

# More precision



alpha series

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.

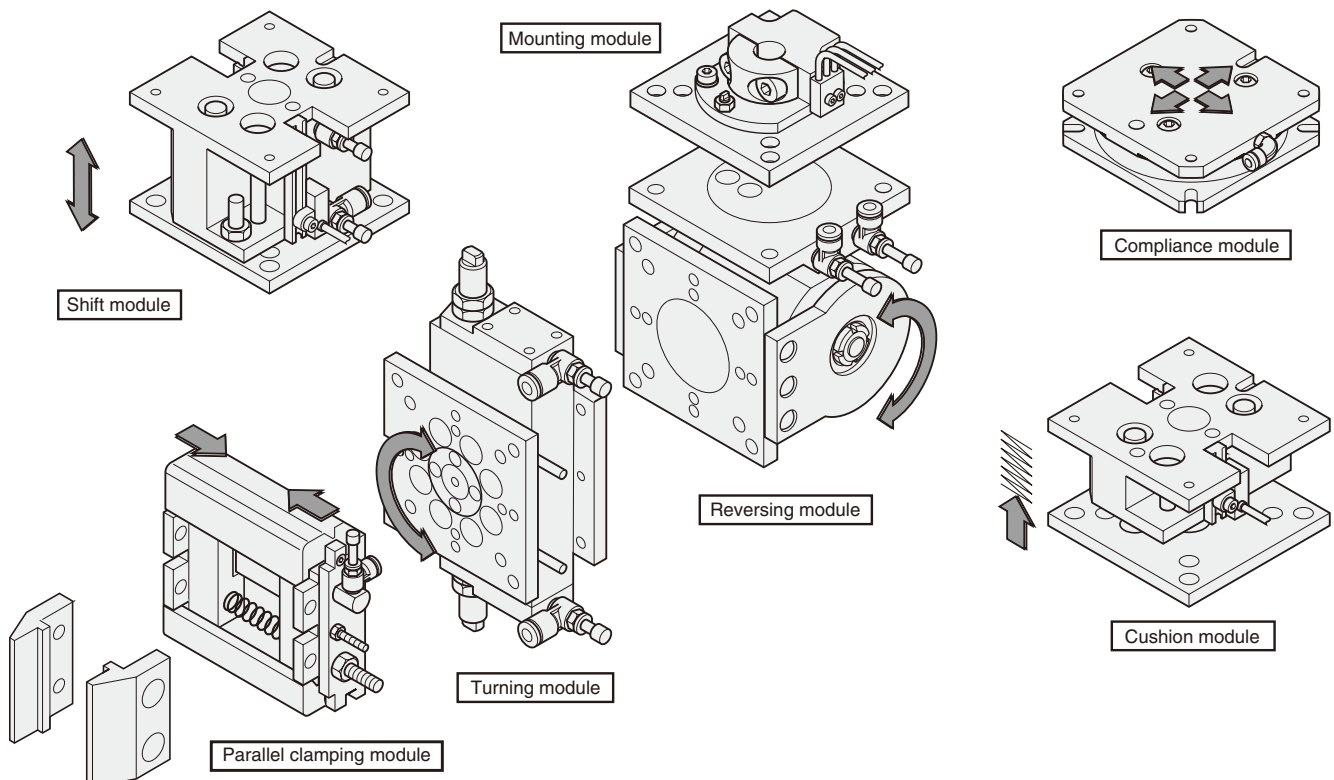
## Systematic Handling Module

*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.

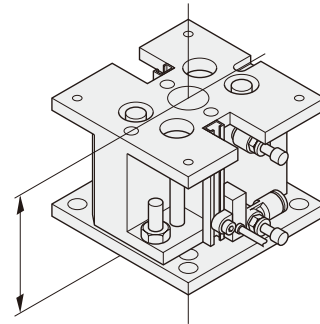


## Assure high accuracy

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

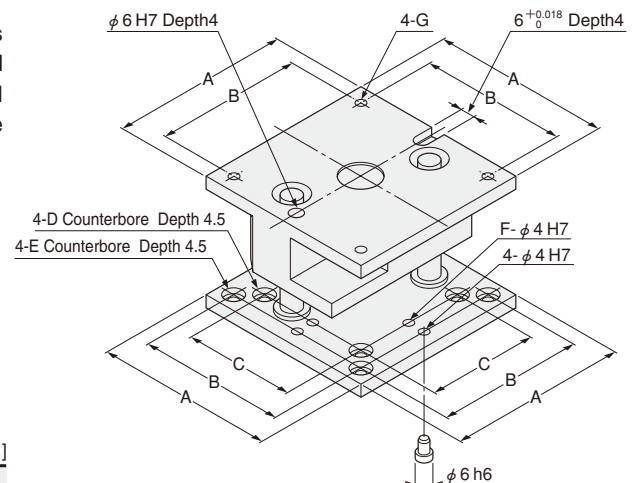
### ● Full choice mounting method

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
<b>S size</b>	60 [2.362]	50 [1.969]	—	—	M4	—	M4
<b>M size</b>	80 [3.150]	65 [2.559]	50 [1.969]	M4		4 [0.157]	
<b>L size</b>	100 [3.937]	85 [3.346]	65 [2.559]		M5		M5



## Optimum load mass

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

**S** size..... 250g [8.82oz.]

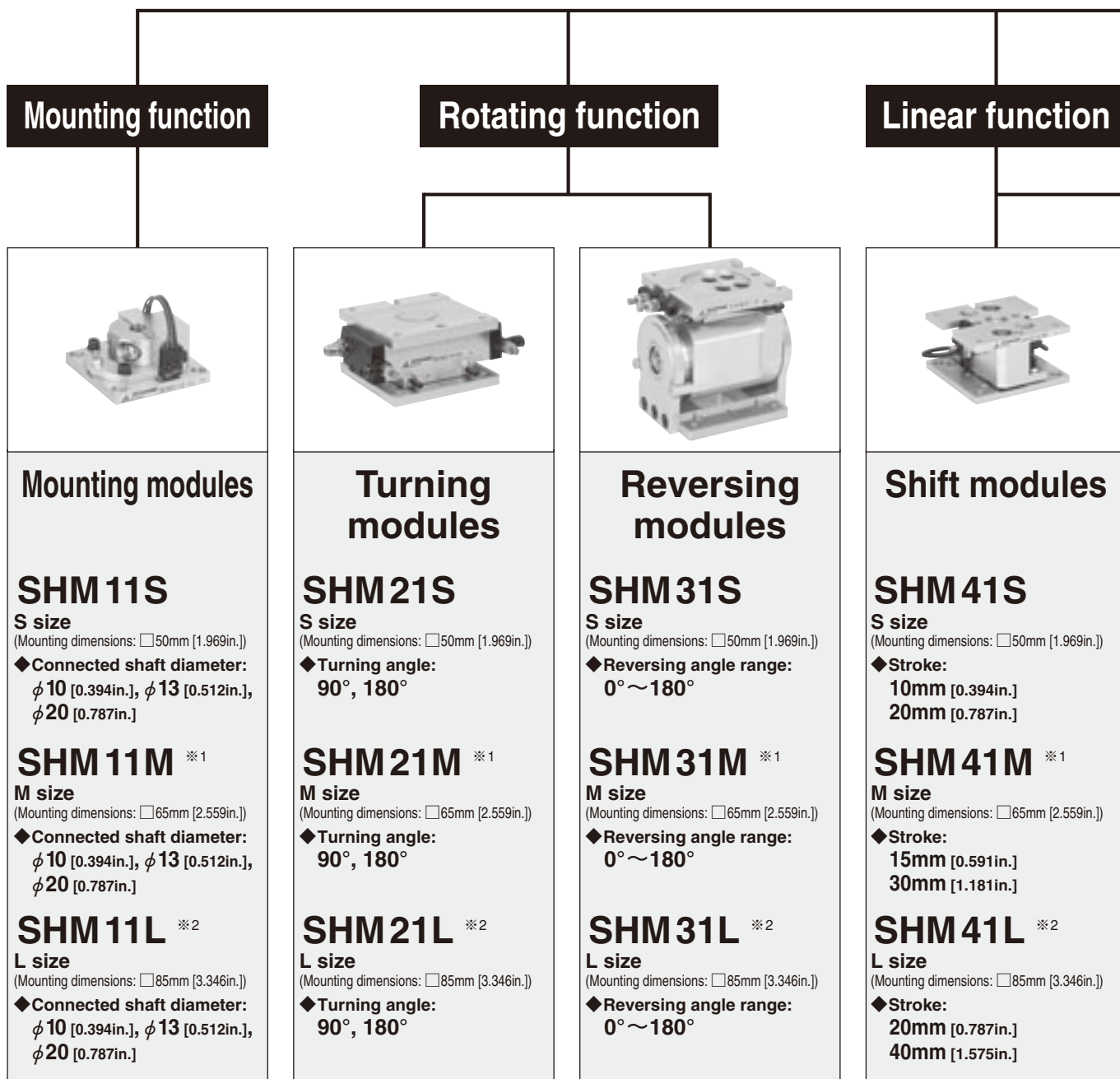
**M size**..... 500g [17.64oz.]

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
<b>S</b> size : 3kg [6.6lb.] <b>M</b> size : 6kg [13.2lb.] <b>L</b> size : 9kg [19.8lb.]		<b>S</b> size : 1.5kg [3.3lb.] <b>M</b> size : 3kg [6.6lb.] <b>L</b> size : 5kg [11.0lb.]				<b>S</b> size : 250g [8.82oz.] <b>M</b> size : 500g [17.64oz.] <b>L</b> size : 1000g [35.27oz.]

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



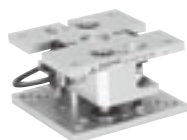
※1 : In addition to M size, S size mountings are also possible.

※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

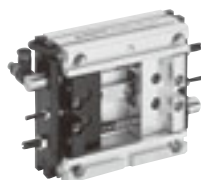
**S size**  
(Mounting dimensions: □50mm [1.969in.])

### 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

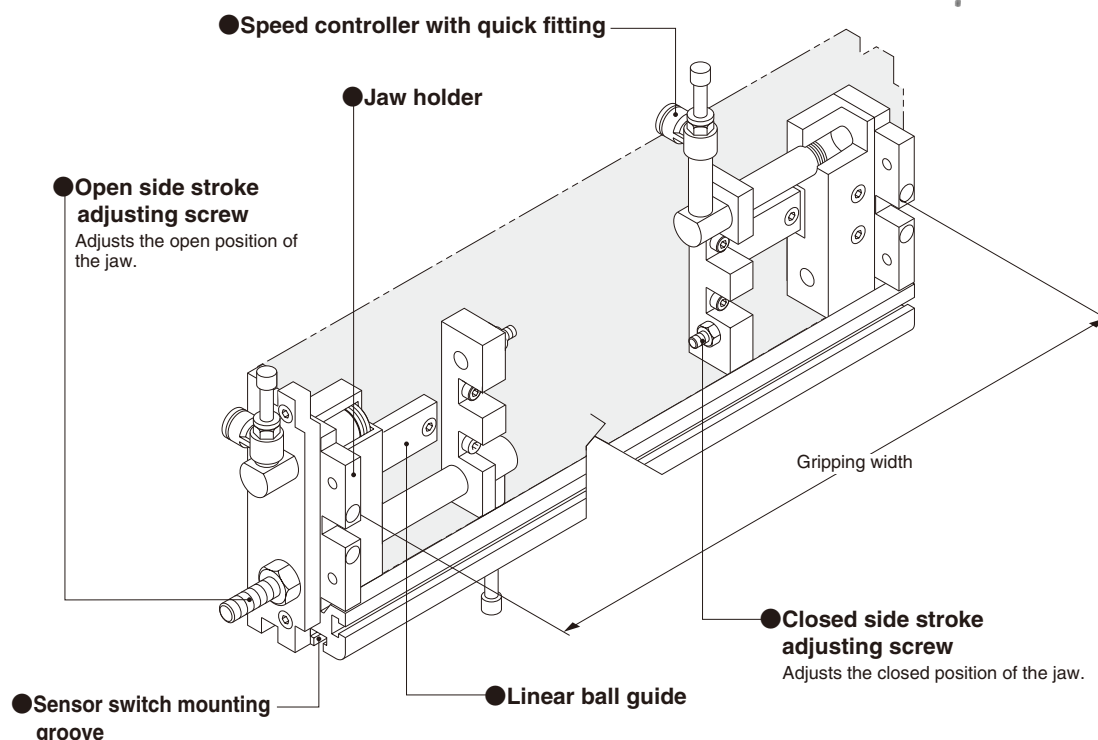
**L size**  
(Mounting dimensions: □85mm [3.346in.])

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

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

# PARALLEL CLAMPING LONG MODULES

This module plays the role of fingers in the hand (gripper) unit. Because the cylinder is asynchronous, it has superior positioning during clamping. And changing the applied air pressure can make either side serve as the reference jaw. It is particularly suitable for large-sized workpieces.



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

## Specifications

Model		SHM72S			SHM72M			SHM72L		
		SL	ML	LL	SL	ML	LL	SL	ML	LL
Item										
Mounting specification	Mounting surface	S			M			L		
Bore size	mm [in.]	8 [0.315]			12 [0.472]			15 [0.591]		
Stroke	mm [in.]	One side 20 [0.787]			One side 26 [1.024]			One side 30 [1.181]		
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, asynchronous type, linear ball guide, with stroke adjusting mechanism								
Lubrication		Not required								
Gripping force <sup>Note</sup> N [lbf.]	When open	21.6 [4.9]			48.1 [10.8]			76.4 [17.2]		
	When closed	21.6 [4.9]			48.1 [10.8]			76.4 [17.2]		
Allowable moment N-cm [in.-lbf]	Pitching	100 [8.9]			210 [18.6]			460 [40.7]		
	Yawing	120 [10.6]			240 [21.2]			540 [47.8]		
	Rolling	160 [14.2]			290 [25.7]			980 [86.7]		
Repeatability	mm [in.]	±0.01 [±0.0004]								
Maximum operating frequency cycle/min		40								
Sensor switches		Operation detection×4								
Gripping width	mm	100~140 [17.3]	200~240 [21.5]	300~340 [25.7]	124~176 [30.0]	224~276 [33.9]	324~376 [38.8]	258~318 [60.0]	358~418 [69.8]	458~518 [77.6]
Mass	g [oz.]	490 [17.3]	610 [21.5]	730 [25.7]	850 [30.0]	960 [33.9]	1100 [38.8]	1700 [60.0]	1980 [69.8]	2200 [77.6]

Note: Values at 0.5MPa [73psi.] air pressure.

## Order Codes

SHM

72

-

-

Module

Parallel clamping long module

Alpha series systematic handling module

Gripping width

mm

Mounting spec.	S	M	L
SL	140	176	318
ML	240	276	418
LL	340	376	518

Mounting specification

S : Mounting pitch 50mm [1.969in.]

M : Mounting pitch 65mm [2.559in.]

L : Mounting pitch 85mm [3.346in.]

Lead wire length

A : 1000mm [39in.]

B : 3000mm [118in.]

Number of sensor switches

1 : With 1 sensor switch

2 : With 2 sensor switches

3 : With 3 sensor switches

4 : With 4 sensor switches

Sensor switch

ZC130 : Solid state type 2-lead wire with indicator lamp DC10~28V

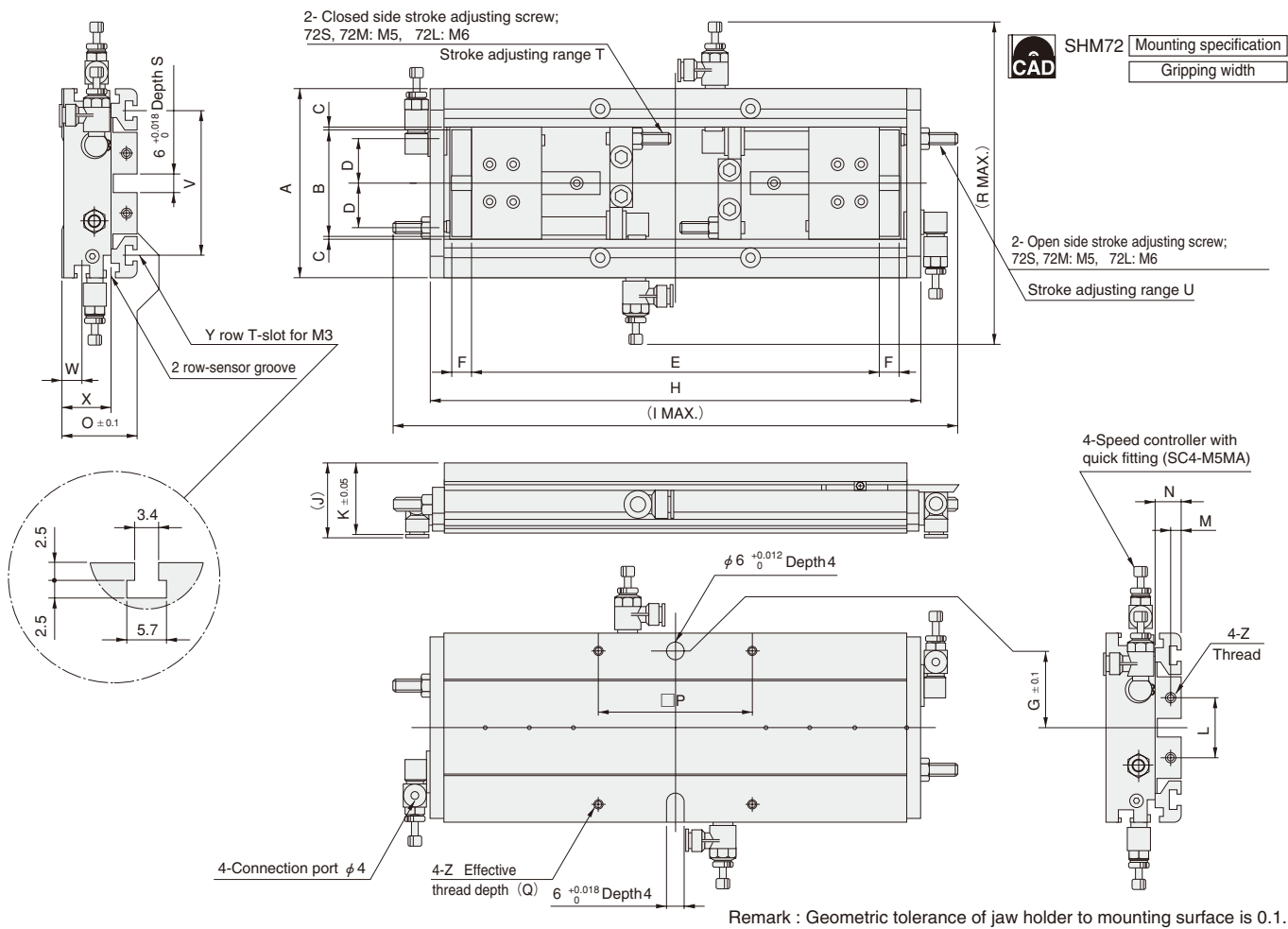
ZC153 : Solid state type 3-lead wire with indicator lamp DC4.5~28V

### Order codes for sensor switches only

		-	
Lead wire length A : 1000mm [39in.] B : 3000mm [118in.]		Sensor holder (with screw) Blank : No holder SHM71 : With holder for parallel clamp (In common with holder for parallel clamping module)	
		Sensor switch ZC130 : Solid state type 2-lead wire with indicator lamp DC10~28V ZC153 : Solid state type 3-lead wire with indicator lamp DC4.5~28V	

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

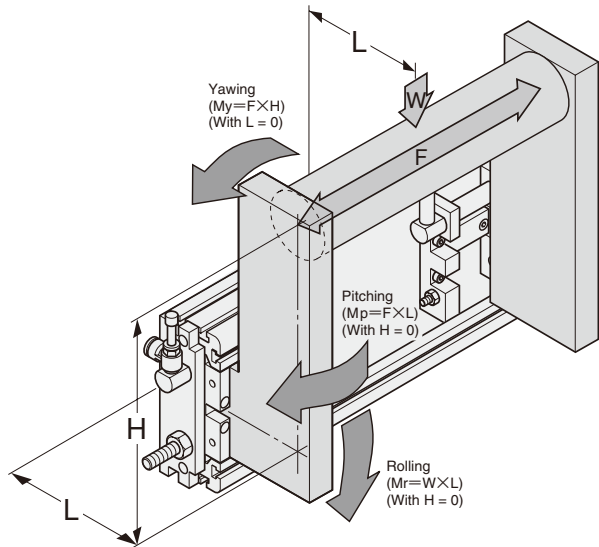
Dimensions of SHM72S, M, L (mm)



Code	A	B	C	D	E		F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
					Maximum when open	Minimum when closed																					
SHM72S-SL	60	32	0.5	14.5	140	100	6	25.0	172	197	30	25	20	4	8	25	50	4	122	7	7	9	45	—	16	2	M4
SHM72S-ML					240	200															12						
SHM72S-LL					340	300															10						
SHM72M-SL	80	46	1.0	18.0	176	124	8	32.5	212	247	32	30	30	4	9	30	65	7	135	8	10	14	60	8	21	4	M4
SHM72M-ML					276	224															15						
SHM72M-LL					376	324															10						
SHM72L-SL	100	64	1.0	24.5	318	258	8	42.5	352	400	34	35	40	5	10	35	85	8	155	8.5	15	15	78	10	23	4	M5
SHM72L-ML					418	358															15						
SHM72L-LL					518	458															15						

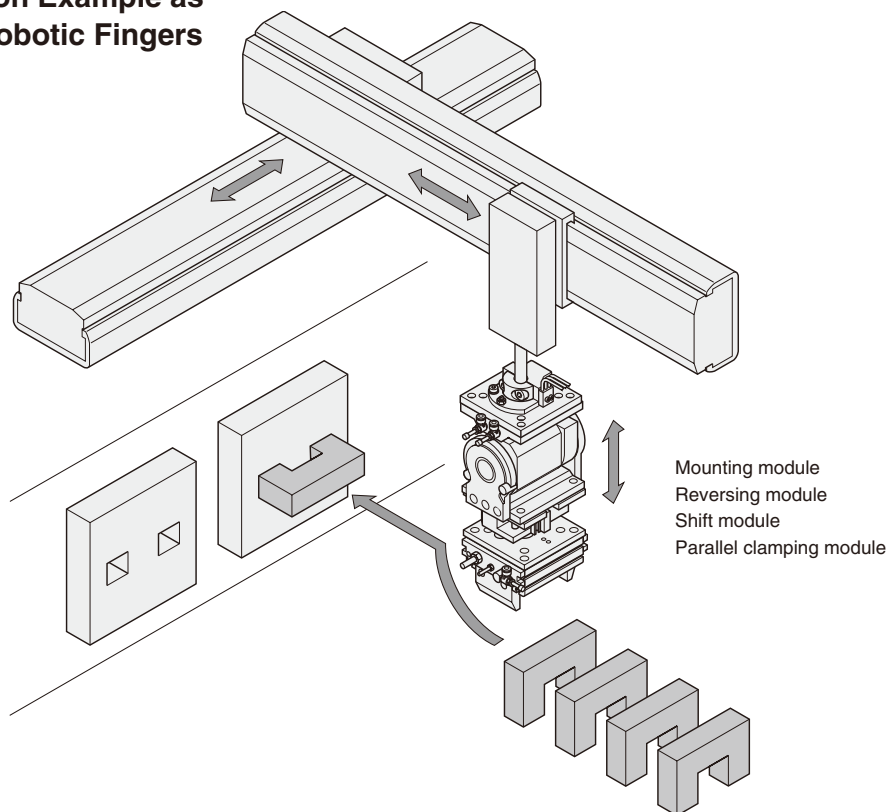
Allowable Moment

Do not apply any moment exceeding the allowable values listed on p.1525.



***Either single use or various combinations are possible.***

● **Application Example as Robotic Fingers**



● **Application Example for Conveyor Line**

