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SLIDE WAY

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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

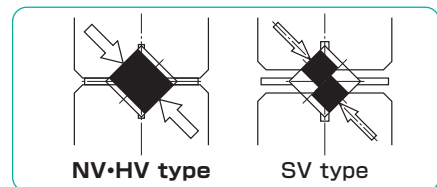


Figure A-3 Structure of NV type

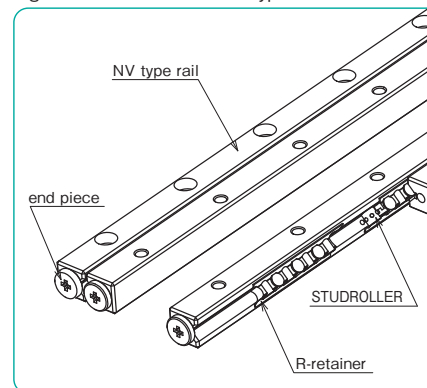
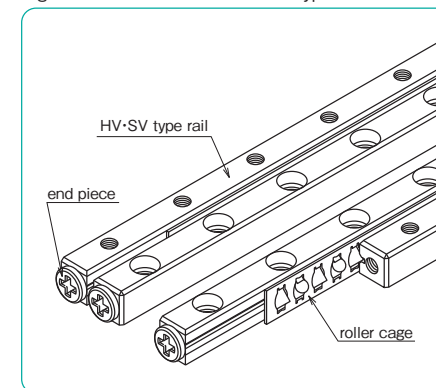


Figure A-4 Structure of HV·SV type



※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.

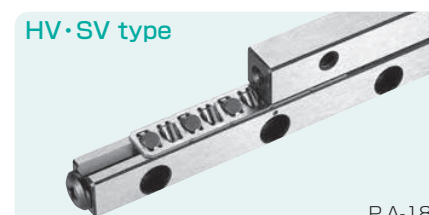
HVW·SVW type



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.

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.

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°C~80°C
NVS	stainless steel		stainless steel	
NVS-RNS		stainless steel	stainless steel	-20°C~140°C
NV-RN	steel	stainless steel	steel	-20°C~110°C
HV	steel	stainless steel	steel	-20°C~110°C
HVS	stainless steel		stainless steel	-20°C~140°C
HVW	steel		steel	-20°C~110°C
HVWS	stainless steel		stainless steel	-20°C~140°C
SV	steel	stainless steel	steel	-20°C~110°C
SV-RA		aluminum		
SVS	stainless steel	stainless steel	stainless steel	-20°C~140°C
SVS-RAS		aluminum		
SVW	steel	stainless steel	steel	-20°C~110°C
SVW-RA		aluminum		
SVWS	stainless steel	stainless steel	stainless steel	-20°C~140°C
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

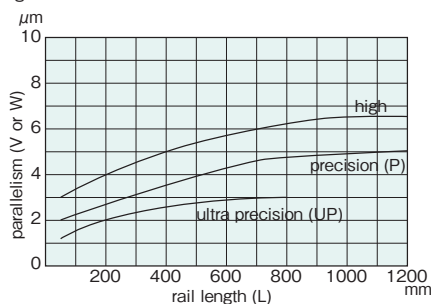
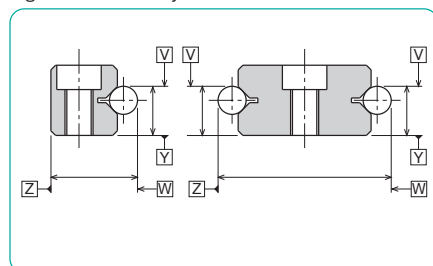


Figure A-6 Accuracy Measurement Method



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

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

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

$$L_h = \frac{L \cdot 10^6}{2 \cdot l_s \cdot n \cdot 60}$$

L_h: life time (hr) l_s: stroke length (mm)
n: 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	$C = \left\{ 2P \left(\frac{Z}{2} - 1 \right) \right\}^{\frac{1}{10}} \cdot \left(\frac{Z}{2} \right)^{\frac{3}{5}} \cdot 2^{\frac{7}{5}} \cdot C_1$
basic static load rating C ₀	$C_0 = \frac{Z}{2} \cdot C_{01} \cdot 2$
allowable load F	$F = \frac{Z}{2} \cdot F_1 \cdot 2$

C: basic dynamic load rating (N)
C₀: basic static load rating (N)
F: allowable load (N)
C₁: basic dynamic load rating per roller (N)
C₀₁: basic static load rating per roller (N)
F₁: 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)

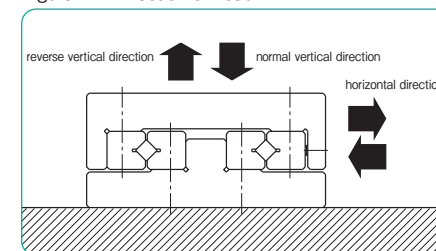
The load rating of the NV type differs depending on the direction of the load.

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×C ₀
	horizontal direction	0.85×C ₀
	reverse vertical direction	0.7×C ₀

* 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

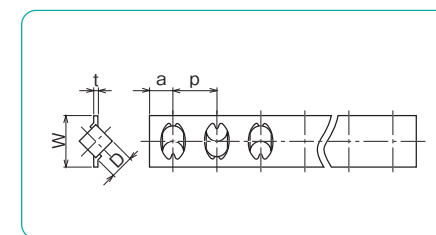
– Standard Roller Cage –
part number structure

example **RS 6 - 15Z**

specification
R: standard roller
RS: stainless steel roller

number of rollers

size



part number		D	t	W	p	a	C ₁	C ₀₁	F ₁
standard	anti-corrosion	mm	mm	mm	mm	mm	N	N	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 C₁: dynamic load rating per roller C₀₁: static load rating per roller
F₁: allowable load per roller

RH·RHS TYPE

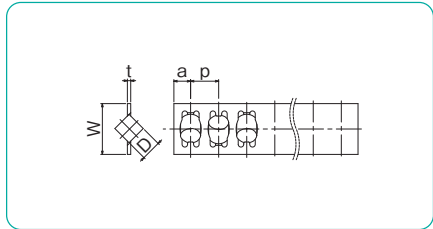
(HV·HVW Type standard roller cage)

part number structure

example **RH 3-15Z**

specification
 RH: standard roller
 RHS: stainless steel roller

number of rollers
 size



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 C₁: dynamic load rating per roller C₀₁: static load rating per roller
 F₁: allowable load per roller

RA·RAS TYPE

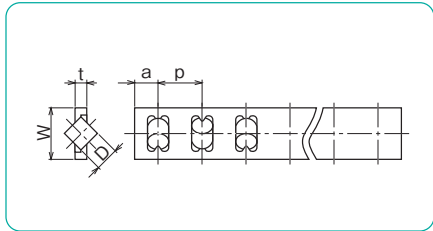
— Aluminum Roller Cage —

part number structure

example **RAS 6-15Z**

specification
 RA: standard roller
 RAS: stainless steel roller

number of rollers
 size



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 C₁: dynamic load rating per roller C₀₁: static load rating per roller
 F₁: 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
 $S \leq L/1.5$
 When the stroke is less than 400 mm,
 $S \leq L$

Cage length (l)
 $l \leq L - \frac{S}{2}$
 Number of rollers (Z)
 $Z = \frac{l - 2a}{p} + 1$

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

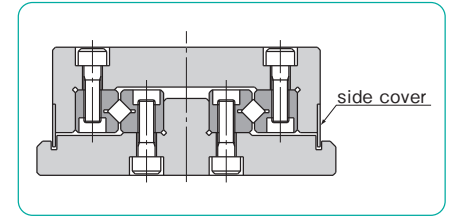
Lubrication

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

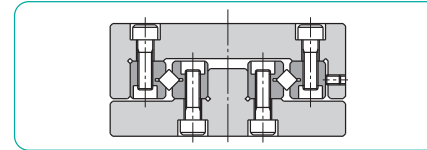
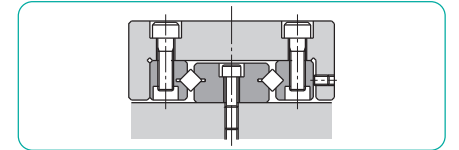


Figure A-11 HVW type, SVW type

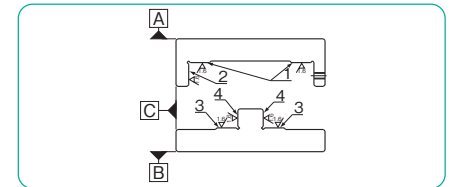


Accuracy of Mounting Surface

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 necessary 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

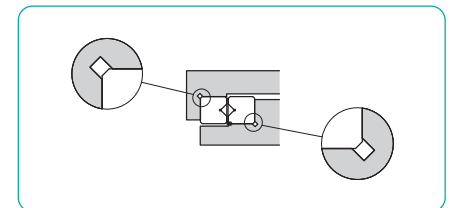


Figure A-14 Corner Radius

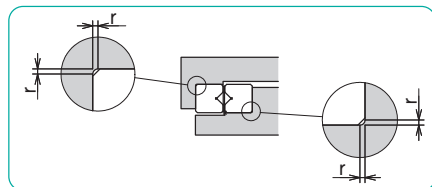


Table A-4 Maximum Corner Radius unit : mm

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

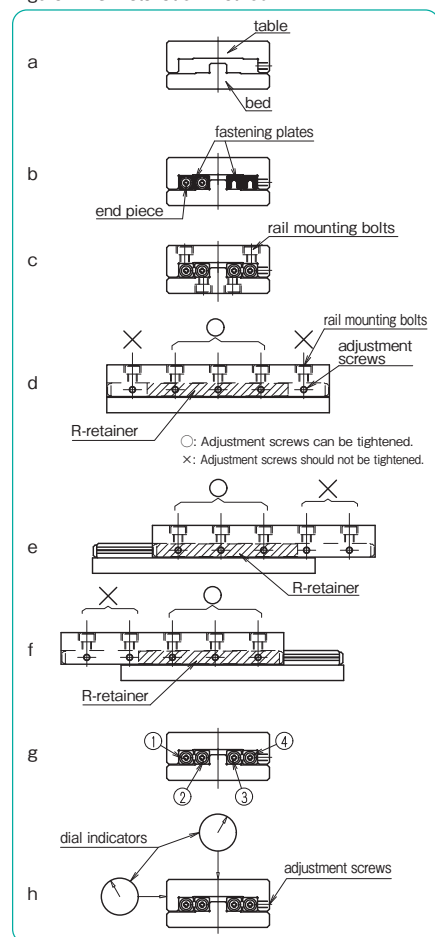
INSTALLATION PROCEDURE OF NV TYPE

Installation Procedure

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

- Remove burrs, scratches, and dust from the rail-mounting surface of the bed and the table, be careful to prevent contamination during assembly.
- Apply low-viscosity oil to the contact surfaces, and align the bed and the table. (Figure A-15a)
- 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)
- 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)
- 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.
- 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)
- 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)
- Move the table to the opposite stroke end, and tighten in the same manner as (6). (Figure A-15f)
- 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).
- Set the dial indicators to the center of the table and to the side (reference surface) of the table. (Figure A-15h)
- 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.
- 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.
- Recheck the motion accuracy while moving the table.
- 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

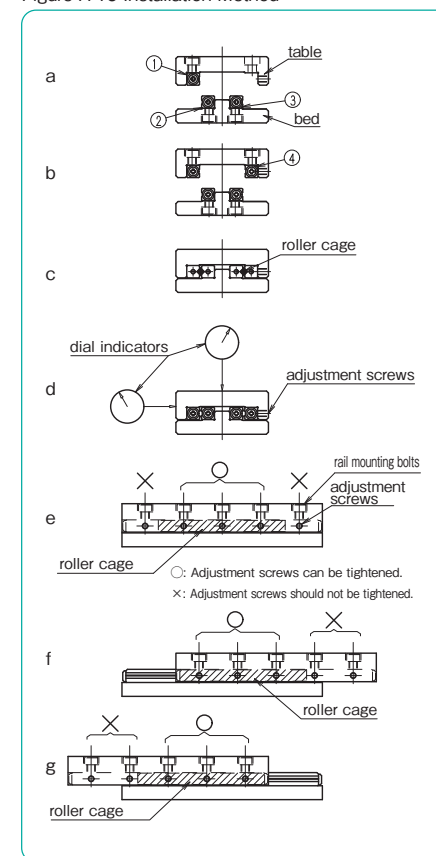
Installation Procedure

- Remove burrs, scratches, and dust from the rail-mounting surface of the bed and the table, be careful to prevent contamination during assembly.
- 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)
- Temporarily attach rail ④ on the adjustment side. (Turn the mounting bolt until it lightly stops, then loosen it slightly.) (Figure A-16b)
- Remove end pieces on one end. Carefully insert roller cages between rails. (Figure A-16c)
- Re-attach end pieces.
- Move the table slowly to each stroke end to position roller cages at the center of the rails.
- Set the dial indicators to the center of the table and to the side (reference surface) of the table. (Figure A-16d)
- Move the table to the center and lightly tighten only the adjusting screw on the roller cage. (Figure A-16e)
- Move the table to the stroke end on one side and lightly tighten the adjusting screw as in (8). (Figure A-16f)
- Move the table to the opposite stroke end and lightly tighten the adjusting screw as in (8). (Figure A-16g)
- 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).
- Make final adjustment of preload. Repeat steps (8) ~ (10) and tighten the adjustment screws with the recommended torque listed in Table A-5.
- Fasten the rail ④ securely with the recommended torque. As with the adjustment screws, successively tighten the rail mounting bolts by moving the table.

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

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-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

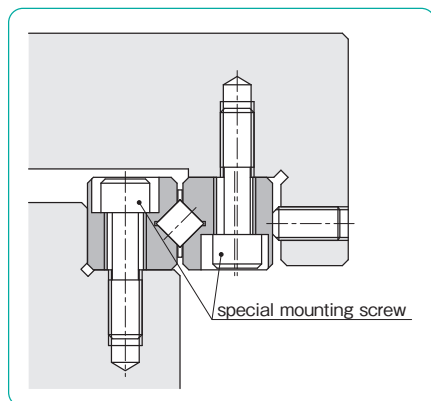
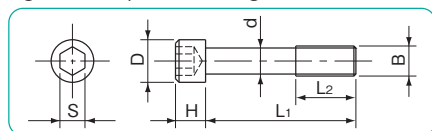


Table A-7 Special Mounting Screw

part number	B	d	D	H	L ₁	L ₂	S	applicable size
	mm	mm	mm	mm	mm	mm	mm	
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°C .

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.

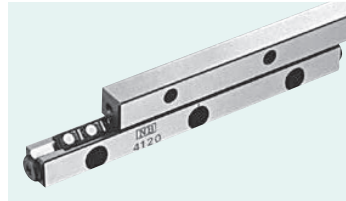
Knock Pin Hole

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

roller length

number of rollers

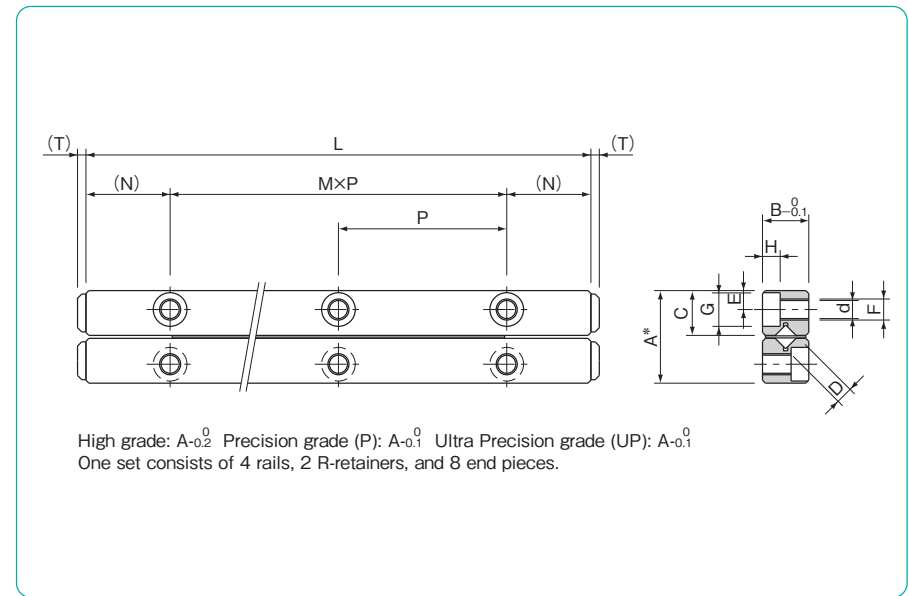
grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGU: urea-based low dust generation grease
 -KGF: anti-fretting grease

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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
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			

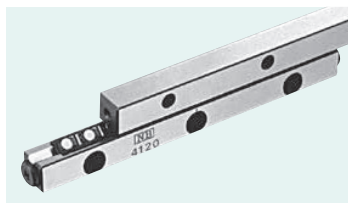


major dimensions								basic load rating dynamic C N	static Co N	mass (one set) g	size
M x P mm	N mm	E mm	F	d mm	G mm	H mm	T mm				
1x10	5	1.8	M2	1.65	3	1.4	0.8	734	849	9	1020
2x10								1,250	1,690	13	1030
3x10								1,720	2,540	18	1040
4x10								2,160	3,390	22	1050
5x10								2,560	4,240	26	1060
6x10								2,960	5,090	31	1070
7x10								3,330	5,940	35	1080
1x15	7.5	2.5	M3	2.55	4.4	2	1.2	1,360	1,520	33	2030
2x15								2,330	3,050	49	2045
3x15								3,990	6,110	62	2060
4x15								4,740	7,630	74	2075
5x15								5,460	9,160	91	2090
6x15								6,160	10,600	103	2105
7x15								6,830	12,200	120	2120
8x15								7,490	13,700	132	2135
9x15								8,130	15,200	149	2150
10x15								9,370	18,300	161	2165
11x15								9,970	19,800	174	2180
1x25	12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	97	3050
2x25								8,440	12,100	140	3075
3x25								12,500	20,100	192	3100
4x25								14,400	24,200	245	3125
5x25								16,300	28,200	290	3150
6x25								19,800	36,300	337	3175
7x25								21,500	40,300	385	3200
8x25								23,200	44,300	434	3225

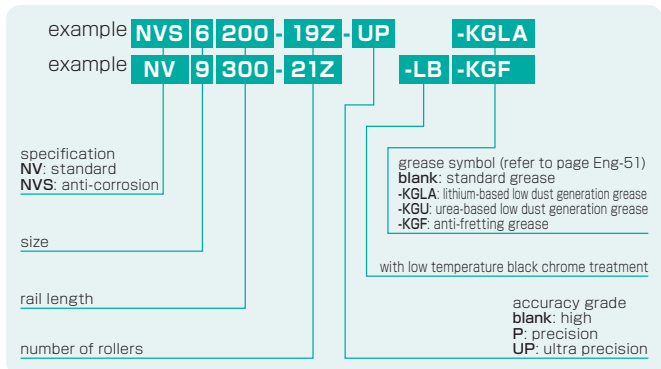
NV TYPE

-NV4/NV6/NV9/NV12-

STUDROLLER System

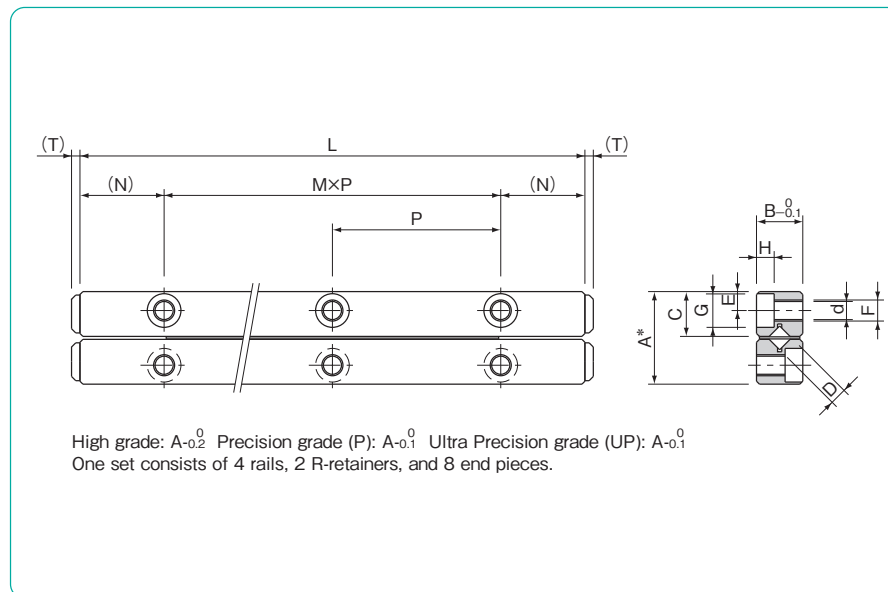


part number structure



*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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
NV 4080- 9Z	NVS 4080- 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	NVS 6100- 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 (one set) g	size
M x P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N		
1x40	20	4.5	M5	4.3	8	4.2	2	12,100	15,700	265	4080
2x40								20,700	31,500	400	4120
3x40								28,500	47,200	530	4160
4x40								32,100	55,100	660	4200
5x40								39,000	70,900	800	4240
6x40								45,600	86,600	930	4280
1x50	25	6	M6	5.2	9.5	5.2	3	29,600	37,500	650	6100
2x50								50,900	75,100	970	6150
3x50								60,600	93,900	1,300	6200
4x50								69,800	112,000	1,620	6250
5x50								87,400	150,000	1,940	6300
6x50								95,800	169,000	2,360	6350
7x50	104,000	187,000	2,780	6400							
1x100	50	9	M8	6.8	10.5	6.2	4	96,100	128,000	2,720	9200
2x100								143,000	213,000	4,080	9300
3x100								186,000	298,000	5,440	9400
4x100								226,000	384,000	6,790	9500
2x100								228,000	317,000	6,770	12300
3x100								271,000	397,000	9,040	12400
4x100	352,000	555,000	11,300	12500							
5x100	391,000	635,000	13,560	12600							

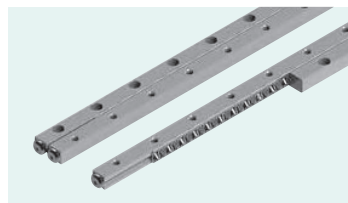
1N≒0.102kgf

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

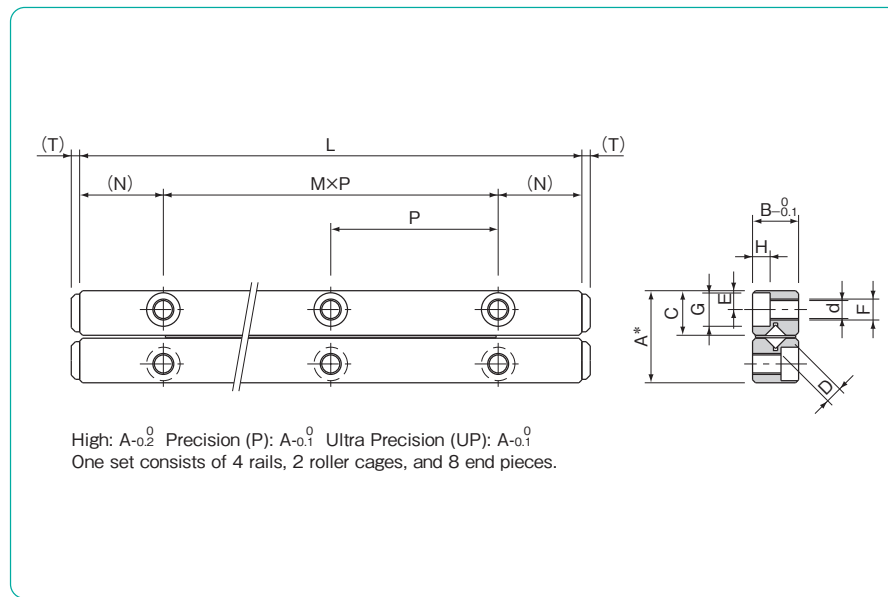
grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGU: urea-based low dust generation grease
 -KGF: anti-fretting grease

with low temperature black chrome treatment

accuracy grade blank: high
 P: precision
 UP: ultra precision

number of rollers

※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.



part number		stroke	roller diameter	number of rollers	major dimensions				
special environments type	all steel type	ST mm	D mm	Z	L mm	A mm	B mm	C mm	M×P mm
NVS2030-RNS 7Z	NV 2030-RN 7Z	15	2	7	30	12	6	5.7	1×15
2045-RNS11Z	2045-RN11Z	20		11	45				2×15
2060-RNS13Z	2060-RN13Z	30		13	60				3×15
2075-RNS17Z	2075-RN17Z	40		17	75				4×15
2090-RNS21Z	2090-RN21Z	50		21	90				5×15
2105-RNS23Z	2105-RN23Z	65		23	105				6×15
2120-RNS27Z	2120-RN27Z	70		27	120				7×15
2135-RNS31Z	2135-RN31Z	80		31	135				8×15
2150-RNS33Z	2150-RN33Z	90		33	150				9×15
2165-RNS37Z	2165-RN37Z	95		37	165				10×15
2180-RNS43Z	2180-RN43Z	100	43	180	11×15				
NVS3050-RNS 9Z	NV 3050-RN 9Z	20	3	9	50	18	8	8.65	1×25
3075-RNS13Z	3075-RN13Z	38		13	75				2×25
3100-RNS17Z	3100-RN17Z	55		17	100				3×25
3125-RNS21Z	3125-RN21Z	70		21	125				4×25
3150-RNS25Z	3150-RN25Z	85		25	150				5×25
3175-RNS29Z	3175-RN29Z	103		29	175				6×25
3200-RNS33Z	3200-RN33Z	113		33	200				7×25
3225-RNS35Z	3225-RN35Z	150		35	225				8×25
NVS4080-RNS 9Z	NV 4080-RN 9Z	58	4	9	80	22	11	10.65	1×40
4120-RNS17Z	4120-RN17Z	60		17	120				2×40
4160-RNS21Z	4160-RN21Z	98		21	160				3×40
4200-RNS27Z	4200-RN27Z	115		27	200				4×40
4240-RNS31Z	4240-RN31Z	143		31	240				5×40
4280-RNS37Z	4280-RN37Z	170		37	280				6×40

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

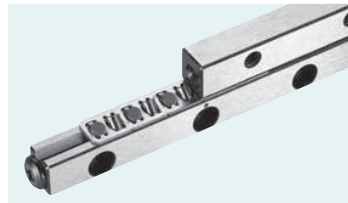
N mm	E mm	F	d mm	G mm	H mm	T mm	basic load rating		mass (one set) g	size
							dynamic C N	static Co N		
7.5	2.5	M3	2.55	4.4	2	1.2	2,320	3,050	30	2030
							3,190	4,580	44	2045
							3,190	4,580	58	2060
							4,000	6,110	73	2075
							4,760	7,630	87	2090
							5,490	9,160	101	2105
							6,190	10,600	115	2120
							6,870	12,200	130	2135
							6,870	12,200	144	2150
							7,530	13,700	158	2165
12.5	3.5	M4	3.3	6	3.1	2	8,800	16,800	173	2180
							6,150	8,060	102	3050
							8,460	12,100	151	3075
							10,600	16,100	200	3100
							12,600	20,100	249	3125
							14,500	24,200	297	3150
							16,400	28,200	346	3175
							18,200	32,200	395	3200
							19,900	36,300	443	3225
							12,100	15,700	269	4080
20	4.5	M5	4.3	8	4.2	2	20,800	31,500	405	4120
							24,800	39,300	536	4160
							32,200	55,100	670	4200
							35,800	63,000	801	4240
							39,200	70,900	935	4280

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

stroke length

number of rollers

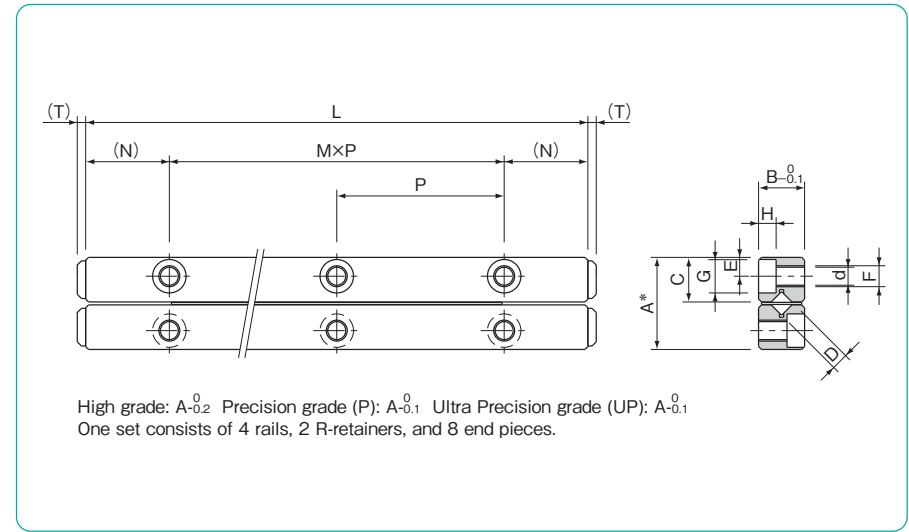
grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGU: urea-based low dust generation grease
 -KGF: anti-fretting grease

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		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm	M×P mm				
standard	anti-corrosion												
HV 2030- 6Z	HVS 2030- 6Z	22	2	6	30	12	6	5.7	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				
2135-30Z	2135-30Z	88		30	135				8×15				
2150-34Z	2150-34Z	94		34	150				9×15				
2165-38Z	2165-38Z	100		38	165				10×15				
2180-43Z	2180-43Z	100		43	180				11×15				
HV 3050- 8Z	HVS 3050- 8Z	31		3	8				50	18	8	8.65	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							
3225-37Z	3225-37Z	137	37		225	8×25							
3250-42Z	3250-42Z	145	42		250	9×25							
3275-45Z	3275-45Z	170	45		275	10×25							
3300-50Z	3300-50Z	178	50		300	11×25							
3325-53Z	3325-53Z	203	53		325	12×25							
3350-58Z	3350-58Z	211	58		350	13×25							



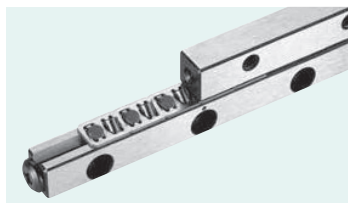
major dimensions							basic load rating		mass (one set) g	size
N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N		
7.5	2.5	M3	2.55	4.4	2	1.2	1,850	2,290	30	2030
							2,760	3,810	44	2045
							3,600	5,340	59	2060
							4,000	6,110	73	2075
							4,760	7,630	87	2090
							5,490	9,160	101	2105
							6,190	10,600	116	2120
							6,530	11,400	130	2135
							7,200	12,900	144	2150
							7,850	14,500	158	2165
							8,490	16,000	173	2180
12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	102	3050
							7,330	10,000	150	3075
							10,600	16,100	200	3100
							12,600	20,100	249	3125
							14,500	24,200	298	3150
							16,400	28,200	346	3175
							18,200	32,200	396	3200
							19,900	36,300	445	3225
							22,500	42,300	494	3250
							23,300	44,300	542	3275
							25,700	50,400	592	3300
26,500	52,400	640	3325							
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

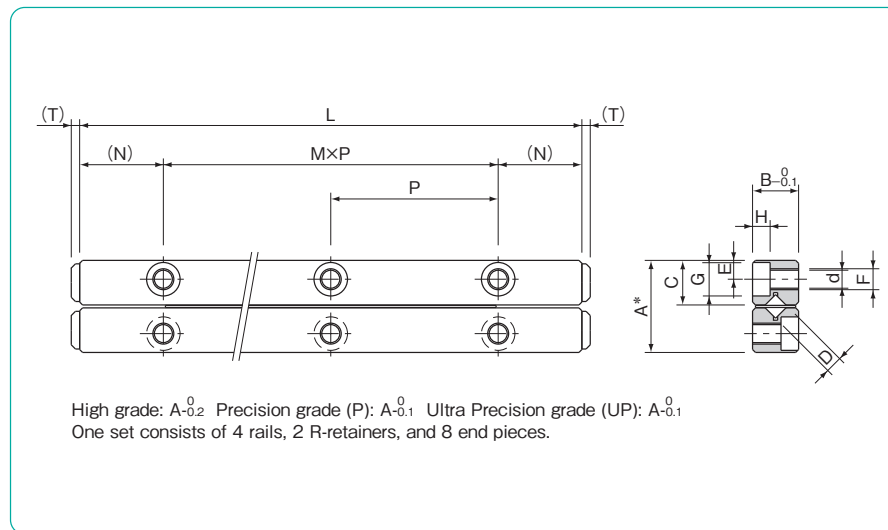
grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

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		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm	M×P mm
standard	anti-corrosion								
HV 4080- 9Z	HVS 4080- 9Z	64	4	9	80	22	11	10.65	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
4320-42Z	4320-42Z	201		42	320				7×40
4360-47Z	4360-47Z	229		47	360				8×40
4400-52Z	4400-52Z	257		52	400				9×40
4440-58Z	4440-58Z	274		58	440				10×40
4480-63Z	4480-63Z	302	63	480	11×40				

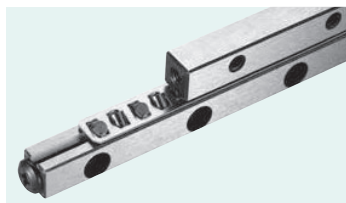


major dimensions							basic load rating		mass (one set) g	size
N mm	E mm	F mm	d mm	G mm	H mm	T mm	dynamic C N	static Co N		
20	4.5	M5	4.3	8	4.2	2	12,100	15,700	270	4080
							18,700	27,500	404	4120
							24,800	39,300	536	4160
							28,600	47,200	669	4200
							34,000	59,000	802	4240
							39,200	70,900	935	4280
							44,200	82,700	1,070	4320
							47,500	90,600	1,210	4360
							52,200	102,000	1,340	4400
							56,900	114,000	1,470	4440
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

stroke length

number of rollers

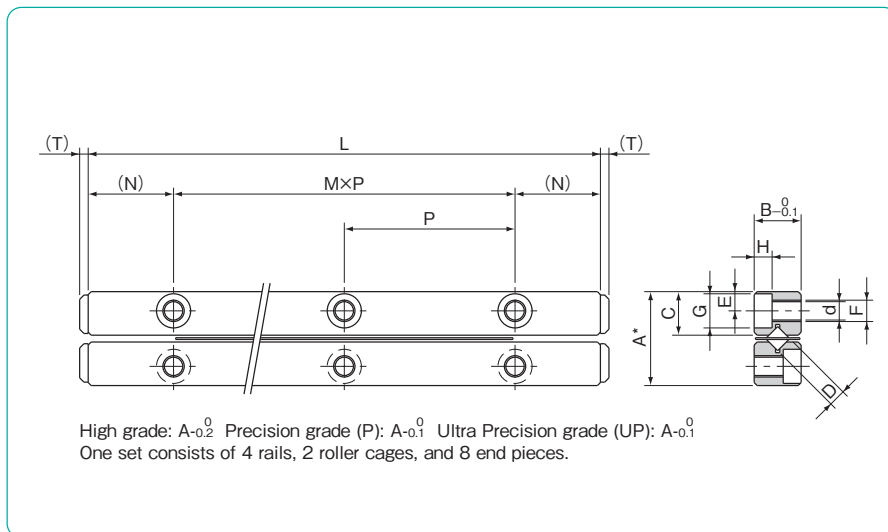
grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
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	12	6	5.5	
SV 2030-5Z	SVS 2030-5Z	18	5	30				
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				

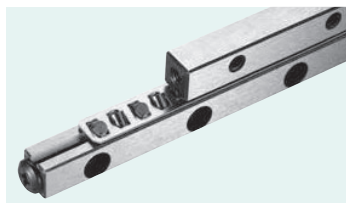


major dimensions								basic load rating dynamic C N	static Co N	mass (one set) g	size
M×P mm	N mm	E mm	F	d mm	G mm	H mm	T mm				
1×10	5	1.8	M2	1.65	3	1.4	0.8	464	476	11	1020
2×10								641	714	14	1030
3×10								959	1,190	18	1040
4×10								1,100	1,420	22	1050
5×10								1,380	1,900	26	1060
6×10								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

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

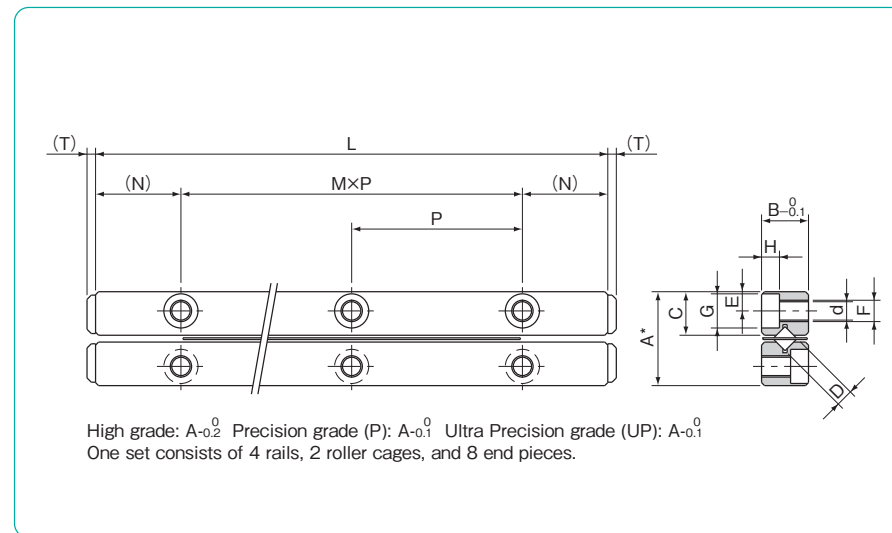
with low temperature black chrome treatment

accuracy grade blank: high
P: precision
UP: ultra precision

number of rollers

*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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
SV3050-7Z	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			
SV4080-7Z	SVS 4080-7Z	58		4	7			
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			

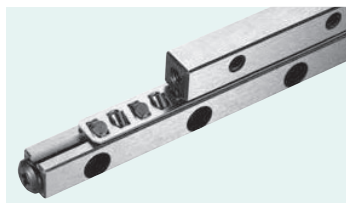


major dimensions								basic load rating dynamic C N	static Co N	mass (one set) g	size
M x P mm	N mm	E mm	F	d mm	G mm	H mm	T mm				
1x25	12.5	3.5	M4	3.3	6	3.1	2	3,490	3,890	94	3050
2x25								5,230	6,490	135	3075
3x25								6,810	9,080	187	3100
4x25								7,560	10,300	234	3125
5x25								9,000	12,900	281	3150
6x25								10,300	15,500	327	3175
7x25								11,700	18,100	374	3200
8x25								12,300	19,400	421	3225
9x25								13,600	22,000	468	3250
10x25								14,800	24,600	514	3275
11x25								16,000	27,200	561	3300
12x25								16,600	28,500	608	3325
13x25								17,800	31,100	655	3350
1x40	20	4.5	M5	4.3	8	4.2	2	7,110	7,920	255	4080
2x40								10,600	13,200	385	4120
3x40								13,800	18,400	510	4160
4x40								16,800	23,700	635	4200
5x40								19,700	29,000	770	4240
6x40								22,400	34,300	905	4280
7x40								25,100	39,600	1,020	4320
8x40								27,600	44,800	1,160	4360
9x40								30,200	50,100	1,280	4400
10x40								32,600	55,400	1,410	4440
11x40								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

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

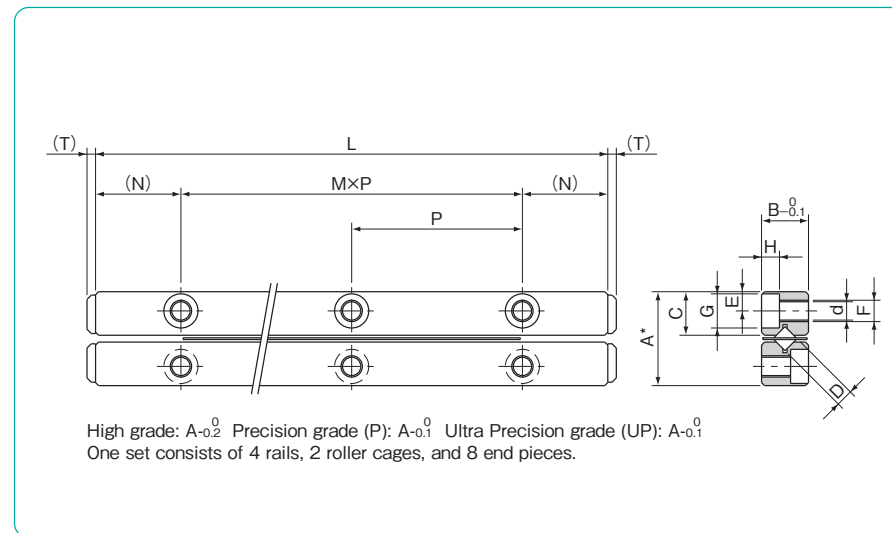
with low temperature black chrome treatment

accuracy grade blank: high
P: precision
UP: ultra precision

number of rollers

*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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
SV6100-8Z	SVS6100-8Z	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			
SV9200-10Z	SVS9200-10Z	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			

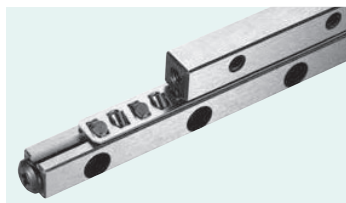


major dimensions								basic load rating dynamic C N	static Co N	mass (one set) g	size
M × P mm	N mm	E mm	F	d mm	G mm	H mm	T mm				
1 × 50	25	6	M6	5.2	9.5	5.2	3	20,700	23,600	628	6100
2 × 50								28,500	35,500	942	6150
3 × 50								35,700	47,300	1,260	6200
4 × 50								42,500	59,200	1,570	6250
5 × 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

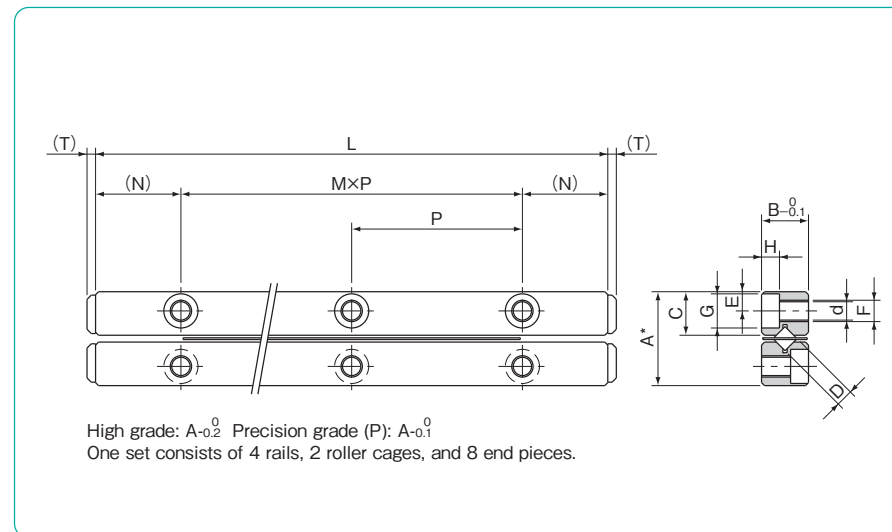
grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGL: urea-based low dust generation grease
-KGF: anti-fretting grease

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.

part number		stroke ST mm	roller diameter D mm	number of rollers Z	L mm	A mm	B mm	C mm
standard	anti-corrosion							
SV 12300-10Z	SVS 12300-10Z	200	12	10	300	58	28	27
12400-14Z	12400-14Z	240		14	400			
12500-17Z	12500-17Z	320		17	500			
12600-21Z	12600-21Z	360		21	600			
12700-24Z	12700-24Z	440		24	700			
12800-28Z	12800-28Z	480		28	800			
12900-31Z	12900-31Z	560		31	900			
121000-34Z	121000-34Z	640		34	1,000			
121100-38Z	—	680		38	1,100			
121200-42Z	—	720		42	1,200			

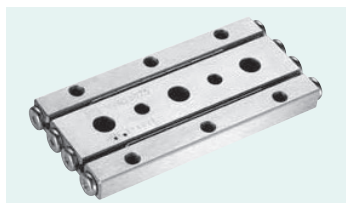


major dimensions								basic load rating		mass	size
M × P mm	N mm	E mm	F	d mm	G mm	H mm	T mm	dynamic C N	static Co N	(one set) g	
2 × 100	50	12	M10	8.5	13.5	8.2	4	124,000	145,000	6,880	12300
3 × 100								162,000	203,000	9,090	12400
4 × 100								180,000	232,000	11,400	12500
5 × 100								214,000	290,000	13,700	12600
6 × 100								247,000	348,000	15,800	12700
7 × 100								279,000	406,000	18,200	12800
8 × 100								294,000	435,000	20,500	12900
9 × 100								324,000	493,000	22,800	121000
10 × 100								354,000	551,000	25,000	121100
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

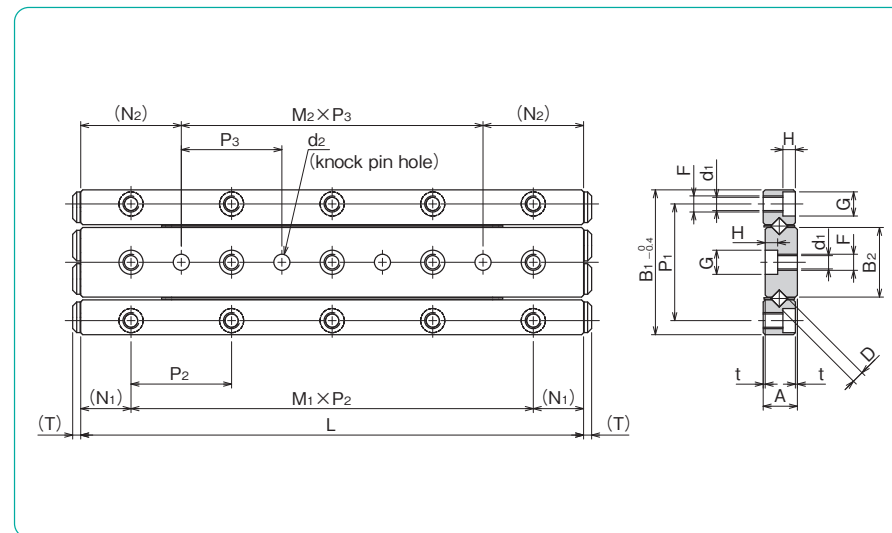
grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGU: urea-based low dust generation grease
-KGF: anti-fretting grease

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.

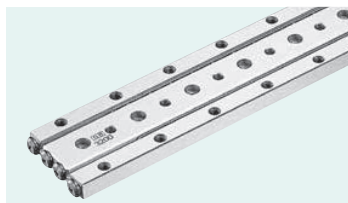
part number		stroke ST mm	roller diameter D mm	number of rollers Z	major dimensions							M ₁ × P ₂ mm
standard	anti-corrosion				L mm	A mm	t mm	B ₁ mm	B ₂ mm	C mm	P ₁ mm	
HVW 2030-6Z	HVWS 2030-6Z	22	2	6	30	6.5	0.5	24	11.4	5.7	19	1 × 15
2045-10Z	2045-10Z	28		10	45							2 × 15
2060-14Z	2060-14Z	34		14	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									basic load rating		mass	size
N ₁ mm	F	d ₁ mm	G mm	H mm	M ₂ × P ₃ mm	N ₂ mm	d ₂ mm	T mm	dynamic C N	static C ₀ N	(one set) g	
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

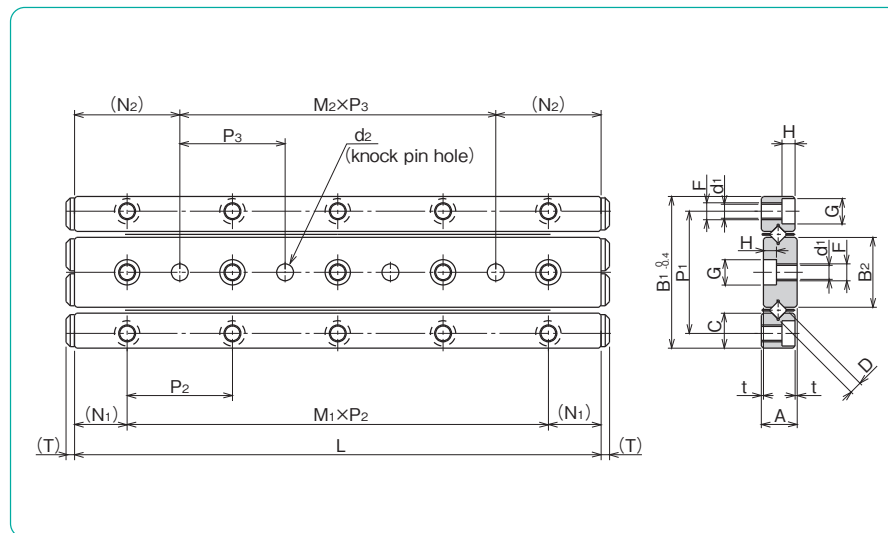
grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

accuracy grade **blank**: high
P: precision
UP: ultra precision

number of rollers

※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	major dimensions																				
standard	anti-corrosion	ST mm	D mm	Z	L mm	A mm	t mm	B1 mm	B2 mm	C mm	P1 mm	M1 x P2 mm	N1 mm	F mm	d1 mm	G mm	H mm	M2 x P3 mm	N2 mm	d2 mm	T mm	basic load rating dynamic C N	static Co N	mass (one set) g	size
SVW 1020- 5Z	SVWS 1020- 5Z	12	1.5	5	20	4.5	0.5	17	7.6	3.8	13.4	1 x 10	5	M2	1.65	3	1.4	—	10	2 ^{+0.010} ₀	0.8	464	476	11	1020
1030- 7Z	1030- 7Z	20		7	30							2 x 10						641				714	14	1030	
1040-10Z	1040-10Z	27		10	40							3 x 10						959				1,190	18	1040	
1050-13Z	1050-13Z	32		13	50							4 x 10						1,100				1,420	22	1050	
1060-16Z	1060-16Z	37		16	60							5 x 10						1,380				1,900	26	1060	
1070-19Z	1070-19Z	42		19	70							6 x 10						1,510				2,140	30	1070	
1080-21Z	1080-21Z	50		21	80							7 x 10						1,650				2,380	34	1080	
SVW 2030- 5Z	SVWS 2030- 5Z	18	2	5	30	6.5	0.5	24	11	5.5	19	1 x 15	7.5	M3	2.55	4.4	2	—	15	3 ^{+0.010} ₀	1.2	1,090	1,170	28	2030
2045- 8Z	2045- 8Z	24		8	45							2 x 15						1,900				2,340	42	2045	
2060-11Z	2060-11Z	30		11	60							3 x 15						2,270				2,930	55	2060	
2075-13Z	2075-13Z	44		13	75							4 x 15						2,620				3,510	69	2075	
2090-16Z	2090-16Z	50		16	90							5 x 15						3,280				4,680	83	2090	
2105-18Z	2105-18Z	64		18	105							6 x 15						3,590				5,270	96	2105	
2120-21Z	2120-21Z	70		21	120							7 x 15						3,900				5,860	110	2120	
SVW 3050- 7Z	SVWS 3050- 7Z	28	3	7	50	8.5	0.5	36	16.6	8.3	29	1 x 25	12.5	M4	3.3	6	3.1	—	25	4 ^{+0.012} ₀	2	3,490	3,890	94	3050
3075-10Z	3075-10Z	48		10	75							2 x 25						5,230				6,490	135	3075	
3100-14Z	3100-14Z	58		14	100							3 x 25						6,810				9,080	187	3100	
3125-17Z	3125-17Z	78		17	125							4 x 25						7,560				10,300	234	3125	
3150-21Z	3150-21Z	88		21	150							5 x 25						9,000				12,900	281	3150	
3175-24Z	3175-24Z	105		24	175							6 x 25						10,300				15,500	327	3175	
3200-28Z	3200-28Z	115		28	200							7 x 25						11,700				18,100	374	3200	
SVW 4080- 7Z	SVWS 4080- 7Z	58	4	7	80	11.5	0.5	44	20.4	10.2	35	1 x 40	20	M5	4.3	8	4.2	—	40	5 ^{+0.012} ₀	2	7,110	7,920	255	4080
4120-11Z	4120-11Z	82		11	120							2 x 40						10,600				13,200	385	4120	
4160-15Z	4160-15Z	105		15	160							3 x 40						13,800				18,400	510	4160	
4200-19Z	4200-19Z	130		19	200							4 x 40						16,800				23,700	635	4200	
4240-23Z	4240-23Z	150		23	240							5 x 40						19,700				29,000	770	4240	
4280-27Z	4280-27Z	175		27	280							6 x 40						22,400				34,300	905	4280	

major dimensions																					basic load rating		mass	size
N1 mm	F mm	d1 mm	G mm	H mm	M2 x P3 mm	N2 mm	d2 mm	T mm	C N	Co N	g													
5	M2	1.65	3	1.4	—	10	2 ^{+0.010} ₀	0.8	464	476	11	1020												
5	M2	1.65	3	1.4	1 x 10	10	2 ^{+0.010} ₀	0.8	641	714	14	1030												
					2 x 10				959	1,190	18	1040												
					3 x 10				1,100	1,420	22	1050												
					4 x 10				1,380	1,900	26	1060												
					5 x 10				1,510	2,140	30	1070												
					6 x 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 x 15				1,900	2,340	42	2045												
					2 x 15				2,270	2,930	55	2060												
					3 x 15				2,620	3,510	69	2075												
					4 x 15				3,280	4,680	83	2090												
					5 x 15				3,590	5,270	96	2105												
6 x 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 x 25				5,230	6,490	135	3075												
					2 x 25				6,810	9,080	187	3100												
					3 x 25				7,560	10,300	234	3125												
					4 x 25				9,000	12,900	281	3150												
					5 x 25				10,300	15,500	327	3175												
6 x 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 x 40				10,600	13,200	385	4120												
					2 x 40				13,800	18,400	510	4160												
					3 x 40				16,800	23,700	635	4200												
					4 x 40				19,700	29,000	770	4240												
					5 x 40				22,400	34,300	905	4280												

1N≒0.102kgf

SLIDE TABLE

The NB slide table is a precision table equipped with a slide way. Its high-precision and low-friction characteristics make it well suited for use in electronics automatic-assembly machines, optical measurement devices, etc.

STRUCTURE AND ADVANTAGES

The NB slide table consists of a slide way sandwiched between an accurately machined table and a bed. Stoppers are provided inside the table.

STUDROLLER system

The STUDROLLER system (slideway NV type) that prevents roller slippage is used for the linear motion part of NVT (S) type and NYT (S) type.

Upgraded Model

For the linear motion components of HVT (S) and HYT (S) types, we use a Slideway HV type which is a product with improved performance that has been redesigned from the conventional product (SV type).

High Accuracy

The mounting surfaces of the table and bed are precision finished to ensure high precision linear motion, resulting in a high performance slide way.

Low Friction

Its non-recirculating mechanism provides stable motion at from low to high speeds.

Compact and High Rigidity

Being designed compactly, the NB slide table holds the high load capacity and high rigidity characteristics.

No Need for Adjustment

The table is carefully assembled so that the accuracy and preload are optimized, it can be used immediately without any further adjustment.

Ease of Mounting

Standardized mounting holes are provided in the table and bed. High precision linear motion can be achieved simply by mounting.

anti-corrosion · surface treatment

The anti-corrosion model combines a corrosion-resistant slideway with a table and bed made of stainless steel or aluminum alloy.

In addition to the anti-corrosion model, you can select the LB model with low-temperature black chrome treatment. To enhance the rust prevention effect, surface treatment is applied to the slideway rail and steel parts other than aluminum alloy, and the end pieces and screws are made of stainless steel.

Figure A-18 Structure of NVT type

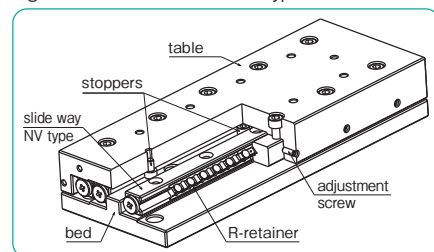


Figure A-19 Structure of NYT type

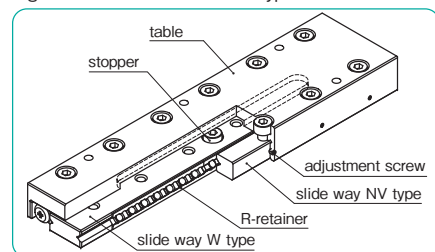


Figure A-20 Structure of HVT · SVT type

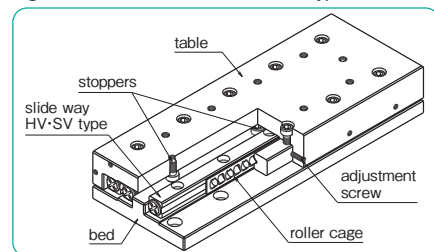
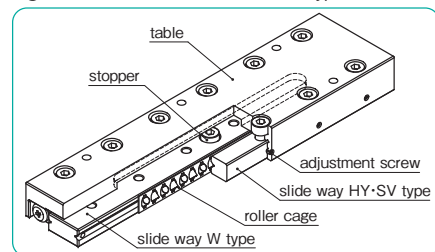


Figure A-21 Structure of HYT · SYT type



TYPES

NVT · NVTS type STUDROLLER System



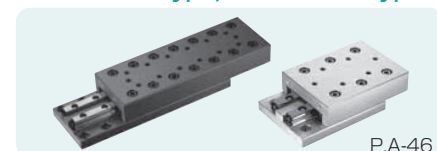
P.A-38

NYT · NYTS type STUDROLLER System



P.A-42

HVT · HVTS type, SVT · SVTS type



P.A-46

HYT · HYTS type, SYT · SYTS type



P.A-50

The NVT type slide table incorporates the NV type slide way. The table and bed have been precision machined to provide a high degree of accuracy and the product can be used, without any need for troublesome accuracy or preload adjustments.

In the NVTS type, the anti-corrosion NVS type slide way is sandwiched between an accurately machined aluminum table and bed.

The NYT/NYTS type is a thin, compact slide table, utilizing the studroller system. Either tapped or counterbore mounting type (D type) is available.

The anti-corrosion type NYTS slide table is made of all stainless steel components except for R-retainer.

Between the precision-ground table and bed, the HVT type has a performance-enhanced HV type rail, and the SVT type has an SV type rail installed.

The anti-corrosion type has an aluminum table and bed, the HVTS type has a anti-corrosion slideway HVS model with improved performance, and the SVTS type has a anti-corrosion slideway SVS model.

A thin and compact slide table that uses an integrated rail. Two types are available: tapped type and counterbore hole type (D type) which can be selected according to the usage.

The HYT type incorporates the HV type rail with improved performance, and the SYT type incorporates the SV type rail.

The anti-corrosion HYTS · SYTS type slide table is made of all stainless steel components.

SPECIFICATION

Refer to table A-8 for NB Slide Table material and operating temperature range.

Table A-8 Material and Operating Temperature Range

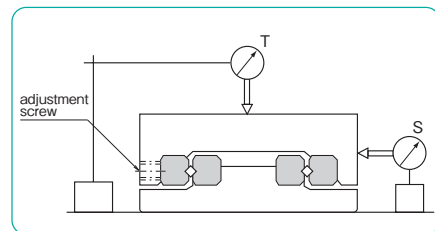
type	slide way			table/bed	operating temperature range
	rail	R-retainer/roller cage	roller		
NVT	steel	resin	steel	steel	-20°C ~ 80°C
NVTS	stainless steel		stainless steel	aluminum	5°C ~ 35°C*1
NYT (-D)	steel		steel	steel	-20°C ~ 80°C
NYTS (-D)	stainless steel		stainless steel	stainless steel	
HVT	steel	stainless steel	steel	steel	-20°C ~ 110°C
HVTS	stainless steel		stainless steel	aluminum	5°C ~ 35°C*1
HYT (-D)	steel		steel	steel	-20°C ~ 110°C
HYTS (-D)	stainless steel		stainless steel	stainless steel	-20°C ~ 140°C
SVT	steel	stainless steel	steel	steel	-20°C ~ 110°C
SVTS	stainless steel		stainless steel	aluminum	5°C ~ 35°C*1
SYT (-D)	steel		steel	steel	-20°C ~ 110°C
SYTS (-D)	stainless steel		stainless steel	stainless steel	-20°C ~ 140°C

*1 Please contact NB if the system is to be used out of this temperature range.

ACCURACY

The motion accuracy of a slide table is measured by placing indicators at the center of the top and side surface of the table, as illustrated in Figure A-22. It is expressed in terms of the indicator deviation when the table is moved the full stroke without any load. For accuracy, please see the dimension tables.

Figure A-22 Accuracy Measurement Method



RATED LIFE

The life of an NB slide table is calculated using 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

$$L_h = \frac{L \cdot 10^6}{2 \cdot l_s \cdot n \cdot 60}$$

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

LOAD RATING

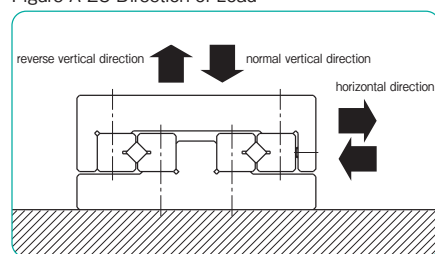
The load rating of the slide table NVT type and NYT type differs depending on the direction of the load.

Table A-9 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	0.74×C
basic static load rating	normal vertical direction	1.0×C ₀
	horizontal direction	0.84×C ₀
	reverse vertical direction	0.68×C ₀

*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-23 Direction of Load



USE AND HANDLING PRECAUTIONS

Careful Handling

Dropping the slide table 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.

Dust Prevention

Dust and foreign particles affect the accuracy and lifetime of a slide table. A slide table used in a harsh environment should be protected with a cover.

Lubrication

The slide table is prelubricated with lithium soap based grease No.00 prior to shipment for immediate use. Make sure to relubricate with a similar type of grease periodically depending on the operating conditions.

Cage Slippage

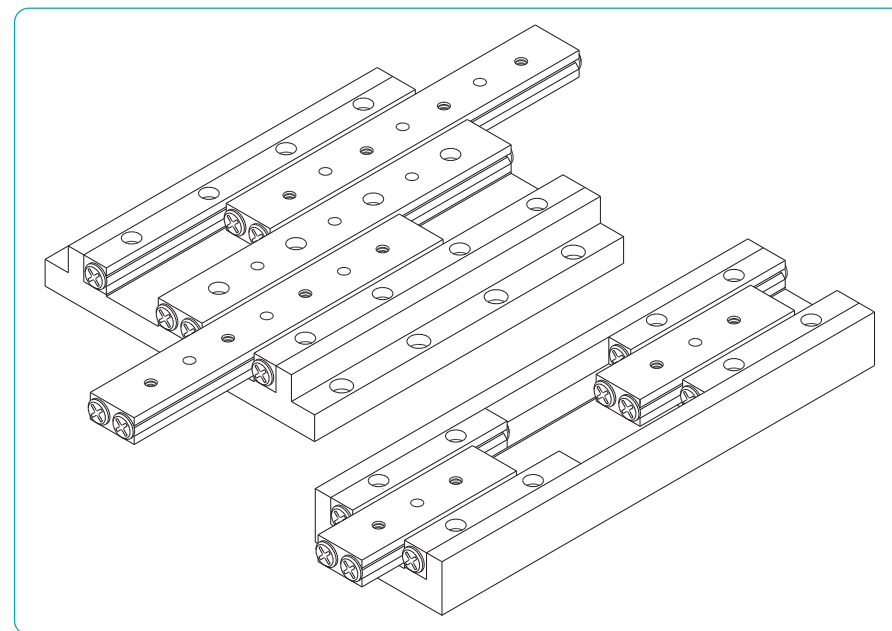
For the HVT·SVT type, HYT·SYT type, the cage can slip under high-speed motion, vertical application, unbalanced-loading, and vibrating conditions. It is advised that the motion speed be kept under 0.5m/s under general operating conditions. It is also recommended that the rails be cycled to perform the maximum stroke several times, so that the cage returns to its central position.

Adjustment/Installation Screw

The NB slide table is adjusted to achieve optimum accuracy and preload. The adjustment screw and rail installation screws should be kept untouched.

SPECIAL REQUIREMENTS

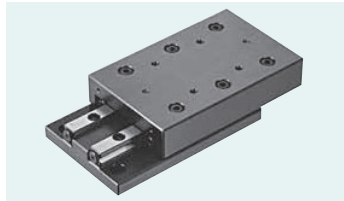
NB can machine tables to meet special requirements, including tables with a micrometer head and tables for projectors. Please contact NB for details.



NVT TYPE

-NVT1/NVT2/NVT3-

STUDROLLER System



part number structure

example **NVT 3 205 -LB -KGLA**

specification
 NVT: standard
 NVTS: anti-corrosion

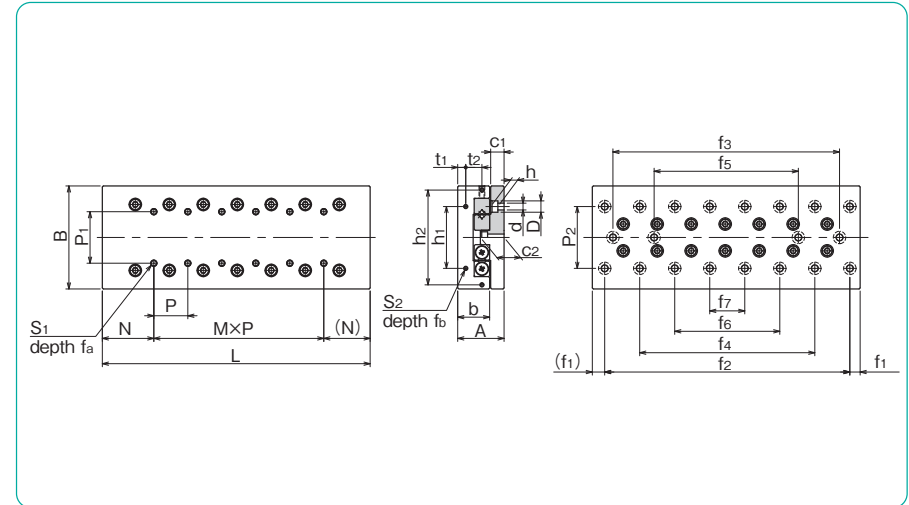
size

table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

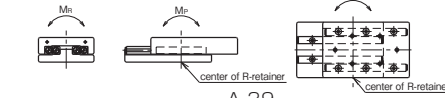
with low temperature black chrome treatment

part number		stroke	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions					
standard	anti-corrosion	ST mm	A mm	B mm	L mm	b mm	P ₁ mm	S ₁ mm	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂ mm	f _b mm
NVT1025	NVTS1025	12			25												
1035	1035	18			35						1×10						
1045	1045	25			45						2×10						
1055	1055	32	17 ^{+0.1}	30 ^{-0.4}	55	11	10	M2	4	12.5	3×10	12	-	2.5	-	M2	6
1065	1065	40			65						4×10						
1075	1075	45			75						5×10						
1085	1085	50			85						6×10						
NVT2035	NVTS2035	18			35												
2050	2050	30			50						1×15						
2065	2065	40			65						2×15						
2080	2080	50			80						3×15						
2095	2095	60			95						4×15						
2110	2110	70	21 ^{+0.1}	40 ^{-0.4}	110	14	15	M3	6	17.5	5×15	16	-	3.4	-	M2	6
2125	2125	80			125						6×15						
2140	2140	90			140						7×15						
2155	2155	100			155						8×15						
2170	2170	110			170						9×15						
2185	2185	120			185						10×15						
NVT3055	NVTS3055	30			55												
3080	3080	45			80						1×25						
3105	3105	60			105						2×25						
3130	3130	75			130						3×25						
3155	3155	90			155						4×25						
3180	3180	105			180						5×25						
3205	3205	130			205						6×25						
3230	3230	155			230						7×25						
			28 ^{+0.1}	60 ^{+0.1}	18.5	25	M4	8	27.5		40	-	5.5	-	M3	6	



bed-surface mounting hole dimensions											accuracy ※(deviation)		basic load rating dynamic static		allowable static moment			mass		size
P ₂ mm	d×D×h mm	c ₁ mm	c ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	g	g	
22	2.5×4.5×2.5	5.5	9	3.5	18	-	-	-	-	-	2	4	1,250	1,690	3.73	3.18	5.73	87	39	1025
					28	-	-	-	-	-	2	4	1,250	1,690	1.73	4.22	1.88	124	55	1035
					38	-	-	-	-	-	2	4	1,720	2,540	9.05	10.3	7.62	160	71	1045
					48	-	28	-	-	-	2	5	2,160	3,390	14.0	16.7	9.50	195	87	1055
					58	-	38	-	-	-	2	5	2,560	4,240	24.8	26.7	15.2	231	103	1065
					68	-	48	-	-	-	2	5	2,960	5,090	33.0	36.7	17.1	267	119	1075
					78	-	58	-	-	-	2	5	3,330	5,940	47.7	50.6	22.8	303	136	1085
					25	-	-	-	-	-	2	4	1,360	1,520	10.1	8.8	13.7	200	95	2035
					40	-	-	-	-	-	2	4	2,330	3,050	18.9	18.7	18.6	287	140	2050
					55	-	-	-	-	-	2	5	3,190	4,580	36.9	35.7	32.4	377	182	2065
30	3.5×6.5×3.5	6.5	10.9	5	70	-	40	-	-	-	2	5	3,990	6,110	53.2	53.8	37.3	455	225	2080
					85	-	55	-	-	-	2	5	4,740	7,630	80.3	79.9	51.1	550	280	2095
					100	-	70	-	-	-	3	6	5,460	9,160	104	106	56.0	640	295	2110
					115	-	85	-	-	-	3	6	6,160	10,600	130	135	60.9	730	340	2125
					130	-	100	-	70	-	3	6	6,830	12,200	171	176	74.7	810	370	2140
					145	-	115	-	85	-	3	6	8,130	15,200	235	244	88.4	890	410	2155
					160	-	130	-	100	-	3	7	8,750	16,800	275	289	93.3	980	450	2170
					175	-	145	-	115	85	3	7	9,370	18,300	317	338	98.3	1,070	490	2185
					35	-	-	-	-	-	2	5	6,150	8,060	20.8	37.2	27.3	643	303	3055
					60	-	-	-	-	-	2	5	8,440	12,100	125	119	140	960	445	3080
40	4.5×8×4.5	9	15	10	85	-	-	-	-	-	3	6	10,500	16,100	188	186	167	1,260	590	3105
					110	-	-	-	-	-	3	6	14,400	24,200	300	319	195	1,580	725	3130
					135	85	-	-	-	-	3	6	16,300	28,200	508	505	308	1,860	860	3155
					160	110	-	-	-	-	3	7	18,100	32,200	630	635	335	2,160	1,000	3180
					185	135	85	-	-	-	3	7	19,800	36,300	763	779	362	2,460	1,140	3205
					210	160	110	-	-	-	3	7	21,500	40,300	906	936	390	2,780	1,310	3230

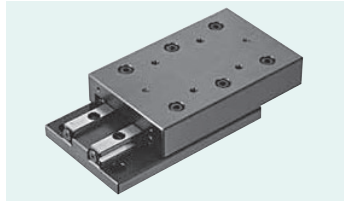
※For accuracy (T, S), refer to Figure A-22 (page A-36). 1N≒0.102kgf 1N·m≒0.102kgf·m



NVT TYPE

-NVT4/NVT6/NVT9-

STUDROLLER System



part number structure

example **NVT 6 210 -LB -KGLA**

specification
 NVT: standard
 NVTS: anti-corrosion

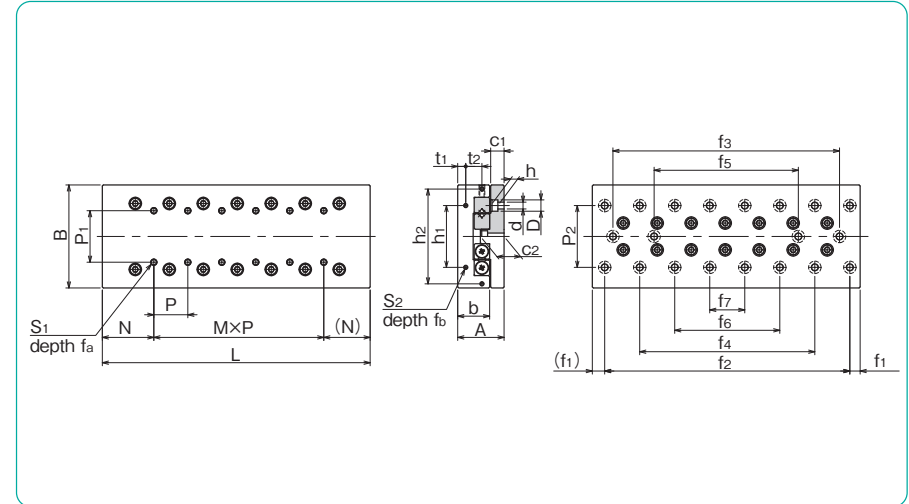
size

table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

with low temperature black chrome treatment

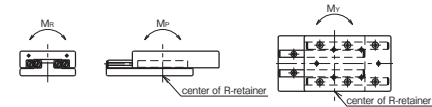
part number		stroke ST mm	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions					
standard	anti-corrosion		A mm	B mm	L mm	b mm	P ₁ mm	S ₁ mm	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂ mm	f _b mm
NVT4085	NVTS4085	50	35±0.1	80±0.1	85	24	40	M5	10	42.5	—	55	—	6.5	—	M3	6
4125	4125	75			125						1×40						
4165	4165	105			165						2×40						
4205	4205	130			205						3×40						
4245	4245	155			245						4×40						
4285	4285	185	285	5×40													
NVT6110	NVTS6110	60	45±0.1	100±0.1	110	31	50	M6	12	55	—	60	92	8	15	M4	8
6160	6160	95			160						1×50						
6210	6210	130			210						2×50						
6260	6260	165			260						3×50						
6310	6310	200			310						4×50						
6360	6360	235			360						5×50						
6410	6410	265			410						6×50						
NVT9210	—	130	60±0.1	145±0.1	210	43	85	M8	16	105	—	90	135	11	20	M4	8
9310	—	180			310						1×100						
9410	—	220			410						2×100						
9510	—	300			510						3×100						



bed-surface mounting hole dimensions											accuracy ※(deviation)		basic load rating dynamic static		allowable static moment			mass		size
P ₂ mm	d×D×h mm	c ₁ mm	c ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	NVT g	NVTS g	
55	5.5×10×5.4	10.5	18	10	65	—	—	—	—	—	2	5	12,100	15,700	156	147	239	1,710	790	4085
					105	—	—	—	—	3	6	20,700	31,500	327	357	320	2,520	1,160	4125	
					145	—	—	—	—	3	7	24,700	39,300	656	660	559	3,320	1,530	4165	
					185	105	—	—	—	3	7	32,100	55,100	1,270	1,250	874	4,130	1,900	4205	
					225	145	—	—	—	3	7	39,000	70,900	1,740	1,780	956	4,930	2,270	4245	
					265	185	—	—	—	3	7	42,400	78,700	2,380	2,400	1,190	5,730	2,630	4285	
60	7×11.5×7	13	23	10	90	—	—	—	—	—	3	6	29,600	37,500	213	310	256	3,300	1,720	6110
					140	—	—	—	—	3	6	40,700	56,300	963	941	936	4,850	2,510	6160	
					190	90	—	—	—	3	7	60,600	93,900	1,960	1,990	1,350	6,310	3,290	6210	
					240	140	—	—	—	3	7	69,800	112,000	2,710	2,790	1,610	7,790	4,080	6260	
					290	190	—	—	—	3	7	78,800	131,000	4,490	4,420	2,460	9,260	4,860	6310	
					340	240	140	—	—	4	8	87,400	150,000	5,630	5,610	2,710	10,900	5,740	6360	
					390	290	190	—	—	4	8	104,000	187,000	7,540	7,700	2,970	12,460	6,620	6410	
					100	—	—	—	—	3	6	96,100	128,000	1,610	2,110	1,780	12,550	—	9210	
200	—	—	—	—	3	6	143,000	213,000	6,490	6,580	4,860	18,000	—	9310						
300	—	—	—	—	3	7	186,000	298,000	12,600	12,700	7,290	24,010	—	9410						
400	—	—	—	—	3	7	206,000	341,000	18,700	18,600	9,720	30,100	—	9510						

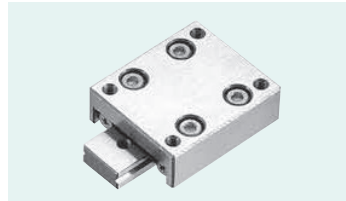
※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



NYT TYPE

STUDROLLER System



part number structure

example **NYT 2 065 -LB -KGLA**

specification
 NYT: standard
 NYTS: anti-corrosion

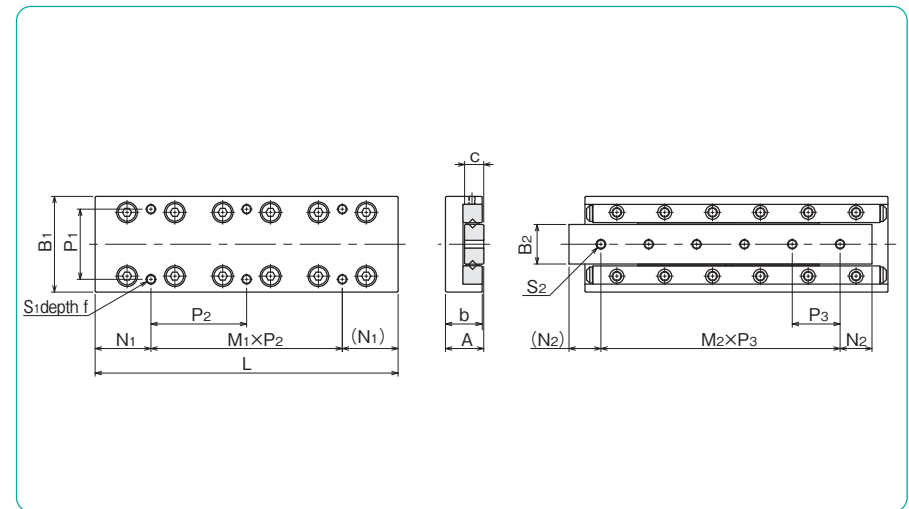
size

table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

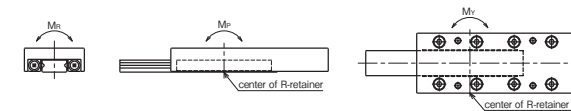
with low temperature black chrome treatment

part number		stroke ST mm	major dimensions						table-top mounting hole dimensions				
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm	N ₁ mm	M ₁ ×P ₂ mm
NYT 1025	NYTS 1025	12	8±0.1	20±0.1	25	7.5	7.06	4	14	M2.6	3	3.5	1×18
1035	1035	18			35							3.5	1×28
1045	1045	25			45							12.5	1×20
1055	1055	32			55							12.5	1×30
1065	1065	40			65							12.5	2×20
1075	1075	45			75							22.5	1×30
1085	1085	50			85							12.5	2×30
NYT 2035	NYTS 2035	18	12±0.1	30±0.1	35	11.5	12.4	6	22	M3	5	3.5	1×28
2050	2050	30			50							3.5	1×43
2065	2065	40			65							17.5	1×30
2080	2080	50			80							17.5	1×45
2095	2095	60			95							17.5	2×30
2110	2110	70			110							32.5	1×45
2125	2125	80			125							17.5	2×45
NYT 3055	NYTS 3055	30	16±0.1	40±0.1	55	15.5	16.7	8	30	M4	7	7.5	1×40
3080	3080	45			80							7.5	1×65
3105	3105	60			105							27.5	1×50
3130	3130	75			130							27.5	1×75
3155	3155	90			155							27.5	2×50
3180	3180	105			180							52.5	1×75
3205	3205	130			205							27.5	2×75



bed-surface mounting hole dimensions S ₂	bed-surface mounting hole dimensions		accuracy ※(deviation)		basic load rating dynamic static		allowable static moment			mass	size
	N ₂ mm	M ₂ ×P ₃ mm	T μm	S μm	C N	Co N	M _P N·m	M _V N·m	M _R N·m	g	
M2.6	5	2×7.5	2	4	734	849	3.73	3.18	3.18	25	1025
	7.5	2×10	2	4	1,250	1,690	1.73	4.22	1.04	35	1035
	7.5	3×10	2	5	1,720	2,540	9.05	10.3	4.23	45	1045
	7.5	4×10	2	5	2,160	3,390	14.0	16.7	5.28	55	1055
	7.5	5×10	2	5	2,560	4,240	24.8	26.7	8.46	65	1065
	7.5	6×10	2	5	2,960	5,090	33.0	36.7	9.51	76	1075
	7.5	7×10	2	5	3,330	5,940	47.7	50.6	12.7	86	1085
M3	7.5	1×20	2	4	1,360	1,520	10.1	8.80	9.93	84	2035
	10	2×15	2	4	2,330	3,050	18.9	18.7	13.4	120	2050
	10	3×15	2	5	3,190	4,580	36.9	35.7	23.4	157	2065
	10	4×15	2	5	3,990	6,110	53.2	53.8	26.9	190	2080
	10	5×15	2	5	4,740	7,630	80.3	79.9	36.9	225	2095
	10	6×15	2	5	5,460	9,160	104	106	40.4	265	2110
	10	7×15	2	5	6,160	10,600	130	135	44.0	305	2125
M4	10	1×35	2	5	6,150	8,060	20.8	37.2	17.0	228	3055
	15	2×25	2	5	8,440	12,100	125	119	87.2	345	3080
	15	3×25	3	5	10,500	16,100	188	186	104	450	3105
	15	4×25	3	5	14,400	24,200	300	319	121	570	3130
	15	5×25	3	5	16,300	28,200	508	505	191	665	3155
	15	6×25	3	5	18,100	32,200	630	635	208	780	3180
	15	7×25	3	5	19,800	36,300	763	779	225	890	3205

※For accuracy (T, S), refer to Figure A-22 (page A-36). 1N≒0.102kgf 1N·m≒0.102kgf·m



NYT-D TYPE

STUDROLLER System



part number structure

example **NYT 3 125 -D -LB -KGLA**

specification
 NYT: standard
 NYTS: anti-corrosion

size

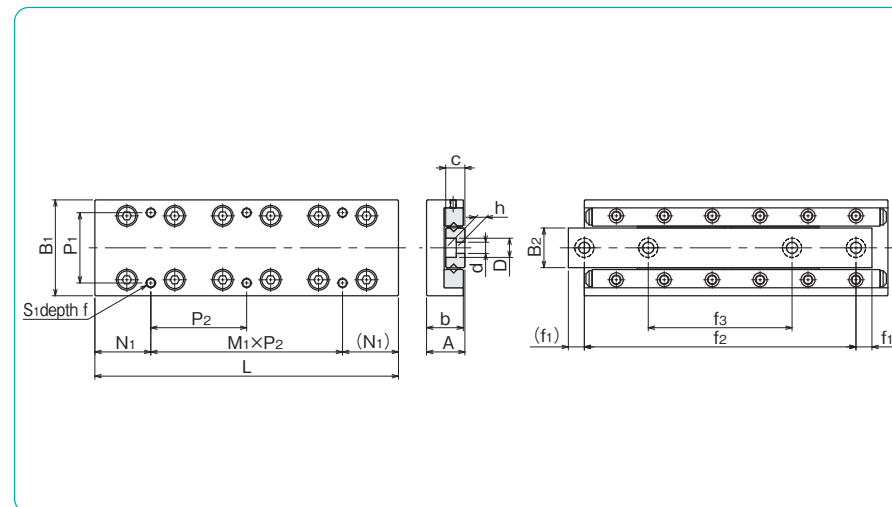
table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

with low temperature black chrome treatment

with counterbore

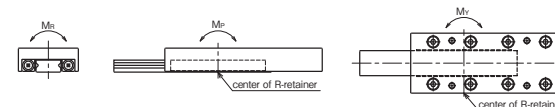
part number		stroke ST mm	major dimensions					table-top mounting hole dimensions					
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm	N ₁ mm	M ₁ ×P ₂ mm
NYT 1025-D	NYTS 1025-D	12	8±0.1	20±0.1	25	7.5	7.06	4	14	M2.6	3	3.5	1×18
1035-D	1035-D	18			35							3.5	1×28
1045-D	1045-D	25			45							12.5	1×20
1055-D	1055-D	32			55							12.5	1×30
1065-D	1065-D	40			65							12.5	2×20
1075-D	1075-D	45			75							22.5	1×30
1085-D	1085-D	50			85							12.5	2×30
NYT 2035-D	NYTS 2035-D	18			12±0.1							30±0.1	35
2050-D	2050-D	30	50	3.5		1×43							
2065-D	2065-D	40	65	17.5		1×30							
2080-D	2080-D	50	80	17.5		1×45							
2095-D	2095-D	60	95	17.5		2×30							
2110-D	2110-D	70	110	32.5		1×45							
2125-D	2125-D	80	125	17.5		2×45							
NYT 3055-D	NYTS 3055-D	30	16±0.1	40±0.1		55	15.5	16.7	8	30	M4		7
3080-D	3080-D	45			80	7.5						1×65	
3105-D	3105-D	60			105	27.5						1×50	
3130-D	3130-D	75			130	27.5						1×75	
3155-D	3155-D	90			155	27.5						2×50	
3180-D	3180-D	105			180	52.5						1×75	
3205-D	3205-D	130			205	27.5						2×75	



d×D×h mm	bed-surface mounting hole dimensions			accuracy ※(deviation)		basic load rating		allowable static moment			mass g	size
	f ₁ mm	f ₂ mm	f ₃ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m		
2.5×4.1×2.2	3.5	18	—	2	4	734	849	3.73	3.18	3.18	25	1025
	5	25	—	2	4	1,250	1,690	1.73	4.22	1.04	35	1035
	3.5	38	25	2	5	1,720	2,540	9.05	10.3	4.23	45	1045
	3.5	48	29	2	5	2,160	3,390	14.0	16.7	5.28	55	1055
	5	55	31	2	5	2,560	4,240	24.8	26.7	8.46	65	1065
	5	65	35	2	5	2,960	5,090	33.0	36.7	9.51	76	1075
	5	75	40	2	5	3,330	5,940	47.7	50.6	12.7	86	1085
	5	85	42	2	5	3,700	6,790	62.4	66.0	16.6	97	1095
3.5×6×3.3	5	25	—	2	4	1,360	1,520	10.1	8.80	9.93	84	2035
	7.5	35	—	2	4	2,330	3,050	18.9	18.7	13.4	120	2050
	5	55	33	2	5	3,190	4,580	36.9	35.7	23.4	157	2065
	5	70	40	2	5	3,990	6,110	53.2	53.8	26.9	190	2080
	5	85	45	2	5	4,740	7,630	80.3	79.9	36.9	225	2095
	7.5	95	50	2	5	5,460	9,160	104	106	40.4	265	2110
	7.5	110	55	2	5	6,160	10,600	130	135	44.0	305	2125
	7.5	140	—	2	5	6,150	8,060	20.8	37.2	17.0	228	3055
4.5×7.5×4.3	6	68	43	2	5	8,440	12,100	125	119	87.2	345	3080
	7.5	90	55	3	5	10,500	16,100	188	186	104	450	3105
	7.5	115	65	3	5	14,400	24,200	300	319	121	570	3130
	7.5	140	95	3	5	16,300	28,200	508	505	191	665	3155
	7.5	165	85	3	5	18,100	32,200	630	635	208	780	3180
	7.5	190	90	3	5	19,800	36,300	763	779	225	890	3205

※For accuracy (T, S), refer to Figure A-22 (page A-36).

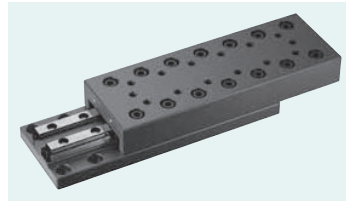
1N≒0.102kgf 1N·m≒0.102kgf·m



HVT TYPE

—HVT2/HVT3—

Upgraded model



part number structure

example **HVT 3 205 -LB -KGLA**

specification
HVT: standard
HVTS: anti-corrosion

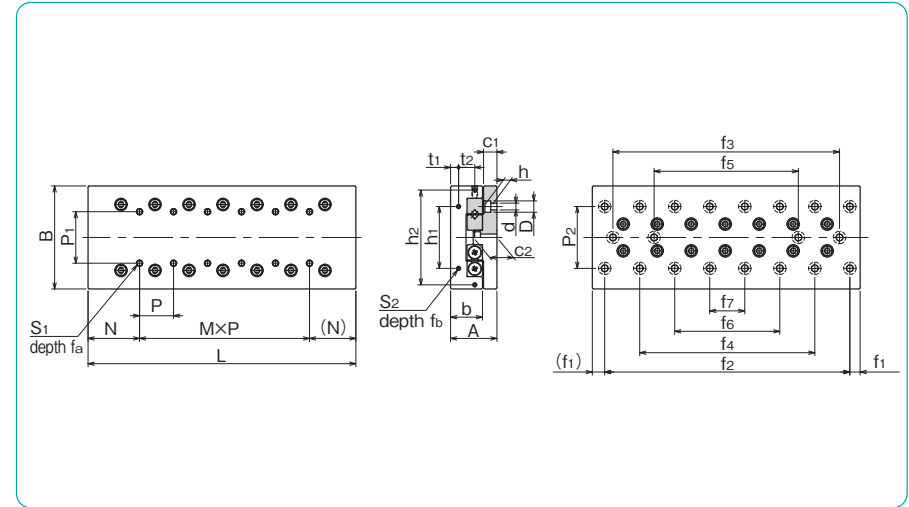
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

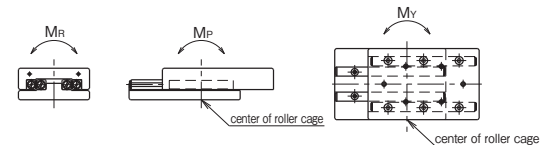
part number		stroke	major dimensions				table-top mounting hole dimensions				table-end mounting hole dimensions				d×D×h				
standard	anti-corrosion	ST mm	A mm	B mm	L mm	b mm	P ₁ mm	S ₁ mm	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂ mm	f _b mm	P ₂ mm	
HVT 2035	HVTS 2035	18			35						—								
2050	2050	30			50						1×15								
2065	2065	40			65						2×15								
2080	2080	50			80						3×15								
2095	2095	60			95						4×15								
2110	2110	70	21 ^{±0.1}	40 ^{-0.2/-0.4}	110	14	15	M3	6	17.5	5×15	16	—	3.4	—	M2	6	30	3.5×6.5×3.5
2125	2125	80			125						6×15								
2140	2140	90			140						7×15								
2155	2155	100			155						8×15								
2170	2170	110			170						9×15								
2185	2185	120			185						10×15								
HVT 3055	HVTS 3055	30			55						—								
3080	3080	45			80						1×25								
3105	3105	60			105						2×25								
3130	3130	75			130						3×25								
3155	3155	90			155						4×25								
3180	3180	105	28 ^{±0.1}	60 ^{±0.1}	180	18.5	25	M4	8	27.5	5×25	40	—	5.5	—	M3	6	40	4.5×8×4.5
3205	3205	130			205						6×25								
3230	3230	155			230						7×25								
3255	3255	180			255						8×25								
3280	3280	205			280						9×25								
3305	3305	230			305						10×25								



bed-surface mounting hole dimensions							accuracy % (deviation)		basic load rating		allowable static moment			mass		size		
C ₁ mm	C ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m		HVT g	HVTS g
6.5	10.9	5	25	—	—	—	—	—	2	4	1,850	2,290	6.87	7.86	20.6	200	95	2035
			40	—	—	—	—	—	2	4	2,320	3,050	18.7	16.7	27.4	288	138	2050
			55	—	—	—	—	—	2	5	3,190	4,580	26.7	28.9	41.2	377	180	2065
			70	—	40	—	—	—	2	5	4,000	6,110	47.5	50.4	54.9	461	221	2080
			85	—	55	—	—	—	2	5	4,380	6,870	74.2	70.3	61.8	550	264	2095
			100	—	70	—	—	—	3	6	5,130	8,400	89.8	93.6	75.6	639	307	2110
			115	—	85	—	—	—	3	6	5,840	9,930	125	129	89.3	728	349	2125
			130	—	100	—	70	—	3	6	6,190	10,600	166	160	96.2	812	390	2140
			145	—	115	—	85	—	3	6	6,870	12,200	189	195	109	901	433	2155
			160	—	130	—	100	—	3	7	7,530	13,700	239	246	123	987	475	2170
9	15	10	175	—	145	—	115	85	3	7	7,850	14,500	296	288	130	1,080	517	2185
			35	—	—	—	—	—	2	5	6,150	8,060	43.7	49.6	112	655	309	3055
			60	—	—	—	—	—	2	5	8,460	12,100	99.0	107	169	960	453	3080
			85	—	—	—	—	—	3	6	10,600	16,100	175	186	225	1,270	596	3105
			110	—	—	—	—	—	3	6	12,600	20,100	274	287	282	1,570	740	3130
			135	85	—	—	—	—	3	6	14,500	24,200	395	410	338	1,870	881	3155
			160	110	—	—	—	—	3	7	16,400	28,200	537	554	395	2,180	1,030	3180
			185	135	85	—	—	—	3	7	17,300	30,200	701	677	423	2,470	1,170	3205
			210	160	110	—	—	—	3	7	19,000	34,200	791	812	480	2,780	1,310	3230
			235	185	135	—	—	—	3	7	19,900	36,300	988	959	508	3,080	1,460	3255
260	210	160	110	—	—	3	7	21,600	40,300	1090	1110	564	3,380	1,600	3280			
285	235	185	135	—	—	3	7	22,500	42,300	1320	1290	592	3,690	1,740	3305			

※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



HVT TYPE

-HVT4-

Upgraded model



part number structure

example **HVT 4 285 -LB -KGLA**

specification
HVT: standard
HVTS: anti-corrosion

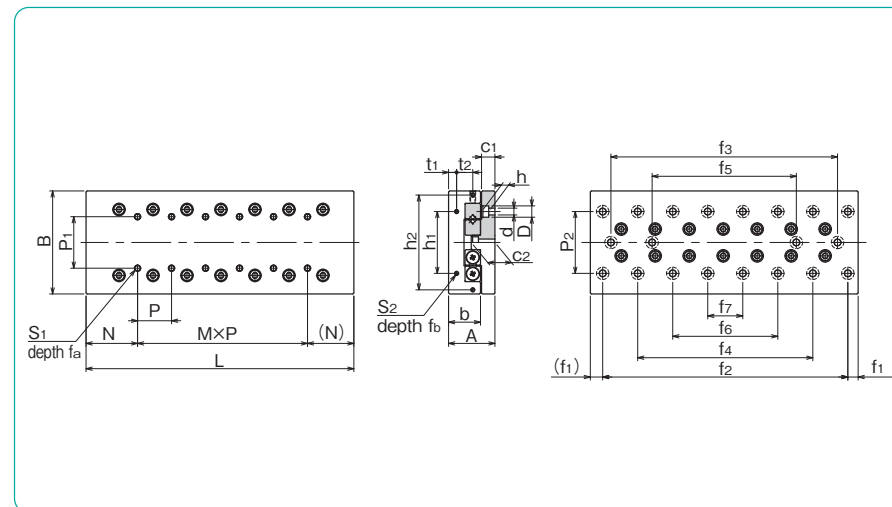
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

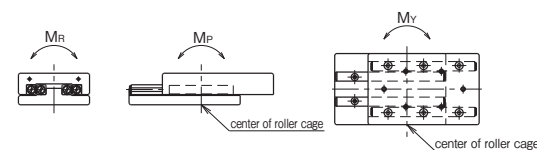
part number		stroke ST mm	major dimensions				table-top mounting hole dimentions				table-end mounting hole dimentions						d×D×h mm		
standard	anti-corrosion		A mm	B mm	L mm	b mm	P ₁ mm	S ₁ mm	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂ mm		f _b mm	P ₂ mm
HVT 4085	HVTS 4085	50	35 ^{±0.1}	80 ^{±0.1}	85	24	40	M5	10	42.5	—	55	—	6.5	—	M3	6	55	5.5×10×5.4
4125	4125	75			125						1×40								
4165	4165	105			165						2×40								
4205	4205	130			205						3×40								
4245	4245	155			245						4×40								
4285	4285	185			285						5×40								
4325	4325	210			325						6×40								
4365	4365	235			365						7×40								
4405	4405	265			405						8×40								



bed-surface mounting hole dimentions								accuracy ※ (deviation)		basic load rating		allowable static moment			mass		size			
C ₁ mm	C ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	HVT g		HVTS g		
10.5	18	10	65	—	—	—	—	—	2	5	14,400	19,600	167	183	393	1,700	791	4085		
			105	—	—	—	—	—	3	6	18,700	27,500	425	397	551	2,510	1,170	4125		
			145	—	—	—	—	—	—	3	7	24,800	39,300	664	695	787	3,330	1,550	4165	
			185	105	—	—	—	—	—	3	7	28,600	47,200	1,120	1,070	945	4,130	1,930	4205	
			225	145	—	—	—	—	—	3	7	34,000	59,000	1,690	1,630	1,180	4,940	2,310	4245	
			265	185	—	—	—	—	—	3	7	37,500	66,900	2,140	2,080	1,330	5,750	2,690	4285	
			305	225	145	—	—	—	—	—	4	8	42,600	78,700	2,910	2,840	1,570	6,550	3,060	4325
			345	265	185	—	—	—	—	—	4	8	47,500	90,600	3,490	3,560	1,810	7,360	3,440	4365
			385	305	225	—	—	—	—	—	4	8	50,600	98,400	4,460	4,370	1,960	8,170	3,820	4405

※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



HYT TYPE

Upgraded model



part number structure

example **HYT 2 110 -LB -KGLA**

specification
 HYT: standard
 HYTS: anti-corrosion

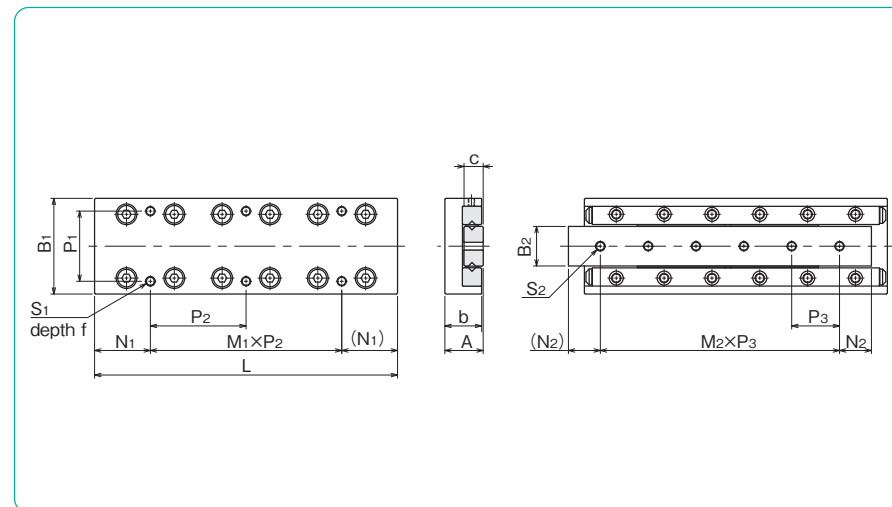
size

table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

with low temperature black chrome treatment

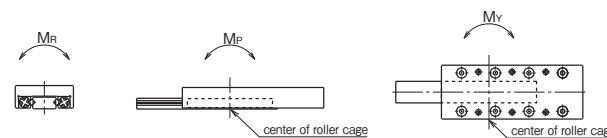
part number		stroke ST mm	major dimensions						table-top mounting hole dimensions					
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm	N ₁ mm	M ₁ ×P ₂ mm	
HYT 2035	HYTS 2035	18	12 ^{±0.1}	30 ^{±0.1}	35	11.5	12.4	6	22	M3	5	3.5	1×28	
2050	2050	30			50							3.5	1×43	
2065	2065	40			65							17.5	1×30	
2080	2080	50			80							17.5	1×45	
2095	2095	60			95							17.5	2×30	
2110	2110	70			110							32.5	1×45	
2125	2125	80			125							17.5	2×45	
HYT 3055	HYTS 3055	30			16 ^{±0.1}							40 ^{±0.1}	55	15.5
3080	3080	45	80	7.5		1×65								
3105	3105	60	105	27.5		1×50								
3130	3130	75	130	27.5		1×75								
3155	3155	90	155	27.5		2×50								
3180	3180	105	180	52.5		1×75								
3205	3205	130	205	27.5		2×75								



S ₂	bed-surface mounting hole dimensions		accuracy ※ (deviation)		basic load rating		allowable static moment			mass g	size
	N ₂ mm	M ₂ ×P ₃ mm	T μm	S μm	C N	C ₀ N	M _P N·m	M _Y N·m	M _R N·m		
M3	7.5	1×20	2	4	1,850	2,290	6.87	7.86	14.8	82	2035
	10	2×15	2	4	2,320	3,050	18.7	16.7	19.8	119	2050
	10	3×15	2	5	3,190	4,580	26.7	28.9	29.7	155	2065
	10	4×15	2	5	4,000	6,110	47.5	50.4	39.7	191	2080
	10	5×15	2	5	4,380	6,870	74.2	70.3	44.6	227	2095
	10	6×15	2	5	5,130	8,400	89.8	93.6	54.6	264	2110
	10	7×15	2	5	5,840	9,930	125	129	64.5	300	2125
	M4	10	1×35	2	5	6,150	8,060	43.7	49.6	70.1	240
15		2×25	2	5	8,460	12,100	99.0	107	105	351	3080
15		3×25	3	5	10,600	16,100	175	186	140	463	3105
15		4×25	3	5	12,600	20,100	274	287	175	574	3130
15		5×25	3	5	14,500	24,200	395	410	210	685	3155
15		6×25	3	5	16,400	28,200	537	554	245	797	3180
15		7×25	3	5	17,300	30,200	701	677	263	906	3205

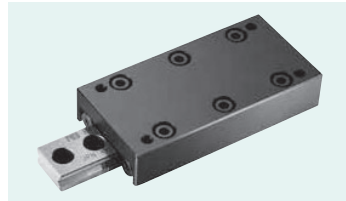
※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



HYT-D TYPE

Upgraded model



part number structure

example **HYT 2 110 -D -LB -KGLA**

specification
 HYT: standard
 HYTS: anti-corrosion

size

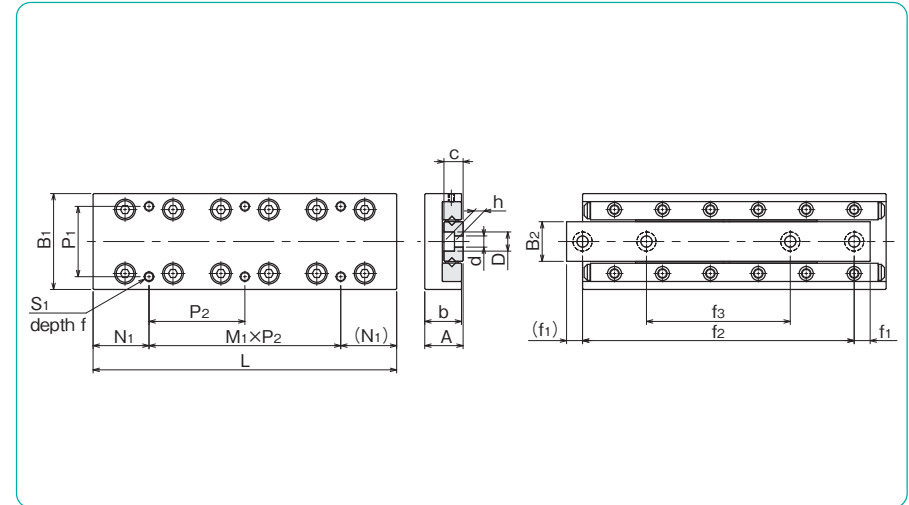
table length

grease symbol (refer to page Eng-51)
 blank: standard grease
 -KGLA: lithium-based low dust generation grease
 -KGLU: urea-based low dust generation grease
 -KGF: anti-fretting grease

with low temperature black chrome treatment

with counterbore

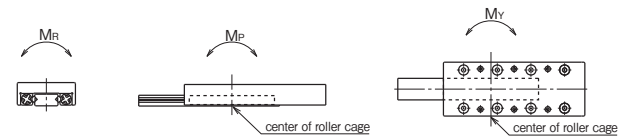
part number		stroke ST mm	major dimensions						table-top mounting hole dimensions					
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm	N ₁ mm	M ₁ ×P ₂ mm	
HYT 2035-D	HYTS 2035-D	18	12 ^{±0.1}	30 ^{±0.1}	35	11.5	12.4	6	22	M3	5	3.5	1×28	
2050-D	2050-D	30			50							3.5	1×43	
2065-D	2065-D	40			65							17.5	1×30	
2080-D	2080-D	50			80							17.5	1×45	
2095-D	2095-D	60			95							17.5	2×30	
2110-D	2110-D	70			110							32.5	1×45	
2125-D	2125-D	80			125							17.5	2×45	
HYT 3055-D	HYTS 3055-D	30			16 ^{±0.1}							40 ^{±0.1}	55	15.5
3080-D	3080-D	45	80	7.5		1×65								
3105-D	3105-D	60	105	27.5		1×50								
3130-D	3130-D	75	130	27.5		1×75								
3155-D	3155-D	90	155	27.5		2×50								
3180-D	3180-D	105	180	52.5		1×75								
3205-D	3205-D	130	205	27.5		2×75								



bed-surface mounting hole dimensions d × D × h mm	f ₁ mm	f ₂ mm	f ₃ mm	accuracy ※ (deviation)		basic load rating dynamic C N	static C ₀ N	allowable static moment			mass g	size
				T μm	S μm			M _P N·m	M _V N·m	M _R N·m		
3.5×6×3.3	5	25	—	2	4	1,850	2,290	6.87	7.86	14.8	81	2035
	7.5	35	—	2	4	2,320	3,050	18.7	16.7	19.8	117	2050
	5	55	33	2	5	3,190	4,580	26.7	28.9	29.7	152	2065
	5	70	40	2	5	4,000	6,110	47.5	50.4	39.7	189	2080
	5	85	45	2	5	4,380	6,870	74.2	70.3	44.6	225	2095
	7.5	95	50	2	5	5,130	8,400	89.8	93.6	54.6	262	2110
	7.5	110	55	2	5	5,840	9,930	125	129	64.5	299	2125
	7.5	40	—	2	5	6,150	8,060	43.7	49.6	70.1	238	3055
4.5×7.5×4.3	6	68	43	2	5	8,460	12,100	99.0	107	105	345	3080
	7.5	90	55	3	5	10,600	16,100	175	186	140	457	3105
	7.5	115	65	3	5	12,600	20,100	274	287	175	570	3130
	7.5	140	95	3	5	14,500	24,200	395	410	210	681	3155
	7.5	165	85	3	5	16,400	28,200	537	554	245	794	3180
	7.5	190	90	3	5	17,300	30,200	701	677	263	903	3205

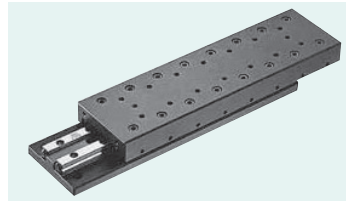
※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



SVT TYPE

-SVT1/SVT2-



part number structure

example **SVT 2 170 -LB -KGLA**

specification
SVT: standard
SVTS: anti-corrosion

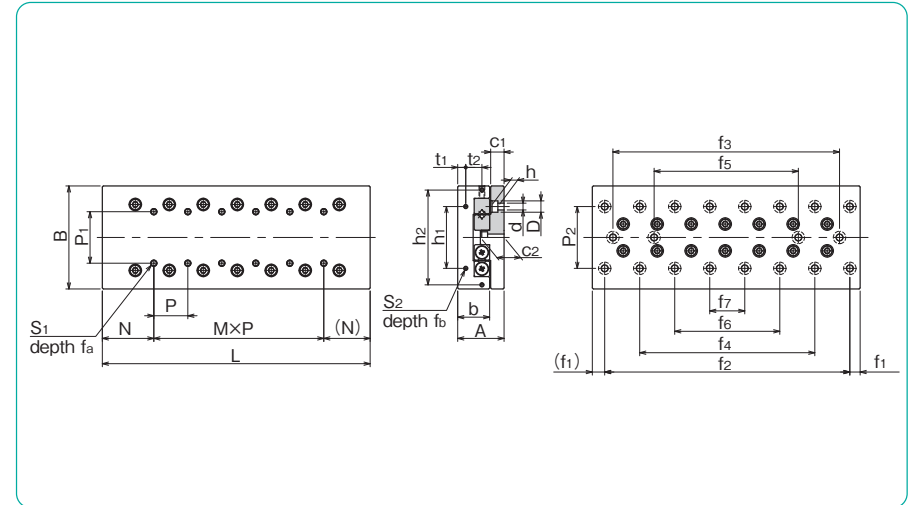
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

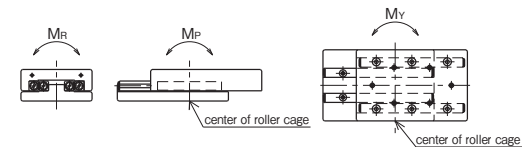
part number		stroke ST mm	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions																		
standard	anti-corrosion		A mm	B mm	L mm	b mm	P ₁ mm	S ₁ mm	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂ mm	f _b mm													
SVT 1025	SVTS 1025	12	17 ^{+0.1}	30 ^{-0.4}	25	11	10	M2	4	12.5	—	12	—	2.5	—	M2	6													
1035	1035	18			35						1×10																			
1045	1045	25			45						2×10																			
1055	1055	32			55						3×10																			
1065	1065	40			65						4×10																			
1075	1075	45			75						5×10																			
1085	1085	50			85						6×10																			
SVT 2035	SVTS 2035	18			21 ^{+0.1}						40 ^{-0.4}							35	14	15	M3	6	17.5	—	16	—	3.4	—	M2	6
2050	2050	30																50						1×15						
2065	2065	40																65						2×15						
2080	2080	50	80	3×15																										
2095	2095	60	95	4×15																										
2110	2110	70	110	5×15																										
2125	2125	80	125	6×15																										
2140	2140	90	140	7×15																										
2155	2155	100	155	8×15																										
2170	2170	110	170	9×15																										
2185	2185	120	185	10×15																										



bed-surface mounting hole dimensions										accuracy ※(deviation)		basic load rating dynamic static		allowable static moment			mass		size		
P ₂ mm	d×D×h mm	c ₁ mm	c ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	SVT g		SVTS g	
22	2.5×4.5×2.5	5.5	9	3.5	18	—	—	—	—	—	2	4	464	476	1.79	1.47	3.22	82	36	1025	
					28	—	—	—	—	—	2	4	805	952	3.08	3.50	6.45	120	50	1035	
					38	—	—	—	—	—	—	2	4	959	1,190	6.98	6.40	8.06	158	69	1045
					48	—	28	—	—	—	—	2	5	1,100	1,420	9.53	8.81	9.68	190	83	1055
					58	—	38	—	—	—	—	2	5	1,240	1,660	12.4	11.6	11.2	225	98	1065
					68	—	48	—	—	—	—	2	5	1,510	2,140	19.3	18.3	14.5	260	113	1075
					78	—	58	—	—	—	—	2	5	1,650	2,380	23.4	22.3	16.1	295	128	1085
					25	—	—	—	—	—	—	2	4	1,090	1,170	7.04	5.78	10.5	195	90	2035
					40	—	—	—	—	—	—	2	4	1,510	1,750	12.1	10.7	15.8	280	133	2050
					55	—	—	—	—	—	—	2	5	1,900	2,340	19.1	17.1	21.1	370	175	2065
30	3.5×6.5×3.5	6.5	10.9	5	70	—	40	—	—	—	2	5	2,620	3,510	27.4	29.6	31.6	450	220	2080	
					85	—	55	—	—	—	2	5	2,950	4,100	37.4	39.9	36.9	540	250	2095	
					100	—	70	—	—	—	3	6	3,280	4,680	61.7	58.1	42.2	630	285	2110	
					115	—	85	—	—	—	3	6	3,590	5,270	76.1	72.1	47.5	720	330	2125	
					130	—	100	—	70	—	—	3	6	4,210	6,440	92.0	95.9	58.1	800	360	2140
					145	—	115	—	85	—	—	3	6	4,500	7,030	109	113	63.3	880	400	2155
					160	—	130	—	100	—	—	3	7	4,790	7,610	148	143	68.6	970	440	2170
					175	—	145	—	115	85	—	3	7	5,080	8,200	170	164	73.9	1,060	480	2185

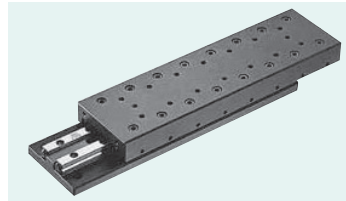
※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



SVT TYPE

-SVT3/SVT4-



part number structure

example **SVT 4 205 -LB -KGLA**

specification
SVT: standard
SVTS: anti-corrosion

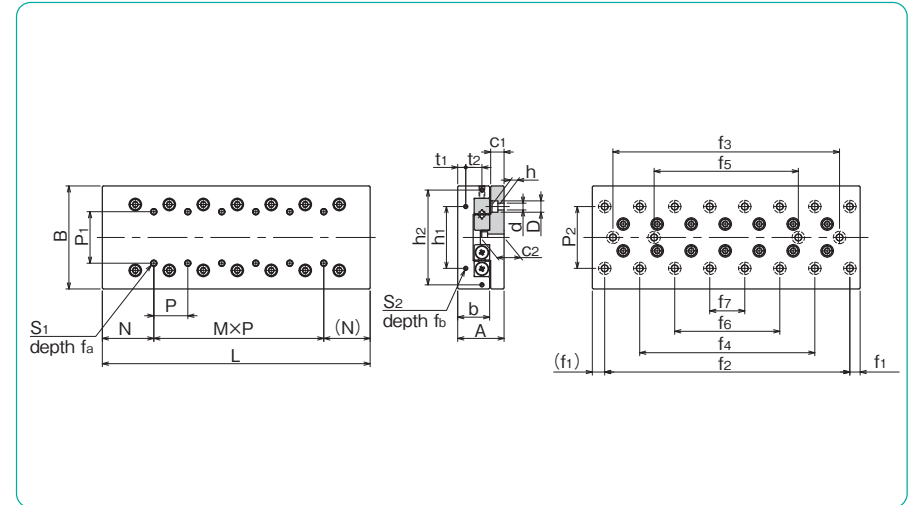
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

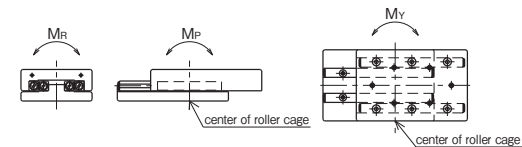
part number		stroke	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions					
standard	anti-corrosion	ST mm	A mm	B mm	L mm	b mm	P ₁ mm	S ₁	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂	f _b mm
SVT 3055	SVTS 3055	30			55												
3080	3080	45			80					1×25							
3105	3105	60			105					2×25							
3130	3130	75			130					3×25							
3155	3155	90	28 ^{±0.1}	60 ^{±0.1}	155	18.5	25	M4	8	27.5	4×25	40	-	5.5	-	M3	6
3180	3180	105			180					5×25							
3205	3205	130			205					6×25							
3230	3230	155			230					7×25							
3255	3255	180			255					8×25							
3280	3280	205			280					9×25							
3305	3305	230			305					10×25							
SVT 4085	SVTS 4085	50			85												
4125	4125	75			125					1×40							
4165	4165	105			165					2×40							
4205	4205	130			205					3×40							
4245	4245	155	35 ^{±0.1}	80 ^{±0.1}	245	24	40	M5	10	42.5	4×40	55	-	6.5	-	M3	6
4285	4285	185			285					5×40							
4325	4325	210			325					6×40							
4365	4365	235			365					7×40							
4405	4405	265			405					8×40							



bed-surface mounting hole dimensions											accuracy ※(deviation)		basic load rating		allowable static moment			mass		size
P ₂ mm	d×D×h mm	c ₁ mm	c ₂ mm	f ₁ mm	f ₂ mm	f ₃ mm	f ₄ mm	f ₅ mm	f ₆ mm	f ₇ mm	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	SVT g	SVTS g	size
40	4.5×8×4.5	9	15	10	35	-	-	-	-	-	2	5	3,490	3,890	19.4	22.2	54.5	640	300	3055
					60	-	-	-	-	-	2	5	5,230	6,490	53.0	58.0	90.9	955	440	3080
					85	-	-	-	-	-	3	6	6,030	7,780	103	95.7	109	1,250	580	3105
					110	-	-	-	-	-	3	6	7,560	10,300	170	160	145	1,570	715	3130
					135	85	-	-	-	-	3	6	9,000	12,900	210	220	181	1,850	850	3155
					160	110	-	-	-	-	3	7	10,300	15,500	302	314	218	2,150	990	3180
					185	135	85	-	-	-	3	7	11,000	16,800	355	367	236	2,450	1,130	3205
					210	160	110	-	-	-	3	7	11,700	18,100	472	455	254	2,740	1,270	3230
					235	185	135	-	-	-	3	7	12,900	20,700	537	552	290	3,040	1,410	3255
					260	210	160	110	-	-	3	7	13,600	22,000	606	622	309	3,360	1,540	3280
					285	235	185	135	-	-	3	7	14,200	23,300	757	735	327	3,660	1,680	3305
					55	5.5×10×5.4	10.5	18	10	65	-	-	-	-	-	2	5	7,110	7,920	96.0
105	-	-	-	-						-	3	6	10,600	13,200	217	199	265	2,500	1,140	4125
145	-	-	-	-						-	3	7	13,800	18,400	296	316	371	3,300	1,510	4165
185	105	-	-	-						-	3	7	16,800	23,700	488	513	477	4,100	1,870	4205
225	145	-	-	-						-	3	7	19,700	29,000	729	759	584	4,900	2,240	4245
265	185	-	-	-						-	3	7	22,400	34,300	1,010	1,050	690	5,700	2,600	4285
305	225	145	-	-						-	4	8	25,100	39,600	1,350	1,390	796	6,500	3,000	4325
345	265	185	-	-						-	4	8	27,600	44,800	1,730	1,780	902	7,300	3,300	4365
385	305	225	-	-	-	4	8	28,900	47,500	2,160	2,100	955	8,100	3,700	4405					

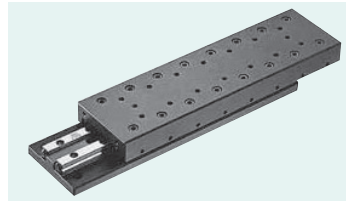
※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N=0.102kgf 1N·m=0.102kgf·m



SVT TYPE

-SVT6/SVT9-



part number structure

example **SVT 6 210 -LB -KGLA**

specification
SVT: standard
SVTS: anti-corrosion

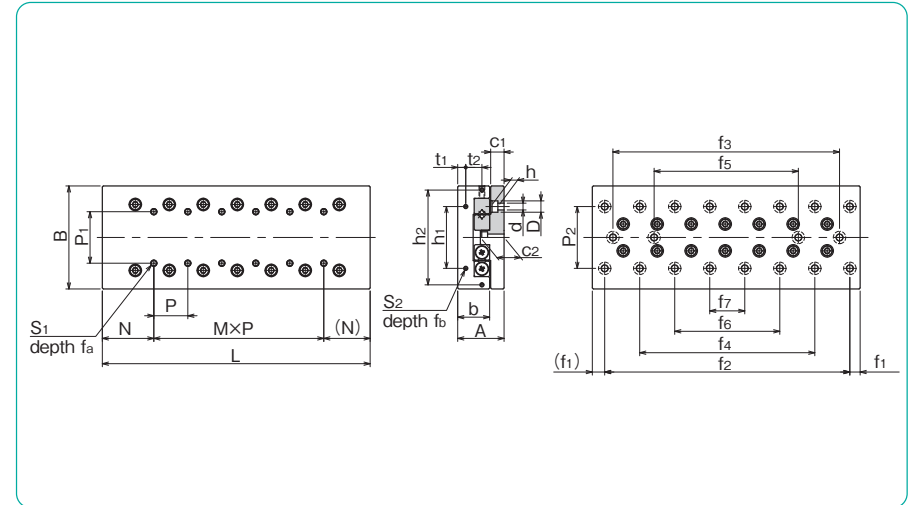
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

with low temperature black chrome treatment

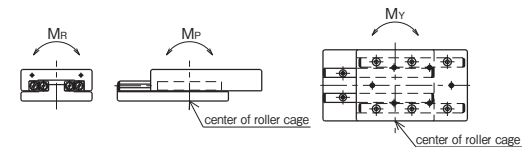
part number		stroke	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions					
standard	anti-corrosion	ST mm	A mm	B mm	L mm	b mm	P ₁ mm	S ₁	f _a mm	N mm	M×P mm	h ₁ mm	h ₂ mm	t ₁ mm	t ₂ mm	S ₂	f _b mm
SVT 6110	SVTS 6110	60			110						—						
6160	6160	95			160						1×50						
6210	6210	130			210						2×50						
6260	6260	165			260						3×50						
6310	6310	200	45 ^{±0.1}	100 ^{±0.1}	310	31	50	M6	12	55	4×50	60	92	8	15	M4	8
6360	6360	235			360						5×50						
6410	6410	265			410						6×50						
6460	6460	300			460						7×50						
6510	6510	335			510						8×50						
SVT 9210	—	130			210						—						
9310	—	180			310						1×100						
9410	—	350			410						2×100						
9510	—	450			510						3×100						
9610	—	550	60 ^{±0.1}	145 ^{±0.1}	610	43	85	M8	16	105	4×100	90	135	11	20	M4	8
9710	—	650			710						5×100						
9810	—	750			810						6×100						
9910	—	850			910						7×100						
91010	—	950			1,010						8×100						



bed-surface mounting hole dimensions											accuracy ※(deviation)		basic load rating dynamic static		allowable static moment			mass		size
P ₂	d×D×h	c ₁	c ₂	f ₁	f ₂	f ₃	f ₄	f ₅	f ₆	f ₇	T	S	C	Co	M _P	M _Y	M _R	SVT	SVTS	size
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	μm	μm	N	N	N·m	N·m	N·m	g	g	
60	7×11.5×7	13	23	10	90	—	—	—	—	—	3	6	16,500	17,700	260	230	400	3,280	1,705	6110
					140	—	—	—	—	3	6	24,700	29,600	588	539	666	4,820	2,480	6160	
					190	90	—	—	—	3	7	32,200	41,400	1,040	978	933	6,270	3,255	6210	
					240	140	—	—	—	3	7	39,200	53,200	1,630	1,540	1,200	7,740	4,030	6260	
					290	190	—	—	—	3	7	45,800	65,100	2,340	2,240	1,460	9,200	4,805	6310	
					340	240	140	—	—	4	8	52,200	76,900	2,750	2,850	1,730	10,740	5,580	6360	
					390	290	190	—	—	4	8	58,400	88,800	3,660	3,770	2,000	12,190	6,355	6410	
					440	340	240	—	—	4	8	64,400	100,000	4,700	4,830	2,260	13,800	7,130	6460	
					490	390	290	190	—	4	8	70,200	112,000	5,870	6,010	2,530	15,300	7,905	6510	
					100	—	—	—	—	3	7	51,100	56,500	1,610	1,440	2,030	12,520	—	9210	
200	—	—	—	—	3	7	79,300	98,900	3,150	3,360	3,560	17,950	—	9310						
300	100	—	—	—	4	8	79,300	98,900	4,110	3,840	3,560	23,950	—	9410						
400	200	—	—	—	4	8	96,600	127,000	6,420	6,080	4,580	30,090	—	9510						
500	300	100	—	—	4	9	112,000	155,000	7,760	8,090	5,600	35,990	—	9610						
600	400	200	—	—	4	9	128,000	183,000	10,800	11,200	6,620	41,890	—	9710						
700	500	300	100	—	5	10	136,000	197,000	14,400	13,900	7,130	47,790	—	9810						
800	600	400	200	—	5	10	151,000	226,000	18,500	17,900	8,140	53,690	—	9910						
900	700	500	300	100	5	10	165,000	254,000	23,100	22,400	9,160	59,590	—	91010						

※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N=0.102kgf 1N·m=0.102kgf·m



SYT TYPE

—SYT1/SYT2/SYT3—



part number structure

example **SYT 2 110 -LB -KGLA**

specification
SYT: standard
SYTS: anti-corrosion

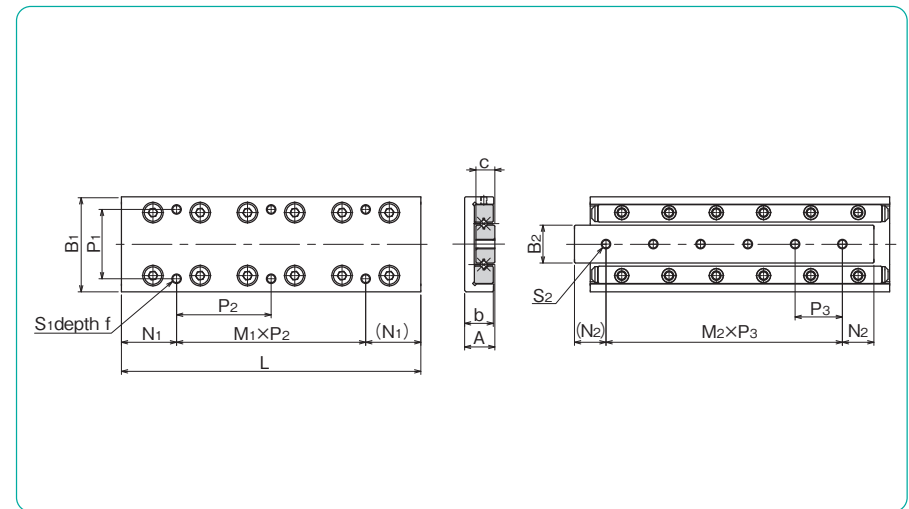
size

table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease

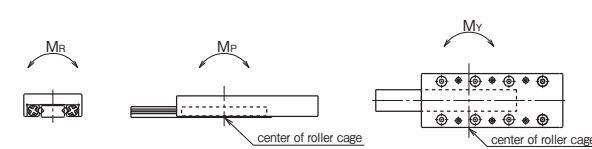
with low temperature black chrome treatment

part number		stroke ST mm	major dimensions						table-top mounting hole dimensions		
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm
SYT 1025	SYTS 1025	12	8±0.1	20±0.1	25	7.5	6.6	4	14	M2.6	3
1035	1035	18			35						
1045	1045	25			45						
1055	1055	32			55						
1065	1065	40			65						
1075	1075	45			75						
1085	1085	50			85						
SYT 2035	SYTS 2035	18	12±0.1	30±0.1	35	11.5	12	6	22	M3	5
2050	2050	30			50						
2065	2065	40			65						
2080	2080	50			80						
2095	2095	60			95						
2110	2110	70			110						
2125	2125	80			125						
SYT 3055	SYTS 3055	30	16±0.1	40±0.1	55	15.5	16	8	30	M4	7
3080	3080	45			80						
3105	3105	60			105						
3130	3130	75			130						
3155	3155	90			155						
3180	3180	105			180						
3205	3205	130			205						



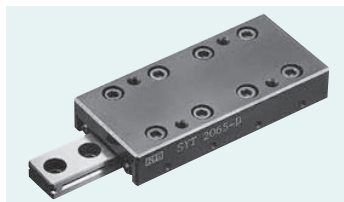
N ₁ mm		M ₁ ×P ₂ mm		bed-surface mounting hole dimensions			accuracy ※(deviation)		basic load rating		allowable static moment			mass	size
N ₂ mm	M ₂ ×P ₃ mm	S ₂	T μm	S μm	C N	Co N	M _P N·m	M _Y N·m	M _R N·m	g					
3.5	1×18	M2.6	5	2×7.5	2	4	464	476	1.79	1.47	1.79	22	1025		
3.5	1×28		7.5	2×10	2	4	805	952	3.08	3.50	3.58	33	1035		
12.5	1×20		7.5	3×10	2	5	959	1,190	6.98	6.40	4.48	42	1045		
12.5	1×30		7.5	4×10	2	5	1,100	1,420	9.53	8.81	5.37	52	1055		
12.5	2×20		7.5	5×10	2	5	1,240	1,660	12.4	11.6	6.27	63	1065		
22.5	1×30		7.5	6×10	2	5	1,510	2,140	19.3	18.3	8.06	72	1075		
12.5	2×30		7.5	7×10	2	5	1,650	2,380	23.4	22.3	8.96	83	1085		
3.5	1×28	M3	7.5	1×20	2	4	1,090	1,170	7.04	5.78	7.63	79	2035		
3.5	1×43		10	2×15	2	4	1,510	1,750	12.1	10.7	11.4	113	2050		
17.5	1×30		10	3×15	2	5	1,900	2,340	19.1	17.1	15.2	150	2065		
17.5	1×45		10	4×15	2	5	2,620	3,510	27.4	29.6	22.8	185	2080		
17.5	2×30		10	5×15	2	5	2,950	4,100	37.4	39.9	26.7	215	2095		
32.5	1×45		10	6×15	2	5	3,280	4,680	61.7	58.1	30.5	255	2110		
17.5	2×45		10	7×15	2	5	3,590	5,270	76.1	72.1	34.3	295	2125		
7.5	1×40	M4	10	1×35	2	5	3,490	3,890	19.4	22.2	33.8	225	3055		
7.5	1×65		15	2×25	2	5	5,230	6,490	53.0	58.0	56.4	340	3080		
27.5	1×50		15	3×25	3	5	6,030	7,790	103	95.7	67.7	440	3105		
27.5	1×75		15	4×25	3	5	7,560	10,300	170	160	90.3	560	3130		
27.5	2×50		15	5×25	3	5	9,000	12,900	210	220	112	655	3155		
52.5	1×75		15	6×25	3	5	10,300	15,500	302	314	135	770	3180		
27.5	2×75		15	7×25	3	5	11,000	16,800	355	367	146	880	3205		

※For accuracy (T, S), refer to Figure A-22 (page A-36). 1N≒0.102kgf 1N·m≒0.102kgf·m



SYT-D TYPE

-SYT1/SYT2/SYT3-



part number structure

example **SYT 3 155 -D -LB -KGLA**

specification
SYT: standard
SYTS: anti-corrosion

size

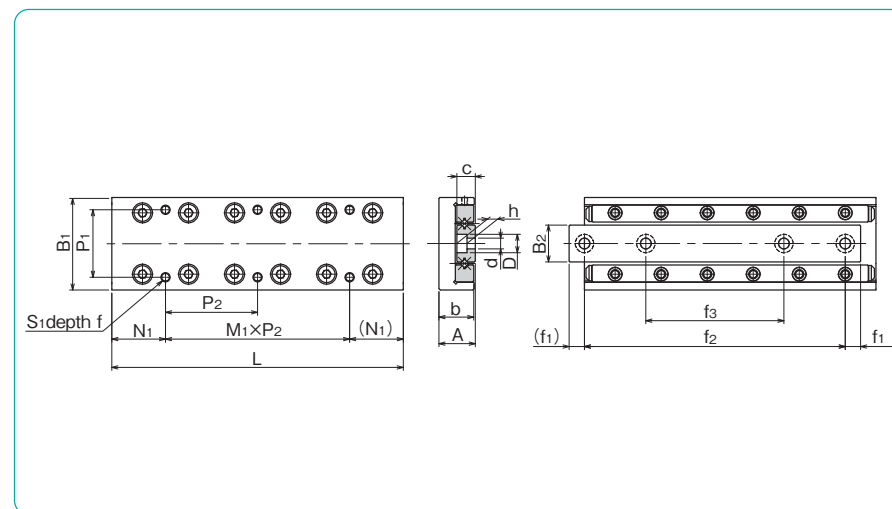
table length

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

with counterbore

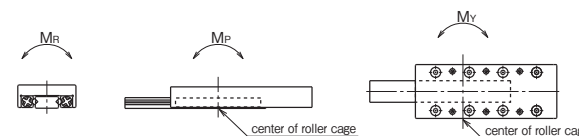
part number		stroke ST mm	major dimensions						table-top mounting hole dimensions			
standard	anti-corrosion		A mm	B ₁ mm	L mm	b mm	B ₂ mm	c mm	P ₁ mm	S ₁	f mm	N ₁ mm
SYT1025-D	SYTS1025-D	12	8±0.1	20±0.1	25	7.5	6.6	4	14	M2.6	3	3.5
1035-D	1035-D	18			35							3.5
1045-D	1045-D	25			45							12.5
1055-D	1055-D	32			55							12.5
1065-D	1065-D	40			65							12.5
1075-D	1075-D	45			75							22.5
1085-D	1085-D	50			85							12.5
SYT2035-D	SYTS2035-D	18	12±0.1	30±0.1	35	11.5	12	6	22	M3	5	3.5
2050-D	2050-D	30			50							3.5
2065-D	2065-D	40			65							17.5
2080-D	2080-D	50			80							17.5
2095-D	2095-D	60			95							17.5
2110-D	2110-D	70			110							32.5
2125-D	2125-D	80			125							17.5
SYT3055-D	SYTS3055-D	30	16±0.1	40±0.1	55	15.5	16	8	30	M4	7	7.5
3080-D	3080-D	45			80							7.5
3105-D	3105-D	60			105							27.5
3130-D	3130-D	75			130							27.5
3155-D	3155-D	90			155							27.5
3180-D	3180-D	105			180							52.5
3205-D	3205-D	130			205							27.5



M ₁ ×P ₂ mm	bed-surface mounting hole dimensions d×D×h mm	accuracy ※(deviation)			basic load rating		allowable static moment			mass g	size		
		f ₁ mm	f ₂ mm	f ₃ mm	T μm	S μm	C N	Co N	M _P N·m			M _Y N·m	M _R N·m
1×18	2.5×4.1×2.2	3.5	18	—	2	4	464	476	1.79	1.47	1.79	22	1025
1×28		5	25	—	2	4	805	952	3.08	3.50	3.58	33	1035
1×20		3.5	38	25	2	5	959	1,190	6.98	6.40	4.48	42	1045
1×30		3.5	48	29	2	5	1,100	1,420	9.53	8.81	5.37	52	1055
2×20		5	55	31	2	5	1,240	1,660	12.4	11.6	6.27	63	1065
1×30		5	65	35	2	5	1,510	2,140	19.3	18.3	8.06	72	1075
2×30		5	75	40	2	5	1,650	2,380	23.4	22.3	8.96	83	1085
1×28	3.5×6×3.3	5	25	—	2	4	1,090	1,170	7.04	5.78	7.63	79	2035
1×43		7.5	35	—	2	4	1,510	1,750	12.1	10.7	11.4	113	2050
1×30		5	55	33	2	5	1,900	2,340	19.1	17.1	15.2	150	2065
1×45		5	70	40	2	5	2,620	3,510	27.4	29.6	22.8	185	2080
2×30		5	85	45	2	5	2,950	4,100	37.4	39.9	26.7	215	2095
1×45		7.5	95	50	2	5	3,280	4,680	61.7	58.1	30.5	255	2110
2×45		7.5	110	55	2	5	3,590	5,270	76.1	72.1	34.3	295	2125
1×40	4.5×7.5×4.3	7.5	40	—	2	5	3,490	3,890	19.4	22.2	33.8	225	3055
1×65		6	68	43	2	5	5,230	6,490	53.0	58.0	56.4	340	3080
1×50		7.5	90	55	3	5	6,030	7,780	103	95.7	67.7	440	3105
1×75		7.5	115	65	3	5	7,560	10,300	170	160	90.3	560	3130
2×50		7.5	140	95	3	5	9,000	12,900	210	220	112	655	3155
1×75		7.5	165	85	3	5	10,300	15,500	302	314	135	770	3180
2×75		7.5	190	90	3	5	11,000	16,800	355	367	146	880	3205

※For accuracy (T, S), refer to Figure A-22 (page A-36).

1N≒0.102kgf 1N·m≒0.102kgf·m



MINIATURE SLIDE

The NB miniature slide SYBS type is a limited stroke table with the most compact envelope dimensions, featuring two ball raceway grooves. The SYBS type utilizes balls as the rolling elements. The ultra compact design contributes greatly to the creation of smaller and lighter industrial machinery and equipment of all types.

STRUCTURE AND ADVANTAGES

The NB miniature slide incorporates a unique integrated ball cage between the table and bed. All components have been produced with high precision machining.

Ultra Compact Design

The table height of the SYBS type is 3.2~8mm and the width is 6~17mm. This compact size when compared with conventional slide tables helps to realize the miniaturization of machinery and equipment.

Low Friction · Low Noise

Since the rolling ball elements do not recirculate, the frictional resistance will not vary significantly resulting in smooth, high precision operation. Additionally, the

ball cage greatly reduces the contact noise of the rolling elements bringing about a low-noise operation.

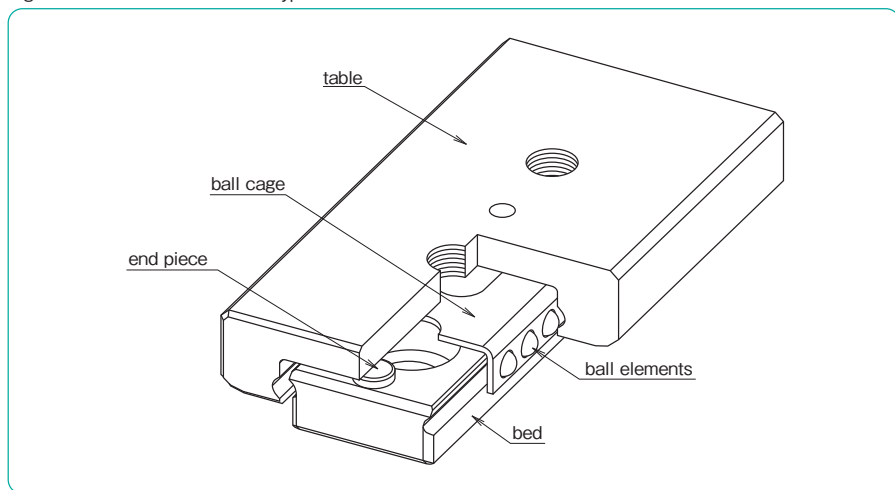
High Accuracy

The ball raceway grooves of each of the bed and table are processed through simultaneous precision machining resulting in minimal processing errors, and bringing about extremely smooth, precision linear movement.

Stainless Steel Structure

The SYBS type is made of all stainless steel components. This allows for use in corrosive or high temperature applications. The SYBS is a perfect component for vacuum or clean room environments.

Figure A-24 Structure of SYBS type



SPECIFICATION

Refer to table A-10 for NB Miniature Slide material and operating temperature range.

Table A-10 Material and Operating Temperature Range

type	table/bed	ball cage	ball elements	operating temperature range
SYBS	stainless steel	stainless steel	stainless steel	-20°C~140°C

ACCURACY

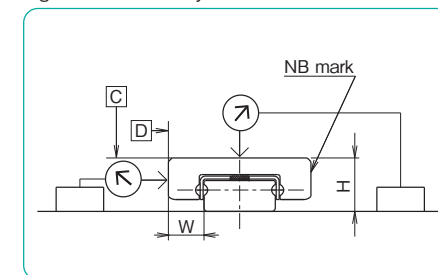
Table A-11 shows the accuracy of the SYBS miniature slide.

The deviation is measured as Figure A-25 illustrates. Dial indicators are placed to the center of the table's top and the reference surface side (opposite from the NB mark) and then the table is moved the full stroke without any load.

Table A-11 Accuracy unit : mm

item	tolerance
height H	±0.020
width W	±0.025
deviation from center of surface C	0.004
deviation from center of surface D	0.006

Figure A-25 Accuracy Measurement Method



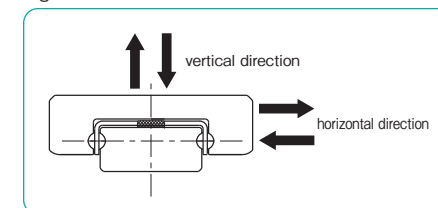
LOAD RATING

The load rating of the miniature slide varies depending on the direction of the applied load.

Table A-12 Change of Load Rating Corresponding to Load Direction

basic dynamic load rating	vertical direction	1.00×C
	horizontal direction	1.19×C
basic static load rating	vertical direction	1.00×Co
	horizontal direction	1.19×Co

Figure A-26 Direction of Load



RATED LIFE

The life of an NB miniature slide is calculated using the following equations:

Rated Life

$$L = \left(\frac{f_r \cdot C}{f_w \cdot P} \right)^3 \cdot 50$$

L: rated life (km) f_r: temperature coefficient
f_w: applied load coefficient C: basic dynamic load rating (N)
P: applied load (N)

* Refer to page Eng-6 for the coefficient.

Life Time

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

L_h: life time (hr) l_s: stroke length (mm)
n₁: number of cycles per minute (cpm)

MOUNTING

Mounting Surface Profile

In most general installations, the miniature slide is mounted by pushing the reference surface of the bed and table against a shoulder that is set up on the mounting surface. Machined undercuts should be used in the corners of the shoulder (as illustrated in Figure A-27) so that the corners will not interfere with the reference surfaces of the bed and table. Table A-13 lists the recommended shoulder heights of the mounting reference surfaces.

When installing the miniature slide table without providing machined undercuts, the corner radius should be realigned as illustrated in Figure A-28. Table A-14 lists the values of the corner radius of the mounting surface.

Figure A-27 Mounting Surface Profile-1

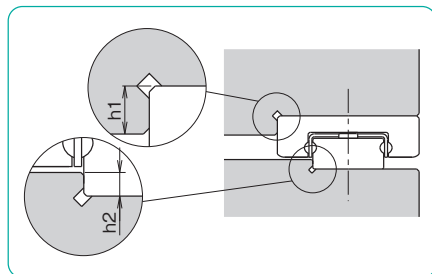


Table A-13 Shoulder Height on Mounting Reference Surface
unit : mm

part number	shoulder height for table h1	shoulder height for bed h2
SYBS 6	1.0	0.5
SYBS 8	1.2	0.8
SYBS12	1.5	0.8
SYBS17	2.5	1

Figure A-28 Mounting Surface Profile-2

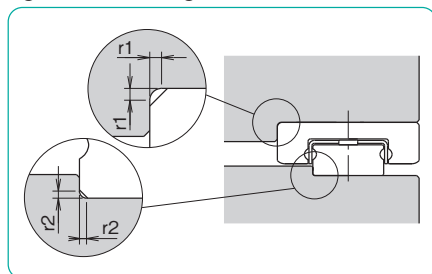


Table A-14 Maximum Corner Radius
unit : mm

part number	mounting surface for table	mounting surface for bed
	r1	r2
SYBS 6	0.1	0.05
SYBS 8	0.15	0.1
SYBS12	0.15	0.1
SYBS17	0.3	0.3

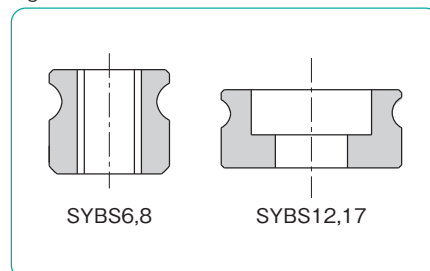
Recommended Torque Value

The bed should be tightened with a consistent torque by using a torque wrench. Table A-15 lists the recommended torque.

Table A-15 Recommended Torque unit : N · m	
size	torque
M1	0.03
M1.6	0.15
M2	0.3

(for stainless steel screw A2-70)

Figure A-29 Profile of SYBS Bed



Mounting Example and Mounting Screw

All the mounting holes are for SYBS6,8,12 fully through-hole. Mount SYBS6,8,12 as illustrated in Figure A-30 after considering the size of mounting screw, the maximum penetration depth, and the height of the bed. Make certain that the mounting screws do not interfere with the ball cage; otherwise, the accuracy and travel life will be affected adversely. Special screws for SYBS type are available from NB. Please refer to Table A-16 for dimensions of mounting screws.

Figure A-30 Mounting Example

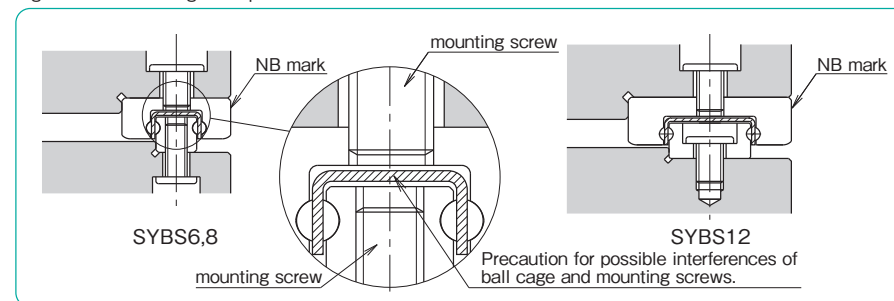
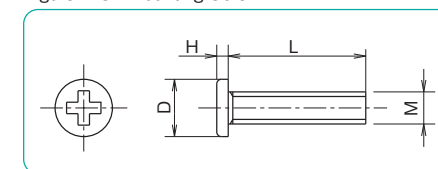


Table A-16 Mounting Screw (stainless steel)

M (size)	D mm	H mm	pitch mm	L mm
M1	1.8	0.45	0.25	5
M1.4	2.5	0.5	0.3	6
M1.6	2.3	0.5	0.35	4, 5, 6
M2	3	0.6	0.4	6

Figure A-31 Mounting Screw



USE AND HANDLING PRECAUTIONS

Preload

The SYBS miniature slide is provided with a slightly positive clearance type only.

End Piece

On both ends of the SYBS miniature slide bed section, screws are attached to prevent the ball cage from escaping. Please note that the screws are designed only to prevent the ball cage from escaping and are not intended for the use as a mechanical stopper. The ball cage may become deformed on contact with the stopper and this will result in a negative affect of the accuracy and travel life.

Lubrication

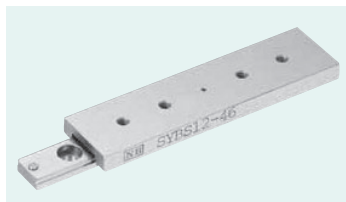
NB miniature slide SYBS type is supplied with an initial application of lithium soap grease No.0 and therefore is ready for immediate use. Make sure to

relubricate with a similar type of grease periodically according to the operating conditions. For use in clean rooms or vacuum environments, miniature slide tables without grease or with customer specified grease are available. NB also provides low dust generation grease. Please refer to page Eng-51 for details.

Cage Slippage

For the SYBS type, the cage can slip under high-speed motion, vertical application, unbalanced-loading, and vibrating conditions. It is advised that the motion speed be kept under 0.5m/s under general operating conditions. It is also recommended that the table be cycled to perform the maximum stroke several times, so that the cage returns to its center position.

SYBS TYPE



part number structure

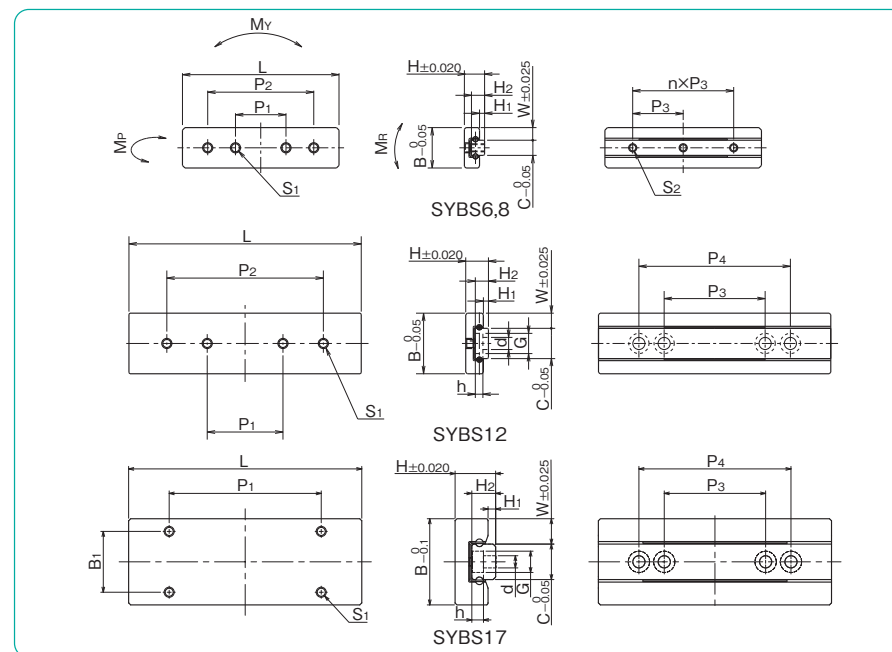
example **SYBS 8 31 -KGLA**

SYBS type

size

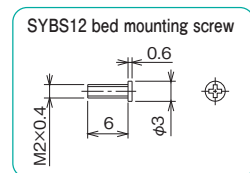
table length

grease symbol (refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based low dust generation grease
-KGLU: urea-based low dust generation grease
-KGF: anti-fretting grease



part number	major dimensions				tabel-top dimensions					S ₁ maximum screw penetration depth mm	
	H mm	W mm	H ₁ mm	stroke mm	B mm	L mm	P ₁ mm	P ₂ mm	B ₁ mm		
SYBS 6-13	3.2	2	0.7	5	6	13	6	-	-	M1.4	0.5
SYBS 6-21				12		21	10	-	-		
SYBS 8-11	4	2.5	1	4	8	11	5.5	-	-	M2	0.7
SYBS 8-21				12		21	10	-	-		
SYBS 8-31	4.5	3	1	18	12	31	10	21	-	M2	1.2
SYBS12-23				12		23	8	-	-		
SYBS12-31	4.5	3	1	18	12	31	15	-	-	M2	1.2
SYBS12-46				28		46	15	31	-		
SYBS17-23	8	5	1.5	14	17	23	10	-	-	M2	3
SYBS17-31				19		31	20	-	12		
SYBS17-46	8	5	1.5	29	17	46	30	-	-	M2	3

※1: Custom mounting screws are provided with the SYBS-12 type only.
 Other screw sizes are also available. (Please refer to page A-67)



H ₂ mm	C mm	bed-surface dimensions			basic load rating		allowable static moment			mass g	size		
		d×G×h mm	S ₂	P ₃ mm	n mm	P ₄ mm	C N	Co N	M _P N·m			M _Y N·m	M _R N·m
2.0	2	-	M1	7	1	-	154	180	0.21	0.25	0.21	1.4	6-13
				7	2	-	229	315	0.57	0.69	0.37	2.2	6-21
2.6	3	-	M1.6	5	1	-	201	211	0.23	0.28	0.35	2.0	8-11
				10	1	-	368	493	1.02	1.22	0.83	3.7	8-21
2.6	6	2.4×4×1.5 ^{※1}	-	10	2	-	473	704	1.97	2.35	1.19	5.5	8-31
				15	-	-	404	563	1.30	1.55	1.80	7.6	12-23
2.6	6	2.4×4×1.5 ^{※1}	-	15	-	-	473	704	1.97	2.35	2.25	10.2	12-31
				20	-	30	658	1,120	4.80	5.72	3.60	15.2	12-46
4.7	7	2.4×4.2×2.3	-	15	-	-	775	888	2.09	2.49	3.33	19.2	17-23
				15	-	-	984	1,240	3.80	4.53	4.66	26.2	17-31
4.7	7	2.4×4.2×2.3	-	20	-	30	1,350	1,950	8.75	10.4	7.32	38.4	17-46

1N≒0.102kgf 1N·m≒0.102kgf·m

GONIO WAY

The NB gonio way is a curved cross roller slide way. It is a curved motion bearing utilizing low-friction, non-recirculating precision rollers. It is used when there is a need to change the gradient or obtain an accurate gradient angle without changing the center of rotation in high-precision optical and measurement equipment.

STRUCTURE AND ADVANTAGES

The NB gonio way RVF type consists of curved tracking bases with precisely ground V-grooves and flat installation surfaces, as well as curved roller cages. The NB gonio way RV type consists of curved rails with precisely machined V-grooves and curved roller cages. Precision rollers are employed as the rolling elements, since the rolling elements do not recirculate, the frictional resistance will not vary significantly, providing curved movement with extremely low frictional resistance.

Low Frictional Resistance and Minute Motion

The precision grinding and curved roller cage allow for extremely low frictional resistance. The negligible difference between static and dynamic frictions allows the gonio way to follow minute movements accurately, realizing curved movement of high accuracy.

Low Noise

Since NB gonio way employs a non-recirculating design, there is no noise from the circulating area. In addition, the curved roller cage realizes quiet operation without contact noise between the rolling elements.

High Rigidity and High Load Capacity

The rollers provide a larger contact area and less

elastic deformation compared to the ball elements. Additionally, since the rollers do not recirculate, the effective number of rotating elements is larger, resulting in high rigidity and high load capacity.

Flat Installation Surface

The flat installation surfaces of the RVF type do not require complicated machining of tables and beds when installing the product. As a result, machining costs can be reduced greatly.

Same Rotation Center

The curved V-grooves, which are finished with a precise grinding process, provide an accurate center of rotation. Furthermore, the products are composed to provide identical rotation centers when products of each size are installed to two axes. (refer to Table A-25.)

Figure A-32 Structure of Gonio Way RVF type

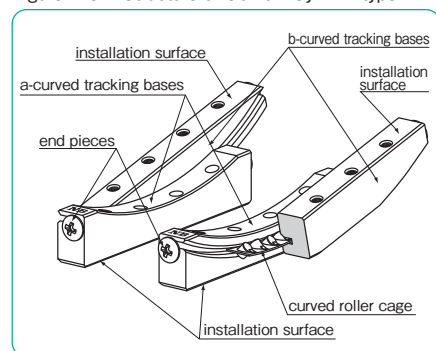
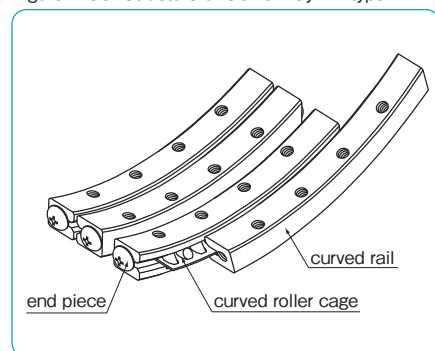


Figure A-33 Structure of Gonio Way RV type



SPECIFICATION

Refer to table A-17 for NB Gonio Way material and operating temperature range.

Table A-17 Material and Operating Temperature Range

type	curved rail	curved roller cage	roller	operating temperature range
RVF	steel	stainless steel	steel	-20°C~110°C
RV				

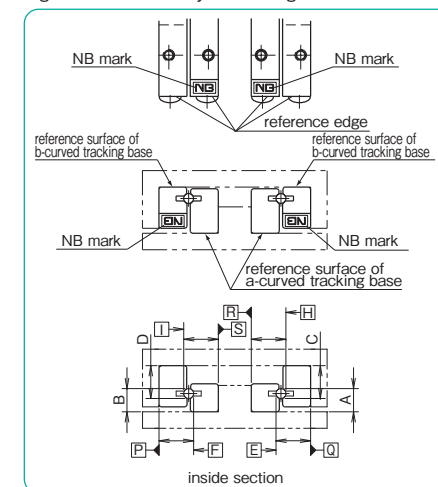
ACCURACY OF RVF TYPE

The accuracies of the gonio way RVF type are represented by mutual dimensional errors and parallelism of four rails, using the procedure as shown in Figure A-34.

Table A-18 Accuracy unit: μm

part number	mutual error between A and B mutual error between C and D		parallelism of E, F, H, I
	RVF2050- 70	10	
RVF2050- 87			
RVF2050-103			
RVF2050-120			
RVF3070- 85			
RVF3070-110			
RVF3100-125			
RVF3100-160			

Figure A-34 Accuracy Measuring Method



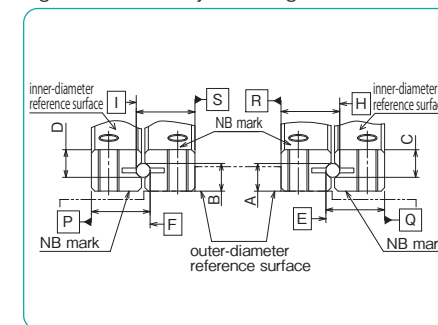
ACCURACY OF RV TYPE

The accuracies of the gonio way RV type are represented by mutual dimensional errors and parallelism of four rails, using the procedure as shown in Figure A-35.

Table A-19 Accuracy unit: μm

part number	mutual error between A and B mutual error between C and D		parallelism of E, F, H, I
	RV2040- 50	10	
RV2060- 60			
RV3070- 90			
RV3070-110			
RV3100-160			

Figure A-35 Accuracy Measuring Method



The reference surfaces are located on the opposite side of the NB mark. There are inner reference surface and outer reference surface in one set of RV.

RATED LIFE

The life of a gonio way is obtained using the following equations.

Rated Life

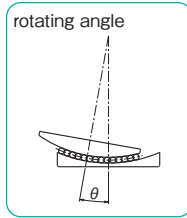
$$L = \frac{90}{\theta} \times \left(\frac{f_T}{f_w} \times \frac{C}{P} \right)^{\frac{10}{3}}$$

L: travel life (10⁶cycles) θ: rotating angle (degree)
 C: basic dynamic load rating (N) P: applied load (N)
 f_T: temperature coefficient f_w: applied load coefficient
 ※Refer to page Eng-6 for the coefficients.

Life Time

$$L_h = \frac{L \times 10^6}{60 \times n}$$

L_h: life time (hr)
 n: number of cycles per minute (cpm)



MOUNTING OF RVF TYPE

Accuracy of Mounting Surface

To maximize the performance of NB gonio way, it is important to finish the installation surface with high accuracies.

- Parallelism of surface 1 against surface A
- Perpendicularity of surface 2 against surface A
- Perpendicularity of surface 5 against surface A
- Parallelism of surface 3 against surface B
- Perpendicularity of surface 4 against surface B
- Perpendicularity of surface 6 against surface B
- Parallelism of surface 2 against surface C
- Parallelism of surface 4 against surface C

Figure A-36 Accuracy of Mounting Surface

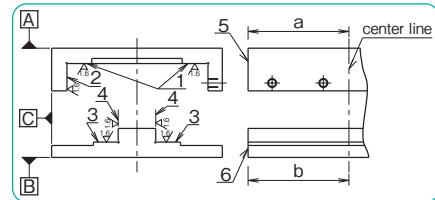


Figure A-37 Example of Installation of RVF type

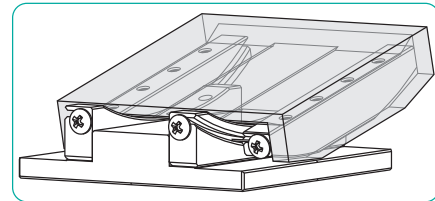
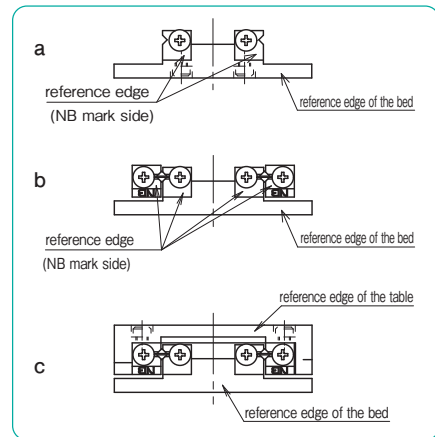


Figure A-38 Installation Method (1)



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-73, Figure A-39 (d, e, f).)

Page A-73, Table A-20 shows the sizes of tapped holes.

Installation Procedure

Setting the curved tracking bases temporarily

- (1) Remove burrs, stains, and dust from the installation surfaces of the curved tracking bases of tables and beds. Foreign particles must be kept out of the assembly work as well.
- (2) Apply low viscosity oil to contact surfaces, check the reference edges of an a-curved tracking base and bed, and then tighten the screws temporarily. (Figure A-38a)
- (3) Align the reference edges (NB mark side) of a b-curved tracking base and an a-curved tracking base to the same orientation. Then, insert the curved roller cages between the curved tracking bases at the center area. Make sure that the curved roller cages will not interfere with the curved raceway grooves of the curved roller tracking bases. (Figure A-38b)
- (4) Check the reference edge of the table, set the table over the b-curved tracking base, and then secure the table temporarily. (Figure A-38c)

Setting four curved tracking bases in parallel position

(5) Move the table to the maximum stroke ends of both sides and adjust the setting so that the curved roller cage is positioned at the center of the curved tracking base.

(6) Move the table to the center position and tighten the adjustment screws with ※slightly strong torque by using a torque wrench. (Figure A-39d)

※"Slightly strong torque" here means slightly stronger than the torque at which the oscillation of the dial indicator is stabilized at the minimum value when the table is moved right and left, or when pressure is applied to the rolling direction while the dial indicator is attached to the side face (reference side) of the table. (Figure A-39i)

(7) Move the table to the maximum stroke end of one side and tighten the adjustment screws on the curved roller cage with the same torque as in step (6). (Figure A-39e)

(8) Move the table to the maximum stroke end of the other side and tighten the adjustment screws with a torque wrench by repeating the procedure above. (Figure A-39f)

Securing the curved tracking bases

(9) Mount an edge reference plate between the reference edge of the a-curved tracking base and end piece, press it against the reference edge of the bed, and then tighten only the rail mounting bolts in the middle. (Figure A-39g)

(10) Repeat the procedure above to mount an edge reference plate between the reference edge of the b-curved tracking base and the end piece. Press it against the reference edge of the bed, and then tighten only the rail mounting bolts in the middle. (Figure A-39h) In order to maintain parallelism of curved tracking bases, do not cycle the table during this process and make sure that there is no clearance between the edge of the table and the edge reference plate.

(11) Secure the rest of the rail mounting bolts on the curved roller cage one by one by moving the table as instructed in steps (7) and (8).

Adjusting the preload

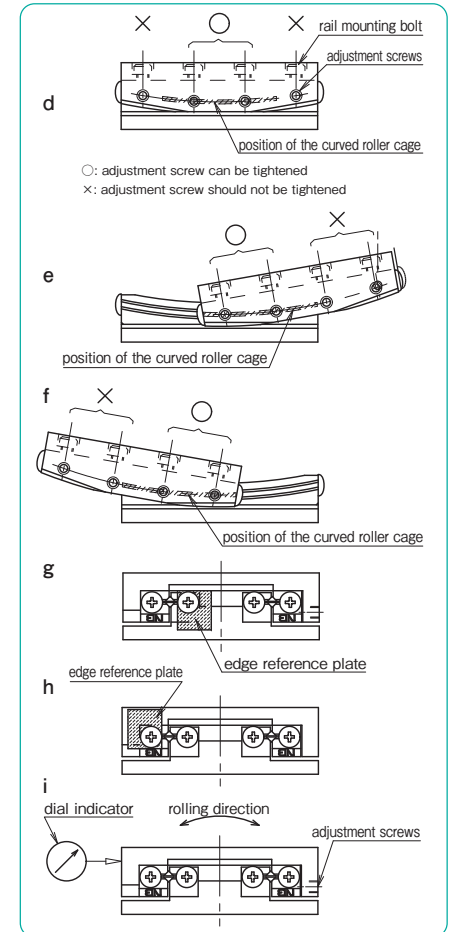
(12) Move the table to the right and left with the test indicator attached to the side face of the table (reference side). Or, apply pressure in the rolling direction and confirm that the oscillation of the indicator is stabilized at the minimum level. (Figure A-39i)

(13) Return the rail mounting bolts on the b-curved tracking base at the adjustment screw side to the temporary setting.

(14) Return the table to the center position, slightly loosen the adjustment screws in the middle, and then gradually loosen the adjustment screws on the curved roller cage while moving the table as instructed in steps (7) and (8) Make sure not to reduce the preload too much.

(15) Finally, secure the b-curved tracking base at the adjustment screw side, which has been installed temporarily. Secure the rail mounting bolts on the curved roller cage one by one by moving the table as instructed above.

Figure A-39 Installation Method (2)



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.

Table A-20 Recommended Torque for Adjustment Screw unit:N·m

part number	size	torque
RVF2	M3	0.012
RVF3	M4	0.05

Table A-21 Recommended Torque for Rail Mounting Bolts unit:N·m

size	tightening torque
M2.5	0.65
M3	1.0

(for stainless steel screw A2-70)

MOUNTING OF RV TYPE

Accuracy of Mounting Surface

The accuracy of surfaces 1, 2, 3, and 4 (Figure A-40) directly affect the motion accuracy.

To maximize the performance of NB gonio way, it is important to finish the installation surface with high accuracies.

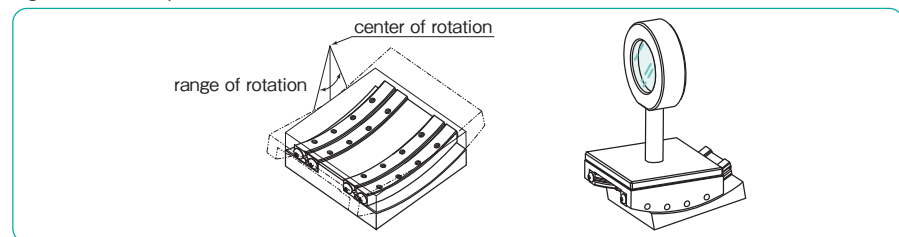
Tapped Hole for Preload Adjustment Screws

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-75, Figure A-43 (e, f, g).)

Page A-75, Table A-22 shows the sizes of tapped holes.

Figure A-41 Example of Installation



Installation Procedure

- (1) Remove burrs, dirt, dust, etc. from the table and the installation surfaces of the bed.
- (2) Apply a low viscosity oil to contact surfaces. Fix the rail ①inner-diameter reference surface, ②outer-diameter reference surface and ③outer-diameter reference surface by tightening bolts to the specified torque. (Table A-23, Figure A-42a)
- (3) Temporarily attach the rail ④inner-diameter reference surface on curved rail to the adjustment side. (Figure A-42b)
- (4) Remove the end pieces on one side of the rails and insert roller cages to the center. (Figure A-42c)
- (5) Re-attach end pieces.
- (6) Move the table to the right and left (in the direction of the stroke) to position roller cages at the center of the curved rails.
- (7) Set an indicator at the side of the table on the reference surface. (Figure A-42d)
- (8) Move the table to one of the stroke ends and tighten the adjustment screws slightly. (Figure A-43e)

Figure A-40 Accuracy of Mounting Surface

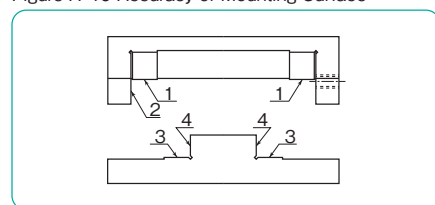
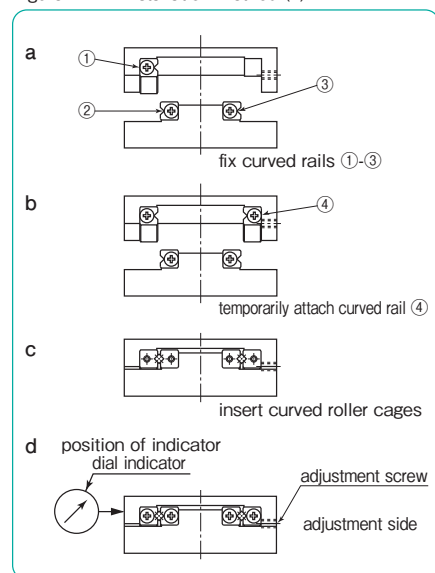


Figure A-42 Installation Method (1)



- (9) Move the table fully to the other stroke end and tighten the adjustment screws slightly. (Figure A-43f)
- (10) Move the table to the center and lightly tighten adjustment screws. (Figure A-43g)
- (11) Repeat steps (8)~(10) until there is no clearance around the table. If there is no clearance, the indicator will show a minimum fluctuation value when the table is moved to the right and left. Exercise care so as not to apply an excessive preload.
- (12) Repeat steps (8)~(10) and tighten the adjustment screws uniformly by using a torque wrench.
- (13) Fix the rail ④inner-diameter reference surface. Tighten the rail mounting bolts sequentially by moving the table in the same manner as with the adjustment screws.

Table A-22 Recommended Torque for Adjustment Screw unit:N·m

part number	size	torque
RV2	M3	0.012
RV3	M4	0.05

Table A-23 Recommended Torque for Rail Mounting Bolt unit:N·m

size	torque
M3	1.0

(for stainless steel screw A2-70)

SHAPE OF MOUNTING SURFACE

Slide way RVF and RV 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-44 so that it does not interfere with the reference corner of the rail.

If it is necessary to mount RVF or RV types without relief, then it can be used with rounded corners as shown in Figure A-45. Table A-24 shows the corner radius of the mounting surface.

Figure A-45 Corner Radius

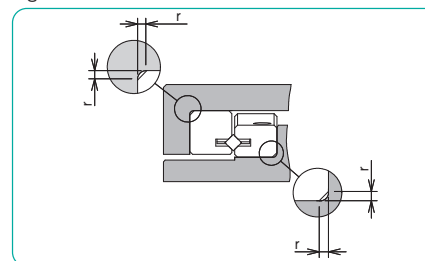


Figure A-43 Installation Method (2)

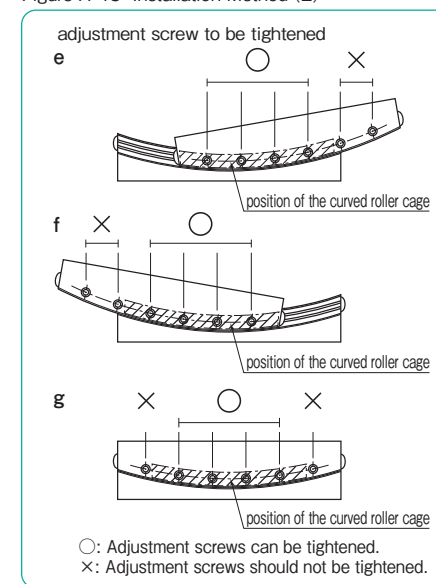


Figure A-44 Relief on the Mounting Surface

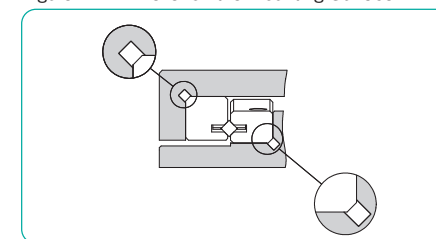


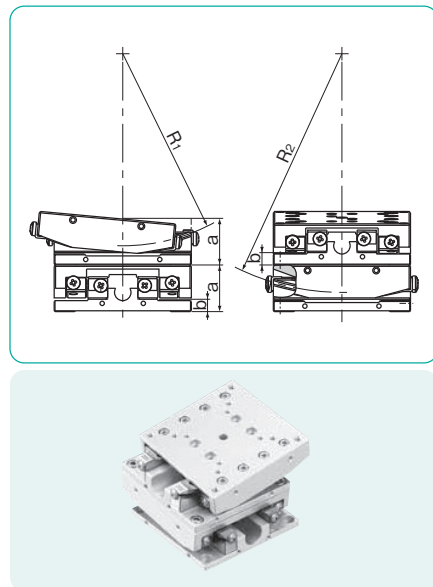
Table A-24 Maximum Corner Radius unit : mm

part number	maximum corner radius r
RVF2 RV2	0.05
RVF3 RV3	0.1

RVF TYPE 2 AXES AND SPECIAL SPECIFICATIONS

When incorporating RVF type units onto two axes as illustrated in Figure A-46, adjust the height of one lifting axis as instructed in Table A-25. Then, adjust dimension b (the height of the installation surface of the a-curved tracking base) in Figure A-46 according to the table in order to obtain the identical rotation center for the two axes. In addition, requests can be made for custom specifications including table units fitted for two axes, non-standard lengths for curved tracking bases, the radius of rotation, the rotation range, and the number of rollers. Contact NB for further information.

Figure A-46 Two Axes Specification



part number combination	a	R ₁	R ₂
RVF2050- 70	17	70	87
RVF2050- 87			
RVF2050-103	17	103	120
RVF2050-120			
RVF3070- 85	25	85	110
RVF3070-110			
RVF3100-125	35	125	160
RVF3100-160			

USE AND HANDLING PRECAUTIONS

Lubrication

NB gonio ways are lubricated using lithium soap No.00 based grease prior to shipment, so they can be used immediately. Make sure to relubricate with a similar type of grease periodically according to the operating conditions. NB also provides low dust generation grease for the linear system. Please refer to page Eng-51 for further details.

Dust Prevention

If a foreign matter, such as dust and dirt, enters the inside of the NB gonio way, it will deteriorate the accuracy and life of the system. A gonio way used in a harsh environment should be protected with a cover.

Operating Environment

The recommended operating temperature range of the NB gonio way is -20°C to 110°C.

Adjustment

Inaccuracy in mounting surface or improper adjustment of preload will reduce the motion accuracy, resulting in skewing and shortening of gonio way life. The adjustment should be carried out carefully.

Cage Slippage

For the NB Gonio Way, the cage can slip under high-speed motion, vertical application, unbalanced-loading, and vibrating conditions. It is recommended that the rotation range 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 NB gonio way to prevent removal of the curved roller cage. Do not use as a mechanical stopper.

Careful Handling

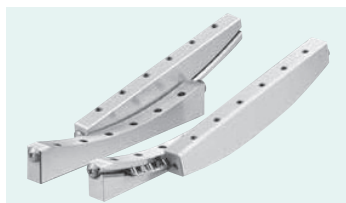
Dropping the NB gonio way causes the rolling elements to make dents in the raceway surface. This will prevent smooth motion and will also affect accuracy. Be sure to handle the product with care.

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.

RVF TYPE

– Gonio Way flat-installation-surface –



part number structure

example **RVF 3 100 - 125 - 16Z -LB -KGF**

RVF type

size

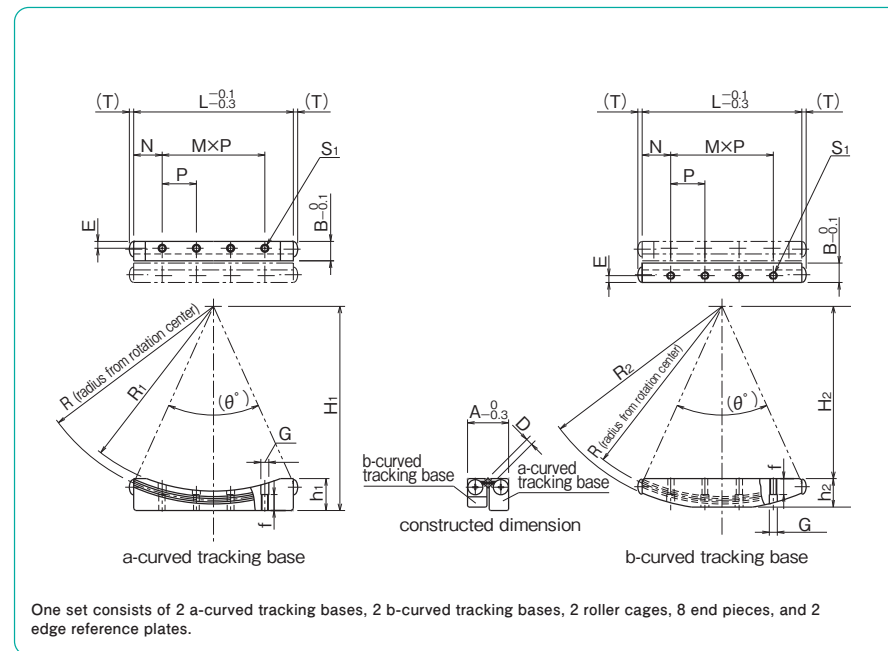
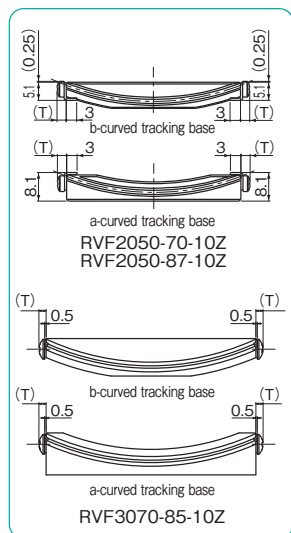
rail length

radius from rotation center

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

number of rollers



part number	rotation range	roller diameter D mm	number of rollers Z	major dimensions									
				L mm	R mm	R ₁ mm	R ₂ mm	H ₁ mm	H ₂ mm	h ₁ mm	h ₂ mm	A mm	B mm
RVF2050- 70-10Z	± 5°	2	10	50	70	67	73	72.5	64.5	7.5	7.5	15	7.25
RVF2050- 87-10Z			87		84	89.5	89.5	81.5	7.5	7.5			
RVF2050-103-10Z			103		100	106	105.5	97.5	7.5	8			
RVF2050-120- 9Z			120		117	123	122.5	114.5	7.5	8			
RVF3070- 85-10Z	± 10°	3	10	70	85	81	89	89.5	75.5	14	12.5	18	8.5
RVF3070-110-10Z			110		106	114	114.5	100.5	12.8	12.5			
RVF3100-125-16Z			125		121	129	129.5	110.5	17.5	18			
RVF3100-160-14Z			14	100	160	156	164	164.5	145.5	15	18		

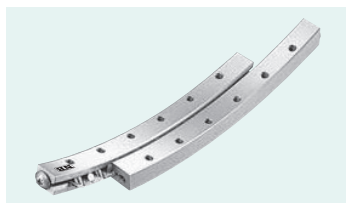
* Please refer to page A-82 for information on cage dimensions.

M×P mm	N mm	E mm	S ₁	f mm	G mm	T mm	θ°	basic load rating		mass (one set) g	part number
								dynamic C N	static Co N		
3×12.5	6.25	2.5	M2.5	4	3	2.3	41.8°	1,180	2,400	66	RVF2050- 70-10Z
							33.4°	1,060	2,430	70	RVF2050- 87-10Z
3×13	5.5					1.5	28.1°	998	2,440	70	RVF2050-103-10Z
							24.0°	751	1,970	70	RVF2050-120- 9Z
3×15	12.5	3	M3	7	3.5	2.4	48.6°	2,680	5,530	182	RVF3070- 85-10Z
						1.9	37.1°	2,440	5,620	182	RVF3070-110-10Z
5×15	12.5	3	M3	7	3.5	1.9	47.2°	3,520	8,850	327	RVF3100-125-16Z
							36.4°	2,860	7,890	323	RVF3100-160-14Z

1N≒0.102kgf

RV TYPE

– Gonio Way –



part number structure

example **RV 3 070 - 110 - 10Z -LB -KGF**

RV type

size

rail length

radius from rotation center

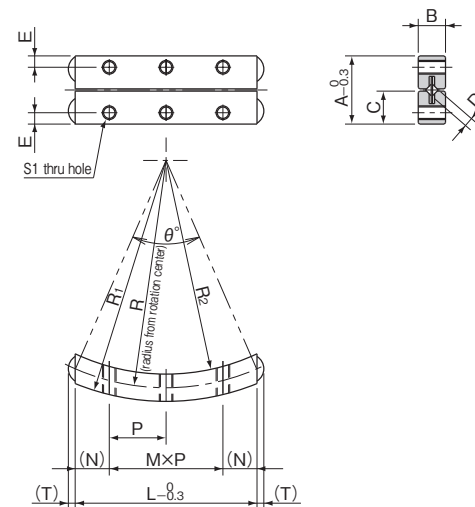
grease symbol
(refer to page Eng-51)
blank: standard grease
-KGLA: lithium-based
low dust generation grease
-KGU: urea-based
low dust generation grease
-KGF: anti-fretting grease

with low temperature
black chrome treatment

number of rollers

part number	rotation range	roller diameter D mm	number of rollers Z	major dimensions						
				L mm	R mm	R ₁ mm	R ₂ mm	A mm	B mm	C mm
RV2040- 50- 7Z	±10°	2	7	40	50	53	47	15	6	7.25
RV2060- 60-12Z			12	60	60	63	57			
RV3070- 90-11Z	±10°	3	11	70	90	94	86	18	8	8.5
RV3070-110-10Z			10	70	110	114	106			
RV3100-160-14Z			14	100	160	164	156			

* Please refer to page A-82 for information on cage dimensions.



One set consists of 4 curved rails, 2 curved roller cages, and 8 end pieces.

M×P mm	N mm	E mm	S ₁	T mm	θ°	basic load rating		mass (one set) g	part number
						dynamic C N	static Co N		
2×12.5	7.5	2.5	M3	1.5	47.2°	820	1,440	49	RV2040- 50- 7Z
3×12.5	11.25				60.0°	1,490	2,800	75	RV2060- 60-12Z
3×15	12.5	3	M3	1.9	45.8°	2,640	5,550	137	RV3070- 90-11Z
3×15					37.1°	2,440	5,620	135	RV3070-110-10Z
5×15					36.4°	2,860	7,890	193	RV3100-160-14Z

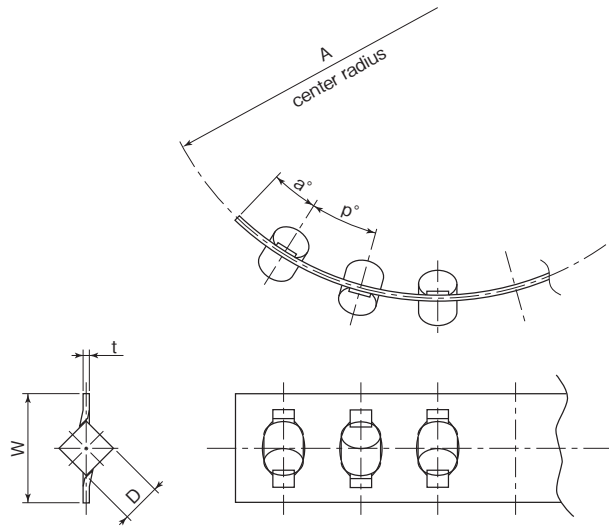
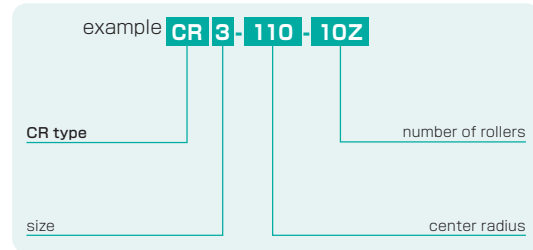
1N≒0.102kgf

CR TYPE

— Standard Curved Roller Cage —



part number structure



part number	roller diameter D mm	center radius A mm	t mm	w mm	p°	a°	applicable type
CR2- 50- 7Z	2	50	0.3	5.6	4.6°	2.9°	RV
CR2- 60-12Z		60			3.8°	2.4°	RV
CR2- 70-10Z		70			3.3°	2.0°	RVF
CR2- 87-10Z		87			2.6°	1.6°	RVF
CR2-103-10Z		103			2.2°	1.4°	RVF
CR2-120- 9Z		120			1.9°	1.2°	RVF
CR3- 85-10Z	3	85	0.4	7.2	3.4°	2.0°	RVF
CR3- 90-11Z		90			3.2°	1.9°	RV
CR3-110-10Z		110			2.6°	1.5°	RVF,RV
CR3-125-16Z		125			2.3°	1.3°	RVF
CR3-160-14Z		160			1.8°	1.0°	RVF,RV