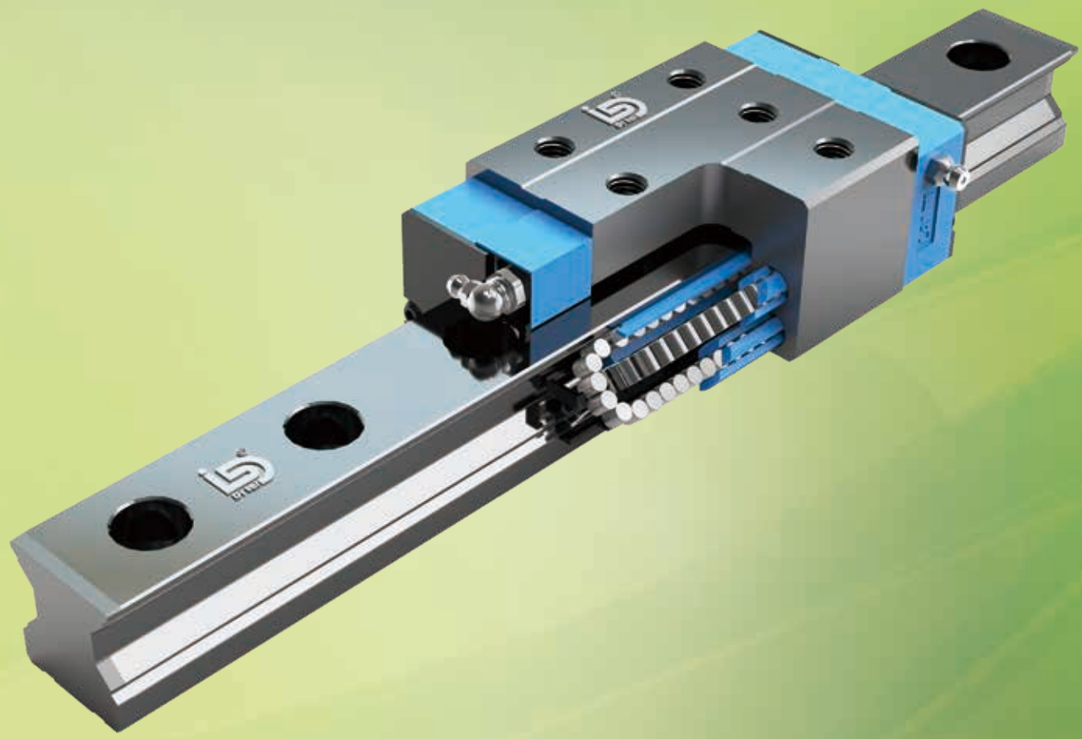
LTROBOT

Motion The Future



SR Series Roller Linear guide

LTROBOT

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SR Series

High Rigidity Roller Type

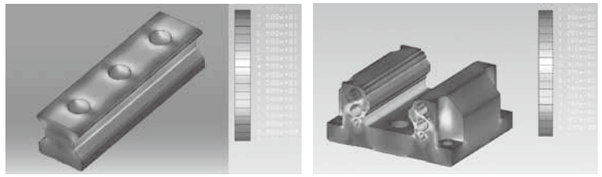
1. SR Series – High Rigidity Roller Type Linear Guide

1-1 Advantages and features

The new SR series from LTROBOT features a roller as the rolling element instead of steel balls. The roller series offers super high rigidity and very high load capacities. The SR series is designed with a 45-degree angle of contact. Elastic deformation of the linear contact surface, during load, is greatly reduced thereby offering greater rigidity and higher load capacities in all 4 load directions.The SR series linear guide offers high performance for high-precision manufacturing and achieving longer service life.

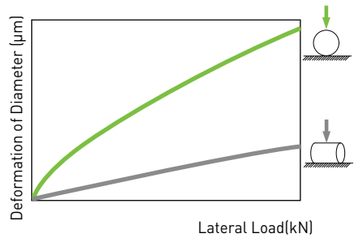
(1) Optimal design

FEM analysis was performed to determine the optimal structure of the block and the rail. The unique design of the circulation path allows the SR series linear guide to offer smoother linear motion.



(2) Super high rigidity

The SR series is a type of linear guide that uses rollers as the rolling elements. Rollers have a greater contact area than balls so that the roller guide features higher load capacity and greater rigidity. The figure shows the rigidity of a roller and a ball with equal volume.

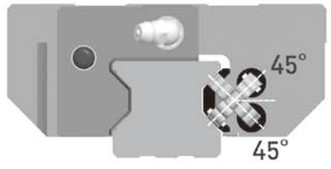


(3) Super high load capacity

With the four rows of rollers arranged at a contact angle of 45-degrees, the SR series linear guide has equal load ratings in the radial, reverse radial and lateral directions. The SR series has a higher load capacity in a smaller size than conventional, ball-type linear guides.

(4) Operating life increased

Compare with the ball element, the contact pressure of rolling element is distributed on the line region. Therefore, stress concentration was reduced siginificantly and the SR series offers longer running life. The nominal life of SR series can be calculated by using Eq.



The acting load will affect the nominal life of a linear guide. Based on the selected basic dynamic rated load and the actual load. The nominal life of ball type and roller type linear guide can be calculated by Eq.2.5 respectively.

$$L = \left(\frac{C}{P}\right)^{\frac{10}{3}} \cdot 100km = \left(\frac{C}{P}\right)^{\frac{10}{3}} \cdot 62mile \quad \text{Eq. 2.5}$$

If the environmental factors are taken into consideration, the nominal life is influenced greatly by the motion conditions, the hardness of the raceway, and the temperature of the linear guide. The relationship between these factors is expressed in Eq.2.6.

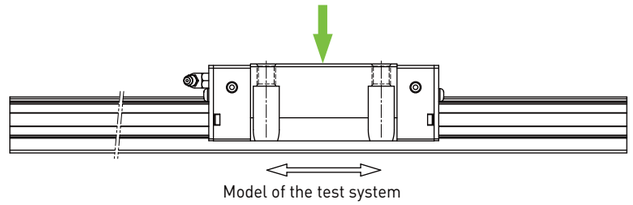
$$L = \left(\frac{f_h \cdot f_t \cdot C}{f_w \cdot P}\right)^{\frac{10}{3}} \cdot 100km = \left(\frac{f_h \cdot f_t \cdot C}{f_w \cdot P}\right)^{\frac{10}{3}} \cdot 62mile \quad \text{Eq. 2.6}$$

L : Nominal life
C : Basic dynamic load rating
P : Actual load

f_h : Hardness factor
f_t : Temperature factor
f_W : Load factor

(5) Test Data

1. Nominal life test

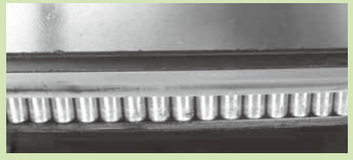


Model of the test system

Table 1-1-1

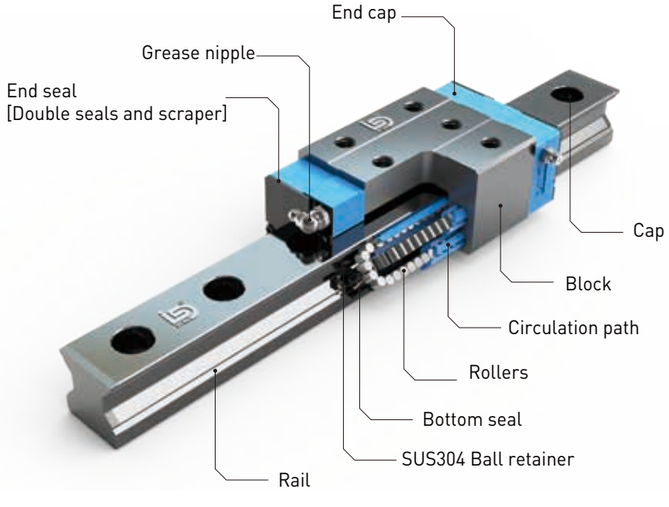
Tested model 1: SRH35CA Preload: ZA class Max. Speed: 60m/min Acceleration: 1G Stroke: 0.55m Lubrication: grease held every 100km External load: 15kN Traveling distance: 1135km	**Test results:** The nominal life of SRH35CA is 1000km. After traveling 1135km, fatigue flaking did not appear on the surface of the raceway or rollers. 

2. Durability Test

Tested model 2: SRW35CC Preload: ZA class Max. Speed: 120m/min Acceleration: 1G Stroke: 2m Lubrication: oil feed rate: 0.3cm3/hr External load: 0kN Traveling distance: 15000km	**Test results:** Fatigue flaking did not appear on the surface of the raceway or rollers after traveling 15000km. 

Note: The data listed are from samples.

1-2 Construction of SR Series

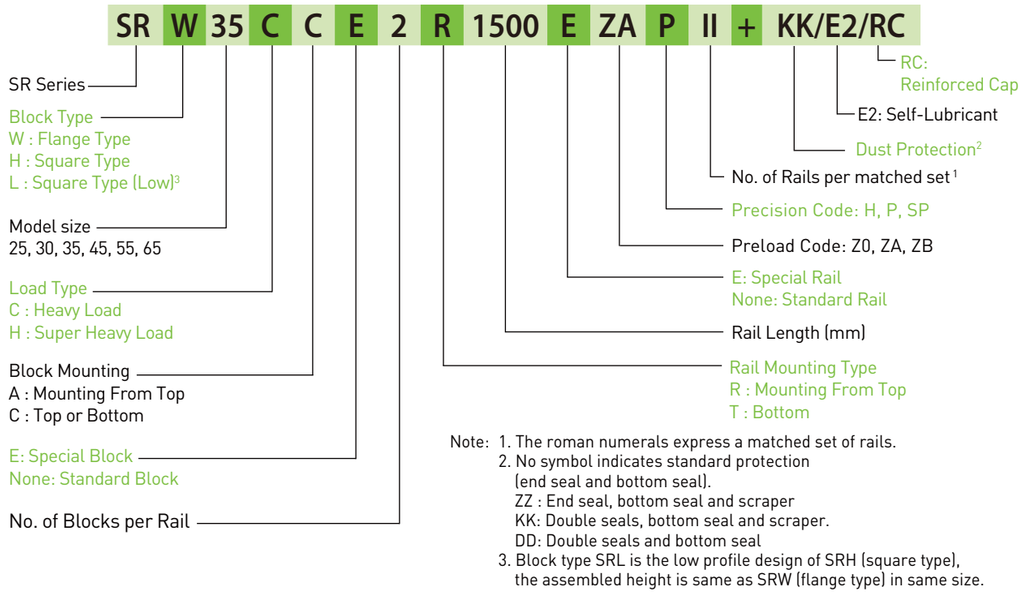


- Rolling circulation system: Block, Rail, End cap, Circulation path, rollers, SUS304 Ball retainer
- Lubrication system: Grease nipple and piping joint
- Dust protection system: End seal, Bottom seal, Cap, Double seals and Scraper

1-3 Model Number of SR series

SR series linear guides are classified into non-interchangeable and interchangeable types. The sizes of these two types are the same as one another. The main difference is that the interchangeable type of blocks and rails can be freely exchanged and they can maintain P-class accuracy. Because of strict dimensional control, the interchangeable type linear guides are a wise choice for customers when rails do not need to be matched for an axis. The model number of the SR series identifies the size, type, accuracy class, preload class, etc.

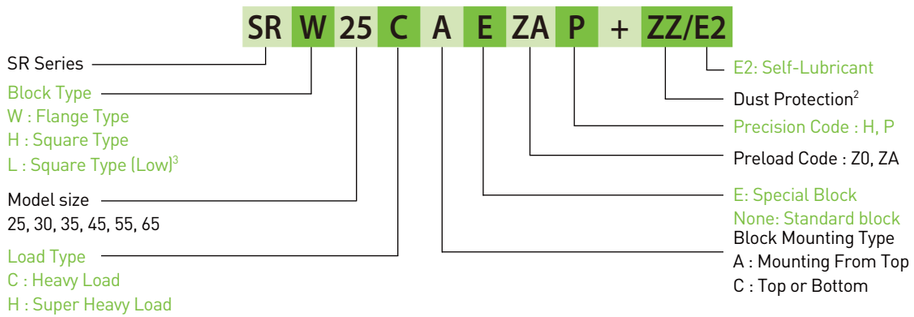
(1) Non-interchangeable type



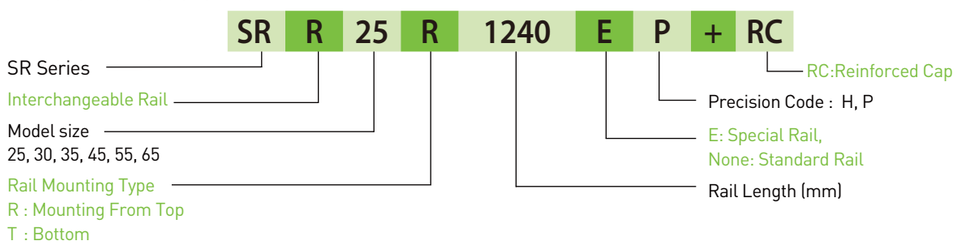
Note: 1. The roman numerals express a matched set of rails.
2. No symbol indicates standard protection (end seal and bottom seal).
ZZ : End seal, bottom seal and scraper
KK: Double seals, bottom seal and scraper.
DD: Double seals and bottom seal
3. Block type SRL is the low profile design of SRH (square type), the assembled height is same as SRW (flange type) in same size.

(2) Interchangeable type

- **Model Number of SR Block**



- **Model Number of SR Rail**

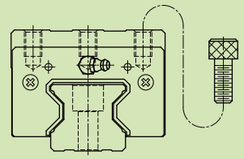
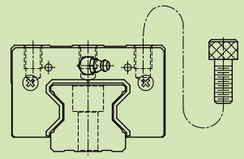
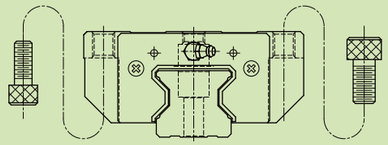


1-4 Types

(1) Block types

LTROBOT offers two types of guide blocks, flange and square type. Because of the low assembly height and large mounting surface, the flange type is excellent for heavy moment load applications.

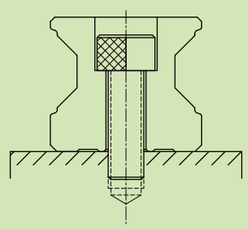
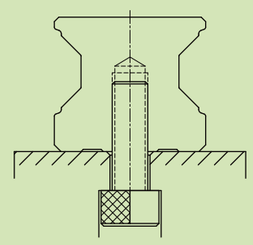
Table 1-1-2 **Block Types**

Type	Model	Shape	Height (mm)	Rail Length (mm)	Main Applications
Square	SRH-CA SRH-HA		28 ↓ 90	100 ↓ 4000	○ Automation Systems ○ Transportation equipment ○ CNC machining centers ○ Heavy duty cutting machines ○ CNC grinding machines ○ Injection molding machines ○ Plano millers ○ Devices requiring high rigidity ○ Devices requiring high load capacity ○ Electric discharge machines
Square	SRL-CA SRL-HA		24 ↓ 70	100 ↓ 4000	
Flange	SRW-CC SRW-HC		24 ↓ 90	100 ↓ 4000	

(2) Rail types

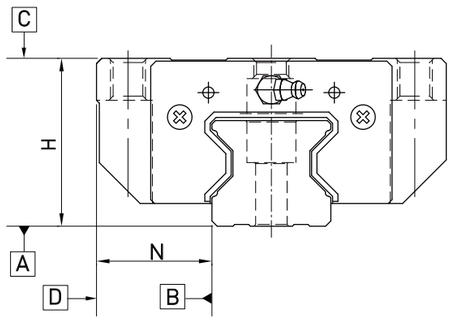
In addition to the standard top mounting type, LTROBOT also offers the bottom mounting type of rails.

Table 1-1-3 **Rail Types**

Mounting from Top	Mounting from Bottom
	

1-5 Accuracy Classes

The accuracy of the SR series can be classified into four classes: high (H), precision (P), super precision (SP) and ultra precision (UP). Customers may choose the class by referencing the accuracy requirements of the applied equipment.



(1) Accuracy of non-interchangeable

Table 1-1-4 **Accuracy Standards** Unit: mm

Item	SR - 25, 30, 35			
Accuracy Classes	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.04	0 - 0.04	0 - 0.02	0 - 0.01
Dimensional tolerance of width N	± 0.04	0 - 0.04	0 - 0.02	0 - 0.01
Variation of height H	0.015	0.007	0.005	0.003
Variation of width N	0.015	0.007	0.005	0.003
Running parallelism of block surface C to surface A	See Table 1-1-12			
Running parallelism of block surface D to surface B	See Table 1-1-12			

Table 1-1-5 **Accuracy Standards** Unit: mm

Item	SR - 45, 55			
Accuracy Classes	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.05	0 - 0.05	0 - 0.03	0 - 0.02
Dimensional tolerance of width N	± 0.05	0 - 0.05	0 - 0.03	0 - 0.02
Variation of height H	0.015	0.007	0.005	0.003
Variation of width N	0.02	0.01	0.007	0.005
Running parallelism of block surface C to surface A	See Table 1-1-12			
Running parallelism of block surface D to surface B	See Table 1-1-12			

Table 1-1-6 **Accuracy Standards** Unit: mm

Item	SR - 65			
Accuracy Classes	High (H)	Precision (P)	Super Precision (SP)	Ultra Precision (UP)
Dimensional tolerance of height H	± 0.07	0 - 0.07	0 - 0.05	0 - 0.03
Dimensional tolerance of width N	± 0.07	0 - 0.07	0 - 0.05	0 - 0.03
Variation of height H	0.02	0.01	0.007	0.005
Variation of width N	0.025	0.015	0.01	0.007
Running parallelism of block surface C to surface A	See Table 1-1-12			
Running parallelism of block surface D to surface B	See Table 1-1-12			

(2) Accuracy of interchangeable

Table 1-1-7 **Accuracy Standards** Unit: mm

Item	SR - 25, 30, 35	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.04	± 0.02
Dimensional tolerance of width N	± 0.04	± 0.02
Variation of height H	0.015	0.007
Variation of width N	0.015	0.007
Running parallelism of block surface C to surface A	See Table 1-1-12	
Running parallelism of block surface D to surface B	See Table 1-1-12	

Table 1-1-8 **Accuracy Standards** Unit: mm

Item	SR - 45, 55	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.05	± 0.025
Dimensional tolerance of width N	± 0.05	± 0.025
Variation of height H	0.015	0.007
Variation of width N	0.02	0.01
Running parallelism of block surface C to surface A	See Table 1-1-12	
Running parallelism of block surface D to surface B	See Table 1-1-12	

Table 1-1-9 **Accuracy Standards** Unit: mm

Item	SR - 65	
Accuracy Classes	High (H)	Precision (P)
Dimensional tolerance of height H	± 0.07	± 0.035
Dimensional tolerance of width N	± 0.07	± 0.035
Variation of height H	0.02	0.01
Variation of width N	0.025	0.015
Running parallelism of block surface C to surface A	See Table 1-1-12	
Running parallelism of block surface D to surface B	See Table 1-1-12	

(3) Accuracy of running parallelism

Table 1-1-10 **Accuracy of Running Parallelism**

Rail Length (mm)	Accuracy (μm) H	P	SP	UP
~ 100	7	3	2	2
100 ~ 200	9	4	2	2
200 ~ 300	10	5	3	2
300 ~ 500	12	6	3	2
500 ~ 700	13	7	4	2
700 ~ 900	15	8	5	3
900 ~ 1,100	16	9	6	3
1,100 ~ 1,500	18	11	7	4
1,500 ~ 1,900	20	13	8	4
1,900 ~ 2,500	22	15	10	5
2,500 ~ 3,100	25	18	11	6
3,100 ~ 3,600	27	20	14	7
3,600 ~ 4,000	28	21	15	7

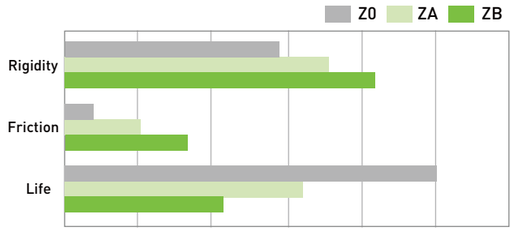
1-6 Preload

A preload can be applied to each guide using oversized rollers. Generally, a linear motion guide has negative clearance between the raceway and rollers to improve stiffness and maintain high precision. The SR series linear guide offers three standard preloads for various applications and conditions.

Table 1-1-11

Class	Code	Preload	Condition
Light Preload	Z0	0.02C~ 0.04C	Certain load direction, low impact, low precision required
Medium Preload	ZA	0.07C~0.09C	High rigidity required, high precision required
Heavy Preload	ZB	0.12C~ 0.14C	Super high rigidity required, with vibration and impact

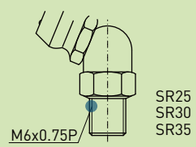
The figure shows the relationship between the rigidity, friction and nominal life. A preload no larger than ZA would be recommended for smaller model sizes to avoid over-preload affecting the life of the guide.



1-7 Lubrication

(1) Grease

Grease nipple



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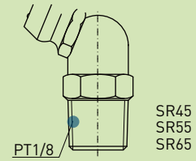

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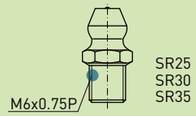
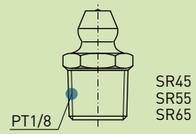


NO.34310003(OPTION)



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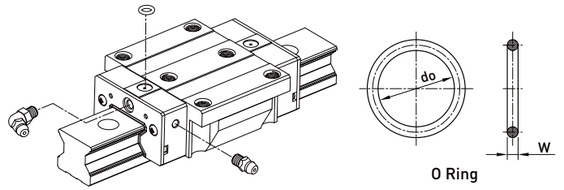
Mounting location

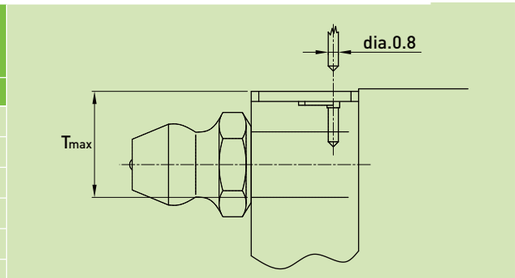
The standard location of the grease fitting is at both ends of the block, but the nipple can be mounted in the side or the top of block. For lateral installation, we recommend that the nipple be mounted at the non-reference side, otherwise please contact us. It is possible to carry out the lubrication by using an oil-piping joint. The figure shows the locations of the grease fitting.



O Ring

Table 1-1-12 **O-Ring size and max. permissible depth for piercing**

Size	O-Ring do (mm)	W (mm)	Lube hole at top: max. permissible depth for piercing T_{max} (mm)
SR25	7.5±0.15	1.5±0.15	5.8
SR30	7.5±0.15	1.5±0.15	6.2
SR35	7.5±0.15	1.5±0.15	8.65
SR45	7.5±0.15	1.5±0.15	9.5
SR55	7.5±0.15	1.5±0.15	11.6
SR65	7.5±0.15	1.5±0.15	14.5



The oil amount for a block filled with grease

Table 1-1-13 **The oil amount for a block filled with grease**

Size	Heavy Load(cm^3)	Super Heavy Load(cm^3)	Size	Heavy Load(cm^3)	Super Heavy Load(cm^3)
SR25	7	8	**SR55**	28	35
SR30	9	10	**SR65**	52	63

Frequency of replenishment

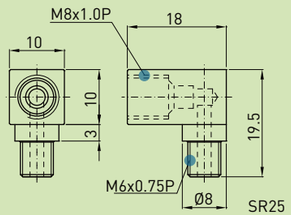
Check the grease every 100 km, or every 3-6 months.

(2) Oil

The recommended viscosity of oil is about 32~150cSt. If you need to use oil-type lubrication, please inform us.

Types of oil piping joint

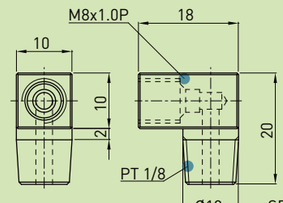
LF-76



SR25
SR30
SR35

NO.970002A1

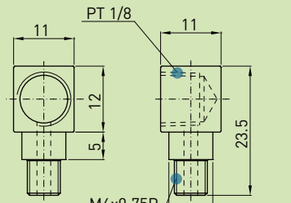
LF-78



SR45
SR55
SR65

NO.970006A1

LF-86



SR25
SR30
SR35

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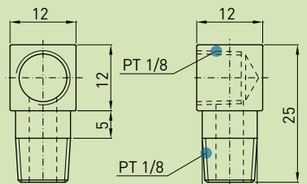
LF-88



SR45
SR55
SR65

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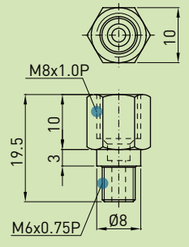

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SR30
SR35

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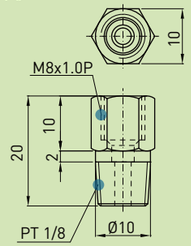

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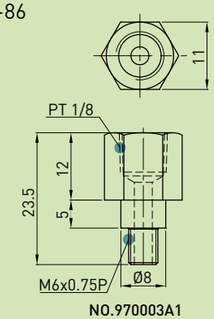

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SR30
SR35

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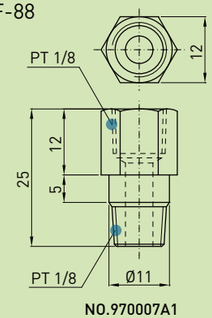
SF-88



SR45
SR55
SR65

NO.970007A1

Oil feeding rate

Table 1-1-14 **oil feed rate**

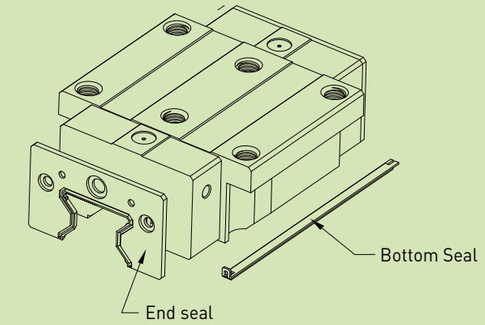
Size	Feed rate (cm^3/hr)
SR25	0.167
SR30	0.2
SR35	0.23
SR45	0.3
SR55	0.367
SR65	0.433

1-8 Dust Proof Accessories

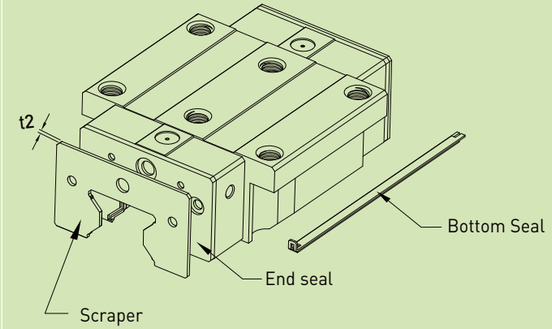
(1) Codes of accessories

If the following accessories are needed, please add the code followed by the model number.

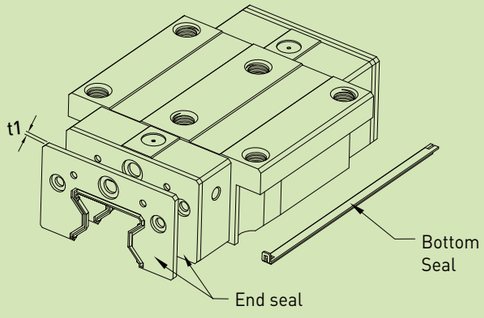
Table 1-1-15



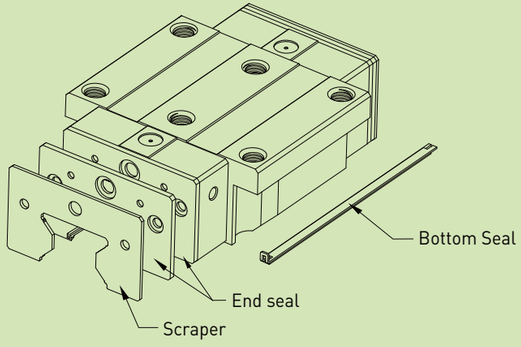
No symbol: Standard Protection (End seal + Bottom Seal)



ZZ (End seal + Bottom Seal + Scraper)



DD (Double seals + Bottom Seal)



KK (Double seals + Bottom Seal + Scraper)

(2) End seal and bottom seal
To prevent life reduction caused by iron chips or dust entering the block.

(3) Double seals
Enhances the wiping effect, foreign matter can be completely wiped off.

Table 1-1-16 **Dimensions of end seal**

Size	Thickness (t1) (mm)	Size	Thickness (t1) (mm)
SR25 ES	2.2	SR45 ES	3.6
SR30 ES	2.4	SR55 ES	3.6
SR35 ES	2.5	SR65 ES	4.4

(4) Scraper
The scraper removes high-temperature iron chips and larger foreign objects.

Table 1-1-17 **Dimensions of scraper**

Size	Thickness (t2) (mm)	Size	Thickness (t2) (mm)
SR25 SC	1.0	SR45 SC	1.5
SR30 SC	1.5	SR55 SC	1.5
SR35 SC	1.5	SR65 SC	1.5

(5) Bolt caps for rail mounting holes
Caps are used to cover the mounting holes to prevent chips or other foreign objects from collecting in the holes. The caps will be enclosed in each rail package.

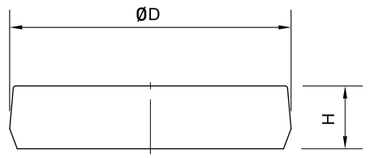


Table 1-1-18 **Dimensions of Bolt Caps for Rail Mounting Holes**

Rail size	Bolt size	Diameter(D) (mm)	Thickness(H) (mm)	Rail size	Bolt size	Diameter(D) (mm)	Thickness(H) (mm)
SRR25	M6	11.15	2.5	SRR45	M12	20.3	4.6
SRR30	M8	14.2	3.3	SRR55	M14	23.5	5.5
SRR35	M8	14.3	3.3	SRR65	M16	26.6	5.5

(6) Dimensions of block equipped with the dustproof parts

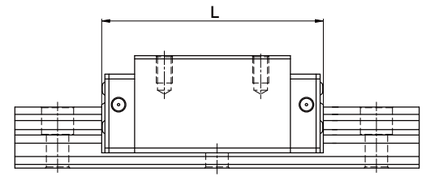


Table 1-1-19 **Overall block length**

unit: mm

Size	Overall block length (L)			
	SS	ZZ	DD	KK
SR25C	97.9 (101.5)	99.9 (105.9)	102.3 (105.9)	104.3 (110.3)
SR25H	114.4 (118)	116.4 (122.4)	118.8 (122.4)	120.8 (126.8)
SR30C	109.8 (113.4)	112.8 (118.8)	114.6 (118.2)	117.6 (123.6)
SR30H	131.8 (135.4)	134.8 (140.8)	136.6 (140.2)	139.6 (145.6)
SR35C	124.0 (129.4)	127.0 (135.0)	129.0 (134.4)	132.0 (140.0)
SR35H	151.5 (156.9)	154.5 (162.5)	156.5 (161.9)	159.5 (167.5)
SR45C	153.2 (156.4)	156.2 (164.2)	160.4 (163.6)	163.4 (171.4)
SR45H	187.0 (190.2)	190.0 (198.0)	194.2 (197.4)	197.2 (205.2)
SR55C	183.7 (186.9)	186.7 (194.7)	190.9 (194.1)	193.9 (201.9)
SR55H	232.0 (235.2)	235.0 (243.0)	239.2 (242.4)	242.2 (250.2)
SR65C	232.0 (236.0)	235.0 (245.0)	240.8 (244.8)	243.8 (253.8)
SR65H	295.0 (299.0)	298.0 (308.0)	303.8 (307.8)	306.8 (316.8)

Note : The marking of "[ ]" denotes the maximum block length with screws, lips of end seals, etc.

1-9 Friction
The maximum value of resistance per end seal are as shown in the table.

Table 1-1-20 **Seal Resistance**

Size	Resistance N (kgf)	Size	Resistance N (kgf)
SR25	2.74 (0.28)	SR45	4.21 (0.43)
SR30	3.31 (0.31)	SR55	5.09 (0.52)
SR35	3.53 (0.36)	SR65	6.66 (0.68)

1-10 The Accuracy Tolerance of Mounting Surface

(1) The accuracy tolerance of rail-mounting surface

As long as the accuracy requirements of the mounting surfaces shown in the following tables are met, the high accuracy, high rigidity and long life of the SR series linear guide will be maintained without any difficulty.

- **The parallelism tolerance of reference surface (P)**

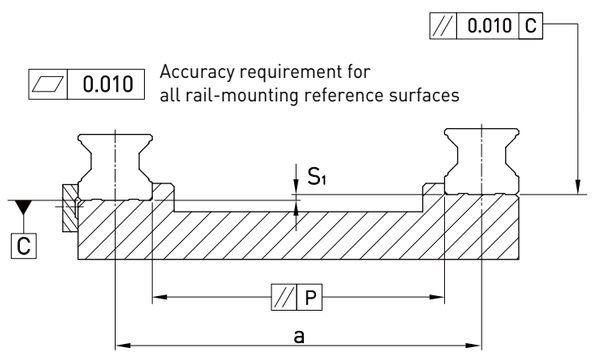


Table 1-1-21 **Max. Parallelism Tolerance (P)** unit: μm

Size	Preload classes		
	Light Preload (Z0)	Medium Preload (ZA)	Heavy Preload (ZB)
SR25	9	7	5
SR30	11	8	6
SR35	14	10	7
SR45	17	13	9
SR55	21	14	11
SR65	27	18	14

- **The accuracy tolerance of reference surface height (S_1)**

$$S_1 = a \times K$$

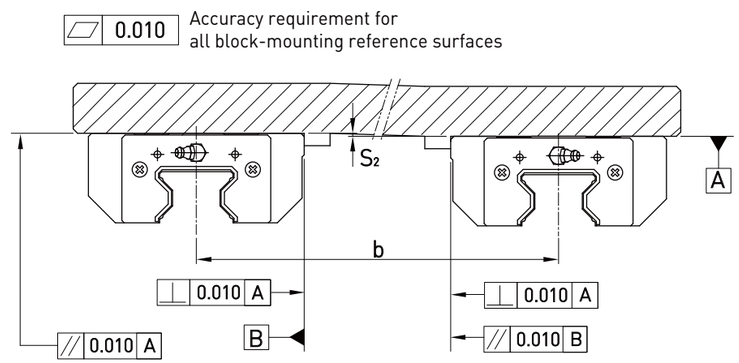
S_1 : Max. tolerance of height
a : Distance between paired rails
K : Coefficient of tolerance of height

Table 1-1-22 **Coefficient of tolerance of height**

Size	Preload classes		
	Light Preload (Z0)	Medium Preload (ZA)	Heavy Preload (ZB)
K	2.2×10^{-4}	1.7×10^{-4}	1.2×10^{-4}

(2) The accuracy tolerance of block-mounting surface

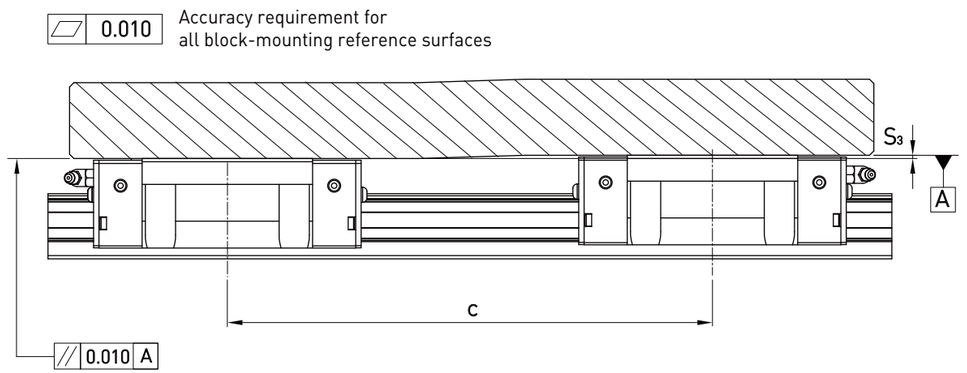
- **The tolerance of the height of reference surface when two or more pieces are used in parallel (S_2)**



$$S_2 = b \times 4.2 \times 10^{-5}$$

S_2 : Max. tolerance of height
b : Distance between paired blocks

- **The tolerance of the height of reference surface when two or more pieces are used in parallel (S_3)**



$$S_3 = c \times 4.2 \times 10^{-5}$$

S_3 : Max. tolerance of height
c : Distance between paired blocks

1-11 Cautions for Installation

(1) Shoulder heights and fillets

Improper shoulder heights and fillets of mounting surfaces will cause a deviation in accuracy and interference with the chamfered part of the rail or block.
By following the recommended shoulder heights and fillets, accuracy problems in installation can be eliminated.

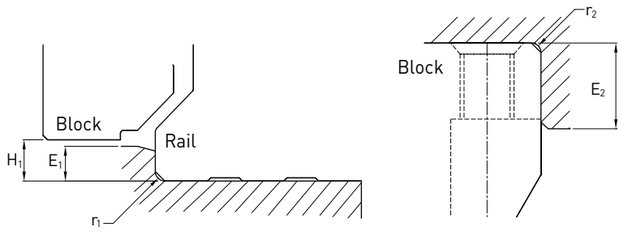


Table 1-1-23

Size	Max. radius of fillets r_1 (mm)	Max. radius of fillets r_2 (mm)	Shoulder height of the rail E_1 (mm)	Shoulder height of the block E_2 (mm)	Clearance under block H_1 (mm)
SR25	1.0	1.0	5	5	5.5
SR30	1.0	1.0	5	5	6
SR35	1.0	1.0	6	6	6.5
SR45	1.0	1.0	7	8	8
SR55	1.5	1.5	9	10	10
SR65	1.5	1.5	10	10	12

(2) Tightening Torque of Mounting Bolts

Improper tightening of mounting bolts will seriously influence the accuracy of a linear guide. The following tightening torque for the different sizes of bolt is recommended.

Table 1-1-24

Size	Bolt size	Torque N-cm(kgf-cm)		
		Iron	Casting	Aluminum
SR25	M6×1P×20L	1373 (140)	921 (94)	686 (70)
SR30	M8×1.25P×25L	3041 (310)	2010 (205)	1470 (150)
SR35	M8×1.25P×25L	3041 (310)	2010 (205)	1470 (150)
SR45	M12×1.75P×35L	11772 (1200)	7840 (800)	5880 (600)
SR55	M14×2P×45L	15696 (1600)	10500 (1100)	7840 (800)
SR65	M16×2P×50L	19620 (2000)	13100 (1350)	9800 (1000)

1-12 Standard and Maximum Lengths of Rail

LTROBOT offers a number of standard rail lengths. Standard rail lengths feature end mounting hole placements set to predetermined values (E). For non-standard rail lengths, be sure to specify the E-value to be no greater than 1/2 the pitch (P) dimension. An E-value greater than this will result in unstable rail ends.

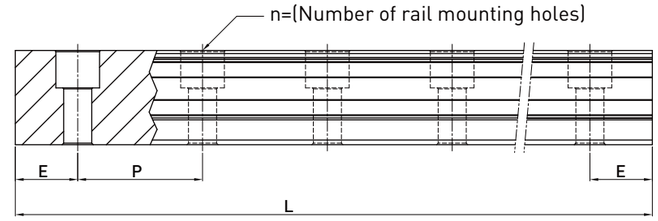


Table 1-1-25

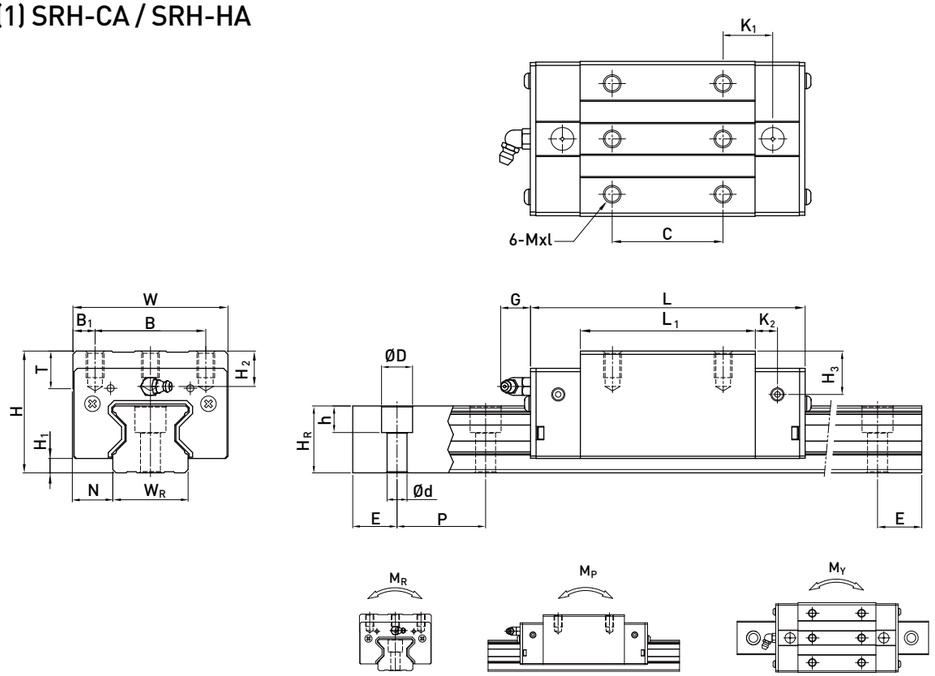
unit: mm

Item	SRR25	SRR30	SRR35	SRR45	SRR55	SRR65
Standard Length L(n)	220 (7)	280 (7)	280 (7)	570 (11)	780 (13)	1,270 (17)
	280 (9)	440 (11)	440 (11)	885 (17)	1020 (17)	1,570 (21)
	340 (11)	600 (15)	600 (15)	1,200 (23)	1,260 (21)	2,020 (27)
	460 (15)	760 (19)	760 (19)	1,620 (31)	1,500 (25)	2,620 (35)
	640 (21)	1,000 (25)	1,000 (25)	2,040 (39)	1,980 (33)	-
	820 (27)	1,640 (41)	1,640 (41)	2,460 (47)	2,580 (43)	-
	1,000 (33)	2,040 (51)	2,040 (51)	2,985 (57)	2,940 (49)	
	1,240 (41)	2,520 (63)	2,520 (63)	3,090 (59)	3,060 (51)	-
	1,600 (53)	3,000 (75)	3,000 (75)	-	-	-
Pitch (P)	30	40	40	52.5	60	75
Distance to End (E_s)	20	20	20	22.5	30	35
Max. Standard Length	4,000 (133)	4,000 (100)	4,000 (100)	3,982.5 (76)	3,960 (66)	3,970 (53)
Max. Length	4,000	4,000	4,000	4,000	4,000	4,000

Note : 1. Tolerance of E value for standard rail is 0.5~-0.5 mm. Tolerance of E value for jointed rail is 0~-0.3 mm.
2. Maximum standard length means the max. rail length with standard E value on both sides.
3. If different E value is needed, please contact LTROBOT.

1-13 Dimensions for SR series

(1) SRH-CA / SRH-HA

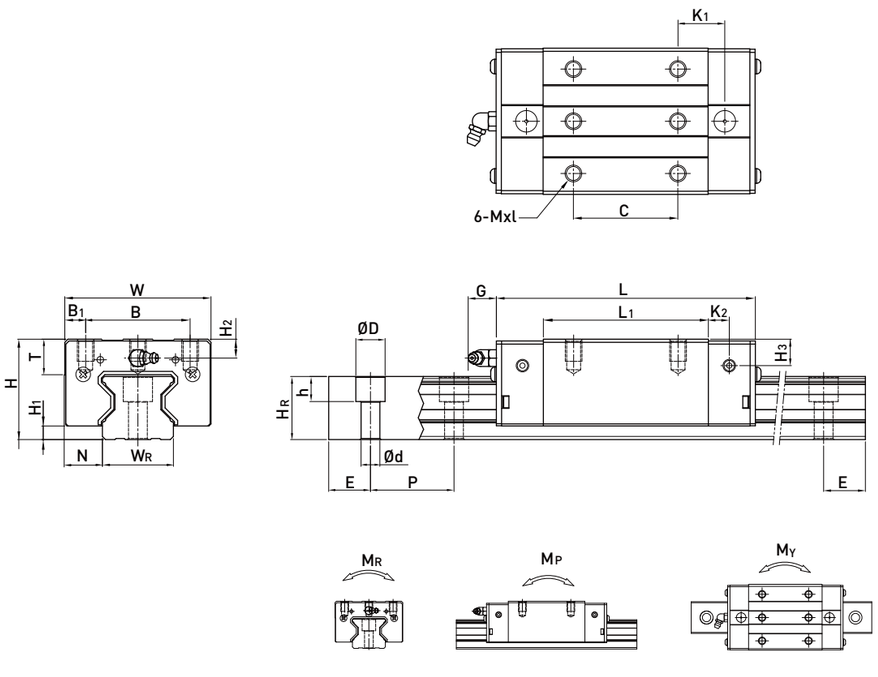


Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)														Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	K_2	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
SRH25CA	40	5.5	12.5	48	35	6.5	35	64.5	97.9	20.75	7.25	12	M6 x 8	9.5	10.2	10	23	23.6	11	9	7	30	20	M6 x20	27.7	57.1	0.758	0.605	0.605	0.61	3.08
SRH25HA							50	81	114.4	21.5															33.9	73.4	0.975	0.991	0.991	0.75	
SRH30CA	45	6	16	60	40	10	40	71	109.8	23.5	8	12	M8 x10	9.5	9.5	10.3	28	28	14	12	9	40	20	M8 x25	39.1	82.1	1.445	1.06	1.06	0.90	4.41
SRH30HA							60	93	131.8	24.5															48.1	105	1.846	1.712	1.712	1.16	
SRH35CA	55	6.5	18	70	50	10	50	79	124	22.5	10	12	M8 x12	12	16	19.6	34	30.2	14	12	9	40	20	M8 x25	57.9	105.2	2.17	1.44	1.44	1.57	6.06
SRH35HA							72	106.5	151.5	25.25															73.1	142	2.93	2.6	2.6	2.06	
SRH45CA	70	8	20.5	86	60	13	60	106	153.2	31	10	12.9	M10x17	16	20	24	45	38	20	17	14	52.5	22.5	M12 x35	92.6	178.8	4.52	3.05	3.05	3.18	9.97
SRH45HA							80	139.8	187	37.9															116	230.9	6.33	5.47	5.47	4.13	
SRH55CA	80	10	23.5	100	75	12.5	75	125.5	183.7	37.75	12.5	12.9	M12x18	17.5	22	27.5	53	44	23	20	16	60	30	M14 x45	130.5	252	8.01	5.4	5.4	4.89	13.98
SRH55HA							95	173.8	232	51.9															167.8	348	11.15	10.25	10.25	6.68	
SRH65CA	90	12	31.5	126	76	25	70	160	232	60.8	15.8	12.9	M16 x20	25	15	15	63	53	26	22	18	75	35	M16x50	213	411.6	16.20	11.59	11.59	8.89	20.22
SRH65HA							120	223	295	67.3															275.3	572.7	22.55	22.17	22.17	12.13	

Note : 1. 1 kgf = 9.81 N

2. The theoretical dynamic rated load is C_{100R}, if necessary C_{50R} conversion formula is as follows : $C_{50R} = 1.23 \times C_{100R}$

(2) SRL-CA / SRL-HA

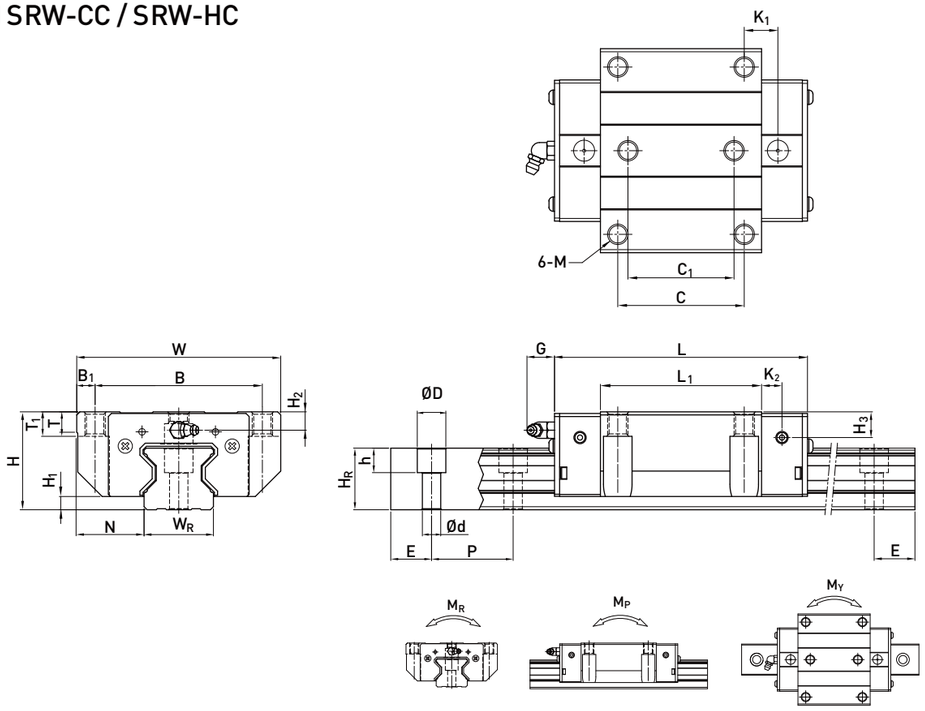


Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)													Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H_1	N	W	B	B_1	C	L_1	L	K_1	K_2	G	Mxl	T	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
SRL25CA	36	5.5	12.5	48	35	6.5	35	64.5	97.9	20.75	7.25	12	M6x8	9.5	6.2	6	23	23.6	11	9	7	30	20	M6x20	27.7	57.1	0.758	0.605	0.605	0.51	3.08
SRL25HA							50	81	114.4	21.5															33.9	73.4	0.975	0.991	0.991	0.63	
SRL30CA	42	6	16	60	40	10	40	71	109.8	23.5	8	12	M8x10	9.5	6.5	7.3	28	28	14	12	9	40	20	M8x25	39.1	82.1	1.445	1.06	1.06	0.80	4.41
SRL30HA							60	93	131.8	24.5															48.1	105	1.846	1.712	1.712	1.03	
SRL35CA	48	6.5	18	70	50	10	50	79	124	22.5	10	12	M8x12	12	9	12.6	34	30.2	14	12	9	40	20	M8x25	57.9	105.2	2.17	1.44	1.44	1.27	6.06
SRL35HA							72	106.5	151.5	25.25															73.1	142	2.93	2.6	2.6	1.65	
SRL45CA	60	8	20.5	86	60	13	60	106	153.2	31	10	12.9	M10x17	16	10	14	45	38	20	17	14	52.5	22.5	M12x35	92.6	178.8	4.52	3.05	3.05	2.47	9.97
SRL45HA							80	139.8	187	37.9															116	230.9	6.33	5.47	5.47	3.20	
SRL55CA	70	10	23.5	100	75	12.5	75	125.5	183.7	37.75	12.5	12.9	M12x18	17.5	12	17.5	53	44	23	20	16	60	30	M14x45	130.5	252	8.01	5.4	5.4	3.91	13.98
SRL55HA							95	173.8	232	51.9															167.8	348	11.15	10.25	10.25	5.32	

Note : 1. 1 kgf = 9.81 N

2. The theoretical dynamic rated load is C_{100R}, if necessary C_{50R} conversion formula is as follows : $C_{50R} = 1.23 \times C_{100R}$

(3) SRW-CC / SRW-HC

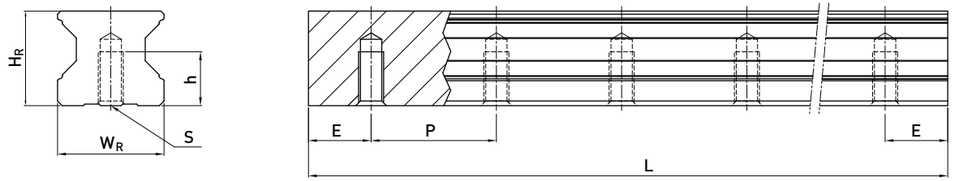


Model No.	Dimensions of Assembly (mm)			Dimensions of Block (mm)														Dimensions of Rail (mm)							Mounting Bolt for Rail	Basic Dynamic Load Rating	Basic Static Load Rating	Static Rated Moment			Weight	
	H	H_1	N	W	B	B_1	C	C_1	L_1	L	K_1	K_2	G	M	T	T_1	H_2	H_3	W_R	H_R	D	h	d	P	E	(mm)	C(kN)	C_0 (kN)	M_R kN-m	M_P kN-m	M_Y kN-m	Block kg	Rail kg/m
SRW25CC	36	5.5	23.5	70	57	6.5	45	40	64.5	97.9	15.75	7.25	12	M8	9.5	10	6.2	6	23	23.6	11	9	7	30	20	M6x20	27.7	57.1	0.758	0.605	0.605	0.72	3.08
SRW25HC									81	114.4	24																33.9	73.4	0.975	0.991	0.991	0.91	
SRW30CC	42	6	31	90	72	9	52	44	71	109.8	17.5	8	12	M10	9.5	10	6.5	7.3	28	28	14	12	9	40	20	M8x25	39.1	82.1	1.445	1.06	1.06	1.16	4.41
SRW30HC									93	131.8	28.5																48.1	105	1.846	1.712	1.712	1.52	
SRW35CC	48	6.5	33	100	82	9	62	52	79	124	16.5	10	12	M10	12	13	9	12.6	34	30.2	14	12	9	40	20	M8x25	57.9	105.2	2.17	1.44	1.44	1.75	6.06
SRW35HC									106.5	151.5	30.25																73.1	142	2.93	2.6	2.6	2.40	
SRW45CC	60	8	37.5	120	100	10	80	60	106	153.2	21	10	12.9	M12	14	15	10	14	45	38	20	17	14	52.5	22.5	M12x35	92.6	178.8	4.52	3.05	3.05	3.43	9.97
SRW45HC									139.8	187	37.9																116	230.9	6.33	5.47	5.47	4.57	
SRW55CC	70	10	43.5	140	116	12	95	70	125.5	183.7	27.75	12.5	12.9	M14	16	17	12	17.5	53	44	23	20	16	60	30	M14x45	130.5	252	8.01	5.4	5.4	5.43	13.98
SRW55HC									173.8	232	51.9																167.8	348	11.15	10.25	10.25	7.61	
SRW 65CC	90	12	53.5	170	142	14	110	82	160	232	40.8	15.8	12.9	M16	22	23	15	15	63	53	26	22	18	75	35	M16x50	213	411.6	16.20	11.59	11.59	11.63	20.22
SRW 65HC									223	295	72.3																275.3	572.7	22.55	22.17	22.17	16.58	

Note : 1. 1 kgf = 9.81 N

2. The theoretical dynamic rated load is C_{100R}, if necessary C_{50R} conversion formula is as follows : C_{50R} = 1.23 x C_{100R}

(4) Dimensions for SRR-T (Rail Mounting from Bottom)



Model No.	Dimensions of Rail (mm)						Weight
	W_R	H_R	S	h	P	E	(kg/m)
SRR25T	23	23.6	M6×1P	12	30	20	3.36
SRR30T	28	28	M8×1.25P	15	40	20	4.82
SRR35T	34	30.2	M8×1.25P	17	40	20	6.48
SRR45T	45	38	M12×1.75P	24	52.5	22.5	10.83
SRR55T	53	44	M14×2P	24	60	30	15.15
SRR65T	63	53	M20×2.5P	30	75	35	21.24