

More precision



We have added advanced positioning precision and high rigidity to the pneumatic actuator.

The Koganei Alpha Series further enhances the drive module concept, supporting superior applications and labor savings in FA line design and manufacturing with higher performance.

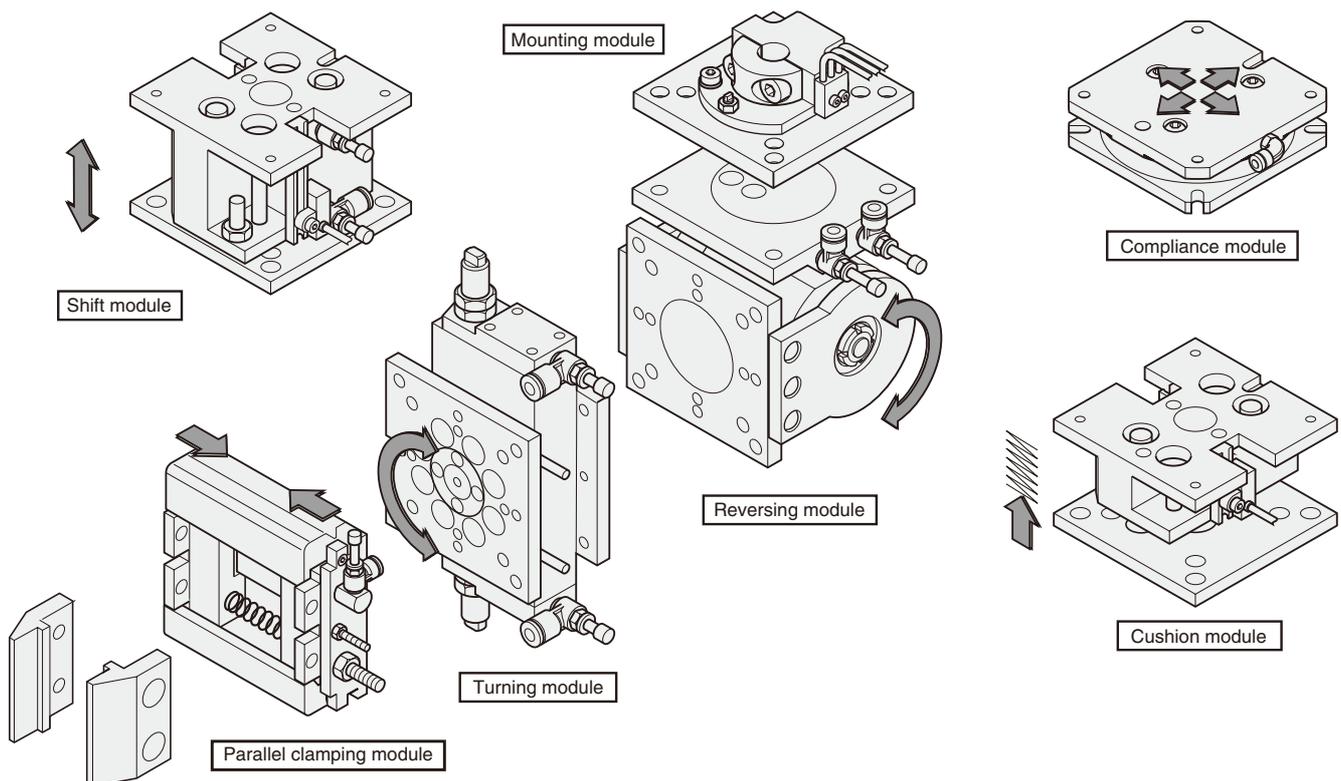
Systematic Handling Module

The handling module has mounting, turning, linear motion, positioning error correction, and gripping functions, which serve to shorten the design time regarding the material handling process, to reduce costs, and to deliver performance for the early set-up of automated lines.

Standardized modules

The handling operation is classified, standardized, and modularized into 7 functions.

As a result, designers can immediately complete the handling unit by combining modules organized by functions.

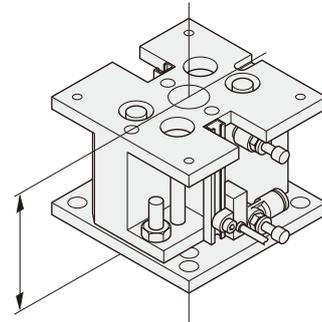


Assure high accuracy

High machining and assembly precision of the module ensure high accuracy in single-unit use or combination use.

Repeatability in each module	
Turning module	$\pm 0.03^\circ$
Reversing module	$\pm 0.03^\circ$
Shift module	$\pm 0.05\text{mm}$ [$\pm 0.0020\text{in.}$]
Cushion module	$\pm 0.05\text{mm}$ [$\pm 0.0020\text{in.}$]
Compliance module	$\pm 0.02\text{mm}$ [$\pm 0.0008\text{in.}$]
Parallel clamping module	$\pm 0.01\text{mm}$ [$\pm 0.0004\text{in.}$]

● Tolerance of the contact surface parallelism between mounting surface and mounted surface
= S : 0.04, M : 0.05, L : 0.06



● Tolerance of the coaxiality with the hypothetical center, as restricted by the locating pin = S : $\phi 0.04$, M : $\phi 0.05$, L : $\phi 0.06$

Commonality of mounting pitch

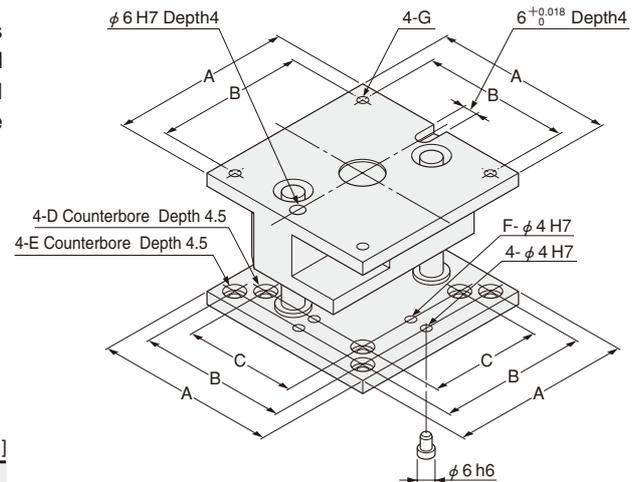
● Full choice mounting method

The Systematic Handling Module is a standard module that provides handling operations in the precision assembly field by 7 classified functions, for a complete series. Moreover, the module uses the full choice mounting method that makes any combinations possible while keeping the excellent positioning accuracy.

Features

- ① Common mounting dimensions for each size
- ② Bottom surfaces can be used to mount the same size or one smaller sized module.
- ③ To ensure accurate positioning of the handling modules, there are dowel pin holes on contacted surface of each modules, and locating pins are available (2 locating pins supplied with each module, with the exception of the parallel clamping module).

	mm [in.]						
	A	B	C	D	E	F	G
S size	60 [2.362]	50 [1.969]	—	—	—	—	—
M size	80 [3.150]	65 [2.559]	50 [1.969]	—	M4	—	M4
L size	100 [3.937]	85 [3.346]	65 [2.559]	M4	M5	4 [0.157]	M5



Optimum load mass

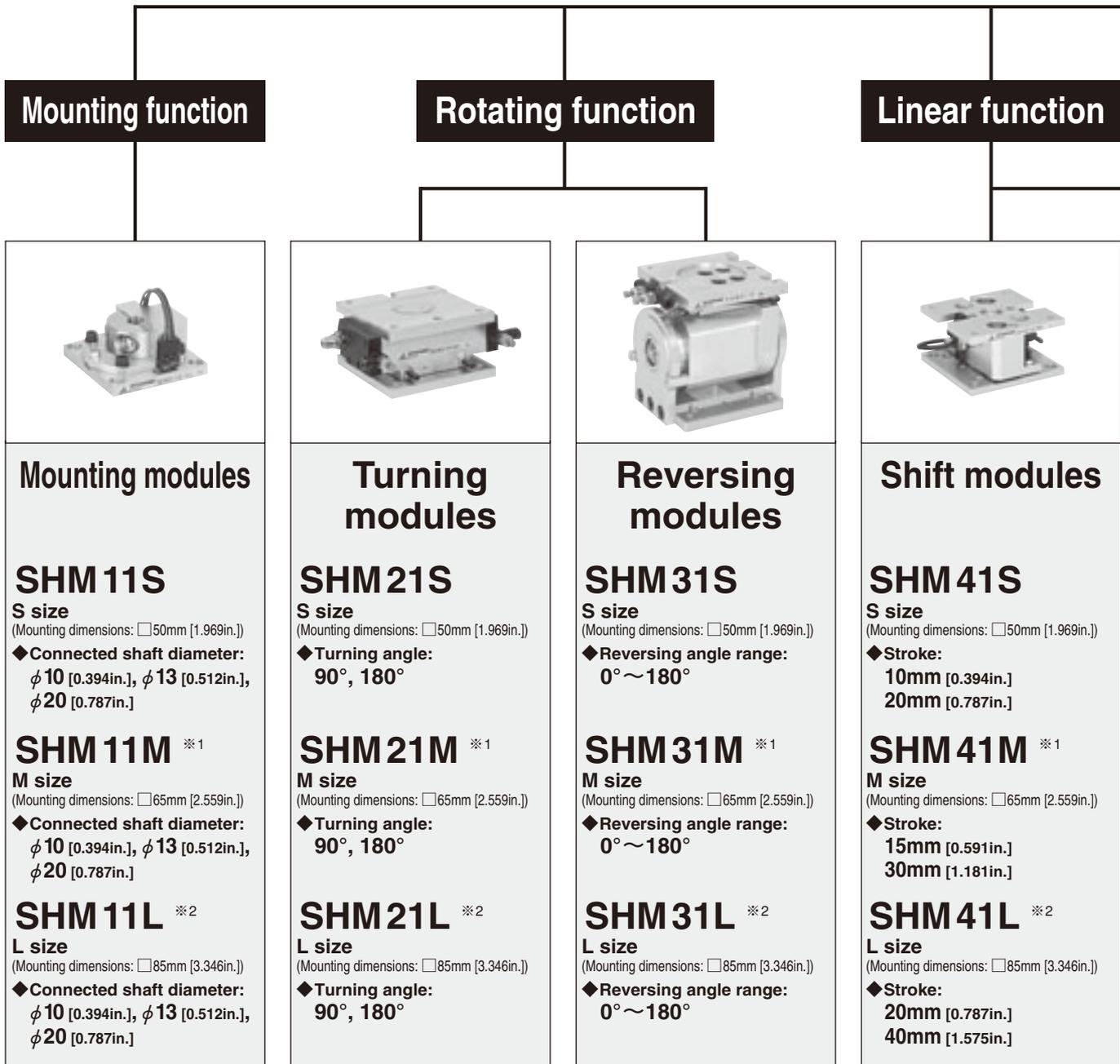
For the Systematic Handling Module, use the load masses shown below as a guide.

- S size 250g [8.82oz.]
- M size 500g [17.64oz.]
- L size 1000g [35.27oz.]

● To calculate the maximum load mass, use the formula below.

Robot load capacity	—	Hypothetical mass with all connected modules	—	Load ratio	=	Load mass
S size : 3kg [6.6lb.] M size : 6kg [13.2lb.] L size : 9kg [19.8lb.]		S size : 1.5kg [3.3lb.] M size : 3kg [6.6lb.] L size : 5kg [11.0lb.]				S size : 250g [8.82oz.] M size : 500g [17.64oz.] L size : 1000g [35.27oz.]

The leading runner on the automated line, the Handling Module
This will be the STANDARD from now on.

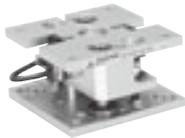


※1 : In addition to M size, S size mountings are also possible.
 ※2 : In addition to L size, M size mountings are also possible.

Systematic HandlingModule

Positioning error correction function

Gripping function



Cushion modules

SHM51S

S size
(Mounting dimensions: □50mm [1.969in.])

◆Stroke:
5mm [0.197in.]
10mm [0.394in.]

SHM51M ※1

M size
(Mounting dimensions: □65mm [2.559in.])

◆Stroke:
8mm [0.315in.]
15mm [0.591in.]

SHM51L ※2

L size
(Mounting dimensions: □85mm [3.346in.])

◆Stroke:
10mm [0.394in.]
20mm [0.787in.]



Compliance modules

SHM61S, 62S

S size
(Mounting dimensions: □50mm [1.969in.])

SHM61M, 62M

M size
(Mounting dimensions: □65mm [2.559in.])

SHM61L, 62L

L size
(Mounting dimensions: □85mm [3.346in.])



Parallel clamping modules

SHM71S

S size
(Mounting dimensions: □50mm [1.969in.])

◆Gripping width:
42mm [1.65in.]

SHM71M

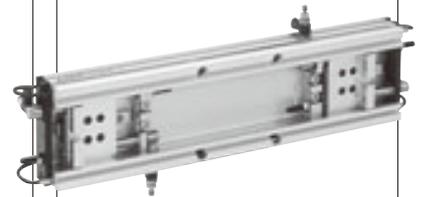
M size
(Mounting dimensions: □65mm [2.559in.])

◆Gripping width:
57mm [2.24in.]

SHM71L

L size
(Mounting dimensions: □85mm [3.346in.])

◆Gripping width:
73mm [2.87in.]



Parallel clamping long modules

SHM72S

S size
(Mounting dimensions: □50mm [1.969in.])

◆Gripping width:
140, 240, 340mm
[5.51, 9.45, 13.39in.]

SHM72M

M size
(Mounting dimensions: □65mm [2.559in.])

◆Gripping width:
176, 276, 376mm
[6.93, 10.87, 14.80in.]

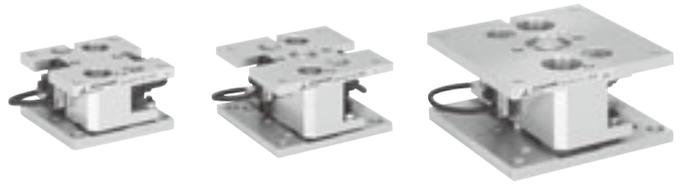
SHM72L

L size
(Mounting dimensions: □85mm [3.346in.])

◆Gripping width:
318, 418, 518mm
[12.52, 16.46, 20.39in.]

● SHM62 is NZ specification.
For details, see p.1521.

SHIFT MODULES



The module to shift the vertical position of the hand (gripper) unit within a predetermined range. Suitable for constant-force insertion. Can also be used as a lifter.

● Stroke adjusting screw

Can adjust the extended side stroke, and uses a rubber bumper to absorb shocks at the end of the stroke.

● Sensor switch

Can detect the operating position by a built-in magnet.

● Speed controller with quick fitting

Can adjust the extending or retracting speed. (Be aware to avoid exceeding the allowable kinetic energy.)

● Stroke adjusting screw

Can adjust the retracted side stroke, and uses a rubber bumper to absorb shocks at the end of the stroke.

● Locating pin

(Apply locking adhesive and insert it into the required hole.)

Note: Since loosening the connection screws will go out of the assembly precision, do not disassemble.

Specifications

Model		SHM41S		SHM41M		SHM41L	
		MS	LS	MS	LS	MS	LS
Mounting specification	Mounting surface	S		M		L	
	Mounted surface	S		M or S ^{Note1}		L or M ^{Note2}	
Cylinder bore size	mm [in.]	12 [0.472]		16 [0.630]		20 [0.787]	
Stroke	mm [in.]	10 [0.394]	20 [0.787]	15 [0.591]	30 [1.181]	20 [0.787]	40 [1.575]
Media		Air					
Operating pressure range	MPa [psi.]	0.2~0.6 [29~87]					
Proof pressure	MPa [psi.]	1 [145]					
Operating temperature range	°C [°F]	0~60 [32~140]					
Operation type and mechanism		Double acting type, linear ball bearing, with stroke adjusting mechanism (bumper)					
Lubrication		Not required					
Cylinder thrust ^{Notes}	Extended side	56.5 [12.7]		100.5 [22.6]		157.1 [35.3]	
	Retracted side	42.4 [9.5]		86.4 [19.4]		131.9 [29.7]	
Allowable kinetic energy	J [ft-lbf]	0.03 [0.02]		0.06 [0.04]		0.08 [0.06]	
Allowable moment	N-cm [in-lbf]	30 [2.7]		40 [3.5]		80 [7.1]	
Operating speed range	mm/s [in./sec.]	30~300 [1.2~11.8]					
Repeatability	mm [in.]	±0.05 [±0.0020]					
Sensor switches		Operation detection ×2					
Mass	g [oz.]	280 [9.9]	320 [11.3]	480 [16.9]	550 [19.4]	790 [27.9]	980 [34.6]

Notes: 1. Both M and S sizes can be mounted on SHM41M.
2. Both L and M sizes can be mounted on SHM41L.
3. Values at 0.5MPa [73psi.] air pressure.

Order Codes

SHM 41 [] - [] - [] [] []

Stroke	mm		
	S	M	L
MS	10	15	20
LS	20	30	40

Lead wire length
A : 1000mm [39in.]
B : 3000mm [118in.]

Number of sensor switches
1 : With 1 sensor switch
2 : With 2 sensor switches

Module
Shift module

Alpha series systematic handling module

Sensor switch
CS9H : Solid state type 3-lead wire with indicator lamp DC4~28V
ZB430 : Solid state type 2-lead wire with indicator lamp DC10~28V

※ Two locating pins are included.

Order codes for sensor switches only (with holder)

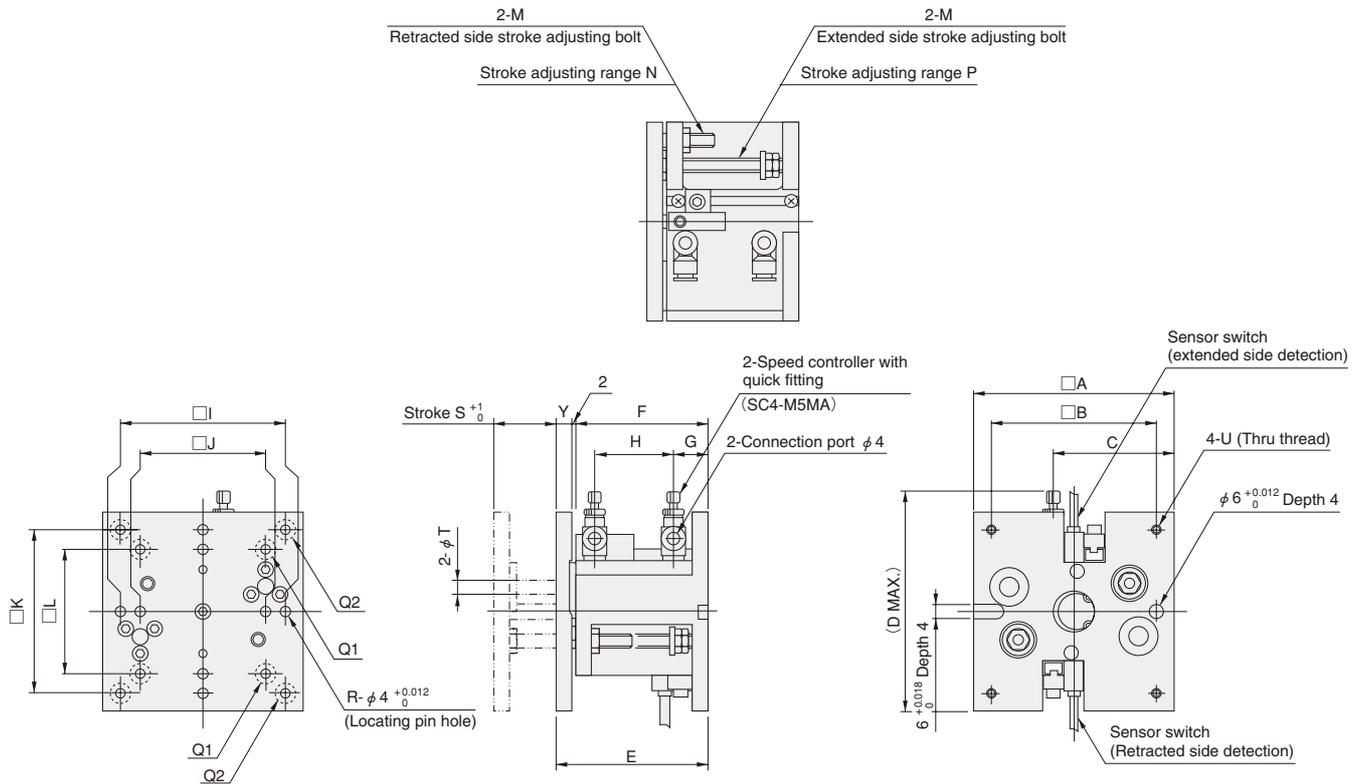
[] - SHM41

Lead wire length
A : 1000mm [39in.]
B : 3000mm [118in.]

Sensor switch
CS9H : Solid state type 3-lead wire with indicator lamp DC4~28V
ZB430 : Solid state type 2-lead wire with indicator lamp DC10~28V

● For details of sensor switches, see p.1544.

Dimensions of SHM41S, M, L (mm)



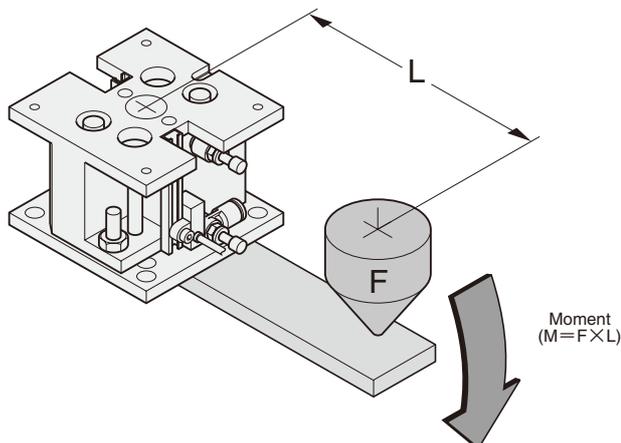
- Remarks: 1. Tolerance of the contact surface parallelism between mounting surface and mounted surface = S : 0.04, M : 0.05, L : 0.06
 2. Coaxiality tolerance with the rotating center, as restricted by the locating pin = S : φ 0.04, M : φ 0.05, L : φ 0.06

Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P ^{Note}	Q1	Q2	R	S	T	U	X	Y
SHM41S-MS	60	50	37	78	35	27	12	10.5	50±0.03	—	50	—	M4	2	10	—	4-φ 4.5 4-φ 8 Counterbore Depth 4.4	4	10	8	3	6	
SHM41S-LS					45	37		20.5						5	20		(from the back side)	20			12		
SHM41M-MS	80	65	48	88	45	37	13	16.5	65±0.03	50±0.03	65	50	M5	5	15	4-φ 4.5 4-φ 8 Counterbore Depth 4.4	8	15	8	7	6		
SHM41M-LS					60	52		31.5						9	30		(from the back side)	30			24		
SHM41L-MS	100	85	59	102	50	41	15	18.7	85±0.05	65±0.03	85	65	M6	3	20	4-φ 5.5 4-φ 9.5 Counterbore Depth 5.4 (from the back side)	8	20	10	15	7		
SHM41L-LS					70	61		38.7						7	40		(from the back side)	40			26		

Note: The sensor moving range, however, is Xmm beyond the end of extended side stroke.

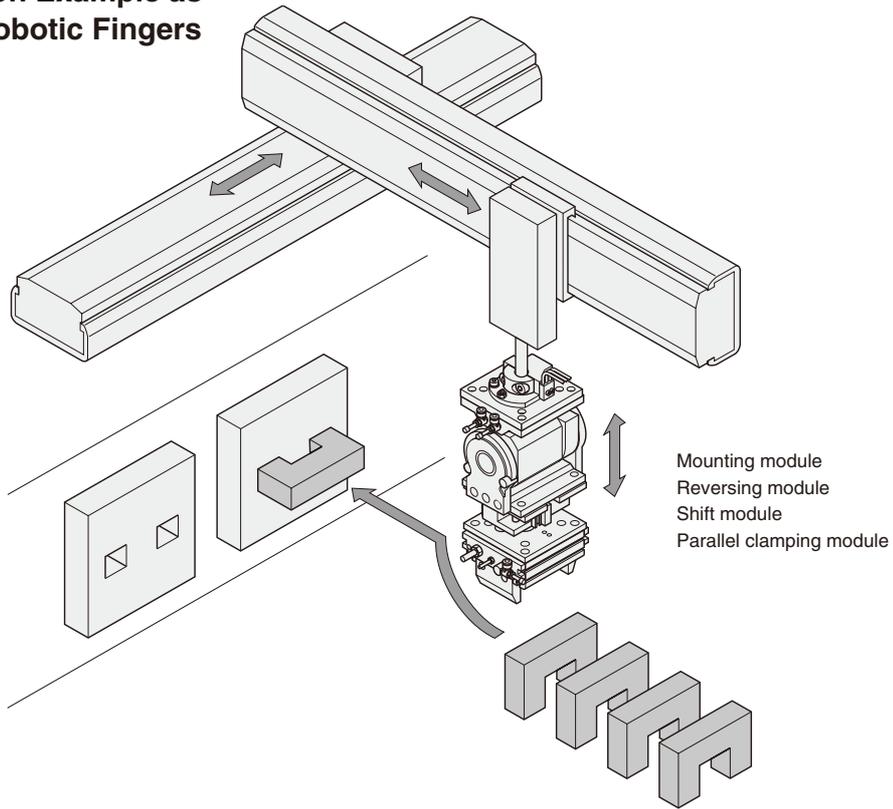
Allowable Moment

Do not apply the moment (M=F×L) exceeding the allowable values listed on p.1515.



Either single use or various combinations are possible.

● **Application Example as Robotic Fingers**



● **Application Example for Conveyor Line**

