More precision

alpha series

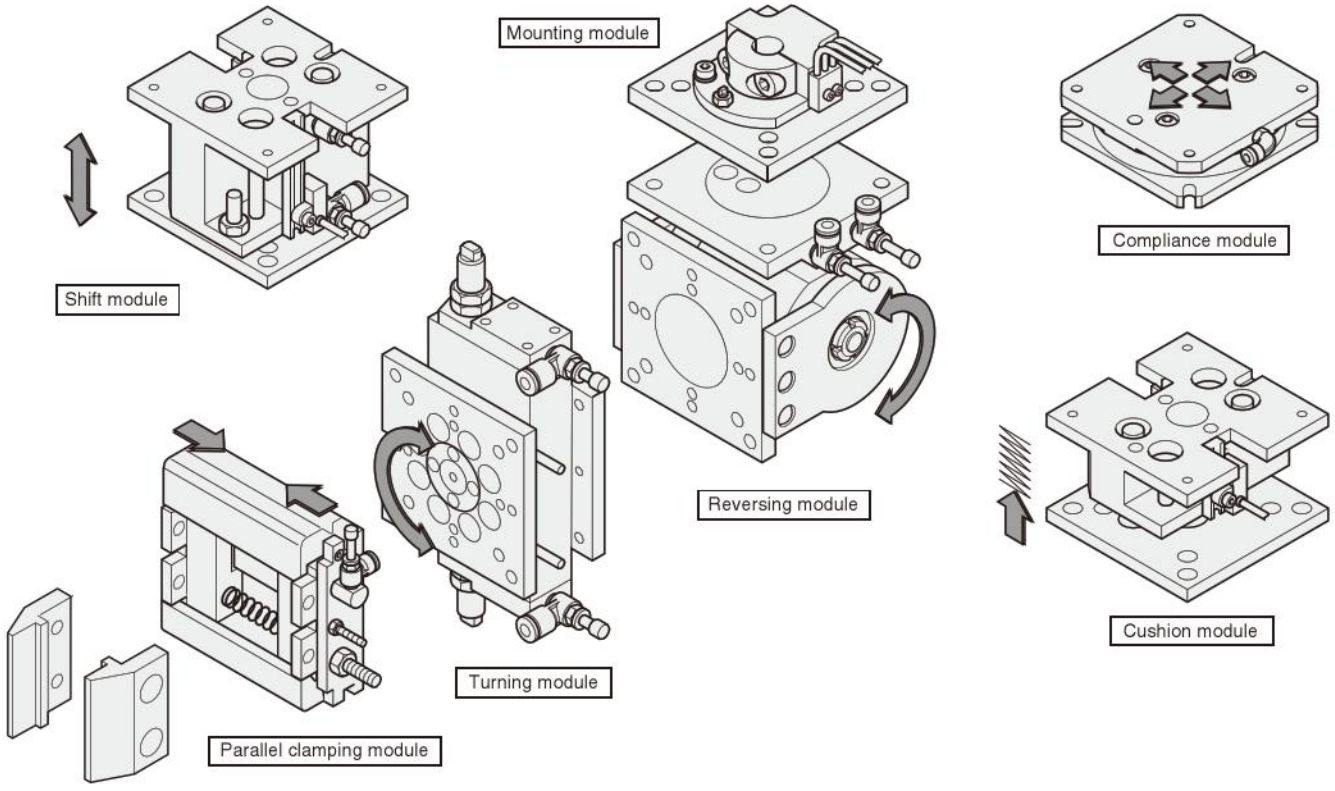
We have added advanced positioning precision and high rigidity to the pneumatic actuator.
The Koganei Alpha Series further enhances the drive module concept, supporting superior applications and labor savings in FA line design and manufacturing with higher performance.

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.

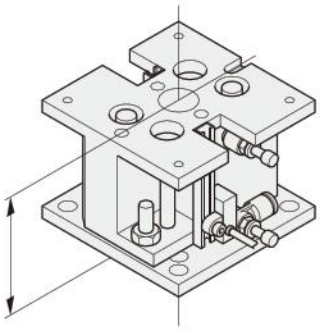


Assure high accuracy

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

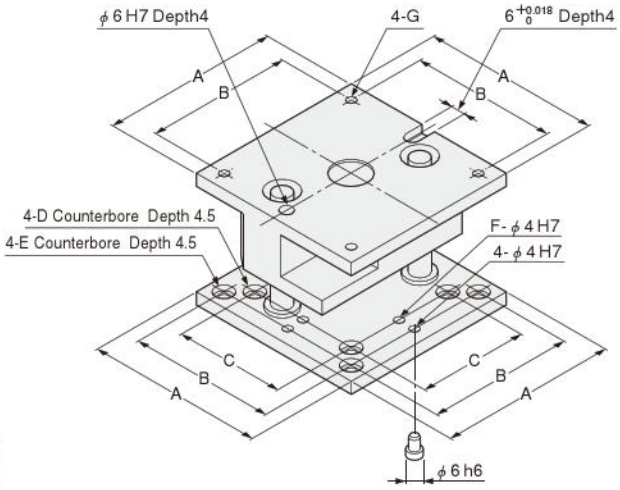
Commonality of mounting pitch

●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.])

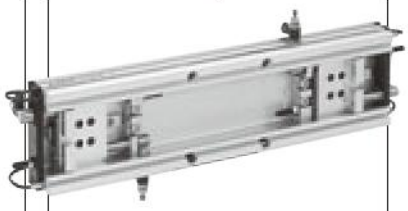
SHM61L, 62L
L size
(Mounting dimensions: □85mm [3.346in.])

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

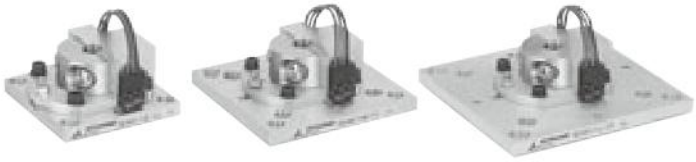
SHM72S
S size
(Mounting dimensions: □50mm [1.969in.])
◆**Gripping width:**
140, 240, 340mm
[5.51, 9.45, 13.39in.]

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

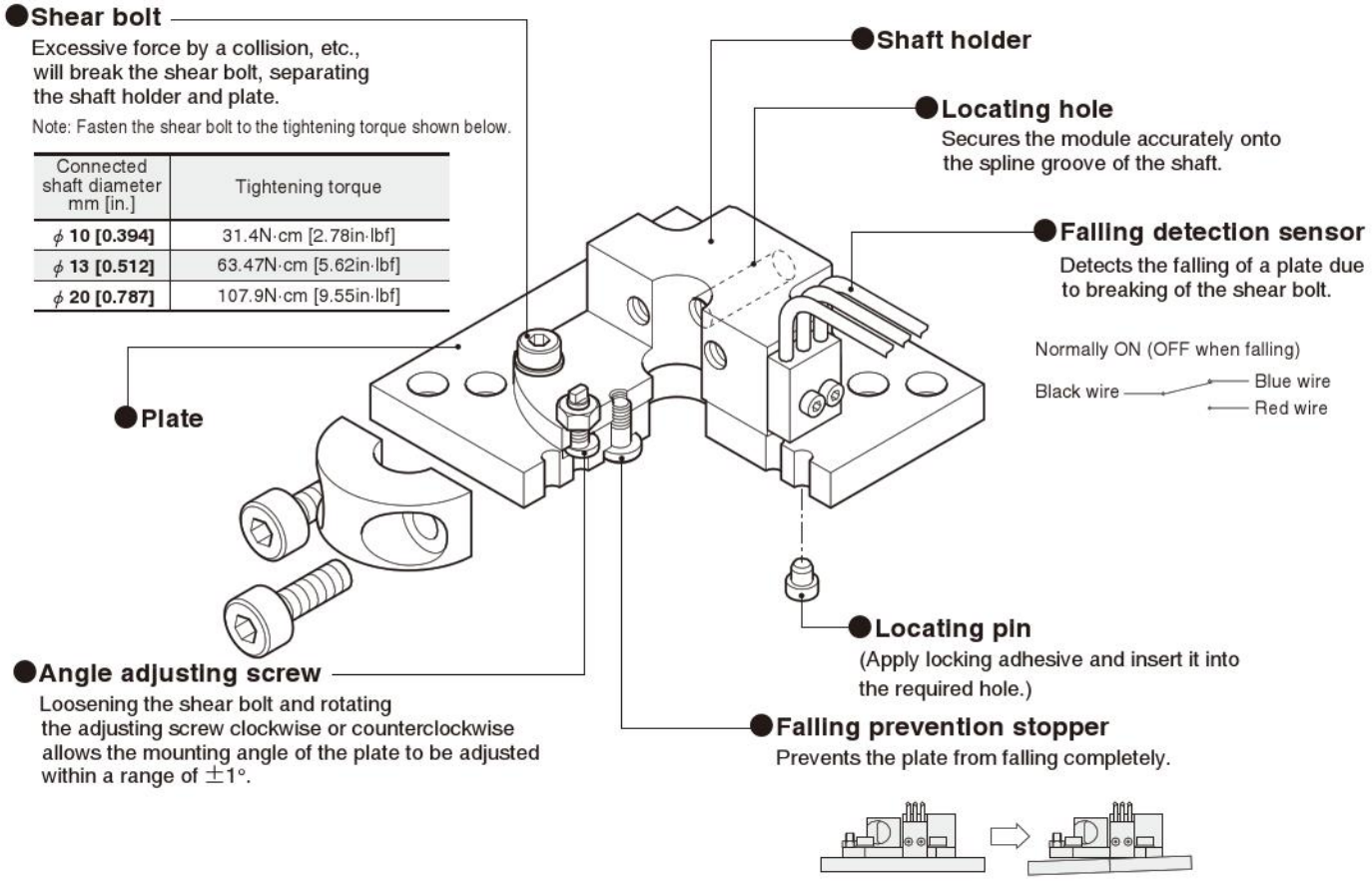
SHM72L
L size
(Mounting dimensions: □85mm [3.346in.])
◆**Gripping width:**
318, 418, 518mm
[12.52, 16.46, 20.39in.]

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

MOUNTING MODULES



This module serves as the joint between the shaft end of the robot and the hand (gripper) unit.



Specifications

Item \ Model		SHM11S			SHM11M			SHM11L		
Mounting specification	Connected shaft diameter Note1 mm [in.]	10 [0.394]	13 [0.512]	20 [0.787]	10 [0.394]	13 [0.512]	20 [0.787]	10 [0.394]	13 [0.512]	20 [0.787]
	Mounted surface	S			M or S Note2			L or M Note3		
Operating temperature range °C [°F]		0～60 [32～140]								
Lubrication		Not required								
Range of mounting adjustment angle		±1°								
Sensor switch		Falling detection×1 (OMRON : D2JW-011-MD)								
Mass g [oz.]		200 [7.1]	190 [6.7]	210 [7.4]	250 [8.8]	240 [8.5]	260 [9.2]	320 [11.3]	310 [10.9]	330 [11.6]

Notes: 1. Consult us for sizes other than the shaft diameters shown in the table.
2. Both M and S sizes can be mounted on SHM11M.
3. Both L and M sizes can be mounted on SHM11L.

Order Codes

SHM 11 □ – □

Connected shaft diameter
10 : ϕ 10 [0.394in.]
13 : ϕ 13 [0.512in.]
20 : ϕ 20 [0.787in.]

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

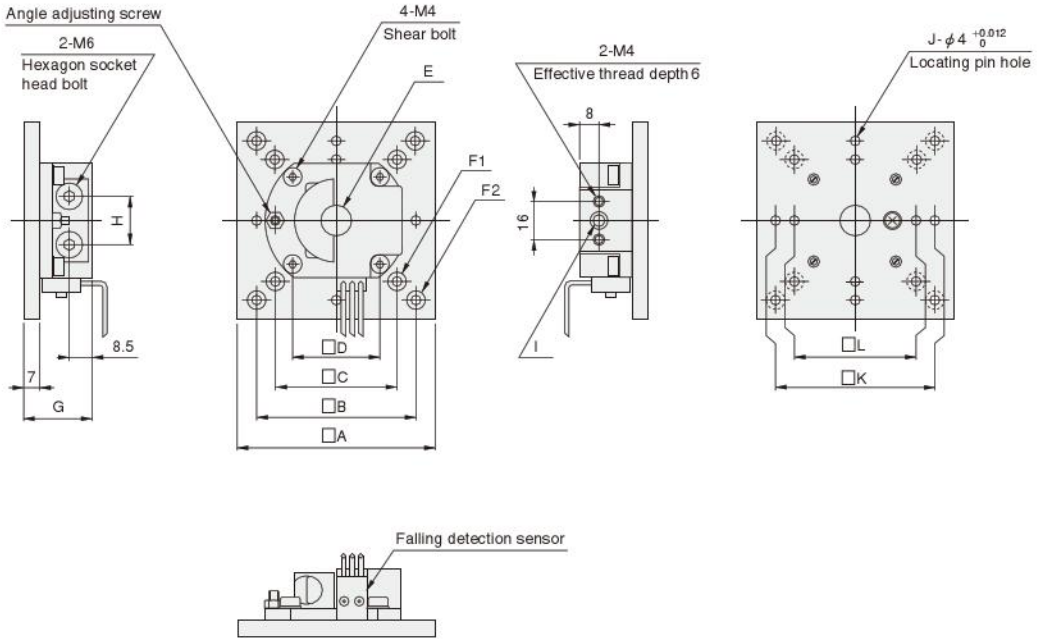
Module
Mounting module

Alpha series systematic handling module

※ Two locating pins are included.

Dimensions of SHM11S, M, L (mm)

CAD SHM11 | Mounting specification | Connected shaft diameter

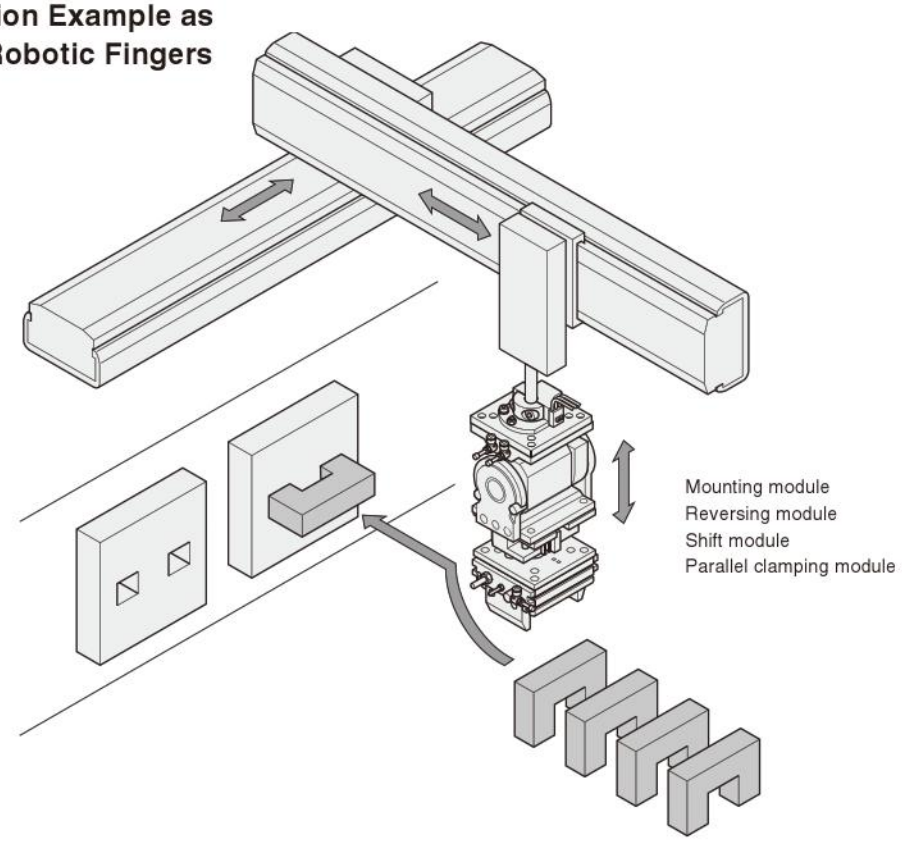


Remarks: 1. Perpendicularity tolerance between the connected shaft center and mounted surface is 0.05.
2. Coaxiality tolerance between the hypothetical center and the mounted shaft center, as restricted by the locating pin =S : φ 0.04, M : φ 0.05, L : φ 0.06

Code / Model	A	B	C	D	E	F1	F2	G	H	I	J	K	L
SHM11S-10	60	50	—	36	φ 10 +0.015 0	—	4-φ 4.5 4-φ 8 Counterbore Depth 4.4	28	20	φ4 +0.012 0 (Opening φ6 Depth 10)	4	50 ±0.03	—
SHM11S-13					φ 13 +0.018 0					φ5 +0.012 0 (Opening φ6 Depth 10)			
SHM11S-20					φ 20 +0.021 0			31	30	φ6 +0.012 0			
SHM11M-10	80	65	50	36	φ 10 +0.015 0	4-φ 4.5 4-φ 8 Counterbore Depth 4.4		28	20	φ4 +0.012 0 (Opening φ6 Depth 10)	8	65 ±0.03	50 ±0.03
SHM11M-13					φ 13 +0.018 0					φ5 +0.012 0 (Opening φ6 Depth 10)			
SHM11M-20					φ 20 +0.021 0			31	30	φ6 +0.012 0			
SHM11L-10	100	85	65	36	φ 10 +0.015 0		4-φ 5.5 4-φ 9.5 Counterbore Depth 3.5	28	20	φ4 +0.012 0 (Opening φ6 Depth 10)	8	85 ±0.05	65 ±0.03
SHM11L-13					φ 13 +0.018 0					φ5 +0.012 0 (Opening φ6 Depth 10)			
SHM11L-20					φ 20 +0.021 0			31	30	φ6 +0.012 0			

Either single use or various combinations are possible.

●Application Example as Robotic Fingers



●Application Example for Conveyer Line