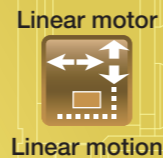


NT
(NT...V, NT...H, NT...XZ, NT...XZH)

NT



Major product specifications

Accuracy

Driving method	Linear motor
Linear motion rolling guide	Linear Way (ball type) Crossed Roller Way (roller type)
Built-in lubrication part	Lubrication part "C-Lube" is built-in (except for NT30V, NT38V, NT55V and NT...H)
Material of table and bed	High carbon steel
Sensor	Provided as standard

unit: mm

Positioning repeatability	±0.0001~0.0005
Positioning accuracy	-
Lost motion	-
Parallelism in table motion A	-
Parallelism in table motion B	-
Attitude accuracy	-
Straightness	-
Backlash	-

Ultracompact, state-of-the-art linear motor table NT series!

Nano Linear™ NT is a moving magnet type linear motor table with extremely low profile. For guiding parts of the moving table, Linear Way or Crossed Roller Way well-established in the area of miniature linear motion rolling guides is used in combination with linear motor and high-resolution linear encoder to realize highly accurate positioning. Thanks to adoption of high-performance neodymium magnet, large thrust force can be acquired and therefore high-speed and highly responsive positioning is possible, despite its very small body. In addition, high cleanliness is realized as the mechanical contact part is only the linear motion rolling guide thanks to adoption of a landmark driving method without moving cables.

Nano Linear NT specifications list

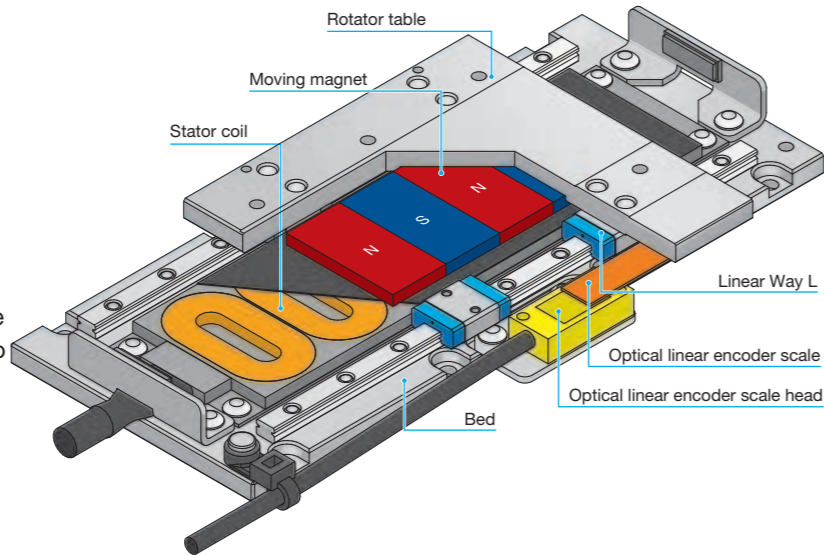
Model and size	Standard type NT...V							
	NT30V8		NT30V20		NT38V10		NT38V18	
Sectional shape								
Maximum thrust	N 3		N 3		N 3		N 3	
Rated thrust	N 0.7		N 1		N 0.6		N 0.8	
Maximum load mass	kg 0.5		kg 0.5		kg 0.5		kg 0.5	
Effective stroke length	mm 8		mm 20		mm 10		mm 18	
Resolution	μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5	
Maximum speed	mm/s 270 500		mm/s 270 500		mm/s 270 500		mm/s 270 500	
Positioning repeatability	μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5	

Model and size	Standard type NT...V													
	NT38V10		NT38V18		NT55V25		NT55V65		NT80V25		NT80V65		NT80V120	
Sectional shape														
Maximum thrust	N 3		N 3		N 25		N 25		N 36		N 36		N 36	
Rated thrust	N 0.6		N 0.8		N 7		N 7		N 8		N 8		N 8	
Maximum load mass	kg 0.5		kg 0.5		kg 5		kg 5		kg 5		kg 5		kg 5	
Effective stroke length	mm 10		mm 18		mm 25		mm 65		mm 25		mm 65		mm 120	
Resolution	μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5	
Maximum speed	mm/s 270 500		mm/s 270 500		mm/s 270 1000 1300		mm/s 270 1000 1300		mm/s 270 1000 1300		mm/s 270 1000 1300		mm/s 270 1000 1300	
Positioning repeatability	μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5	

Model and size	High accuracy type NT...H				Pick and place unit NT...XZ				High thrust pick and place unit NT...XZH			
	NT88H25		NT88H65		NT80XZ4510				NT90XZH2510			
Sectional shape												
Maximum thrust	N 25		N 25		N 50		N 25		N 70		N 70	
Rated thrust	N 5		N 5		N 10		N 2.5		Natural air cooling: 16 Air cooling: 20		Natural air cooling: 16 Air cooling: 20	
Maximum load mass	kg 5		kg 5		-		kg 0.1		-		kg 0.2	
Effective stroke length	mm 25		mm 65		mm 45		mm 10		mm 25		mm 10	
Resolution	μm 0.01 0.05		μm 0.01 0.05		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5		μm 0.1 0.5	
Maximum speed	mm/s 90 400		mm/s 90 400		mm/s 270 1000 1300		mm/s 270 800 800		mm/s 270 1000 1300		mm/s 270 1000 1000	
Positioning repeatability	μm ±0.1		μm ±0.1		μm ±0.5		μm ±0.5		μm ±0.5		μm ±0.5	

NT...V [Standard type]

NT...V is a linear motor table with excellent cost effectiveness realized by use of Linear Way L for miniature linear motion rolling guide in the cable guiding parts, reduction of number of parts and review of parts shapes. NT30V8, the smallest in the series, has only an 8mm sectional height, 30mm table width and 56mm overall length. It contributes further miniaturization of positioning mechanism. Motion network EtherCAT compatible driver and SSCNET III/H compatible driver are also available and smoother and higher speed and accuracy motions are realized by streamlined wiring.



Points

1 ● Ultra-compact

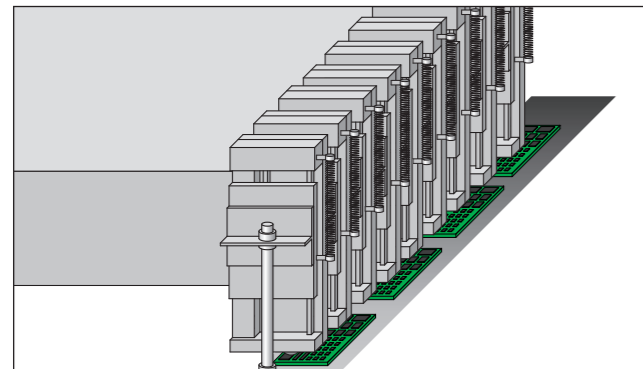
Thanks to IKO expertise in miniaturization technology, we designed the NT30V8, the smallest in the series, that has an 8mm sectional height, 30mm table width and 56mm overall length. The occupied space does not increase even when tables are layered, which further contributes to the compactness of the NT30V8.

Model and size	NT30V8	NT30V20	NT38V10	NT38V18	NT55V25	NT55V65	NT80V25	NT80V65	NT80V120
Sectional shape (mm)									

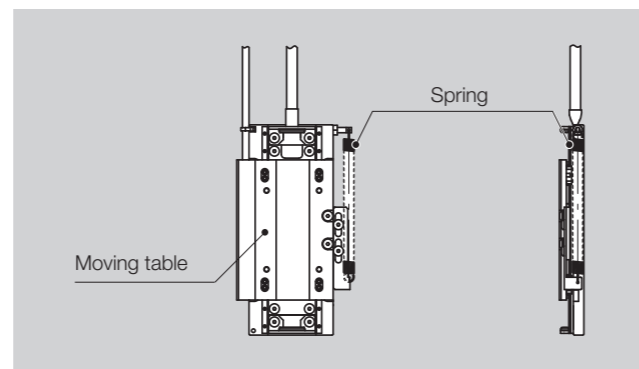
2 ● Compatible with vertical mounting structure

Falling of moving table in power shutdown is prevented by integration of individual spring system balance mechanism. Making use of low profile and compact characteristics of NT...V, multiple pick and place mechanism can be established.

Multiple pick and place mechanism (image)



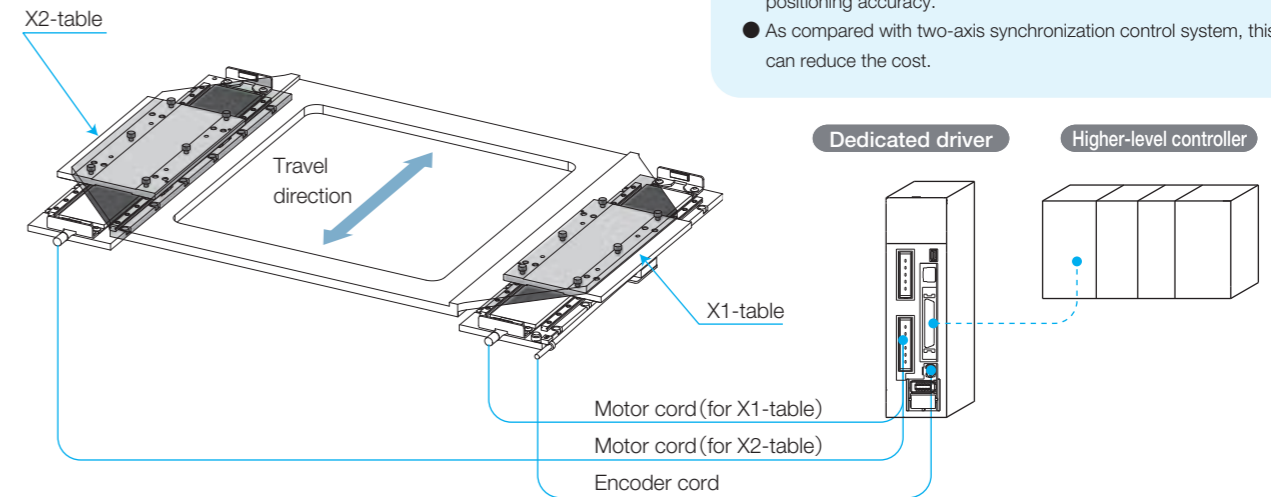
Spring system balance mechanism



Remark: Vertical mounting structure is prepared based on respective usages. As we select spring according to your use conditions, please contact IKO.

3 ● Two-axis parallel operation

Performing rigid-connection of two units of NT...V arranged in parallel and driving with a single specific driver enables high thrust force and stable attitude accuracy.

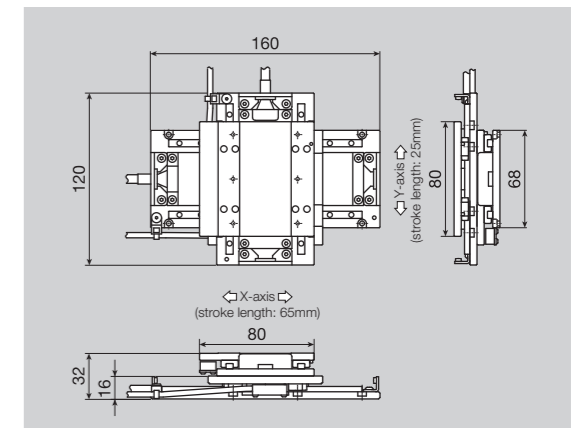
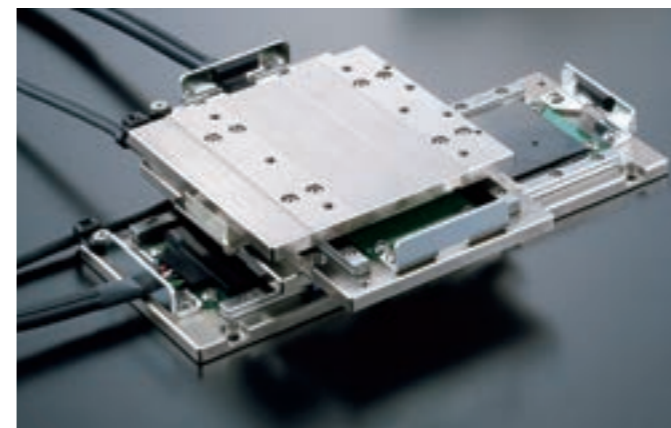


Remark: If two-axis parallel operation is required, please contact IKO.

- Features of two-axis parallel operation**
- Large thrust force can be obtained by two-axis driving.
 - Driving right and left tables can minimize the table delay and flame torsion.
 - Table delay and flame torsion are minimized, which ensures high positioning accuracy.
 - As compared with two-axis synchronization control system, this can reduce the cost.

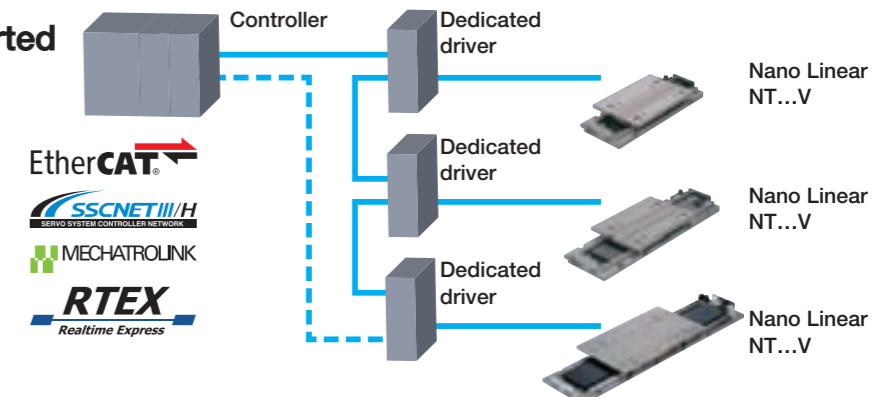
4 ● XY two-axis combination specification

Two units of NT80V can be used in combination without any special attachment and XY-table with low profile can be easily established.



5 ● Motion network is supported

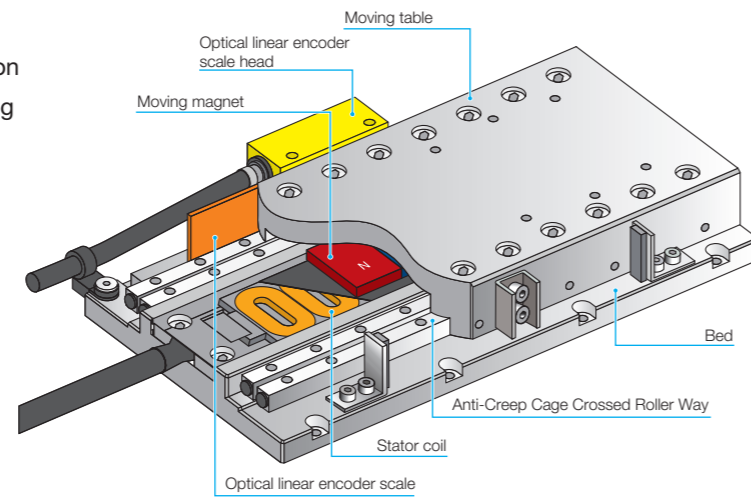
Drivers compatible with motion network EtherCAT, SSCNET III/H, MECHATROLINK, and RTEX are also available, so an advanced system with streamlined wiring can be configured.



Remarks: EtherCAT® is registered trademark and patented technology, licensed by BeckhoffAutomation GmbH, Germany. SSCNET III/H is a motion network communication system for servo system control developed by Mitsubishi Electric Corporation. MECHATROLINK is an open field network controlled by MECHATROLINK Members Association. Realtime Express and RTEX are registered trademarks of Panasonic Corporation. Realtime Express is a high-speed synchronization motion network developed by Panasonic Corporation.

NT...H [High accuracy type]

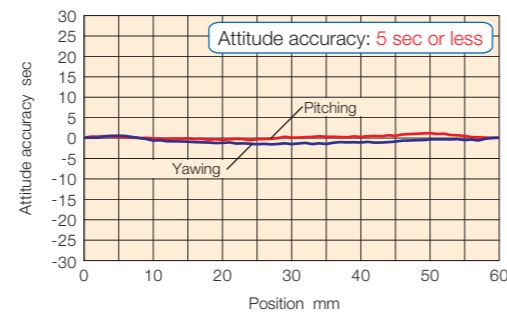
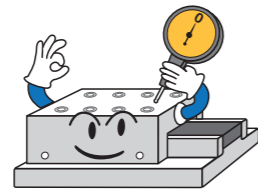
NT...H is a high-accuracy linear motor table that has realized high rigidity and smooth motions without pulsation comparative with air static pressure bearing by positioning accuracy and running straightness below $1\mu\text{m}$, using roller type Anti-Creep Cage Crossed Roller Way in the table guiding parts.



Points

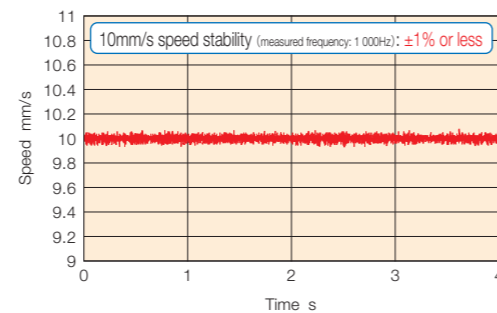
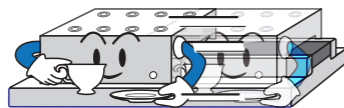
1 ● High attitude accuracy

Combination of parts processed with high accuracy and Anti-Creep Cage Crossed Roller Way realizes attitude accuracy of 5 sec or less. Variations in attitude due to movement is minimized, which ensures high positioning repeatability.



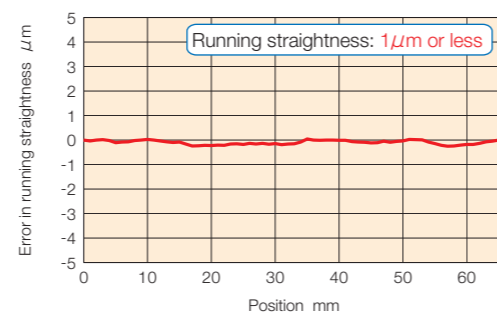
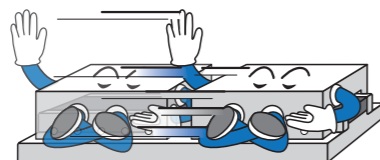
2 ● High speed stability

Speed stability is improved further thanks to smooth-motion Crossed Roller Way, coreless moving magnet type linear motor and high-performance servo driver.



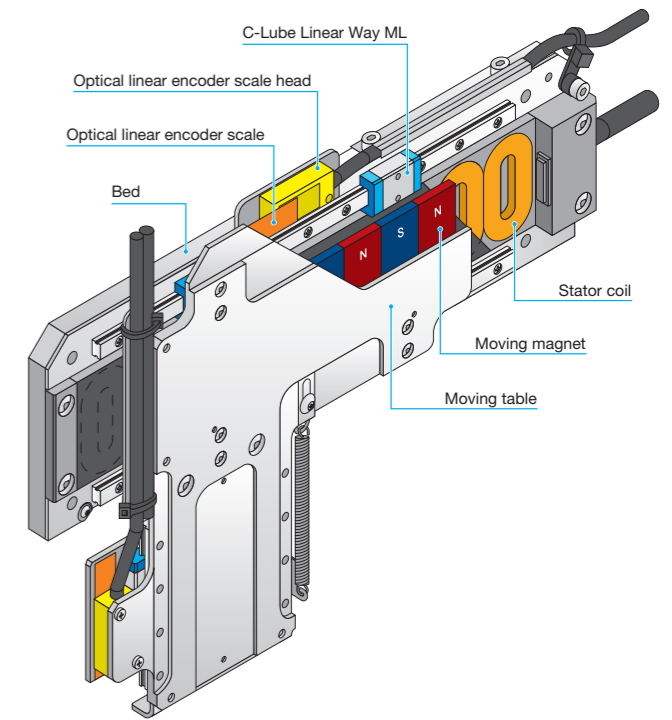
3 ● High running accuracy

High running accuracy as good as less than $1\mu\text{m}$ running straightness is realized by precise finishing and assembly of components.



NT...XZ [Pick and place unit]

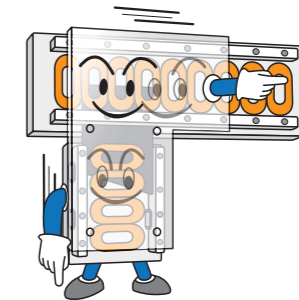
NT...XZ is a linear motor drive pick and place unit with ultra thin profile with 18mm thickness, realized by integrating X-axis moving table and Z-axis bed, using C-Lube Linear Way ML for miniature linear motion rolling guide in the table guiding parts. By entering a positioning program, you may set flexible operation patterns and change strokes according to works easily.



Points

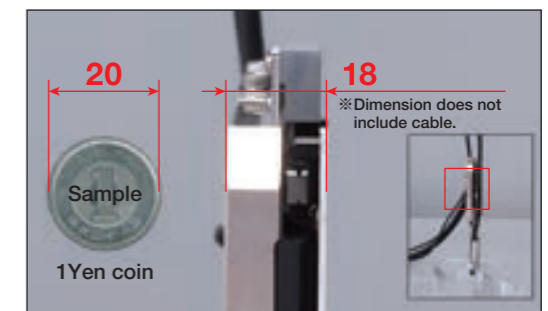
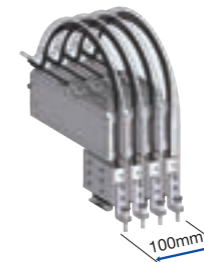
1 ● High-tact positioning

Pick & place unit of unparallelled structure with linear motor drive. Optical linear encoders are installed on both axes to realize accurate and high-tact positioning.



2 ● Ultrathin and space saving

Ultra thin profile of 18mm thickness is realized by integrating X-axis moving table and Z-axis bed. Parallel install of four units in a space of 100mm width is possible, and such space saving arrangement contributes to improvement of efficiency.



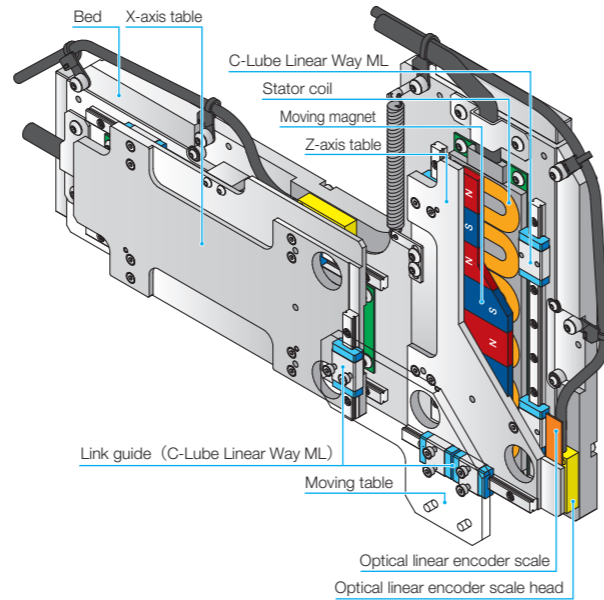
3 ● Operation monitoring function

The track can be verified from PC by using the driver monitoring function.



NT...XZH [High thrust pick and place unit]

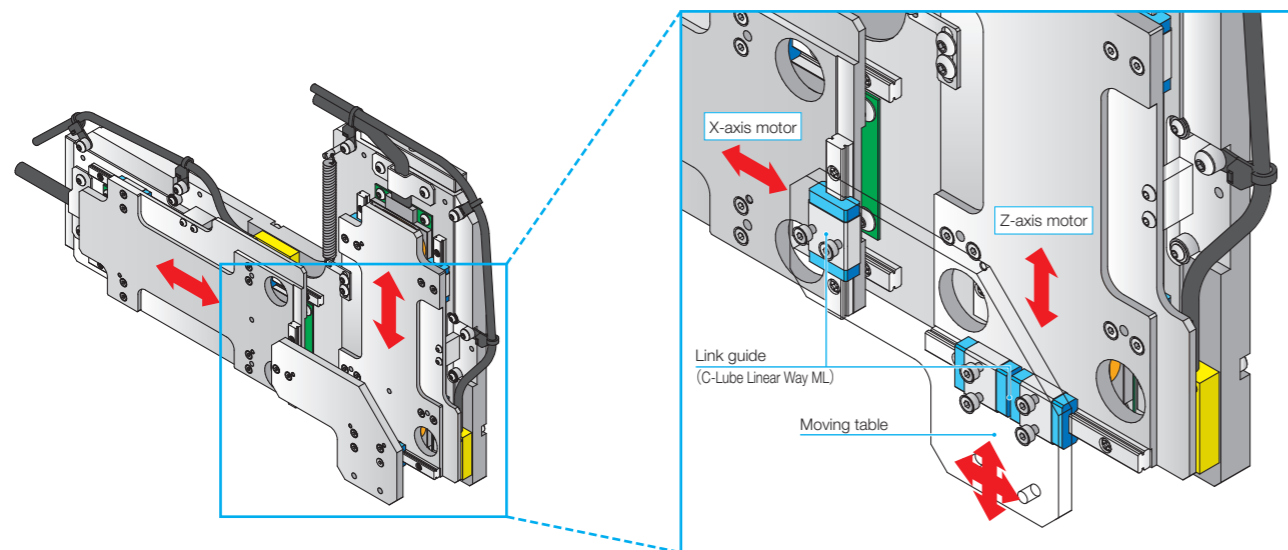
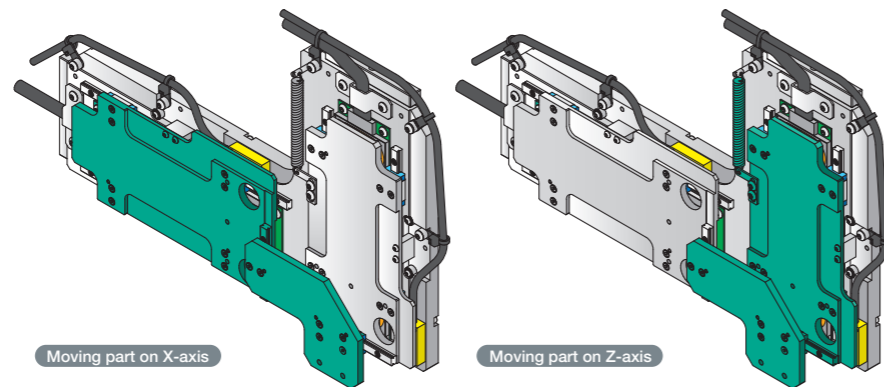
NT...XZH is a linear motor drive high thrust pick and place unit with compact integral X- and Z- axis, using C-Lube Linear Way ML for miniature linear motion rolling guide in the table guiding parts. Thanks to adoption of a system to drive moving table by using a link mechanism, it realizes both higher thrust force of the linear motor and weight reduction of the moving parts and reduces tact time. By entering a positioning program, you may set flexible operation patterns and change strokes according to works easily.



Points

1 ● High thrust and high tact

Thanks to X- and Z-axis motor located on the flat surface and adoption of a system to drive moving table by using a link mechanism, it realizes both higher thrust force of the linear motor and weight reduction of the moving parts and significantly reduces tact time.



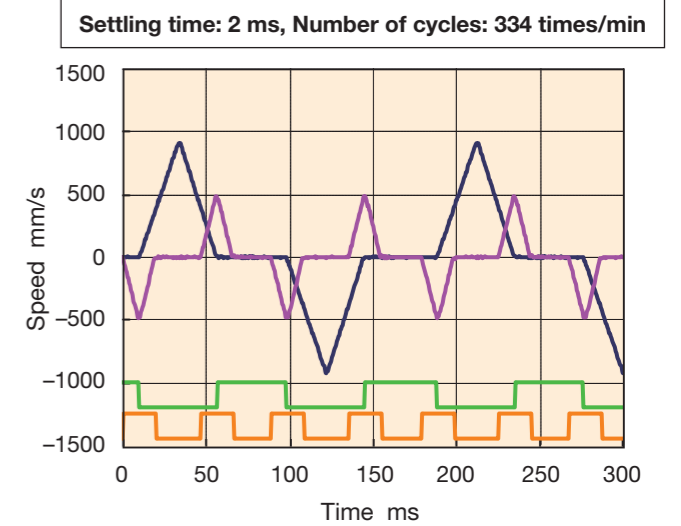
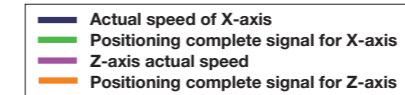
2 ● High resolution and high responsiveness

Performing fully-closed loop control by incorporating an optical linear encoder in both axes enables high resolution and high response.

Measuring condition

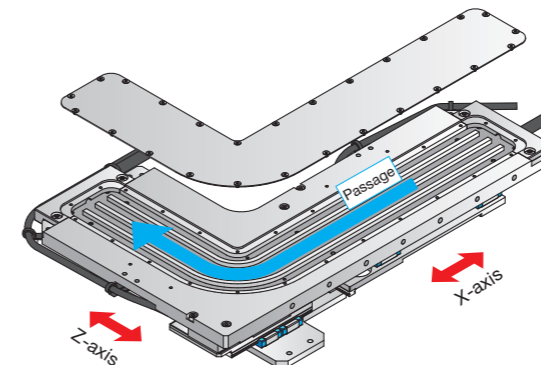
NT90XZH2510/5	
Effective thrust force	: X-axis; 14.8 N, Z-axis; 15.7 N
Carrying mass	: 150 g
Stroke	: X-axis; 22 mm, Z-axis; 5 mm
Acceleration / deceleration time	: X-axis; 24 ms, Z-axis; 9 ms

Enables high-speed positioning!

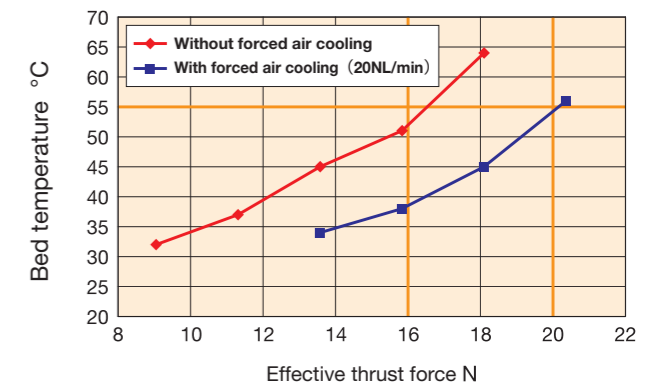


3 ● Air cooling

With the structure that heat-generating coils are converged at the stator, cooling and heat discharge to the mounting base are easy. When the air cooling option is specified, tact time can be shortened further.

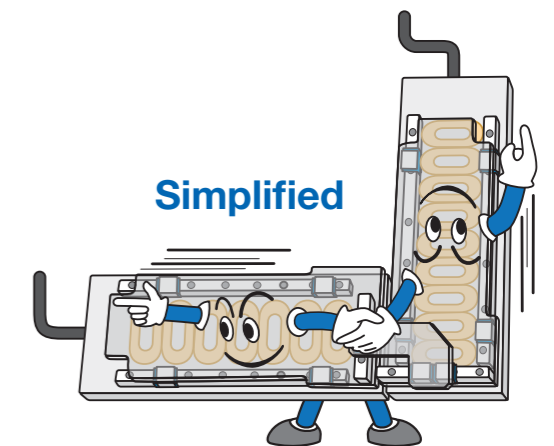


NT90XZH temperature (ambient temperature: 20°C)



4 ● Cableless moving parts

Though it is multi-axial unit, wiring is easy and higher cleanliness is realized by adopting cableless moving magnet system for the moving parts.

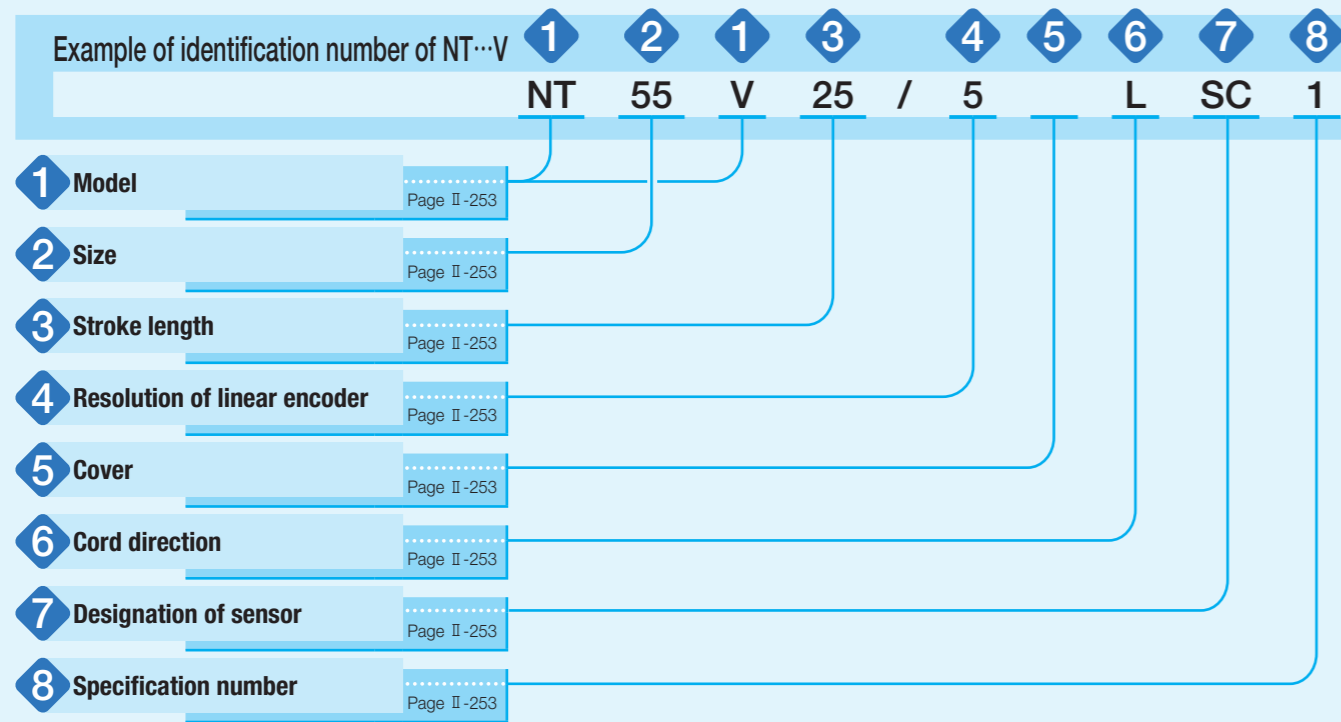


5 ● Operation monitoring function

As with NT...XZ, the track can be verified from PC by using the driver monitoring function.



Identification Number



Identification Number and Specification

1 Model	NT...V: Nano Linear NT...V	
2 Size	30: Width 30mm 38: Width 38mm 55: Width 55mm 80: Width 80mm	
3 Stroke length	8 : 8mm (applicable to NT30V) 10 : 10mm (applicable to NT38V) 18 : 18mm (applicable to NT38V) 20 : 20mm (applicable to NT30V)	25 : 25mm (applicable to NT55V and NT80V) 65 : 65mm (applicable to NT55V and NT80V) 120 : 120mm (applicable to NT80V)
4 Resolution of linear encoder	1 : 0.1 μm 1F: 0.1 μm High speed specification (applicable to NT55V and NT80V) When 1F is selected, a system configuration using dedicated driver ADVA is necessary. 5 : 0.5 μm	
5 Cover	No symbol: Without cover D: With cover (applicable to NT38V)	
6 Cord direction	L: Leftward R: Rightward Select from the cord direction indicated in Fig. 1. (direction for pulling out a cord when placing an encoder on the lower side)	
7 Designation of sensor	No symbol: Without sensor SC : With sensor (limit and pre-origin) and sensor bracket Applicable to NT55V and NT80V two types of dedicated drivers, ADVA and MR-J4-10B ready for SSCNET III/H, are available for Nano Linear NT55V and NT80V. If MR-J4-10B is used, SC must be selected.	
8 Specification number	1: Specification number 1 The specification number is limited to 1.	

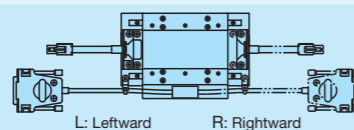
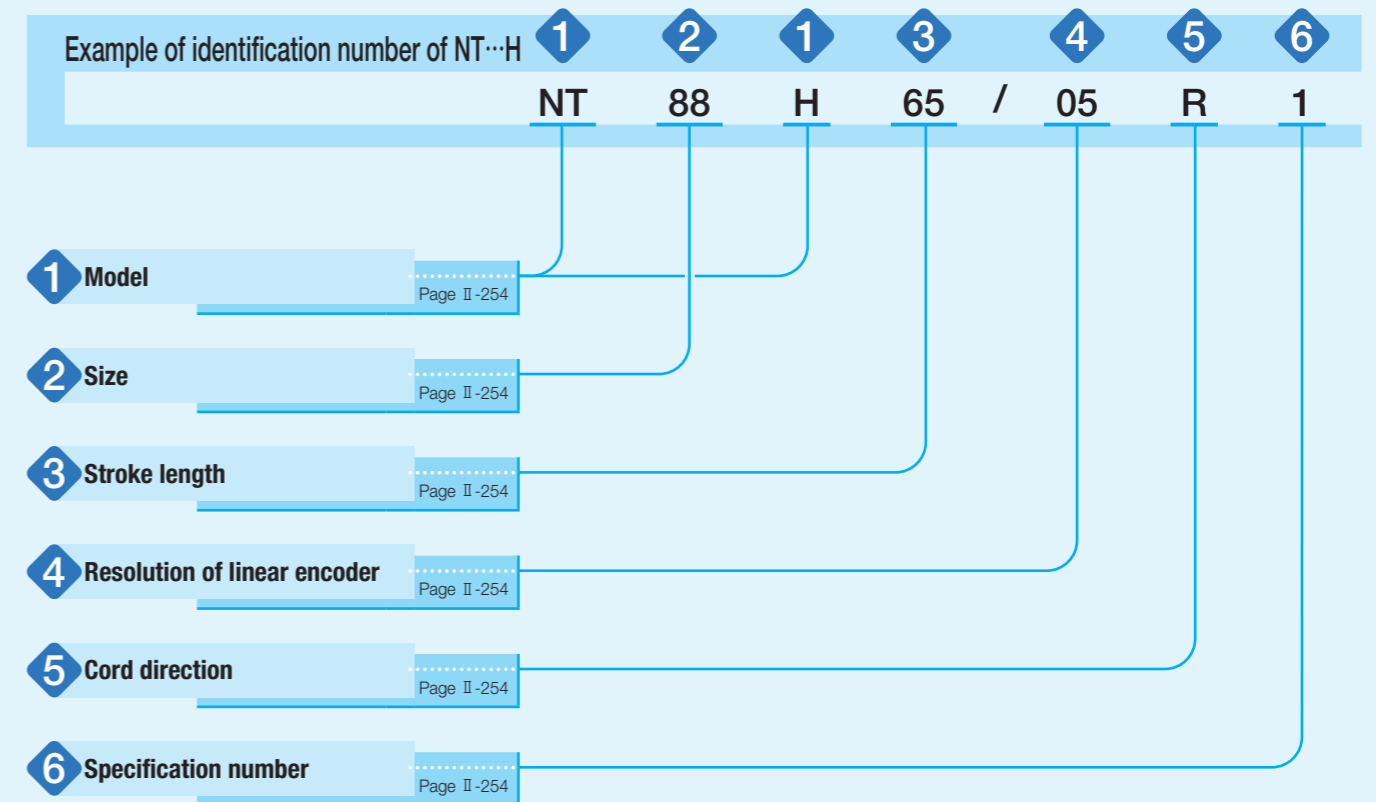


Fig. 1 NT...V cord direction

Identification Number



Identification Number and Specification

1 Model	NT...H: Nano Linear NT...H
2 Size	88: Width 88mm
3 Stroke length	25: 25mm 65: 65mm
4 Resolution of linear encoder	01: 0.01 μm 05: 0.05 μm
5 Cord direction	L: Leftward R: Rightward Select from the direction indicated in Fig. 2. (direction for pulling out a cord when placing an encoder on the lower side)
6 Specification number	1: Specification number 1 The specification number is limited to 1.

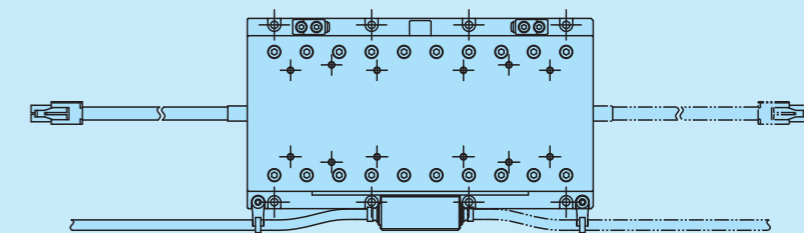
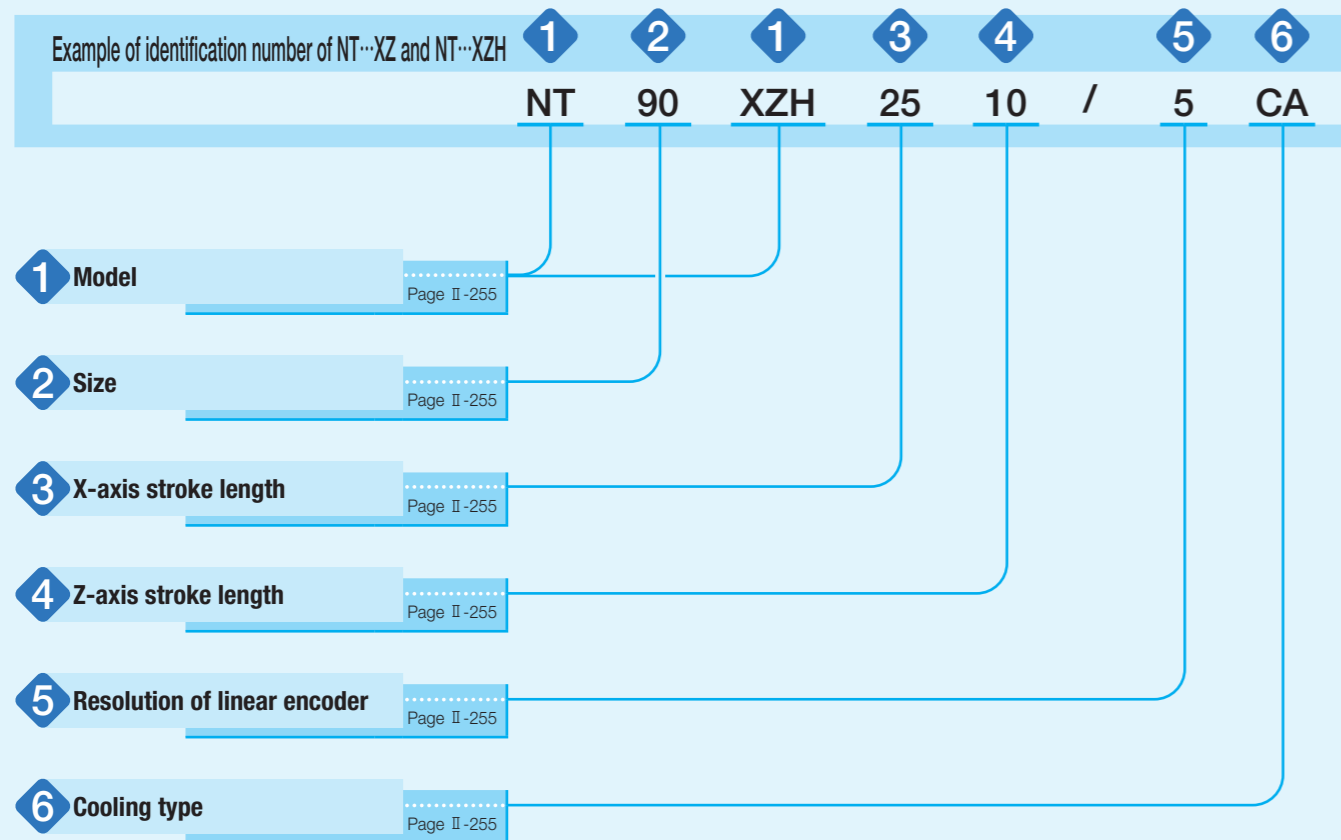


Fig. 2 NT88H cord direction

Identification Number



Identification Number and Specification

1 Model	NT...XZ : Nano Linear NT...XZ NT...XZH: Nano Linear NT...XZH, high thrust type
2 Size	80: Z-axis width of 80mm (applicable to NT...XZ) 90: Z-axis width of 90mm (applicable to NT...XZH)
3 X-axis stroke length	25: 25mm (applicable to NT...XZH) 45: 45mm (applicable to NT...XZ)
4 Z-axis stroke length	10: 10mm
5 Resolution of linear encoder	1 : 0.1 μm 1F: 0.1 μm High speed specification 5 : 0.5 μm
6 Cooling type	No symbol: Natural air cooling CA : Air cooling (applicable to NT...XZH)

Specifications

Table 1 Specification / Performance of NT30V

Item	Model and size	NT30V8		NT30V20	
		Maximum thrust ⁽¹⁾	N	3	
Rated thrust ⁽²⁾	N	0.7		1	
Maximum load mass	kg	0.5			
Effective stroke length	mm	8		20	
Resolution	μm	0.1	0.5	0.1	0.5
Maximum speed ⁽³⁾	mm/s	270	500	270	500
Positioning repeatability ⁽⁴⁾	μm	±0.5			
Mass of moving table	kg	0.025		0.035	
Total mass ⁽⁵⁾	kg	0.170		0.190	
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)			

- Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) When the temperature of the product is constant.
 (5) Mass of the cord is not included.

Table 2 Specification / Performance of NT38V

Item	Model and size	NT38V10		NT38V18	
		Maximum thrust ⁽¹⁾	N	3	
Rated thrust ⁽²⁾	N	0.6		0.8	
Maximum load mass	kg	0.5			
Effective stroke length	mm	10		18	
Resolution	μm	0.1	0.5	0.1	0.5
Maximum speed ⁽³⁾	mm/s	270	500	270	500
Positioning repeatability ⁽⁴⁾	μm	±0.5			
Mass of moving table	kg	0.036 (with cover 0.040)		0.048 (with cover 0.052)	
Total mass ⁽⁵⁾	kg	0.190 (with cover 0.198)		0.230 (with cover 0.239)	
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)			

- Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) When the temperature of the product is constant.
 (5) Mass of the cord is not included.

Table 3 Specification / Performance of NT55V

Item	Model and size	NT55V25			NT55V65		
		Maximum thrust ⁽¹⁾	N	25			
Rated thrust ⁽²⁾	N	7					
Maximum load mass	kg	5					
Effective stroke length	mm	25			65		
Resolution	μm	0.1	0.5	0.1	0.5		
Maximum speed ⁽³⁾	mm/s	270	1 000 ⁽⁶⁾	1 300	270	1 000 ⁽⁶⁾	1 300
Positioning repeatability ⁽⁴⁾	μm	±0.5					
Mass of moving table	kg	0.17			0.17		
Total mass ⁽⁵⁾	kg	0.42			0.5		
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)					

- Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) When the temperature of the product is constant.
 (5) Mass of the cord is not included.
 (6) Applicable to high speed specification.

Table 4 Specification / Performance of NT80V

Item	Model and size	NT80V25			NT80V65			NT80V120		
Maximum thrust ⁽¹⁾	N				36					
Rated thrust ⁽²⁾	N				8					
Maximum load mass	kg				5					
Effective stroke length	mm	25			65			120		
Resolution	μm	0.1	0.5		0.1	0.5		0.1	0.5	
Maximum speed ⁽³⁾	mm/s	270	1 000 ⁽⁶⁾	1 300	270	1 000 ⁽⁶⁾	1 300	270	1 000 ⁽⁶⁾	1 300
Positioning repeatability ⁽⁴⁾	μm				±0.5					
Mass of moving table	kg	0.28			0.28			0.47		
Total mass ⁽⁵⁾	kg	0.68			0.83			1.4		
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)								

Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) When the temperature of the product is constant.
 (5) Mass of the cord is not included.
 (6) Applicable to high speed specification.

Table 5 Specification / Performance of NT...H

Item	Model and size	NT88H25		NT88H65	
Maximum thrust ⁽¹⁾	N			25	
Rated thrust ⁽²⁾	N			5	
Maximum load mass	kg			5	
Effective stroke length	mm	25		65	
Resolution	μm	0.01	0.05	0.01	0.05
Maximum speed ⁽³⁾	mm/s	90	400	90	400
Positioning accuracy ⁽⁴⁾	μm			1	
Positioning repeatability ⁽⁵⁾	μm			±0.1	
Parallelism in motion A	μm			5	
Attitude accuracy ⁽⁶⁾	Sec			5	
Straightness in vertical and straightness in horizontal	μm			1	
Mass of moving table	kg	0.7		0.9	
Total mass ⁽⁷⁾	kg	1.6		2	
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)			

Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) The value is for the temperature of ambient and product being 20°C.
 (5) When the temperature of the product is constant.
 (6) This represents accuracy in pitching and yawing.
 (7) Mass of the cord is not included.

Table 6 Specification / Performance of NT...XZ and NT...XZH

Item	Model and size	NT80XZ4510			NT90XZH2510		
		X-axis	Z-axis		X-axis	Z-axis	
Maximum thrust ⁽¹⁾	N	50	25		70		
Rated thrust ⁽²⁾	N	10	2.5		Natural air cooling: 16 Air cooling ⁽⁶⁾ : 20		
Maximum load mass	kg	0.1			0.2		
Effective stroke length	mm	45	10		25	10	
Resolution	μm	0.1	0.5	0.1	0.5	0.1	0.5
Maximum speed ⁽³⁾	mm/s	270	1 000 ⁽⁷⁾	1 300	270	800 ⁽⁷⁾	800
Positioning repeatability ⁽⁴⁾	μm	±0.5			±0.5		
Mass of moving table	kg	0.6 ⁽⁸⁾	0.12		0.38	0.35	
Total mass ⁽⁵⁾	kg	1.6			2.8		
Ambient temperature and humidity in operation		0~40°C · 20~80%RH (keep dewdrop free)					

Notes (1) The duration of maximum thrust is up to 1 second.
 (2) This is based on the case of mounting on a metal mating member material at an ambient temperature of 20°C.
 (3) This maximum speed may not be reached depending on the maximum output frequency of the controller used, and the driver type or settings.
 (4) When the temperature of the product is constant.
 (5) Mass of the cord is not included.
 (6) This is under air flow of 20NL/min.
 (7) Applicable to high speed specification.
 (8) Mass of moving table of Z-axis is included.

Thrust characteristics of NT...V

NT30V

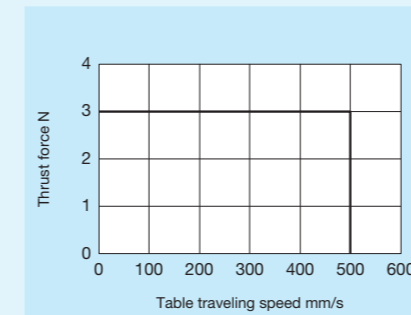


Fig. 3 Thrust characteristic of NT30V

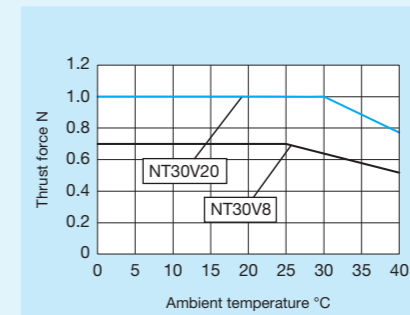


Fig. 4 Rated thrust characteristic of NT30V

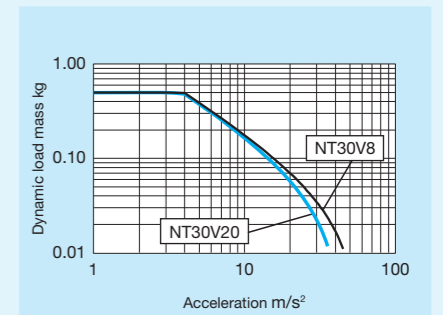


Fig. 5 Dynamic load mass of NT30V

Remark: This is a case when mounting on a metal mating member material.

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

NT38V

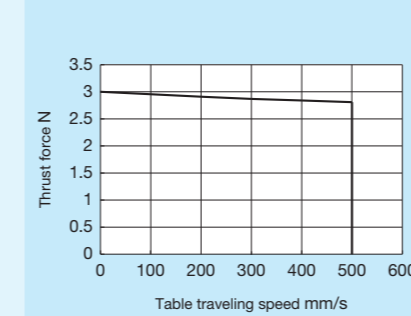


Fig. 6 Thrust characteristic of NT38V

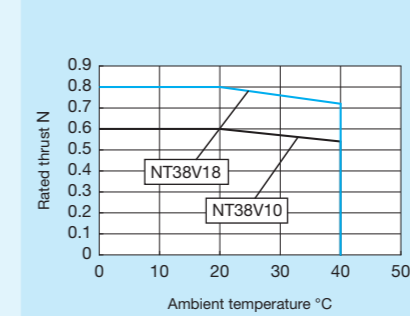


Fig. 7 Rated thrust characteristic of NT38V

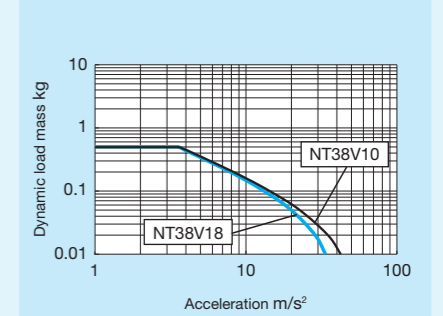


Fig. 8 Dynamic load mass of NT38V

Remark: This is a case when mounting on a metal mating member material.

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

NT55V

● Use with driver ADVA-01NL or MR-J4

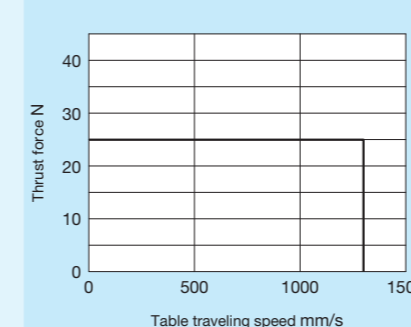


Fig. 9 Thrust characteristic of NT55V

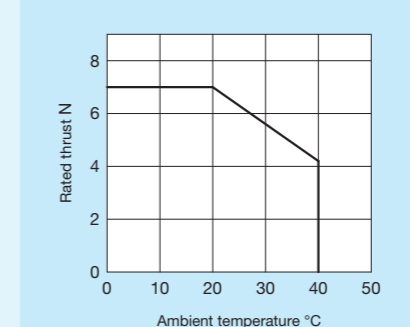


Fig. 10 Rated thrust characteristic of NT55V

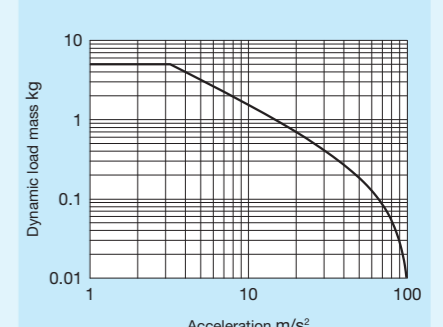


Fig. 11 Dynamic load mass of NT55V

Remark: This is a case when mounting on a metal mating member material.

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

● Use with driver ADVA-R5ML

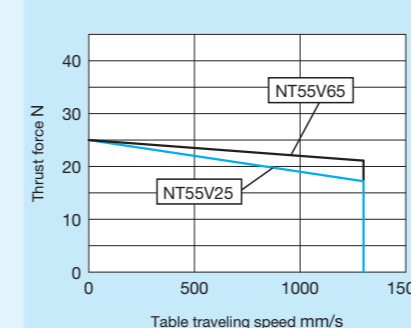


Fig. 12 Thrust characteristic of NT55V

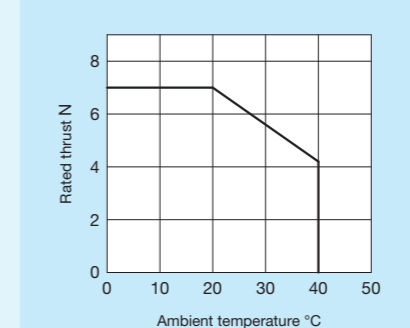


Fig. 13 Rated thrust characteristic of NT55V

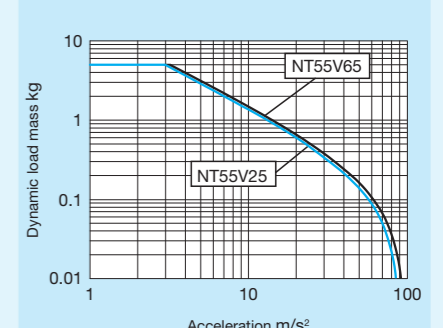


Fig. 14 Dynamic load mass of NT55V

Remark: This is a case when mounting on a metal mating member material.

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

1N=0.102kgf=0.2248lbs.
1mm=0.03937inch

NT80V

● Use with driver ADVA-01NL or MR-J4

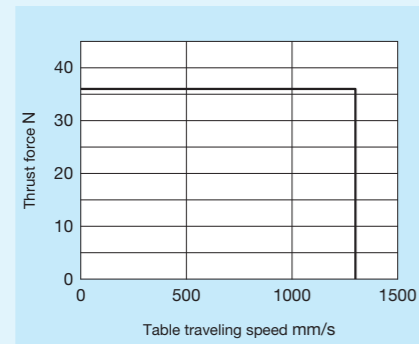


Fig. 15 Thrust characteristic of NT80V

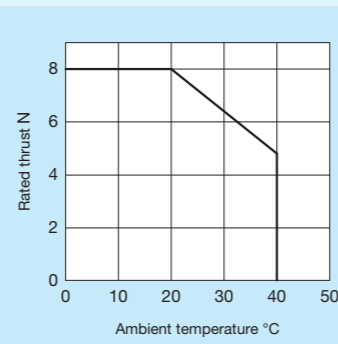


Fig. 16 Rated thrust characteristic of NT80V

Remark: This is a case when mounting on a metal mating member material.

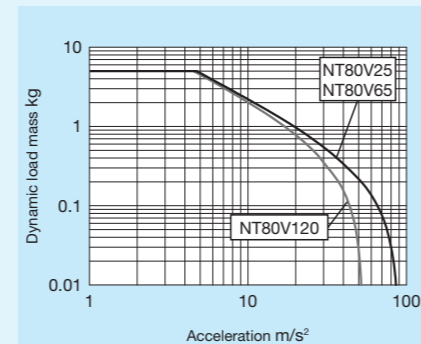


Fig. 17 Dynamic load mass of NT80V

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

● Use with driver ADVA-R5ML

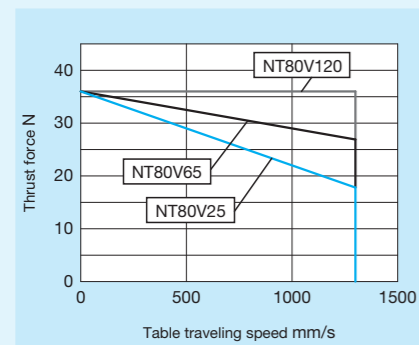


Fig. 18 Thrust characteristic of NT80V

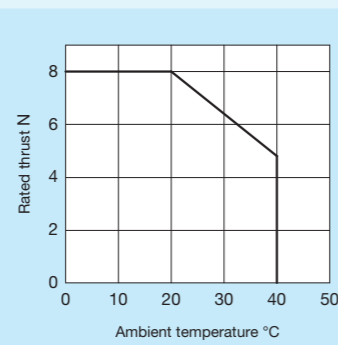


Fig. 19 Rated thrust characteristic of NT80V

Remark: This is a case when mounting on a metal mating member material.

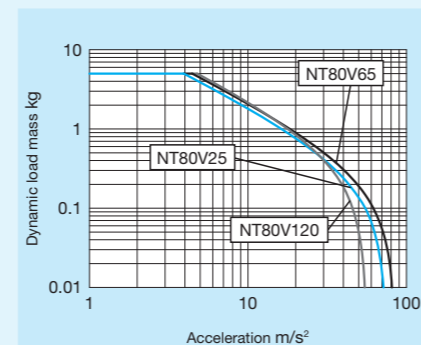


Fig. 20 Dynamic load mass of NT80V

Remark: This is a value calculated based on the thrust force with table moving speed set to 500mm/s.

■ Thrust characteristics of NT···H

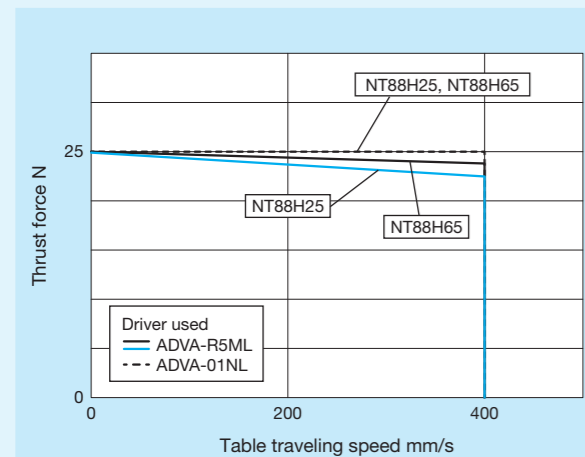


Fig. 21 Thrust characteristic of NT88H

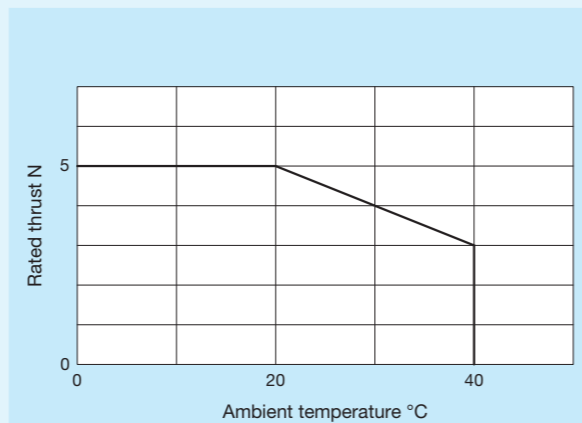


Fig. 22 Rated thrust characteristic of NT88H

Remark: This is a case when mounting on a metal mating member material.

■ Thrust characteristics of NT···XZ and NT···XZH

● Use with driver ADVA-01NL

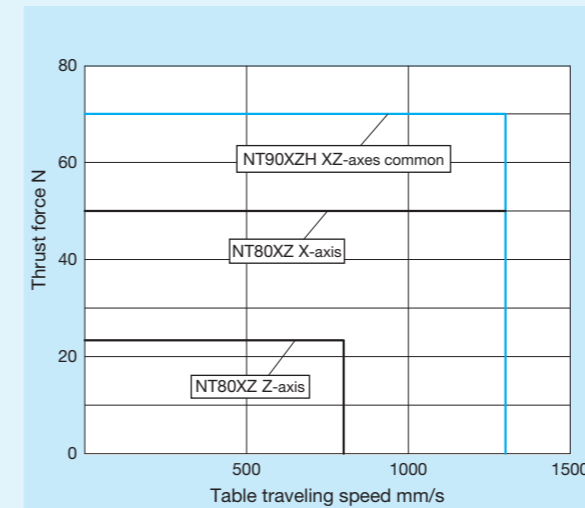


Fig. 23 Thrust characteristics of NT···XZ and NT···XZH

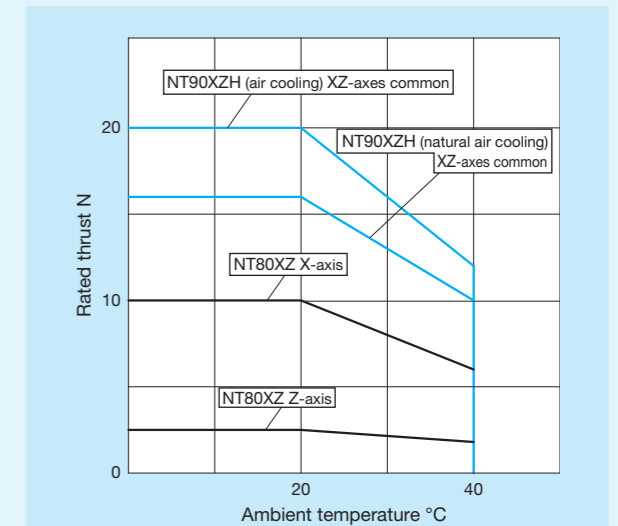


Fig. 24 Rated thrust characteristics of NT···XZ and NT···XZH

Remark: This is a case when mounting on a metal mating member material.

● Use with driver ADVA-R5ML

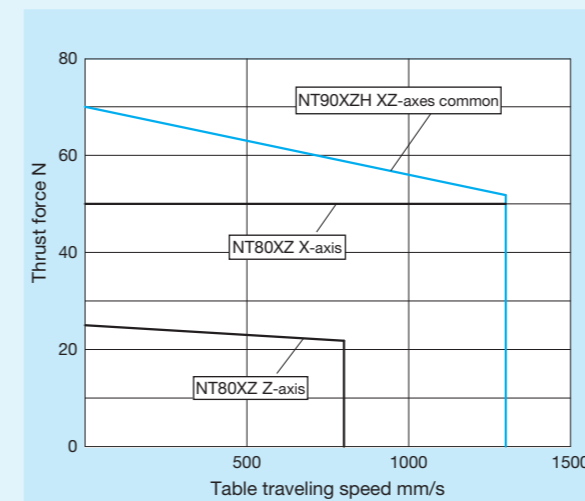


Fig. 25 Thrust characteristics of NT···XZ and NT···XZH

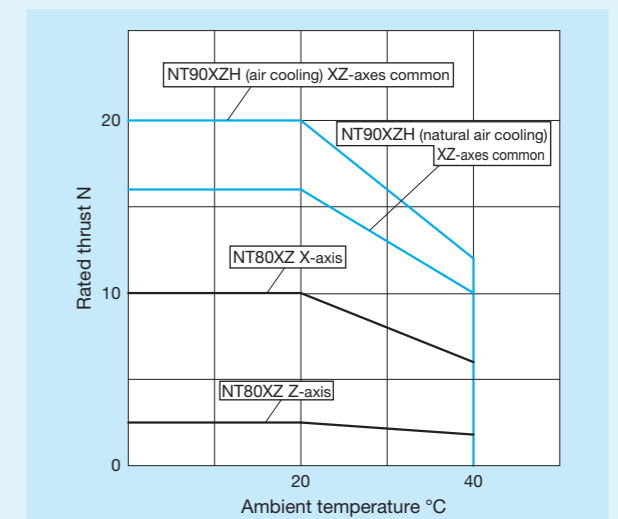


Fig. 26 Rated thrust characteristics of NT···XZ and NT···XZH

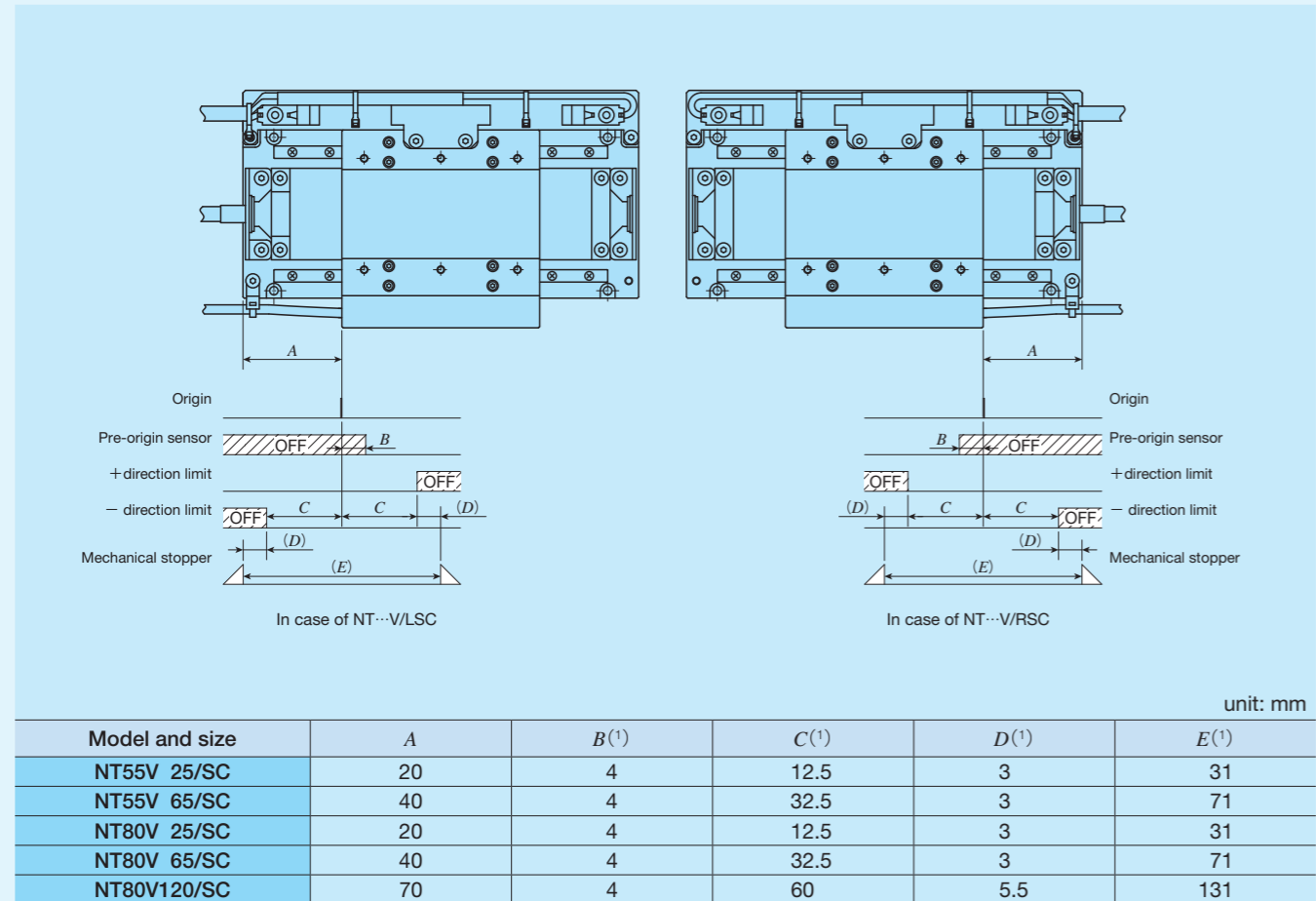
Remark: This is a case when mounting on a metal mating member material.

Mounting

For the processing accuracy of the Precision Positioning Table mounting surface and the tightening torque of the fixing screws, see page III-36.

Sensor Specification

Table 7 Sensor timing chart for NT55V/SC and NT80V/SC



Note ⁽¹⁾ Respective values are for reference and are not guaranteed values.
For detailed dimensions, please contact IKO.

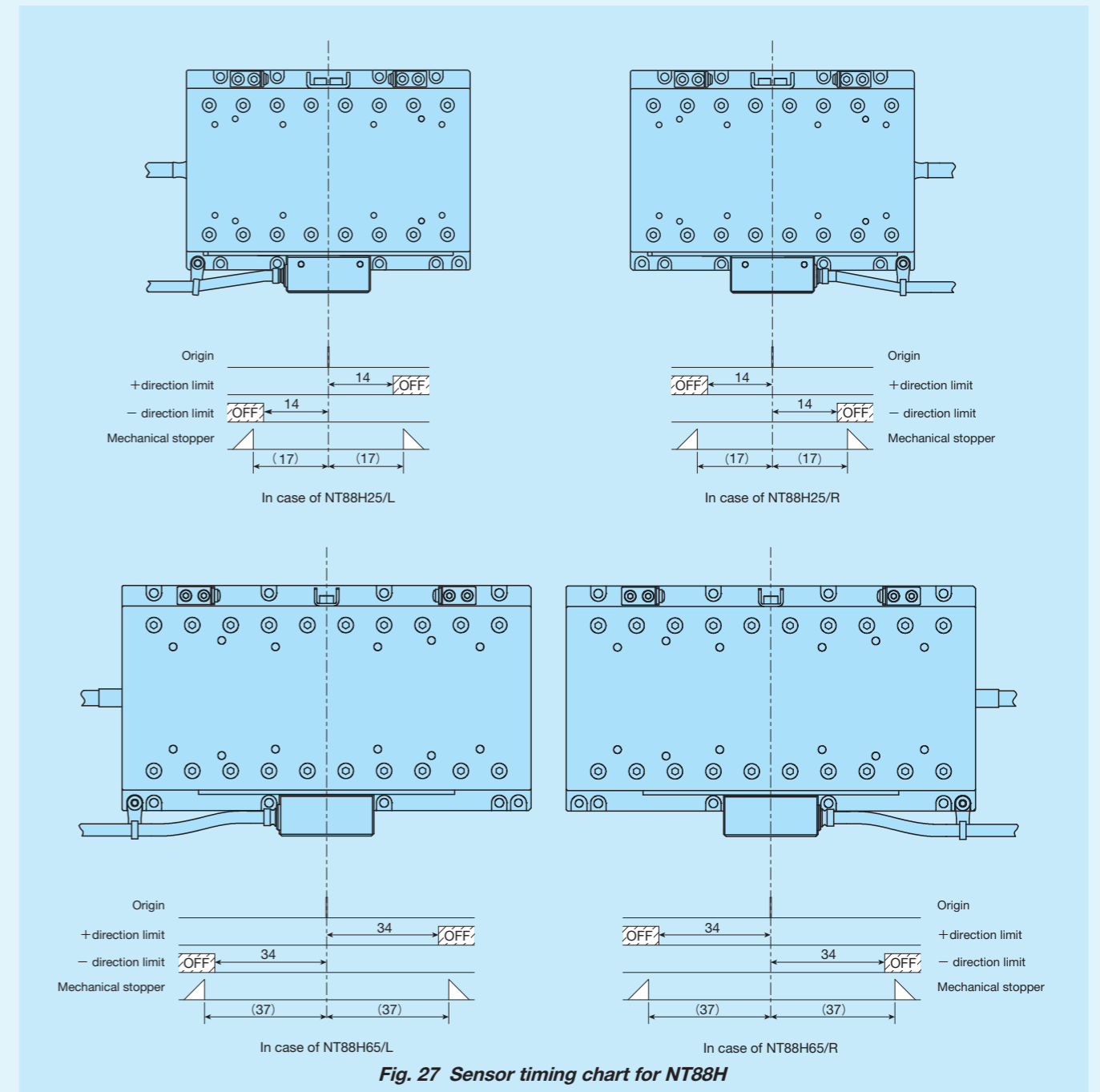
Remark: For the specifications of respective sensors, please see the section of sensor specification in General Explanation.

● NT...V, NT...XZ and NT...XZH do not have a built-in sensor

Return to origin operation in a system configuration using driver ADVA and the system configuration for NT30V and NT38V is conducted by external input. In the return to origin operation, the moving table turns around after contacting the mechanical stopper, and then stops at the origin position. Since, however, a limit sensor and a pre-origin sensor can be mounted on NT55V and NT80V with a supplemental signal (/SC), the return to origin operation using each sensor is also possible.

Forward / backward direction limit detection in a system configuration using the driver ADVA is performed by driver's software limit function. The stroke range can be set by parameters for driver. In addition, the software limit function is only enabled in position control mode and return to origin must be completed. In case of speed control mode and thrust force control mode, mount an external sensor.

Sensor Specification



Note ⁽¹⁾ Respective values are for reference and are not guaranteed values.
For detailed dimensions, please contact IKO.

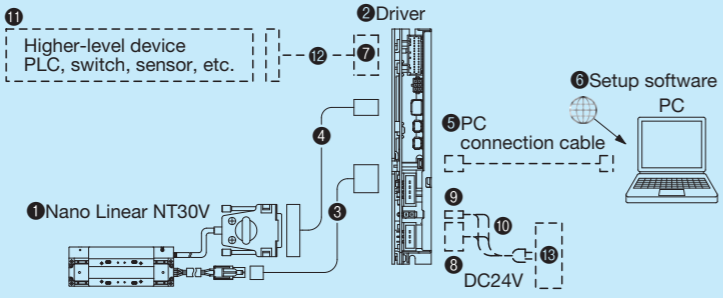
- Remarks
1. For return to origin operation in a standard system configuration, use the return to origin (limit inversion method) of the driver. It is necessary to input the limit signal output from the encoder interface to the driver.
 2. Pre-origin sensor is not provided.
 3. For the specifications of respective sensors, please see the section of sensor specification in General Explanation.

System Configuration

System configuration for NT30V and NT38V

Dedicated drivers are available for Nano Linear NT30V and NT38V. Tables 8 and 9 show the system configuration. For detailed driver specifications, see the driver specifications section on pages II-385 to II-386. Please contact IKO if the use of other drivers is required. When you place an order, please specify the desired identification numbers from Tables 8 and 9.

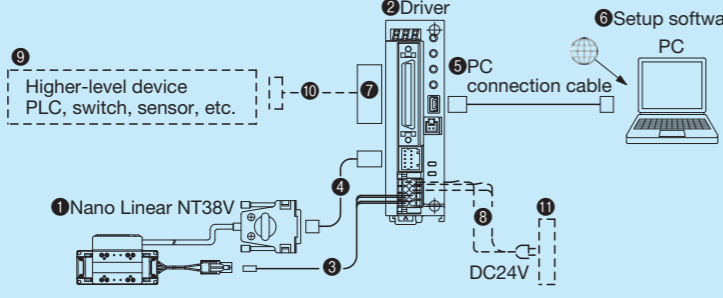
Table 8 System configuration for NT30V



No.	Name	Identification number
1	Nano Linear NT...V	NT30V
2	Driver	MVDLN2CSM Pulse Train
		MVDLN2CNL RTEK
		MVDLN2CBL EtherCAT
3	Motor extension cord (3m ⁽¹⁾)	TAE20X5-AM03
4	Encoder extension cord (2m ⁽¹⁾)	TAE20W9-EC02
5	PC connection cable (3m)	USB mini-B cable This must be prepared by customer.
6	Setup software	PANATERM Please download from the official website of Panasonic Corporation.
7	Connectors for input & output signal	Product of TE Connectivity Japan G.K. 1-1827863-4 (Housing) 1827587-2 (Contact) This must be prepared by customer.
8	Power supply connector (XA-1)	Product of JST Mfg. Co., Ltd. F31FSS-03V-KX (Housing) SF3F-41GF-P2.0 (Contact) This must be prepared by customer.
9	Power supply connector (XA-2)	Product of Molex Japan Co., Ltd. 5557-02R-210 (Housing) 5556-PBG SPL (Contact) This must be prepared by customer.
10	Power cord	
11	Higher-level device ⁽²⁾	This must be prepared by customer.
12	Higher-level device connection cord ⁽²⁾	
13	DC24V power supply	

Notes (1) For specific cord length, please contact IKO.
 (2) Depending on the higher-level device connected, a sensor may be required for return to origin. For details, contact IKO.

Table 9 System configuration for NT38V



No.	Name	Identification number
1	Nano Linear NT...V	NT38V
2	Driver	MR-J4-03A6-NL156J154 (NT38V10)
		MR-J4-03A6-NL156J155 (NT38V18)
3	Motor extension cord (3m ⁽¹⁾)	TAE20W2-AM03
4	Encoder extension cord (2m ⁽¹⁾)	TAE20W3-EC02
5	PC connection cable (3m)	MR-J3USBCBL3M
6	Setup software	SW1DNC-MRC2-J
7	Connectors for input & output signal	TAE20R5-CN ⁽²⁾
8	Power cord	
9	Higher-level device, Sensor ⁽³⁾	This must be prepared by customer.
10	Higher-level device, Sensor connection cord ⁽³⁾	
11	DC24V power supply	

Notes (1) For specific cord length, please contact IKO.
 (2) Connectors for input & output signal TAE20R5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.
 (3) Depending on the higher-level device connected, a sensor may be required for return to origin. For details, contact IKO.

System configuration for Nano Linear NT (Excluding NT30V and NT38V)

There are dedicated drivers for each model of the Nano Linear NT (Excluding NT30V and NT38V), and the system configuration varies depending on the driver used. Table 10 shows the applicability of Nano Linear models and driver types. Table 11 shows the example of identification number for ADVA, and Table 12 shows the tables and model number of the applicable MR-J4. For detailed driver specifications, see the driver specifications on pages II-387 and II-389 to 391. Please also note that the drivers compatible with MECHATROLINK will be prepared upon request. If needed, please contact IKO.

Table 10 Applicability table of Nano Linear models and driver types

Driver	Command type	Nano Linear model				
		NT55V	NT80V	NT88H	NT80XZ	NT90XZH
ADVA	EtherCAT	○ ⁽¹⁾	○ ⁽¹⁾	○ ⁽²⁾	○ ⁽²⁾	○ ⁽²⁾
	Pulse train command	○	○	○	○	○
MR-J4	SSCNET III/H	○ ⁽¹⁾	○ ⁽¹⁾	◇ ⁽²⁾	—	—
	Pulse train command	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	—	—
NCR-H (VPH)	EtherCAT	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	—	—
	MECHATROLINK III	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	—	—
SGD7S (Σ-7)	Pulse train command	◇ ⁽¹⁾	◇ ⁽¹⁾	—	◇ ⁽²⁾	◇ ⁽²⁾
	EtherCAT	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	◇ ⁽²⁾	◇ ⁽²⁾
MADL (MINAS A6)	RTEX	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	◇ ⁽²⁾	◇ ⁽²⁾
	Pulse train command	◇ ⁽¹⁾	◇ ⁽¹⁾	◇ ⁽²⁾	◇ ⁽²⁾	◇ ⁽²⁾

Note (1) We recommend combination with sensor-included specification / SC. For non-sensor specifications, confirm the return to origin action of higher-level controller devices, or use an external sensor, etc., to enable a return to origin situation.
 Note (2) Confirm the return to origin action of higher-level controller devices, or use an external sensor, etc., to enable a return to origin situation.
 Remark: ◇ is individually corresponding. If needed, please contact IKO.
 The use of drivers other than those listed above can also be considered. If needed, please contact IKO.

Table 11 Model number for ADVA

ADVA - 01NL EC / NT55V25		④ Applicable Nano Linear model	
① Model	② Power supply voltage	③ Command type	④ Applicable Nano Linear model
01NL	Single-phase / Three-phase 200 V	No symbol	NT55V 25
R5ML	Single-phase 100 V	EC	NT55V 65
			NT80V 25
			NT80V 65
			NT80V120
			NT88H 25
			NT88H 65
			NT80XZ-X
			NT80XZ-Z
			NT90XZH

Table 12 Nano Linear NT55V, NT80V and model number of applicable MR-J4

Model number of table	Model number of driver
NT55V 25	MR-J4-10B-RJ/NT55V25
NT55V 65	MR-J4-10B-RJ/NT55V65
NT80V 25	MR-J4-10B-RJ/NT80V25
NT80V 65	MR-J4-10B-RJ/NT80V65
NT80V120	MR-J4-10B-RJ/NT80V120

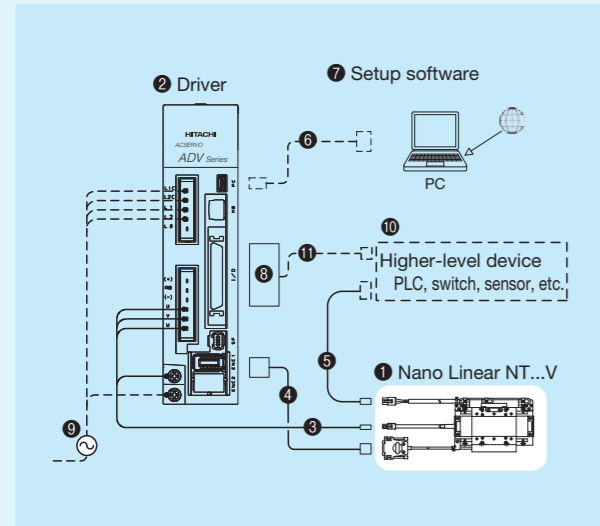
Remark: MR-J4-10B is only applicable to sensor-included specification / SC.

Table 13 NT55V, NT80V, NT88H, NT80XZ, NT90XZH and applicable MINAS A6 part numbers

Driver part no.	Power supply voltage	Command type	Type	Safety function
MADLN 05 SL	Single-phase / Three-phase 200V	Pulse train command	Position Control Type	None
MADLT 05 SM			Multifunction Type	Yes
MADLN 05 NL		RTEX	Standard Type	None
MADLT 05 NM			Multifunction Type	Yes
MADLN 05 BL		EtherCAT	Standard Type	None
MADLT 05 BM			Multifunction Type	Yes
MADLN 01 SL	Single-phase 100V	Pulse train command	Position Control Type	None
MADLT 01 SM			Multifunction Type	Yes
MADLN 01 NL		RTEX	Standard Type	None
MADLT 01 NM			Multifunction Type	Yes
MADLN 01 BL		EtherCAT	Standard Type	None
MADLT 01 BM			Multifunction Type	Yes

Remark: Available for purchase from Panasonic Corporation. Configure the parameters listed on the IKO website prior to use.

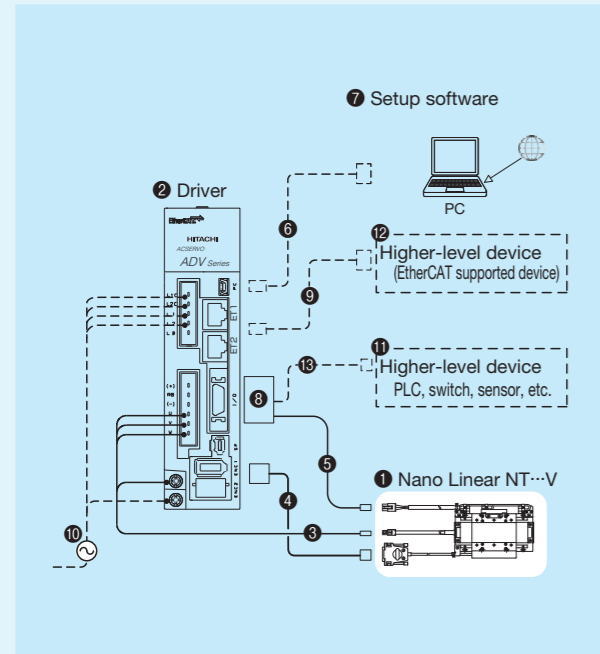
Table 14 System configuration for NT55V, NT80V with driver ADVA



No.	Name	Model and size
3	Motor extension cord (3m) ⁽¹⁾	TAE20V3-AM03
4	Encoder extension cord (2m) ⁽¹⁾	TAE20V4-EC02
5	Sensor extension cord ⁽²⁾	TAE10V8-LC□□
6	PC connection cable	USB mini B cable This must be prepared by customer.
7	Setup software	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
8	I/O connector	TAE20R5-CN ⁽³⁾
9	Power cord	This must be prepared by customer.
10	Higher-level device	
11	I/O connector connection cable	

- Notes (1) For specific cord length, please contact IKO.
 (2) The lengths of the sensor extension cord is specified in the fields of □□ located at the end of the identification number with a length from 3 to 10m in units of 1m.
 (3) I/O connector TAE20R5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.

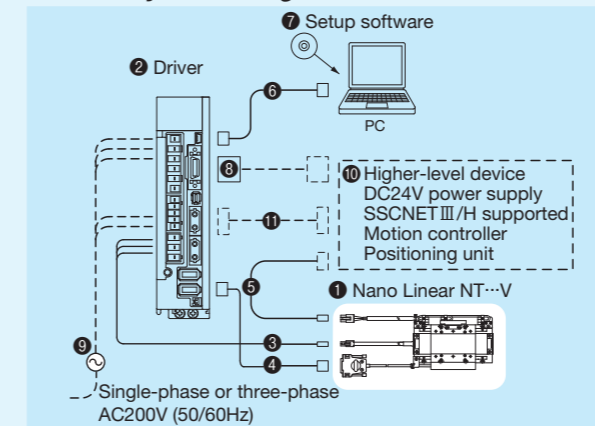
Table 15 System configuration for NT55V, NT80V with driver ADVA...EC



No.	Name	Model and size
3	Motor extension cord (3m) ⁽¹⁾	TAE20V3-AM03
4	Encoder extension cord (2m) ⁽¹⁾	TAE20V4-EC02
5	Sensor extension cord ⁽²⁾	TAE10V8-LC□□
6	PC connection cable	USB mini B cable This must be prepared by customer.
7	Setup software	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
8	I/O connector	TAE20V5-CN ⁽³⁾
9	Ethernet cable	This must be prepared by customer.
10	Power cord	
11	Higher-level device	
12	Higher-level device (EtherCAT supported device)	
13	I/O connector connection cable	

- Notes (1) For specific cord length, please contact IKO.
 (2) The lengths of the sensor extension cord is specified in the fields of □□ located at the end of the identification number with a length from 3 to 10m in units of 1m.
 (3) I/O connector TAE20V5-CN is a combined product of 10120-3000PE (connector) and 10320-52F0-008 (cover) from 3M Japan Limited.

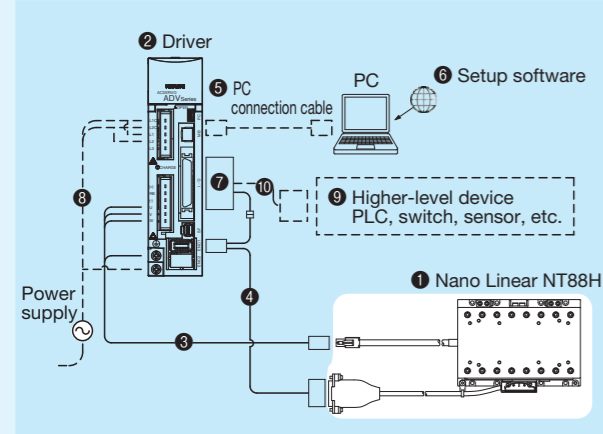
Table 16 System configuration for NT55V and NT80V with driver MR-J4-10B (SSCNET III/H compatible)



No.	Name	Identification Number
3	Motor extension cord (3m) ⁽¹⁾	TAE20V3-AM03
4	Encoder extension cord (2m) ⁽¹⁾	TAE20V6-EC02
5	Sensor extension cord ⁽²⁾	TAE10V8-LC□□
6	PC connection cable (3m)	MR-J3USBCBL3M
7	Setup software	SW1DNC-MRC2-J
8	I/O connection connector	MR-CCN1 ⁽³⁾
9	Power cord	This must be prepared by customer.
10	Higher-level device ⁽⁴⁾	
11	SSCNET III/H connection cable	

- Notes (1) For specific cord length, please contact IKO.
 (2) The lengths of the sensor extension cord is specified in the fields of □□ located at the end of the identification number with a length from 3 to 10m in units of 1m.
 (3) Connectors for input/output connection MR-CCN1 is a combined product of 10120-3000PE (connector) and 10320-52F0-008 (cover) from 3M Japan Limited.
 (4) The higher-level devices are a motion controller, positioning unit and DC24V power supply ready for SSCNET III/H from Mitsubishi Electric Corporation.

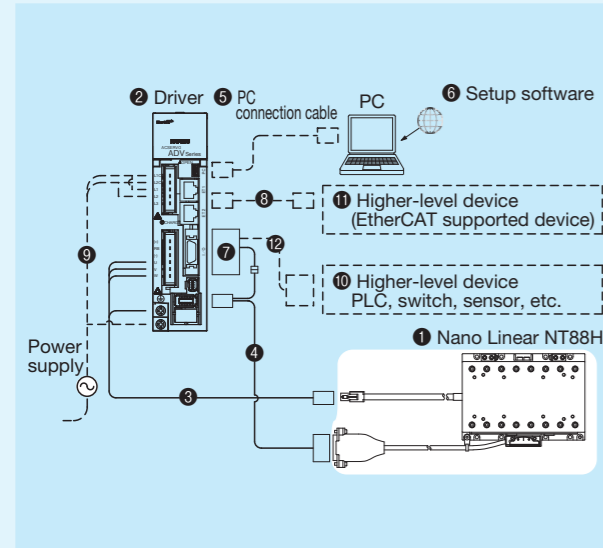
Table 17 System configuration for NT88H with driver ADVA



No.	Name	Identification number
3	Motor extension cord	TAE20V3-AM03 (3m) ⁽¹⁾
4	Encoder extension cord	TAE20W5-EC02 (2m) ⁽¹⁾
5	PC connection cable	USB mini B cable This must be prepared by the customer.
6	Setup software	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
7	Connector set	TAE20W6-CN ⁽²⁾
8	Power cord	This must be prepared by the customer.
9	Higher-level device	
10	I/O connector connection cable	

Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The connector set TAE20W6-CN is a set of I/O connector and connector for sensor (crimp wired (200mm)).
 The I/O connector is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.
 The connector for sensor is a combined product of 170365-1 (contact) and 172157-1 (housing) from Tyco Electronics Japan G.K..

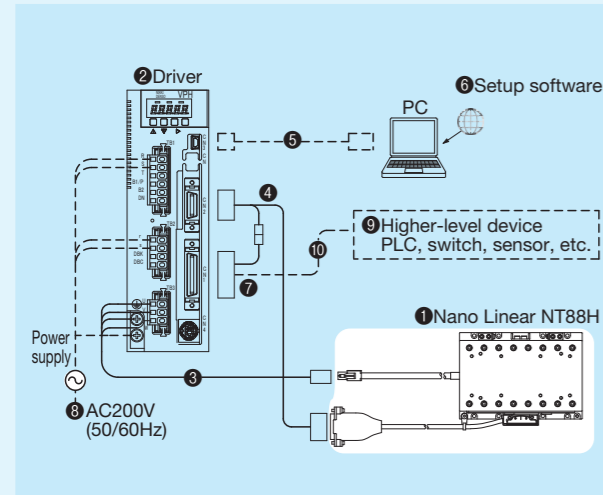
Table 18 System configuration for NT88H with driver ADVA...EC



No.	Name	Identification number
3	Motor extension cord	TAE20V3-AM03 (3m) ⁽¹⁾
4	Encoder extension cord	TAE20W5-EC02 (2m) ⁽¹⁾
5	PC connection cable	USB mini B cable This must be prepared by the customer.
6	Setup software	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.
7	Connector set	TAE20W7-CN ⁽²⁾
8	Ethernet cable	This must be prepared by the customer.
9	Power cord	
10	Higher-level device	
11	Higher-level device (EtherCAT supported device)	
12	I/O connector connection cable	

Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The connector set TAE20W7-CN is a set of I/O connector and connector for sensor (crimp wired (200mm)).
 The I/O connector is a combined product of 10120-3000PE (connector) and 10320-52F0-008 (cover) from 3M Japan Limited.
 The connector for sensor is a combined product of 170365-1 (contact) and 172157-1 (housing) from Tyco Electronics Japan G.K..

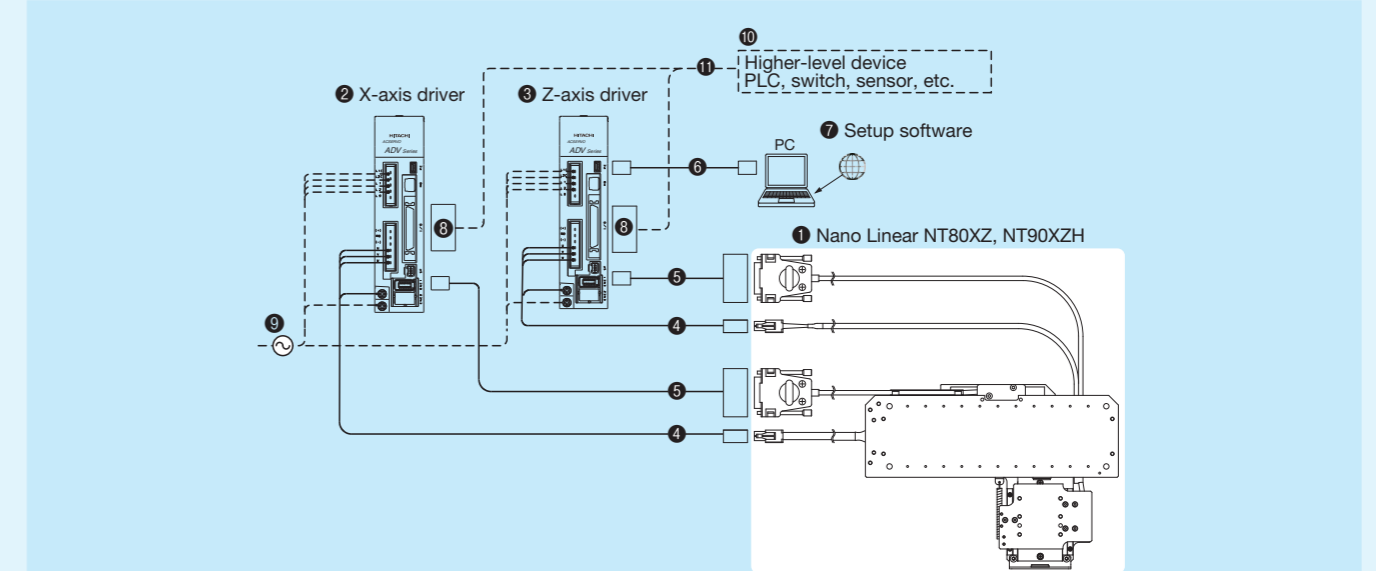
Table 19 System configuration for NT88H with driver NCR-H (VPH)



No.	Name	Identification number
2	Driver	NCR-HA2101A-B-000-S304
3	Motor extension cord (3m) ⁽¹⁾	TAE20V3-AM03
4	Encoder extension cord (2m) ⁽¹⁾	TAE20W4-EC02
5	PC connection cable	USB mini B cable This must be prepared by the customer.
6	Setup software	VPH Data Editing Software Please download from the official website of CKD Nikki Denso Co., Ltd.
7	Connector set	TAE20U0-CN ⁽²⁾
8	Power cord	This must be prepared by the customer.
9	Higher-level device	
10	I/O connector connection cable	

Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ The connector set TAE20U0-CN is a set of I/O connector and connector for sensor (crimp wired (200mm)).
 The I/O connector is a combined product of 10136-3000PE (connector) and 10336-52F0-008 (cover) from 3M Japan Limited.
 The connector for sensor is a combined product of 170365-1 (contact) and 172157-1 (housing) from Tyco Electronics Japan G.K..

Table 20 System configuration for NT80XZ, NT90XZH



No.	Name	数量	Model and size	
1	Nano Linear NT80XZ, NT90XZH	1	NT80XZ4510	NT90XZH2510
2	Driver for X-axis	1	ADVA-01NL/NT80XZ-X (200 V specs) ADVA-R5ML/NT80XZ-X (100 V specs)	ADVA-01NL/NT90XZH (200 V specs) ADVA-R5ML/NT90XZH (100 V specs)
3	Driver for Z-axis	1	ADVA-01NL/NT80XZ-Z (200 V specs) ADVA-R5ML/NT80XZ-Z (100 V specs)	ADVA-01NL/NT90XZH (200 V specs) ADVA-R5ML/NT90XZH (100 V specs)
4	Motor extension cord (3m) ⁽¹⁾	2	TAE20V3-AM03	
5	Encoder extension cord (2m) ⁽¹⁾	2	TAE20V4-EC02	
6	PC connection cable	1	USB mini B cable (This must be prepared by customer.)	
7	Setup software	1	ProDriveNext Please download from the official website of Hitachi Industrial Equipment Systems Co., Ltd.	
8	I/O connector	2	TAE20R5-CN ⁽²⁾	
9	Power cord	-	This must be prepared by customer.	
10	Higher-level device	-		
11	I/O connector connection cable	-		

Notes ⁽¹⁾ For specific cord length, please contact IKO.
⁽²⁾ I/O connector TAE20R5-CN is a combined product of 10150-3000PE (connector) and 10350-52F0-008 (cover) from 3M Japan Limited.

● Setup software

To operate Nano Linear NT, initial setting of driver parameters is required. Parameter setting for driver is performed using the setup software.
 In the driver, the setup software and PC connection cable are not provided. These can be shared in plural drivers but at least 1 set is required. Please prepare these on your own or place an order separately according to your requirement.

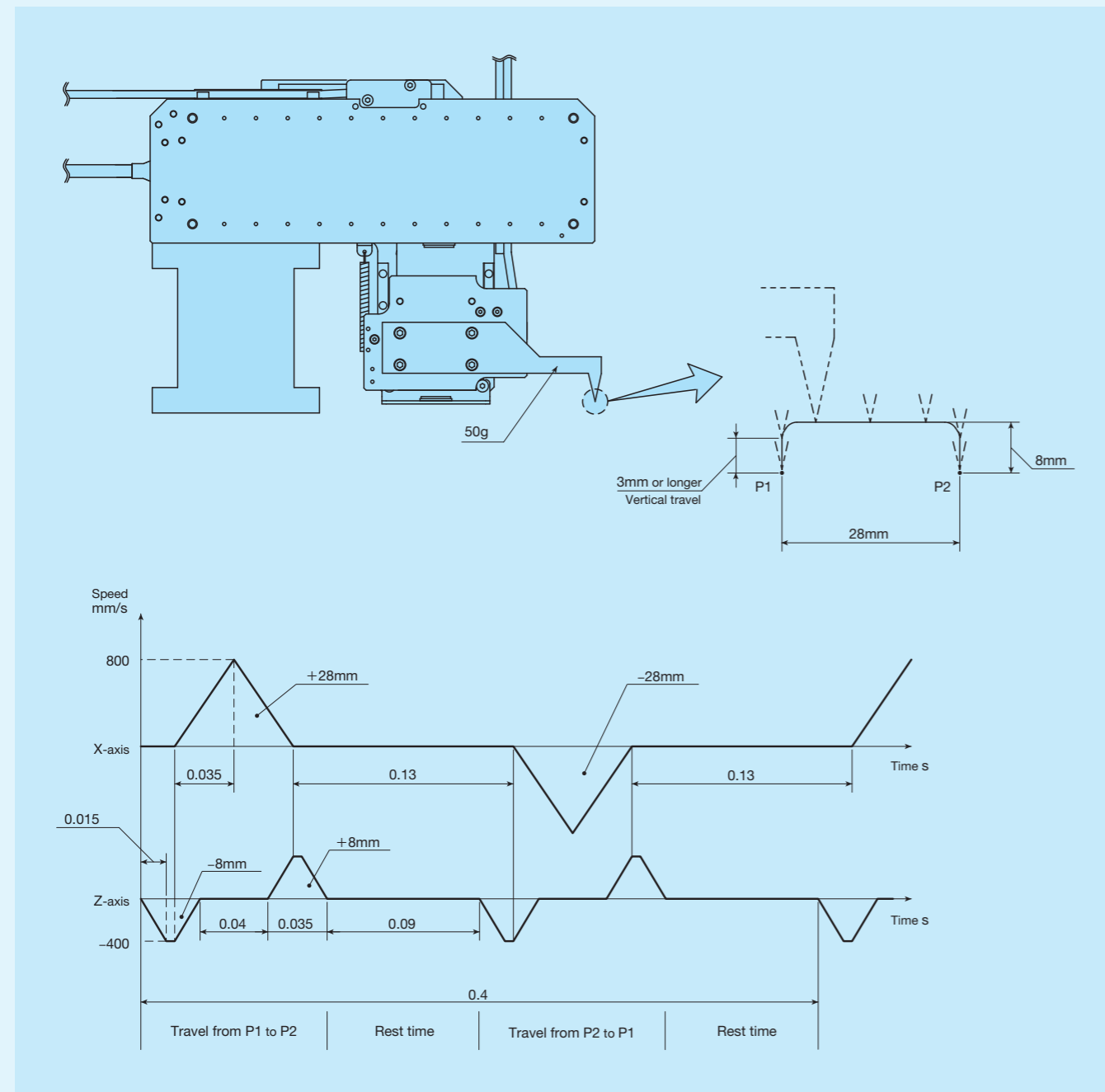
Example Operation Pattern

Example operation pattern of NT···XZ pick and place

Described below is a representative example of operation pattern of pick and place.

Table 21 Operational conditions

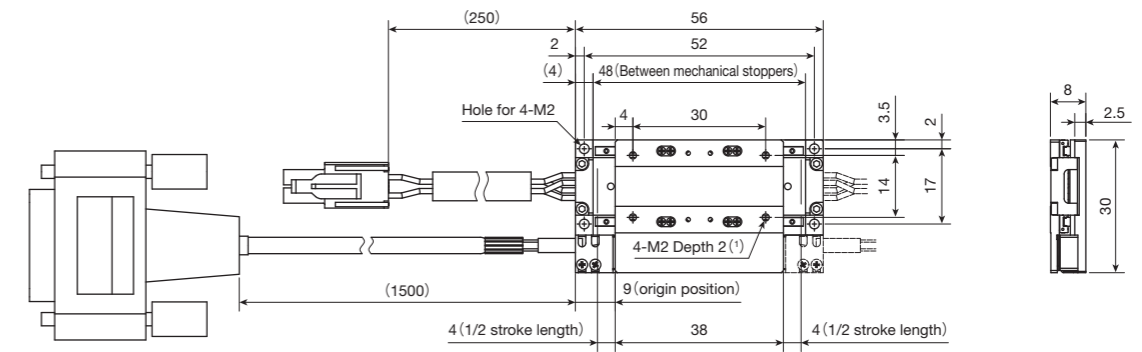
Item	Operational conditions	
Carrying mass	g	50
X-axis travel distance	mm	28
Z-axis travel distance	mm	8
Rest time in P1 and P2	s	0.09
1 cycle time	s	0.4
X-axis effective thrust force	N	8.9
Z-axis effective thrust force	N	2.5



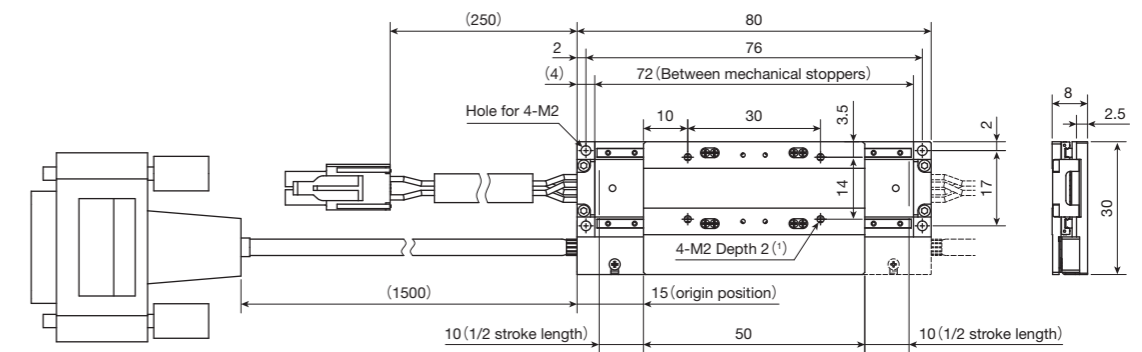
Remark: The speed pattern diagram shows a program pattern, not actual motions.

IKO Nano Linear™ NT

NT30V8

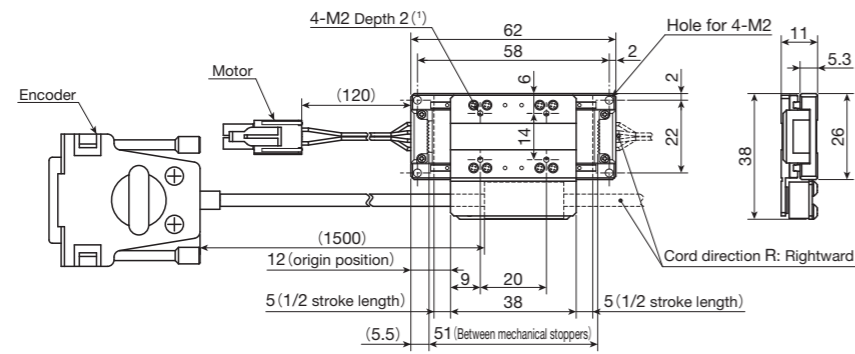


NT30V20

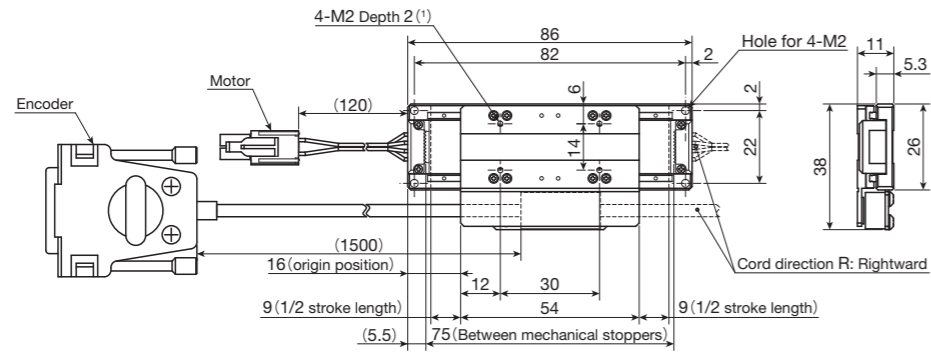


Note (1) Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.

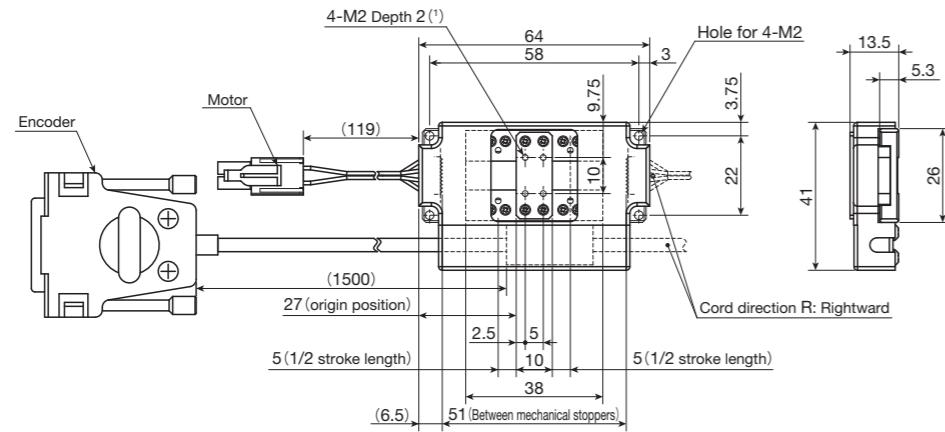
NT38V10



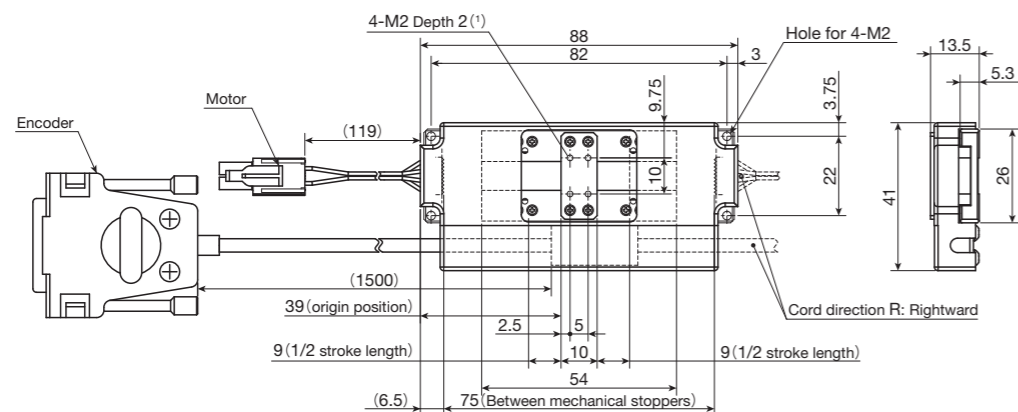
NT38V18



NT38V10/D

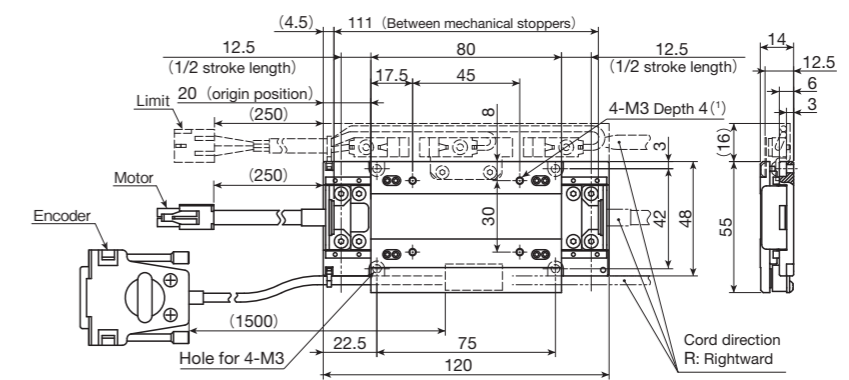


NT38V18/D

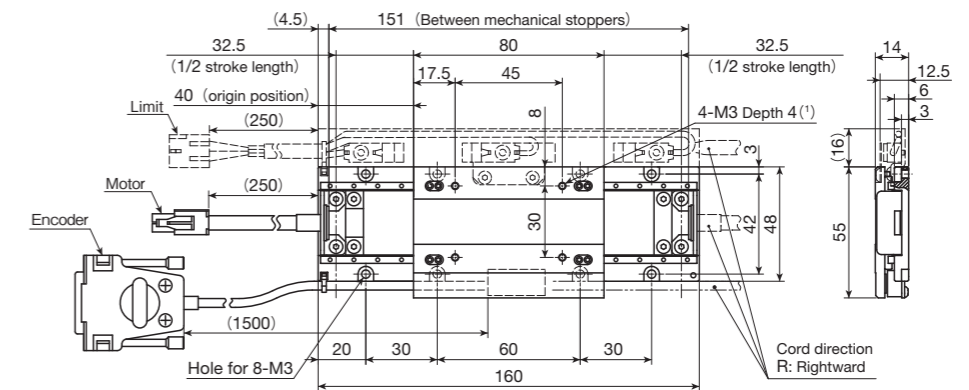


Note ⁽¹⁾ Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.

NT55V25



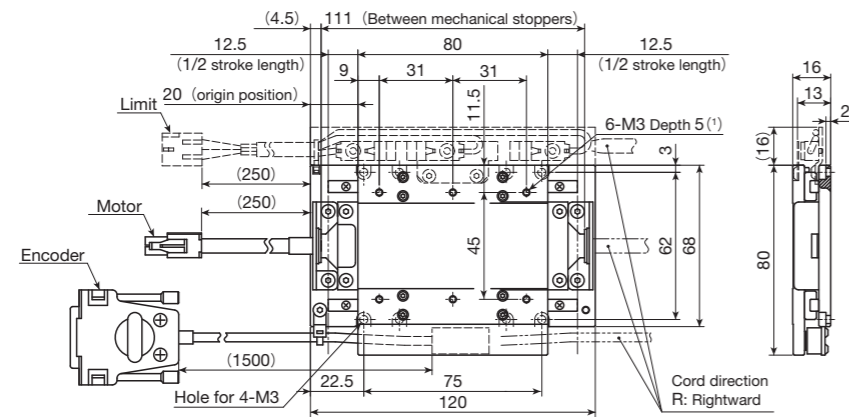
NT55V65



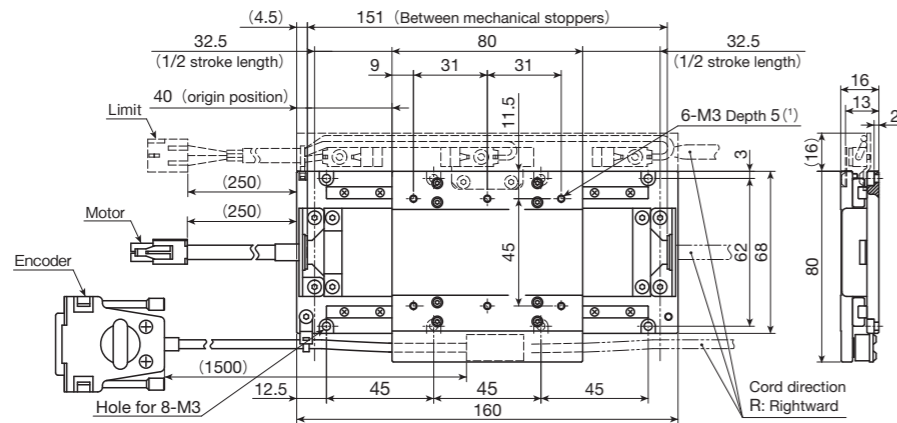
Note ⁽¹⁾ Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.

Remark: Dashed line portions in the dimensional figures indicate the sensor-included specification / SC.

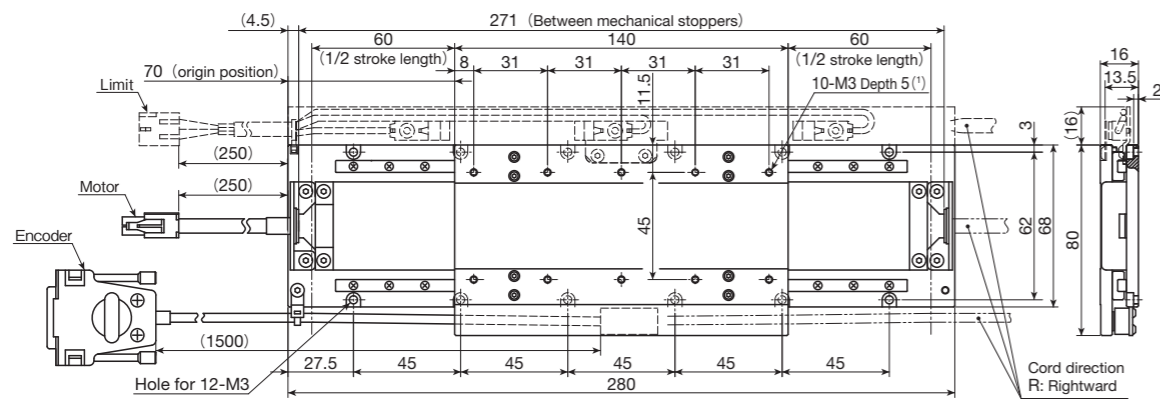
NT80V25



NT80V65



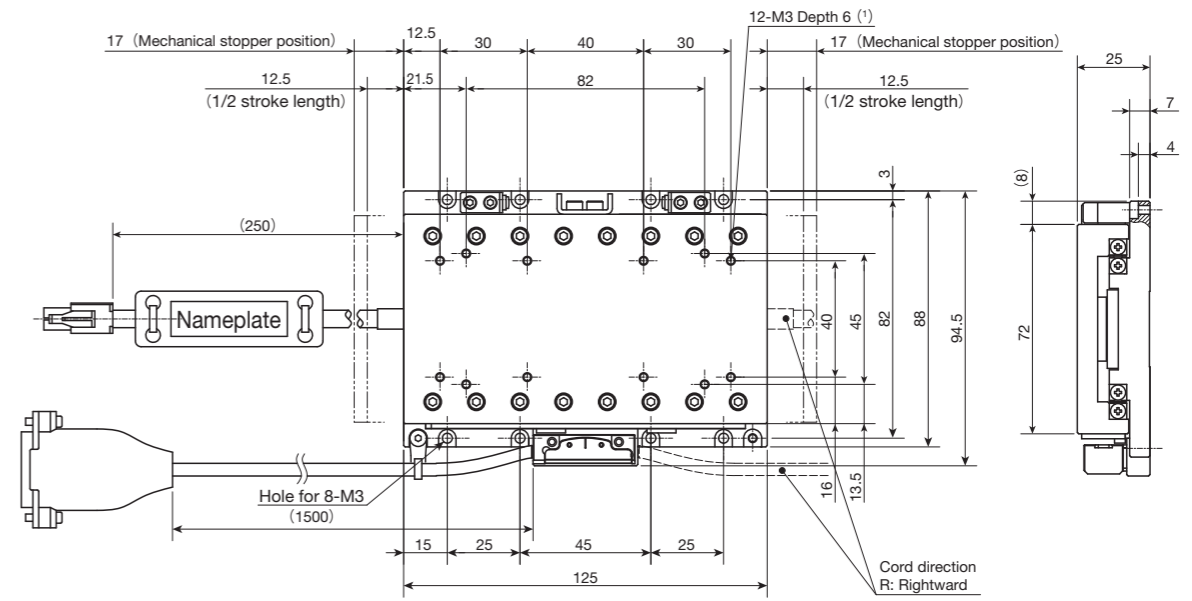
NT80V120



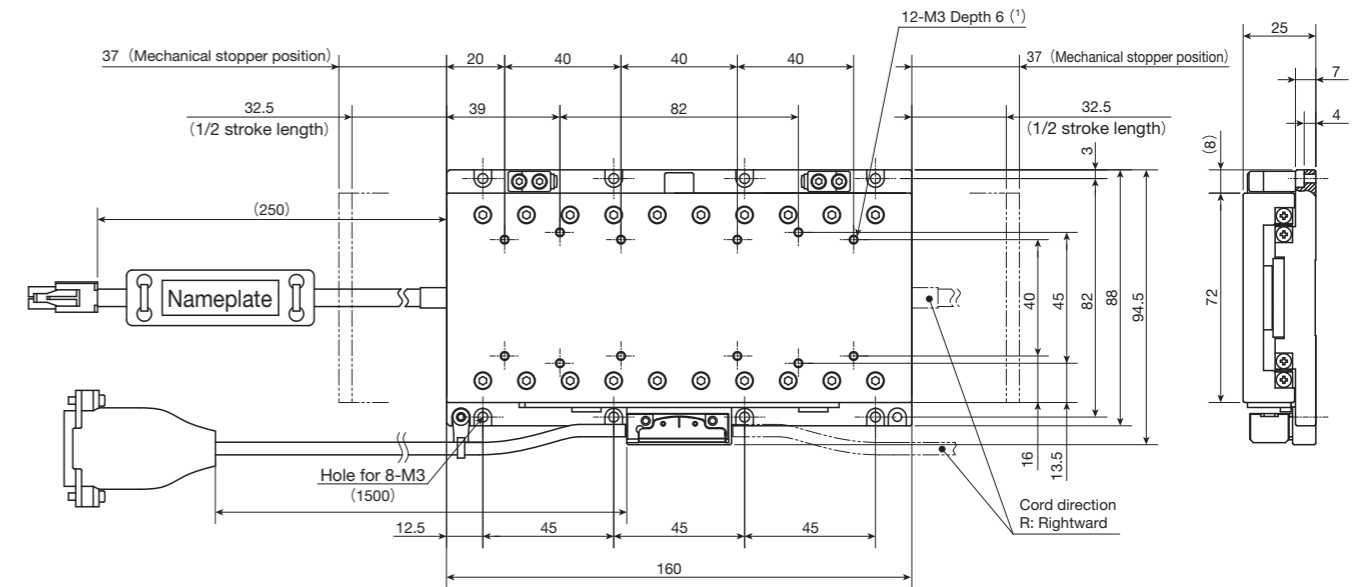
Note (1) Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.

Remarks 1. Dashed line portions in the dimensional figures indicate the sensor-included specification / SC.
2. XY two-axis specification table combined with NT80V with NT80V25 used as an upper axis is assembled in IKO before shipping.

NT88H25



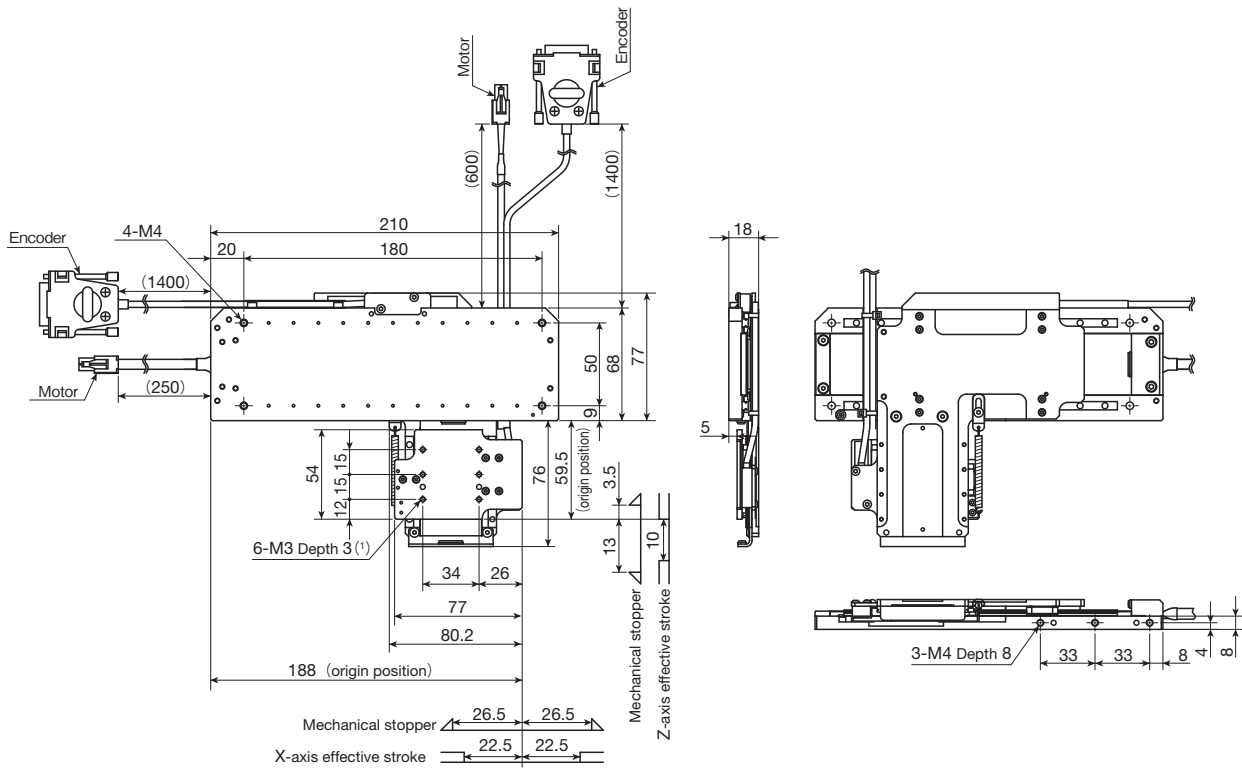
NT88H65



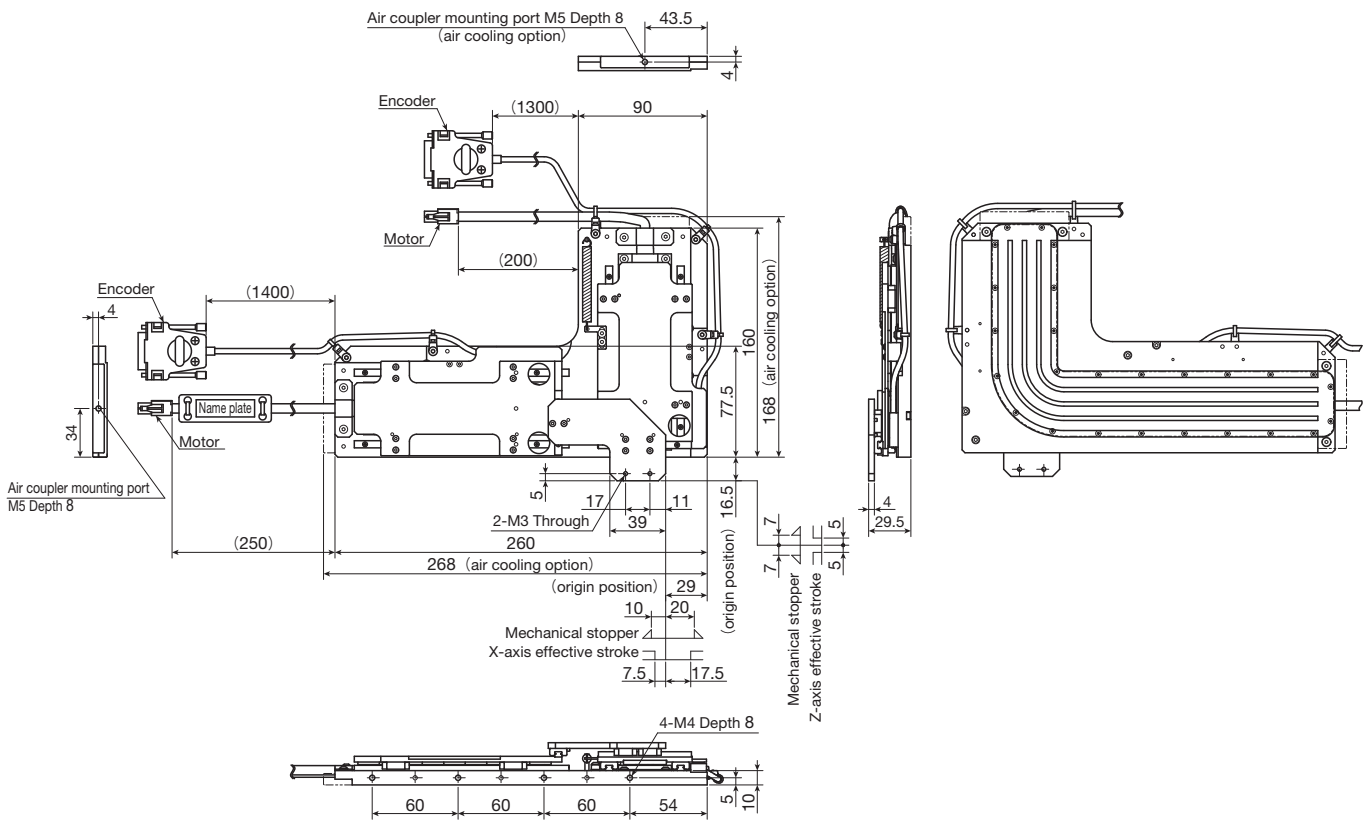
Note (1) Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the tapped hole.

IKO Nano Linear™ NT

NT80XZ



NT90XZH



Note (1) Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.