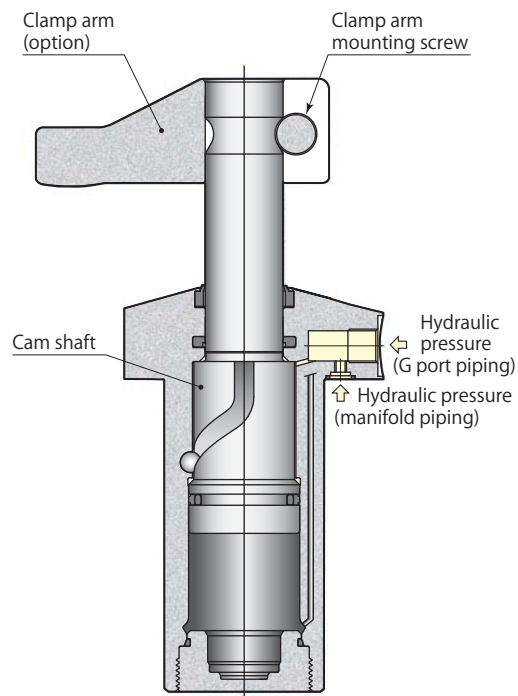
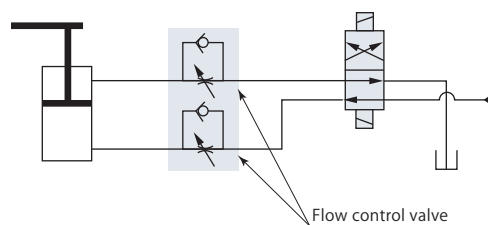


Upper flange

model CTW□U-□

Hydraulic circuit diagram

For flow control valve, we recommend the meter-in control. If meter-out control is used, due to the area difference, it will cause back pressure and become high pressure. This can lead to malfunction of the system. Please be aware when designing the circuit.

Flow control valve model VCH can not be mounted.

Specifications page → 51

Upper flange page → 54

Lower flange page → 58

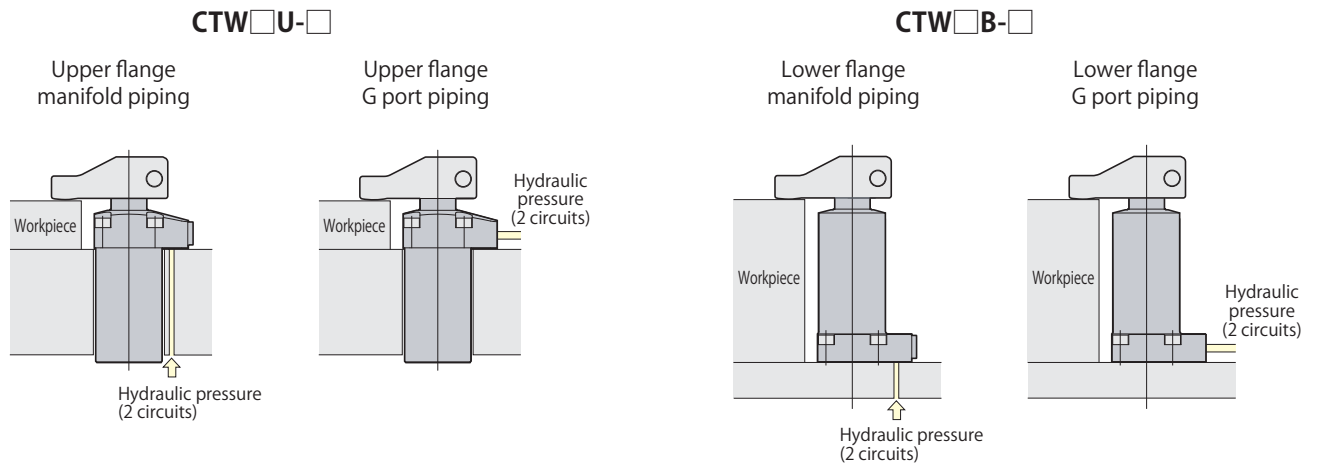
Swing angle 30°, 45°, 60° page → 62

Specifications

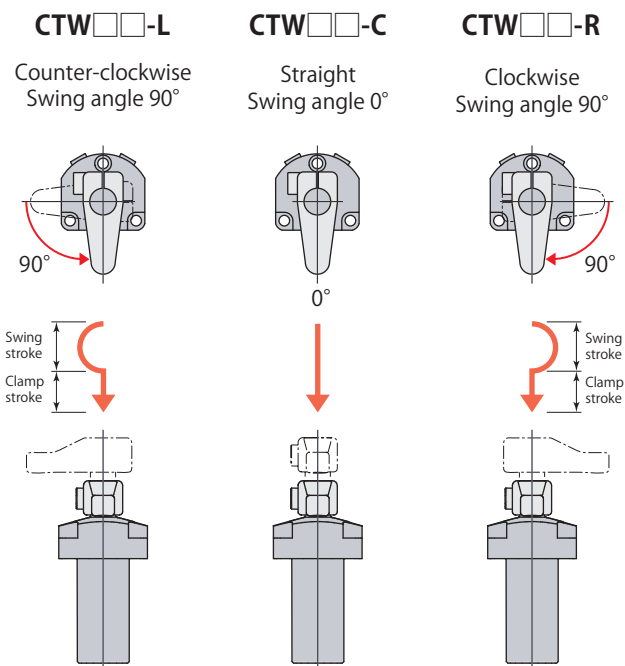
Size	Mounting and piping types	Swing direction (when clamping), swing angle
CTW 06 10 16 25	U : Upper flange	L : Counter-clockwise, swing angle 90°
		LN30 : Counter-clockwise, swing angle 30°
	B : Lower flange	LN45 : Counter-clockwise, swing angle 45°
		LN60 : Counter-clockwise, swing angle 60°
		R : Clockwise, swing angle 90°
		RN30 : Clockwise, swing angle 30°
		RN45 : Clockwise, swing angle 45°
		RN60 : Clockwise, swing angle 60°
		C : Straight, swing angle 0°

■ indicates made to order.

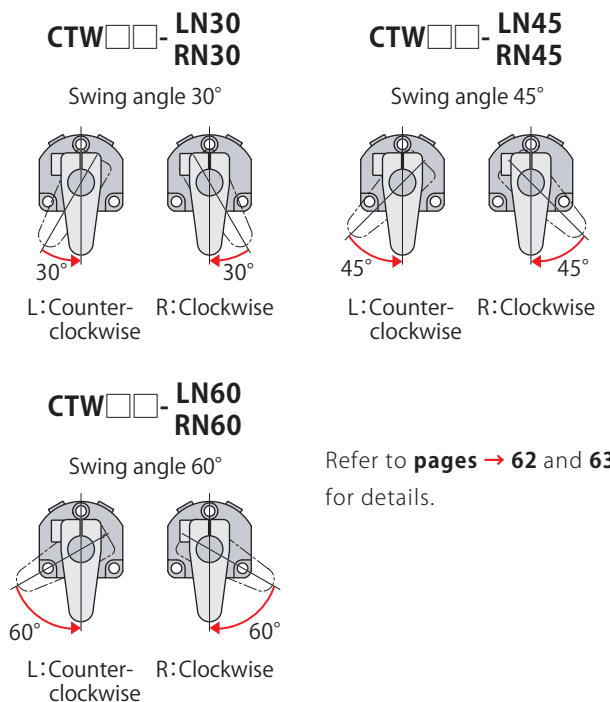
Mounting and piping types



Swing direction (when clamping)



Swing angle



Specifications

Model		CTW06	CTW10	CTW16	CTW25	
Cylinder force (hydraulic pressure 35MPa)	kN	6.3	14.3	19.2	26.3	
Clamping force*1	Hydraulic pressure 35MPa	kN	5.4	12.4	16.6	22.9
	Hydraulic pressure 25MPa	kN	3.9	8.8	11.9	16.3
	Hydraulic pressure 15MPa	kN	2.3	5.3	7.1	9.8
Standard clamp arm length	mm	40	50	57	65	
Cylinder inner diameter	mm	22	32	40	44.5	
Rod diameter	mm	16	22.4	30	32	
Effective area (clamp)	cm ²	1.79	4.10	5.50	7.51	
Swing angle	CTW□□-L, R	90° ± 3°				
	CTW□□-C	0°				
Repeated clamp positioning accuracy		±0.5°				
Full stroke	mm	22	28	32	40	
90° swing stroke (CTW□□-L, R)	mm	12	15	18	24	
Clamp stroke (CTW□□-L, R)	mm	10	13	14	16	
Max. swing torque*2	N·m	0.35	0.97	1.51	2.10	
Max. oil flow rate	Clamp	L/min	0.43	1.23	1.48	2.70
	Unclamp	L/min	0.91	2.41	3.39	5.60
Cylinder capacity	Clamp	cm ³	3.9	11.5	17.6	30.0
	Unclamp	cm ³	8.4	22.5	40.2	62.2
Recommended tightening torque of mounting screws*3		N·m	12	29	29	29

- Pressure range: 3.5–35 MPa
- Proof pressure: 52.5 MPa
- Operating temperature: 0–70 °C
- Fluid used: General mineral based hydraulic oil (ISO-VG32 equivalent)
- Seals are resistant to chlorine-based cutting fluid. (not thermal resistant specification)

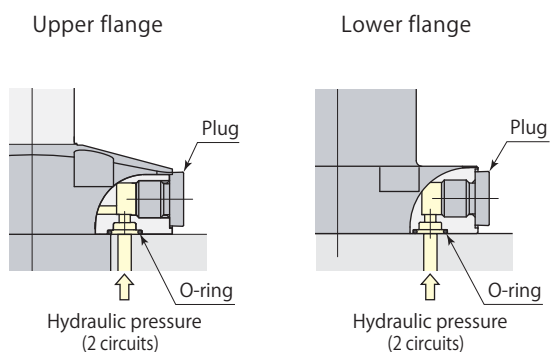
*1: Clamping force at time standard clamp arm is mounted (refer to section on W1, W2 series on [page → 78](#)).
Clamping force varies depending on clamp arm length. Refer to performance table ([page → 53](#)) for details.

*2: This is the limit value for lifting arm at 3.5 MPa when mounted vertically.

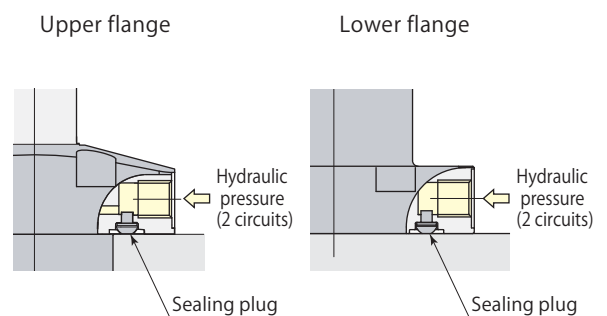
*3: ISO R898 class 12.9

Manifold piping and G port piping are available.Manifold piping

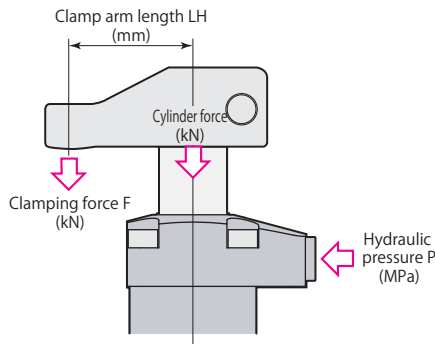
Remove sealing plugs when using manifold piping. An air bleeding valve (model VCE) is mountable on the G port of the clamp.

G port piping

Remove plugs and O-ring when choosing G port piping. The flow control valve and the air bleeding valve should be installed in the middle of oil path.



Performance table



Clamping force varies depending on the clamp arm length (LH) and hydraulic pressure (P).

Clamping force calculation formula

$$F = P / (\text{Coefficient 1} + \text{Coefficient 2} \times LH)$$

F: Clamping force P: Hydraulic pressure LH: Clamp arm length

CTW10 with clamp arm length (LH) = 60 mm at hydraulic pressure of 20 MPa, Clamping force F is calculated by $20 / (2.44 + 0.00773 \times 60) = 6.9$ kN

Do not use the clamp in the nonusable range. It may cause damage to the cylinder and rod.

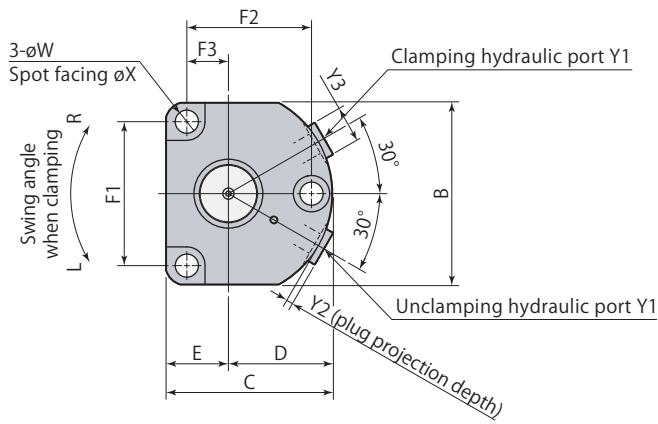
model CTW06		Clamping force $F = P / (5.58 + 0.0224 \times LH)$					
Hydraulic pressure MPa	Cylinder force kN	Clamping force kN					Max. arm length Max. LH mm
		Clamp arm length LH mm					
		40	60	80	100	120	
35	6.3	5.4					42
30	5.4	4.6					51
25	4.5	3.9	3.6	Nonusable range			64
20	3.6	3.1	2.9	2.7			85
15	2.7	2.3	2.2	2.0	1.9	1.8	127
10	1.8	1.5	1.4	1.4	1.3	1.2	200
5	0.9	0.8	0.7	0.7	0.6	0.6	↑
3.5	0.6	0.5	0.5	0.5	0.4	0.4	200

model CTW10		Clamping force $F = P / (2.44 + 0.00773 \times LH)$					
Hydraulic pressure MPa	Cylinder force kN	Clamping force kN					Max. arm length Max. LH mm
		Clamp arm length LH mm					
		50	60	80	100	120	
35	14.3	12.4					52
30	12.3	10.6	10.3				62
25	10.2	8.8	8.6	Nonusable range			77
20	8.2	7.1	6.9	6.5	6.2		103
15	6.1	5.3	5.2	4.9	4.7	4.5	154
10	4.1	3.5	3.4	3.3	3.1	3.0	240
5	2.0	1.8	1.7	1.6	1.6	1.5	↑
3.5	1.4	1.2	1.2	1.1	1.1	1.0	240

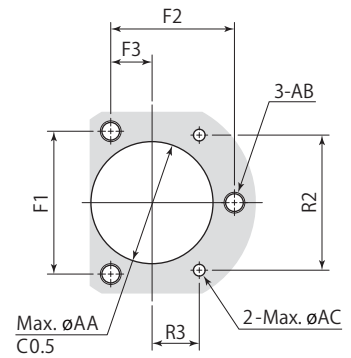
model CTW16		Clamping force $F = P / (1.82 + 0.00506 \times LH)$					
Hydraulic pressure MPa	Cylinder force kN	Clamping force kN					Max. arm length Max. LH mm
		Clamp arm length LH mm					
		57	80	100	120	140	
35	19.2	16.6					57
30	16.5	14.2					62
25	13.7	11.9	Nonusable range				77
20	11.0	9.5	9.0	8.6			102
15	8.2	7.1	6.7	6.4	6.2	5.9	150
10	5.5	4.7	4.5	4.3	4.1	4.0	255
5	2.7	2.4	2.2	2.1	2.1	2.0	↑
3.5	1.9	1.7	1.6	1.5	1.4	1.4	255

model CTW25		Clamping force $F = P / (1.33 + 0.00310 \times LH)$					
Hydraulic pressure MPa	Cylinder force kN	Clamping force kN					Max. arm length Max. LH mm
		Clamp arm length LH mm					
		65	80	100	120	140	
35	26.3	22.9					65
30	22.6	19.6					72
25	18.8	16.3	15.8	Nonusable range			90
20	15.0	13.1	12.7	12.2			119
15	11.3	9.8	9.5	9.1	8.8	8.5	174
10	7.5	6.5	6.3	6.1	5.9	5.7	270
5	3.8	3.3	3.2	3.0	2.9	2.8	↑
3.5	2.6	2.3	2.2	2.1	2.1	2.0	270

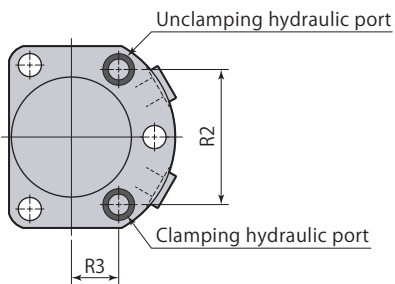
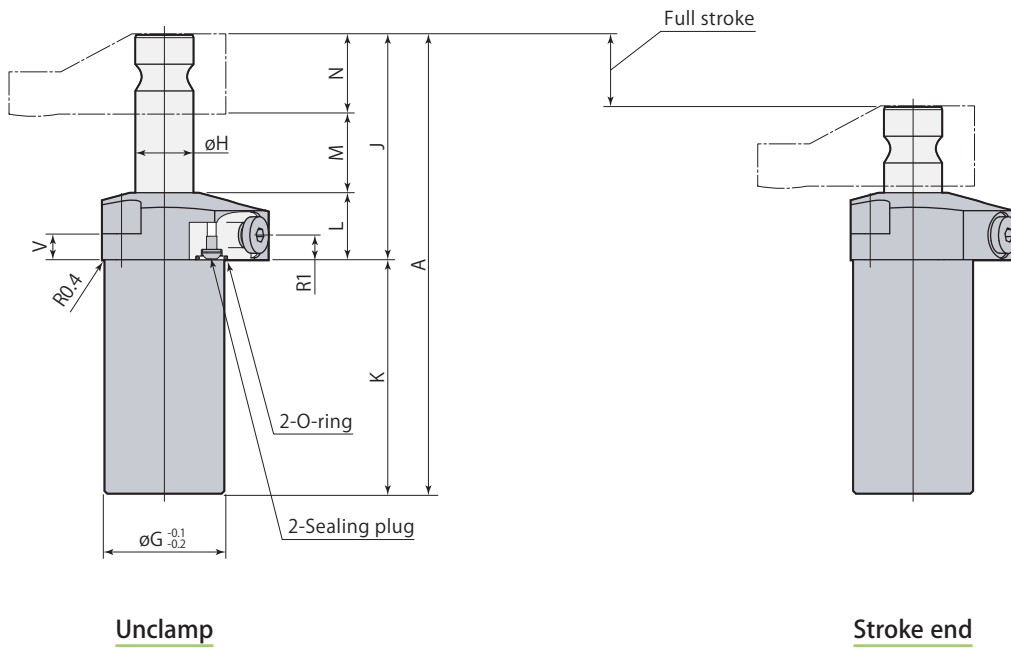
Dimensions



Mounting details



The mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997) for manifold piping.

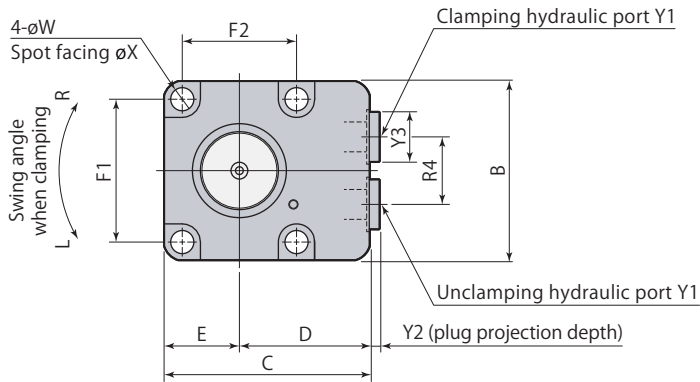


Model	CTW06U-□	CTW10U-□
A	137	176.5
B	56	70
C	50.5	64
D	32.5	40
E	18	24
F1	43.3	55
F2	37.5	47.6
F3	12.5	15.9
øG	33	46
øH	16	22.4
J	71	86.5
K	66	90
L	26	26
M	24	30.5
N	21	30
R1	9.5	9.5
R2	41	52
R3	14.3	18.2
V	13	10
øW	7	8.9
øX	11	14
Y1	G1/8	G1/8
Y2	2.8	2.8
Y3	14	14
O-ring (fluorocarbon hardness Hs90)	P9	P9
øAA	34	47
AB	M6	M8
øAC	7	7
Mass	0.7 kg	1.6 kg
Air bleeding valve	VCE01	VCE01

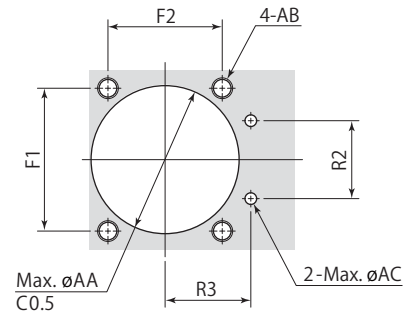
Refer to each page for the details of options.

- Clamp arm **page → 78** ● Air bleeding valve **page → 46**
- Clamp arm and mounting screws are not included.
- CTW□U-C (Straight, swing angle 0°) is made to order.

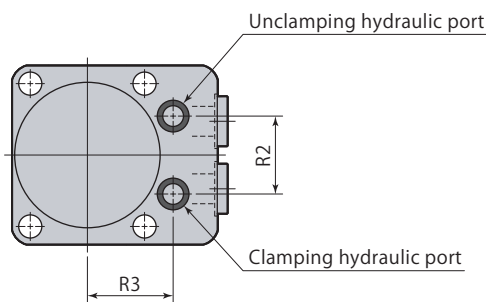
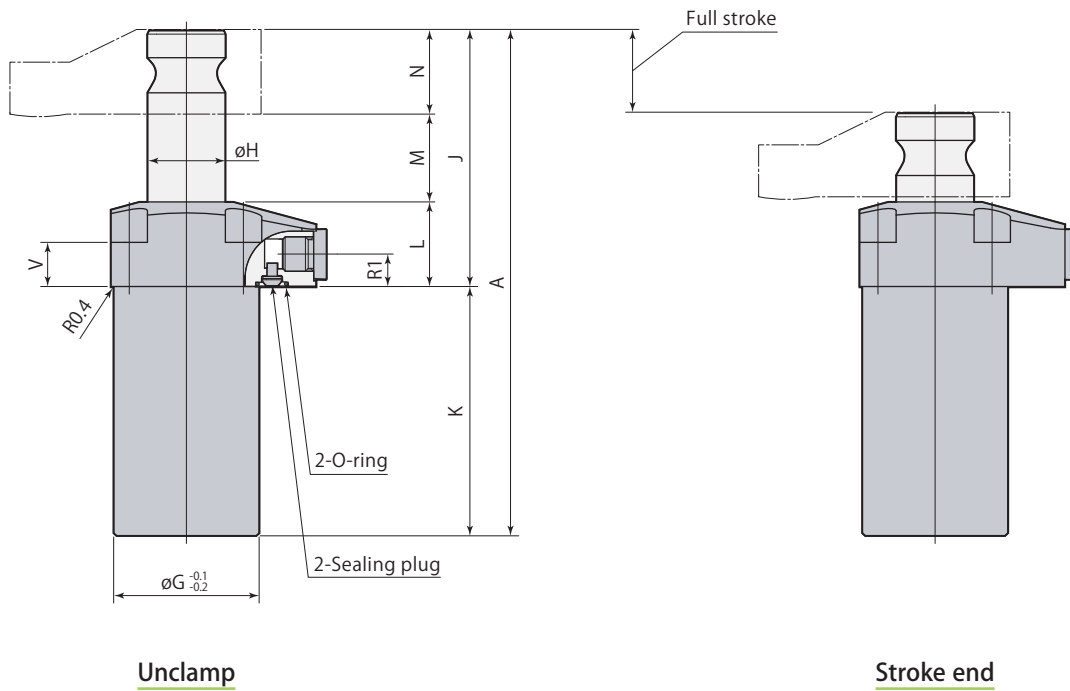
Dimensions



Mounting details



The mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997) for manifold piping.

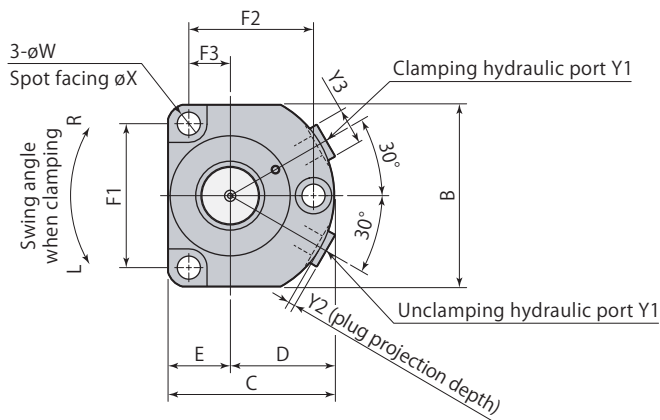


Model	CTW16U-□	CTW25U-□
A	195	226
B	69	69
C	79	87.5
D	50	53
E	29	34.5
F1	55	55
F2	44	55
øG	56	61.5
øH	30	32
J	99	110
K	96	116
L	32	32.5
M	35	42.5
N	32	35
R1	12.5	12.5
R2	30	30
R3	33	36
R4	26	26
V	17	17
øW	8.9	8.9
øX	14	14
Y1	G1/4	G1/4
Y2	4.3	4.3
Y3	19	19
O-ring (fluorocarbon hardness Hs90)	P9	P9
øAA	57	62.5
AB	M8	M8
øAC	7	7
Mass	2.6 kg	3.4 kg
Air bleeding valve	VCE02	VCE02

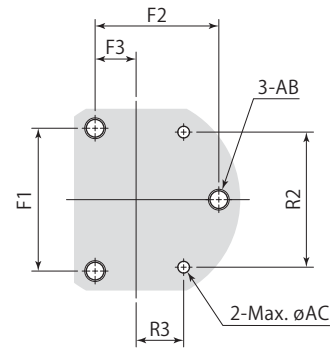
Refer to each page for the details of options.

- Clamp arm **page → 78** ● Air bleeding valve **page → 46**
- Clamp arm and mounting screws are not included.
- CTW□U-C (Straight, swing angle 0°) is made to order.

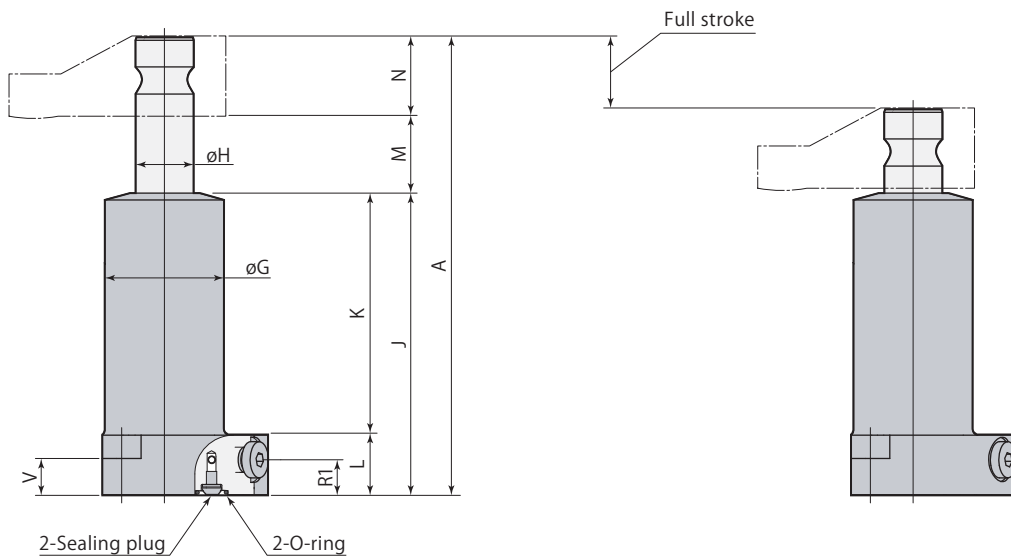
Dimensions



Mounting details

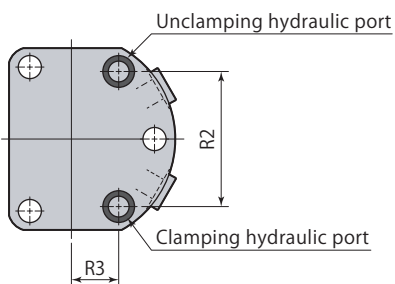


The mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997) for manifold piping.



Unclamp

Stroke end



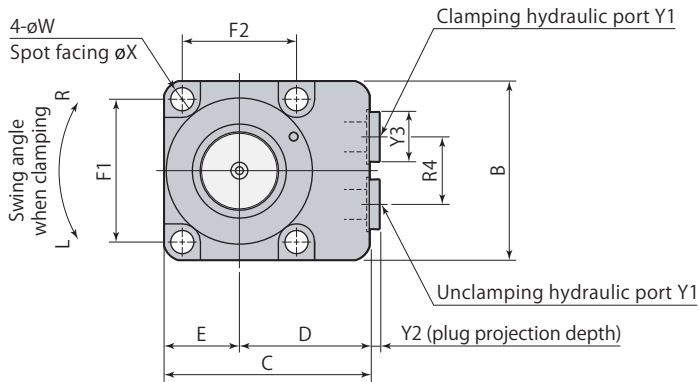
CTW□B-□	Swing clamp Lower flange	35MPa	Double acting
----------------	---------------------------------	--------------	----------------------

Model	CTW06B-□	CTW10B-□	mm
A	137	176.5	
B	56	70	
C	50.5	64	
D	32.5	40	
E	18	24	
F1	43.3	55	
F2	37.5	47.6	
F3	12.5	15.9	
øG	35	46	
øH	16	22.4	
J	92	116	
K	69	93	
L	23	23	
M	24	30.5	
N	21	30	
R1	13.5	13.5	
R2	41	52	
R3	14.3	18.2	
V	16	14	
øW	7	8.9	
øX	11	14	
Y1	G1/8	G1/8	
Y2	2.8	2.8	
Y3	14	14	
O-ring (fluorocarbon hardness Hs90)	P9	P9	
AB	M6	M8	
øAC	7	7	
Mass	0.8 kg	1.6 kg	
Air bleeding valve	VCE01	VCE01	

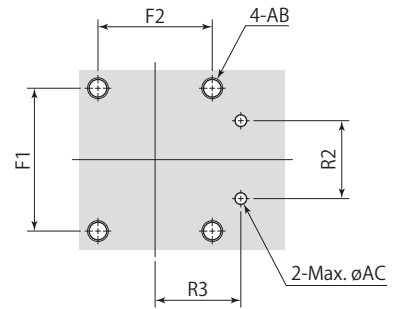
Refer to each page for the details of options.

- Clamp arm **page → 78**
- Air bleeding valve **page → 46**
- Clamp arm and mounting screws are not included.
- CTW□B-C (Straight, swing angle 0°) is made to order.

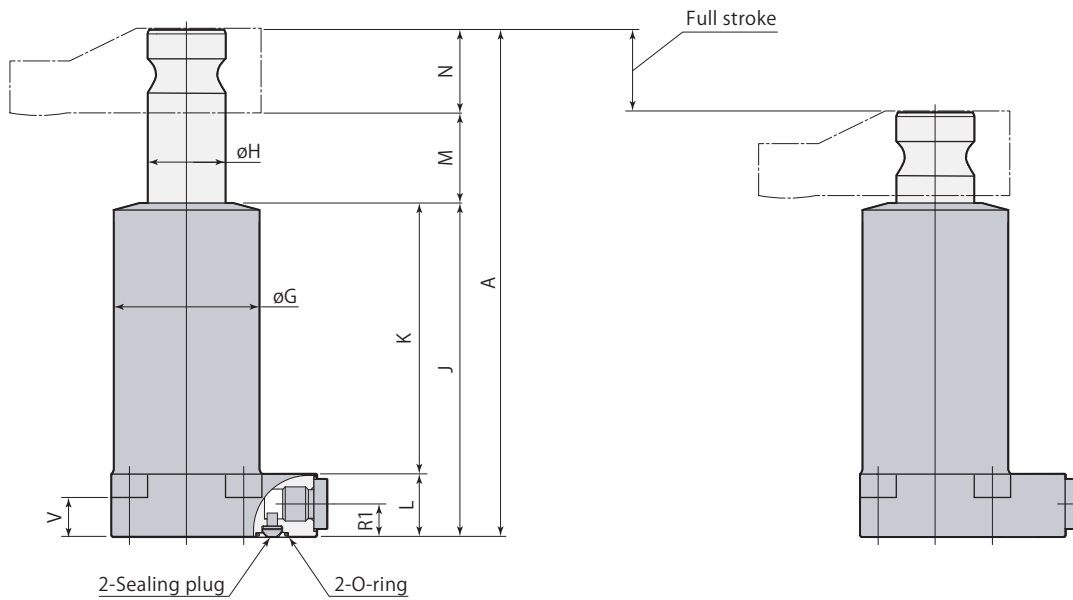
Dimensions



Mounting details

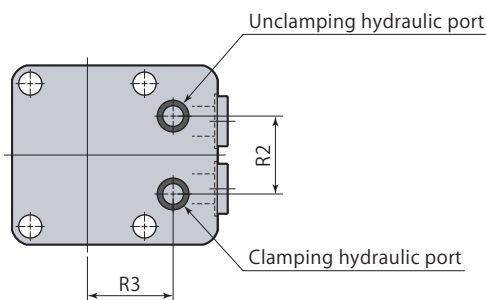


The mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997) for manifold piping.



Unclamp

Stroke end



CTW□B-□	Swing clamp Lower flange	35MPa	Double acting
----------------	---------------------------------	--------------	----------------------

Model	CTW16B-□	CTW25B-□	mm
A	195	226	
B	69	69	
C	79	87.5	
D	50	53	
E	29	34.5	
F1	55	55	
F2	44	55	
øG	56	61.5	
øH	30	32	
J	128	148.5	
K	104	124.5	
L	24	24	
M	35	42.5	
N	32	35	
R1	12.5	12.5	
R2	30	30	
R3	33	36	
R4	26	26	
V	15	15	
øW	8.9	8.9	
øX	14	14	
Y1	G1/4	G1/4	
Y2	4.3	4.3	
Y3	19	19	
O-ring (fluorocarbon hardness Hs90)	P9	P9	
AB	M8	M8	
øAC	7	7	
Mass	2.6 kg	3.3 kg	
Air bleeding valve	VCE02	VCE02	

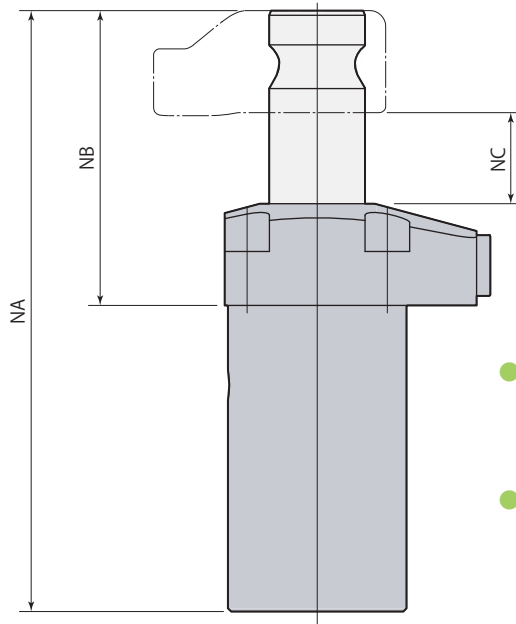
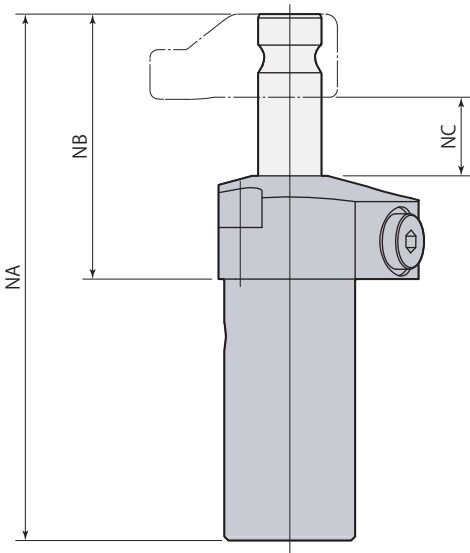
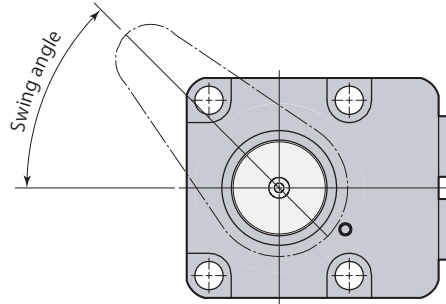
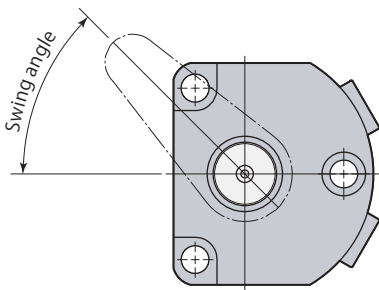
Refer to each page for the details of options.

- Clamp arm **page → 78**
- Air bleeding valve **page → 46**
- Clamp arm and mounting screws are not included.
- CTW□B-C (Straight, swing angle 0°) is made to order.

Dimensions

CTW06, 10 U-□
N30, N45, N60

CTW16, 25 U-□
N30, N45, N60



- This diagram indicates unclamped condition of swing direction L (counter-clockwise).
- Refer to **pages** → 54 to 57 for other specifications and dimensions that are not shown in the diagram.
- This product is made to order.

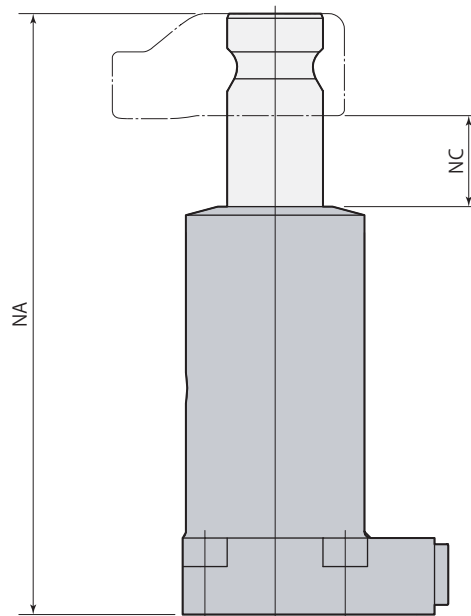
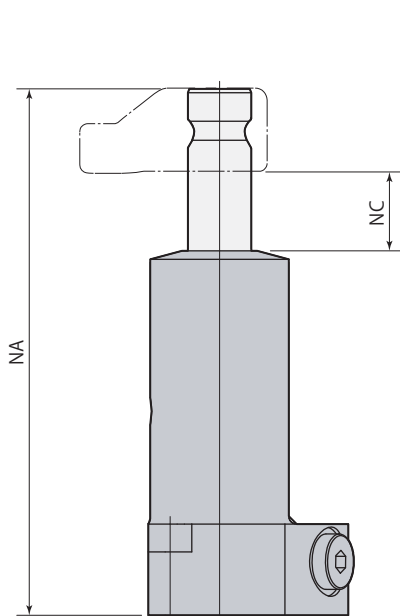
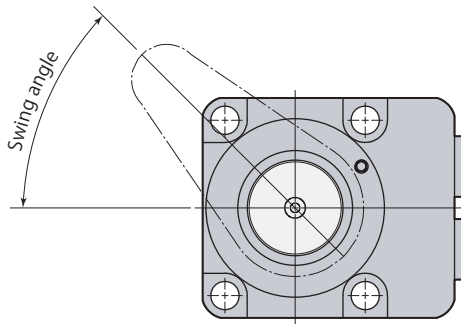
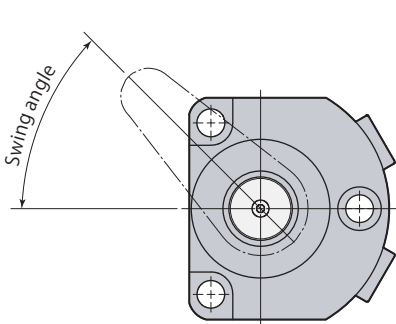
mm

Model	CTW06U-□N□			CTW10U-□N□			CTW16U-□N□			CTW25U-□N□			
Swing angle	30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°	
Full stroke	16.5	17.9	19.3	20.7	22.5	24.3	23.3	25.5	27.6	28.0	31.0	34.0	
Swing stroke	6.5	7.9	9.3	7.7	9.5	11.3	9.3	11.5	13.6	12.0	15.0	18.0	
Clamp stroke	10			13			14			16			
Cylinder capacity (cm ³)	Clamp	3.0	3.2	3.5	8.5	9.2	10.0	12.8	14.0	15.2	21.0	23.3	25.5
	Unclamp	6.3	6.8	7.3	16.6	18.1	19.5	29.3	32.0	34.7	43.5	48.2	52.9
NA	131.5	132.9	134.3	169.2	171.0	172.8	186.3	188.5	190.6	214.0	217.0	220.0	
NB	65.5	66.9	68.3	79.2	81.0	82.8	90.3	92.5	94.6	98.0	101.0	104.0	
NC	18.5	19.9	21.3	23.2	25.0	26.8	26.3	28.5	30.6	30.5	33.5	36.5	

Dimensions

CTW06, 10 B-□
N30, N45, N60

CTW16, 25 B-□
N30, N45, N60



- This diagram indicates unclamped condition of swing direction L (counter-clockwise).
- Refer to **pages → 58 to 61** for other specifications and dimensions that are not shown in the diagram.
- This product is made to order.

mm

Model		CTW06B-□N□			CTW10B-□N□			CTW16B-□N□			CTW25B-□N□		
Swing angle		30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°	30°±5°	45°±5°	60°±5°
Full stroke		16.5	17.9	19.3	20.7	22.5	24.3	23.3	25.5	27.6	28.0	31.0	34.0
Swing stroke		6.5	7.9	9.3	7.7	9.5	11.3	9.3	11.5	13.6	12.0	15.0	18.0
Clamp stroke		10			13			14			16		
Cylinder capacity (cm ³)	Clamp	3.0	3.2	3.5	8.5	9.2	10.0	12.8	14.0	15.2	21.0	23.3	25.5
	Unclamp	6.3	6.8	7.3	16.6	18.1	19.5	29.3	32.0	34.73	43.5	48.2	52.9
NA		131.5	132.9	134.3	169.2	171.0	172.8	186.3	188.5	190.6	214.0	217.0	220.0
NC		18.5	19.9	21.3	23.2	25.0	26.8	26.3	28.5	30.6	30.5	33.5	36.5