

- This is a push-type cylinder with threaded body.
- Air vent hole was eliminated to solve problems of coolant intrusion.
- Scraper is placed for moving parts to prevent adhesion of foreign substance.

### Specifications

Model		CMC01			CMC03			CMC04				CMC06			
Stroke	mm	5	10	15	5	10	15	5	10	15	20	5	10	15	20
Cylinder force*1 kN	Hydraulic pressure 3.5MPa	0.2			0.4			0.5				0.8			
	Hydraulic pressure 7MPa	0.3			0.8			1.0				1.7			
	Hydraulic pressure 25MPa	1.2			2.8			3.8				6.3			
	Hydraulic pressure 35MPa	1.7			3.9			5.3				8.8			
Cylinder force calculation formula*2		F=0.050×P-0.016			F=0.113×P-0.035			F=0.154×P-0.049				F=0.255×P-0.081			
Rod diameter	mm	8			12			14				18			
Effective area	cm <sup>2</sup>	0.50			1.13			1.54				2.55			
Max. oil flow rate	L/min	0.15			0.34			0.46				0.76			
Cylinder capacity	cm <sup>3</sup>	0.3	0.5	0.8	0.6	1.1	1.7	0.8	1.5	2.3	3.1	1.3	2.5	3.8	5.1
Return spring force*3	N	13-19			28-42			38-59				62-100			
Mass	kg	0.05	0.06	0.08	0.07	0.10	0.13	0.09	0.12	0.15	0.20	0.16	0.21	0.26	0.32
Recommended tightening torque of body	N-m	10			30			40				60			
Pressure range	MPa	1-35													
Proof pressure	MPa	52.5													
Operating temperature	°C	0-70													
Fluid used		General mineral based hydraulic oil (ISO-VG32 equivalent)													

\*1: This is value for central position of stroke.

\*2: F=Cylinder force (kN), P= Hydraulic pressure (MPa)

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

Model designation

	Size	Stroke	Rod tip section shapes	Scraper, seal material
	01	5 10 15		
	03	5 10 15		
	04	5 10 15 20		
	06	5 10 15 20		
CMC	10	5 10 15 25	(Nil) : Threaded top type (standard)	(Nil) : NBR (standard)
	20	10 15 20 32	R*1 : Round top type	V*2 : Fluorocarbon (except model CMC10, 40 and 60)
	25	12 20 32		
	40	16 25 40		
	60	16 25 40		

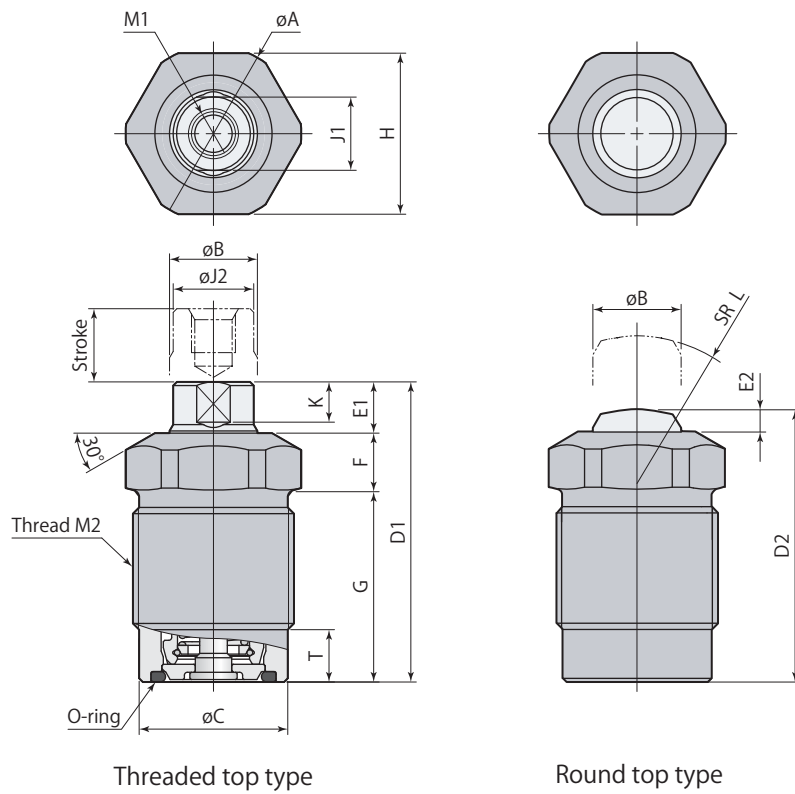
\*1: CMC04/06/10/20/25/40/60 are made to order.  
 \*2: Fluorocarbon has been adopted as a measure for the use of chlorine-based cutting fluid and also for thermal resistance (max. 150°C) specifications.  
 ■ indicates made to order.

Specifications

Model		CMC10				CMC20				CMC25			CMC40			CMC60		
Stroke	mm	5	10	15	25	10	15	20	32	12	20	32	16	25	40	16	25	40
Cylinder force*1 kN	Hydraulic pressure 3.5MPa	1.3				2.6				3.1			5.1			7.5		
	Hydraulic pressure 7MPa	2.6				5.4				6.6			10.6			15.8		
	Hydraulic pressure 25MPa	9.7				19.8				24.4			39.3			58.6		
	Hydraulic pressure 35MPa	13.7				27.9				34.3			55.2			82.4		
Cylinder force calculation formula*2		F=0.394×P-0.129				F=0.804×P-0.255				F=0.990×P-0.323			F=1.590×P-0.485			F=2.376×P-0.790		
Rod diameter	mm	22.4				32				35.5			45			55		
Effective area	cm <sup>2</sup>	3.94				8.04				9.90			15.90			23.76		
Max. oil flow rate	L/min	1.18				2.41				2.97			4.77			7.13		
Cylinder capacity	cm <sup>3</sup>	2.0	3.9	5.9	9.9	8.0	12.0	16.0	20.1	11.9	19.8	31.7	25.4	39.8	63.6	38.0	59.4	95.0
Return spring force*3	N	97-160				200-310				240-405			370-600			570-1010		
Mass	kg	0.24	0.30	0.35	0.60	0.63	0.78	0.91	1.38	0.81	1.02	1.36	1.45	1.8	2.46	2.59	3.23	4.3
Recommended tightening torque of body	N·m	110				270				360			620			1160		
Pressure range	MPa	1-35																
Proof pressure	MPa	52.5																
Operating temperature	°C	0-70																
Fluid used		General mineral based hydraulic oil (ISO-VG32 equivalent)																

\*1: This is value for central position of stroke.  
 \*2: F=Cylinder force (kN), P= Hydraulic pressure (MPa)  
 \*3: Figures are for "lower end to upper end" of piston action.

Dimensions



Threaded top type

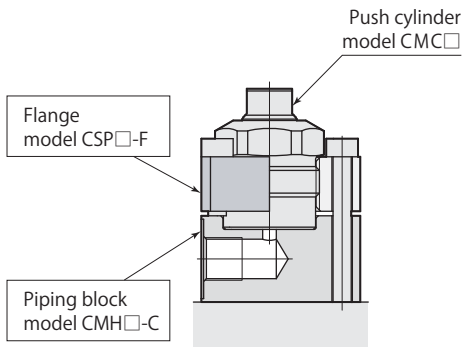
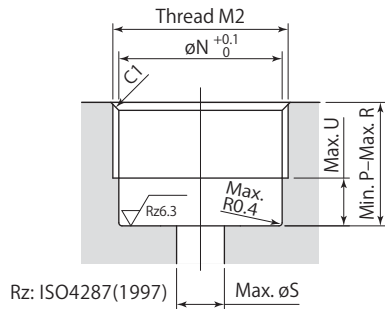
Round top type

mm

Model	CMC01			CMC03			CMC04				CMC06			
Stroke	5	10	15	5	10	15	5	10	15	20	5	10	15	20
øA	15.5			24			26				33			
øB	8			12			14				18			
øC	14.3			20.3			23.3				28.3			
D1	31	41	50	31	41	51.5	36	47	58	68	40.5	51.5	62.5	72.5
D2	27	37	46	27	37	47.5	31	42	53	63	34	45	56	66
E1	5.5			7			8.5				10			
E2	1.5			3			3.5				3.5			
F	6			8			9				10.5			
G	19.5	29.5	38.5	16	26	36.5	18.5	29.5	40.5	50.5	20	31	42	52
H (hex width across flats)	14			22			24				30			
J1 (width across flats)	7			10			12				14			
øJ2	7.5			11			13				17			
K (width across flats)	4.5			5.5			6.5				7.5			
L	16			20			25				32			
M1	M5×0.8 depth 8			M6×1 depth 6			M6×1 depth 11				M8×1.25 depth 13			
M2	M16×1.5			M22×1.5			M25×1.5				M30×1.5			
øN	14.5			20.5			23.5				28.5			
P	12			13			14				15			
R	19	29	38	15.5	25.5	36	18	29	40	50	19.5	30.5	41.5	51.5
øS	5			8			10				14			
T	7			7			7				7			
U	6			6			6				6			
O-ring (hardness Hs90)	AS568-012			AS568-015			AS568-016				AS568-019			

Dimensions

Mounting details



- Hardness at top of round type piston is HRC54.
- 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 (left diagram) are available as options. Refer to **pages →98, 99** for details.
- Please avoid the usage that may apply eccentric load and nonaxial force to the piston. This may break the piston.
- When assembling or installing, during the first operation after changing the oil, air is trapped in the piping and increases the flow rate. Perform complete air bleeding and use at a flow rate within tolerance.

mm

Model	CMC10				CMC20				CMC25			CMC40			CMC60		
Stroke	5	10	15	25	10	15	20	32	12	20	32	16	25	40	16	25	40
$\phi A$	40				50				55			66			80		
$\phi B$	22.4				32				35.5			45			55		
$\phi C$	34.3				46				52.6			62.6			77.6		
D1	44.5	54.5	66.5	87.5	67.5	80.5	92	118.5	67	81.5	104.5	79	94	122	89	107	138
D2	36.5	46.5	58.5	79.5	57	70	81.5	108	56	70.5	93.5	65	80	108	76	94	125
E1	12				16				17.5			21.5			20		
E2	4				5.5				6.5			7.5			7		
F	12.5				14				15			17			15		
G	20	30	42	63	37.5	50.5	62	88.5	34.5	49	72	40.5	55.5	83.5	54	72	101
H (hex width across flats)	36				46				50			60			75		
J1 (width across flats)	19				27				30			36			41		
$\phi J2$	21.4				30				32.5			43			52		
K (width across flats)	9.5				12.5				13.5			15.5			17		
L	40				50				60			70			80		
M1	M8×1.25 depth 13				M12×1.75 depth 18				M12×1.75 depth 18			M16×2.0 depth 18			M20×2.5 depth 22		
M2	M36×1.5				M48×1.5				M55×2.0			M65×2.0			M80×2.0		
$\phi N$	34.5				46.5				53			63			78		
P	17				20				24			27			29		
R	19.5	29.5	41.5	62.5	37	50	61.5	88	33.5	48	71	40	55	83	53.5	71.5	100.5
$\phi S$	19				26				34			44			56		
T	7				7				10			10			10		
U	6				6				9			9			9		
O-ring (hardness Hs90)	AS568-022				AS568-126				AS568-129			AS568-135			AS568-143		