1.3
BCH20B	4000	20	2120	3680	32.9	30.4	30.4	0.35	2.3
BCH20BL			2680	4830	43	52	52	0.45	
BCH25B	4000	20	3030	5040	51.3	51.8	51.8	0.7	3.2
BCH25BL			3520	6230	63.5	77.2	77.2	0.9	
BCH30B	4000	20	4300	6410	79	72	72	1.1	4.5
BCH30BL			5210	8550	105	124	124	1.4	
BCH35B	4000	20	6000	9320	140	126	126	1.7	6.2
BCH35BL			7020	12260	184	214	214	2.2	
BCH45B	4000	22.5	7980	12150	245	187	187	3.1	10.4
BCH45BL			9650	16040	320	315	315	4	
BCH55B	4000	30	12350	19000	446	355	355	5.2	14.5
BCH55BL			15500	24900	580	600	600	6.7	

2.5 BCN-A/AL

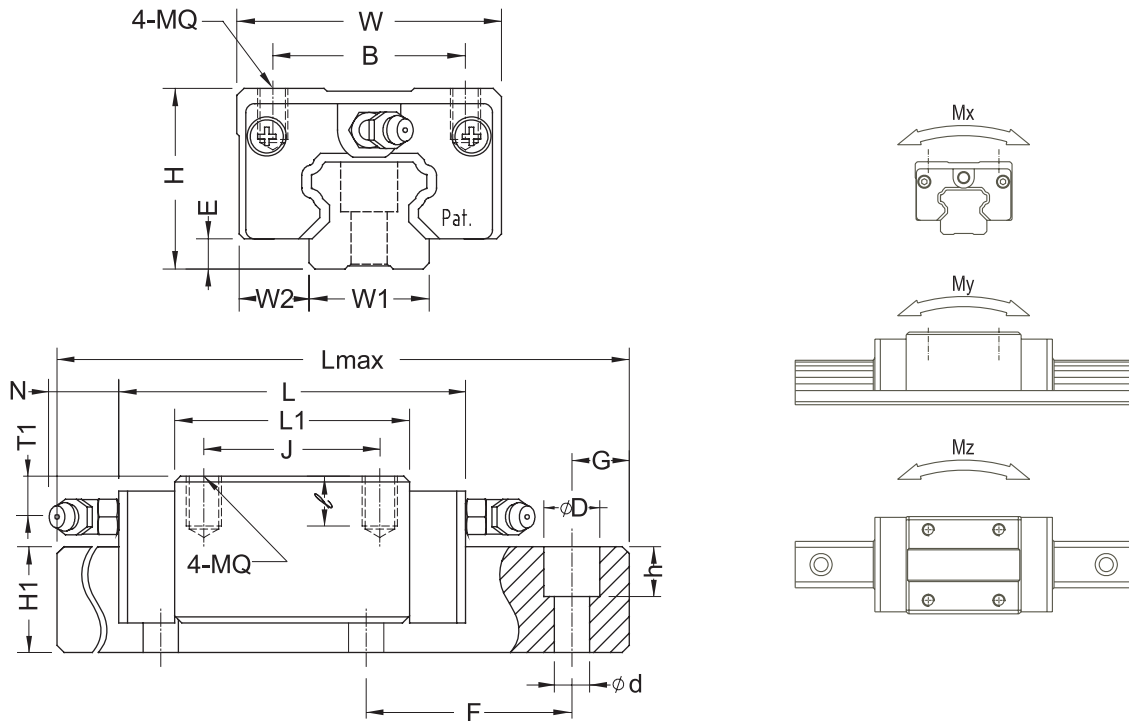


Model No.	Assembly (mm)				BC block (mm)							BC rail (mm)			
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDxh
BCN25A	31	72	24.5	6	102	59X45	M8X12	71	M6X1	5	15.6	23	20	60	7X11X9
BCN25AL					119			88							
BCN30A	38	90	31	7	116	72X52	M10X12	80	M6X1	8	15.6	28	23	80	9X14X12
BCN30AL					141			105							
BCN35A	44	100	33	7.5	132	82X62	M10X13	93	M6X1	8	15.6	34	26	80	9X14X12
BCN35AL					162			123							
BCN45A	52	120	37.5	8.9	150	100X80	M12X17	106	M8X1	8	16	45	32	105	14X20X17
BCN45AL					184			140							
BCN55A	63	140	43.5	12.7	181	116X95	M14X14	131	M8X1	13	16	53	38	120	16X23X20
BCN55AL					223			173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCN25A	4000	20	3030	5040	51.3	51.8	51.8	0.65	3.2
BCN25AL			3520	6230	63.5	77.2	77.2	0.8	
BCN30A	4000	20	4300	6410	79	72	72	1.2	4.5
BCN30AL			5210	8550	105	124	124	1.4	
BCN35A	4000	20	6000	9320	140	126	126	1.77	6.2
BCN35AL			7020	12260	184	214	214	2.3	
BCN45A	4000	22.5	7980	12150	245	187	187	3.1	10.4
BCN45AL			9650	16040	320	315	315	4	
BCN55A	4000	30	12350	19000	446	355	355	4.93	14.5
BCN55AL			15500	24900	580	600	600	6.4	



2.6 BCN-B/BL

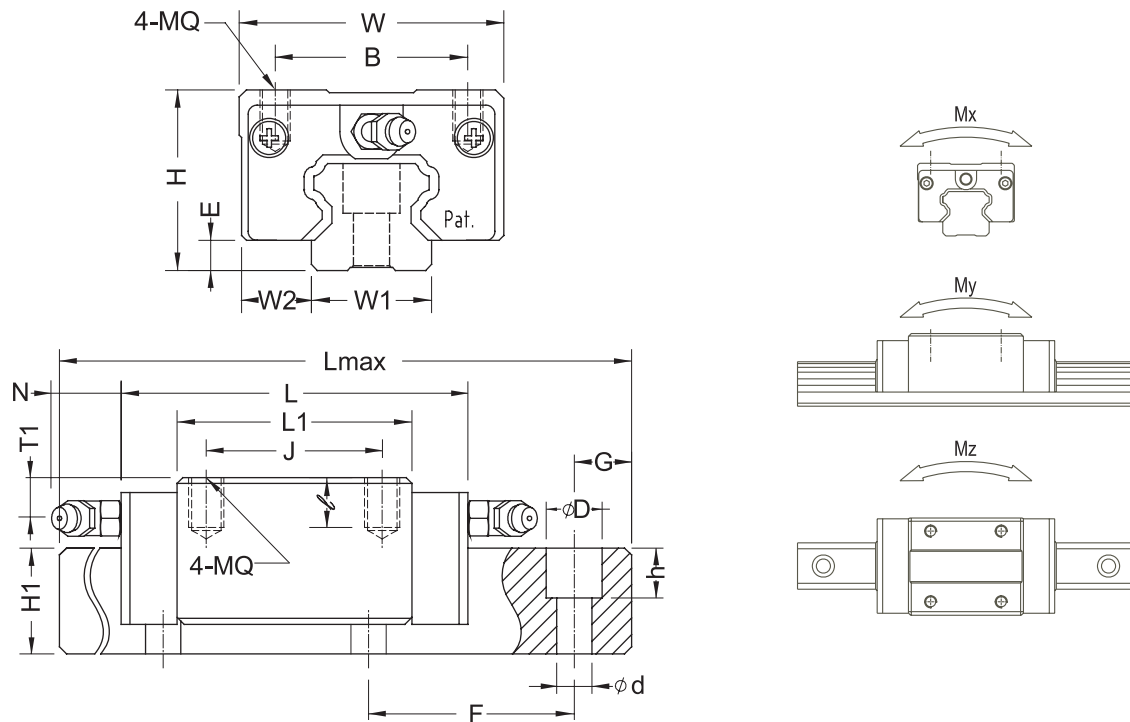


Model No.	Assembly (mm)				BC block (mm)						BC rail (mm)				
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDxh
BCN25B	31	48	12.5	6	102	35X35	M6X6	71	M6X1	5	15.6	23	20	60	7X11X9
BCN25BL					119	35X50		88							
BCN30B	38	60	16	7	116	40X40	M8X8	80	M6X1	8	15.6	28	23	80	9X14X12
BCN30BL					141	40X60		105							
BCN35B	44	70	18	7.5	132	50X50	M8X9.5	93	M6X1	8	15.6	34	26	80	9X14X12
BCN35BL					162	50X72		123							
BCN45B	52	86	20.5	8.9	150	60X60	M10X12	106	M8X1	8	16	45	32	105	14X20X17
BCN45BL					184	60X80		140							
BCN55B	63	100	23.5	12.7	181	75X75	M12X14	131	M8X1	13	16	53	38	120	16X23X20
BCN55BL					223	75X95		173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCN25B	4000	20	3030	5040	51.3	51.8	51.8	0.55	3.2
BCN25BL			3520	6230	63.5	77.2	77.2	0.7	
BCN30B	4000	20	4300	6410	79	72	72	0.9	4.5
BCN30BL			5210	8550	105	124	124	1.2	
BCN35B	4000	20	6000	9320	140	126	126	1.45	6.2
BCN35BL			7020	12260	184	214	214	1.8	
BCN45B	4000	22.5	7980	12150	245	187	187	2.6	10.4
BCN45BL			9650	16040	320	315	315	3.4	
BCN55B	4000	30	12350	19000	446	355	355	4.7	14.5
BCN55BL			15500	24900	580	600	600	6.1	



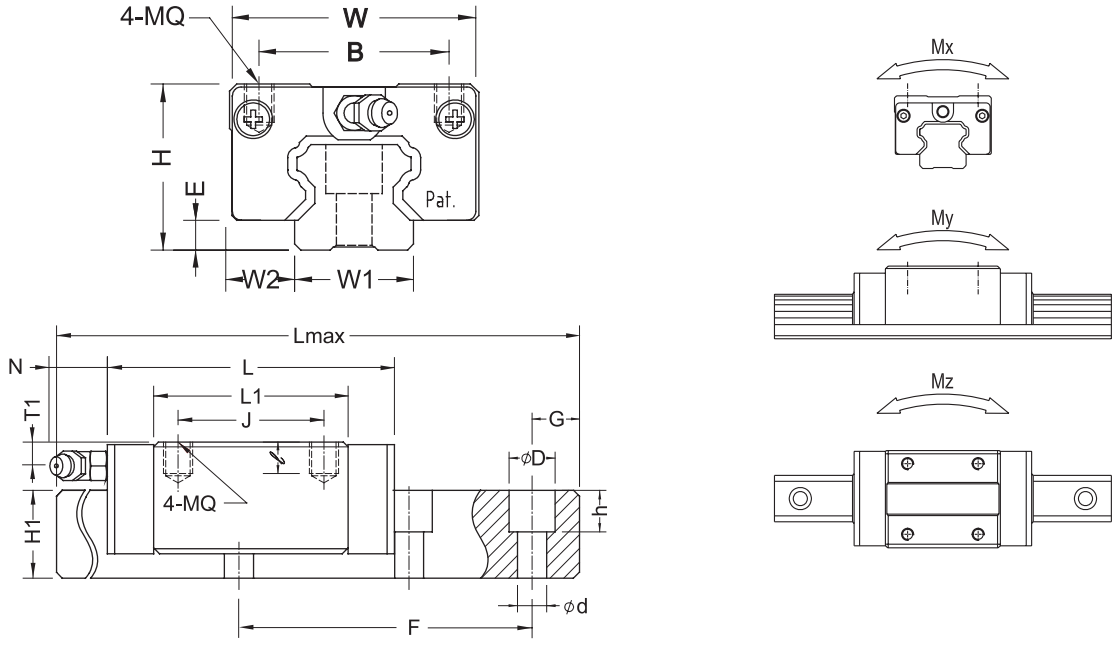
2.6 BCN-B/BL



Model No.	Assembly (mm)				BC block (mm)						BC rail (mm)				
	H	W	W2	E	L	BXJ	MQx/	L1	Oil hole	T1	(N)	W1	H1	F	dXDxh
BCN25B	31	48	12.5	6	102	35X35	M6X6	71	M6X1	5	15.6	23	20	60	7X11X9
BCN25BL					119	35X50		88							
BCN30B	38	60	16	7	116	40X40	M8X8	80	M6X1	8	15.6	28	23	80	9X14X12
BCN30BL					141	40X60		105							
BCN35B	44	70	18	7.5	132	50X50	M8X9.5	93	M6X1	8	15.6	34	26	80	9X14X12
BCN35BL					162	50X72		123							
BCN45B	52	86	20.5	8.9	150	60X60	M10X12	106	M8X1	8	16	45	32	105	14X20X17
BCN45BL					184	60X80		140							
BCN55B	63	100	23.5	12.7	181	75X75	M12X14	131	M8X1	13	16	53	38	120	16X23X20
BCN55BL					223	75X95		173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCN25B	4000	20	3030	5040	51.3	51.8	51.8	0.55	3.2
BCN25BL			3520	6230	63.5	77.2	77.2	0.7	
BCN30B	4000	20	4300	6410	79	72	72	0.9	4.5
BCN30BL			5210	8550	105	124	124	1.2	
BCN35B	4000	20	6000	9320	140	126	126	1.45	6.2
BCN35BL			7020	12260	184	214	214	1.8	
BCN45B	4000	22.5	7980	12150	245	187	187	2.6	10.4
BCN45BL			9650	16040	320	315	315	3.4	
BCN55B	4000	30	12350	19000	446	355	355	4.7	14.5
BCN55BL			15500	24900	580	600	600	6.1	

2.7 BCS-B/BL



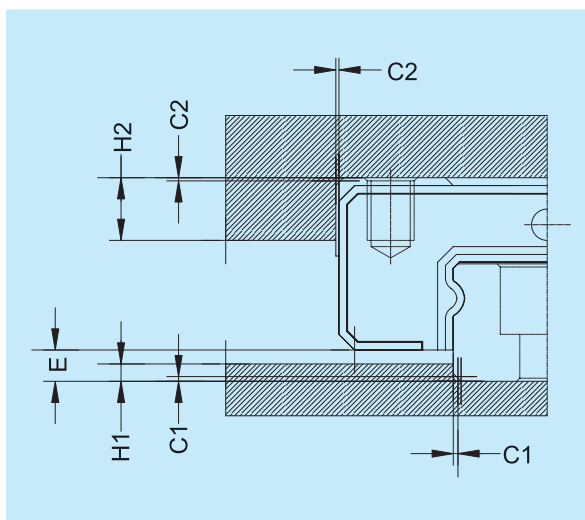
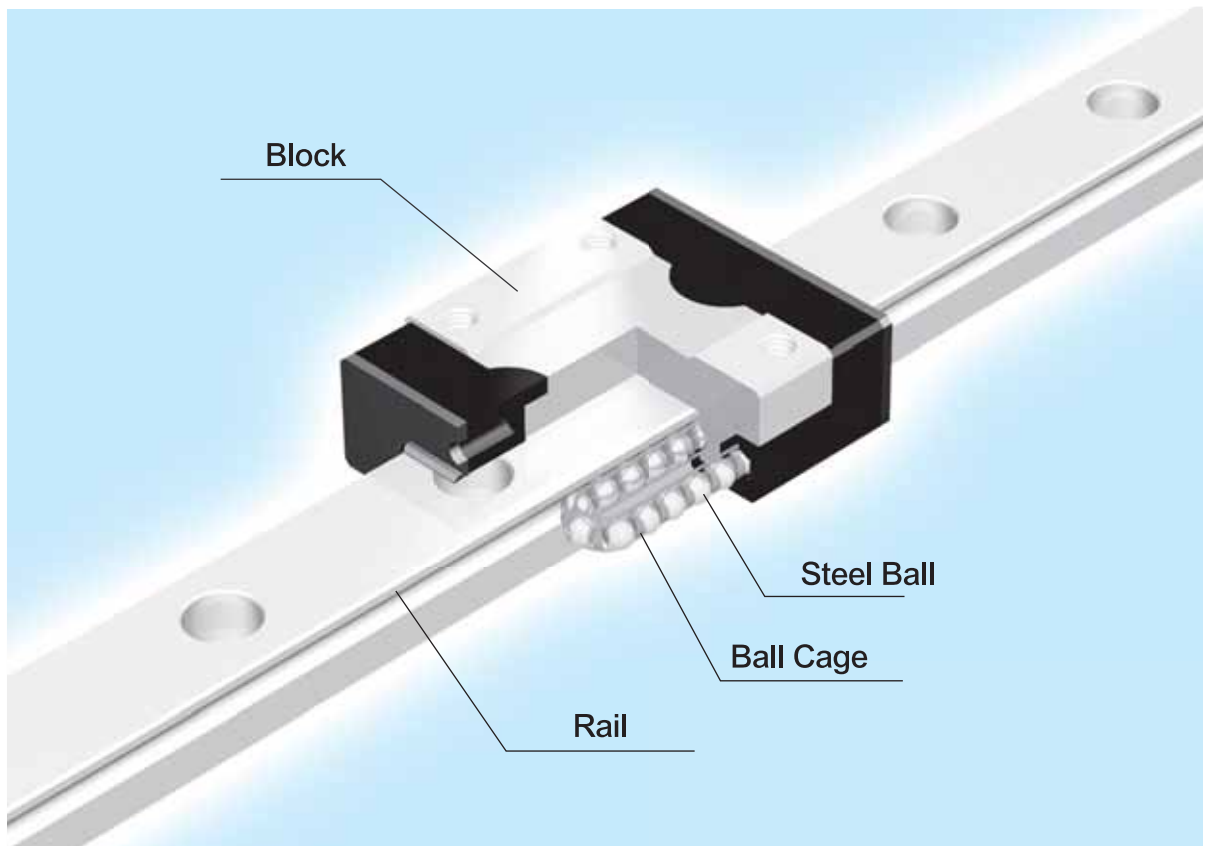
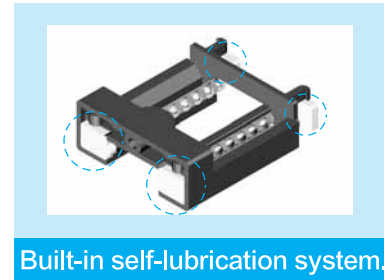
Model No.	Assembly (mm)				BC block (mm)							BC rail (mm)			
	H	W	W2	E	L	BXJ	MQx	L1	Oil hole	T1	(N)	W1	H1	F	dXDxh
BCS15B	24	34	9.5	3	78	26X26	M4X4	48	ø3	5.8	5	15	13	60	4.5X7.5X5.3
BCS15BL					93	26X34		63							
BCS20B	28	42	11	6	87	32X32	M5X5.5	59	M6X1	5.5	15.6	20	16.5	60	6X9.5X8.5
BCS20BL					106	32X50		78							
BCS25B	33	48	12.5	6	102	35X35	M6X8	71	M6X1	7	15.6	23	20	60	7X11X9
BCS25BL					119	35X50		88							
BCS30B	42	60	16	7	116	40X40	M8X10	80	M6X1	12	15.6	28	23	80	9X14X12
BCS30BL					141	40X60		105							
BCS35B	48	70	18	7.5	132	50X50	M8X12	93	M6X1	12	15.6	34	26	80	9X14X12
BCS35BL					162	50X72		123							
BCS45B	60	86	20.5	8.9	150	60X60	M10X14	106	M8X1	16	16	45	32	105	14X20X17
BCS45BL					184	60X80		140							
BCS55B	68	100	23.5	12.7	181	75X75	M12X15	131	M8X1	18	16	53	38	120	16X23X20
BCS55BL					223	75X95		173							

Model No.	Ref.Data (mm)		Basic Load Rating (Kgf)		Static Moment (Kgf*m)			Weight	
	Lmax	G	(C)	(CO)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BCS15B	4000	20	1350	2310	14.5	15.8	15.8	0.22	1.3
BCS15BL			1620	3060	19.1	27	27	0.29	
BCS20B	4000	20	2120	3680	32.9	30.4	30.4	0.45	2.3
BCS20BL			2680	4830	43	52	52	0.62	
BCS25B	4000	20	3030	5040	51.3	51.8	51.8	0.75	3.2
BCS25BL			3520	6230	63.5	77.2	77.2	0.9	
BCS30B	4000	20	4300	6410	79	72	72	1.31	4.5
BCS30BL			5210	8550	105	124	124	1.55	
BCS35B	4000	20	6000	9320	140	126	126	1.9	6.2
BCS35BL			7020	12260	184	214	214	2.55	
BCS45B	4000	22.5	7980	12150	245	187	187	3.3	10.4
BCS45BL			9650	16040	320	315	315	4.2	
BCS55B	4000	30	12350	19000	446	355	355	5.4	14.5
BCS55BL			15500	24900	580	600	600	7.1	

3.1 Miniature Linear Guideway

Features

- High speed & low noise.
- Long service life, smooth running.
- Built-in self-lubrication system.
- Stainless steel design.



Model No.	Corner Radius(max)		Shoulder Height		E(mm)
	C1(mm)	C2(mm)			
BMS09,BMC09	0.2	0.3	0.5	0.5	0.9
BMW09	0.2	0.5	2.5	2.5	2.9
BMC12	0.3	0.2	1.5	1.5	2.0
BMW12	0.3	0.3	2.5	2.5	3.0
BMC15	0.3	0.4	2.2	2.2	2.7
BMW15	0.3	0.3	2.2	2.2	2.7

Preload	Mark	Preload Force	Applicable Accuracy
Slight Clearance	ZF	4~10 μm	N
No Clearance	Z0	0	N,H,P
Slight Preload	Z1	0.02C	N,H,P



3.2 Accuracy Standard

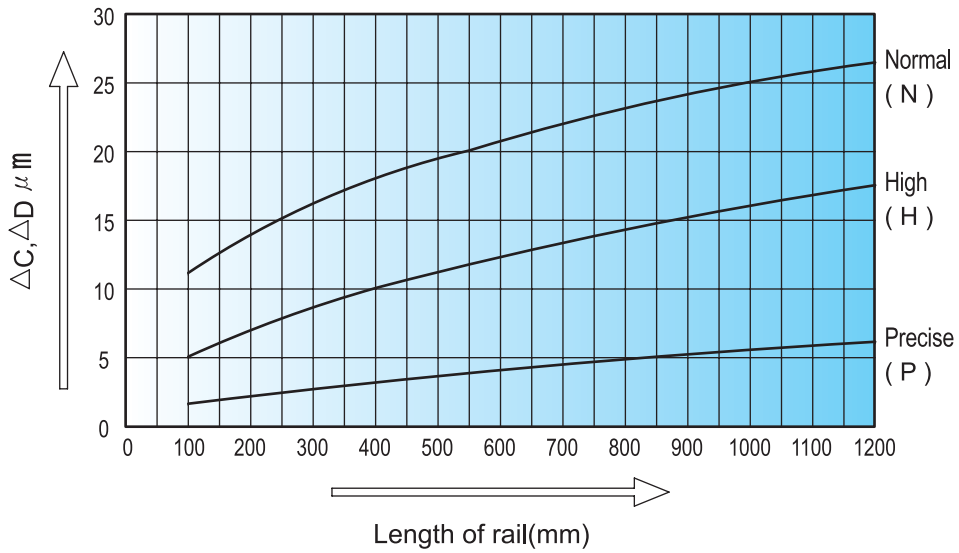
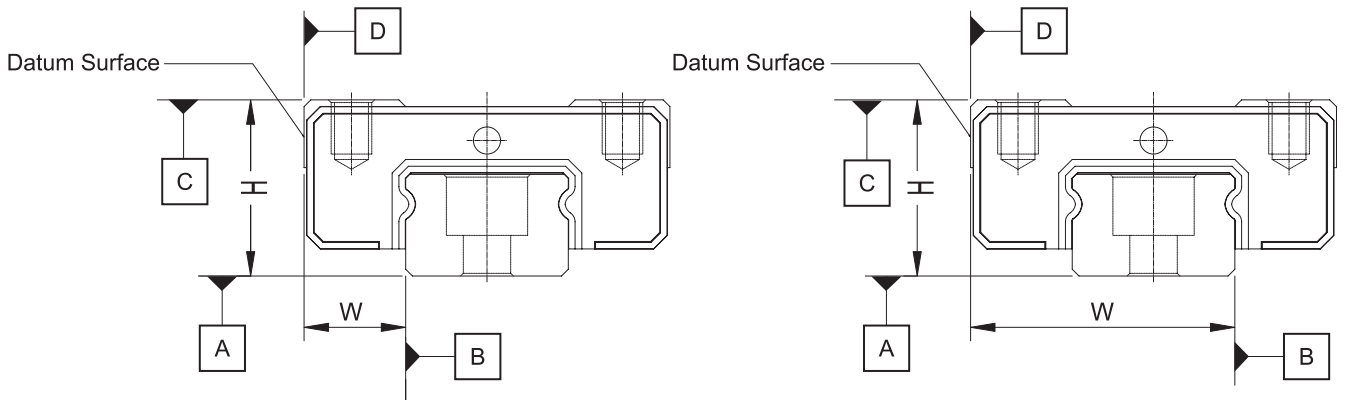


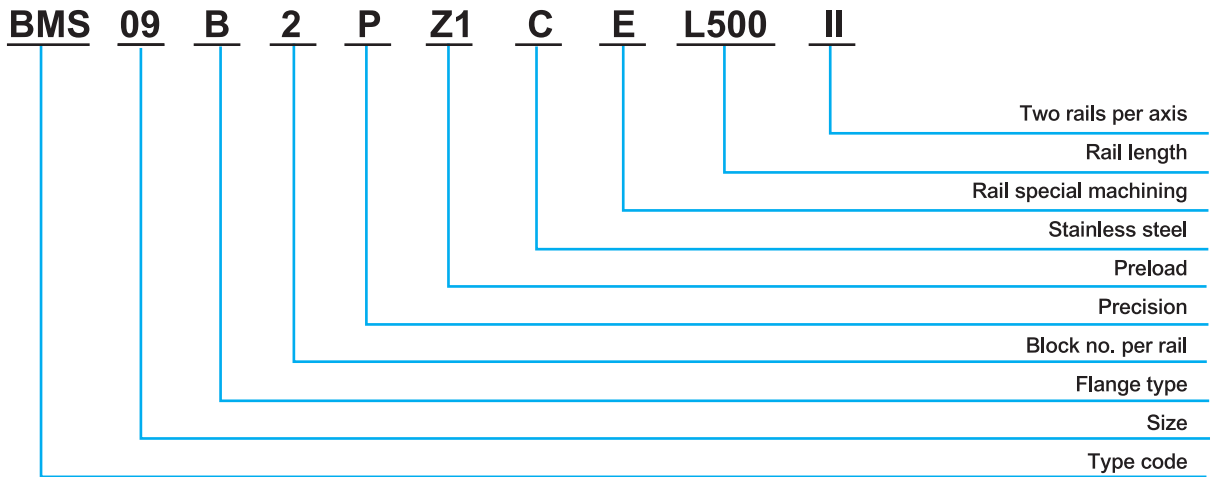
Fig.1 BM rail length and running parallelism

unit : mm

ITEM	Grade		
	Normal (N)	High (H)	Precise (P)
Tolerance of height (H)	± 0.04	± 0.02	± 0.01
Tolerance of widths (W)	± 0.04	± 0.025	± 0.015
Difference of heights (ΔH)	0.03	0.02	0.007
Difference of widths (ΔW)	0.03	0.02	0.02
Running parallelism of BM block between surface C & A	ΔC Refer to Fig.1		
Running parallelism of BM block between surface D & B	ΔD Refer to Fig.1		



3.3 The Model Code of BM Series



Type Code	
BMS :	Miniature
BMC :	Miniature with cage

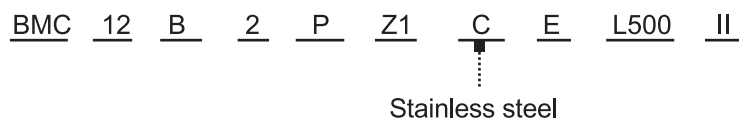
Size	
	09
	12
	15

Precision	
N:	Normal
H:	High
P:	Precision

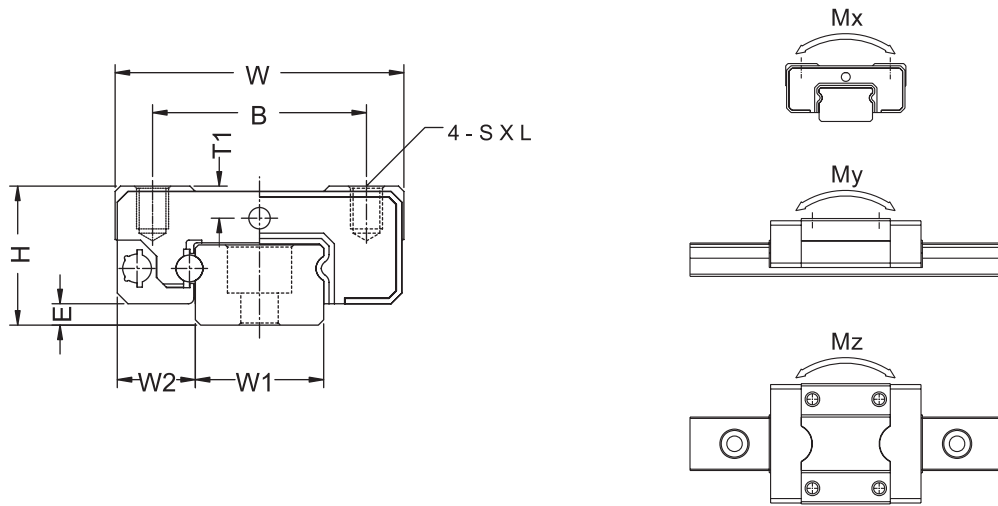
Preload	
ZF:	Clearance
Z0:	Nopreload
Z1:	Light preload

Flange type	
B :	Without flange

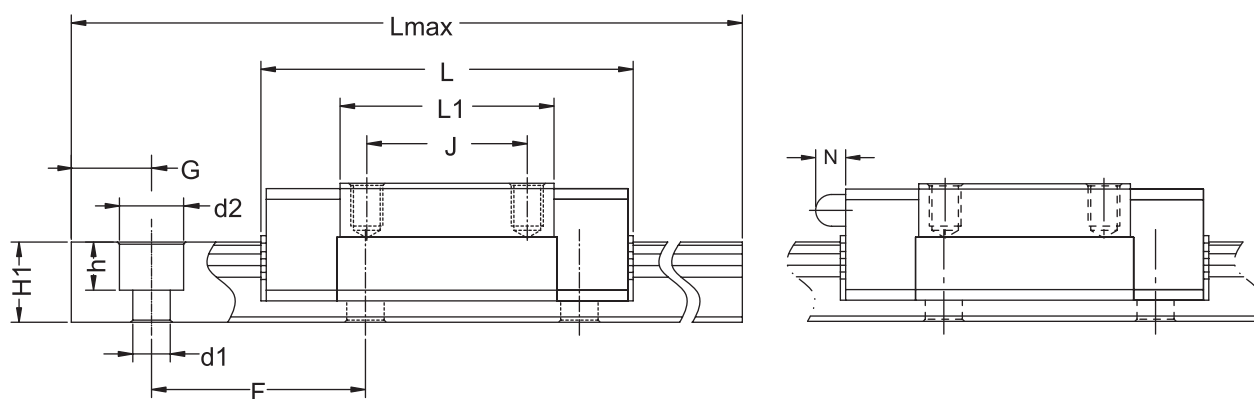
e.g.



3.4 Miniature Dimension Table



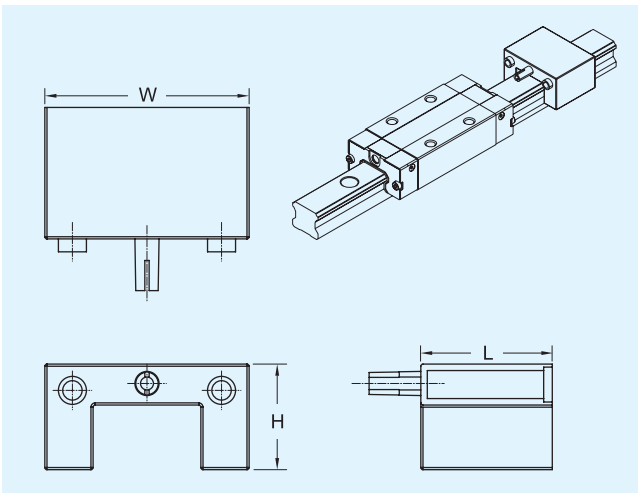
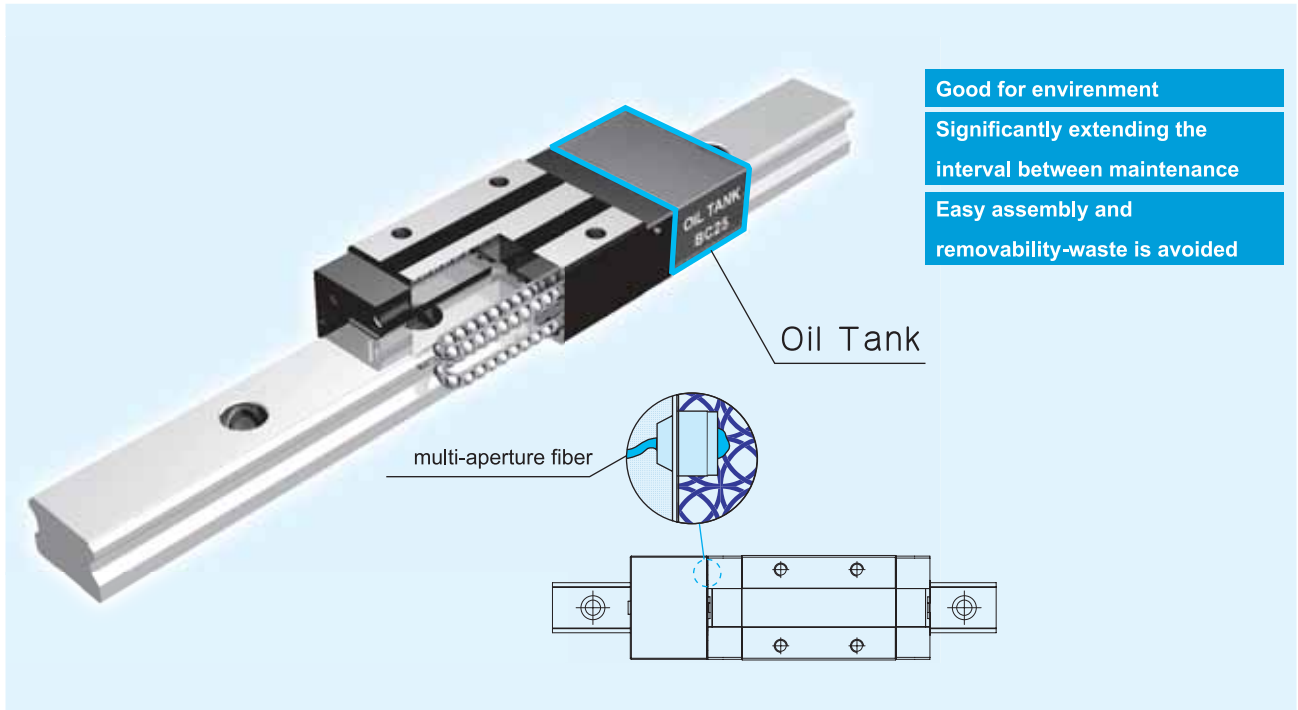
Model No.	Assembly(mm)				Block(mm)							Rail (mm)			
	H	W	W2	E	L	BxJ	SxL	L1	Oil Hole	T1	N	W1	H1	F	d1xd2xh
BMS09B	10	20	5.5	2	30.6	15x10	M3x2.9	19.4	φ 1.6	2.25	/	9	5.5	20	3.5x6x3.3
BMC12B	13	27	7.5	2	34.8	20x15	M3x4	20	φ 2	3	/	12	7.5	25	3.5x6x4.5
BMC15B	16	32	8.5	2.9	44	25x20	M3x4.5	25	φ 3	3	5	15	9.5	40	3.5x6x4.5



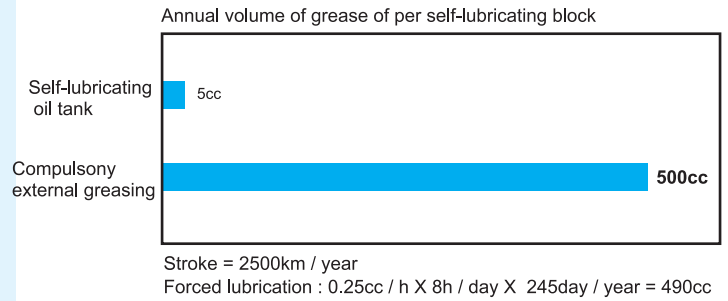
Model No.	Ref. Data(mm)		Basic Load Rating(kgf)		Static moment (Kgf*m)			Weight	
	Lmax	G	(C)	(C0)	Mx	My	Mz	Block(Kg)	Rail(Kg/m)
BMS09B	1000	7.5	142	218	1	0.71	0.71	0.014	0.32
BMC12B	1000	10	290	342	2.24	1.2	1.2	0.027	0.65
BMC15B	1000	15	470	552	4	2.4	2.4	0.047	0.96



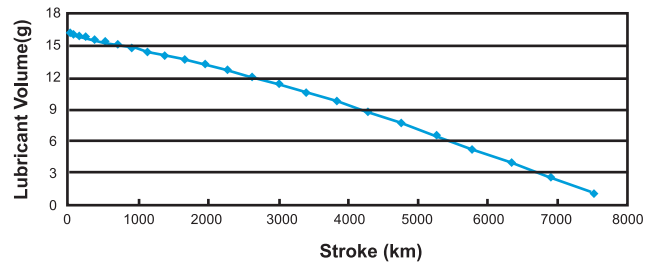
4.1 External Removable Oil Tank Self-lubricating System



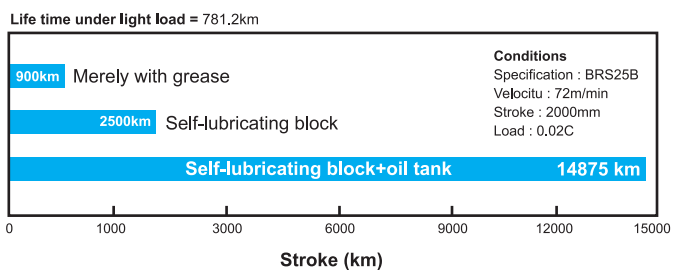
Efficient usage of grease



Grease Consumption

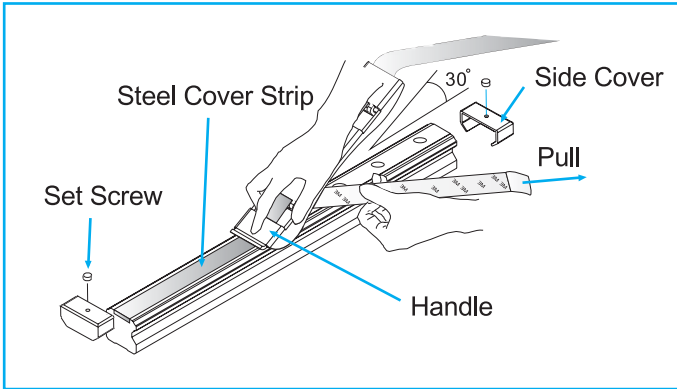
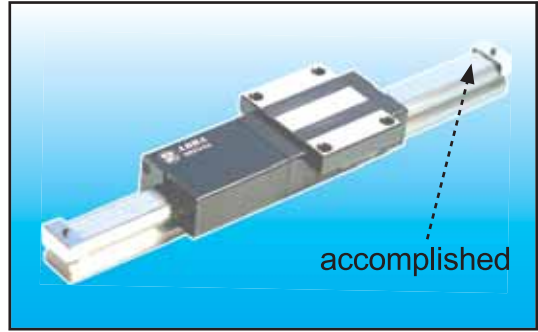
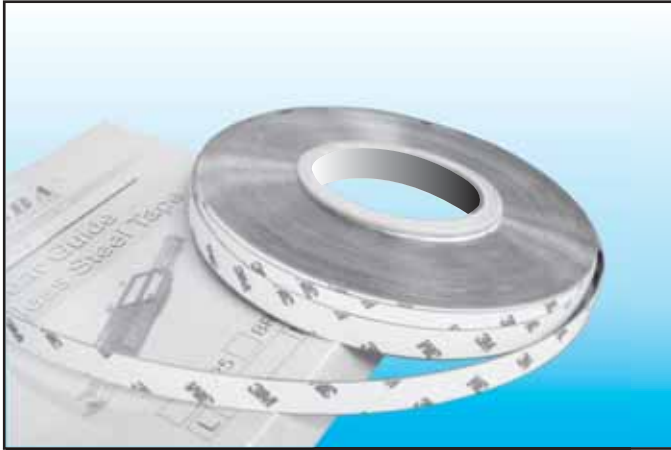


Effective extension of the lifetime of self-lubricating block



Model No.	Dimension(mm)			Content (ml)
	High(H)	length(L)	width(W)	
BC15	19,5	25	32	6
BC20	22	30	42	10
BC25	24,5	35,5	47,5	17
BC30	28	40	54	30
BC35	35,5	46,5	69	60
BC45	42	52,5	86	100
BC55	46,3	65,5	99	160

4.2 Steel Cover Strip



- Dust-proof**
- State-of-the-art design**
- Sturdy and Durable**

Type Code	Cover Strip Dimension(mm)			Note
	W	L	T	
BR15	10	50M	0.3	1. Supplied in boxes in 50M per bundle. 2. Can be cut off into needed length by yourself.
BR20	13			
BR25	15			
BR30	20			
BR35	24			
BR45	32			

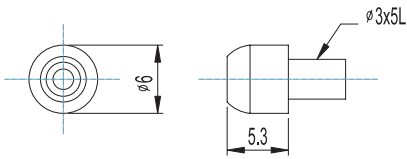
Remark : For any detail of assembly procedure, please refer to the instruction on the box, or contact ABBA.

4.3 Grease Nipples

Grease Nipple

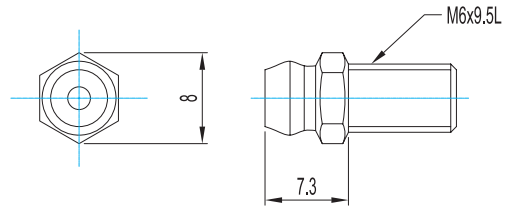
NLA01

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



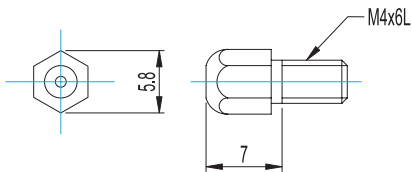
NLA05

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



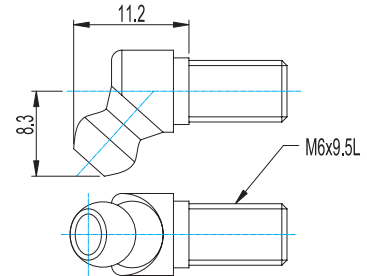
NLA02

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



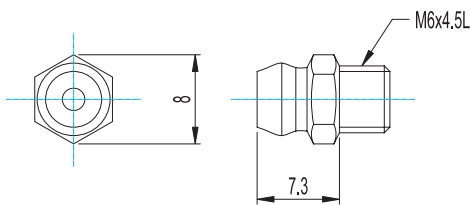
NLB01

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



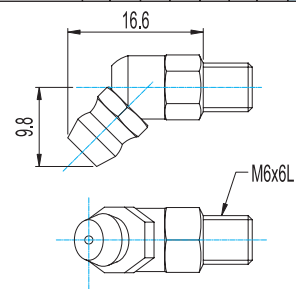
NLA03

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



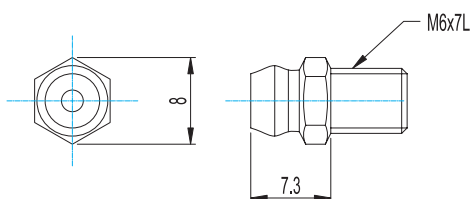
NLB02

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



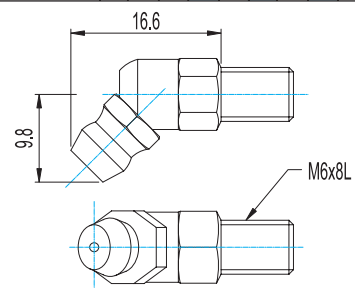
NLA04

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



NLB03

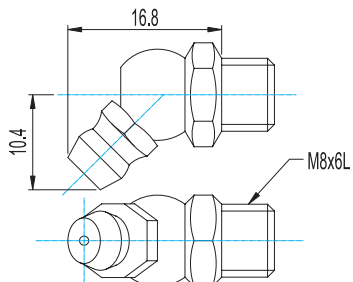
Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



Plumbing Nipple

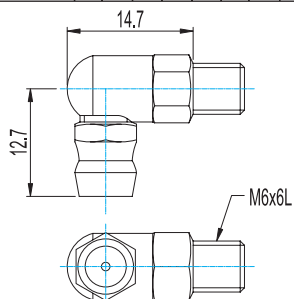
NLB04

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



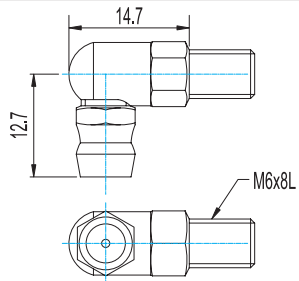
NLC01

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



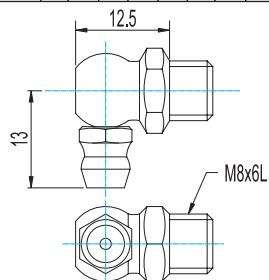
NLC02

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



NLC03

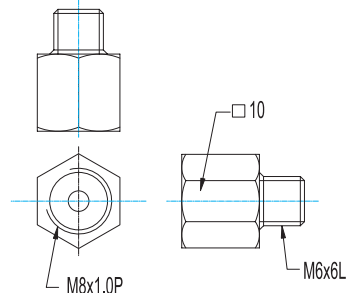
Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



Quick joint

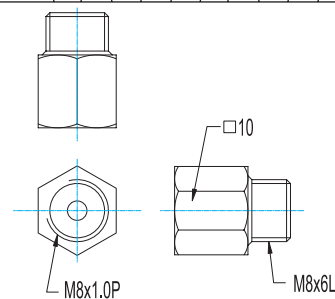
NPA01

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



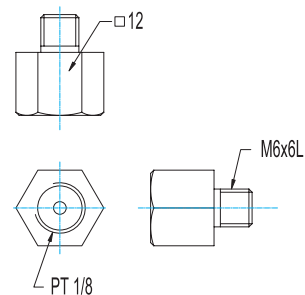
NPA02

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



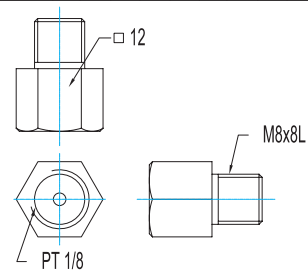
NPA03

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



NPA04

Application	15	20	25	30	35	45	
Metal Scraper	15	20	25	30	35	45	



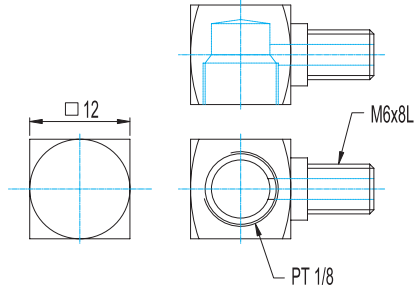


4.3 Grease Nipples

Quick joint

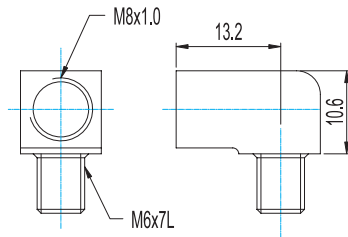
NPC01

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



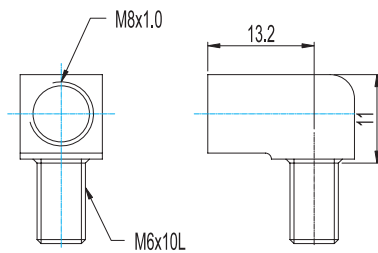
NPC02

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



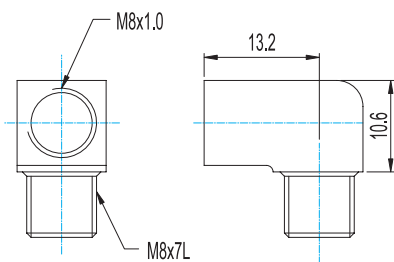
NPC03

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



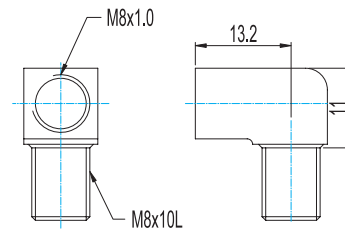
NPC04

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



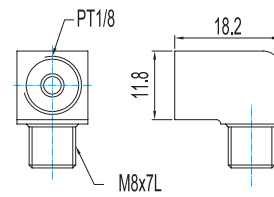
NPC05

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



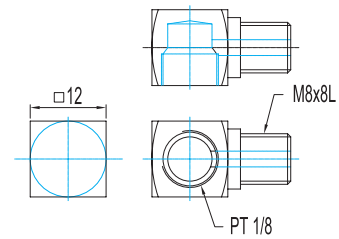
NPC06

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



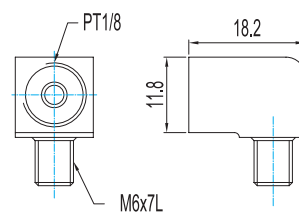
NPC07

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



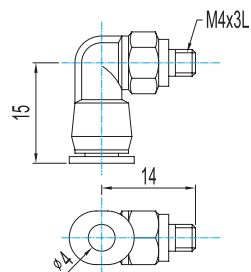
NPC08

Application	15	20	25	30	35	45	—
Metal Scraper	15	20	25	30	35	45	—



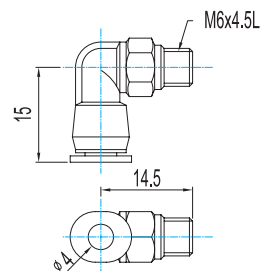
NAC01

Application	15	20	—	25	—	30	—	35	—	45	—	
Metal Scraper	15	—	20	—	25	—	30	—	35	—	45	—



NAC02

Application	15	—	20	25	—	30	—	35	—	45	—	
Metal Scraper	15	—	20	—	25	—	30	—	35	—	45	—



Grease Nipple

NL	Grease Nipple
NP	Plumbing Nipple
NA	Quick joint

Angle

A	0°
B	45°
C	90°

NOTE : — Inappropriate

■ Appropriate

Shall you have any question , please kindly contact ABBA.

Ball Screw

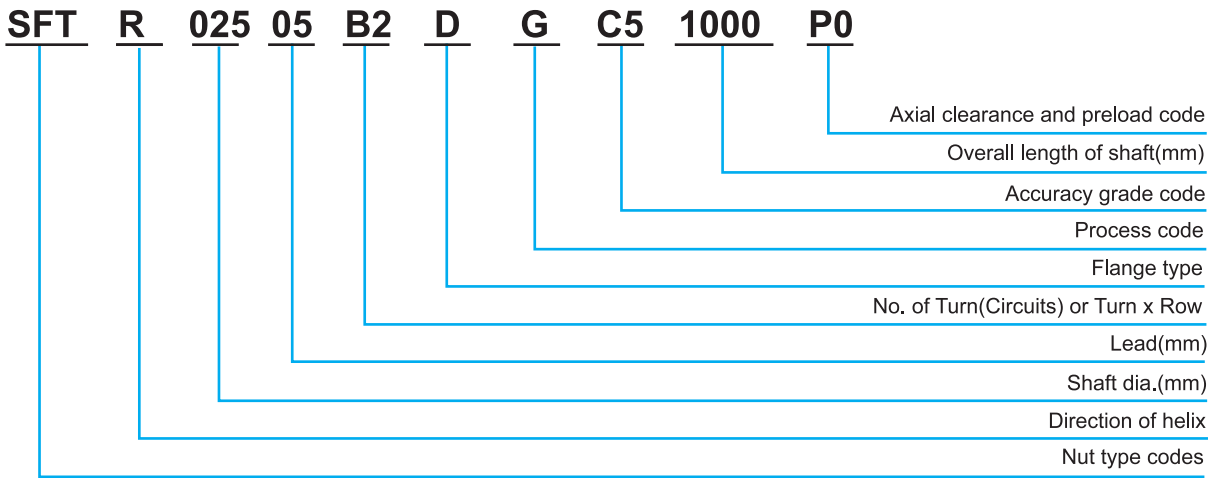


High Precision
CNC Production Equipment





5.1 The Model Code of Ball Screw



Nut type codes

S	S :	Single nut	F	F :	With flange	T	T :	T type nut
	D :	Double nut		C :	Without flange		I :	I type nut
							D :	D type nut
							E :	E type nut
							K :	K type nut
							U :	U DIN nut

(SFI 、 DFI 、 SFT 、 DFT 、 SFE 、 SFK)

Direction of helix		No. of Turn (Circuits) or Turn x Row		Flange type		
R :	Right	Turn	T:	1	N:	Not cutting
L :	Left		A:	1.5 (or 1.7)	S:	Single cutting
			B:	2.5	D:	Double cutting
			C:	3.5		

ex : (B2=2.5x2)

Process code

G:	Ground
F:	Rolled

Accuracy grade code

C0 C1 C2 C3 C5 C7 C10

Axial clearance and preload code

P0 P1 P2 P3 P4



5.2 Technical Information

Mean Travel Deviation ($\pm E$) and Travel Variation(e) (JIS B 1192)

unit: μ m

Grade		C0		C1		C2		C3		C5		C7		C10	
Travel Length (mm)	Over	incl	$\pm E$	e	$\pm E$	e	$\pm E$	e	$\pm E$	e	$\pm E$	e	e_{300}	e_{300}	
		100	3	3	3.5	5	5	7	8	8	18	18	± 50 300mm	± 210 300mm	
	100	200	3.5	3	4.5	5	7	7	10	8	20	18			
	200	315	4	3.5	6	5	8	7	12	8	23	18			
	315	400	5	3.5	7	5	9	7	13	10	25	20			
	400	500	6	4	8	5	10	7	15	10	27	20			
	500	630	6	4	9	6	11	8	16	12	30	23			
	630	800	7	5	10	7	13	9	18	13	35	25			
	800	1000	8	6	11	8	15	10	21	15	40	27			
	1000	1250	9	6	13	9	18	11	24	16	46	30			
	1250	1600	11	7	15	10	21	13	29	18	54	35			
	1600	2000			18	11	25	15	35	21	65	40			
	2000	2500			22	13	30	18	41	24	77	46			
	2500	3150			26	15	36	21	50	29	93	54			
	3150	4000			30	18	44	25	60	35	115	65			
	4000	5000					52	30	72	41	140	77			
	5000	6300					65	36	90	50	170	93			
	6300	8000							110	60	210	115			
	8000	10000									260	140			
10000	12500									320	170				

Variation per 300mm (e_{300})and Wobble Error ($e_{2\pi}$)(JIS B 1192)

unit: μ m

Grade	C0	C1	C2	C3	C5	C7	C10
e_{300}	3.5	5	7	8	18	50	210
$e_{2\pi}$	2.5	4	5	6	8		

Combination of Accuracy Grade, Preload and Axial Play

Grade	P0	P1	P2	P3	P4
Axial Play	Yes	No	No	No	No
Preload	No	No	Light	Medium	Heavy

Guidelines for selecting Accuracy, Preload, Axial Play, Nut and Screw shaft.

Accuracy	Preload and Axial Play	Nut Type	Screw shaft Type
C10	P0(With Axial Play)	Single Nut	Rolled screw shaft
C7	Rolled : P0 Ground : P1	Rolled : single nut Ground : According to ABBA Catalogues	Rolled or Ground
C5	P1 or P2(Standard)	Ground : According to ABBA Catalogues	Ground screw shaft with lead error inspection certificate
C3	P1 or P2(Standard) or P3	Ground : According to ABBA Catalogues	Ground screw shaft with lead error inspection certificate

Axial Play (P0) Clearance in the Axial Direction of the Rolled and Ground Ball Screw

Screw Shaft OD	Rolled Ball Screw Clearance in the Axial Direction(max.)	Ground Ball Screw Clearance in the Axial Direction (max.)
04-14 miniature ball screw	0.05	0.015
15-40 middle size of ball screw	0.08	0.025
50-100 big size of ball screw	0.12	0.05

unit:mm

Spring Force of Light Preload (P2)

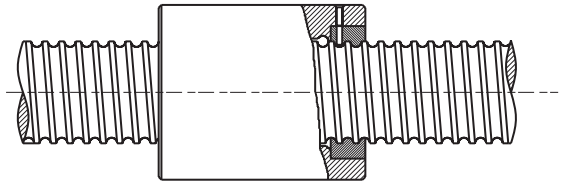
Model No.	Single Nut (kg)	Double Nut (kg)
1605	0.1~0.3	0.3~0.6
2005	0.1~0.3	0.3~0.6
2505	0.2~0.5	0.3~0.6
3205	0.2~0.5	0.5~0.8
4005	0.2~0.5	0.5~0.8
2510	0.2~0.5	0.5~0.8
3210	0.3~0.6	0.5~0.8
4010	0.3~0.6	0.5~0.8
5010	0.3~0.6	0.8~1.2
6310	0.6~1.0	0.8~1.2
8010	0.6~1.0	0.8~1.2

Cautions About Use of Ball Screws

Lubrication

Adequate lubrication must be provided when ball screw is used, insufficient lubrication will result in contact of metal, which in turn leads to increase of friction and friction loss, thus cause failure or shortening of service life.

Lubricants applied to ball screws can be divided into 2 types, namely lubricating oil and consistent grease. In general speaking, in respect of maintenance, consistent grease will lead to increase of dynamic friction torque linearly along with increase of rotating speed, hence oil lubrication is deemed the better way when speed exceeds 3-5 m/min; however, don't forget the fact that there have been examples that using grease has been capable of achieving speed of 10 m/min, with respect to the equipment.



Inspection of lubrication and interval of refill

Method	Interval	Check Item	Replenish or Change Interval
Auto. Intermittent oil supply	Weekly	Oil level, contamination	Add at each check, as required depending on tank level
Grease	initially 2-3 months	Contamination on entry of chip	Replenish yearly or according to the inspection results
Oil bath	Daily	Oil level	To be determined according to consumption

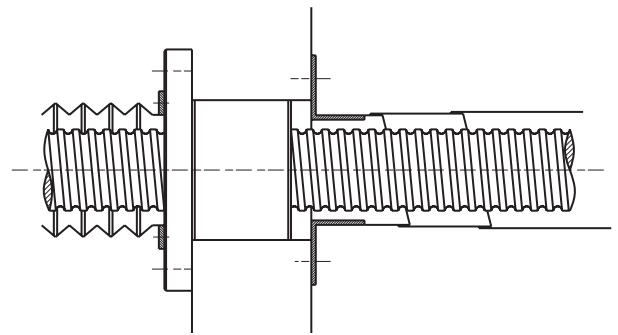


Fig. 5.1 Dust proof Method by Telescopic Cover and Bellows

Contaminant Prevention

Any foreign matter or water, if allowed to enter the ball screw, may increase friction and cause damage. For example, the entry of chips or cutting oil may be expected with machine tools depending on the work environment. Where entry of foreign matter is anticipated, use a bellows or telescopic cover as shown in Fig. 5.1, to cover the screw shaft completely.

Ball Screw Selection Procedure

Ground & Rolled

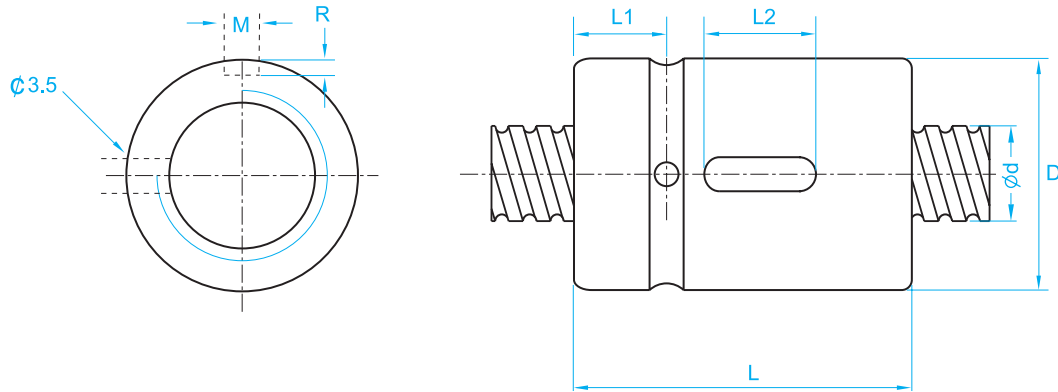
Dia.	Lead																					
	1	2	2.5	2.54	3	4	5	5.08	6	8	10	12	15	16	20	24	25	32	40	50	64	
4	○																					
6	◎																					
8	◎	◎	◎							○	○	○										
9			○																			
10		◎				◎					○	○	○									
12		◎	○			◎	◎		○		○											
14		◎			○	○																
15																						
16		○				◎	◎							◎					○			
19				○																		
20		○				◎	◎	○			○							◎		○		
25		○	○		○	◎	◎	○	○	○	◎	○				◎				○	○	
28							○		○	○	○	○										
32		○	○			◎	◎	○	○	○	◎	○			○	○			◎			○
36												○	○		○	○						
38																						
40							◎	○	○	○	◎	○		○	○	○				◎		
45												○										
50								○			◎	○		○	○						◎	
63												○			○					○		
80												○			○					○		
100																	○					

◎ means both of ground and rolled ball screw are available

○ means ground ball screw only



5.3 SCI



Unit: mm

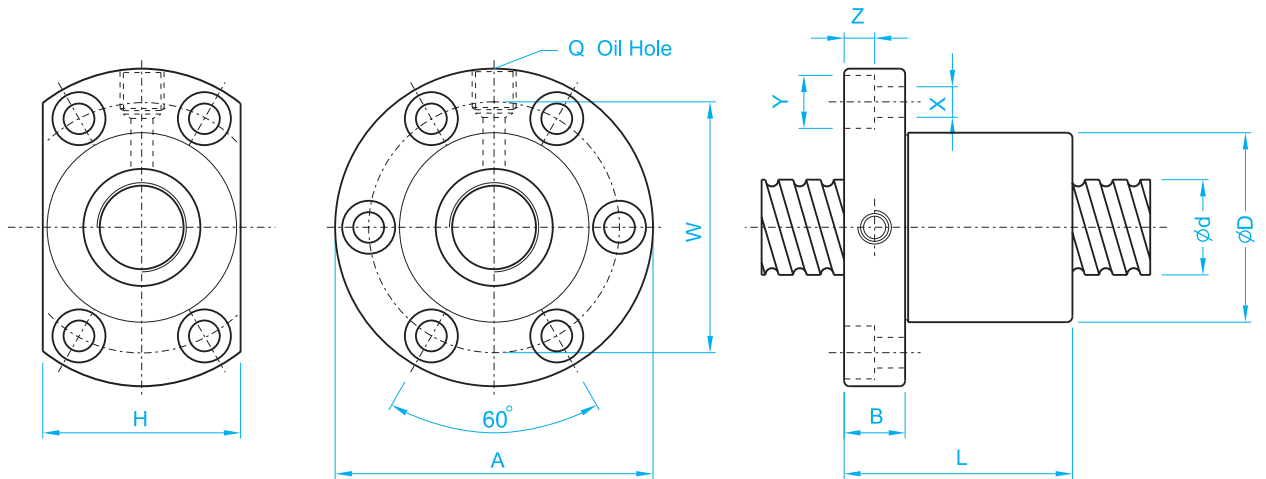
l : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kg/μm) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

Model No.	Dimensions												
	d	l	Da	D	L	L1	L2	M	R	n	Ca	Coa	K
★ SCI01604	16	4	2.381	30	40	9	15	3	1.5	4	625	1254	22
★ SCI01605		5	3.175	30	45	9	20	5	3	4	888	1525	22
★ SCI02004	20	4	2.381	34	40	9	15	3	1.5	4	693	1584	27
★ SCI02005		5	3.175	34	45	9	20	5	3	4	999	1995	27
★ SCI02504	25	4	2.381	40	40	9	15	3	1.5	4	775	2046	33
★ SCI02505		5	3.175	40	45	9	20	5	3	4	1119	2581	34
★ SCI02510		10	4.762	46	85	13	30	5	3	4	1903	3695	35
★ SCI03204	32	4	2.381	46	40	9	15	3	1.5	4	868	2640	43
★ SCI03205		5	3.175	46	45	9	20	5	3	4	1264	3403	43
★ SCI03210		10	6.35	54	85	13	30	5	3	4	3093	6102	45
★ SCI04005	40	5	3.175	56	45	9	20	5	3	4	1407	4342	53
★ SCI04010		10	6.35	62	85	13	30	5	3	4	3480	7979	55
★ SCI05010	50	10	6.35	72	85	13	30	5	3	4	3898	10326	68
★ SCI06310	63	10	6.35	85	85	13	30	6	3.5	4	4402	13611	84
★ SCI08010	80	10	6.35	105	85	13	30	8	4.5	4	4900	17366	106

Note: with sign ★ can produce left helix



5.4 SFI



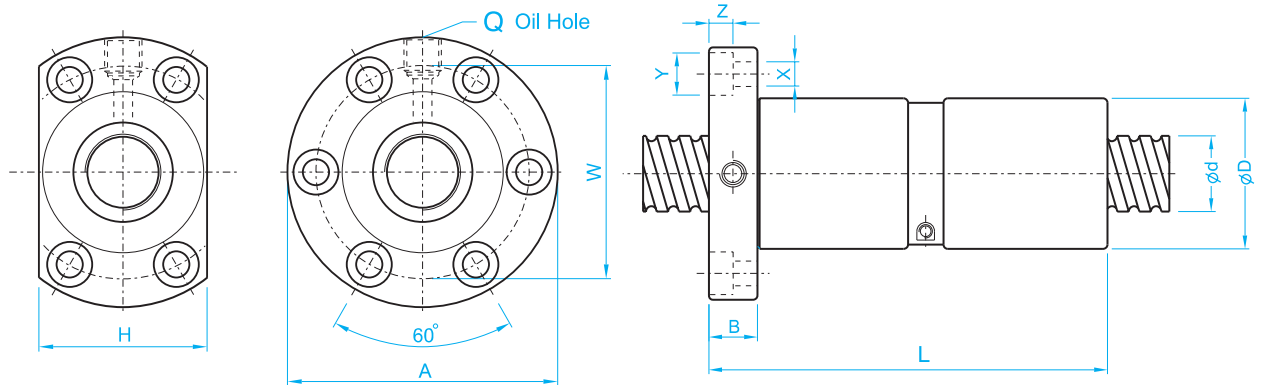
Unit: mm

l : Lead D_a : Ball Dia n : Number of Circuits K : Stiffness(Kgf/ μ m) C_a : Basic dynamic Rating Load (Kgf) C_{oa} : Basic Static Rating Load(Kgf)

Model No.	Dimensions																
	d	l	D_a	D	A	B	L	W	H	X	Y	Z	Q	n	C_a	C_{oa}	K
★ SFI01604-4	16	4	2.381	30	49	10	45	39	34	4.5	8	4.5	M6	4	625	1254	22
★ SFI01605-4		5	3.175	30	49	10	50	39	34	4.5	8	4.5	M6	4	888	1525	22
★ SFI01610-3		10	3.175	34	58	10	57	45	34	5.5	9.5	5.5	M6	3	716	1232	17
SFI02004-4	20	4	2.381	34	57	11	46	45	40	5.5	9.5	5.5	M6	4	693	1584	27
★ SFI02005-4		5	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	4	999	1995	27
★ SFI0205T-4		5.08	3.175	34	57	11	51	45	40	5.5	9.5	5.5	M6	4	999	1995	27
★ SFI02504-4	25	4	2.381	40	63	11	46	51	46	5.5	9.5	5.5	M6	4	775	2046	33
★ SFI02505-4		5	3.175	40	63	11	51	51	46	5.5	9.5	5.5	M8	4	1119	2581	34
SFI02510-4		10	4.762	46	72	12	85	58	52	6.5	11	6.5	M6	4	1903	3953	35
SFI03204-4	32	4	2.381	46	72	12	47	58	52	6.5	11	6.5	M6	4	868	2640	43
★ SFI03205-4		5	3.175	46	72	12	52	58	52	6.5	11	6.5	M8	4	1264	3403	43
★ SFI03210-4		10	6.35	54	88	15	90	70	62	9	14	8.5	M8	4	3093	6102	44
★ SFI04005-4	40	5	3.175	56	90	15	55	72	64	9	14	8.5	M8	4	1407	4342	53
★ SFI04010-4		10	6.35	62	104	18	93	82	70	11	17.5	11	M8	4	3480	7979	55
SFI05010-4	50	10	6.35	72	114	18	93	92	82	11	17.5	11	M8	4	3898	10326	68
★ SFI06310-4	63	10	6.35	85	131	22	98	107	95	14	20	13	M8	4	4402	13611	84
★ SFI08010-4	80	10	6.35	105	150	22	98	127	115	14	20	13	M8	4	4900	17366	106

Note: with sign ★ can produce left helix

5.5 DFI



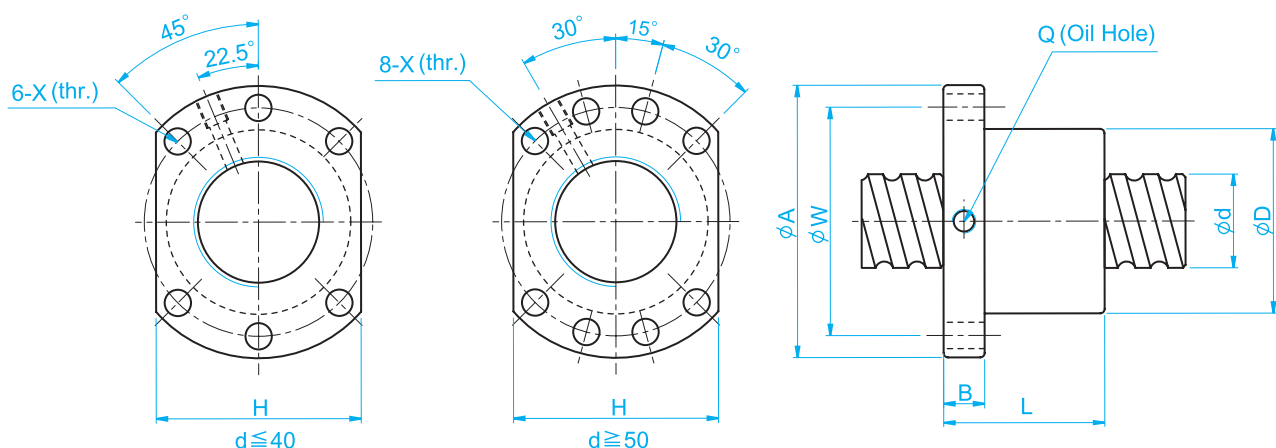
Unit: mm

l : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kgf/μm) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

Model No.	Dimensions																
	d	l	Da	D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	K
★ DFI01604-4	16	4	2.381	30	49	10	80	39	34	4.5	8	4.5	M6	4	625	1254	42
★ DFI01605-4		5	3.175	30	49	10	100	39	34	4.5	8	4.5	M6	4	888	1525	43
★ DFI02004-4	20	4	2.381	34	57	11	80	45	40	5.5	9.5	5.5	M6	4	693	1584	53
★ DFI02005-4		5	3.175	34	57	11	101	45	40	5.5	9.5	5.5	M6	4	999	1995	53
★ DFI02504-4	25	4	2.381	40	63	11	80	51	46	5.5	9.5	5.5	M6	4	775	2046	65
★ DFI02505-4		5	3.175	40	63	11	101	51	46	5.5	9.5	5.5	M8	4	1119	2581	66
★ DFI02510-4		10	4.762	46	72	12	145	58	52	6.5	11	6.5	M6	4	1903	3695	67
★ DFI03204-4	32	4	2.381	46	72	12	80	58	52	6.5	11	6.5	M6	4	868	2640	83
★ DFI03205-4		5	3.175	46	72	12	102	58	52	6.5	11	6.5	M8	4	1264	3403	84
★ DFI03210-4		10	6.35	54	88	15	162	70	62	9	14	8.5	M8	4	3093	6102	86
★ DFI04005-4	40	5	3.175	56	90	15	105	72	64	9	14	8.5	M8	4	1407	4342	104
★ DFI04010-4		10	6.35	62	104	18	165	82	70	11	17.5	11	M8	4	3480	7979	106
★ DFI05010-4	50	10	6.35	72	114	18	171	92	82	11	17.5	11	M8	4	3898	10326	132
★ DFI06310-4	63	10	6.35	85	131	22	182	107	95	14	20	13	M8	4	4402	13611	165
★ DFI08010-4	80	10	6.35	105	150	22	182	127	115	14	20	13	M8	4	4900	17366	207

Note: with sign ★ can produce left helix

5.6 SFU(DIN 69051 FORM B)



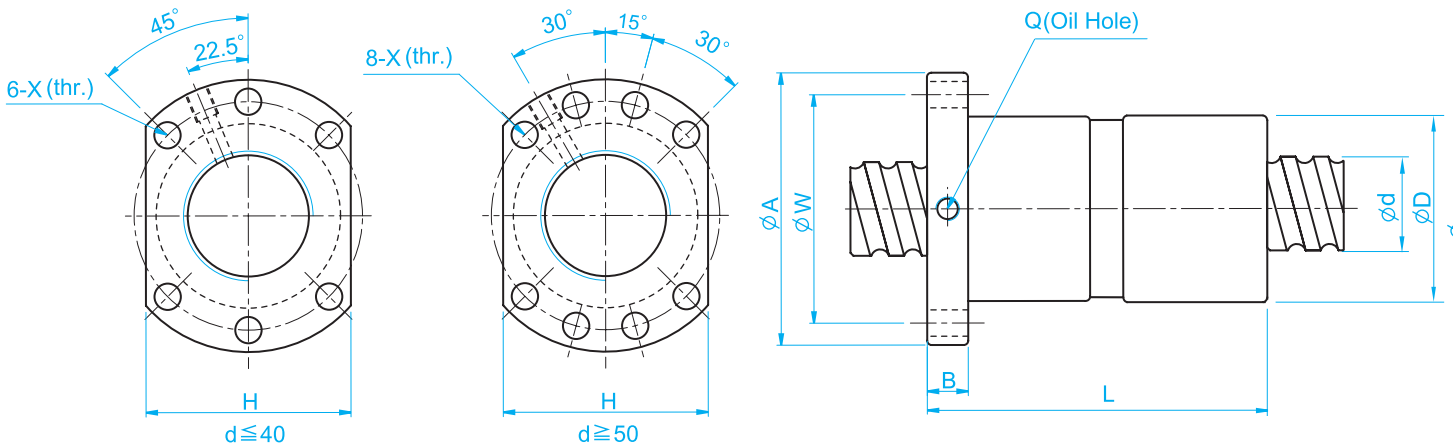
l : Lead d_a : Ball Dia n : Number of Circuits K : Stiffness(Kg/ μ m) C_a : Basic dynamic Rating Load (Kgf) C_{oa} : Basic Static Rating Load(Kgf)

Model No.	Dimensions														
	d	l	d_a	D	A	B	L	W	X	H	Q	n	C_a	C_{oa}	K
★ SFU01604-4	16	4	2.381	28	48	10	40	38	5.5	40	M6	4	625	1254	22
★ SFU01605-4		5	3.175	28	48	10	50	38	5.5	40	M6	4	888	1525	22
★ SFU01610-3		10	3.175	28	48	10	57	38	5.5	40	M6	3	716	1232	17
★ SFU02004-4	20	4	2.381	36	58	10	42	47	6.6	44	M6	4	693	1534	27
★ SFU02005-4		5	3.175	36	58	10	51	47	6.6	44	M6	4	999	1995	27
★ SFU02504-4	25	4	2.381	40	62	10	42	51	6.6	48	M6	4	775	2046	33
★ SFU02505-4		5	3.175	40	62	10	51	51	6.6	48	M6	4	1119	2581	34
★ SFU02506-4		6	3.969	40	62	10	54	51	6.6	48	M6	4	1494	3117	34
★ SFU02508-4		8	4.762	40	62	10	63	51	6.6	48	M6	4	1903	3695	35
★ SFU02510-4		10	4.762	40	62	12	85	51	6.6	48	M6	4	1903	3695	35
★ SFU03204-4	32	4	2.381	50	80	12	44	65	9	62	M6	4	868	2640	43
★ SFU03205-4		5	3.175	50	80	12	52	65	9	62	M6	4	1264	3403	43
★ SFU03206-4		6	3.969	50	80	12	57	65	9	62	M6	4	1706	4217	43
★ SFU03208-4		8	4.762	50	80	12	65	65	9	62	M6	4	2177	5015	44
★ SFU03210-4		10	6.350	50	80	12	90	65	9	62	M6	4	3093	6102	44
★ SFU03220-3		20	3.969	50	80	12	99	65	9	62	M6	3	1354	3283	52
★ SFU04005-4	40	5	3.175	63	93	14	55	78	9	70	M8	4	1407	4342	53
★ SFU04006-4		6	3.969	63	93	14	60	78	9	70	M6	4	1889	5318	54
★ SFU04008-4		8	4.762	63	93	14	67	78	9	70	M6	4	2413	6335	54
★ SFU04010-4		10	6.350	63	93	14	93	78	9	70	M8	4	3480	7979	55
★ SFU05010-4	50	10	6.350	75	110	16	93	93	11	85	M8	4	3898	10326	68
★ SFU05020-4		20	7.144	75	110	16	138	93	11	85	M8	4	4621	11881	68
★ SFU06310-4	63	10	6.350	90	125	18	98	108	11	95	M8	4	4402	13611	84
★ SFU06320-4		20	9.525	90	135	20	149	115	13.5	100	M8	4	7401	19009	86
★ SFU08010-4	80	10	6.350	105	145	20	98	125	13.5	110	M8	4	4900	17366	106
★ SFU08020-4		20	9.525	125	165	25	154	145	13.5	130	M8	4	8403	25345	108
★ SFU10020-4	100	20	9.525	150	202	30	180	170	17.5	155	M8	4	9405	32737	134

Note:with sign ★ can produce left helix



5.7 DFU (DIN 69051 FORM B)



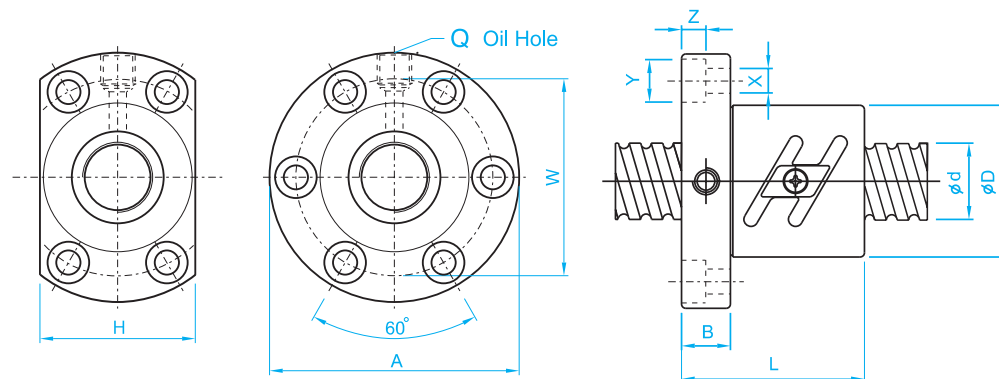
Ball Screw

l : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kg/ μ m) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

Model No.	Dimensions														
	d	l	Da	D	A	B	L	W	X	H	Q	n	Ca	Coa	K
★ DFU01604-4	16	4	2.381	28	48	10	80	38	5.5	40	M6	4	625	1254	42
★ DFU01605-4		5	3.175	28	48	10	100	38	5.5	40	M6	4	888	1525	43
★ DFU01610-3		10	3.175	28	48	10	118	38	5.5	40	M6	3	716	1232	32
★ DFU02004-4	20	4	2.381	36	58	10	80	47	6.6	44	M6	4	693	1534	53
★ DFU02005-4		5	3.175	36	58	10	101	47	6.6	44	M6	4	999	1995	53
★ DFU02504-4	25	4	2.381	40	62	10	80	51	6.6	48	M6	4	775	2046	65
★ DFU02505-4		5	3.175	40	62	10	101	51	6.6	48	M6	4	1119	2581	66
★ DFU02506-4		6	3.969	40	62	10	105	51	6.6	48	M6	4	1494	3117	67
★ DFU02508-4		8	4.762	40	62	10	120	51	6.6	48	M6	4	1903	3695	67
★ DFU02510-4	10	4.762	40	62	12	145	51	6.6	48	M6	4	1903	3695	67	
★ DFU03204-4	32	4	2.381	50	80	12	80	65	9	62	M6	4	868	2640	83
★ DFU03205-4		5	3.175	50	80	12	102	65	9	62	M6	4	1264	3403	84
★ DFU03206-4		6	3.969	50	80	12	105	65	9	62	M6	4	1706	4217	84
★ DFU03208-4		8	4.762	50	80	12	122	65	9	62	M6	4	2177	5015	85
★ DFU03210-4	10	6.350	50	80	12	162	65	9	62	M6	4	3093	6102	86	
★ DFU04005-4	40	5	3.175	63	93	14	105	78	9	70	M8	4	1407	4342	104
★ DFU04006-4		6	3.969	63	93	14	108	78	9	70	M6	4	1889	5318	104
★ DFU04008-4		8	4.762	63	93	14	132	78	9	70	M6	4	2413	6335	105
★ DFU04010-4		10	6.350	63	93	14	165	78	9	70	M8	4	3480	7979	106
★ DFU05010-4	50	10	6.350	75	110	16	171	93	11	85	M8	4	3898	10326	132
★ DFU05020-4		20	7.144	75	110	16	280	93	11	85	M8	4	4621	11881	132
★ DFU06310-4	63	10	6.350	90	125	18	182	108	11	95	M8	4	4402	13611	165
★ DFU06320-4		20	9.525	90	135	20	290	115	13.5	100	M8	4	7401	19009	167
★ DFU08010-4	80	10	6.350	105	145	20	182	125	13.5	110	M8	4	4900	17366	207
★ DFU08020-4		20	9.525	125	165	25	295	145	13.5	130	M8	4	8403	25345	210
★ DFU10020-4	100	20	9.525	150	202	30	340	170	17.5	155	M8	4	9405	32737	261

Note: with sign ★ can produce left helix

5.8 SFT

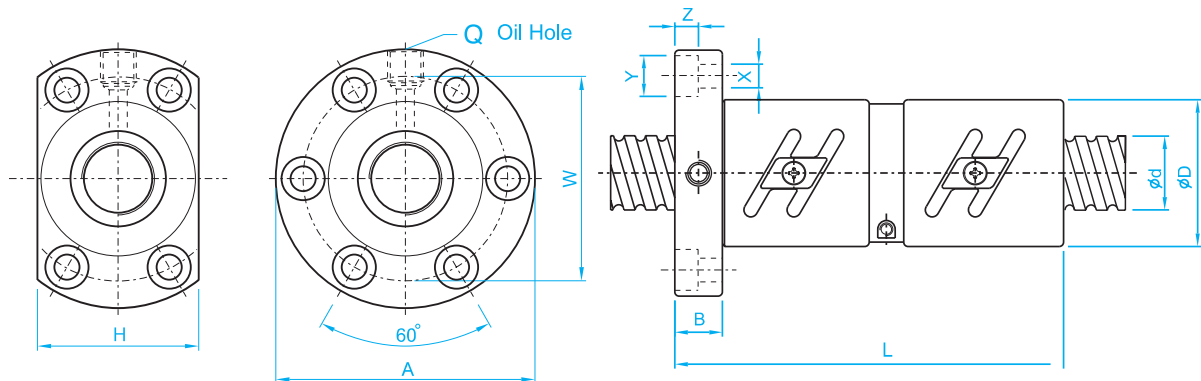


l : Lead **Da** : Ball Dia **n** : Number of Circuits **K** : Stiffness(Kg/μm) **Ca** : Basic dynamic Rating Load (Kgf) **Coa** : Basic Static Rating Load(Kgf)

Model No.	Dimensions																
	d	l	Da	D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	K
SFT02005-5	20	5	3.175	44	67	11	57	55	52	5.5	9.5	5.5	M6	2.5x2	1211	3068	34
SFT02505-5	25	5	3.175	50	73	11	55	61	52	5.5	9.5	5.5	M8	2.5x2	1356	4460	42
SFT02510-2.5		10	6.350	68	102	15	70	84	82	9	14	8.5	M8	2.5x1	1839	4730	22
SFT03205-5	32	5	3.175	58	85	12	56	71	64	6.6	11	6.5	M8	2.5x2	1532	5720	54
SFT03206-5		6	3.969	62	89	12	65	75	68	6.6	11	6.5	M8	2.5x2	2067	7080	54
SFT03208-5		8	4.762	66	100	15	82	82	76	9	14	8.5	M8	2.5x2	2638	8360	54
SFT03210-5		10	6.350	74	108	15	96	90	82	9	14	9	M8	2.5x2	3747	11500	55
SFT03220-2.5		20	6.350	74	108	16	100	90	82	9	14	8.5	M8	2.5x1	2133	6020	28
SFT04005-5	40	5	3.175	67	101	15	59	83	72	9	14	8.5	M8	2.5x2	1705	7200	67
SFT04010-5		10	6.350	82	124	18	100	102	94	11	17.5	11	M8	2.5x2	4216	14000	68
SFT04020-2.5		20	6.350	82	124	18	100	102	90	11	17.5	11	M8	2.5x1	2382	7370	34
SFT05010-5	50	10	6.350	93	135	18	103	113	98	11	17.5	11	M8	2.5x2	4723	18000	84
SFT05020-2.5		20	9.525	105	152	28	121	128	110	14	20	13	M8	2.5x1	4425	18700	43
SFT06310-5	63	10	6.350	108	154	22	105	130	110	14	20	13	M8	2.5x2	5333	22700	105
SFT06320-2.5		20	9.525	122	180	28	127	150	130	18	26	18	M8	2.5x1	4942	23200	54
SFT08010-5	80	10	6.350	130	176	22	105	152	132	14	20	13	M8	2.5x2	5937	28900	133
SFT08020-5		20	9.525	143	204	28	180	172	148	18	26	18	M8	2.5x2	10181	60100	135
SFT08020-7.5		20	9.525	143	204	28	240	172	148	18	26	18	M8	2.5x3	14429	89100	202



5.9 DFT

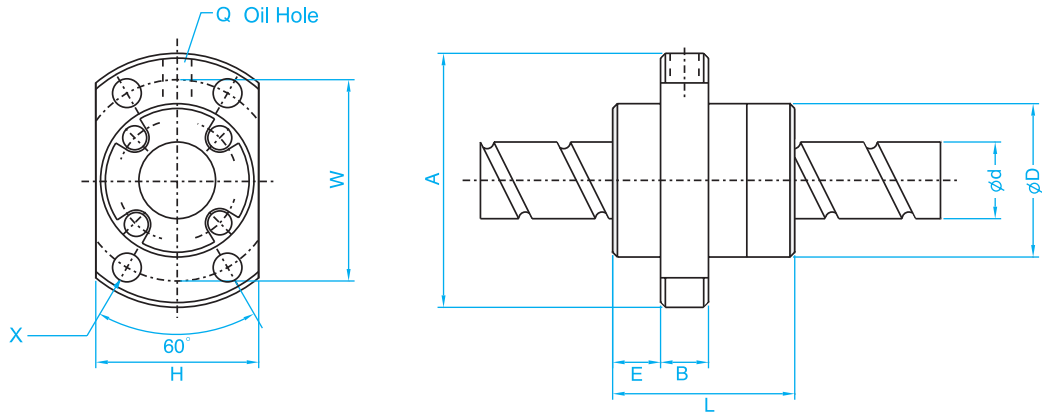


l : Lead **Da** : Ball Dia **n** : Number of Circuits **K** : Stiffness(Kg/ μ m) **Ca** : Basic dynamic Rating Load (Kgf) **Coa** : Basic Static Rating Load(Kgf)

Model No.	Dimensions																	
	d	l	Da	D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	K	
DFT02005-5	20	5	3.175	44	67	11	105	55	52	5.5	9.5	5.5	M6	2.5x2	1211	2493	67	
DFT02505-5	25	5	3.175	50	73	11	105	61	52	5.5	9.5	5.5	M8	2.5x2	1356	3227	82	
DFT02510-2.5		10	6.350	68	102	15	130	84	82	9	14	8.5	M8	2.5x1	1839	2933	43	
DFT03205-5	32	5	3.175	58	85	12	106	71	64	6.6	11	6.5	M8	2.5x2	1532	4254	104	
DFT03206-5		6	3.969	62	89	12	123	75	68	6.6	11	6.5	M8	2.5x2	2067	5272	105	
DFT03208-5		8	4.762	66	100	15	154	82	76	9	14	8.5	M8	2.5x2	2638	6269	106	
DFT03210-5		10	6.350	74	108	16	187	90	82	9	14	8.5	M8	2.5x2	3747	7627	108	
DFT03220-2.5		20	6.350	74	108	16	198	90	82	9	14	8.5	M8	2.5x1	2133	4107	54	
DFT04005-5		40	5	3.175	67	101	15	109	83	72	9	14	8.5	M8	2.5x2	1705	5427	130
DFT04010-5			10	6.350	82	124	18	188	102	94	11	17.5	11	M8	2.5x2	4216	9974	133
DFT04020-2.5	20		6.350	82	124	18	200	102	90	11	17.5	11	M8	2.5x1	2382	5280	67	
DFT05010-5	50	10	6.350	93	135	18	193	113	98	11	17.5	11	M8	2.5x2	4723	12907	165	
DFT05020-2.5		20	9.525	105	152	28	225	128	110	14	20	13	M8	2.5x1	4425	9240	84	
DFT06310-5	63	10	6.350	108	154	22	197	130	110	14	20	13	M8	2.5x2	5333	17014	206	
DFT08010-5	80	10	6.350	130	176	22	195	152	132	14	20	13	M8	2.5x2	5937	21708	259	
DFT08020-5		20	9.525	143	204	28	340	172	148	18	26	18	M8	2.5x2	10181	31681	263	



5.10 SFE



l : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kg/ μ m) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

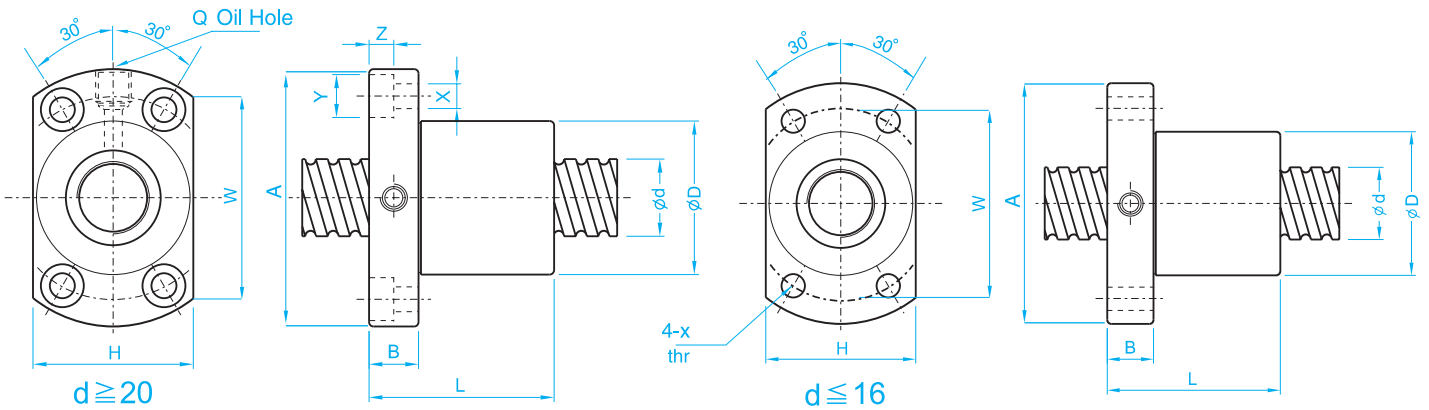
Model No.	Dimensions															
	d	l	Da	D	A	E	B	L	X	W	H	Q	n	Ca	Coa	K
SFE01616-3	16	16	2.778	32	53	9.6	10	38	4.5	42	34	M6	1.7x2	683	1298	19
SFE01616-6		16	2.778	32	53	9.6	10	38	4.5	42	34	M6	1.7x4	1240	2596	38
SFE02020-3	20	20	3.175	39	62	11.5	10	47	5.5	50	41	M6	1.7x2	891	1795	23
SFE02020-6		20	3.175	39	62	11.5	10	47	5.5	50	41	M6	1.7x4	1617	3591	46
SFE02525-3	25	25	3.969	47	74	13	12	57	6.6	60	49	M6	1.7x2	1332	2805	29
SFE02525-6		25	3.969	47	74	13	12	57	6.6	60	49	M6	1.7x4	1843	3514	38
SFE03232-3	32	32	4.762	58	92	16	12	71	9	74	60	M6	1.7x2	1936	4487	37
SFE03232-6		32	4.762	58	92	16	12	71	9	74	60	M6	1.7x4	3514	8975	74
SFE04040-3	40	40	6.350	73	114	19	15	89	11	93	75	M6	1.7x2	3103	7181	46
SFE04040-6		40	6.350	73	114	19	15	89	11	93	75	M6	1.7x4	5632	14362	93
SFE05050-3	50	50	7.938	90	135	21.5	20	107	14	112	92	M6	1.7x2	4638	11222	58
SFE05050-6		50	7.938	90	135	21.5	20	107	14	112	92	M6	1.7x4	8418	22444	116

Note 1: "-3" means 2starts, "-6" means 4 start.

Note 2: ABBA standard nuts do not have wipers, if required, please advise.



5.11 SFK



Ball Screw

l : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kg/ μ m) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

Model No.	Dimensions																
	d	l	Da	D	A	B	L	W	H	X	Y	Z	Q	n	Ca	Coa	K
SFK00401	4	1	0.8	10	20	3	12	15	14	2.9	—	—	—	2	41	51	3
SFK00601	6	1	0.8	12	24	3.5	15	18	16	3.4	—	—	—	3	72	121	7
SFK00801	8	1	0.8	14	27	4	16	21	18	3.4	—	—	—	4	106	173	11
SFK00802		2	1.2	14	27	4	16	21	18	3.4	—	—	—	3	142	225	8
SFK0082.5		2.5	1.2	16	29	4	26	23	20	3.4	—	—	—	3	142	278	8
SFK01002	10	2	1.2	18	35	5	28	27	22	4.5	—	—	—	3	158	305	10
SFK01004		4	2	26	46	10	34	36	28	4.5	—	—	—	3	302	590	10
SFK01202	12	2	1.2	20	37	5	28	29	24	4.5	—	—	—	4	219	317	16
SFK01204		4	2.5	24	40	6	28	32	25	3.5	—	—	—	3	451	722	13
SFK01205		5	2.5	22	37	8	39	29	24	4.5	—	—	—	3	451	883	13
SFK01402	14	2	1.2	21	40	6	23	31	26	5.5	—	—	—	4	235	633	19
SFK01602	16	2	1.2	25	43	10	40	35	29	5.5	—	—	—	4	250	670	21
SFK02002	20	2	1.2	50	80	15	55	65	68	6.5	10.5	6	M6	6	395	1269	40
SFK02502	25	2	1.2	50	80	13	43	65	68	6.5	10.5	6	M6	5	374	1331	41
SFK02503		3	2.381	40	63	11	51	51	48	5.5	9.5	5.5	M6	6	1099	3076	50

Note:1 Nuts do not have wipers from ø4 to ø6.

Note:2 ABBA Standard nuts are without wipers, if required, please advise.

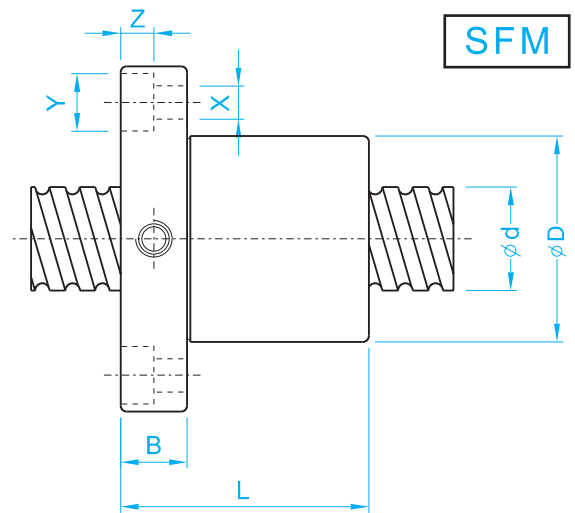
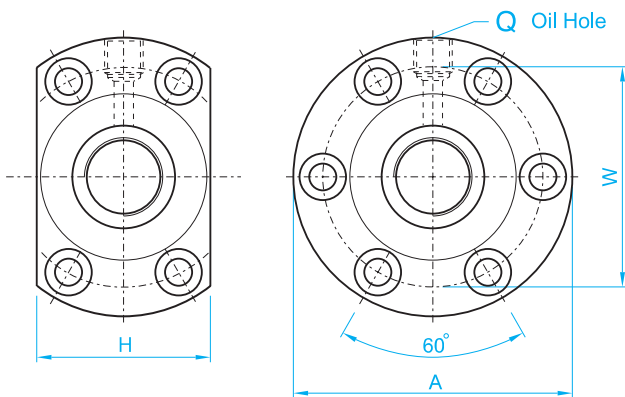
Note:3 Nuts do not have oil hole from ø4 to ø16.



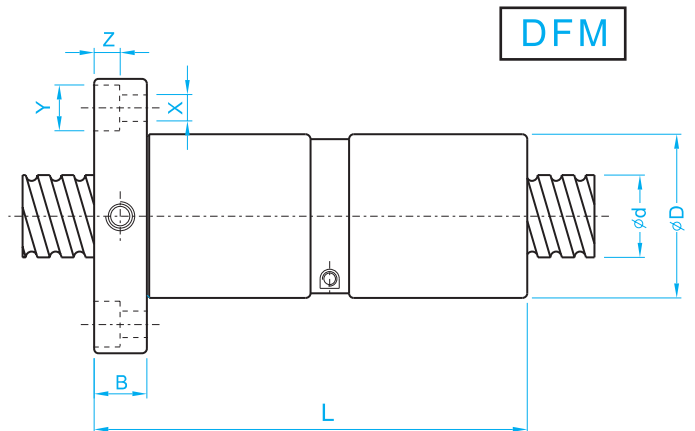
5.12 SFM&DFM

Used for Milling Machine Only

Ball Screw



SFM



DFM

Unit: mm

I : Lead Da : Ball Dia n : Number of Circuits K : Stiffness(Kg/ μ m) Ca : Basic dynamic Rating Load (Kgf) Coa : Basic Static Rating Load(Kgf)

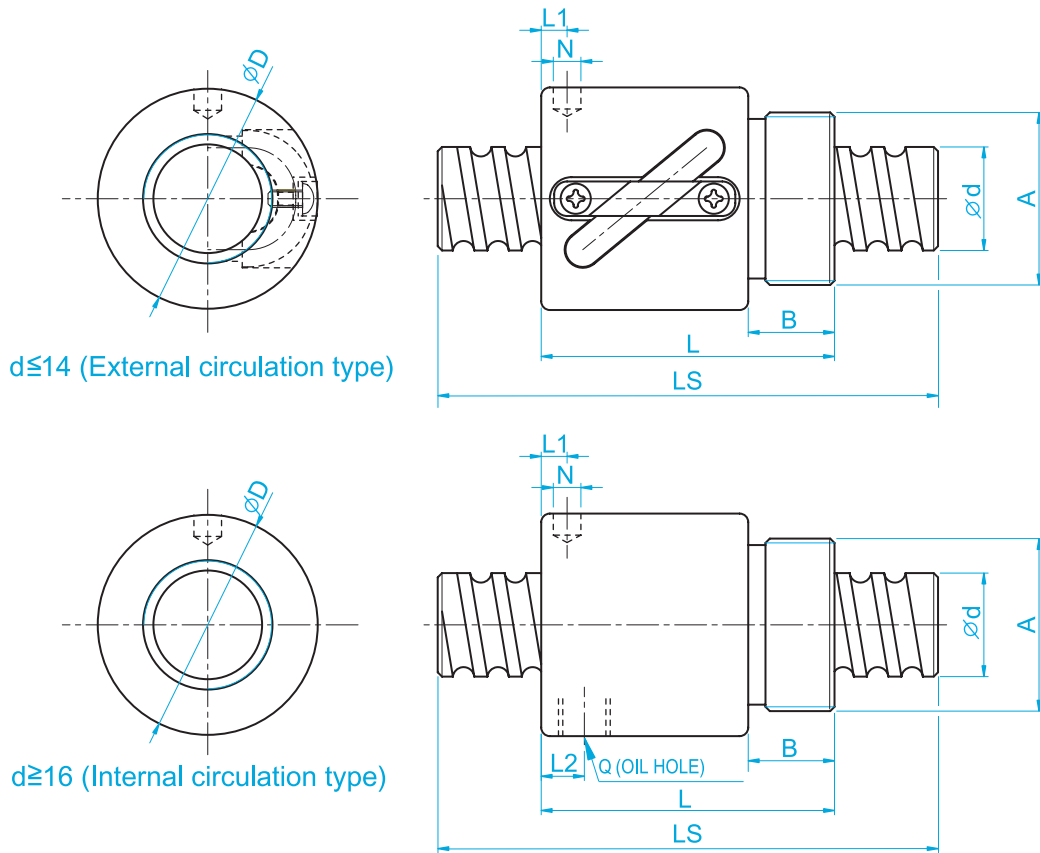
Model No.	Dimensions													n	Ca	Coa	K
	d	I	Da	D	A	B	L	W	H	X	Y	Z	Q				
★ SFM03205-4	32	5	3.175	48	74	12	52	60	60	6.5	11	6.5	M8	4	1264	3403	43
★ SFM0325T-4	32	5.08	3.175	48	74	12	53	60	60	6.5	11	6.5	M8	4	1264	3403	43
★ DFM03205-4	32	5	3.175	48	74	12	102	60	60	6.5	11	6.5	M8	4	1264	3403	84
★ DFM0325T-4	32	5.08	3.175	48	74	12	104	60	60	6.5	11	6.5	M8	4	1264	3403	84

Note: with sign ★ can produce left helix



6.1 BSH

Rolled Ball Screw for Stock



Unit: mm

I : Lead	Da : Ball Dia	n : Number of Circuits	K : Stiffness(Kg/ μ m)	Ca : Basic dynamic Rating Load (Kgf)	Coa : Basic Static Rating Load(Kgf)
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Model No.	Dimensions														
	d	I	Da	D	A	B	L	L1	N	L2	Q	n	Ca	Coa	Ls
BSHR0082.5B1FC10	8	2.5	1.2	17.5	M15x1P	7.5	23.5	10	3	-	M3	2.5x1	151	232	1200
BSHR01002C1FC10	10	2	1.2	19.5	M17x1P	7.5	22	3	3.2	-	M4	3.5x1	222	400	1200
BSHR01004B1FC10		4	2	25	M20x1P	10	34	3	3	-	M4	2.5x1	337	492	1200
BSHR01204C1FC10	12	4	2.5	25.5	M20x1P	10	34	13	3	-	M3	3.5x1	425	738	1800
BSHR01205C1FC10		5	2.5	25.5	M20x1P	10	39	16.25	3	-	M4	3.5x1	650	992	1800
BSHR01404C1FC10	14	4	2.381	32.1	M25x1.5P	10	35	13	3	-	M5	3.5x1	318	485	1800
BSHR01604T3FC10	16	4	2.381	29	M22x1.5P	8	32	4	3.2	-	M5	1x3	491	952	3000
BSHR01605T3FC10		5	3.175	32.5	M26x1.5P	12	42	19.25	3	-	M5	1x3	716	1230	3000
BSHR02005T3FC10	20	5	3.175	38	M35x1.5P	15	45	20.3	3	-	M6	1x3	799	1577	3000
BSHR02505T4FC10	25	5	3.175	43	M40x1.5P	19	69	32.11	3	8	M6	1x4	1280	3110	6000

BSH R 016 05 T4 F
 1 2 3 4 5 6

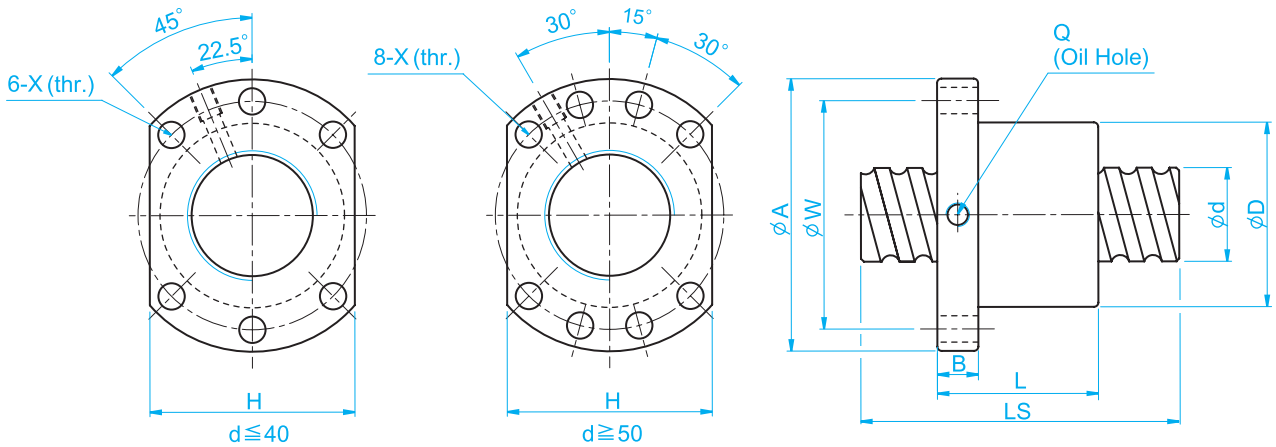
- 1. Nut Model no.
- 2. Right Hand
- 3. Shaft Dia. (mm)
- 4. Lead (mm)
- 5. Circuit no.
- 6. Rolled

Note: Both C7 and C10 accuracy are available for Rolled Ball Screws



6.2 SFU

Rolled Ball Screw for Stock



Unit: mm

I : Lead	Da : Ball Dia	n : Number of Circuits	K : Stiffness(Kg/μm)	Ca : Basic dynamic Rating Load (Kgf)	Coa : Basic Static Rating Load(Kgf)
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Model No.	Dimensions														
	d	I	Da	D	A	B	L	W	X	H	Q	n	Ca	Coa	LS
SFUR01605T4DFC10	16	5	3.175	28	48	10	50	38	5.5	40	M6	4	888	1525	3000
SFUR01610T3DFC10		10	3.175	28	48	10	57	38	5.5	40	M6	3	716	1232	3000
SFUR02005T4DFC10	20	5	3.175	36	58	10	51	47	6.6	44	M6	4	999	1995	3000
SFUR02505T4DFC10	25	5	3.175	40	62	10	51	51	6.6	48	M6	4	1119	2581	6000
SFUR02510T4DFC10		10	4.762	40	62	12	85	51	6.6	48	M6	4	1903	3695	6000
SFUR03205T4DFC10	32	5	3.175	50	80	12	52	65	9	62	M6	4	1264	3403	6000
SFUR03210T4DFC10		10	6.350	50	80	12	90	65	9	62	M6	4	3093	6102	6000
SFUR04005T4DFC10	40	5	3.175	63	93	14	55	78	9	70	M8	4	1407	4342	6000
SFUR04010T4DFC10		10	6.350	63	93	14	93	78	9	70	M8	4	3480	7979	6000
SFUR05010T4DFC10	50	10	6.350	75	110	16	93	93	11	85	M8	4	3898	10326	6000
SFUR05020T4DFC10		20	7.144	75	110	16	138	93	11	85	M8	4	4621	11881	6000
SFUR06310T4DFC10	63	10	6.350	90	125	18	98	108	11	95	M8	4	4402	13611	7500
SFUR06320T4DFC10		20	9.525	95	135	20	149	115	13.5	100	M8	4	7401	19009	7500
SFUR08010T4DFC10	80	10	6.350	105	145	20	98	125	13.5	110	M8	4	4900	17366	9000
SFUR08020T4DFC10		20	9.525	125	165	25	154	145	13.5	130	M8	4	8403	25345	9000
SFUR10020T4DFC10	100	20	9.525	150	202	30	180	170	17.5	155	M8	4	9403	32737	10000

SFU **R** **050** **10** **T4** **D** **F**
 1 2 3 4 5 6 7

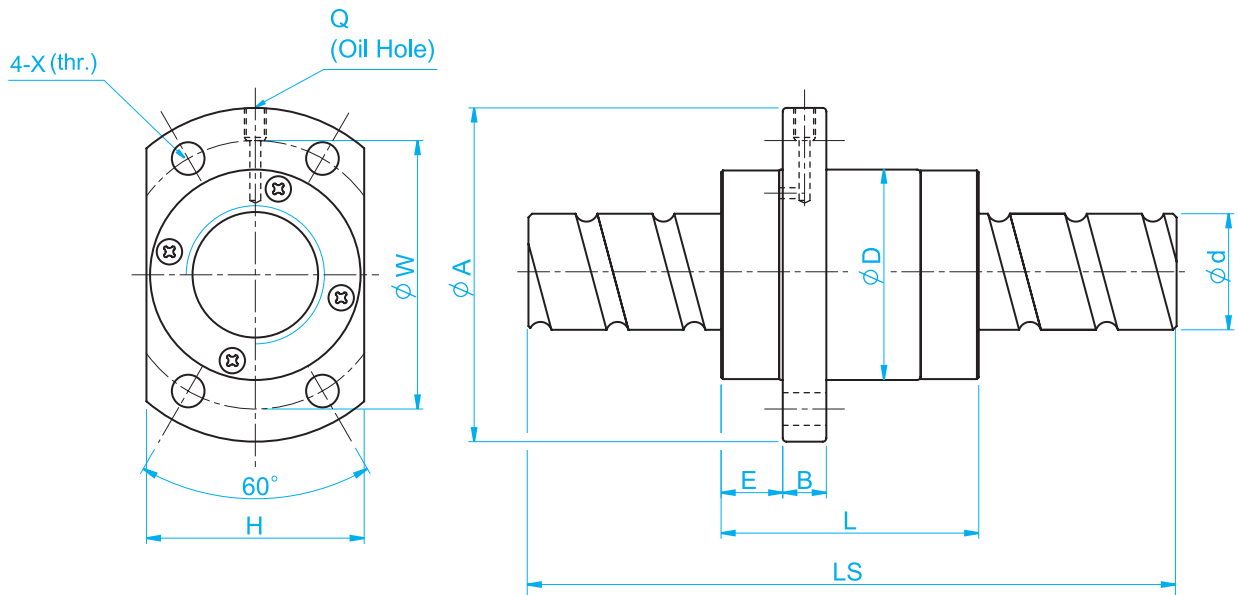
1. Nut Model no.
2. Right Hand
3. Shaft Dia. (mm)
4. Lead (mm)
5. Circuit no.
6. Flange Type
7. Rolled

Note: Both C7 and C10 accuracy are available for Rolled Ball Screws



6.3 SFE

Rolled Ball Screw for Stock



Unit: mm

Model No.	Dimensions												n	Ca	Coa	Ls
	d	l	Da	D	A	E	B	L	W	X	H	Q				
SFER01616A2DFC10	16	16	2.778	32	53	10.1	10	38	42	4.5	34	M6	1.7x2	683	1298	3000
SFER01616A4DFC10		16	2.778	32	53	10.1	10	38	42	4.5	34	M6	1.7x4	1240	2596	3000
SFER02020A2DFC10	20	20	3.175	39	62	11.5	10	47	50	5.5	41	M6	1.7x2	891	1795	3000
SFER02020A4DFC10		20	3.175	39	62	11.5	10	47	50	5.5	41	M6	1.7x4	1617	3591	3000
SFER02525A2DFC10	25	25	3.969	47	74	13	12	57	60	6.6	49	M6	1.7x2	1332	2805	6000
SFER02525A4DFC10		25	3.969	47	74	13	12	57	60	6.6	49	M6	1.7x4	1843	3514	6000
SFER03232A2DFC10	32	32	4.762	58	92	16	12	71	74	9	60	M6	1.7x2	1936	4887	6000
SFER03232A4DFC10		32	4.762	58	92	16	12	71	74	9	60	M6	1.7x4	3514	8975	6000
SFER04040A2DFC10	40	40	6.350	73	114	19	15	89	93	11	75	M6	1.7x2	3103	7181	6000
SFER04040A4DFC10		40	6.350	73	114	19	15	89	93	11	75	M6	1.7x4	5632	14362	6000
SFER05050A2DFC10	50	50	7.938	90	135	21.5	20	107	112	14	92	M6	1.7x2	4638	11222	6000
SFER05050A4DFC10		50	7.938	90	135	21.5	20	107	112	14	92	M6	1.7x4	8418	22444	6000

SFE R 025 25 A2 D F
1 2 3 4 5 6 7

- Nut Model no.
- Right Hand
- Shaft Dia. (mm)
- Lead (mm)

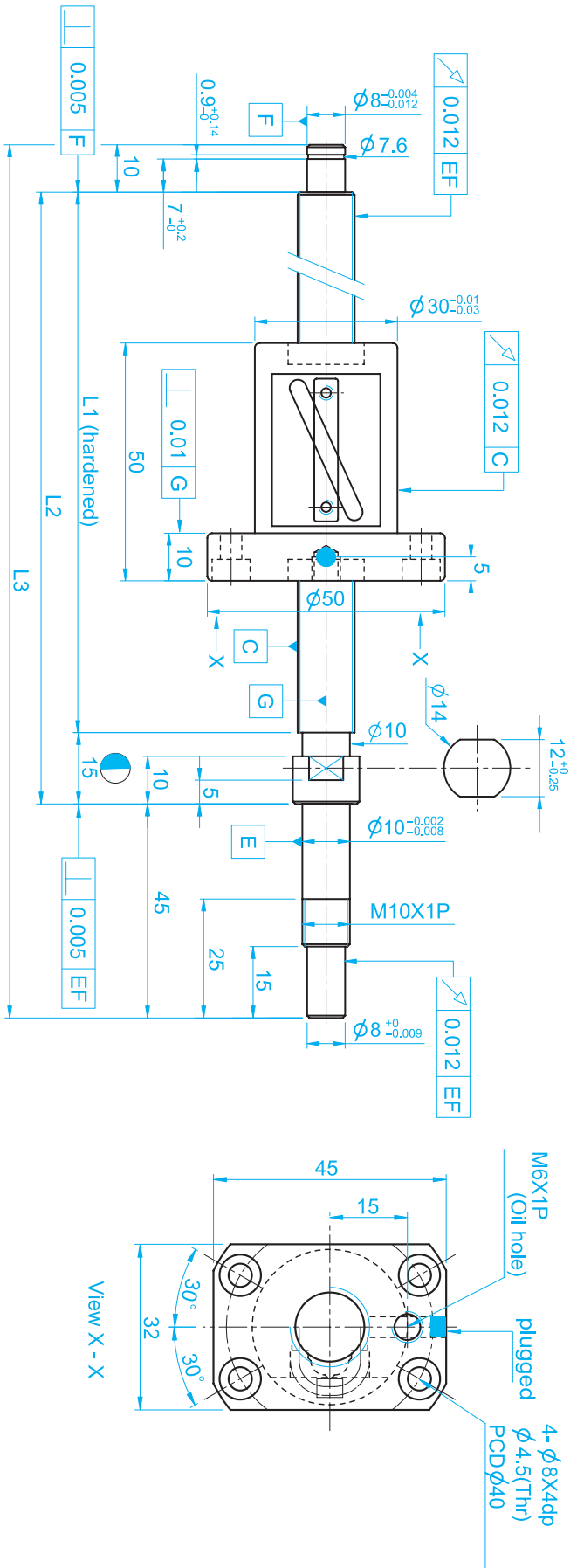
- Circuit no.
- Flange Type
- Rolled

Note: Both C7 and C10 accuracy are available for Rolled Ball Screws



7.1 SFTR01210

Ground Ball Screw with end machining



Unit : mm

Ball center dia.	12.85
Ball dia.	2.5
Lead	10
Number of turns	2.5*1
Lead angle	13.91°
Helix dir.	R
Spring force	0.1~0.2Kg
Preload	25 kgf
Dynamic (Ca)	501 kgf
Static (Coa)	756 kgf
Grade	C5

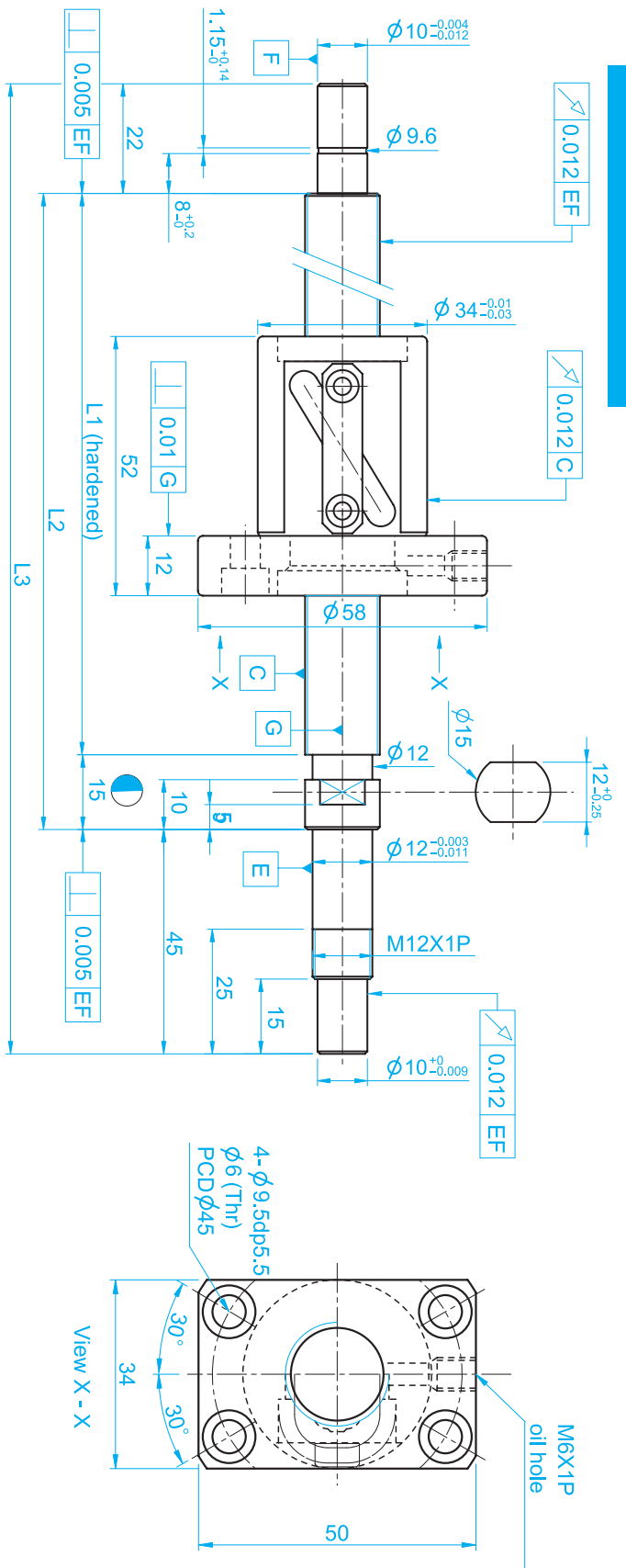
Max. Travel	Ball Screw No.	Screw Shaft Length(mm)			Shaft Runout
		L1	L2	L3	
100	SFTR01210B1DGC5-230-P2	160	175	230	0.035
150	SFTR01210B1DGC5-280-P2	210	225	280	0.035
250	SFTR01210B1DGC5-380-P2	310	325	380	0.050
350	SFTR01210B1DGC5-480-P2	410	425	480	0.060
450	SFTR01210B1DGC5-580-P2	510	525	580	0.075



7.2 SFTR01510

Ground Ball Screw with end machining

Finished Ball Screw



Ball center dia.	15.5
Ball dia.	3.175
Lead	10
Number of turns	2.5*1
Lead angle	11.2°
Helix dir.	R
Spring force	0.1~0.3Kg
Preload	38 kgf
Dynamic (Ca)	750 kgf
Static (Coa)	1148 kgf
Grade	C5

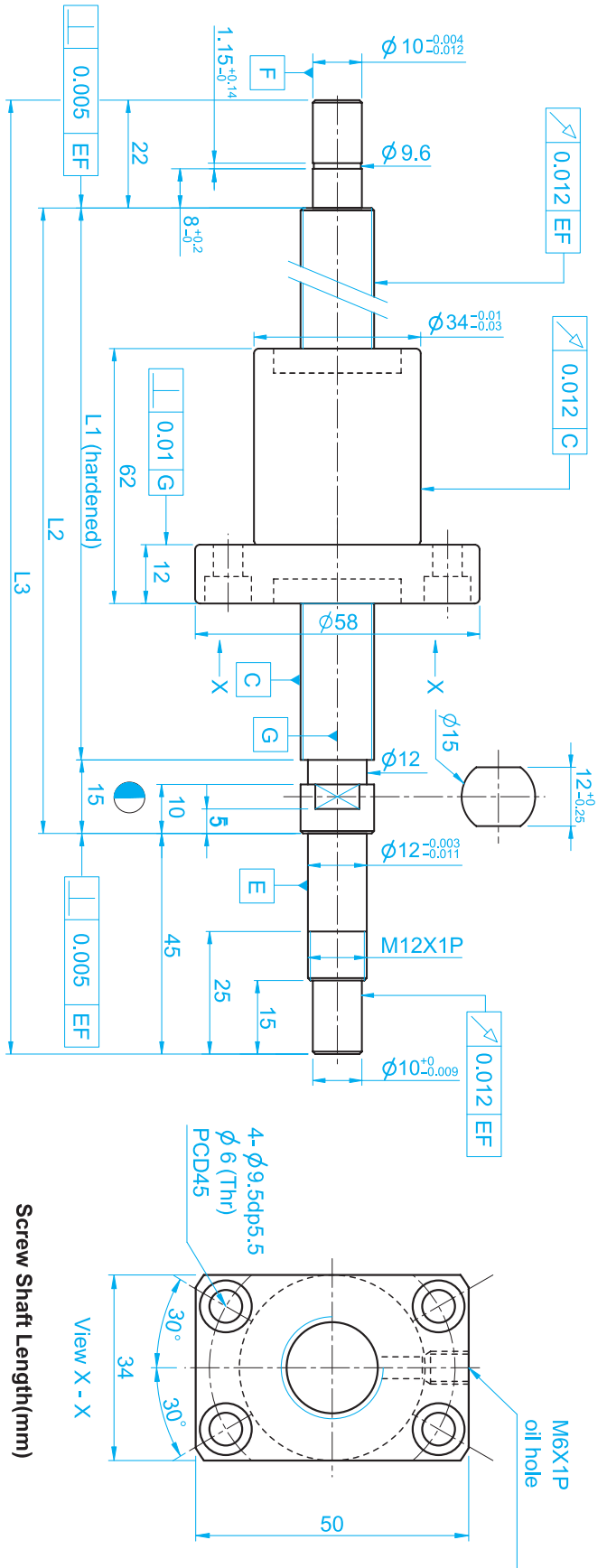
Max. Travel	Ball Screw No.	Screw Shaft Length(mm)			Shaft Runout
		L1	L2	L3	
100	SFTR01510B1DGC5-271-P2	189	204	271	0.025
150	SFTR01510B1DGC5-321-P2	239	254	321	0.035
200	SFTR01510B1DGC5-371-P2	289	304	371	0.035
250	SFTR01510B1DGC5-421-P2	339	354	421	0.040
300	SFTR01510B1DGC5-471-P2	389	404	471	0.040
350	SFTR01510B1DGC5-521-P2	439	454	521	0.050
400	SFTR01510B1DGC5-571-P2	489	504	571	0.050
450	SFTR01510B1DGC5-621-P2	539	554	621	0.050
500	SFTR01510B1DGC5-671-P2	589	604	671	0.065
550	SFTR01510B1DGC5-721-P2	639	654	721	0.065
600	SFTR01510B1DGC5-771-P2	689	704	771	0.065
700	SFTR01510B1DGC5-871-P2	789	804	871	0.085
800	SFTR01510B1DGC5-971-P2	889	904	971	0.085
1000	SFTR01510B1DGC5-1171-P2	1089	1104	1171	0.110

Unit : mm



7.3 XSSR01520

Ground Ball Screw with end machining

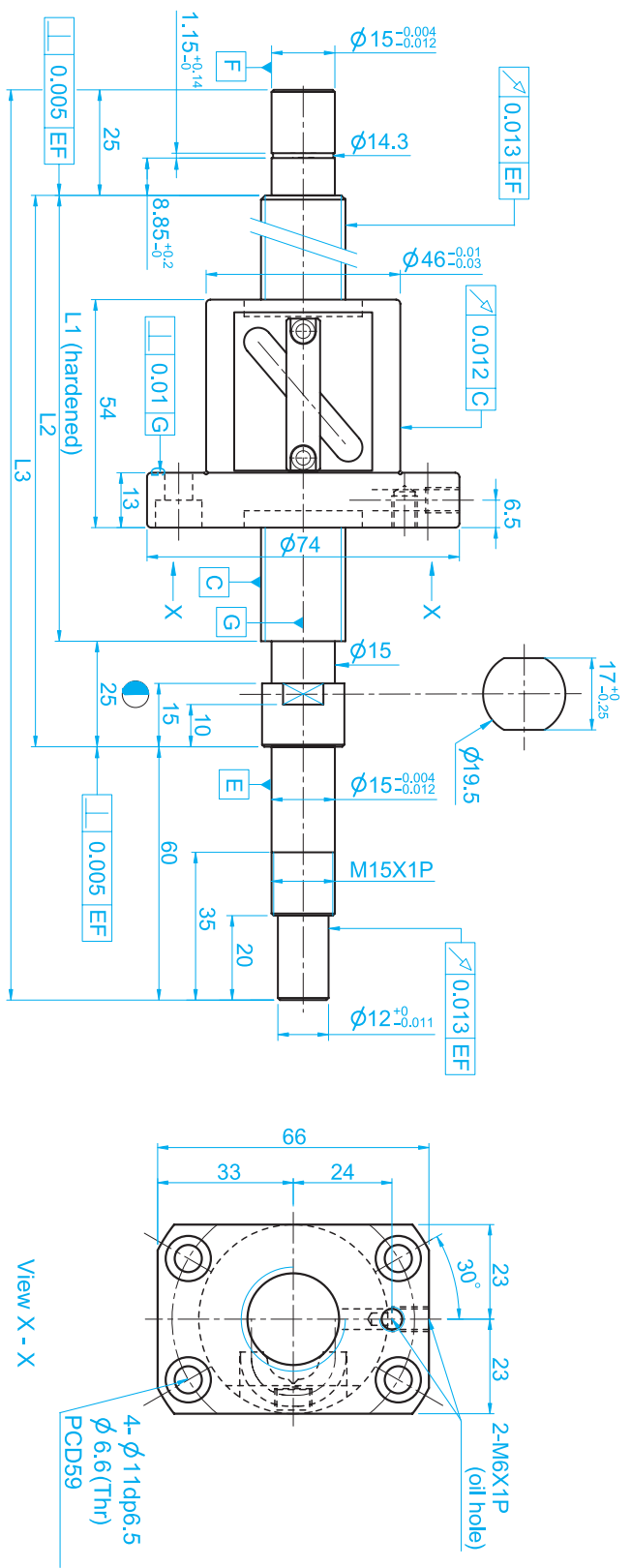


Unit : mm

Ball center dia.	15.762
Ball dia.	3.175
Lead	20
Number of turns	1.8*1
Lead angle	22°
Helix dir.	R
Spring force	0.1~0.3Kg
Preload	38 kgf
Dynamic (Ca)	583 kgf
Static (Coa)	888 kgf
Grade	C5

Max. Travel	Ball Screw No.	Screw Shaft Length(mm)			Shaft Runout
		L1	L2	L3	
100	XSSR01520A1DGC5-271-P2	189	204	271	0.025
150	XSSR01520A1DGC5-321-P2	239	254	321	0.035
200	XSSR01520A1DGC5-371-P2	289	304	371	0.035
250	XSSR01520A1DGC5-421-P2	339	354	421	0.040
300	XSSR01520A1DGC5-471-P2	389	404	471	0.040
350	XSSR01520A1DGC5-521-P2	439	454	521	0.050
400	XSSR01520A1DGC5-571-P2	489	504	571	0.050
450	XSSR01520A1DGC5-621-P2	539	554	621	0.050
500	XSSR01520A1DGC5-671-P2	589	604	671	0.065
550	XSSR01520A1DGC5-721-P2	639	654	721	0.065
600	XSSR01520A1DGC5-771-P2	689	704	771	0.065
700	XSSR01520A1DGC5-871-P2	789	804	871	0.085
800	XSSR01520A1DGC5-971-P2	889	904	971	0.085
1000	XSSR01520A1DGC5-1171-P2	1089	1104	1171	0.110

Ground Ball Screw with end machining



Ball center dia.	21.35
Ball dia.	3.969
Lead	10
Number of turns	2.5*1
Lead angle	8.48°
Helix dir.	R
Spring force	0.1~0.3Kg
Preload	43 kgf
Dynamic (Ca)	1146 kgf
Static (Coa)	1958 kgf
Grade	C5

Max. Travel	Ball Screw No.	Screw Shaft Length(mm)			Shaft Runout <i>U</i>
		L1	L2	L3	
200	SFTR02010B1DGC5-399-P2	289	314	399	0.035
300	SFTR02010B1DGC5-499-P2	389	414	499	0.040
400	SFTR02010B1DGC5-599-P2	489	514	599	0.050
500	SFTR02010B1DGC5-699-P2	589	614	699	0.065
600	SFTR02010B1DGC5-799-P2	689	714	799	0.065
700	SFTR02010B1DGC5-899-P2	789	814	899	0.085
800	SFTR02010B1DGC5-999-P2	889	914	999	0.085
900	SFTR02010B1DGC5-1099-P2	989	1014	1099	0.110
1000	SFTR02010B1DGC5-1199-P2	1089	1114	1199	0.110
1100	SFTR02010B1DGC5-1299-P2	1189	1214	1299	0.150
1200	SFTR02010B1DGC5-1399-P2	1289	1314	1399	0.150

Unit : mm



7.4 SFTR02010



8.1 Elastomer Coupling



- High torque
- High rigidity
- Low inertia
- Backlash-free
- Long service life
- High vibration resistance



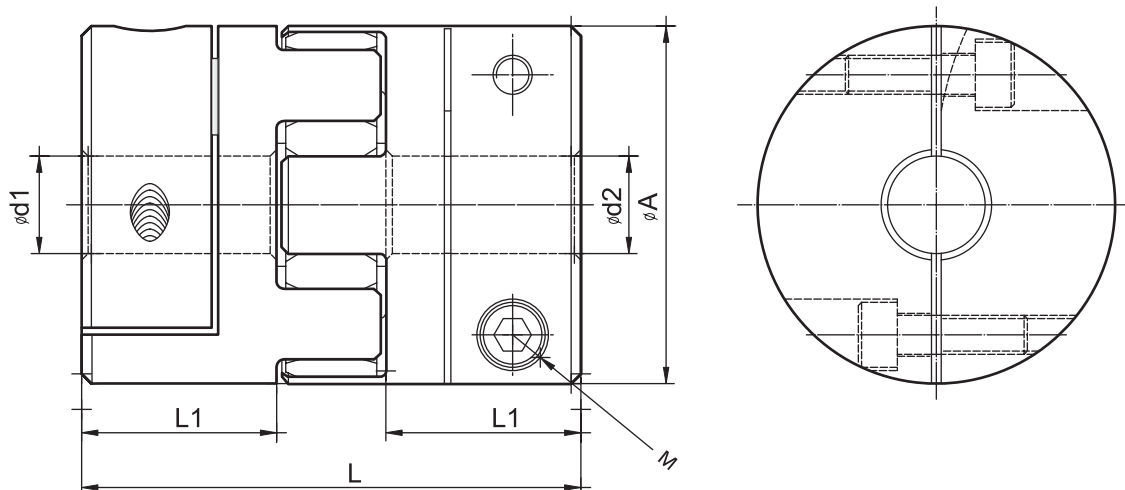
FUNCTION

Mode No.	Rated Torque (N.m)	Max Torque (N.m)	Max Rotational Frequency (min ⁻¹)	Static torsion spring stiffness (N.m/rad)	Dynamic torsion spring stiffness (N.m/rad)
SRJ-20C	5	10	15200	51.0	151
SRJ-30C	12.5	25	10200	170.9	505
SRJ-40C	17	34	7600	857.5	2571
SRJ-55C	60	120	5600	2060	6163
SRJ-65C	160	320	4700	3430	10291

Mode No.	Weight (kg)		Mass moment of inertia J (kgm ²)		Radial (mm)	Angular (°)	Axial (mm)
	each hub	spider	each hub	spider			
SRJ-20C	8.5 x10 ⁻³	1.7 x10 ⁻³	0.46 x10 ⁻⁵	0.073 x10 ⁻⁶	0.10	1.0	0.8
SRJ-30C	18 x10 ⁻³	4.2 x10 ⁻³	2.5 x10 ⁻⁶	0.45 x10 ⁻⁶	0.15	1.0	1
SRJ-40C	64 x10 ⁻³	6.5 x10 ⁻³	20.1 x10 ⁻⁵	1.44 x10 ⁻⁶	0.15	1.0	1.2
SRJ-55C	130 x10 ⁻³	17.4 x10 ⁻³	50.5 x10 ⁻⁶	7.3 x10 ⁻⁶	0.2	1.0	1.4
SRJ-65C	250 x10 ⁻³	28.6 x10 ⁻³	200.1 x10 ⁻⁵	16.3 x10 ⁻⁶	0.2	1.0	1.5

The coupling is typically a mechanic device linked with two axes to allow for reversing with the safe torque well transferred.

The flexible coupling device is featured with impact buffering, parallel stress absorption, deviating angles, axial phase difference, and the inherent improving capability for systematic locomotion.



DIMENSION

unit : mm

Mode No.	A	L	L1	dmax	d1Xd2		M
					d1	d2	
SRJ-20C	20	30	10	10	4、5、6、6.35、7、8、10		M3
SRJ-30C	30	35	11	16	5、6、6.35、8、9、9.5、10、11、12、14、15		M4
SRJ-40C	40	66	25	22	8、9.5、10、11、12、14、15、16、18、19、20		M5
SRJ-55C	55	78	30	28	12、15、16、18、19、20、22、24、25		M6
SRJ-65C	65	90	35	38	20、22、24、25、28、30、32、35、38		M8

Buffer Material : Engineering Class Plastic
Material : Aluminum Alloy

Product No : SRJ-AC-d1xd2

ex:SRJ-30C-6x8

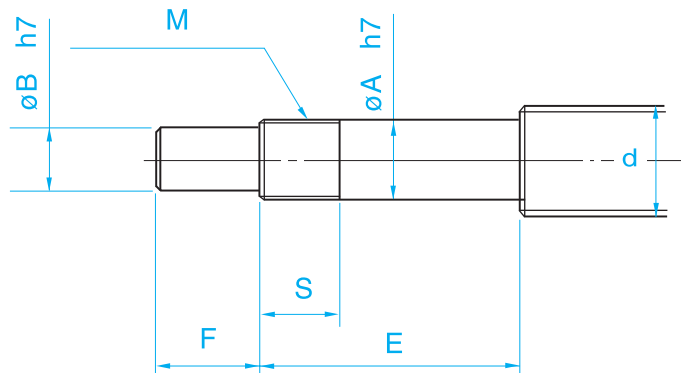
Support Unit of Ball Screw





9.1 Recommended Shaft End Shape

For Support Unit Type BK and FK and EK Fixed Side



Unit : mm

Support Unit model No.	Ball Screw shaft OD	Shaft Support Portion OD				Metric screw thread	
BK (Type BK)	d	A	B	E	F	M	S
BK 10	12/14/15	10	8	39	15	M10X1	16
BK 12	14/15/16	12	10	39	15	M12X1	14
BK 15	18/20	15	12	40	20	M15X1	12
BK 17	20/25	17	15	53	23	M17X1	17
BK 20	25/28	20	17	53	25	M20X1	15
BK 25	32/36	25	20	65	30	M25X1.5	18
BK 30	36/40	30	25	72	38	M30X1.5	25
BK 35	45	35	30	83	45	M35X1.5	28
BK 40	50	40	35	98	50	M40X1.5	35

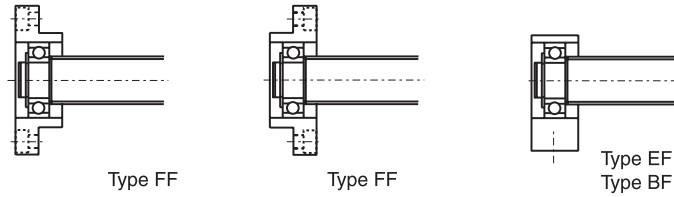
Unit : mm

Support Unit model No.		Ball Screw shaft OD	Shaft Support Portion OD				Metric screw thread	
Type FK	Type EK	d	A	B	E	F	M	S
FK 6	EK 6	8	6	4	30	8	M6X0.75	8
FK 8	EK 8	10/12	8	6	35	9	M8X1	10
FK 10	EK 10	12/14/15	10	8	36	15	M10X1	11
FK 12	EK 12	14/15/16	12	10	36	15	M12X1	11
FK 15	EK 15	18/20	15	12	49	20	M15X1	13
FK 20	EK 20	25/28/30	20	17	64	25	M20X1	17
FK 25	–	30/32/36	25	20	76	30	M25X1.5	20
FK 30	–	36/40	30	25	72	38	M30X1.5	25



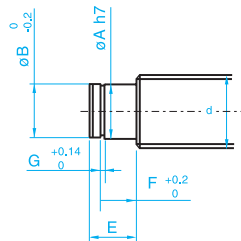
9.2 Recommended Shaft End Shape

For Support Unit Type FF and EF and BF (Floated Side)



Unit : mm

Support Unit model No.			Ball Screw shaft OD	Shaft Support Portion OD	
Type FF	Type EF	Type BF	d	A	E
FF 06	EF 06	–	8	6	9
FF 10	EF 10	BF 10	12/14/15	8	10
FF 12	EF 12	BF 12	14/15/16	10	11
FF 15	EF 15	BF 15	18/20	15	13
–	–	BF 17	20/25	17	16
FF 20	EF 20	(BF20)Note	25/28/30	20	19 (16)
FF 25	–	BF 25	30/32/36	25	20
FF 30	–	BF 30	36/40	30	21
–	–	BF 35	40/45	35	22
–	–	BF 40	50	40	23



Note:

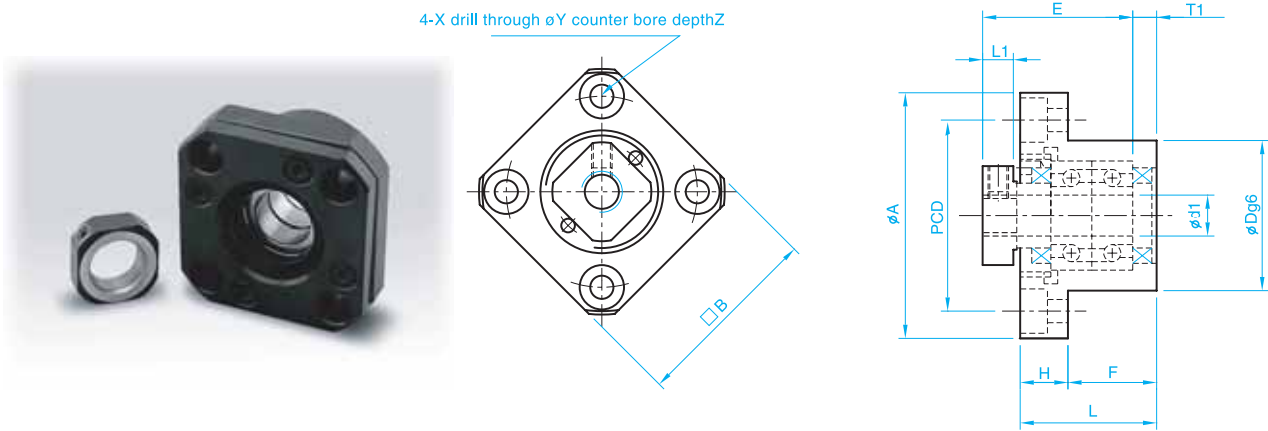
In this table, dimensions in parentheses are those of type BF20. These dimensions differ from those of type FF20 and EF20. When placing an order, always specify the model number of the Support Unit to be used.

Unit : mm

Support Unit model No.			Snap-ring Groove		
Type FF	Type EF	Type BF	B	F	G
FF 06	EF 06		5.7	6.8	0.8
FF 10	EF 10	BF 10	7.6	7.9	0.9
FF 12	EF 12	BF 12	9.6	9.15	1.15
FF 15	EF 15	BF 15	14.3	10.15	1.15
–	–	BF 17	16.2	13.15	1.15
FF 20	EF 20	(BF20)Note	19	15.35(13.35)	1.35
FF 25	–	BF 25	23.9	16.35	1.35
FF 30	–	BF 30	28.6	17.75	1.75
–	–	BF 35	33	18.75	1.75
–	–	BF 40	38	19.95	1.95



9.3 FK (Fixed Side)



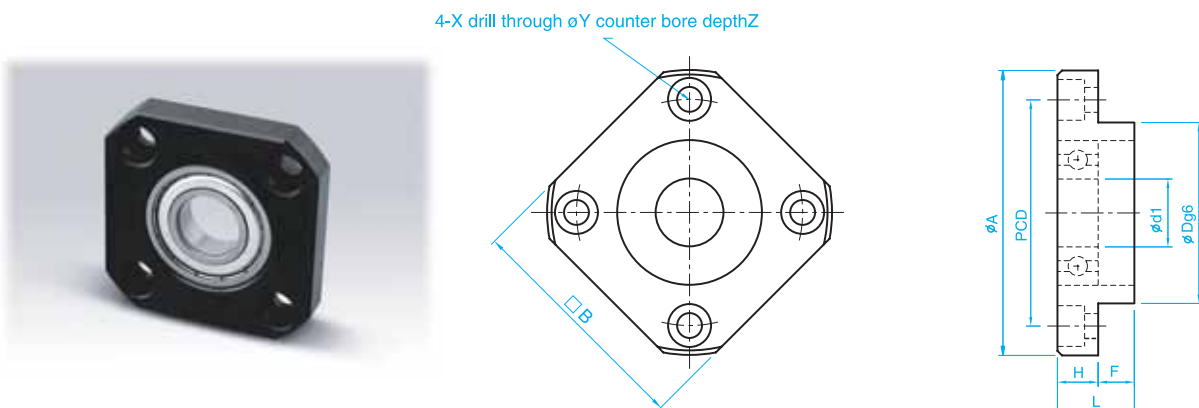
Unit : mm

Model No.	d1	L	H	F	E	Dg6	A	PCD	B	L1	T1	X	Y	Z
FK 5	5	16.5	6	10.5	18.5	20	34	26	26	5.5	3.5	3.4	6.5	4
FK 6	6	20	7	13	22	22	36	28	28	5.5	3.5	3.4	6.5	4
FK 8	8	23	9	14	26	28	43	35	35	7	4	3.4	6.5	4
FK 10	10	27	10	17	29.5	34	52	42	42	7.5	5	4.5	8	4
FK 12	12	27	10	17	29.5	36	54	44	44	7.5	5	4.5	8	4
FK 15	15	32	15	17	36	40	63	50	52	10	6	5.5	9.5	6
FK 20	20	52	22	30	50	57	85	70	68	8	10	6.6	11	10
FK 25	25	57	27	30	60	63	98	80	79	13	10	9	15	13
FK 30	30	62	30	32	61	75	117	95	93	11	12	11	17.5	15

Support Unit



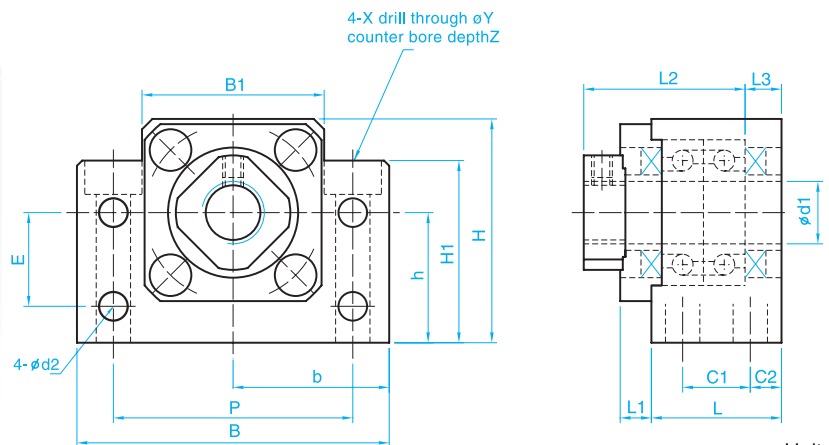
9.4 FF (Floated Side)



Unit : mm

Model No.	d1	L	H	F	Dg6	A	PCD	B	X	Y	Z
FF 10	8	12	7	5	28	43	35	35	3.4	6.5	4
FF 12	10	15	7	8	34	52	42	42	4.5	8	4
FF 15	15	17	9	8	40	63	50	52	5.5	9.5	5.5
FF 20	20	20	11	9	57	85	70	68	6.6	11	6.5
FF 25	25	24	14	10	63	98	80	79	9	14	8.5
FF 30	30	27	18	9	75	117	95	93	11	17.5	11

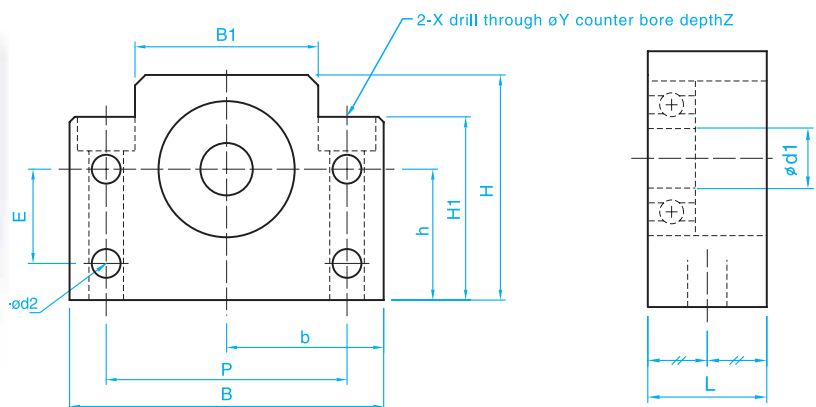
9.5 BK (Fixed Side)



Unit : mm

Model No.	d1	L	L1	L2	L3	C1	C2	B	H	b ^{±0.02}	h ^{±0.02}	B1	H1	E	P	d2	X	Y	Z
BK 10	10	25	5	29	5	13	6	60	39	30	22	34	32.5	15	46	5.5	6.6	10.8	5
BK 12	12	25	5	29	5	13	6	60	43	30	25	35	32.5	18	46	5.5	6.6	10.8	1.5
BK 15	15	27	6	32	6	15	6	70	48	35	28	40	38	18	54	5.5	6.6	11	6.5
BK 17	17	35	9	44	7	19	8	86	64	43	39	50	55	28	68	6.6	9	14	8.5
BK 20	20	35	8	43	8	19	8	88	60	44	34	52	50	22	70	6.6	9	14	8.5
BK 25	25	42	12	54	9	22	10	106	80	53	48	64	70	33	85	9	11	17.5	11
BK 30	30	45	14	61	9	23	11	128	89	64	51	76	78	33	102	11	14	20	13
BK 35	35	50	14	67	12	26	12	140	96	70	52	88	79	35	114	11	14	20	13
BK 40	40	61	18	76	15	33	14	160	110	80	60	100	90	37	130	14	18	26	17.5

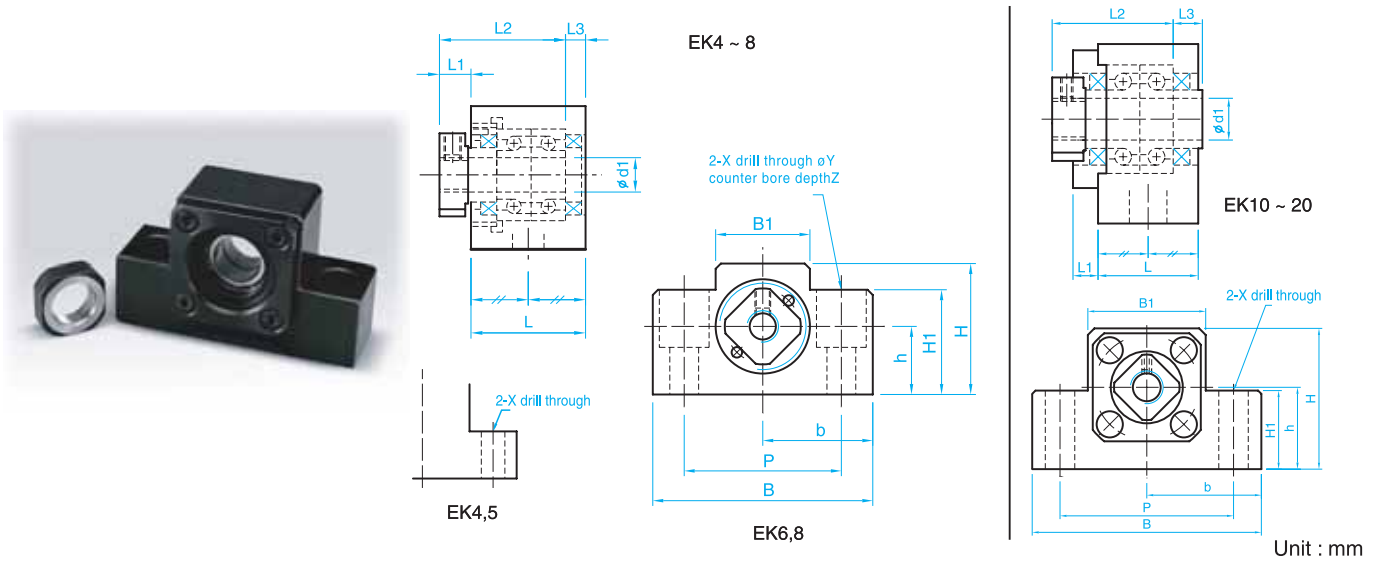
9.6 BF (Floated Side)



Unit : mm

Model No.	d1	L	B	H	b ^{±0.02}	h ^{±0.02}	B1	H1	E	P	d2	X	Y	Z
BF 10	8	20	60	39	30	22	34	32.5	15	46	5.5	6.6	10.8	5
BF 12	10	20	60	43	30	25	35	32.5	18	46	5.5	6.6	10.8	1.5
BF 15	15	20	70	48	35	28	40	38	18	54	5.5	6.6	11	6.5
BF 17	17	23	86	64	43	39	50	55	28	68	6.6	9	14	8.5
BF 20	20	26	88	60	44	34	52	50	22	70	6.6	9	14	8.5
BF 25	25	30	106	80	53	48	64	70	33	85	9	11	17.5	11
BF 30	30	32	128	89	64	51	76	78	33	102	11	14	20	13
BF 35	35	32	140	96	70	52	88	79	35	114	11	14	20	13
BF 40	40	37	160	110	80	60	100	90	37	130	14	18	26	17.5

9.7 EK (Fixed Side)

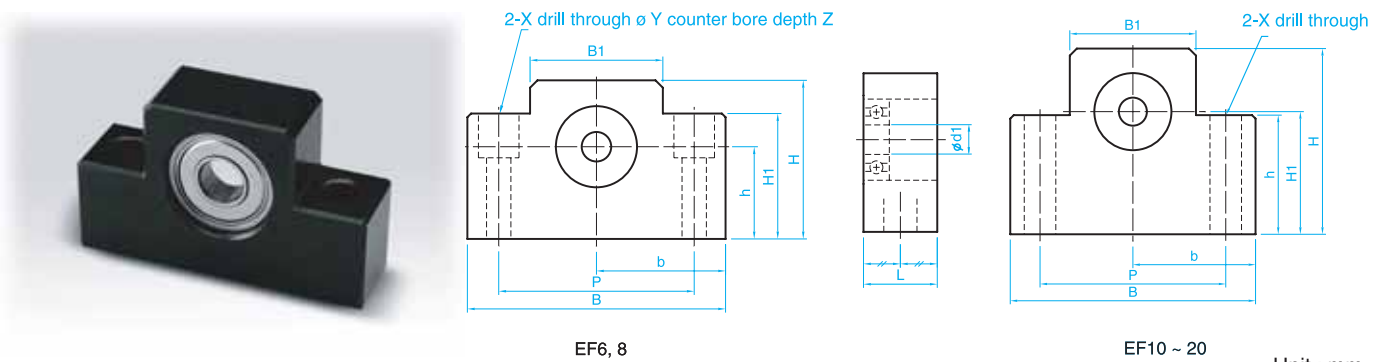


Unit : mm

Model No.	d1	L	L1	L2	L3	B	H	$b^{±0.02}$	$h^{±0.02}$	B1	H1	P	X	Y	Z
EK 5	5	16.5	5.5	18.5	3.5	36	21	18	11	20	8	28	4.5	—	—
EK 6	6	20	5.5	22	3.5	42	25	21	13	18	20	30	5.5	9.5	11
EK 8	8	23	7	26	4	52	32	26	17	25	26	38	6.6	11	12
EK 10	10	24	6	29.5	6	70	43	35	25	36	24	52	9	—	—
EK 12	12	24	6	29.5	6	70	43	35	25	36	24	52	9	—	—
EK 15	15	25	6	36	5	80	49	40	30	41	25	60	11	—	—
EK 20	20	42	10	50	10	95	58	47.5	30	56	25	75	11	—	—

Support Unit

9.8 EF (Floated Side)



Unit : mm

Model No.	d1	L	B	H	$b^{±0.02}$	$h^{±0.02}$	B1	H1	P	X	Y	Z
EF 6	6	12	42	25	21	13	18	20	30	5.5	9.5	11
EF 8	6	14	52	32	26	17	25	26	38	6.6	11	12
EF 10	8	20	70	43	35	25	36	24	52	9	—	—
EF 12	10	20	70	43	35	25	36	24	52	9	—	—
EF 15	15	20	80	49	40	30	41	25	60	9	—	—
EF 20	20	26	95	58	47.5	30	56	25	75	11	—	—

Linear Ball Bearing Series



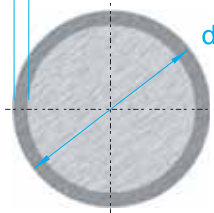


10.1 SF/WV series (Slide Shaft)

SF : Harden and ground

WV: Harden ground and Chromium plated

Hardness Depth (X)



Specification:

1. Material : JIS(S55C)

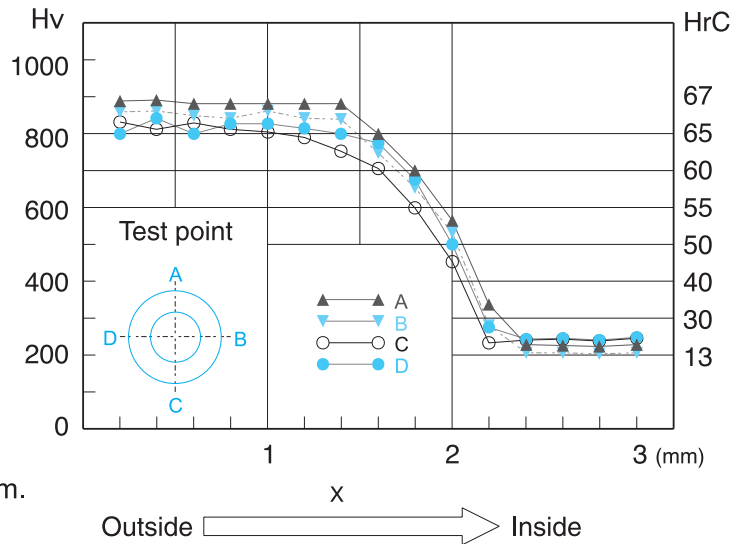
2. Hardness : Hrc62±2.

3. Surface finish : Ra 0.2 - 0.4μm.

4. Shaft straightness : approx. 0.1~0.15 mm/m.

5. Shaft dia. tolerance : h7

If g6 or h6 tolerance is required, please advise.



Unit : mm

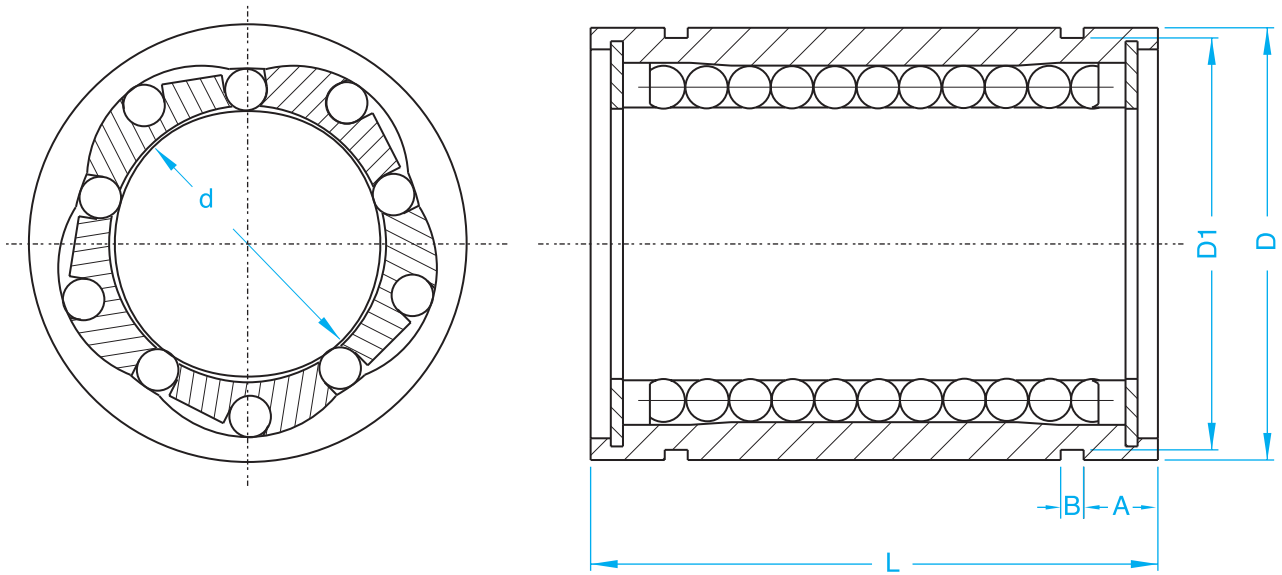
Model No.	d	Standard Length				Dia. tolerance h7	Hardness Depth (X)
		1500	2000	2500	3000		
★ SF6	6					0 / -0.012	1.0 ~ 1.5
★ SF8	8					0 / -0.015	1.0 ~ 1.5
★ SF10	10					0 / -0.015	1.0 ~ 1.5
★ SF12	12					0 / -0.018	1.0 ~ 1.5
★ SF16	16					0 / -0.018	1.8 ~ 2.2
★ SF20	20					0 / -0.021	1.8 ~ 2.2
★ SF25	25					0 / -0.021	1.8 ~ 2.2
★ SF30	30					0 / -0.021	1.8 ~ 2.2
★ SF32	32					0 / -0.025	1.8 ~ 2.2
★ SF40	40					0 / -0.025	1.8 ~ 2.2
★ SF50	50					0 / -0.025	1.8 ~ 2.2

Note: 1. With sign ★ can supply Chromium plated slide shaft (Model No:WV)

2. Hard Chrome thickness : 20μm.



10.2 LM series (Standard Type)



Linear Ball Bearing

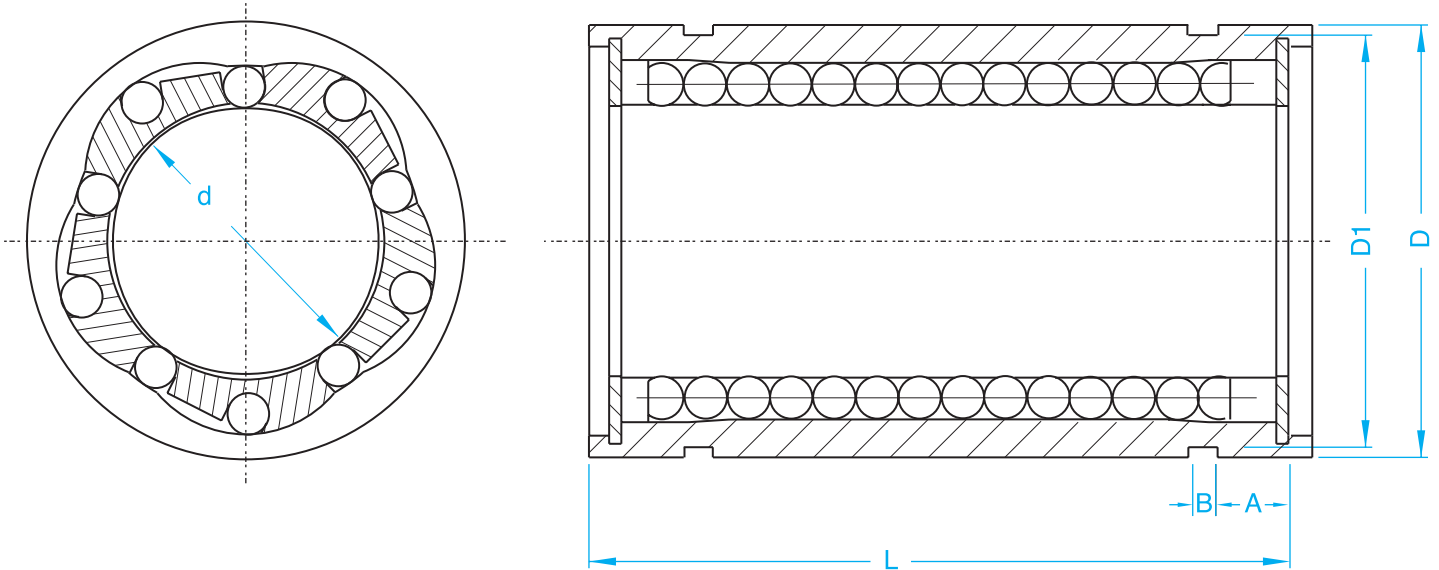
Unit : mm

Model No.	Basic Dimension								Eccentricity (max) μm	Radial Clearance (max) μm	(Kgf) Load		Weight (g)
	d	D	tolerance (μm)	L	tolerance (μm)	B	D1	A			Ca	Coa	
LM4UU	4	8	0	12	0	-	-	0	8	-5	9	13	2
LM6UU	6	12	-11	19		1.1	11.5	2.75	12	-5	20	27	8
LM8UU	8	15		24		1.1	14.3	3.25	12	-5	27	41	16
LM10UU	10	19	0	29		-0.2	1.3	18	3.5	12	-5	38	55
LM12UU	12	21	-13	30	1.3		20	3.5	12	-5	42	60	31.5
LM16UU	16	28		37		1.6	27	5.25	12	-7	78	119	69
LM20UU	20	32	0	42		1.6	30.5	5.75	15	-9	83	140	87
LM25UU	25	40	-15	59		1.85	38	9	15	-9	100	159	220
LM30UU	30	45		64	0	1.85	43	9.75	15	-9	159	279	250
LM40UU	40	60	0	80	-0.3	2.1	57	9.75	20	-13	219	409	585
LM50UU	50	80	-19	100		2.6	76.5	13	20	-13	389	808	1580

Note : UU with oil seals in ends



10.3 LM-L series (Standard - Long Type)



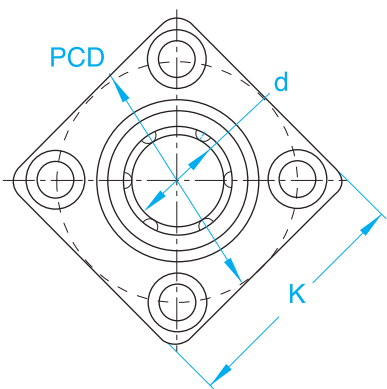
Linear Ball Bearing

Unit : mm

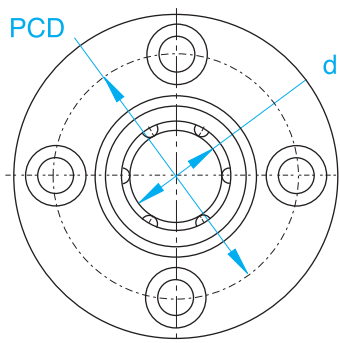
Model No.	Basic Dimension								(Kgf) Load		Weight (g)
	d	D	tolerance (μm)	L	tolerance (μm)	B	A	D1	Ca	Coa	
LM6LUU	6	12	0	35	0	1.1	4	11.5	32	53	16
LM8LUU	8	15	-13	45		1.1	5	14.3	44	80	31
LM10LUU	10	19	0	55		-30	1.1	5.5	18	59	112
LM12LUU	12	21	-16	57	-30	1.3	5.5	20	66	122	80
LM16LUU	16	28		70		1.3	8.5	27	125	240	145
LM20LUU	20	32	0	80	0	1.6	9.5	30.5	143	280	180
LM25LUU	25	40	-19	112		1.85	15	38	159	320	440
LM30LUU	30	45		123		-40	1.85	17	43	254	560
LM40LUU	40	60	0	151	-40	2.1	15	57	350	820	1170
LM50LUU	50	80	-22	192		2.6	22	76.5	620	1622	3100

Note : UU with oil seals in ends

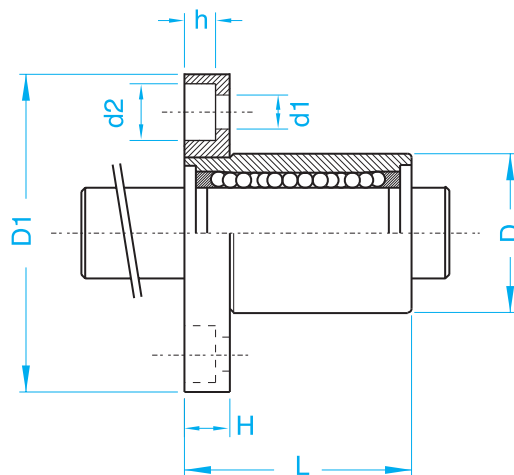
10.4 LF series (Flange Type)



Type : D



Type : N



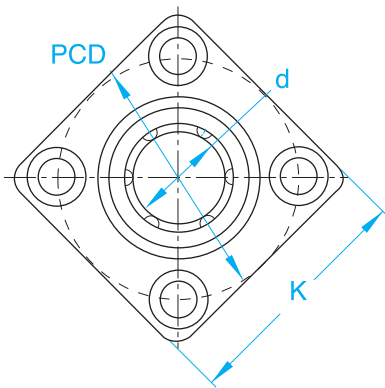
Unit : mm

Model No.	Basic Dimension													Eccentricity (max) μm	Radial Clearance (max) μm	(Kgf) Load		Weight (g)
	d	D	tolerance (μm)	L	tolerance (μm)	D1	tolerance (μm)	H	PCD	K	d1	d2	h			Ca	Coa	
LF6UU	6	12	0-11	19	0 -20	28	0 -0.2	5	20	22	3.4	6.5	3.3	12	-5	200	206	26.5
LF8UU	8	15	0	24		32		5	24	25	3.4	6.5	3.3	12	-5	260	400	40
LF10UU	10	19	-13	29		40		6	29	30	4.5	8	4.4	12	-5	370	540	78
LF12UU	12	21		30		42		6	32	32	4.5	8	4.4	12	-5	410	290	76
LF16UU	16	28		37		48		6	38	37	4.5	8	4.4	12	-7	770	1170	134
LF20UU	20	32	0	42		54		8	43	42	5.5	9.5	5.4	15	-9	860	1370	180
LF25UU	25	40	-16	59		62		8	51	50	5.5	9.5	5.4	15	-9	980	1560	340
LF30UU	30	45		64		74		10	60	58	6.6	11	6.5	15	-9	1560	2740	460
LF40UU	40	60	0	80		0		96	0	13	78	75	9	14	8.6	20	-13	2150
LF50UU	50	80	-19	100	-30	116	-0.3	13	98	92	9	14	8.6	20	-13	3820	7830	2200

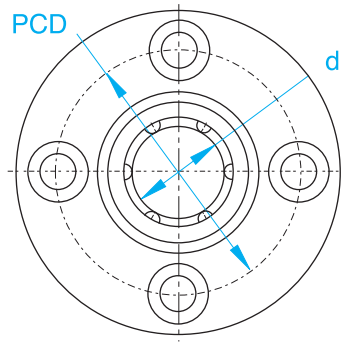
Note : UU-with oil seals in ends



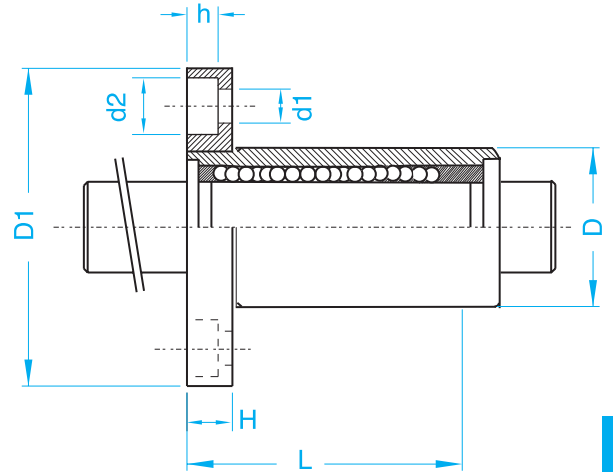
10.5 LF-L series (Flange - Long Type)



Type : D



Type : N



Linear Ball Bearing

Unit : mm

Model No.	Basic Dimension													Eccentricity (max) μm	Radial Clearance (max) μm	(Kgf) Load		Weight (g)
	d	D	tolerance (μm)	L	tolerance (μm)	D1	tolerance (μm)	H	PCD	K	d1	d2	h			Ca	Coa	
LF6LUU	6	12	0	35		28		5	20	22	3.4	6.5	3.3	12	-5	200	206	26.5
LF8LUU	8	15	-13	45		32		5	24	25	3.4	6.5	3.3	12	-5	260	400	40
LF10LUU	10	19	0	55	0	40	-0.2	6	29	30	4.5	8	4.4	12	-5	370	540	78
LF12LUU	12	21		57		42		6	32	32	4.5	8	4.4	12	-5	410	290	76
LF16LUU	16	28	-16	70	-30	48	-0.2	6	38	37	4.5	8	4.4	12	-7	770	1170	134
LF20LUU	20	32	0	80		54		8	43	42	5.5	9.5	5.4	15	-9	860	1370	180
LF25LUU	25	40	-19	112	-30	62	-0.2	8	51	50	5.5	9.5	5.4	15	-9	980	1560	340
LF30LUU	30	45		123		74		10	60	58	6.6	11	6.5	15	-9	1560	2740	460
LF40LUU	40	60	0	151	0	96	0	13	78	75	9	14	8.6	20	-13	2150	4010	1054
LF50LUU	50	80	-22	192	-40	116	-0.3	13	98	92	9	14	8.6	20	-13	3820	7830	2200

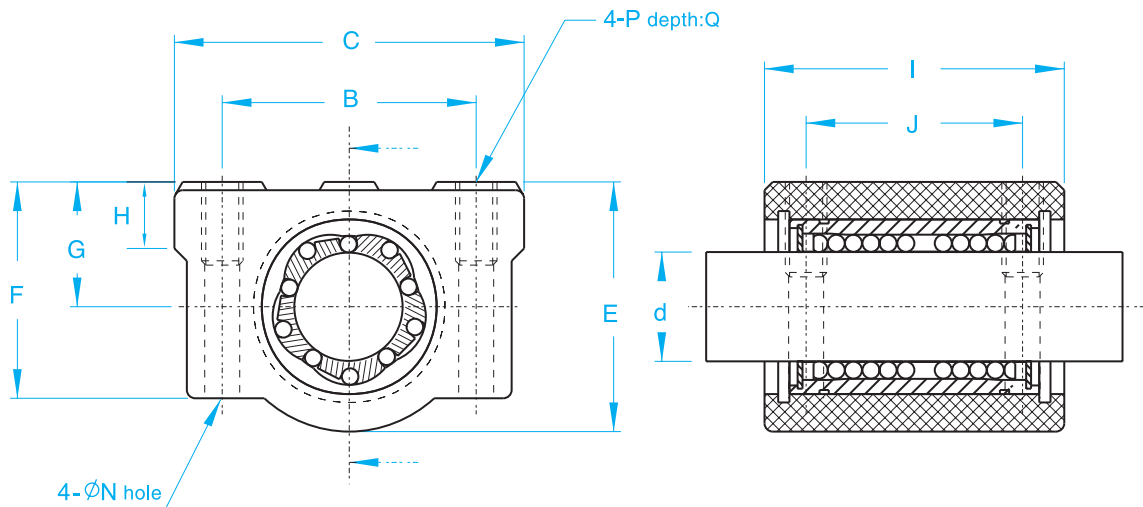
Note : UU-with oil seals in ends



10.6 LU/LP series (Housing Type)

LP:No Linear Ball Bearing (Housing Only)

LU:With Linear Ball Bearing (Lp+LM)



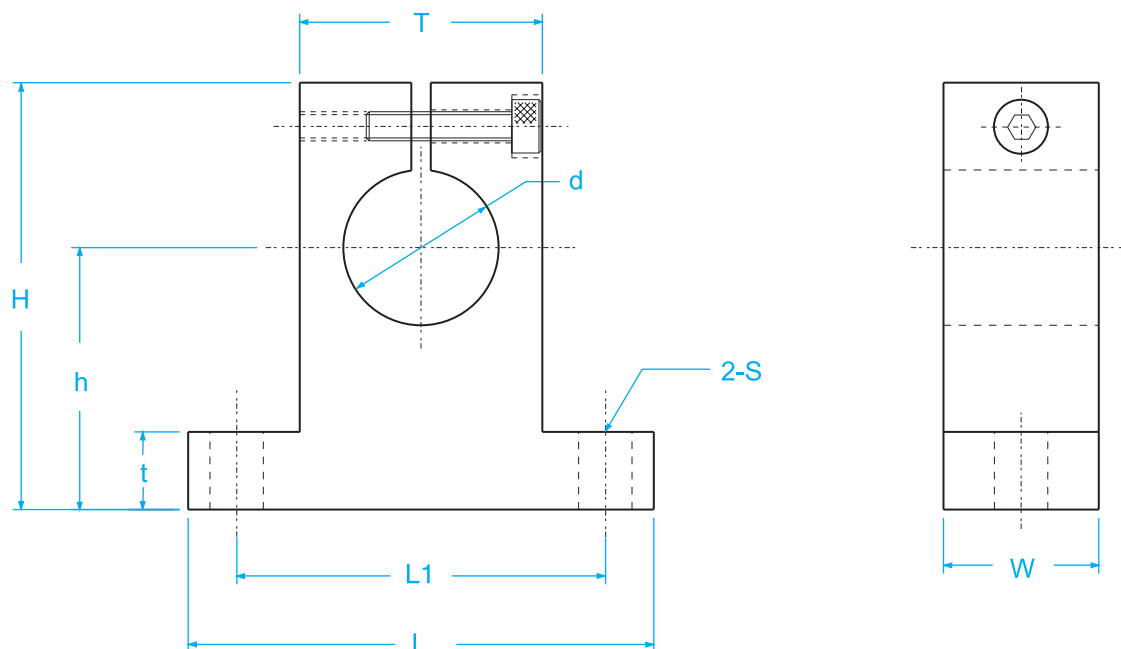
Material:Aluminum Alloy

Unit : mm

Model No.	Basic Dimension												weight (g)
	d	B	C	E	F	G±0.02	H	I	J	N	P	Q	
LU6UU LP6	6	20	30	18	15	9	6	25	15	M3	M4	8	34
LU8UU LP8	8	24	34	22	18	11	6	30	18	M3	M4	8	56
LU10UU LP10	10	28	40	26	21	13	8	35	21	M4	M5	12	90
LU12UU LP12	12	30.5	42	29	25	15	8	36	26	M4	M5	12	112
LU16UU LP16	16	36	50	38.5	35	19	9	44	34	M4	M5	12	189
LU20UU LP20	20	40	54	42	36	21	11	50	40	M5	M6	12	237
LU25UU LP25	25	54	76	51.5	41	26	12	67	50	M6	M8	18	555
LU30UU LP30	30	58	78	59.5	49	30	15	72	58	M6	M8	18	685
LU40UU LP40	40	80	102	78	62	40	20	90	60	M8	M10	25	1600
LU50UU LP50	50	100	122	102	80	52	25	110	80	M8	M10	25	3350



10.7 SS series (Slide Shaft Support)

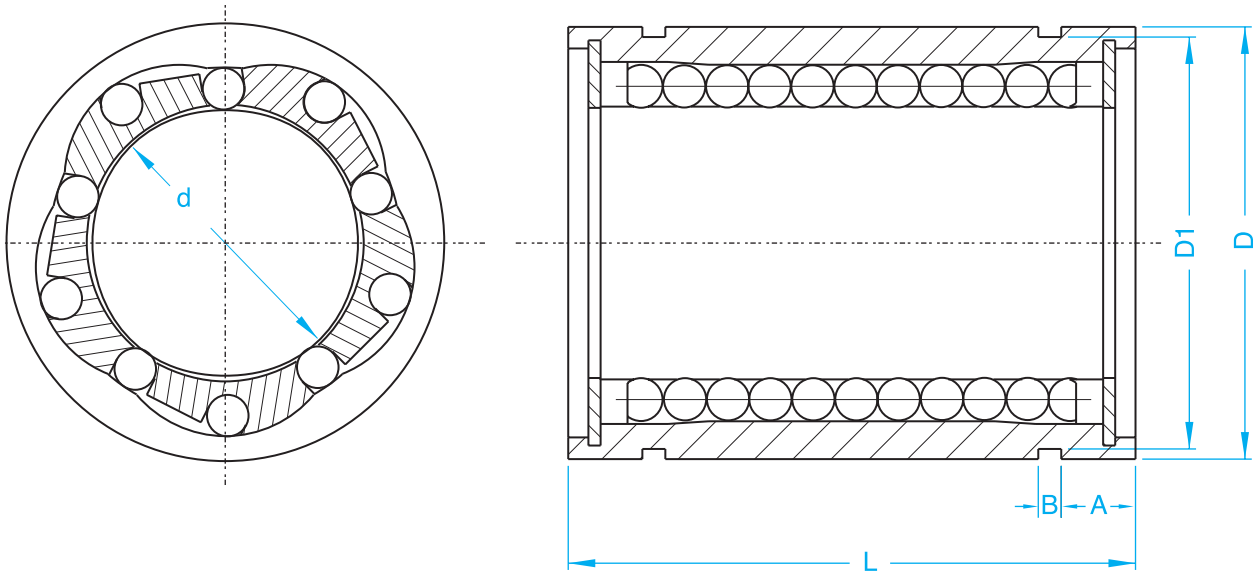


Unit : mm

Model No.	Basic Dimension									Weight (g)
	d	h	L	W	H	t	T	L1	S	
SS4	4	20	42	14	32.8	6	18	32	5.5	24
SS6	6	20	42	14	32.8	6	18	32	5.5	24
SS8	8	20	42	14	32.8	6	18	32	5.5	24
SS10	10	20	42	14	32.8	6	18	32	5.5	24
SS12	12	23	42	14	37.5	6	20	32	5.5	30
SS16	16	27	48	16	44	8	25	38	5.5	40
SS20	20	31	60	20	51	10	30	45	6.6	70
SS25	25	35	70	24	60	12	38	56	6.6	130
SS30	30	42	84	28	70	12	44	64	9	180
SS40	40	60	114	36	96	15	60	90	11	420
SS50	50	70	126	40	120	18	74	100	14	750



10.8 LME series (European Type)



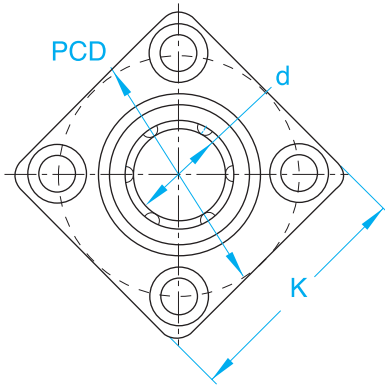
Unit : mm

Model No.	Basic Dimension								Eccentricity (max) μm	Radial Clearance (max) μm	(Kgf) Load		Weight (g)
	d	D	tolerance (μm)	L	tolerance (μm)	B	A	D1			Ca	Coa	
LME8UU	8	16	0/-8	25		1.1	4.25	15.2	12	-5	27	41	20
LME12UU	12	22	0	32	0	1.3	4.55	21	12	-7	51	78	41
LME16UU	16	26	-9	36	-20	1.3	5.55	24.9	12	-7	58	91	57
LME20UU	20	32	0	45		1.6	6.75	30.3	15	-9	88	139	91
LME25UU	25	40		58		1.85	6.95	37.5	15	-9	100	159	215
LME30UU	30	47	-11	68	0	1.85	7.95	44.5	15	-9	159	279	325
LME40UU	40	62	0	80	-30	2.15	9.7	59	17	-13	219	409	705
LME50UU	50	75	-13	100		2.65	11.2	72	17	-13	389	808	1130

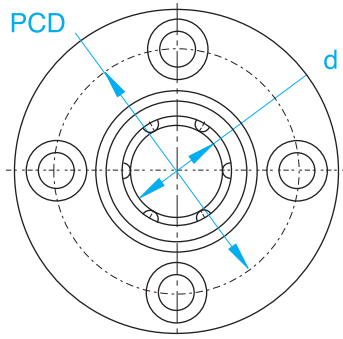
Note : UU with oil seals in ends



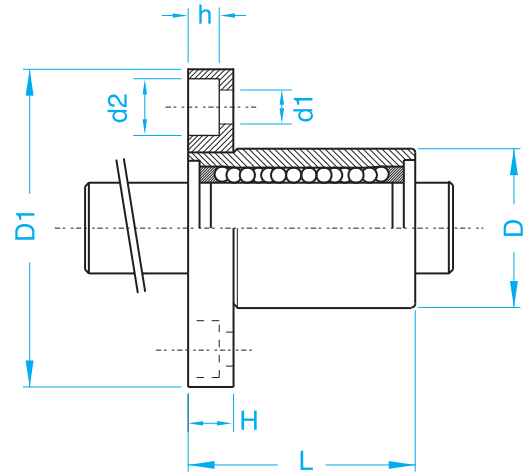
10.9 LFE series (European Flange Type)



Type : D



Type : N



Unit : mm

Model No.	Basic Dimension												Eccentricity (max) μm	Radial Clearance (max) μm	(Kgf) Load		Weight (g)	
	d	D	tolerance (μm)	L	tolerance (μm)	D1	tolerance (μm)	H	PCD	K	d1	d2			h	Ca		Coa
LFE8UU	8	16	0/-8	25		32		5	24	25	3.4	6.5	3.3	12	-5	260	400	44
LFE12UU	12	22	0	32		42		6	32	32	4.5	8	4.4	12	-5	500	770	86
LFE16UU	16	26	-9	36	0	46	0	6	36	35	4.5	8	4.4	12	-7	570	890	120
LFE20UU	20	32	0 -11	45	-20	54	-0.2	8	43	42	5.5	9.5	5.4	15	-9	860	1370	184
LFE25UU	25	40		58		62		8	51	50	5.5	9.5	5.4	15	-9	980	1560	335
LFE30UU	30	47		68		76		10	62	60	6.6	11	6.5	15	-9	1560	2740	545
LFE40UU	40	62	0	80	0	98	0	13	80	75	9	14	8.6	20	-13	2150	4010	1185
LFE50UU	50	75	-13	100	-30	112	-0.3	13	94	88	9	14	8.6	20	-13	3820	7830	1730

Note : UU-with oil seals in ends

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