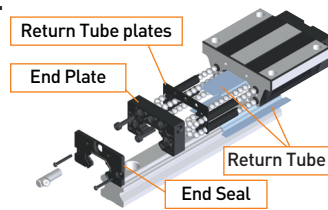


# SBC Linear Rail System



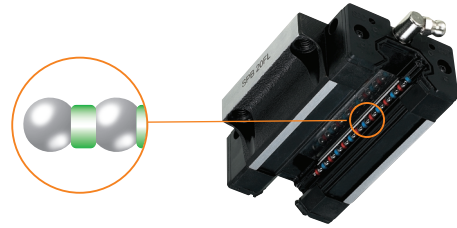
## » SBC LINEAR RAIL



- The new SBG(S) - C type linear guides adopt existing 4 row circular arc internal geometry and can therefore interchange with any carriage now operating on SBC standard rail profile. The C type design incorporates ball return tubes and reversing end plates now molded together as a single component. This offers smoother operation than all previous internal designs for linear bearing motion in any plane whether vertical or horizontal. The C type single component mould achieves great reduction in ball direction reversing and "no-load return tube" noise, allowing better lubricant flow.

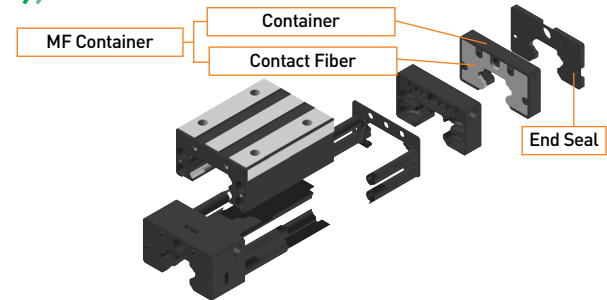
- SBG, SBS, SPG, SPS, NSB, NSS

## » SPACER SERIES (LOW NOISE)



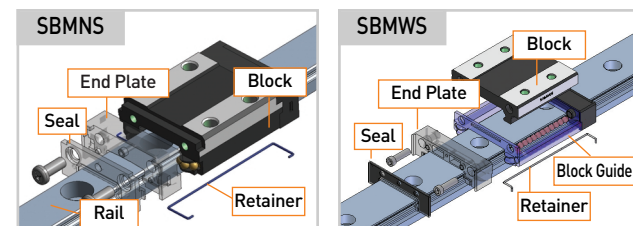
- Ball Spacers control steel ball tracking within the recirculation paths providing smooth running, the lowest operational noise levels and improved life performance. Ball spacers never come out.

## » MF CONTAINER (LUBRICANT CONTAINER)

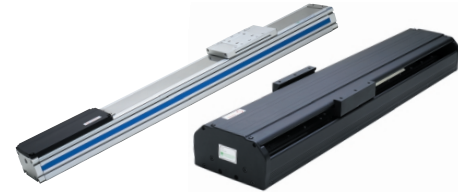


- SBC has developed a new maintenance free "Lubricant container" offering longer life for its full range of linear guides. Each compact seal kit which is fitted to the linear guide end plate is comprised of 3 elements which will guarantee total surface lubrication and long maintenance free bearing life.

## » SBC LINEAR MINIATURE RAIL



## » SBC LINEAR ACTUATOR



- Ball screw type robot, Linear, Belt type robot

## » SBC PRECISION ROLLED BALL SCREW (Precision P 5)

- STK Precision Rolled Ball screw
- SLK Long Lead Rolled Ball screw
- MBS Miniature Rolled Ball Screw



## » SBC BALL BUSHING

- Asia Type
- Europe Type
- Slide Unit
- Shaft Supporter

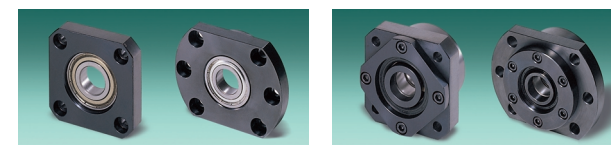


## » THOMSON PRECISION ROLLED BALL SCREW (Precision P 5)

- FK
- FH
- FL/FZ
- ZG TYPE

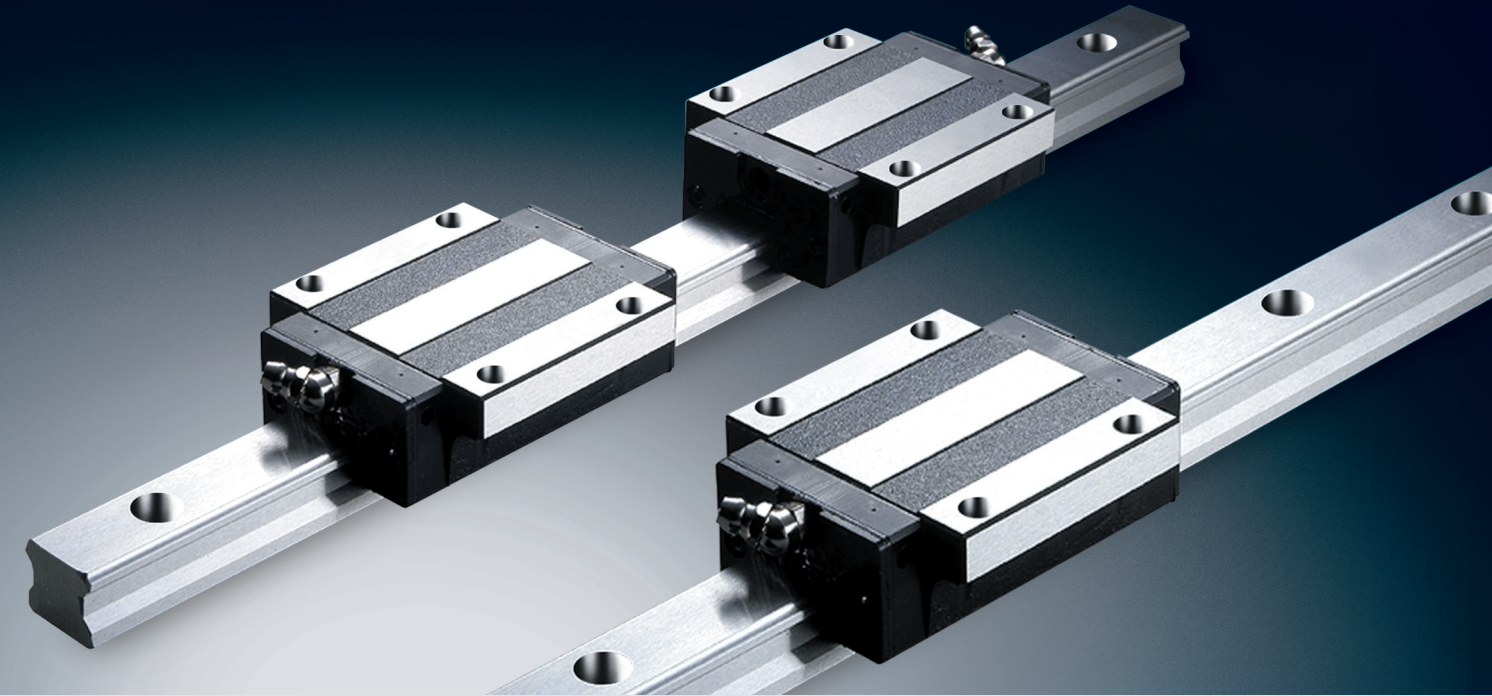


## » SBC SUPPORT UNIT

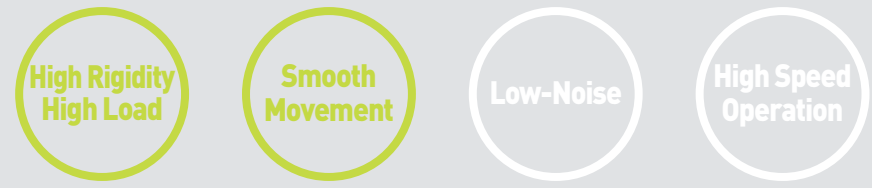


- FK, FF, BK, BF, HIGH LOAD TYPE

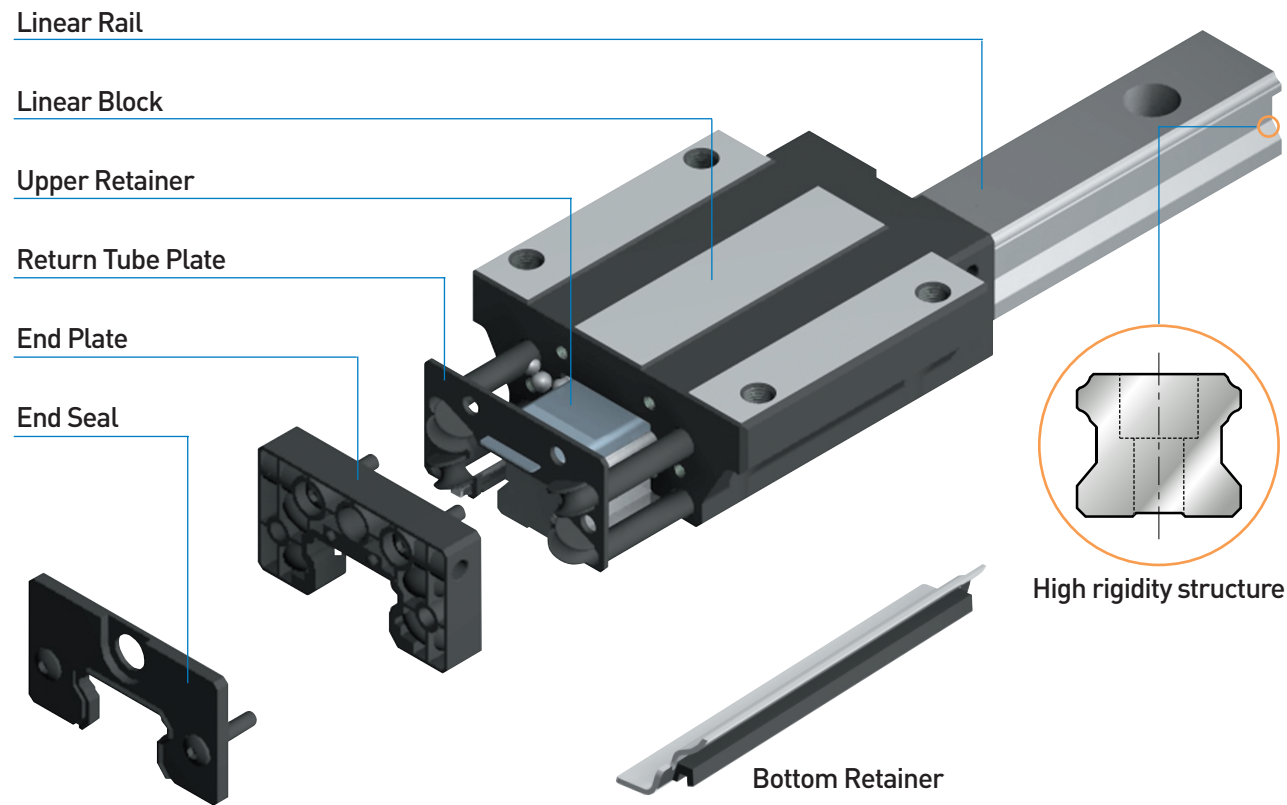
# SBC Linear Rail System Innovation



SBI Series

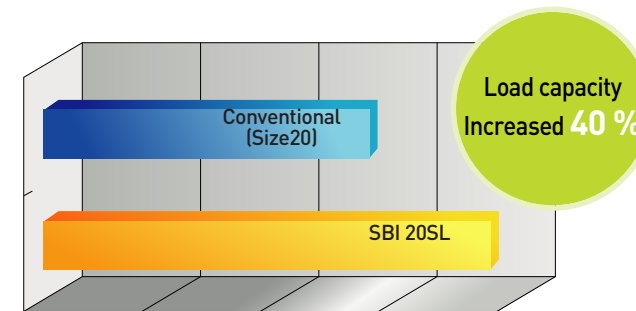
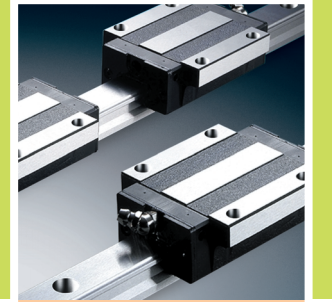


# The structure of SBI



## High load performance

Improved load capacity from the longer block length and changed radius of curvature



Load capacity Increased  
**40%**

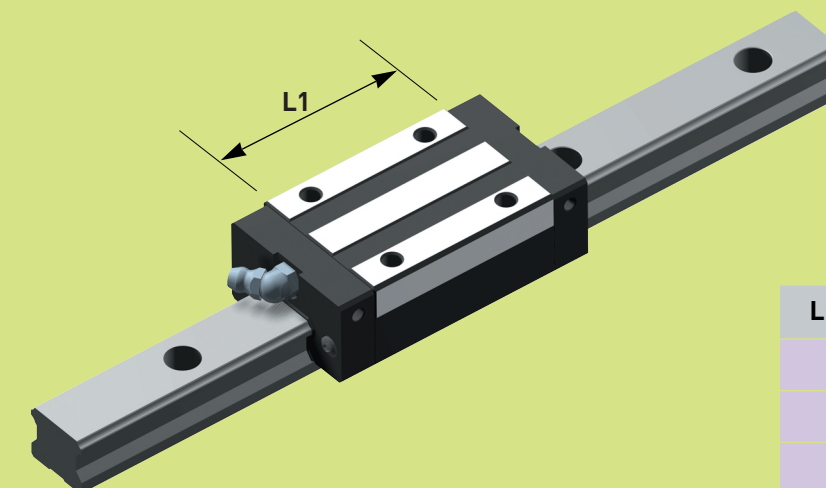
[Unit: N]

	Conventional (Size15)	SBI 15	Conventional (Size20)	SBI 20	Conventional (Size25)	SBI 25
C	8.3	14.1	14.2	22.2	20.9	31.5
Co	13.4	24.1	25	38.2	39.2	52.1

• C : Basic dynamic load rating • Co : Basic static load rating

End seal	End plate	Retainer
New double lip structure which improves resistance to dust and particle contamination.	Manufactured with a new high rigidity engineered plastic. Purpose built to withstand the highest of unplanned impact loads without breaking.	Ball retainer plates now snap assembled to the blocks and this unique assembly method allows an amount of internal SELF-ALIGNMENT and load sharing while maintaining rigid ball control.
Return tube plate	Linear block	Linear Rail
The end plate and reversing ramps C/W new ball return tubes are now molded as one complete body component-this creates excellent rolling performance, lower operating and smoother grease flow for longer lubricant retention inside the bearing.	Very rigid structure Larger circulation radius for the smooth movement Longer block length for higher load capacity Low center	SBI Rail is designed with a low profile and wide base. This characteristic allows greater stability in operation and during manufacture Results in greater linear precision

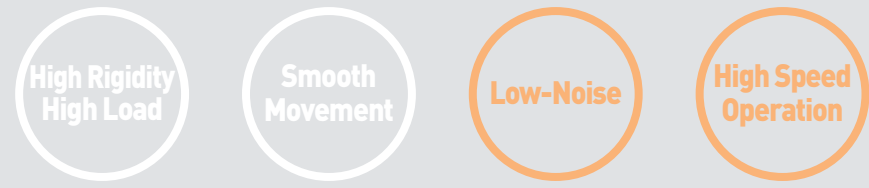
L1 is 20% greater than with the CONVENTIONAL block.  
Greater length = More balls in contact = Greater load capacity.



[Unit: mm]

L1 Length	Conventional	SBI
15SL	38.8	45.2
20SL	50.8	56.8
25SL	59.5	70





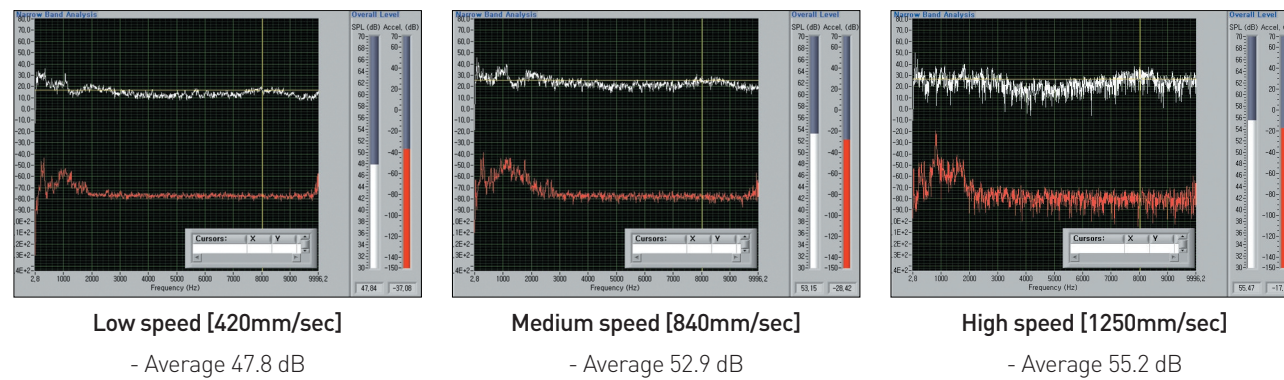
# Low Noise & High Speed

## How to test noise level

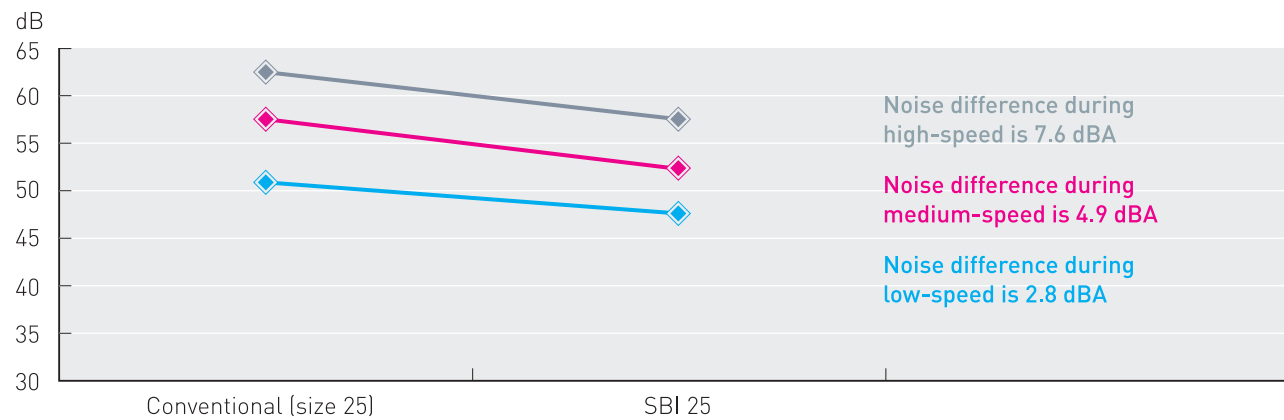
- [1] Linear rail system is tested at the speed of low, medium and high in the semi-anechoic chamber
- [2] Evaluate average value after repeat-operation

- [3] Test condition : - Low speed : 420 mm/sec
- Medium speed : 840 mm/sec
- High speed : 1250 mm/sec
- Tested items : **SBI25 FLL**
- Grease applied

## Noise level test



## Comparison Data



Test speed	Conventional(size 25) [SBC Standard]	SBI 25 [SBC New standard]
Average at the low speed	50.6	47.8
Average at the medium speed	57.8	52.9
Average at the high speed	62.8	55.2

[Unit: dB]

## High Speed

The possible operation velocity is maximum 5 meter per second.

# New structure maintains the advantages from SBG style

## Circular arc groove

Two point contact structure of circular arc groove It keeps the function of **SELF-ALIGNING** and smooth rolling performance.

## Applied Return tube plate

Taking an advantage from the SBG series return tube plate. It creates excellent rolling performance and lower operation noise .

## Self-aligning and keeping balls inside

Ball retainer plates now snap assemble to the blocks and this unique assembly method allows an amount of internal **SELF-ALIGNMENT** and load sharing while maintaining rigid ball control. This load sharing removes skidding and poor rolling performance by keeping balls inside the load zone.

## 45° Angle of contact

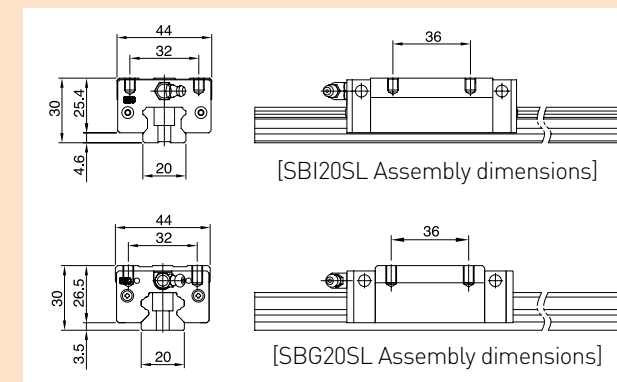
Four rows of circular arc groove contact balls at an angle of 45 degree. It creates the same load in four directions.

## The same dimensions

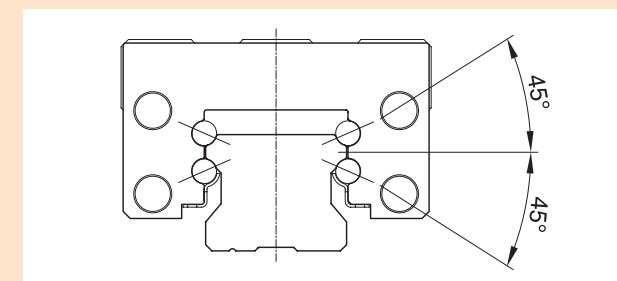
The dimensions of height, width and mounting holes are the same as SBG series slight variation in block length.

## DF structure

**DF** structure maintains low instrumental errors.



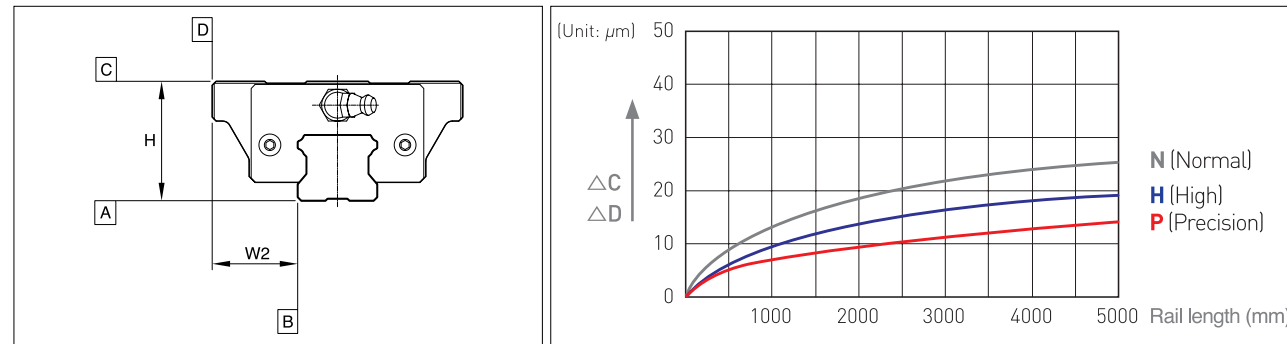
[Comparison assembly dimensions]



# Accuracy Standard

## Accuracy Standard

The accuracy of SBI is divided into three grades, **N** (Normal), **H** (High) and **P** (Precision).



Item	N	H	P
Tolerance for the height <b>H</b>	±0.1	±0.04	±0.02
Tolerance for the rail-to-block lateral distance <b>W2</b>	±0.1	±0.04	±0.02
Tolerance for the height <b>H</b> difference among blocks	0.03	0.015	0.007
Tolerance for rail-to-block lateral distance <b>W2</b> difference among blocks	0.03	0.015	0.007
Running parallelism of surface <b>C</b> with surface <b>A</b>	C		
Running parallelism of surface <b>D</b> with surface <b>B</b>	D		

## Radial clearance

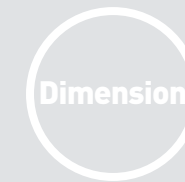
Model size	K1	K2	K3
15	-5 ~ 0	-12 ~ 5	-
20	-6 ~ 0	-12 ~ 5	-18 ~ -12
25	-8 ~ 0	-14 ~ 8	-20 ~ -14

Preload grade  
**K1** : Normal preload  
**K2** : Light preload  
**K3** : Heavy preload

## Seal resistance value

Model size	Seal resistance value
15	2.0
20	2.5
25	3.0

For the maximum value of seal resistance of **SBI** standard type per block, in which grease is applied



# Ordering example

## Coding for interchangeable Block

**SBI20 FL - N - MF - ZZ - K1**  
 [1] [2] [3] [4] [5] [6]

- [1] Model : **SBI15, SBI20, SBI25**
- [2] Block type : **FL, FLL, SL, SLL, HL, HLL**
- [3] Grease fitting position :  
**No symbol** (Front grease fitting)  
**N** (side grease fitting)
- [4] MF : Self lubricant container
- [5] Seal : **No symbol** (End seal), **DD, ZZ, KK**
- [6] Preload : **K1** (Normal Preload)  
**K2** (Light Preload)  
**K3** (Heavy Preload)

## Coding for changeable Rail

**SBI20 - 1000L**  
 [1] [2]

- [1] Model : **SBI15, SBI20, SBI25**
  - [2] Rail length : Max. Length 4000 (mm)
- Only "**N**" grade is supplied as changeable rail.  
 The max. length of SBI15 rail is 3000mm

## Coding for assembled Rail and Block

**SBI20 FL - N - MF - ZZ - 2 - K1 - 800 - N - R - B - II**  
 [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12]

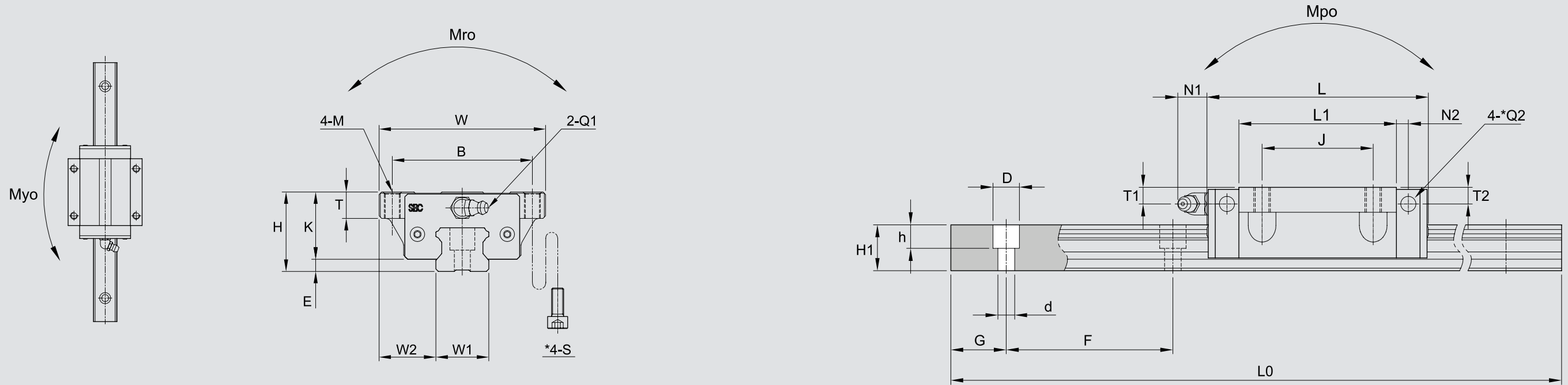
- [1] Model : **SBI15, SBI20, SBI25**
- [2] Block type : **FL, FLL, SL, SLL, HL, HLL**
- [3] Grease fitting position : **No symbol** (Front grease fitting), **N** (side grease fitting)
- [4] MF : Self lubricant container
- [5] Seal : **No symbol** (End seal), **DD, ZZ, KK**
- [6] Block quantity on rail
- [7] Preload : **K1** (Normal preload), **K2** (Light preload), **K3** (Heavy preload)
- [8] Rail length : Max. Length 4000 (mm)  
 The max. length of SBI15 rail is 3000 (mm)
- [9] Accuracy : **N** (Normal), **H** (High), **P** (Precision)
- [10] Surface treatment : **No symbol** (Standard), **R** (Raydent)
- [11] Bottom mounting rail : **No symbol** (Standard), **B** (Bottom mounting rail)
- [12] Rail : **No symbol**(1Row), **II** (2Row), **III** (3Row), **IV** (4Row),...

Ordering example

Dimension

# SBI – FL / FLL Type

## Dimension



Model No.	Mounting dimension					Block dimensions											
	H	E	W2	W	L	BxJ	M	*S	L1	K	T	Q1	*Q2	T1	T2	N1	N2
SBI15 FL	24	3	16	47	63.8	38x30	M5	M4	45.2	21	8	ø3.5	ø3.5	4.5	3.8	3.6	3.4
SBI15 FLL	24	3	16	47	79.4	38x30	M5	M4	60.8	21	8	ø3.5	ø3.5	4.5	3.8	3.6	3.4
SBI20 FL	30	4.6	21.5	63	79.8	53x40	M6	M5	56.8	25.4	10	M6	M4	6	5.8	11	5
SBI20 FLL	30	4.6	21.5	63	98.4	53x40	M6	M5	74.4	25.4	10	M6	M4	6	5.8	11	5
SBI25 FL	36	5.5	23.5	70	92	57x45	M8	M6	70	30.5	12	M6	M4	6	5.6	11	5
SBI25 FLL	36	5.5	23.5	70	108	57x45	M8	M6	86	30.5	12	M6	M4	6	5.6	11	5

\*S : Bolt size (Bottom mounting block)

\*Q2 : The hole of side grease nipple is not made to prevent a foreign substance from going into inside.  
When you order the side grease nipple, we built it by ourselves.  
If you would like to built it by your self, please contact us.

[Unit: mm]

Rail size						Load capacity [kN]		Stationary moment [kN.m]			Weight	
W1	H1	F	dxDxh	G	L0	C	Co	Mro	Mpo	Myo	Block [kg]	Rail [kg/m]
15	13	60	4.5x7.5x5.5	20	3,000	14.1	24.1	0.16	0.17	0.17	0.19	1.3
15	13	60	4.5x7.5x5.5	20	3,000	17.1	31.7	0.21	0.29	0.29	0.26	
20	16.5	60	6x9.5x8.5	20	4,000	22.2	38.2	0.36	0.33	0.33	0.41	2.2
20	16.5	60	6x9.5x8.5	20	4,000	27.9	50.0	0.47	0.56	0.56	0.54	
23	20	60	7x11x9	20	4,000	31.5	52.1	0.56	0.56	0.56	0.69	3
23	20	60	7x11x9	20	4,000	36.7	64.4	0.69	0.84	0.84	0.85	

C : Dynamic load capacity

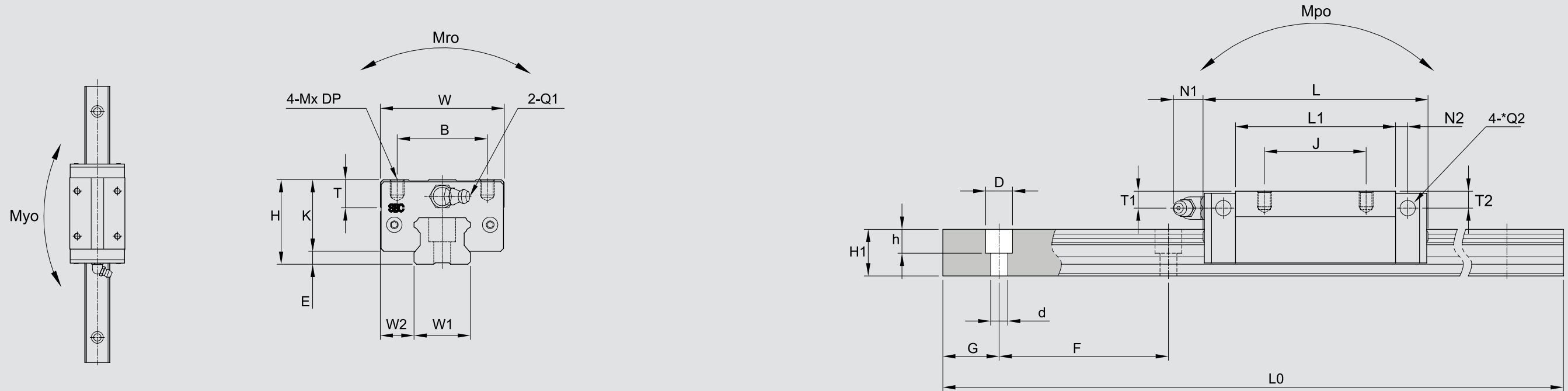
Co : Stationary load capacity

Ordering example

Dimension

# SBI – SL / SLL / HL / HLL Type

## Dimension



Model no.	Mounting dimension					Block dimensions										
	H	E	W2	W	L	BxJ	MxDP	L1	K	T	Q1	*Q2	T1	T2	N1	N2
SBI15 SL	28	3	9.5	34	63.8	26 x 26	M4 x 5	45.2	25	10	ø3.5	ø3.5	8.5	7.8	3.6	3.4
SBI15 SLL	28	3	9.5	34	79.4	26 x 34	M4 x 5	60.8	25	10	8.5	ø3.5	8.5	7.8	3.6	3.4
SBI20 SL	30	4.6	12	44	79.8	32 x 36	M5 x 5	56.8	25.4	10	M6	M4	6	5.8	11	5
SBI20 SLL	30	4.6	12	44	98.4	32 x 50	M5 x 5	74.4	25.4	10	M6	M4	6	5.8	11	5
SBI25 SL	40	5.5	12.5	48	92	35 x 35	M6 x 8	70	34.5	12	M6	M4	10	9.6	11	5
SBI25 SLL	40	5.5	12.5	48	108	35 x 50	M6 x 8	86	34.5	12	M6	M4	10	9.6	11	5
SBI15 HL	24	3	9.5	34	63.8	26 x 26	M4 x 5	45.2	21	10	ø3.5	ø3.5	4.5	3.8	3.6	3.4
SBI15 HLL	24	3	9.5	34	79.4	26 x 34	M4 x 5	60.8	21	10	8.5	ø3.5	4.5	3.8	3.6	3.4
SBI25 HL	36	5.5	12.5	48	92	35 x 35	M6 x 8	70	30.5	12	M6	M4	6	5.6	11	5
SBI25 HLL	36	5.5	12.5	48	108	35 x 50	M6 x 8	86	30.5	12	M6	M4	6	5.6	11	5

\*Q2 : The hole of side grease nipple is not made to prevent a foreign substance from going into inside.  
When you order the side grease nipple, we built it by ourselves.  
If you would like to built it by your self, please contact us.

													[Unit: mm]			
Rail size						Load capacity [kN]		Stationary moment [kN.m]			Weight					
W1	H1	F	d x D x h	G	L0	C	Co	Mro	Mpo	Myo	Block [kg]	Rail [kg/m]				
15	13	60	4.5 x 7.5 x 5.5	20	3,000	14.1	24.1	0.16	0.17	0.17	0.2	1.3				
15	13	60	4.5 x 7.5 x 5.5	20	3,000	17.1	31.7	0.21	0.29	0.29	0.26					
20	16.5	60	6 x 9.5 x 8.5	20	4,000	22.2	38.2	0.36	0.33	0.33	0.3	2.2				
20	16.5	60	6 x 9.5 x 8.5	20	4,000	27.9	50.0	0.47	0.56	0.56	0.39					
23	20	60	7 x 11 x 9	20	4,000	31.5	52.1	0.56	0.56	0.56	0.59	3				
23	20	60	7 x 11 x 9	20	4,000	36.7	64.4	0.69	0.84	0.84	0.72					
15	13	60	4.5 x 7.5 x 5.5	20	3,000	14.1	24.1	0.16	0.17	0.17	0.15	1.3				
15	13	60	4.5 x 7.5 x 5.5	20	3,000	17.1	31.7	0.21	0.29	0.29	0.2					
23	20	60	7 x 11 x 9	20	4,000	31.5	52.1	0.56	0.56	0.56	0.49	3				
23	20	60	7 x 11 x 9	20	4,000	36.7	64.4	0.69	0.84	0.84	0.6					

C : Dynamic load capacity  
Co : Stationary load capacity