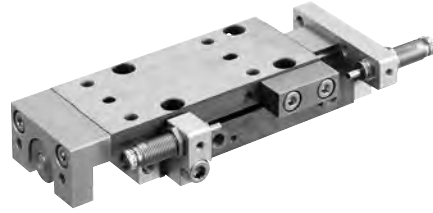
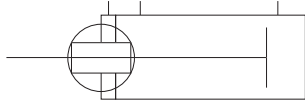


MINI GUIDE SLIDERS

Clean System Cylinder (cleanroom specification)



Symbol



Specifications (The specification for rear piping is the same.)

Item	Model	CS-MGA□4.5	CS-MGA□6	CS-MGA□8	CS-MGA□10	CS-MGA□12	CS-MGA□16	CS-MGA□20
Bore size	mm [in.]	4.5 [0.177]	6 [0.236]	8 [0.315]	10 [0.394]	12 [0.472]	16 [0.630]	20 [0.787]
Operation type		Double acting type						
Media		Air						
Operating pressure range	MPa [psi.]	0.2~0.7 [29~102]		0.15~0.7 [22~102]		0.1~0.7 [15~102]		
Proof pressure	MPa [psi.]	1.05 [152]						
Operating temperature range	°C [°F]	0~60 [32~140]						
Operating speed range	mm/s [in./sec.]	30~300 [1.2~12]				20~300 [0.8~12]		
Cushion	Standard	None	Rubber bumper					
	Optional	—			Shock absorber			
Port size		M3 × 0.5				M5 × 0.8		
Lubrication	Cylinder portion	Prohibited						
	Guide portion	Required (CGL grease Nippon Thompson Co., Ltd. made) ^{Note 1}						
Perpendicularity of end plate	mm [in.]	0.1 [0.004]						
Stroke tolerance	mm [in.]	$+1\begin{bmatrix} +0.039 \\ 0 \end{bmatrix}$						
Repeatability ^{Note 2}	mm [in.]	—			± 0.02 [± 0.0008](Shock absorber)			
Stroke adjusting range ^{Note 2} mm [in.]	Rubber stopper extended side	—			—9~0 [−0.354~0]		−8~0 [−0.315~0]	−8~0 [−0.315~0]
	Rubber stopper retracted side	—			−11~0 [−0.433~0]		−9~0 [−0.354~0]	−11~0 [−0.433~0]
	Shock absorber extended side	—			−8~0 [−0.315~0]	−12~0 [−0.472~0]	−13~0 [−0.512~0]	−22~0 [−0.866~0]
	Shock absorber retracted side	—			−9~0 [−0.354~0]	−14~0 [−0.551~0]	−14~0 [−0.551~0]	−25~0 [−0.984~0]
Allowable moment N·m[in·lbf]	Mp	0.24 [2.12]	0.28 [2.48]	0.28 [2.48]	0.28 [2.48]	1.5 [13.3]	2.1 [18.6]	2.5 [22.1]
	My	0.29 [2.57]	0.34 [3.01]	0.34 [3.01]	0.34 [3.01]	1.7 [15.0]	2.5 [22.1]	3.0 [26.6]
	Mr	0.22 [1.95]	0.23 [2.04]	0.38 [3.36]	0.38 [3.36]	2.6 [23.0]	4.3 [38.1]	4.8 [42.5]
Cleanliness ^{Note 3 Note 4}		Class 5 or equivalent (Corresponds to FED-STD Class 100)				Class 6 or equivalent (Corresponds to FED-STD Class 1000)		
Number of available sensor switches (optional)		2						

Notes: 1. Apply lithium soap-based grease on the raceway surface of the track rail in the guide portion every six months or 3 million operations.

2. For units with stroke adjusting mechanism.

3. With shock absorber type included.

4. When suctioned at the dust collection port. Koganei standards. For details, see p.171.

Remark 1: For the specifications and details of the shock absorber, see the General Catalog and Shock Absorber Catalog.

2: Touching the body of the product with bare hands may cause rusting because of salt content in sweat.

Cylinder Thrust

- Cylinder thrust is exactly the same as the standard cylinder. See p.20.

Bore Size and Stroke

Bore size	Standard strokes	mm [in.]
4.5 [0.177]	5 ^{Note} , 10	
6 [0.236]	5 ^{Note} , 10, 15, 20, 25 ^{Note} , 30	
8 [0.315]	5 ^{Note} , 10, 15 ^{Note} , 20, 25 ^{Note} , 30	
10 [0.395]	5 ^{Note} , 10, 15 ^{Note} , 20, 25 ^{Note} , 30, 40 ^{Note} , 50	
12 [0.472]	10 ^{Note} , 15 ^{Note} , 20, 30 ^{Note} , 40, 50 ^{Note} , 60, 70 ^{Note} , 80	
16 [0.630]	10 ^{Note} , 15 ^{Note} , 20, 30 ^{Note} , 40, 50 ^{Note} , 60, 70 ^{Note} , 80, 90 ^{Note} , 100	
20 [0.787]	10 ^{Note} , 15 ^{Note} , 20, 30 ^{Note} , 40, 50 ^{Note} , 60, 70 ^{Note} , 80, 90 ^{Note} , 100 ^{Note} , 120 ^{Note} , 125	

Note: The collar packed is used in these strokes.

Order Codes

● ϕ 4.5 [0.177] ~ ϕ 8 [0.315]

CS - MGA [] [] [X] - [] - [] [] - [] [] []

Mini guide slider
Blank : Standard
H : Rear piping

Bore size
×
Stroke
● See the bore size and stroke on p.144.

Piping direction
R : Right side as viewed from the rod side
L : Left side as viewed from the rod side

Magnet and sensor rail ^{Note}
Blank : No magnet and sensor rail
S : With magnet and sensor rail (One sensor rail for ϕ 4.5 [0.177] cylinders and two sensor rails for ϕ 6 [0.236] to ϕ 8 [0.315] cylinders)
SS : With magnet and sensor rail (Two sensor rails for ϕ 4.5 [0.177] cylinders only)

Number of pins
1 : With one pin
2 : With two pins
3 : With three pins
4 : With four pins

Lead wire length
A : 1000 mm [39 in.]
B : 3000 mm [118 in.]
G : 300 mm [11.8 in.] with M8 connector, only for ZE175 and ZE275

Number of sensor switches ^{Note}
1 : With one sensor switch
2 : With two sensor switches

Locating pin
Blank : No pin
P : With pin

Sensor switch type
Blank : No sensor switch
ZE135 : 2-lead wire, solid state type
ZE155 : 3-lead wire, solid state NPN output type
ZE175 : 3-lead wire, solid state PNP output type
ZE235 : 2-lead wire, solid state type
ZE255 : 3-lead wire, solid state NPN output type
ZE275 : 3-lead wire, solid state PNP output type
ZE101 : 2-lead wire, reed switch type
ZE102 : 2-lead wire, reed switch type
ZE201 : 2-lead wire, reed switch type
ZE202 : 2-lead wire, reed switch type
ZLS1 : Linear magnetic sensor, horizontal^{Note}
ZLS2 : Linear magnetic sensor, vertical^{Note}
● See p.172 for details of solid state type and reed switch type sensor switches and see p.178 for details of linear magnetic sensors.
Note: Comes with the controller (ZL1-C-3L).

Clean system product

● ϕ 10 [0.394] ~ ϕ 20 [0.787]

CS - MGA [] [] [X] - [] - [] [] - [] [] []

Mini guide slider
Blank : Standard
H : Rear piping

Bore size
×
Stroke
● See the bore size and stroke on p.144.

Piping direction
R : Right side as viewed from the rod side
L : Left side as viewed from the rod side

Magnet and sensor rail ^{Note}
Blank : No magnet and sensor rail
S : With magnet and sensor rail

Stroke adjusting position
Blank : No stroke adjustment
2 : Both ends (with two stroke adjustments)
F : Extended end (with one stroke adjustment)
R : Retracted end (with one stroke adjustment)

Stroke adjusting mechanism
Blank : No stroke adjusting mechanism
RS : With rubber stopper^{Note 1}
SS : With shock absorber
Note 1: No rubber stopper available for ϕ 10.
2: Comes with the controller (ZL1-C-3L).

Number of pins
1 : With one pin
2 : With two pins
3 : With three pins
4 : With four pins

Lead wire length
A : 1000 mm [39 in.]
B : 3000 mm [118 in.]
G : 300 mm [11.8 in.] with M8 connector, only for ZE175 and ZE275

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

Sensor switch type
Blank : No sensor switch
ZE135 : 2-lead wire, solid state type
ZE155 : 3-lead wire, solid state NPN output type
ZE175 : 3-lead wire, solid state PNP output type
ZE235 : 2-lead wire, solid state type
ZE255 : 3-lead wire, solid state NPN output type
ZE275 : 3-lead wire, solid state PNP output type
ZE101 : 2-lead wire, reed switch type
ZE102 : 2-lead wire, reed switch type
ZE201 : 2-lead wire, reed switch type
ZE202 : 2-lead wire, reed switch type
ZLS1 : Linear magnetic sensor, horizontal^{Note2}
ZLS2 : Linear magnetic sensor, vertical^{Note2}
● See p.172 for details of solid state type and reed switch type sensor switches and see p.178 for details of linear magnetic sensors.

Clean system product

● Mini Guide Sliders ϕ 10, 12, 16, 20 [ϕ 0.394, 0.472, 0.630, 0.787] Product Range and Optional Combinations

Model	Type	Rubber stopper			Shock absorber		
		Extended end -RSF	Retracted end -RSR	Both ends -RS2	Extended end -SSF	Retracted end -SSR	Both ends -SS2
CS-MGA10	Clean system cylinder	—	—	—	●	●	●
CS-MGAH10	Clean system cylinder, rear piping	—	—	—	●	—	—
CS-MGA12, 16, 20	Clean system cylinder	●	●	●	●	●	●
CS-MGAH12, 16, 20	Clean system cylinder, rear piping	●	—	—	●	—	—

■ Additional Parts

● The sensor rail, magnet, and locating pin are the same as the standard cylinder. See p.25

Remark: For the dimensions of additional parts, see p.143. For the specifications and dimensions of the shock absorber unit, see the General Catalog and Shock Absorber Catalog.

● Stopper and shock absorber

mm [in.]

Bore size	Rubber stopper type	Shock absorber model
10[0.394]	—	CS-KSHC3 × 3-AB
12[0.472]	CRK570	CS-KSHC4 × 4-BD
16[0.630]	CRK571	CS-KSHC5 × 5-DE
20[0.787]	CRK572	CS-KSHC6 × 8-DE

Remark: The set includes a mounting nut.



Rubber stopper



Shock absorber

Mass

● $\phi 4.5$ [0.177] ~ $\phi 10$ [0.394]

g [oz.]

Model	Stroke mm	Standard (CS-MGA)	Rear piping (CS-MGAH)	Additional mass							
				Magnet and sensor rail	Buffer	Stroke adjusting bracket			Shock absorber (1 pc.)	Sensor switch (1 pc.)	
						-□S2	-□SF	-□SR		ZE□□□A ZE□□□G	ZE□□□B
CS-MGA□4.5	5 [0.176]	45 [1.59]	50 [1.76]	4 [0.14], 5 [0.18] ^{Note}	3 [0.11]					15 [0.53]	35 [1.24]
	10 [0.353]	45 [1.59]	50 [1.76]	4 [0.14], 5 [0.18] ^{Note}	3 [0.11]						
CS-MGA□6	5 [0.176]	61 [2.15]	67 [2.36]	5 [0.18]	4 [0.14]					15 [0.53]	35 [1.24]
	10 [0.353]	61 [2.15]	67 [2.36]	5 [0.18]	4 [0.14]						
	15 [0.529]	69 [2.43]	75 [2.65]	6 [0.21]	4 [0.14]						
	20 [0.705]	77 [2.72]	84 [2.96]	6 [0.21]	4 [0.14]						
	25 [0.882]	93 [3.28]	101 [3.56]	7 [0.25]	4 [0.14]						
	30 [1.058]	93 [3.28]	101 [3.56]	7 [0.25]	4 [0.14]						
CS-MGA□8	5 [0.176]	87 [3.07]	94 [3.37]	5 [0.18]	5 [0.18]					15 [0.53]	35 [1.24]
	10 [0.353]	87 [3.07]	94 [3.37]	5 [0.18]	5 [0.18]						
	15 [0.529]	108 [3.81]	115 [4.06]	6 [0.21]	5 [0.18]						
	20 [0.705]	108 [3.81]	115 [4.06]	6 [0.21]	5 [0.18]						
	25 [0.882]	129 [4.55]	138 [4.87]	7 [0.25]	5 [0.18]						
	30 [1.058]	129 [4.55]	138 [4.87]	7 [0.25]	5 [0.18]						
CS-MGA□10	5 [0.176]	109 [3.85]	116 [4.09]	5 [0.18]	6 [0.21]	16 [0.56]	9 [0.32]	13 [0.46]	3 [0.11]	15 [0.53]	35 [1.24]
	10 [0.353]	109 [3.85]	116 [4.09]	5 [0.18]	6 [0.21]	15 [0.53]	8 [0.28]	12 [0.42]			
	15 [0.529]	136 [4.80]	144 [5.08]	6 [0.21]	6 [0.21]	16 [0.56]	9 [0.32]	13 [0.46]			
	20 [0.705]	136 [4.80]	144 [5.08]	6 [0.21]	6 [0.21]	15 [0.53]	8 [0.28]	12 [0.42]			
	25 [0.882]	163 [5.75]	172 [6.07]	7 [0.25]	6 [0.21]	16 [0.56]	9 [0.32]	13 [0.46]			
	30 [1.058]	163 [5.75]	172 [6.07]	7 [0.25]	6 [0.21]	15 [0.53]	8 [0.28]	12 [0.42]			
	40 [1.411]	244 [8.61]	255 [9.00]	10 [0.35]	6 [0.21]	20 [0.71]	13 [0.46]	17 [0.60]			
	50 [1.764]	244 [8.61]	255 [9.00]	10 [0.35]	6 [0.21]	18 [0.64]	11 [0.39]	15 [0.53]			

Note: For SS (two-sensor-rails specification) cylinders

● $\phi 12$ [0.472] ~ $\phi 20$ [0.787]

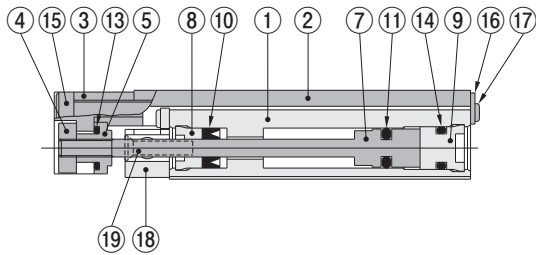
g [oz.]

Model	Stroke mm	Standard (CS-MGA)	Rear piping (CS-MGAH)	Additional mass							
				Magnet and sensor rail	Stroke adjusting bracket			Rubber stopper (1 pc.)	Shock absorber (1 pc.)	Sensor switch (1 pc.)	
					□S2	□SF	□SR			ZE□□□A ZE□□□G	ZE□□□B
CS-MGA□12	10 [0.353]	224 [7.90]	258 [9.10]	12 [0.42]	31 [1.09]	19 [0.67]	27 [0.95]	4 [0.14]	5 [0.18]	15 [0.53]	35 [1.24]
	15 [0.529]	224 [7.90]	258 [9.10]	12 [0.42]	29 [1.02]	17 [0.60]	25 [0.88]				
	20 [0.705]	224 [7.90]	258 [9.10]	12 [0.42]	27 [0.95]	15 [0.53]	23 [0.81]				
	30 [1.058]	296 [10.44]	333 [11.75]	17 [0.60]	31 [1.09]	19 [0.67]	27 [0.95]				
	40 [1.411]	296 [10.44]	333 [11.75]	17 [0.60]	27 [0.95]	15 [0.53]	23 [0.81]				
	50 [1.764]	368 [12.98]	408 [14.39]	22 [0.78]	31 [1.09]	19 [0.67]	27 [0.95]				
	60 [2.116]	368 [12.98]	408 [14.39]	22 [0.78]	27 [0.95]	15 [0.53]	23 [0.81]				
	70 [2.469]	440 [15.52]	483 [17.04]	27 [0.95]	31 [1.09]	19 [0.67]	27 [0.95]				
80 [2.822]	440 [15.52]	483 [17.04]	27 [0.95]	27 [0.95]	15 [0.53]	23 [0.81]					
CS-MGA□16	10 [0.353]	347 [12.24]	394 [13.90]	12 [0.42]	60 [2.12]	35 [1.24]	52 [1.83]	8 [0.28]	10 [0.35]	15 [0.53]	35 [1.24]
	15 [0.529]	347 [12.24]	394 [13.90]	12 [0.42]	56 [1.98]	31 [1.09]	48 [1.69]				
	20 [0.705]	347 [12.24]	394 [13.90]	12 [0.42]	53 [1.87]	28 [0.99]	45 [1.59]				
	30 [1.058]	450 [15.87]	501 [17.67]	17 [0.60]	60 [2.12]	35 [1.24]	52 [1.83]				
	40 [1.411]	450 [15.87]	501 [17.67]	17 [0.60]	53 [1.87]	28 [0.99]	45 [1.59]				
	50 [1.764]	553 [19.51]	608 [21.45]	22 [0.78]	60 [2.12]	35 [1.24]	52 [1.83]				
	60 [2.116]	553 [19.51]	608 [21.45]	22 [0.78]	53 [1.87]	28 [0.99]	45 [1.59]				
	70 [2.469]	656 [23.14]	715 [25.22]	27 [0.95]	60 [2.12]	35 [1.24]	52 [1.83]				
	80 [2.822]	656 [23.14]	715 [25.22]	27 [0.95]	53 [1.87]	28 [0.99]	45 [1.59]				
	90 [3.175]	893 [31.50]	956 [33.72]	38 [1.34]	74 [2.610]	49 [1.73]	66 [2.33]				
100 [3.527]	893 [31.50]	956 [33.72]	38 [1.34]	67 [2.36]	42 [1.48]	59 [2.08]					
CS-MGA□20	10 [0.353]	542 [19.12]	595 [20.99]	12 [0.42]	74 [2.61]	40 [1.41]	60 [2.12]	15 [0.53]	21 [0.74]	15 [0.53]	35 [1.24]
	15 [0.529]	542 [19.12]	595 [20.99]	12 [0.42]	70 [2.47]	36 [1.27]	56 [1.98]				
	20 [0.705]	542 [19.12]	595 [20.99]	12 [0.42]	67 [2.36]	33 [1.16]	53 [1.87]				
	30 [1.058]	686 [24.20]	744 [26.24]	17 [0.60]	74 [2.61]	40 [1.41]	60 [2.12]				
	40 [1.411]	686 [24.20]	744 [26.24]	17 [0.60]	67 [2.36]	33 [1.16]	53 [1.87]				
	50 [1.764]	830 [29.28]	893 [31.50]	22 [0.78]	74 [2.61]	40 [1.41]	60 [2.12]				
	60 [2.116]	830 [29.28]	893 [31.50]	22 [0.78]	67 [2.36]	33 [1.16]	53 [1.87]				
	70 [2.469]	974 [34.36]	1042 [36.76]	27 [0.95]	74 [2.61]	40 [1.41]	60 [2.12]				
	80 [2.822]	974 [34.36]	1042 [36.76]	27 [0.95]	67 [2.36]	33 [1.16]	53 [1.87]				
	90 [3.175]	1493 [52.66]	1596 [56.30]	38 [1.34]	106 [3.74]	72 [2.54]	92 [3.25]				
	100 [3.527]	1493 [52.66]	1596 [56.30]	38 [1.34]	99 [3.49]	65 [2.29]	85 [3.00]				
	120 [4.233]	1493 [52.66]	1596 [56.30]	38 [1.34]	84 [2.96]	51 [1.80]	71 [2.50]				
	125 [4.409]	1493 [52.66]	1596 [56.30]	38 [1.34]	81 [2.86]	47 [1.66]	67 [2.36]				

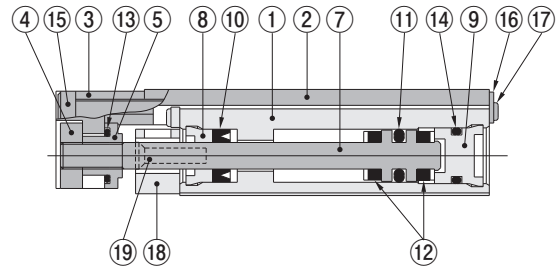
Remark: For the mass of the linear magnetic sensor controller, see p.178.

Inner Construction

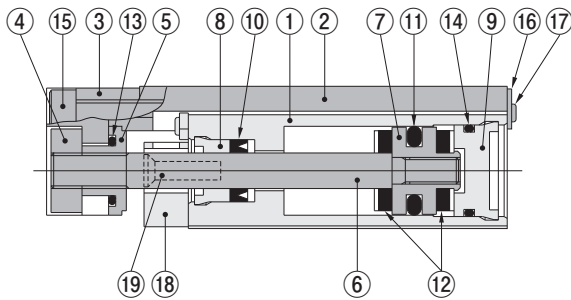
CS-MGA□4.5



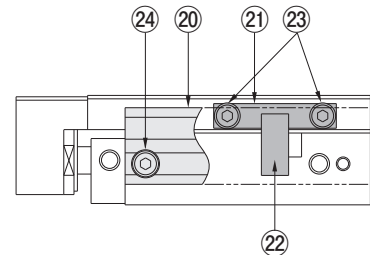
CS-MGA□6, 8



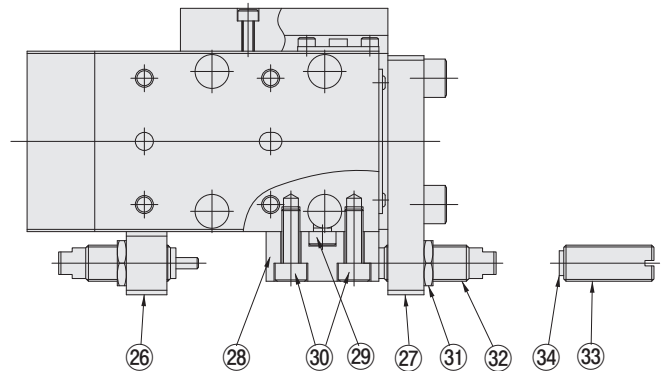
CS-MGA□10 ~ □20



CS-MGAS□ (with magnet and sensor rail)



CS-MGA□10 ~ □20 (with shock absorber)



Locating pin



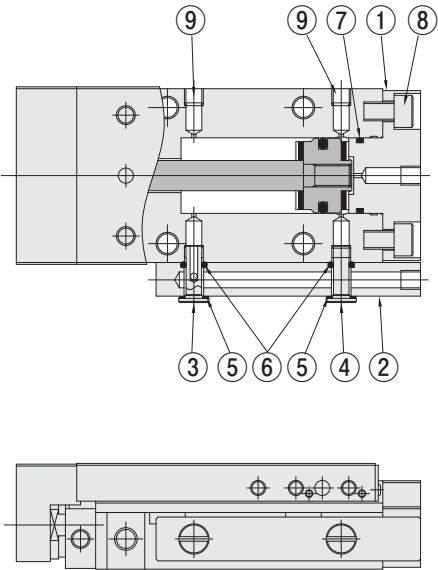
Major Parts and Materials

No.	Model Parts	CS-MGA□4.5	CS-MGA□6	CS-MGA□8	CS-MGA□10 ~□20
①	Body	Stainless steel (heat treated)			
②	Table	Stainless steel (heat treated)			
③	Plate	Aluminum alloy (special wear-resistance treated)			
④	Nut A	Stainless steel			
⑤	Nut B	Stainless steel			
⑥	Piston rod	—			Stainless steel
⑦	Piston ^{Note}	Stainless steel			Aluminum alloy (special rust prevention treated)
⑧	Rod cap	Oil impregnated plastic bushing (polyacetal)			
⑨	Head cap	Plastic			
⑩	Rod seal	Synthetic rubber (NBR)			
⑪	Piston seal	Synthetic rubber (NBR)			
⑫	Bumper	—	Synthetic rubber (urethane) / NBR for ϕ 20 [0.787]		
⑬	O-ring	Synthetic rubber (NBR)			
⑭	O-ring	Synthetic rubber (NBR)			
⑮	Screw	Stainless steel			
⑯	Holder plate	Stainless steel			
⑰	Screw	Stainless steel			
⑱	Dust collection block	Aluminum alloy (anodized)			
⑲	Screw	Stainless steel			
⑳	Sensor rail	Aluminum alloy (anodized)			
㉑	Magnet holder	Aluminum alloy (anodized)			
㉒	Magnet	Plastic magnet			
㉓	Screw	Stainless steel			
㉔	Screw	Stainless steel			
㉕	Locating pin	Steel (heat treated)			

No.	Model Parts	CS-MGA□10 ~ □20
㉖	Bracket A	Aluminum alloy (anodized)
㉗	Bracket B	Aluminum alloy (anodized)
㉘	Stopper	Steel (heat treated and nickel plated)
㉙	Locating pin	Steel (heat treated)
㉚	Screw	Stainless steel
㉛	Nut	Mild steel (zinc plated) ϕ 10: Stainless steel
㉜	Shock absorber	—
㉝	Adjusting bolt	Steel (nickel plated)
㉞	Bumper	Synthetic rubber (NBR)

Note: In CS-MGA□4.5, CS-MGA□6 and CS-MGA□8, the piston and piston rod are combined as single-piece construction.

Internal Construction (Rear Piping Specifications)

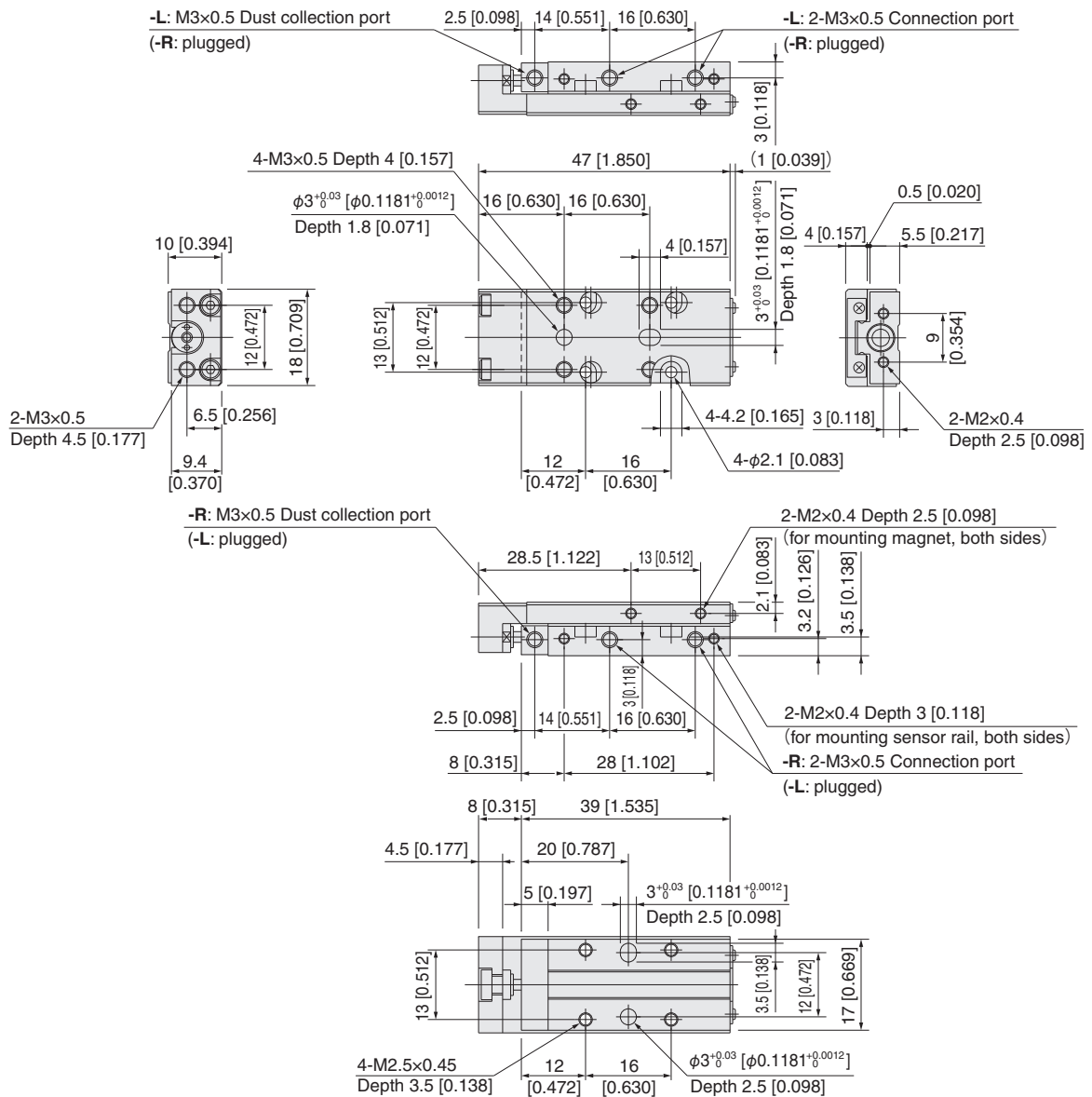


Major Parts and Materials

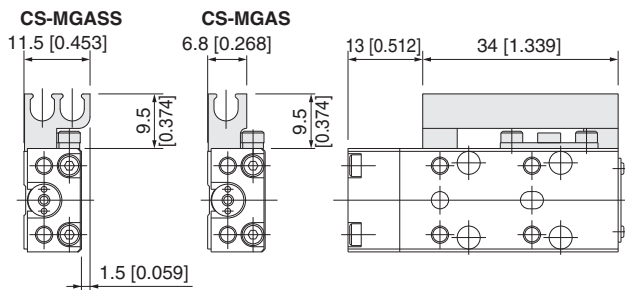
No.	Model	
	Parts	CS-MGAH□4.5 to □20
①	Head cap	Aluminum alloy (anodized)
②	Piping block	Aluminum alloy (anodized)
③	Screw	Stainless steel
④	Screw	Stainless steel
⑤	Gasket	Synthetic rubber (NBR) baked on stainless steel
⑥	O-ring	Synthetic rubber (NBR)
⑦	O-ring	Synthetic rubber (NBR)
⑧	Screw	Stainless steel
⑨	Screw	Stainless steel

φ 4.5 [0.177]	φ 6 [0.236]	φ 8 [0.315]	φ 10 [0.394]	φ 12 [0.472]	φ 16 [0.630]	φ 20 [0.787]	φ 25 [0.984]	φ 32 [1.260]	Clean system products
									Sensor switch
									Linear Magnetic Sensor Controller

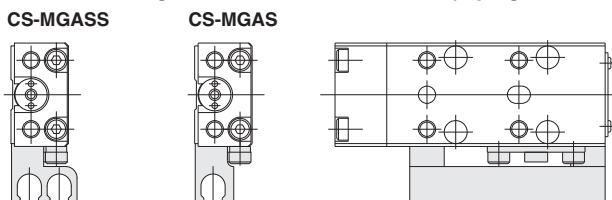
CS-MGA ☐ 4.5



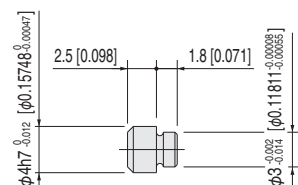
In the case of magnet and sensor rail installed (Piping direction: -R)

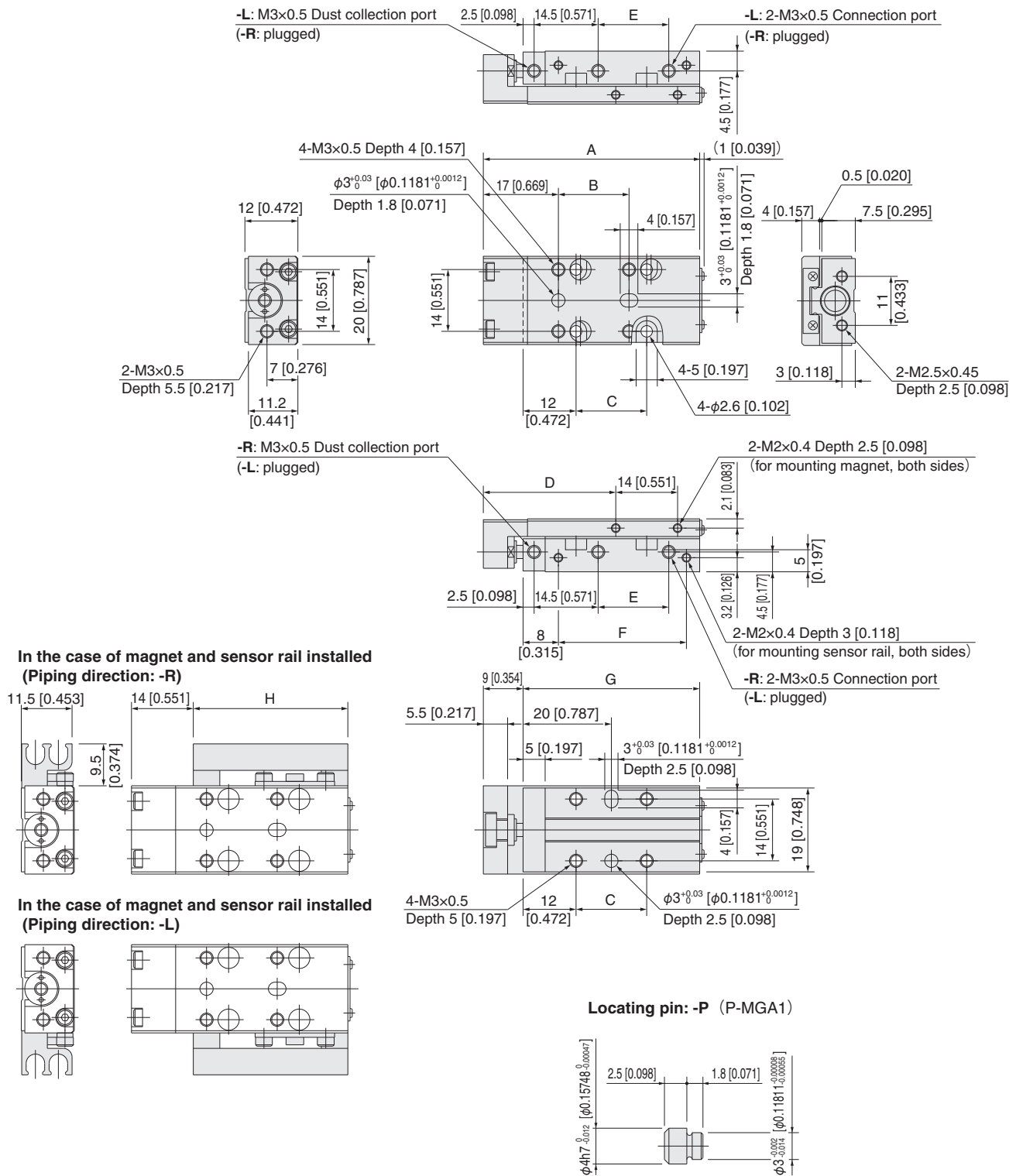


In the case of magnet and sensor rail installed (Piping direction: -L)



Locating pin: -P (P-MGA1)

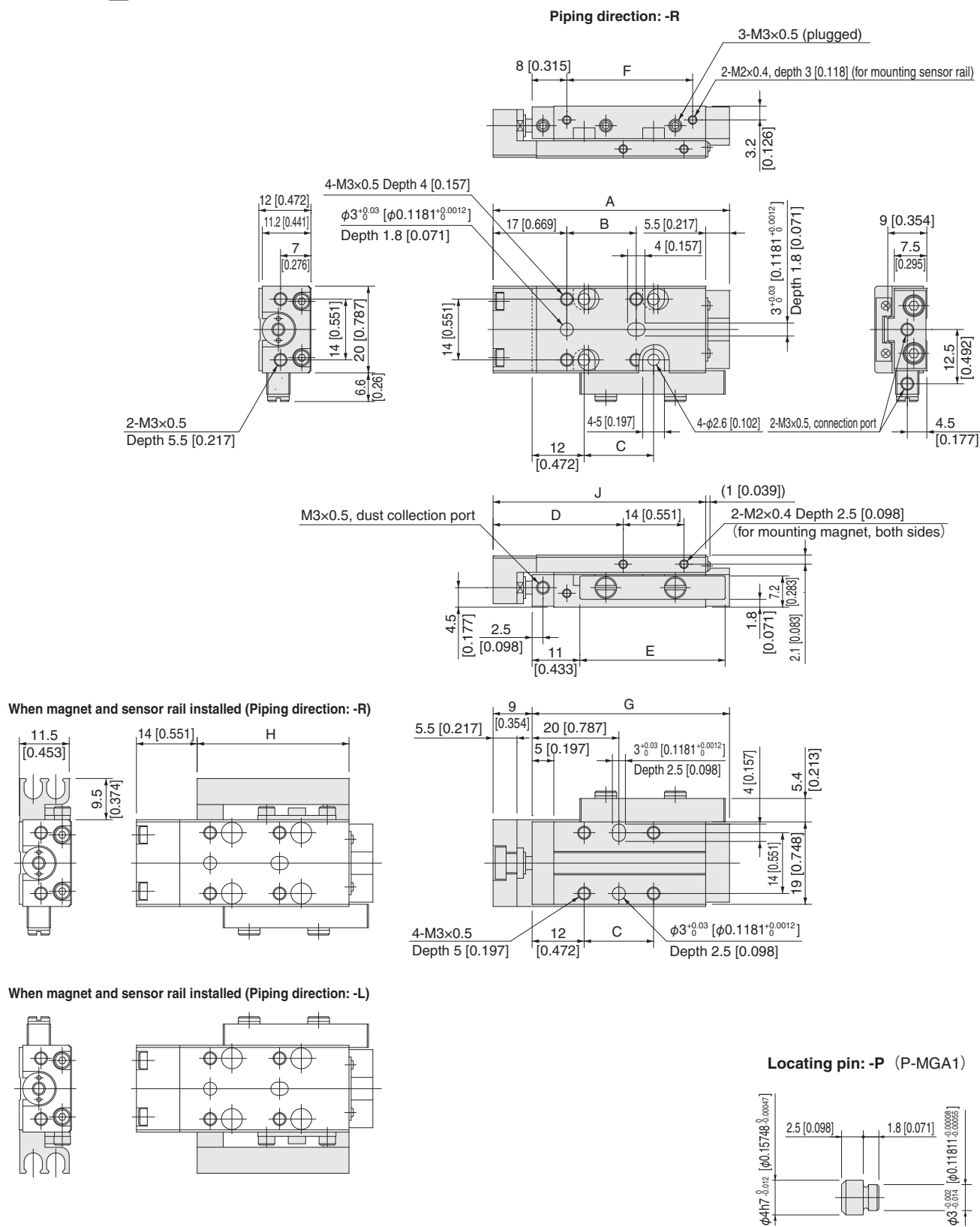


CS-MGA ☐ 6

Stroke	A	B	C	D	E	F	G	H
5, 10	49[1.929]	16[0.630]	16[0.630]	30[1.181]	16[0.630]	29[1.142]	40[1.575]	35[1.378]
15	54[2.126]	21[0.827]	21[0.827]	35[1.378]	21[0.827]	34[1.339]	45[1.772]	40[1.575]
20	59[2.323]	26[1.024]	26[1.024]	40[1.575]	26[1.024]	39[1.535]	50[1.969]	45[1.772]
25, 30	69[2.717]	36[1.417]	36[1.417]	50[1.969]	36[1.417]	49[1.929]	60[2.362]	55[2.165]

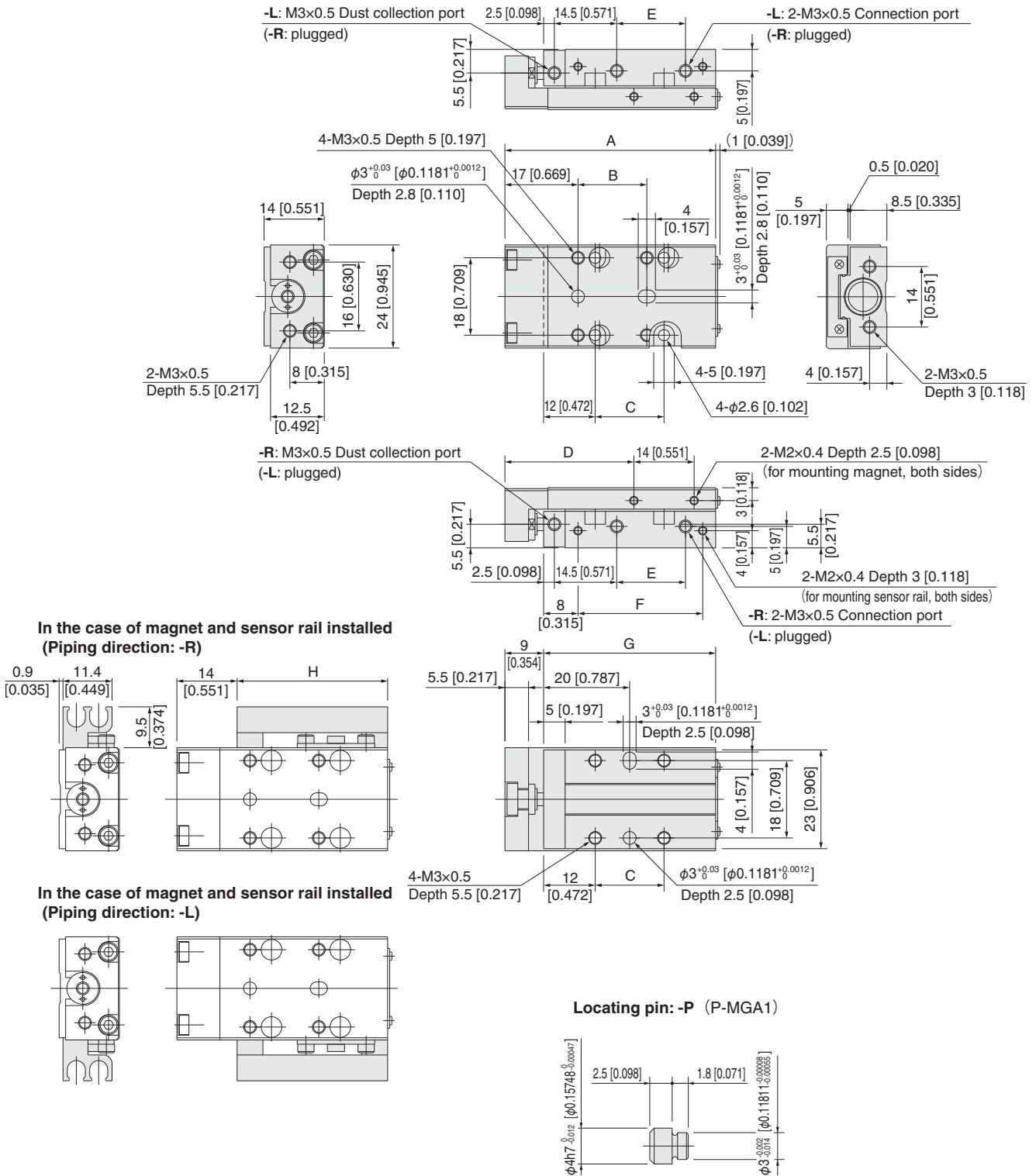
● Rear piping specifications

CS-MGAH□6



Stroke	A	B	C	D	E	F	G	H	J
5, 10	54.5 [2.146]	16 [0.630]	16 [0.630]	30 [1.181]	33.5 [1.319]	29 [1.142]	45.5 [1.791]	35 [1.378]	49 [1.929]
15	59.5 [2.343]	21 [0.827]	21 [0.827]	35 [1.378]	38.5 [1.516]	34 [1.339]	50.5 [1.988]	40 [1.575]	54 [2.126]
20	64.5 [2.539]	26 [1.024]	26 [1.024]	40 [1.575]	43.5 [1.713]	39 [1.535]	55.5 [2.185]	45 [1.772]	59 [2.323]
25, 30	74.5 [2.933]	36 [1.417]	36 [1.417]	50 [1.969]	53.5 [2.106]	49 [1.929]	65.5 [2.579]	55 [2.165]	69 [2.717]

CS-MGA $\square$ 8

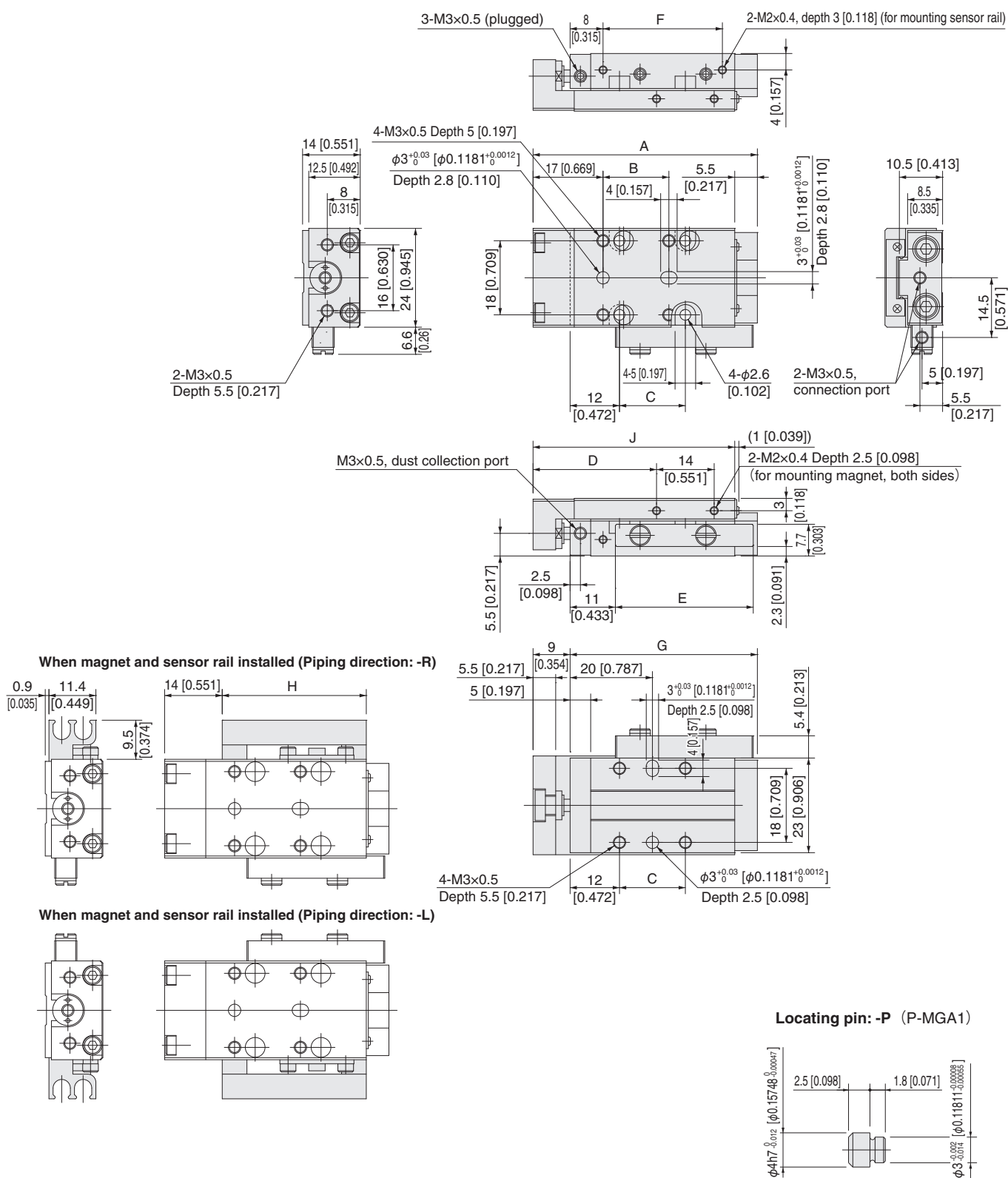


Stroke	A	B	C	D	E	F	G	H
5, 10	49 [1.929]	16 [0.630]	16 [0.630]	30 [1.181]	16 [0.630]	29 [1.142]	40 [1.575]	35 [1.378]
15, 20	59 [2.323]	26 [1.024]	26 [1.024]	40 [1.575]	26 [1.024]	39 [1.535]	50 [1.969]	45 [1.772]
25, 30	69 [2.717]	36 [1.417]	36 [1.417]	50 [1.969]	36 [1.417]	49 [1.929]	60 [2.362]	55 [2.165]

● Rear piping specifications

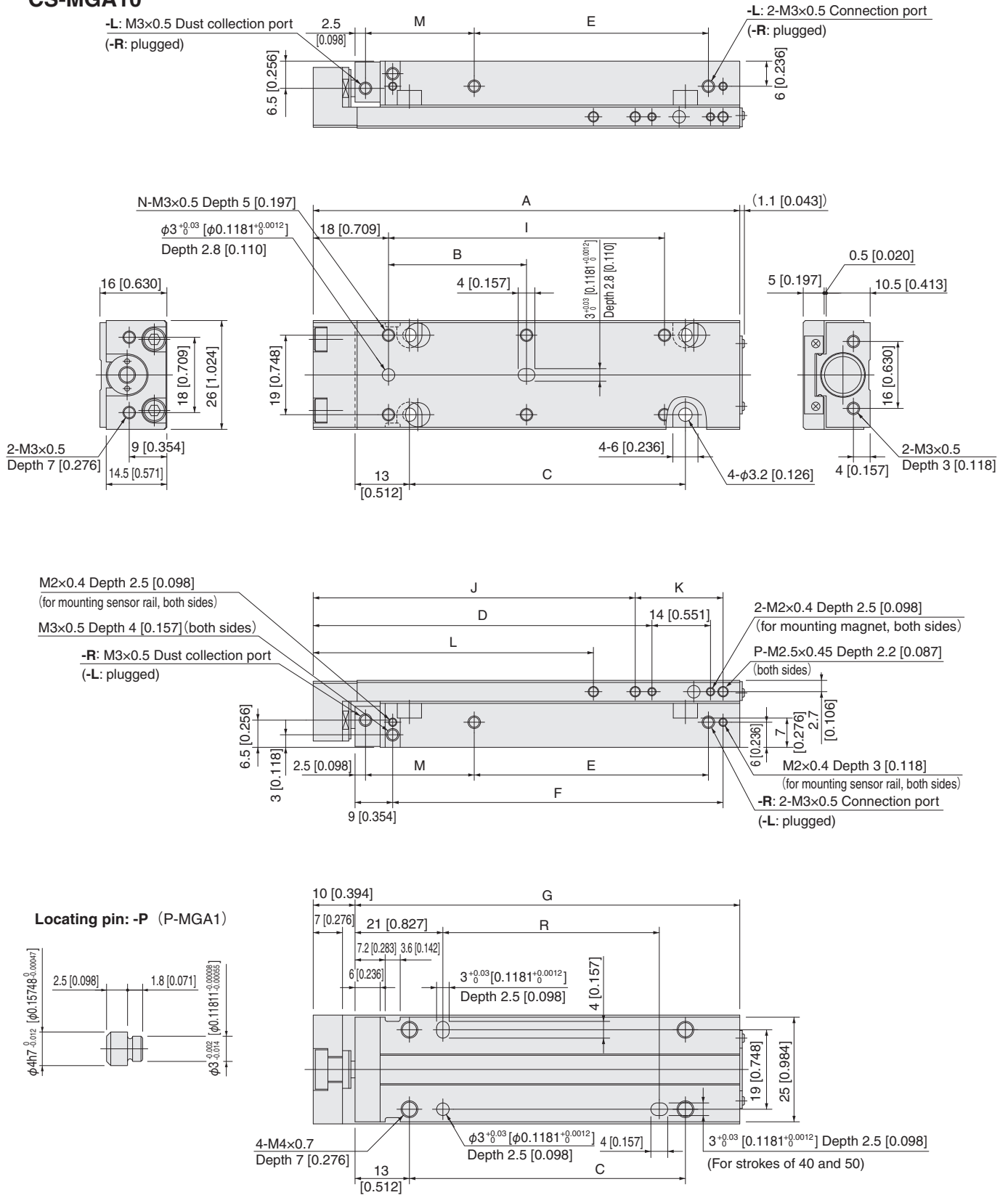
CS-MGAH□8

Piping direction: -R



Stroke	A	B	C	D	E	F	G	H	J
5, 10	54.5 [2.146]	16 [0.630]	16 [0.630]	30 [1.181]	33.5 [1.319]	29 [1.142]	45.5 [1.791]	35 [1.378]	49 [1.929]
15, 20	64.5 [2.539]	26 [1.024]	26 [1.024]	40 [1.575]	43.5 [1.713]	39 [1.535]	55.5 [2.185]	45 [1.772]	59 [2.323]
25, 30	74.5 [2.933]	36 [1.417]	36 [1.417]	50 [1.969]	53.5 [2.106]	49 [1.929]	65.5 [2.579]	55 [2.165]	69 [2.717]

CS-MGA10

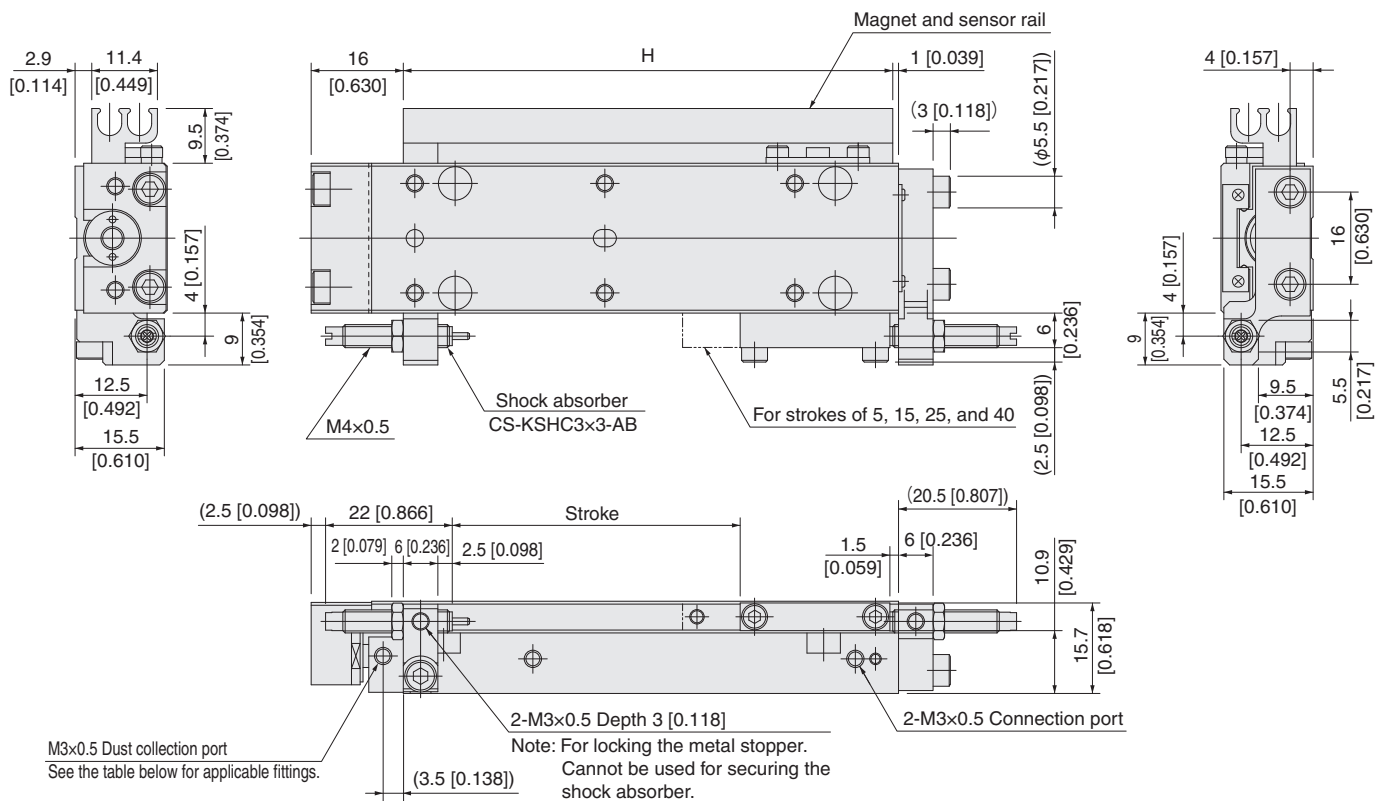


Stroke	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R
5, 10	52 [2.047]	16 [0.630]	16 [0.630]	31 [1.220]	16 [0.630]	29 [1.142]	42 [1.654]	35 [1.378]	—	37 [1.457]	11 [0.433]	—	16 [0.630]	4	2	—
15, 20	62 [2.441]	26 [1.024]	26 [1.024]	41 [1.614]	26 [1.024]	39 [1.535]	52 [2.047]	45 [1.772]	—	47 [1.850]	11 [0.433]	—	16 [0.630]	4	2	—
25, 30	72 [2.835]	36 [1.417]	36 [1.417]	51 [2.008]	36 [1.417]	49 [1.929]	62 [2.441]	55 [2.165]	—	57 [2.244]	11 [0.433]	—	16 [0.630]	4	2	—
40, 50	102 [4.016]	33 [1.299]	66 [2.598]	81 [3.189]	56 [2.205]	79 [3.110]	92 [3.622]	85 [3.346]	66 [2.598]	77 [3.031]	21 [0.827]	67 [2.638]	26 [1.024]	6	3	50 [1.969]

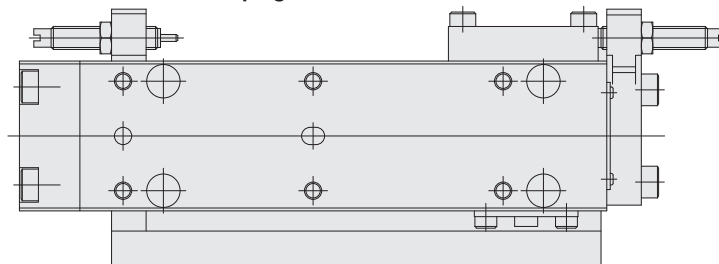
Dimensions of Clean System Cylinders mm [in.]

- Cylinder with magnet and sensor rail **CS-MGAS10**
- Cylinder with shock absorber **CS-MGA□10-SS□**

Piping direction: -R



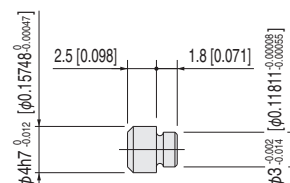
Piping direction: -L



● Applicable fittings for dust collection port

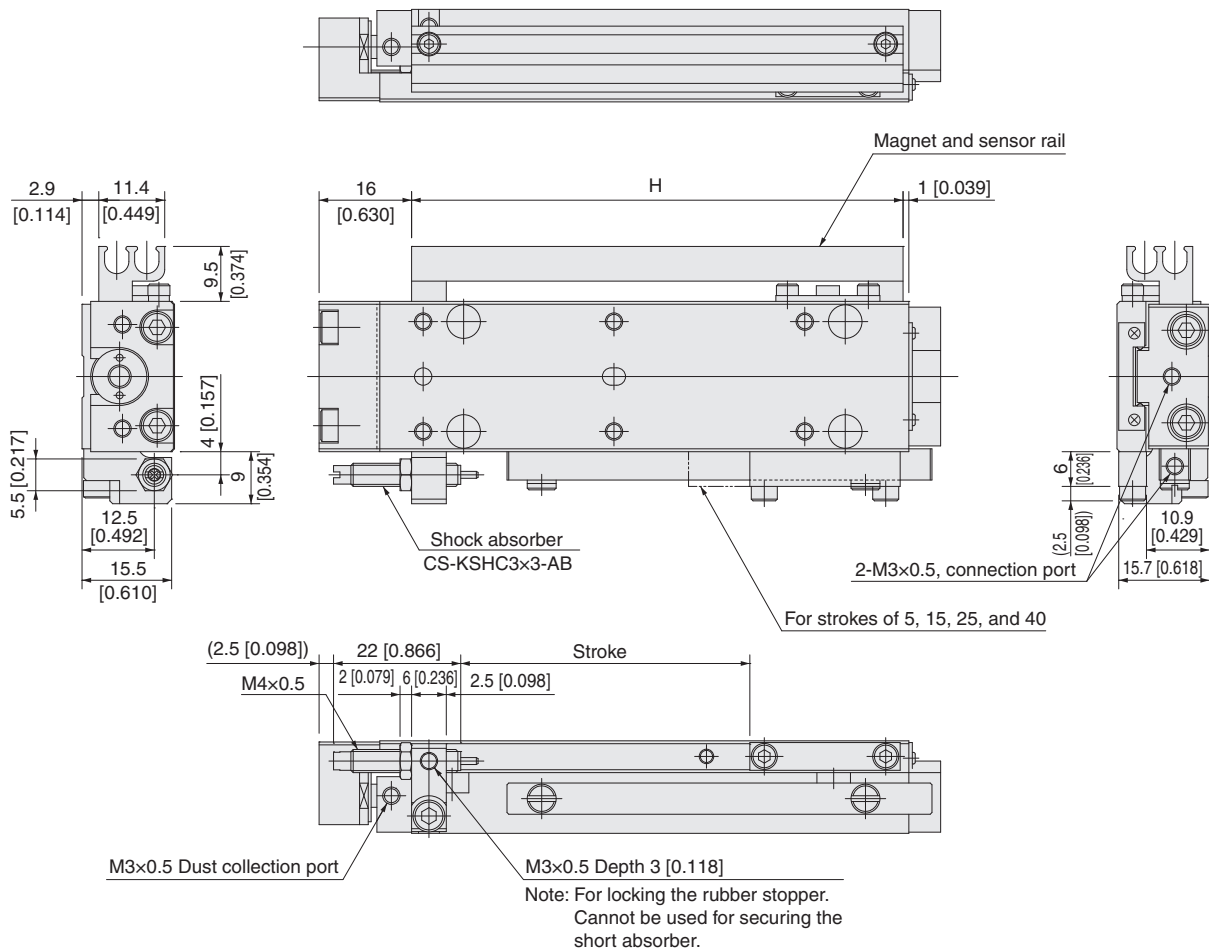
Tube outer diameter mm	Quick fitting	TAC fitting
φ 1.8	TS2-M3M, TSH2-M3M	BF2BU-M3
φ 3	TS3-M3M	BF3BU-M3
φ 4	—	BF4BU-M3

Locating pin: -P (P-MGA1)



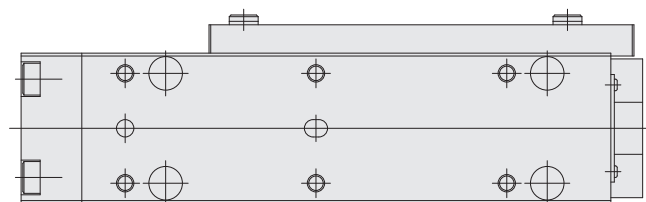
- Rear piping specifications, cylinder with magnet and sensor rail CS-MGAHS10
- Rear piping specifications, cylinder with shock absorber CS-MGAH□10-SSF

Piping direction: -R

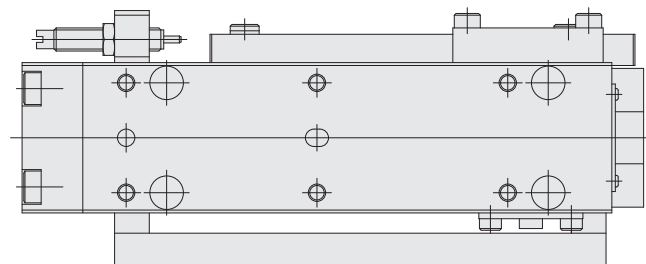


Piping direction: -L

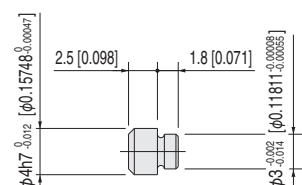
Without options



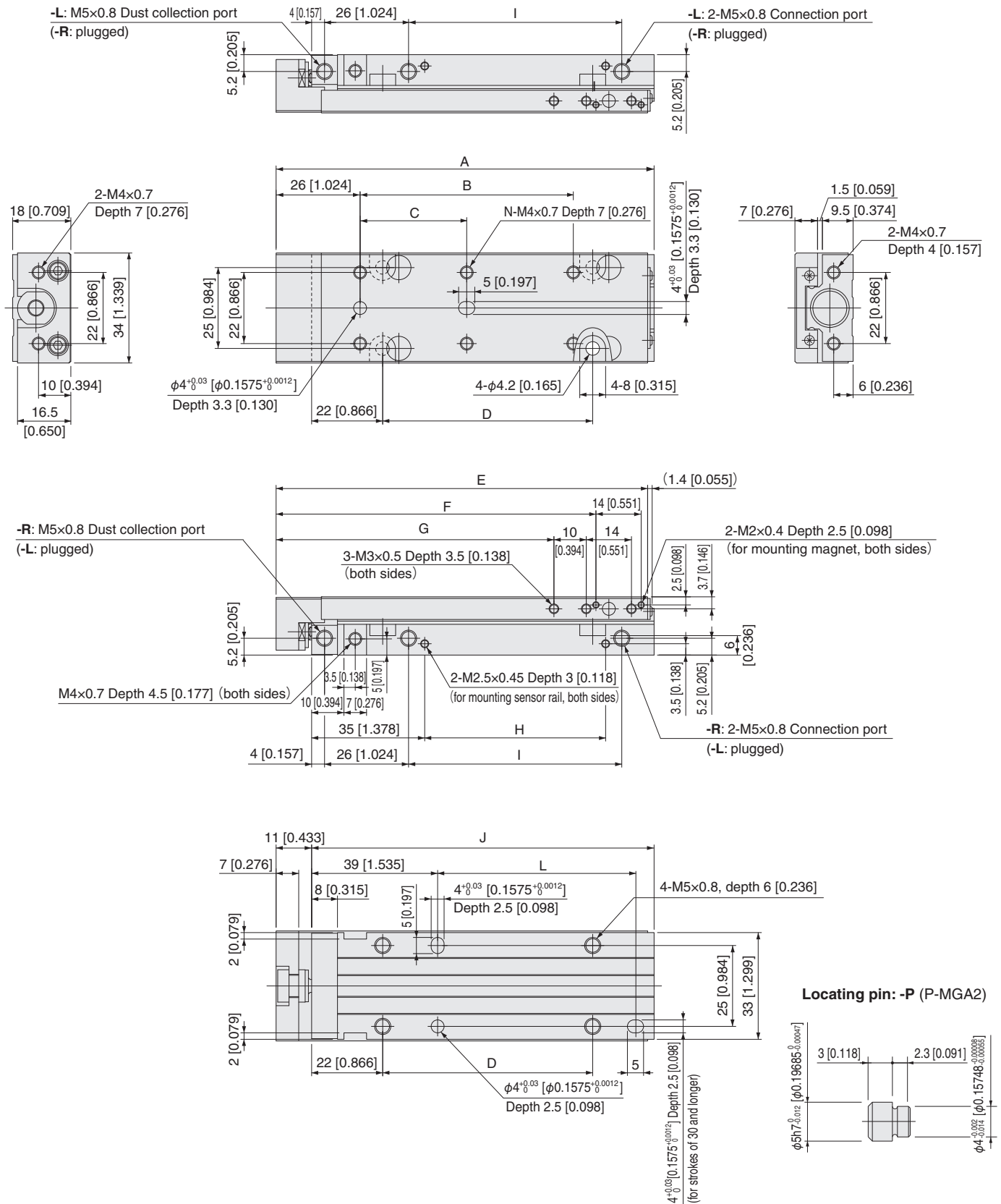
With sensor rail and shock absorber



Locating pin: -P (P-MGA1)



CS-MGA12

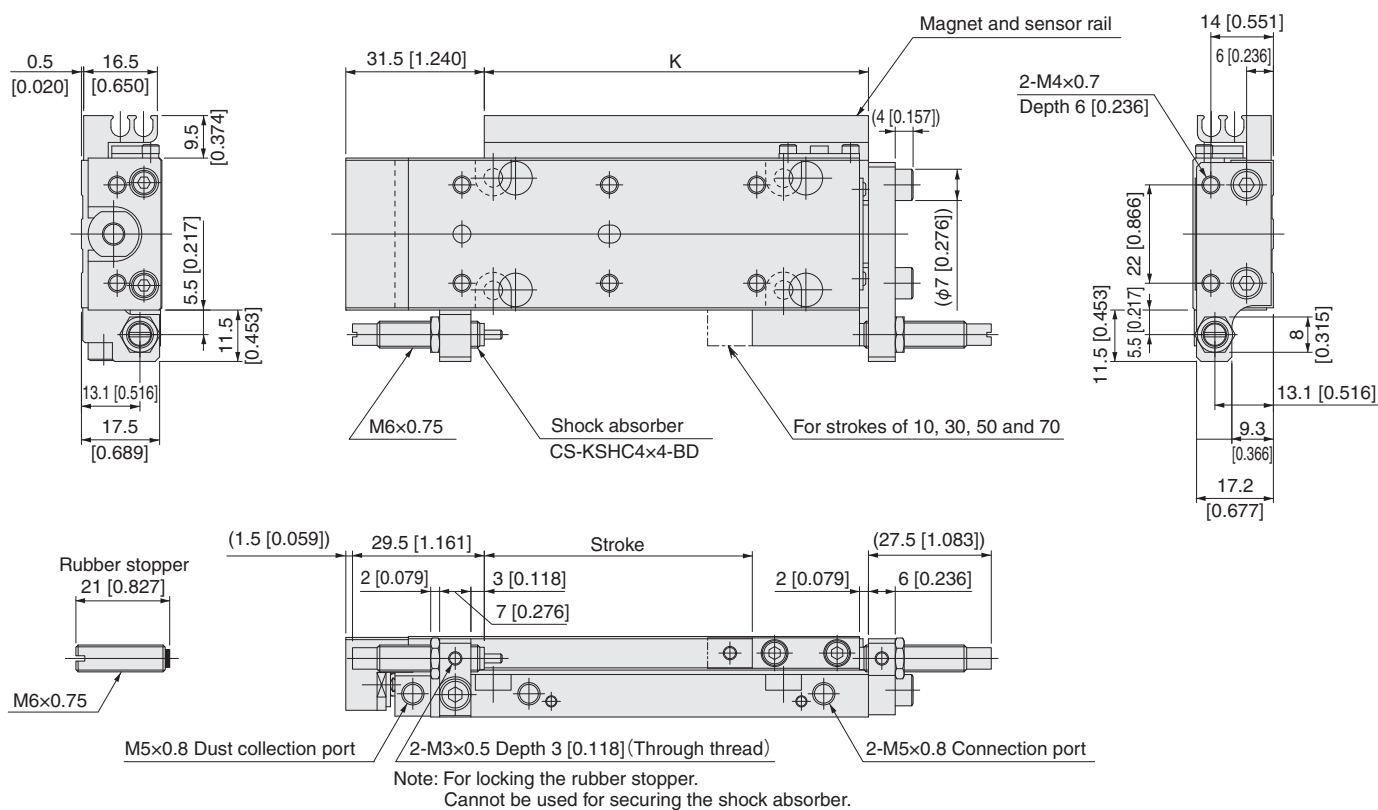


Dimensions of Clean System Cylinders mm [in.]

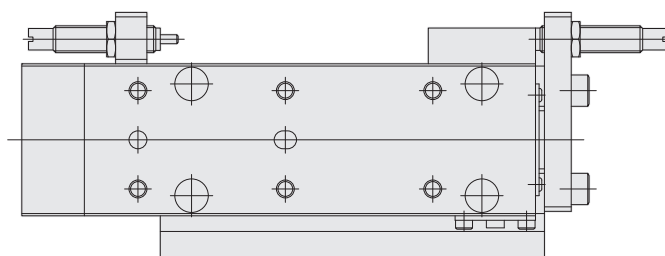
● Cylinder with magnet and sensor rail **CS-MGAS12**

● Cylinder with shock absorber **CS-MGA□12-SS□**

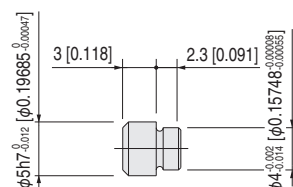
Piping direction: -R



Piping direction: -L



Locating pin: -P (P-MGA2)

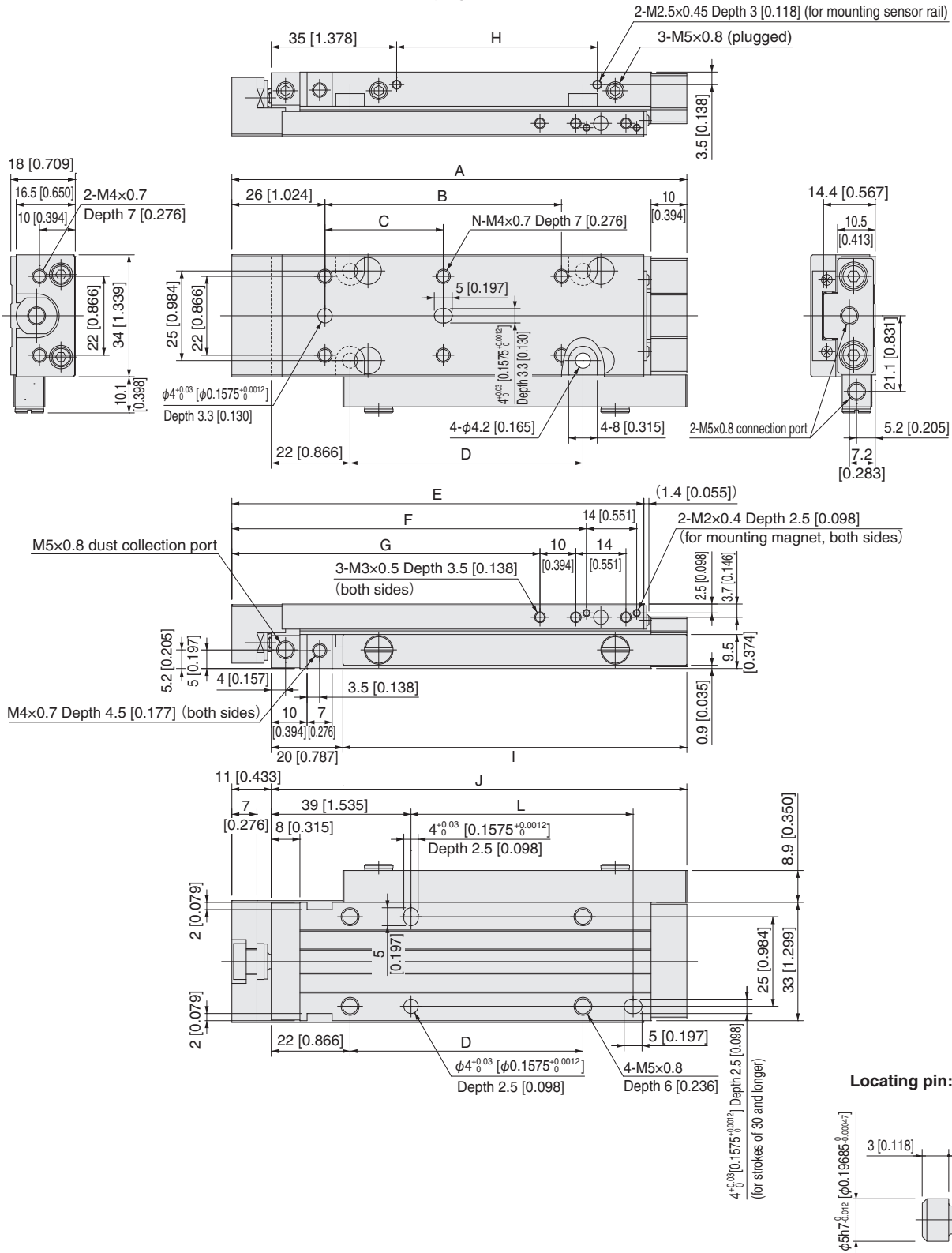


Dimensions of Clean System Cylinders mm [in.]

● Rear piping specifications

CS-MGAH12

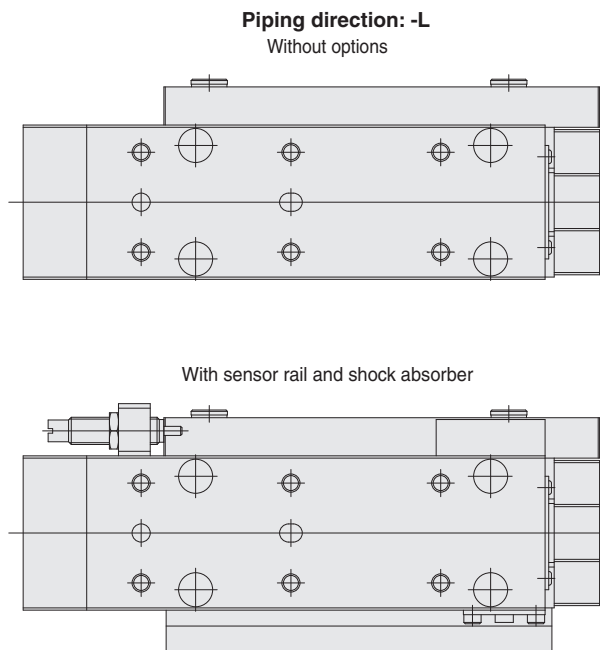
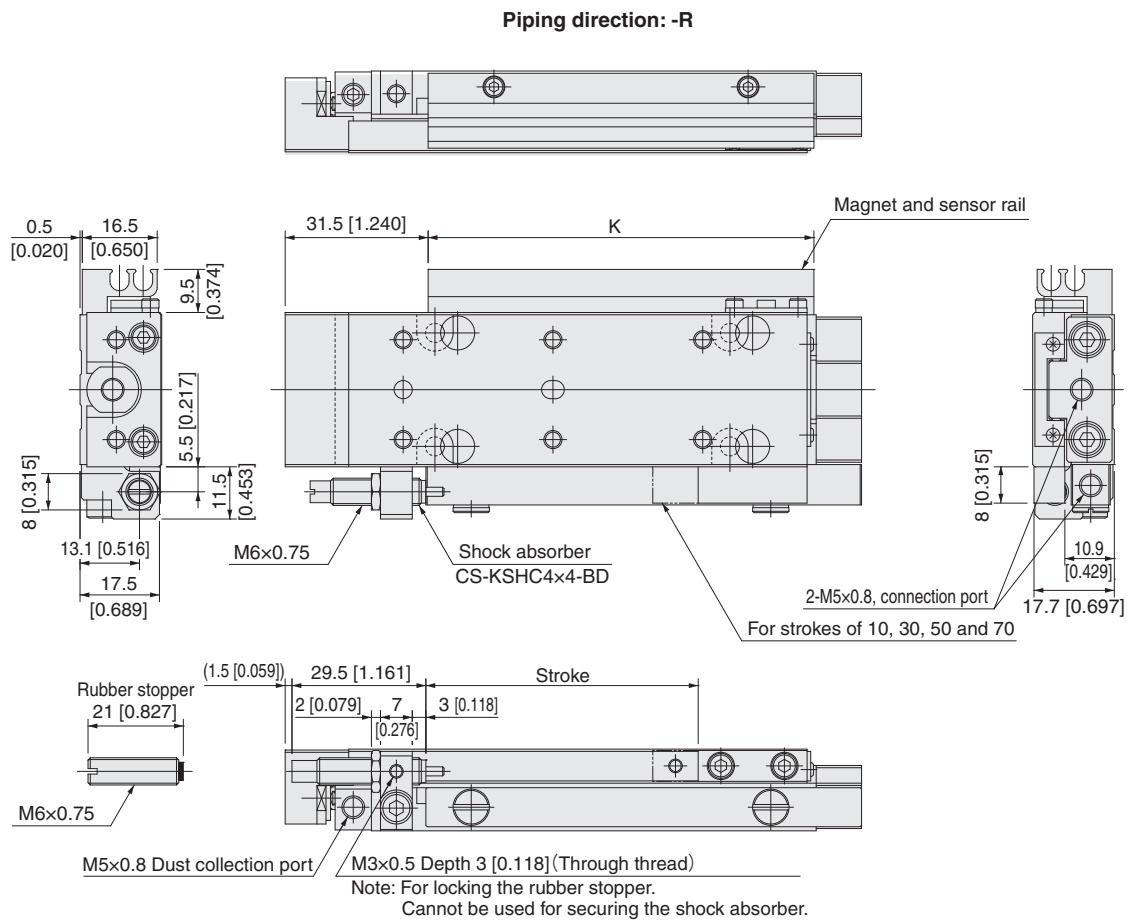
Piping direction: -R



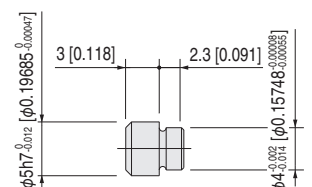
Stroke	A	B	C	D	E	F	G	H	I	J	K	L	N
10, 15, 20	87 [3.425]	—	26 [1.024]	25 [0.984]	67 [2.638]	51 [2.008]	38 [1.496]	16 [0.630]	26 [1.024]	76 [2.992]	45 [1.772]	—	4
30, 40	107 [4.213]	—	46 [1.811]	45 [1.772]	87 [3.425]	71 [2.795]	58 [2.283]	36 [1.417]	46 [1.811]	96 [3.780]	65 [2.559]	42 [1.654]	4
50, 60	127 [5.000]	66 [2.598]	33 [1.299]	65 [2.559]	107 [4.213]	91 [3.583]	78 [3.071]	56 [2.205]	66 [2.598]	116 [4.567]	85 [3.346]	62 [2.441]	6
70, 80	147 [5.787]	86 [3.386]	43 [1.693]	85 [3.346]	127 [5.000]	111 [4.370]	98 [3.858]	76 [2.992]	86 [3.386]	136 [5.354]	105 [4.134]	82 [3.228]	6

Dimensions of Clean System Cylinders mm [in.]

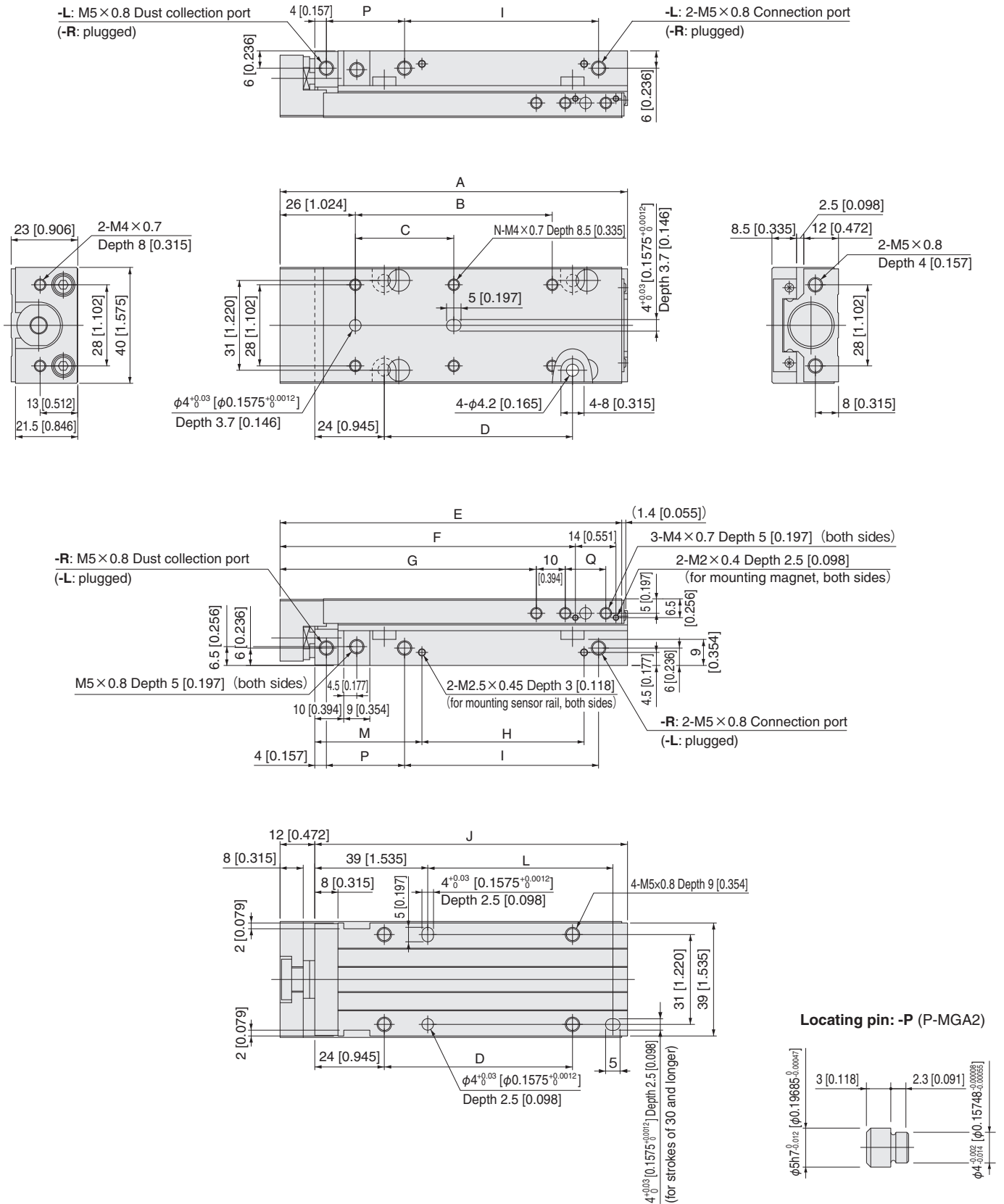
- Rear piping specifications, cylinder with magnet and sensor rail CS-MGAHS12
- Rear piping specifications, cylinder with shock absorber CS-MGAH□12-SSF



Locating pin: -P (P-MGA2)



CS-MGA16

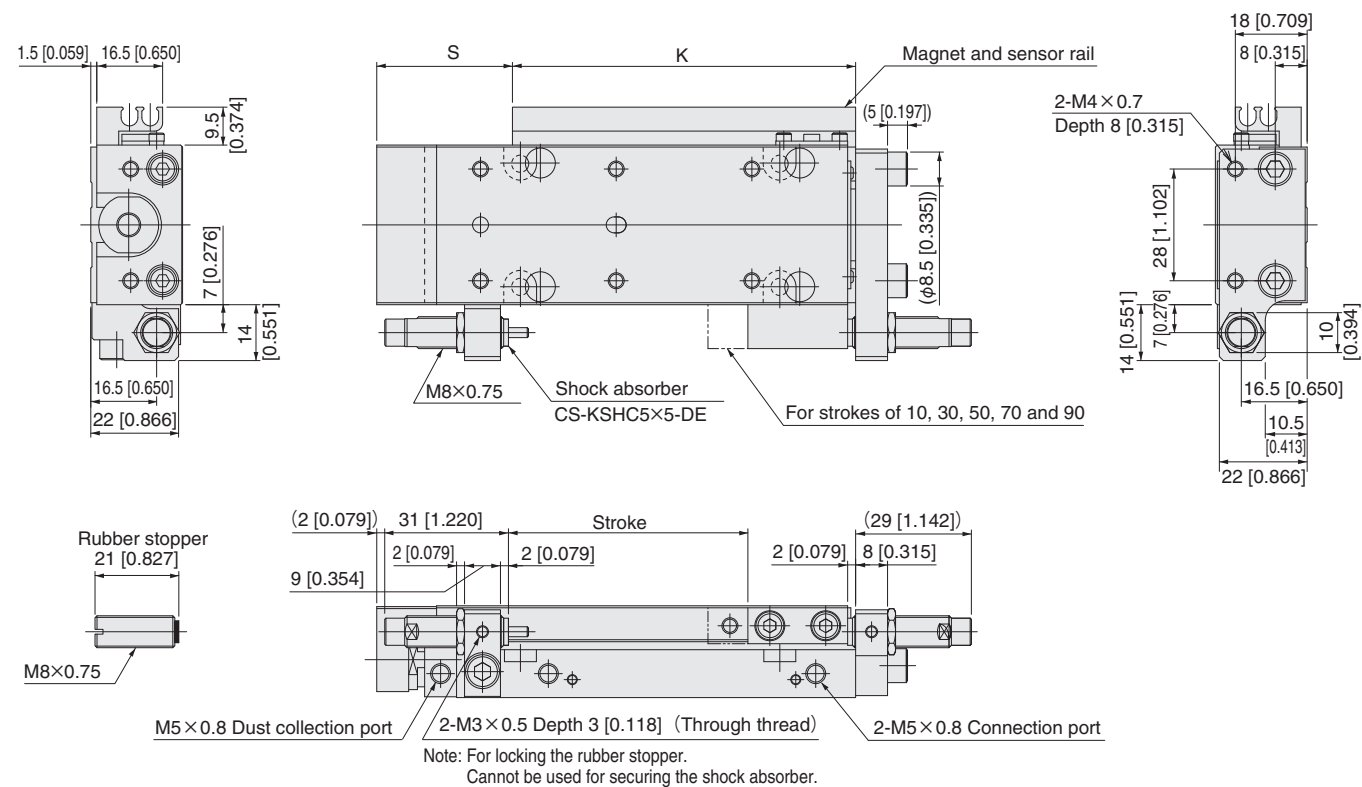


Stroke	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	S
10, 15, 20	80 [3.150]	—	28 [1.102]	25 [0.984]	78 [3.071]	62 [2.441]	48.5 [1.909]	16 [0.630]	27 [1.063]	68 [2.677]	45 [1.772]	—	37 [1.457]	4	27 [1.063]	14 [0.551]	34.5 [1.358]
30, 40	100 [3.937]	—	48 [1.890]	45 [1.772]	98 [3.858]	82 [3.228]	68.5 [2.697]	36 [1.417]	47 [1.850]	88 [3.465]	65 [2.559]	44 [1.732]	37 [1.457]	4	27 [1.063]	14 [0.551]	34.5 [1.358]
50, 60	120 [4.724]	68 [2.677]	34 [1.339]	65 [2.559]	118 [4.646]	102 [4.016]	88.5 [3.484]	56 [2.205]	67 [2.638]	108 [4.252]	85 [3.346]	64 [2.520]	37 [1.457]	6	27 [1.063]	14 [0.551]	34.5 [1.358]
70, 80	140 [5.512]	88 [3.465]	44 [1.732]	85 [3.346]	138 [5.433]	122 [4.803]	108.5 [4.272]	76 [2.992]	87 [3.425]	128 [5.039]	105 [4.134]	84 [3.307]	37 [1.457]	6	27 [1.063]	14 [0.551]	34.5 [1.358]
90, 100	180 [7.087]	128 [5.039]	64 [2.520]	125 [4.921]	178 [7.008]	162 [6.378]	128.5 [5.059]	121 [4.764]	107 [4.213]	168 [6.614]	150 [5.906]	124 [4.882]	32 [1.260]	6	47 [1.850]	34 [1.339]	29.5 [1.161]

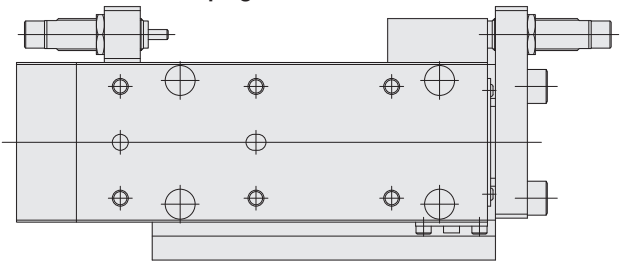
Dimensions of Clean System Cylinders mm [in.]

- Cylinder with magnet and sensor rail CS-MGAS16
- Cylinder with shock absorber CS-MGA□16-SS□

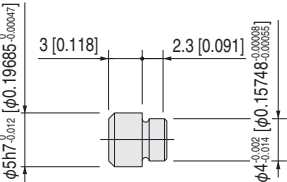
Piping direction: -R



Piping direction: -L



Locating pin: -P (P-MGA2)



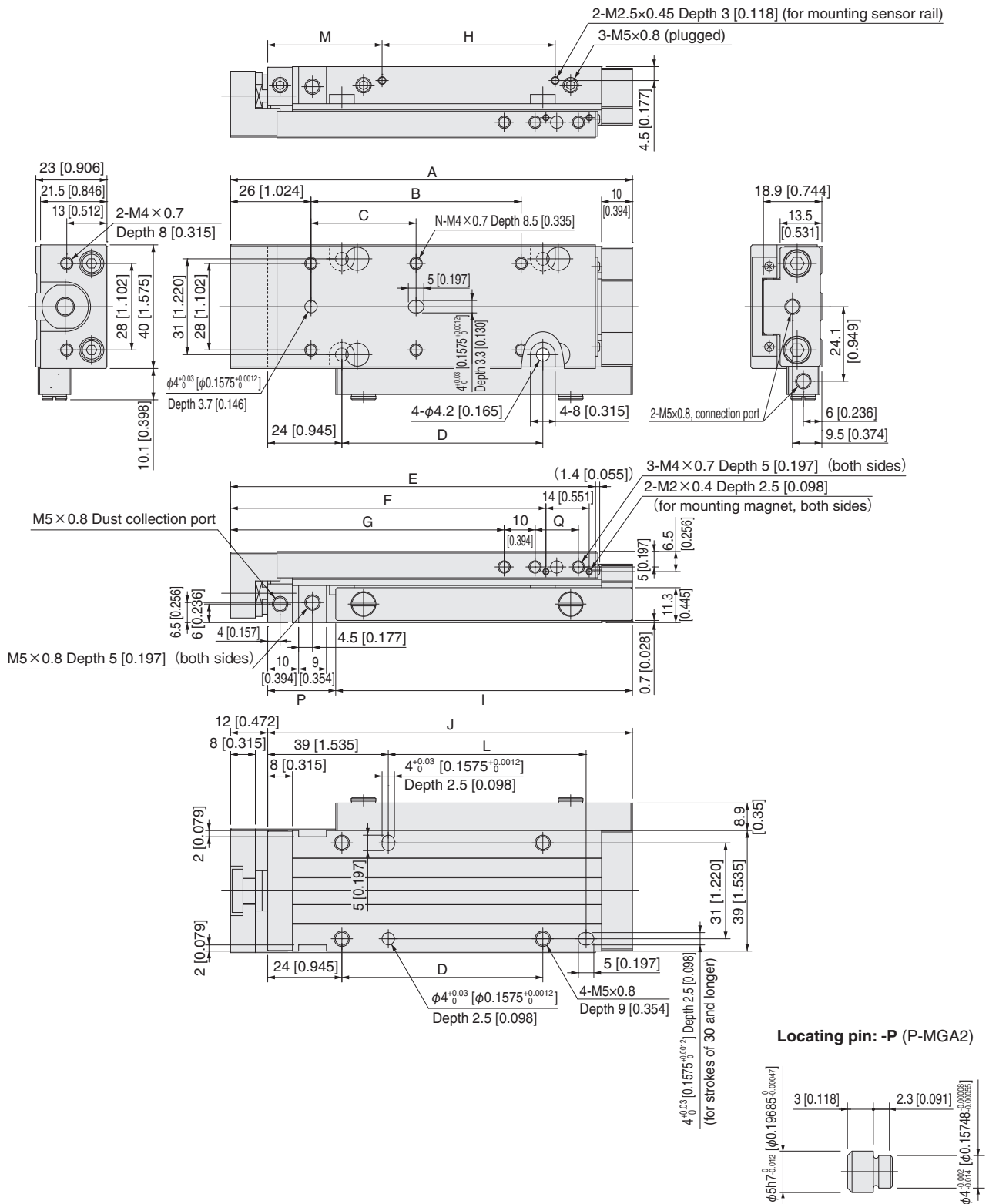
	φ4.5 [0.177]
	φ6 [0.236]
	φ8 [0.315]
	φ10 [0.394]
	φ12 [0.472]
	φ16 [0.630]
	φ20 [0.787]
	φ25 [0.984]
	φ32 [1.260]
Clean system products	
Sensor switch	
Linear Magnetic Sensor Controller	

Dimensions of Clean System Cylinders mm [in.]

● Rear piping specifications

CS-MGAH16

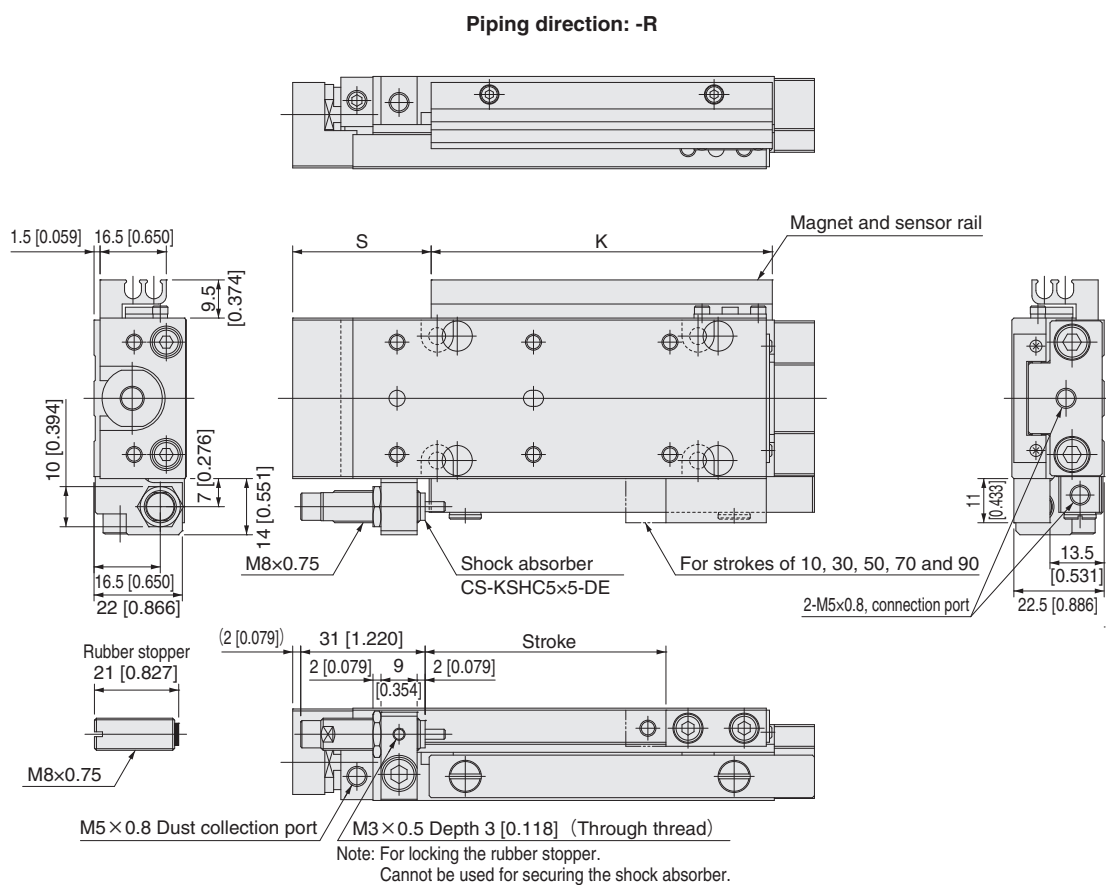
Piping direction: -R



Stroke	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	S
10, 15, 20	90 [3.543]	—	28 [1.102]	25 [0.984]	76 [3.071]	62 [2.441]	48.5 [1.909]	16 [0.630]	56 [2.205]	78 [3.071]	45 [1.772]	—	37 [1.457]	4	22 [0.866]	14 [0.551]	34.5 [1.358]
30, 40	110 [4.331]	—	48 [1.890]	45 [1.772]	98 [3.858]	82 [3.228]	68.5 [2.697]	36 [1.417]	76 [2.992]	98 [3.858]	65 [2.559]	44 [1.732]	37 [1.457]	4	22 [0.866]	14 [0.551]	34.5 [1.358]
50, 60	130 [5.118]	68 [2.677]	34 [1.339]	65 [2.559]	118 [4.646]	102 [4.016]	88.5 [3.484]	56 [2.205]	96 [3.780]	118 [4.646]	85 [3.346]	64 [2.520]	37 [1.457]	6	22 [0.866]	14 [0.551]	34.5 [1.358]
70, 80	150 [5.906]	88 [3.465]	44 [1.732]	85 [3.346]	138 [5.433]	122 [4.803]	108.5 [4.272]	76 [2.992]	116 [4.567]	138 [5.433]	105 [4.134]	84 [3.307]	37 [1.457]	6	22 [0.866]	14 [0.551]	34.5 [1.358]
90, 100	190 [7.480]	128 [5.039]	64 [2.520]	125 [4.921]	178 [7.008]	162 [6.378]	128.5 [5.059]	121 [4.764]	136 [5.354]	178 [7.008]	150 [5.906]	124 [4.882]	32 [1.260]	6	42 [1.654]	34 [1.339]	29.5 [1.161]

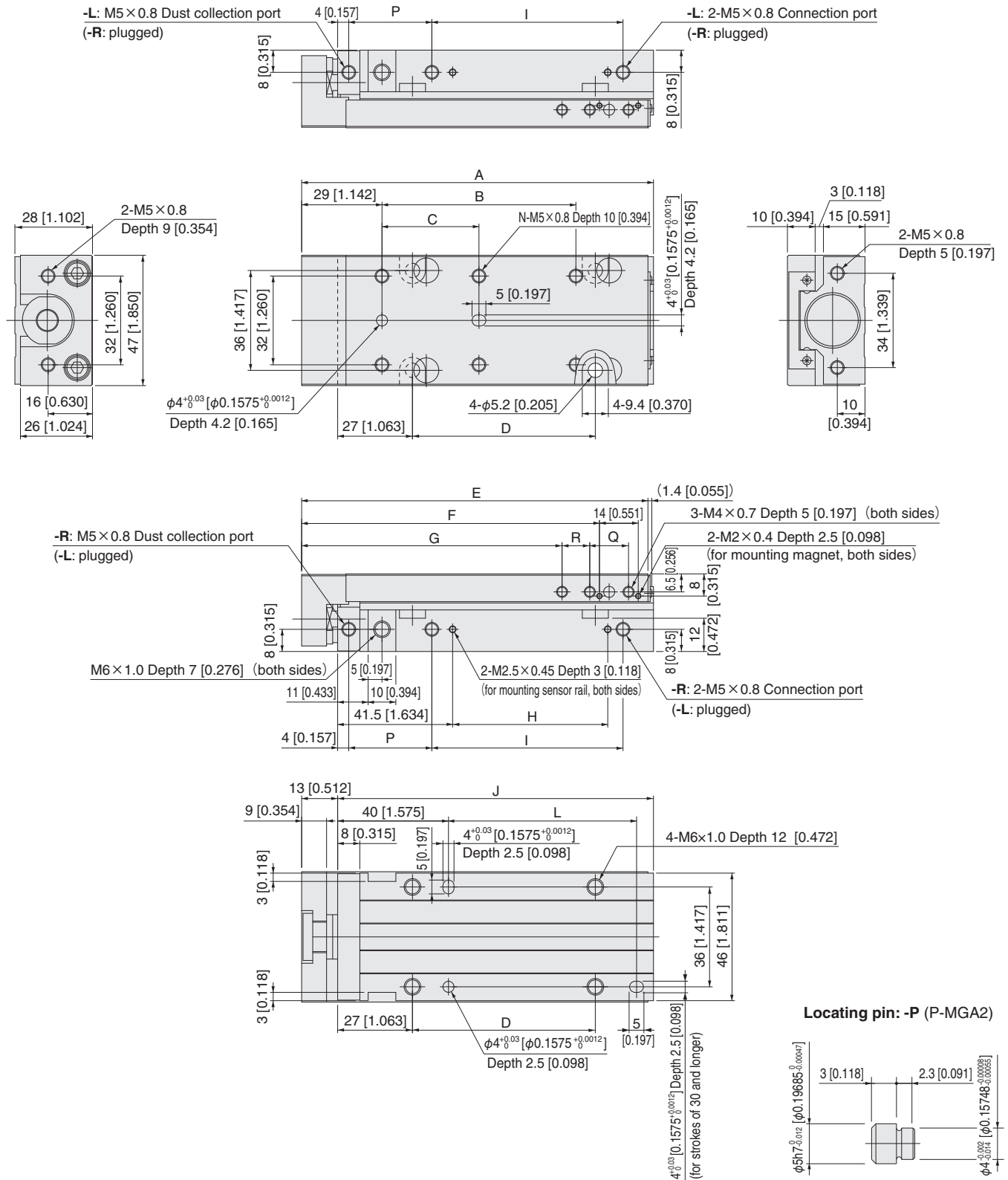
Dimensions of Clean System Cylinders mm [in.]

- Rear piping specifications, cylinder with magnet and sensor rail **CS-MGAHS16**
- Rear piping specifications, cylinder with shock absorber **CS-MGAH□16-SSF**



Dimensions of Clean System Cylinders mm [in.]

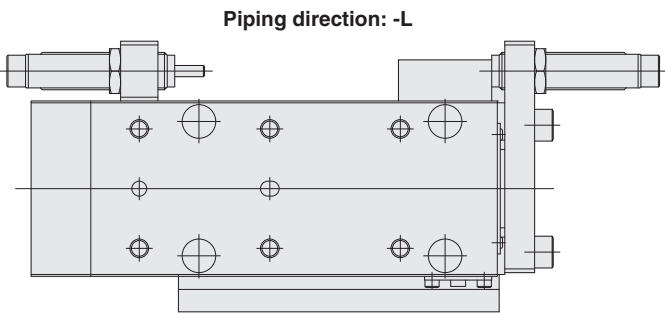
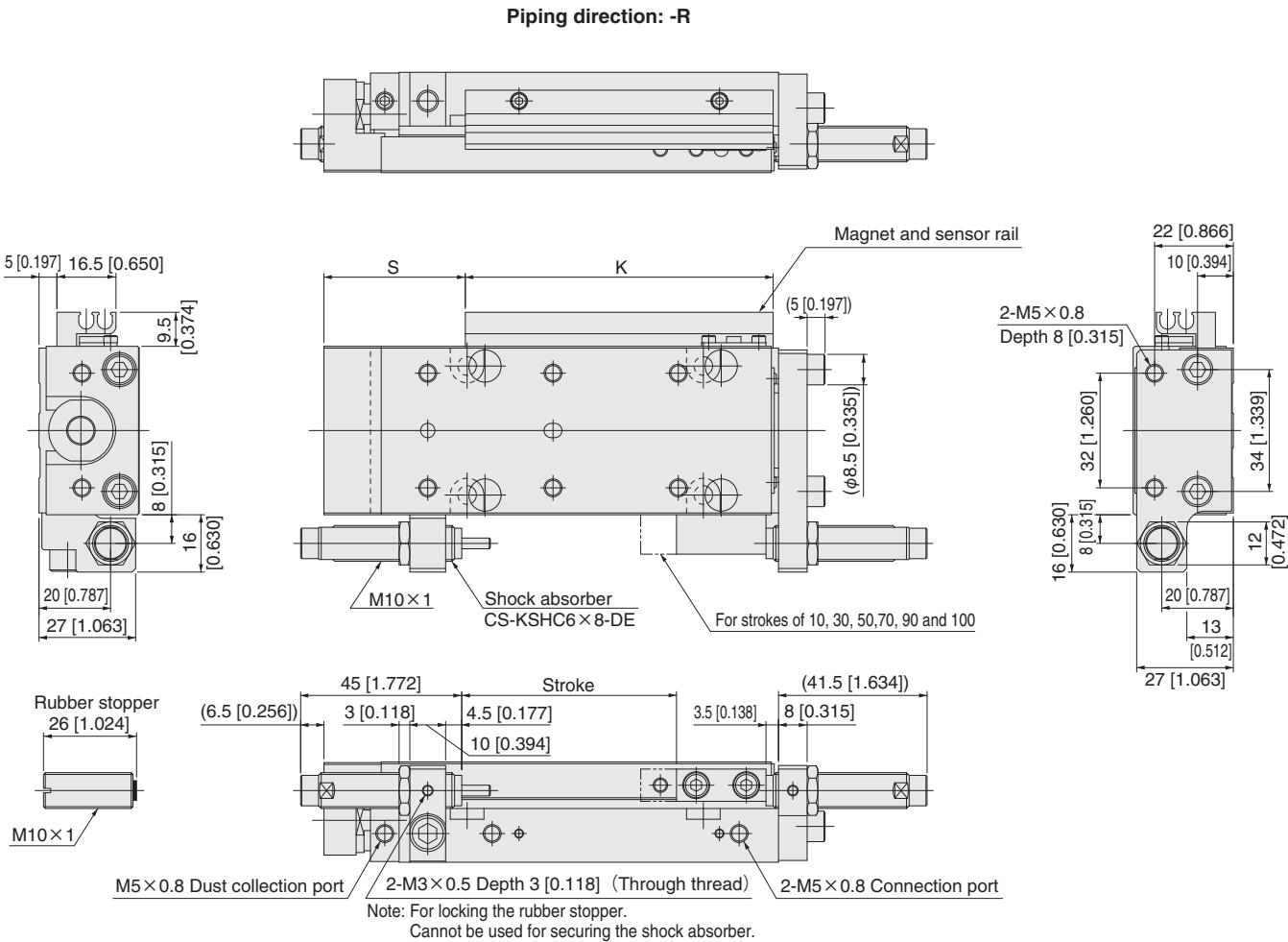
CS-MGA20



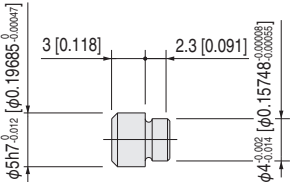
Stroke	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S
10, 15, 20	87 [3.425]	—	30 [1.181]	26 [1.024]	85 [3.346]	67.5 [2.657]	54 [2.126]	16 [0.630]	29 [1.142]	74 [2.913]	45 [1.772]	—	41.5 [1.634]	4	30 [1.181]	14 [0.551]	10 [0.394]	40 [1.575]
30, 40	107 [4.213]	—	50 [1.969]	46 [1.811]	105 [4.134]	87.5 [3.445]	74 [2.913]	36 [1.417]	49 [1.929]	94 [3.701]	65 [2.559]	45 [1.772]	41.5 [1.634]	4	30 [1.181]	14 [0.551]	10 [0.394]	40 [1.575]
50, 60	127 [5.000]	70 [2.756]	35 [1.378]	66 [2.598]	125 [4.921]	107.5 [4.232]	94 [3.701]	56 [2.205]	69 [2.717]	114 [4.488]	85 [3.346]	65 [2.559]	41.5 [1.634]	6	30 [1.181]	14 [0.551]	10 [0.394]	40 [1.575]
70, 80	147 [5.787]	90 [3.543]	45 [1.772]	86 [3.386]	145 [5.709]	127.5 [5.020]	114 [4.488]	76 [2.992]	89 [3.504]	134 [5.276]	105 [4.134]	85 [3.346]	41.5 [1.634]	6	30 [1.181]	14 [0.551]	10 [0.394]	40 [1.575]
90, 100, 120, 125	212 [8.346]	150 [5.906]	75 [2.953]	151 [5.945]	210 [8.268]	192.5 [7.579]	144 [5.669]	121 [4.764]	134 [5.276]	199 [7.835]	150 [5.906]	150 [5.906]	61.5 [2.421]	6	50 [1.969]	34 [1.339]	25 [0.984]	60 [2.362]

Dimensions of Clean System Cylinders mm [in.]

- Cylinder with magnet and sensor rail CS-MGAS20
- Cylinder with shock absorber CS-MGA□20-SS□



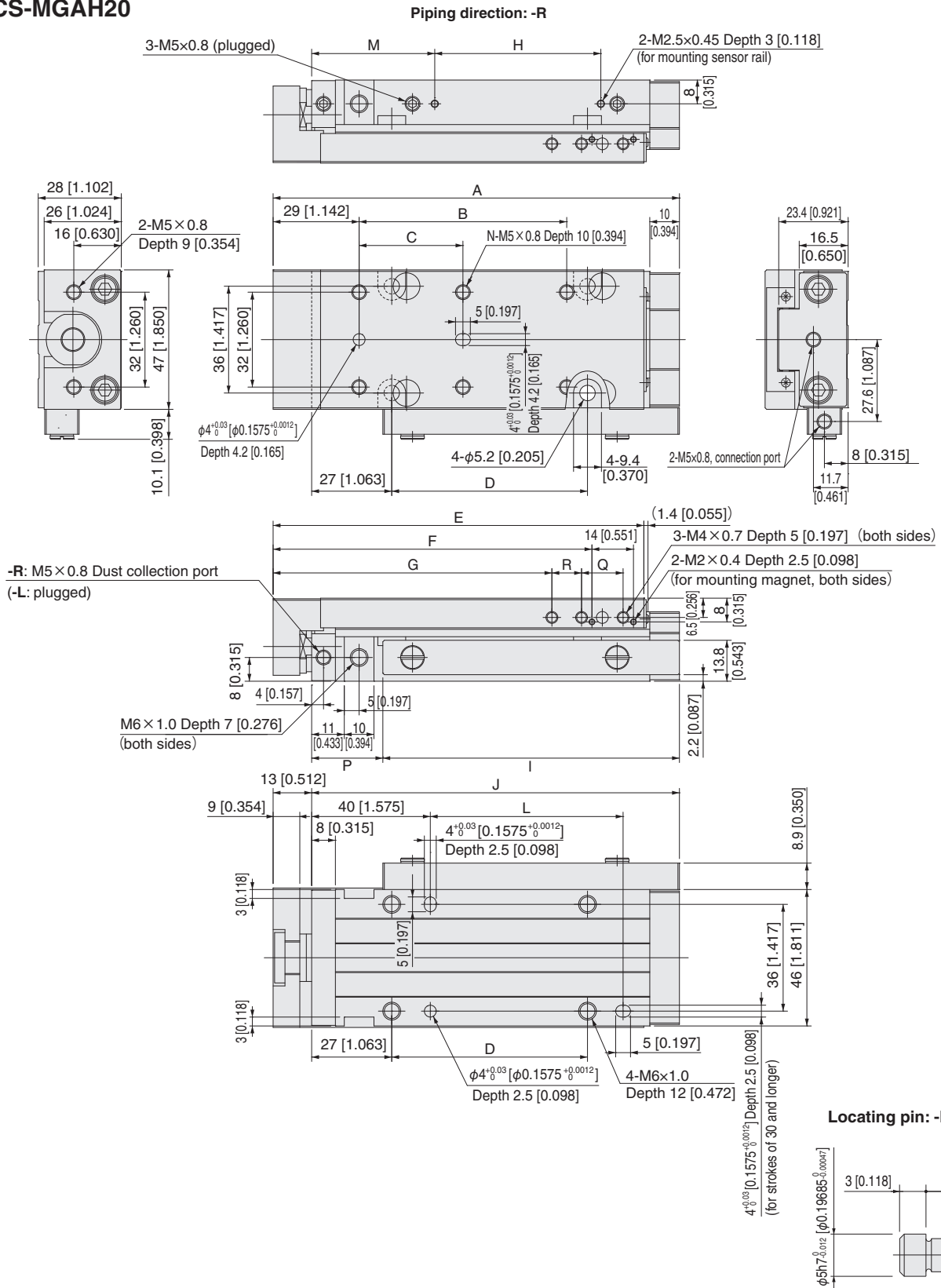
Locating pin: -P (P-MGA2)



Dimensions of Clean System Cylinders mm [in.]

● Rear piping specifications

CS-MGAH20



Stroke	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S
10, 15, 20	97 [3.819]	—	30 [1.181]	26 [1.024]	85 [3.346]	67.5 [2.657]	54 [2.126]	16 [0.630]	60 [2.362]	84 [3.307]	45 [1.772]	—	41.5 [1.634]	4	24 [0.945]	14 [0.551]	10 [0.394]	40 [1.575]
30, 40	117 [4.606]	—	50 [1.969]	46 [1.811]	105 [4.134]	87.5 [3.445]	74 [2.913]	36 [1.417]	80 [3.150]	104 [4.094]	65 [2.559]	45 [1.772]	41.5 [1.634]	4	24 [0.945]	14 [0.551]	10 [0.394]	40 [1.575]
50, 60	137 [5.394]	70 [2.756]	35 [1.378]	66 [2.598]	125 [4.921]	107.5 [4.232]	94 [3.701]	56 [2.205]	100 [3.937]	124 [4.882]	85 [3.346]	65 [2.559]	41.5 [1.634]	6	24 [0.945]	14 [0.551]	10 [0.394]	40 [1.575]
70, 80	157 [6.181]	90 [3.543]	45 [1.772]	86 [3.386]	145 [5.709]	127.5 [5.020]	114 [4.488]	76 [2.992]	120 [4.724]	144 [5.669]	105 [4.134]	85 [3.346]	41.5 [1.634]	6	24 [0.945]	14 [0.551]	10 [0.394]	40 [1.575]
90, 100, 120, 125	222 [8.740]	150 [5.906]	75 [2.953]	151 [5.945]	210 [8.268]	192.5 [7.579]	144 [5.669]	121 [4.764]	165 [6.496]	209 [8.228]	150 [5.906]	150 [5.906]	61.5 [2.421]	6	44 [1.732]	34 [1.339]	25 [0.984]	60 [2.362]

- Rear piping specifications, cylinder with magnet and sensor rail CS-MGAHS20
- Rear piping specifications, cylinder with shock absorber CS-MGAH□20-SSF

Technical drawing of a shaft with a keyway. The drawing shows the shaft profile with a keyway. Dimensions are given in millimeters (mm) and tolerances are indicated in brackets and brackets with superscripts.

Dimensions and Tolerances:

- Overall length: $3 [0.118]$
- Keyway length: $2.3 [0.091]$
- Shaft diameter: $\phi 5h7 \begin{smallmatrix} 0.012 \\ 0.0047 \end{smallmatrix}$
- Keyway depth: $4 \begin{smallmatrix} -0.002 \\ -0.014 \end{smallmatrix} [\phi 0.15748 \begin{smallmatrix} 0.00006 \\ 0.00085 \end{smallmatrix}]$

near Magnetic

Evaluations of Cleanliness

There is currently no standard in JIS or elsewhere for methods of evaluating cleanliness for pneumatic equipment in the cleanroom specification. Koganei has therefore independently established our in-house measurement methods, to conduct the cleanliness evaluation.

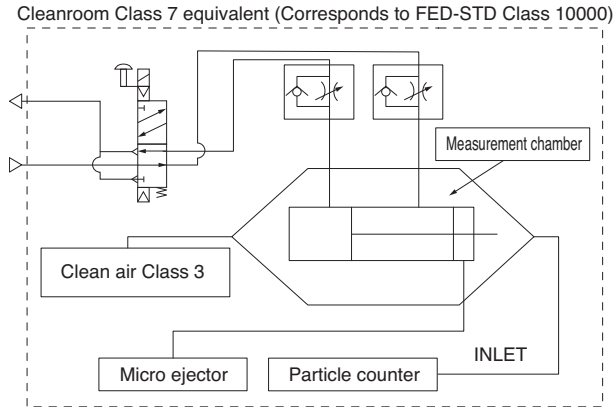
The number of particles in the Mini Guide Slider Cleanroom Specification is measured as shown in the method below.

1. Measurement sample

- ① CS-MGA10×10 (no load) ② CS-MGA20×60-SS2 (load: 2.5 kg [5.5 lbf.])

2. Measurement conditions

2-1 Test circuit : with suction from dust collection port



2-2 Operating conditions of the tested cylinder

Operating frequency: CS-MGA10/1 Hz, CS-MGA20/0.5 Hz

Average speed: 300 mm/s [12 in./sec.]

Applied pressure: 0.5 MPa [73 psi.]

Suction condition: Microejector ME05, Primary side 0.5 MPa [73 psi.] applied, Tube ϕ 6 [0.236 in.]

Mounting direction: CS-MGA10/Vertical, CS-MGA20/Horizontal

Chamber volume: 8.3 ℓ [0.293 ft.³]

3. Particle counter

Manufacturer/model: RION/KM20

Suction flow rate: 28.3 ℓ /min [1 ft.³/min.]

Particle diameter: 0.1 μm , 0.2 μm , 0.3 μm , 0.5 μm , 0.7 μm , 1.0 μm

4. Measurement method

4-1 Confirmation of number of particles in the measurement system

Under the conditions in the above 1 and 2, using a particle counter to measure the sample for nine minutes without operating the measurement sample, and confirmed the measured number of particles is one piece or less.

4-2 Measurement under operation

Under the conditions in the above 1 and 2, operating the measurement sample for 36 minutes, and measured the total values in the latter half of 18 minutes test.

4-3 Reconfirmation

Performed the measurement in 4-1 again, to reconfirm the number of particles in the measurement system.

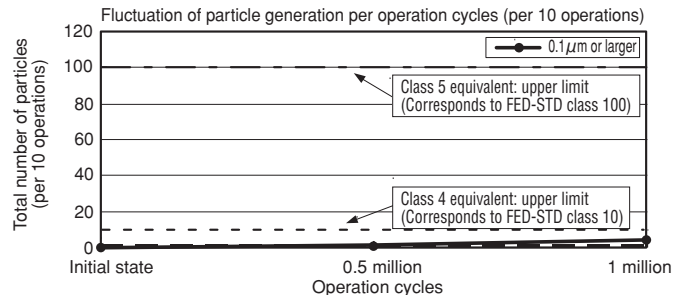
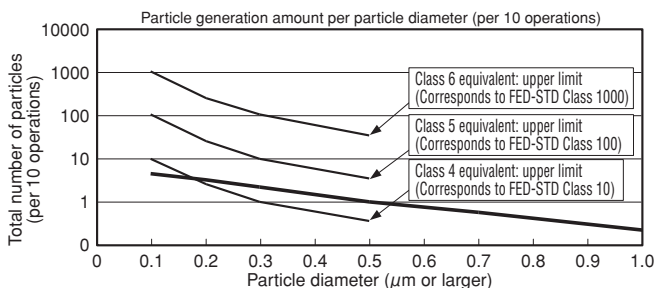
4-4 Measurement value conversion

Total value of last 18 minutes of 4-2 converted into number per 10 cylinder operations.

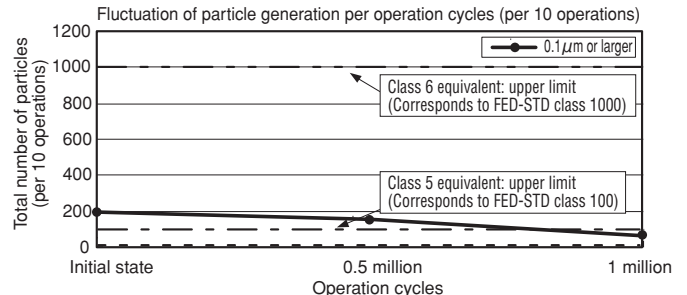
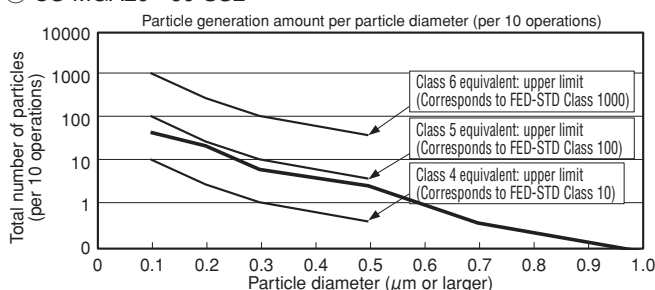
5. Measurement results Note

- With suction from dust collection port

① CS-MGA10×10



② CS-MGA20×60-SS2



Note: The graphs by particle diameter are based on measurements after 1 million operations of products.