SLIDE WAY

The NB slide way is a non-recirculating linear motion bearing utilizing precision rollers. It is used primarily in optical and measurement equipment where high precision movement is required.

STRUCTURE AND ADVANTAGES

The NB slide way NV type comprises of precisely ground rails and R-retainers with built-in STUDROLLERs and precision rollers. The rails have been optimally designed so that the STUDROLLERs move smoothly, and the STUDROLLERs and precision rollers incorporated in the R-retainers enable slip-free operation between the raceway surface and the rollers resulting in motion with minimal frictional resistance.
SV and SVW types consist of precision ground rails and precision caged-rollers. Since caged-rollers do not recirculate, there is only a minimum frictional resistance fluctuation. Also, there is a minimum difference between the static and dynamic frictional resistances.
The HV and HVW types are performance-enhancing products that have been redesigned from conventional products (SV Type) in terms of raceway groove contact length, roller pitch, etc. Compared to SV Type, the allowable load and rated life distance have been increased. Installation is completely compatible with SV type, and simply by replacing, it contributes to improving the durability of equipment, or allows for size reduction and compactness with the same performance.

Non-slip! STUDROLLER System (Rivet Roller Structure)

The STUDROLLER system is based on a new concept to provide complete prevention of roller cage slippage during operation. This system permits usage in all orientations and positions.

Figure A-1 STUDROLLER System

Suitable for Minute Motion

Because the frictional resistance is extremely small and there is only little difference between the static and dynamic frictional resistances, the NB slide way is well suited for minute motion, resulting in highly accurate linear movement.

Low-Speed Stability

Since the frictional resistance fluctuation is small even under low-load conditions, stable motion is obtained at from low to high speeds.

High Rigidity and High Load Capacity

Rollers have a larger contact area than steel balls, resulting in less elastic deformation, and since they are non-circulating, they have a large number of effective rolling elements, resulting in high rigidity and high load capacity.
In addition, the NV/HV type has a new rail design that increases the contact length between the rollers and the raceway groove by 30 to 58% compared to the SV type (see Figure A-2), and also reduces the roller pitch and increases the number of rollers. By increasing the number of rollers, the rated load has been increased by 1.3 to 2.5 times.

Low Noise

The slide way never produces recirculation noise nor roller-contact noise due to a use of roller cage, resulting in quiet motion.

All Stainless Steel Type Available

Anti-corrosion models NVS-RNS, HVS, HVWS, SVS, and SVWS use stainless steel for all component parts making them ideal for clean rooms.

Anti-corrosion Specification

In addition to the stainless steel model, you can also select the LB model with low-temperature black chrome treatment. To enhance the rust prevention effect, surface treatment is applied to the rails and the end piece is made of stainless steel.

Figure A-2 Roller Contact Profile

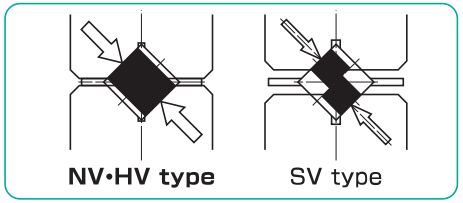


Figure A-3 Structure of NV type

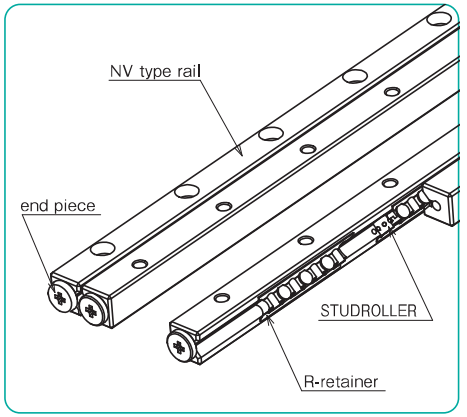
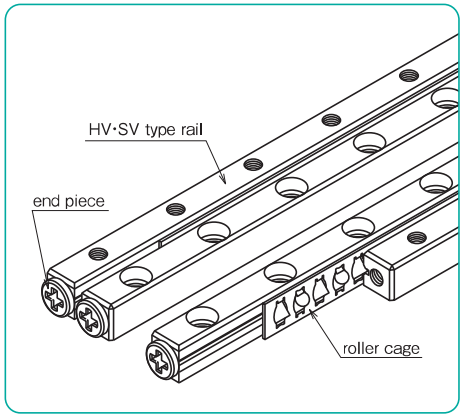


Figure A-4 Structure of HV・SV type

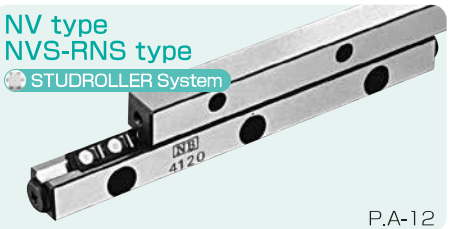


※To the NV type, fastening plates are attached for the purpose of maintaining the center position of the R-retainer before assembly. Please see Installation Procedure on page A-8 and remove the fastening plates before use.

TYPES

NV type
NVS-RNS type

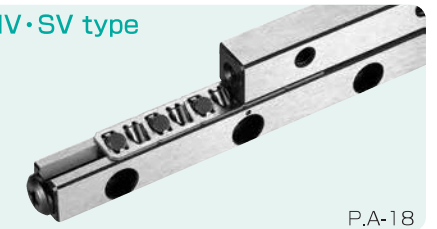
STUDROLLER System



P.A-12

The NV slide way consists of a set of four rails, two R-retainers, and eight end pieces. It permits flexible design of the table which will best suit your application. The NVS-RNS type has all stainless steel components, which is suitable for anti-corrosion, high temperature and vacuum requirements.

HV・SV type



P.A-18

One set includes four rails and two R-type roller cages incorporating precision rollers in a cross shape.
HVS and SVS types are all made of stainless steel, so they show sufficient performance even in areas prone to corrosion.

HVW・SVW type

P.A-30

One set includes one W-type rail with V grooves on both sides, two HV or SV-type rails and two R-type roller cages.
Since it uses a W-type rails, a more compact design is possible. All-stainless steel HVWS and SVWS types are also available.

SPECIFICATION

Refer to table A-1 for NB Slide Way material and operating temperature range.

Table A-1 Material and Operating Temperature Range

type	rail	R-retainer/ roller cage	roller	operating temperature range
NV	steel	resin	steel	−20℃~80℃
NVS	stainless steel		stainless steel	
NVS-RNS		stainless steel		−20℃~140℃
NV-RN	steel		steel	−20℃~110℃
HV	steel	stainless steel	steel	−20℃~110℃
HVS	stainless steel		stainless steel	−20℃~140℃
HVW	steel		steel	−20℃~110℃
HVWS	stainless steel		stainless steel	−20℃~140℃
SV	steel	stainless steel	steel	−20℃~110℃
SV-RA		aluminum		
SVS	stainless steel	stainless steel	stainless steel	−20℃~140℃
SVS-RAS		aluminum		
SVW	steel	stainless steel	steel	−20℃~110℃
SVW-RA		aluminum		
SVWS	stainless steel	stainless steel	stainless steel	−20℃~140℃
SVWS-RAS		aluminum		

ACCURACY

The accuracy of the slide way is represented as parallelism measured across the full length with a method shown in Figure A-6. It is classified as high (blank), precision (P), or ultra precision (UP). Special accuracies can also be accommodated. Please contact NB for details.

Figure A-5 Parallelism

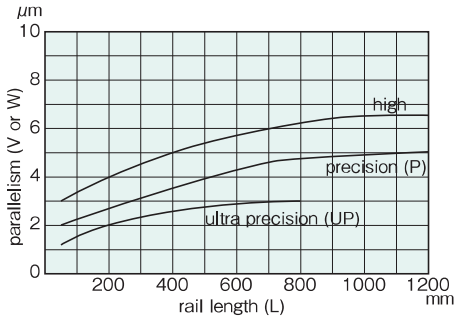
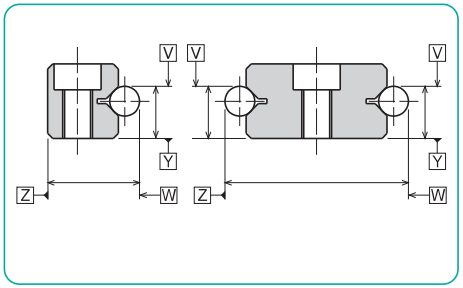


Figure A-6 Accuracy Measurement Method



Ultra precision grade is available from size 1 to size 9.

RATED LIFE

The life of the slide way and the slide table is calculated with the following equations:

Rated Life

$$L=\left(\frac{f_T}{f_W}\cdot\frac{C}{P}\right)^{10/3}\cdot 50$$

L: rated life (km) f_T: temperature coefficient f_W: applied load coefficient
C: basic dynamic load rating (N) P: applied load (N)
※ Please refer to page Eng-6 for the coefficients.

Life Time

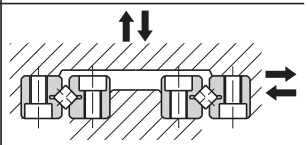
$$L_h=\frac{L\cdot 10^6}{2\cdot \ell_S\cdot n_1\cdot 60}$$

L_h: life time (hr) ℓ_S: stroke length (mm)
n_1: number of cycles per minute (cpm)

LOAD RATING

The load rating for the slide way is obtained using the equations listed in Table A-2.

Table A-2 Load Rating

condition	double-rail parallel usage
direction of load	
basic dynamic load rating C	$C=\left(2P\left(\frac{Z}{2}-1\right)\right)^{\frac{1}{36}}\cdot\left(\frac{Z}{2}\right)^{\frac{3}{4}}\cdot 2^{\frac{7}{9}}\cdot C_1$
basic static load rating Co	$Co=\frac{Z}{2}\cdot Co_1\cdot 2$
allowable load F	$F=\frac{Z}{2}\cdot F_1\cdot 2$

C: basic dynamic load rating (N)
Co: basic static load rating (N)
F: allowable load (N)
C_1: basic dynamic load rating per roller (N)
Co_1: basic static load rating per roller (N)
F_1: allowable load per roller (N)
Z: number of rollers per cage
Z/2: number of effective rollers (round down to whole number)
P: roller pitch (mm)

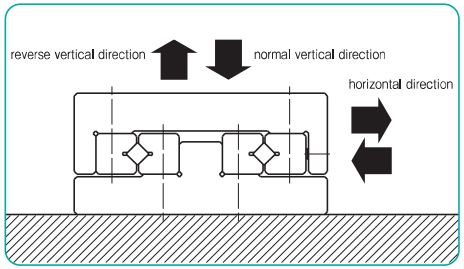
The load rating of the NV type differs depending on the direction of the load.

Table A-3 Change of Load Rating Corresponding to Load Direction

basic dynamic load rating	normal vertical direction	1.0×C
	horizontal direction	0.85×C
	reverse vertical direction	0.7×C
basic static load rating	normal vertical direction	1.0×Co
	horizontal direction	0.85×Co
	reverse vertical direction	0.7×Co

※There may be a difference depending on the size. Please contact NB for details.
Consideration has been given to holes for STUDROLLERs in the raceway surface in calculation of load ratings.

Figure A-7 Direction of Load



R·RS TYPE

− Standard Roller Cage −

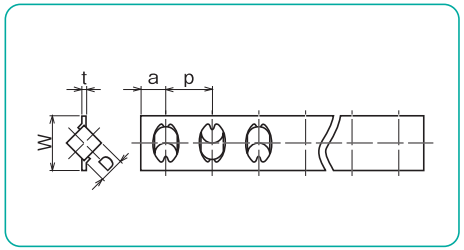
part number structure

example **RS 6 - 15Z**

specification
R: standard roller
RS: stainless steel roller

number of rollers

size



part number standard	part number anti-corrosion	D mm	t mm	W mm	p mm	a mm	C_1 N	Co_1 N	F_1 N
R 1	RS 1	1.5	0.2	3.8	2.5	2	154	119	39.6
R 2	RS 2	2	0.3	5.6	4	2.5	360	293	97.6
R 3	RS 3	3	0.4	7.6	5	3	824	649	216
R 4	RS 4	4	0.4	10.4	7	4.5	1,660	1,320	440
R 6	RS 6	6	0.7	14	8.5	5.5	3,840	2,960	986
R 9	RS 9	9	0.7	19	14	7.5	9,330	7,070	2,350
R12	RS12	12	1.0	25	20	10	18,900	14,500	4,830

cage material: stainless steel C_1: dynamic load rating per roller Co_1: static load rating per roller
F_1: allowable load per roller

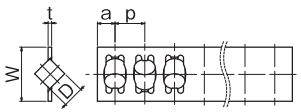
RH・RHS TYPE

(HV・HVW Type standard roller cage)

part number structure

example **RH 3 - 15Z**

- RH 3: size
- 15Z: number of rollers
- specification
  - RH: standard roller
  - RHS: stainless steel roller



part number		D	t	W	p	a	C_1	C_{01}	F_1
standard	anti-corrosion	mm	mm	mm	mm	mm	N	N	N
RH2	RHS2	2	0.4	5.6	3	2	442	381	127
RH3	RHS3	3	0.5	7.6	4.2	2.5	1,160	1,000	333
RH4	RHS4	4	0.5	10.4	5.2	3.1	2,260	1,960	656

cage type: stainless steel C_1: dynamic load rating per roller C_{01}: static load rating per roller
F_1: allowable load per roller

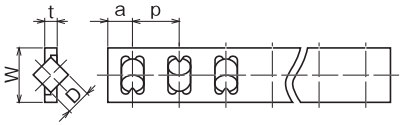
RA・RAS TYPE

– Aluminum Roller Cage –

part number structure

example **RAS 6 - 15Z**

- RAS 6: size
- 15Z: number of rollers
- specification
  - RA: standard roller
  - RAS: stainless steel roller



part number		D	t	W	p	a	C_1	C_{01}	F_1
standard	anti-corrosion	mm	mm	mm	mm	mm	N	N	N
RA3	RAS3	3	1.2	7.6	5	3	824	649	216
RA4	RAS4	4	1.4	10.4	7	4.5	1,660	1,320	440
RA6	RAS6	6	2.1	14	8.5	5.5	3,840	2,960	986
RA9	RAS9	9	3.0	20	14	7.5	9,330	7,070	2,350

cage material: aluminum alloy C_1: dynamic load rating per roller C_{01}: static load rating per roller
F_1: allowable load per roller

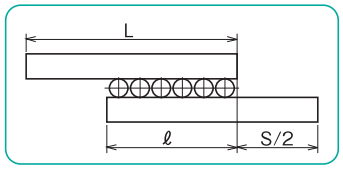
STROKE

Please contact NB for a non-standard stroke length for the NV type. When the stroke of HV・SV type or HVW・SVW type is changed, the stroke length must be determined and the load rating should be re-estimated as follows.

Stroke of HV・SV type, HVW・SVW type

When the slide way moves along the rail, the cage moves half the distance traveled by the slide way in the same direction. Therefore, although the work may be fixed on the table, the distance between the load center and the cage center will change. To achieve stable accuracy, determine the stroke and the length of the rail as follows.

Figure A-8



Rail Length (L)

When the stroke is 400mm or over

$S \leqq L/1.5$

When the stroke is less than 400 mm,

$S \leqq L$

Cage length (ℓ)

$\ell \leqq L - \frac{S}{2}$

Number of rollers (Z)

$Z = \frac{\ell - 2a}{p} + 1$

ℓ: cage length (mm) S: stroke (mm)
L: rail length (mm)

a,p: Please refer to roller cage dimensions (page A-5,6)

LUBRICATION AND DUST PREVENTION

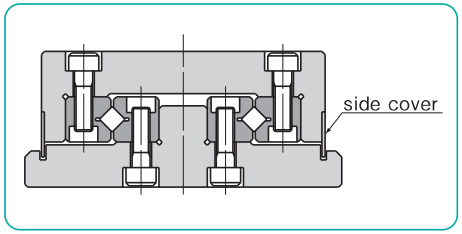
Lubrication

The slide way is pre-lubricated with lithium soap-based grease No.00 prior to shipment for immediate use. Make sure to relubricate with a similar type of grease periodically according to the operating conditions. NB also provides low dust generation grease. Please refer to page Eng-51 for details.

Dust Prevention

Foreign particles or dust in the slide way affects the motion accuracy and shortens the life time. In a harsh environment please provide side covers for dust prevention. (refer to Figure A-9)

Figure A-9 Example of Dust Prevention Mechanism



MOUNTING

Example

Figure A-10 NV type, HV type, SV type

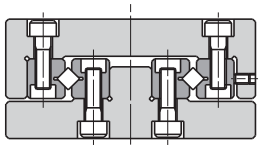
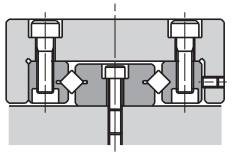


Figure A-11 HVW type, SVW type

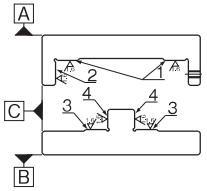


Accuracy of Mounting Surface

To maximize the performance of the NB slide way, it is recommended that the accuracy of the mounting surface to be equal to or greater than the degree of parallelism of the slide way.

- Parallelism of surface 1 against surface A
- Perpendicularity of surface 2 against surface A
- Parallelism of surface 3 against surface B
- Perpendicularity of surface 4 against surface B
- Parallelism of surface 2 against surface C
- Parallelism of surface 4 against surface C

Figure A-12 Accuracy of Mounting Surface



Tapped Hole for Preload Adjustment Screws

The recommended pitch of the adjustment screws should be installed in the same location as the rail mounting bolts, and the height should be aligned with the center of the raceway groove.
(refer to page A-8, Figure A-15 (d, e, f) and page A-9, Figure A-16 (e, f, g).)
Page A-9, Table A-5 shows the sizes of tapped holes.

SHAPE OF MOUNTING SURFACE

Slide way NV and HV・SV types are generally mounted by contacting the reference surface of the rail to the shoulder provided on the mounting surface. For the shoulder shape, provide relief at the corner as shown in Figure A-13 so that it does not interfere with the reference corner of the rail.
If it is nessaray to mount NV or HV・SV types without relief, then it can be used with rounded corners as shown in Figure A-14. Table A-4 shows the corner radius of the mounting surface.

Figure A-13 Relief on the Mounting Surface

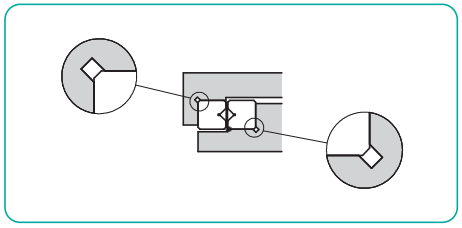


Figure A-14 Corner Radius

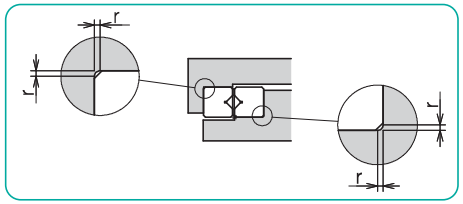


Table A-4 Maximum Corner Radius unit : mm

part number	maximum corner radius r
NV1, SV1	0.1
NV2, HV2, SV2	
NV3, HV3, SV3	0.2
NV4, HV4, SV4	0.4
NV6, SV6	0.7
NV9, SV9	0.8
NV12, SV12	1.0

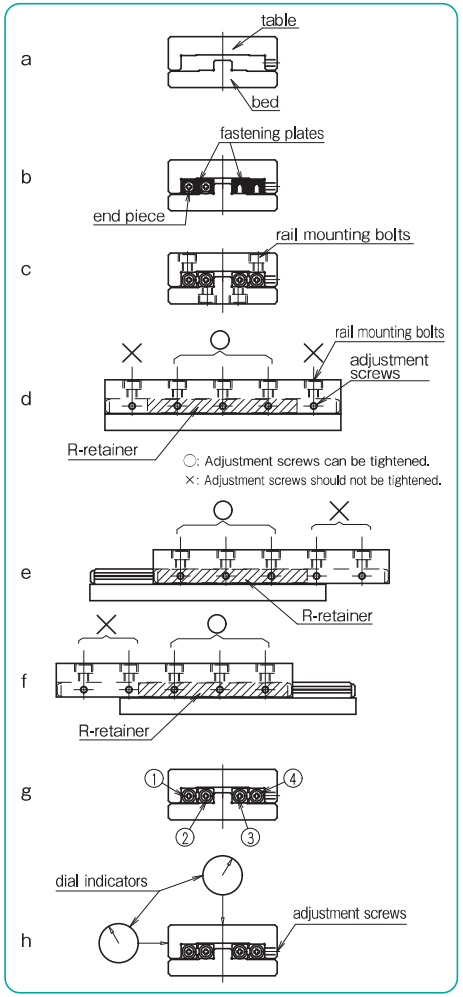
INSTALLATION PROCEDURE OF NV TYPE

Installation Procedure

※Please read "Use and Handling Precautions" before installation.

(1) Remove burrs, scratches, and dust from the rail-mounting surface of the bed and the table, be careful to prevent contamination during assembly.
(2) Apply low-viscosity oil to the contact surfaces, and align the bed and the table. (Figure A-15a)
(3) Set the reference surface onto the mounting surface with the rails fastened. Set the table in the center position, and tighten the adjustment screws lightly so that almost no gap remains. (Figure A-15b)
(4) Keep the table in the center, tighten the rail mounting bolts lightly, loosen the end pieces of both ends, and remove the fastening plates. Following this, lightly retighten the end pieces. (Figure A-15c)
(5) While maintaining the conditions of (4), gently move the assembly through its stroke to check if the maximum stroke is secured, and if there is no irregularity.
(6) Move the table to the center and slightly loosen the rail mounting bolts. Tighten only the adjustment screws on the R-retainer with the recommended torque shown in Table A-5. (Figure A-15d)
(7) Gently move the table to one stroke end, and check that the table has surely come into contact with the external mechanical stopper. Following this, tighten the adjustment screws in the same manner as (6). (Figure A-15e)
(8) Move the table to the opposite stroke end, and tighten in the same manner as (6). (Figure A-15f)
(9) Tighten and fix the mounting bolts of the track ①,②,③ with the recommended tightening torque shown in Table A-6. (Figure A-15g) At this time, fix the mounting bolts on the R retainer in order while moving the table as described in (6) to (8).
(10) Set the dial indicators to the center of the table and to the side (reference surface) of the table. (Figure A-15h)
(11) Perform the final preload adjustment. While moving the table back and forth, repeat steps (6) to (8) until the dial indicators show a minimum deviation. Loosen the adjustment screws one by one and retighten them to the recommended tightening torque.
(12) Fasten rail 4 securely with the recommended torque. As for the adjustment screws, successively tighten the rail mounting bolts on the R-retainer by moving the table.
(13) Recheck the motion accuracy while moving the table.
(14) Tighten the end pieces finally.

Figure A-15 Installation Method



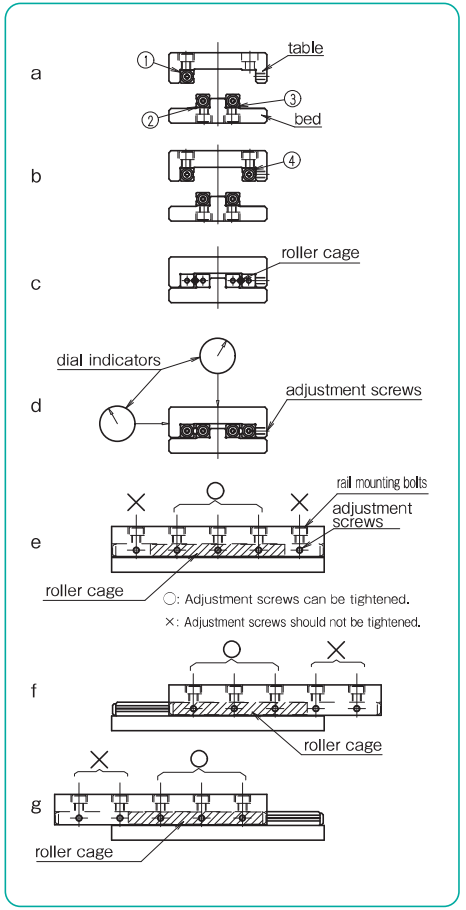
As d, e, f in the Figure shows it is recommended to match the position and pitch of adjustment screws with rail mounting bolts, and also the height of them with the same as the center of raceway groove.

INSTALLATION PROCEDURE OF HV & SV TYPE

Installation Procedure

(1) Remove burrs, scratches, and dust from the rail-mounting surface of the bed and the table, be careful to prevent contamination during assembly.
(2) Apply low-viscosity oil to each mounting surface and fix the track bases ① ~ ③ with the specified torque (Table A-6) while keeping the mounting surface of the table and bed in close contact with the track base mounting surface. (Figure A-16a)
(3) Temporarily attach rail ④ on the adjustment side. (Turn the mounting bolt until it lightly stops, then loosen it slightly.) (Figure A-16b)
(4) Remove end pieces on one end. Carefully insert roller cages between rails. (Figure A-16c)
(5) Re-attach end pieces.
(6) Move the table slowly to each stroke end to position roller cages at the center of the rails.
(7) Set the dial indicators to the center of the table and to the side (reference surface) of the table. (Figure A-16d)
(8) Move the table to the center and lightly tighten only the adjusting screw on the roller cage. (Figure A-16e)
(9) Move the table to the stroke end on one side and lightly tighten the adjusting screw as in (8). (Figure A-16f)
(10) Move the table to the opposite stroke end and lightly tighten the adjusting screw as in (8). (Figure A-16g)
(11) Repeat steps (8) ~ (10) until there are no gaps on the table. If there is no gap, the deflection on the dial gauge will not change from minimum value when the table is moved from side to side. Please do not apply an excessive preload since the final adjustment is done in step (12).
(12) Make final adjustment of preload. Repeat steps (8) ~ (10) and tighten the adjustment screws with the recommended torque listed in Table A-5.
(13) Fasten the rail ④ securely with the recommended torque. As with the adjustment screws, successively tighten the rail mounting bolts by moving the table.

Figure A-16 Installation Method



As e, f, g in the Figure shows it is recommended to match the position and pitch of adjustment screws with rail mounting bolts, and also the height of them with the same as the center of raceway groove.

Table A-5 Recommended Torque for Adjustment Screw Unit:N・m

part number	size	torque
NV1, SV1	M2	0.008
NV2, SV2	M3	0.012
NV3, SV3	M4	0.05
NV4, SV4	M4	0.08
NV6, SV6	M5	0.20
NV9, SV9	M6	0.40
NV12, SV12	M6	0.80

Table A-6 Recommended Torque for Rail Mounting Bolt Unit:N・m

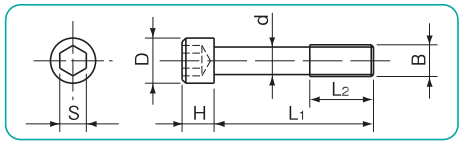
size	torque
M2	0.4
M3	1.4
M4	3.2
M5	6.6
M6	11.2
M8	27.6
M10	55.0

(for steel alloy screw)

SPECIAL MOUNTING SCREW BT TYPE

In case of mounting slide way by screws from the counterbore side, threaded holes become the pilot holes. Thus, pilot hole's clearance will be less than a standard clearance hole for a screw. NB offers reduced shoulder screws for mounting SlideWay from bottom when larger screw clearance is required due to preload adjustment or inaccuracy of mating threaded holes. This special mounting screw made of alloy steel is stocked, and custom stainless steel version is available as a special order. Please contact NB for details.

Figure A-17 Special Mounting Screw



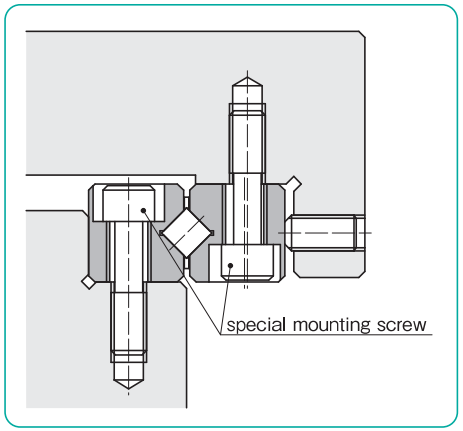


Table A-7 Special Mounting Screw

part number	B	d mm	D mm	H mm	L1 mm	L2 mm	S mm	applicable size
BT 3	M3	2.3	5	3	12	5	2.5	NV 3, HV 3, SV 3
BT 4	M4	3.1	5.8	4	15	7	3	NV 4, HV 4, SV 4
BT 6	M5	3.9	8	5	20	8	4	NV 6, SV 6
BT 9	M6	4.6	8.5	6	30	12	5	NV 9, SV 9
BT12	M8	6.25	11.3	8	40	17	6	NV12, SV12

USE AND HANDLING PRECAUTIONS

Careful Handling

Dropping the slide way causes the rolling elements to make dents in the raceway surface. This will prevent smooth motion and will also affect accuracy. Be sure to handle the product with care.
The NV type is packaged as a set of rails and R-retainers. Do not separate or disassemble until assembly/installation is completed. Precision is not guaranteed if disassembled.

Fastening Plates

For the NV type, fastening plates are attached at both end faces of the rails to maintain the R-retainer center position prior to assembly. The fastening plates are not required after the NV type is mounted to a table and bed, however, when removal of the NV type is necessary such as when it will be reassembled, be sure to return the R-retainer to the proper center position, secure the fastening plates with the end pieces, and then remove the NV type.

Specified Allowable Stroke

For the NV type, exceeding the specified stroke (over-stroke) shall cause the raceway surface of the rail to be damaged and the performance of the STUDROLLER to drastically deteriorate. Be sure to provide external mechanical stoppers.

Adjustment

Using the product with insufficient accuracy of the mounting surface or before adjusting the preload will cause the motion accuracy of the product to drop and will have a negative influence upon product life and accuracy. Make sure to assemble, install, and adjust the product with care.

Caution against Excess Preload

It is essential to give preload on the Slide Way products in order to assure rigidity and accuracy.
However, excess preload causes damage on the raceways and roller cages/R-retainers.
On installation, please follow the installation procedure and recommended torque on page A-8～9.

Operating Temperature

The NV type uses resin parts. Please use the product in environments that are lower than 80℃.

Use as a Set

The accuracy of the rails has been matched within each set. Note that the accuracy will be affected when the rails of different sets are combined.

Cage Slippage

For the HV/HVW・SV/SVW type, the cage can slip under high-speed motion, vertical application, unbalanced-loading, and vibrating conditions. It is advised that the stroke be set with sufficient margin and an excessive preload should be avoided.
It is also recommended that the rails be cycled to perform the maximum stroke several times, so that the cage returns to its center position.

End Pieces

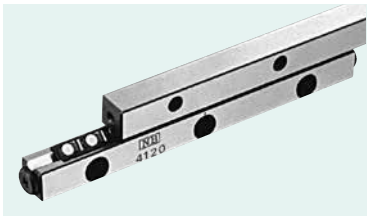
End pieces are attached to each end of the slide way to prevent removal of the cage. Do not use them as a mechanical stopper.

Knock Pin Hole

When using HVW・SVW type knock pin holes to attach a slide way, please do the hole-machining on the mounting surface after attaching the W type rail. After machining, remove the chips completely and wash as required.

NV TYPE
−NV1／NV2／NV3−

STUDROLLER System

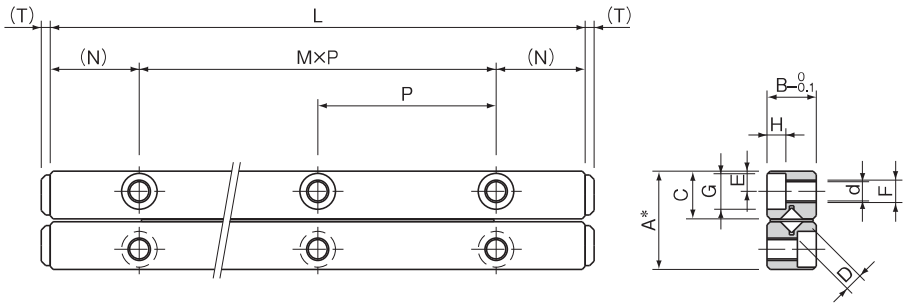


part number structure

example NVS 2 150 - 41Z - UP -KGLA
example NV 3 075 - 13Z -LB -KGF

- specification
  NV: standard
  NVS: anti-corrosion
- size
- rail length
- number of rollers
- grease symbol (refer to page Eng-51)
  blank: standard grease
  -KGLA: lithium-based low dust generation grease
  -KGU: urea-based low dust generation grease
  -KGF: anti-fretting grease
- with low temperature black chrome treatment
- accuracy grade
  blank: high
  P: precision
  UP: ultra precision

※Stainless steel rollers are used for anti-corrosion model. -LB is available as a custom product except for high precision, please contact NB for details.



High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 R-retainers, and 8 end pieces.

part number		stroke	roller diameter	number of rollers				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm
NV 1020- 5Z	NVS 1020- 5Z	12	1.5	5	20	8.5	4	4.03
1030- 7Z	1030- 7Z	23		7	30			
1040-11Z	1040-11Z	28		11	40			
1050-15Z	1050-15Z	34		15	50			
1060-19Z	1060-19Z	40		19	60			
1070-23Z	1070-23Z	45		23	70			
1080-27Z	1080-27Z	51		27	80			
NV 2030- 5Z	NVS 2030- 5Z	18	2	5	30	12	6	5.7
2045- 9Z	2045- 9Z	25		9	45			
2060-15Z	2060-15Z	30		15	60			
2075-19Z	2075-19Z	40		19	75			
2090-23Z	2090-23Z	50		23	90			
2105-27Z	2105-27Z	65		27	105			
2120-33Z	2120-33Z	70		33	120			
2135-37Z	2135-37Z	80		37	135			
2150-41Z	2150-41Z	90		41	150			
2165-47Z	2165-47Z	95		47	165			
2180-51Z	2180-51Z	100		51	180			
NV 3050- 9Z	NVS 3050- 9Z	25	3	9	50	18	8	8.65
3075-13Z	3075-13Z	48		13	75			
3100-19Z	3100-19Z	60		19	100			
3125-23Z	3125-23Z	83		23	125			
3150-29Z	3150-29Z	90		29	150			
3175-35Z	3175-35Z	103		35	175			
3200-41Z	3200-41Z	113		41	200			
3225-43Z	3225-43Z	150		43	225			

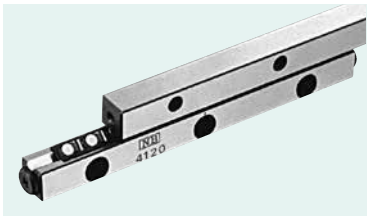
major dimensions								basic load rating		mass	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
1×10	5	1.8	M2	1.65	3	1.4	0.8	734	849	9	1020
2×10								1,250	1,690	13	1030
3×10								1,720	2,540	18	1040
4×10								2,160	3,390	22	1050
5×10								2,560	4,240	26	1060
6×10								2,960	5,090	31	1070
7×10								3,330	5,940	35	1080
1×15	7.5	2.5	M3	2.55	4.4	2	1.2	1,360	1,520	33	2030
2×15								2,330	3,050	49	2045
3×15								3,990	6,110	62	2060
4×15								4,740	7,630	74	2075
5×15								5,460	9,160	91	2090
6×15								6,160	10,600	103	2105
7×15								6,830	12,200	120	2120
8×15								7,490	13,700	132	2135
9×15								8,130	15,200	149	2150
10×15								9,370	18,300	161	2165
11×15								9,970	19,800	174	2180
1×25	12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	97	3050
2×25								8,440	12,100	140	3075
3×25								12,500	20,100	192	3100
4×25								14,400	24,200	245	3125
5×25								16,300	28,200	290	3150
6×25								19,800	36,300	337	3175
7×25								21,500	40,300	385	3200
8×25								23,200	44,300	434	3225

1N≒0.102kgf

NV TYPE

–NV4／NV6／NV9／NV12–

STUDROLLER System



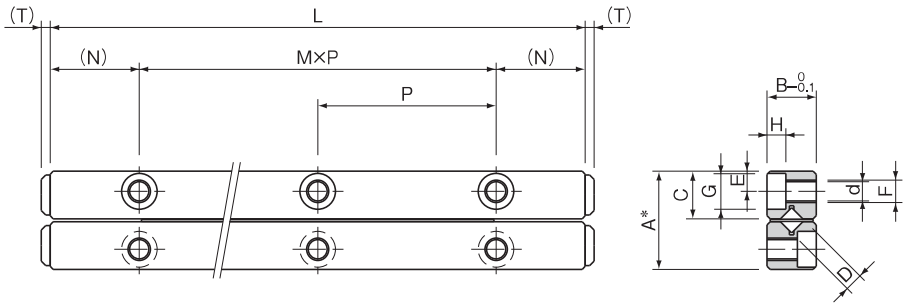
part number structure

example NVS 6 200 - 19Z - UP -KGLA

example NV 9 300 - 21Z -LB -KGF

- specification
  NV: standard
  NVS: anti-corrosion
- size
- rail length
- number of rollers
- grease symbol (refer to page Eng-51)
  blank: standard grease
  -KGLA: lithium-based low dust generation grease
  -KGU: urea-based low dust generation grease
  -KGF: anti-fretting grease
- with low temperature black chrome treatment
- accuracy grade
  blank: high
  P: precision
  UP: ultra precision

※Stainless steel rollers are used for anti-corrosion model. -LB is available as a custom product except for high precision, please contact NB for details.
NV12 is not supported with UP class.



High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 R-retainers, and 8 end pieces.

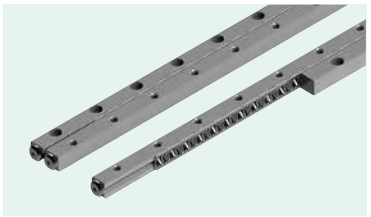
part number		stroke	roller diameter	number of rollers				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm
NV 4080- 9Z	NVS4080- 9Z	60	4	9	80	22	11	10.65
4120-17Z	4120-17Z	75		17	120			
4160-23Z	4160-23Z	105		23	160			
4200-29Z	4200-29Z	130		29	200			
4240-37Z	4240-37Z	143		37	240			
4280-43Z	4280-43Z	170		43	280			
NV 6100- 9Z	NVS6100- 9Z	63	6	9	100	31	15	15.15
6150-15Z	6150-15Z	85		15	150			
6200-19Z	6200-19Z	135		19	200			
6250-25Z	6250-25Z	158		25	250			
6300-31Z	6300-31Z	180		31	300			
6350-35Z	6350-35Z	230		35	350			
6400-39Z	6400-39Z	275		39	400			
NV 9200-13Z	—	120	9	13	200	44	22	21.5
9300-21Z	—	170		21	300			
9400-29Z	—	220		29	400			
9500-35Z	—	300		35	500			
NV12300-15Z	—	180	12	15	300	58	28	28.5
12400-21Z	—	230		21	400			
12500-27Z	—	280		27	500			
12600-31Z	—	380		31	600			

major dimensions								basic load rating		mass	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
1×40	20	4.5	M5	4.3	8	4.2	2	12,100	15,700	265	4080
2×40								20,700	31,500	400	4120
3×40								28,500	47,200	530	4160
4×40								32,100	55,100	660	4200
5×40								39,000	70,900	800	4240
6×40								45,600	86,600	930	4280
1×50	25	6	M6	5.2	9.5	5.2	3	29,600	37,500	650	6100
2×50								50,900	75,100	970	6150
3×50								60,600	93,900	1,300	6200
4×50								69,800	112,000	1,620	6250
5×50								87,400	150,000	1,940	6300
6×50								95,800	169,000	2,360	6350
7×50								104,000	187,000	2,780	6400
1×100	50	9	M8	6.8	10.5	6.2	4	96,100	128,000	2,720	9200
2×100								143,000	213,000	4,080	9300
3×100								186,000	298,000	5,440	9400
4×100								226,000	384,000	6,790	9500
2×100	50	12	M10	8.5	13.5	8.2	4	228,000	317,000	6,770	12300
3×100								271,000	397,000	9,040	12400
4×100								352,000	555,000	11,300	12500
5×100								391,000	635,000	13,560	12600

1N≒0.102kgf

NVS-RNS TYPE
–Special Environments Type–
NV-RN TYPE
–All Steel Type–

STUDROLLER System

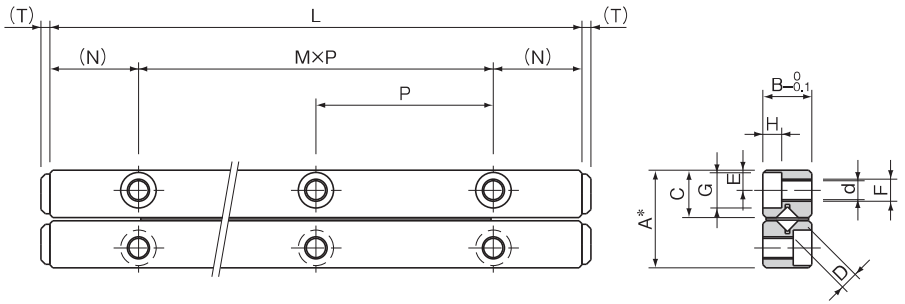


part number structure

example NVS 4 200 - RNS 27Z - P -KGLA
example NV 3 050 - RN 9Z -LB -KGF

- specification — NV: standard; NVS: anti-corrosion
- size
- rail length
- cage type — RNS: stainless steel cage, stainless steel roller; RN: stainless steel cage, steel roller
- number of rollers
- accuracy grade — blank: high; P: precision; UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. -LB is available as a custom product except for high precision, please contact NB for details.



High: A-0.2 Precision (P): A-0.1 Ultra Precision (UP): A-0.1
One set consists of 4 rails, 2 roller cages, and 8 end pieces.

part number special environments type	part number all steel type	stroke ST mm	roller diameter D mm	number of rollers Z	major dimensions L mm	A mm	B mm	C mm	M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	basic load rating dynamic C N	basic load rating static Co N	mass (one set) g	size
NVS2030-RNS 7Z	NV 2030-RN 7Z	15	2	7	30	12	6	5.7	1×15	7.5	2.5	M3	2.55	4.4	2	1.2	2,320	3,050	30	2030
2045-RNS11Z	2045-RN11Z	20		11	45				2×15								3,190	4,580	44	2045
2060-RNS13Z	2060-RN13Z	30		13	60				3×15								3,190	4,580	58	2060
2075-RNS17Z	2075-RN17Z	40		17	75				4×15								4,000	6,110	73	2075
2090-RNS21Z	2090-RN21Z	50		21	90				5×15								4,760	7,630	87	2090
2105-RNS23Z	2105-RN23Z	65		23	105				6×15								5,490	9,160	101	2105
2120-RNS27Z	2120-RN27Z	70		27	120				7×15								6,190	10,600	115	2120
2135-RNS31Z	2135-RN31Z	80		31	135				8×15								6,870	12,200	130	2135
2150-RNS33Z	2150-RN33Z	90		33	150				9×15								6,870	12,200	144	2150
2165-RNS37Z	2165-RN37Z	95		37	165				10×15								7,530	13,700	158	2165
2180-RNS43Z	2180-RN43Z	100		43	180				11×15								8,800	16,800	173	2180
NVS3050-RNS 9Z	NV 3050-RN 9Z	20	3	9	50	18	8	8.65	1×25	12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	102	3050
3075-RNS13Z	3075-RN13Z	38		13	75				2×25								8,460	12,100	151	3075
3100-RNS17Z	3100-RN17Z	55		17	100				3×25								10,600	16,100	200	3100
3125-RNS21Z	3125-RN21Z	70		21	125				4×25								12,600	20,100	249	3125
3150-RNS25Z	3150-RN25Z	85		25	150				5×25								14,500	24,200	297	3150
3175-RNS29Z	3175-RN29Z	103		29	175				6×25								16,400	28,200	346	3175
3200-RNS33Z	3200-RN33Z	113		33	200				7×25								18,200	32,200	395	3200
3225-RNS35Z	3225-RN35Z	150		35	225				8×25								19,900	36,300	443	3225
NVS4080-RNS 9Z	NV 4080-RN 9Z	58	4	9	80	22	11	10.65	1×40	20	4.5	M5	4.3	8	4.2	2	12,100	15,700	269	4080
4120-RNS17Z	4120-RN17Z	60		17	120				2×40								20,800	31,500	405	4120
4160-RNS21Z	4160-RN21Z	98		21	160				3×40								24,800	39,300	536	4160
4200-RNS27Z	4200-RN27Z	115		27	200				4×40								32,200	55,100	670	4200
4240-RNS31Z	4240-RN31Z	143		31	240				5×40								35,800	63,000	801	4240
4280-RNS37Z	4280-RN37Z	170		37	280				6×40								39,200	70,900	935	4280

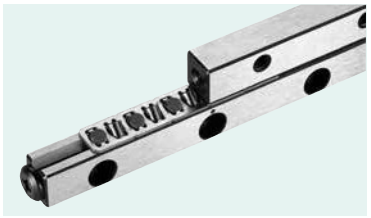
※Some specification values are different from those of NV standard type. Please contact NB for details.

1N≒0.102kgf

HV TYPE

–HV2／HV3–

Upgraded model



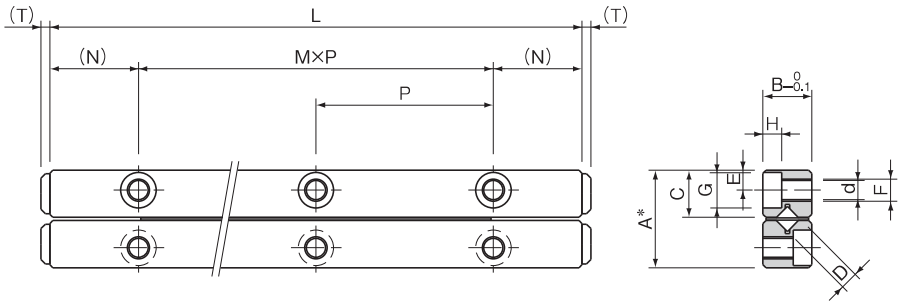
part number structure

example HVS 2 150 - 34Z - UP -KGLA

example HV 3 200 - 33Z -LB -KGF

- specification — HV: standard; HVS: anti-corrosion
- size
- rail length
- number of rollers
- accuracy grade — blank: high; P: precision; UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-6)
-LB is available as a custom product except for high precision, please contact NB for details.



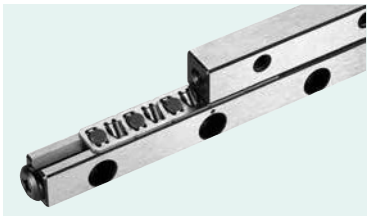
High grade: A-0.2 Precision grade (P): A-0.1 Ultra Precision grade (UP): A-0.1
One set consists of 4 rails, 2 R-retainers, and 8 end pieces.

part number		stroke	roller diameter	number of rollers	major dimensions							basic load rating		mass	size
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm	M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
HV 2030- 6Z	HVS 2030- 6Z	22	2	6	30	12	6	5.7	1×15	7.5	2.5	M3	2.55	4.4	2	1.2	1,850	2,290	30	2030
2045-10Z	2045-10Z	28		10	45				2×15								2,760	3,810	44	2045
2060-14Z	2060-14Z	34		14	60				3×15								3,600	5,340	59	2060
2075-17Z	2075-17Z	46		17	75				4×15								4,000	6,110	73	2075
2090-21Z	2090-21Z	52		21	90				5×15								4,760	7,630	87	2090
2105-24Z	2105-24Z	64		24	105				6×15								5,490	9,160	101	2105
2120-28Z	2120-28Z	70		28	120				7×15								6,190	10,600	116	2120
2135-30Z	2135-30Z	88		30	135				8×15								6,530	11,400	130	2135
2150-34Z	2150-34Z	94		34	150				9×15								7,200	12,900	144	2150
2165-38Z	2165-38Z	100		38	165				10×15								7,850	14,500	158	2165
2180-43Z	2180-43Z	100		43	180				11×15								8,490	16,000	173	2180
HV 3050- 8Z	HVS 3050- 8Z	31	3	8	50	18	8	8.65	1×25	12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	102	3050
3075-11Z	3075-11Z	56		11	75				2×25								7,330	10,000	150	3075
3100-16Z	3100-16Z	64		16	100				3×25								10,600	16,100	200	3100
3125-20Z	3125-20Z	80		20	125				4×25								12,600	20,100	249	3125
3150-25Z	3150-25Z	88		25	150				5×25								14,500	24,200	298	3150
3175-28Z	3175-28Z	113		28	175				6×25								16,400	28,200	346	3175
3200-33Z	3200-33Z	121		33	200				7×25								18,200	32,200	396	3200
3225-37Z	3225-37Z	137		37	225				8×25								19,900	36,300	445	3225
3250-42Z	3250-42Z	145		42	250				9×25								22,500	42,300	494	3250
3275-45Z	3275-45Z	170		45	275				10×25								23,300	44,300	542	3275
3300-50Z	3300-50Z	178		50	300				11×25								25,700	50,400	592	3300
3325-53Z	3325-53Z	203		53	325				12×25								26,500	52,400	640	3325
3350-58Z	3350-58Z	211		58	350				13×25								28,900	58,400	690	3350

1N≒0.102kgf

HV TYPE
−HV4−

Upgraded model

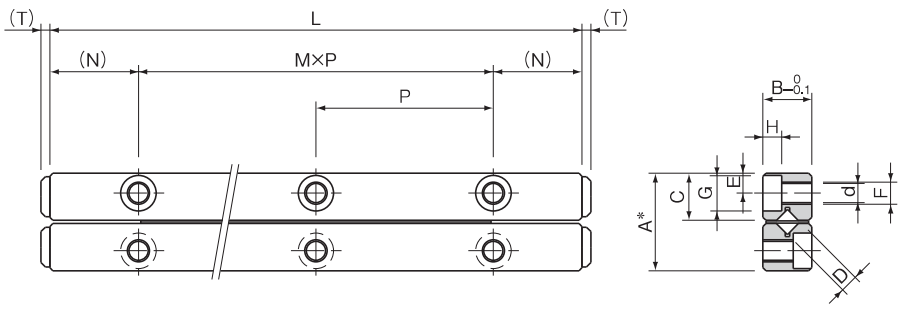


part number structure

example HVS 4 160 - 20Z - UP -KGLA
example HV 4 360 - 47Z -LB -KGF

- specification — HV: standard; HVS: anti-corrosion
- size
- rail length
- number of rollers
- accuracy grade — blank: high; P: precision; UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-6)
-LB is available as a custom product except for high precision, please contact NB for details.

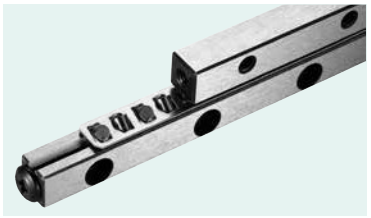


High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 R-retainers, and 8 end pieces.

part number		stroke	roller diameter	number of rollers						major dimensions							basic load rating		mass	size
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm	M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
HV 4080- 9Z	HVS 4080- 9Z	64		9	80				1×40								12,100	15,700	270	4080
4120-15Z	4120-15Z	82		15	120				2×40								18,700	27,500	404	4120
4160-20Z	4160-20Z	110		20	160				3×40								24,800	39,300	536	4160
4200-25Z	4200-25Z	138		25	200				4×40								28,600	47,200	669	4200
4240-31Z	4240-31Z	155		31	240				5×40								34,000	59,000	802	4240
4280-36Z	4280-36Z	183	4	36	280	22	11	10.65	6×40	20	4.5	M5	4.3	8	4.2	2	39,200	70,900	935	4280
4320-42Z	4320-42Z	201		42	320				7×40								44,200	82,700	1,070	4320
4360-47Z	4360-47Z	229		47	360				8×40								47,500	90,600	1,210	4360
4400-52Z	4400-52Z	257		52	400				9×40								52,200	102,000	1,340	4400
4440-58Z	4440-58Z	274		58	440				10×40								56,900	114,000	1,470	4440
4480-63Z	4480-63Z	302		63	480				11×40								59,900	122,000	1,600	4480

1N≒0.102kgf

SV TYPE
–SV1／SV2–

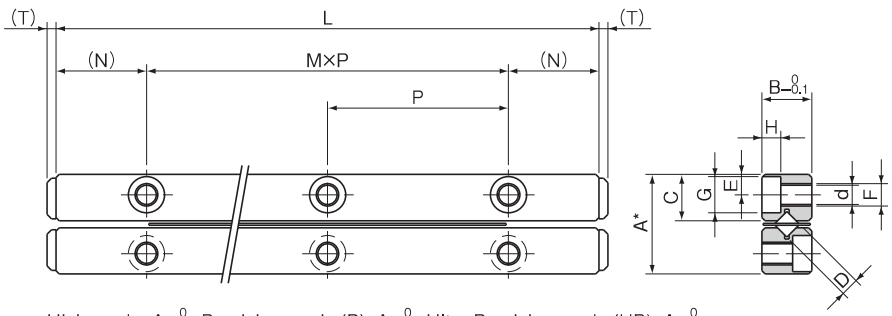


part number structure

example SVS 2 150 - 26Z - UP -KGLA
example SV 1 020 - 5Z -LB -KGF

- specification — SV: standard; SVS: anti-corrosion
- size
- rail length
- number of rollers
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease
- with low temperature black chrome treatment
- accuracy grade — blank: high; P: precision; UP: ultra precision

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-5)
-LB is available as a custom product except for high precision, please contact NB for details.



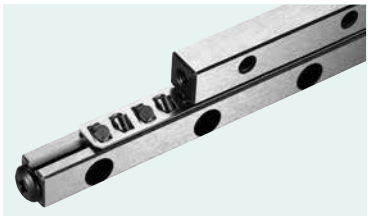
High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 roller cages, and 8 end pieces.

part number		stroke	roller diameter	number of rollers				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm
SV 1020-5Z	SVS 1020-5Z	12	1.5	5	20	8.5	4	3.8
1030-7Z	1030-7Z	20		7	30			
1040-10Z	1040-10Z	27		10	40			
1050-13Z	1050-13Z	32		13	50			
1060-16Z	1060-16Z	37		16	60			
1070-19Z	1070-19Z	42		19	70			
1080-21Z	1080-21Z	50		21	80			
SV 2030-5Z	SVS 2030-5Z	18	2	5	30	12	6	5.5
2045-8Z	2045-8Z	24		8	45			
2060-11Z	2060-11Z	30		11	60			
2075-13Z	2075-13Z	44		13	75			
2090-16Z	2090-16Z	50		16	90			
2105-18Z	2105-18Z	64		18	105			
2120-21Z	2120-21Z	70		21	120			
2135-23Z	2135-23Z	84		23	135			
2150-26Z	2150-26Z	90		26	150			
2165-29Z	2165-29Z	95		29	165			
2180-32Z	2180-32Z	100		32	180			

major dimensions								basic load rating		mass	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
1×10	5	1.8	M2	1.65	3	1.4	0.8	464	476	11	1020
2×10								641	714	14	1030
3×10								959	1,190	18	1040
4×10								1,100	1,420	22	1050
5×10								1,380	1,900	26	1060
6×10								1,510	2,140	30	1070
7×10								1,650	2,380	34	1080
1×15	7.5	2.5	M3	2.55	4.4	2	1.2	1,090	1,170	28	2030
2×15								1,900	2,340	42	2045
3×15								2,270	2,930	55	2060
4×15								2,620	3,510	69	2075
5×15								3,280	4,680	83	2090
6×15								3,590	5,270	96	2105
7×15								3,900	5,860	110	2120
8×15								4,210	6,440	123	2135
9×15								4,790	7,610	137	2150
10×15								5,080	8,200	151	2165
11×15								5,640	9,370	165	2180

1N≒0.102kgf

SV TYPE
–SV3／SV4–

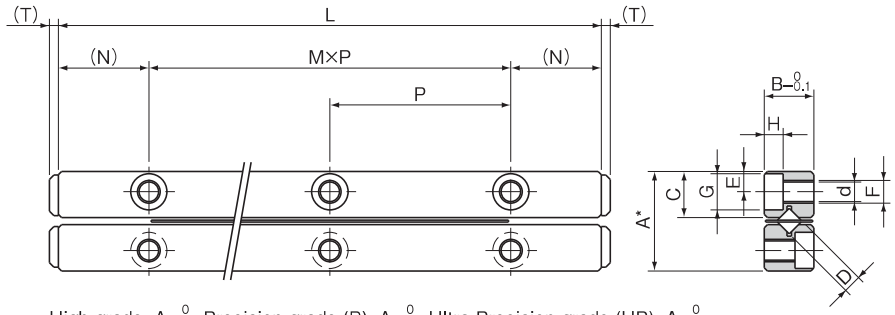


part number structure

example SVS 4 200 - RAS 19Z - UP -KGLA
example SV 3 350 - 49Z -LB -KGU

- specification — SV: standard; SVS: anti-corrosion
- size
- rail length
- cage type — blank: standard cage; RA: aluminum cage, standard roller; RAS: aluminum cage, stainless steel roller
- number of rollers
- accuracy grade — blank: high; P: precision; UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-5)
-LB is available as a custom product except for high precision, please contact NB for details.



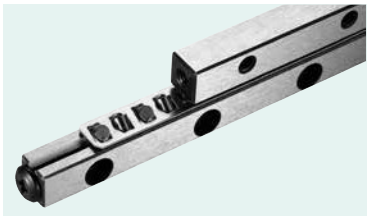
High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 roller cages, and 8 end pieces.

part number		stroke	roller diameter	number of rollers				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm
SV 3050-7Z	SVS 3050-7Z	28	3	7	50	18	8	8.3
3075-10Z	3075-10Z	48		10	75			
3100-14Z	3100-14Z	58		14	100			
3125-17Z	3125-17Z	78		17	125			
3150-21Z	3150-21Z	88		21	150			
3175-24Z	3175-24Z	105		24	175			
3200-28Z	3200-28Z	115		28	200			
3225-31Z	3225-31Z	135		31	225			
3250-35Z	3250-35Z	145		35	250			
3275-38Z	3275-38Z	165		38	275			
3300-42Z	3300-42Z	175		42	300			
3325-45Z	3325-45Z	195		45	325			
3350-49Z	3350-49Z	205		49	350			
SV 4080-7Z	SVS 4080-7Z	58	4	7	80	22	11	10.2
4120-11Z	4120-11Z	82		11	120			
4160-15Z	4160-15Z	105		15	160			
4200-19Z	4200-19Z	130		19	200			
4240-23Z	4240-23Z	150		23	240			
4280-27Z	4280-27Z	175		27	280			
4320-31Z	4320-31Z	200		31	320			
4360-35Z	4360-35Z	225		35	360			
4400-39Z	4400-39Z	250		39	400			
4440-43Z	4440-43Z	270		43	440			
4480-47Z	4480-47Z	295		47	480			

major dimensions								basic load rating		mass	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
1×25	12.5	3.5	M4	3.3	6	3.1	2	3,490	3,890	94	3050
2×25								5,230	6,490	135	3075
3×25								6,810	9,080	187	3100
4×25								7,560	10,300	234	3125
5×25								9,000	12,900	281	3150
6×25								10,300	15,500	327	3175
7×25								11,700	18,100	374	3200
8×25								12,300	19,400	421	3225
9×25								13,600	22,000	468	3250
10×25								14,800	24,600	514	3275
11×25								16,000	27,200	561	3300
12×25								16,600	28,500	608	3325
13×25								17,800	31,100	655	3350
1×40	20	4.5	M5	4.3	8	4.2	2	7,110	7,920	255	4080
2×40								10,600	13,200	385	4120
3×40								13,800	18,400	510	4160
4×40								16,800	23,700	635	4200
5×40								19,700	29,000	770	4240
6×40								22,400	34,300	905	4280
7×40								25,100	39,600	1,020	4320
8×40								27,600	44,800	1,160	4360
9×40								30,200	50,100	1,280	4400
10×40								32,600	55,400	1,410	4440
11×40								35,000	60,700	1,540	4480

1N≒0.102kgf

SV TYPE
–SV6／SV9–

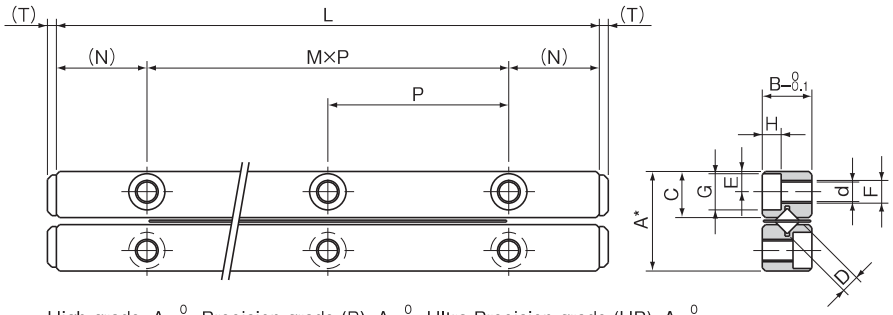


part number structure

example SVS 6 200 - RAS 16Z - UP -KGLA
example SV 9 300 - 15Z -LB -KGU

- specification — SV: standard; SVS: anti-corrosion
- size
- rail length
- cage type — blank: standard cage; RA: aluminum cage, standard roller; RAS: aluminum cage, stainless steel roller
- number of rollers
- accuracy grade — blank: high; P: precision; UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-5)
-LB is available as a custom product except for high precision, please contact NB for details.



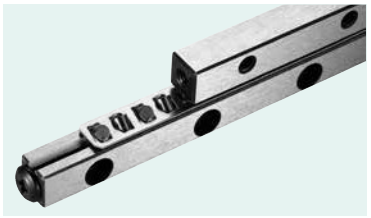
High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$ Ultra Precision grade (UP): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 roller cages, and 8 end pieces.

part number		stroke	roller diameter	number of rollers				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm
SV 6100-8Z	SVS 6100-8Z	55	6	8	100	31	15	14.2
6150-12Z	6150-12Z	85		12	150			
6200-16Z	6200-16Z	120		16	200			
6250-20Z	6250-20Z	150		20	250			
6300-24Z	6300-24Z	185		24	300			
6350-28Z	6350-28Z	215		28	350			
6400-32Z	6400-32Z	245		32	400			
6450-36Z	6450-36Z	280		36	450			
6500-40Z	6500-40Z	310		40	500			
6600-49Z	6600-49Z	360		49	600			
SV 9200-10Z	SVS 9200-10Z	115	9	10	200	44	22	20.2
9300-15Z	9300-15Z	175		15	300			
9400-20Z	9400-20Z	235		20	400			
9500-25Z	9500-25Z	295		25	500			
9600-30Z	9600-30Z	355		30	600			
9700-35Z	9700-35Z	415		35	700			
9800-40Z	9800-40Z	475		40	800			
9900-45Z	9900-45Z	535		45	900			
91000-50Z	91000-50Z	595		50	1,000			

major dimensions								basic load rating		mass	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
1×50	25	6	M6	5.2	9.5	5.2	3	20,700	23,600	628	6100
2×50								28,500	35,500	942	6150
3×50								35,700	47,300	1,260	6200
4×50								42,500	59,200	1,570	6250
5×50								49,000	71,000	1,880	6300
6×50								55,300	82,800	2,200	6350
7×50								61,400	94,700	2,510	6400
8×50								67,300	106,000	2,830	6450
9×50								73,100	118,000	3,140	6500
11×50								84,200	142,000	3,770	6600
1×100	50	9	M8	6.8	10.5	6.2	4	60,900	70,700	2,720	9200
2×100								79,300	98,900	4,030	9300
3×100								104,000	141,000	5,380	9400
4×100								120,000	169,000	6,700	9500
5×100								143,000	212,000	8,050	9600
6×100								158,000	240,000	9,230	9700
7×100								180,000	282,000	10,500	9800
8×100								193,000	311,000	11,900	9900
9×100								214,000	353,000	13,000	91000

1N≒0.102kgf

SV TYPE
–SV12–

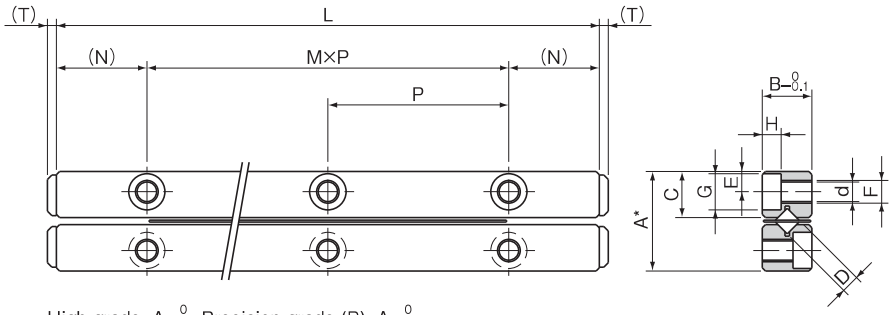


part number structure

example SVS 12 500 - 17Z - P -KGLA
example SV 12 300 - 10Z -LB -KGU

- specification
  SV: standard
  SVS: anti-corrosion
- size
- rail length
- number of rollers
- grease symbol (refer to page Eng-51)
  blank: standard grease
  -KGLA: lithium-based low dust generation grease
  -KGU: urea-based low dust generation grease
  -KGF: anti-fretting grease
- with low temperature black chrome treatment
- accuracy grade blank: high P: precision

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-5)
-LB is available as a custom product except for high precision, please contact NB for details.



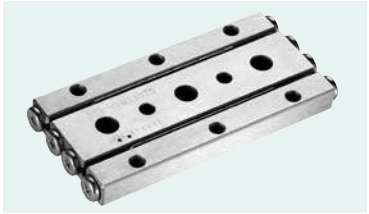
High grade: A-$^{0}_{0.2}$ Precision grade (P): A-$^{0}_{0.1}$
One set consists of 4 rails, 2 roller cages, and 8 end pieces.

part number		stroke	roller diameter	number of rollers	major dimensions								basic load rating		mass	size
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	B mm	C mm	M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
SV12300-10Z	SVS12300-10Z	200	12	10	300	58	28	27	2×100	50	12	M10	8.5	13.5	8.2	4	124,000	145,000	6,880	12300
12400-14Z	12400-14Z	240		14	400				3×100								162,000	203,000	9,090	12400
12500-17Z	12500-17Z	320		17	500				4×100								180,000	232,000	11,400	12500
12600-21Z	12600-21Z	360		21	600				5×100								214,000	290,000	13,700	12600
12700-24Z	12700-24Z	440		24	700				6×100								247,000	348,000	15,800	12700
12800-28Z	12800-28Z	480		28	800				7×100								279,000	406,000	18,200	12800
12900-31Z	12900-31Z	560		31	900				8×100								294,000	435,000	20,500	12900
121000-34Z	121000-34Z	640		34	1,000				9×100								324,000	493,000	22,800	121000
121100-38Z	—	680		38	1,100				10×100								354,000	551,000	25,000	121100
121200-42Z	—	720		42	1,200				11×100								382,000	609,000	27,300	121200

1N≒0.102kgf

HVW TYPE

Upgraded model



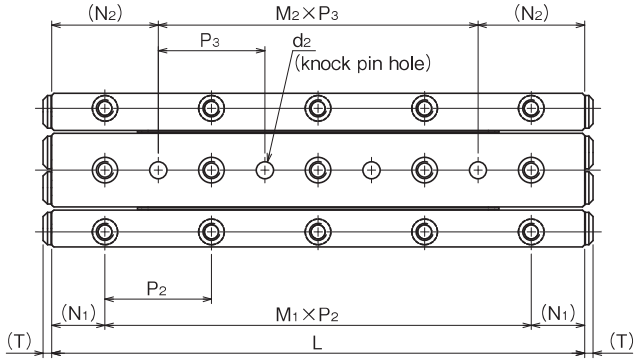
part number structure

example HVWS 4 200 - 25Z - UP -KGLA

example HVW 2 090 - 21Z -LB -KGU

- specification — HVW: standard; HVWS: anti-corrosion
- size
- rail length
- number of rollers
- grease symbol (refer to page Eng-51) — blank: standard grease; -KGLA: lithium-based low dust generation grease; -KGU: urea-based low dust generation grease; -KGF: anti-fretting grease
- with low temperature black chrome treatment
- accuracy grade — blank: high; P: precision; UP: ultra precision

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-6)
-LB is available as a custom product except for high precision, please contact NB for details.

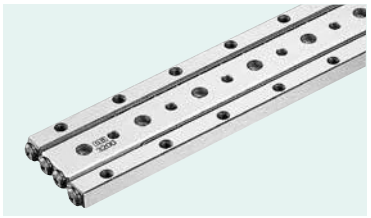


part number standard	part number anti-corrosion	stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	t mm	B1 mm	B2 mm	C mm	P1 mm	M1×P2 mm
HVW 2030- 6Z	HVWS 2030- 6Z	22	2	6	30	6.5	0.5	24	11.4	5.7	19	1×15
2045-10Z	2045-10Z	28		10	45							2×15
2060-14Z	2060-14Z	34		14	60							3×15
2075-17Z	2075-17Z	46		17	75							4×15
2090-21Z	2090-21Z	52		21	90							5×15
2105-24Z	2105-24Z	64		24	105							6×15
2120-28Z	2120-28Z	70		28	120							7×15
HVW 3050- 8Z	HVWS 3050- 8Z	31	3	8	50	8.5	0.5	36	17.3	8.65	29	1×25
3075-11Z	3075-11Z	56		11	75							2×25
3100-16Z	3100-16Z	64		16	100							3×25
3125-20Z	3125-20Z	80		20	125							4×25
3150-25Z	3150-25Z	88		25	150							5×25
3175-28Z	3175-28Z	113		28	175							6×25
3200-33Z	3200-33Z	121		33	200							7×25
HVW 4080- 9Z	HVWS 4080- 9Z	64	4	9	80	11.5	0.5	44	21.3	10.65	35	1×40
4120-15Z	4120-15Z	82		15	120							2×40
4160-20Z	4160-20Z	110		20	160							3×40
4200-25Z	4200-25Z	138		25	200							4×40
4240-31Z	4240-31Z	155		31	240							5×40
4280-36Z	4280-36Z	183		36	280							6×40

major dimensions N1 mm	F	d1 mm	G mm	H mm	M2×P3 mm	N2 mm	d2 mm	T mm	basic load rating dynamic C N	basic load rating static Co N	mass (one set) g	size
7.5	M3	2.55	4.4	2	—	15	$3^{+0.010}_{0}$	1.2	1,850	2,290	30	2030
					1×15				2,760	3,810	45	2045
					2×15				3,600	5,340	59	2060
					3×15				4,000	6,110	74	2075
					4×15				4,760	7,630	88	2090
					5×15				5,490	9,160	102	2105
					6×15				6,190	10,600	117	2120
12.5	M4	3.3	6	3.1	—	25	$4^{+0.012}_{0}$	2	6,150	8,060	104	3050
					1×25				7,330	10,000	152	3075
					2×25				10,600	16,100	202	3100
					3×25				12,600	20,100	251	3125
					4×25				14,500	24,200	301	3150
					5×25				16,400	28,200	349	3175
					6×25				18,200	32,200	399	3200
20	M5	4.3	8	4.2	—	40	$5^{+0.012}_{0}$	2	12,100	15,700	273	4080
					1×40				18,700	27,500	408	4120
					2×40				24,800	39,300	542	4160
					3×40				28,600	47,200	675	4200
					4×40				34,000	59,000	810	4240
					5×40				39,200	70,900	943	4280

1N≒0.102kgf

SVW TYPE

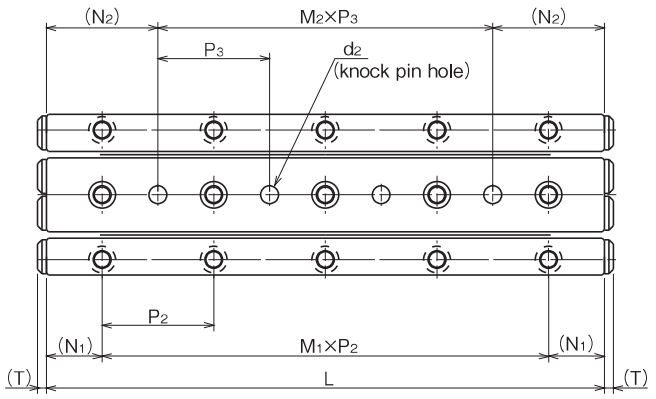


part number structure

example SVWS 4 200 - RAS 19Z - UP -KGLA
example SVW 1 050 - 13Z -LB -KGU

- specification
  SVW: standard
  SVWS: anti-corrosion
- size
- rail length
- cage type
  blank: standard cage
  RA: aluminum cage, standard roller
  RAS: aluminum cage, stainless steel roller
- number of rollers
- accuracy grade blank: high, P: precision, UP: ultra precision
- with low temperature black chrome treatment
- grease symbol (refer to page Eng-51)
  blank: standard grease
  -KGLA: lithium-based low dust generation grease
  -KGU: urea-based low dust generation grease
  -KGF: anti-fretting grease

※Stainless steel rollers are used for anti-corrosion model. (refer to page A-5)
Aluminum cage is not available for size 1 and 2.
-LB is available as a custom product except for high precision, please contact NB for details.



part number		stroke	roller diameter	number of rollers								
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	t mm	B1 mm	B2 mm	C mm	P1 mm	M1×P2 mm
SVW 1020- 5Z	SVWS 1020- 5Z	12	1.5	5	20	4.5	0.5	17	7.6	3.8	13.4	1×10
1030- 7Z	1030- 7Z	20		7	30							2×10
1040-10Z	1040-10Z	27		10	40							3×10
1050-13Z	1050-13Z	32		13	50							4×10
1060-16Z	1060-16Z	37		16	60							5×10
1070-19Z	1070-19Z	42		19	70							6×10
1080-21Z	1080-21Z	50		21	80							7×10
SVW 2030- 5Z	SVWS 2030- 5Z	18	2	5	30	6.5	0.5	24	11	5.5	19	1×15
2045- 8Z	2045- 8Z	24		8	45							2×15
2060-11Z	2060-11Z	30		11	60							3×15
2075-13Z	2075-13Z	44		13	75							4×15
2090-16Z	2090-16Z	50		16	90							5×15
2105-18Z	2105-18Z	64		18	105							6×15
2120-21Z	2120-21Z	70		21	120							7×15
SVW 3050- 7Z	SVWS 3050- 7Z	28	3	7	50	8.5	0.5	36	16.6	8.3	29	1×25
3075-10Z	3075-10Z	48		10	75							2×25
3100-14Z	3100-14Z	58		14	100							3×25
3125-17Z	3125-17Z	78		17	125							4×25
3150-21Z	3150-21Z	88		21	150							5×25
3175-24Z	3175-24Z	105		24	175							6×25
3200-28Z	3200-28Z	115		28	200							7×25
SVW 4080- 7Z	SVWS 4080- 7Z	58	4	7	80	11.5	0.5	44	20.4	10.2	35	1×40
4120-11Z	4120-11Z	82		11	120							2×40
4160-15Z	4160-15Z	105		15	160							3×40
4200-19Z	4200-19Z	130		19	200							4×40
4240-23Z	4240-23Z	150		23	240							5×40
4280-27Z	4280-27Z	175		27	280							6×40

major dimensions									basic load rating		mass	size
N1 mm	F	d1 mm	G mm	H mm	M2×P3 mm	N2 mm	d2 mm	T mm	dynamic C N	static Co N	(one set) g	
5	M2	1.65	3	1.4	–	10	$2^{+0.010}_{0}$	0.8	464	476	11	1020
					1×10				641	714	14	1030
					2×10				959	1,190	18	1040
					3×10				1,100	1,420	22	1050
					4×10				1,380	1,900	26	1060
					5×10				1,510	2,140	30	1070
					6×10				1,650	2,380	34	1080
7.5	M3	2.55	4.4	2	–	15	$3^{+0.010}_{0}$	1.2	1,090	1,170	28	2030
					1×15				1,900	2,340	42	2045
					2×15				2,270	2,930	55	2060
					3×15				2,620	3,510	69	2075
					4×15				3,280	4,680	83	2090
					5×15				3,590	5,270	96	2105
					6×15				3,900	5,860	110	2120
12.5	M4	3.3	6	3.1	–	25	$4^{+0.012}_{0}$	2	3,490	3,890	94	3050
					1×25				5,230	6,490	135	3075
					2×25				6,810	9,080	187	3100
					3×25				7,560	10,300	234	3125
					4×25				9,000	12,900	281	3150
					5×25				10,300	15,500	327	3175
					6×25				11,700	18,100	374	3200
20	M5	4.3	8	4.2	–	40	$5^{+0.012}_{0}$	2	7,110	7,920	255	4080
					1×40				10,600	13,200	385	4120
					2×40				13,800	18,400	510	4160
					3×40				16,800	23,700	635	4200
					4×40				19,700	29,000	770	4240
					5×40				22,400	34,300	905	4280

1N≒0.102kgf