

SLIDE GUIDE

Miniature
SER Type

The NB SER type slide guide is a linear motion bearing utilizing the rotational motion of precision rollers placed in two rows. Despite its compact shape, it can be used in various applications requiring high load capacity.

STRUCTURE AND ADVANTAGES

The NB SER type slide guide consists of a rail with two precision-machined raceway grooves and a block assembly. The block assembly consists of a main body, rollers, and bottom roller retainers. All of these components are made of metallic materials.

High Load Capacity and Long Life:

Since roller elements are used, the contact surface is large which provides a high load capacity and long travel life.

Compactness:

Since a cross roller method is utilized, only two raceway grooves are necessary and presents a very compact package.

Moment Resistant Type:

The wide block design (WA Type) has an extremely high moment loading capacity. This will allow for single shaft designs in the most hostile environment applications.

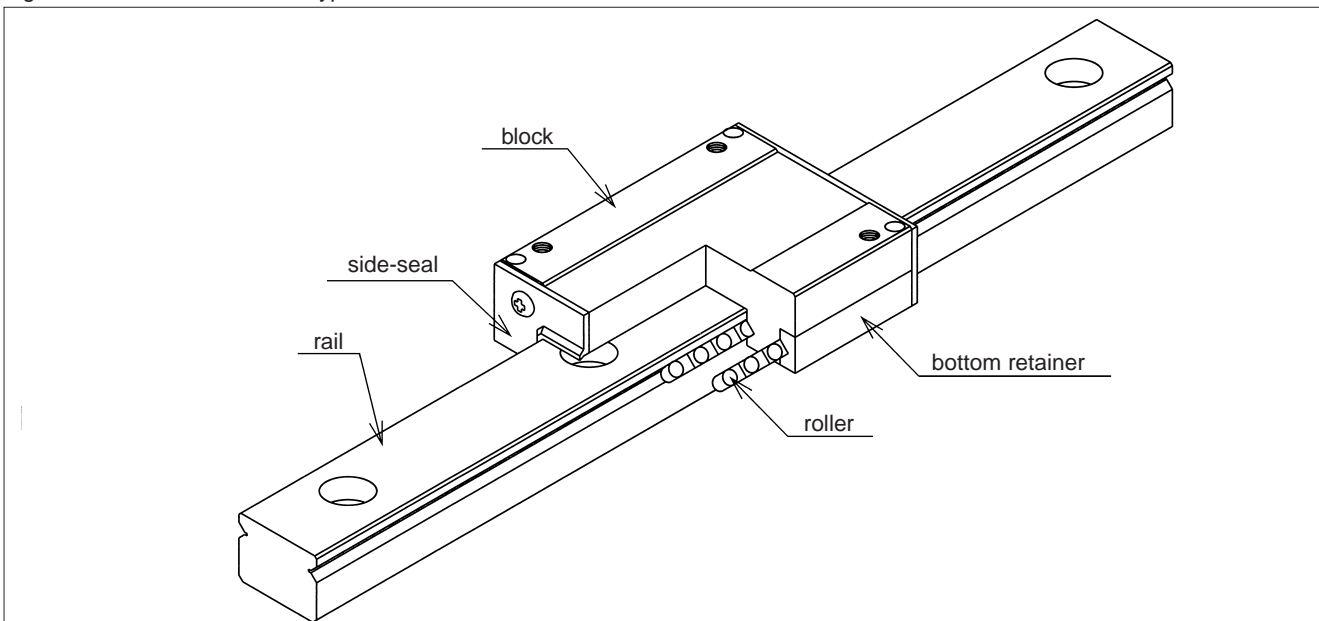
Rail Bolt Hole Types:

SER type rails with counterbore bolt holes (standard) and optional tapped mounting holes (N-type) are available enabling various installation methods.

All Stainless Steel:

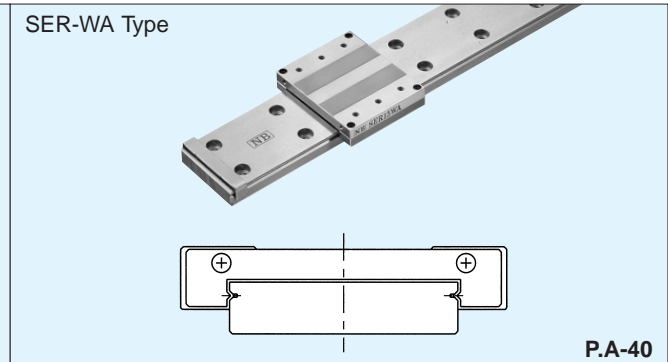
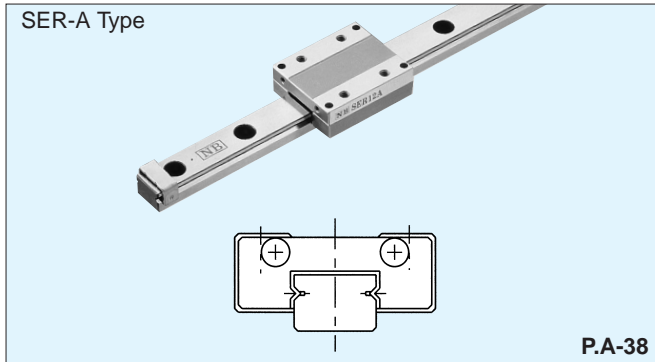
Since all the components for the SER type guide are made of metallic materials, stainless steel provides excellent corrosion and thermal characteristics. The SERS type slide guide is ideal for clean-room or vacuum applications.

Figure A-43 Structure of SER Type Slide Guide



TYPES

SER type slide guides are available with a standard block or a wide block (WA) configuration. Each type can be used with standard rails with counterbore holes or the optional N-Type rails, which is with tapped holes.



ACCURACY

SER-type slide guides are available with high-grade accuracy or precision-grade accuracy (P).

Table A-15 Accuracy unit/mm

accuracy grade	high	precision
accuracy symbol	none	P
allowable dimensional difference in height H	± 0.015	± 0.008
paired difference for height H	0.015	0.007
allowable dimensional difference in width W	± 0.020	± 0.010
paired difference for width W	0.020	0.010
Running parallelism of surface C to surface A	refer to Figure A-45	
Running parallelism of surface D to surface B		

Figure A-44 Accuracy

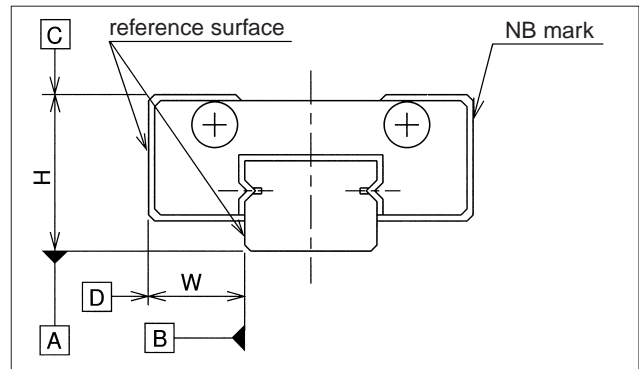
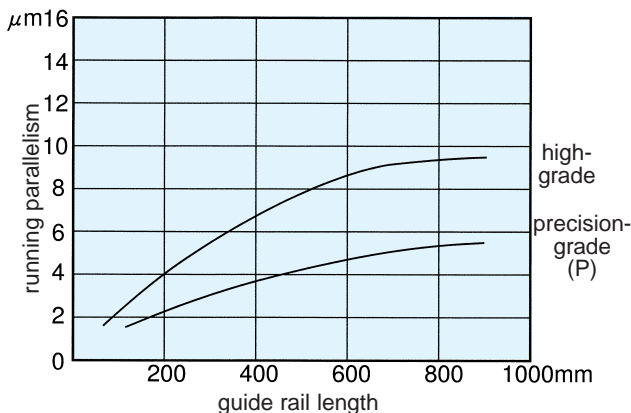


Figure A-45 Motion Accuracy



PRE-LOAD

The SER(S) type slide guides are available only with a standard (0 to slightly negative) preload.

RAIL LENGTH

Slide guides with most commonly used lengths are available as standard. For slide guides with a non-standard length, unless otherwise specified, the distance from one end of the rail to the first installation hole (N) will be within the ranges listed in Tables A-16 and A-17, satisfying the following equation.

$$L = M \cdot P + 2N$$

L : length (mm) N : distance from the end of the rail to the first hole (mm)
M : number of pitches P : hole pitch (mm)

Table A-16 Standard Type Slide Guide unit/mm

part number		N		L max.
standard	anticorrosion	and over	less than	
SER 9A	SERS 9A	4	14	275
SER12A	SERS12A		16.5	470
SER15A	SERS15A		24	670
SER20A	SERS20A	6	36	880

Figure A-46 Rail

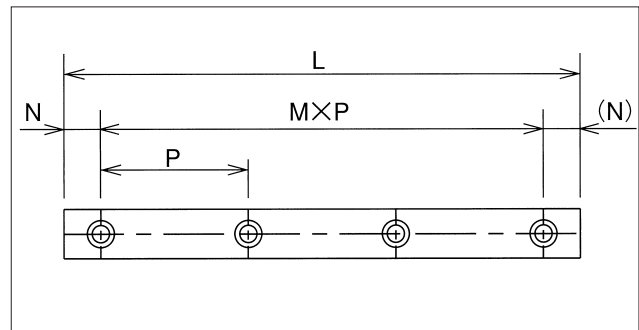


Table A-17 Wide Type Slide Guide unit/mm

part number		N		L max.
standard	anticorrosion	and over	less than	
SER 9WA	SERS 9WA	4	19	290
SER12WA	SERS12WA	5	25	470
SER15WA	SERS15WA			670

MOUNTING

Mounting Surface Shapes:

Slide guides are mounted by pushing the reference surface of the rail and the block against the shoulder provided on the mounting surface. An escape groove or a radius corner should be provided at the corner of the shoulder, as shown in Figs.A-47 and A-48, to prevent interference. The recommended shoulder height values on the mounting reference surface of the other component are shown in Table A-18.

Figure A-47 Shoulder Shape-1

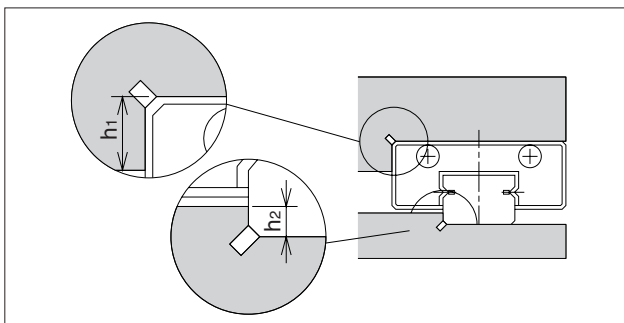
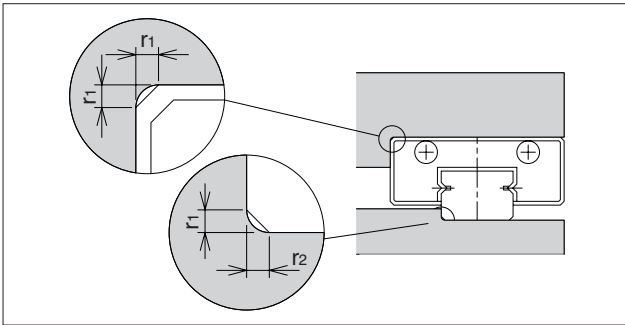


Table A-18 Shoulder Shape Dimensions unit/mm

size	shoulder height on the block side h_1	shoulder height on the rail side h_2
SER 9A	3	1.5
SER12A	4	2
SER15A	5	3.5
SER20A		5
SER 9WA	3	2.5
SER12WA	4	
SER15WA	5	

Figure A-48 Shoulder Shape-2



Recommended Torque Values:

The bolts used to secure the rail should be tightened to a certain torque using a torque wrench. The recommended torque values are given in Table A-20. Please adjust the torque depending on the operating conditions.

Table A-19 Maximum Corner Radius Values unit/mm

size	block mounting part	rail mounting part
	r_1	r_2
SER 9A	0.3	0.1
SER12A		0.3
SER15A		0.5
SER20A		0.3
SER 9WA		
SER12WA		
SER15WA		

Table A-20 Recommended Torque unit/mm

bolts size	M2	M3	M4	M5	M6
recommended torque	0.3	1.0	2.3	4.7	8.0

(When using stainless steel bolts)

MOUNTING BOLTS

Small bolts for the SER(S) type slide guide are available from NB.

Table A-21 units/mm

bolt size	pitch	length ℓ	application
M2	0.4	4,5,6,8,10	SER 9A

All bolts are made of stainless steel.

LUBRICATION

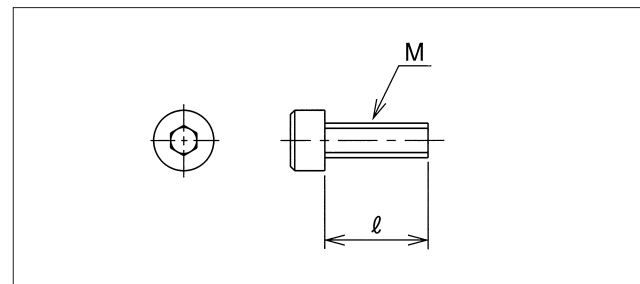
A high grade lithium soap grease is applied to the NB Slide Guides in our factory making these ready for immediate use. A similar type grease should be added periodically depending on the operating conditions.

For use in clean rooms or vacuum environments, NB Slide Guides without grease are available upon request. Additionally, customer specified grease cases, please contact NB.

A special syringe lubricant applicator is available from NB as an option.

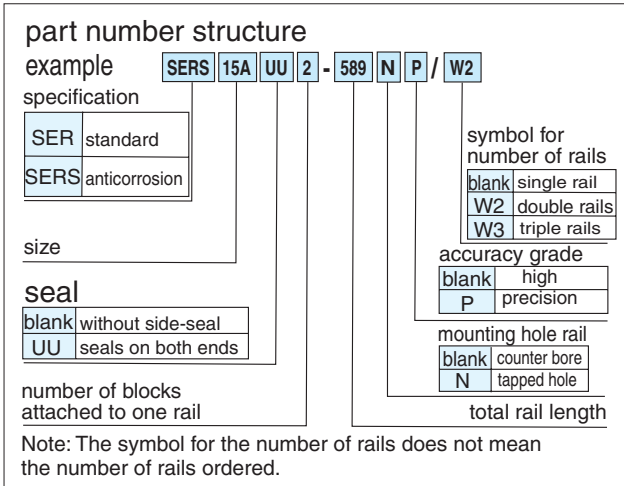
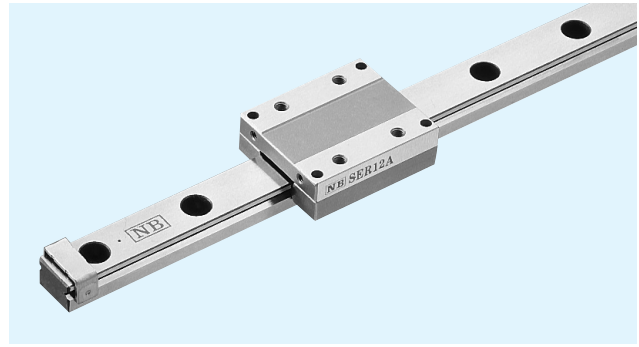
Please refer to Page Eng-20 for details on the low dust generation lubricant.

Figure A-49 Mounting Bolt



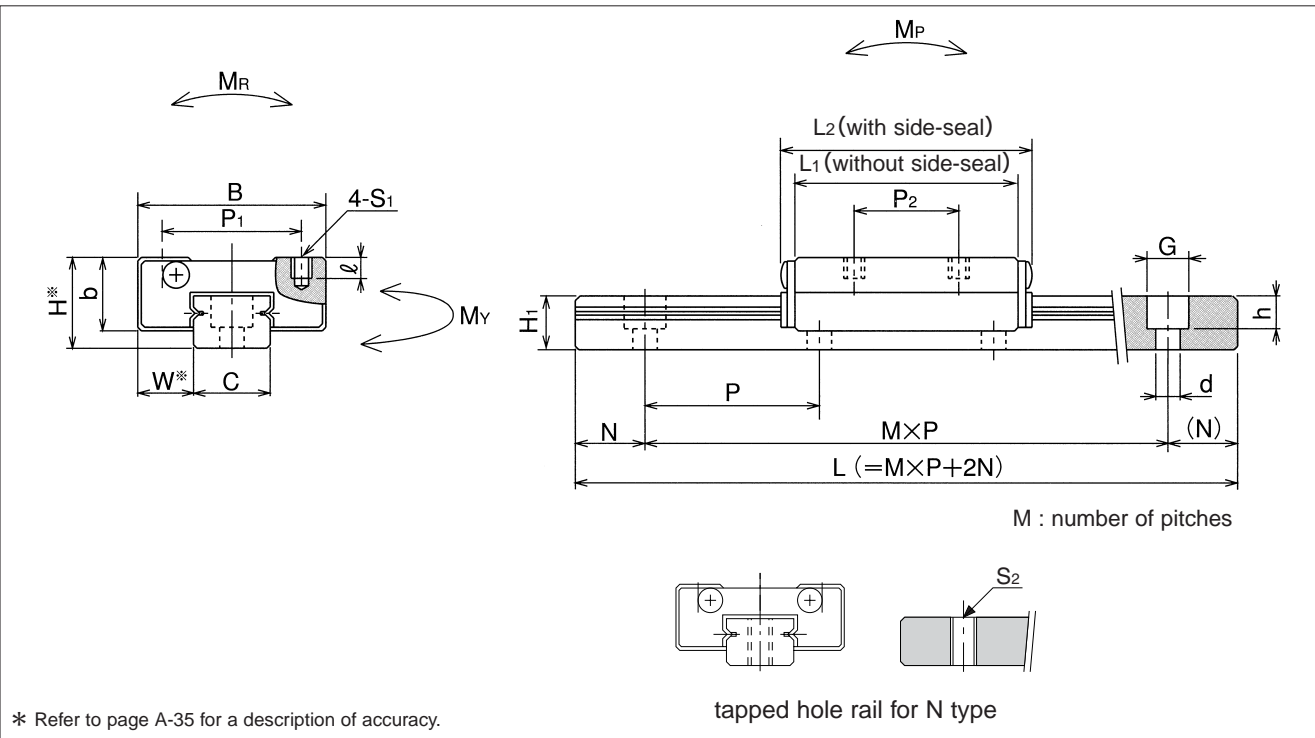
SER-A TYPE

– Standard Type –



part number		assembly dimensions		block dimensions							
		H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	ℓ	b
standard	anticorrosion	mm	mm	mm	mm	mm	mm	mm		mm	mm
SER 9A	SERS 9A	10	5.7	20	28	32	15	13	M2	2.5	7.8
SER12A	SERS12A	13	8	27	32	36	20	15	M3	3	10.5
SER15A	SERS15A	16	8.5	32	40	44	25	20		4	11.5
SER20A	SERS20A	25	13	46	60	66	38	38	M4	6	17.5

part number		standard rail length							maximum length mm
		L mm							
standard	anticorrosion								
SER 9A	SERS 9A	55	75	95	115	155	195	275	275
SER12A	SERS12A	120	170	220	270	320	370	470	470
SER15A	SERS15A	150	230	310	430	550	670		670
SER20A	SERS20A	220	280	340	460	640	880		880

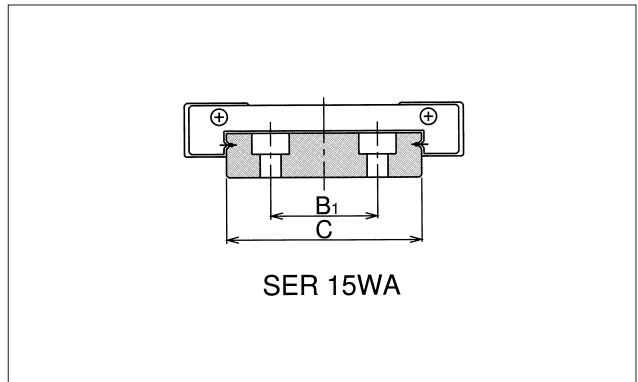
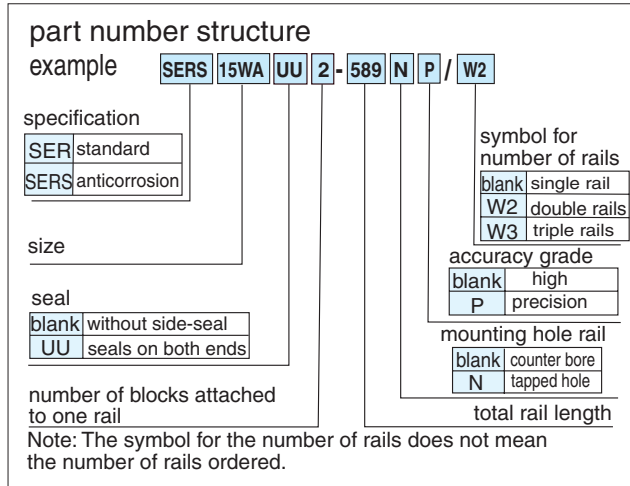
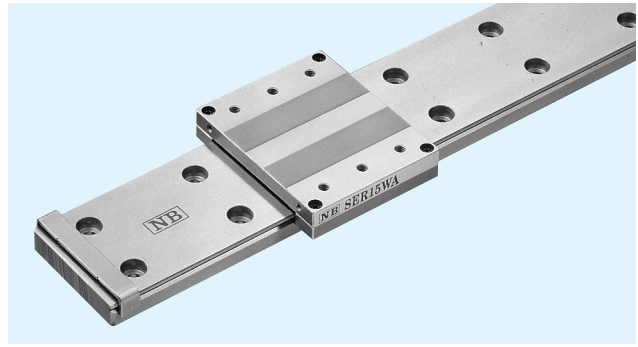


guide-rail dimensions						basic load rating		allowable static moment			mass		size
H ₁	C	S ₂	d × G × h	N	P	dynamic	static	M _P	M _V	M _R	block	guide rail	
mm	mm		mm	mm	mm	kN	kN	N · m	N · m	N · m	kg	kg/m	
5.5	8.6	M4	2.6 × 4.5 × 3	7.5	20	2.65	2.94	11.8	13.7	19.6	0.02	0.35	9A
7.5	11		3.5 × 6 × 4.5	10	25	3.43	3.92	15.7	17.6	29.4	0.05	0.55	12A
9.5	15	M5	3.5 × 6 × 4.5	15	40	4.70	5.78	29.0	32.3	54.9	0.09	1.0	15A
15	20	M6		6 × 9.5 × 8.5	20	60	8.82	9.80	59.0	66.6	151	0.26	2.3

1kN ≒ 102kgf 1N · m ≒ 0.102kgf · m

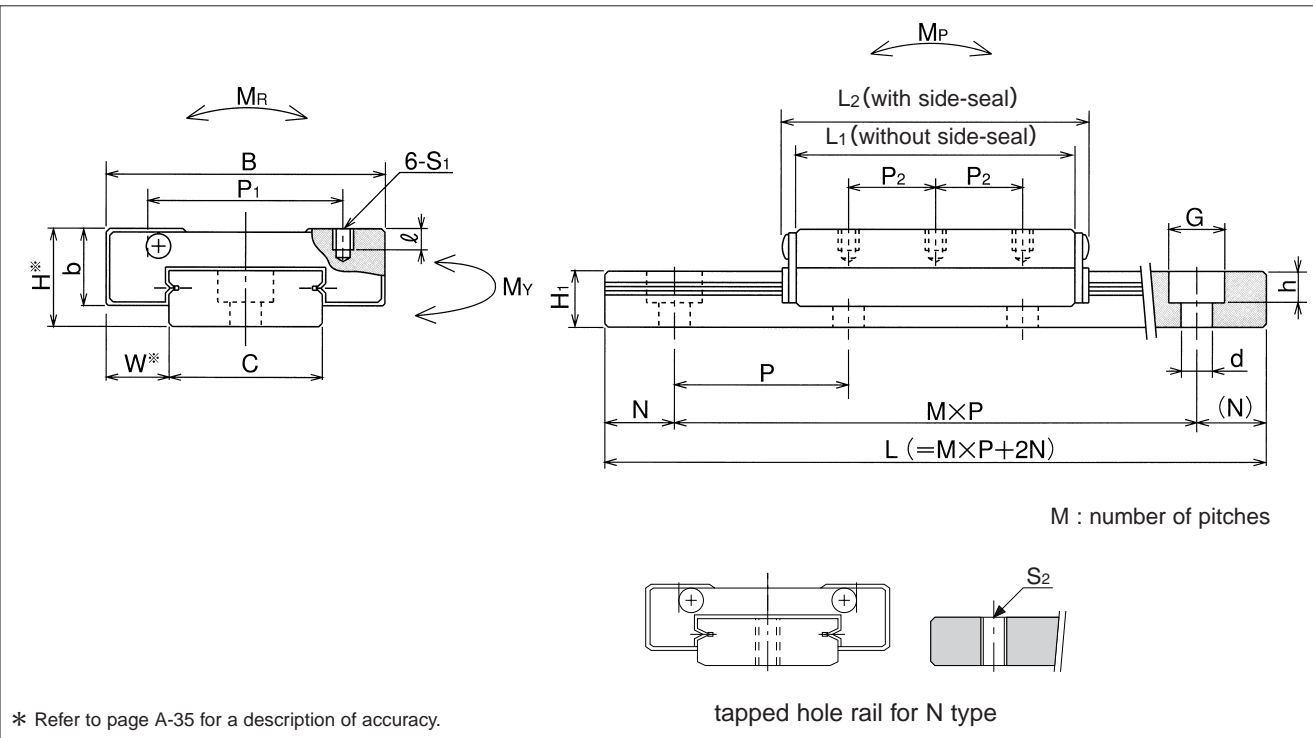
SER-WA TYPE

– Wide Type –



part number		assembly dimensions		block dimensions							
		H	W	B	L ₁	L ₂	P ₁	P ₂	S ₁	ℓ	b
standard	anticorrosion	mm	mm	mm	mm	mm	mm	mm		mm	mm
SER 9WA	SERS 9WA	12	6.5	30	35	39	21	10	M3	3	8.8
SER12WA	SERS12WA	14	9	40	40	44	28	12.5			11
SER15WA	SERS15WA	16		60	50	54	45	15	M4	4.5	11.5

part number		standard rail length							maximum length
		L							
standard	anticorrosion	mm							mm
SER 9WA	SERS 9WA	80	110	140	170	200	260	290	290
SER12WA	SERS12WA	110	150	190	230	310	390	470	470
SER15WA	SERS15WA	150	230	310	430	550	670		670



guide-rail dimensions							basic load rating		allowable static moment			mass		size
H ₁	C	B ₁	S ₂	d × G × h	N	P	C	C ₀	M _P	M _V	M _R	block	guide rail	
mm	mm	mm		mm	mm	mm	kN	kN	N · m	N · m	N · m	kg	kg/m	
7.5	17	—	M4	3.5 × 6 × 4.5	10	30	3.43	3.72	24.5	27.4	51.9	0.06	0.90	9WA
8	22	—	M5	4.5 × 8 × 4.5	15	40	4.41	5.00	35.3	39.2	85.3	0.10	1.22	12WA
9.5	42	23					7.35	8.92	55.9	61.7	215	0.18	2.8	15WA

1kN ≅ 102kgf 1N · m ≅ 0.102kgf · m