

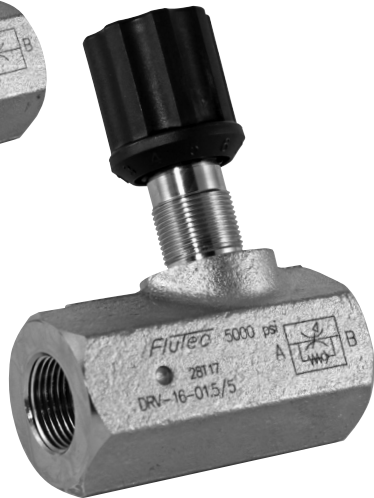
FLOW CONTROL VALVES

DV & DRV Series

Sizes 06 to 16



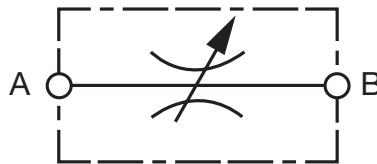
DV Series
Needle Valves
Inline Mounted



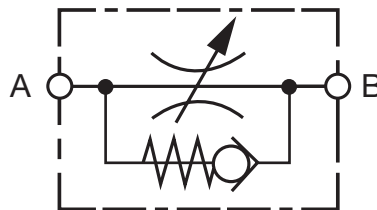
DRV Series
Flow Control Valves
Inline Mounted

Hydraulic Symbols

DV



DRV



Up to 48 gpm (180 l/min)
Up to 5000 psi (350 bar)

Description

The DV is an inline mounted flow control valve which controls the flow by adjusting the cross-section. The flow rate is therefore dependent on the pressure differential and viscosity. Starting with the throttle spindle in the fully closed position, the flow rate increases in accordance with the appropriate curve as the control knob is turned. The flow is controlled in both directions.

The scale on the lower edge of the control knob enables accurate repeat setting. The DRV is a flow control valve in the same design which also allows the same fine flow adjustment, but in one direction only. Unrestricted flow in the reverse direction is via the built-in check valve – cracking pressure 7 psi (0.5 bar).

Features

- For regulating the speed of loads
- For fine adjustment and shut-off of the flow
- For system-related damping in hydraulic circuits
- To release pressure from accumulator systems
- As an emergency drain for lowering a load without a dead man's circuit
- Spindle patented secured before complete loosening
- An Allen set-screw locks the setting of the knob
- Choice of five sizes ensures best possible adaptability to the system
- Drop forged housings with high safety factor
- Zinc plated housing (*standard*)

Technical Specifications

Operating pressure:	max. 5000 psi (350 bar)
Nominal flow:	
DV, DRV-06	max. 5 gpm (20 l/min)
DV, DRV-08	max. 13 gpm (50 l/min)
DV, DRV-10	max. 16 gpm (60 l/min)
DV, DRV-12	max. 24 gpm (90 l/min)
DV, DRV-16	max. 48 gpm (180 l/min)
Cracking Pressure (on DRV):	7 psi (0.5 bar)
Media Operating Temp. Range:	-4°F to 212°F (-20°C to 100°C)
Ambient Temp Range:	-4°F to 212°F (-20°C to 100°C)
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 & 2
Viscosity range:	min. 2.8 mm ² /s to max. 800 mm ² /s
Filtration:	Class 21/19/16 according to ISO 4406 or cleaner
Installation:	No orientation restrictions, preferably horizontal
Materials:	
Valve Body:	Steel
Piston:	Hardened and ground steel
Seals:	FKM (<i>standard</i>)
Back-up Rings:	PTFE
Weight:	
DV 06 = 0.21 lbs (0.10 kg)	DRV 06 = 0.23 lbs (0.10 kg)
DV 08 = 0.57 lbs (0.26 kg)	DRV 08 = 0.61 lbs (0.28 kg)
DV 10 = 0.83 lbs (0.38 kg)	DRV 10 = 0.90 lbs (0.41 kg)
DV 12 = 1.36 lbs (0.62 kg)	DRV 12 = 1.42 lbs (0.64 kg)
DV 16 = 2.28 lbs (1.04 kg)	DRV 16 = 2.51 lbs (1.14 kg)

Model Code

DRV - 08 - 01 . X / 0 25 S

Flow Control Valve

- DV = Needle valve
- DRV = Needle valve with reverse flow check

Nominal Sizes

06, 08, 10, 12, 16

Type

- 01 = standard, housing zinc-plated
 - 11 = housing zinc-plated, fine throttle spindle in stainless steel (*BSP standard*)
 - 12 = housing zinc-nickel coated (*seawater-resistant*), fine throttle spindle in steel with protective dome nut - adjustment with tool (*BSP standard*)
 - 30 = housing stainless steel (*BSP standard*)
- Other types available on request.*

Series (to be determined by manufacturer)

Threaded connection

- 0 = BSP thread, Form X to DIN 3852 Part 2
- 5 = NPT thread
- 12 = UNF thread

Cracking Pressure (for DRV Series only)

- (omit) = 7 psi standard
- 25 = 25 psi optional
- 65 = 65 psi optional

Supplementary Details

- S = Panel mounting kit

Model Codes containing RED are non-standard items

- Minimum quantities may apply

- Contact HYDAC for information and availability

- Not all combinations are available

Standard Models

Type	Code	Part No.
1/8" NPT	DV-06-01.X/5	705006
1/4" NPT	DV-08-01.X/5	705018
3/8" NPT	DV-10-01.X/5	705030
1/2" NPT	DV-12-01.X/5	705042
3/4" NPT	DV-16-01.X/5	705054
-4 SAE	DV-08-01.X/12	705022
-6 SAE	DV-10-01.X/12	705034
-8 SAE	DV-12-01.X/12	705046
-12 SAE	DV-16-01.X/12	705058
1/8" NPT	DRV-06-01.X/5	705506
1/4" NPT	DRV-08-01.5/5	705518
3/8" NPT	DRV-10-01.X/5	705530
1/2" NPT	DRV-12-01.X/5	705542
3/4" NPT	DRV-16-01.X/5	705554
-4 SAE	DRV-08-01.X/12	705522
-6 SAE	DRV-10-01.X/12	705534
-8 SAE	DRV-12-01.X/12	705546
-12 SAE	DRV-16-01.X/12	705558

Other models on request

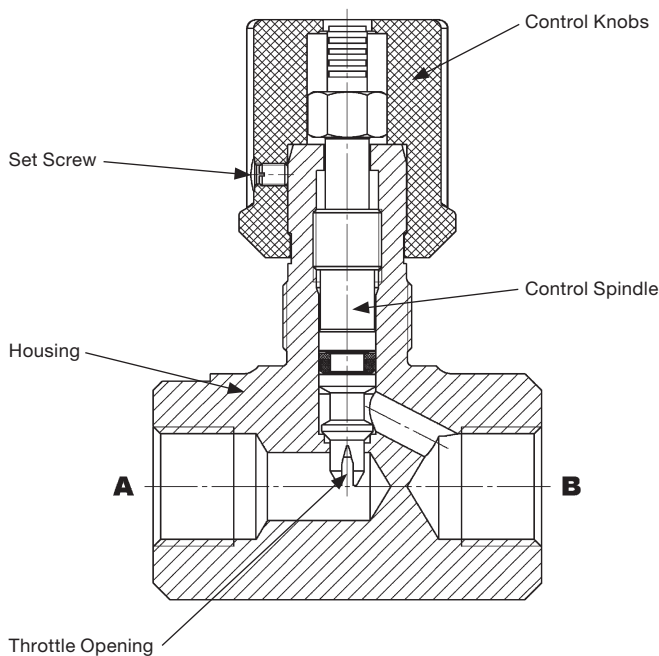
Accessories

Panel mounting sets, nickel-plated, consisting of locking washer, disc and hex nut.

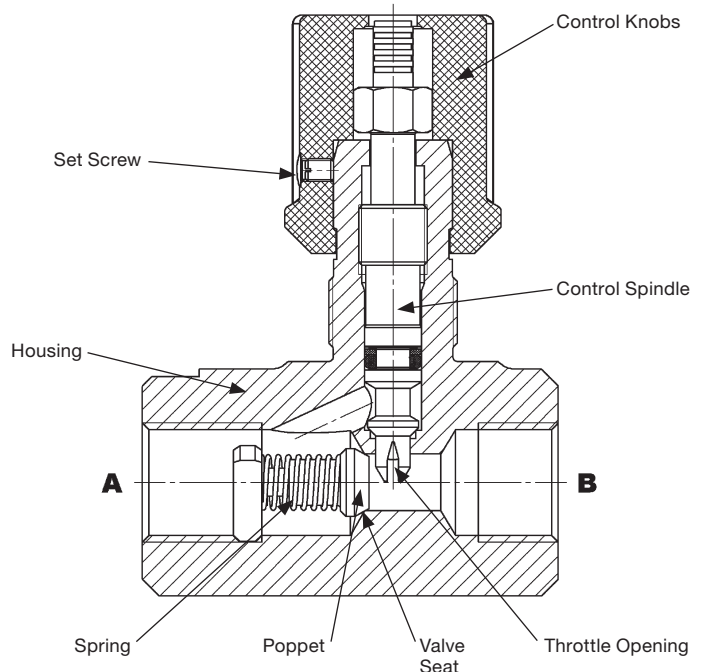
Size	Part No.
06	705300
08	705310
10	705310
12	705311
16	705311

Function

DV



DRV



FLOW CONTROL VALVES

Performance

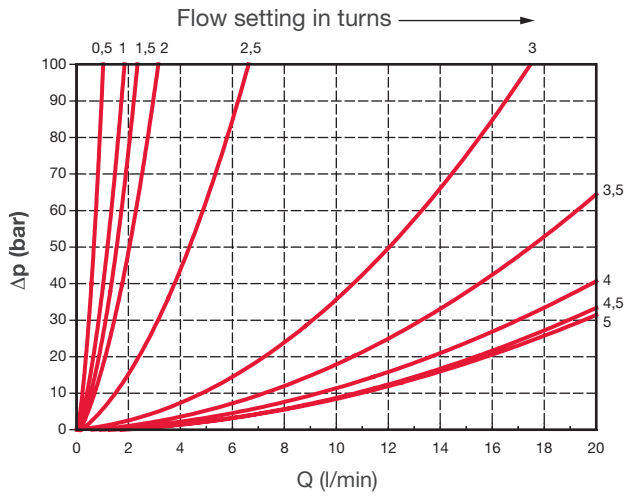
Pressure drop, dependent on flow rate

DV = flow direction A → B and B → A

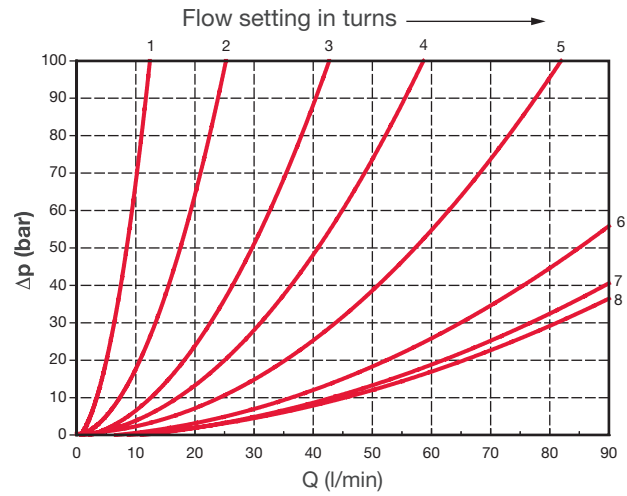
DRV = flow direction A → B

Pressure differential Δp measured against flow rate Q , measured at constant flow setting, $v = 53 \text{ mm}^2/\text{s}$ and $T_{\text{oil}} = 36 \text{ }^\circ\text{C}$

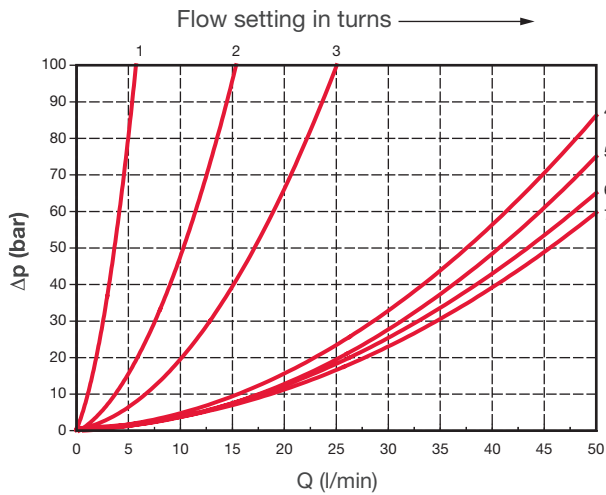
DV-06-01.3/0 A → B



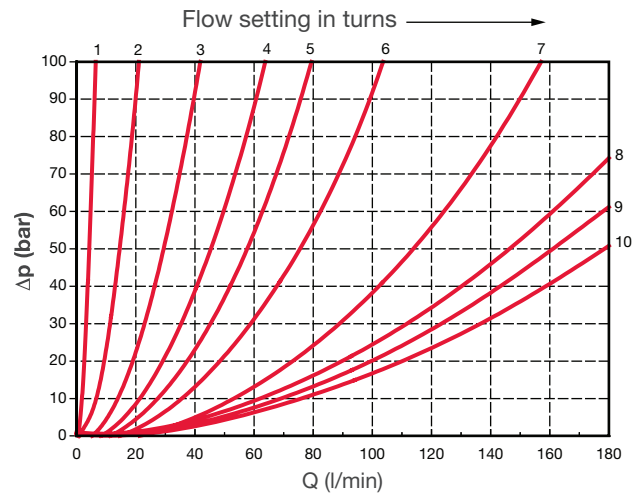
DV-12-01.3/0 A → B



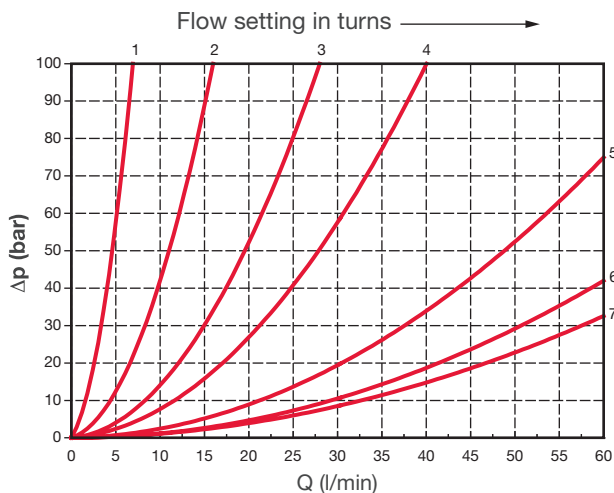
DV-08-01.3/0 A → B



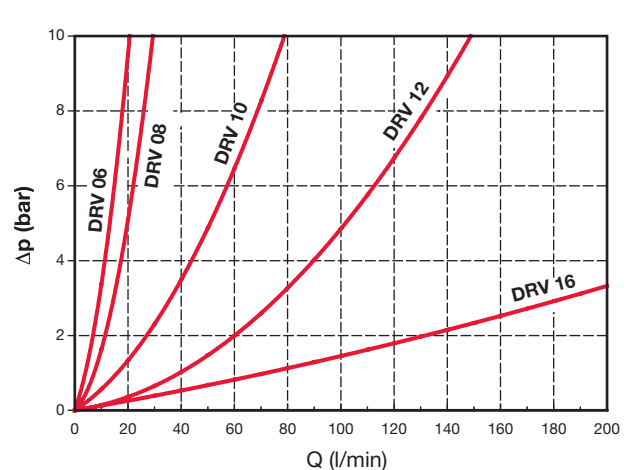
DV-16-01.3/0 A → B



DV-10-01.3/0 A → B



DRV-06-16 B → A

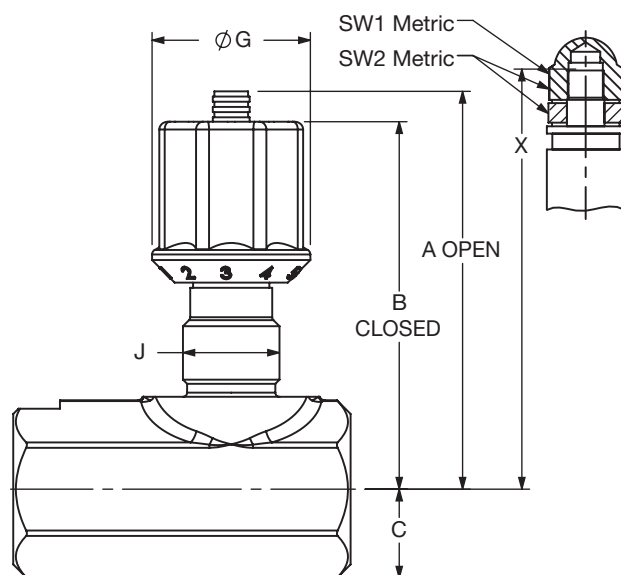
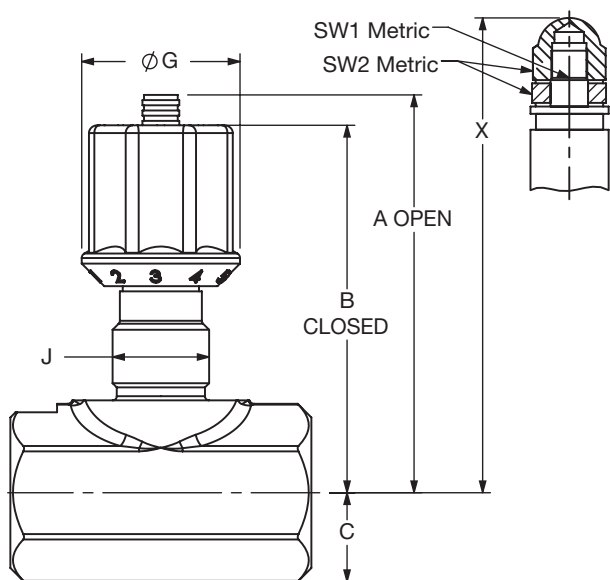
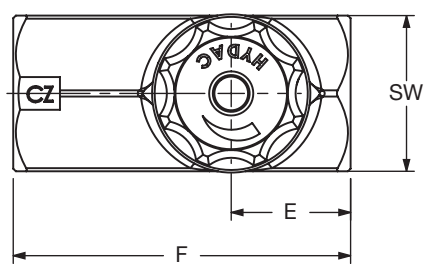
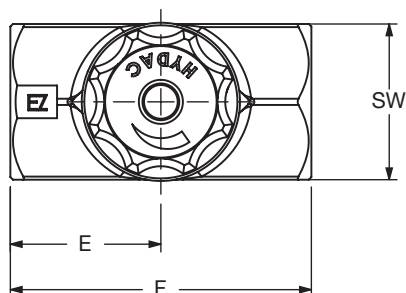


Pressure Drop curves were established by using mineral oil with kinematic viscosity 165 SUS at 112°F / 50°C

Dimensions

DV Sizes 06 to 16

DRV Sizes 06 to 16



Size	NPT	BSP	SAE	A	B	C	SW	E
6	1/8"	G1/8"		2.24 (57.0)	2.08 (52.9)	0.35 (9.0)	0.63 (16)	0.75 (19)
8	1/4"	G1/4"	-4 (7/16"-20)	2.77 (70.4)	2.53 (64.3)	0.56 (14.2)	0.98 (25)	0.94 (24)
10	3/8"	G3/8"	-6 (9/16"-18)	3.02 (76.6)	2.79 (70.8)	0.70 (17.7)	1.18 (30)	1.14 (29)
12	1/2"	G1/2"	-8 (3/4"-16)	3.51 (89.2)	3.24 (82.3)	0.79 (20.0)	1.38 (35)	1.34 (34)
16	3/4"	G3/4"	-12 (1-1/6"-12)	4.18 (106.2)	3.83 (97.3)	1.01 (25.7)	1.77 (45)	1.54 (39)

Size	NPT	BSP	SAE	A	B	C	SW	E
6	1/8"	G1/8"		2.24 (57.0)	2.08 (52.9)	0.35 (9.0)	0.63 (16)	1.13 (29)
8	1/4"	G1/4"	-4 (7/16"-20)	2.77 (70.4)	2.53 (64.3)	0.56 (14.2)	0.98 (25)	1.34 (34)
10	3/8"	G3/8"	-6 (9/16"-18)	3.02 (76.6)	2.79 (70.8)	0.70 (17.7)	1.18 (30)	1.65 (42)
12	1/2"	G1/2"	-8 (3/4"-16)	3.51 (89.2)	3.24 (82.3)	0.79 (20.0)	1.38 (35)	1.73 (44)
16	3/4"	G3/4"	-12 (1-1/6"-12)	4.18 (106.2)	3.83 (97.3)	1.01 (25.7)	1.77 (45)	2.24 (57)

Size	F	ØG	J*	SW1	SW2	X	Wt.
6	1.50 (38)	0.99 (25)	Pg7	0.12 (3)	0.39 (10)	2.31 (58.6)	0.21 (0.10)
8	1.89 (48)	1.20 (31)	Pg11	0.16 (4)	0.51 (13)	2.85 (72.3)	0.57 (0.26)
10	2.28 (58)	1.20 (31)	Pg11	0.16 (4)	0.51 (13)	3.10 (78.8)	0.83 (0.38)
12	2.68 (68)	1.50 (38)	Pg16	0.20 (5)	0.67 (17)	3.52 (89.3)	1.36 (0.62)
16	3.07 (78)	1.50 (38)	Pg16	0.24 (6)	0.75 (19)	4.38 (111.3)	2.28 (1.04)

Size	F	ØG	J*	SW1	SW2	X	Wt.
6	1.77 (45)	0.99 (25)	Pg7	0.12 (3)	0.39 (10)	2.31 (58.6)	0.23 (0.10)
8	2.17 (55)	1.20 (31)	Pg11	0.16 (4)	0.51 (13)	2.85 (72.3)	0.61 (0.28)
10	2.56 (65)	1.20 (31)	Pg11	0.16 (4)	0.51 (13)	3.10 (78.8)	0.90 (0.41)
12	2.87 (73)	1.50 (38)	Pg16	0.20 (5)	0.67 (17)	3.52 (89.3)	1.42 (0.64)
16	3.46 (88)	1.50 (38)	Pg16	0.24 (6)	0.75 (19)	4.38 (111.3)	2.51 (1.14)

*Pg style thread per DIN 40430

Notes:

1. Dimensions are in inches (mm) and lbs (kg).

2. Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

FLOW CONTROL VALVES

DV & DRV Series

Sizes 20 to 40

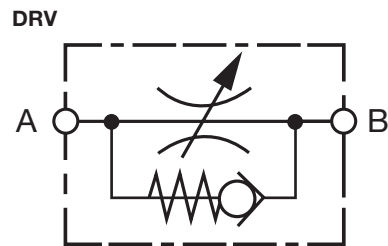
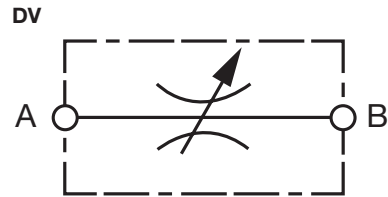


DV Series
Needle Valves
Inline Mounted



DRV Series
Flow Control Valves
Inline Mounted

Hydraulic Symbols



Up to 80 gpm (300 l/min)
Up to 5000 psi (350 bar)

Description

The DV is an inline mounted flow control valve which controls the flow by adjusting the cross-section. The flow rate is therefore dependent on the pressure differential and viscosity. Starting with the throttle spindle in the fully closed position, the flow rate increases in accordance with the appropriate curve as the control knob is turned. The flow is controlled in both directions.

The scale on the lower edge of the control knob enables accurate repeat setting. The DRV is a flow control valve in the same design which also allows the same fine flow adjustment, but in one direction only. Unrestricted flow in the reverse direction is via the built-in check valve – cracking pressure 7 psi (0.5 bar).

Features

- For regulating the speed of loads
- For fine adjustment and shut-off of the flow
- For system-related damping in hydraulic circuits
- To release pressure from accumulator systems
- As an emergency drain for lowering a load without a dead man's circuit
- Spindle patented secured before complete loosening
- An Allen set-screw locks the setting of the knob
- Choice of four sizes for optimum adaptability to the system
- Phosphated housing (*standard*)

Technical Specifications

Operating pressure:	max. 5000 psi (350 bar)
Nominal flow:	
DV, DRV-20	max. 80 gpm (300 l/min)
DV, DRV-25	max. 80 gpm (300 l/min)
DV, DRV-30	max. 80 gpm (300 l/min)
DV, DRV-40	max. 80 gpm (300 l/min)
Cracking Pressure (on DRV):	7 psi (0.5 bar)
Media Operating Temp. Range:	-4°F to 212°F (-20°C to 100°C)
Ambient Temp Range:	-4°F to 212°F (-20°C to 100°C)
Operating fluid:	Hydraulic oil to DIN 51524 Part 1 & 2
Viscosity range:	min. 2.8 mm ² /s to max. 800 mm ² /s
Filtration:	Class 21/19/16 according to ISO 4406 or cleaner
Installation:	No orientation restrictions, preferably horizontal
Materials:	
Valve Body:	Steel
Piston:	Hardened and ground steel
Seals:	FKM (<i>standard</i>)
Back-up Rings:	PTFE
Weight:	
DV 20 = 4.62 lbs (2.1 kg)	DRV 20 = 5.28 lbs (2.4 kg)
DV 25 = 6.16 lbs (2.8 kg)	DRV 25 = 7.7 lbs (3.5 kg)
DV 30 = 7.7 lbs (3.5 kg)	DRV 30 = 10.12 lbs (4.6 kg)
DV 40 = 12.1 lbs (5.5 kg)	DRV 40 = 16.94 lbs (7.7 kg)

Model Code

DRV - 20 - 01 . X / 0 25

Flow Control Valve

- DV = Needle valve
- DRV = Needle valve with reverse flow check

Nominal Sizes

20, 25, 30, 40 (BSP only)

Type

- 01 = standard, housing phosphated
 - 12 = housing zinc-nickel coated (seawater-resistant), fine throttle spindle in steel with protective dome nut - adjustment with tool, soldered (BSP std. - not sz. 40)
 - 17 = housing zinc-plated (BSP std. - not sz. 40)
 - 30 = housing stainless steel (BSP standard - size 20 only)
- Other types available on request.

Series (to be determined by manufacturer)

Threaded connection

- 0 = BSP thread, Form X to DIN 3852 Part 2
- 5 = NPT thread
- 12 = UNF thread

Cracking Pressure (for DRV Series only)

- (omit) = 7 psi standard
- 25 = 25 psi optional
- 65 = 65 psi optional

Model Codes containing RED are non-standard items

- Minimum quantities may apply

- Contact HYDAC for information and availability

- Not all combinations are available

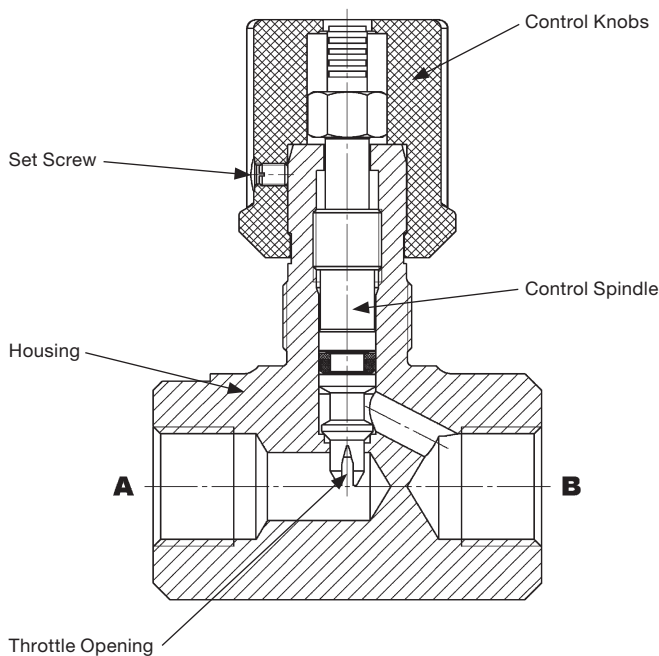
Standard Models

Type	Code	Part No.
1" NPT	DV-20-01.X/5	705066
1-1/4" NPT	DV-25-01.X/5	705078
1-1/2" NPT	DV-30-01.X/5	705090
-16 SAE	DV-20-01.X/12	705070
-20 SAE	DV-25-01.X/12	705082
-24 SAE	DV-30-01.X/12	705094
1" NPT	DRV-20-01.X/5	705566
1-1/4" NPT	DRV-25-01.X/5	705578
1-1/2" NPT	DRV-30-01.X/5	705590
-16 SAE	DRV-20-01.X/12	705570
-20 SAE	DRV-25-01.X/12	705582
-24 SAE	DRV-30-01.X/12	705594

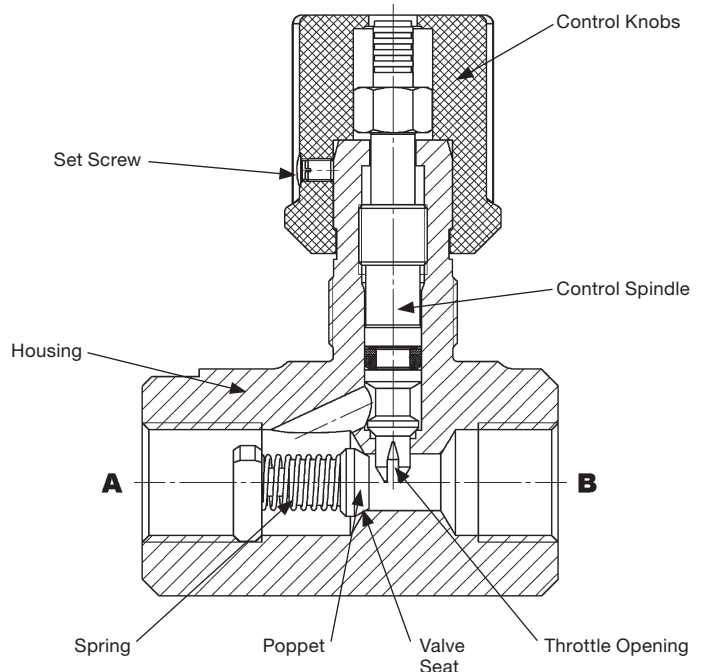
Other models on request

Function

DV



DRV



FLOW CONTROL VALVES

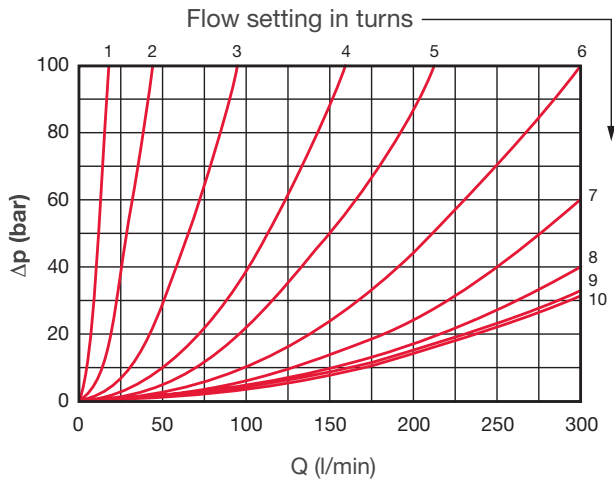
Performance

Pressure drop, dependent on flow rate

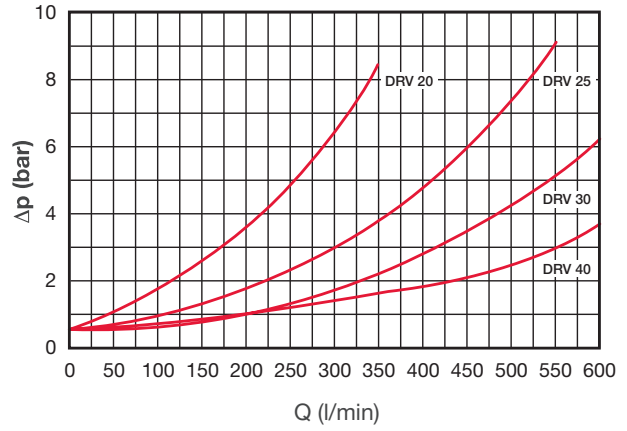
DV = flow direction A → B and B → A

DRV = flow direction A → B

Pressure differential Δp measured against flow rate Q ,
measured at constant flow setting, $\nu = 54 \text{ mm}^2/\text{s}$ and $T_{\text{oil}} = 36 \text{ }^\circ\text{C}$



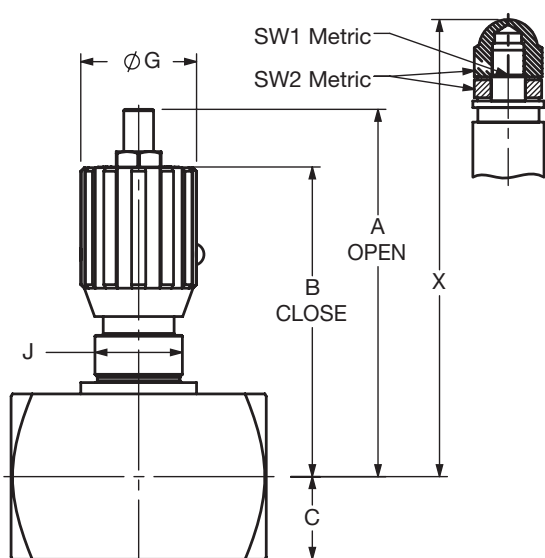
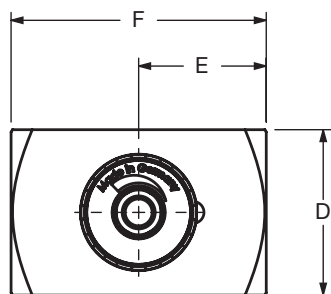
DRV Flow Direction B → A



Pressure Drop curves were established by using mineral oil with kinematic viscosity 165 SUS at 112°F / 50°C

Dimensions

DV Sizes 20 to 40



Size	NPT	BSP	SAE	A	B	C	D	E
20	1"	G1"	-16 (1-5/16"-12)	5.71 (145)	5.04 (128)	0.98 (25)	1.97 (50)	2.13 (54)
25	1-1/4"	G1/4"	-20 (1-5/8"-12)	5.91 (150)	5.24 (133)	1.18 (30)	2.36 (60)	2.13 (54)
30	1-1/2"	G1/2"	-24 (1-7/8"-12)	6.10 (155)	5.43 (138)	1.38 (35)	2.76 (70)	2.13 (54)
40	—	G2"	—	6.50 (165)	5.83 (148)	1.77 (45)	3.54 (90)	2.56 (65)

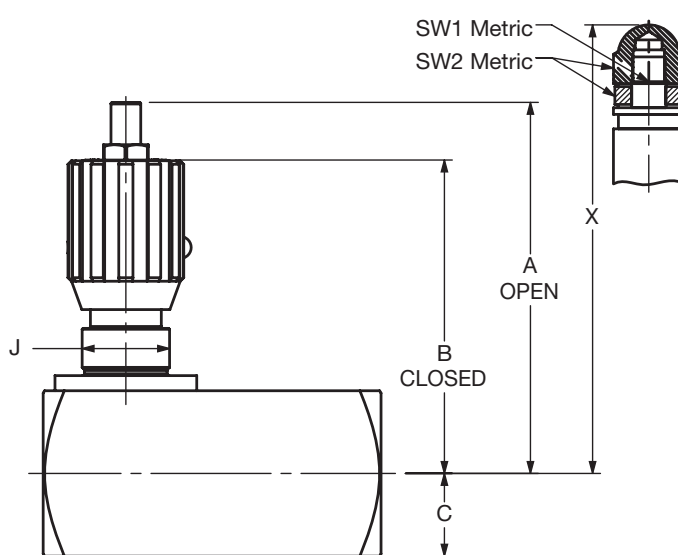
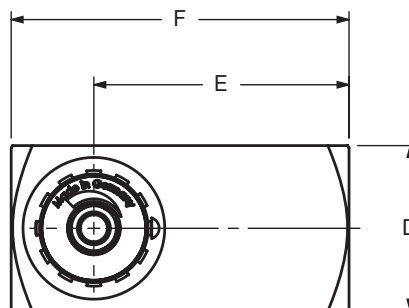
Size	F	G	J*	SW1	SW2	X	Wt.
20	4.25 (108)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.08 (129)	4.62 (2.10)
25	4.25 (108)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.28 (134)	6.16 (2.80)
30	4.25 (108)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.47 (139)	7.70 (3.50)
40	5.12 (130)	1.93 (49)	Pg29	—	—	—	12.10 (5.50)

*Pg style thread per DIN 40430

Notes:

- Dimensions are in inches (mm) and lbs (kg).
- Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

DRV Sizes 20 to 40



Size	NPT	BSP	SAE	A	B	C	D	E
20	1"	G1"	-16 (1-5/16"-12)	5.71 (145)	5.04 (128)	0.98 (25)	1.97 (50)	3.03 (77)
25	1-1/4"	G1/4"	-20 (1-5/8"-12)	5.91 (150)	5.24 (133)	1.18 (30)	2.36 (60)	3.66 (93)
30	1-1/2"	G1/2"	-24 (1-7/8"-12)	6.10 (155)	5.43 (138)	1.38 (35)	2.76 (70)	4.25 (108)
40	—	G2"	—	6.50 (165)	5.83 (148)	1.77 (45)	3.54 (90)	5.12 (130)

Size	F	G	J*	SW1	SW2	X	Wt.
20	5.00 (127)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.08 (129)	5.28 (2.40)
25	5.63 (143)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.28 (134)	7.70 (3.50)
30	5.63 (143)	1.93 (49)	Pg29	0.31 (8)	0.94 (24)	5.47 (139)	10.12 (4.60)
40	6.50 (165)	1.93 (49)	Pg29	—	—	—	16.94 (7.70)