KOGANEI CLEAN SYSTEM

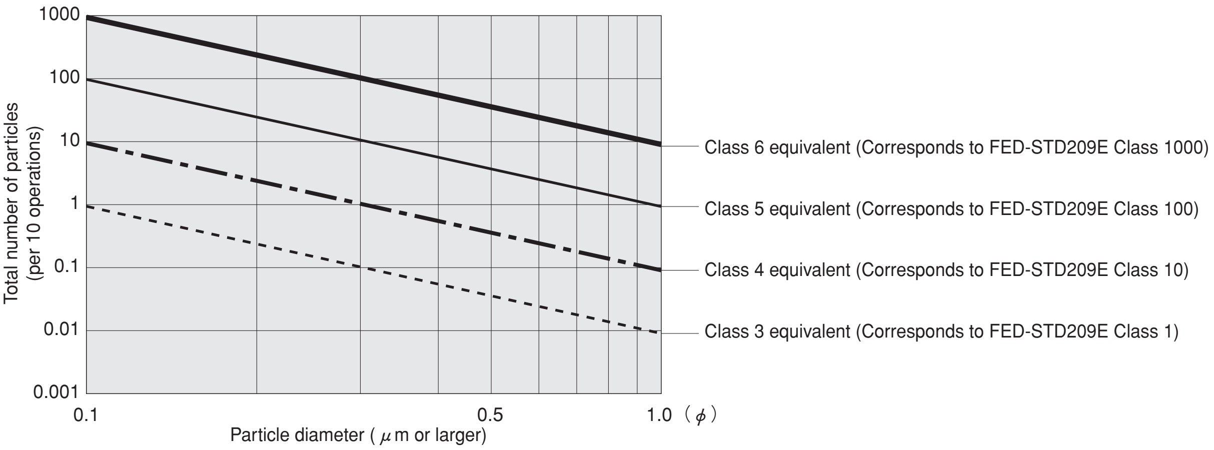
Koganei Clean System products provide complete support for the maintenance of a clean environment inside the cleanroom.

Koganei Clean System products meet the needs of the ultra-clean production environment. In everything from actuators and valves to air preparation and auxiliary equipment, anti-corrosion materials processing and other Koganei-developed design concepts serve to prevent particle contamination within the cleanroom. These perfectly designed mechanisms, which resolve even the slightest leaks to the outside during operations, have already won a high level of reliability.

Koganei Cleanliness

There is currently no standard in JIS or elsewhere for methods of evaluating cleanliness for pneumatic equipment in the cleanroom specifications. Therefore, to measure the effects of cleanroom contamination by pneumatic equipment, Koganei has decided to use "number of particles generated per 10 operations," rather than particle density. Koganei has also developed classifications for application classes in cleanroom, based on JIS and other upper limit density tables, and on the company's own experience.

Particle generation classification of Koganei pneumatic equipment



Remarks:
1. In the above table, product performance in terms of the number of particles generated per 10 operations is expressed as the upper limit of particles corresponding to the equivalent JIS or ISO class.
2. In the above table, values in the JIS, ISO, and FED-STD upper limit density tables are calculated as upper density per liter.
3. The classes shown are clean levels as classified in JIS and ISO.

From the above definitions, the Koganei clean level classes can be viewed as the level of average contamination per liter of surrounding air over a period of 10 operations in cleanroom. Air ventilation in cleanrooms is usually faster than 1 cycle per minute, and clean volumetric capacity is usually larger than 1 liter, which should provide a sufficient safety margin in practice.

Caution: The above conclusions are based on an ideal situation in which air ventilation is being implemented. For specific cases where air ventilation is not ensured, caution is needed since the clean classes cannot be maintained.

The clean system diagrams shown here are for Class 5 equivalent products.
For Class 4 or Class 3 equivalent products, consult us.

Evaluations of Cleanliness

Koganei has therefore specified its in-house measurement methods, to conduct evaluations on the cleanroom rating.

The number of particles of the Air Cylinder Cleanroom Specification is measured as shown in the method below.

1. Measurement conditions

1-1 Test circuit: Figure 1 (no suction), Figure 2 (with suction)

Cleanroom Class 7 equivalent (Corresponds to FED-STD209E Class 10000)

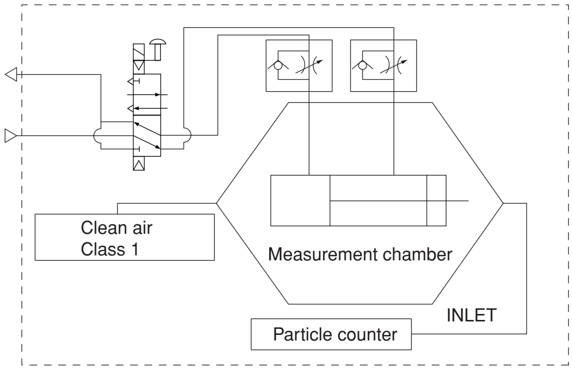


Figure 1 (no suction from dust collection port)

Cleanroom Class 7 equivalent (Corresponds to FED-STD209E Class 10000)

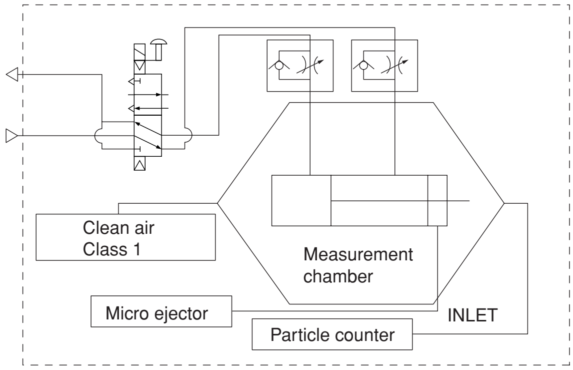


Figure 2 (with suction from dust collection port)

1-2 Operating conditions of tested cylinder

Operating frequency: 1Hz
Average speed: 500mm/s [20in./sec.]
Applied pressure: 0.5MPa [73psi.]
Suction condition: Microejector ME05, Primary side: 0.5MPa [73psi.] applied, Tube: ϕ6 [0.236in.]
Mounting direction: Vertical
Chamber volume: 8.3 ℓ [0.293ft^3]

2. Particle counter

Manufacturer/model: RION/KM20
Suction flow rate: 28.3 ℓ /min [1ft^3/min.]
Particle diameter: 0.1 μm, 0.2 μm, 0.3 μm, 0.5 μm, 0.7 μm, 1.0 μm

3. Measurement method

3-1 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 9 minutes without operating the measurement sample, and confirmed the measured number of particle is 1 piece or less.

3-2 Measurement under operation

Under the conditions in the above1 and 2, operating the measurement sample for 36 minutes, and measured the total values in the latter half of 18 minutes test.

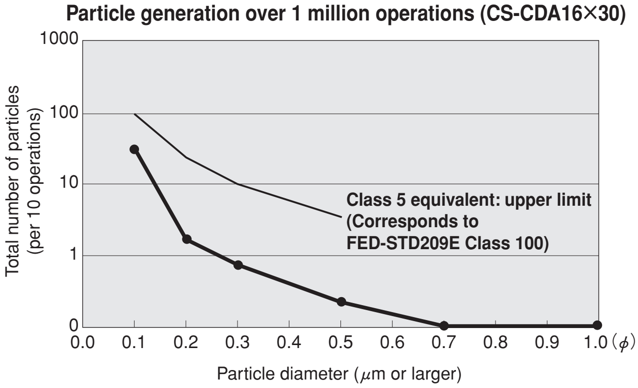
3-3 Reconfirmation

Performed the measurement in 3-1 again, to reconfirm the number of particles in the measurement system.

4. Measurement results

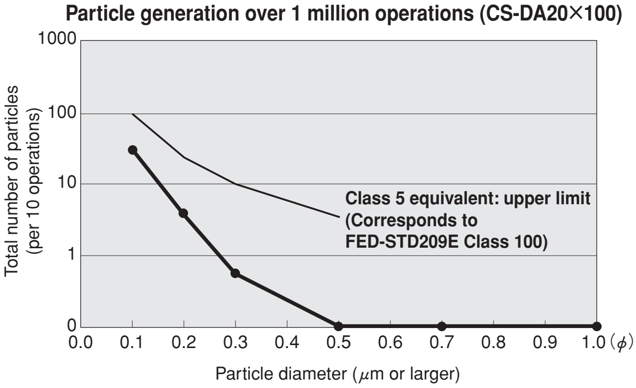
● **Cleanroom specification**
Jig Cylinder (no suction from dust collection port)

Particle generation over 1 million operations (CS-CDA16×30)



● **Cleanroom specification**
Slim Cylinder (with suction from dust collection port)

Particle generation over 1 million operations (CS-DA20×100)



For “safety precautions” listed in the Clean System Product Drawings, see the materials below.

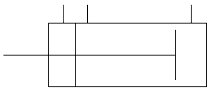
- For actuators, see “Safety Precautions” on p. 45 of the Actuators General Catalog .
- For valves, see “Safety Precautions” on p. 31 of the Valves General Catalog.
- For air treatment and auxiliary equipment, see “Safety Precautions” on p.31 of the General Catalog of Air Treatment, Auxiliary, Vacuum.

KOGANEI CLEAN SYSTEM

JIG CYLINDERS C SERIES

Double Acting Type

Symbol



Specifications

Item \ Bore size mm [in.]	12 [0.472]	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]
Operating type	Double acting type						
Media	Air						
Operating pressure range MPa [psi.]	0.1～1.0 [15～145]						0.05～1.0 [7～145]
Proof pressure MPa [psi.]	1.5 [218]						
Operating temperature range °C [°F]	0～60 [32～140]						
Operating speed range mm/s [in./sec.]	30～500 [1.2～19.7]						30～300 [1.2～11.8]
Cushion	Rubber bumper (Optional)						
Lubrication	Not required						
Port size	M5×0.8				Rc1/8		Rc1/4

Bore Size and Stroke

mm [in.]

Operating type	Bore size	Standard strokes: Standard cylinder	Standard strokes: Cylinder with magnet
Double acting type	**12 [0.472]**	5, 10, 15, 20, 25, 30	5, 10, 15, 20, 25, 30
	16 [0.630]		
	20 [0.787]	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
	25 [0.984]		
	32 [1.260]	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
	40 [1.575]		
	50 [1.969]	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Remarks: 1. Stroke tolerance $^{+1}_{0}$ [$^{+0.039}_{0}$]
2. In most cases, body cutting is used for the non-standard strokes. However, body cutting is not used for strokes of 5mm [0.197in.] or less for ϕ 12 [0.472]～ϕ 40 [1.575], and strokes of 10mm [0.394in.] or less for ϕ 50 [1.969]. The collar packed is used for these cases.

Order Codes

CS – CDA □ 20×30 – □ – □ – □ – □ – □ □ □

- **Clean system product**: CS
- **Jig cylinder double acting type**: CDA
- **Cylinder specification**Note1
  - **Blank** : Standard cylinder
  - **S** : Cylinder with magnet
- **Bore size**Note3 × **Stroke**
- **Rod end specification**
  - **Blank** : Female rod thread
  - **B** : Male rod thread
- **Bumper**
  - **Blank** : Without bumper
  - **R** : With bumper
- **Centering location**
  - **Blank** : Without centering location
  - **G** : With centering location
- **Mounting type**Note4
  - **Blank** : Basic type
  - **1** : Foot mounting type
  - **3** : Flange mounting type Note2
- **Sensor switch** (For cylinder with magnet)
  - **Blank** : Without sensor switch
  - **ZE135** : 2-lead wire Solid state type with indicator lamp (DC10~28V) Horizontal lead wire
  - **ZE155** : 3-lead wire Solid state type with indicator lamp (DC4.5~28V) Horizontal lead wire
  - **ZE235** : 2-lead wire Solid state type with indicator lamp (DC10~28V) Vertical lead wire
  - **ZE255** : 3-lead wire Solid state type with indicator lamp (DC4.5~28V) Vertical lead wire
  - **ZE101** : 2-lead wire Reed switch type without indicator lamp (DC5~28V, AC85~115V) Horizontal lead wire
  - **ZE102** : 2-lead wire Reed switch type with indicator lamp (DC10~28V, AC85~115V) Horizontal lead wire
  - **ZE201** : 2-lead wire Reed switch type without indicator lamp (DC5~28V, AC85~115V) Vertical lead wire
  - **ZE202** : 2-lead wire Reed switch type with indicator lamp (DC10~28V, AC85~115V) Vertical lead wire
  - ●For details of sensor switches, see p.111~121.
- **Lead wire length**
  - **A** : 1000mm [39in.]
  - **B** : 3000mm [118in.]
- **Number of sensor switches** (For cylinder with magnet)
  - **Blank** : Without sensor switch
  - **1** : With 1 sensor switch
  - **2** : With 2 sensor switches

Notes: 1. In the standard cylinder, a magnet for the sensor switch is not built-in.
2. Cannot be mounted on rod side, with centering location (-G) option.
3. See table for bore size and stroke.
4. Mounting brackets are included at shipping.

Order Codes of Additional Parts (To be ordered separately)

●Mounting Brackets Only

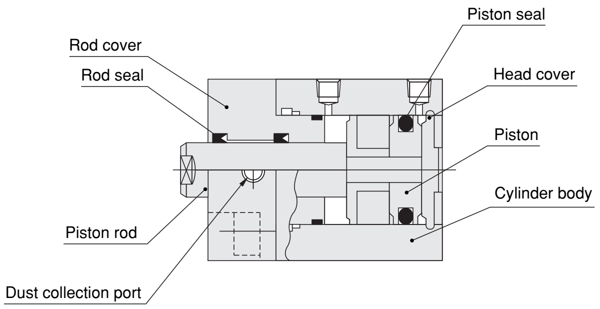
CS – □ – CDA □

- **Clean system product**: CS
- **Mounting bracket**
  - **1** : Foot mounting bracket (1 set: 2 pcs.)
  - **3** : Flange mounting bracket
- **Bore size** ϕ 12~50

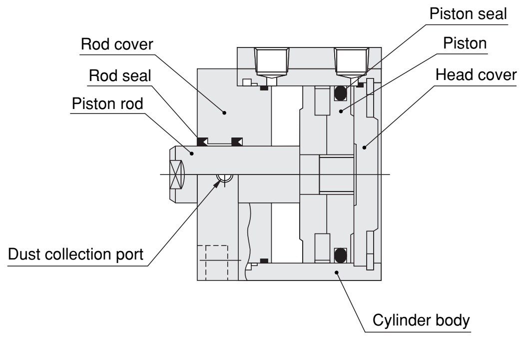
Inner Construction and Major Parts

●Double acting type

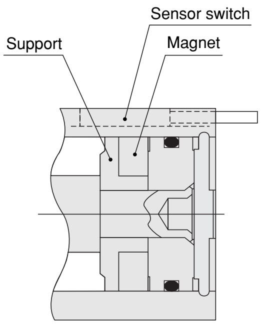
●ϕ12 [0.472in.]～ϕ25 [0.984in.]



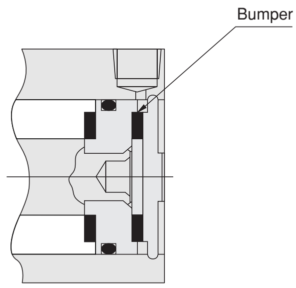
●ϕ32 [1.260in.]～ϕ50 [1.969in.]



●Cylinder with magnet



●With bumper



Major Parts and Materials

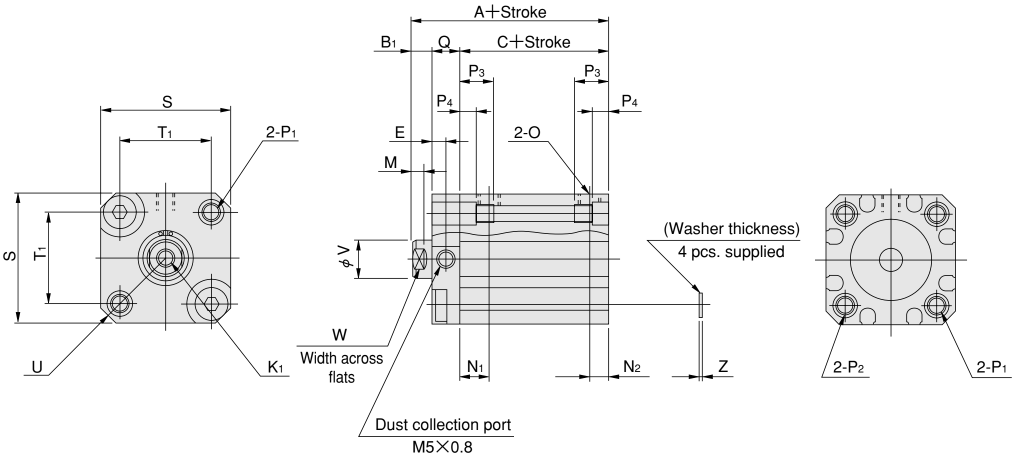
Parts	Materials
Cylinder body	Aluminum alloy (anodized)
Piston	Aluminum alloy (special rust prevention treatment)
Piston rod	Stainless steel (chrome plated)
Seal	Synthetic rubber (NBR)
Rod cover	Aluminum alloy (special wear-resistant treatment)
Head cover	Aluminum alloy (anodized)
Snap ring	Steel (nickel plated)
Spacer	Aluminum alloy (special rust prevention treatment)
Bumper	Synthetic rubber (NBR)
Magnet	Plastic magnet
Support	Aluminum alloy (special rust prevention treatment)

Seals

Parts / Bore mm	Rod seal (2 pcs.)	Piston seal	Tube gasket	
			Rod side	Head side
12	MYR-6	PSD-12	Y090260	None
16	MYR-8	PSD-16	Y090207	None
20	MYR-10	PSD-20	Y090216	None
25	MYR-12	PSD-25	Y090210	None
32	MYR-16	PSD-32	L090084	None
40	MYR-16	PSD-40	L090151	None
50	MYR-20	PSD-50	L090174	L090106

Dimensions mm [in.]

● φ12〜φ25

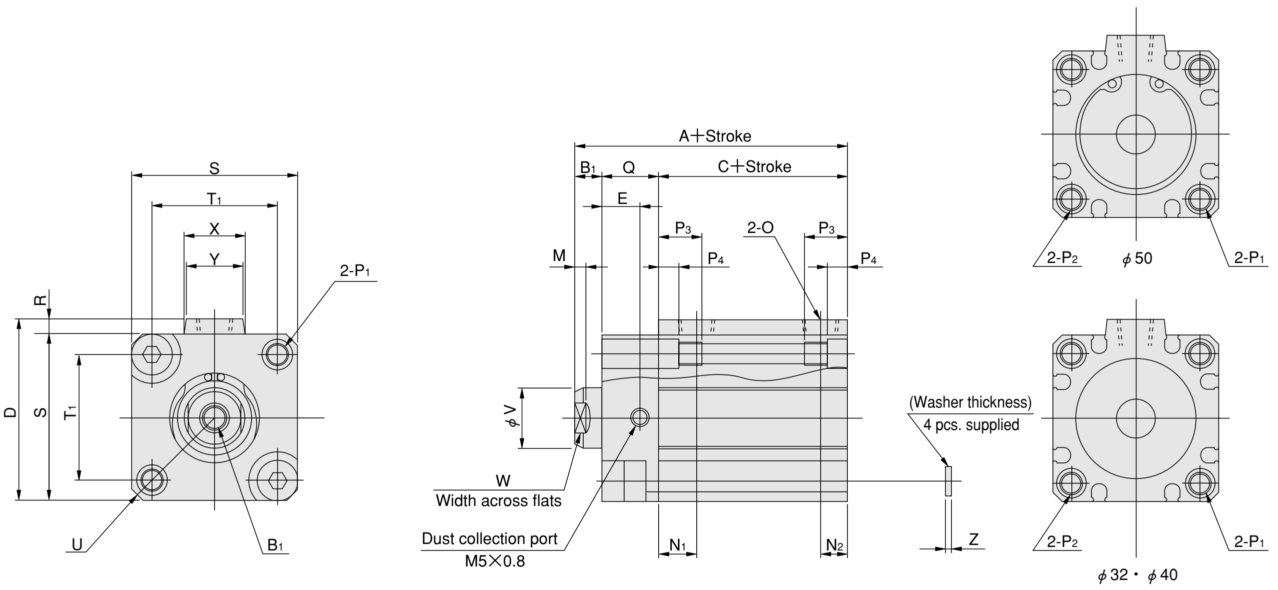


Bore size \ Type / Code	Standard cylinder (CDA)			Cylinder with magnet (CDAS)			Standard cylinder with bumper (CDA-R)			Cylinder with magnet and bumper (CDAS-R)			E	K_1	M	N_1	N_2	O
	A	B_1	C	A	B_1	C	A	B_1	C	A	B_1	C						
12 [0.472]	32 [1.260]	5 [0.197]	17 [0.669]	37 [1.457]	5 [0.197]	22 [0.866]	37 [1.457]	5 [0.197]	22 [0.866]	42 [1.654]	5 [0.197]	27 [1.063]	5 [0.197]	M3×0.5 Depth 6 [0.236]	3 [0.118]	8 [0.315]	5 [0.197]	M5×0.8
16 [0.630]	32.5 [1.280]	5.5 [0.217]	17 [0.669]	37.5 [1.476]	5.5 [0.217]	22 [0.866]	37.5 [1.476]	5.5 [0.217]	22 [0.866]	42.5 [1.673]	5.5 [0.217]	27 [1.063]	5 [0.197]	M4×0.7 Depth8 [0.315]	3 [0.118]	8 [0.315]	5 [0.197]	M5×0.8
20 [0.787]	35 [1.378]	5.5 [0.217]	19.5 [0.768]	45 [1.772]	5.5 [0.217]	29.5 [1.161]	40 [1.575]	5.5 [0.217]	24.5 [0.965]	50 [1.969]	5.5 [0.217]	34.5 [1.358]	5 [0.197]	M5×0.8 Depth10 [0.394]	3 [0.118]	10.5 [0.413]	5 [0.197]	M5×0.8
25 [0.984]	42 [1.654]	6 [0.236]	21 [0.827]	52 [2.047]	6 [0.236]	31 [1.220]	47 [1.850]	6 [0.236]	26 [1.024]	57 [2.244]	6 [0.236]	36 [1.417]	10 [0.394]	M6×1 Depth10 [0.394]	3 [0.118]	10.5 [0.413]	5 [0.197]	M5×0.8

Bore size \ Code	P_1	P_2	P_3	P_4	Q	S	T_1	U	V	W	Z
12 [0.472]	φ4.3 [0.169] (Thru hole) Counterbore φ6.5 [0.256] (Both sides) and M5×0.8 (Both sides)	Counterbore φ6.5 [0.256] and M5×0.8	9.5 [0.374]	4.5 [0.177]	10 [0.394]	25 [0.984]	16.3 [0.642]	R16 [0.630]	6 [0.236]	5 [0.197]	1 [0.039]
16 [0.630]	φ4.3 [0.169] (Thru hole) Counterbore φ6.5 [0.256] (Both sides) and M5×0.8 (Both sides)	Counterbore φ6.5 [0.256] and M5×0.8	9.5 [0.374]	4.5 [0.177]	10 [0.394]	29 [1.142]	19.8 [0.780]	R19 [0.748]	8 [0.315]	6 [0.236]	1 [0.039]
20 [0.787]	φ4.3 [0.169] (Thru hole) Counterbore φ6.5 [0.256] (Both sides) and M5×0.8 (Both sides)	Counterbore φ6.5 [0.256] and M5×0.8	9.5 [0.374]	4.5 [0.177]	10 [0.394]	34 [1.339]	24 [0.945]	R22 [0.866]	10 [0.394]	8 [0.315]	1 [0.039]
25 [0.984]	φ5.1 [0.201] (Thru hole) Counterbore φ8 [0.315] (Both sides) and M6×1 (Both sides)	Counterbore φ8 [0.315] and M6×1	11.5 [0.453]	5.5 [0.217]	15 [0.591]	40 [1.575]	28 [1.102]	R25 [0.984]	12 [0.472]	10 [0.394]	1 [0.039]

Dimensions mm [in.]

●ϕ32～ϕ50



Bore size \ Type / Code	Standard cylinder (CDA)			Cylinder with magnet (CDAS)			Standard cylinder with bumper (CDA-R)			Cylinder with magnet and bumper (CDAS-R)			D	E	K_1	M	N_1	N_2
	A	B_1	C	A	B_1	C	A	B_1	C	A	B_1	C						
32 [1.260]	45 [1.772]	7 [0.276]	23 [0.906]	55 [2.165]	7 [0.276]	33 [1.299]	50 [1.969]	7 [0.276]	28 [1.102]	55 [2.165]	7 [0.276]	33 [1.299]	48.5 [1.909]	10 [0.394]	M8×1.25 Depth12 [0.472]	3 [0.118]	10 [0.394] (9.5 [0.374])	7 [0.276] (6 [0.236])
40 [1.575]	48 [1.890]	7 [0.276]	26 [1.024]	58 [2.283]	7 [0.276]	36 [1.417]	48 [1.890]	7 [0.276]	26 [1.024]	58 [2.283]	7 [0.276]	36 [1.417]	56.5 [2.224]	10 [0.394]	M8×1.25 Depth12 [0.472]	3 [0.118]	10.5 [0.413]	7 [0.276]
50 [1.969]	52 [2.047]	9 [0.354]	28 [1.102]	62 [2.441]	9 [0.354]	38 [1.496]	52 [2.047]	9 [0.354]	28 [1.102]	62 [2.441]	9 [0.354]	38 [1.496]	70 [2.756]	10 [0.394]	M10×1.5 Depth15 [0.591]	3 [0.118]	11 [0.433]	9.5 [0.374]

Bore size \ Code	O	P_1	P_2	P_3	P_4	Q	R	S	T_1	U	V
32 [1.260]	Rc1/8	ϕ5.1 [0.201] (Thru hole) Counterbore ϕ8 [0.315] (Both sides) and M6×1 (Both sides)	Counterbore ϕ8 [0.315] and M6×1	11.5 [0.453]	5.5 [0.217]	15 [0.591]	4.5 [0.177]	44 [1.732]	34 [1.339]	R29.5 [1.161]	16 [0.630]
40 [1.575]	Rc1/8	ϕ6.9 [0.272] (Thru hole) Counterbore ϕ9.5 [0.374] (Both sides) and M5×1.25 (Both sides)	Counterbore ϕ9.5 [0.374] and M5×1.25	15.5 [0.610]	7.5 [0.295]	15 [0.591]	4.5 [0.177]	52 [2.047]	40 [1.575]	R35 [1.378]	16 [0.630]
50 [1.969]	Rc1/4	ϕ6.9 [0.272] (Thru hole) Counterbore ϕ11 [0.433] (Both sides) and M5×1.25 (Both sides)	Counterbore ϕ11 [0.433] and M5×1.25	16.5 [0.650]	8.5 [0.335]	15 [0.591]	8 [0.315]	62 [2.441]	48 [1.890]	R41 [1.614]	20 [0.787]

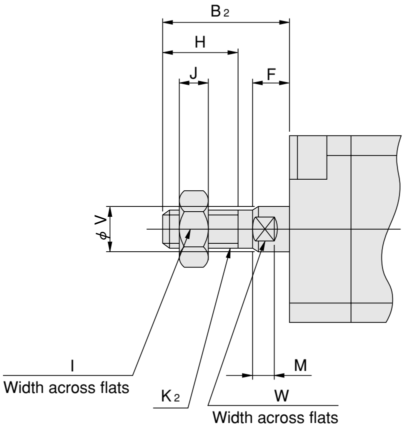
Bore size \ Code	W	X	Y	Z
32 [1.260]	14 [0.551]	15 [0.591]	13.6 [0.535]	1 [0.039]
40 [1.575]	14 [0.551]	15 [0.591]	13.6 [0.535]	1.6 [0.063]
50 [1.969]	17 [0.669]	21.6 [0.850]	19 [0.748]	1.6 [0.063]

Note: Figures in parentheses ( ) are for the cylinder with 5mm [0.197in.] stroke.

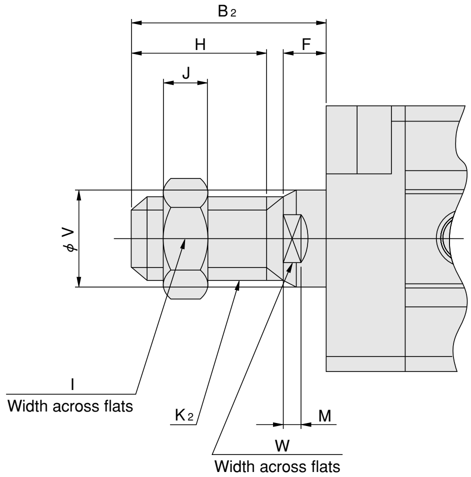
Dimensions of Male Rod End Thread Specification mm [in.]

● **Double acting type**

● **φ12 [0.472]～φ25 [0.984]**

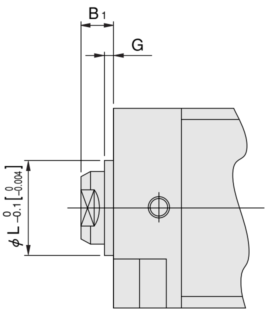


● **φ32 [1.260]～φ50 [1.969]**



Bore size \ Code	B2	F	H	I	J	K2	M	V	W
12 [0.472]	17 [0.669]	5 [0.197]	10 [0.394]	8 [0.315]	4 [0.157]	M5×0.8	3 [0.118]	6 [0.236]	5 [0.197]
16 [0.630]	20.5 [0.807]	5.5 [0.217]	13 [0.512]	10 [0.394]	5 [0.197]	M6×1	3 [0.118]	8 [0.315]	6 [0.236]
20 [0.787]	22.5 [0.886]	5.5 [0.217]	15 [0.591]	12 [0.472]	5 [0.197]	M8×1	3 [0.118]	10 [0.394]	8 [0.315]
25 [0.984]	24 [0.945]	6 [0.236]	15 [0.591]	14 [0.551]	6 [0.236]	M10×1.25	3 [0.118]	12 [0.472]	10 [0.394]
32 [1.260]	35 [1.378]	7 [0.276]	25 [0.984]	19 [0.748]	8 [0.315]	M14×1.5	3 [0.118]	16 [0.630]	14 [0.551]
40 [1.575]	35 [1.378]	7 [0.276]	25 [0.984]	19 [0.748]	8 [0.315]	M14×1.5	3 [0.118]	16 [0.630]	14 [0.551]
50 [1.969]	37 [1.457]	9 [0.354]	25 [0.984]	27 [1.063]	11 [0.433]	M18×1.5	3 [0.118]	20 [0.787]	17 [0.669]

Dimensions of Centering Location mm [in.]



●Not available for bore size φ 12 [0.472].

Bore size \ Code	B1	G	L
16 [0.630]	5.5 [0.217]	1.5 [0.059]	9.4 [0.370]
20 [0.787]	5.5 [0.217]	1.5 [0.059]	12 [0.472]
25 [0.984]	6 [0.236]	2 [0.079]	15 [0.591]
32 [1.260]	7 [0.276]	2 [0.079]	21 [0.827]
40 [1.575]	7 [0.276]	2 [0.079]	29 [1.142]
50 [1.969]	9 [0.354]	2 [0.079]	38 [1.496]

Sensor Switches

Order Codes (for Sensor Switches Only)

CS – ☐ ☐ – **CDAS**

Clean system product

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

Sensor switch

ZE135 —	Solid state type	with indicator lamp	DC10V～28V	Horizontal lead wire
ZE235 —	Solid state type	with indicator lamp	DC10V～28V	Vertical lead wire
ZE101 —	Reed switch type	without indicator lamp	DC5V～28V AC85～115V	Horizontal lead wire
ZE201 —	Reed switch type	without indicator lamp	DC5V～28V AC85～115V	Vertical lead wire
ZE155 —	Solid state type	with indicator lamp	DC4.5V～28V	Horizontal lead wire
ZE255 —	Solid state type	with indicator lamp	DC4.5V～28V	Vertical lead wire
ZE102 —	Reed switch type	with indicator lamp	DC10V～28V AC85～115V	Horizontal lead wire
ZE202 —	Reed switch type	with indicator lamp	DC10V～28V AC85～115V	Vertical lead wire

●For details of sensor switches, see p.111～121.

Minimum Cylinder Strokes When Mounting Sensor Switches

●Solid state type

mm [in.]

Bore size	2 pcs. mounting Note		1 pc. mounting
	1-surface mounting	2-surface mounting	
12 [0.472]	30 [1.181]	10 [0.394]	5 [0.197]
16～100 [0.630～3.937]	10 [0.394]		

Note: Two pieces can be mounted with 5mm [0.197in.] stroke.
Take note that overlapping may occur, however.

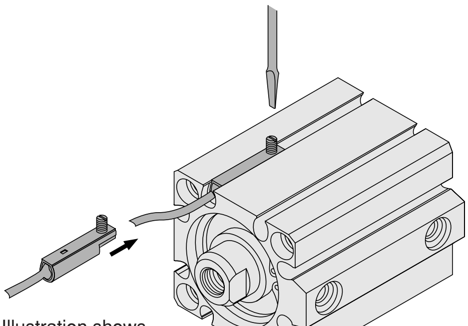
●Reed switch type

mm [in.]

Bore size	2 pcs. mounting		1 pc. mounting
	1-surface mounting	2-surface mounting	
12 [0.472]	30 [1.181]	10 [0.394]	10 [0.394]
16～100 [0.630～3.937]	10 [0.394]		

Moving Sensor Switch

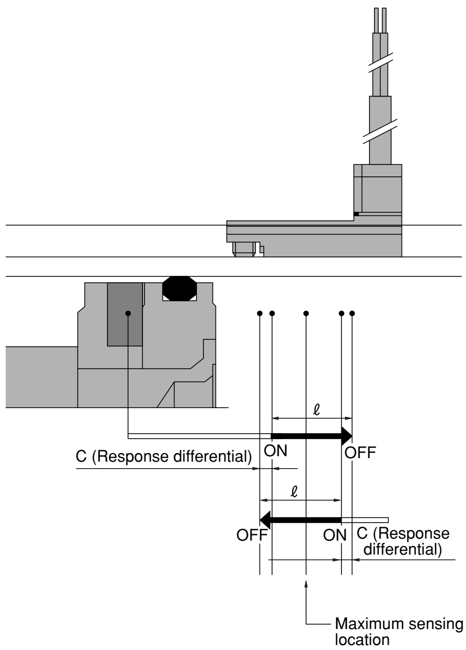
- ● Loosening the mounting screw allows the sensor switch to be moved along the switch mounting groove on the cylinder body.
- ● Tighten the mounting screw with a tightening torque of 0.1～0.2N·m [0.9～1.8in·lbf].



Note: Illustration shows the standard cylinder.

Sensor Switch Operating Range, Response Differential, and Maximum Sensing Location

● Operating range : ℓ
The distance the piston travels in one direction, while the switch is in the ON position.
●Response differential : C
The distance between the point where the piston turns the switch ON and the point where the switch is turned OFF as the piston travels in the opposite direction.



●Solid state type

mm [in.]

Item \ Bore	12 [0.472]	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]	63 [2.480]	80 [3.150]	100 [3.937]
Operating range : ℓ	2～4 [0.079～0.157]	2～5 [0.079～0.197]	3.5～7.5 [0.138～0.295]	4～8 [0.157～0.315]	3～7 [0.118～0.276]	3.5～7.5 [0.138～0.295]	3.5～7.5 [0.138～0.295]	4～8.5 [0.157～0.335]	4.5～9.5 [0.177～0.374]	4.5～9.0 [0.177～0.354]
Response differential : C	1.0 [0.039] or less								1.5 [0.059] or less	
Maximum sensing location	6 [0.236]									

Remark: The above table shows reference values.

●Reed switch type

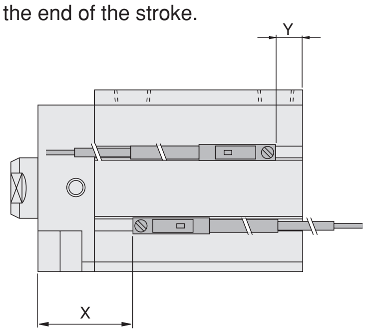
mm [in.]

Item \ Bore	12 [0.472]	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]	63 [2.480]	80 [3.150]	100 [3.937]
Operating range : ℓ	4.5～8.5 [0.177～0.335]	5.5～9.5 [0.217～0.374]	9～13.5 [0.354～0.531]	10～15.5 [0.394～0.610]	8～12 [0.315～0.472]	8.5～14 [0.335～0.551]	9～15 [0.354～0.591]	10～16 [0.394～0.630]	11～16 [0.433～0.630]	11～16.5 [0.433～0.650]
Response differential : C	1.0 [0.039] or less	2.0 [0.079] or less							3.0 [0.118] or less	2.5 [0.098] or less
Maximum sensing location	10 [0.394]									

Remark: The above table shows reference values.

Mounting Location of End of Stroke Detection Sensor Switch

When the sensor switch is mounted in the location shown in the diagram below (figures in the tables are reference values), the magnet comes to the maximum sensing location of the sensor switch at the end of the stroke.



■Solid state type

●Double acting type

mm [in.]

Code	Bore	12 [0.472]	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]
X	Standard type	17 [0.669]	17 [0.669]	21 [0.827]	26 [1.024]	28.5 [1.122]	29.5 [1.161]	27.5 [1.083]
	With bumper (-R)	20 [0.787]	20 [0.787]	25 [0.984]	31 [1.220]	30.5 [1.201]	31.5 [1.240]	30.5 [1.201]
Y	Standard type	4 [0.157]	4 [0.157]	7.5 [0.295]	9 [0.354]	8.5 [0.335]	10.5 [0.413]	14.5 [0.571]
	With bumper (-R)	6 [0.236]	6 [0.236]	8.5 [0.335]	9 [0.354]	6.5 [0.256]	8.5 [0.335]	11.5 [0.453]

■Reed switch type

●Double acting type

mm [in.]

Code	Bore	12 [0.472]	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]
X	Standard type	12.5 [0.492]	12.5 [0.492]	16.5 [0.650]	21.5 [0.846]	24 [0.945]	25 [0.984]	23 [0.906]
	With bumper (-R)	15.5 [0.610]	15.5 [0.610]	20.5 [0.807]	26.5 [1.043]	26 [1.024]	27 [1.063]	26 [1.024]
Y	Standard type	–0.5 [–0.020]	–0.5 [–0.020]	3 [0.118]	4.5 [0.177]	4 [0.157]	6 [0.236]	10 [0.394]
	With bumper (-R)	1.5 [0.059]	1.5 [0.059]	4 [0.157]	4.5 [0.177]	2 [0.079]	4 [0.157]	7 [0.276]