

SLIDE GUIDE

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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.

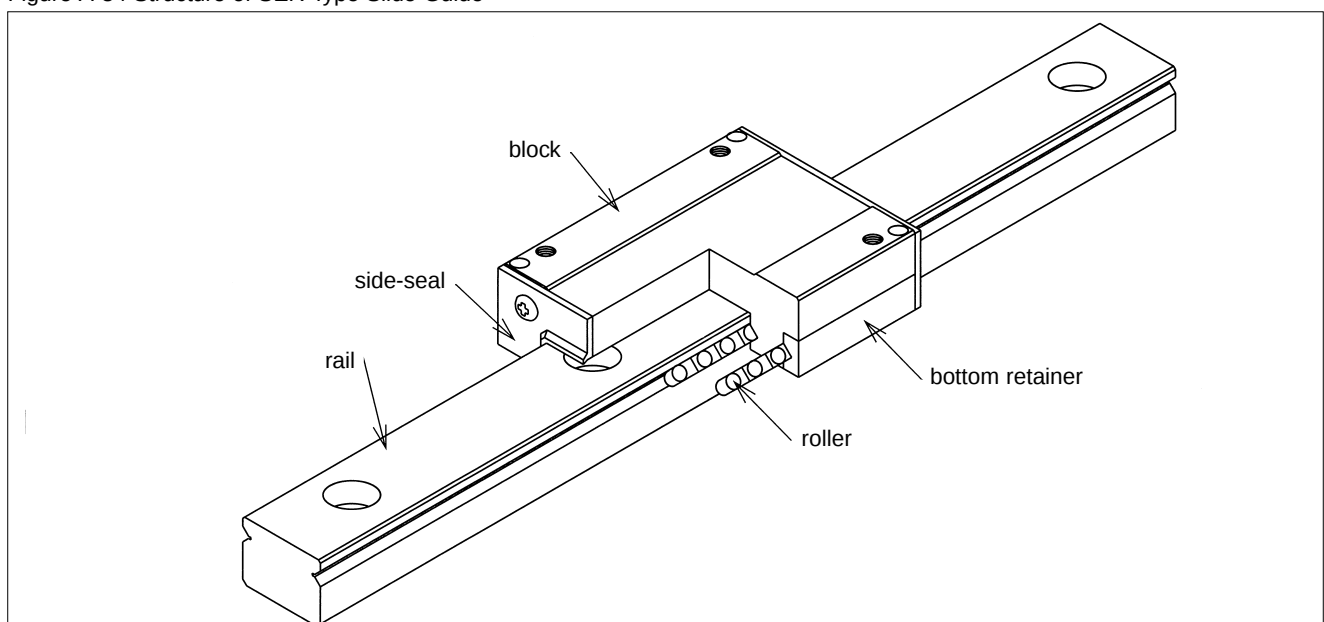
Rail Bolt Hole Types:

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

All Stainless:

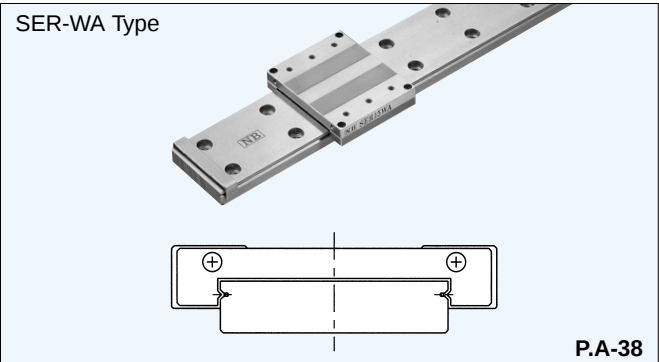
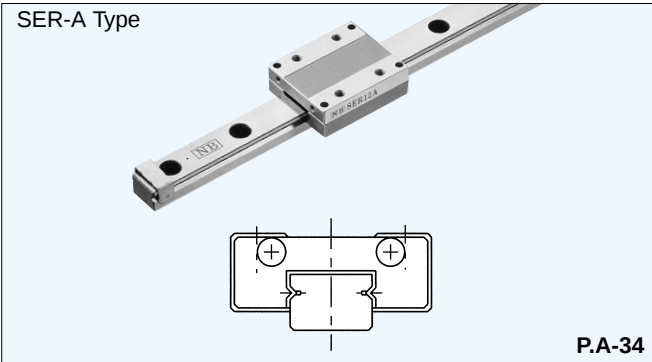
Since all the components for the SER type guide are made of metallic materials, stainless steel provides excellent corrosion and thermal characteristics. The SERS type slide guide is ideal for clean-room or vacuum applications.

Figure A-34 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	blank	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-36	
Running parallelism of surface D to surface B		

Figure A-35 Accuracy

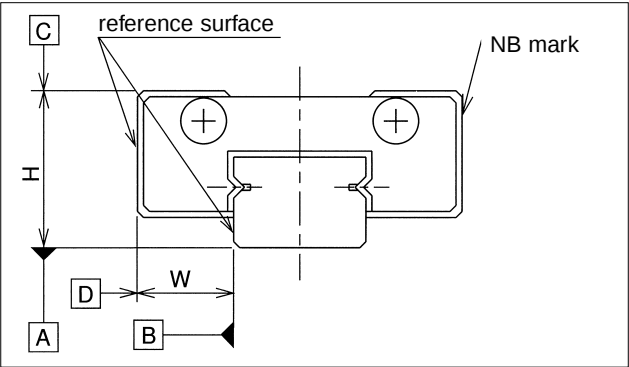
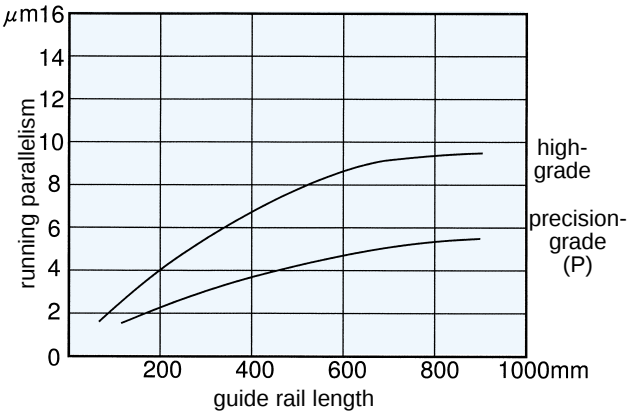


Figure A-36 Motion Accuracy



PRE-LOAD

The SER type slide guide has two levels of pre-load are available: zero pre-load and an extremely slight pre-load.

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-37 Rail

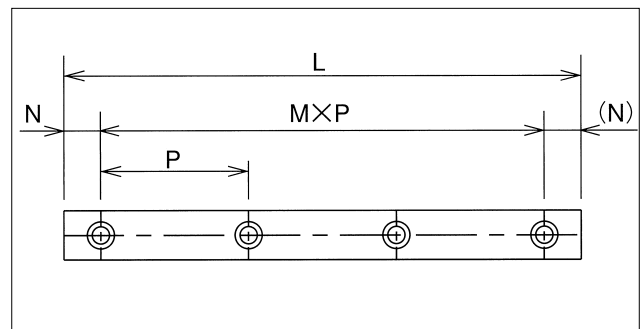


Table A-17 Wide Type Slide Guide unit/mm

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

MOUNTING

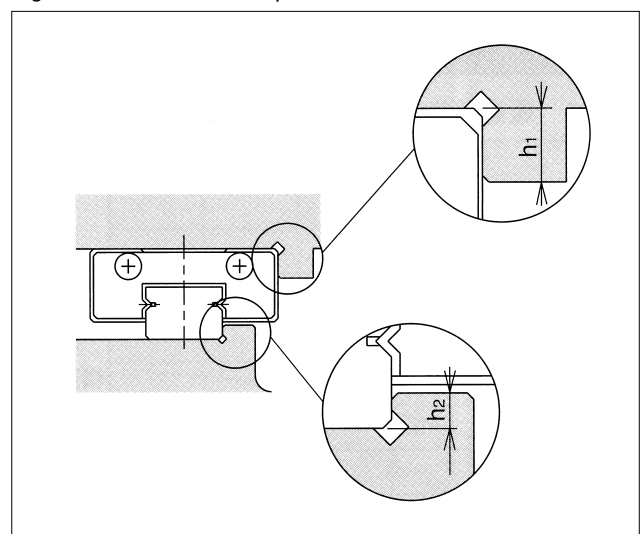
Mounting Surface Shapes:

Slide guides are mounted by pushing the reference surface of the rail and block against the shoulder of the mounting surface. An escape groove should be provided at the corner of the shoulder in order to avoid interference with the corner of the rail or the block.

Table A-18 Shoulder Shape Dimensions unit/mm

part number	h1	h2	part number	h1	h2
SER 9A	3	1.5	SER 9WA	3	2.5
SER12A	4	2	SER12WA	4	2.5
SER15A	5	3.5	SER15WA	5	2.5
SER20A	5	5			

Figure A-38 Shoulder Shape



Recommended Torque Values:

The bolts used to secure the rail should be tightened using a torque wrench. The recommended torque values are listed in Tables A-19 and A-20.

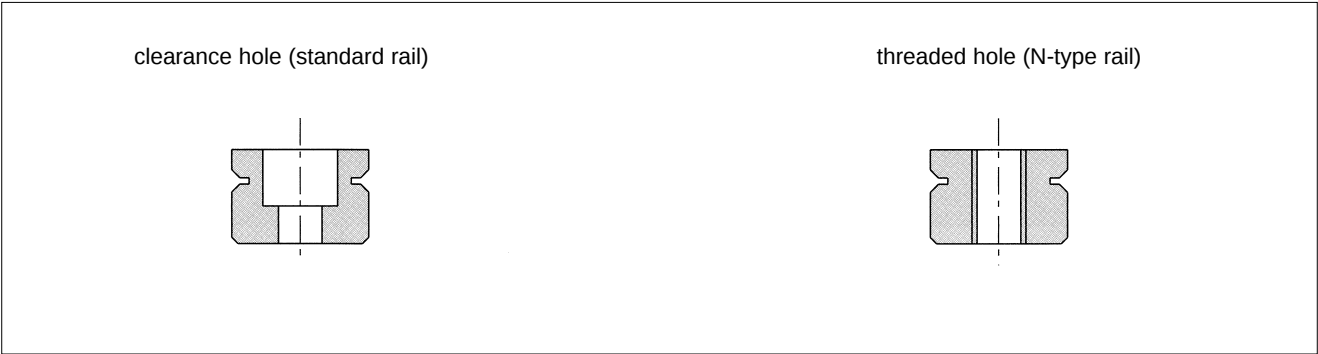
Table A-19 Recommended Torque for Standard Rail

part number	bolt size	recommended torque (N · m)
SER 9A	M2	0.4
SER12A,15A	M3	1.0
SER20A	M5	4.9
SER 9WA	M3	1.0
SER12WA,15WA	M4	2.5

Table A-20 Recommended Torque for N-Type Rail

part number	bolt size	recommended torque (N · m)
SER 9A,12A-N	M4	2.5
SER15A-N	M5	4.9
SER20A-N	M6	10.0
SER 9WA-N	M4	2.5
SER12WA,15WA-N	M5	4.9

Figure A-39 Shape of Rail



MOUNTING BOLTS

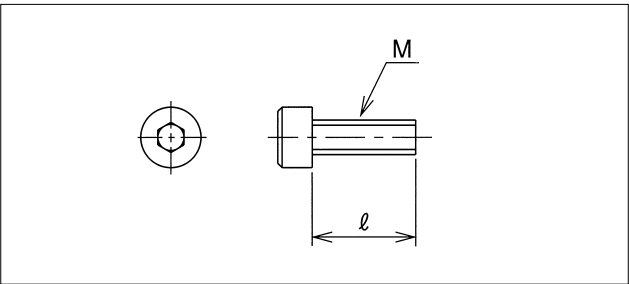
Small bolts for the SER type slide guide are available from NB.

Table A-21 units/mm

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

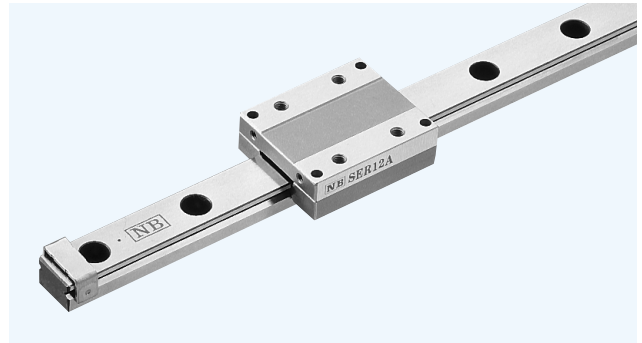
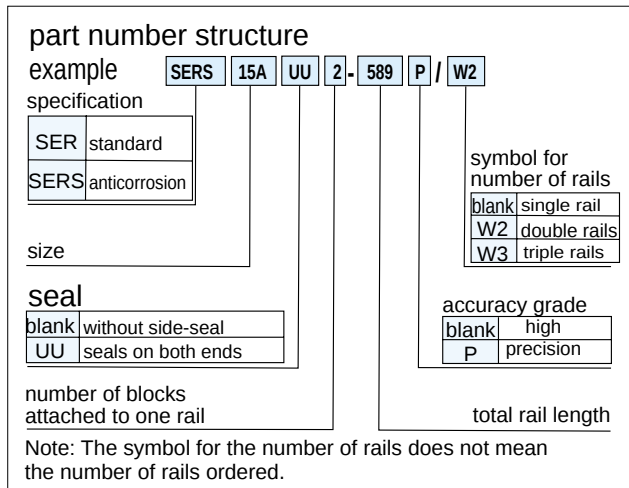
All bolts are made of stainless steel.

Figure A-40 Mounting Bolt



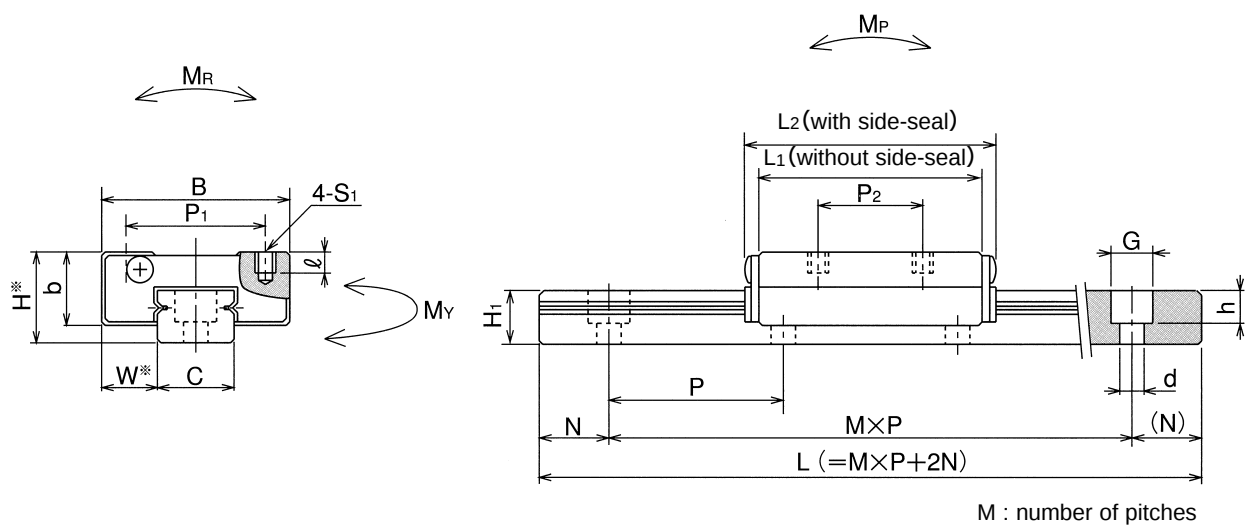
SER-A TYPE

— 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
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



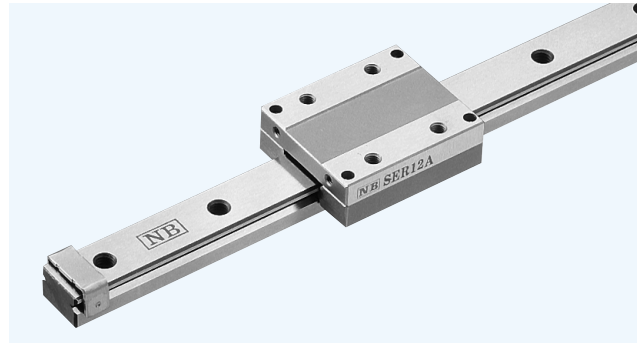
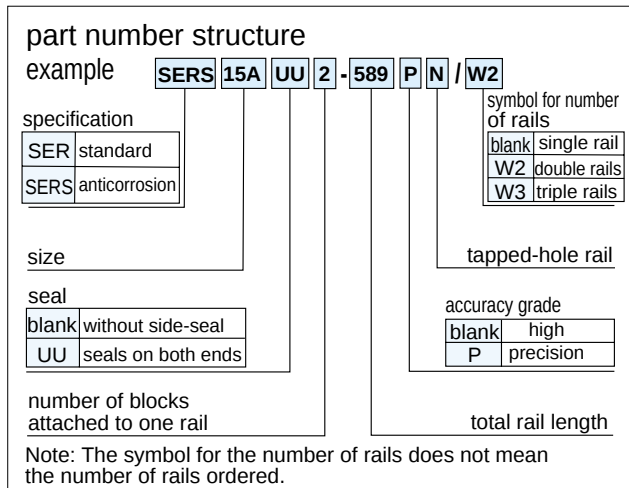
* Refer to page A-31 for a description of accuracy.

guide-rail dimensions					basic load rating		allowable static moment			mass		size
H ₁	C	d×G×h	N	P	dynamic C	static C ₀	M _P	M _Y	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	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		15	40	4.70	5.78	29.0	32.3	54.9	0.09	1.0	15A
15	20	6×9.5×8.5	20	60	8.82	9.80	59.0	66.6	151	0.26	2.3	20A

1kN≒102kgf 1N · m≒0.102kgf · m

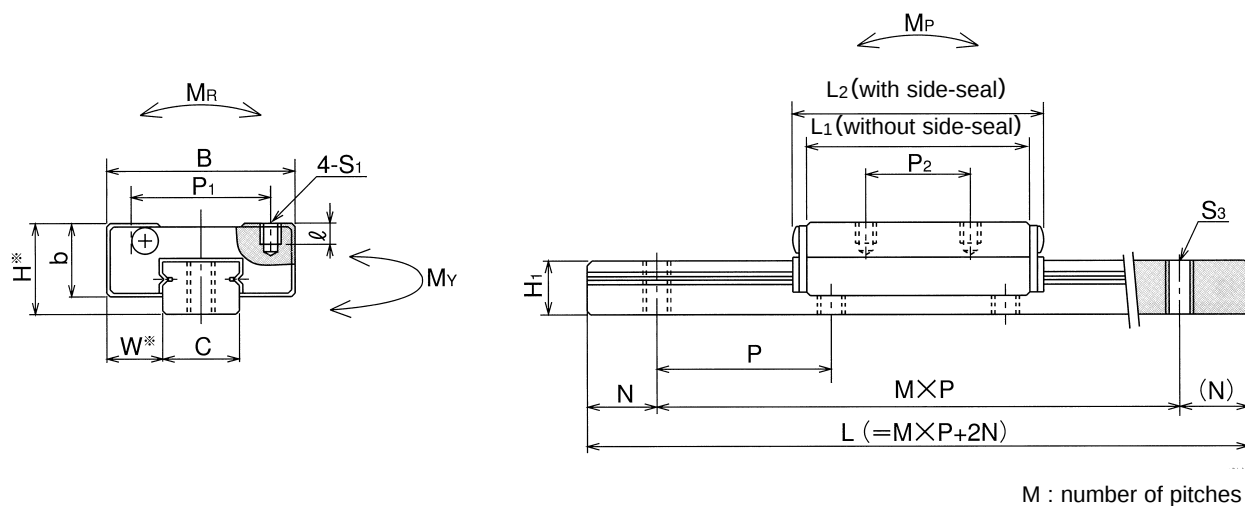
SER-A-N TYPE

— Standard Type w/Tapped Hole Rail —



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-N	SERS 9A-N	10	5.7	20	28	32	15	13	M2	2.5	7.8
SER12A-N	SERS12A-N	13	8	27	32	36	20	15	M3	3	10.5
SER15A-N	SERS15A-N	16	8.5	32	40	44	25	20		4	11.5
SER20A-N	SERS20A-N	25	13	46	60	66	38	38	M4	6	17.5

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



* Refer to page A-31 for a description of accuracy.

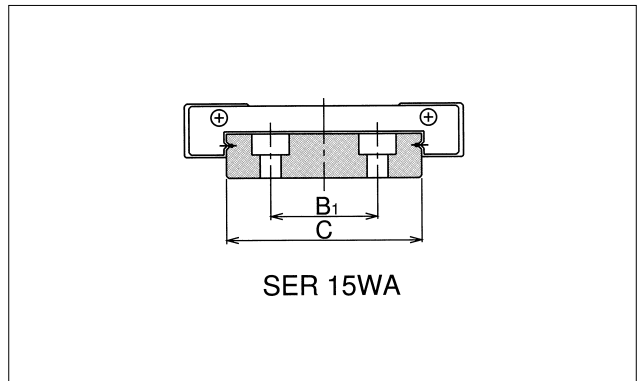
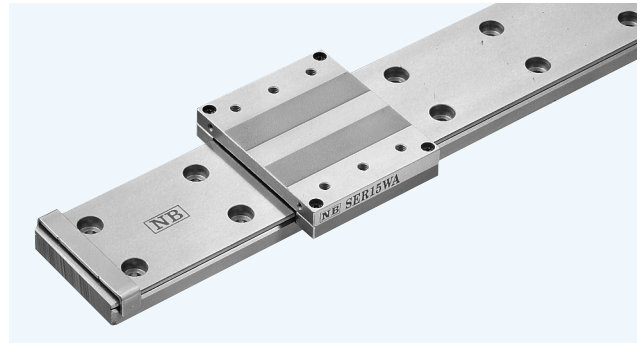
guide-rail dimensions					basic load rating		allowable static moment			mass		size
H ₁	C	S ₃	N	P	dynamic	static				block	guide rail	
mm	mm		mm	mm	C kN	Co kN	M _P N · m	M _Y N · m	M _R N · m			
5.5	8.6	M4	7.5	20	2.65	2.94	11.8	13.7	19.6	0.02	0.35	
7.5	11		10	25	3.43	3.92	15.7	17.6	29.4	0.05	0.55	12A
9.5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

1kN≒102kgf 1N · m≒0.102kgf · m

SER-WA TYPE

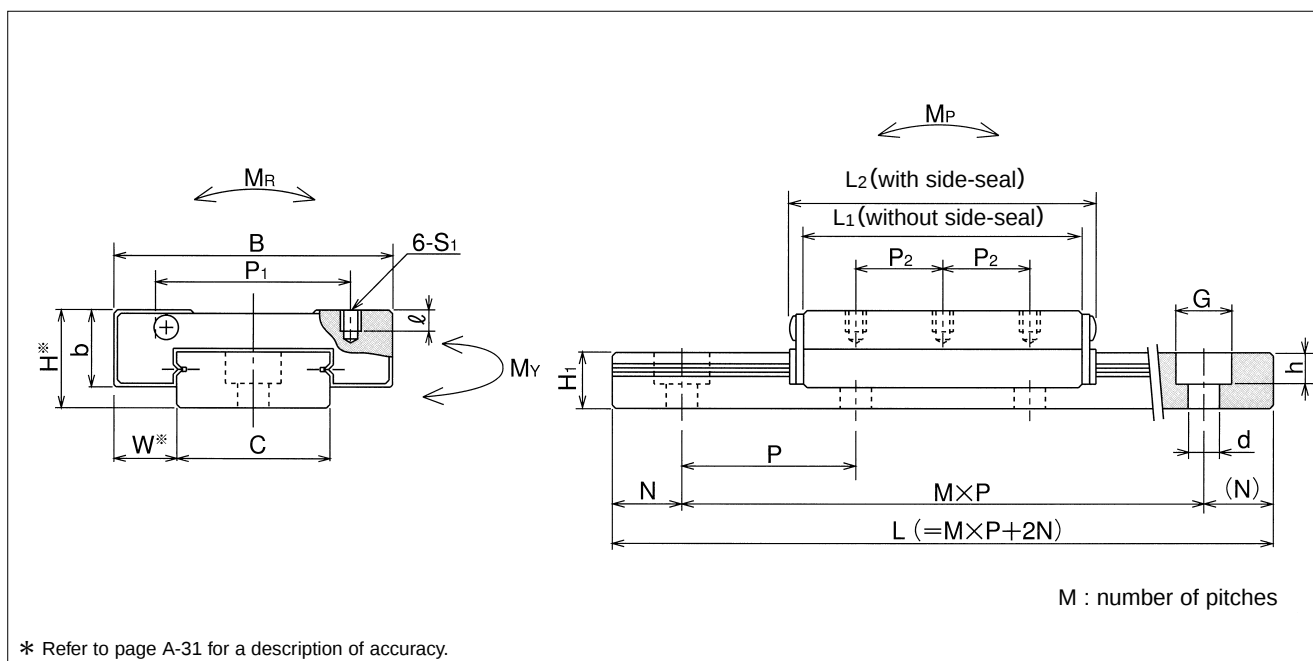
— Wide Type —

part number structure	
example SERS 15WA UU 2 - 589 P / W2	
specification	
SER	standard
SERS	anticorrosion
size	
15WA	
seal	
UU	seals on both ends
number of blocks attached to one rail	
2	
total rail length	
589	
accuracy grade	
P	precision
symbol for number of rails	
blank	single rail
W2	double rails
W3	triple rails



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 L mm							maximum length mm
standard	anticorrosion								
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



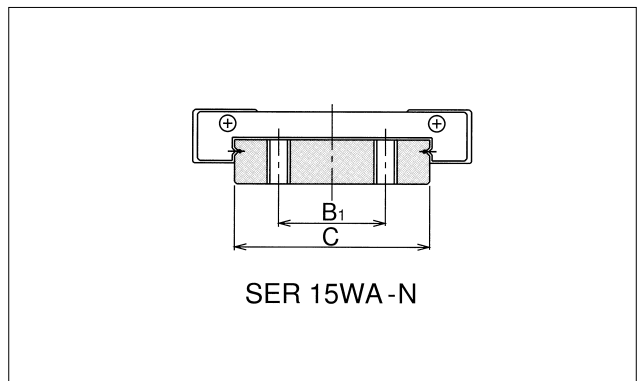
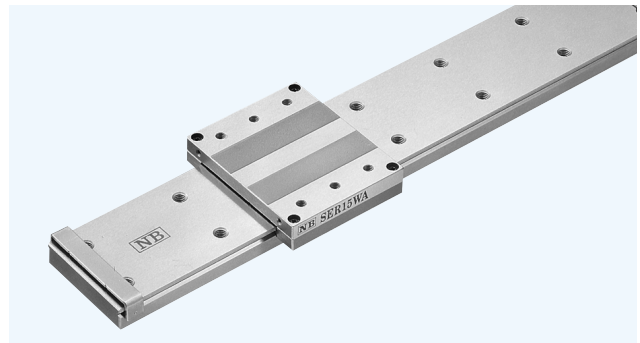
guide-rail dimensions						basic load rating		allowable static moment			mass		size
H ₁	C	B ₁	d × G × h	N	P	dynamic C	static C ₀	M _P	M _Y	M _R	block	guide rail	
mm	mm	mm	mm	mm	mm	kN	kN	N · m	N · m	N · m	kg	kg/m	
7.5	17	—	3.5 × 6 × 4.5	10	30	3.43	3.72	24.5	27.4	51.9	0.06	0.90	9WA
8	22	—	4.5 × 8 × 4.5	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

SER-WA-N TYPE

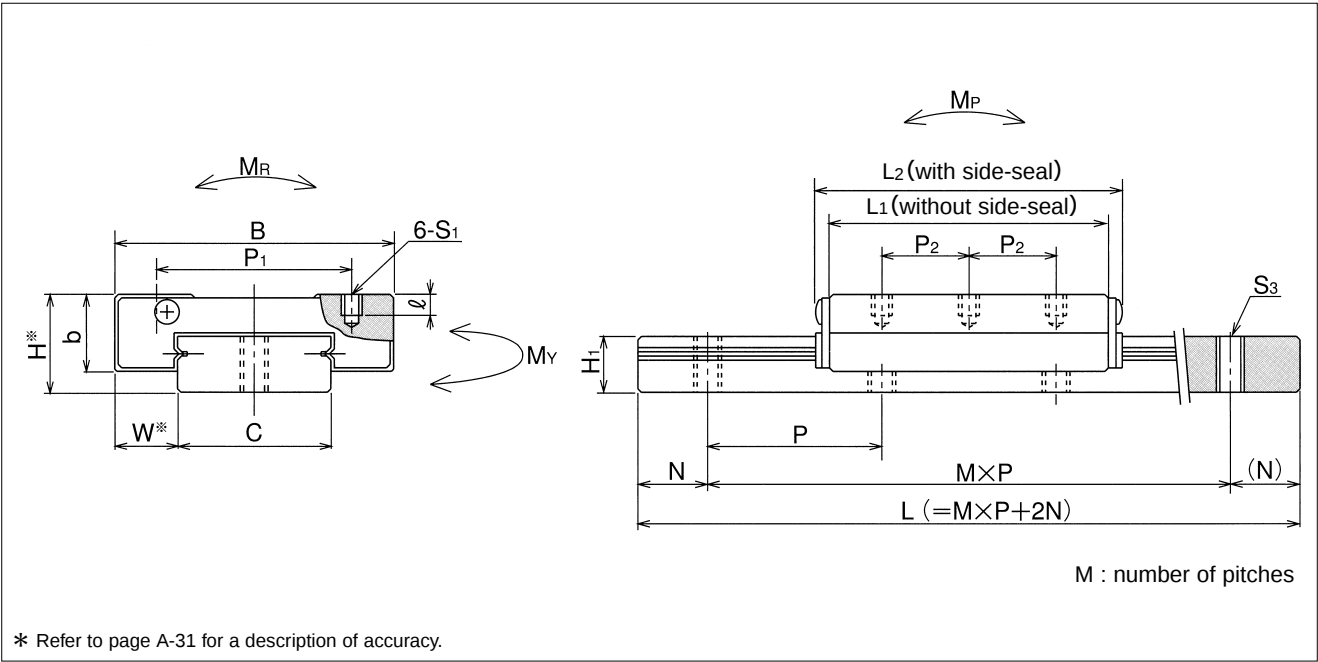
– Wide Type w/Tapped Hole Rail –

part number structure	
example	SERS 15WA UU 2 - 589 P N / W2
specification	SER standard SERS anticorrosion
size	15
seal	blank without side-seal UU seals on both ends
number of blocks attached to one rail	2
Note: The symbol for the number of rails does not mean the number of rails ordered.	
symbol for number of rails	blank single rail W2 double rails W3 triple rails
tapped-hole rail	N
accuracy grade	blank high P precision
total rail length	589



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-N	SERS 9WA-N	12	6.5	30	35	39	21	10	M3	3	8.8
SER12WA-N	SERS12WA-N	14	9	40	40	44	28	12.5			11
SER15WA-N	SERS15WA-N	16		60	50	54	45	15	M4	4.5	11.5

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



guide-rail dimensions						basic load rating		allowable static moment			mass		size
H ₁	C	B ₁	S ₃	N	P	dynamic	static				block	guide rail	
mm	mm	mm		mm	mm	C kN	Co kN	M _P N · m	M _Y N · m	M _R N · m			
7.5	17	—	M4	10	30	3.43	3.72	24.5	27.4	51.9	0.06	0.90	
8	22	—	M5	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	2.80	15WA

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