

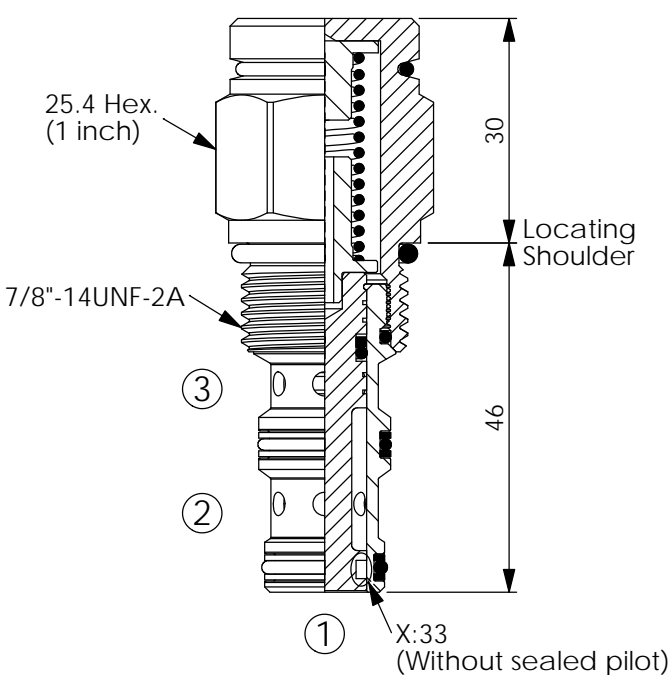


ZAWORY NABOŻOWE

Directional Valves

DIRECTIONAL VALVE (Piloted 2-Way Spool, Normally Closed, External Vent)

Ordering Code: **DD-10W-X-Y-Z**



25.4 Hex. (1 inch)

7/8"-14UNF-2A

30

Locating Shoulder

46

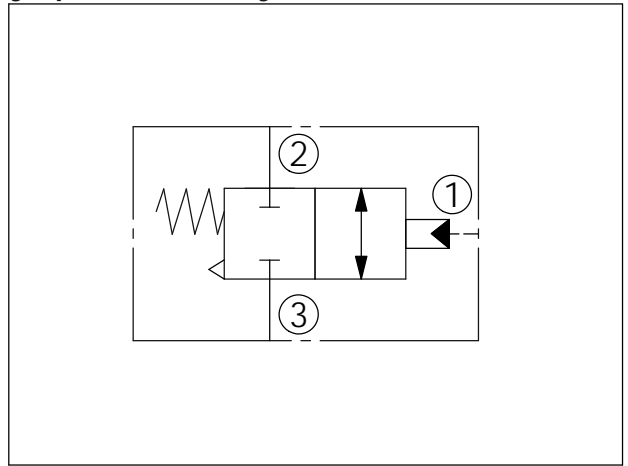
③

②

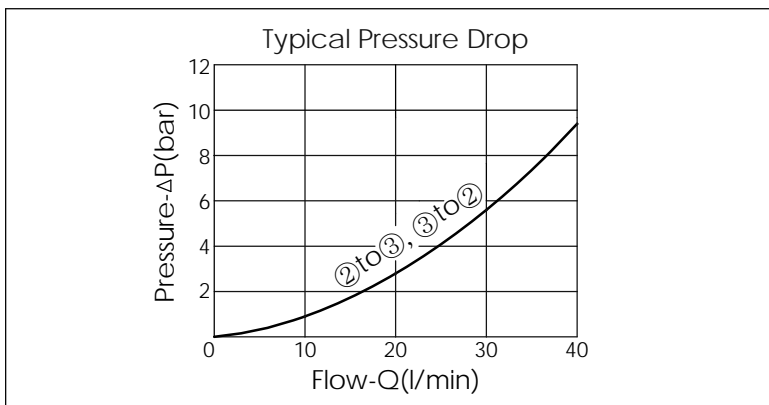
①

X:33 (Without sealed pilot)

UNIT:mm



TECHNICAL DATA		
Max. pressure:	240	bar
Rated flow:	38	l/min
Cavity-Tooling:	10W-3	
Installation torque:	35-45	Nm
Weight:	0.15	kg



X	OPERATION	
33	Normally Closed (Port 1 spool without sealed pilot)	
3C	Normally Closed (Port 1 spool with sealed pilot)	

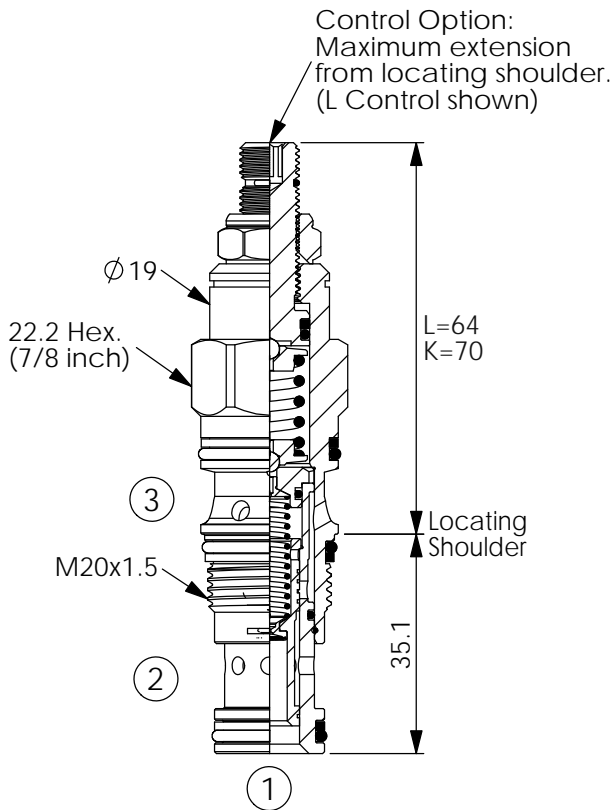
• Maximum Leakage (82 cc/min./210 bar) (46 cSt, 40°C)

Y	SPRINGS	
	Cracking pressure	
41	4.1 bar	
76	7.6 bar	

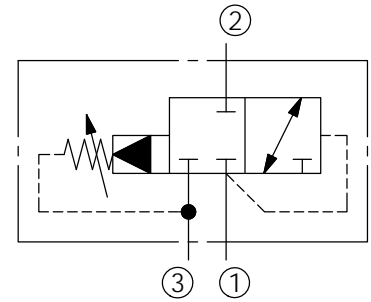
Z	OPTIONS	
N	Non-adjustable	

(2-Way, 2-Position, Pilot Operated, With Internal Drain To Port 3, Normally Closed)

Ordering Code: **DP-11A-X-Y-Z**



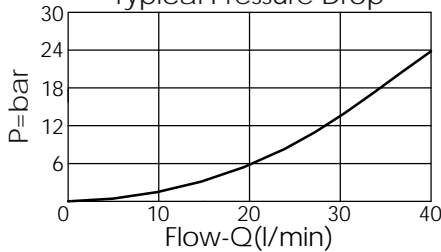
UNIT:mm



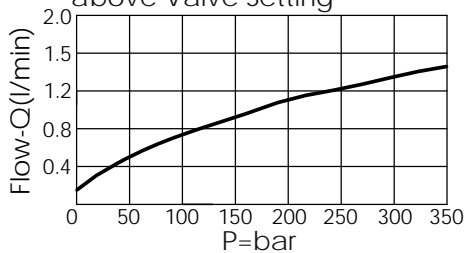
TECHNICAL DATA

Max. Setting:	420	bar
Rated flow:	28	l/min
Cavity-Tooling:	11A-3	
Installation torque:	40-50	Nm
Weight:	0.15	kg

Typical Pressure Drop



Pilot Oil Flow vs. Load Pressure above Valve Setting



X OPERATION

3N Normally closed. When Port ① pilot, Port ② to Port ③.

Maximum Leakage (14 cc/min./70 bar)
(46 cSt, 40°C)

Control Pilot Flow (0.10-0.15 L/min)

Z OPTIONS

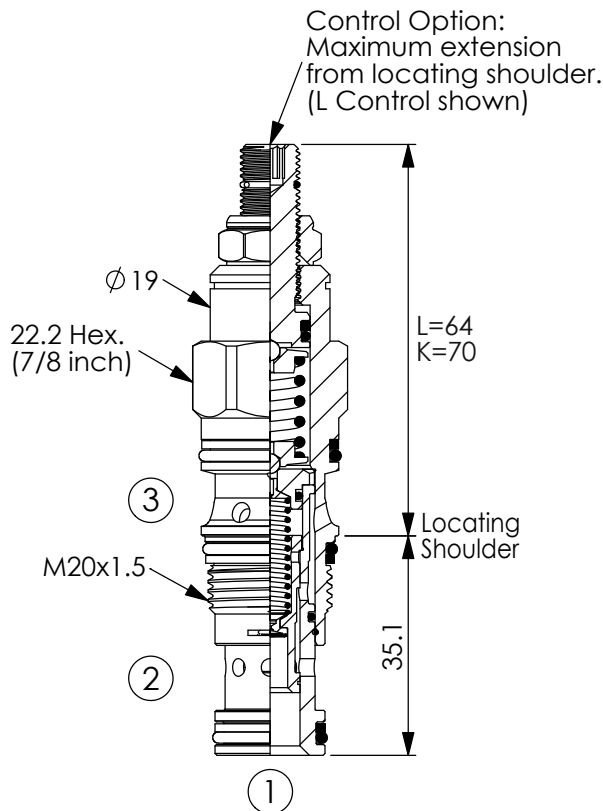
L	Leakproof hex. socket screw.	
K	Handknob with Lock Knob.	
C	Stainless Steel Tamper Resistant Cover.	

Y SPRINGS

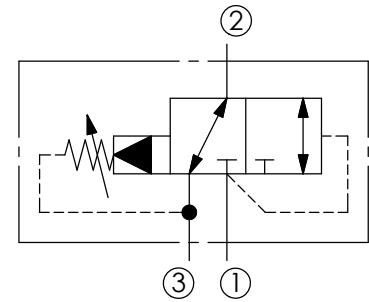
ADJUSTMENT RANGES

A	7-210 bar (70 bar Standard Setting)
B	3.5-105 bar (70 bar Standard Setting)
C	10.5-420 bar (70 bar Standard Setting)
D	1.7-55 bar (28 bar Standard Setting)
E	1.7-28 bar (14 bar Standard Setting)
K	5-105 bar (70 bar Standard Setting)
W	10.5-315 bar (70 bar Standard Setting)

Ordering Code: **DP-11A-X-Y-Z**



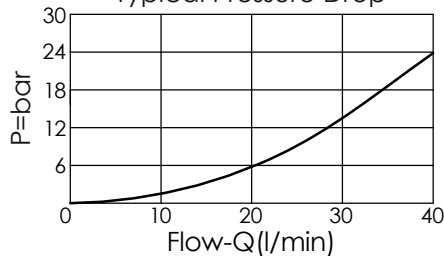
UNIT:mm



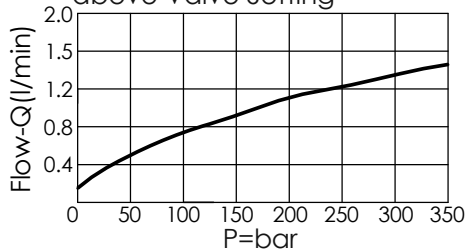
TECHNICAL DATA

Max. Setting:	420	bar
Rated flow:	28	l/min
Cavity-Tooling:	11A-3	
Installation torque:	40-50	Nm
Weight:	0.15 (Z:L)	kg

Typical Pressure Drop



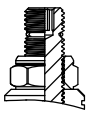
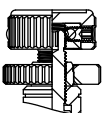
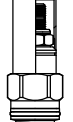
Pilot Oil Flow vs. Load Pressure
above Valve Setting



X OPERATION

3Q	Port ② to Port ③ → Port ① to Port ②
<ul style="list-style-type: none"> Maximum Leakage (14 cc/min./70 bar) (46 cSt, 40°C) Control Pilot Flow (0.10-0.15 L/min) 	

Z OPTIONS

L	Leakproof hex. socket screw.	
K	Handknob with Lock Knob.	
C	Stainless Steel Tamper Resistant Cover.	

Y SPRINGS

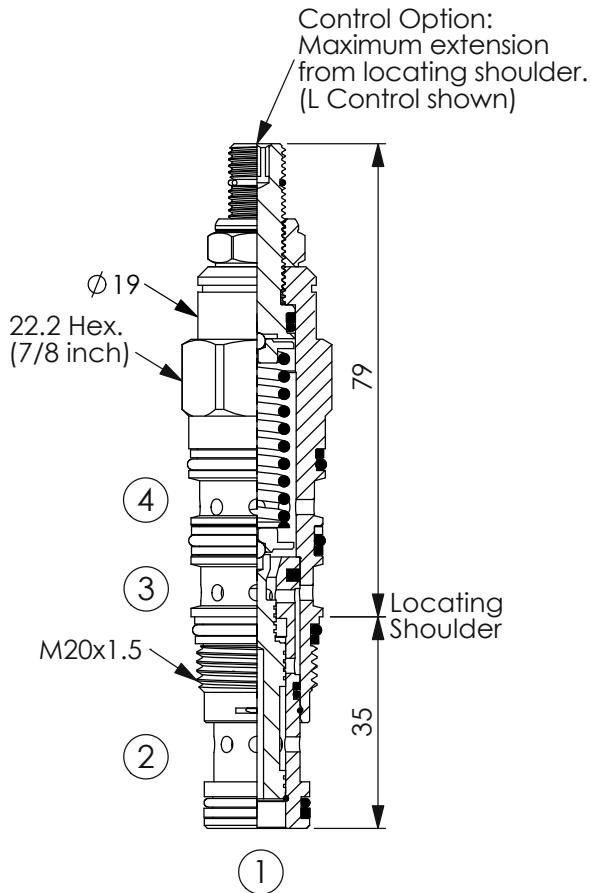
ADJUSTMENT RANGES

A	7-210 bar (70 bar Standard Setting)
B	3.5-105 bar (70 bar Standard Setting)
C	10.5-420 bar (70 bar Standard Setting)
D	1.7-55 bar (28 bar Standard Setting)
E	1.7-28 bar (14 bar Standard Setting)
K	5-105 bar (70 bar Standard Setting)
W	10.5-315 bar (70 bar Standard Setting)

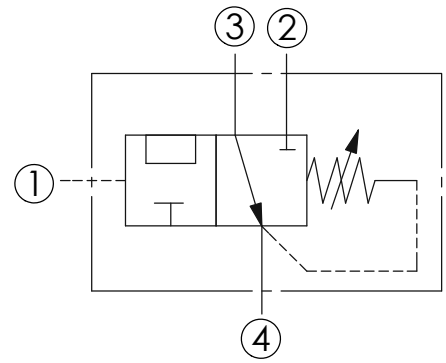
DIRECTIONAL VALVE

(3-Way, 2-Position Direct Acting, External Drain)

Ordering Code: **DD-21A-X-Y-Z**



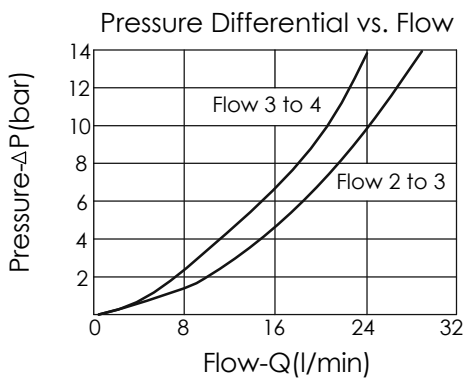
UNIT:mm



TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	28	l/min
Cavity-Tooling:	21A-4	
Installation torque:	45-50	Nm
Weight:	0.18	kg

Direct Acting, External Drain,
Port 3 to 4 open, port 2 blocked



X OPERATION

4R Direct Acting Pilot Stage

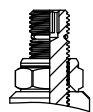
Y PRESSURE SETTING

E 1.7 to 28 bar (14 bar Standard Setting)

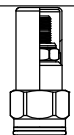
N 4 to 55 bar (25 bar Standard Setting)

Z OPTIONS

L Leakproof hex. socket screw.

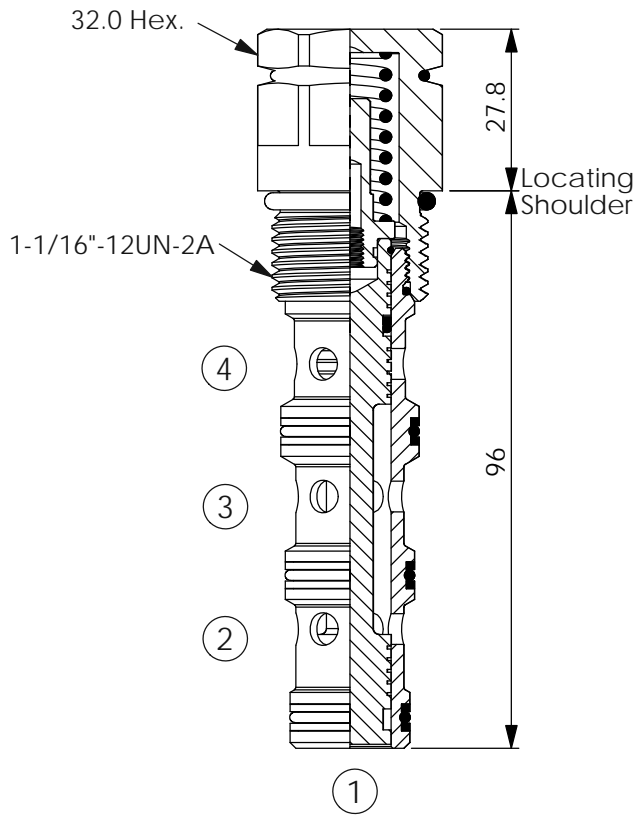


C Stainless Steel Tamper Resistant Cover.

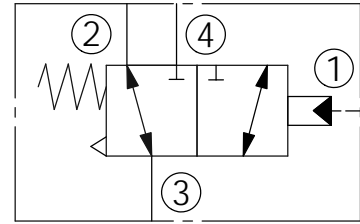


DIRECTIONAL VALVE (Piloted 3-Way Spool, External Vent)

Ordering Code: **DD-12W-X-Y-Z**

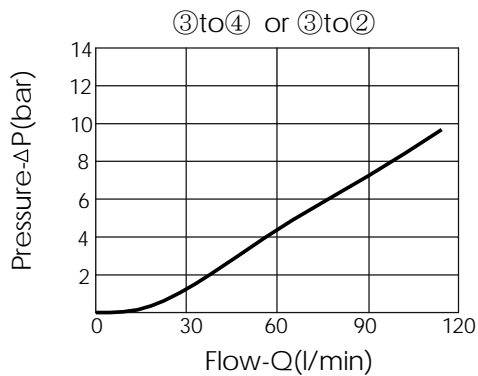


UNIT:mm



TECHNICAL DATA

Max. pressure:	240	bar
Rated flow:	80	l/min
Cavity-Tooling:	12W-4	
Installation torque:	45-55	Nm
Weight:	0.28	kg



X OPERATION

4S External Vent

Y SPRINGS

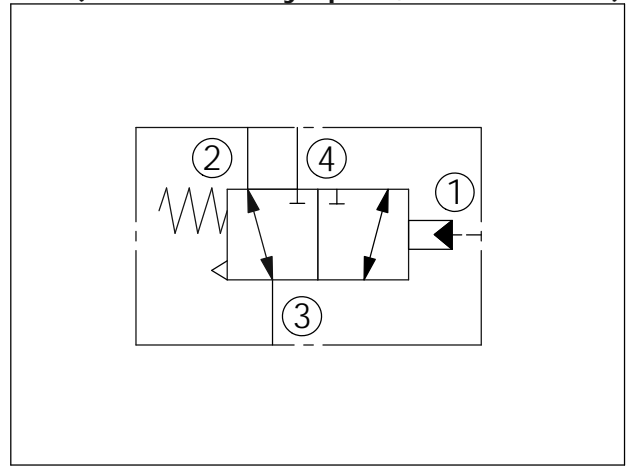
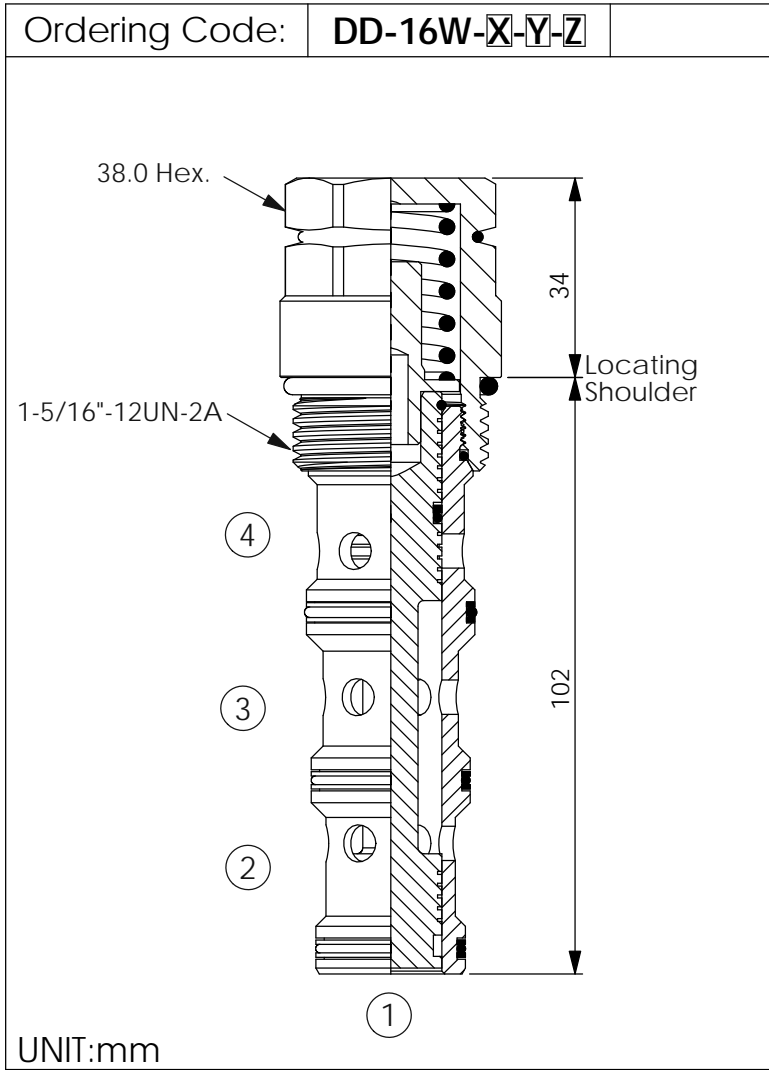
Cracking pressure

70 7.0 bar

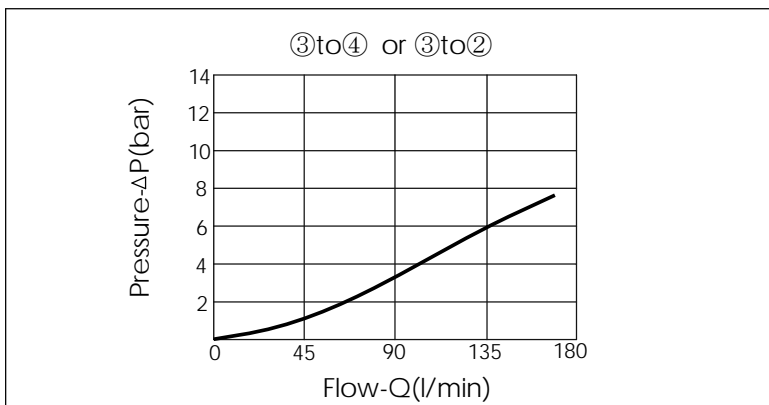
Z OPTIONS

N Non-adjustable

DIRECTIONAL VALVE (Piloted 3-Way Spool, External Vent)



TECHNICAL DATA		
Max. pressure:	240	bar
Rated flow:	170	l/min
Cavity-Tooling:	16W-4	
Installation torque:	60-70	Nm
Weight:	0.52	kg



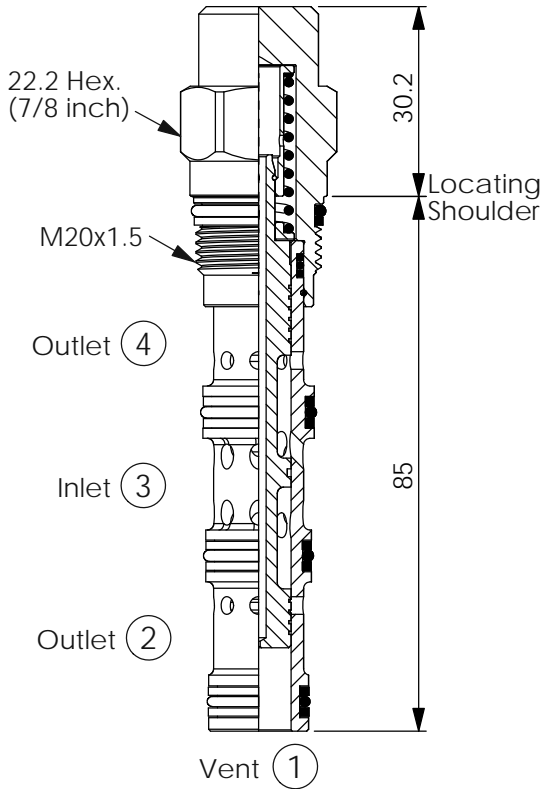
X	OPERATION	
4S	External Vent	

Y	SPRINGS	
	Cracking pressure	
70	7.0 bar	
117	11.7 bar	

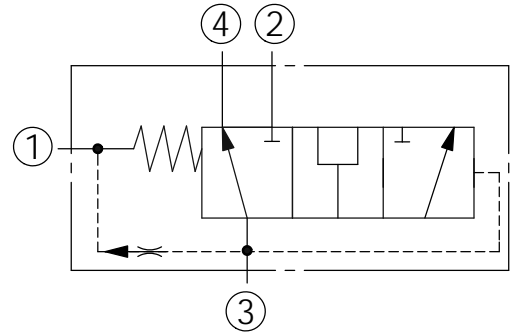
Z	OPTIONS	
N	Non-adjustable	

DIRECTIONAL VALVE (3-Way, 2-Position, Vent to Shift)

Ordering Code: **DQ-31A-X-Y-Z**

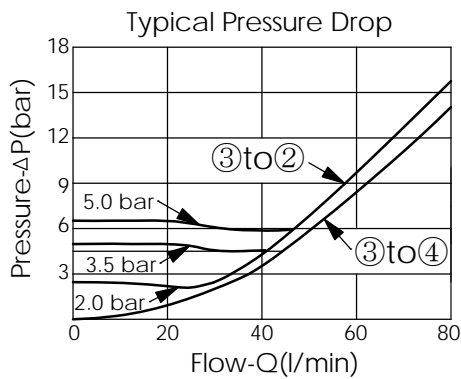


UNIT:mm



TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	60	l/min
Cavity-Tooling:	31A-4	
Installation torque:	40-50	Nm
Weight:	0.17	kg
Nominal Vent Flow(0.38 l/min.)		



X OPERATION

41 Vent to shift
Normally Open Diverter

Z OPTIONS

N Non-adjustable

Y SPRINGS

Cracking pressure

20 2.0 bar

35 3.5 bar

50 5.0 bar

DIRECTIONAL VALVE (3-Way, 2-Position, Vent to Shift)

Ordering Code: **DQ-32A-X-Y-Z**

28.5 Hex.
(1 1/8 inch)

33.3

1.00-14UNS-2A

Locating Shoulder

92.1

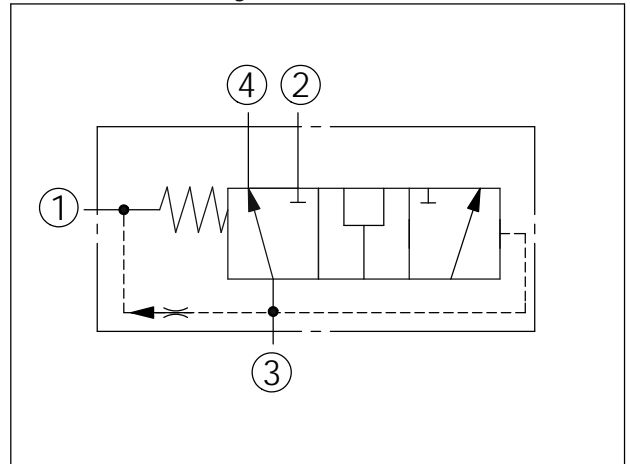
Outlet (4)

Inlet (3)

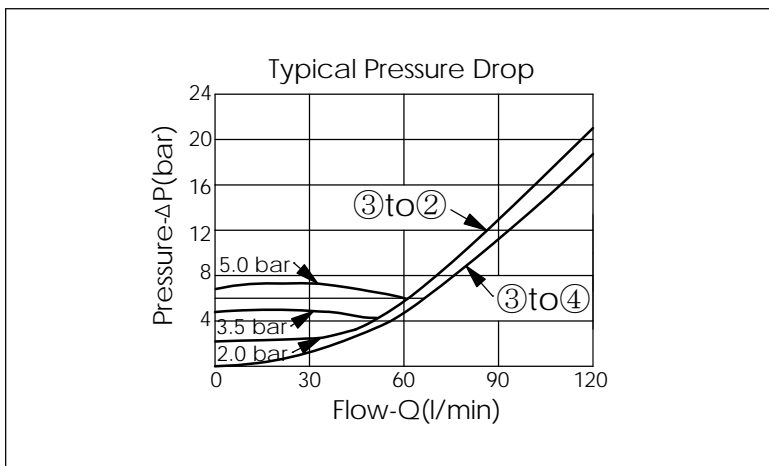
Outlet (2)

Vent (1)

UNIT:mm



TECHNICAL DATA		
Max. pressure:	350	bar
Rated flow:	120	l/min
Cavity-Tooling:	32A-4	
Installation torque:	60-70	Nm
Weight:	0.31	kg
Nominal Vent Flow(0.38 l/min.)		

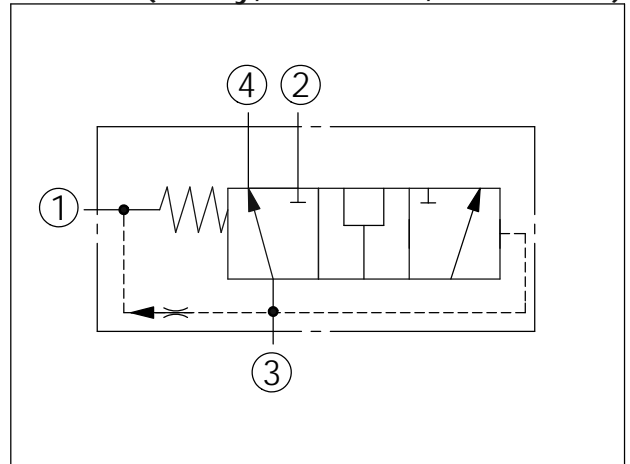
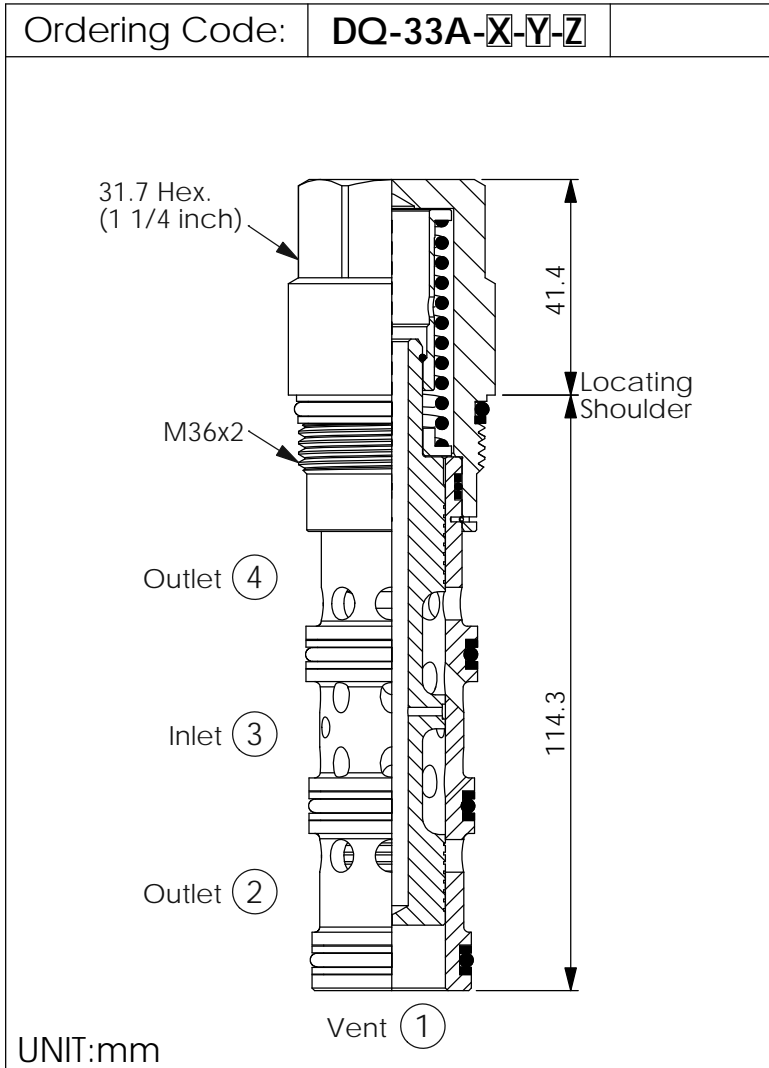


X	OPERATION	
41	Vent to shift	
	Normally Open Diverter	

Y	SPRINGS	
	Cracking pressure	
20	2.0 bar	
35	3.5 bar	
50	5.0 bar	

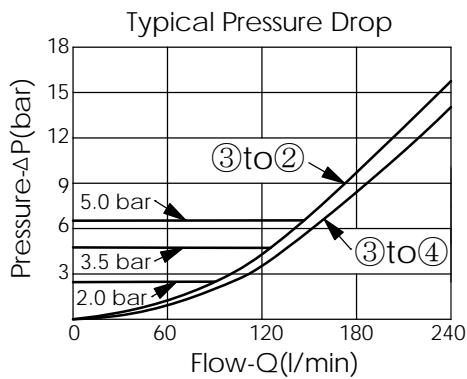
Z	OPTIONS	
N	Non-adjustable	

DIRECTIONAL VALVE (3-Way, 2-Position, Vent to Shift)



TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	240	l/min
Cavity-Tooling:	33A-4	
Installation torque:	200-215	Nm
Weight:	0.73	kg
Nominal Vent Flow(0.6 l/min.)		



X OPERATION

41 Vent to shift
Normally Open Diverter

Z OPTIONS

N Non-adjustable

Y SPRINGS

Cracking pressure

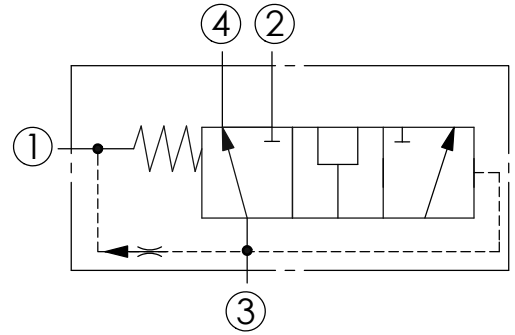
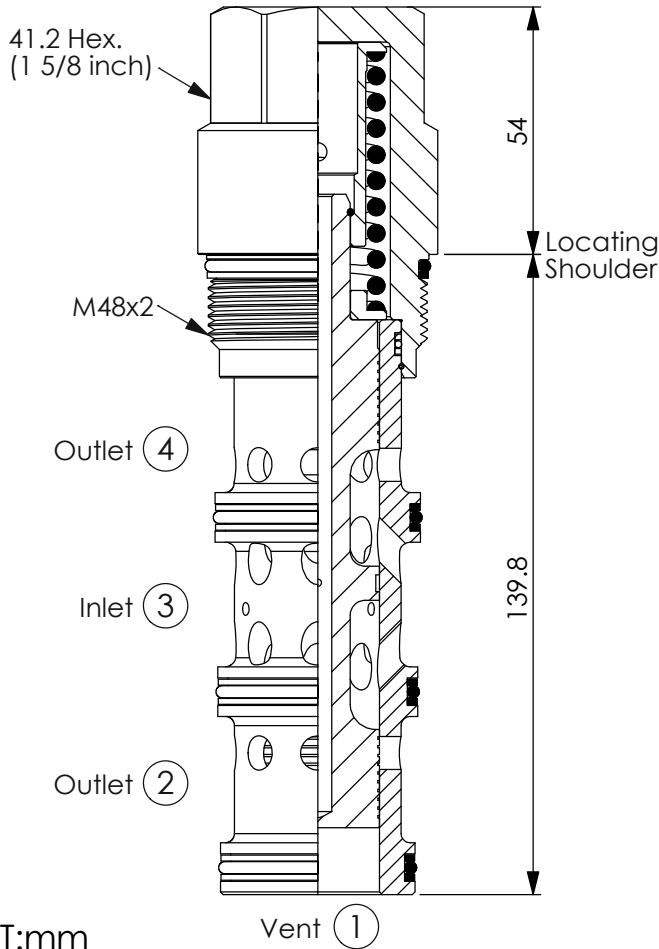
20 2.0 bar

35 3.5 bar

50 5.0 bar

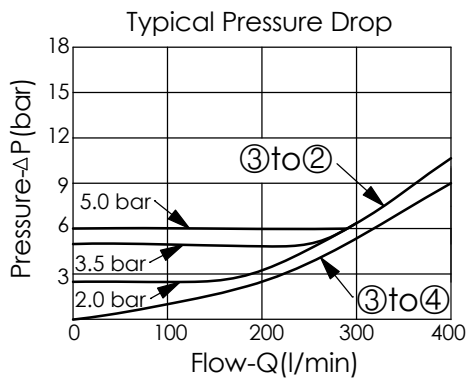
DIRECTIONAL VALVE (3-Way, 2-Position, Vent to Shift)

Ordering Code: **DQ-34A-X-Y-Z**



TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	480	l/min
Cavity-Tooling:	34A-4	
Installation torque:	465-500	Nm
Weight:	1.60	kg
Nominal Vent Flow(0.6 l/min.)		



X OPERATION

41 Vent to shift
Normally Open Diverter

Z OPTIONS

N Non-adjustable

Y SPRINGS

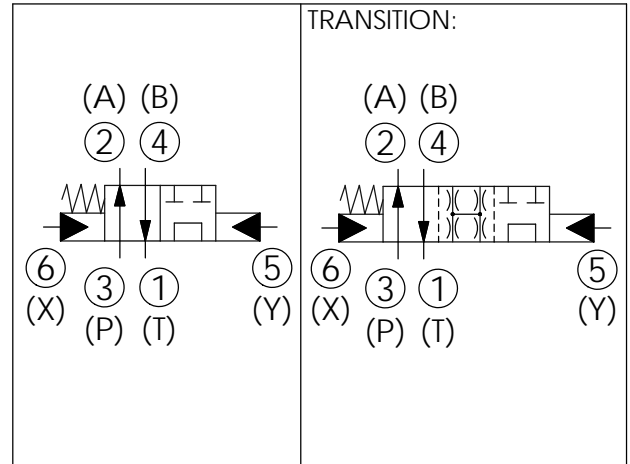
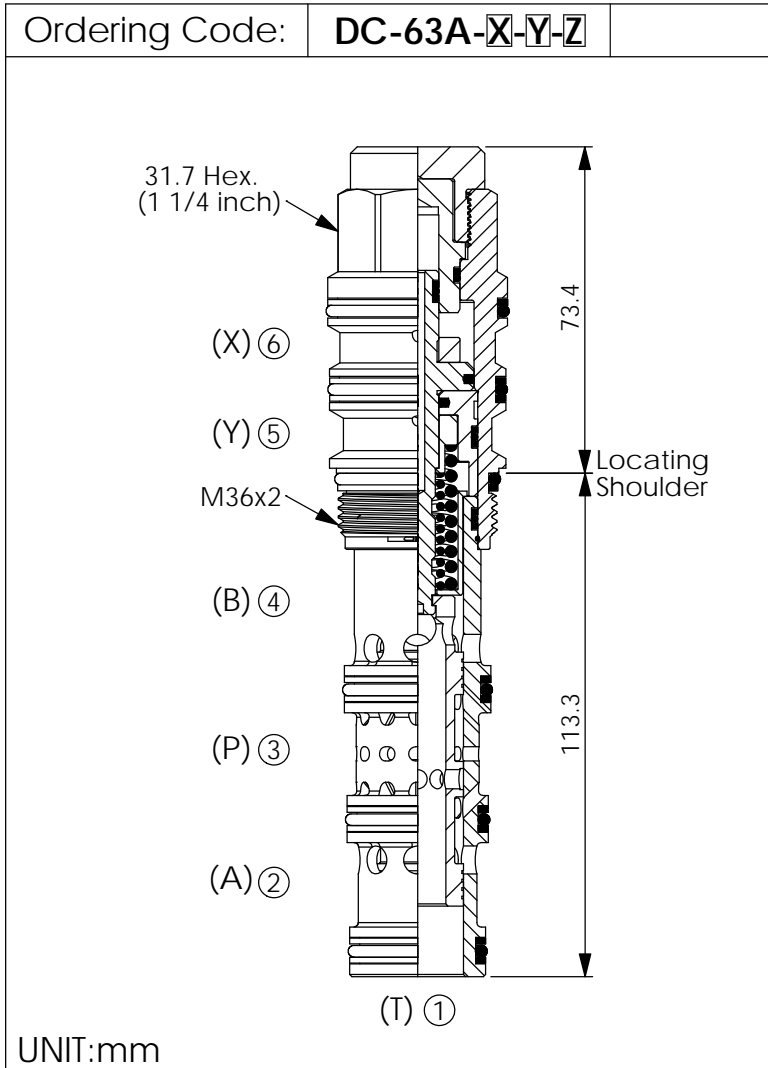
Cracking pressure

20 2.0 bar

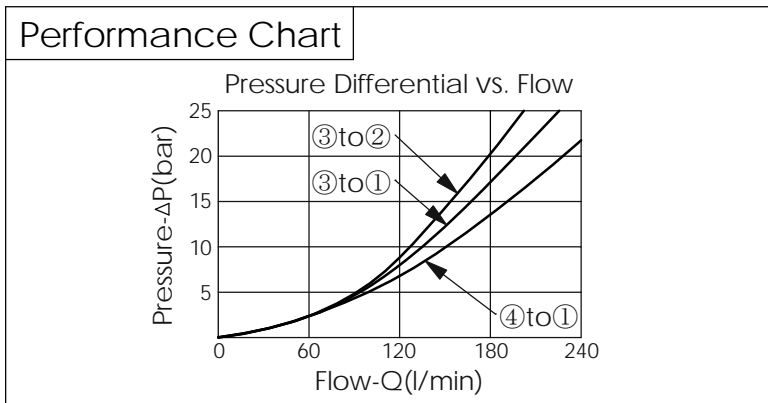
35 3.5 bar

50 5.0 bar

DIRECTIONAL VALVE (4-Way, 2-Position Spool, Pilot-to-shift)



TECHNICAL DATA	
Max. pressure:	350 bar
Rated flow:	95-380 l/min (Refer To Performance Chart)
Cavity-Tooling:	63A-6
Installation torque:	200-215 Nm
Weight:	0.85 kg
<ul style="list-style-type: none"> • Minimum Pilot Pressure Required to Shift Valve : 9 bar. • Maximum Leakage (30 cc/min./70 bar) (46 cSt, 40°C) • All ports will accept 350 bar. 	

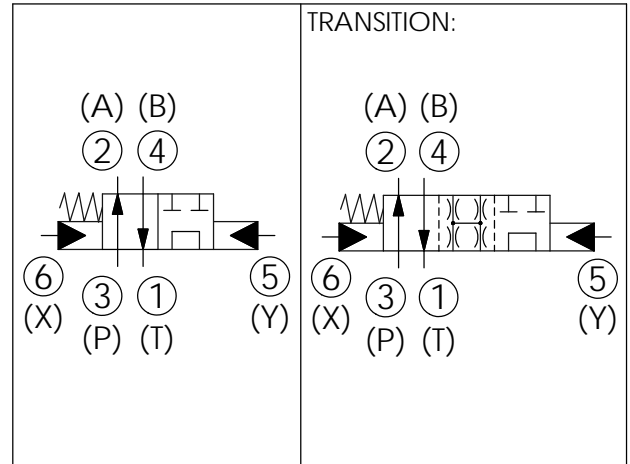
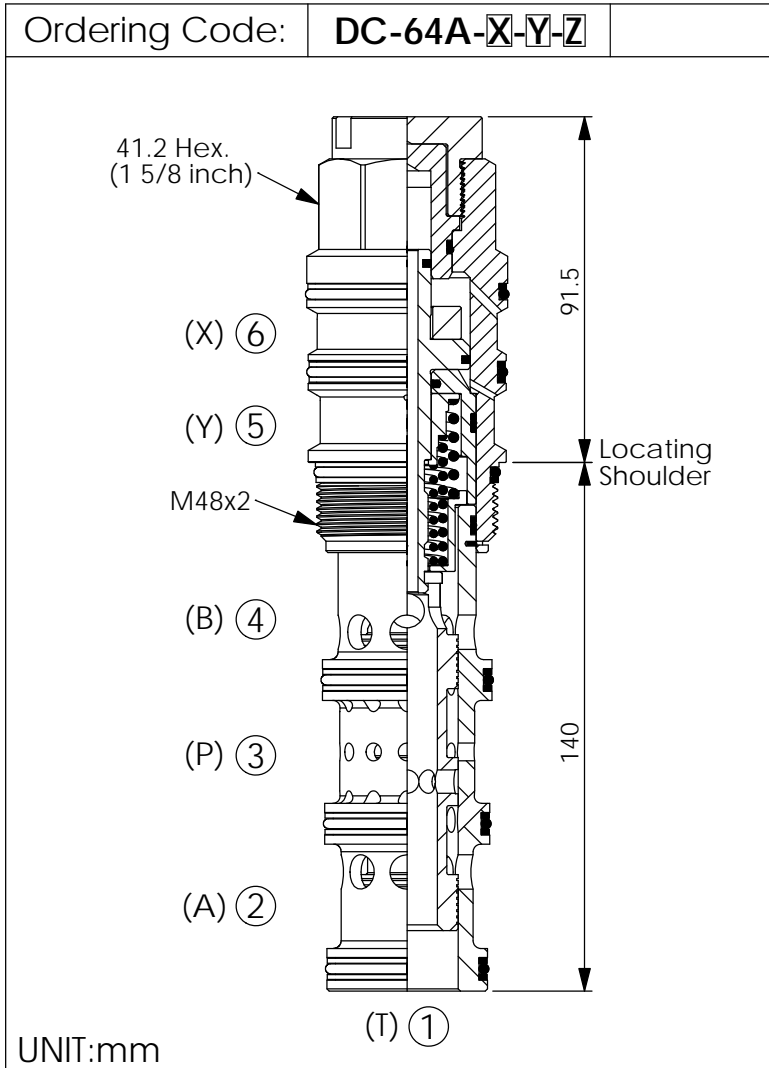


X	OPERATION	
6E	Pilot-to-shift	

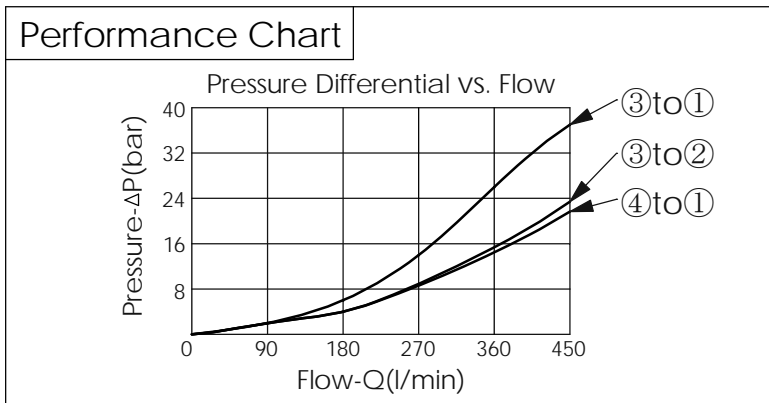
Y	PORT ⑤ PILOT, SHIFT TO TANDEM CENTRE	
18	Tandem Centre	

Z	OPTIONS	
N	Non-adjustable	

DIRECTIONAL VALVE (4-Way, 2-Position Spool, Pilot-to-shift)



TECHNICAL DATA	
Max. pressure:	350 bar
Rated flow:	200-760 l/min (Refer To Performance Chart)
Cavity-Tooling:	64A-6
Installation torque:	465-500 Nm
Weight:	1.89 kg
<ul style="list-style-type: none"> • Minimum Pilot Pressure Required to Shift Valve : 9 bar. • Maximum Leakage (30 cc/min./70 bar) (46 cSt, 40°C) • All ports will accept 350 bar. 	

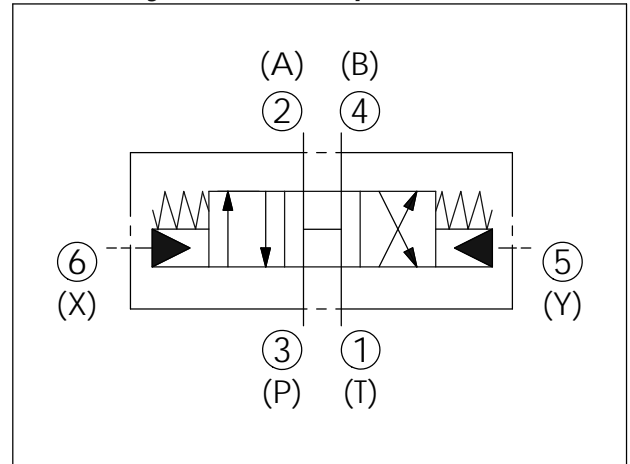
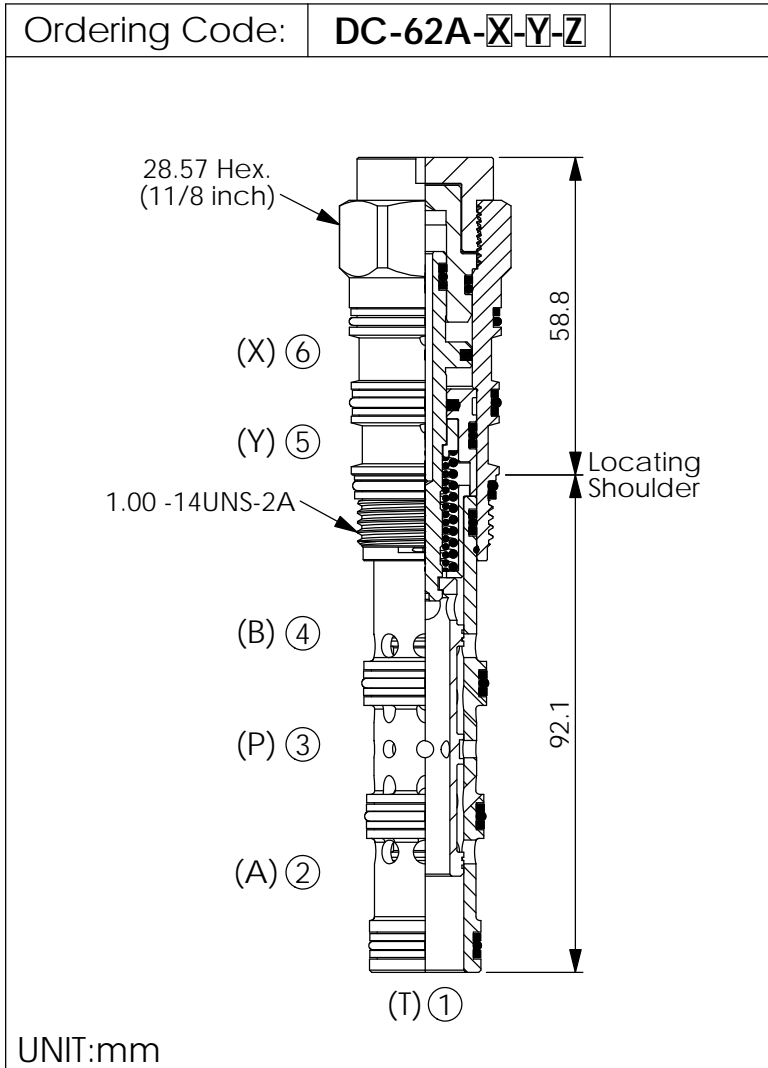


X	OPERATION	
6E	Pilot-to-shift	

Y	PORT ⑤ PILOT, SHIFT TO TANDEM CENTRE	
18	Tandem Centre	

Z	OPTIONS	
N	Non-adjustable	

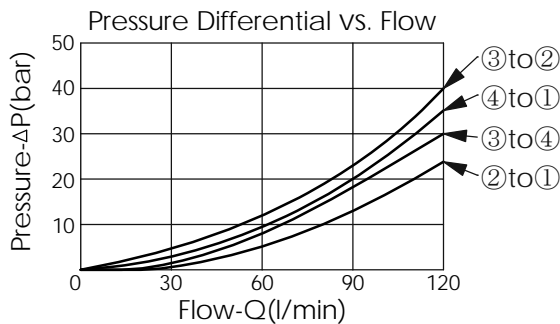
DIRECTIONAL VALVE (4-Way, 3-Position Spool, Pilot-to-shift)



TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	38-120	l/min (Refer To Performance Chart)
Cavity-Tooling:	62A-6	
Installation torque:	60-70	Nm
Weight:	0.37	kg
<ul style="list-style-type: none"> • Minimum Pilot Pressure Required to Shift Valve : 10.5 bar. • Maximum Leakage (30 cc/min./70 bar) (46 cSt, 40°C) • All ports will accept 350 bar. 		

Performance Chart



X OPERATION

6E Pilot-to-shift

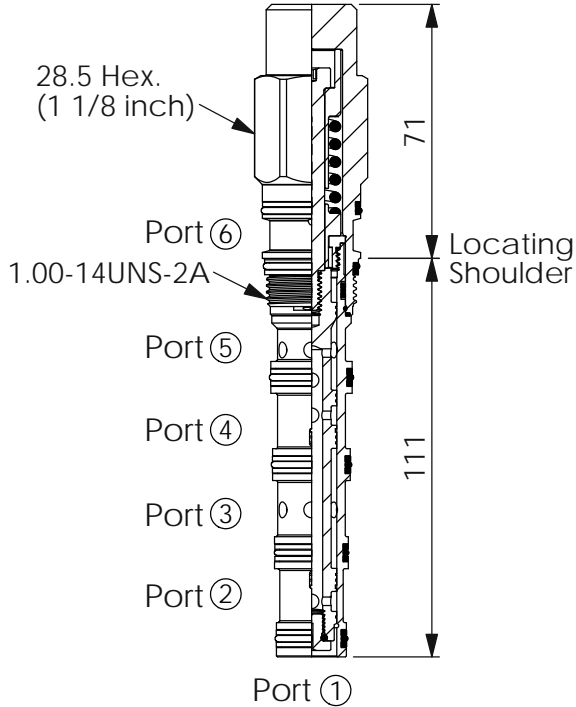
Y SPOOL CONFIGURATION

23 Open Centre

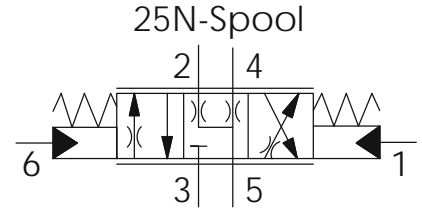
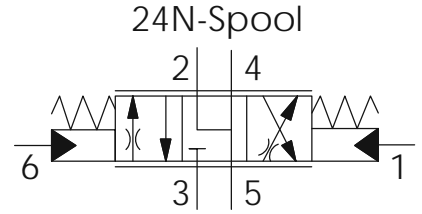
Z OPTIONS

N Non-adjustable

Ordering Code: **PDD52A-X-Y-N-Z**



UNIT:mm



TECHNICAL DATA

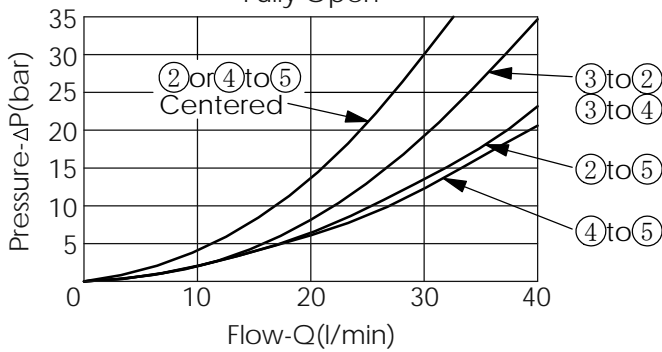
Max. pressure:	350	bar
Rated flow:	28	l/min
Cavity-Tooling:	52A-6	
Installation torque:	60-70	Nm
Weight:	0.47	kg

Minimum Pilot Pressure Required to Shift Valve: 5.5 bar.

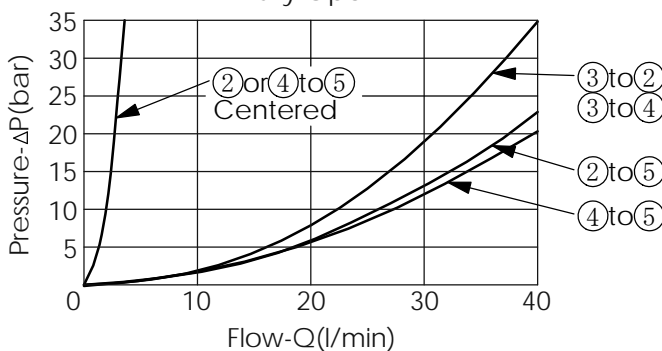
Pilot Pressure Required for Full Shift at Rated Flow: 20 bar.

Nominal operating pressures for port 1 and port 6 should not exceed 35 bar.

24N-Spool
Pressure Differential vs. Flow Fully Open



25N-Spool
Pressure Differential vs. Flow Fully Open



X STRUCTURE

6P Ports 1 and 6 Pilot

Maximum Leakage (30 cc/min./70 bar)

Y OPERATION

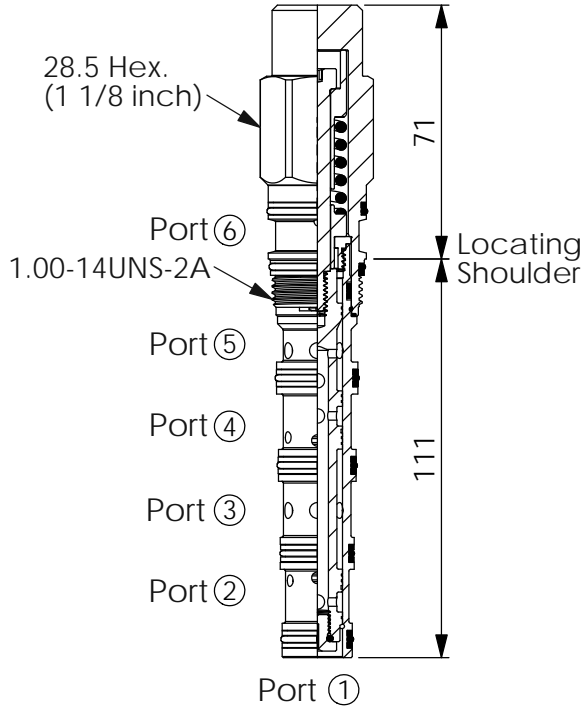
24 2 and 4 to 5 Center

25 2 and 4 Bleed to 5 Center

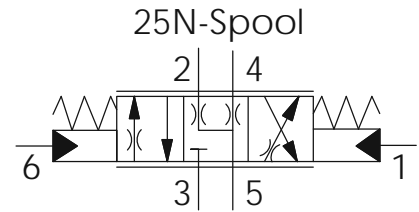
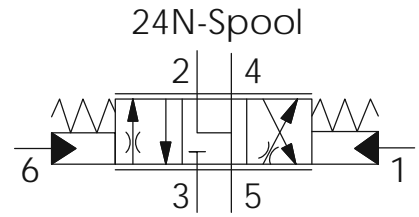
Z OPTIONS

028 28LPM

Ordering Code: **PDD52A-X-Y-N-Z**



UNIT:mm



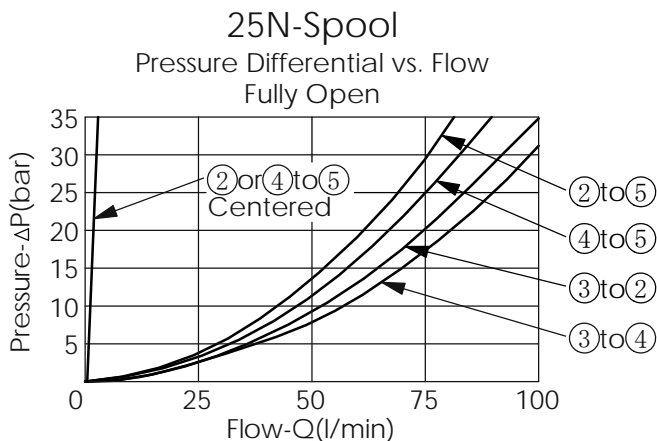
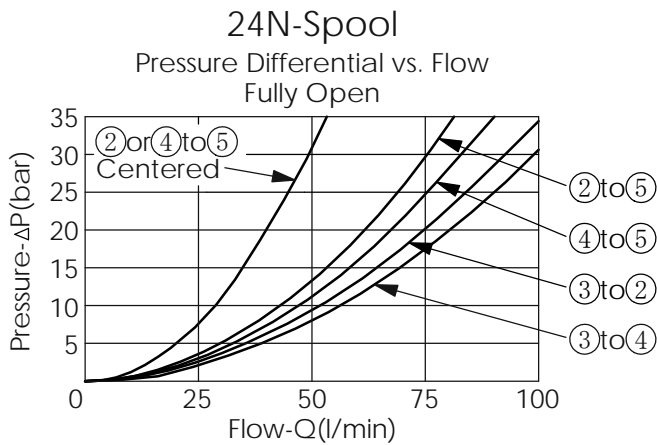
TECHNICAL DATA

Max. pressure:	350	bar
Rated flow:	70	l/min
Cavity-Tooling:	52A-6	
Installation torque:	60-70	Nm
Weight:	0.47	kg

Minimum Pilot Pressure Required to Shift Valve: 5.5 bar.

Pilot Pressure Required for Full Shift at Rated Flow: 20 bar.

Nominal operating pressures for port 1 and port 6 should not exceed 35 bar.



X STRUCTURE

6P Ports 1 and 6 Pilot

Maximum Leakage (30 cc/min./70 bar)

Y OPERATION

24 2 and 4 to 5 Center

25 2 and 4 Bleed to 5 Center

Z OPTIONS

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