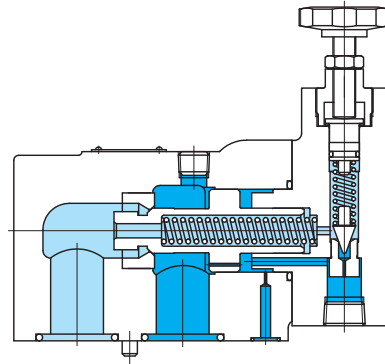
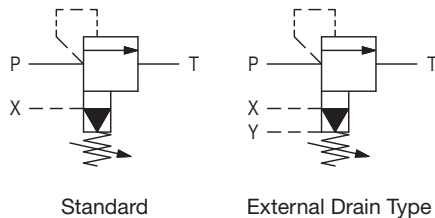


# Relief valves TCG20



## Functional Symbols



- 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.
- Remote setting of circuit pressure is possible by connecting a remote control valve to the vent port line.
- The valve can function as an unload valve by utilizing the vent port.

## Model Code

(F3) – TCG20 – 06 – C(V) (Y) (D4) (L) – (R) – 12

1 2 3 4 5 6 7 8 9 10

- 1 Hydraulic fluid  
Omit: mineral oil based fluid, water-glycol based fluid  
F3: phosphate ester fluid
- 2 Relief valve (gasket mounting)
- 3 Size  
Refer to "Specifications".
- 4 Max. adjustable pressure  
Refer to "Specifications".
- 5 Vent pressure  
Omit: low vent pressure (standard)  
V: high vent pressure
- 6 Drain  
Omit: internal drain (standard)  
Y: external drain
- 7 Adjuster  
Omit: knob (standard)  
E: acorn nut, sq. head adjustment screw  
D4: knob with digital counter
- 8 Digital counter orientation (when item 7 is D4)  
Omit: up (standard)  
L: left  
R: right  
U: down

- 9 Adjuster orientation  
Omit: up (standard)  
L: left  
R: right } See "Dimensions".
- 10 Design no.  
TCG20-03: 12  
TCG20-06: 12  
TCG20-10: 12

## Specifications

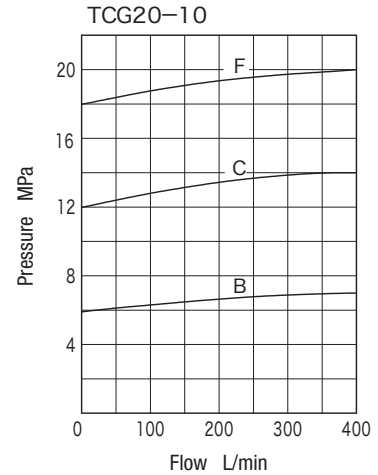
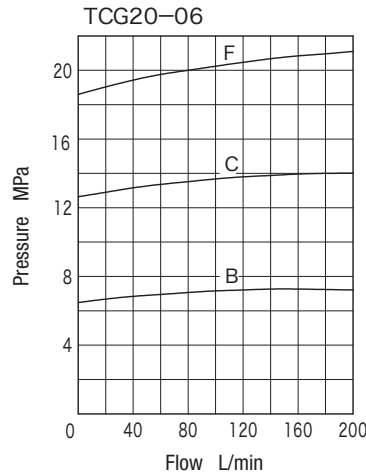
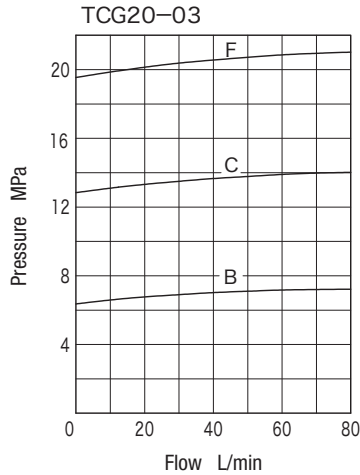
Model Code	Size	Max. Working Pressure MPa	Max. Flow L/min	Max. Adjustable Pressure MPa	Weight kg
TCG20-03	03	21	80	A (V) : 3.5 B (V) : 7 C (V) : 14 F (V) : 21	4.8
TCG20-06	06		200		6.9
TCG20-10	10		400		10.5

Note: Minimum adjustable pressure will differ with flow. See characteristics curves for reference.

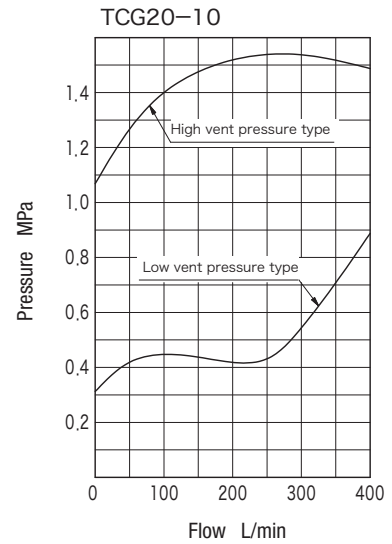
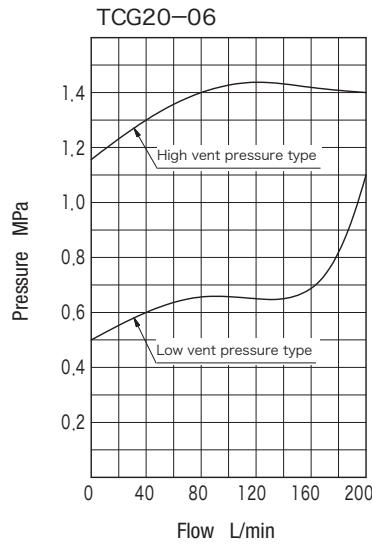
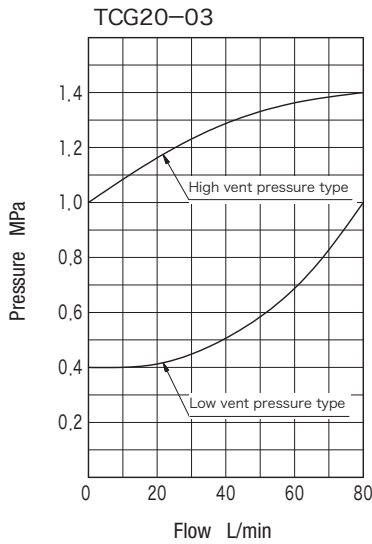


# Characteristics Curve (at 20 mm<sup>2</sup>/s) (typical examples)

## ● Flow-Pressure Characteristics



## ● Flow-Minimum Adjustable Pressure Characteristics



## 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.
- For faster unload to onload response, use high vent pressure type (V).
- Pressure setting may be unstable in the case of low flow. Maintain minimum flows above the following.  
TCG20-03 Series: 3 L/min  
TCG20-06 Series: 5 L/min  
TCG20-10 Series: 5 L/min
- Loosen the lock nut and turn handle clockwise to increase the setting pressure and counterclockwise to decrease the setting pressure.
- When using external drain type mounted on subplate, connect drain line directly from valve.

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

Valve Model	Hex Socket Bolts		Qty
	Metric Thread	Unified Thread	
TCG20-03	M12×80	1/2-13UNC×82.5	4
TCG20-06	M16×85	5/8-11UNC×82.5	4
TCG20-10	M20×100	3/4-10UNC×101.6	4

- Mounting bolts must be ordered separately.
- Mounting bolt tightening torque  
TCG20-03: 72 to 88 N·m  
TCG20-06: 90 to 110 N·m  
TCG20-10: 180 to 220 N·m

## Subplate

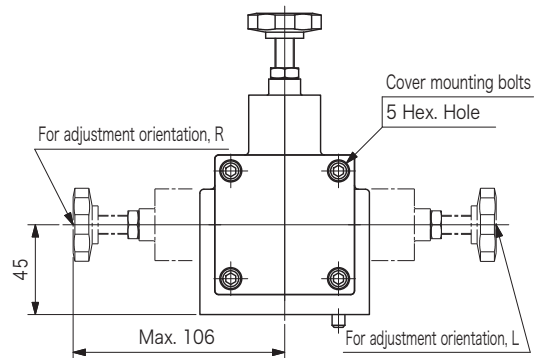
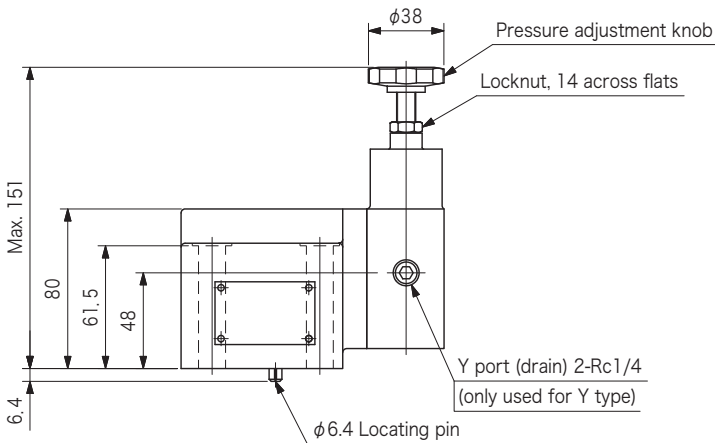
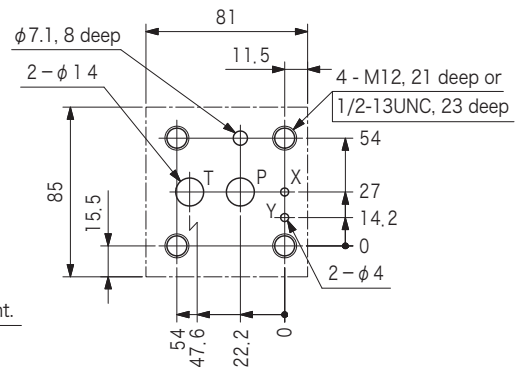
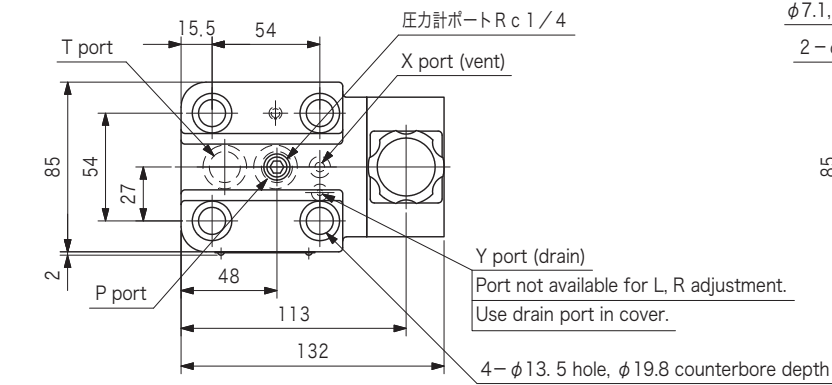
Valve Model	Subplate	Connection Port Dia. Rc
TCG20-03	TCGMT-03-10-JA-J	3/8
TCG20-06	CGM-06-10-JA-J	3/4
TCG20-10	CGM-10-10-JA-J	1-1/4

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

# Dimensions

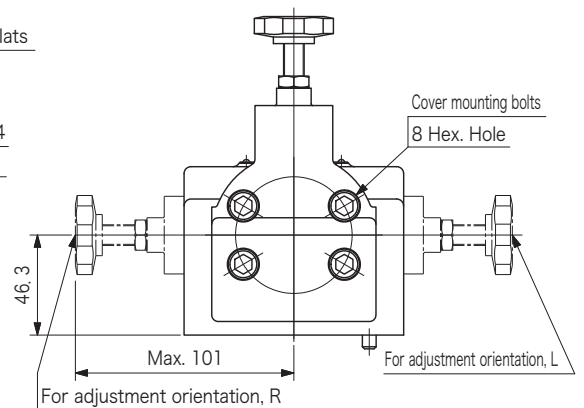
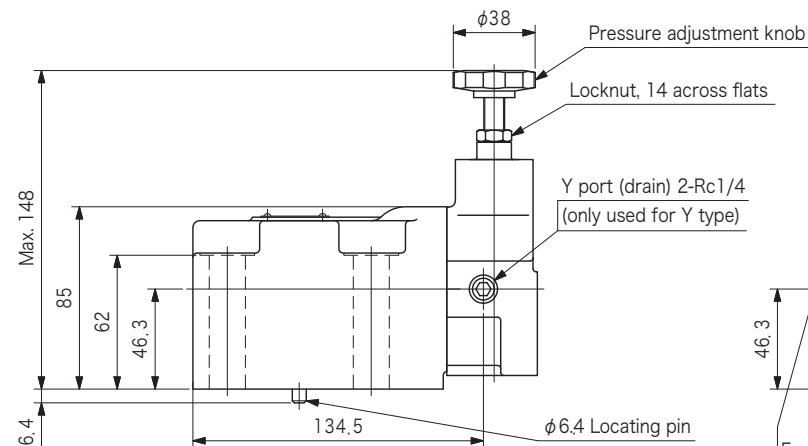
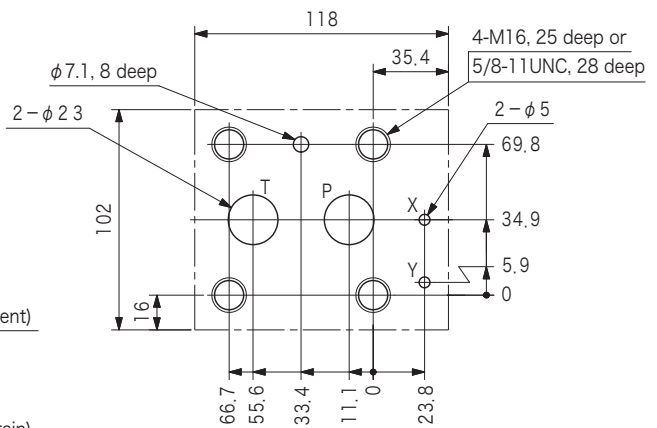
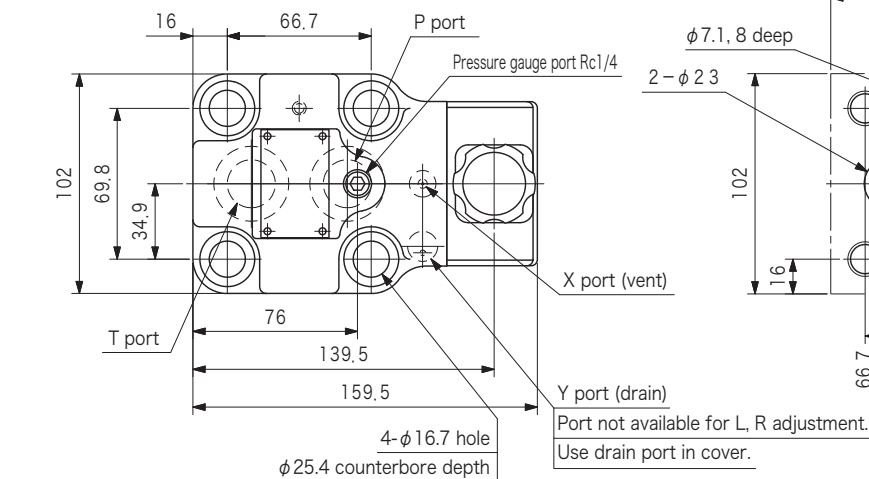
## TCG20-03

### ●Mounting dimensions



## TCG20-06

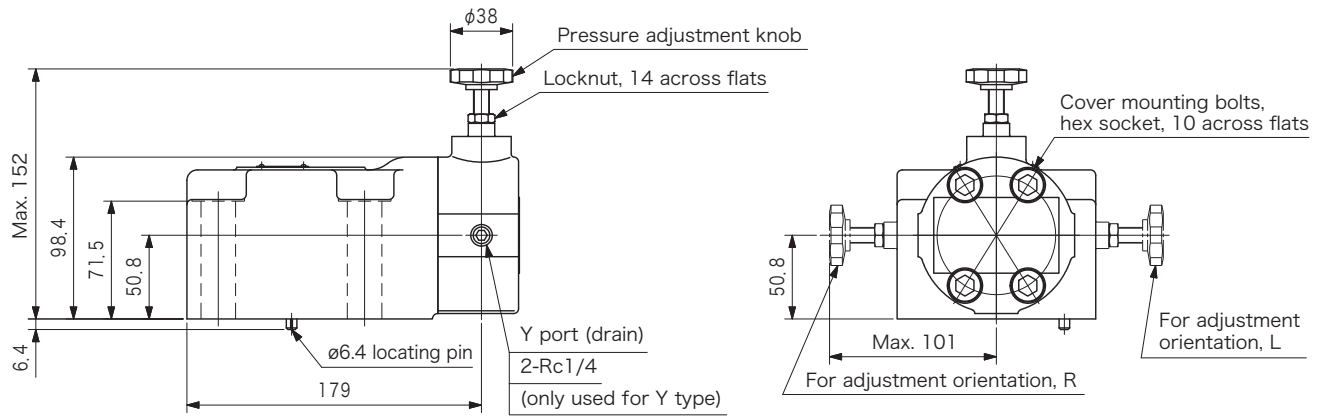
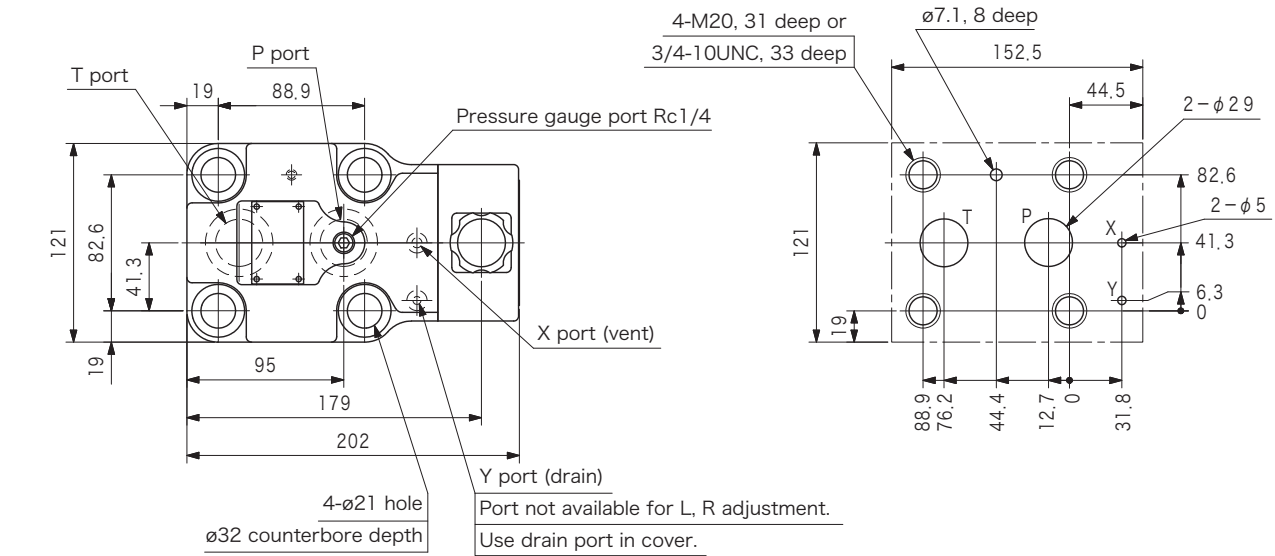
### ●Mounting dimensions



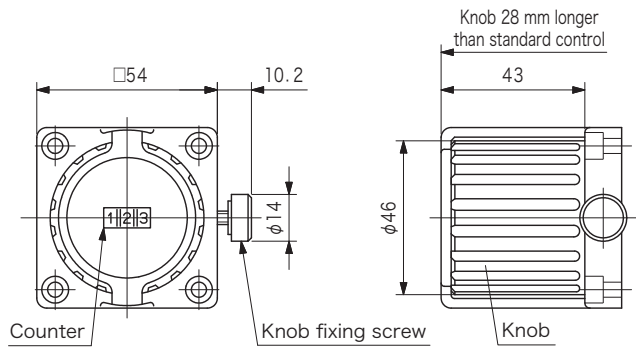
# Dimensions

TCG20-10

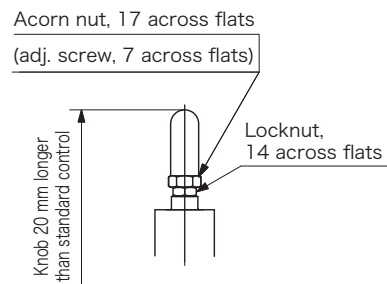
## ●Mounting dimensions



## ●Adjustment with Digital Dial (D4)

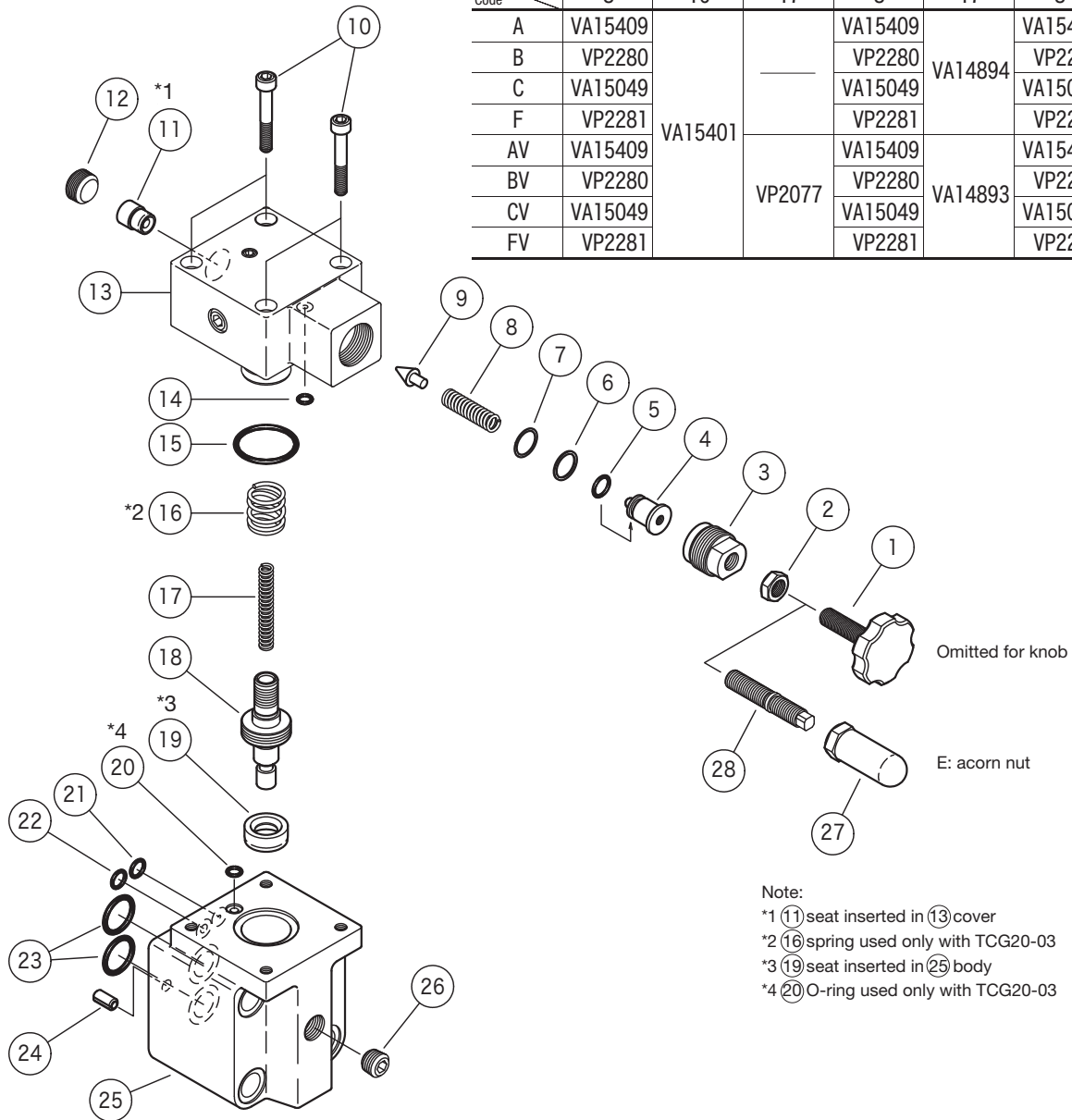


## ●Adjustment with acorn nut (E)



Spring

Model Code Code	TCG20-03			TCG20-06		TCG20-10	
	No.	8	16	8	17	8	17
A	VA15409	VA15401	—	VA15409	VA14894	VA15409	VA15105
B	VP2280			VP2280			
C	VA15049			VA15049			
F	VP2281			VP2281			
AV	VA15409			VP2077	VA15409	VA14893	VA15409
BV	VP2280	VP2280					
CV	VA15049	VA15049					
FV	VP2281	VP2281					



O-ring  
TCG20-03

No.	Part No.	Standard	Qty	
			Standard	Y Type
5	007901217	AS568-012 (NBR, Hs70)	1	1
14	007900919	AS568-009 (NBR, Hs90)	—	1
15	007912219	AS568-122 (NBR, Hs90)	1	1
20	007900919	AS568-009 (NBR, Hs90)	1	1
21	007901119	AS568-011 (NBR, Hs90)	—	1
22	007901119	AS568-011 (NBR, Hs90)	1	1
23	007911519	AS568-115 (NBR, Hs90)	2	2

Note: For type D4, 007901517 used for (5) O-ring.

TCG20-10

No.	Part No.	Standard	Qty	
			Standard	Y Type
5	007901217	AS568-012 (NBR, Hs70)	1	1
14	007901219	AS568-012 (NBR, Hs90)	—	1
15	007922419	AS568-224 (NBR, Hs90)	1	1
21	007901219	AS568-012 (NBR, Hs90)	—	1
22	007901219	AS568-012 (NBR, Hs90)	1	1
23	007922019	AS568-220 (NBR, Hs90)	2	2

Note: For type D4, 007901517 used for (5) O-ring.

TCG20-06

No.	Part No.	Standard	Qty	
			Standard	Y Type
5	007901217	AS568-012 (NBR, Hs70)	1	1
14	007900819	AS568-008 (NBR, Hs90)	—	1
15	VA11168	—	1	1
21	007911019	AS568-110 (NBR, Hs90)	—	1
22	007901219	AS568-012 (NBR, Hs90)	1	1
23	007921619	AS568-216 (NBR, Hs90)	2	2

Note: For type D4, 007901517 used for (5) O-ring.