

- Suitable for small or irregular-shaped workpiece.
- This is a pull-type cylinder with threaded body.

Specifications

CMD	Size		Stroke	
	02	05	10	
04	05	10		
06		10	20	
10		10	20	
20		10	20	
40		10	20	
50		15	25	
80		15	25	

■ indicates made to order.

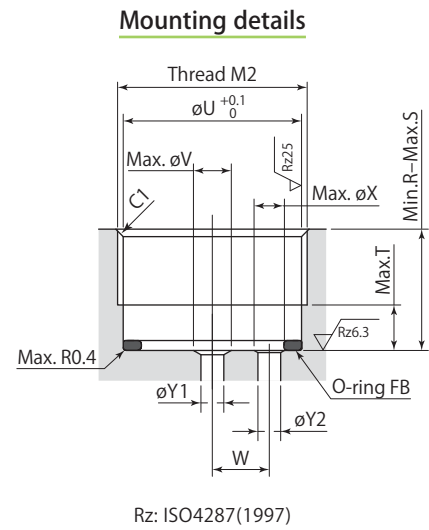
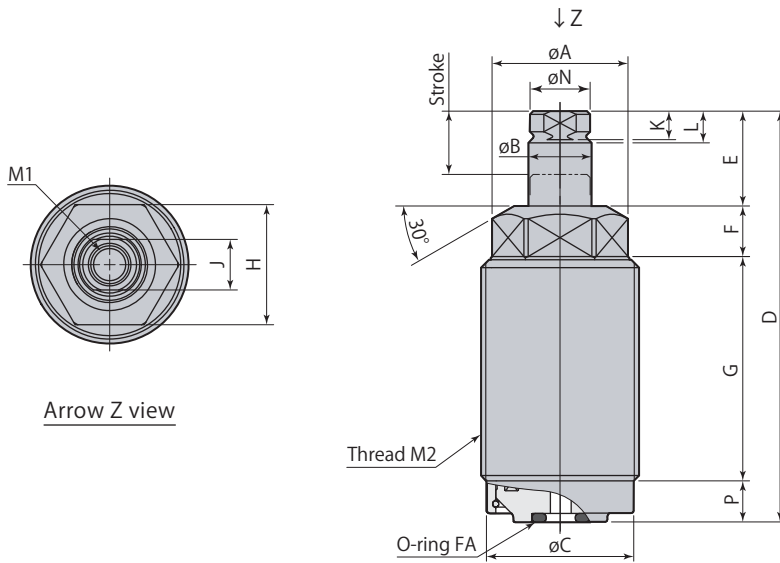
Model		CMD02		CMD04		CMD06		CMD10		CMD20		CMD40		CMD50		CMD80	
Stroke	mm	5	10	5	10	10	20	10	20	10	20	10	20	15	25	15	25
Cylinder force*1 kN	Hydraulic pressure 3.5MPa	0.3		0.4		0.7		1.2		2.0		3.5		4.6		7.0	
	Hydraulic pressure 7MPa	0.5		0.9		1.5		2.5		4.3		7.4		9.9		14.9	
	Hydraulic pressure 25MPa	2.1		3.4		5.6		9.3		15.8		27.3		37.0		55.4	
	Hydraulic pressure 35MPa	2.9		4.7		7.9		13.0		22.2		38.4		52.1		77.9	
Cylinder force calculation formula*2		F=0.084×P-0.043		F=0.137×P-0.060		F=0.229×P-0.093		F=0.376×P-0.147		F=0.640×P-0.219		F=1.107×P-0.377		F=1.505×P-0.620		F=2.250×P-0.835	
Cylinder inner diameter	mm	16		18		22		28		36		46		54		65	
Rod diameter	mm	10		10		12		16		20		25		30		35.5	
Effective area	cm ²	0.84		1.37		2.29		3.76		6.40		11.07		15.05		22.50	
Max. oil flow rate	L/min	0.25		0.41		0.69		1.13		1.92		3.32		4.51		6.75	
Cylinder capacity	cm ³	0.5	0.9	0.7	1.4	2.3	4.6	3.8	7.5	6.4	12.8	11.1	22.2	22.6	37.6	33.8	56.3
Return spring force*3	N	30-56		43-77		65-120		100-193		170-267		283-470		400-840		560-1110	
Mass	kg	0.10	0.12	0.12	0.15	0.23	0.30	0.35	0.46	0.69	0.89	1.1	1.4	1.9	2.2	2.7	3.2
Recommended tightening torque of body	N·m	8		9		10		14		30		40		200		300	

- Pressure range: 1.5-35 MPa ● Proof pressure: 52.5 MPa ● Operating temperature: 0-70 °C
- Fluid used: General mineral based hydraulic oil (ISO-VG32 equivalent)
- Seals are resistant to chlorine-based cutting fluid. (not thermal resistant specification)

*1: This is value for central position of stroke. *2: F=Cylinder force (kN), P= Hydraulic pressure (MPa)

*3: Figures are for "upper end to lower end" of piston action.

Dimensions



Model	CMD02		CMD04		CMD06		CMD10		CMD20		CMD40		CMD50		CMD80	
Stroke	5	10	5	10	10	20	10	20	10	20	10	20	15	25	15	25
ϕA	19		21.5		27		33		45		55		67		77	
ϕB	10		10		12		16		20		25		30		35.5	
ϕC	20.3		23.3		28.3		34.3		46.3		56.3		67.6		77.6	
D	51	65	51	65	69	96	73	101	80	109	88	116	108	136	119	145
E	10	15	10	15	16	26	17	27	19	29	20.5	30.5	27.5	37.5	28.5	38.5
F	7.5		8		9.5		11.5		13.5		16.5		22.5		24.5	
G	27	36	26.5	35.5	35.5	52.5	35.5	53.5	35.5	54.5	38	56	45	63	53	69
H (hex width across flats)	17		19		24		30		41		50		60		70	
J (width across flats)	8		8		10		14		17		22		27		30	
K (width across flats)	4.5		4.5		5.5		6.5		8.5		10		12		13	
L	5		5		6		7		9		10.5		12.5		13.5	
M1	M6×1 depth 11		M6×1 depth 11		M8×1.25 depth 18		M10×1.5 depth 20		M12×1.75 depth 22		M16×2 depth 27		M18×2.5 depth 31		M22×2.5 depth 33	
M2	M22×1.5		M25×1.5		M30×1.5		M36×1.5		M48×1.5		M58×1.5		M70×2.0		M80×2.0	
ϕN	9.5		9.5		11.5		15.5		19.5		24.5		29.5		35	
P	6.5		6.5		8		9		12		13		13		13	
R	13		14		15		17		20		20		25		25	
S	32.5	41.5	32	41	42.5	59.5	43.5	61.5	46.5	65.5	50	68	57	75	65	81
T	5.5		5.5		7		8		11		12		12		12	
ϕU	20.5		23.5		28.5		34.5		46.5		56.5		68		78	
ϕV	5		5		5		5		7		7		8		8	
W	7		7.5		9.5		12		15		18		19-21		19.5-26.5	
ϕX	4		4		4		4		4		4		8		8	
$\phi Y1$ (hydraulic port)	3		3		3		4		6		6		6		6	
$\phi Y2$ (air vent)	3		3		3		3		3		3		6		6	
O-ring FA (hardness Hs90)	P6		P6		P6		P6		P8		P8		P9		P9	
O-ring FB (hardness Hs90)	AS568-017		AS568-019		AS568-022		AS568-026		AS568-031		AS568-034		AS568-144		AS568-150	

- Install O-ring FB at the bottom of the hole. The O-ring FB is packed pull cylinder.
- When mounting an attachment, be sure to hold the width across flats at the tip section by a spanner, etc., to prevent the piston from rotating before tightening the screw. Do not attempt to tighten it with a hydraulic-powered resistance against rotation.
- Flange and piping block are available as options. Refer to **pages →98, 99** for details.
- Please avoid the usage that may apply eccentric load and non-axial force to the piston. This may break the piston.
- Air vent must be opened to atmosphere. Provide the piping if there is a risk of coolant or metal chips intrusion.