

Roller Guide SBR Series

SBC

Linear Rail System

SBC is widely known as a global leader in providing leading technology linear rail system components of the highest quality. SBC's core expertise is two-fold, providing application-proven standard product designs and designing custom-made solution for your specific application. Either way, all of SBC's products go through the same robust design, testing and quality standards that you would expect from a leader in supplying world-class product solutions.

SBC Roller Linear Motion Guide [SBR Series]

Feature

SBR Series with Roller Linear Rail System are suitable for high loads, great stiffness and high reliability, especially for precision machine tools.

Specifications : SBR35 / SBR45

• SBR Series – FL / FLL / SL / SLL

FL	Standard	Flanged Type
FLL	High Capacity	
SL	Standard	Non-Flanged Type
SLL	High Capacity	



[Flanged Type]



[Non-Flanged Type]

Strengths

Design Optimization with FEM & Dynamic Analysis

- Optimized race angle of block depending on each preload
- Reinforced End Plate Structure against external load
- Distance between rollers to minimize the skew

Rollers with Optimized Logarithmic Profile

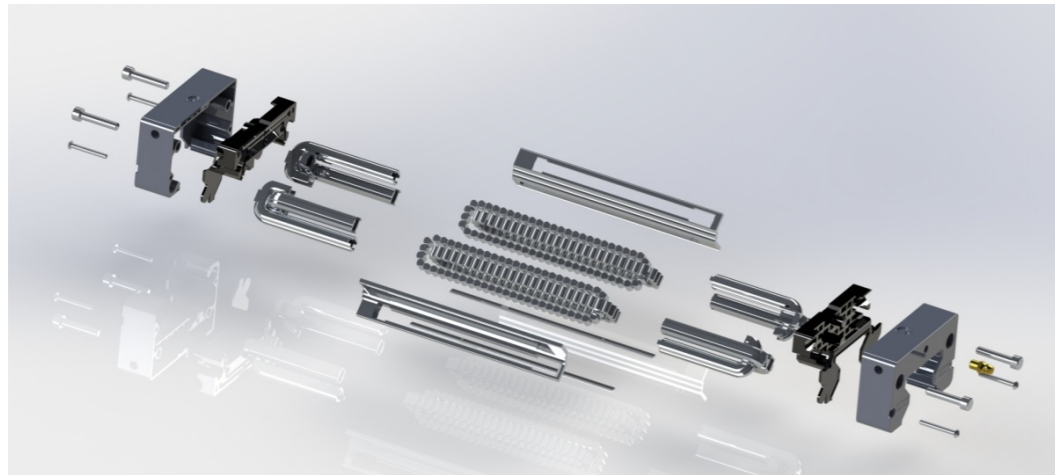
The logarithmic profile guarantees an even contact pressure over the whole of the roller's raceway, leading to extended service life and low torque.

Smooth Recirculation System

Thanks to optimized multi-radius for internal recirculation system, pulsation phenomena are reduced to the minimum, thus making the rollers more stability during passing in and out the load district.

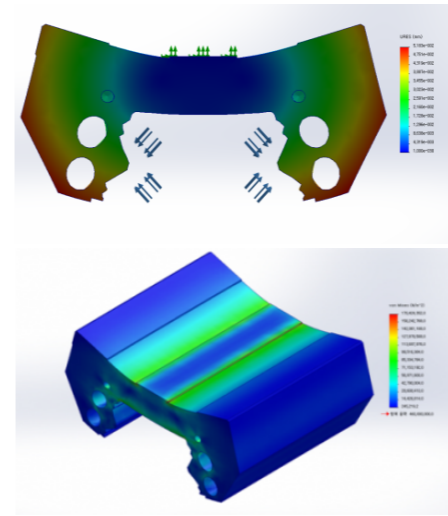
Innovative Lubrication System

The introduction of the lubrication into the front head is controlled by means of check valves. These valves are installed on both sides of block slide ways and prevent the lubricant from flowing back while operating.

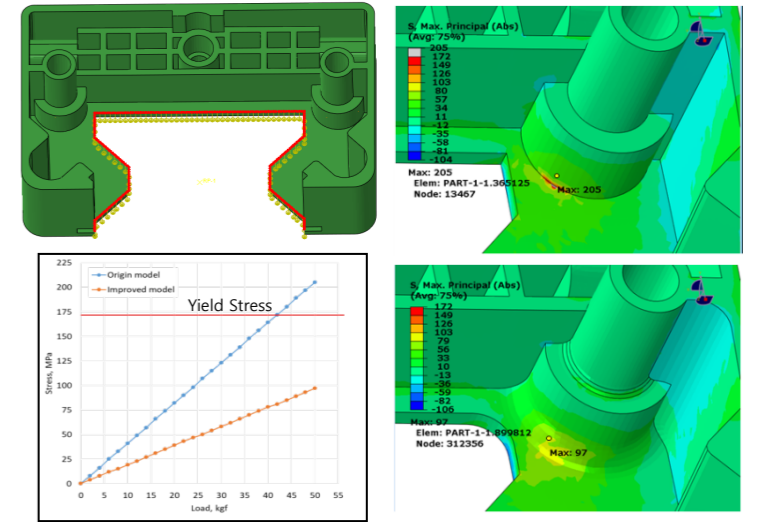


Technical Competitiveness

FEM Analysis To Optimize the Preload

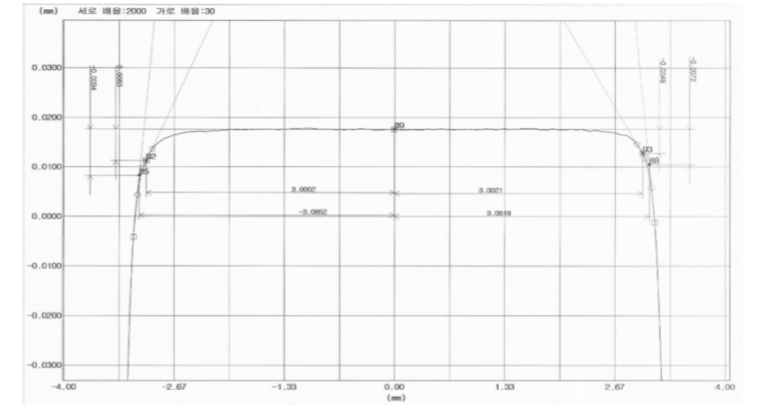
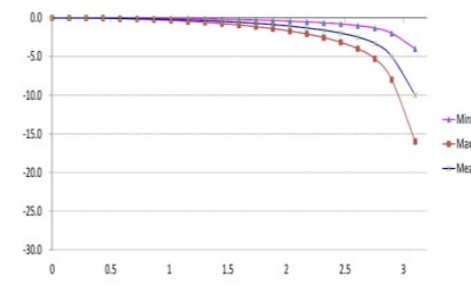


Robust End Plate Design

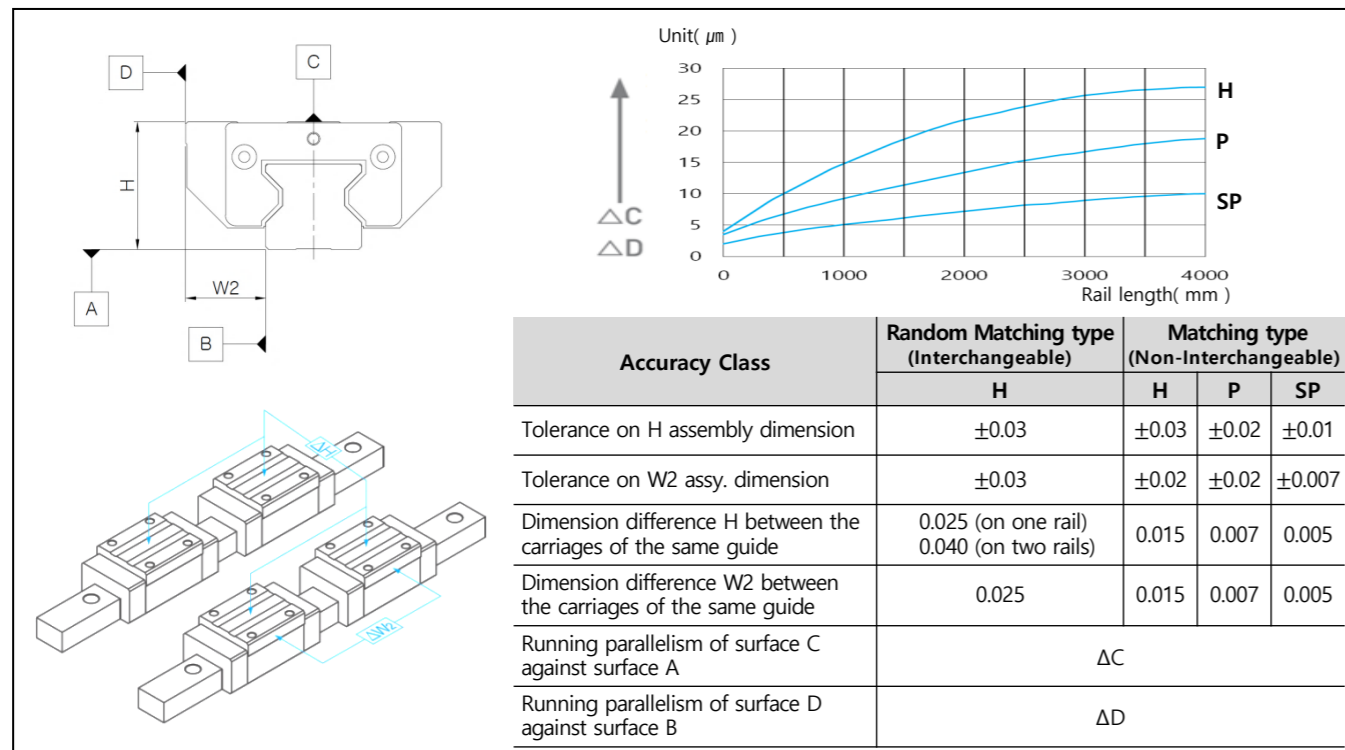


Roller with Logarithmic Profile

$$h(x) = a1 * a2 * \ln \frac{1}{1 - a3 * \left[\frac{x}{a4 + Lw} \right]}$$



Accuracy Classes



Measuring dimension difference H and W2 between the carriages of the same guide

- H : High accuracy grade
- P : Precision grade
- SP : Super Precision grade

ΔW2 (Dimension difference W2 between the carriages of the same guide) :
measuring the center of block side surface (reference surface)

ΔH (Dimension difference H between the carriages of the same guide) :
measuring the center of block top

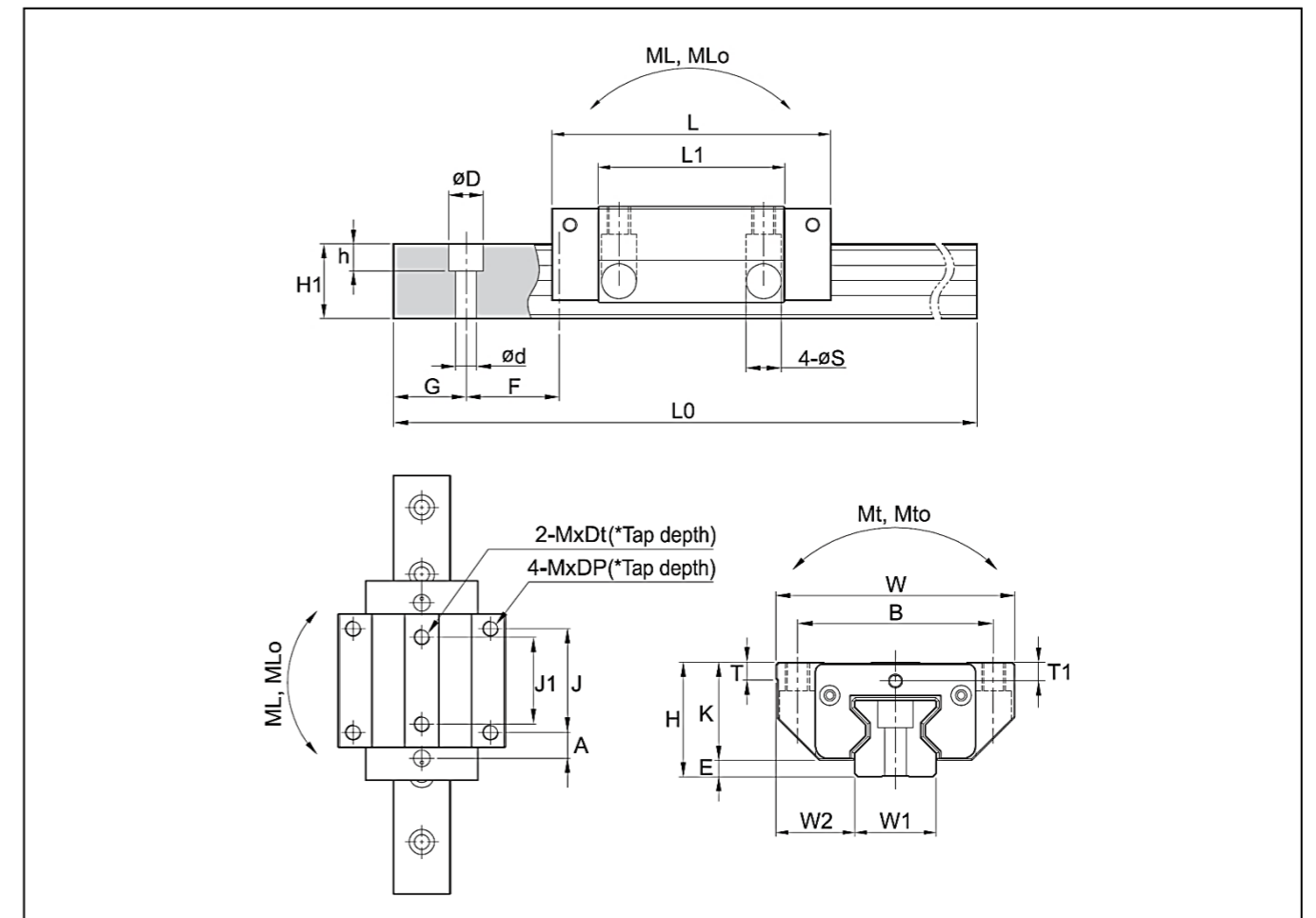
SBR Series – FL/FLL

Model	Mounting Dimensions [mm]				Block Dimensions [mm]											
	H	W	L	E	Mounting Tap Hole							L1	T	K	T1	A
					B	J	J1	M	DP	Dt	S					
SBR35 FL	48	100	119.3	7	82	62	52	M10	12	10	15	80	8	41	7.9	15.5
SBR35 FLL	48	100	142.3	7	82	62	52	M10	12	10	15	103	8	41	7.9	27
SBR45 FL	60	120	148.3	10	100	80	60	M12	15	12	18	101.3	10	50	8	17.6
SBR45 FLL	60	120	180.8	10	100	80	60	M12	15	12	18	133.8	10	50	8	33.9

SBR Series – SL/SLL

Model	Mounting Dimensions [mm]				Block Dimensions [mm]										
	H	W	L	E	Mounting Tap Hole				L1	T	K	T1	A		
					B	J	M	DP							
SBR35 SL	55	70	119.3	7	50	50	M8	12	80	8	48	14.9	21.5		
SBR35 SLL	55	70	142.3	7	50	72	M8	12	103	8	48	14.9	22		
SBR45 SL	70	86	148.3	10	60	60	M10	18	101.3	10	60	18	27.6		
SBR45 SLL	70	86	180.8	10	60	80	M10	18	133.8	10	60	18	33.9		

Model



Rail Dimensions [mm]									Basic Load Rating [kN]		Moment [kN-m]			
W1	W2	H1	F	Bolt Hole			G	Max length of rail L0	C	Co	Mt	Mto	ML	MLo
				d	D	h								
34	33	32	40	9	15	17	19	4000	53.3	99	1.17	2.19	0.67	1.25
34	33	32	40	9	15	17	19	4000	72.6	136	1.59	3.01	1.18	2.24
45	37.5	40	52.5	14	20	19	25	4000	95	184	2.61	5.07	1.53	2.97
45	37.5	40	52.5	14	20	19	25	4000	119.5	242.2	3.29	6.67	2.44	4.95

Rail Dimensions [mm]									Basic Load Rating [kN]		Moment [kN-m]			
W1	W2	H1	F	Bolt Hole			G	Max length of rail L0	C	Co	Mt	Mto	ML	MLo
				d	D	h								
34	18	32	40	9	15	17	19	4000	53.3	99	1.17	2.19	0.67	1.25
34	18	32	40	9	15	17	19	4000	72.6	136	1.59	3.01	1.18	2.24
45	20.5	40	52.5	14	20	19	25	4000	95	184	2.61	5.07	1.53	2.97
45	20.5	40	52.5	14	20	19	25	4000	119.5	242.2	3.29	6.67	2.44	4.95

① C (Basic dynamic load rating), Co (Basic static load rating)

② Mt (Torsional moment of dynamic load), Mto (Torsional moment of static load)

③ ML (Longitudinal moment of dynamic load), MLo (Longitudinal moment of static load)

Ordering Example

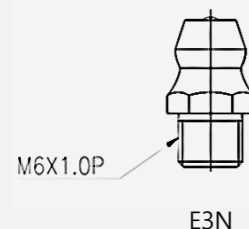
SBR35 FL - ZZ - 2 - K2 - 4000 J2 - P - AR - ES - II
 [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11]

- [1] Model
- [2] Block type : FL, FLL, SL, SLL
- [3] Additional seal (optional)
- [4] Number of carriages on the rail
- [5] Preload : K2 (0.08C), K3 (0.13C)
- [6] Rail length
- [7] Rail joint : J2 (rail 2PCS joint), J3 (rail 3PCS joint), J4 (rail 4PCS joint), etc.
- [8] Accuracy class : H, P, SP
- [9] Surface treatment : None(standard), AR(rail & carriage coating), RR(rail only), KR(carriage only)
- [10] Extra Special
- [11] Number of rails per axis : None (I axis), II, III, IV, etc.

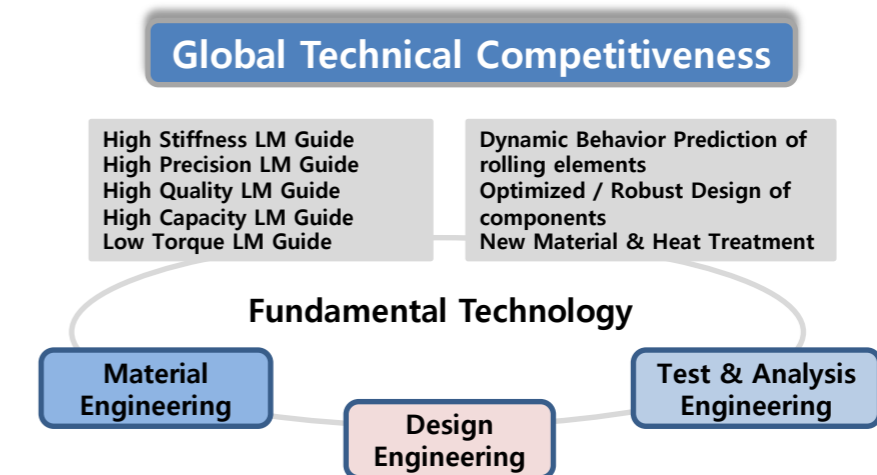
[Additional Seal]

Symbol	Descriptions
None	Attached End Seal + Bottom Seal
ZZ	Attached End Seal + Bottom Seal + Scraper

- ※ We recommend purchasing the block(carriage) and rail as assembled set if high accuracy and high stiffness are required
- ※ Please indicate the G (distance from rail end to first hole) dimension if G is not standard
- ※ Lubrication nipple : Included in all supplies



Research & Development



Lubrication

[Recommend grease and oil]

It is advisable to use the following grease and oil types:

- Grease according to the DIN 51825 standard, type KP2K-20 (high-performance grease based on lithium soap)
- Liquid grease according to the DIN 51826 standard, types: NLGI 00 and NLGI 000
- Mineral oil according to the DIN 51517 standard, type CLP, or according to the DIN 51524 standard, type HLP
- Viscosity range: from ISO VG 68 to ISO VG 220

[Initial lubrication before the start-up]

Immediately after the assembly, the carriages must be lubricated with the quantities that are specified in the table. During the greasing operation, move the carriage for a stroke that at Least corresponds to three times its own length.

Initial lubrication (cm^3 /carriage)	SBR35		SBR45	
	Grease	Oil	Grease	Oil
FL / SL	2.9	1.0	5.3	1.4
FLL / SLL	3.7		6.6	

[Following lubrication interval]

The table specifies the correct values. In case of short stroke (shorter than twice the length L of the Carriage), apply a double quantity of lubricant by means of two lubrication points(one per each head)

Load	SBR35		SBR45	
	Grease	Oil	Grease	Oil
$C/P > 8$	500km	250km / $1.2cm^3$	300km	125km / $1.2cm^3$
$5 \leq C/P < 8$	300km	180km / $1.0cm^3$	150km	90km / $0.9cm^3$
$3 \leq C/P < 5$	150km	80km / $0.6cm^3$	80km	40km / $0.45cm^3$
$2 \leq C/P < 3$	80km	30km / $0.25cm^3$	40km	20km / $0.25cm^3$

[Recommended lubrication values]

Quantity (cm^3 /carriage)	SBR35	SBR45
FL / SL	1.2	2.2
FLL / SLL	1.4	2.6

[Minimum quantity of oil allowed by impulse]

Oil (cm^3 /impulse)	SBR35	SBR45
horizontal	0.1	0.1
vertical	0.1	0.1
crosswise	0.15	0.15

Precautions on use

● Handling

- Disassembling components may cause dust to enter the system or degrade mounting accuracy of parts. Do not disassemble the product.
- Tilting an LM block or LM rail may cause them to fail by their own weight.
- Dropping or hitting the LM Guide may damage it. Giving an impact to the LM Guide could also cause damage to its function even if the guide looks intact.

● Lubrication

- Thoroughly remove anti-corrosion oil and feed lubricant before using the product.
- Do not mix lubricants of different physical properties.
- In locations exposed to constant vibrations or in special environments such as clean rooms, vacuum and low/high temperature, normal lubricants may not be used. Contact SBC for Details.
- When planning to use a special lubricant, Contact SBC for Details.
- When adopting oil lubrication, the lubricant may not be distributed throughout the LM system depending on the mounting orientation of the system. Contact SBC for Details.
- Lubrication interval varies according to the service conditions. Contact SBC for Details.

● Precautions on Use

- Entrance of foreign matter may cause damage to the ball circulating path or functional loss. Prevent foreign matter, such as dust or cutting chips, from entering the system
- When planning to use the LM system in an environment where coolant penetrates the LM block, it may cause trouble to product functions depending on the type of coolant. Contact SBC for details.
- Do not use the LM system at temperature of 80°C or higher. When desiring to use the system at temperature of 80°C or higher, contact SBC in advance.
- If foreign matter adheres to the LM system, replenish the lubricant after cleaning the product. For available types of detergent, contact SBC.
- When using the LM system in locations exposed to constant vibrations or in special environments such as clean rooms, vacuum and low/high temperature, contact SBC in advance.
- When removing the LM block from the rail and then replacing the block, an LM block mounting/removing jig that facilitates such installation is available. Contact SBC for details.

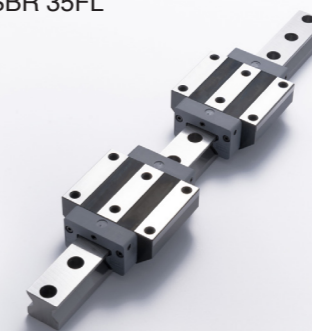
● Storage

- When storing the LM Guide, enclose it in a package designated by SBC and store it in a horizontal orientation while avoiding high temperature, low temperature and high humidity.

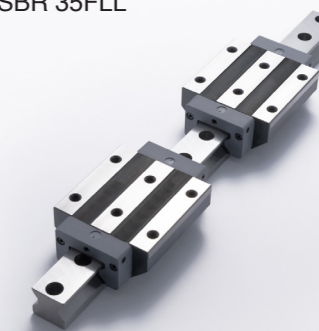
Roller Guide SBR Series

SBC

SBR 35FL



SBR 35FLL



SBR 35SL



SBR 35SLL



SBR 45FL



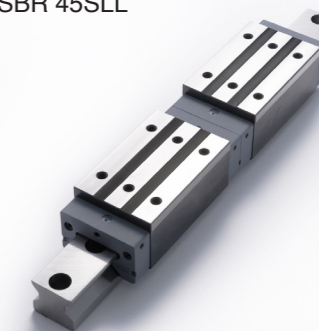
SBR 45FLL



SBR 45SL



SBR 45SLL







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