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 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.

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 G-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

Compared to the ball elements, the rollers provide a larger contact area and less elastic deformation, thus the NB slide way has high rigidity and high load capacity. With new NV rail design, the roller contact area is increased by 30 to 58% (Figure G-2). The number of effective rollers is increased by narrowing the roller pitch. Thus, the NV type has the load rating that is 1.3 to 2.5 times that of the SV type.

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

The anti-corrosion SVS/SVWS/NVS-RNS slide ways have all stainless steel components, making them ideal for use in clean room applications.

Figure G-2 Roller Contact Profile

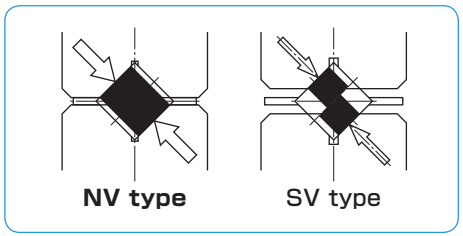


Figure G-3 Structure of NV type

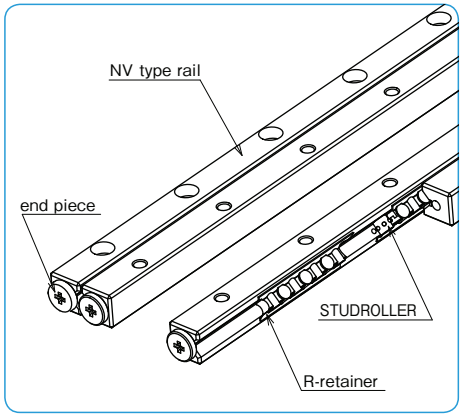
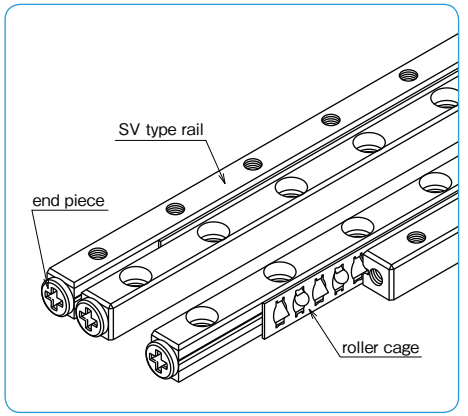


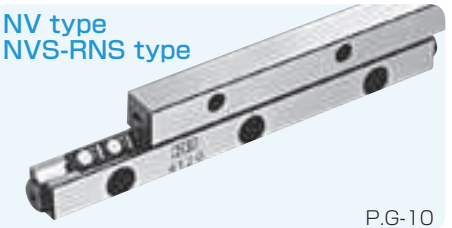
Figure G-4 Structure of SV type



※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 G-7 and remove the fastening plates before use.

TYPES

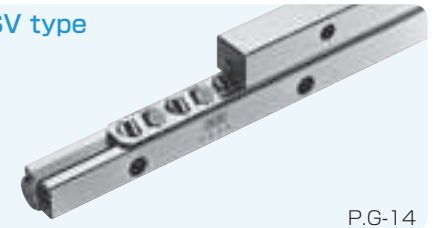
NV type
NVS-RNS type



P.G-10

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.

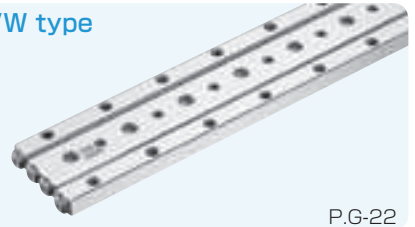
SV type



P.G-14

The SV slide way consists of a set of four rails, two R type roller cages, which have precision rollers in a cross arrangement, and eight end pieces. The all stainless steel option makes it suitable for use in corrosive environments.

SVW type



P.G-22

The SVW slide way consists of two SV-type rails, one W type rail, two R type roller cages, and eight end pieces. The use of a W-type rail serves for a compact design. The SVWS type is also available with all stainless steel components.

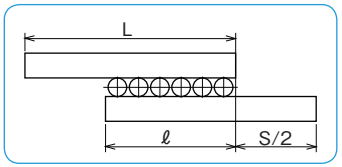
STROKE

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

Stroke of SV type, 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 G-8



Rail Length (L)

When the stroke is 400mm or over

$S \leqq L/1.5$

When the stroke is less than 400 mm,

$S \leqq L$

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

Cage length (ℓ)

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

Number of rollers (Z)

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

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

LUBRICATION AND DUST PREVENTION

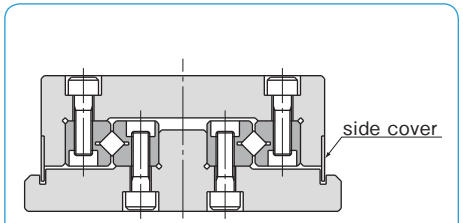
Lubrication

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-39 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 G-9)

Figure G-9 Example of Dust Prevention Mechanism



MOUNTING

Example

Figure G-10 NV type, SV type

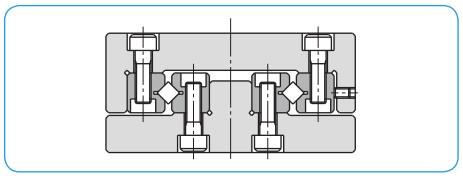
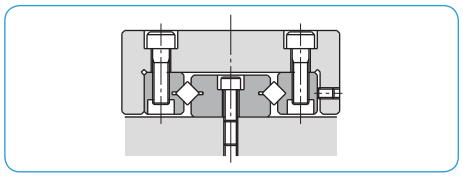


Figure G-11 SVW type

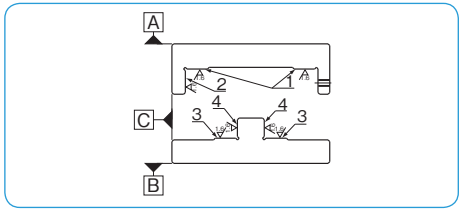


Accuracy of Mounting Surface

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 G-12 Accuracy of Mounting Surface



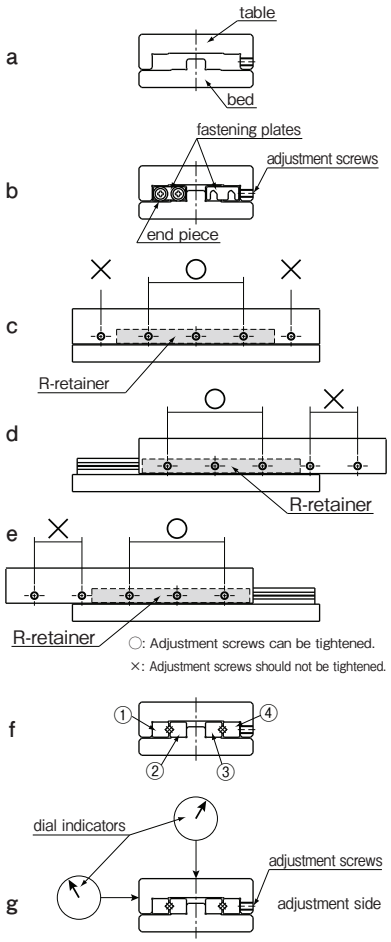
INSTALLATION PROCEDURE OF NV TYPE

Installation Procedure

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

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

Figure G-13 Installation Method

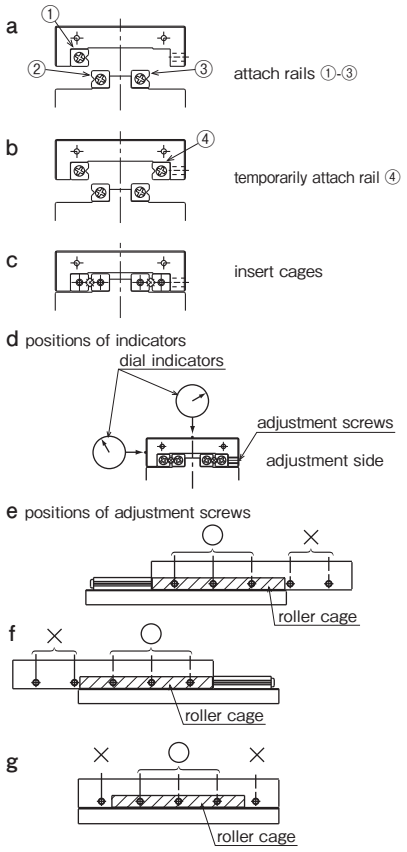


INSTALLATION PROCEDURE OF SV TYPE

Installation Procedure

(1) Remove burrs, scratches, and dust from the rail-mounting surface of the bed and the table, be careful to prevent contamination during assembly.
(2) Apply low-viscosity oil to contact surfaces. Attach rails ①-③ by tightening screws with the recommended torque (Table G-4). (Figure G-14a)
(3) Temporarily attach rail ④ on the adjustment side. (Figure G-14b)
(4) Remove end pieces on one end. Carefully insert roller cages between rails. (Figure G-14c)
(5) Re-attach end pieces.
(6) Move the table slowly to each stroke end to position roller cages at the center of the rails.
(7) Set the dial indicators to the center of the table and to the side (reference surface) of the table. (Figure G-14d)
(8) Move the table to one stroke end. Lightly tighten adjustment screws on the roller cage. (Figure G-14e)
(9) Move the table to the opposite stroke end. Similarly lightly tighten adjustment screws on the roller cage. (Figure G-14f)
(10) Move table to the center and lightly tighten center adjustment screws. (Figure G-14g)
(11) Repeat steps (8) ～ (10) until the indicators show a minimum deviation. Please do not apply an excessive preload.
(12) Make final adjustment of preload. Repeat steps (8) ～ (10) and tighten the adjustment screws with the recommended torque listed in Table G-3.
(13) Fasten the rail ④ securely with the recommended torque. As with the adjustment screws, successively tighten the mounting screws by moving the table.

Figure G-14 Installation Method



○: Adjustment screws can be tightened.
×: Adjustment screws should not be tightened.

Table G-3 Recommended Torque for Adjustment Screw Unit/N・m

part number	size	torque
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

Table G-4 Recommended Torque for Mounting screw Unit/N・m

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

(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 G-15 Special Mounting Screw

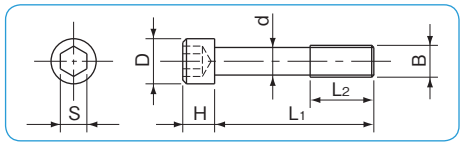
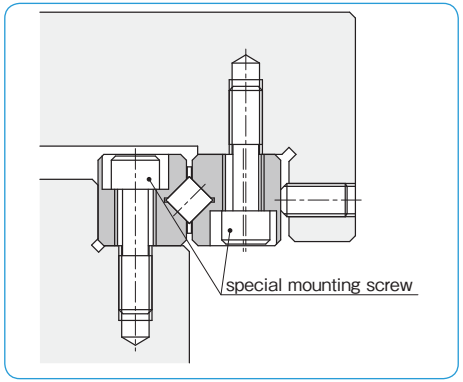


Table G-5 Special Mounting Screw

part number	B	d mm	D mm	H mm	L1 mm	L2 mm	S mm	applicable size
BT 3	M3	2.3	5	3	12	5	2.5	NV 3, SV 3
BT 4	M4	3.1	5.8	4	15	7	3	NV 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 G-8.

Operating Temperature

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

Use as a Set

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

Allowable Load

The allowable load is a load under which the sum of elastic deformations of the rolling element and the raceway in the contact area subject to the maximum contact stress is small enough to guarantee smooth rolling movement. When very smooth and highly accurate linear motion is required, make sure to use the product within the allowable load.

Cage Slippage

For the 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 central position.

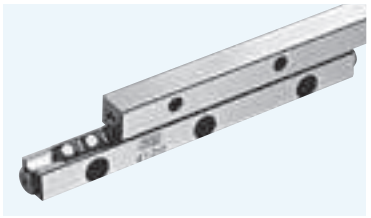
End Pieces

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 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.

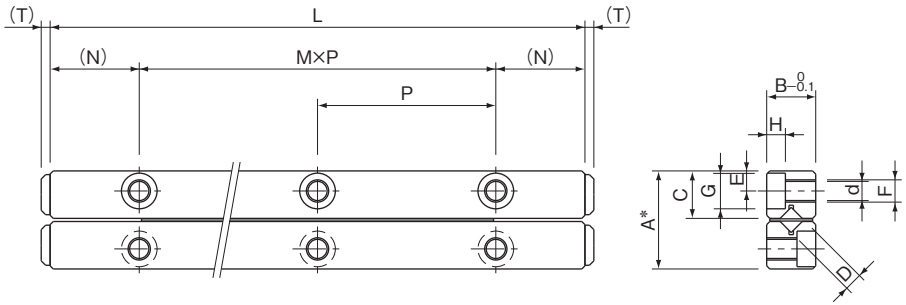
NV TYPE
−NV2／NV3／NV4−



part number structure

example **NVS 2 150 - 41Z - UP**

- specification
  NV: standard
  NVS: anti-corrosion
- size
- rail length
- number of rollers
- accuracy grade
  blank: high
  P: precision
  UP: ultra precision



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

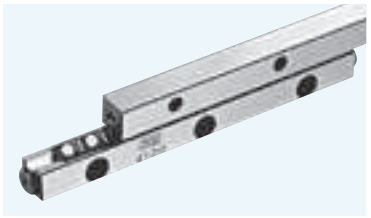
part number		stroke	roller diameter	number of rollers	L	A	B	C
standard	anti-corrosion	ST mm	D mm	Z	mm	mm	mm	mm
NV2030- 5Z	NVS2030- 5Z	18	2	5	30	12	6	5.7
2045- 9Z	2045- 9Z	25		9	45			
2060-15Z	2060-15Z	30		15	60			
2075-19Z	2075-19Z	40		19	75			
2090-23Z	2090-23Z	50		23	90			
2105-27Z	2105-27Z	65		27	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			
NV3050- 9Z	NVS3050- 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			
NV4080- 9Z	NVS4080- 9Z	60	4	9	80	22	11	10.65
4120-17Z	4120-17Z	75		17	120			
4160-23Z	4160-23Z	105		23	160			
4200-29Z	4200-29Z	130		29	200			
4240-37Z	4240-37Z	143		37	240			
4280-43Z	4280-43Z	170		43	280			

The basic static load rating is the value at the center of the stroke.

major dimensions								basic load rating		allowable	mass	size
M×P	N	E	F	d	G	H	T	dynamic C	static Co	load F	(one set)	
mm	mm	mm		mm	mm	mm	mm	N	N	N	g	
1×15	7.5	2.5	M3	2.55	4.4	2	1.2	1,360	1,520	509	33	2030
2×15								2,330	3,050	1,010	49	2045
3×15								3,990	6,110	2,030	62	2060
4×15								4,740	7,630	2,540	74	2075
5×15								5,460	9,160	3,050	91	2090
6×15								6,160	10,600	3,560	103	2105
7×15								6,830	12,200	4,070	120	2120
8×15								7,490	13,700	4,580	132	2135
9×15								8,130	15,200	5,090	149	2150
10×15								9,370	18,300	6,110	161	2165
11×15								9,970	19,800	6,620	174	2180
1×25	12.5	3.5	M4	3.3	6	3.1	2	6,150	8,060	2,680	97	3050
2×25								8,440	12,100	4,030	140	3075
3×25								12,500	20,100	6,720	192	3100
4×25								14,400	24,200	8,060	245	3125
5×25								16,300	28,200	9,410	290	3150
6×25								19,800	36,300	12,100	337	3175
7×25								21,500	40,300	13,400	385	3200
8×25								23,200	44,300	14,700	434	3225
1×40	20	4.5	M5	4.3	8	4.2	2	12,100	15,700	5,250	265	4080
2×40								20,700	31,500	10,500	400	4120
3×40								28,500	47,200	15,700	530	4160
4×40								32,100	55,100	18,300	660	4200
5×40								39,000	70,900	23,600	800	4240
6×40								45,600	86,600	28,800	930	4280

1N≒0.102kgf

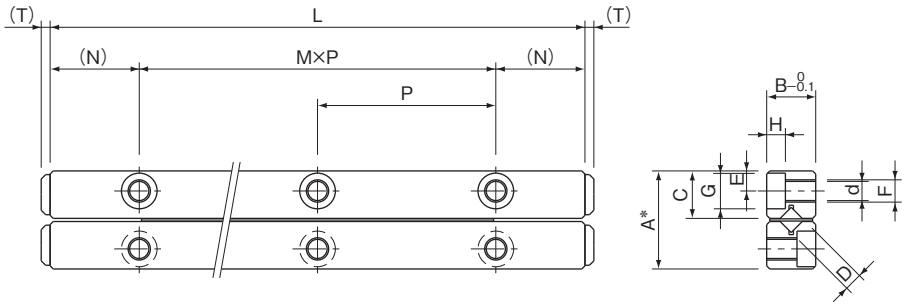
NV TYPE
−NV6／NV9／NV12−



part number structure

example **NV 6 200 - 19Z - UP**

- NV type
- size
- rail length
- number of rollers
- accuracy grade
  blank: high
  P: precision
  UP: ultra precision
  The UP grade is not available for NV 12



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

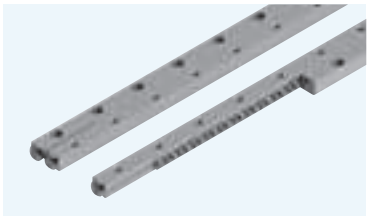
part number	stroke ST mm	roller diameter D mm	number of rollers Z	major dimensions L mm	A mm	B mm	C mm	M×P mm	N mm	E mm
NV6100- 9Z	63	6	9	100	31	15	15.15	1×50	25	6
6150- 15Z	85		15	150				2×50		
6200- 19Z	135		19	200				3×50		
6250- 25Z	158		25	250				4×50		
6300- 31Z	180		31	300				5×50		
6350- 35Z	230		35	350				6×50		
6400- 39Z	275		39	400				7×50		
NV9200- 13Z	120	9	13	200	44	22	21.5	1×100	50	9
9300- 21Z	170		21	300				2×100		
9400- 29Z	220		29	400				3×100		
9500- 35Z	300		35	500				4×100		
NV12300- 15Z	180	12	15	300	58	28	28.5	2×100	50	12
12400- 21Z	230		21	400				3×100		
12500- 27Z	280		27	500				4×100		
12600- 31Z	380		31	600				5×100		

The basic static load rating is the value at the center of the stroke.

F mm	d mm	G mm	H mm	T mm	basic load rating dynamic C N	basic load rating static Co N	allowable load F N	mass (one set) g	size
M6	5.2	9.5	5.2	3	29,600	37,500	12,500	650	6100
					50,900	75,100	25,000	970	6150
					60,600	93,900	31,300	1,300	6200
					69,800	112,000	37,500	1,620	6250
					87,400	150,000	50,100	1,940	6300
					95,800	169,000	56,300	2,360	6350
					104,000	187,000	62,600	2,780	6400
M8	6.8	10.5	6.2	4	96,100	128,000	42,600	2,720	9200
					143,000	213,000	71,100	4,080	9300
					186,000	298,000	99,500	5,440	9400
					226,000	384,000	128,000	6,790	9500
M10	8.5	13.5	8.2	4	228,000	317,000	105,000	6,770	12300
					271,000	397,000	132,000	9,040	12400
					352,000	555,000	185,000	11,300	12500
					391,000	635,000	211,000	13,560	12600

1N≒0.102kgf

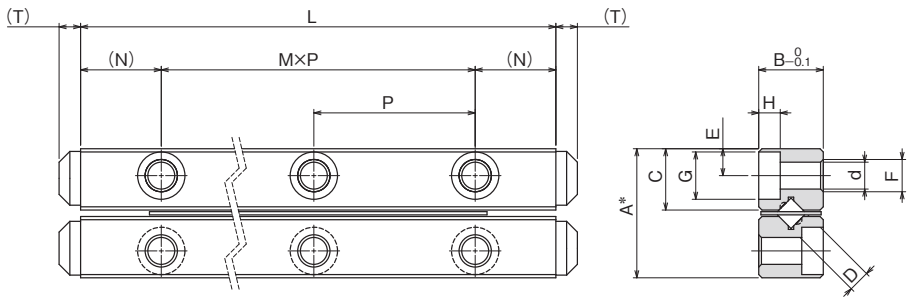
NVS-RNS TYPE
−Special Environments Type−



part number structure

example **NVS 4 200 - RNS 27Z - P**

- specification **NVS**: anti-corrosion
- size **4**
- rail length **200**
- cage type **RNS**: stainless steel cage, stainless steel roller / **RN**: stainless steel cage, standard roller
- number of rollers **27Z**
- accuracy grade **blank**: high / **P**: precision / **UP**: ultra precision



High: A-0 -0.2 Precision (P): A-0 -0.1 Ultra Precision (UP): A-0 -0.1
One set consists of 4 rails, 2 cages, and 8 end pieces.

part number	stroke ST mm	roller diameter D mm	number of rollers Z	major dimensions L mm	A mm	B mm	C mm	M×P mm	N mm	E mm
NVS 2030-RNS 7Z	15	2	7	30	12	6	5.7	1×15	7.5	2.5
2045-RNS11Z	20		11	45				2×15		
2060-RNS13Z	30		13	60				3×15		
2075-RNS17Z	40		17	75				4×15		
2090-RNS21Z	50		21	90				5×15		
2105-RNS23Z	65		23	105				6×15		
2120-RNS27Z	70		27	120				7×15		
2135-RNS31Z	80		31	135				8×15		
2150-RNS33Z	90		33	150				9×15		
2165-RNS37Z	95		37	165				10×15		
2180-RNS43Z	100		43	180				11×15		
NVS 3050-RNS 9Z	20	3	9	50	18	8	8.65	1×25	12.5	3.5
3075-RNS13Z	38		13	75				2×25		
3100-RNS17Z	55		17	100				3×25		
3125-RNS21Z	70		21	125				4×25		
3150-RNS25Z	85		25	150				5×25		
3175-RNS29Z	103		29	175				6×25		
3200-RNS33Z	113		33	200				7×25		
3225-RNS35Z	150		35	225				8×25		
NVS 4080-RNS 9Z	58	4	9	80	22	11	10.65	1×40	20	4.5
4120-RNS17Z	60		17	120				2×40		
4160-RNS21Z	98		21	160				3×40		
4200-RNS27Z	115		27	200				4×40		
4240-RNS31Z	143		31	240				5×40		
4280-RNS37Z	170		37	280				6×40		

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

F mm	d mm	G mm	H mm	T mm	basic load rating dynamic C N	basic load rating static Co N	allowable load F N	mass (one set) g	size
M3	2.55	4.4	2	1.2	2,320	3,050	1,010	30	2030
					3,190	4,580	1,520	44	2045
					3,190	4,580	1,520	58	2060
					4,000	6,110	2,030	73	2075
					4,760	7,630	2,540	87	2090
					5,490	9,160	3,050	101	2105
					6,190	10,600	3,560	115	2120
					6,870	12,200	4,070	130	2135
					6,870	12,200	4,070	144	2150
					7,530	13,700	4,580	158	2165
					8,800	16,800	5,600	173	2180
M4	3.3	6	3.1	2	6,150	8,060	2,680	102	3050
					8,460	12,100	4,030	151	3075
					10,600	16,100	5,370	200	3100
					12,600	20,100	6,720	249	3125
					14,500	24,200	8,060	297	3150
					16,400	28,200	9,410	346	3175
					18,200	32,200	10,700	395	3200
					19,900	36,300	12,100	443	3225
M5	4.3	8	4.2	2	12,100	15,700	5,250	269	4080
					20,800	31,500	10,500	405	4120
					24,800	39,300	13,100	536	4160
					32,200	55,100	18,300	670	4200
					35,800	63,000	21,000	801	4240
					39,200	70,900	23,600	935	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.

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.

Figure G-16 Structure of NVT type

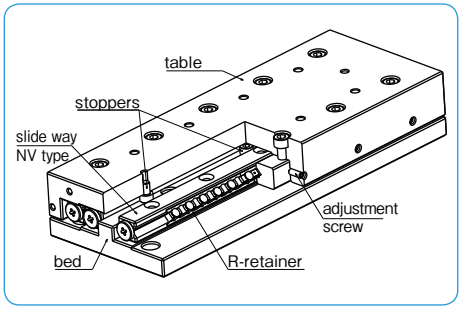


Figure G-17 Structure of NYT type

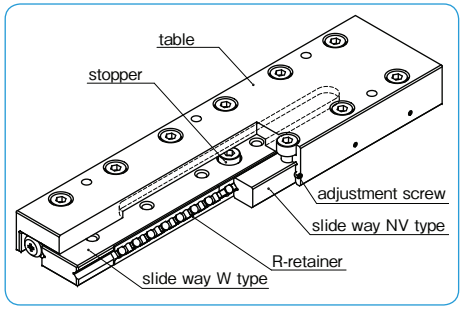


Figure G-18 Structure of SVT type

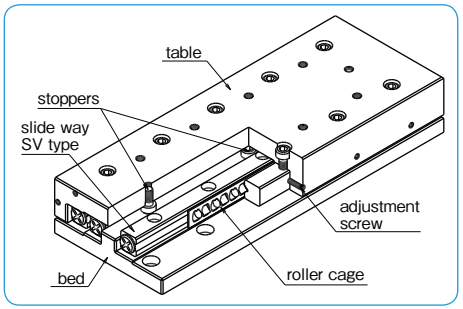
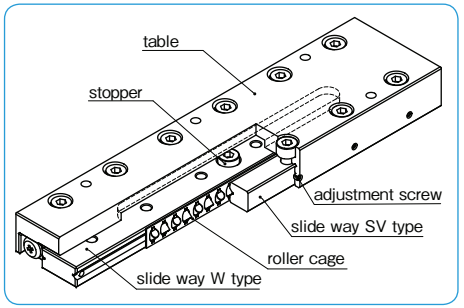
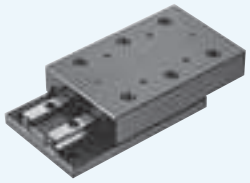


Figure G-19 Structure of SYT type



TYPES

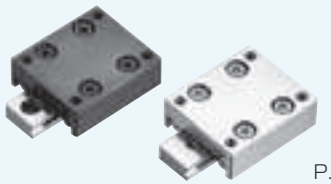
NVT・NVTS type



P.G-28

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 sandwitched between an accurately machined aluminum table and bed.

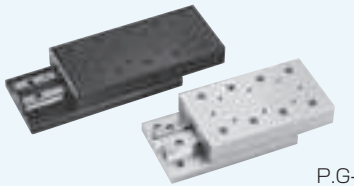
NYT・NYTS type



P.G-32

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.

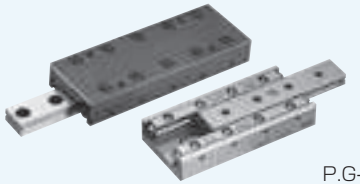
SVT・SVTS type



P.G-36

In the SVT type slide table, the SV type slide way is sandwitched between an accurately machined steel table and bed.
In the SVTS type, the anti-corrosion SVS type slide way is sandwitched between an accurately machined aluminum table and bed.

SYT・SYTS type



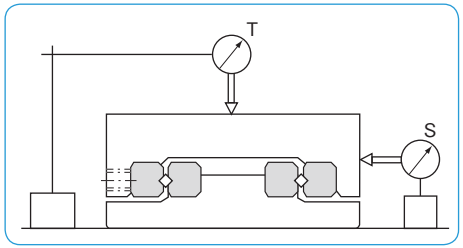
P.G-42

The SYT/SYTS type is a thin, compact slide table. Either tapped or counterbore type (D type) is available for the mounting hole.
The anti-corrosion SYTS type slide table is made of all stainless steel components, making it suitable for use in clean rooms.

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 G-18.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 G-20 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-5 for the coefficients.

Life Time

$$L_h=\frac{L\cdot 10^3}{2\cdot \ell_S\cdot n_1\cdot 60}$$

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

LOAD RATING

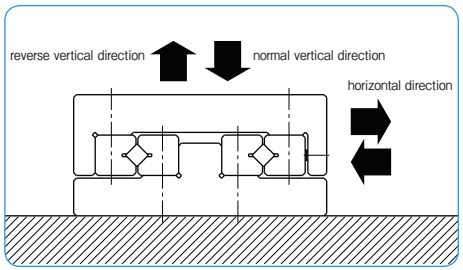
The load rating of the slide table NVT type and NYT type differs depending on the direction of the load.

Table G-6 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 G-21 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 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 SVT/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

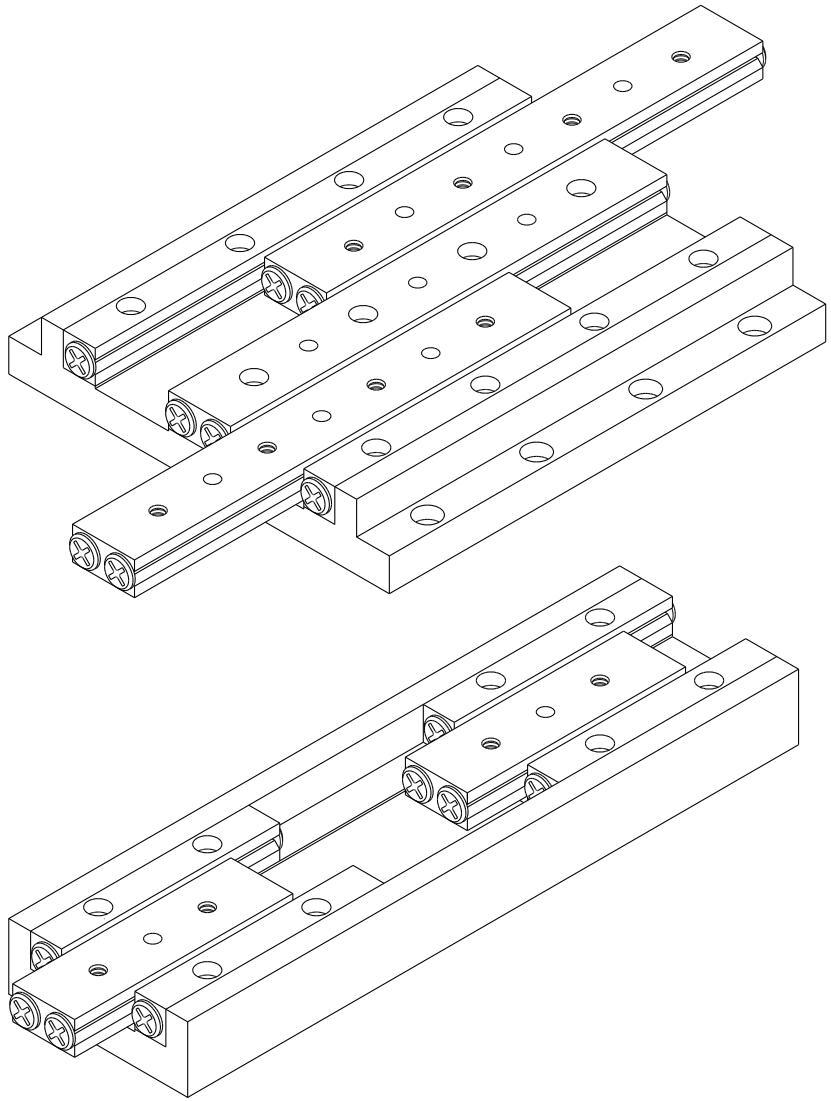
The NB slide table is adjusted to achieve optimum accuracy and preload. The adjustment screw and rail installation screws should be kept untouched.

Allowable Load

The allowable load is a load under which the sum of elastic deformations of the rolling element and the raceway in the contact area subject to the maximum contact stress is small enough to guarantee smooth rolling movement. When very smooth and highly accurate linear motion is required, make sure to use the product within the allowable load.

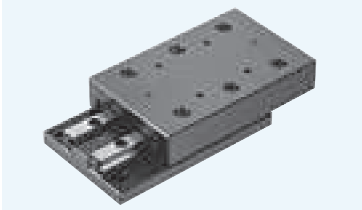
SPECIAL REQUIREMENTS

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

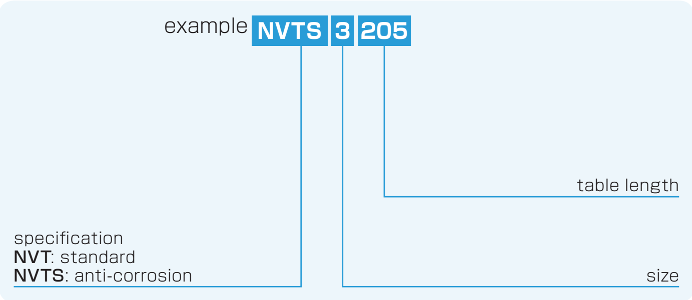


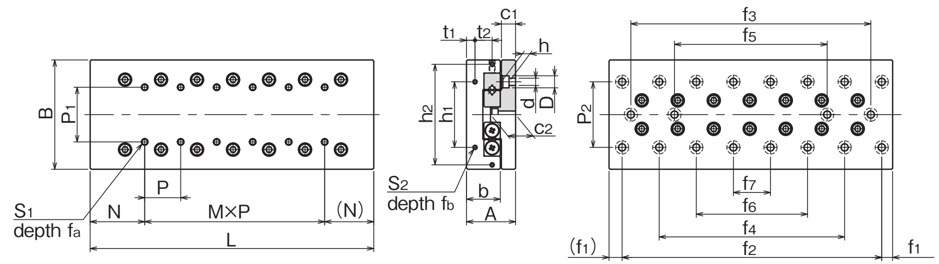
NVT TYPE

—NVT2／NVT3／NVT4—



part number structure





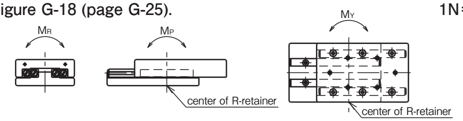
part number standard	part number anti-corrosion	stroke ST mm	major dimensions A mm	B mm	L mm	b mm	table-top mounting hole dimensions P1 mm	S1	fa mm	N mm	M×P mm	table-end mounting hole dimensions h1 mm	h2 mm	t1 mm	t2 mm	S2	fb mm
NVT2035	NVTS2035	18	$21^{\pm0.1}$	$40^{-0.2}_{-0.4}$	35	14	15	M3	6	17.5	—	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						
NVT3055	NVTS3055	30	$28^{\pm0.1}$	$60^{\pm0.1}$	55	18.5	25	M4	8	27.5	—	40	—	5.5	—	M3	6
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						
NVT4085	NVTS4085	50	$35^{\pm0.1}$	$80^{\pm0.1}$	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						

The basic static load rating is the value at the center of the stroke.

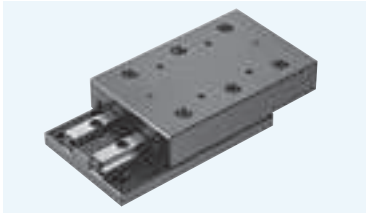
bed-surface mounting hole dimensions P2 mm	d×D×h mm	c1 mm	c2 mm	f1 mm	f2 mm	f3 mm	f4 mm	f5 mm	f6 mm	f7 mm	accuracy ※(deviation) T μm	S μm	basic load rating dynamic C N	static Co N	allowable load F N	allowable static moment MP N・m	MY N・m	MR N・m	mass NVT g	NVTS g	size
30	3.5×6.5×3.5	6.5	10.9	5	25	—	—	—	—	—	2	4	1,360	1,520	509	10.1	8.8	13.7	200	95	2035
					40	—	—	—	—	—	2	4	2,330	3,050	1,010	18.9	18.7	18.6	287	140	2050
					55	—	—	—	—	—	2	5	3,190	4,580	1,520	36.9	35.7	32.4	377	182	2065
					70	—	40	—	—	—	2	5	3,990	6,110	2,030	53.2	53.8	37.3	455	225	2080
					85	—	55	—	—	—	2	5	4,740	7,630	2,540	80.3	79.9	51.1	550	260	2095
					100	—	70	—	—	—	3	6	5,460	9,160	3,050	104	106	56	640	295	2110
					115	—	85	—	—	—	3	6	6,160	10,600	3,560	130	135	60.9	730	340	2125
					130	—	100	—	70	—	3	6	6,830	12,200	4,070	171	176	74.7	810	370	2140
					145	—	115	—	85	—	3	6	8,130	15,200	5,090	235	244	88.4	890	410	2155
					160	—	130	—	100	—	3	7	8,750	16,800	5,600	275	289	93.3	980	450	2170
					175	—	145	—	115	85	3	7	9,370	18,300	6,110	317	338	98.3	1,070	490	2185
40	4.5×8×4.5	9	15	10	35	—	—	—	—	—	2	5	6,150	8,060	2,680	20.8	37.2	27.3	643	303	3055
					60	—	—	—	—	—	2	5	8,440	12,100	4,030	125	119	140	960	445	3080
					85	—	—	—	—	—	3	6	10,500	16,100	5,370	188	186	167	1,260	590	3105
					110	—	—	—	—	—	3	6	14,400	24,200	8,060	300	319	195	1,580	725	3130
					135	85	—	—	—	—	3	6	16,300	28,200	9,410	508	505	308	1,860	860	3155
					160	110	—	—	—	—	3	7	18,100	32,200	10,700	630	635	335	2,160	1,000	3180
					185	135	85	—	—	—	3	7	19,800	36,300	12,100	763	779	362	2,460	1,140	3205
					210	160	110	—	—	—	3	7	21,500	40,300	13,400	906	936	390	2,780	1,310	3230
55	5.5×10×5.4	10.5	18	10	65	—	—	—	—	—	2	5	12,100	15,700	5,250	156	147	239	1,710	790	4085
					105	—	—	—	—	—	3	6	20,700	31,500	10,500	327	357	320	2,520	1,160	4125
					145	—	—	—	—	—	3	7	24,700	39,300	13,100	656	660	559	3,320	1,530	4165
					185	105	—	—	—	—	3	7	32,100	55,100	18,300	1,270	1,250	874	4,130	1,900	4205
					225	145	—	—	—	—	3	7	39,000	70,900	23,600	1,740	1,780	956	4,930	2,270	4245
					265	185	—	—	—	—	3	7	42,400	78,700	26,200	2,380	2,400	1,190	5,730	2,630	4285

※For accuracy (T, S), refer to Figure G-18 (page G-25).

1N≒0.102kgf　1N・m≒0.102kgf・m



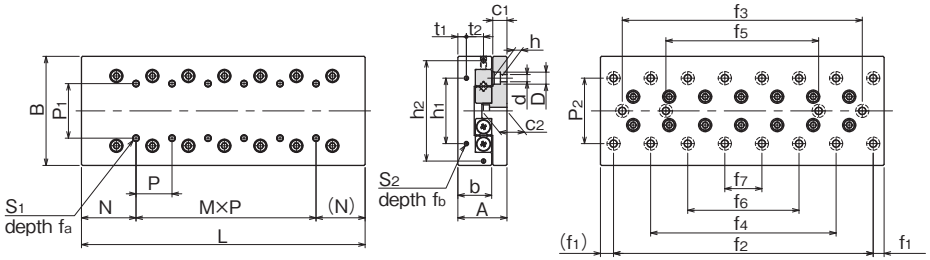
NVT TYPE
−NVT6／NVT9−



part number structure

example **NVT 6 210**

- NVT type
- size
- table length



part number	stroke	major dimensions				table-top mounting hole dimensions					table-end mounting hole dimensions								size
	ST	A	B	L	b	P1	S1	fa	N	M×P	h1	h2	t1	t2	S2	fb	P2	d×D×h	
	mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm		mm	mm	mm	
NVT6110	60	45±0.1	100±0.1	110	31	50	M6	12	55	—	60	92	8	15	M4	8	60	7×11.5×7	
6160	95			160						1×50									
6210	130			210						2×50									
6260	165			260						3×50									
6310	200			310						4×50									
6360	235			360						5×50									
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	90	9×14×9	
9310	180			310						1×100									
9410	220			410						2×100									
9510	300			510						3×100									

The basic static load rating is the value at the center of the stroke.

bed-surface mounting hole dimensions										accuracy ※(deviation)		basic load rating dynamic	basic load rating static	allowable load	allowable static moment			mass	size
c1	c2	f1	f2	f3	f4	f5	f6	f7		T	S	C	Co	F	MP	MY	MR		
mm	mm	mm	mm	mm	mm	mm	mm	mm		μm	μm	N	N	N	N・m	N・m	N・m	g	
13	23	10	90	—	—	—	—	—		3	6	29,600	37,500	12,500	216	303	343	3,300	**6110**
			140	—	—	—	—	—		3	6	40,700	56,300	18,700	937	927	995	4,850	**6160**
			190	90	—	—	—	—		3	7	60,600	93,900	31,300	1,950	1,980	1,410	6,310	**6210**
			240	140	—	—	—	—		3	7	69,800	112,000	37,500	2,680	2,770	1,640	7,790	**6260**
			290	190	—	—	—	—		3	7	78,800	131,000	43,800	4,460	4,410	2,490	9,260	**6310**
			340	240	140	—	—	—		4	8	87,400	150,000	50,100	5,570	5,580	2,720	10,900	**6360**
			390	290	190	—	—	—		4	8	104,000	187,000	62,600	7,440	7,660	2,950	12,460	**6410**
16	29	55	100	—	—	—	—	—		3	6	96,100	128,000	42,600	1,700	2,110	2,260	12,550	**9210**
			200	—	—	—	—	—		3	6	143,000	213,000	71,100	6,550	6,580	5,330	18,000	**9310**
			300	—	—	—	—	—		3	7	186,000	298,000	99,500	12,600	12,700	7,770	24,010	**9410**
			400	—	—	—	—	—		3	7	206,000	341,000	113,000	18,700	18,600	10,200	30,100	**9510**

※For accuracy (T, S), refer to Figure G-18 (page G-25).

1N≒0.102kgf　1N・m≒0.102kgf・m