

NHS

New handling system

Modular unit

Overview

New handling system with small part transfer kit saves design time with flexible modular configuration.

Features

Just like model kits!

The ideal system for the intended small parts conveying can be constructed simply and quickly according to the application, with flexible combinations as if making models for fun.

High rigidity/high precision

Driving section of X-axis module maintains high rigidity and high precision even under lateral and moment load, since LM guide is assembled in the guide section with CKD rodless cylinder SRL3 type. Shock absorber provided as standard at the stroke end absorbs impact and vibration when stopping.

Compact and easy to assemble

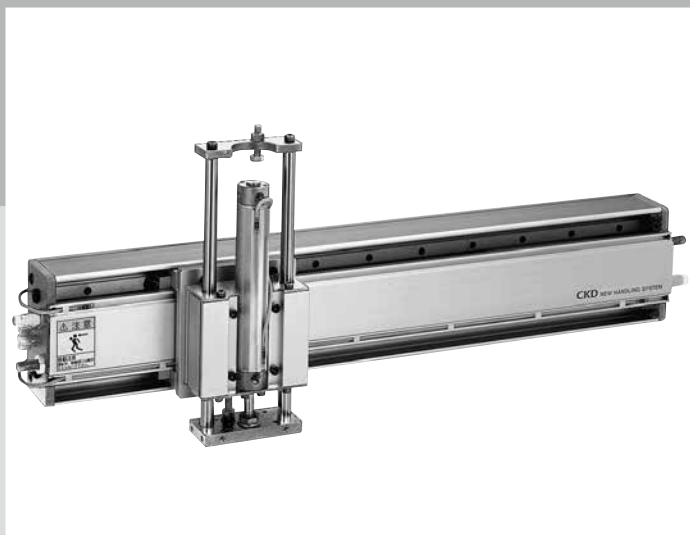
Integrated air ports for piping enable easy assembly even in narrow spaces. Furthermore, installation space is reduced by half compared to general cylinders, since a rodless cylinder is used.

Reduced design and assembling processes

The time required for model selection, design man-hours, assembly man-hours and control man-hours can be reduced, since X-axis, Z-axis, and attachment can be selected according to the applications.

Long service life, maintenance-free

LM guide SHS type with ball retainer is installed to improve maintenance for NSR-30 and 50 type. Lubrication is not required for the long term, and the factory environment has been improved due to the low noise levels of the guide itself.



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LCM
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New Handling System

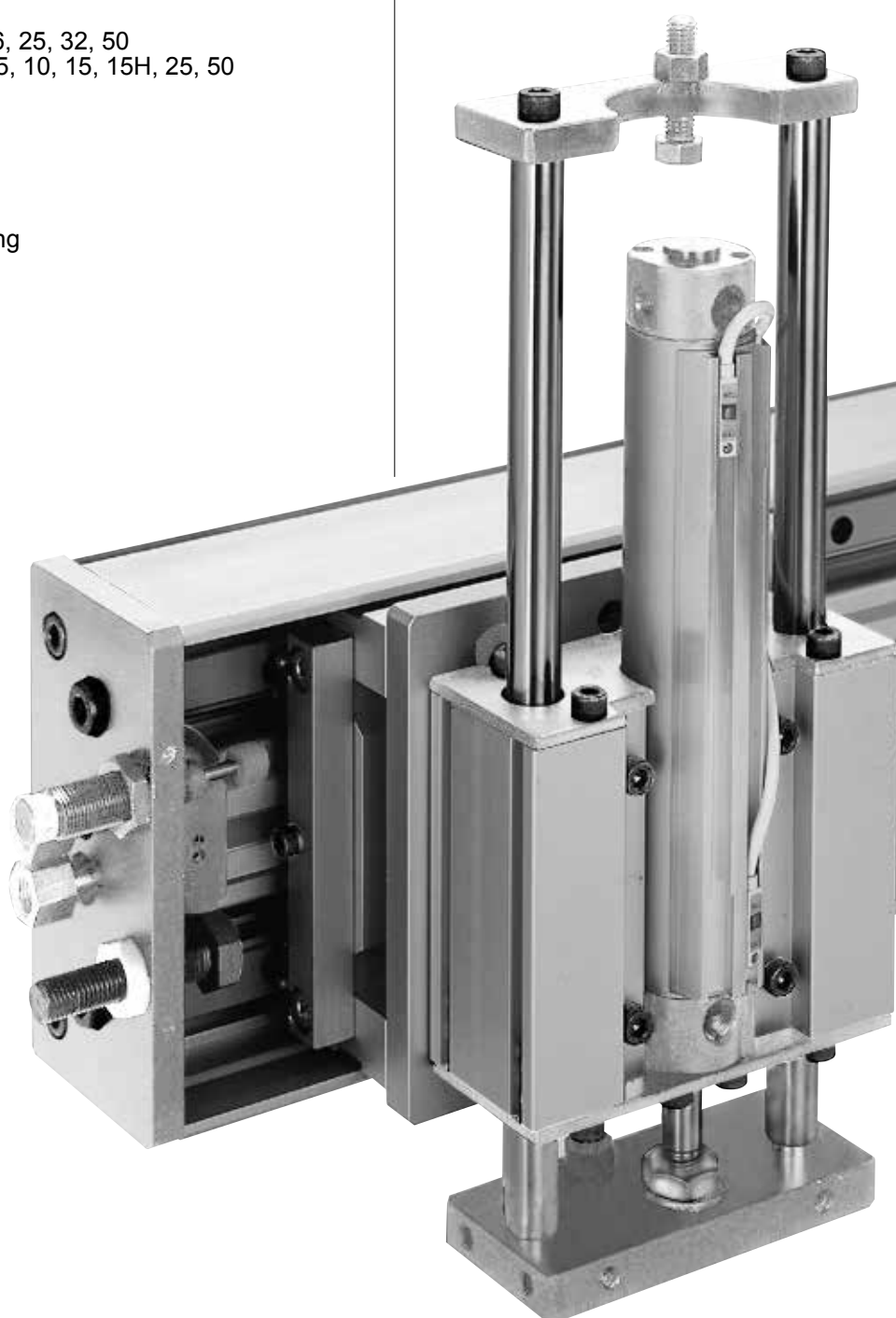
New handling system

X-axis module — NSR-1-10, 15, 30, 50

Z-axis module — STL-16, 25, 32, 50
HRL-05, 10, 15, 15H, 25, 50

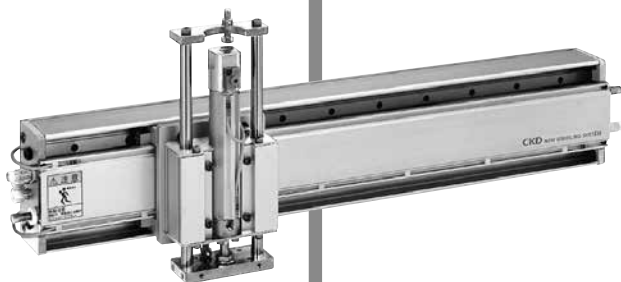
X-, Z-axis mounting attachments

Potential.



Features

● NHS-H



● NSR

● High rigidity LM guide

Equipped with two guide rails to achieve high accuracy and rigidity at the maximum allowable moment load

● Air driven with a rodless cylinder

Equipped with a no-lubrication rodless cylinder realizing high speeds.

● With shock absorber

Absorber for smooth stop at the stroke end

● Integrally molded high rigidity aluminum frame

● Stop bolt for fine adjustments

● T slot for frame main body assembly

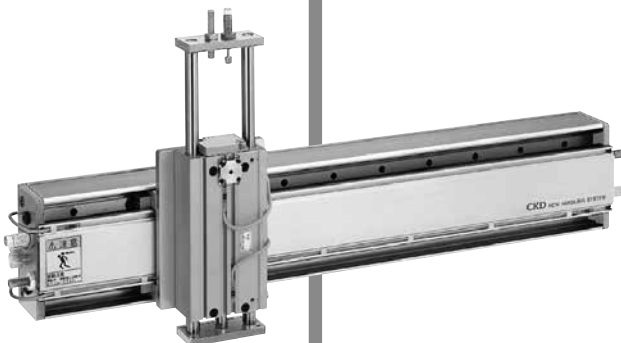
Built-in square nut allows it to be mounted at any position along the length of the frame

● Front cover

Decorative plate prevents dust and acts as a sensor rail

● Stroke end position detection switch

Cylinder switch for reliable and accurate operation

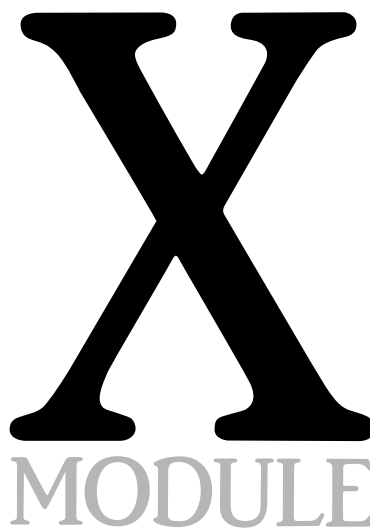


● NHS-S

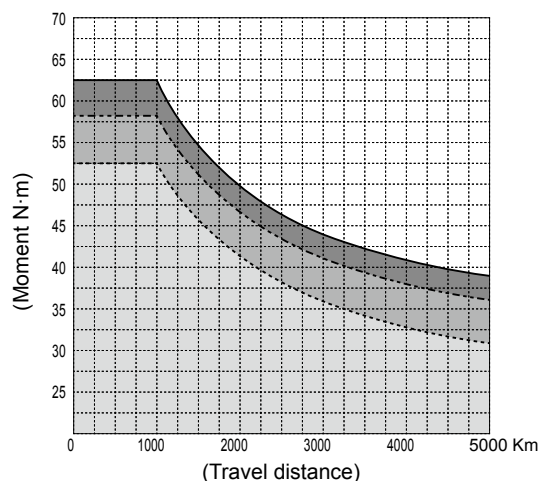
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Module concept.



The X-axis module can boast of being the most important component in the transfer unit structure. In other words, the performance of the X-axis module determines whether the transfer unit will satisfy customer requirements for their application. NSR type X-axis modules are made with emphasis on that very point. First, the drive part uses a SRL3 type rodless cylinder that has been well reviewed by many customers, proving its reliability, for a design that is space-saving and has high load capacity and high accuracy characteristics. Furthermore, the high-rigidity LM guide used withstands moment and lateral loads, and the max. guide span has been incorporated to optimize its characteristics. The body is finished with extruded aluminum to reduce weight and



This is the NSR-1-10
NSR-1-15 graph.

Slider speed : 500 mm/s
Unit stroke : 500 mm

— M1
- - - M3
· · · M2

add rigidity. Standard parts include a shock absorber to absorb shock and vibration at the stroke end, a stop bolt to secure the stopping position, and a cylinder switch to detect the stroke end. NSR type X-axis modules narrow down the required functionality as much as possible, creating a more practical X-axis module with excellent cost performance. Options, including a cableveyor and full stroke length adjustment block, are widely available in response to user needs.

Z MODULE

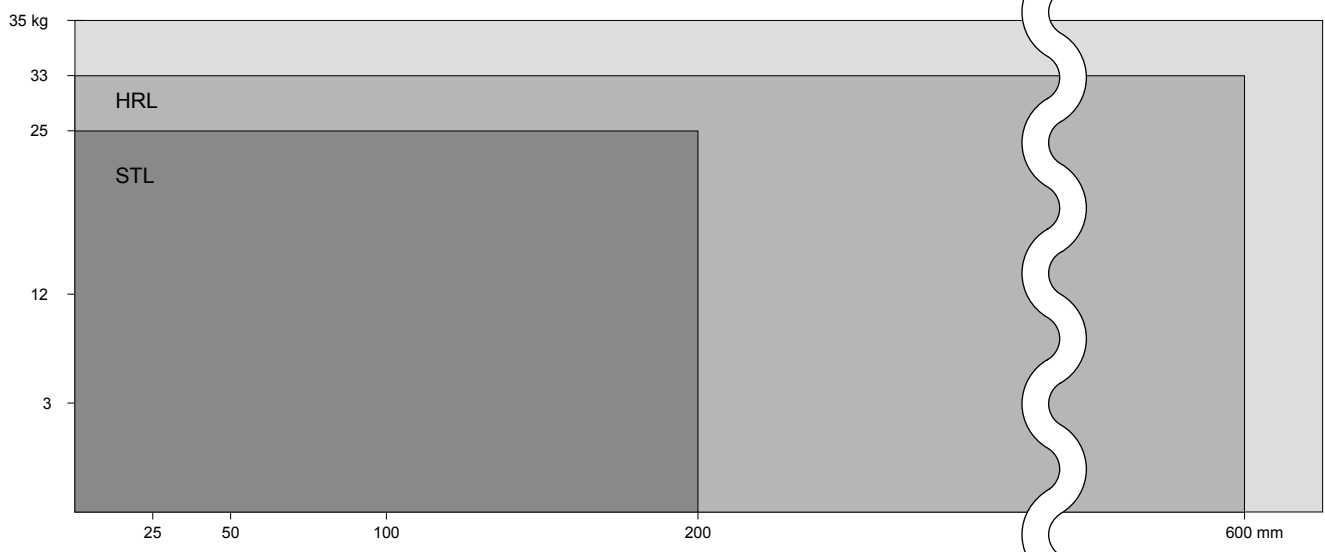


STL

The Z-axis module, responsible for transport work as close to the target object as possible, cannot be too inflexible, nor too pliant, but requires an appropriate amount of rigidity. In addition, it should be as thin as possible out of consideration for overhang and space, while the demand for functionality of this component and the position-locking mechanism is ever increasing.



HRL



The CKD Z-axis modules respond to these needs, and are available in 10 models and 2 types, including the low-cost STL and the high-load long-stroke compatible HRL.

This lineup of transfer Z-axis modules with a load capacity of 3 to 33 kg enables the user to freely select a small part transfer system that meets individual applications and needs. Naturally, CKD has a range of attachments available which allow combination of the X-axis module and Z-axis module to easily create a component transport system.

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Ending

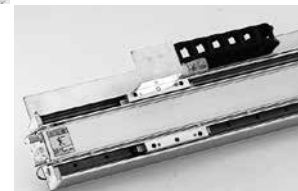
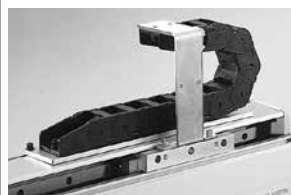
● Adjustable stroke block

A block that allows the full stroke length to be adjusted. Shock absorber and stop bolts are already mounted.



● Cableveyor

- Two mounts are available: horizontally mounted and vertically mounted.
- Two capacities are available: standard capacity and large capacity. (NSR-10, 15)



● 2-head

2-stage, high moment are available with two heads.



OPTION

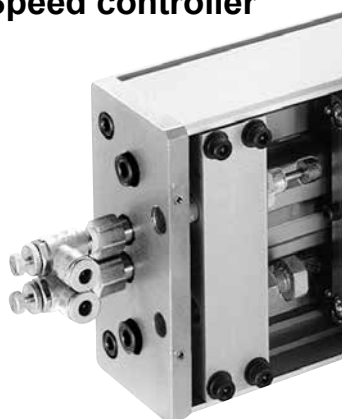
■ Wide options/lineup to meet diverse needs

● Position locking

Z-axis modules with position locking mechanism are available. (Excluding STL-BP-16)



● Speed controller



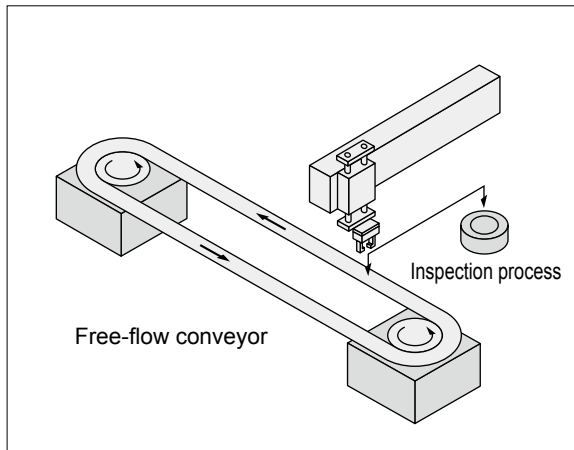
● LB bracket

The LB bracket makes mounting easier, especially when mounting on the bottom surface. (LB brackets cannot be used for hoisting or suspending upside-down.)

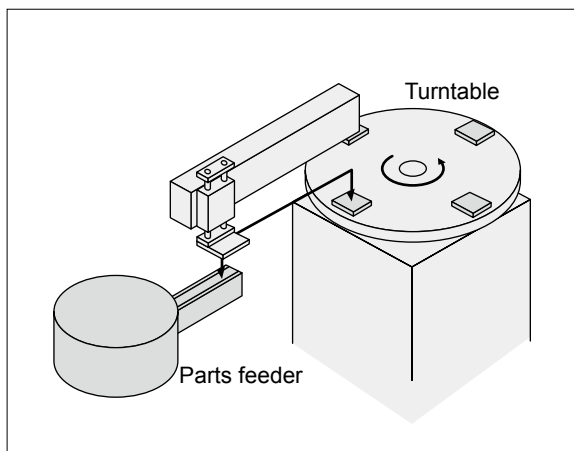
(Refer to mounting orientation on page 1460)



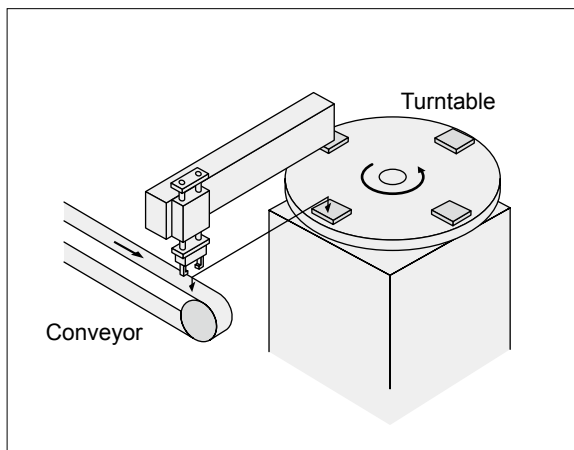
Applications



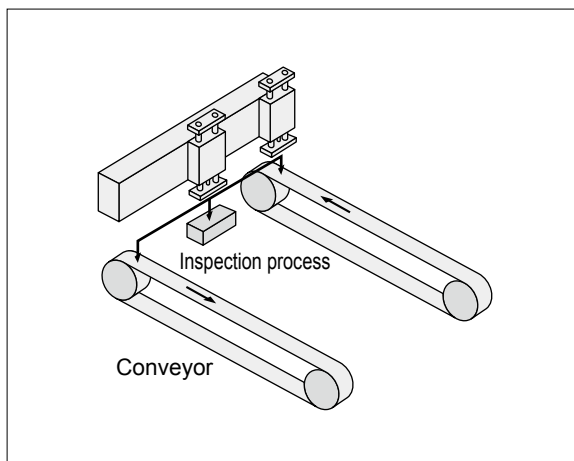
- Picks up small valves from the free-flow conveyor, inspects them, then returns them to the conveyor.



- Two electrical components sorted by the parts feeder are simultaneously vacuum-suctioned and transported to the jig on the turntable for assembly.



- Vehicle components fed down the conveyor are transported to the jig on the turntable.



- There is an inspection process on the conveyor, so with two heads two vehicle components can be transported simultaneously.

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Series variation



New handling system NHS Series

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Variation	Load capacity (kg)															
	X-axis				Z-axis									X-axis		
	10	15	30	50	3	4	5	6	7	10	12	20	33	10	15	
NSR (X-axis module)	●	●	●	●										50 to 2000	50 to 2000	
NHS-H (H: Z-axis module HRL)	●	●	●	●			●		●	●	●	●	●	50 to 2000	50 to 2000	
NHS-S (S: Z-axis module STL-B)	●	●	●	●	●				●		●		●	50 to 2000	50 to 2000	

●: Standard, ■: Not available

Stroke length (mm)															X-axis max. stroke length	Z-axis cylinder	Page
	X-axis		Z-axis														
	30	50	30	40	50	75	100	125	150	175	200	250	300	301 to 600			
	50 to 2000	50 to 2000													2000	-	1422
	50 to 2000	50 to 2000			●	●	●	●	●		●	●	●	●	2000	HRL	1430
	50 to 2000	50 to 2000			●	●	●	●	●	●	●				2000	STL-B	1440

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New handling system X-axis module

NSR Series

- Stroke: 50 to 2000 mm
- Load capacity: 10, 15, 30, 50kg



Specifications

Item		NSR-10	NSR-15	NSR-30	NSR-50
Bore size	mm	ø20		ø32	ø40
Slider speed	mm/s	100 to 1000			
Shock absorber		NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Stroke	mm	50 to 2000 (1 mm pitch)			
Max. stroke	mm	2000			
Allowable moment	N·m	M1=36.4,M2=30.6,M3=34.2		M1,M3=85.9 M2=82.9	M1,M3=156.2 M2=150.7
Tilt of slider		±0.1° or less			
Piping port size		Rc1/8		Rc1/4	Rc1/2
Position detection sensor		T type proximity switch lead wire 3 m			
Max. horizontal load capacity	kg	10	15	30	50
Speed controller (option)		SC3W-6-6		SC3W-8-8	SC3W-15-10
Working fluid		Clean compressed air			
Working pressure	MPa	0.2 (≈29 psi, 2 bar) to 0.7 (≈100 psi, 7 bar)			
Proof pressure	MPa	1.05 (≈150 psi, 10.5 bar)			
Ambient temperature	°C	5 (41°F) to 60 (140°F)			
Lubrication		Refer to page 1460 for lubrication.			
Repeatability	mm	±0.02			
Weight	kg	(stx0.0109)+5.5	(stx0.0109)+5.6	(stx0.0176)+10.7	(stx0.0311)+17.9

Stroke adjustment specifications

Item		Blank	R	L	D
Adjustable stroke right	mm	-15 to 0	Full stroke	-15 to 0	Full stroke
Adjustable stroke left	mm	-15 to 0	-15 to 0	Full stroke	Full stroke

Shock absorber specifications

Item		NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Max. absorbing capacity	J	12	26	30	50
Absorbing stroke	mm	10	15	16	25
Max. colliding speed	mm/s	2000			
Max. operating frequency	cycle/min	30	25	20	12

Cableveyor specifications

Item	Cableveyor model No.	Bore size (mm)	Load capacity (kg/m)
For NSR-10, 15-B, F	TKP35H22-30W25R37	22x25	MAX1.6
For NSR-10, 15-X	TKP35H22-30W50R37	22x50	MAX1.6
For NSR-10, 15-W	TKP45H25-30W38R50	25x38	MAX3.0
For NSR-30-B, F	TKP45H25-30W58R50	25x58	MAX3.0
For NSR-50-B, F	TKP45H25-30W78R50	25x78	MAX3.0

Adjustable stroke block additional weight list

Model No.	Additional weight (kg)
NSR-1-10-R	0.685
NSR-1-10-L	0.685
NSR-1-10-D	1.370
NSR-1-15-R	0.810
NSR-1-15-L	0.810
NSR-1-15-D	1.620
NSR-1-30-R	1.140
NSR-1-30-L	1.140
NSR-1-30-D	2.280
NSR-1-50-R	1.750
NSR-1-50-L	1.750
NSR-1-50-D	3.499

Mounting bracket LB additional weight list

Model No.	Additional weight (kg)
NSR-10	0.8
NSR-15	0.8
NSR-30	2.9
NSR-50	4.8

Cableveyor additional weight list

Model No.	Additional weight (kg)
NSR-1-10,15-B	$(st \div 2 \times 0.0011) + 0.482$
NSR-1-10,15-W	$(st \div 2 \times 0.0018) + 0.55$
NSR-1-10,15-F	$(st+178) \times 0.0024 + 0.125$
NSR-1-10,15-X	$(st+178) \times 0.003 + 0.13$
NSR-1-30-B	$(st \div 2 \times 0.0028) + 1.148$
NSR-1-30-F	$(st+234) \times 0.0042 + 0.2$
NSR-1-50-B	$(st \div 2 \times 0.0034) + 1.234$
NSR-1-50-F	$(st+178) \times 0.0049 + 0.22$

2-head specifications

Item	NSR-2-10	NSR-2-15	NSR-2-30	NSR-2-50
Max. horizontal transfer weight kg / 1 head	5	7.5	15	25
Stroke mm	50 to 1000			
Max. stroke mm	1800		1740	1690
Pitch between heads mm	200 to 999		260 to 999	310 to 999
Max. pitch between heads mm	999			
Product additional weight kg	$(Pitch \text{ between heads} \times 0.0109) + 1.7$		$(Pitch \text{ between heads} \times 0.0176) + 2.79$	$(Pitch \text{ between heads} \times 0.0311) + 4.66$

*1 : Select so that the pitch between heads and strokes total 2000 mm or less.

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SpdContr
Ending

How to order

NSR **2** **10** **1000** **500** **L** **3** **B** **A**

A Head number

B Load capacity

C X-axis stroke *1

D Pitch between heads
*2, *3

E Adjustable stroke block

F Port position/speed controller/mounting bracket
*4, *5

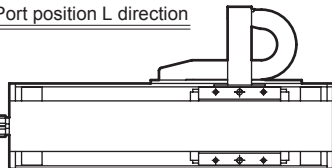
G Cableveyor
*6

H Switch

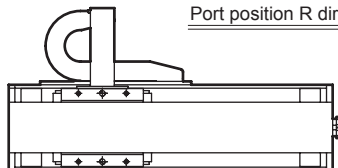
⚠ Precautions for model No. selection

- *1 : If X-axis stroke of NSR-30, 50 and NSR-10, 15 are 1001 mm or more, front cover uses tension method.
- *2 : Can be selected only for 2-head.
- *3 : Select so that the pitch between heads and strokes total 2000 mm or less.
- *4 : Speed controller is SC3W-6-6 (NSR-10/15), SC3W-8-8 (NSR-30) or SC3W-15-10 (NSR-50) x 2 pieces.
- *5 : If port position R is selected, mounting orientation of the cableveyor is reversed. (Exit is port side)

Port position L direction



Port position R direction



*6 : Refer to table below for the cableveyor capacity.

Item	B	F	W	X
For NSR-*-10,15	22x25	22x25	25x38	22x50
For NSR-*-30	25x58	25x58	-	-
For NSR-*-50	25x78	25x78	-	-

● Only NSR-10 and 15 can be selected for "W" and "X".

*7 : Options 5, 6, 7 and 8, and cableveyor B and W cannot be combined.

Code	Description			
A Head number				
1	1 pieces			
2	2 pieces			
B Load capacity (kg)				
10	10			
15	15			
30	30			
50	50			
C X-axis stroke (1 mm pitch)				
50	50			
to	to			
2000	2000			
D Pitch between heads (1 mm pitch)				
	Load capacity (kg)			
	10	15	30	50
200	200	200	260	310
to	to	to	to	to
999	999	999	999	999
E Adjustable stroke block				
Blank	None			
L	Left			
R	Right			
D	Both sides			
F Port position/speed controller/mounting bracket				
Blank	Port position L			
2	Port position R			
3	Port position L, with speed controller			
4	Port position R, with speed controller			
5 *7	Port position L, with mounting bracket LB			
6 *7	Port position R, with mounting bracket LB			
7 *7	Port position L, with speed controller, mounting bracket LB			
8 *7	Port position R, with speed controller, mounting bracket LB			
G Cableveyor				
Blank	None			
B	Vertical installation			
F	Horizontal installation			
W	Vertical installation			
X	Horizontal installation			
H Switch				
Blank	2-wire proximity T2H3 (with 2 pcs.)			
A	3-wire proximity T3H3 (with 2 pcs.)			

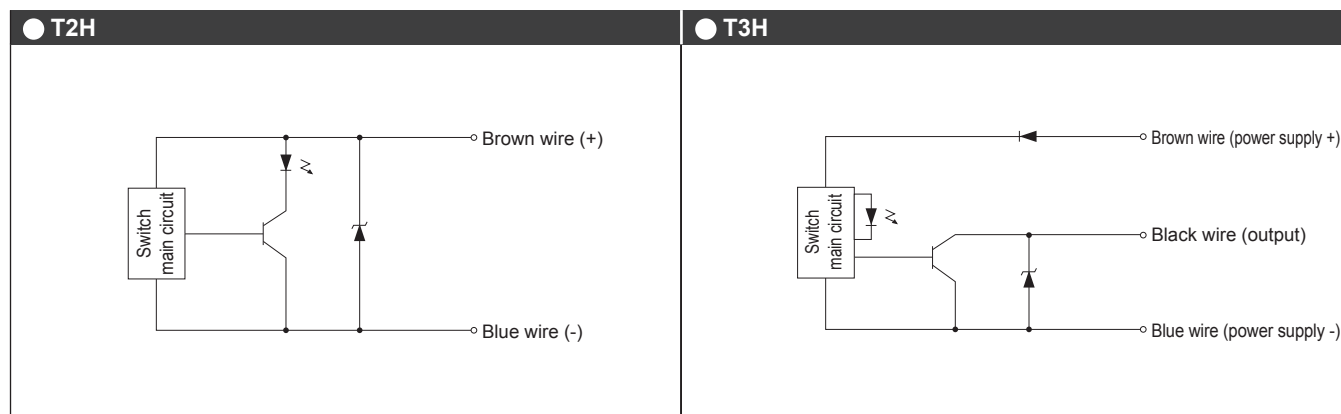
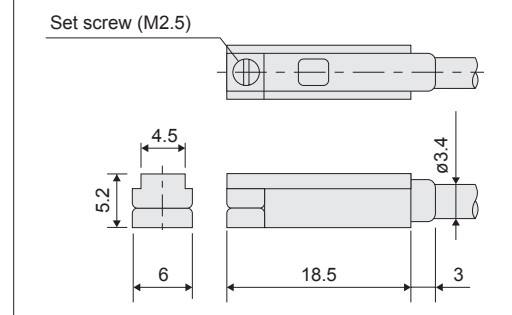
Switch specifications (T Series)

Item	Proximity 2-wire	Proximity 3-wire
	T2H3	T3H3
Applications	Dedicated for programmable controller	For programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage	10 to 30 VDC	30 VDC or less
Load current	5 to 20 mA (*1)	100 mA or less
Current consumption	-	10 mA or less at 24 VDC (when ON)
Internal voltage drop	4V or less	0.5V or less
Indicator	LED (Lit when ON)	
Leakage current	1 mA or less	10 µA or less
Lead wire (standard)	3 m (oil resistant vinyl cabtyre cable 2-conductor 0.2 m ²)	3 m (oil resistant vinyl cabtyre cable 3-conductor 0.2 m ²)
Max. shock resistance	980 m/s ²	
Insulation resistance	20 MΩ and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application.	
Ambient temperature	-10 to +60°C	
Degree of protection	IEC standards IP67, JIS C0920 (dust proof), oil resistance	
Weight	49 g	

*1 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Dimensions

● T*H Series (straight lead wire)

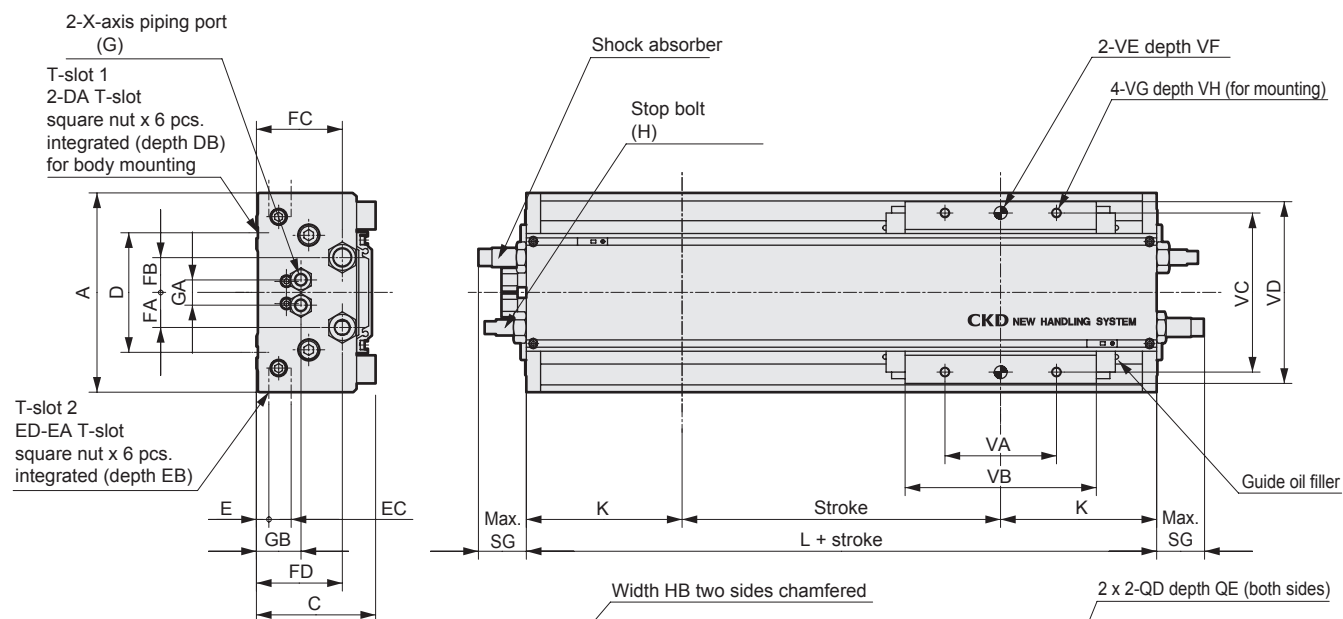


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

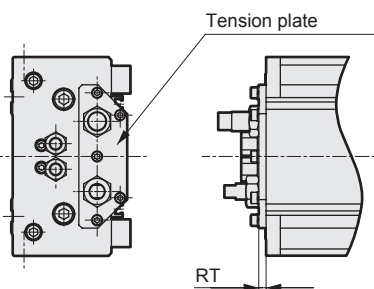
Dimensions



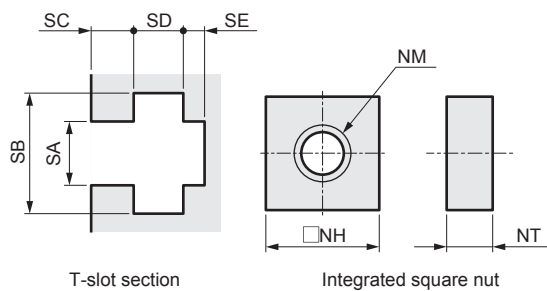
● Basic



● Tension plate



● T-slot section detailed dimensions



T-slot 1								
Model No.	SA	SB	SC	SD	SE	NH	NM	NT
NSR-10	7	11	5	6	1	10	M6	5
NSR-15	7	11	5	6	1	10	M6	5
NSR-30	10.5	17.6	8	9	2	17	M10	8
NSR-50	12.5	19.6	9	10.4	1.6	19	M12	10

T-slot 2								
Model No.	SA	SB	SC	SD	SE	NH	NM	NT
NSR-10	5	8.5	4	4	1	8	M4	3.2
NSR-15	5	8.5	4	4	1	8	M4	3.2
NSR-30	5.5	9.5	4	4.5	2.5	9	M5	4
NSR-50	6.5	10.6	4.5	6	3	10	M6	5

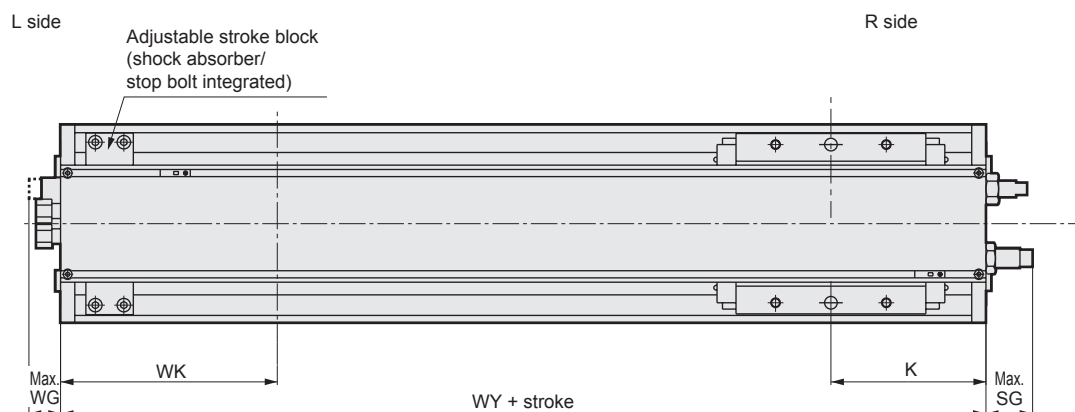
Model No.	A	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD	G	GA	GB	
NSR-10	125	75	75	M6	11	8	M4	8	-	2	22	22	54	54	Rc1/8	16	28	
NSR-15	125	75	75	M6	11	8	M4	8	-	2	22	22	54	54	Rc1/8	16	28	
NSR-30	165	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82	Rc1/4	27	37.5	
NSR-50	200	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5	Rc1/2	35	46.5	
Model No.	VC	VD	VE	VF	VG	VH	WG	WK	WL	WY								
NSR-10	100	114	ø8H7	12	M6	12	-	137	274	235								
NSR-15	100	114	ø8H7	12	M6	12	20	137	274	235								
NSR-30	130	154	ø10H7	15	M10	24	25	174	348	307								
NSR-50	165	190	ø10H7	15	M12	25	48.5	196	392	339								

Dimensions

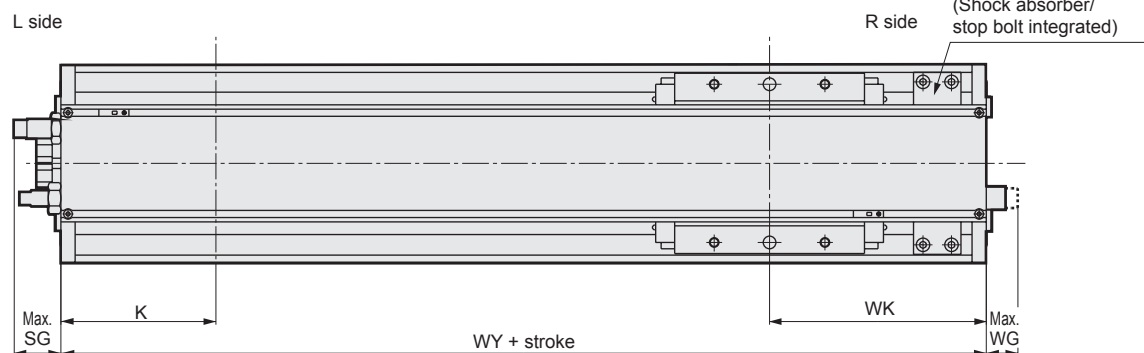


● Type with adjustable stroke block

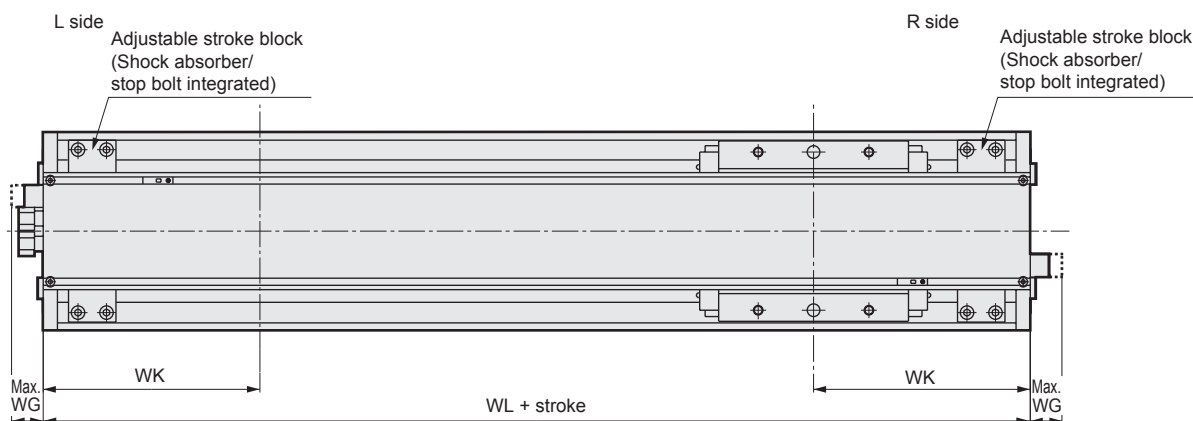
● L (adjustable stroke block left-side mounting)



● R (adjustable stroke block right-side mounting)



● D (adjustable stroke block both sides installation)



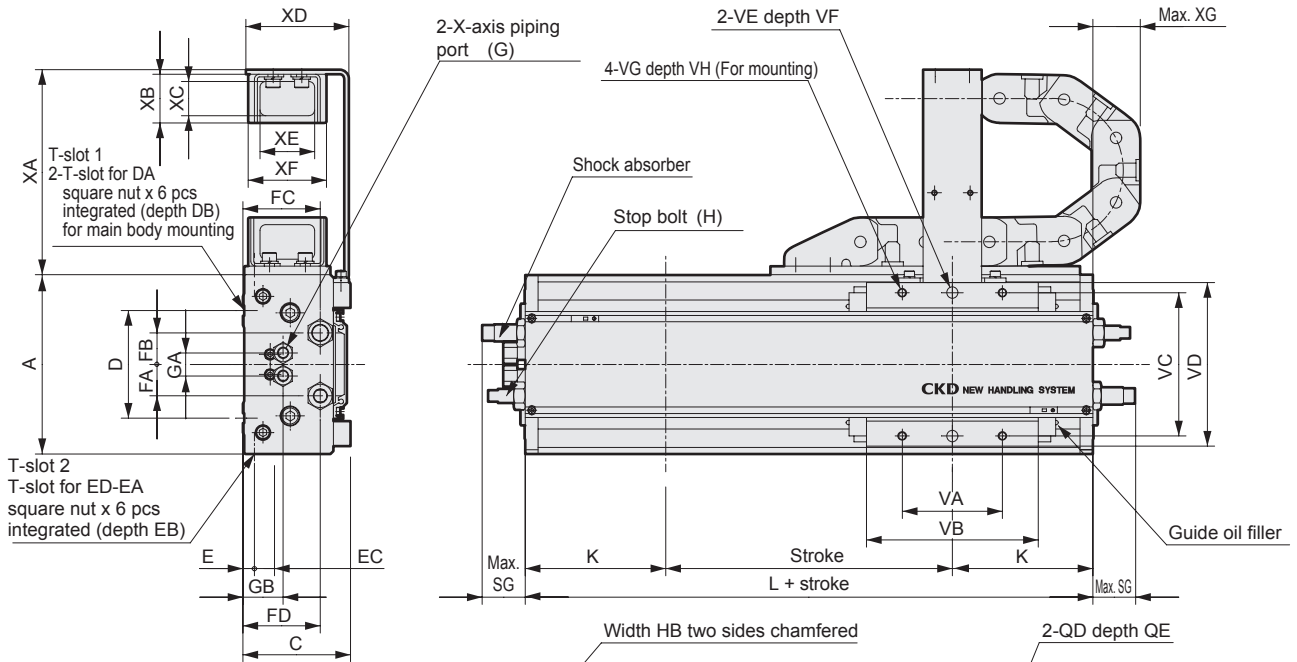
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

	GC	H	HA	HB	J	K	L	N	QA	QB	QC	QD	QE	RT	SG	VA	VB
	16	M10x1.25	7	8	9	98	196	178	60	6.5	13	M4	10	4.5	30	70	120
	16	M10x1.25	7	8	9	98	196	178	60	6.5	13	M4	10	4.5	56	70	120
	8.5	M12x1.25	9	10	16	133	266	234	70	8	17	M5	12	4.5	66	110	150
	5.5	M12x1.25	9	10	16	143	286	254	70	9.5	20	M6	14	4.5	101.5	135	177

Dimensions

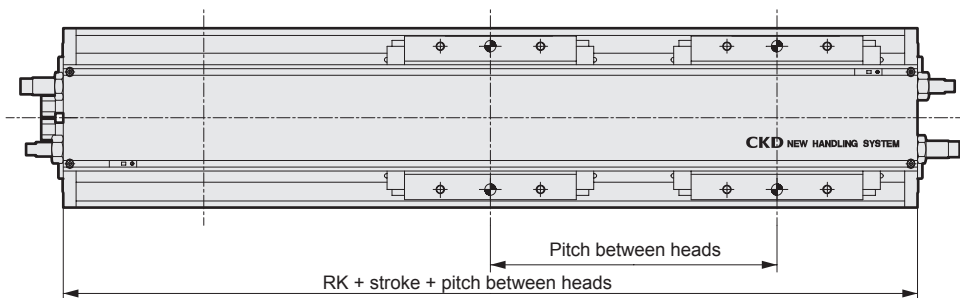


● Type with cableveyor (vertical mounting)



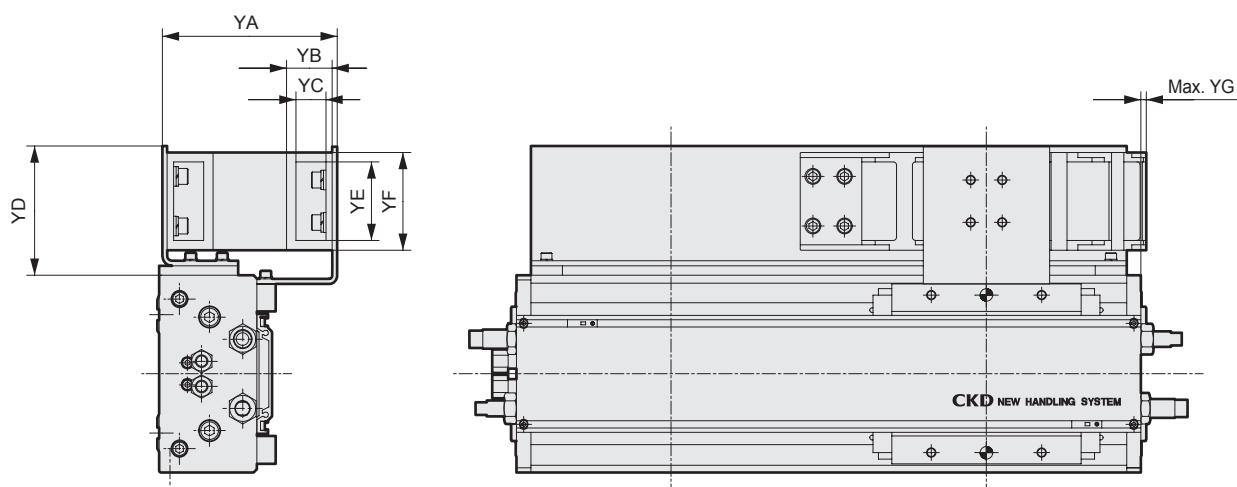
Note) T-slot section detailed dimensions
Refer to page 1426.

● 2-head



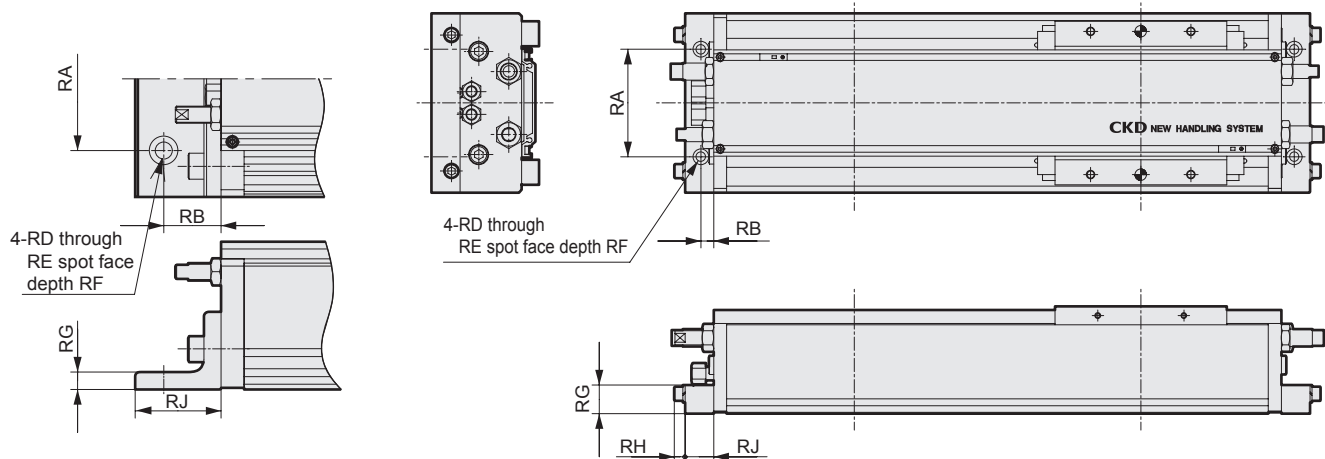
Model No.	A	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD	G	GA	GB		
NSR-10	125	75	75	M6	11	8	M4	8	-	2	22	22	54	54	Rc1/8	16	28		
NSR-15	125	75	75	M6	11	8	M4	8	-	2	22	22	54	54	Rc1/8	16	28		
NSR-30	165	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82	Rc1/4	27	37.5		
NSR-50	200	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5	Rc1/2	35	46.5		
Model No.	RG	RH	RJ	RK	SG	VA	VB	VC	VD	VE	VF	VG	VH	Cableveyor	XA	XB	XC		
NSR-10	20	7.5	20	196	30	70	120	100	114	ø8H7	12	M6	12	B	112.2	30	22		
														W	145.2	36	25		
NSR-15	20	7.5	20	196	56	70	120	100	114	ø8H7	12	M6	12	B	112.2	30	22		
														W	145.2	36	25		
NSR-30	12	-	60	266	66	110	150	130	154	ø10H7	15	M10	24	-	160.5	36	25		
NSR-50	15	-	60	286	101.5	135	177	165	190	ø10H7	15	M12	25	-	162.5	36	25		

● Type with cableveyor (horizontal mounting)



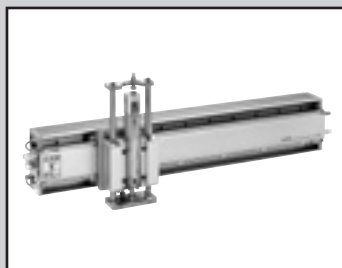
● Type with LB bracket

[NSR-30/50]



LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

	GC	H		HA	HB	J	K	L	N	QA	QB	QC	QD	QE	RA	RB	RD	RE	RF
	16	M10x1.25		7	8	9	98	196	178	60	6.5	13	M4	10	75	9	ø7	ø12	6.5
	16	M10x1.25		7	8	9	98	196	178	60	6.5	13	M4	10	75	9	ø7	ø12	6.5
	8.5	M12x1.25		9	10	16	133	266	234	70	8	17	M5	12	100	40	ø12	ø20	1
	5.5	M12x1.25		9	10	16	143	286	254	70	9.5	20	M6	14	100	40	ø14.5	ø26	1
	XD	XE	XF	XG	Cableveyor	YA	YB	YC	YD	YE	YF	YG							
	65	25	37	33	F	111	30	22	56	25	37	34							
	72.5	38	58	75	X	111	30	22	82	50	62	34							
	65	25	37	33	F	111	30	22	56	25	37	34							
	72.5	38	58	75	X	111	30	22	82	50	62	34							
	100.5	58	78	46	-	155	34	25	95	58	74	45							
	117.5	78	98	36	-	155	34	25	115	78	94	35							



New handling system Z-axis module (HRL)

NHS-H Series

- X-axis stroke: 50 to 2000 mm Z-axis stroke: 50 to 600 mm
- Load capacity: 5, 7, 10, 12, 20, 33 kg



Specifications

Combination model No.	NHS-*-10***	NHS-*-15**	NHS-*-30**	NHS-*-50**
Item	NSR-10	NSR-15	NSR-30	NSR-50
Bore size mm	ø20		ø32	ø40
Slider speed mm/s	100 to 1000			
Shock absorber	NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Stroke mm	50 to 2000 (1 mm pitch)			
Max. stroke mm	2000			
Allowable moment N·m	M1=36.4, M2=30.6, M3=34.2		M1, M3=85.9 M2=82.9	M1, M3=156.2 M2=150.7
Tilt of slider	±0.1° or less			
Piping port size	Rc1/8		Rc1/4	Rc1/2
Position detection sensor	T type proximity switch lead wire 3 m			
Max. horizontal load capacity kg	10	15	30	50
Speed controller (option)	SC3W-6-6		SC3W-8-8	SC3W-15-10
Repeatability mm	±0.02			
Weight Kg	(stx0.0109)+5.5	(stx0.0109)+5.6	(stx0.0176)+10.7	(stx0.0311)+17.9

Z-axis combination specifications

Combination model No.		NHS-*-1005	NHS-*-1007				
		NHS-*-1505	NHS-*-1507	NHS-*-1510	NHS-*-1512		
				NHS-*-3010	NHS-*-3012	NHS-*-3020	
				NHS-*-5010	NHS-*-5012	NHS-*-5020	NHS-*-5033
Z-axis model No.		HRL-1*-05	HRL-1*-10	HRL-1*-15	HRL-1*-15H	HRL-1*-25	HRL-1*-50
Bore size	mm	ø20	ø25	ø32	ø32	ø40	ø50
Speed	mm/s	50 to 300					
Shock absorber (*1)		NCK-00-0.7		NCK-00-1.2		NCK-00-12	
Stroke	mm	50 to 300 (standard body) 301 to 600 (long body)					
Allowable moment	N·m	Refer to technical data (pages 1448 and 1449)					
Piping port size		Rc1/8					Rc1/4
Position detection sensor		T type proximity switch lead wire 3 m					
Max. load capacity (*2)	kg	5	7	10	12	20	33
Adjustable stroke	mm	0 to -10 (lowering end)					
Speed controller (option)		SC3W-6-6				SC3W-6-8	SC3W-8-8
Working fluid		Clean compressed air					
Working pressure	MPa	0.3 (≈44 psi, 3 bar) to 0.7 (≈100 psi, 7 bar)					
Guaranteed proof pressure	MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature	°C	5 (41°F) to 60 (140°F)					
Lubrication		Refer to page 1460 for lubrication.					
Repeatability	mm	±0.1					
Product weight (standard body)	kg	2+(0.003xst)	2.1+(0.0037xst)	2.8+(0.0051xst)	2.9+(0.0069xst)	10.8+(0.0081xst)	11.9+(0.0122xst)
Product weight (long body)	kg	2.3+(0.003xst)	2.4+(0.0037xst)	3.1+(0.0051xst)	3.2+(0.0069xst)	12.5+(0.0081xst)	13.6+(0.0122xst)
Movable part weight (standard body)	kg	0.9+(0.0025xst)	0.9+(0.0027xst)	1.3+(0.0041xst)	1.6+(0.0059xst)	4.1+(0.0066xst)	5.2+(0.0102xst)
Movable part weight (long body)	kg	1.0+(0.0025xst)	1.0+(0.0027xst)	1.5+(0.0041xst)	1.8+(0.0059xst)	4.4+(0.0066xst)	5.7+(0.0102xst)

*1 : Use at 74% or less of the shock absorber's allowable value at the working speed and working air pressure.

*2 : Load capacity varies with air pressure, speed, absorbed energy, load center of gravity, number of X-axis heads and Z-axis stroke.

X-axis stroke adjustment section specifications

Item	Blank	R	L	D
Adjustable stroke right mm	-15 to 0	Full stroke	-15 to 0	Full stroke
Adjustable stroke left mm	-15 to 0	-15 to 0	Full stroke	Full stroke

Z-axis shock absorber specifications

Item	HRL-1*-05,10	HRL-1*-15, 15H	HRL-1*-25,50
Shock absorber	NCK-00-0.7	NCK-00-1.2	NCK-00-12
Max. absorbing capacity J	7	12	120
Absorbing stroke mm	8	10	25
Max. colliding speed mm/s	1500	2000	3000
Max. operating frequency cycle/min	30	30	12

Note: Use at 74% or less of the shock absorber's allowable value at the working speed and working air pressure.

Attachment weight

X-axis model No.	For NSR-10	For NSR-15	For NSR-30	For NSR-50
Attachment weight kg	0.4	0.4	1	1.4

X-axis shock absorber specifications

Item	NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Max. absorbing capacity J	12	26	30	50
Absorbing stroke mm	10	15	16	25
Max. colliding speed mm/s	2000			
Max. operating frequency cycle/min	30	25	20	12

Cableveyor specifications

Item		Cableveyor model No.	Bore size (mm)	Load capacity (kg/m)
For Z-axis	For HRL-05, 10, 15, 15H	TKP18H14-30W40R28TC	14x40	MAX1.0
	For HRL-25, 50	TKP35H22-30W50R37	19x50	MAX1.6
For X-axis	For NHS-10, 15-B, T	TKP35H22-30W25R37	19x24	MAX1.6
	For NHS-10, 15-W, Y	TKP45H25-30W38R50	25x38	MAX3.0
	For NHS-30-B, T	TKP45H25-30W58R50	25x58	MAX3.0
	For NHS-50-B, T	TKP45H25-30W78R50	25x78	MAX3.0

Adjustable stroke block additional weight list

Model No.	Additional weight (kg)
NSR-1-10-R	0.685 Kg
NSR-1-10-L	0.685 kg
NSR-1-10-D	1.370 kg
NSR-1-15-R	0.810 Kg
NSR-1-15-L	0.810 kg
NSR-1-15-D	1.620 kg
NSR-1-30-R	1.140 kg
NSR-1-30-L	1.140 kg
NSR-1-30-D	2.280 kg
NSR-1-50-R	1.750 kg
NSR-1-50-L	1.750 kg
NSR-1-50-D	3.499 kg

Cableveyor additional weight list

Model No.	Additional weight (kg)
NHS-1-10, 15**-B	(X stroke ÷ 2 x 0.0011) + 0.482
NHS-1-10, 15**-W	(X stroke ÷ 2 x 0.0018) + 0.55
NHS-1-10, 15**-T	(X stroke ÷ 2 x 0.0011) + (Z stroke x 0.0006) + 0.682
NHS-1-10, 15**-Y	(X stroke ÷ 2 x 0.0018) + (Z stroke x 0.0006) + 0.75
NHS-1-30**-B	(X stroke ÷ 2 x 0.0028) + 1.148
NHS-1-30**-T	(X stroke ÷ 2 x 0.0028) + (Z stroke x 0.0006) + 1.348
NHS-1-50**-B	(X stroke ÷ 2 x 0.0034) + 1.234
NHS-1-50**-T	(X stroke ÷ 2 x 0.0034) + (Z stroke x 0.0006) + 1.434

2-head specifications

Item	NHS-2-10	NHS-2-15	NHS-2-30	NHS-2-50
Max. horizontal transfer weight kg/1 head	5	7.5	15	25
Stroke mm	50 to 1000			
Max. stroke mm	1800		1731	1690
Pitch between heads mm	200 to 999		269 to 999 (*1)	310 to 999
Max. pitch between heads mm	999			
Product additional weight kg	(Pitch between heads x 0.0109) + 1.7		(Pitch between heads x 0.0176) + 2.79	(Pitch between heads x 0.0311) + 4.66

*1 If NHS-H type and NHS-2-30 are combined, note that pitch between heads differs from discrete X-axis.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

How to order

NHS **2** **1005** **1000** **H100** **500** **L** **3** **B** **A** **Q**

A Head number

B Load capacity

C X-axis stroke
*1

D Z-axis

E Z-axis stroke

F Pitch between heads
*2

G Adjustable stroke block

H Port position and speed controller
*4

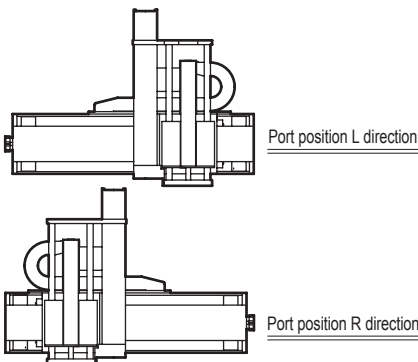
I Cableveyor
*5

J Switch

K Z-axis position locking

⚠ Precautions for model No. selection

- *1 If X-axis stroke of NSR-30, 50 and NSR-10, 15 is 1001 mm and over, front cover uses tension method.
- *2 Can be selected for two heads only.
- *3 Select so that the pitch between heads and strokes total 2000 mm or less.
- *4 If port position R is selected, mounting orientation of the cableveyor is reversed. (Exit is port side)



- *5 Refer to the table below for the cableveyor X/Z axis capacity.

Item	B/T	W/Y
X-axis		
For NHS-*-10**	22x25	25x38
-15**		
For NHS-*-30**	25x58	-
For NHS-*-50**	25x78	-
Z-axis		
HRL-1*-05	14x40	14x40
10, 15, 15H		
HRL-1*-25, 50	22x50	-

- Only NHS-*-10** and 15** can be selected for "W" and "Y".

- *6 2 switches are installed per X-axis and Z-axis.

- *7 Consult with CKD for specifications not indicated at right.

Code	Description
A X-axis head number	
1	1 pieces
2	2 pieces

B Load capacity (kg)		
	X-axis	Z-axis
1005	10	5
1007		7
1505		5
1507	15	7
1510		10
1512		12
3010	30	10
3012		12
3020		20
5010	50	10
5012		12
5020		20
5033		33

C X-axis stroke (1 mm pitch)	
50	50
to	to
2000	2000

D Z-axis	
H	HRL-05
	HRL-10
	HRL-15
	HRL-15H
	HRL-25
	HRL-50

E Z-axis stroke (1 mm pitch)		
50	50	Standard body
75	75	
100	100	
125	125	
150	150	
200	200	
250	250	Long body
300	300	
301 to 600	301 to 600	

F Pitch between heads (1 mm pitch)				
	Load capacity (kg)			
	10	15	30	50
200	200	200	269	310
to	to	to	to	to
999	999	999	999	999

G Adjustable stroke block	
Blank	None
L	Left
R	Right
D	Both sides

H Port position and speed controller	
Blank	X-axis port position L
2	X-axis port position R
3	X-axis port position L, X Z-axis with speed controller
4	X-axis port position R, X Z-axis with speed controller

I Cableveyor	
Blank	None
B	X-axis vertical installation
T	X-axis vertical installation, Z-axis installation
W	X-axis vertical installation
Y	X-axis vertical installation, Z-axis installation

J Switch	
Blank	2-wire proximity switch, X-axis... T2H3, Z-axis... T2H3
A	3-wire proximity switch, X-axis... T3H3, Z-axis... T3H3

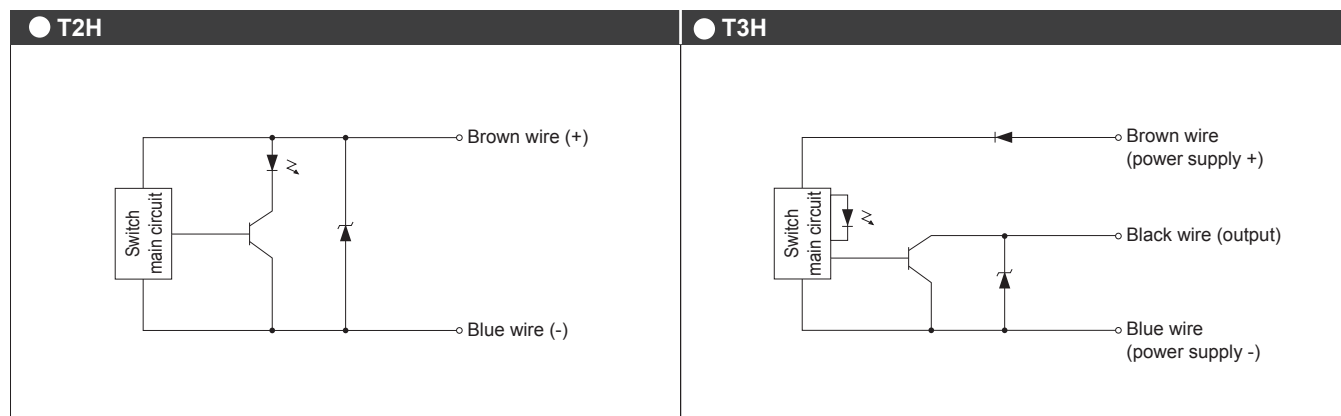
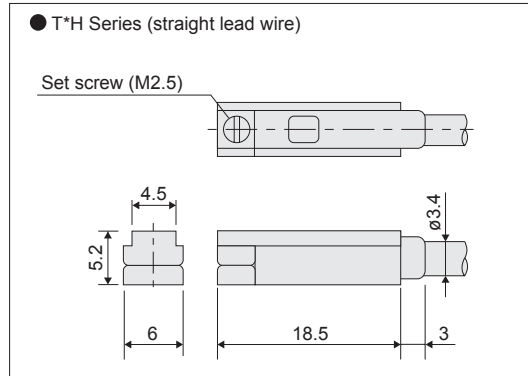
K Z-axis position locking	
Blank	Without
Q	With

Switch specifications (T Series)

Item	Proximity 2-wire	Proximity 3-wire
	T2H3	T3H3
Applications	Dedicated for programmable controller	For programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage	10 to 30 VDC	30 VDC or less
Load current	5 to 20 mA (*1)	100 mA or less
Current consumption	-	10 mA or less at 24 VDC (when ON)
Internal voltage drop	4V or less	0.5V or less
Indicator	LED (Lit when ON)	
Leakage current	1 mA or less	10 μ A or less
Lead wire (standard)	3 m (oil resistant vinyl cabtyre cable 2-conductor 0.2 m ²)	3 m (oil resistant vinyl cabtyre cable 3-conductor 0.2 m ²)
Max. shock resistance	980 m/s ²	
Insulation resistance	20 M Ω and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application.	
Ambient temperature	-10 to +60°C	
Degree of protection	IEC standards IP67, JIS C0920 (dust proof), oil resistance	
Weight	49 g	

*1 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Dimensions

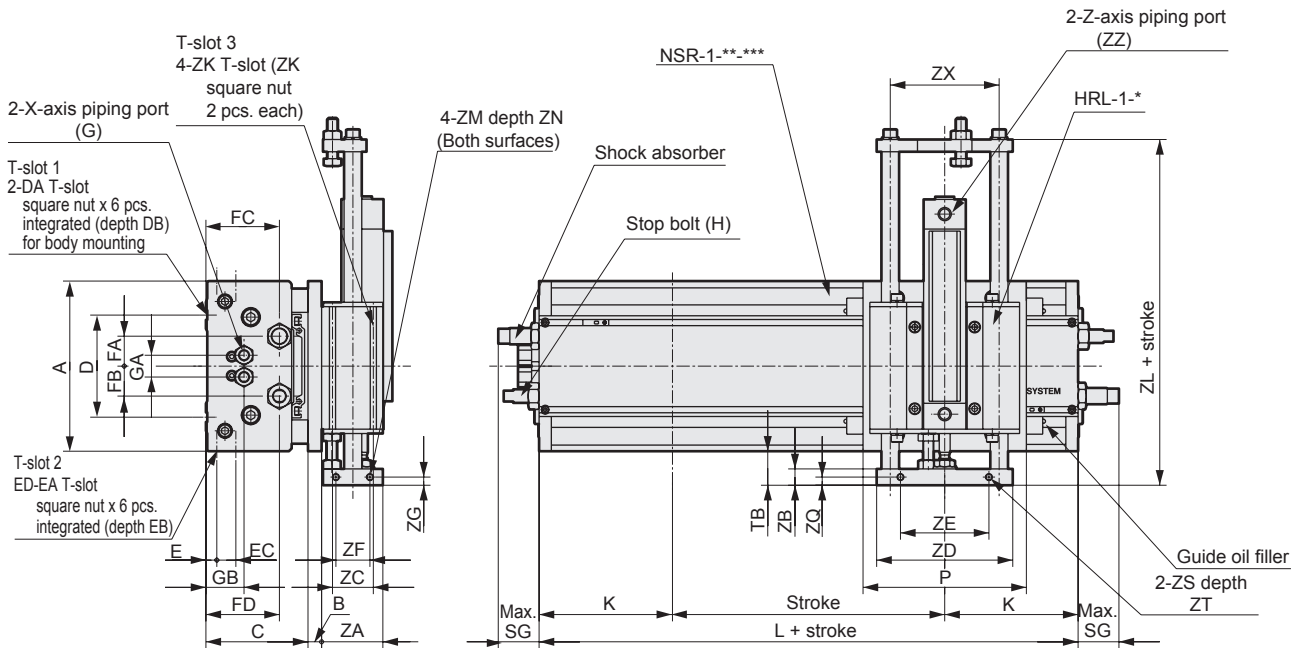


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions



● Basic

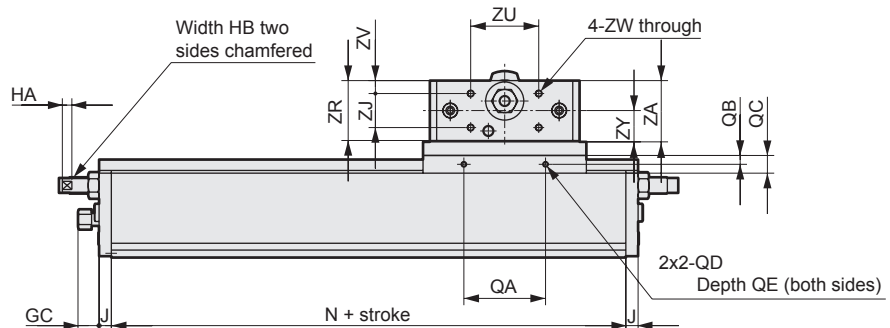


Note) T-slot section 1 and 2 detailed dimensions

Refer to page 1426.

T-slot section 3 detailed dimensions

Refer to pages 1454 to 1457.

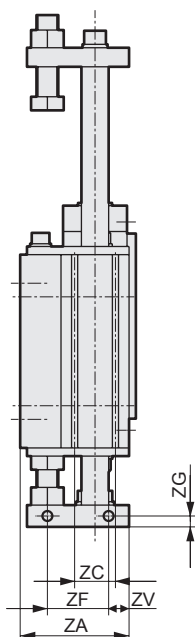


Model No.	A	B	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD
NHS*-10**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54
NHS*-15**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54
NHS*-30**-H	165	15	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82
NHS*-50**-H	200	15	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5

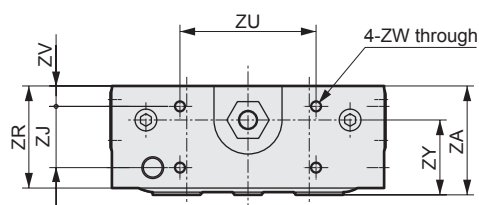
Model No.	SG
NHS*-10**-H	30
NHS*-15**-H	56
NHS*-30**-H	66
NHS*-50**-H	101.5

Model No.	TB		ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZJ	ZK	ZL		ZM	ZN	ZQ	ZR	ZS
	Std body	Long body										Std body	Long body					
HRL-1-05	25	47.5	45	12	30	100	65	25	6	25	M4	154	199	M5	10	6	44	M5
HRL-1-10	25	47.5	45	12	30	100	65	25	6	25	M4	154	199	M5	10	6	44	M5
HRL-1-15	25	52.5	45	12	30	120	75	25	6	25	M4	154	209	M5	10	6	44	M5
HRL-1-15H	25	52.5	45	12	30	120	75	25	6	25	M4	154	209	M5	10	6	44	M5
HRL-1-25	45	74	80	16	30	200	-	45	8	45	M4	252	310	M8	10	-	75	-
HRL-1-50	25	54	80	19	30	200	-	45	9.5	45	M4	255	313	M8	10	-	75	-

● For HRL-1-25 or more



For HRL-1-25 or more



Note) Refer to NSR dimensions on pages 1426 to 1429 for dimensions (with adjustable stroke block and cableveyor, etc.) when X-axis option installed.

	G	GA	GB	GC	H	HA	HB	J	K	L	N	P	QA	QB	QC	QD	QE
	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/4	27	37.5	8.5	M12x1.25	9	10	16	133	266	234	150	70	8	17	M5	12
	Rc1/2	35	46.5	5.5	M12x1.25	9	10	16	143	286	254	177	70	9.5	20	M6	14

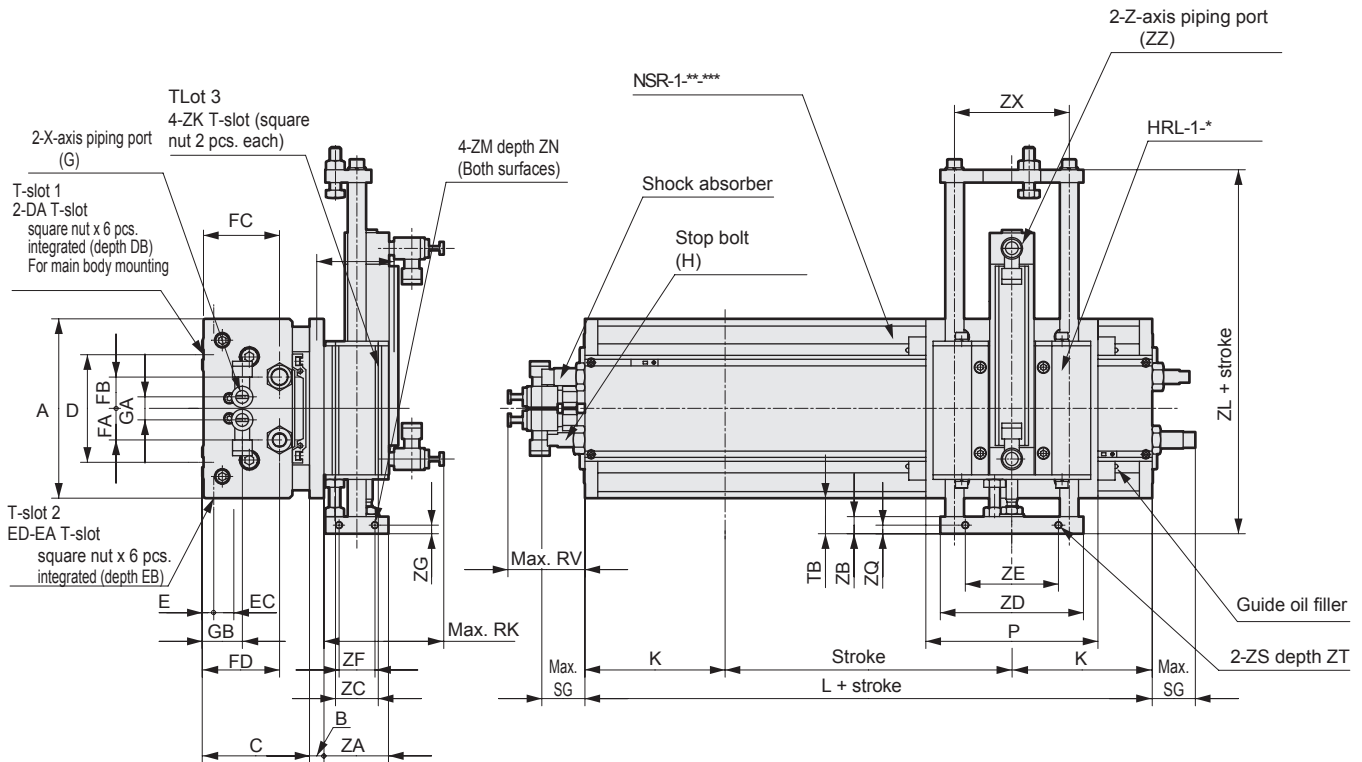
	ZT	ZU	ZV	ZW	ZX	ZY	ZZ
	10	50	9.5	M5	80	23	Rc1/8
	10	50	9.5	M5	80	23	Rc1/8
	10	60	9.5	M5	94	23	Rc1/8
	10	60	9.5	M5	94	23	Rc1/8
	-	100	15	M8	150	55	Rc1/8
	-	100	15	M8	150	55	Rc1/4

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
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Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

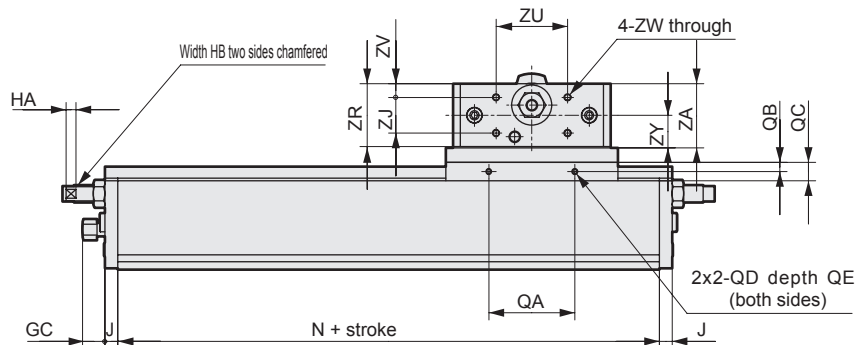
Dimensions



● Type with speed controller

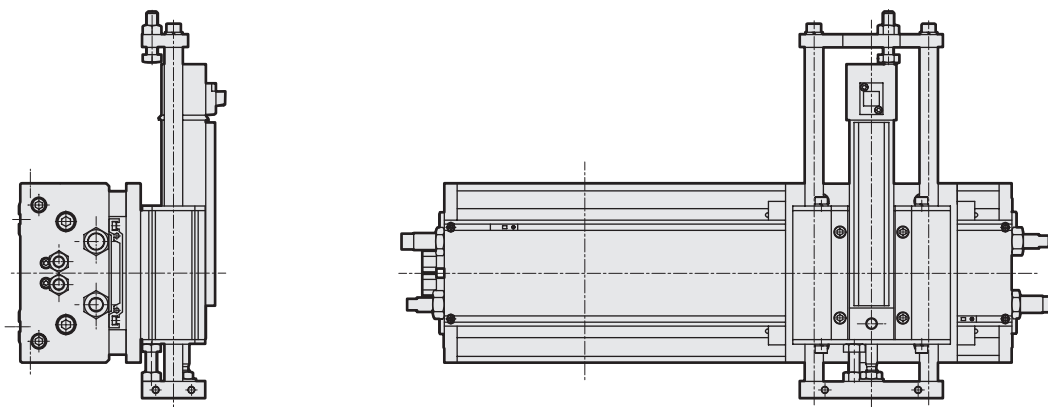


Note) T-slot section 1 and 2 detailed dimensions Refer to page 1426.
T-slot section 3 detailed dimensions Refer to pages 1454 to 1457.

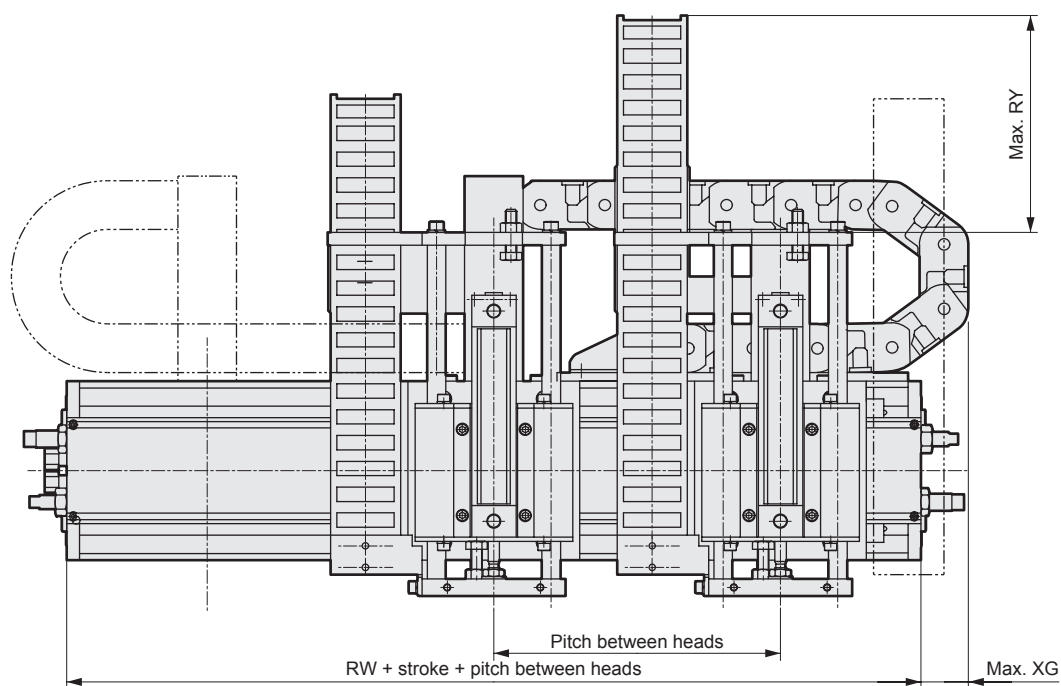


Model No.	A	B	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD					
NHS-*-10**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54					
NHS-*-15**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54					
NHS-*-30**-H	165	15	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82					
NHS-*-50**-H	200	15	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5					
Model No.	RV	RW	SG	XG																
				B.T	W.Y															
NHS-*-10**-H	54.2	196	30	33	75															
NHS-*-15**-H	54.2	196	56	33	75															
NHS-*-30**-H	53.2	266	66	46	-															
NHS-*-50**-H	65.2	286	101.5	36	-															
Model No.	RK	RY	TB		ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZJ	ZK	ZL		ZM	ZN	ZQ	ZR	
			Std body	Long body										Std body	Long body					
HRL-1-05	79.7	215	25	47.5	45	12	30	100	65	25	6	25	M4	154	199	M5	10	6	44	
HRL-1-10	82.2	215	25	47.5	45	12	30	100	65	25	6	25	M4	154	199	M5	10	6	44	
HRL-1-15	85.7	215	25	52.5	45	12	30	120	75	25	6	25	M4	154	209	M5	10	6	44	
HRL-1-15H	85.7	215	25	52.5	45	12	30	120	75	25	6	25	M4	154	209	M5	10	6	44	
HRL-1-25	115.2	335	45	74	80	16	30	200	-	45	8	45	M4	252	310	M8	10	-	75	
HRL-1-50	126.2	335	25	54	80	19	30	200	-	45	9.5	45	M4	255	313	M8	10	-	75	

● Z-axis position locking



● 2-head



Note) Refer to NSR dimensions on pages 1426 to 1429 for dimensions (with adjustable stroke block and cableveyor, etc.) when X-axis option installed.

	G	GA	GB	GC	H	HA	HB	J	K	L	N	P	QA	QB	QC	QD	QE
	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/4	27	37.5	8.5	M12x1.25	9	10	16	133	266	234	150	70	8	17	M5	12
	Rc1/2	35	46.5	5.5	M12x1.25	9	10	16	143	286	254	177	70	9.5	20	M6	14

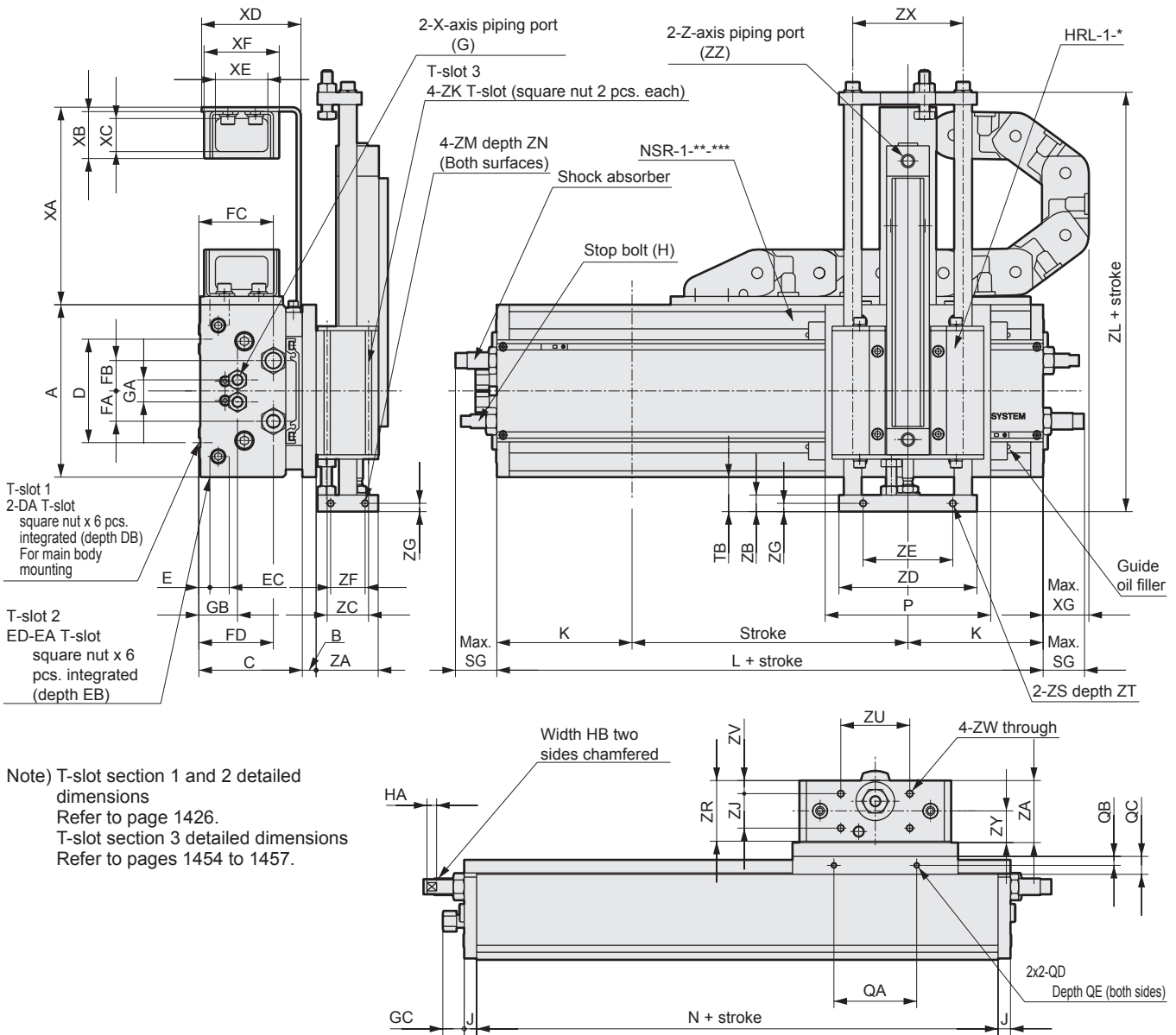
	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ
	M5	10	50	9.5	M5	80	23	Rc1/8
	M5	10	50	9.5	M5	80	23	Rc1/8
	M5	10	60	9.5	M5	94	23	Rc1/8
	M5	10	60	9.5	M5	94	23	Rc1/8
	-	-	100	15	M8	150	55	Rc1/8
	-	-	100	15	M8	150	55	Rc1/4

LCM
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STM
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STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions

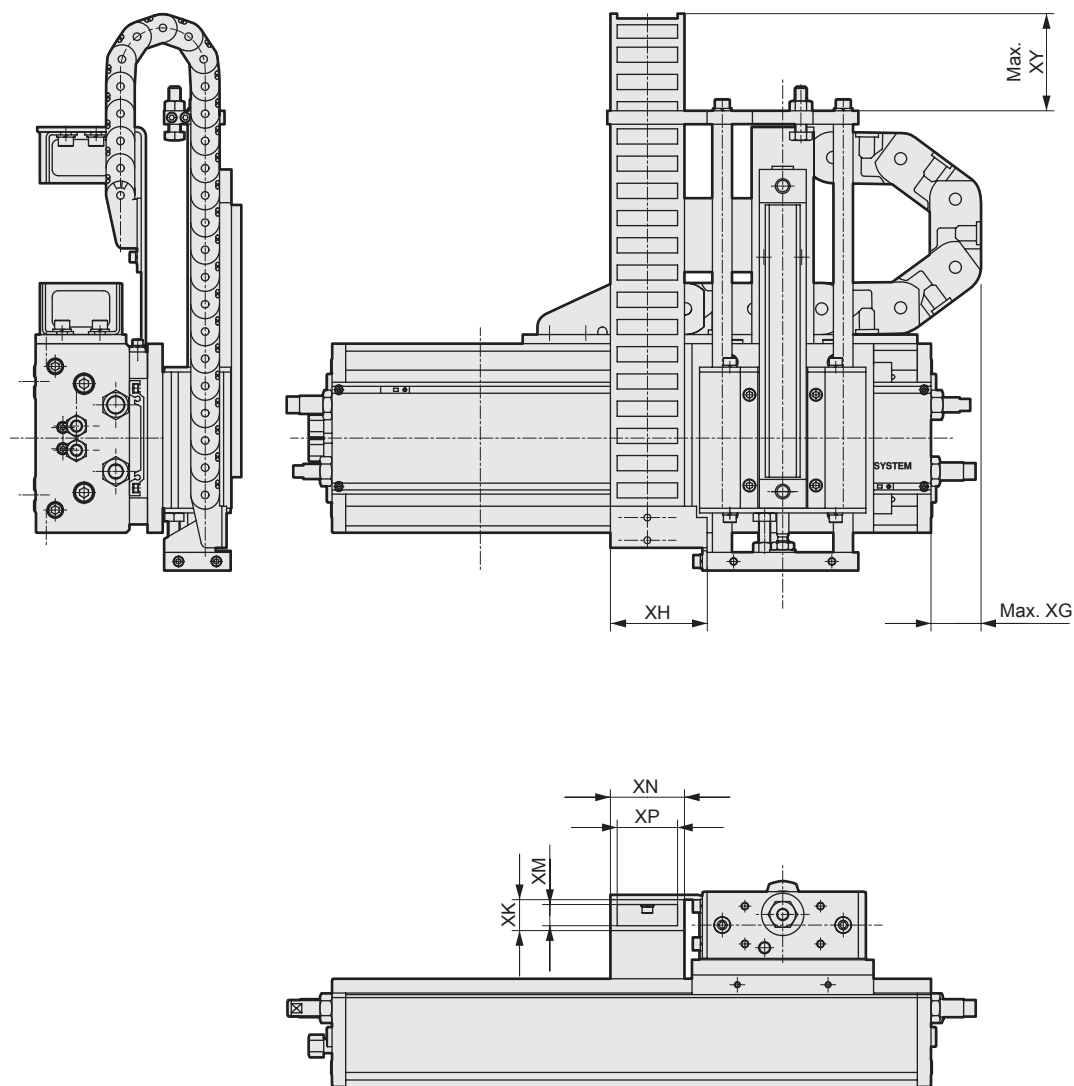


● Cableveyor



Model No.	A	B	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD		
NHS-1-10**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54		
NHS-1-15**-H	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54		
NHS-1-30**-H	165	15	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82		
NHS-1-50**-H	200	15	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5		
Model No.	G	GA	GB	GC	H	HA	HB	J	K	L	N	P	QA	QB	QC	QD	QE
NHS-1-10**-H	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
NHS-1-15**-H	Rc1/8	16	28	16	M10x1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
NHS-1-30**-H	Rc1/4	27	37.5	8.5	M12x1.25	9	10	16	133	266	234	150	70	8	17	M5	12
NHS-1-50**-H	Rc1/2	35	46.5	5.5	M12x1.25	9	10	16	143	286	254	177	70	9.5	20	M6	14
Model No.	SG		XA	XB	XC	XD	XE	XF	XG								
NHS-1-10**-H	30	B	112.2	30	22	65	25	37	33								
		W	145.2	36	25	72	38	58	75								
NHS-1-15**-H	56	B	112.2	30	22	65	25	37	33								
		W	145.2	36	25	72	38	58	75								
NHS-1-30**-H	66	-	160.5	36	25	100.5	58	78	46								
NHS-1-50**-H	101.5	-	162.5	36	25	117.5	78	98	36								

● Cableveyor

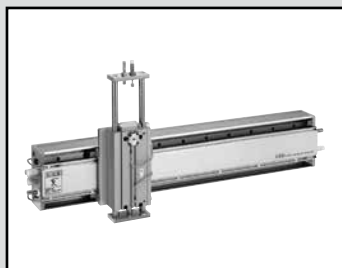


Note) Refer to NSR dimensions on pages 1426 to 1429 for dimensions (with adjustable stroke block and cableveyor, etc.) when X-axis option installed.

Model No.	TB		XH	XK	XM	XN	XP	XY	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZJ	ZK
	Std body	Long body															
HRL-1-05	25	47.5	64	19	14	49	40	150	45	12	30	100	65	25	6	25	M4
HRL-1-10	25	47.5	64	19	14	49	40	150	45	12	30	100	65	25	6	25	M4
HRL-1-15	25	52.5	64	19	14	49	40	150	45	12	30	120	75	25	6	25	M4
HRL-1-15H	25	52.5	64	19	14	49	40	150	45	12	30	120	75	25	6	25	M4
HRL-1-25	45	74	75	30	22	62	50	300	80	16	30	200	-	45	8	45	M4
HRL-1-50	25	54	75	30	22	62	50	300	80	19	30	200	-	45	9.5	45	M4
Model No.	ZL		ZM	ZN	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ			
	Standard body	Long body															
HRL-1-05	154	199	M5	10	6	44	M5	10	50	9.5	M5	80	23	Rc1/8			
HRL-1-10	154	199	M5	10	6	44	M5	10	50	9.5	M5	80	23	Rc1/8			
HRL-1-15	154	209	M5	10	6	44	M5	10	60	9.5	M5	94	23	Rc1/8			
HRL-1-15H	154	209	M5	10	6	44	M5	10	60	9.5	M5	94	23	Rc1/8			
HRL-1-25	252	310	M8	10	-	75	-	-	100	15	M8	150	55	Rc1/8			
HRL-1-50	255	313	M8	10	-	75	-	-	100	15	M8	150	55	Rc1/4			

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
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CAC4
UCAC2
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UCAC-N
RCS2
RCC2
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MCP
GLC
MFC
BBS
RRC
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RV3*
NHS
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Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

LCM
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 LCW
 LCX
 STM
 STG
 STS/STL
 STR2
 UCA2
 ULK*
 JSK/M2
 JSG
 JSC3/JSC4
 USSD
 UFCD
 USC
 UB
 JSB3
 LMB
 LML
 HCM
 HCA
 LBC
 CAC4
 UCAC2
 CAC-N
 UCAC-N
 RCS2
 RCC2
 PCC
 SHC
 MCP
 GLC
 MFC
 BBS
 RRC
 GRC
 RV3*
NHS
 HRL
 LN
 Hand
 Chuk
 MecHnd/Chuk
 ShkAbs
 FJ
 FK
 SpdContr
 Ending



New handling system Z-axis module (STL-B)

NHS-S Series

- X-axis stroke length: 50 to 2000 mm Z-axis stroke length: 50 to 200 mm
Load capacity: 3, 7, 12, 33 kg



X-axis specifications

Combination model No.	NHS-*-10**	NHS-*-15**	NHS-*-30**	NHS-*-50**
Item	NSR-10	NSR-15	NSR-30	NSR-50
Bore size mm	ø20		ø32	ø40
Slider speed mm/s	100 to 1000			
Shock absorber	NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Stroke length mm	50 to 2000 (1 mm pitch)			
Max. stroke length mm	2000			
Allowable moment N·m	M1=36.4, M2=30.6, M3=34.2		M1, M3=85.9 M2=82.9	M1, M3=156.2 M2=150.7
Tilt of slider	±0.1° or less			
Piping port size	Rc1/8		Rc1/4	Rc1/2
Position detection sensor	T type proximity switch lead wire 3 m			
Max. horizontal load capacity kg	10	15	30	50
Speed controller (option)	SC3W-6-6		SC3W-8-8	SC3W-15-10
Repeatability mm	±0.02			
Weight kg	(st×0.0109)+5.5	(st×0.0109)+5.6	(st×0.00176)+10.7	(st×0.00311)+17.9

Z-axis combination specifications

Combination model No.	NHS-*-1003			
	NHS-*-1503	NHS-*-1507	NHS-*-1512	
		NHS-*-3007	NHS-*-3012	
		NHS-*-5007	NHS-*-5012	NHS-*-5033
Z-axis model No.	STL-B-16	STL-B-25	STL-B-32	STL-B-50
Bore size mm	ø16	ø25	ø32	ø50
Speed mm/s	50 to 300			
Cushion	Lowering end shock absorber, rising end rubber cushion			
Stroke length mm	50, 75, 100, 125, 150, 175, 200			
Allowable moment N·m	Refer to technical data (pages 1448 and 1449)			
Piping port size	M5		Rc1/8	Rc1/4
Position detection sensor	T type proximity switch lead wire 3 m			
Max. load capacity (*1) kg	3	7	12	33
Adjustable stroke length mm	0 to -25 (lowering end)			
Speed controller (option)	SC3W-M5-6		SC3W-6-6	SC3W-8-8
Working fluid	Clean compressed air			
Working pressure MPa	0.3 (≈44 psi, 3 bar) to 0.7 (≈100 psi, 7 bar)			
Guaranteed proof pressure MPa	1.05 (≈150 psi, 10.5 bar)			
Ambient temperature °C	5 (41°F) to 60 (140°F)			
Lubrication	Refer to page 1460 for lubrication.			
Repeatability mm	±0.5			
Product weight kg	st×0.015+0.53	st×0.0229+1.16	st×0.0335+2.5	st×0.062+4.46

*1 : Load capacity varies with air pressure, speed, absorbed energy, load center of gravity, number of X-axis heads and Z-axis stroke length.

X-axis stroke length adjustment section specifications

Item	Blank	R	L	D
Adjustable stroke right mm	-15 to 0	Full stroke length	-15 to 0	Full stroke length
Adjustable stroke left mm	-15 to 0	-15 to 0	Full stroke length	Full stroke length

Z-axis shock absorber specifications

Item	STL-B-16	STL-B-25	STL-B-32	STL-B-50
Shock absorber	NCK-00-0.3	NCK-00-0.7	NCK-00-1.2	NCK-00-2.6
Max. absorbing capacity J	3	7	12	50
Absorbing stroke length mm	7	8	10	15
Max. colliding speed mm/s	1500	1500	2000	2000
Max. operating frequency cycle/min	35	30	30	25

X-axis shock absorber specifications

Item	NCK-00-1.2-C	NCK-00-2.6-C	FCK-M-3-C	FCK-M-5-C
Max. absorbing capacity J	12	26	30	26
Absorbing stroke length mm	10	15	16	25
Max. colliding speed mm/s	2000			
Max. operating frequency cycle/min	30	25	20	12

Attachment weight

Item	For NSR-10	For NSR-15	For NSR-30	For NSR-50
Attachment weight kg	0.5	0.5	1	1.4

Cableveyor specifications

Item	Cableveyor model No.	Bore size (mm)	Load capacity (kg/m)
For NHS-10, 15-B	TKP35H22-30W25R37	22 × 25	MAX1.6
For NHS-10, 15-W	TKP45H25-30W38R50	25 × 38	MAX3.0
For NHS-30-B	TKP45H25-30W58R50	25 × 58	MAX3.0
For NHS-50-B	TKP45H25-30W78R50	25 × 78	MAX3.0

Adjustable stroke block additional weight list

Model No.	Additional weight (kg)
NSR-1-10-R	0.685 Kg
NSR-1-10-L	0.685 kg
NSR-1-10-D	1.370 kg
NSR-1-15-R	0.810 Kg
NSR-1-15-L	0.810 kg
NSR-1-15-D	1.620 kg
NSR-1-30-R	1.140 kg
NSR-1-30-L	1.140 kg
NSR-1-30-D	2.280 kg
NSR-1-50-R	1.750 kg
NSR-1-50-L	1.750 kg
NSR-1-50-D	3.499 kg

Cableveyor additional weight list

Model No.	Additional weight (kg)
NHS-1-10, 15**-B	(X stroke ÷ 2 × 0.0011) + 0.482
NHS-1-10, 15**-W	(X stroke ÷ 2 × 0.0018) + 0.55
NHS-1-30**-B	(X stroke ÷ 2 × 0.0028) + 1.148
NHS-1-50**-B	(X stroke ÷ 2 × 0.0034) + 1.234

2-head specifications

Item	NHS-2-10	NHS-2-15	NHS-2-30	NHS-2-50
Max. horizontal transfer weight kg / 1 head	5	7.5	15	25
Stroke length mm	50 to 1000			
Max. stroke length mm	1800	1740	1690	
Pitch between heads mm	200 to 999	260 to 999	310 to 999	
Max. pitch between heads mm	999			
Product additional weight kg	(Pitch between heads × 0.0109) + 1.7	(Pitch between heads × 0.0176) + 2.79	(Pitch between heads × 0.0311) + 4.66	

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

How to order

NHS **2** **1003** **1000** **S100** **500** **L** **3** **B** **A** **Q**

A X-axis head number

B Load capacity

C X-axis stroke length
*1

D Z-axis

E Z-axis stroke length

F Pitch between heads
*2

G Adjustable stroke block

H Port position and speed controller
*4

I Cableveyor
*5

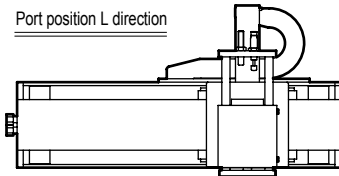
J Switch
*6

K Z-axis position locking
*7

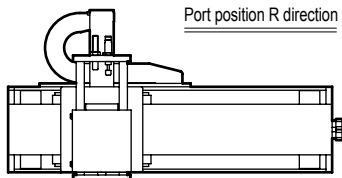
⚠ Precautions for model No. selection

- *1 If X-axis stroke length of NSR-30, 50 and NSR-10, 15 is 1001 mm and over, front cover uses tension method.
- *2 Can be selected for two heads only.
- *3 Select so that the pitch between heads and stroke lengths total 2000 mm or less.
- *4 If port position R is selected, mounting orientation of the cableveyor is reversed. (Exit is port side)

Port position L direction



Port position R direction



*5 Refer to table below for the cableveyor capacity.

Item	B	W
For NHS-*10** -15**	22×25	25×38
For NHS-*30**	25×58	-
For NHS-*50**	25×78	-

*6 2 switches are installed per X-axis and Z-axis.

*7 Position locking of STL-BP-16 is not available.

*8 Consult with CKD for specifications not indicated at right.

Code	Description
A X-axis head number	
1	1 pieces
2	2 pieces

B Load capacity (kg)		
	X-axis	Z-axis
1003	10	3
1503	15	3
1507	15	7
1512	15	12
3007	30	7
3012	30	12
5007	50	7
5012	50	12
5033	50	33

C X-axis stroke length (1 mm pitch)	
50	50
to	to
2000	2000

D Z-axis	
S	STL-BP-16
	STL-BP-25
	STL-BP-32
	STL-BP-50

E Z-axis stroke length (mm)	
50	50
75	75
100	100
125	125
150	150
175	175
200	200

F Pitch between heads (1 mm pitch)				
	Load capacity (kg)			
	10	15	30	50
200	200	200	260	310
to	to	to	to	to
999	999	999	999	999

G Adjustable stroke block	
Blank	None
L	Left
R	Right
D	Both sides

H Port position and speed controller	
Blank	X-axis port position L
2	X-axis port position R
3	X-axis port position L, X Z-axis with speed controller
4	X-axis port position R, X Z-axis with speed controller

I Cableveyor	
Blank	None
B	X-axis vertical installation
W	X-axis vertical installation

J Switch	
Blank	2-wire proximity switch, X-axis... T2H3, Z-axis... T2H3
A	3-wire proximity switch, X-axis... T3H3, Z-axis... T3H3

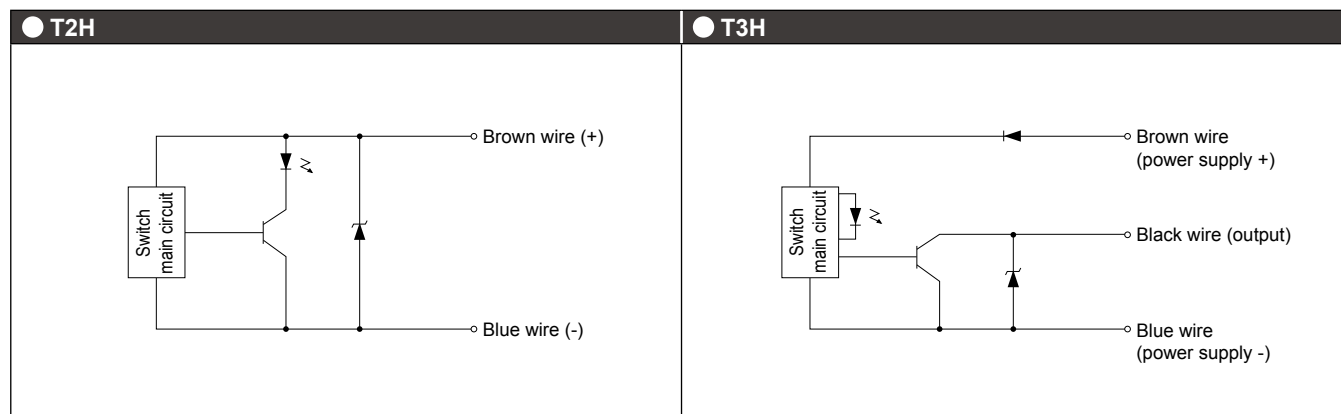
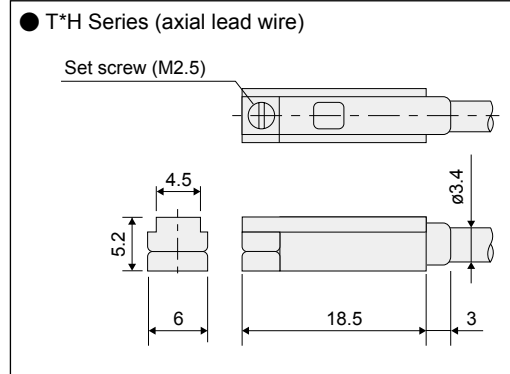
K Z-axis position locking	
Blank	Without
Q	With

Switch specifications (T Series)

Item	Proximity 2-wire	Proximity 3-wire
	T2H3	T3H3
Applications	Dedicated for programmable controller	For programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage	10 to 30 VDC	30 VDC or less
Load current	5 to 20 mA (*1)	100 mA or less
Current consumption	-	10 mA or less at 24 VDC (when ON)
Internal voltage drop	4V or less	0.5V or less
Indicator lamp	LED (Lit when ON)	
Leakage current	1 mA or less	10 µA or less
Lead wire (standard)	3 m (oil resistant vinyl cabtyre cable 2-conductor 0.2 m ²)	3 m (oil resistant vinyl cabtyre cable 3-conductor 0.2 m ²)
Max. shock resistance	980 m/s ²	
Insulation resistance	20 MΩ and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application.	
Ambient temperature	-10 to +60°C	
Degree of protection	IEC standards IP67, JIS C0920 (dust proof), oil resistance	
Weight	49 g	

*1 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Dimensions

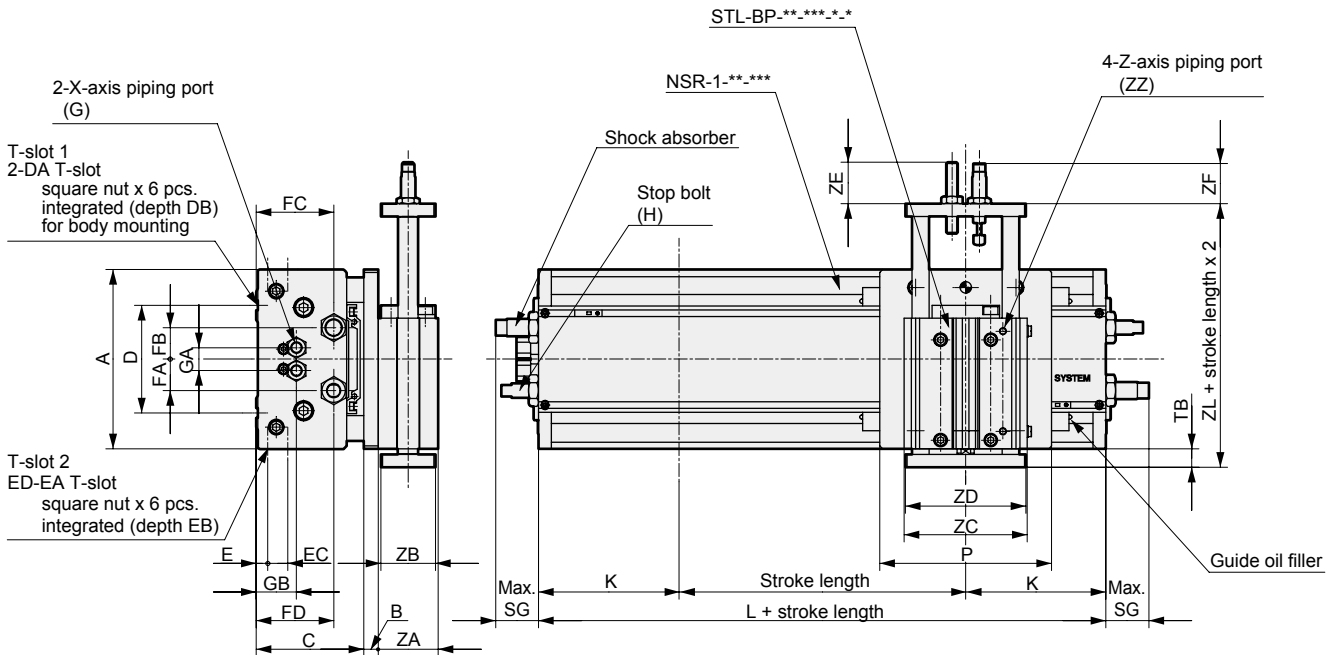


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

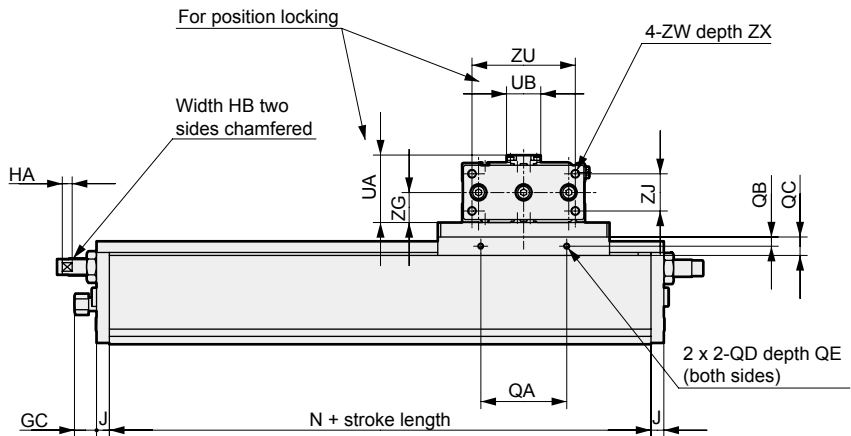
Dimensions



● Basic

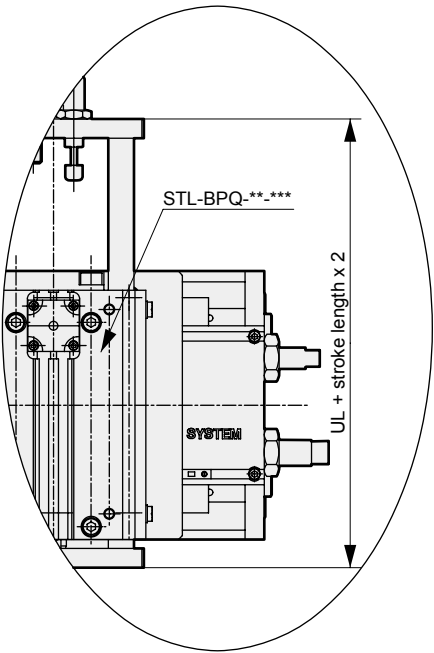


Note) Refer to page 1426 for detailed T-slot section dimensions.



Model No.	A	B	C	D	DA	DB	E	EA	EB	EC	ED	FA	FB	FC	FD	
NHS*-10**-S	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54	
NHS*-15**-S	125	10	75	75	M6	11	8	M4	8	-	2	22	22	54	54	
NHS*-30**-S	165	15	105	110	M10	18	11.5	M5	10.5	14	4	25	24	78	82	
NHS*-50**-S	200	15	120	130	M12	21	11.5	M6	13	16	4	30	30	88.5	88.5	
Model No.	SG	TB														
NHS*-10**-S	30	13														
NHS*-15**-S	56	13														
NHS*-30**-S	66	13														
NHS*-50**-S	101.5	13														
Model No.	UA	UB	UL	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZJ	ZL	ZU	ZW	ZX	ZZ
STL-BP-16	-	-	-	30	28	64	62	30.5	25.5	15	18	73.5	52	M5	through	M5
STL-BP-25	47	24	109	42	38	86	84	29	28	21	26	84	72	M6	through	M5
STL-BP-32	54	32	129.5	47	45	111	109	45.5	30.5	23.5	29	104.5	93	M8	through	Rc1/8
STL-BP-50	73.5	43	174	66	64	147	145	49	50	33	44	124	125	M10	through	Rc1/4

● Position locking

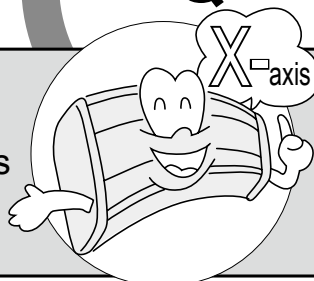
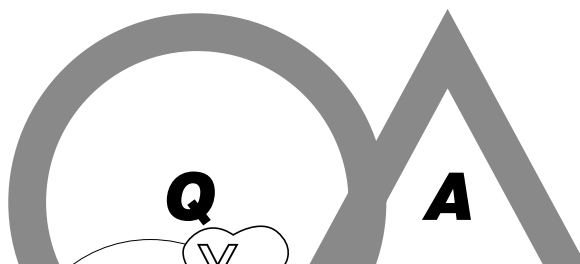


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Note) Refer to NSR dimensions on pages 1426 to 1429 for dimensions (with adjustable stroke block and cableveyor, etc.) when X-axis option installed.

	G	GA	GB	GC	H	HA	HB	J	K	L	N	P	QA	QB	QC	QD	QE
	Rc1/8	16	28	16	M10×1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/8	16	28	16	M10×1.25	7	8	9	98	196	178	120	60	6.5	13	M4	10
	Rc1/4	27	37.5	8.5	M12×1.25	9	10	16	133	266	234	150	70	8	17	M5	12
	Rc1/2	35	46.5	5.5	M12×1.25	9	10	16	143	286	254	177	70	9.5	20	M6	14

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
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Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Q1

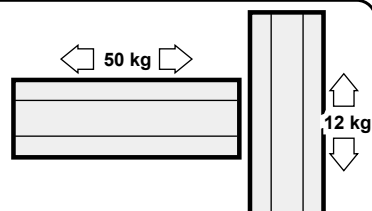
What are the features of X-axis module?

The first feature is the large moment load. A THK LM guide is used with two rails to withstand high moment load. The second feature is ample options. Full stroke length adjustment (both sides or one side) With cableveyor (horizontal mounting or vertical mounting) and other options to match piping port positions, etc., are selectable.

Q2

Is the X-axis module load capacity up to max. 50 kg in the vertical direction?

The max. 50 kg load capacity is for horizontal transfer. For vertical, the load is 12 kg.
* Select vertical transfer according to the inner cylinder's thrust.



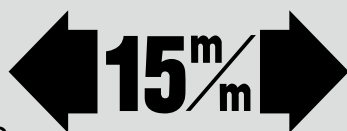
Q3

Can the reed X-axis module sensor be used?

The X-axis module sensor is mounted in the T-slot on the front cover. As a result, the distance to the magnet with slider is limited, and a reed switch cannot be used. T2 or T3 cylinder switch can be installed. When using a PLC with which the leakage current is a concern, use the T3 type (leakage current of 10 μ A or less).

Q4

How far can the X-axis module's stroke be adjusted?



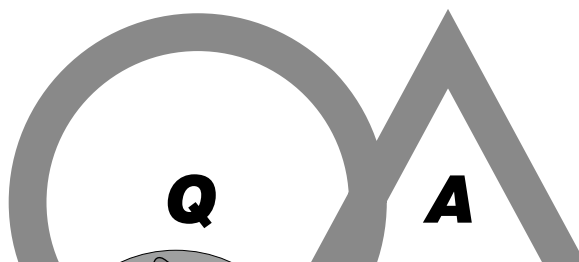
With the standard, the stroke can be reduced up to 15 mm each from left and right. If larger stroke adjustment is required, select the full stroke length adjustment option. Note that the stroke cannot be increased past the standard stroke length with any type.

Q5

What is different in the X-axis module when the stroke is larger than the standard stroke length (1000 mm)?

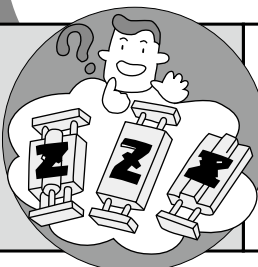
The NSR-10 and 15 have a tension mechanism on the front cover.
The max. stroke length is 2000 mm.
No changes are made with NSR-30 and 50.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Q6

What is the best way to select Z-axis modules?



Select the X-axis module according to the load capacity and required accuracy.

Select HRL (NHS-H) for medium accuracy and high load.

Select STL (NHS-S) for low accuracy and low cost.

Q7

Does the Z-axis module have a position locking mechanism?

Provided with all models as an option, excluding STL-BP-16.

Q8

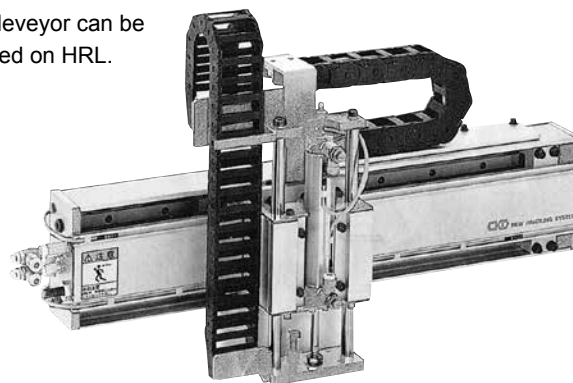
Are X- and Z-axis module valves installed?

Valves are not installed with modules. Must be installed by the user.

Q9

Is a cableveyor provided on the Z-axis module?

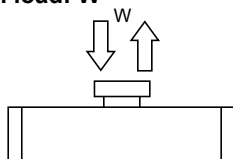
A cableveyor can be installed on HRL.



Cylinder (NSR) used for X-axis

Load capacity and moment load

● Vertical load: W

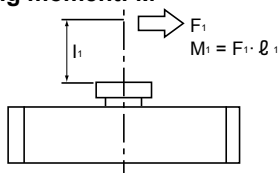


- Use the load capacity and moment within the range of the following graph. Specifications exceeding the graph may cause damage. Check if total of moment is 1.0 or less with the following formula.

● Formula

$$\frac{M1}{M1max} + \frac{M2}{M2max} + \frac{M3}{M3max} \leq 1.0$$

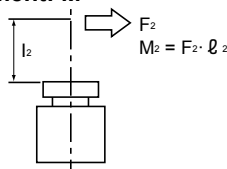
● Bending moment: M₁



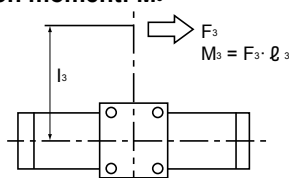
● Load allowable

Model No.	Bending moment M1max	Radial moment M2max	Torsion moment M3max
NSR-10	36.4 N·m	30.6 N·m	34.2 N·m
NSR-15	36.4 N·m	30.6 N·m	34.2 N·m
NSR-30	85.9 N·m	82.9 N·m	85.9 N·m
NSR-50	156.2 N·m	150.7 N·m	156.2 N·m

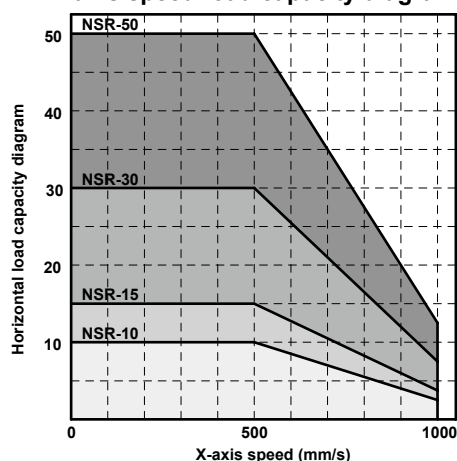
● Radial moment: M₂



● Torsion moment: M₃



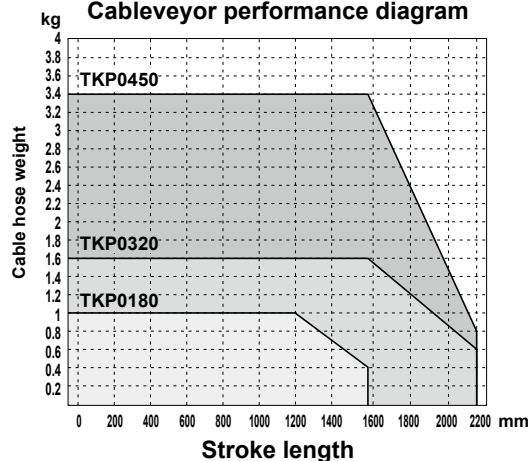
X-axis speed-load capacity diagram



Cableveyor hose weight

- Use the cableveyor hose weight at the weight that is equal to or less than the weight indicated in the following graph. Volume ratio is to be 50% or less. If capacity is not satisfied, contact CKD.

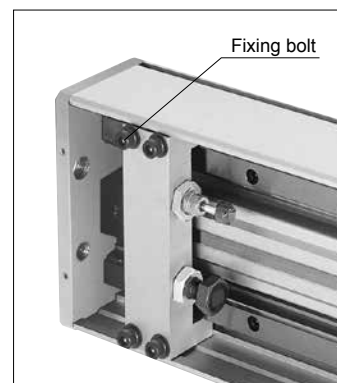
Cableveyor performance diagram



Adjustable stroke block

- Adjustable stroke block can be moved by loosening fixing bolt.
- Tighten adjustable stroke block at required position with torque on following table after movement. If tightened with torque other than above, adjustable stroke block may be shifted.

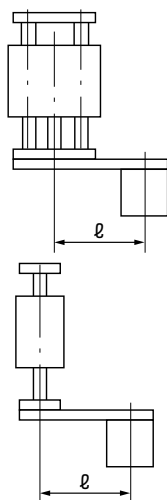
Model No.	Tightening torque
NSR-10,15	520 to 560 N.cm
NSR-30	980 to 1200 N.cm
NSR-50	2800 to 2950 N.cm



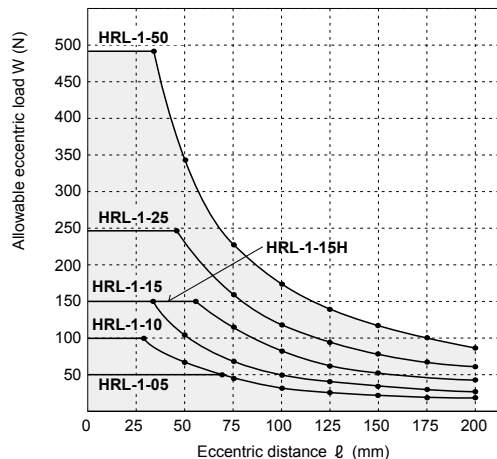
Cylinder used for Z-axis

A HRL type allowable load

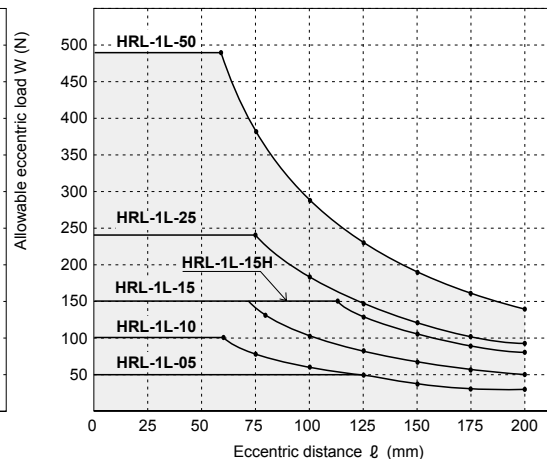
- Use HRL with the following allowable eccentric load or less.
HRL-1□-05/10/15/15H/25/50



● HRL-1 (basic)

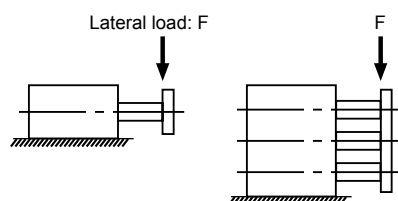


● HRL-1L (long body)



B STL type allowable lateral load/allowable torque/non-rotating accuracy

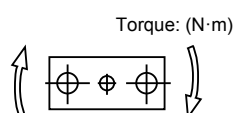
● Allowable lateral load



Unit: N

Bore size	mm	Model No.	Stroke length (mm)						
			50	75	100	125	150	175	200
ø16		STL-B-16	34	25	19	16	13	11	10
ø25		STL-B-25	68	50	39	32	27	23	20
ø32		STL-B-32	100	76	62	51	44	38	34
ø50		STL-B-50	161	126	103	87	75	66	58

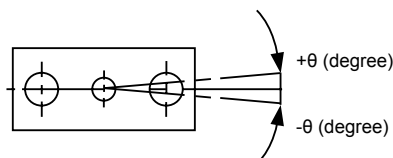
● Allowable torque



Unit: N·m

Bore size	mm	Model No.	Stroke length (mm)						
			50	75	100	125	150	175	200
ø16		STL-B-16	0.39	0.29	0.22	0.18	0.15	0.13	0.12
ø25		STL-B-25	1.07	0.79	0.61	0.50	0.43	0.36	0.32
ø32		STL-B-32	2.03	1.54	1.26	1.03	0.89	0.77	0.69
ø50		STL-B-50	4.43	3.47	2.83	2.39	2.06	1.82	1.60

● Non-rotating accuracy

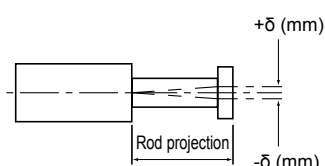


Bore size	mm	Non-rotating accuracy θ (degrees)
ø16		±0.06
ø25		±0.08
ø32		±0.04
ø50		±0.03

(Default at PULL) Note: Excluding sag of guide rod

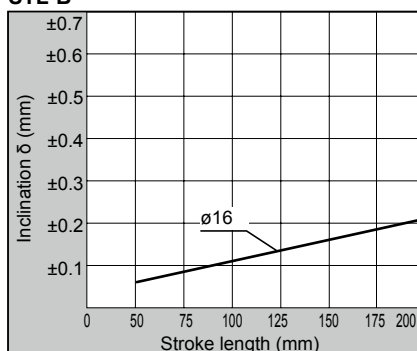
● Deflection

(Excluding sag of guide rod)



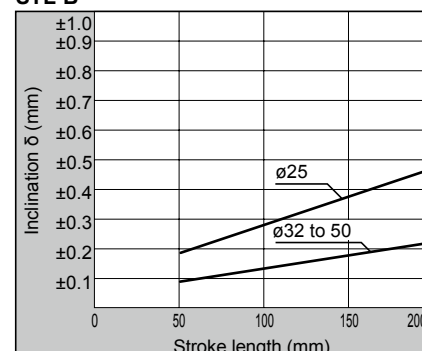
● ø16 ball bearing

STL-B



● ø25, ø32 to ø50 ball bearing

STL-B

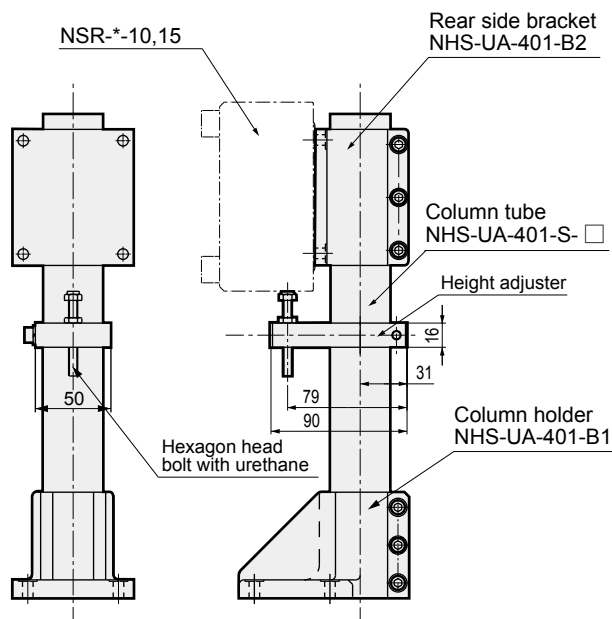


Accessory frame combination dimensions NHS-*-10**, 15** dedicated

● NHS-UA-401-length

300/400/500/600

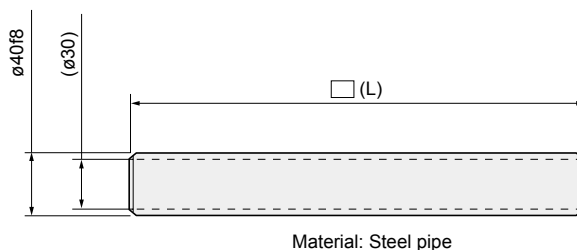
- With height adjuster
- Included product
 - NHS mounting bolt set
 - mounting bolt M6 x 20 4 pcs.
 - spring washer nominal 6 4 pcs.
 - flat washer nominal 6 4 pcs.
- Provided with 1 pc./1 set for combined model No.



Column tube

● NHS-UA-401-S-length

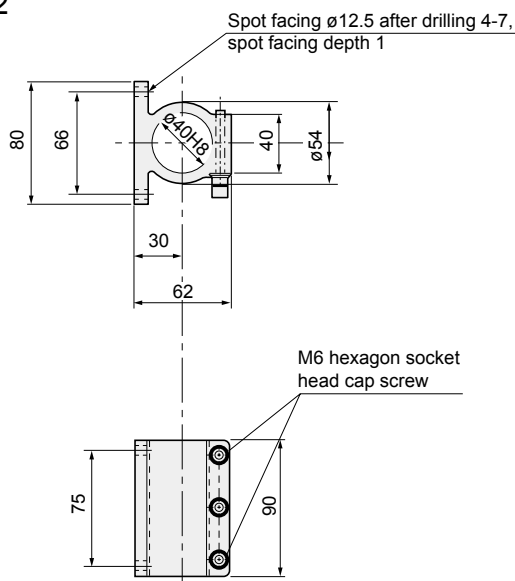
300/400/500/600



Material: Steel pipe

Rear side bracket

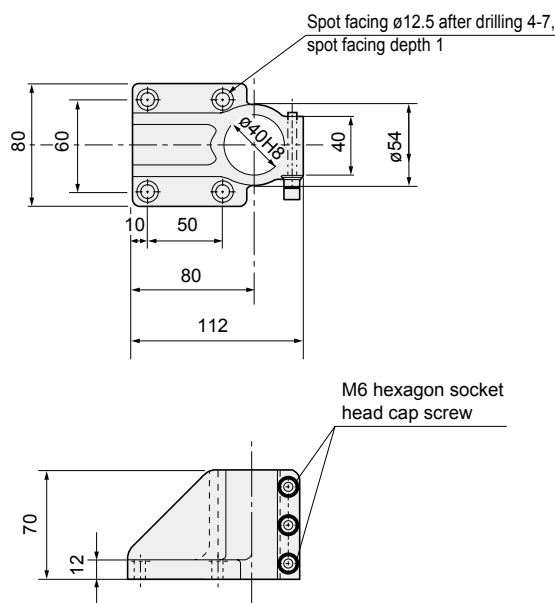
● NHS-UA-401-B2



- Included product
 - NHS mounting bolt set
 - mounting bolt M6 x 20 4 pcs.
 - spring washer nominal 6 4 pcs.
 - flat washer nominal 6 4 pcs.
- Material: Aluminum alloy casting

Column holder

● NHS-UA-401-B1



Material: Cast iron