More precision

alpha series

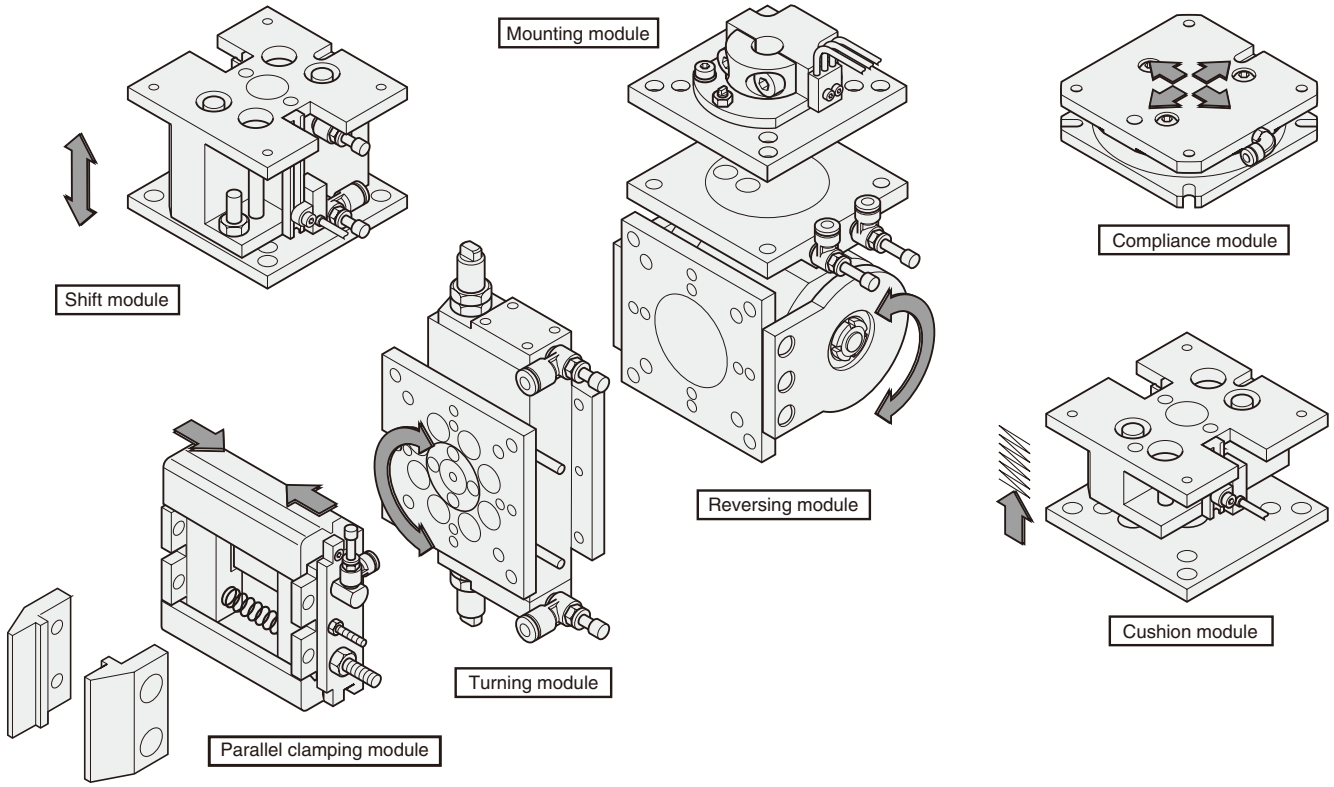
We have added advanced positioning precision and high rigidity to the pneumatic actuator.
The Koganei Alpha Series further enhances the drive module concept, supporting superior applications and labor savings in FA line design and manufacturing with higher performance.

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.

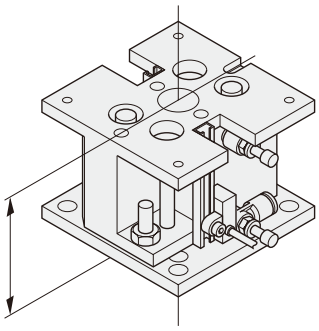


Assure high accuracy

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

Repeatability in each module	
Turning module	±0.03°
Reversing module	±0.03°
Shift module	±0.05mm [±0.0020in.]
Cushion module	±0.05mm [±0.0020in.]
Compliance module	±0.02mm [±0.0008in.]
Parallel clamping module	±0.01mm [±0.0004in.]

● 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 : ϕ 0.04, M : ϕ 0.05, L : ϕ 0.06

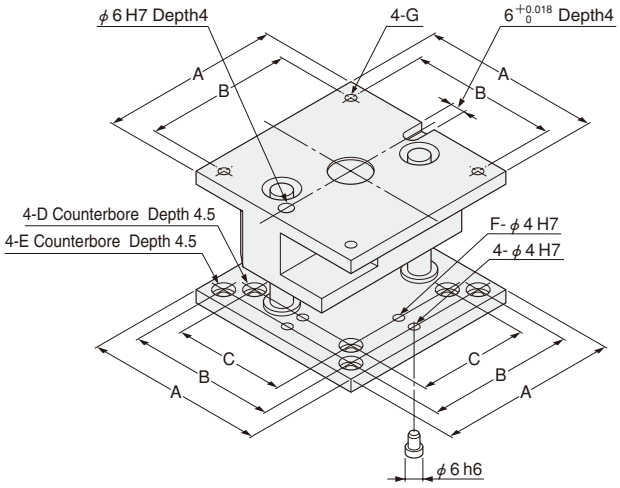
Commonality of mounting pitch

●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]	—	—	M4	—	M4
M size	80 [3.150]	65 [2.559]	50 [1.969]	M4		4 [0.157]	
L size	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.]

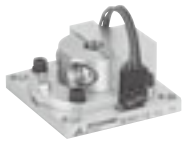
●To calculate the maximum load mass, use the formula below.

Robot load capacity	—	Hypothetical mass with all connected modules	—	Load ratio	=	Load mass
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.

Mounting function



Mounting modules

SHM11S
S size
(Mounting dimensions: □50mm [1.969in.])
◆**Connected shaft diameter:**
ϕ10 [0.394in.], ϕ13 [0.512in.], ϕ20 [0.787in.]

SHM11M ※1
M size
(Mounting dimensions: □65mm [2.559in.])
◆**Connected shaft diameter:**
ϕ10 [0.394in.], ϕ13 [0.512in.], ϕ20 [0.787in.]

SHM11L ※2
L size
(Mounting dimensions: □85mm [3.346in.])
◆**Connected shaft diameter:**
ϕ10 [0.394in.], ϕ13 [0.512in.], ϕ20 [0.787in.]

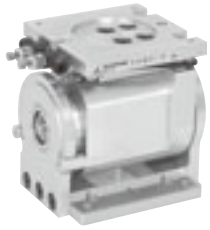
Rotating function

Turning modules

SHM21S
S size
(Mounting dimensions: □50mm [1.969in.])
◆**Turning angle:**
90°, 180°

SHM21M ※1
M size
(Mounting dimensions: □65mm [2.559in.])
◆**Turning angle:**
90°, 180°

SHM21L ※2
L size
(Mounting dimensions: □85mm [3.346in.])
◆**Turning angle:**
90°, 180°



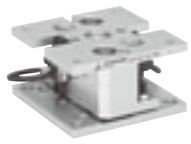
Reversing modules

SHM31S
S size
(Mounting dimensions: □50mm [1.969in.])
◆**Reversing angle range:**
0°～180°

SHM31M ※1
M size
(Mounting dimensions: □65mm [2.559in.])
◆**Reversing angle range:**
0°～180°

SHM31L ※2
L size
(Mounting dimensions: □85mm [3.346in.])
◆**Reversing angle range:**
0°～180°

Linear function



Shift modules

SHM41S
S size
(Mounting dimensions: □50mm [1.969in.])
◆**Stroke:**
10mm [0.394in.]
20mm [0.787in.]

SHM41M ※1
M size
(Mounting dimensions: □65mm [2.559in.])
◆**Stroke:**
15mm [0.591in.]
30mm [1.181in.]

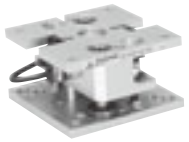
SHM41L ※2
L size
(Mounting dimensions: □85mm [3.346in.])
◆**Stroke:**
20mm [0.787in.]
40mm [1.575in.]

※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

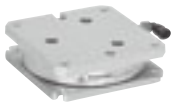


Cushion modules

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.]

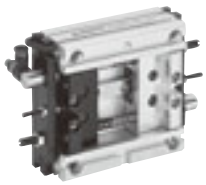


Compliance modules

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.])

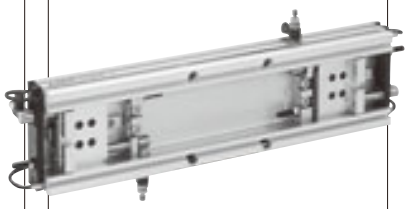


Parallel clamping modules

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.]

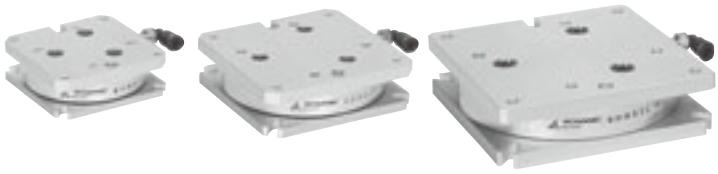
SHM72M
M size
(Mounting dimensions: □65mm [2.559in.])
◆**Gripping width:**
176, 276, 376mm
[6.93, 10.87, 14.80in.]

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.

COMPLIANCE MODULES

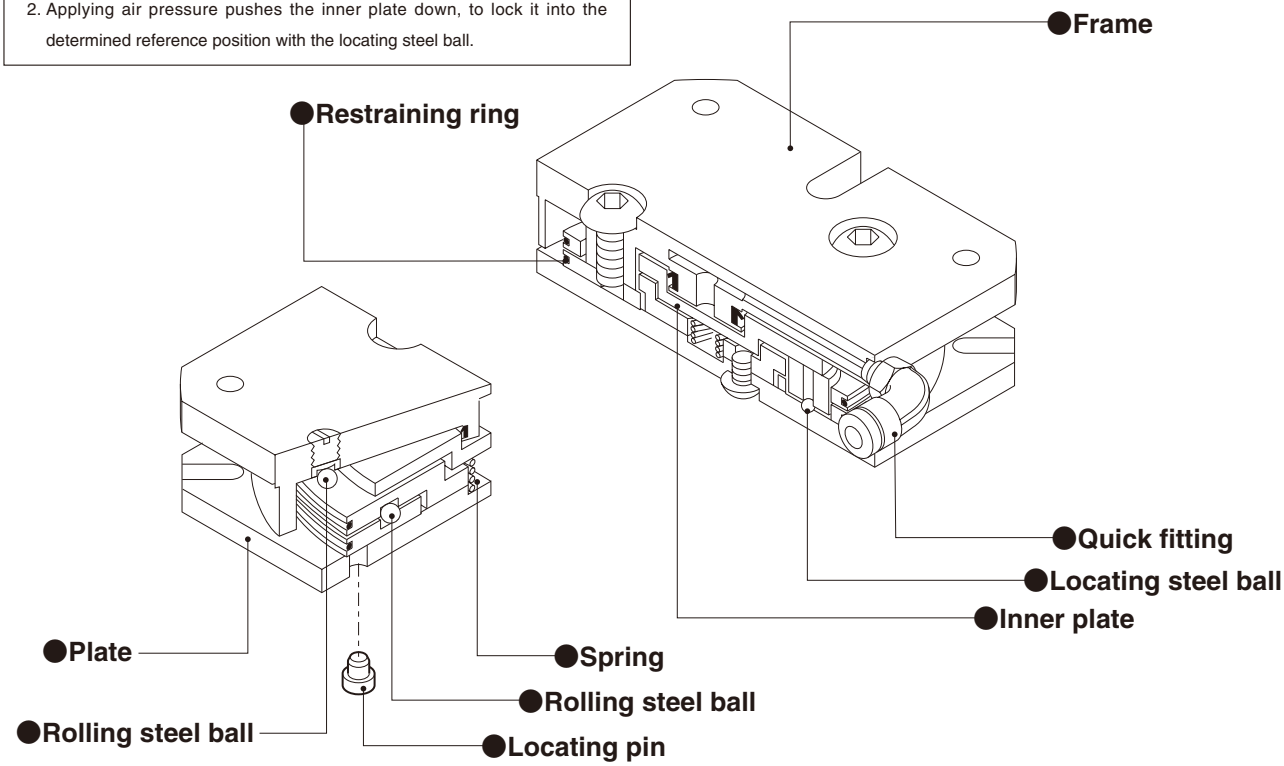
NZ Specification



This compliance module eliminates positioning error correction in the Z and α directions, and reduces galling during workpieces insertion.

Operation principles

1. The frame and plate enclose rolling steel balls, which move freely under the light centripetal force of the restraining ring and spring.
2. Applying air pressure pushes the inner plate down, to lock it into the determined reference position with the locating steel ball.



(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

Item \ Model		SHM62S	SHM62M	SHM62L
Mounting specification	Mounting surface	S	M	L
	Mounted surface	S	M	L
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		Horizontal passive type, with locking mechanism[Note]		
Lubrication		Not required		
Load mass kg [lb.]		1.5 [3.3]	3 [6.6]	4.5 [9.9]
Movement range	X・Y mm [in.]	±1.0 [±0.039]		
	Z mm [in.]	—		
	θ	±2.5°		
	α	—		
Centripetal force N [lbf.]		5 [1.1]		
Repeatability when locked mm [in.]		±0.02 [±0.0008]		
Mass g [oz.]		200 [7.1]	420 [14.8]	600 [21.2]

Note: Applying air pressure brings it into a locked state.

Order Codes

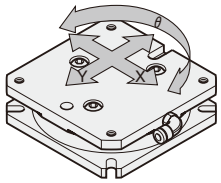
SHM 62 □

Mounting specification
S : Mounting pitch 50mm [1.969in.]
M : Mounting pitch 65mm [2.559in.]
L : Mounting pitch 85mm [3.346in.]

Module
Compliance module NZ specification

Alpha series systematic handling module

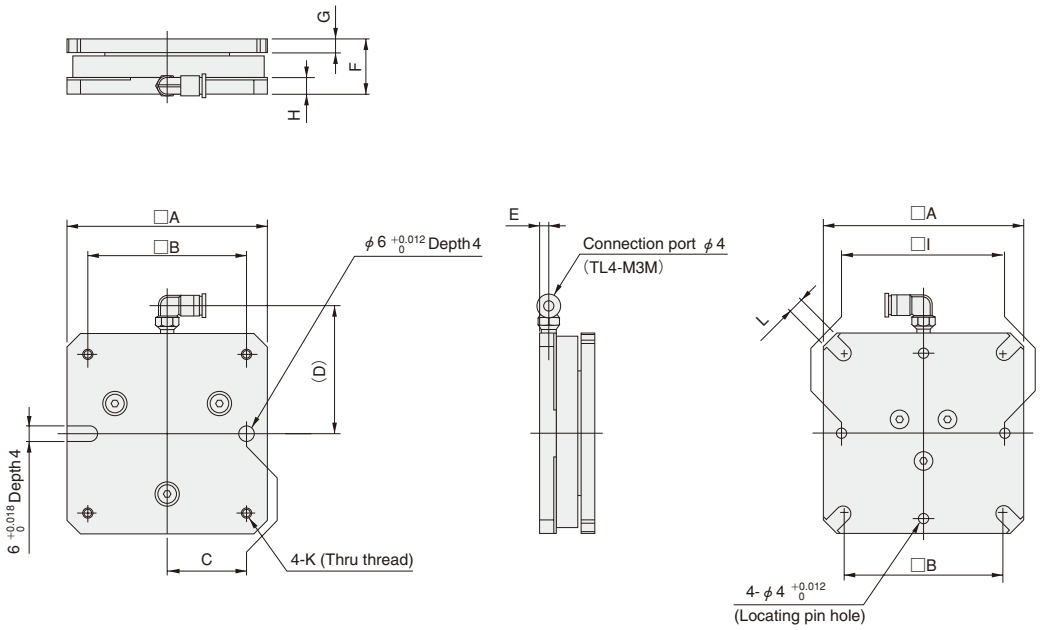
※ Two locating pins are included.



Moving directions of NZ specification
Moves in the X, Y, and θ directions, as shown in the diagram to the left.

Dimensions of SHM62S, M, L (mm)

SHM61 Mounting specification

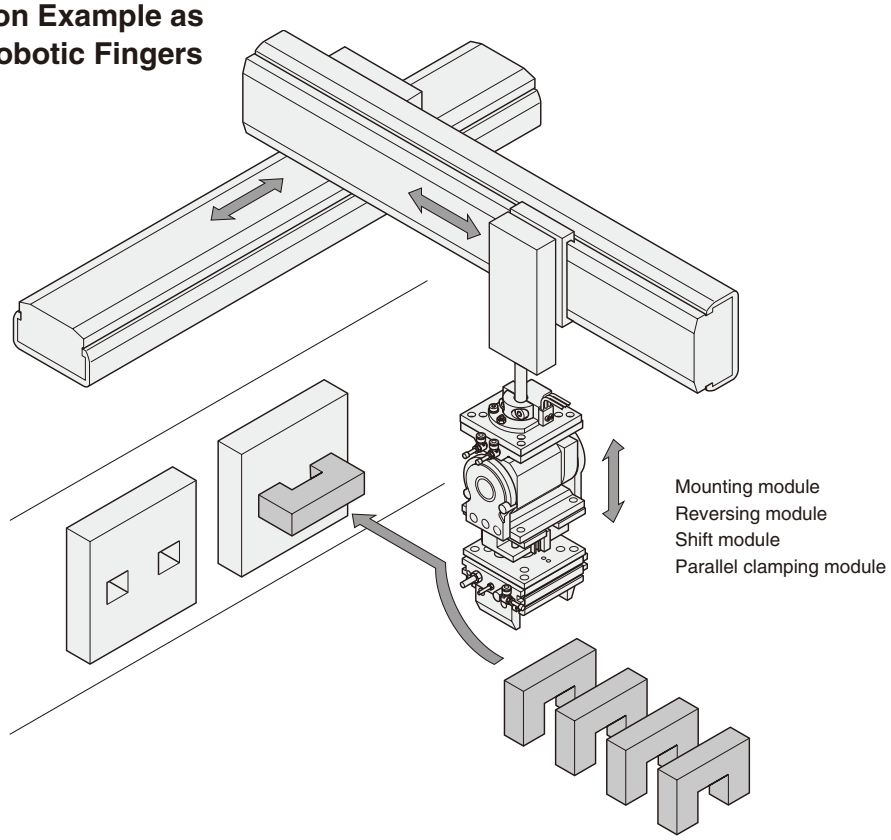


Remarks: 1. Tolerance of the contact surface parallelism between mounting surface and mounted surface = S : 0.04, M : 0.05, L : 0.06
2. Coaxiality tolerance with the hypothetical center, as restricted by the locating pin = S : φ0.04, M : φ0.05, L : φ0.06

Code / Model	A	B	C	D	E	F	G	H	I	K	L
SHM62S	60	50	25.0	42	3	20	4	5.5	50±0.03	M4	4.5
SHM62M	80	65	32.5	52	3	23	5	6.0	65±0.03	M4	4.5
SHM62L	100	85	42.5	62	3.5	28	7	7.0	85±0.05	M5	5.5

Either single use or various combinations are possible.

●Application Example as Robotic Fingers



●Application Example for Conveyer Line