

Series CM2

Boss-cut style

Boss for the head side cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of the Full Length Dimension (Versus standard type)

ø20	ø25	ø32	ø40
▲13	▲13	▲13	▲16

Mounting style

- Boss-cut basic style (BZ)
- Boss-cut flange style (FZ)
- Boss-cut trunnion style (UZ)

Rod Boot Material

Symbol	Rod boot material	Maximum ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C

* Maximum ambient temperature for the rod boot itself.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	
Flange	CM-F020B	CM-F032B	CM-F040B	
Single clevis	CM-C020B	CM-C032B	CM-C040B	
Double clevis (With pin) **	CM-D020B	CM-D032B	CM-D040B	
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	

* Two foot brackets and a mounting nut are attached.
Order two foot brackets per cylinder.

** Clevis pin and snap ring (cotter pin for bore size ø40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040

Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

• "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

⚠ Precautions

Be sure to read before handling.
Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Operating Precautions

⚠ Warning

1. Do not rotate the cover.

If a cover is rotated when installing a cylinder or screwing a fitting into the port, it is likely to damage the junction part with cover.

2. Do not operate with the cushion needle in a fully closed condition.

Using it in the fully closed state will cause the cushion seal to be damaged. When adjusting the cushion needle, use the "Hexagon wrench key: nominal size 1.5".

3. Do not open the cushion needle wide excessively.

If the cushion needle were set to be completely wide (more than 3 turns from fully closed), it would be equivalent to the cylinder with no cushion, thus making the impacts extremely high. Do not use it in such a way. Besides, using with fully open could give damage to the piston or cover.

⚠ Caution

1. Not able to disassemble.

Cover and cylinder tube are connected to each other by caulking method, thus making it impossible to disassemble. Therefore, internal parts of a cylinder other than rod seal are not replaceable.

2. Use caution to the popping of a snap ring.

When replacing rod seals and removing and mounting a snap ring, use a proper tool (snap ring plier: tool for installing a type C snap ring). Even if a proper tool is used, it is likely to inflict damage to a human body or peripheral equipment, as a snap ring may be flown out of the tip of a plier. Be much careful with the popping of a snap ring. Besides, be certain that a snap ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

3. Do not touch the cylinder during operation.

Use caution when handling a cylinder, which is running at a high speed and a high frequency, because the surface of a cylinder tube could get so hot enough as to cause you get burned.

4. Do not use an air cylinder as an air-hydro cylinder.

If it uses turbine oil in place of fluids for cylinder, it may result in oil leakage.

5. Combine the rod end section, so that a rod boot might not be twisted.

If a rod boot is installed with being twisted when installing a cylinder, it will cause a rod boot to fail during operation.

Air Cylinder: Standard Type Double Acting, Single Rod **Series CM2**

Mounting Style and Accessory

Accessory \ Mounting	Standard equipment			Option			
	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint ⁽³⁾	Clevis bracket ⁽⁴⁾	Rod boot
Basic style	● (1 pc.)	●	—	●	●	—	●
Axial foot style	● (2)	●	—	●	●	—	●
Rod side flange style	● (1)	●	—	●	●	—	●
Head side flange style	● (1)	●	—	●	●	—	●
Clevis integrated style	— ⁽¹⁾	●	—	●	●	●	●
Single clevis style	— ⁽¹⁾	●	—	●	●	—	●
Double clevis style ⁽³⁾	— ⁽¹⁾	●	●	●	●	—	●
Rod side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	●
Head side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	●
Boss-cut basic style	● (1)	●	—	●	●	—	●
Boss-cut flange style	● (1)	●	—	●	●	—	●
Boss-cut trunnion style	● (1)	●	—	●	●	—	●



Note 1) Mounting nuts are not attached for clevis integrated style, single clevis, and double clevis styles.

Note 2) Mounting nuts are not attached for integral clevis, single clevis, and double clevis styles.

Note 3) Knuckle pin and snap ring (cotter pin for ø40) are shipped together with double clevis and double knuckle joint.

Note 4) Pin and snap ring are shipped together with clevis bracket.

Mounting Bracket, Accessory/Material, Surface Treatment

Segment	Component parts	Material	Surface treatment
Mounting bracket	Foot	Rolled steel plate	Nickel plated
	Flange	Rolled steel plate	Nickel plated
	Single clevis	Rolled steel	Nickel plated
	Double clevis	Rolled steel	Nickel plated
	Trunnion	Cast iron	Electroless nickel plated
Accessory	Rod end nut	Carbon steel	Nickel plated
	Mounting nut	Carbon steel	Nickel plated
	Trunnion nut	Carbon steel	Nickel plated
	Clevis bracket	Rolled steel plate	Nickel plated
	Clevis pin	Carbon steel	(None)
	Single knuckle joint	Rolled steel ø40: Sulfur easy chipping steel	Electroless nickel plated
	Double knuckle joint	Rolled steel ø40: Cast iron	Electroless nickel plated Metallic bronze collar painted for ø40
	Double clevis pin	Carbon steel	(None)
Double knuckle joint pin	Carbon steel	(None)	

Weight

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.14	0.21	0.28	0.56
	Axial foot style	0.29	0.37	0.44	0.83
	Flange style	0.20	0.30	0.37	0.68
	Clevis integrated style	0.12	0.19	0.27	0.52
	Single clevis style	0.18	0.25	0.32	0.65
	Double clevis style	0.19	0.27	0.33	0.69
	Trunnion style	0.18	0.28	0.34	0.66
	Boss-cut basic style	0.13	0.19	0.26	0.53
	Boss-cut flange style	0.19	0.28	0.35	0.65
Boss-cut trunnion style	0.17	0.26	0.32	0.63	
Additional weight per each 50 mm of stroke		0.04	0.06	0.08	0.13
Option bracket	Clevis bracket (With pin)	0.07	0.07	0.14	0.14
	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

Calculation: (Example) CM2L32-100

- Basic weight.....0.44 (Foot style, ø32)
- Additional weight.....0.08/50 stroke
- Cylinder stroke.....100 stroke
0.44 + 0.08 × 100/50 = 0.60 kg

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

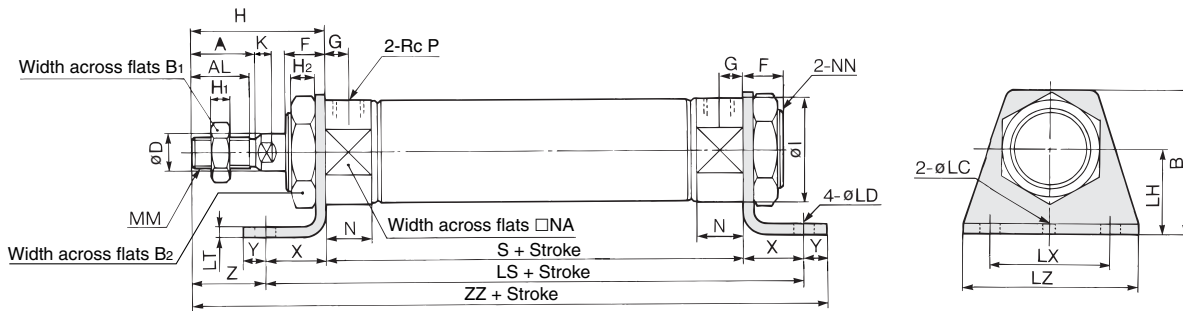
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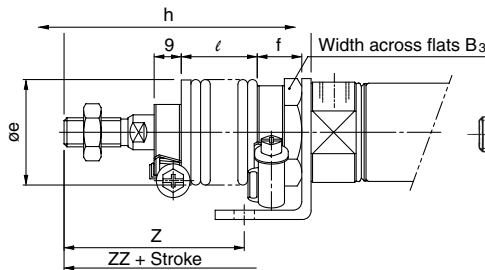
Air Cylinder: Standard Type Double Acting, Single Rod Series **CM2**

Axial Foot Style (L)

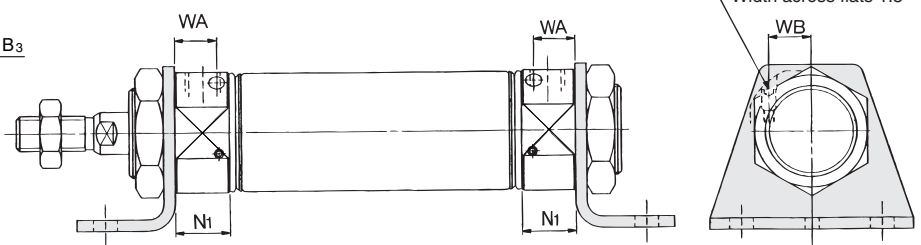
CM2L Bore size Stroke



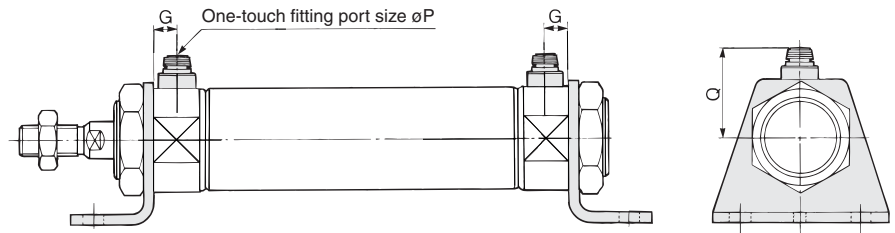
With rod boot



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	D	F	G	H	H ₁	H ₂	I	K	LC	LD	LH	LS	LT	LX	LZ	MM	N	NA	NN	P	S	X	Y	Z	ZZ
20	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	102	3.2	40	55	M8 x 1.25	15	24	M20 x 1.5	1/8	62	20	8	21	131
25	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	102	3.2	40	55	M10 x 1.25	15	30	M26 x 1.5	1/8	62	20	8	25	135
32	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	104	3.2	40	55	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	20	8	25	137
40	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	134	3.2	55	75	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	23	10	27	171

Symbol Bore size (mm) / Stroke	B ₃	e	f	h								l								z							
				1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500			
20	30	36	18.2	68	81	93	106	131	156	181	12.5	25	37.5	50	75	100	125	48	61	73	86	111	136	161			
25	32	36	18.2	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	52	65	77	90	115	140	165			
32	32	36	18.2	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	52	65	77	90	115	140	165			
40	41	46	20.2	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	54	67	79	92	117	142	167			

With Rod Boot

Symbol Bore size (mm) / Stroke	ZZ						
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	158	171	183	196	221	246	271
25	162	175	187	200	225	250	275
32	164	177	189	202	227	252	277
40	198	211	223	236	261	286	311

With Air Cushion

Bore size (mm)	N _i	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

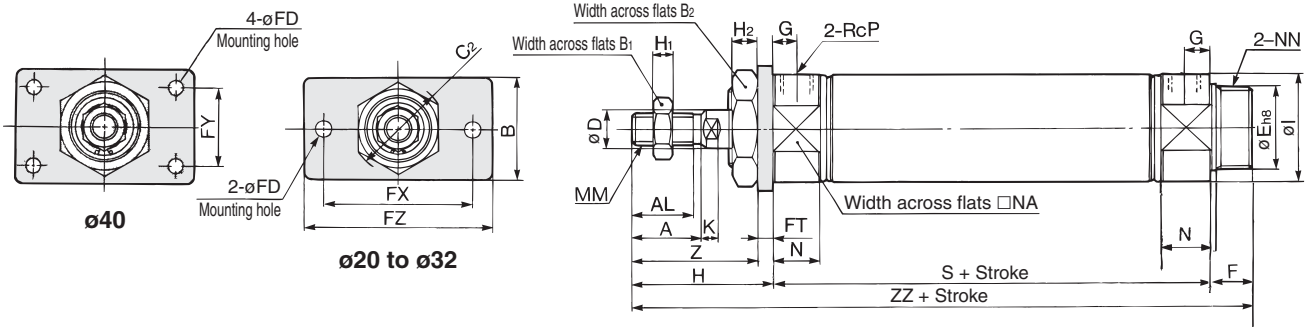
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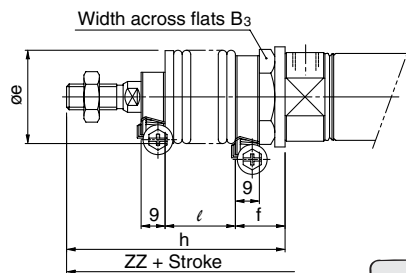
Series CM2

Rod Side Flange Style (F)

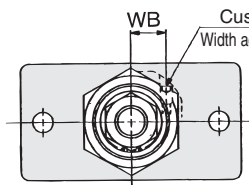
CM2F



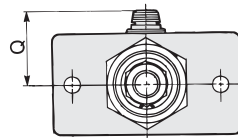
With rod boot



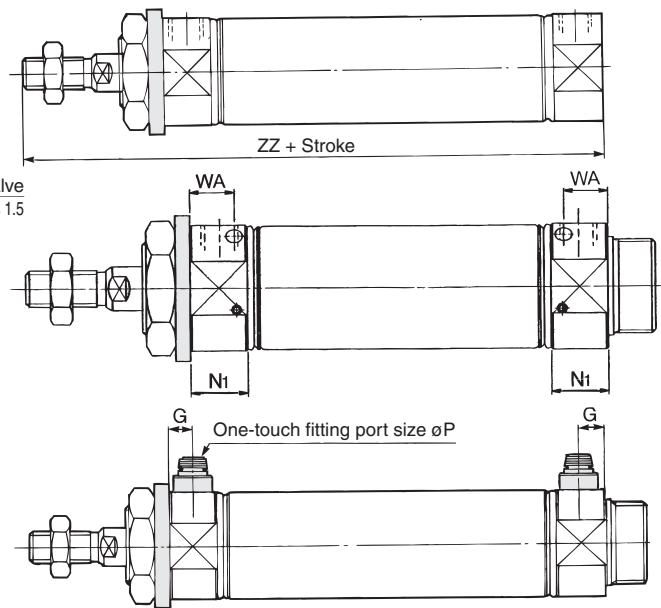
With air cushion



Built-in One-touch fittings



Boss-cut style



Bore size (mm)	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FX	FY	FZ	G	H	H ₁	H ₂	I	K	MM	N	NA	NN	P	S	Z	ZZ	
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	8	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	62	37	116
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	62	41	120
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	41	122
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	45	154

Bore size (mm)	Symbol	Stroke	B ₃	e	f	h														l														ZZ							
						1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500															
20			30	36	19	68	81	93	106	131	156	181	12.5	25	37.5	50	75	100	125	143	156	168	181	206	231	256															
25			32	36	19	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	147	160	172	185	210	235	260															
32			32	36	19	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	149	162	174	187	212	237	262															
40			41	46	22	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	181	194	206	219	244	269	294															

Boss-cut Style

Bore size (mm)	Without rod boot	ZZ						
		With rod boot						
		1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	103	130	143	155	168	193	218	243
25	107	134	147	159	172	197	222	247
32	109	136	149	161	174	199	224	249
40	138	165	178	190	203	228	253	278

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

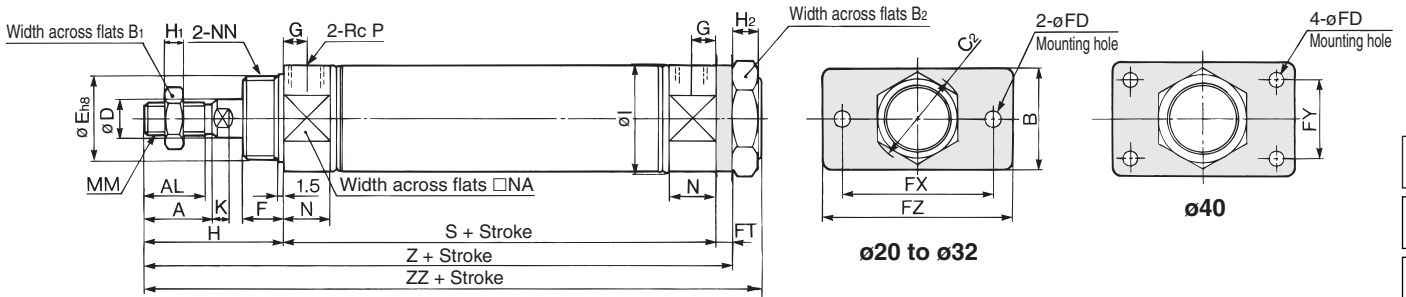
Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

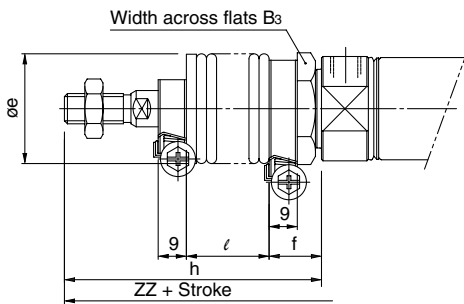
Air Cylinder: Standard Type Double Acting, Single Rod Series **CM2**

Head Side Flange Style (G)

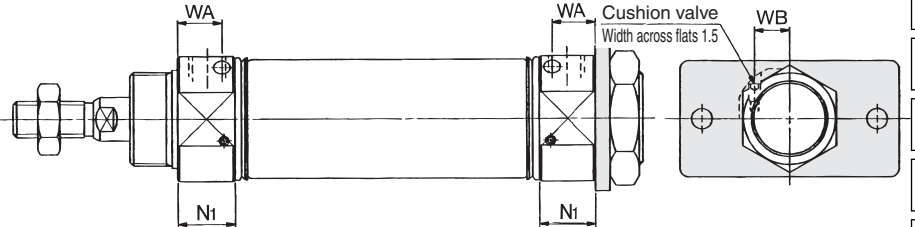
CM2G



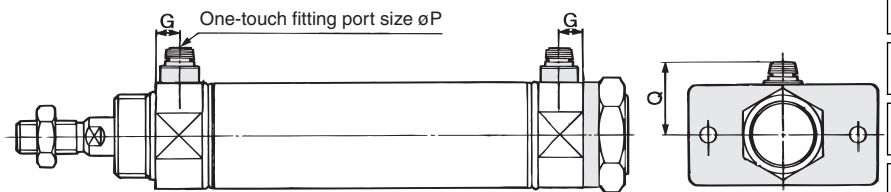
With rod boot



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FT	FX	FY	FZ	G	H	H ₁	H ₂	I
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	8	41	5	8	28
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	33.5
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	37.5
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	11	50	8	10	46.5

Bore size (mm)	K	MM	N	NA	NN	P	S	Z	ZZ
20	5	M8 x 1.25	15	24	M20 x 1.5	1/8	62	107	116
25	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	62	111	120
32	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	113	122
40	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	143	154

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

With Rod Boot

Bore size (mm)	Symbol	B ₃	e	f	h								ℓ								ZZ							
					1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500			
20		30	36	17	68	81	93	106	131	156	181	12.5	25	37.5	50	75	100	125	143	156	168	181	206	231	256			
25		32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	147	160	172	185	210	235	260			
32		32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	149	162	174	187	212	237	262			
40		41	46	19	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	181	194	206	219	244	269	294			

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

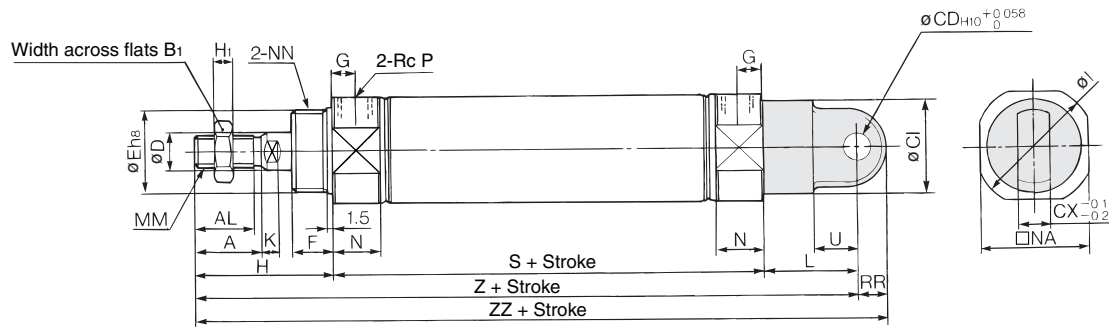
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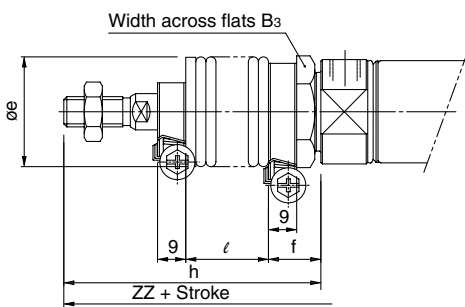
Series CM2

Single Clevis Style (C)

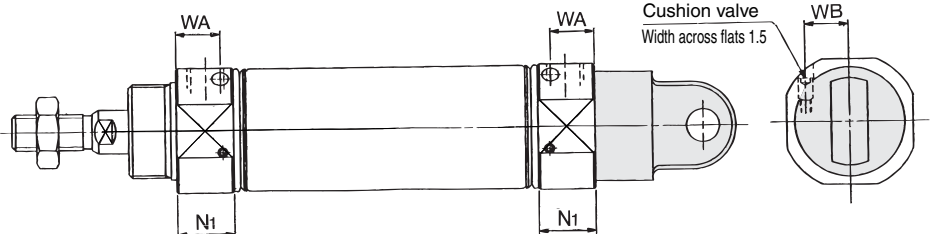
CM2C



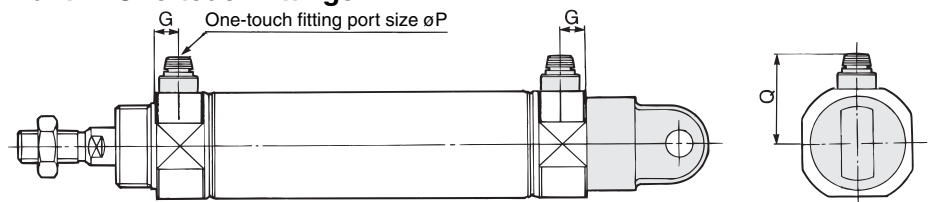
With rod boot



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	Cl	CD	CX	D	E	F	G	H	H ₁	I	K	L	MM	N	NA	NN	P	RR	S	U	Z	ZZ
20	18	15.5	13	24	9	10	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	9	62	14	133	142
25	22	19.5	17	30	9	10	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	9	62	14	137	146
32	22	19.5	17	30	9	10	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	64	14	139	148
40	24	21	22	38	10	15	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	11	88	18	177	188

With Rod Boot

Symbol Bore size (mm) Stroke	B ₃	e	f	h								l								Z							
				1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500			
20	30	36	17	68	81	93	106	131	156	181	12.5	25	37.5	50	75	100	125	160	173	185	198	223	248	273			
25	32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	164	177	189	202	227	252	277			
32	32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	166	179	191	204	229	254	279			
40	41	46	19	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	204	217	229	242	267	292	317			

Symbol Bore size (mm) Stroke	ZZ							
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	
20	169	182	194	207	232	257	282	
25	173	186	198	211	236	261	286	
32	175	188	200	213	238	263	288	
40	215	228	240	253	278	303	328	

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

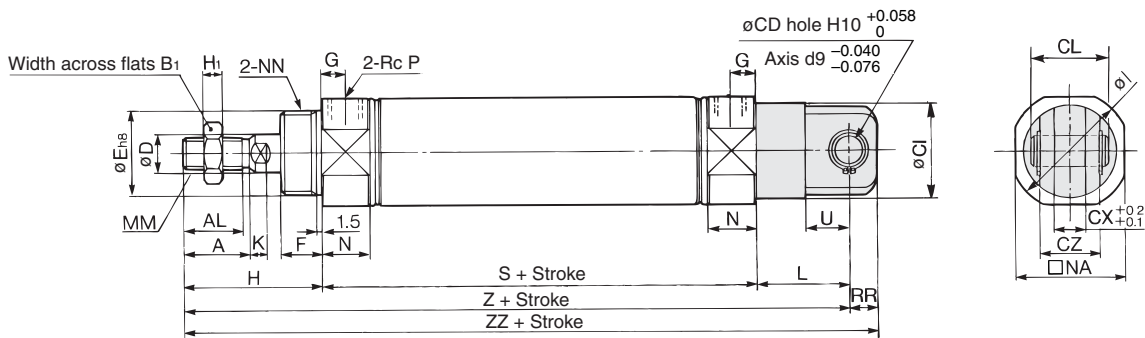
Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

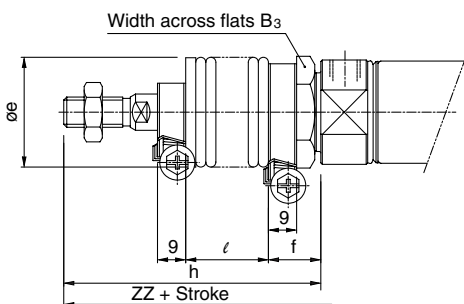
Air Cylinder: Standard Type Double Acting, Single Rod Series **CM2**

Double Clevis Style (D)

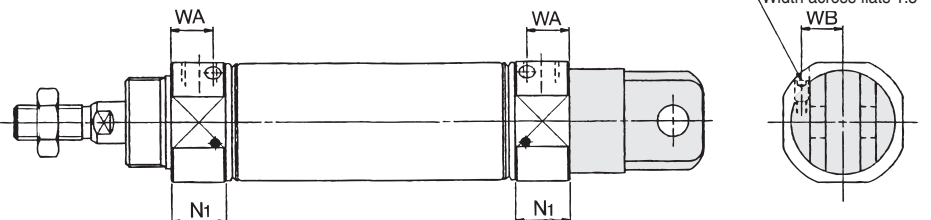
CM2D Bore size — Stroke



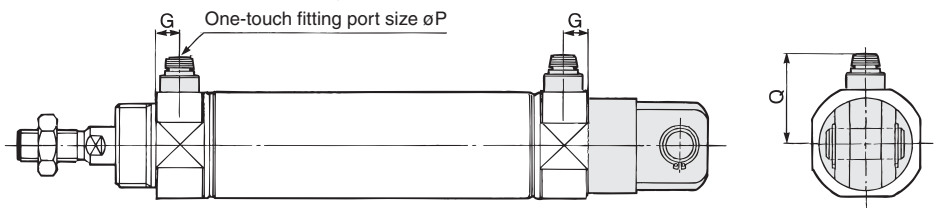
With rod boot



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	CD	CI	CL	CX	CZ	D	E	F	G	H	H ₁	I	K	L	MM	N	NA	NN	P	RR	S	U	Z	ZZ
20	18	15.5	13	9	24	25	10	19	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	9	62	14	133	142
25	22	19.5	17	9	30	25	10	19	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	9	62	14	137	146
32	22	19.5	17	9	30	25	10	19	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	64	14	139	148
40	24	21	22	10	38	41.2	15	30	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	11	88	18	177	188

* Clevis pin and snap ring (cotter pin for bore size ø40) are shipped together.

With Rod Boot

Symbol Bore size (mm) Stroke	B ₃	e	f	h								ℓ								Z							
				1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500			
20	30	36	17	68	81	93	106	131	156	181	12.5	25	37.5	50	75	100	125	160	173	185	198	223	248	273			
25	32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	164	177	189	202	227	252	277			
32	32	36	17	72	85	97	110	135	160	185	12.5	25	37.5	50	75	100	125	166	179	191	204	229	254	279			
40	41	46	19	77	90	102	115	140	165	190	12.5	25	37.5	50	75	100	125	204	217	229	242	267	292	317			

With Rod Boot

Symbol Bore size (mm) Stroke	ZZ							
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	
20	169	182	194	207	232	257	282	
25	173	186	198	211	236	261	286	
32	175	188	200	213	238	263	288	
40	215	228	240	253	278	303	328	

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

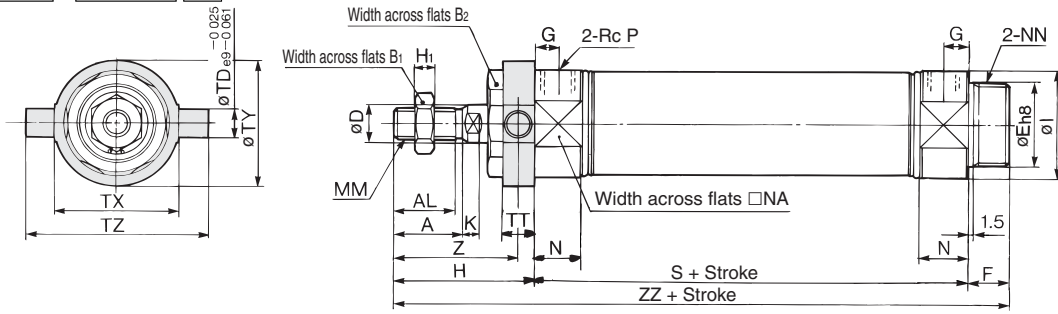
20-

Data

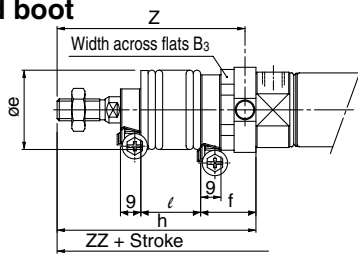
Series CM2

Rod Side Trunnion Style (U)

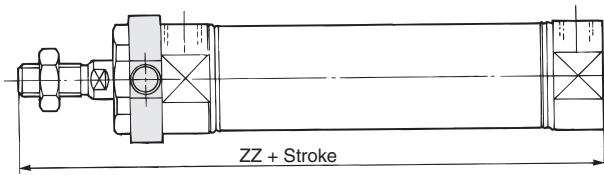
CM2U Bore size — Stroke



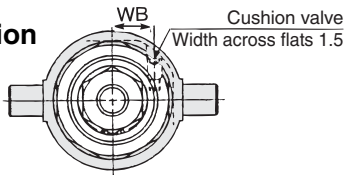
With rod boot



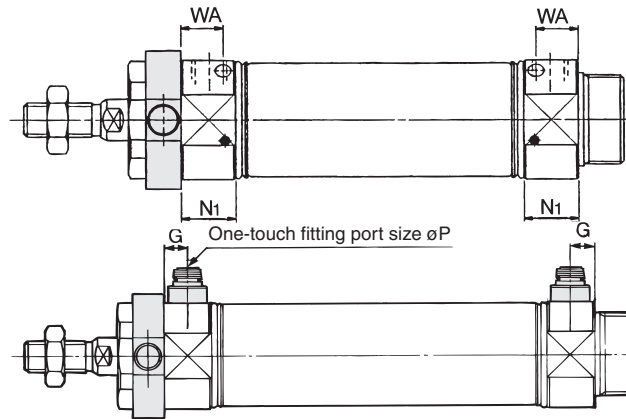
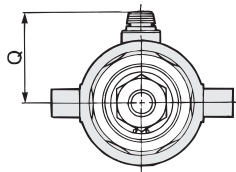
Boss-cut style



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	I	K	MM	N	NA	NN	P
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4

Bore size (mm)	S	TD	TT	TX	TY	TZ	Z	ZZ
20	62	8	10	32	32	52	36	116
25	62	9	10	40	40	60	40	120
32	64	9	10	40	40	60	40	122
40	88	10	11	53	53	77	44.5	154

With Rod Boot

Bore size (mm)	Symbol	B ₃	e	f	h							
					1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	
20		30	36	24	68	81	93	106	131	156	181	181
25		32	36	24	72	85	97	110	135	160	185	185
32		32	36	24	72	85	97	110	135	160	185	185
40		41	46	25	77	90	102	115	140	165	190	190

With Rod Boot

Symbol	ℓ							Z							ZZ						
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	12.5	25	37.5	50	75	100	125	63	76	88	101	126	151	176	143	156	168	181	206	231	256
25	12.5	25	37.5	50	75	100	125	67	80	92	105	130	155	180	147	160	172	185	210	235	260
32	12.5	25	37.5	50	75	100	125	67	80	92	105	130	155	180	149	162	174	187	212	237	262
40	12.5	25	37.5	50	75	100	125	71.5	84.5	96.5	109.5	134.5	159.5	184.5	181	194	206	219	244	269	294

Boss-cut Style

Bore size (mm)	ZZ							
	Without rod boot		With rod boot					
	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	
20	103	130	143	155	168	193	218	243
25	107	134	147	159	172	197	222	247
32	109	136	149	161	174	199	224	249
40	138	165	178	190	203	228	253	278

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

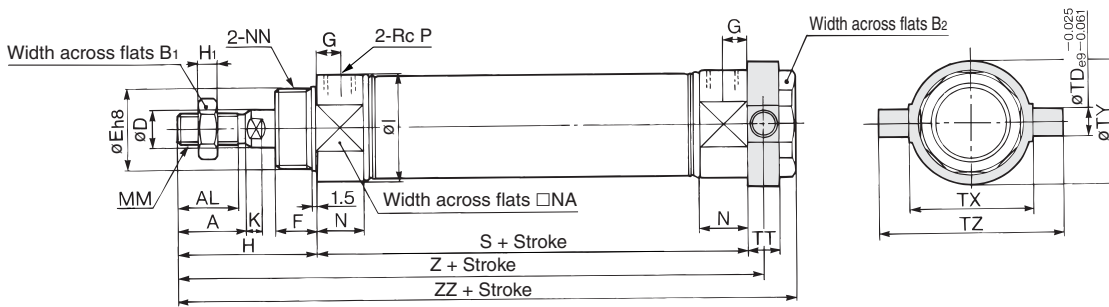
Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

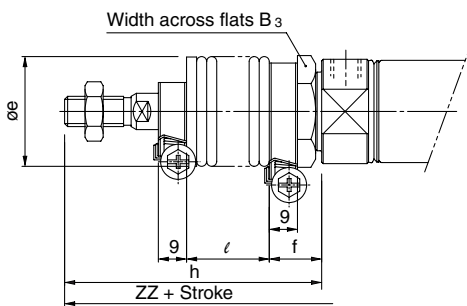
Air Cylinder: Standard Type Double Acting, Single Rod Series **CM2**

Head Side Trunnion Style (T)

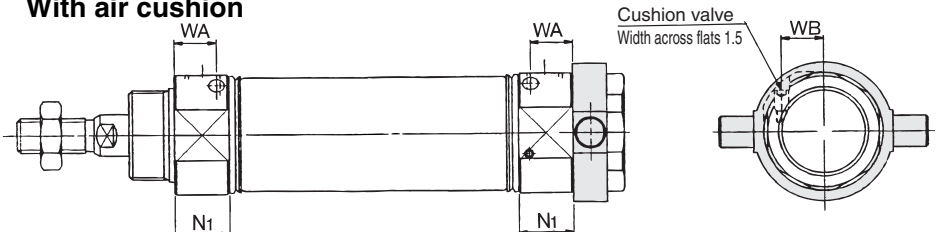
CM2T Bore size Stroke



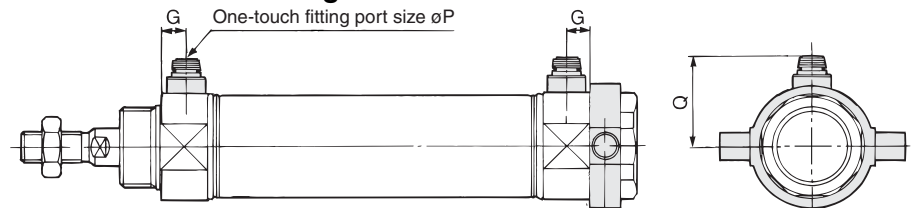
With rod boot



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	I	K	MM	N	NA	NN	P
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4

Bore size (mm)	S	TD	TT	TX	TY	TZ	Z	ZZ
20	62	8	10	32	32	52	108	118
25	62	9	10	40	40	60	112	122
32	64	9	10	40	40	60	114	124
40	88	10	11	53	53	77	143.5	154

With Rod Boot

Bore size (mm)	Symbol	B ₃	e	f	h						
					1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20		30	36	17	68	81	93	106	131	156	181
25		32	36	17	72	85	97	110	135	160	185
32		32	36	17	72	85	97	110	135	160	185
40		41	46	19	77	90	102	115	140	165	190

With Rod Boot

Bore size (mm)	Symbol	l							Z							ZZ						
		1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20		12.5	25	37.5	50	75	100	125	135	148	160	173	198	223	248	145	158	170	183	208	233	258
25		12.5	25	37.5	50	75	100	125	139	152	164	177	202	227	252	149	162	174	187	212	237	262
32		12.5	25	37.5	50	75	100	125	141	154	166	179	204	229	254	151	164	176	189	214	239	264
40		12.5	25	37.5	50	75	100	125	170.5	183.5	195.5	208.5	233.5	258.5	283.5	181	194	206	219	244	269	294

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Series CM2W



Specifications

Bore size (mm)	20	25	32	40
Action	Double acting, Double rod			
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.08 MPa			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)			
Lubrication	Not required (Non-lube)			
Thread tolerance	JIS Class 2			
Stroke length tolerance	$^{+1.4}_0$ mm			
Piston speed	50 to 750 mm/s			
Cushion	Rubber bumper			
Allowable kinetic energy	0.27 J	0.4 J	0.65 J	1.2 J

Standard Stroke

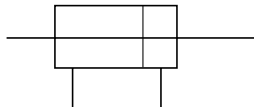
Bore size (mm)	Standard stroke ⁽¹⁾ (mm)	Maximum stroke (mm)
20	25, 50, 75, 100, 125, 150 200, 250, 300	500
25		
32		
40		

Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) When exceeding 300 stroke, the allowable maximum stroke length is determined by the stroke selection table.

JIS Symbol

Double acting



Made to Order Specifications

(For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150°C)
-XB7	Cold resistant cylinder
-XB12	External stainless steel cylinder
-XC3	Special port location
-XC4	With heavy duty scraper
-XC5	Heat resistant cylinder (110°C)
-XC6	Piston rod and rod end nut made of stainless steel
-XC13	Auto switch mounting rail style
-XC18	NPT finish piping port
-XC22	Fluoro rubber seals
-XC25	No fixed orifice of connecting port
-XC29	Double knuckle joint with spring pin
-XC35	With coil scraper
-XC38	Vacuum (Rod through-hole)
-XC52	Mounting nut with set screw

Accessory Bracket

For mounting brackets, refer to pages 6-4-21 to 6-4-22.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	
Flange	CM-F020B	CM-F032B	CM-F040B	
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	

* Two foot brackets and a mounting nut are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A D-A44A D-G39A D-K39A	BM3-020	BM3-025	BM3-032	BM3-040

Rod Boot Material

Symbol	Rod boot material		Maximum ambient temperature
	One side	Both sides	
J JJ	Nylon tarpaulin		70°C
K KK	Heat resistant tarpaulin		110°C *

* Maximum ambient temperature for the rod boot itself.

Mounting screws set made of stainless steel. The following stainless steel mounting screw kit is available and may be used depending on the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

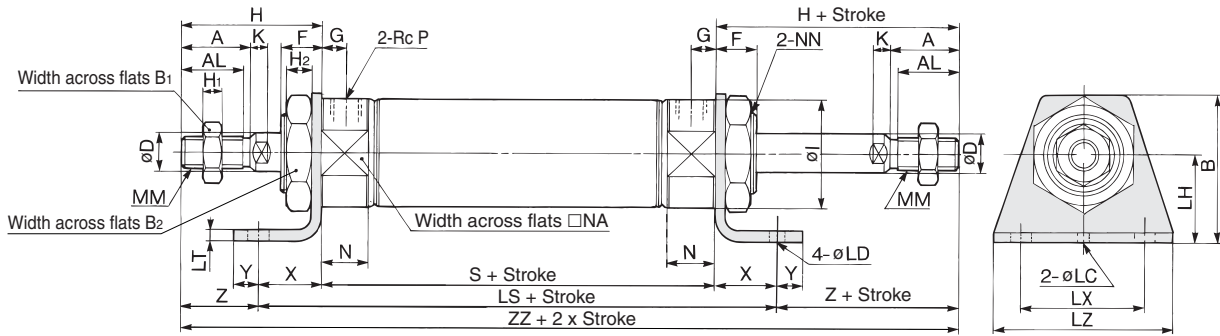
• "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

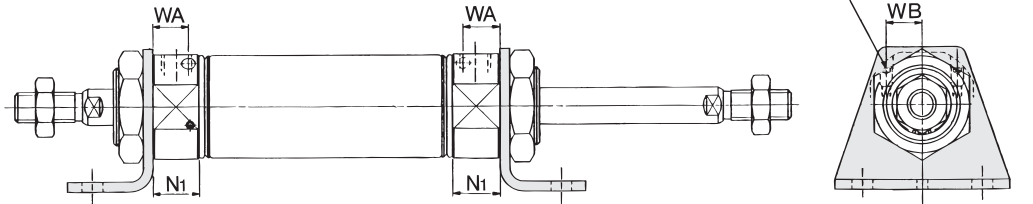
Series CM2W

Axial Foot Style (L)

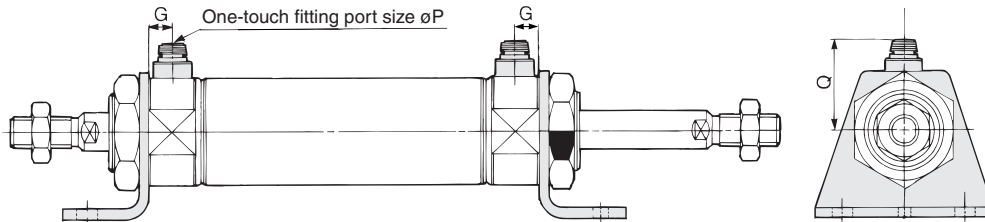
CM2WL



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	D	F	G	H	H ₁	H ₂	I	K	LC	LD	LH	LS	LT	LX	LZ	MM	N	NA	NN	P	S	X	Y	Z	ZZ
20	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	102	3.2	40	55	M8 x 1.25	15	24	M20 x 1.5	1/8	62	20	8	21	144
25	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	102	3.2	40	55	M10 x 1.25	15	30	M26 x 1.5	1/8	62	20	8	25	152
32	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	104	3.2	40	55	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	20	8	25	154
40	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	134	3.2	55	75	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	23	10	27	188

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5

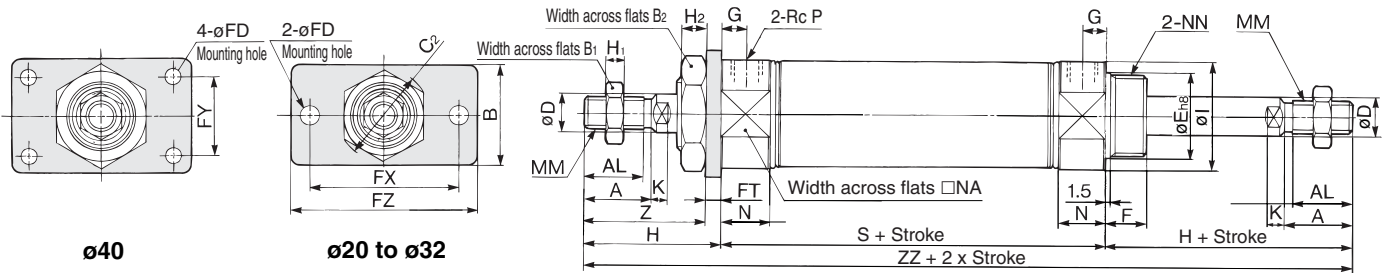


* In the case of with rod boot, refer to basic style on page 6-4-31 and f dimension on page 6-4-13.

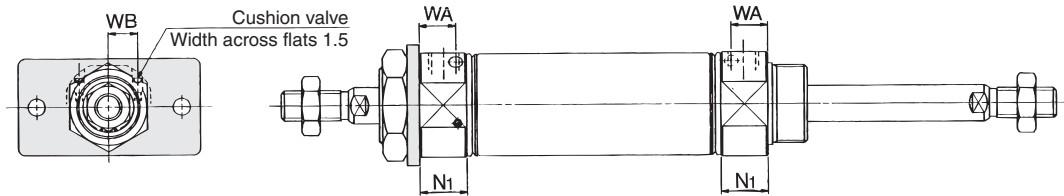
Air Cylinder: Standard Type Double Acting, Double Rod **Series CM2W**

Flange Style (F)

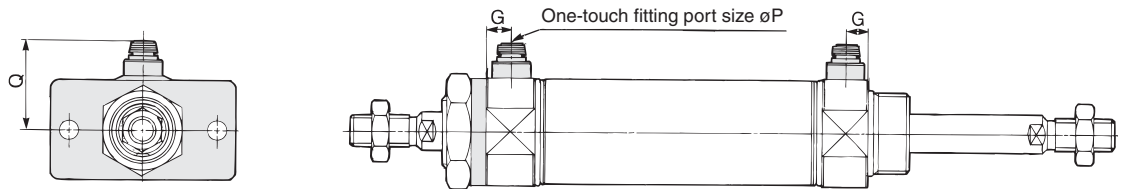
CM2WF Bore size Stroke



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	MM
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	8	41	5	8	28	5	M8 x 1.25
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	33.5	5.5	M10 x 1.25
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	37.5	5.5	M10 x 1.25
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 x 1.5

Bore size (mm)	N	NA	NN	P	S	Z	ZZ
20	15	24	M20 x 1.5	1/8	62	37	144
25	15	30	M26 x 1.5	1/8	62	41	152
32	15	34.5	M26 x 1.5	1/8	64	41	154
40	21.5	42.5	M32 x 2	1/4	88	45	188

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5



* In the case of with rod boot, refer to basic style on page 6-4-31 and f dimension on page 6-4-13.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

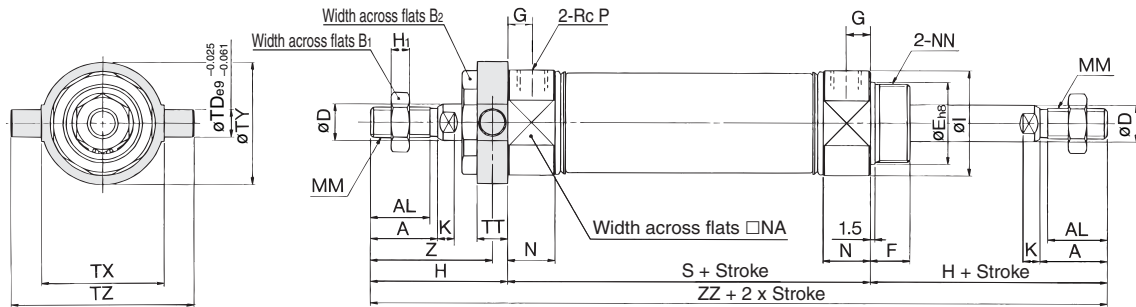
20-

Data

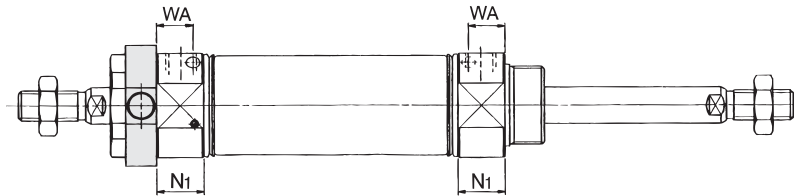
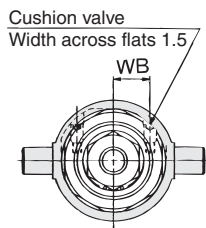
Series CM2W

Trunnion Style (U)

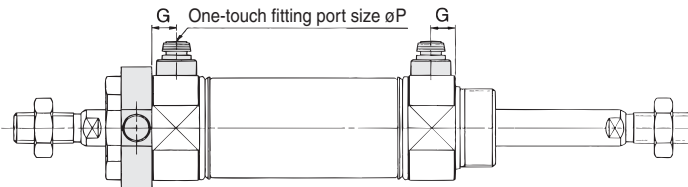
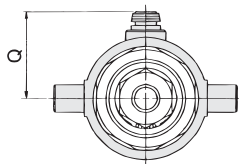
CM2WU



With air cushion



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	I	K	MM	N	NA	NN	P	S
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	62
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	62
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88

With Air Cushion

Bore size (mm)	TD	TT	TX	TY	TZ	Z	ZZ
20	8	10	32	32	52	36	144
25	9	10	40	40	60	40	152
32	9	10	40	40	60	40	154
40	10	11	53	53	77	44.5	188

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Built-in One-touch Fittings

Bore size (mm)	G	P	Q
20	8	6	21.5
25	8	6	24.5
32	8	6	27
40	11	8	32.5



* In the case of with rod boot, refer to basic style on page 6-4-31 and f dimension on page 6-4-13.

Series CM2

Boss-cut style

Boss for the head side cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of the Full Length Dimension (Versus standard type) (mm)

ø20	ø25	ø32	ø40
▲13	▲13	▲13	▲16

Mounting style

- Boss-cut basic style (BZ)
- Boss-cut flange style (FZ)
- Boss-cut trunnion style (UZ)

Mounting Style and Accessory

Mounting	Accessory	Standard equipment			Option		
		Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double knuckle joint ⁽³⁾	Clevis bracket ⁽⁴⁾
Basic style	● (1 pc.)	●	—	—	●	●	—
Axial foot style	● (2)	●	—	—	●	●	—
Rod side flange style	● (1)	●	—	—	●	●	—
Head side flange style	● (1)	●	—	—	●	●	—
Clevis integrated style	— ⁽¹⁾	●	—	—	●	●	●
Single clevis style	— ⁽¹⁾	●	—	—	●	●	—
Double clevis style ⁽³⁾	— ⁽¹⁾	●	●	—	●	●	—
Rod side trunnion style	● (1) ⁽²⁾	●	—	—	●	●	—
Head side trunnion style	● (1) ⁽²⁾	●	—	—	●	●	—
Boss-cut basic style	● (1)	●	—	—	●	●	—
Boss-cut flange style	● (1)	●	—	—	●	●	—
Boss-cut trunnion style	● (1)	●	—	—	●	●	—

- Note 1) Mounting nuts are not attached for clevis integrated style, single clevis, and double clevis styles.
- Note 2) Trunnion nuts are attached for rod side trunnion and head side trunnion styles.
- Note 3) Pin and snap ring (cotter pin for bore size ø40) are shipped together with double clevis and double knuckle joint.
- Note 4) Pin and snap ring are shipped together with clevis pivot bracket.

Accessory Bracket

For mounting brackets, refer to pages 6-4-21 to 6-4-22.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Single clevis	CM-C020B	CM-C032B	CM-C040B	CM-C040B
Double clevis** (With pin)	CM-D020B	CM-D032B	CM-D040B	CM-D040B
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

- * Two foot brackets and a mounting nut are attached.
Order two foot brackets per cylinder.
- ** Clevis pin and snap ring (cotter pin for bore size 40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040

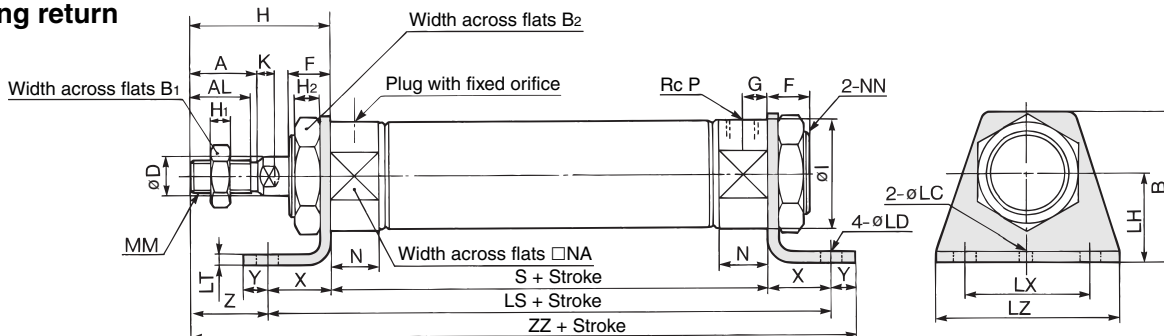
- [Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(A switch mounting band is not included, so please order it separately.)
BBA3: For D-B5/B6/G5
BBA4: For D-C7/C8/H7
- “D-H7BAL” switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, “BBA4” screws are attached.

Air Cylinder: Standard Type Single Acting, Single Rod, Spring Return/Extend Series **CM2**

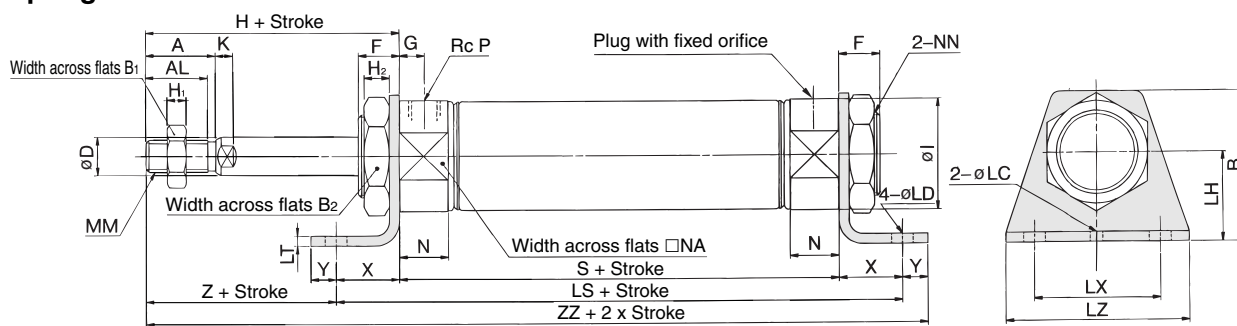
Axial Foot Style (L)

CM2L Bore size — Stroke $\frac{S}{T}$

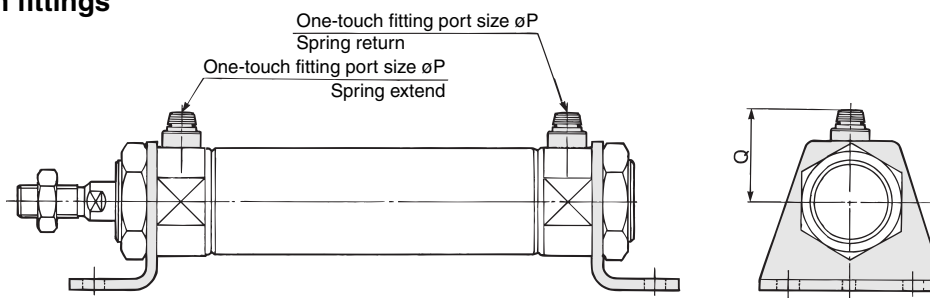
Spring return



Spring extend



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	D	F	G	H	H ₁	H ₂	I	K	LC	LD	LH	LT	LX	LZ	MM	N	NA	NN	P	X	Y	Z
20	18	15.5	40	13	26	8	13	8	41	5	8	28	5	4	6.8	25	3.2	40	55	M8 x 1.25	15	24	M20 x 1.5	1/8	20	8	21
25	22	19.5	47	17	32	10	13	8	45	6	8	33.5	5.5	4	6.8	28	3.2	40	55	M10 x 1.25	15	30	M26 x 1.5	1/8	20	8	25
32	22	19.5	47	17	32	12	13	8	45	6	8	37.5	5.5	4	6.8	28	3.2	40	55	M10 x 1.25	15	34.5	M26 x 1.5	1/8	20	8	25
40	24	21	54	22	41	14	16	11	50	8	10	46.5	7	4	7	30	3.2	55	75	M14 x 1.5	21.5	42.5	M32 x 2	1/4	23	10	27

Dimensions by Stroke

Bore size (mm)	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ	LS	S	ZZ
20	127	87	156	152	112	181	177	137	206	—	—	—	—	—	—
25	127	87	160	152	112	185	177	137	210	—	—	—	—	—	—
32	129	89	162	154	114	187	179	139	212	204	164	237	—	—	—
40	159	113	196	184	138	221	209	163	246	234	188	271	259	213	296

Built-in One-touch Fittings

Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

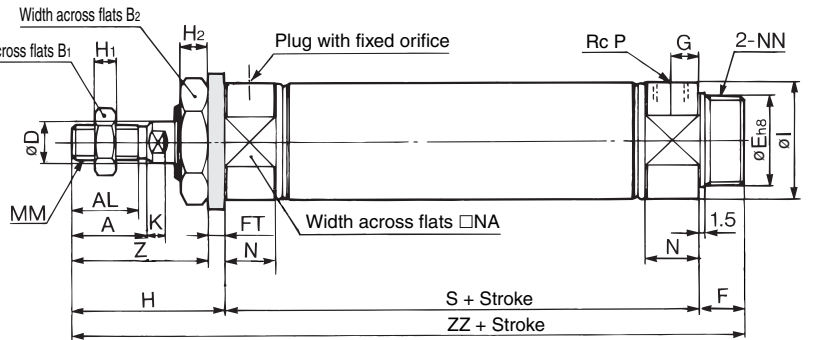
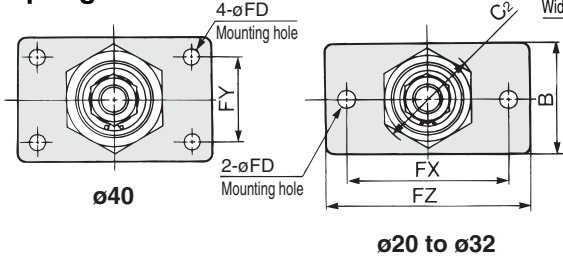
- CJ1
- CJP
- CJ2
- CM2**
- CG1
- MB
- MB1
- CA2
- CS1
- C76
- C85
- C95
- CP95
- NCM
- NCA
- D-
- X
- 20-
- Data

Series CM2

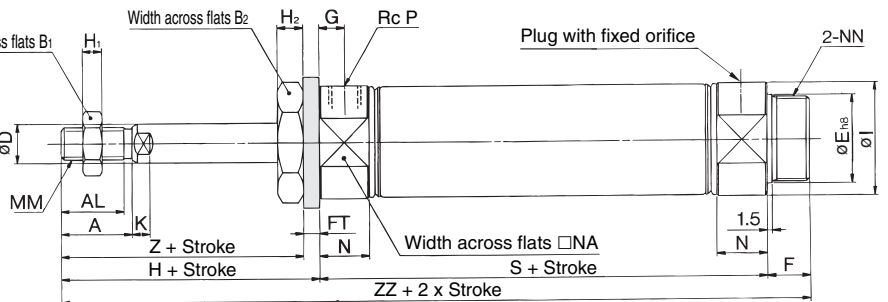
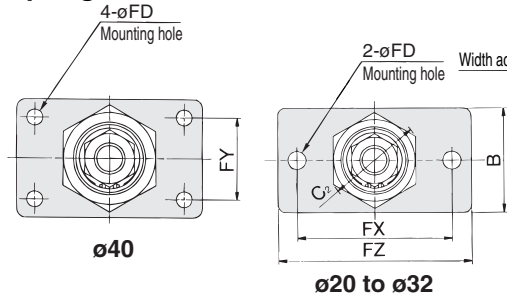
Rod Side Flange Style (F)

CM2F Bore size — Stroke $\frac{S}{T}$

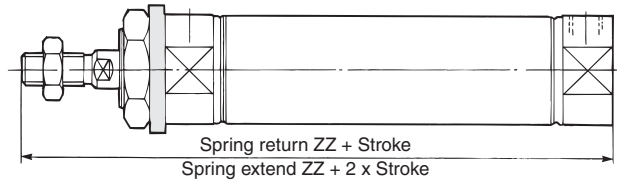
Spring return



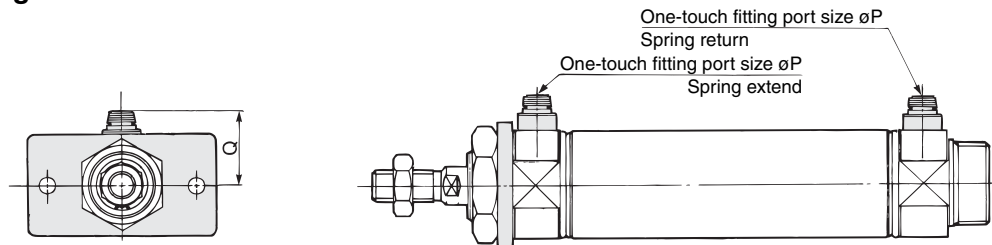
Spring extend



Boss-cut style



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	MM	N	NA	NN	P	Z
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	8	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	37
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	41
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	41
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	45

Dimensions by Stroke

Bore size (mm)	Stroke		1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	Symbol	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ	
20		87	141	112	166	137	191	—	—	—	—	
25		87	145	112	170	137	195	—	—	—	—	
32		89	147	114	172	139	197	164	222	—	—	
40		113	179	138	204	163	229	188	254	213	279	

Boss-cut Style

Bore size (mm)	Stroke		1 to 50		51 to 100		101 to 150		151 to 200		201 to 250	
	Symbol	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ		
20		128	153	178	—	—	—	—	—	—		
25		132	157	182	—	—	—	—	—	—		
32		134	159	184	209	—	—	—	—	—		
40		163	188	213	238	263	—	—	—	—		

Built-in One-touch Fittings

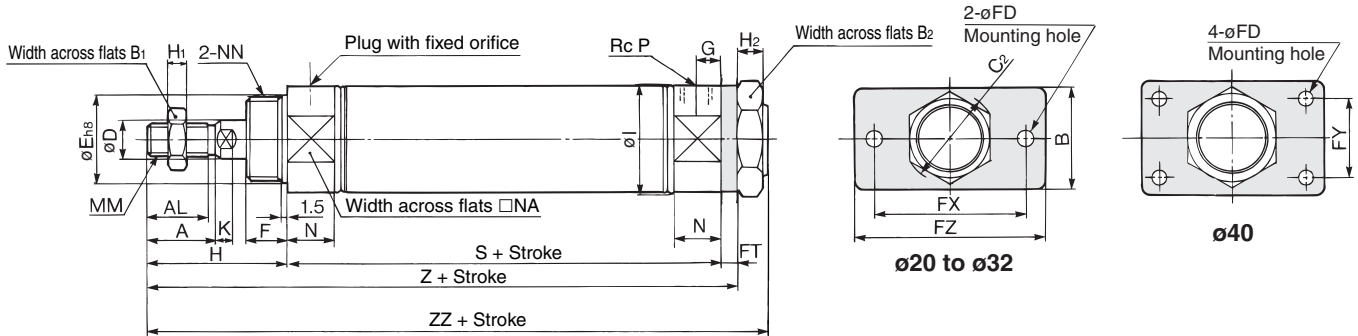
Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

Air Cylinder: Standard Type Single Acting, Single Rod, Spring Return/Extend Series **CM2**

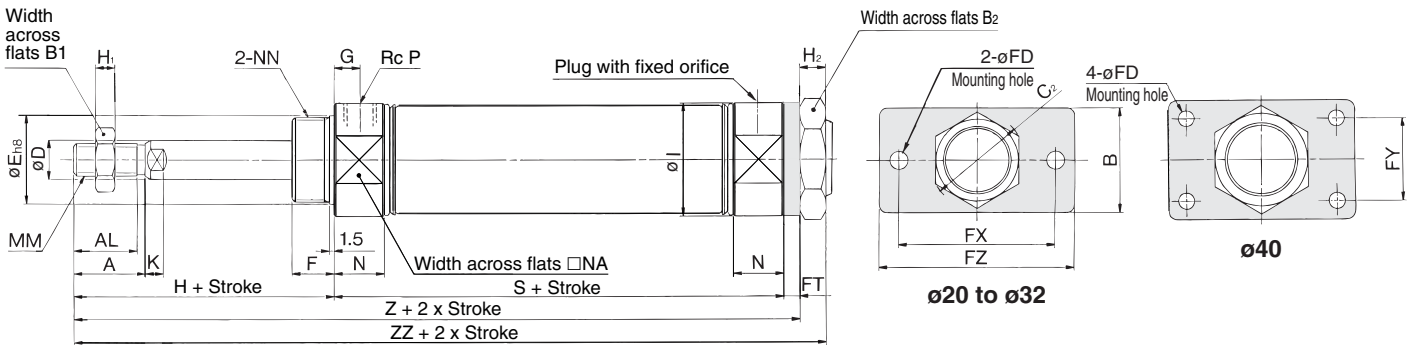
Head Side Flange Style (G)

CM2G Bore size — Stroke $\frac{S}{T}$

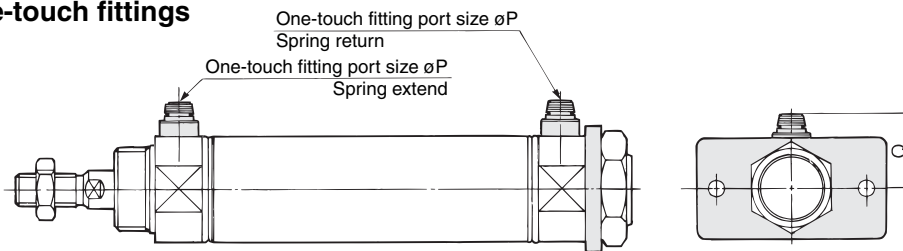
Spring return



Spring extend



Built-in One-touch fittings



Bore size (mm)	A	AL	B	B ₁	B ₂	C ₂	D	E	F	FD	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	MM	N	NA	NN	P
20	18	15.5	34	13	26	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	8	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8
25	22	19.5	40	17	32	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8
32	22	19.5	40	17	32	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	8	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8
40	24	21	52	22	41	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	11	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4

Dimensions by Stroke

Bore size (mm)	Stroke 1 to 50			Stroke 51 to 100			Stroke 101 to 150			Stroke 151 to 200			Stroke 201 to 250		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	132	141	112	157	166	137	182	191	—	—	—	—	—	—
25	87	136	145	112	161	170	137	186	195	—	—	—	—	—	—
32	89	138	147	114	163	172	139	188	197	164	213	222	—	—	—
40	113	168	179	138	193	204	163	218	229	188	243	254	213	268	279

Built-in One-touch Fittings

Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

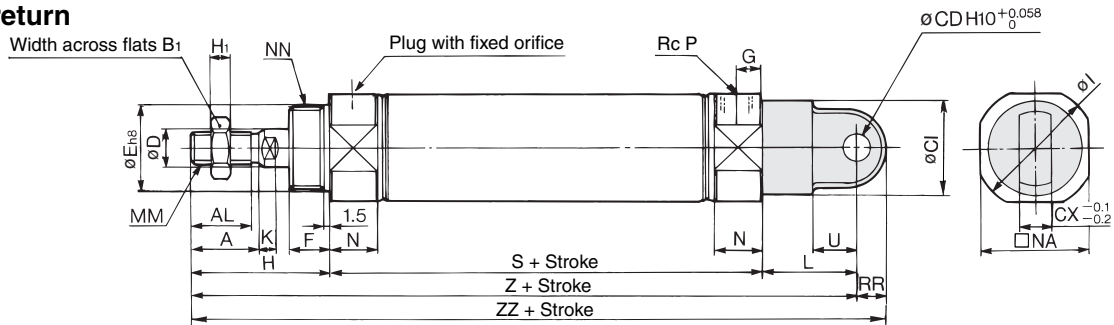
Data

Series CM2

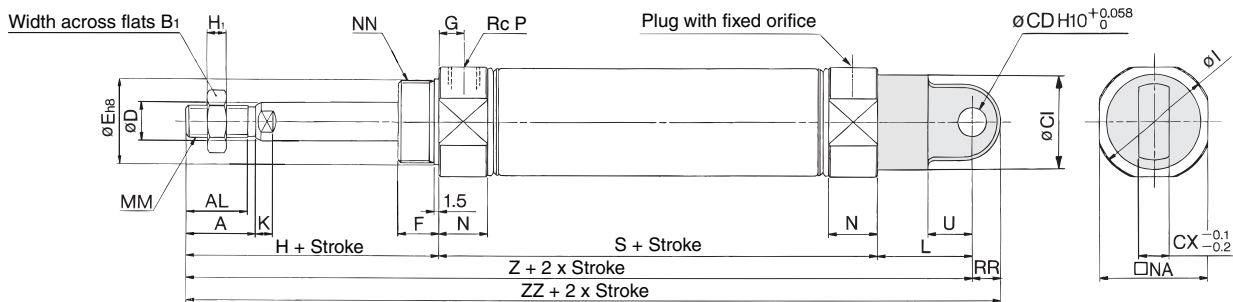
Single Clevis Style (C)

CM2C Bore size — Stroke $\frac{S}{T}$

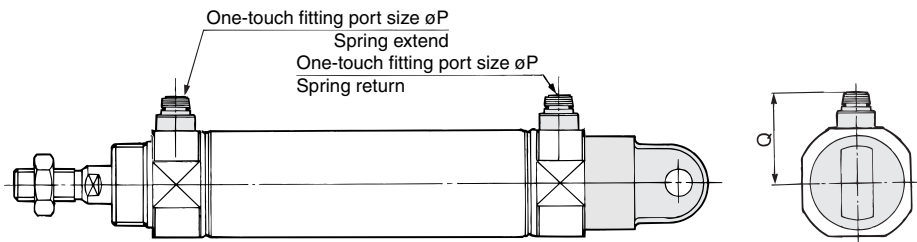
Spring return



Spring extend



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	CD	CI	CX	D	E	F	G	H	H ₁	I	K	L	MM	N	NA	NN	P	RR	U
20	18	15.5	13	9	24	10	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	9	14
25	22	19.5	17	9	30	10	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	9	14
32	22	19.5	17	9	30	10	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	14
40	24	21	22	10	38	15	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	11	18

Dimensions by Stroke

Bore size (mm)	Stroke																				
	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250								
Symbol	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ						
20	87	158	167	112	183	192	137	208	217	—	—	—	—	—	—						
25	87	162	171	112	187	196	137	212	221	—	—	—	—	—	—						
32	89	164	173	114	189	198	139	214	223	164	239	248	—	—	—						
40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313						

Built-in One-touch Fittings

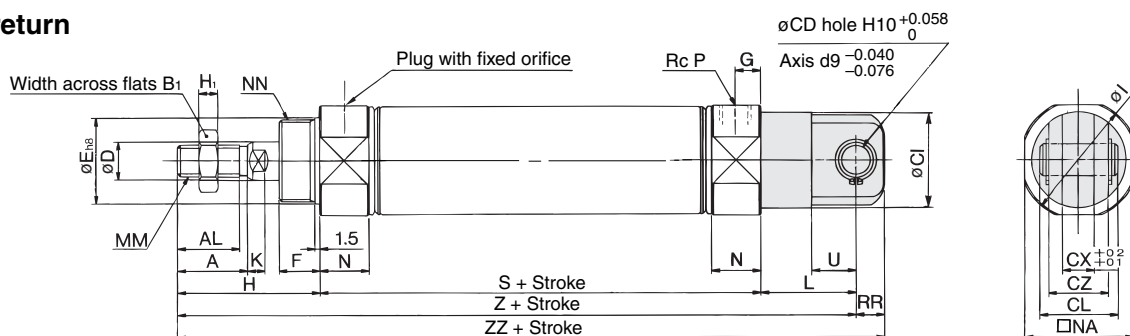
Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

Air Cylinder: Standard Type Single Acting, Single Rod, Spring Return/Extend Series **CM2**

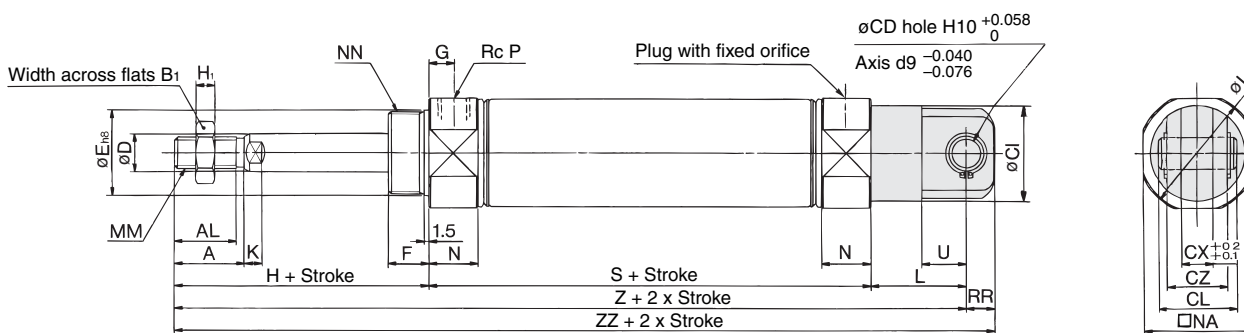
Double Clevis Style (D)

CM2D Bore size — Stroke $\frac{S}{T}$

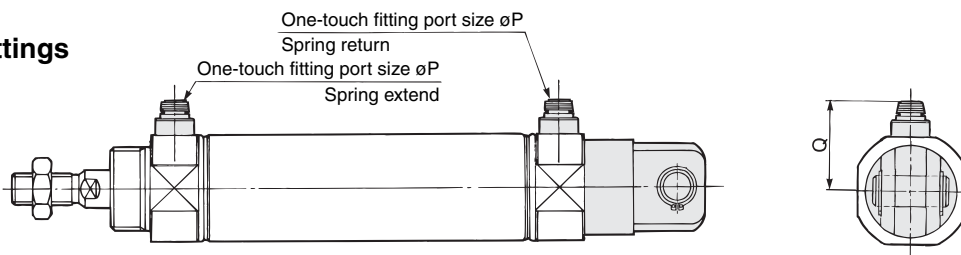
Spring return



Spring extend



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	CD	CI	CL	CX	CZ	D	E	F	G	H	H ₁	I	K	L	MM	N	NA	NN	P	RR	U
20	18	15.5	13	9	24	25	10	19	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	9	14
25	22	19.5	17	9	30	25	10	19	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	9	14
32	22	19.5	17	9	30	25	10	19	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	14
40	24	21	22	10	38	41.2	15	30	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	11	18

Dimensions by Stroke

Bore size (mm)	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	158	167	112	183	192	137	208	217	—	—	—	—	—	—
25	87	162	171	112	187	196	137	212	221	—	—	—	—	—	—
32	89	164	173	114	189	198	139	214	223	164	239	248	—	—	—
40	113	202	213	138	227	238	163	252	263	188	277	288	213	302	313

Built-in One-touch Fittings

Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

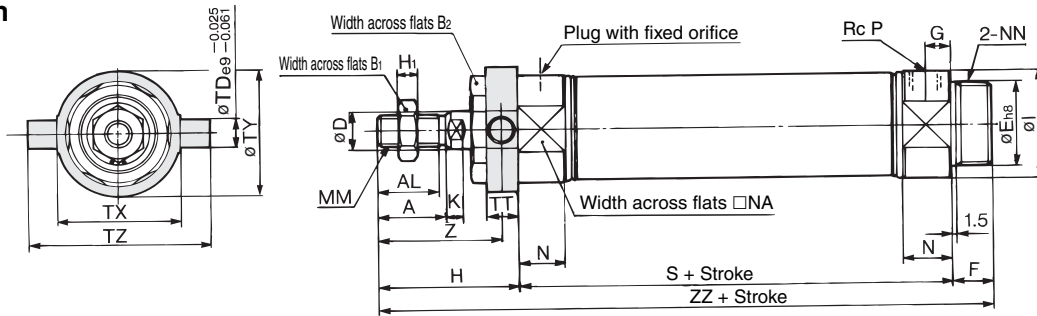
- CJ1
- CJP
- CJ2
- CM2**
- CG1
- MB
- MB1
- CA2
- CS1
- C76
- C85
- C95
- CP95
- NCM
- NCA
- D-
- X
- 20-
- Data

Series CM2

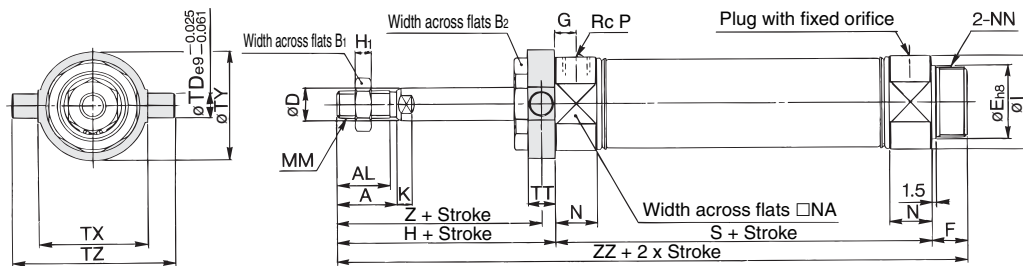
Rod Side Trunnion Style (U)

CM2U Bore size — Stroke ^S/_T

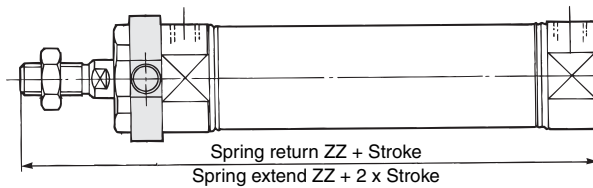
Spring return



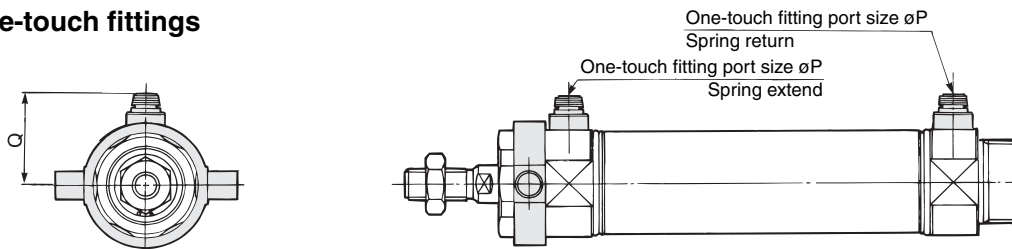
Spring extend



Boss-cut style



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	I	K	MM	N	NA	NN	P	TD	TT	TX	TY	TZ	Z
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	8	10	32	32	52	36
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	9	10	40	40	60	40
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	10	40	40	60	40
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	10	11	53	53	77	44.5

Dimensions by Stroke

Bore size (mm)	Stroke 1 to 50		Stroke 51 to 100		Stroke 101 to 150		Stroke 151 to 200		Stroke 201 to 250	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Boss-cut Style

Bore size (mm)	Stroke 1 to 50		Stroke 51 to 100		Stroke 101 to 150		Stroke 151 to 200		Stroke 201 to 250	
	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ
20	128	153	178	—	—	—	—	—	—	—
25	132	157	182	—	—	—	—	—	—	—
32	134	159	184	209	—	—	—	—	—	—
40	163	188	213	238	263	—	—	—	—	—

Built-in One-touch Fittings

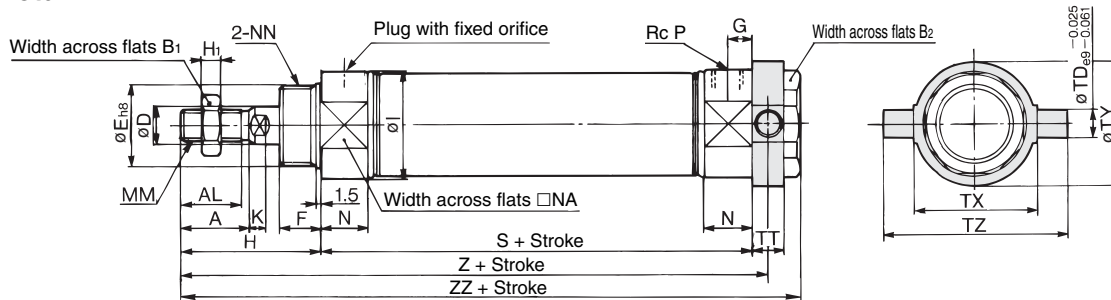
Bore size (mm)	Fittings	
	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

Air Cylinder: Standard Type Single Acting, Single Rod, Spring Return/Extend Series **CM2**

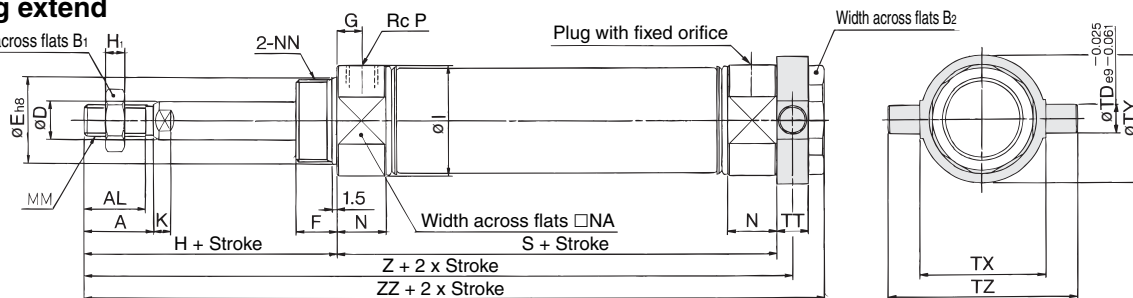
Head Side Trunnion Style (T)

CM2T Bore size — Stroke $\frac{S}{T}$

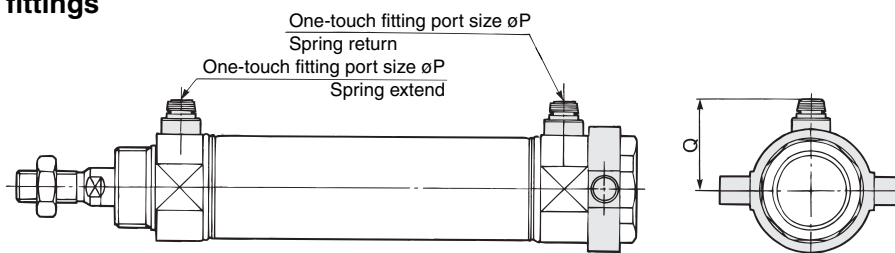
Spring return



Spring extend



Built-in One-touch fittings



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	I	K	MM	N	NA	NN	P	TD	TT	TX	TY	TZ
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	8	10	32	32	52
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	9	10	40	40	60
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	9	10	40	40	60
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	10	11	53	53	77

Dimensions by Stroke

Bore size (mm)	1 to 50			51 to 100			101 to 150			151 to 200			201 to 250		
	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ	S	Z	ZZ
20	87	133	143	112	158	168	137	183	193	—	—	—	—	—	—
25	87	137	147	112	162	172	137	187	197	—	—	—	—	—	—
32	89	139	149	114	164	174	139	189	199	164	214	224	—	—	—
40	113	168.5	179	138	193.5	204	163	218.5	229	188	243.5	254	213	268.5	279

Built-in One-touch Fittings

Bore size (mm)	P	Q
20	6	21.5
25	6	24.5
32	6	27
40	8	32.5

- CJ1
- CJP
- CJ2
- CM2**
- CG1
- MB
- MB1
- CA2
- CS1
- C76
- C85
- C95
- CP95
- NCM
- NCA
- D-
- X
- 20-
- Data

Series CM2K

A cylinder which rod does not rotate because of the hexagonal rod shape.

Non-rotating accuracy

ø20, ø25—±0.7°

ø32, ø40—±0.5°

Can operate without lubrication.

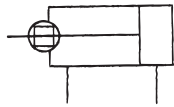
The same installation dimensions as the standard cylinder.

Auto switches can also be mounted.

It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.

JIS Symbol

Double acting,
Single rod



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150°C)
-XB12	External stainless steel cylinder
-XC3	Special port location
-XC5	Heat resistant cylinder (110°C)
-XC6	Piston rod and rod end nut made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC13	Auto switch mounting rail style
-XC18	NPT finish piping port
-XC20	Head cover axial port
-XC22	Fluoro rubber seals
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC52	Mounting nut with set screw

Specifications

Bore size (mm)	20	25	32	40
Rod non-rotating accuracy	±0.7°		±0.5°	
Type	Pneumatic			
Action	Double acting, Single rod			
Fluid	Air			
Cushion	Rubber bumper			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.05 MPa			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)			
Lubrication	Not required (Non-lube)			
Thread tolerance	JIS Class 2			
Stroke length tolerance	+1.4 0 mm			
Piston speed	50 to 500 mm/s			
Allowable kinetic energy	0.27 J	0.4 J	0.65 J	1.2 J

Standard Stroke

Bore size (mm)	Standard stroke ^{Note)} (mm)
20	25, 50, 75, 100, 125, 150 200, 250, 300
25	
32	
40	



Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) The maximum limit is 1000 stroke, but the products that exceed the standard stroke might not be able to fulfill the specifications.

Minimum Stroke for Auto Switch Mounting

Auto switches can be mounted.
For minimum stroke table, refer to page 6-4-5.

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C *

* Maximum ambient temperature for the rod boot itself.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot*	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Single clevis	CM-C020B	CM-C032B	CM-C040B	CM-C040B
Double clevis (With pin)**	CM-D020B	CM-D032B	CM-D040B	CM-D040B
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

* Two foot brackets and a mounting nut are attached. Order two foot brackets per cylinder.

** Clevis pin and snap ring (cotter pin for bore size ø40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040



* Mounting screws set made of stainless steel

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

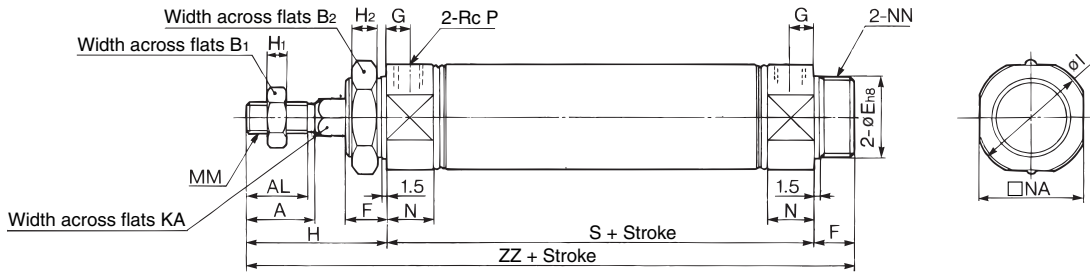
• "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

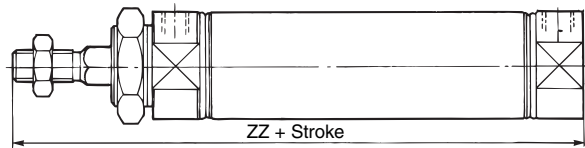
Series CM2K

Basic Style (B)

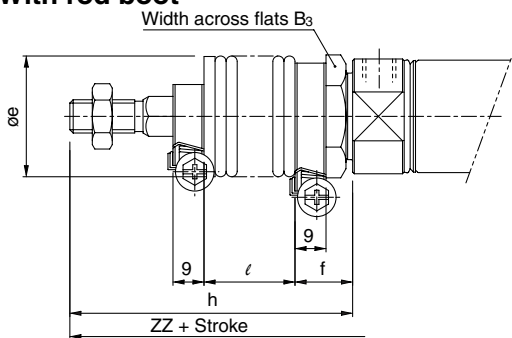
CM2KB —



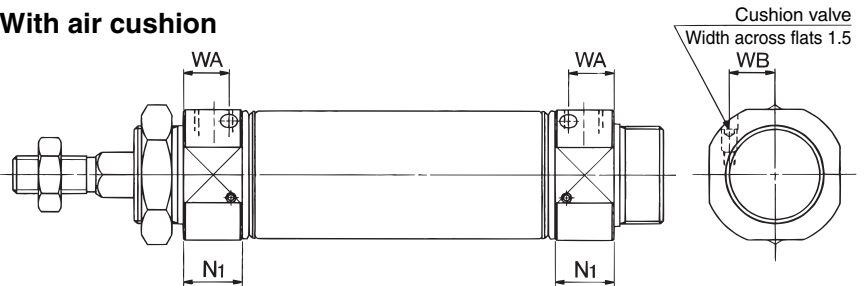
Boss-cut style



With rod boot



With air cushion



Bore size (mm)	A	AL	B ₁	B ₂	E	F	G	H	H ₁	H ₂	I	KA	MM	N	NA	NN	P	S	ZZ
20	18	15.5	13	26	20 ⁰ _{-0.033}	13	8	41	5	8	28	8.2	M8 x 1.25	15	24	M20 x 1.5	1/8	62	116
25	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	33.5	10.2	M10 x 1.25	15	30	M26 x 1.5	1/8	62	120
32	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	37.5	12.2	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	122
40	24	21	22	41	32 ⁰ _{-0.039}	16	11	50	8	10	46.5	14.2	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	154

With Rod Boot

Symbol Bore size (mm) Stroke	B ₃	e	f	h						ℓ					ZZ				
				1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	
20	30	36	17	68	81	93	106	131	12.5	25	37.5	50	75	143	156	168	181	206	
25	32	36	17	72	85	97	110	135	12.5	25	37.5	50	75	147	160	172	185	210	
32	32	36	17	72	85	97	110	135	12.5	25	37.5	50	75	149	162	174	187	212	
40	41	46	19	77	90	102	115	140	12.5	25	37.5	50	75	181	194	206	219	244	

Boss-cut Style

Bore size (mm)	ZZ					
	Without rod boot	With rod boot				
		1 to 50	51 to 100	101 to 150	151 to 200	201 to 300
20	103	130	143	155	168	193
25	107	134	147	159	172	197
32	109	136	149	161	174	199
40	138	165	178	190	203	228

With Air Cushion

Bore size (mm)	N ₁	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Dimensions of Each Mounting Bracket

The dimensions are the same as standard type, double acting, single rod, except the configuration of the piston rod. Refer to pages 6-4-13 to 6-4-20. Specifications for the auto switch equipped type are the same as Series CDM2 standard type.

Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod Series CM2KW

Weight

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.16	0.25	0.32	0.66
	Axial foot style	0.31	0.41	0.48	0.93
	Flange style	0.22	0.34	0.41	0.78
	Trunnion style	0.20	0.32	0.38	0.76
Additional weight per each 50 mm of stroke		0.06	0.1	0.14	0.20
Option bracket	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

Calculation: (Example) CM2KWL32-100

- Basic weight..... 0.48 (Foot, ø32)
 - Additional weight..... 0.14/50 st
 - Cylinder stroke: 100 st
- $0.48 + 0.14 \times 100/50 = 0.76 \text{ kg}$


Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Trunnion (With nuts)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

* Two foot brackets and a mounting nut are attached.
Order two foot brackets per cylinder.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G3/K3	BM3-020	BM3-025	BM3-032	BM3-040

-  Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(A switch mounting band is not included, so please order it separately.)
BBA3: For D-B5/B6/G5
BBA4: For D-C7/C8/H7
- "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Operating Precautions

⚠ Warning

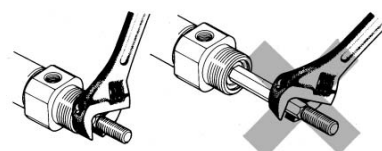
- 1. Do not rotate the cover.**
If a cover is rotated when installing a cylinder or screwing a fitting into the port, it is likely to damage the junction part with cover.
- 2. Do not operate with the cushion needle in a fully closed condition.**
Using it in the fully closed state will cause the cushion seal to be damaged. When adjusting the cushion needle, use the "Hexagon wrench key: nominal size 1.5".
- 3. Do not open the cushion needle wide excessively.**
If the cushion needle were set to be completely wide (more than 3 turns from fully closed), it would be equivalent to the cylinder with no cushion, thus making the impacts extremely high. Do not use it in such a way. Besides, using with fully open could give damage to the piston or cover.

⚠ Caution

- 1. Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod.**
If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.
Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque (N·m or less)	ø20	ø25	ø32	ø40
		0.2	0.25	0.25

To screw a bracket or a nut onto the threaded portion at the tip of the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.
Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.



- 2. When replacing rod seals, please contact SMC.**
Air leakage may be happened, depending on the position in which a rod seal is fitted. Thus, please contact SMC when replacing them.
- 3. Not able to disassemble.**
Cover and cylinder tube are connected to each other by caulking method, thus making it impossible to disassemble. Therefore, internal parts of a cylinder other than rod seal are not replaceable.
- 4. Do not touch the cylinder during operation.**
Use caution when handling a cylinder, which is running at a high speed and a high frequency, because the surface of a cylinder tube could get so hot enough as to cause you get burned.
- 5. Combine the rod end section, so that a rod boot might not be twisted.**
If a rod boot is installed with being twisted when installing a cylinder, it will cause a rod boot to fail during operation.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

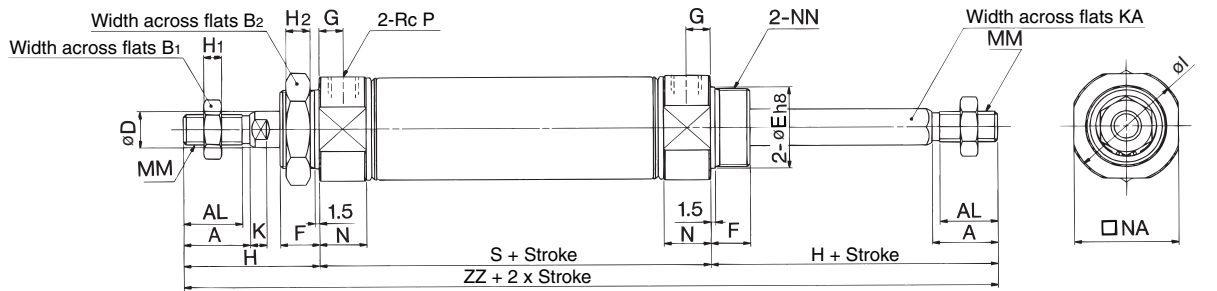
20-

Data

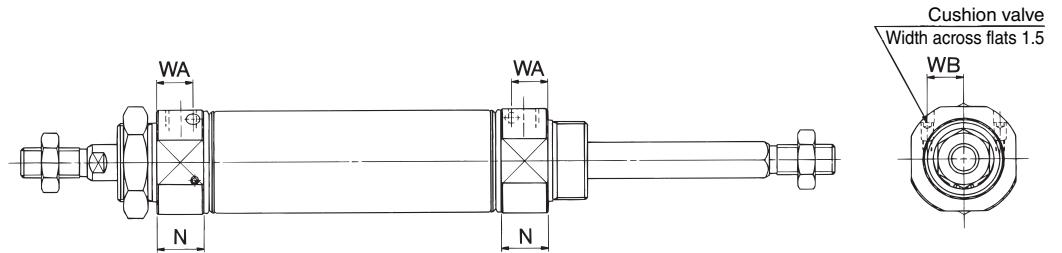
Air Cylinder: Non-rotating Rod Type Double Acting, Double Rod **Series CM2KW**

Basic Style (B)

CM2KWB



With air cushion



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	H ₂	I	K	KA	MM	N	NA	NN	P	S	ZZ
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	8	28	5	8.2	M8 x 1.25	15	24	M20 x 1.5	1/8	62	144
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	8	33.5	5.5	10.2	M10 x 1.25	15	30	M26 x 1.5	1/8	62	152
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	8	37.5	5.5	12.2	M10 x 1.25	15	34.5	M26 x 1.5	1/8	64	154
40	24	21	22	41	14	32 ⁰ _{-0.033}	16	11	50	8	10	46.5	7	14.2	M14 x 1.5	21.5	42.5	M32 x 2	1/4	88	188

With Air Cushion

Bore size (mm)	N	WA	WB
20	17.5	13	8.5
25	17.5	13	10.5
32	17.5	13	11.5
40	21.5	16	15

Dimensions of Each Mounting Bracket

External dimensions of each mounting bracket other than basic style are the same as standard type, double acting, double rod (except KA dimensions). Refer to pages 6-4-21 to 6-4-22.

Proper Auto Switch Mounting Position and Operating Range

Refer to page 6-4-35 for the proper auto switch mounting position (at stroke end), since the operating range is the same as standard type, double acting, double rod.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data

Air Cylinder: Non-rotating Rod type Single Acting, Single Rod, Spring Return/Extend **Series CM2K**

A cylinder which rod does not rotate because of the hexagonal rod shape.

Non-rotating accuracy

$\phi 20, \phi 25$ — $\pm 0.7^\circ$

$\phi 32, \phi 40$ — $\pm 0.5^\circ$

Can operate without lubrication.

The same installation dimensions as the standard cylinder.

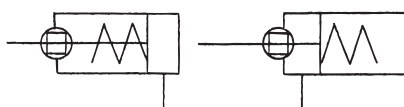
Auto switches can also be mounted.

It can be installed with auto switches to simplify the detection of the stroke position of the cylinder.

JIS Symbol

Single acting,
Spring return

Spring extend



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XC3	Special port location
-XC6	Piston rod and rod end nut made of stainless steel
-XC13	Auto switch mounting rail style
-XC18	NPT finish piping port
-XC20	Head cover axial port
-XC27	Double clevis pin and double knuckle pin made of stainless steel
-XC29	Double knuckle joint with spring pin
-XC52	Mounting nut with set screw

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Specifications

Bore size (mm)		20	25	32	40
Rod non-rotating accuracy		± 0.7		0.5	
Action		Spring acting, Spring return/Spring extend			
Fluid		Air			
Cushion		Rubber bumper			
Proof pressure		1.5 MPa			
Maximum operating pressure		1.0 MPa			
Minimum operating pressure	Spring return	0.18 MPa			
	Spring extend	0.23 MPa			
Ambient and fluid temperature		Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)			
Lubrication		Not required (Non-lube)			
Thread tolerance		JIS Class 2			
Stroke length tolerance		$^{+1.4}_0$ mm			
Piston speed		50 to 500 mm/s			
Rod non-rotating accuracy		$\pm 0.7^\circ$		$\pm 0.5^\circ$	
Allowable kinetic energy		0.27 J	0.4 J	0.65 J	1.2 J

Standard Stroke

Bore size (mm)	Standard stroke (mm) ^{Note)}
20	25, 50, 75, 100, 125, 150
25	25, 50, 75, 100, 125, 150
32	25, 50, 75, 100, 125, 150, 200
40	25, 50, 75, 100, 125, 150, 200, 250

Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) Please contact SMC for longer strokes.

Minimum Stroke for Auto Switch Mounting

Refer to "Minimum Stroke for Auto Switch Mounting" on page 6-4-5, since it is the same as standard type.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Single clevis	CM-C020B	CM-C032B	CM-C040B	CM-C040B
Double clevis (With pin)**	CM-D020B	CM-D032B	CM-D040B	CM-D040B
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

* Two foot brackets and a mounting nut are attached.

Order two foot brackets per cylinder.

** Clevis pin and snap ring (cotter pin for bore size 40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040



Mounting screws set made of stainless steel

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA4: For D-C7/C8/H7

• "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

Theoretical Output

Refer to "Theoretical Output 1" on page 6-19-7.

Spring Reaction Force

Refer to "Spring Reaction Force 2" on page 6-19-3.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

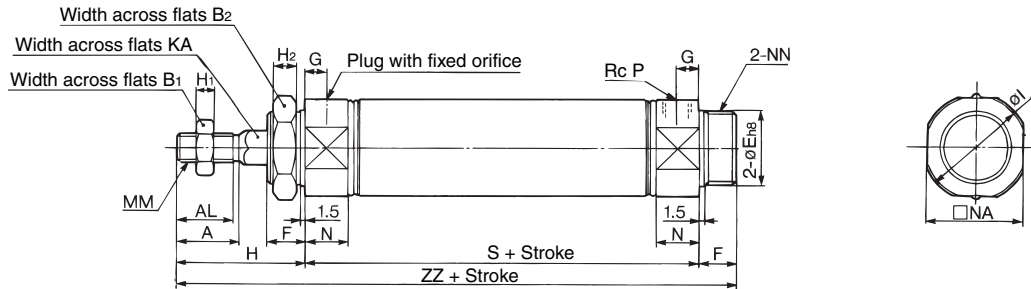
Data

Series CM2K

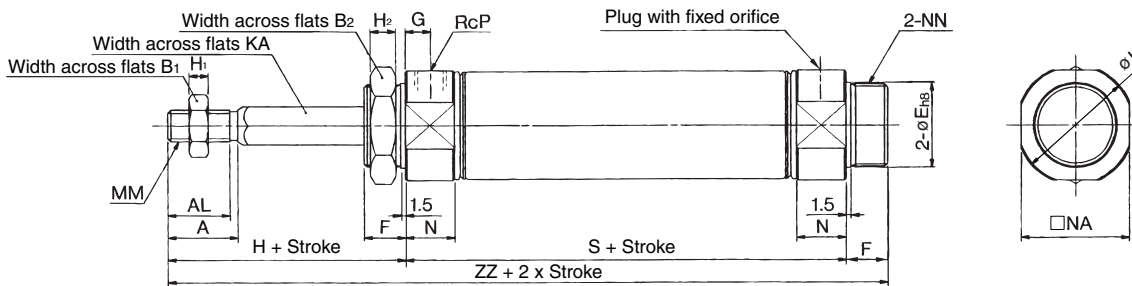
Basic Style (B)

CM2KB Bore size — Stroke $\frac{S}{T}$

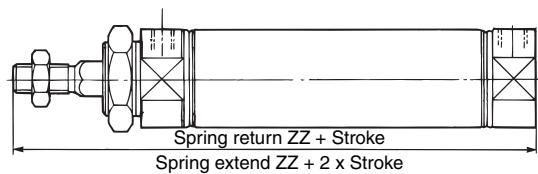
Spring return



Spring extend



Boss-cut style



Bore size (mm)	A	AL	B ₁	B ₂	E	F	G	H	H ₁	H ₂	I	KA	MM	N	NA	NN	P
20	18	15.5	13	26	20 ⁰ _{-0.033}	13	8	41	5	8	28	8.2	M8 x 1.25	15	24	M20 x 1.5	1/8
25	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	33.5	10.2	M10 x 1.25	15	30	M26 x 1.5	1/8
32	22	19.5	17	32	26 ⁰ _{-0.033}	13	8	45	6	8	37.5	12.2	M10 x 1.25	15	34.5	M26 x 1.5	1/8
40	24	21	22	41	32 ⁰ _{-0.039}	16	11	50	8	10	46.5	14.2	M14 x 1.5	21.5	42.5	M32 x 2	1/4

Dimensions by Stroke

Bore size (mm)	Stroke		51 to 100		101 to 150		151 to 200		201 to 250	
	S	ZZ	S	ZZ	S	ZZ	S	ZZ	S	ZZ
20	87	141	112	166	137	191	—	—	—	—
25	87	145	112	170	137	195	—	—	—	—
32	89	147	114	172	139	197	164	222	—	—
40	113	179	138	204	163	229	188	254	213	279

Boss-cut Style

Bore size (mm)	Stroke		101 to 150		151 to 200		201 to 250	
	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	
20	128	153	178	—	—	—	—	
25	132	157	182	—	—	—	—	
32	134	159	184	209	—	—	—	
40	163	188	213	238	263	—	—	



External dimensions of each mounting bracket other than basic style are the same as standard type, single acting, spring return/spring extend (except piston rod configuration). Refer to pages 6-4-43 to 6-4-50.
Specifications with auto switch are the same as standard type (CDM2- □S/T).

Air Cylinder: Low Friction Type Double Acting, Single Rod **Series CM2Q**

Mounting Style and Accessory

Mounting	Accessory	Standard equipment			Option		
	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double ⁽³⁾ knuckle joint	Clevis ⁽⁴⁾ bracket	
Basic style	● (1 pc.)	●	—	●	●	—	
Axial foot style	● (2)	●	—	●	●	—	
Rod side flange style	● (1)	●	—	●	●	—	
Head side flange style	● (1)	●	—	●	●	—	
Clevis integrated style	— ⁽¹⁾	●	—	●	●	●	
Single clevis style	— ⁽¹⁾	●	—	●	●	—	
Double clevis style ⁽³⁾	— ⁽¹⁾	●	●	●	●	—	
Rod side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	
Head side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	
Boss-cut basic style	● (1)	●	—	●	●	—	
Boss-cut flange style	● (1)	●	—	●	●	—	
Boss-cut trunnion style	● (1)	●	—	●	●	—	



Note 1) Mounting nuts are not attached for clevis integrated style, single clevis, and double clevis styles.

Note 2) Trunnion nuts are attached for rod side trunnion and head side trunnion styles.

Note 3) Pin and snap ring (cotter pin for bore size ø40) are shipped together with double clevis and double knuckle joint.

Note 4) Pin and snap ring are shipped together with clevis pivot bracket.

Weight

(kg)

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.14	0.21	0.28	0.56
	Axial foot style	0.29	0.37	0.44	0.83
	Flange style	0.20	0.30	0.37	0.68
	Clevis integrated style	0.12	0.19	0.27	0.52
	Single clevis style	0.18	0.25	0.32	0.65
	Double clevis style	0.19	0.27	0.33	0.69
	Trunnion style	0.18	0.28	0.34	0.66
	Boss-cut basic style	0.13	0.19	0.26	0.53
	Boss-cut flange style	0.19	0.28	0.35	0.65
	Boss-cut trunnion style	0.17	0.26	0.32	0.63
Additional weight per each 50 mm of stroke		0.04	0.06	0.08	0.13
Option bracket	Clevis bracket (With pin)	0.07	0.07	0.14	0.14
	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

Calculation: (Example) CM2QL32-100
 ● Basic weight.....0.44 (Foot style, ø32)
 ● Additional weight.....0.08/50 stroke
 ● Cylinder stroke.....100 stroke
 0.44 + 0.08 x 100/50 = 0.60 kg

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	CM-L040B
Flange	CM-F020B	CM-F032B	CM-F040B	CM-F040B
Single clevis	CM-C020B	CM-C032B	CM-C040B	CM-C040B
Double clevis (With pin) **	CM-D020B	CM-D032B	CM-D040B	CM-D040B
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	CM-T040B

* Two foot brackets and a mounting nut are attached.

Order two foot brackets per cylinder.

** Clevis pin and snap ring (cotter pin for bore size 40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040



Mounting screws set made of stainless steel

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA4: For D-C7/C8/H7

•“D-H7BAL” switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, “BBA4” screws are attached.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

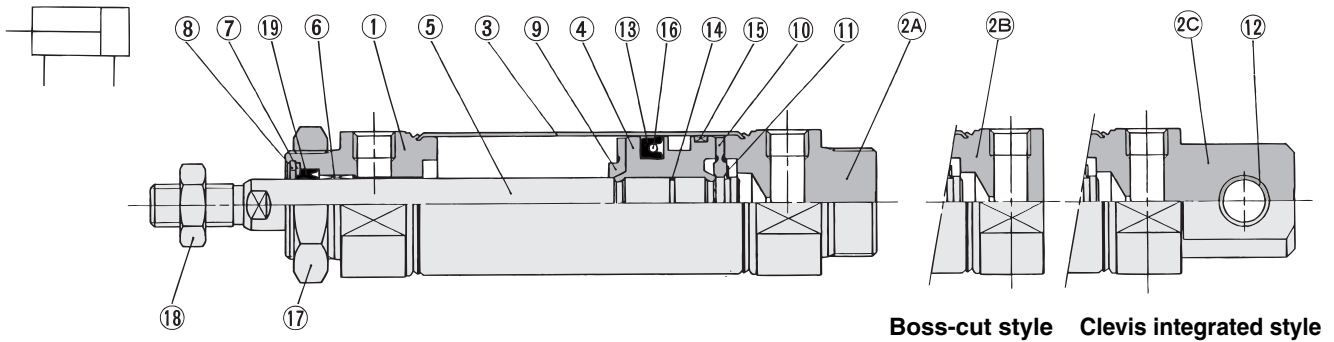
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20-

Data

Air Cylinder: Low Friction Type Double Acting, Single Rod Series CM2Q

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Clear anodized
②A	Head cover A	Aluminum alloy	Clear anodized *
②B	Head cover B	Aluminum alloy	Clear anodized **
②C	Head cover B	Aluminum alloy	Clear anodized ***
③	Cylinder tube	Stainless steel	Chromated
④	Piston	Aluminum alloy	Hard chrome plated
⑤	Piston rod	Carbon steel	
⑥	Bushing	Oil impregnated sintered alloy	Nickel plated
⑦	Seal retainer	Rolled steel plate	Nickel plated
⑧	Snap ring	Carbon steel	
⑨	Bumper A	Urethane	
⑩	Bumper B	Urethane	

* Basic style, ** Boss-cut style, *** Clevis integrated style

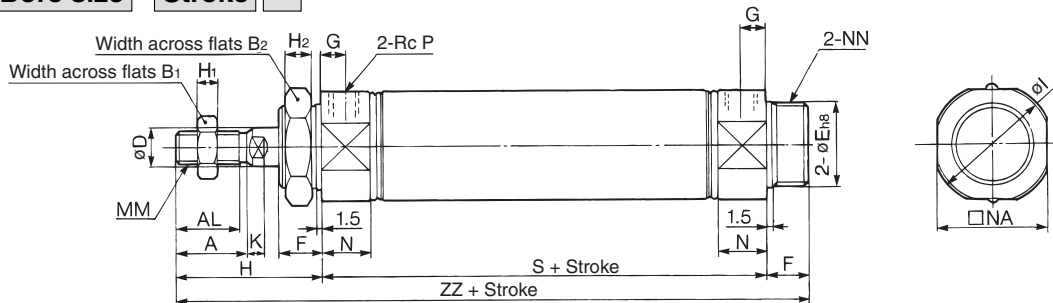
Basic Style (B)

No.	Description	Material	Note
⑪	Snap ring	Stainless steel	
⑫	Clevis bushing	Oil-impregnated sintered alloy	
⑬	Piston seal	NBR	
⑭	Piston gasket	NBR	
⑮	Wear ring	Resin	
⑯	Back up O-ring	NBR	
⑰	mounting nut	Carbon steel	Nickel plated
⑱	Rod end nut	Carbon steel	Nickel plated

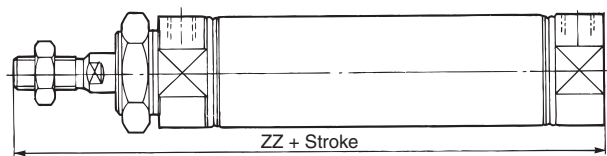
Replacement Parts

No.	Description	Material	Part no.			
			20	25	32	40
⑲	Rod seal	NBR	PDU-8Z	PDU-10Z	PDU-12LZ	PDU-14LZ

CM2QB



Boss-cut style



Bore size (mm)	A	AL	B ₁	B ₂	D	E	F	G	H	H ₁	H ₂	I	K	MM	N	NA	NN	P	S	ZZ
20	18	15.5	13	26	8	20 ⁰ _{-0.033}	13	8	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	65	119
25	22	19.5	17	32	10	26 ⁰ _{-0.033}	13	8	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	65	123
32	22	19.5	17	32	12	26 ⁰ _{-0.033}	13	8	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	67	125
40	24	21	22	41	14	32 ⁰ _{-0.039}	16	11	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	91	157

Boss-cut Style

Bore size (mm)	ZZ
20	106
25	110
32	112
40	141

Dimensions for Other Mounting Brackets

External dimensions of each mounting bracket other than basic style are obtained to add 3 mm respectively to S and ZZ dimension of the standard type, double acting, single rod listed in the dimensional table on pages 6-4-13 to 6-4-20.

Proper Auto Switch Mounting Position and Operating Range

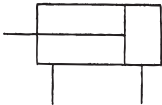
For the proper auto switch mounting position (at stroke end), refer to page 6-4-23, since the operating range is the same as standard type, single rod. Add 3 mm to each "A" dimension of the standard type.

Air Cylinder: Centralized Piping Type Double Acting, Single Rod Series **CM2□P**

A cylinder in which two piping ports are provided in the head cover, enabling pipes to be connected only in the axial direction.



JIS Symbol
Double acting,
Single rod



Made to Order Specifications
(For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC4	With heavy duty scraper
-XC6	Piston rod and rod end nut made of stainless steel

⚠ Precautions

Be sure to read before handling.
Refer to pages 6-20-3 to 6-20-6 for
Safety Instructions and Actuator
Precautions.

Specifications

Bore size (mm)	20	25	32	40
Action	Double acting, Single rod			
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.05 MPa			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)			
Lubrication	Not required (Non-lube)			
Thread tolerance	JIS Class 2			
Stroke length tolerance	+1.4 0 mm			
Cushion	Rubber bumper			
Piston speed	50 to 700 mm/s	50 to 650 mm/s	50 to 590 mm/s	50 to 420 mm/s
Allowable kinetic energy	0.27 J	0.4 J	0.65 J	1.2 J

Standard Stroke

Bore size (mm)	Standard stroke ⁽¹⁾ (mm)	Maximum manufacturable stroke ⁽²⁾ (mm)
20	25, 50, 75, 100, 125, 150	1000
25		
32		
40	200, 250, 300	

Note 1) Other intermediate strokes can be manufactured upon receipt of order.

Note 2) When exceeding 300 stroke, the allowable maximum stroke length is determined by the stroke selection table.

Mounting Style and Accessory

	Accessory	Standard equipment		Option		
		Mounting nut	Rod end nut	Single knuckle joint	Double knuckle joint (With pin)	Rod boot
Mounting						
	Basic style	● (1 pc.)	●	●	●	●
	Rod side style Flange side style	● (1)	●	●	●	●
	Rod side trunnion style	● (1)	●	●	●	●

* Pin and snap ring (cotter pin for bore size ø40) are shipped together with double knuckle joint.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Flange	CM-F020B	CM-F032B	CM-F040B	
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040

⦿ Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA4: For D-C7/C8/H7

- "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
- When only a switch is shipped independently, "BBA4" screws are attached.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

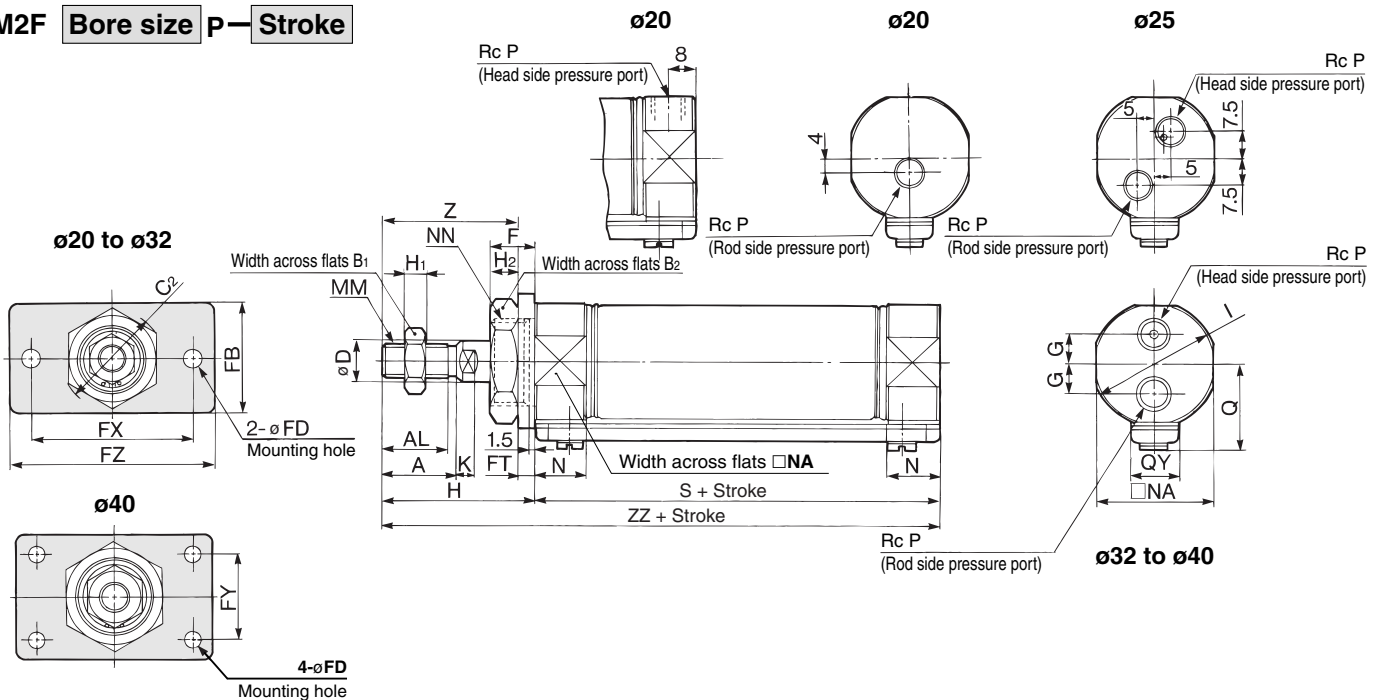
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Data

Series CM2□P

Rod Side Flange Style (F)

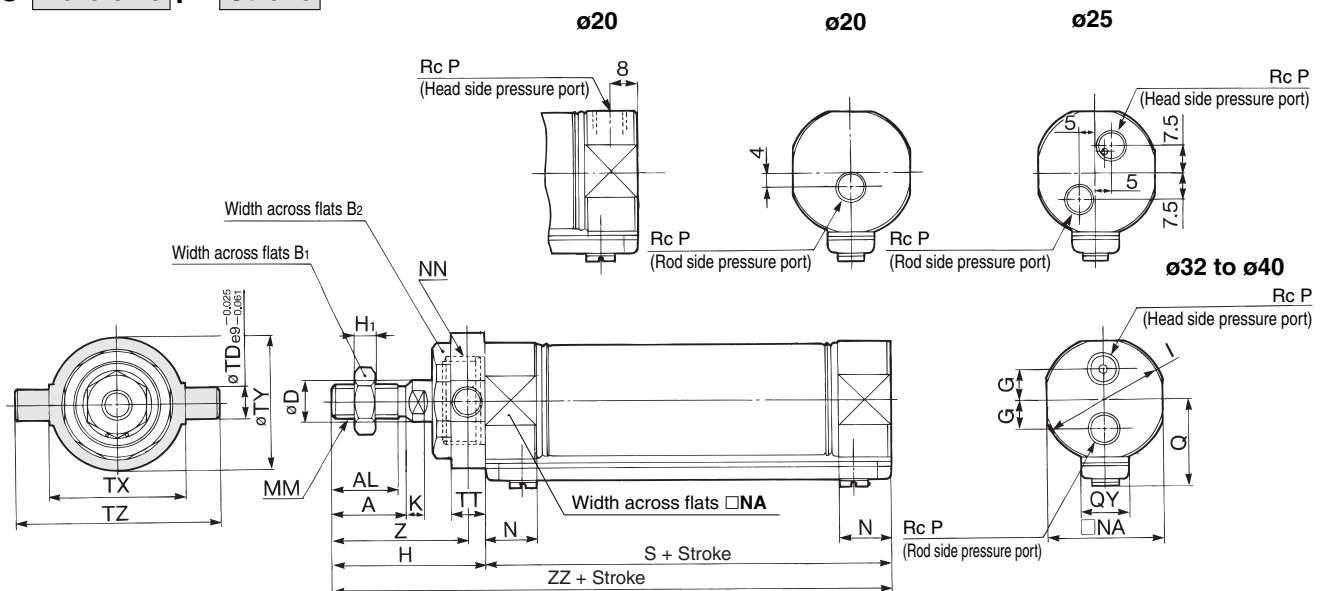
CM2F Bore size P—Stroke



Bore size (mm)	A	AL	B ₁	B ₂	C ₂	D	F	FB	FD	FT	FX	FY	FZ	G	H	H ₁	H ₂	I	K	MM	N	NA	NN	P	Q	QY	S	Z	ZZ
20	18	15.5	13	26	30	8	13	34	7	4	60	—	75	—	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	19.8	14	62	37	103
25	22	19.5	17	32	37	10	13	40	7	4	60	—	75	—	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	22	14	62	41	107
32	22	19.5	17	32	37	12	13	40	7	4	60	—	75	9	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	25.8	16	64	41	109
40	24	21	22	41	47.3	14	16	52	7	5	66	36	82	10.5	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29.8	16	88	45	138

Rod Side Trunnion Style (U)

CM2U Bore size P—Stroke



Bore size (mm)	A	AL	B ₁	B ₂	D	G	H	H ₁	I	K	MM	N	NA	NN	P	Q	QY	S	TD	TT	TX	TY	TZ	Z	ZZ
20	18	15.5	13	26	8	—	41	5	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	19.8	14	62	8	10	32	32	52	36	103
25	22	19.5	17	32	10	—	45	6	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	22	14	62	9	10	40	40	60	40	107
32	22	19.5	17	32	12	9	45	6	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	25.8	16	64	9	10	40	40	60	40	109
40	24	21	22	41	14	10.5	50	8	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29.8	16	88	10	11	53	53	77	44.5	138

Air Cylinder: With End Lock Series **CBM2**

Accessory/For details, refer to pages 6-4-21 to 22, since it is the same as Series CM2 standard type.

Standard equipment	Mounting nut, Rod end nut, Clevis pin, Lock release bolt (N type only)
Option	Single knuckle joint, Double knuckle joint (With pin)

* Mounting nuts are not equipped to single clevis and double clevis.

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	60°C
K	Heat resistant tarpaulin	110°C

* Maximum ambient temperature for the rod boot itself.

Weight

(kg)

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.14	0.21	0.28	0.56
	Axial foot style	0.29	0.37	0.44	0.83
	Flange style	0.20	0.30	0.37	0.68
	Single clevis	0.18	0.25	0.32	0.65
	Double clevis style	0.19	0.27	0.33	0.69
	Trunnion style	0.18	0.28	0.34	0.66
Additional weight per each 50 mm of stroke		0.04	0.06	0.08	0.13
Accessory	Clevis bracket (With pin)	0.07	0.07	0.14	0.14
	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

Lock Unit Additional Weight

(kg)


Bore size (mm)		20	25	32	40
Manual release non-lock type (N)	Head end lock (H)	0.02	0.02	0.02	0.04
	Rod end lock (R)	0.01	0.01	0.01	0.02
	Double end lock (W)	0.03	0.03	0.03	0.06
Manual release lock type (L)	Head end lock (H)	0.03	0.03	0.03	0.06
	Rod end lock (R)	0.02	0.02	0.02	0.04
	Double end lock (W)	0.05	0.05	0.05	0.10

Calculation: (Example) CBM2L32-100-HN

- Basic weight..... 0.44 (Foot style, ø32)
- Additional weight..... 0.08/50 stroke
- Cylinder stroke..... 100 stroke
- Locking weight..... 0.02 (Locking at head end, Manual release non-locking type)
0.44 + 0.08 x 100/50 + 0.02 = 0.62 kg

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7□/C80 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5□/B64 D-G5NTL	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040

 Mounting screws set made of stainless steel
Use the following mounting screw set made of stainless steel according to operating environment.


(A switch mounting band is not included, so please order it separately.)

BBA4: For D-C7/C8/H7 BBA3: For D-B5/B6/G5

- "D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped. When only a switch is shipped independently, "BBA4" screws are attached.

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	
Flange	CM-F020B	CM-F032B	CM-F040B	
Single clevis	CM-C020B	CM-C032B	CM-C040B	
Double clevis (With pin) **	CM-D020B	CM-D032B	CM-D040B	
Trunnion (With nut)	CM-T020B	CM-T032B	CM-T040B	

 * Two foot brackets and a mounting nut are attached.
Order two foot brackets per cylinder.

** Clevis pin and snap ring are shipped together with double clevis style.

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

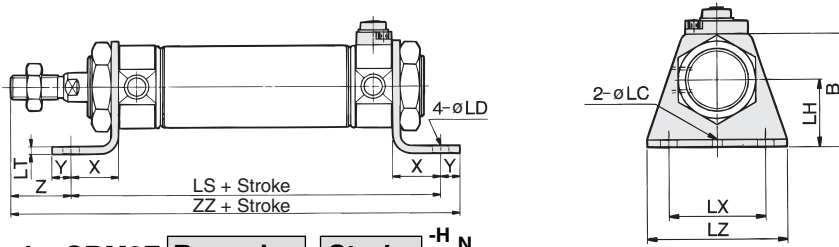
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Data

Series CBM2

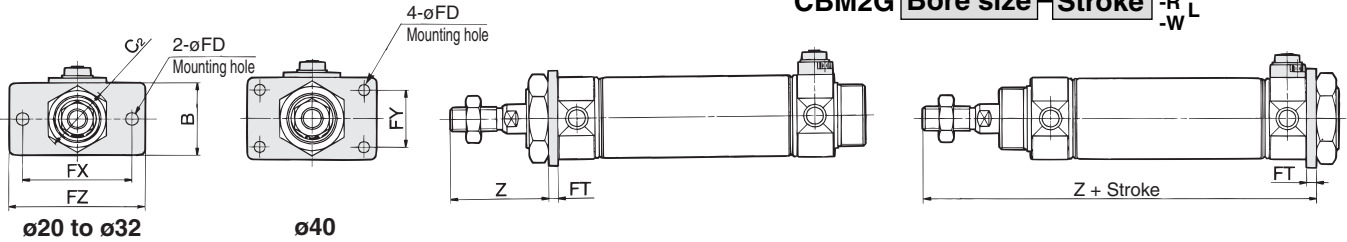
With Mounting Bracket (For dimensions not indicated below, refer to page 6-4-95.)

Axial foot style: CBM2L Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$

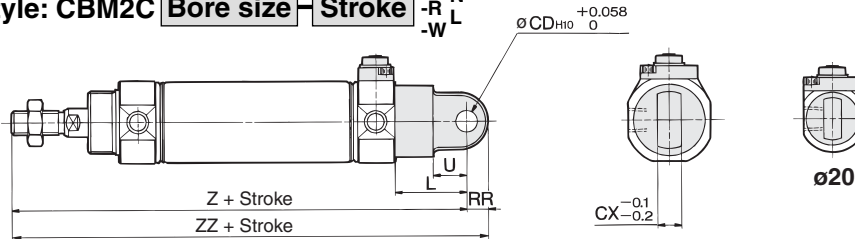


Rod side flange style: CBM2F Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$

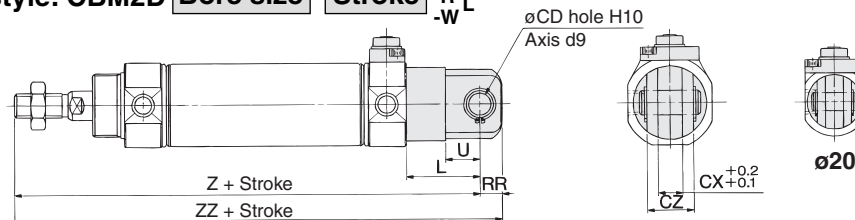
Head side flange style: CBM2G Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$



Single clevis style: CBM2C Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$



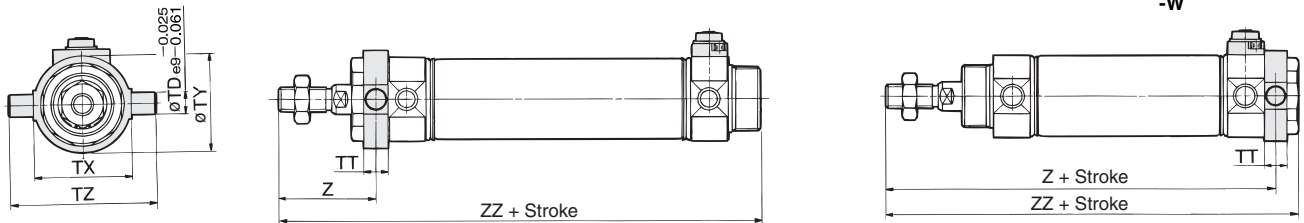
Double clevis style: CBM2D Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$



* Clevis pin and snap ring (cotter pin for bore size 40) are shipped together.

Rod side trunnion style: CBM2U Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$

Head side trunnion style: CBM2T Bore size — Stroke $\begin{matrix} -H \\ -R \\ -L \\ -W \end{matrix}$



Bore size (mm)	Axial foot style											Flange style						Clevis style											Trunnion style														
	Stroke range	B	LC	LD	LH	LS	LT	LX	LZ	X	Y	Z	ZZ	Stroke range		B	C ₂	FD	FT	FX	FY	FZ	Z		Stroke range	CD	CX	CZ	L	RR	U	Z	ZZ	Stroke range		TD	TT	TX	TY	TZ	Z		ZZ
														Rod side	Head side								Rod side	Head side										Rod side	Head side						Rod side	Head side	
20	Up to 400	40	4	6.8	25	102	3.2	40	55	20	8	21	131	Up to 400	Up to 300	34	30	7	4	60	—	75	37	107	Up to 300	9	10	19	30	9	14	133	142	Up to 300	8	10	32	32	52	36	108	116	118
25	Up to 450	47	4	6.8	28	102	3.2	40	55	20	8	25	135	Up to 450	Up to 300	40	37	7	4	60	—	75	41	111	Up to 300	9	10	19	30	9	14	137	146	Up to 300	9	10	40	40	60	40	112	120	122
32	Up to 450	47	4	6.8	28	104	3.2	40	55	20	8	25	137	Up to 450	Up to 300	40	37	7	4	60	—	75	41	113	Up to 300	9	10	19	30	9	14	139	148	Up to 300	9	10	40	40	60	40	114	122	124
40	Up to 500	54	4	7	30	134	3.2	55	75	23	10	27	171	Up to 500	Up to 300	52	47.3	7	5	66	36	82	45	143	Up to 300	10	15	30	39	11	18	177	188	Up to 300	10	11	53	53	77	44.5	143.5	154	154

* Dimensions except mentioned above are the same as standard type.

Precautions on Trunnion Style, Flange Style

1. Trunnion style
 - (1) With lock in rod side of the rod side trunnion style (2) With lock in head side of the head side trunnion style (3) With lock in both sides. For above cases, use caution since the trunnion pin and fittings may be interfered with each other because the trunnion pin and port are very closed to each other.
2. Flange style (ø20 to ø32)
 - (1) With lock in rod side of the rod side flange style (2) With lock in head side of the head side flange style (3) With lock in both sides. For above cases, use caution since the bolt for mounting a cylinder and fittings may be interfered with each other. Refer to "Special Port Position" in "Made to Order Specifications" on page 6-17-36.

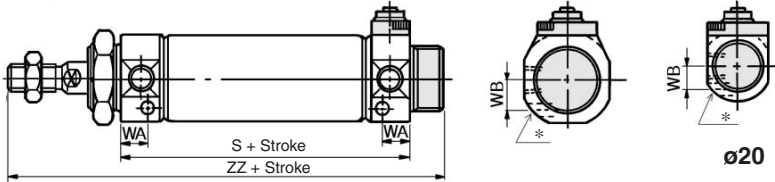
Air Cylinder: With End Lock Series **CBM2**

With Air Cushion (Dimensions not mentioned in the below table are the same as the above table.)

Basic style

Head end lock: **CBM2B** Bore size Stroke **A-HN**

* R Cushion valve
Width across hexagon socket hole 1.5

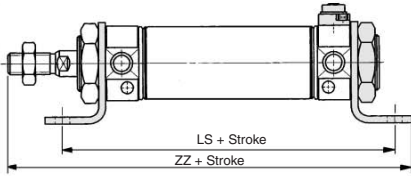


Manual release (Non-lock type): Suffix **N**

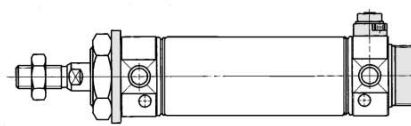
With Air Cushion

Bore size (mm)	S			WA	WB	ZZ		
	Head end lock	Rod end lock	Double end lock			Head end lock	Rod end lock	Double end lock
20	72	73	83	13	8.5	126	127	137
25	72	73	83	13	10.5	130	131	141
32	72	75	83	13	11.5	130	133	141
40	93	96	101	16	15	159	162	167

Axial foot style: **CBM2L** Bore size Stroke **A^{-H}_{-R}^N_{-W}L**

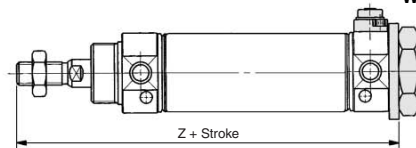


Rod side flange style: **CBM2F** Bore size Stroke **A^{-H}_{-R}^N_{-W}L**

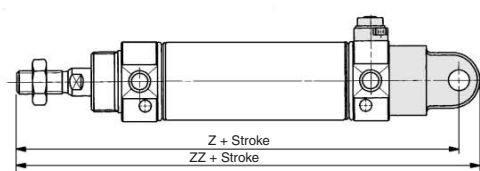


Head side flange style:

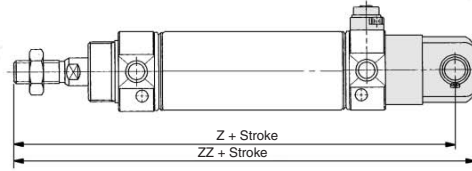
CBM2G Bore size Stroke **A^{-H}_{-R}^N_{-W}L**



Single clevis style: **CBM2C** Bore size Stroke **A^{-H}_{-R}^N_{-W}L**

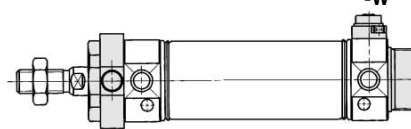


Double clevis style: **CBM2D** Bore size Stroke **A^{-H}_{-R}^N_{-W}L**



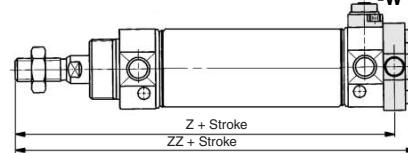
Rod side trunnion style:

CBM2U Bore size Stroke **A^{-H}_{-R}^N_{-W}L**



Head side trunnion style:

CBM2T Bore size Stroke **A^{-H}_{-R}^N_{-W}L**



Bore size (mm)	Axial foot style						Head side flange style		
	LS			ZZ			Z		
	Head end lock	Rod end lock	Double end lock	Head end lock	Rod end lock	Double end lock	Head end lock	Rod end lock	Double end lock
20	112	113	123	141	142	152	117	118	128
25	112	113	123	145	146	156	121	122	132
32	112	115	123	145	148	156	121	124	132
40	139	142	147	176	179	184	148	151	156

Bore size (mm)	Clevis style						Head side trunnion style					
	Z			ZZ			Z			ZZ		
	Head end lock	Rod end lock	Double end lock	Head end lock	Rod end lock	Double end lock	Head end lock	Rod end lock	Double end lock	Head end lock	Rod end lock	Double end lock
20	143	144	154	152	153	163	118	119	129	128	129	139
25	147	148	158	156	157	167	122	123	133	132	133	143
32	147	150	158	156	159	167	122	125	133	132	135	143
40	182	185	190	193	196	201	148.5	151.5	156.5	159	162	167

■ **CJ1**

■ **CJP**

■ **CJ2**

■ **CM2**

■ **CG1**

■ **MB**

■ **MB1**

■ **CA2**

■ **CS1**

■ **C76**

■ **C85**

■ **C95**

■ **CP95**

■ **NCM**

■ **NCA**

■ **D-**

■ **-X**

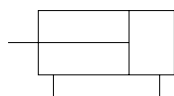
■ **20-**

■ **Data**

Low Speed Cylinder Double Acting, Single Rod Series CM2X



JIS Symbol
Double acting
Single rod



Standard Stroke

Bore size (mm)	Standard stroke (mm) <small>Note</small>
20	25, 50, 75, 100, 125, 150 200, 250, 300
25	
32	
40	

Note) Other intermediate strokes can be manufactured upon receipt of order.

⚠ Precautions

Be sure to read before handling. For Safety Instructions and Actuator Precautions, refer to pages 10-24-3 to 10-24-6.

Operating Precautions

⚠ Warning

- Do not rotate the cover.
 - When installing a cylinder or screwing a pipe fitting into the port, the coupling portion of the cover could break if the cover rotated.

⚠ Caution

- Be careful of the snap ring to pop out.
 - When replacing the rod seal, take care that the snap ring does not spring out while you are removing it.

Maintenance

⚠ Caution

- Replacement parts/Seal kit**
Order it in accordance with the bore size.

Bore size (mm)	Kit no.	Contents
20	CM2X20-PS	Rod seal: 1 pc.
25	CM2X25-PS	
32	CM2X32-PS	Grease pack (10 g): 1 pc.
40	CM2X40-PS	

- Grease pack**

When maintenance requires only grease, use the following part numbers to order.

Grease pack
GR-L-005 (5 g)
GR-L-010 (10 g)
GR-L-150 (150 g)

Specifications

Bore size (mm)	20, 25, 32, 40	
Type	Pneumatic	
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	0.025 MPa	
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)	
Cushion	Rubber bumper	
Piping	Screw-in type	ø20 to ø32: Rc 1/8, ø40: Rc 1/4
Lubrication	Not required (Non-lube)	
Thread tolerance	JIS Class 2	
Stroke length tolerance	+1.4 0	

Piston Speed

Bore size (mm)	20	25	32	40
Piston speed (mm/s)	0.5 to 300			
Allowable kinetic energy (J)	0.27	0.4	0.65	1.2

Mounting Bracket Part No.

Bore size (mm)	20	25	32	40
Axial foot*	CM-L020B	CM-L032B	CM-L040B	
Flange	CM-F020B	CM-F032B	CM-F040B	
Single clevis	CM-C020B	CM-C032B	CM-C040B	
Double clevis (with pin)**	CM-D020B	CM-D032B	CM-D040B	
Trunnion (with nut)	CM-T020B	CM-T032B	CM-T040B	

* When ordering foot bracket, order 2 pieces per cylinder.

** Clevis pin and snap ring (cotter pin for ø40) are shipped together.

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7/C8, D-H7	BM2-020	BM2-025	BM2-032	BM2-040
D-B5/B6, D-G5	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□A/A44A, D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040

Mounting Style and Accessory

	Accessory	Standard equipment			Option		
		Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double ⁽³⁾ knuckle joint	Clevis bracket
Mounting							
Basic style	● (1 pc.)	●	—	●	●	—	
Axial foot style	● (2)	●	—	●	●	—	
Rod side flange style	● (1)	●	—	●	●	—	
Head side flange style	● (1)	●	—	●	●	—	
Clevis integrated style	— (1)	●	—	●	●	●	
Single clevis style	— (1)	●	—	●	●	—	
Double clevis style ⁽³⁾	— (1)	●	●	●	●	—	
Rod side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	
Head side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	
Boss-cut basic style	● (1)	●	—	●	●	—	
Boss-cut flange style	● (1)	●	—	●	●	—	
Boss-cut trunnion style	● (1)	●	—	●	●	—	
Note					With pin	With pin	

Note 1) Mounting nut is not equipped with clevis integrated style, single clevis style and double clevis style.

Note 2) Trunnion nuts are attached for rod side trunnion and head side trunnion styles.

Note 3) Pin and snap ring are shipped together with double clevis and double knuckle joint. (ø40 is cotter pin.)

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C₅-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data

Fine Lock Cylinder Double Acting, Single Rod Series CLM2

Mounting Bracket and Accessory

Accessory Mounting	Standard equipment			Option			
	Mounting nut	Rod end nut	Clevis pin	Single knuckle joint	Double ⁽³⁾ knuckle joint	Clevis ⁽⁴⁾ pivot bracket	Rod boot
Basic style	● (1pc.)	●	—	●	●	—	●
Axial foot style	● (2)	●	—	●	●	—	●
Rod side flange style	● (1)	●	—	●	●	—	●
Head side flange style	● (1)	●	—	●	●	—	●
Clevis integrated style	— ⁽¹⁾	●	—	●	●	●	●
Single clevis style	— ⁽¹⁾	●	—	●	●	—	●
Double clevis style ⁽³⁾	— ⁽¹⁾	●	●	●	●	—	●
Head side trunnion style	● (1) ⁽²⁾	●	—	●	●	—	●
Boss-cut basic style	● (1)	●	—	●	●	—	●
Boss-cut flange style	● (1)	●	—	●	●	—	●
Note					With pin	With pin	

Note 1) Mounting nut is not equipped with clevis integrated style, single clevis style and double clevis style.

Note 2) Trunnion nuts are attached for head side trunnion style.

Note 3) Pin and snap ring (ø40: cotter pin) are shipped together with double clevis and double knuckle joint.

Note 4) Pin and snap ring are shipped together with clevis pivot bracket.

Weight

(kg)

Bore size (mm)		20	25	32	40
Basic weight	Basic style	0.55	0.87	0.94	1.30
	Axial foot style	0.70	1.03	1.10	1.57
	Flange style	0.61	0.96	1.03	1.42
	Clevis integrated style	0.53	0.85	0.93	1.26
	Single clevis style	0.59	0.91	0.98	1.39
	Double clevis style	0.60	0.93	0.99	1.43
	Trunnion style	0.59	0.94	1.00	1.40
	Boss-cut basic style	0.54	0.85	0.92	1.27
	Boss-cut flange style	0.60	0.94	1.01	1.39
Additional weight per each 50 mm of stroke		0.04	0.06	0.08	0.13
Option bracket	Clevis bracket (With pin)	0.07	0.07	0.14	0.14
	Single knuckle joint	0.06	0.06	0.06	0.23
	Double knuckle joint (With pin)	0.07	0.07	0.07	0.20

Calculation: (Example) CLM2L32-100
 • Basic weight..... 1.10 (Foot, ø32)
 • Additional weight 0.08/50 stroke
 • Cylinder stroke..... 100 stroke
 $1.10 + 0.08 \times 100/50 = 1.26$ kg

Auto Switch Mounting Bracket Part No.

Auto switch model	Bore size (mm)			
	20	25	32	40
D-C7□/C80 D-H7□	BM2-020	BM2-025	BM2-032	BM2-040
D-B5□/B64 D-G5□	BA2-020	BA2-025	BA2-032	BA2-040
D-A3□/A44A D-G39A/K39A	BM3-020	BM3-025	BM3-032	BM3-040

[Mounting screws set made of stainless steel]

The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.

(A switch mounting band is not included, so please order it separately.)

BBA3: For D-B5/B6/G5

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.

When only a switch is shipped independently, "BBA4" screws are attached.

Mounting Bracket Part No.

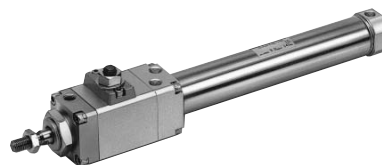
Bore size (mm)	20	25	32	40
Axial foot *	CM-L020B	CM-L032B	CM-L040B	
Flange	CM-F020B	CM-F032B	CM-F040B	
Single clevis	CM-C020B	CM-C032B	CM-C040B	
Double clevis **	CM-D020B	CM-D032B	CM-D040B	
Trunnion (with nut)	CM-T020B	CM-T032B	CM-T040B	

* When ordering foot bracket, order 2 pieces per cylinder.

** Clevis pin and snap ring (ø40: cotter pin) are shipped together with double clevis style.

Boss-cut style

Boss for the head side cover bracket is eliminated and the total length of cylinder is shortened.



Comparison of the full length dimension (Versus standard type)

(mm)

ø20	ø25	ø32	ø40
▲13	▲13	▲13	▲16

Mounting style

■ Boss-cut basic style (BZ) ■ Boss-cut flange style (FZ)

Air-hydro

CLM2H Mounting style Bore size Stroke Rod boot

↓
Air-hydro

Low hydraulic cylinder 1 MPa or less

Through the concurrent use of a CC series air-hydro unit, it is possible to operate at a constant or low speeds or to effect an intermediate stop, just like a hydraulic unit, while using pneumatic equipment such as a valve.



Specifications

Fluid	Turbine oil (Lock portion is air)
Action	Double acting, Single rod
Bore size (mm)	20, 25, 32, 40
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.2 MPa
Piston speed	15 to 300 mm/s
Cushion	Rubber bumper (Standard equipment)
Piping	Screw-in type
Mounting	Basic style, Axial foot style, Rod side flange style Head side flange style, Single clevis style Double clevis style, Head side trunnion style Clevis integrated style, Boss-cut style

* Auto switch capable

• For an exterior dimension diagram to identify the mounting support types, refer to pages 9-2-22 to 9-2-26 as the dimensions are identical to those of standard.

CL

CL1

MLGC

CNG

MNB

CNA

CNS

CLS

CLQ

MLGP

RLQ

MLU

ML1C

D-

-X

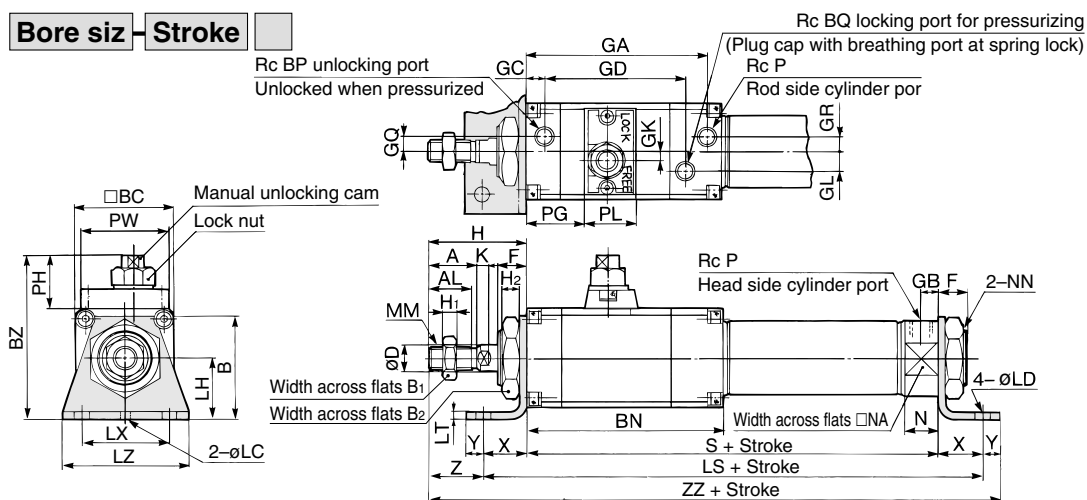
20-

Data

Fine Lock Cylinder Double Acting, Single Rod Series **CLM2**

Axial Foot Style (L)

CLM2L Bore size Stroke

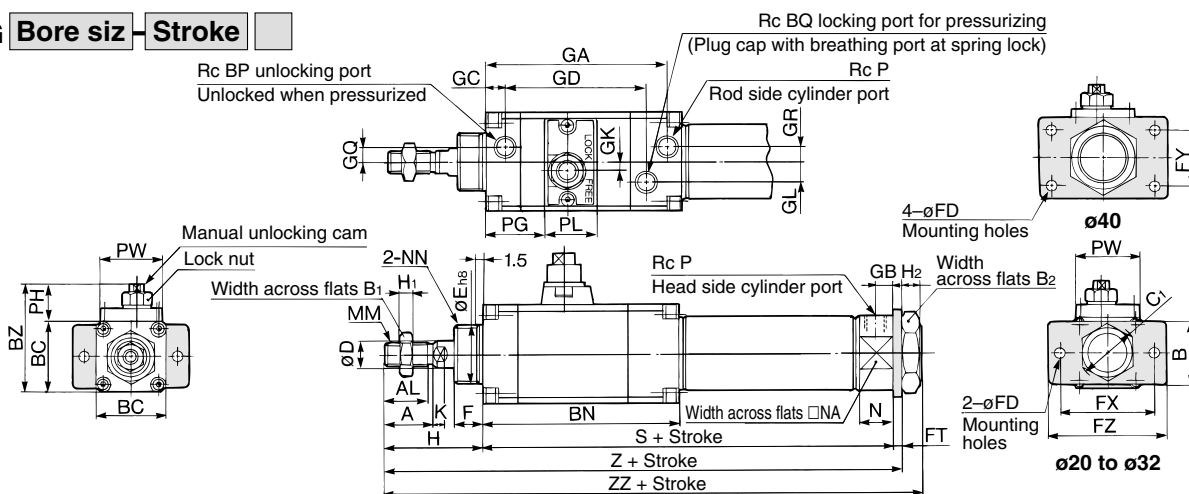


Bore (mm)	Stroke range	A	AL	B	B ₁	B ₂	BC	BN	BP	BQ	BZ	D	F	GA	GB	GC	GD	GK	GL	GQ	GR	H	H ₁	H ₂
20	Up to 400	18	15.5	40	13	26	38	80	1/8	1/8	63.5	8	13	73.5	8	8	55	3.5	6	4	4	41	5	8
25	Up to 450	22	19.5	47	17	32	45	90	1/8	1/8	74.5	10	13	83.5	8	9	64.5	4	9	7	7	45	6	8
32	Up to 450	22	19.5	47	17	32	45	90	1/8	1/8	74.5	12	13	83.5	8	9	64.5	4	9	7	7	45	6	8
40	Up to 500	24	21	54	22	41	52	100.5	1/8	1/8	80	14	16	90.5	11	8	70	4	11	8	7	50	8	10

Bore (mm)	K	LC	LD	LH	LS	LT	LX	LZ	MM	N	NA	NN	P	PG	PH	PL	PW	S	X	Y	Z	ZZ
20	5	4	6.8	25	167	3.2	40	55	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	127	20	8	21	196
25	5.5	4	6.8	28	177	3.2	40	55	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	137	20	8	25	210
32	5.5	4	6.8	28	179	3.2	40	55	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	139	20	8	25	212
40	7	4	7	30	213	3.2	55	75	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	167	23	10	27	250

Head Side Flange Style (G)

CLM2G Bore size Stroke



Bore size (mm)	Stroke range	A	AL	B	B ₁	B ₂	BC	BN	BP	BQ	BZ	C ₁	D	E	F	FD	FT	FX	FY	FZ	GA	GB
20	Up to 300	18	15.5	34	13	26	38	80	1/8	1/8	57.5	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	73.5	8
25	Up to 300	22	19.5	40	17	32	45	90	1/8	1/8	69	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	83.5	8
32	Up to 300	22	19.5	40	17	32	45	90	1/8	1/8	69	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	83.5	8
40	Up to 300	24	21	52	22	41	52	100.5	1/8	1/8	76	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	90.5	11

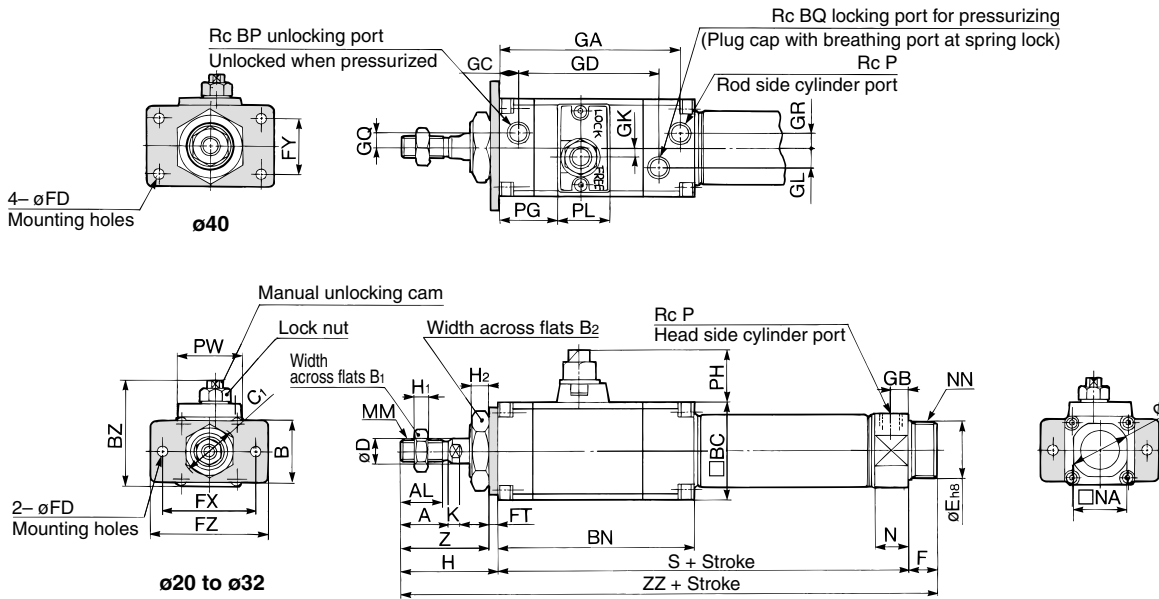
Bore size (mm)	GC	GD	GK	GL	GQ	GR	H	H ₁	H ₂	K	MM	N	NA	NN	P	PG	PH	PL	PW	S	Z	ZZ
20	8	55	3.5	6	4	4	41	5	8	5	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	127	172	181
25	9	64.5	4	9	7	7	45	6	8	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	137	186	195
32	9	64.5	4	9	7	7	45	6	8	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	139	188	197
40	8	70	4	11	8	7	50	8	10	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	167	222	233

- CL
- CL1
- MLGC
- CNG
- MNB
- CNA
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

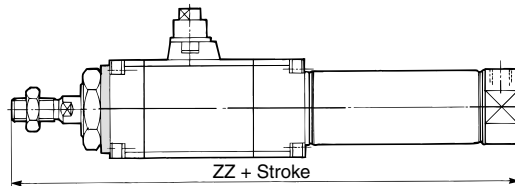
Series CLM2

Rod Side Flange Style (F)

CLM2F



Boss-cut



Bore (mm)	Stroke range	A	AL	B	B ₁	B ₂	BC	BN	BP	BQ	BZ	C ₁	D	E	F	FD	FT	FX	FY	FZ	GA	GB	GC	GD	GK
20	Up to 400	18	15.5	34	13	26	38	80	1/8	1/8	57.5	30	8	20 ⁰ _{-0.033}	13	7	4	60	—	75	73.5	8	8	55	3.5
25	Up to 450	22	19.5	40	17	32	45	90	1/8	1/8	69	37	10	26 ⁰ _{-0.033}	13	7	4	60	—	75	83.5	8	9	64.5	4
32	Up to 450	22	19.5	40	17	32	45	90	1/8	1/8	69	37	12	26 ⁰ _{-0.033}	13	7	4	60	—	75	83.5	8	9	64.5	4
40	Up to 500	24	21	52	22	41	52	100.5	1/8	1/8	76	47.3	14	32 ⁰ _{-0.039}	16	7	5	66	36	82	90.5	11	8	70	4

Boss-cut

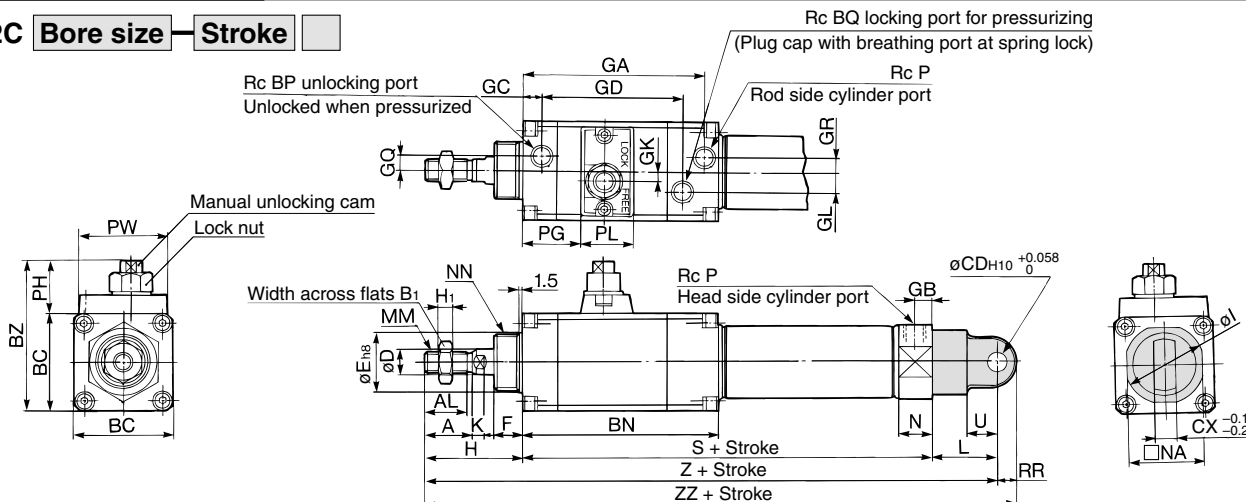
Bore (mm)	GL	GQ	GR	H	H ₁	H ₂	I	K	MM	N	NA	NN	P	PG	PH	PL	PW	S	Z	ZZ
20	6	4	4	41	5	8	28	5	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	127	37	181
25	9	7	7	45	6	8	33.5	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	137	41	195
32	9	7	7	45	6	8	37.5	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	139	41	197
40	11	8	7	50	8	10	46.5	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	167	45	233

Bore (mm)	ZZ
20	168
25	182
32	184
40	217

Fine Lock Cylinder Double Acting, Single Rod Series **CLM2**

Single Clevis Style (C)

CLM2C —

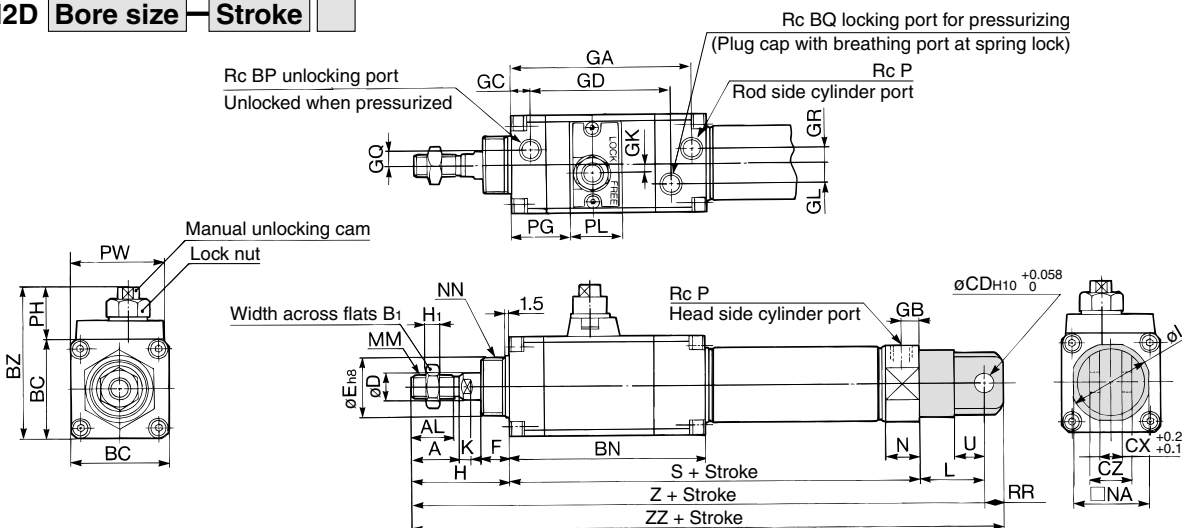


Bore size (mm)	Stroke range	A	AL	B ₁	BC	BN	BP	BQ	BZ	CD	CX	D	E	F	GA	GB	GC	GD	GK	GL	GQ
20	Up to 300	18	15.5	13	38	80	1/8	1/8	57.5	9	10	8	20 ⁰ _{-0.033}	13	73.5	8	8	55	3.5	6	4
25	Up to 300	22	19.5	17	45	90	1/8	1/8	69	9	10	10	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
32	Up to 300	22	19.5	17	45	90	1/8	1/8	69	9	10	12	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
40	Up to 300	24	21	22	52	100.5	1/8	1/8	76	10	15	14	32 ⁰ _{-0.039}	16	90.5	11	8	70	4	11	8

Bore size (mm)	GR	H	H ₁	I	K	L	MM	N	NA	NN	P	PG	PH	PL	PW	RR	S	U	Z	ZZ
20	4	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	9	127	14	198	207
25	7	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	9	137	14	212	221
32	7	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	9	139	14	214	223
40	7	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	11	167	18	256	267

Double Clevis Style (D)

CLM2D —



Bore size (mm)	Stroke range	A	AL	B ₁	BC	BN	BP	BQ	BZ	CD	CX	CZ	D	E	F	GA	GB	GC	GD	GK	GL
20	Up to 300	18	15.5	13	38	80	1/8	1/8	57.5	9	10	19	8	20 ⁰ _{-0.033}	13	73.5	8	8	55	3.5	6
25	Up to 300	22	19.5	17	45	90	1/8	1/8	69	9	10	19	10	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9
32	Up to 300	22	19.5	17	45	90	1/8	1/8	69	9	10	19	12	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9
40	Up to 300	24	21	22	52	100.5	1/8	1/8	76	10	15	30	14	32 ⁰ _{-0.039}	16	90.5	11	8	70	4	11

Bore size (mm)	GQ	GR	H	H ₁	I	K	L	MM	N	NA	NN	P	PG	PH	PL	PW	RR	S	U	Z	ZZ
20	4	4	41	5	28	5	30	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	9	127	14	198	207
25	7	7	45	6	33.5	5.5	30	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	9	137	14	212	221
32	7	7	45	6	37.5	5.5	30	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	9	139	14	214	223
40	8	7	50	8	46.5	7	39	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	11	167	18	256	267

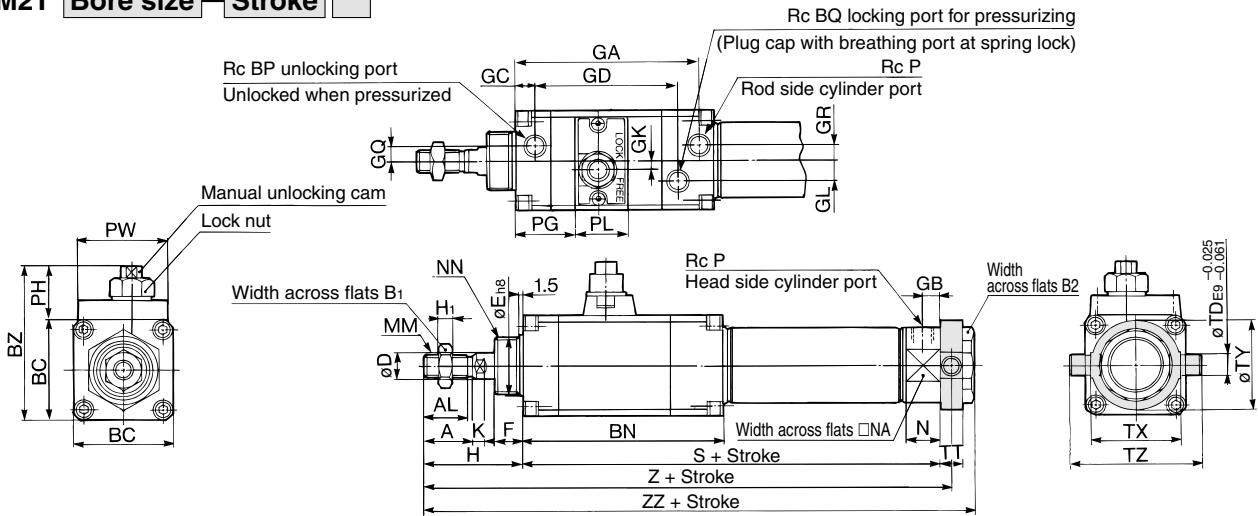
* Clevis pin and snap ring (ø40: cotter pin) are shipped together.

- CL
- CL1
- MLGC
- CNG
- MNB
- CNA
- CNS
- CLS
- CLQ
- MLGP
- RLQ
- MLU
- ML1C
- D-
- X
- 20-
- Data

Series CLM2

Head Side Trunnion Style (T)

CLM2T —

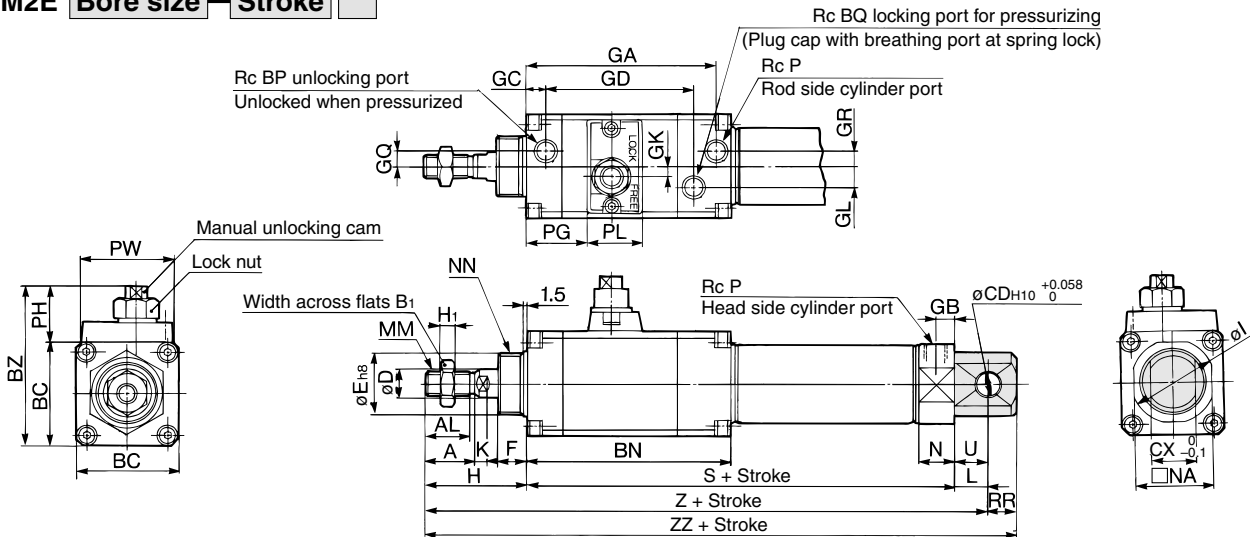


Bore size (mm)	Stroke range	A	AL	B ₁	B ₂	BC	BN	BP	BQ	BZ	D	E	F	GA	GB	GC	GD	GK	GL	GQ
20	Up to 300	18	15.5	13	26	38	80	1/8	1/8	57.5	8	20 ⁰ _{-0.033}	13	73.5	8	8	55	3.5	6	4
25	Up to 300	22	19.5	17	32	45	90	1/8	1/8	69	10	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
32	Up to 300	22	19.5	17	32	45	90	1/8	1/8	69	12	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
40	Up to 300	24	21	22	41	52	100.5	1/8	1/8	76	14	32 ⁰ _{-0.039}	16	90.5	11	8	70	4	11	8

Bore size (mm)	GR	H	H ₁	K	MM	N	NA	NN	P	PG	PH	PL	PW	S	TD	TT	TX	TY	TZ	Z	ZZ
20	4	41	5	5	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	127	8	10	32	32	52	173	183
25	7	45	6	5.5	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	137	9	10	40	40	60	187	197
32	7	45	6	5.5	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	139	9	10	40	40	60	189	199
40	7	50	8	7	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	167	10	11	53	53	77	222.5	233

Clevis Integrated Style (E)

CLM2E —



Bore size (mm)	Stroke range	A	AL	B ₁	BC	BN	BP	BQ	BZ	CD	CX	D	E	F	GA	GB	GC	GD	GK	GL	GQ
20	Up to 300	18	15.5	13	38	80	1/8	1/8	57.5	8	12	8	20 ⁰ _{-0.033}	13	73.5	8	8	55	3.5	6	4
25	Up to 300	22	19.5	17	45	90	1/8	1/8	69	8	12	10	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
32	Up to 300	22	19.5	17	45	90	1/8	1/8	69	10	20	12	26 ⁰ _{-0.033}	13	83.5	8	9	64.5	4	9	7
40	Up to 300	24	21	22	52	100.5	1/8	1/8	76	10	20	14	32 ⁰ _{-0.039}	16	90.5	11	8	70	4	11	8

Bore size (mm)	GR	H	H ₁	I	K	L	MM	N	NA	NN	P	PG	PH	PL	PW	RR	S	U	Z	ZZ
20	4	41	5	28	5	12	M8 x 1.25	15	24	M20 x 1.5	1/8	22	19.5	20	38	9	127	11.5	180	189
25	7	45	6	33.5	5.5	12	M10 x 1.25	15	30	M26 x 1.5	1/8	27	24	24	41	9	137	11.5	194	203
32	7	45	6	37.5	5.5	15	M10 x 1.25	15	34.5	M26 x 1.5	1/8	27	24	24	41	12	139	14.5	199	211
40	7	50	8	46.5	7	15	M14 x 1.5	21.5	42.5	M32 x 2	1/4	29	24	24	41	12	167	14.5	232	244