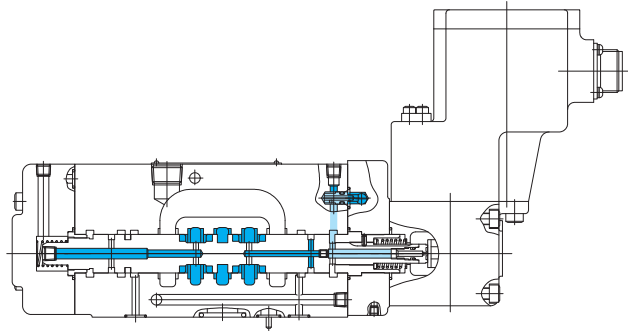
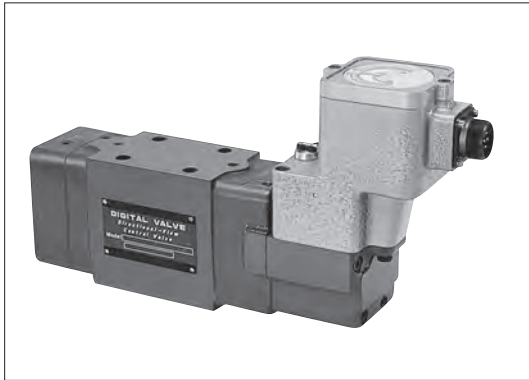
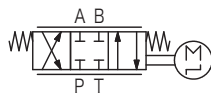


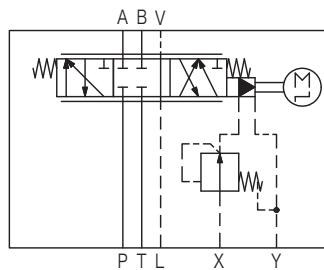
Digital directional & flow control valves D-DF(R)G



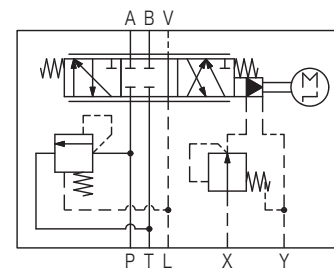
Functional Symbols



D-DFG-01



D-DFG-03~10



D-DFRG-03/04

Model Code

D-DFG-01-2C-30-100-20

1 2 3 4 5 6 7

- 1 Digital directional & flow control valve
- 2 Size
- 3 Spool type (neutral position)
2: All ports closed
- 4 Spool/spring arrangement
C: Spring center type
- 5 Maximum control flow
See "Specifications"
- 6 Maximum number of steps
100: ±100 steps (5-phase motor)
- 7 Design no.

D-DFG-31-06-2C-EX-130-157-(*)-21

1 2 3 4 5 6 7 8 9 10 11

- 1 Digital directional & flow control valve
D-DFG: No pressure compensating valve
D-DFRG: Bypass type pressure compensating valve provided (applicable to 03 and 04 sizes)
- 2 Number of directional control positions
2: Neutral and 1 position
3: Neutral and 2 positions
- 3 Load sensing port
0: No port provided 5: For lift circuit (applicable to 04 and 06 sizes)
1: Port provided 7: For meter out circuit (applicable to 04 and 06 sizes)
- 4 Size
See "Specifications"
- 5 Spool type (neutral position)
2: All ports closed
- 6 Spool/spring arrangement
C: Spring center type
- 7 EX: External pilot operation type (built-in pressure reducing valve)
- 8 Maximum control flow
See "Specifications"
- 9 Maximum number of steps
63: ±63 or ±126 steps (2-phase motor)*
157: ±157 steps (5-phase motor)
- 10 Spool sub-category
Omit: standard spool
1 and up: Optional spool
- 11 Design no.
20: D-DF (R) G-03, D-DFG-10
21: D-DF (R) G-04, D-DFG-06

* This was previously referred to as a 4-phase motor (the motor itself has remained unchanged).

Specifications

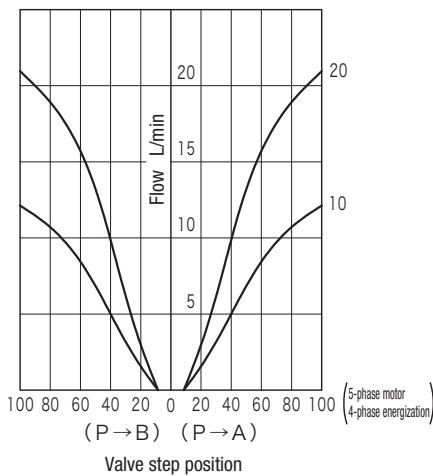
Size		01			03			04			06			10	
Maximum working pressure		MPa													
Maximum control flow		L/min													
Minimum control flow		L/min													
Pilot pressure		MPa													
Pilot flow (at a pilot pressure of 3 MPa)		L/min													
Repeatability, hysteresis		%													
Temperature drift (ISO VG 32 hydraulic fluid or equivalent; 30°C to 60°C)		%													
Resolution (maximum no. of steps)	2-phase energization system	—			Both directions ± 63 (P→A and P→B) (2-phase motor)*1										
	1-2-phase energization system	—			Both directions ± 126 (P→A and P→B) (2-phase motor)*1										
	4-phase energization system	Both directions ± 100 (P→A and P→B)			Both directions ± 157 (P→A and P→B) (5-phase motor)										
Response		2000 pps			The valve response is significantly affected by the performance of the controller and driver used. For further details, refer to the operating instructions of our controllers and drivers.										
Valve to valve variation		Less than $\pm 3\%$ of maximum control flow													
Y port (drain) allowable pressure		1 or less*2			0.35 or less										
Filter (nominal filtration grain size)		10 μm			25 μm or less										
Weight	D-DFG	2.5			10.7			10.8			18.2			45	
	D-DFRG	—			12.7			12.8			—			—	

*1: This was previously referred to as a 4-phase motor (the motor itself has remained unchanged).
*2: This is the allowable pressure of the T port.

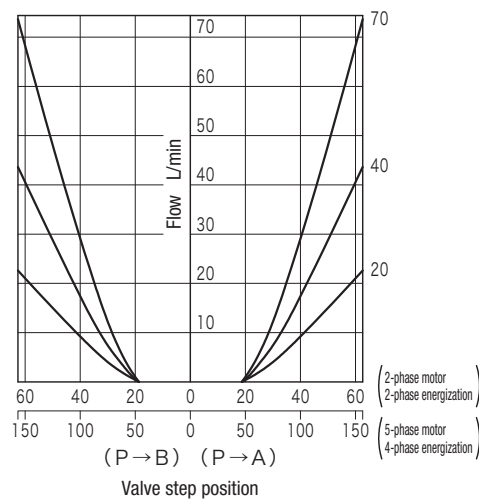
Characteristics curves (at 20 mm²/s) (typical examples)

Valve step position – flow characteristics (with P→A/B differential pressure of approx. 0.7 MPa)

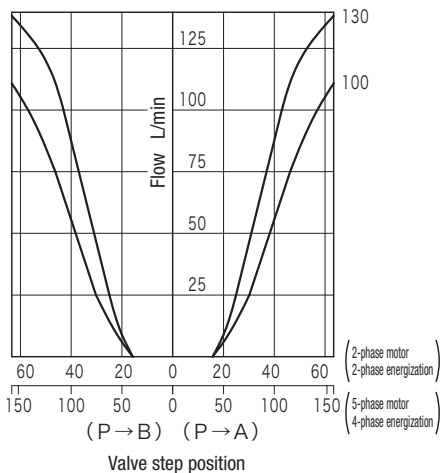
D-DFG-01



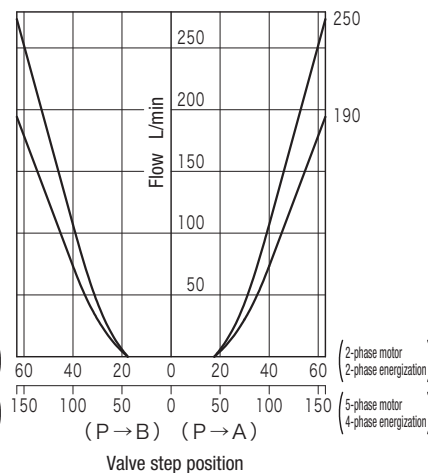
D-DF (R) G-31-03



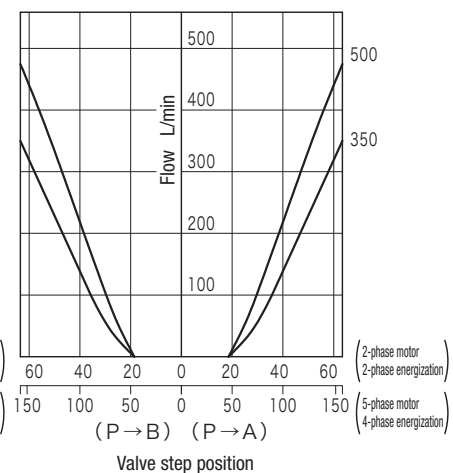
D-DF (R) G-31-04



D-DFG-31-06



D-DFG-31-10



Notes on Operation

- When the reset signal is input, the valve spool is returned to the neutral position by the built-in reset mechanism. Always supply the pilot pressure for sizes 03 and above. When the pump is to be started up, input the reset signal to the controller or driver to set the valve to the reset status, and then start up the pump, and when the pump is running normally, release the reset signal.
- A neutral position adjustment mechanism is provided on the outside of the valve, but its re-adjustment is not necessary since the adjustment was completed prior to shipment from the factory.
- Connect the drain pipe directly to the tank. The allowable back pressure is 0.35 MPa.

Mounting Bolts (JIS B 1176 Strength Grade 12.9 or Equivalent)

Model Code	Hexagon Socket Head Cap Screws		Qty
	Metric Thread	Unified Thread	
D-DFG-01	M 5×50	—	4
D-DF (R) G-03	M 6×40	1/4-20UNC×38.1	4
D-DF (R) G-04	M 6×45	1/4-20UNC×44.5	2
	M10×50	3/8-16UNC×50.8	4
D-DFG-06	M12×55	1/2-13UNC×57.1	6
D-DFG-10	M20×65	—	6

- The mounting bolts are not provided with the valve bodies and must be ordered separately.
- Mounting bolt tightening torque
 - D-DFG-01: 7~8 N·m
 - D-DF (R) G-03: 12~15 N·m
 - D-DF (R) G-04: M6 (1/4-20UNC) 9~14 N·m
M10 (3/8-16UNC) 50~60 N·m
 - D-DFG-06: 75~81 N·m
 - D-DFG-06: 230~290 N·m

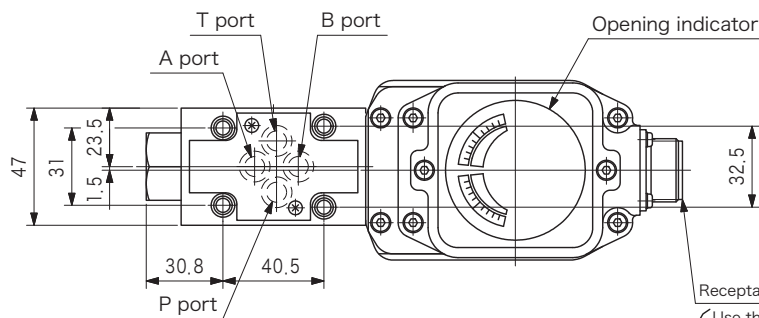
Subplate

Valve	Subplate	Connection Port Diameter Rc
D-DFG-01	DGMS-3-1E-10-T-JA-J*	3/8
	DGVM-3-10-T-JA-J*	
D-DF (R) G-03	DEFGM-03X-10	1/2
D-DF (R) G-04	DEFGM-04X-10	3/4
D-DFG-06	DEFGM-06X-11	1
D-DFG-10	DEFGM-10X-11	1-1/2

- Subplate must be ordered separately.
- Mounting bolts are provided. (Not applicable to models indicated with *) (Metric thread)
- For further details of the dimensions, refer to pages R6-6, R6-9 and R6-10.

Dimensions

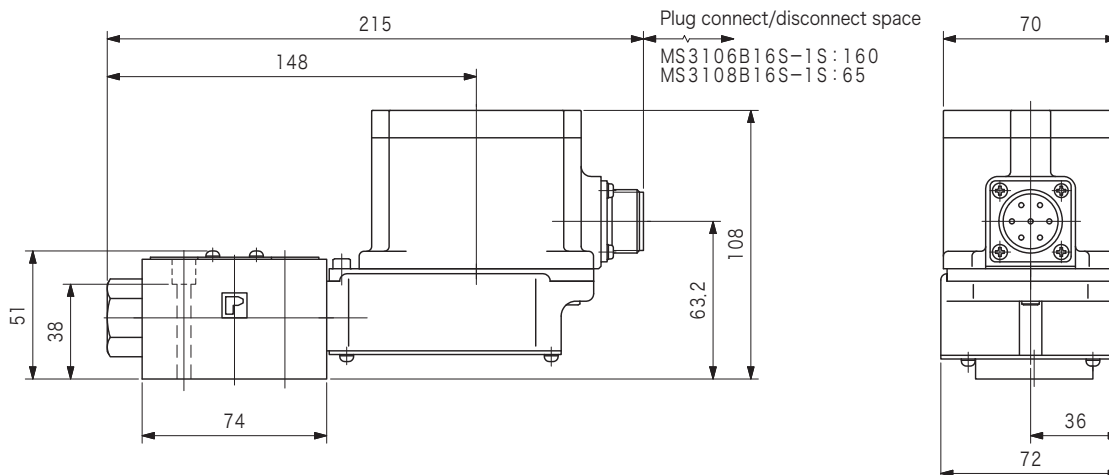
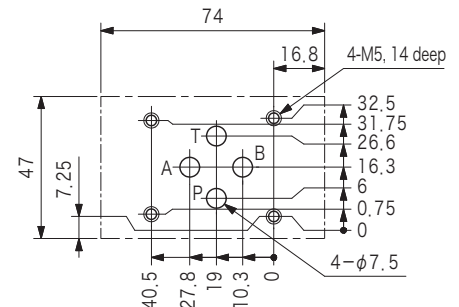
D-DFG-01



Receptacle: MS 3 1 0 2 A 1 6 S - 1 P

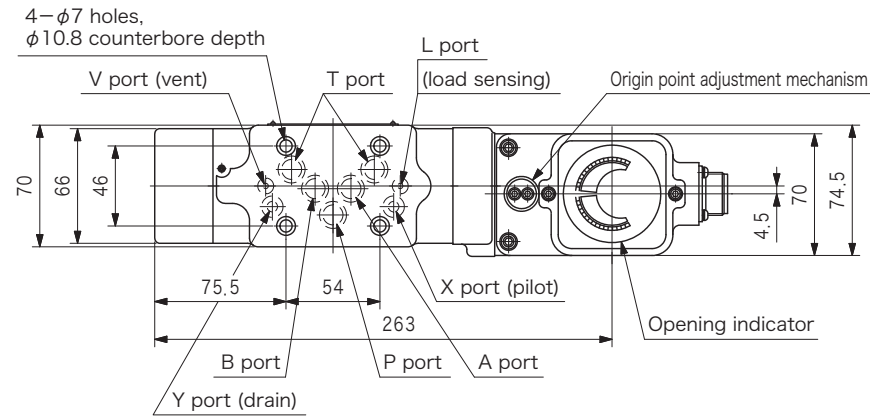
(Use the MS3106B16S-1S or MS3108B16S-1S for the plug and the MS3057-8A for the cable clamp. These parts are not provided as parts of the valve body.)

• Mounting Dimensions

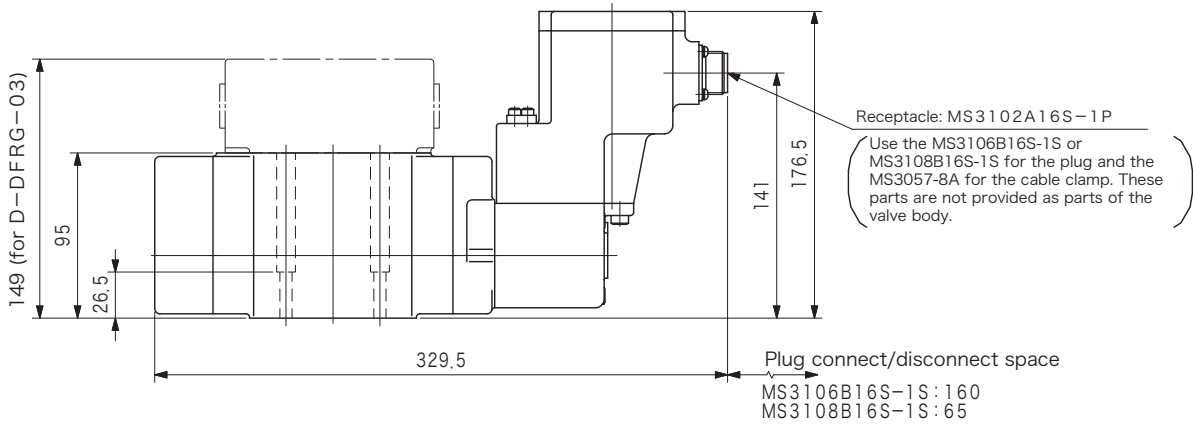
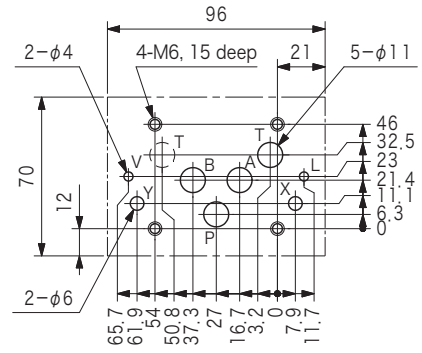


Dimensions

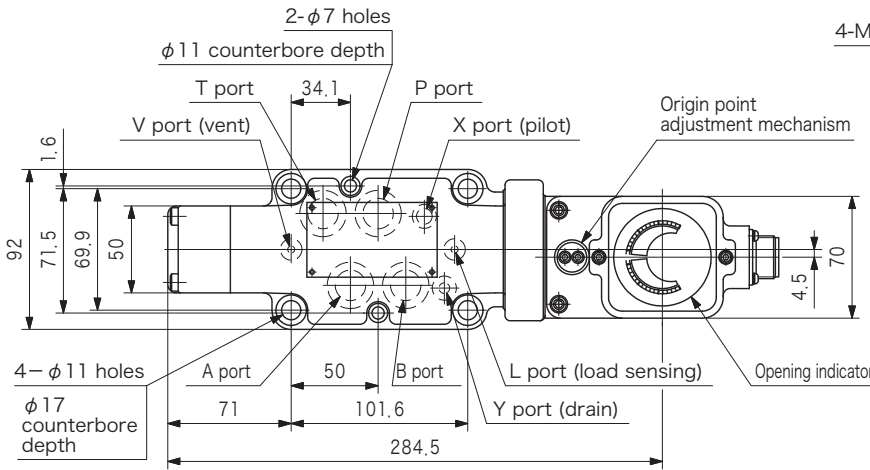
D-DF(R)G-03



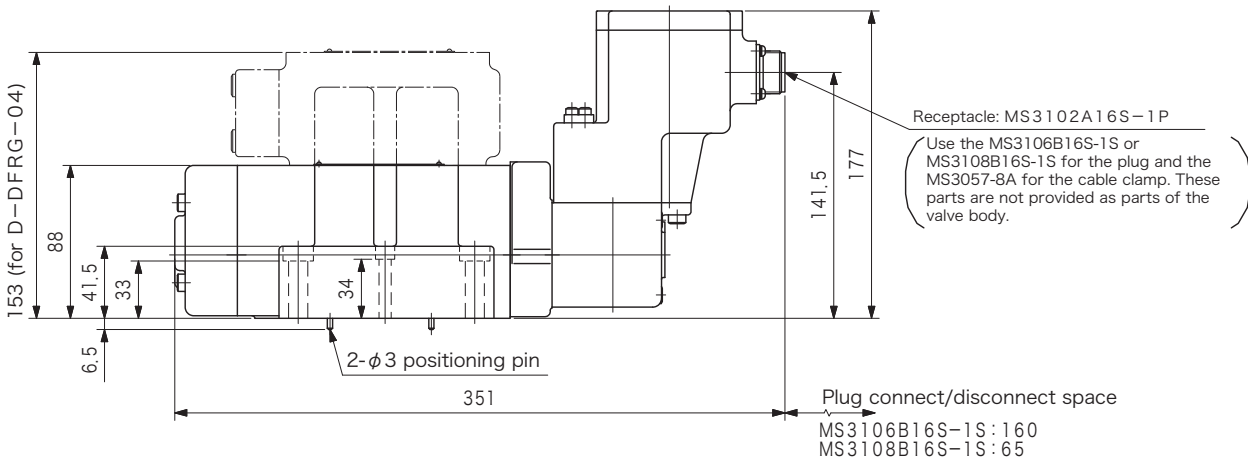
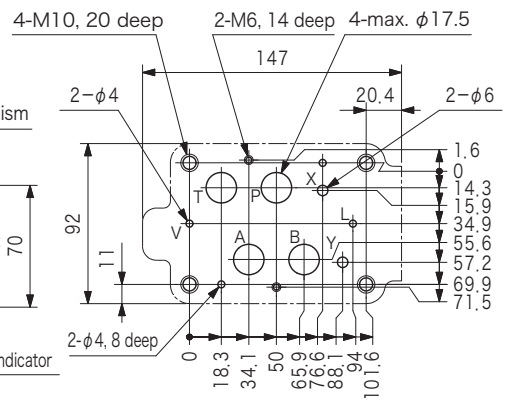
• Mounting Dimensions



D-DF(R)G-04

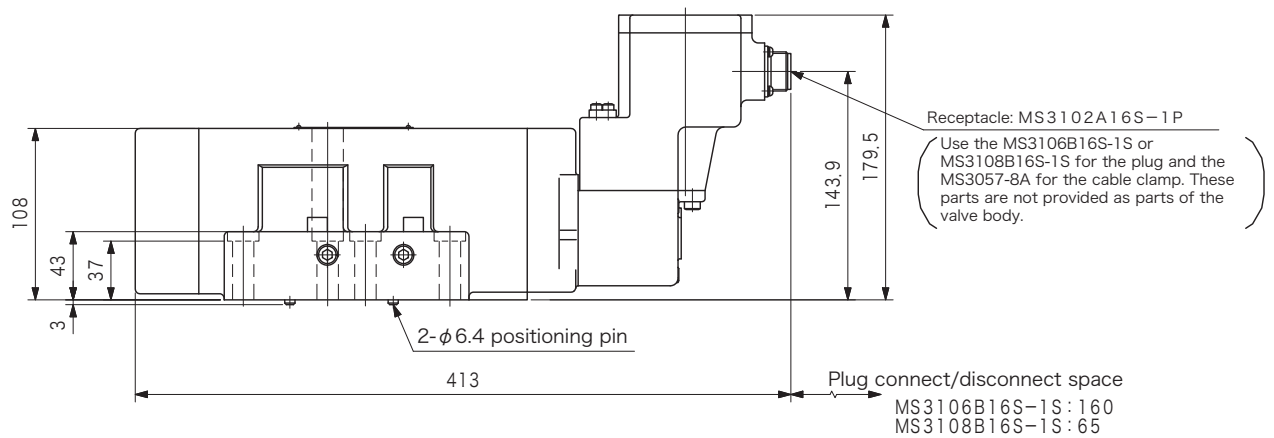
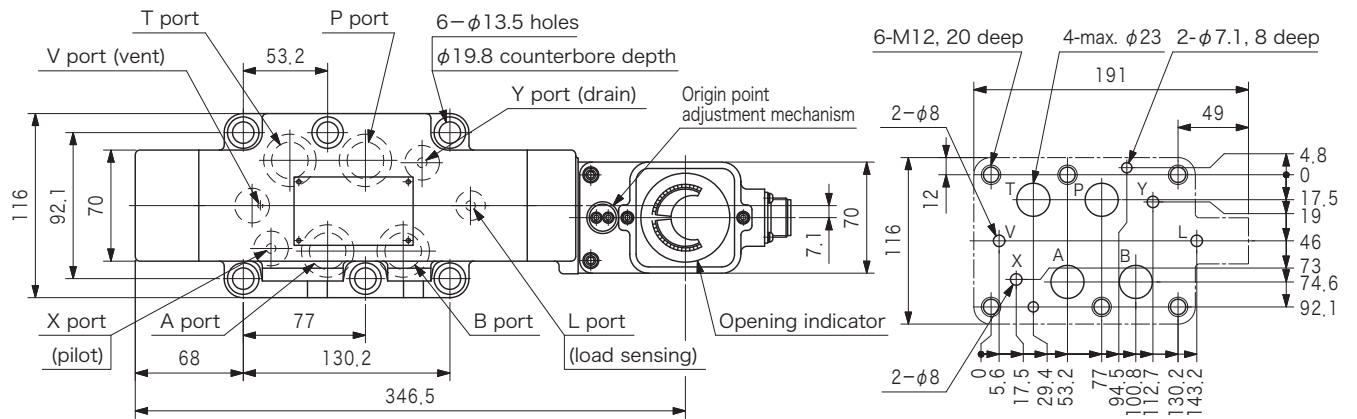


• Mounting Dimensions

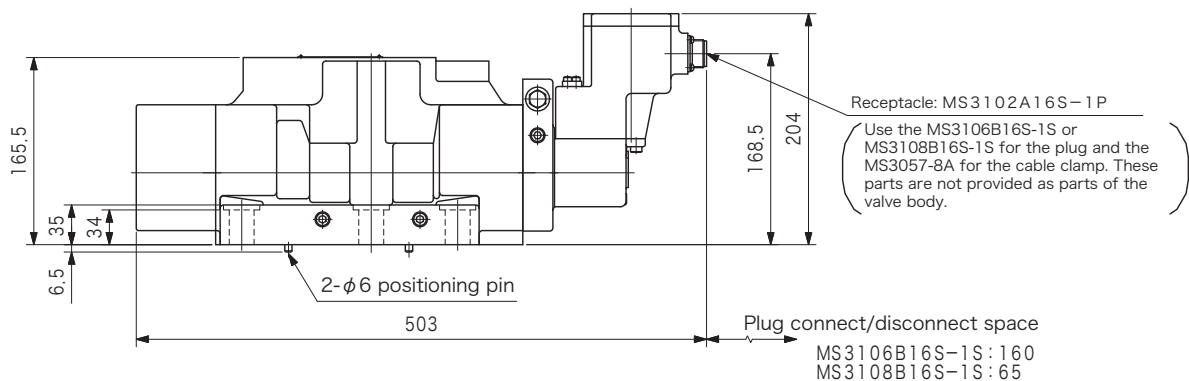
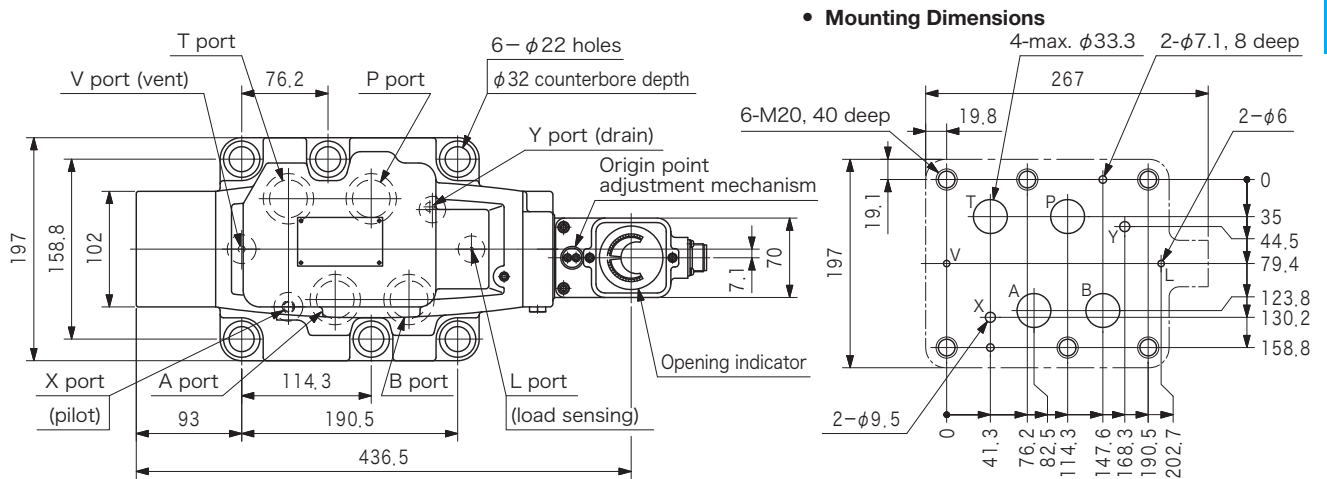


Dimensions

D-DFG-06



D-DFG-10

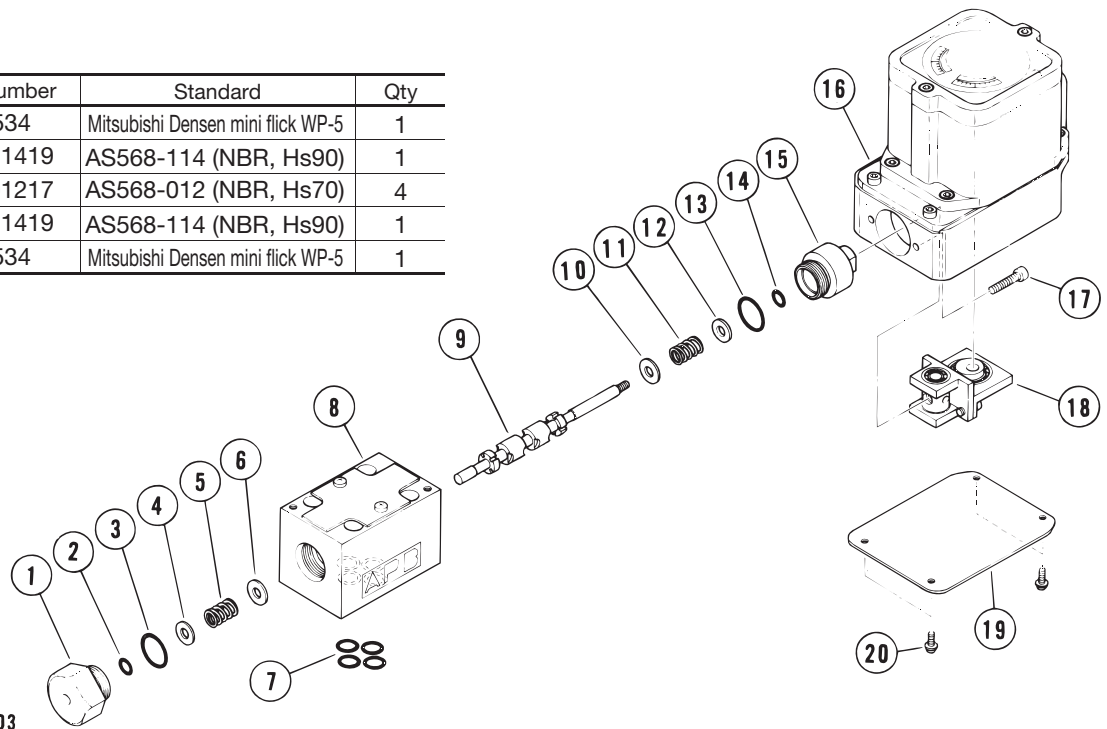


Construction

D-DFG-01

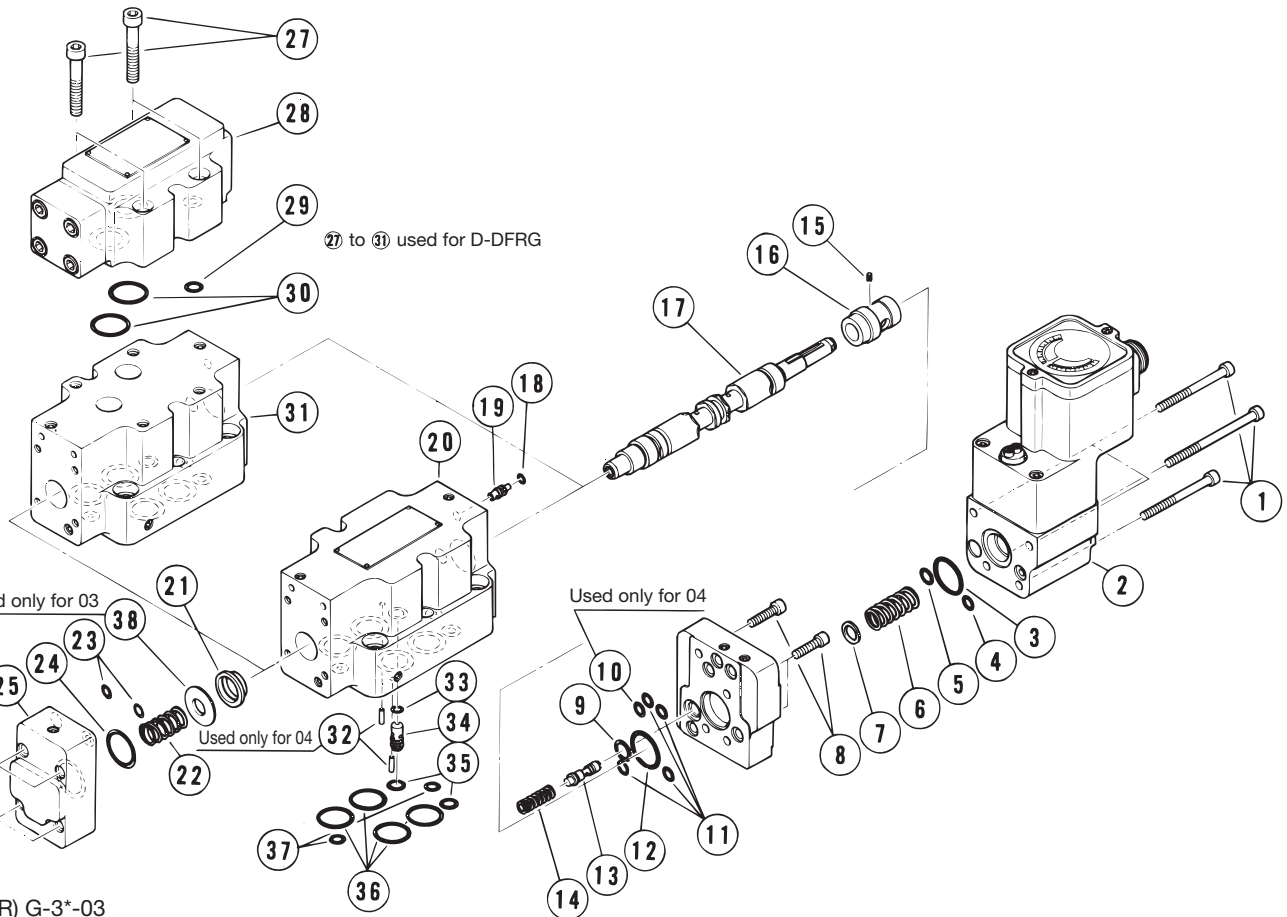
O-rings

No.	Part Number	Standard	Qty
2	VA30534	Mitsubishi Densen mini flick WP-5	1
3	007911419	AS568-114 (NBR, Hs90)	1
7	007901217	AS568-012 (NBR, Hs70)	4
13	007911419	AS568-114 (NBR, Hs90)	1
14	VA30534	Mitsubishi Densen mini flick WP-5	1



D-DF(R)G-3*-03

D-DF(R)G-3*-04



D-DF (R) G-3*-03

O-rings

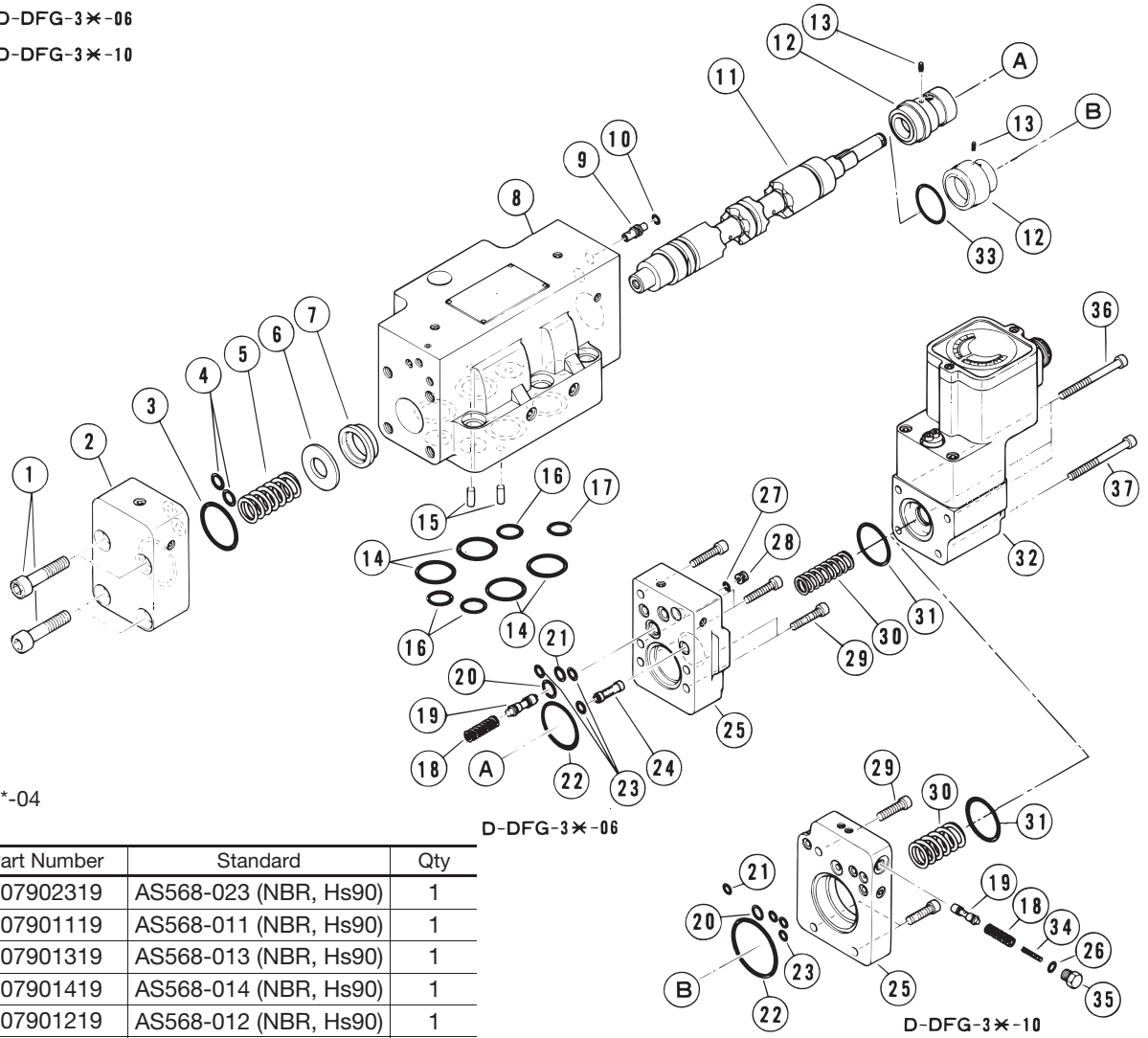
No.	Part Number	Standard	Qty
3	007902317	AS568-023 (NBR, Hs70)	1
4	007901217	AS568-012 (NBR, Hs70)	1
5	007901317	AS568-013 (NBR, Hs70)	1
9	007901417	AS568-014 (NBR, Hs70)	1
11	007901217	AS568-012 (NBR, Hs70)	4
12	007902317	AS568-023 (NBR, Hs70)	1
18	007900717	AS568-007 (NBR, Hs70)	1
23	007901217	AS568-012 (NBR, Hs70)	3

No.	Part Number	Standard	Qty
24	007902317	AS568-023 (NBR, Hs70)	1
29	007901317	AS568-013 (NBR, Hs70)	1
30	007901417	AS568-014 (NBR, Hs70)	2
33	007900917	AS568-009 (NBR, Hs70)	1
35	007901217	AS568-012 (NBR, Hs70)	2
36	007901417	AS568-014 (NBR, Hs70)	5
37	007901017	AS568-010 (NBR, Hs70)	2

Construction

D-DFG-3✕-06

D-DFG-3✕-10



D-DF (R) G-3*-04
O-rings

No.	Part Number	Standard	Qty
3	007902319	AS568-023 (NBR, Hs90)	1
4	007901119	AS568-011 (NBR, Hs90)	1
5	007901319	AS568-013 (NBR, Hs90)	1
9	007901419	AS568-014 (NBR, Hs90)	1
10	007901219	AS568-012 (NBR, Hs90)	1
11	007901219	AS568-012 (NBR, Hs90)	4
12	007902319	AS568-023 (NBR, Hs90)	1
18	007900717	AS568-007 (NBR, Hs70)	1
23	007901119	AS568-011 (NBR, Hs90)	2
24	007902319	AS568-023 (NBR, Hs90)	1
29	007901319	AS568-013 (NBR, Hs90)	1
30	007921219	AS568-212 (NBR, Hs90)	2
33	007900919	AS568-009 (NBR, Hs90)	1
35	007901319	AS568-013 (NBR, Hs90)	2
36	007921119	AS568-211 (NBR, Hs90)	4
37	007901219	AS568-012 (NBR, Hs90)	2

Note: Three (23) 007901119 O-rings are used with the D-DFG-37-04.

D-DFG-3*-06
O-rings

No.	Part Number	Standard	Qty
3	007912819	AS568-128 (NBR, Hs90)	1
4	007901319	AS568-013 (NBR, Hs90)	2
10	007900917	AS568-009 (NBR, Hs70)	1
14	007921519	AS568-215 (NBR, Hs90)	4
16	007911519	AS568-115 (NBR, Hs90)	3
17	007911319	AS568-113 (NBR, Hs90)	1
20	007901519	AS568-015 (NBR, Hs90)	1
21	007901319	AS568-013 (NBR, Hs90)	1
22	007912819	AS568-128 (NBR, Hs90)	1
23	007901219	AS568-012 (NBR, Hs90)	3
27	007900819	AS568-008 (NBR, Hs90)	1
31	007912519	AS568-125 (NBR, Hs90)	1

Note: The (4) 007901219 and (17) 007911619 O-rings are used with the D-DFG-37-06.

D-DFG-3*-10
O-rings

No.	Part Number	Standard	Qty
3	007914317	AS568-143(NBR,Hs70)	1
4	007901217	AS568-012(NBR,Hs70)	2
10	007901017	AS568-010(NBR,Hs70)	1
14	007922217	AS568-222(NBR,Hs70)	4
16	007921017	AS568-210(NBR,Hs70)	3
17	007921017	AS568-210(NBR,Hs70)	1
20	007901417	AS568-014(NBR,Hs70)	1
21	007901217	AS568-012(NBR,Hs70)	1
22	007914117	AS568-141(NBR,Hs70)	1
23	007901217	AS568-012(NBR,Hs70)	3
26	007901217	AS568-012(NBR,Hs70)	1
31	007913117	AS568-131(NBR,Hs70)	1
33	007913317	AS568-133(NBR,Hs70)	1