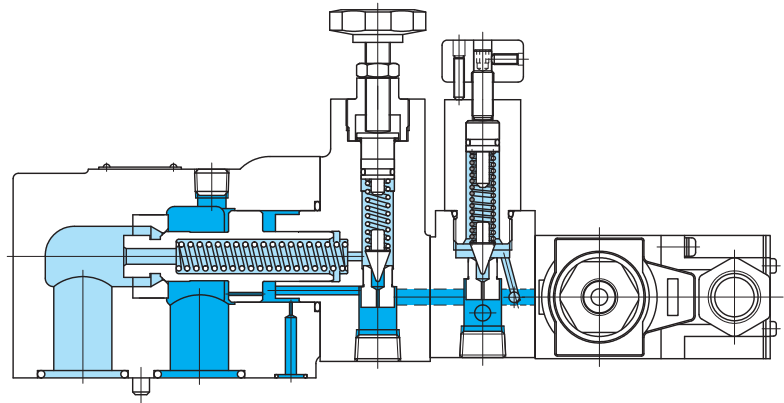


# Solenoid controlled multi pressure relief valves TCG50 to 80



- In addition to providing safety valve function which releases hydraulic fluid in the case of excessive pressure in the hydraulic circuit, this valve also provides good control of circuit.
- Pressure can be set in 2-3 stages by solenoid valve.

## Functional Symbols

Model Code	Pressure Control	Solenoid Energize - Pressure Relationship				Functional Symbol (Internal Drain)		
		Main Valve Setting Pressure	Remote Control Setting Pressure			Unload	Standard	w/Vent Unload Shockless Valve
			Adjustment Section Position (See Symbol)					
(L)	(C)	(R)						
TCG50	1 Pressure Control	Solenoid Energize	---	---	---	---		
		---	---	---	Solenoid De-energize			
TCG55	1 Pressure Control	Solenoid Energize	---	---	---	---		
		---	---	---	Solenoid De-energize			
TCG60	2 Pressure Control	Solenoid Energize	---	---	---	---	---	
		---	---	---	Solenoid De-energize			
TCG61	2 Pressure Control	---	---	---	Solenoid Energize	---	---	
		Solenoid De-energize	---	---	---			

Model Code	Pressure Control	Solenoid Energize - Pressure Relationship				Functional Symbol (Internal Drain)		
		Main Valve Setting Pressure	Remote Control Setting Pressure			Unload	Standard	w/Vent Unload Shockless Valve
			Adjustment Section Position (See Symbol)					
(L)	(C)	(R)						
TCG62	2 Pressure Control	Solenoid a Energize	—	—	—	—		
		—	—	—	Solenoid b Energize	—		
		—	—	—	Solenoid De-energize	—		
TCG63	2 Pressure Control	Solenoid a Energize	—	—	—	—		
		—	—	—	Solenoid b Energize	—		
		—	—	—	Solenoid De-energize	—		
TCG70	3 Pressure Control	—	Solenoid a Energize	—	—	—		—
		—	—	—	Solenoid b Energize	—		—
		Solenoid De-energize	—	—	—	—		—
TCG80	3 Pressure Control	—	Solenoid a Energize	—	—	—		
		—	—	—	Solenoid b Energize	—		
		—	—	Solenoid De-energize	—	—		

## Specifications

Model Code	Size	Max. Working Pressure MPa	Maximum Flow L/min	Max. Adjustable Pressure MPa	
TCG 50-03	03	21	80	A (V) : 3.5	
TCG 80-03				B (V) : 7	
TCG 50-06	06		200	C (V) : 14	
TCG 80-06				F (V) : 21	
TCG 50-10	10		400		
TCG 80-10					

Note: Minimum adjustable pressure will differ with flow. See TCG20 characteristics curve (page C1-2).

Model Code	Weight kg
TCG50/55-03	6.4
TCG60/61-03	8.4
TCG62/63-03	8.8
TCG70-03	9.6
TCG80-03	9.7
TCG50/55-06	8.5
TCG60/61-06	10.5
TCG62/63-06	10.9
TCG70-06	11.7
TCG80-06	11.8
TCG50/55-10	12.1
TCG60/61-10	14.1
TCG62/63-10	14.5
TCG70-10	15.3
TCG80-10	15.4

Note:  
Weights in table are for valves without vent unload shockless valve.  
Add 1.3 kg to above weights for valves with vent unload shockless valve.

## Model Code

(F3)-TCG80-06-F(E)(V)(Y)-A(E)B(E)C(E)-P2-T-(R)-16-(LH)-(SH)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

- 1 Hydraulic fluid  
Omit: mineral oil based fluid, water-glycol based fluid  
F3: phosphate ester fluid
- 2 Solenoid controlled multi-pressure relief valve (gasket mounting)
- 3 Pressure control system (for details, refer to the functional symbols)  
50: 1 pressure control + unload  
55: 1 pressure control + unload  
60: 2 pressure control  
61: 2 pressure control  
62: 2 pressure control + unload  
63: 2 pressure control + unload  
70: 3 pressure control  
80: 3 pressure control
- 4 Size: Refer to "Specifications".
- 5 Main valve max. adjustable pressure: Refer to "Specifications".
- 6 Main valve pressure adjustment  
Omit: knob  
E: acorn nut, sq. head adjustment screw (standard)
- 7 Vent pressure  
Omit: low vent pressure (standard)  
V: high vent pressure
- 8 Drain  
Omit: internal drain (standard)  
Y: external drain
- 9 R side remote control valve max. adjustable pressure  
Refer to "Specifications".
- 10 R side remote control valve pressure adjuster  
Omit: knob  
E: acorn nut, hex head adjustment screw (standard)
- 11 C side remote control valve max. adjustable pressure  
Refer to "Specifications".
- 12 C side remote control valve pressure adjuster  
Omit: knob  
E: acorn nut, hex head adjustment screw (standard)
- 13 L side remote control valve max. adjustable pressure  
Refer to "Specifications".
- 14 L side remote control valve pressure adjuster  
Omit: knob  
E: acorn nut, hex head adjustment screw (standard)
- 15 Electrical wiring (configuration, wiring connection port side)  
See solenoid valve DG4V-3 (page E2-1).
- 16 Solenoid valve electrical accessories  
See solenoid valve DG4V-3 (page E2-1).
- 17 Solenoid valve power supply  
See solenoid valve DG4V-3 (page E2-1).
- 18 Pressure adjuster orientation  
Omit: up  
L: left  
R: right } See "Dimensions (page C2-10)".
- 19 Design no.  
15: TCG50, 55  
16: TCG60, 61, 62, 63, 70, 80
- 20 Solenoid valve, coil orientation (for TCG50, 60, 61)  
Omit: right side as viewed from adjust knob side (standard)  
LH: left side as viewed from adjustment knob side (for TCG60, 61, solenoid energize, deenergize and setting pressure relationship will be reversed)
- 21 Shockless function  
Omit: without shockless function  
SH: vent unload shockless valve (TGMSL-3) for TCG50, 55, 62, 63, 80

## Notes on Operation

- Use external drain type (Y) in cases of high tank line pressure or large pressure fluctuations and connect drain line directly to tank. Ensure that end of the piping is always below the fluid level.
- Pressure setting may be unstable in the case of low flow. Maintain minimum flows above the following. 03 Series: 3 L/min, 06, 10 Series: 5 L/min
- For faster unload to onload response, use high vent pressure type (V).
- For multistage pressure control, the TGMCR\*\*-3 module is incorporated below the solenoid valve.  
For multistage pressure control of the TCG62, 63, and 70, the main valve should be set at the highest pressure. For TCG80, the main valve pressure should be set at the highest multistage control pressure.
- Loosen the lock nut and turn handle clockwise to increase the setting pressure and counterclockwise to decrease the setting pressure.
- The main valve of the vent unload shockless valve (TGMSL-3) will function only during unload. (It will be in effect only when solenoid of TCG50, 55, 62, and 63 is off or when the adjustment section © of the TCG80 is set at unload.)
- The vent unload shockless valve will not function when the adjustment screw is loosened. When the screw is in the completed loosened position, the vent line closes and the main valve will not unload, so adjust to an optimal midposition.
- When using external drain type mounted on subplate, connect drain directly from valve.

## Mounting Bolts (JIS B 1176, Strength Class 12.9)

Valve Model	Hex Socket Bolts		Qty
	Metric Thread	Unified Thread	
TCG**-03	M12 × 80	1/2-13UNC × 82.5	4
TCG**-06	M16 × 85	5/8-11UNC × 82.5	4
TCG**-10	M20 × 100	3/4-10UNC × 101.6	4

- Mounting bolts must be ordered separately.
- Mounting bolt tightening torque  
TCG\*\*-03: 72 to 88 N·m  
TCG\*\*-06: 90 to 110 N·m  
TCG\*\*-10: 180 to 220 N·m

## Subplate

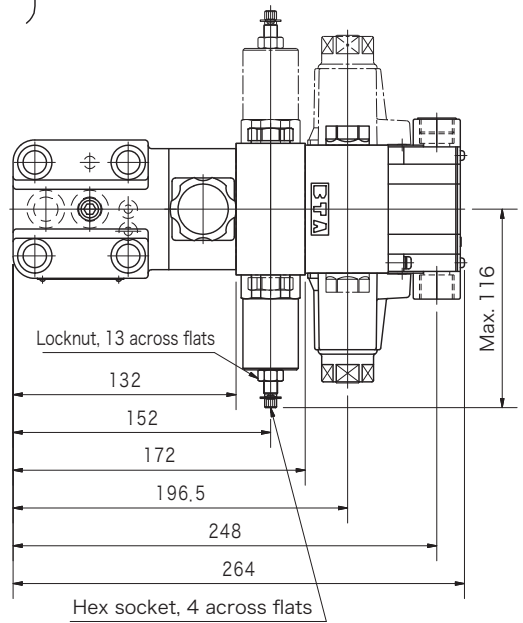
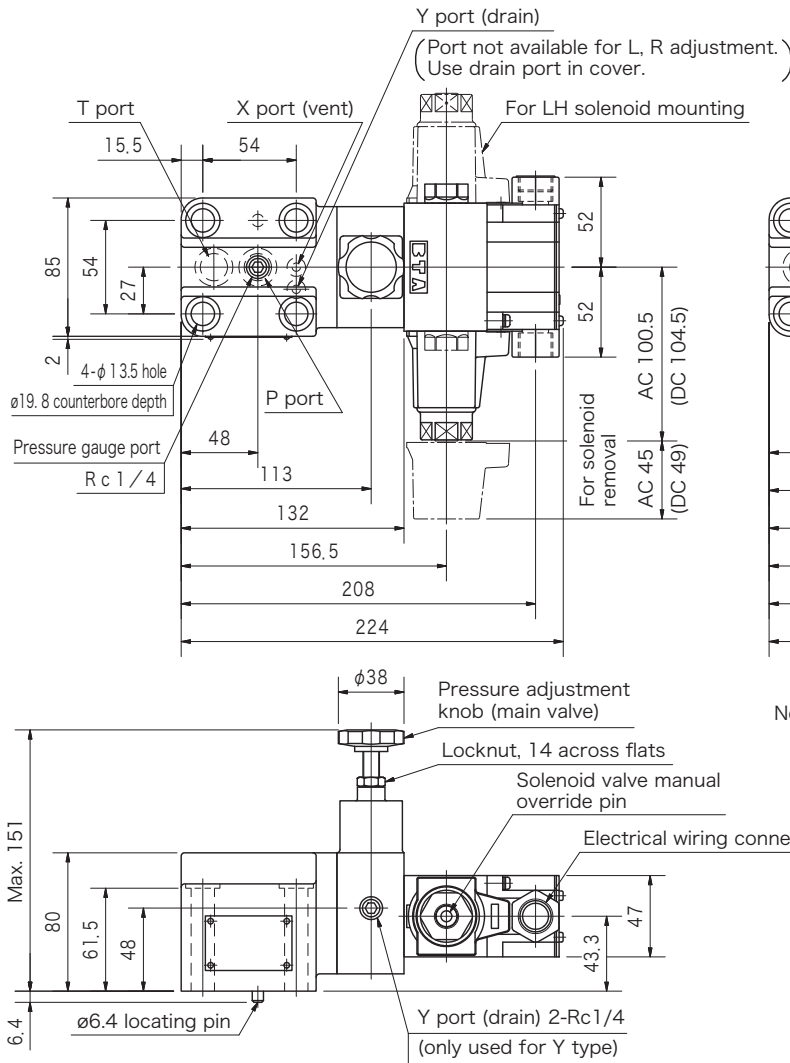
Valve Model	Subplate	Connection Port Dia. Rc
TCG**-03	TCGMT-03-10-JA-J	3/8
TCG**-06	CGM-06-10-JA-J	3/4
TCG**-10	CGM-10-10-JA-J	1-1/4

- Subplate must be ordered separately.
- Hex socket bolts for mounting valve included (unified thread).
- See page R6-2 for dimensions.

# Dimensions

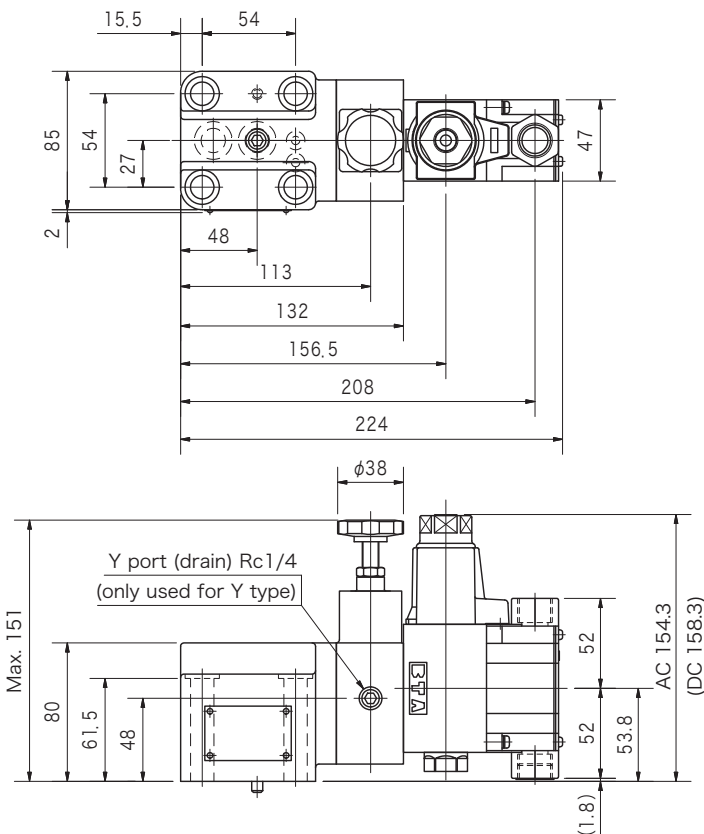
TCG50-03

With Vent Unload Shockless Valve (SH)



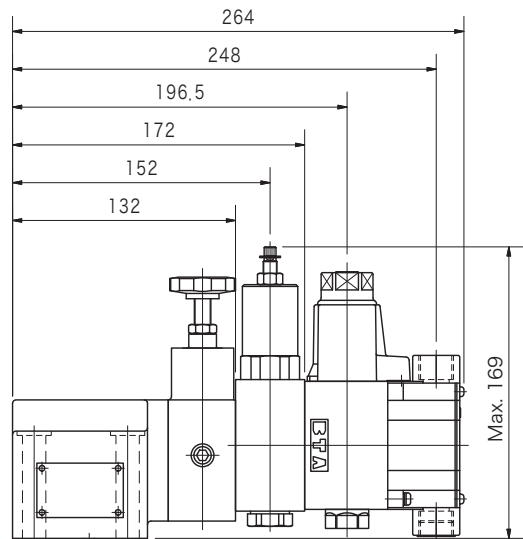
Note: Example of valve with plug-in coil and conduit box type solenoid pilot operated directional valve.

TCG55-03



Note: Example of valve with plug-in coil and conduit box type solenoid pilot operated directional valve.

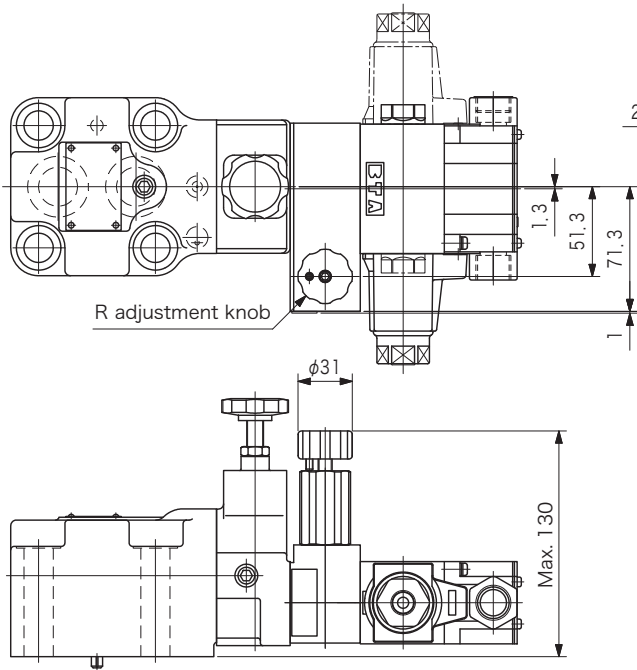
With Vent Unload Shockless Valve (SH)



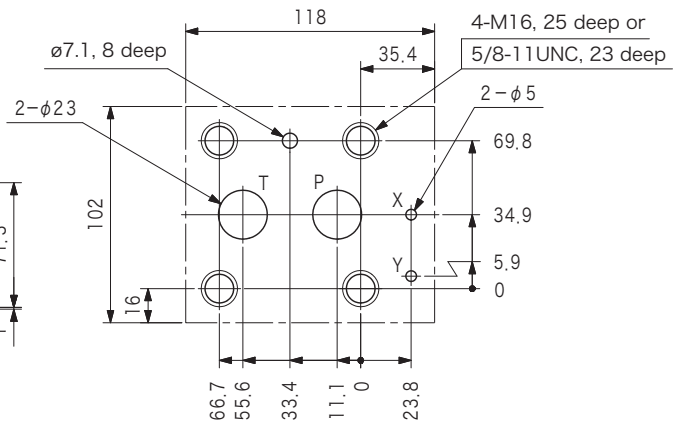


# Dimensions

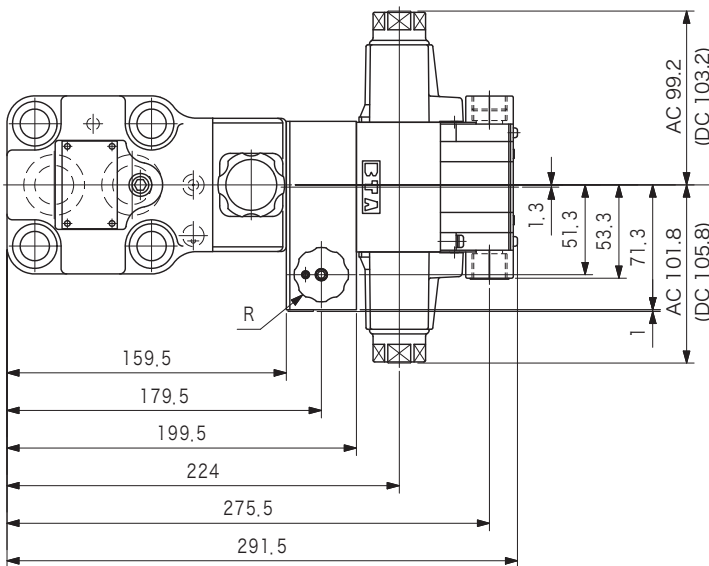
TCG60/61-06



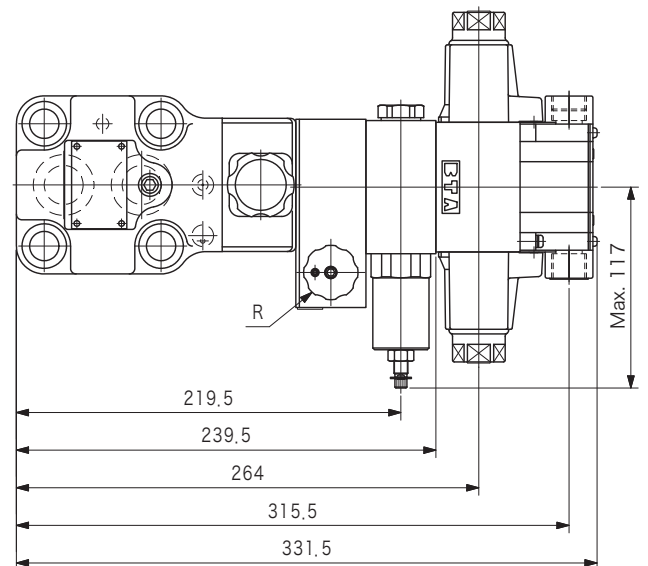
●Mounting dimensions



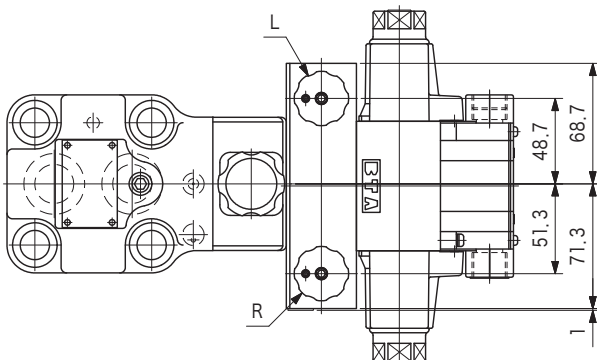
TCG62/63-06



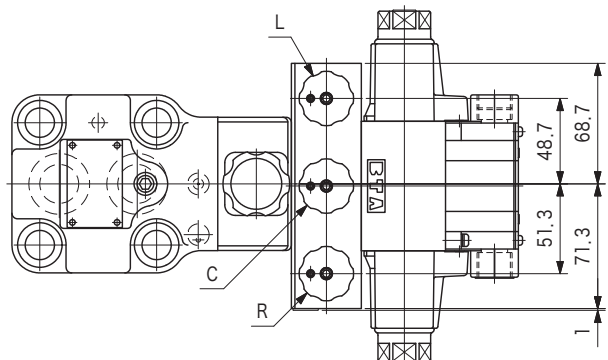
TCG62/63-06-SH



TCG70-06

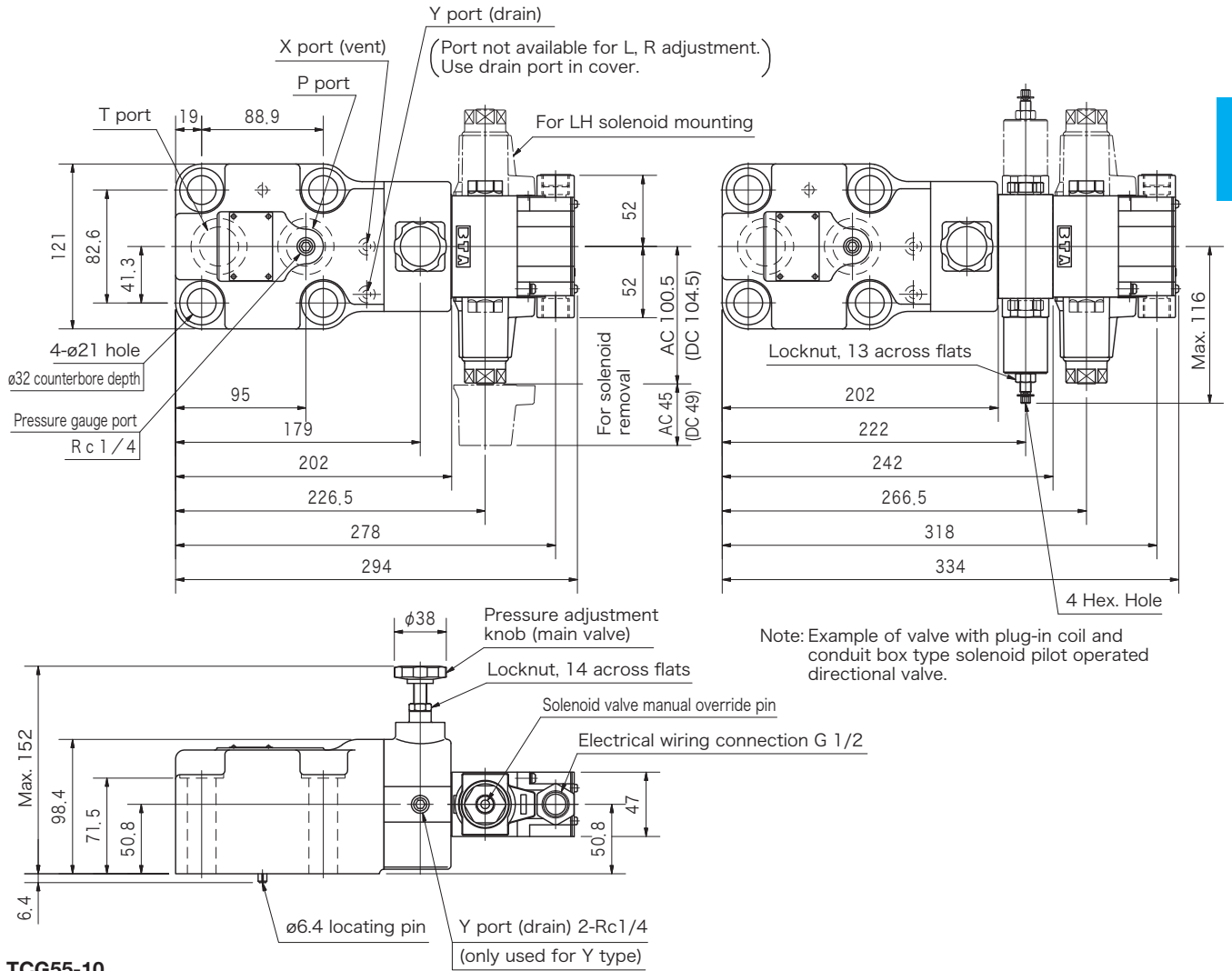


TCG80-06



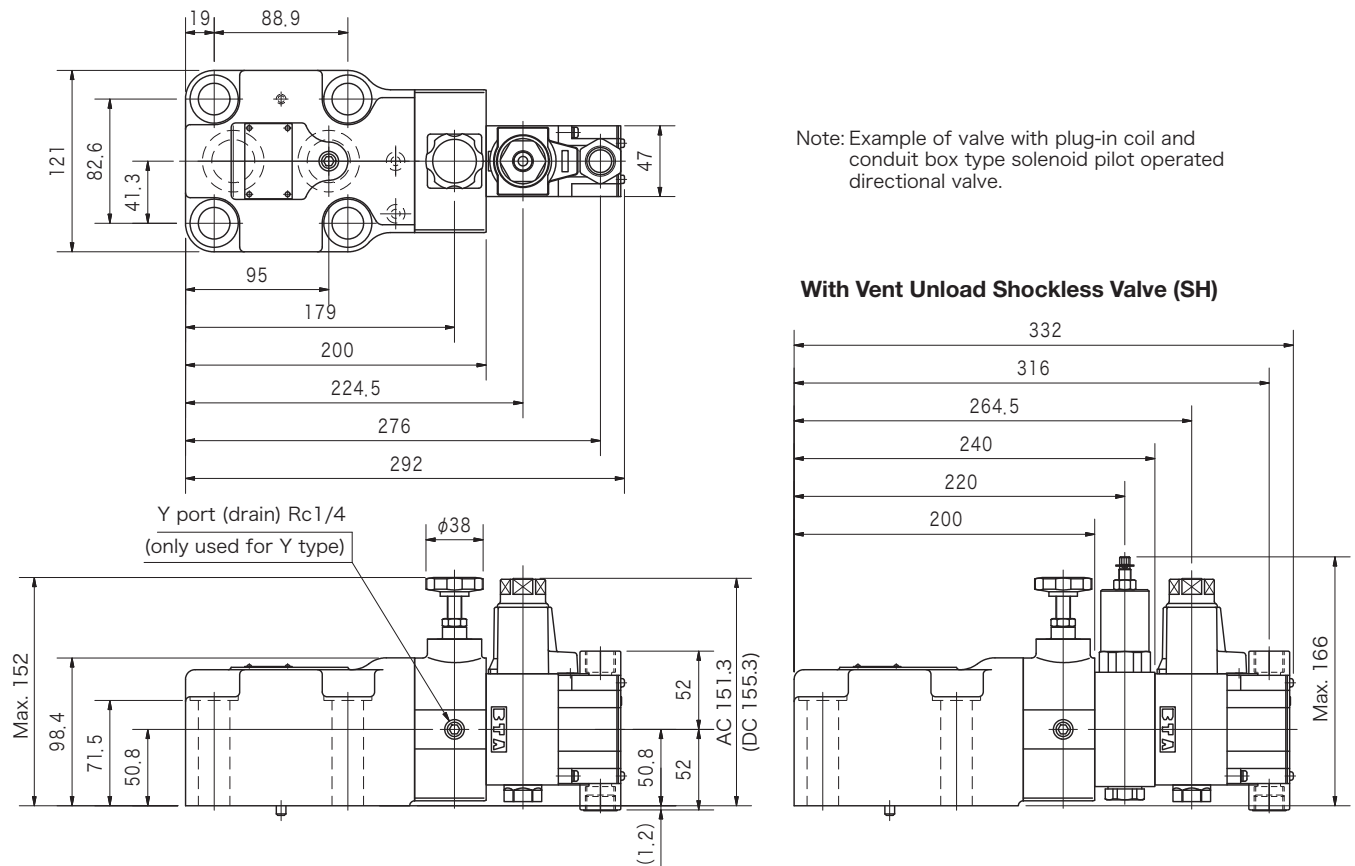
## TCG50-10

## With Vent Unload Shockless Valve (SH)



## TCG55-10

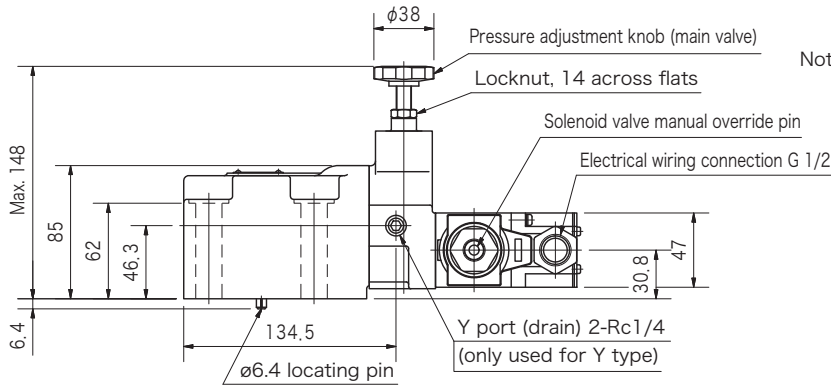
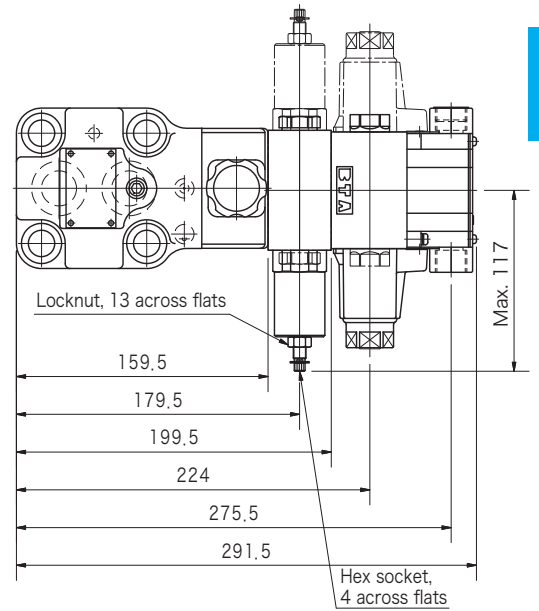
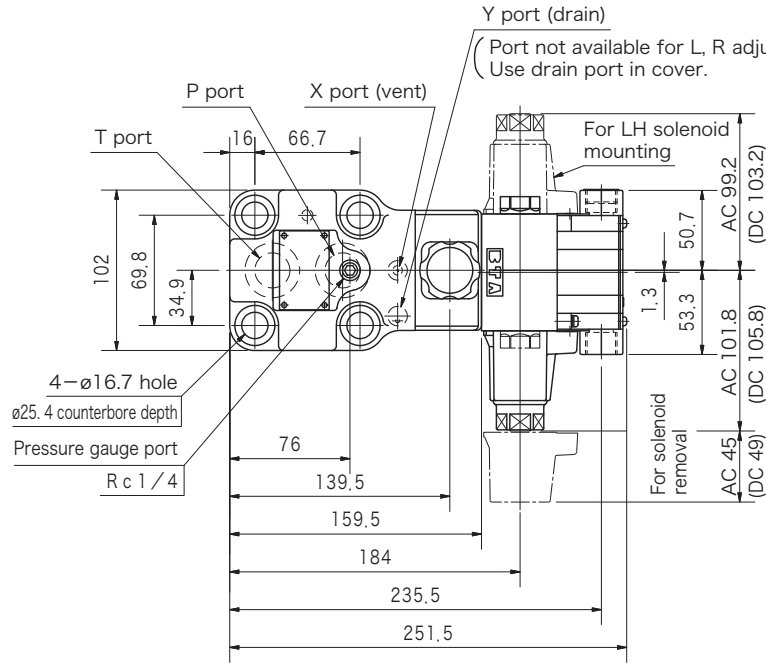
## With Vent Unload Shockless Valve (SH)



# Dimensions

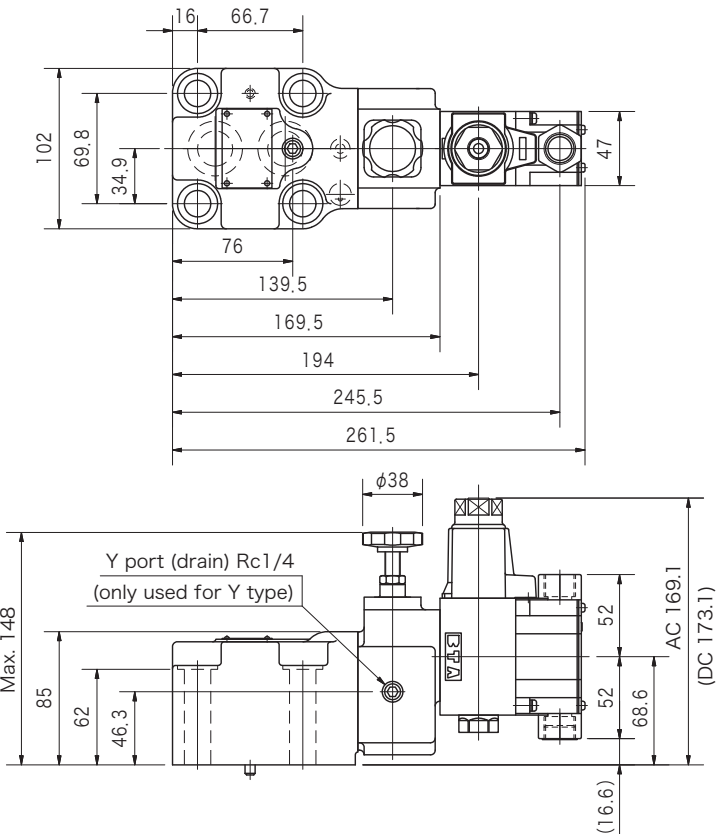
TCG50-06

With Vent Unload Shockless Valve (SH)



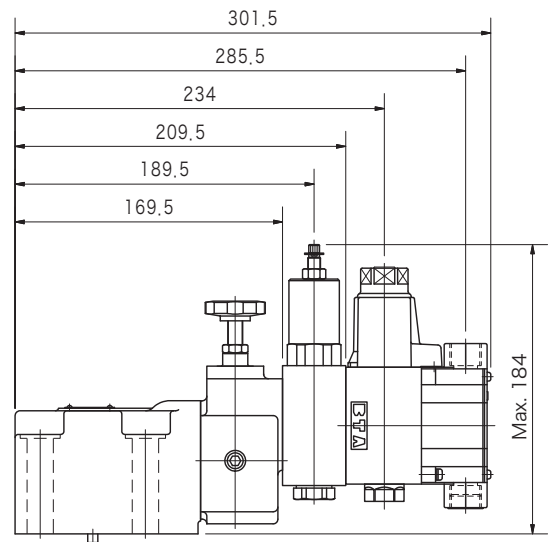
Note: Example of valve with plug-in coil and conduit box type solenoid pilot operated directional valve.

TCG55-06



Note: Example of valve with plug-in coil and conduit box type solenoid pilot operated directional valve.

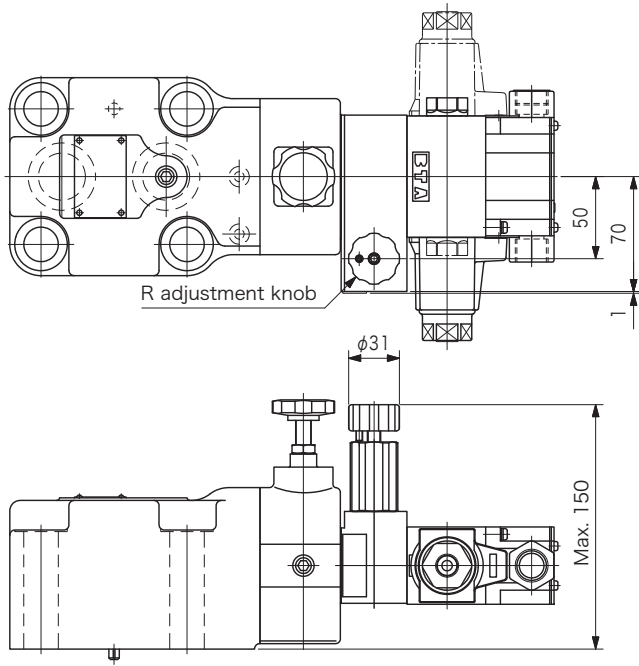
With Vent Unload Shockless Valve (SH)



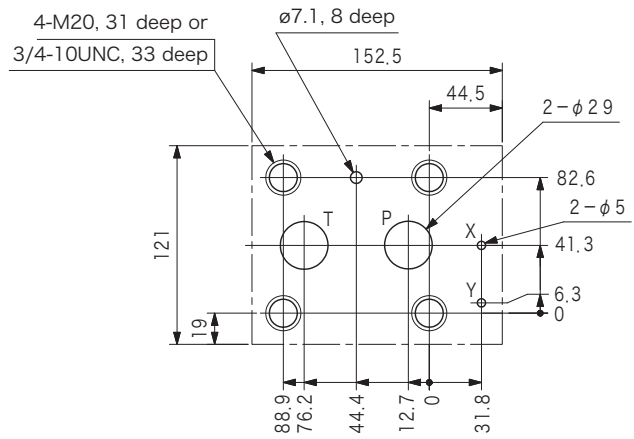


# Dimensions

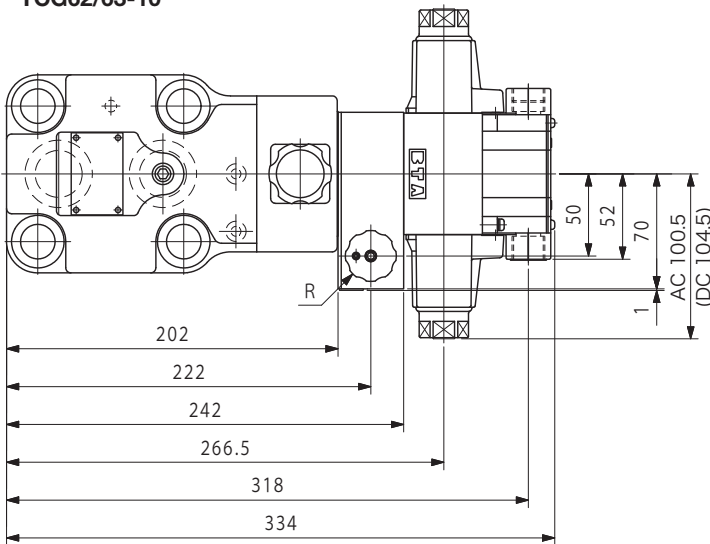
TCG60/61-10



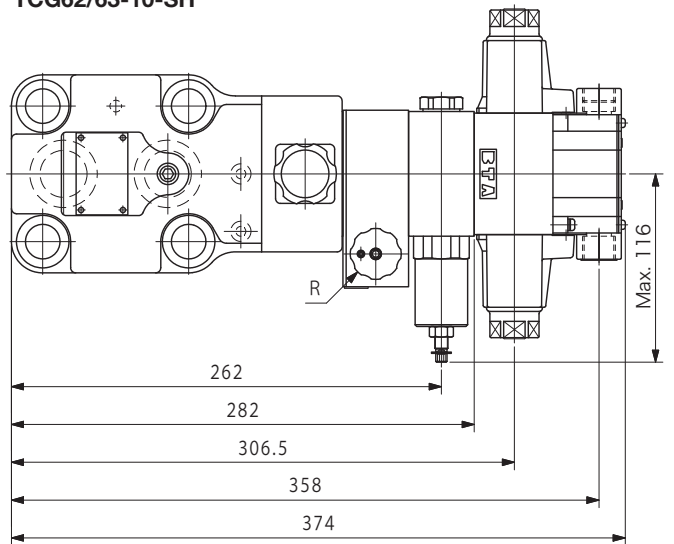
●Mounting dimensions



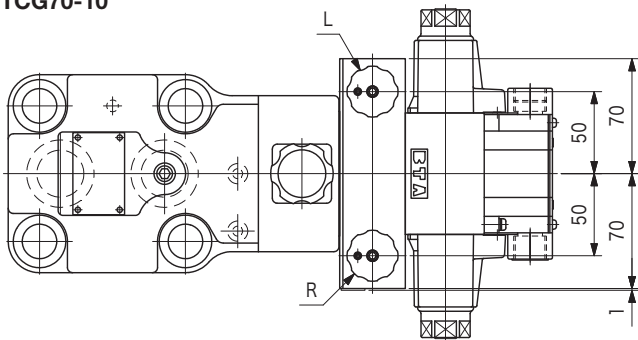
TCG62/63-10



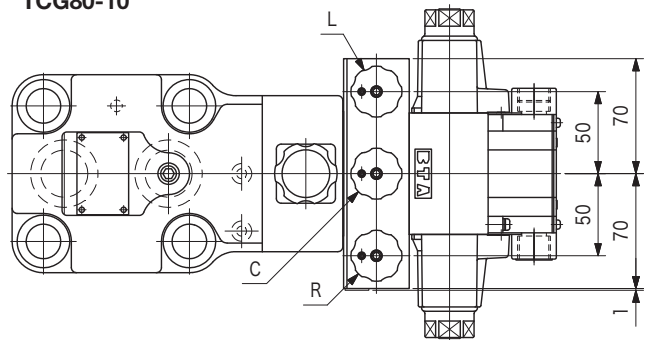
TCG62/63-10-SH



TCG70-10

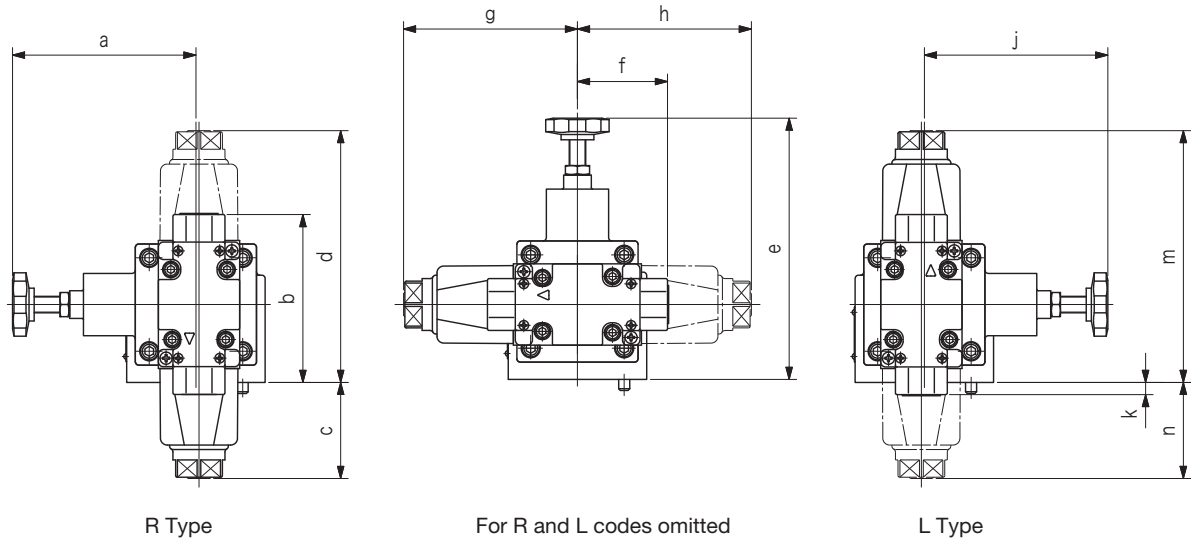


TCG80-10



## Dimensions

TCG\*\*-03/06/10-R/L-(LH)

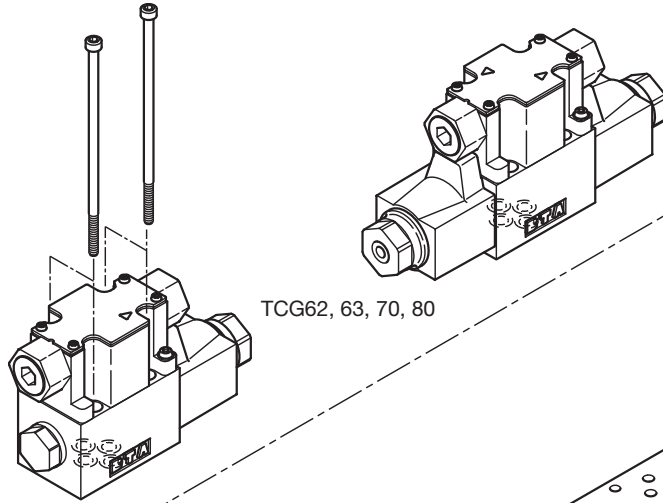


Dimensions table

Model Code	R Type				For R and L Codes Omitted				L Type			
	a (max.)	b	c	d	e (max.)	f	g	h	j (max.)	k	m	n
TCG50/60/61-03	106	97	55.5 59.5	—	151	52	100.5 104.5	—	106	7	145.5 149.5	—
TCG50/60/61-03-LH	106	97	—	145.5 149.5	151	52	—	100.5 104.5	106	7	—	55.5 59.5
TCG62/63/70/80-03	106	97	55.5 59.5	145.5 149.5	151	52	100.5 104.5	100.5 104.5	106	7	145.5 149.5	55.5 59.5
TCG50/60/61-06	101	97	55.5 59.5	—	148	—	101.8 105.8	—	101	—	148.1 152.1	—
TCG50/60/61-06-LH	101	97	—	145.5 149.5	148	—	—	99.2 103.2	101	—	—	52.9 56.9
TCG62/63/70/80-06	101	97	55.5 59.5	145.5 149.5	148	—	101.8 105.8	99.2 103.2	101	—	148.1 152.1	52.9 56.9
TCG50/60/61-10	101	102.8	49.7 53.7	—	152	—	100.5 104.5	—	101	1.2	151.3 155.3	—
TCG50/60/61-10-LH	101	102.8	—	151.3 155.3	152	—	—	100.5 104.5	101	1.2	—	49.7 53.7
TCG62/63/70/80-10	101	102.8	49.7 53.7	151.3 155.3	152	—	100.5 104.5	100.5 104.5	101	1.2	151.3 155.3	49.7 53.7

- Where the dimensions are presented on two levels, the values for the AC solenoids are indicated on the top level and the values for the DC solenoids are indicated on the bottom level.
- Drain ports with a gasket surface cannot be used for the types R and L.
- Consult Tokyo Keiki for the dimensions of the TCG55.

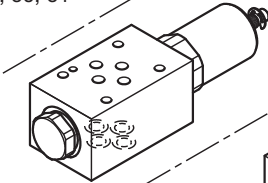
Refer to DG4V-3  
(page E2-1).



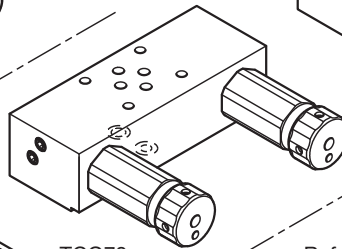
TCG62, 63, 70, 80

TCG50, 60, 61

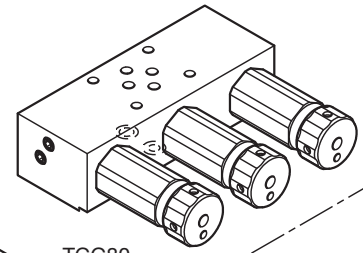
Refer to TGMSL-3  
(page C8-1).



-SH



TCG70

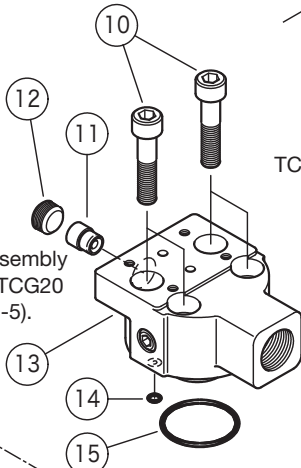


TCG80

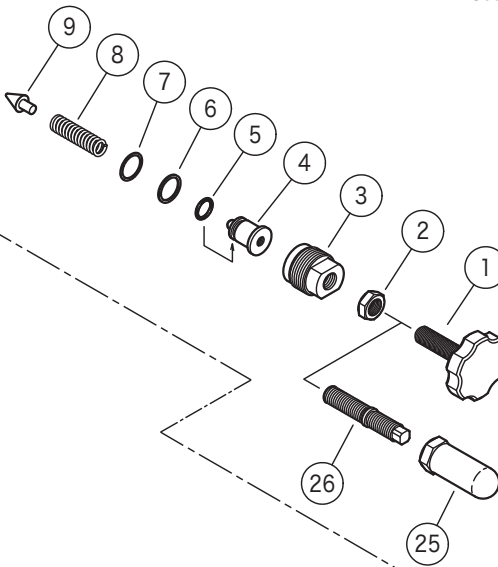
Refer to TGMCR-3  
(page C7-1).

TCG60, 61, 62, 63

Cover assembly  
Refer to TCG20  
(page C1-5).



Note:  
See TCG20 for O-ring, spring P/Ns (page C1-5).



Omitted for knob

E: Acorn nut

Body assembly  
Refer to TCG20  
(page C1-5).

