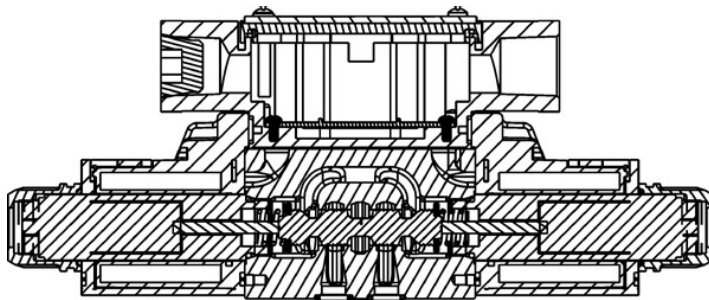


Application

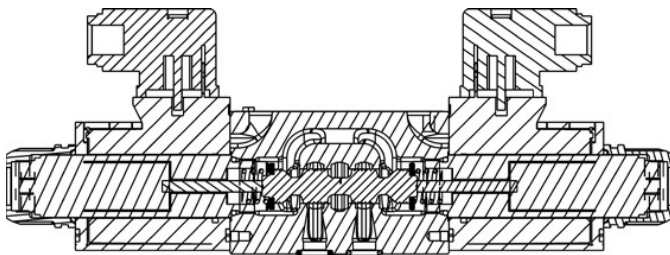
Series D1V hydraulic directional control valves are high performance, direct operated 4-way valves. They are available in 2 or 3-position styles. They are manifold mounted valves, which conform to NFPA's D03, CETOP 3 mounting pattern. These valves were designed for industrial and mobile hydraulic applications which require high cycle rates, long life and high efficiency.

Operation

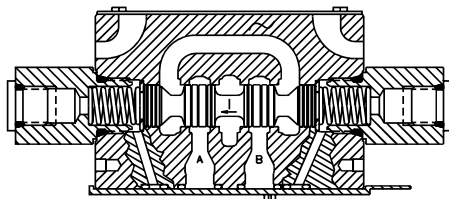
Series D1V directional control valves consist of a 4-chamber style body, and a case hardened sliding spool. The spool is directly shifted by a variety of operators including: solenoid, lever, cam, air or oil pilots.

A
D1VW Solenoid Operated Plug-In Conduit Box Style


- Easy access mounting bolts.
- Waterproof NEMA 4, IP67.
- No tools required for coil removal.
- 19 standard spool styles available.
- Four electrical connection options.
- Lights included (CSA approval for DC solenoids and lights).
- Easy coil replacement.
- Plug-In design offered with lights & other options.

D1VW Solenoid Operated Hirschmann (DIN) Style


- DIN Style (43650) Hirschmann.
- 19 spool styles available.
- No tools required for coil removal.
- Easy coil replacement.
- AC & DC lights available. (CSA approval for solenoids and lights).

D1VP Oil Pilot Operated


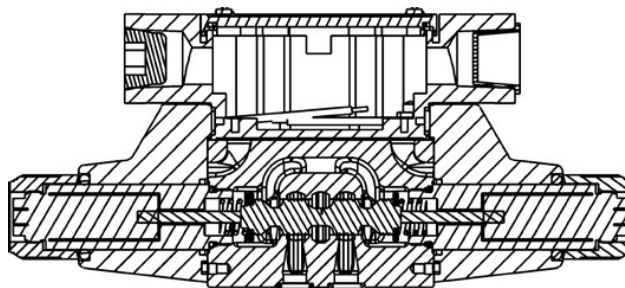
- Subplate pilot or end cap pilot option.
- Pilot pressure: 15.2 Bar (220 PSI) to 207 Bar (3000 PSI).

WARNING: This product can expose you to chemicals including Lead, Nickel (Metallic), or 1,3-Butadiene which are known to the State of California to cause cancer, and Lead or 1,3-Butadiene which is known to the State of California to cause birth defects and other reproductive harm. For more information go to www.P65Warnings.ca.gov.
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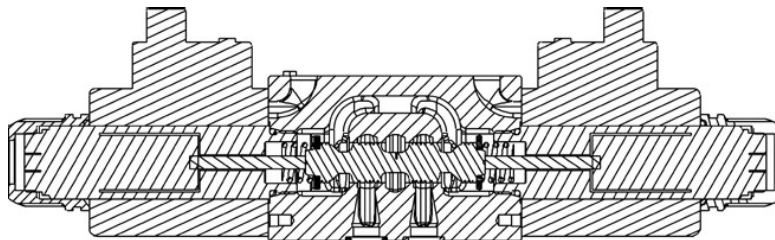
A
Electrical Connections

Series D1V valves may be configured in all popular electrical configurations including:

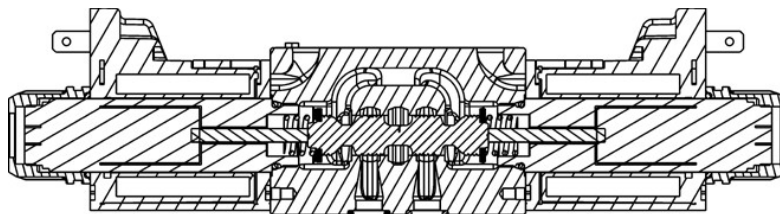
Plug-in Conduit Box	Explosion Proof	Dual Spade (DC only)
DESINA (DC only)	Hirschmann (DIN)	Wire Lead Conduit Box
Deutsch (DC only)	Metri-Pack (DC only)	

D1VW Solenoid Operated Wire Lead Conduit Box Style


- Easy access mounting bolts.
- Waterproof NEMA 4, IP67.
- No tools required for coil removal.
- 19 spool styles available.
- No lights available

D1VW Solenoid Operated DESINA Style


- Surge suppression standard.
- 19 standard spool available.
- No tools required for spool removal.
- Easy coil replacement.
- Wired to DESINA Spec (VDMA).
- Lights included.

D1VW Solenoid Operated Dual Spade Style


- Dual spade connection (SAE Style 1B).
- Easy coil replacement.
- Surge suppression available.
- 19 standard spool styles available.

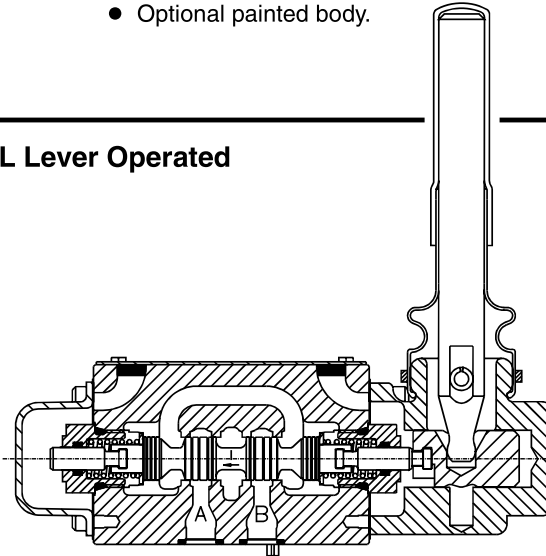
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Features

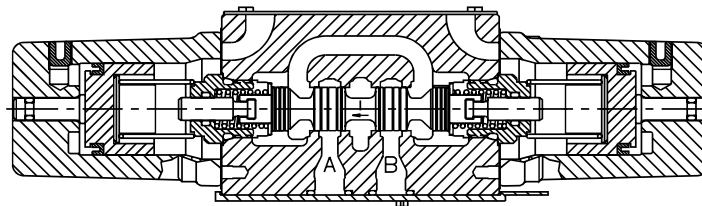
- Easy access mounting bolts.
- 345 Bar (5000 PSI) pressure rating.
- Flows to 22 GPM depending on spool.
- Choice of five operator styles.
- Rugged four land spools.
- Low pressure drop.
- Phosphate finished body.
- CSA approved and U.L. recognized available.
- Optional proportional spool available.
- Optional painted body.

A
D1VL Lever Operated

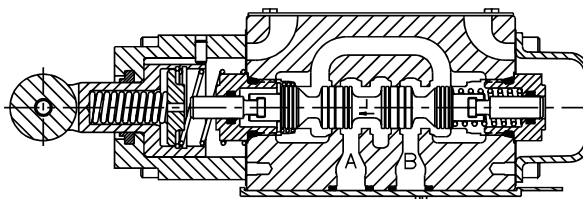
- Spring return or detent styles available.
- Heavy duty handle design.

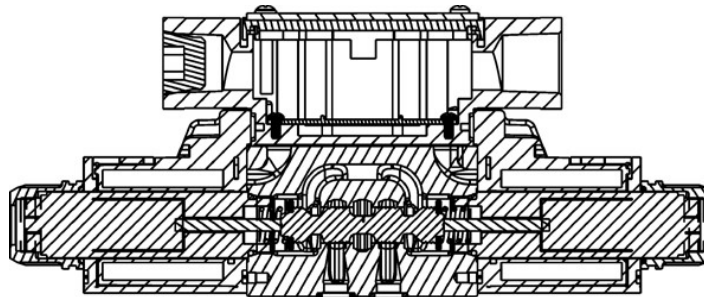

D1VA Air Operated

- Low pilot pressure required – 4.1 Bar (60 PSI) minimum.

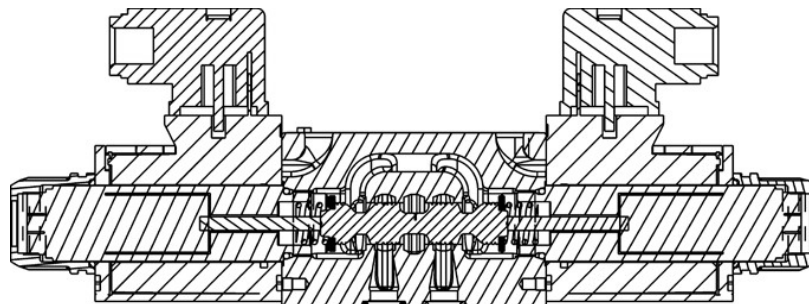

D1VC Cam Operated

- Choice of 2 cam roller positions (D1VC and D1VD).
- Two styles available (D1VC and D1VG).
- Short stroke option.



A
D1VW AC Solenoid Operated Soft Shift


- 4 standard orifice sizes available.
- 19 spool styles available.
- AC Rectified or DC input.

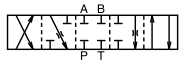
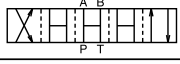
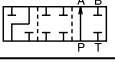
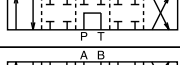
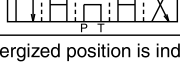
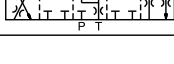
D1VW DC Solenoid Operated Soft Shift


Standard Spool Reference Data
A

Model	Spool Symbol	Maximum Flow, LPM (GPM) 350 Bar (5000 PSI) w/o Malfunction		
		High Watt DC	Low Watt AC	Low Watt DC
D1V*001		78 (20)	49 (13)	37 (10)
D1V*002		78 (20)	45 (12)	68 (18)
D1V*003		70 (18)	30 (8)	34 (9)
D1V*004		37 (10)	30 (8)	68 (18)
D1V*006		79 (21)	49 (13)	52 (14)
D1V*007		45 (12)	18 (5)	18 (5)
D1V*008		49 (13)	45 (12)	37 (10)
D1V*009		58 (15)	45 (12)	45 (12)
D1V*011		58 (16)	30 (8)	37 (10)
D1V*015		79 (21)	30 (8)	34 (9)
D1V*020		78 (20)	45 (12)	75 (20)
D1V*026		37 (10)	11 (3)	7 (2)
D1V*030		70 (18)	18 (5)	75 (20)
D1V*081		32 (9)	26 (7)	30 (8)
D1V*082		32 (9)	26 (7)	34 (9)

Center or De-energized position is indicated by P, A, B & T port notation.

D1VA, D1VP, D1VC, D1VL Reference Data
A

Model	Spool Symbol	Maximum Flow, LPM (GPM) 350 Bar (5000 PSI) w/o Malfunction	Model	Spool Symbol	Maximum Flow, LPM (GPM) 350 Bar (5000 PSI) w/o Malfunction
D1V*1		83 (22)	D1V*20 #		53 (14)
D1V*2		83 (22)	D1V*26 #		11 (3)
D1V*4		45 (12)	D1V*30 #		19 (5)
D1V*8		45 (12)	D1V*81		30 (8)
D1V*9		57 (15)	D1V*82		30 (8)

Center or De-energized position is indicated by A, B, P & T port notation.
 # D1VP only.

Manaplug – Electrical Mini Plug

EP336-30	3 Pin Plug
EP316-30	5 Pin Plug (Double Solenoid)
EP31A-30	5 Pin Plug (Single Solenoid)

Desina – 12 mm Connector

5004109

Monitor Switch Connector

1301903-N

Manaplug – Electrical Micro Plug

EP337-30	3 Pin Plug
EP317-30	5 Pin Plug (Double Solenoid)
EP31B-30	5 Pin Plug (Single Solenoid)

Electrical Cords – Mini Plug

EC	3 Conductor, 6 ft.
EC3	3 Conductor, 3 ft.
EC12	3 Conductor, 12 ft.
EC5	5 Conductor, 6 ft.
EC53	5 Conductor, 3 ft.
EC512	5 Conductor, 12 ft.

Hirschmann – Female Connector

692915	Gray (Solenoid A)
692914	Black (Solenoid B)

Hirschmann – Female Connector-Rectified (48-240 VAC)

1301053	Gray (Solenoid A)
1301054	Black (Solenoid B)

Hirschmann – Female Connector-Rectified w/Lights (100-240 VAC)

1300712

Hirschmann – Female Connector w/Lights (Note Voltages)

694935	6-48 VAC or VDC
694936	48-120 VDC, 100-240 VAC

Quantity Required		
A,C,D	B,E,F	H,K,M

1	–	1
1	1	–

1	–	1
1	1	–

2	1	1
---	---	---

2	1	1
2	1	1

Solenoid Ratings

Insulation System	Class F
Allowable Deviation from rated voltage	-15% to +10% for DC and AC rectified coils -5% to +5% for AC Coils
Armature	Wet pin type
CSA File Number	LR60407
Environmental Capability	DC Solenoids meet NEMA 4 and IP67 when properly wired and installed. Contact HVD for AC coil applications.

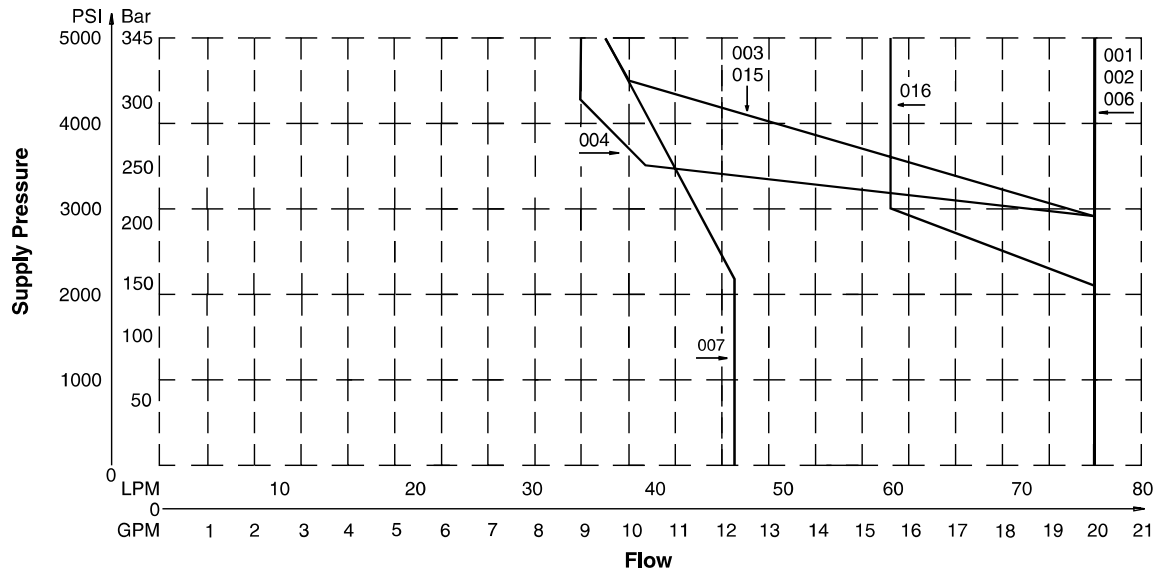
Explosion Proof Solenoid Ratings*

U.L. & CSA (EU)	Class I, Div 1 & 2, Groups C & D Class II, Div 1 & 2, Groups E, F & G As defined by the N.E.C.
ATEX (ED)	Complies with ATEX requirements for: Ex d IIB Gb; EN60079-0:2012, EN60079-1:2007
ATEX, IECEX & CSA/US (ET) (Tri-rated)	Complies with IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-31:2013; Ex d IIC Gb; Ex tb IIIC Db IP66; IECEX BAS 14.0164X ATEX: EN60079-0, EN60079-1, EN60079-31; CE 1180 Ex II 2G BASEEFA08ATEX0041X CSA 22.2 No. 60079-0:07, 60079-1:07 and UL 60079-0:05, UL 60079-1:05; CSA listed to US and Canada Safety Standards. File 08-CSA-1932102 CSA Ex d IIC, AEx d IIC for Class I Zone 1; Class I Div 1 Grp. C & D; Class II Div 1 Grp. E, F & G



* Allowable Voltage Deviation ±10%.

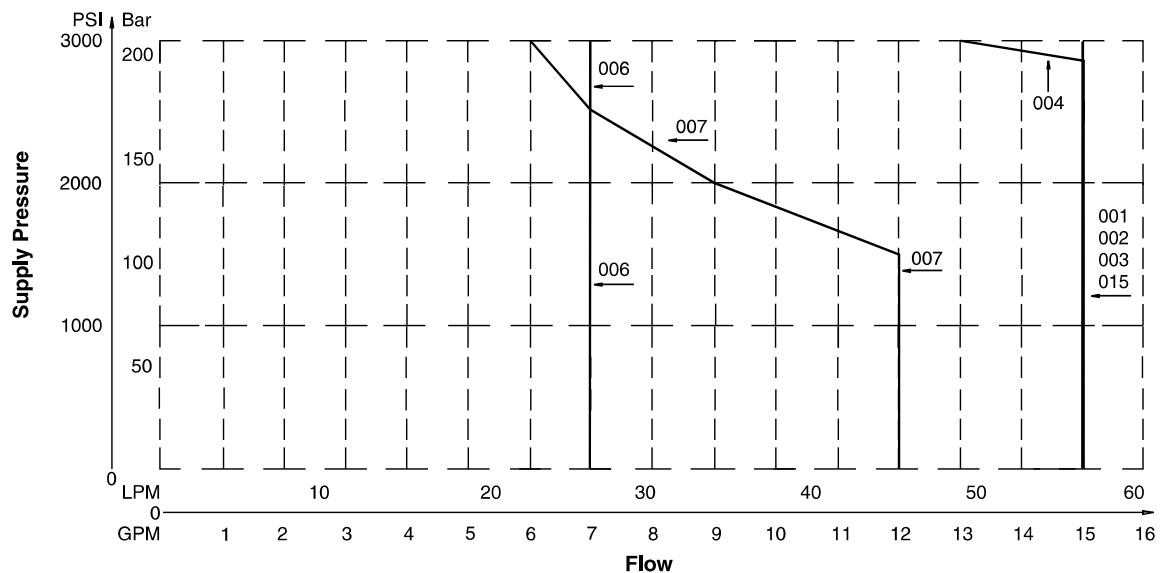
Code		Voltage	In Rush Amps Amperage	In Rush VA	Holding Amps @ 3 mm	Watts	Resistance
Voltage Code	Power Code						
D	Omit	120 VDC	N/A	N/A	0.26 Amps	30 W	528.00 ohms
J	L	24 VDC	N/A	N/A	0.44 Amps	10 W	51.89 ohms
J	Omit	24 VDC	N/A	N/A	1.32 Amps	30 W	17.27 ohms
K	L	12 VDC	N/A	N/A	0.88 Amps	10 W	12.97 ohms
K	Omit	12 VDC	N/A	N/A	2.64 Amps	30 W	4.32 ohms
Q	Omit	100 VAC / 60 Hz	2.05 Amps	170 VA	0.77 Amps	30 W	19.24 ohms
T	Omit	240/60 VAC	0.83 Amps	199 VA	0.30 Amps	30 W	120.40 ohms
T	Omit	220/50 VAC	0.87 Amps	191 VA	0.34 Amps	30 W	120.40 ohms
T	F	240/60 VAC, Low Watt	0.70 Amps	168 VA	0.22 Amps	21 W	145.00 ohms
T	F	220/50 VAC, Low Watt	0.75 Amps	165 VA	0.26 Amps	23 W	145.00 ohms
U	L	98 VDC	N/A	N/A	0.10 Amps	10 W	960.00 ohms
U	Omit	98 VDC	N/A	N/A	0.31 Amps	30W	288.00 ohms
Y	Omit	120/60 VAC	1.7 Amps	204 VA	0.60 Amps	30 W	28.20 ohms
Y	Omit	110/50 VAC	1.7 Amps	187 VA	0.68 Amps	30 W	28.20 ohms
Y	F	120/60 VAC, Low Watt	1.40 Amps	168 VA	0.42 Amps	21 W	36.50 ohms
Y	F	110/50 VAC, Low Watt	1.50 Amps	165 VA	0.50 Amps	23 W	36.50 ohms
Explosion Proof Solenoids							
Y		120/60 VAC	1.60 Amps	192 VA	0.58 Amps	27 W	33.50 ohms
J		24 VDC	N/A	N/A	1.38 Amps	33 W	17.33 ohms
"ET" Explosion Proof Solenoids							
J		24 VDC	N/A	N/A	0.54 Amps	13 W	44.30 ohms
Y		120/60 AC	N/A	N/A	0.16 Amps	17 W	667.00 ohms

D1V Shift Limits, DC & AC Rectified 30 Watt
A

Example:

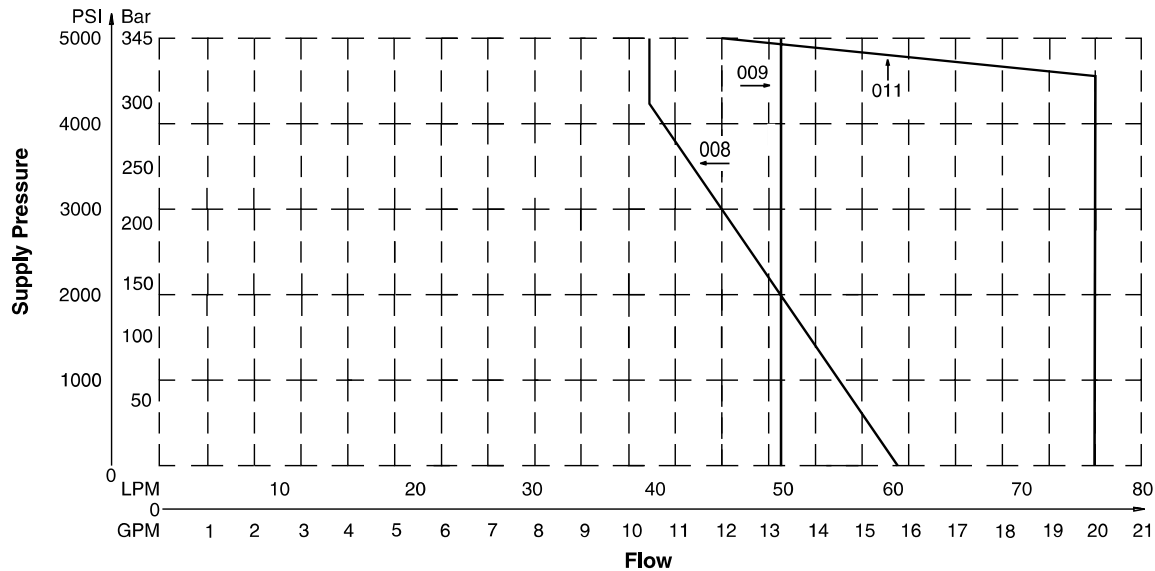
Determine the maximum allowable flow of a Series D1V valve (#004 spool) at 138 Bar (2000 PSI) supply pressure. Locate the curve marked "004". At 138 Bar (2000 PSI) supply pressure, the maximum flow is 57 LPM (15 GPM). At 207 Bar (3000 PSI), the flow is 49 LPM (13 GPM).

Important Notes for Switching Limit Charts

1. For F & M style valves, reduce flow to 70% of that shown.
2. Shift limits charted for equal flow A and B ports. Unequal A and B port flows may reduce shift limits.
3. These charts do not show explosion proof performance. Consult factory for explosion proof duty.
4. Blocking A or B ports will reduce flow by 70%.

D1VW***L Shift Limits**


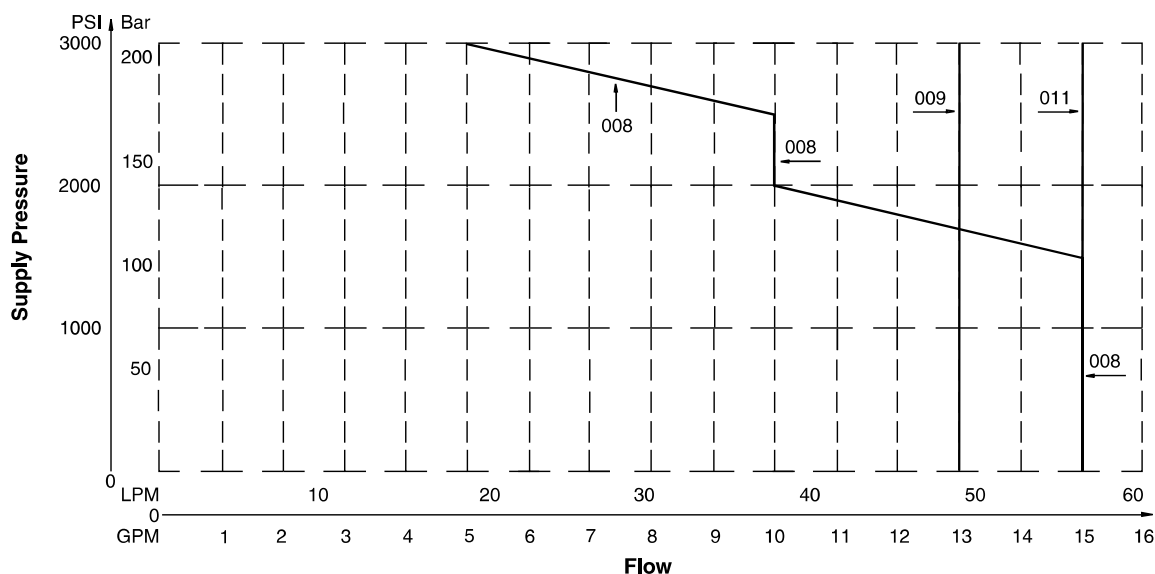
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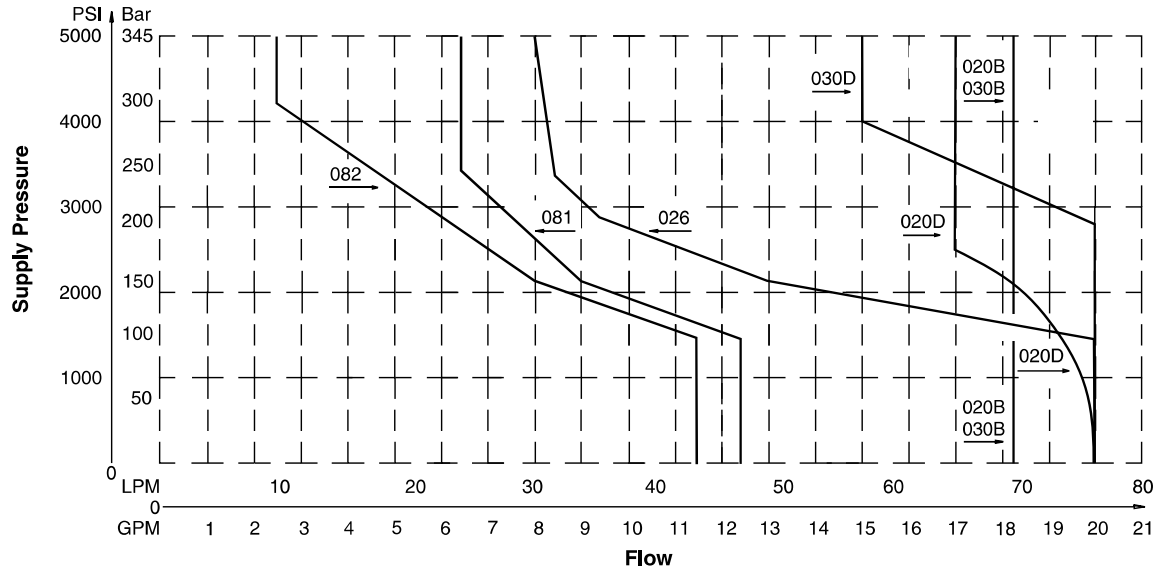
D1V Shift Limits, DC & AC Rectified 30 Watt

A
Example:

Determine the maximum allowable flow of a Series D1V valve (#008 spool) at 83 Bar (1200 PSI) supply pressure. Locate the curve marked "008". At 83 Bar (1200 PSI) supply pressure, the maximum flow is 57 LPM (15 GPM). At 207 Bar (3000 PSI), the flow is 19 LPM (5 GPM).

Important Notes for Switching Limit Charts

1. For F & M style valves, reduce flow to 70% of that shown.
2. Shift limits charted for equal flow A and B ports. Unequal A and B port flows may reduce shift limits.
3. These charts do not show explosion proof performance. Consult factory for explosion proof duty.
4. Blocking A or B ports will reduce flow by 70%.

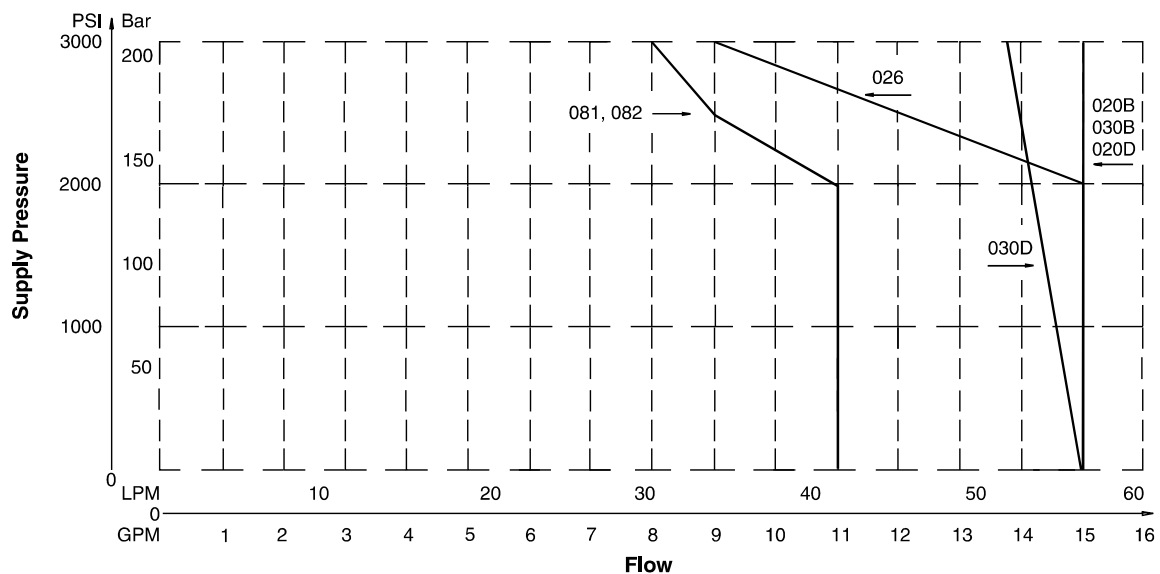
D1VW***L Shift Limits**


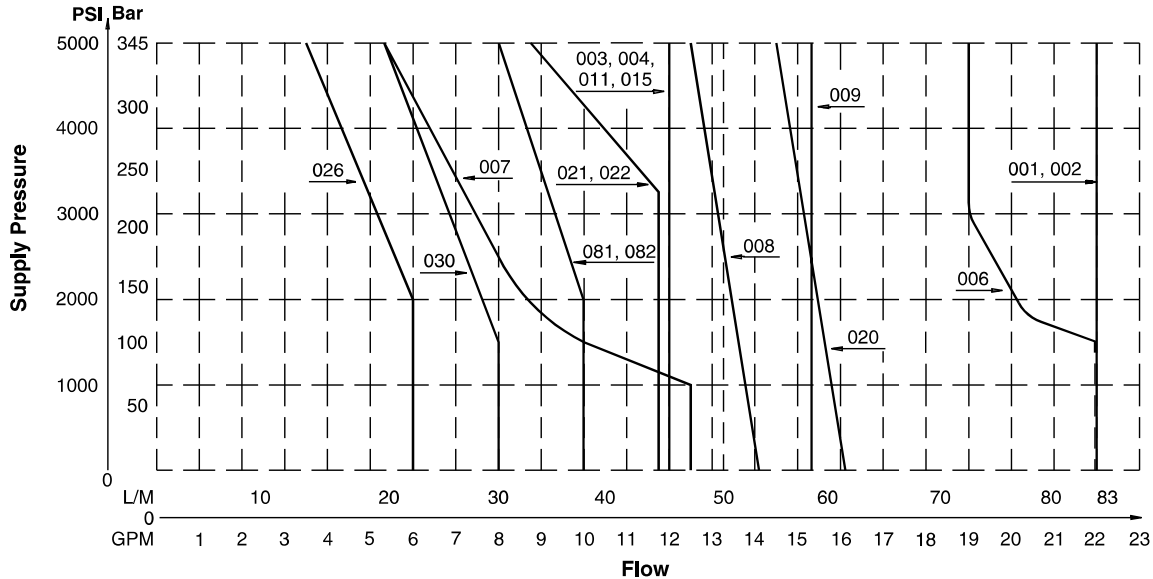
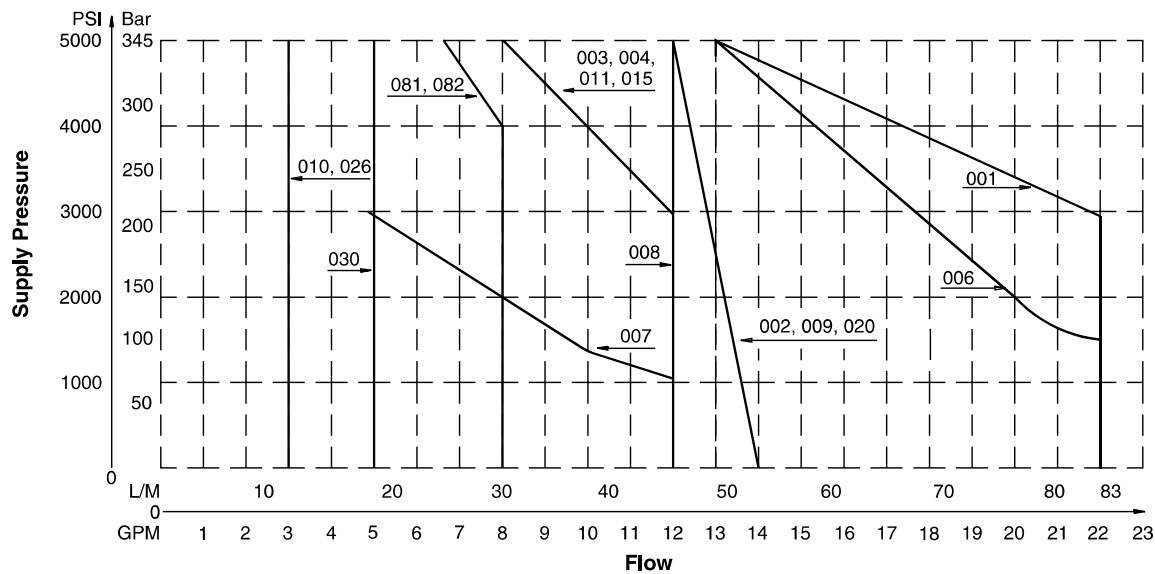
D1V Shift Limits, DC & AC Rectified 30 Watt
A

Example:

Determine the maximum allowable flow of a Series D1V valve (#081 spool) at 83 Bar (1200 PSI) supply pressure. Locate the curve marked "081". At 83 Bar (1200 PSI) supply pressure, the maximum flow is 42 LPM (11 GPM). At 138 Bar (2000 PSI), the flow is 42 LPM (11 GPM).

Important Notes for Switching Limit Charts

1. For F & M style valves, reduce flow to 70% of that shown.
2. Shift limits charted for equal flow A and B ports. Unequal A and B port flows may reduce shift limits.
3. These charts do not show explosion proof performance. Consult factory for explosion proof duty.
4. Blocking A or B ports will reduce flow by 70%.

D1VW***L Shift Limits**


D1V Shift Limits, AC 30 Watt
A

D1VW**F Shift Limits, AC**

Example:

Determine the maximum allowable flow of a Series D1V valve (#009 spool) at 83 Bar (1200 PSI) supply pressure. Locate the curve marked "009". At 83 Bar (1200 PSI) supply pressure, the maximum flow is 75 LPM (20 GPM). At 207 Bar (3000 PSI), the flow is 68 LPM (18 GPM).

Important Notes for Switching Limit Charts

1. For F & M style valves, reduce flow to 70% of that shown.
2. Shift limits charted for equal flow A and B ports. Unequal A and B port flows may reduce shift limits.
3. These charts do not show explosion proof performance. Consult factory for explosion proof duty.
4. Blocking A or B ports will reduce flow by 70%.

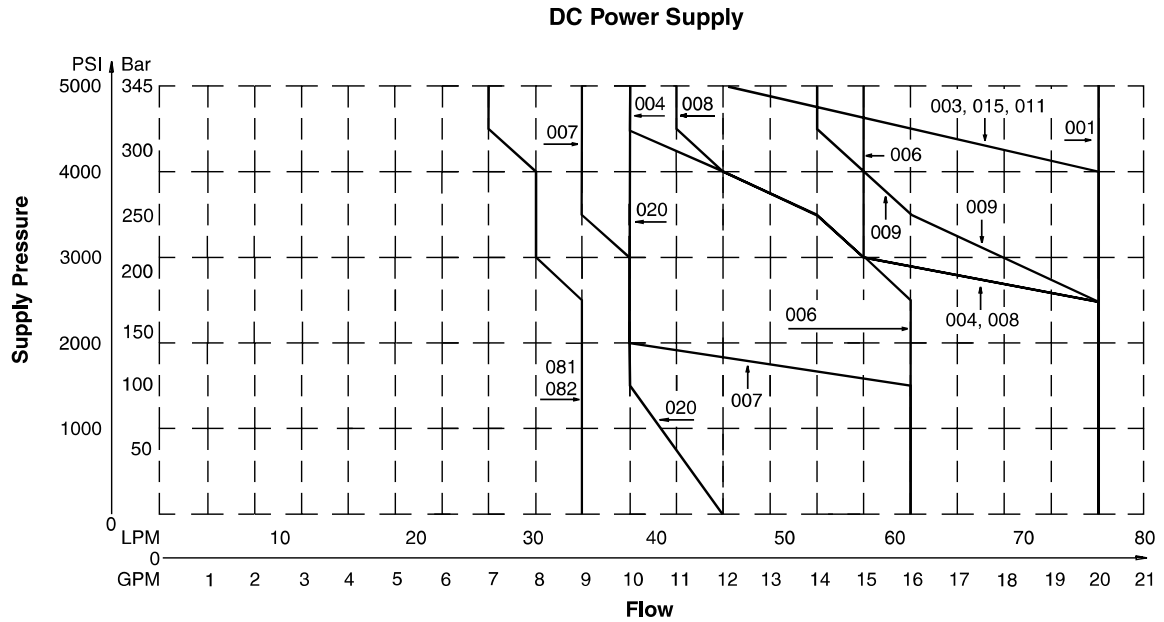
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A13

 Parker Hannifin Corporation
 Hydraulic Valve Division
 Elyria, Ohio, USA

Archivierung 06/2020

Soft Shift Limit Curves
A


Pressure Drop vs. Flow, High Watt

The table to the right provides the flow vs. pressure drop curve reference for standard and high performance D1V Series valves by spool type.

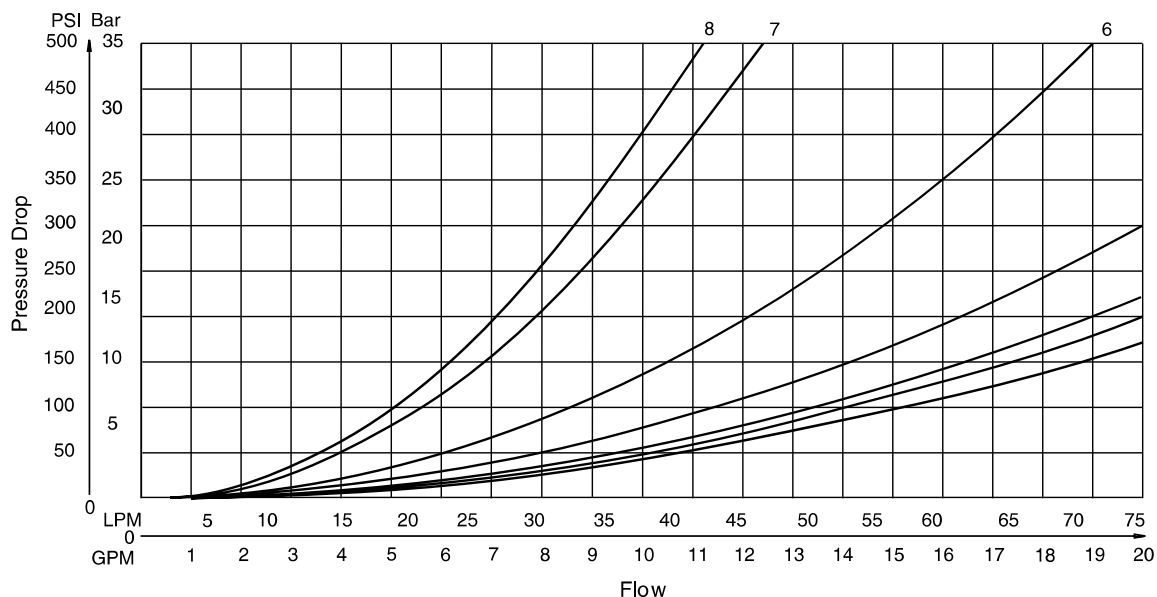
The chart below demonstrates graphically the pressure drop characteristics of the standard D1VW*****F and the high performance D1V. The low watt coil and other design features of the standard D1VW*****F accommodate a maximum flow of 50 LPM (13 GPM) at 345 Bar (5000 PSI).

D1VW Pressure Drop Reference Chart – 30 Watt Coil

Spool No.	Curve Number										
	Shifted				Center Condition						
	P-A	P-B	B-T	A-T	(P-T)	(B-A)	(A-B)	(P-A)	(P-B)	(A-T)	(B-T)
001	3	3	2	2	—	—	—	—	—	—	—
002	2	2	1	1	2	1	1	1	1	1	1
003	2	2	1	1	—	—	—	—	—	1	—
004	2	2	1	1	—	—	—	—	—	2	2
006	2	2	1	1	—	6	6	6	6	—	—
007	2	3	1	1	4	—	1	—	—	—	—
008	5	5	5	5	5	—	—	—	—	—	—
009	4	4	4	4	4	—	—	—	—	—	—
011	3	3	1	1	—	—	—	—	—	8	8
015	2	2	1	1	—	—	—	—	—	—	1
020	4	4	2	2	—	—	—	—	—	—	—
026	4	4	—	—	—	—	—	—	—	—	—
030	2	2	1	1	—	—	—	—	—	—	—
081	7	7	8	8	—	—	—	—	—	—	—
082	7	7	8	8	—	—	—	—	—	—	—

A
Viscosity Correction Factor

Viscosity (SSU)	75	150	200	250	300	350	400	Curves were generated using 100 SSU hydraulic oil. For any other viscosity, pressure drop will change per chart. Pressure drops charted for equal flow A and B ports. Unequal A and B port flows may decrease shift limits.
% of ΔP (Approx.)	93	111	119	126	132	137	141	

Performance Curves – 30 Watt Coil


A
Pressure Drop vs. Flow, Low Watt

The table to the right provides the flow vs. pressure drop curve reference for 10 watt D1V Series valves by spool type.

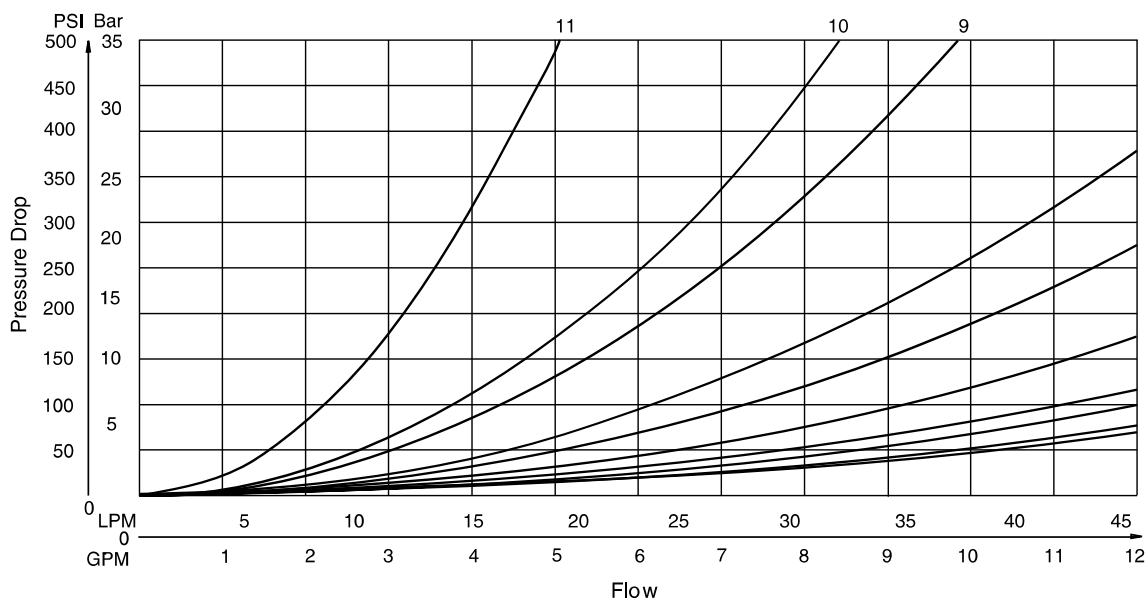
The chart below demonstrates graphically the pressure drop characteristics of the standard D1VW****L and the high performance D1V. The low watt coil and other design features of the standard D1VW****L accommodate a maximum flow of 50 LPM (13 GPM) at 345 Bar (5000 PSI).

D1VW Pressure Drop Reference Chart – 10 Watt Coil

Spool No.	Curve Number										
	Shifted				Center Condition						
	P-A	P-B	B-T	A-T	(P-T)	(B-A)	(A-B)	(P-A)	(P-B)	(A-T)	(B-T)
001	3	3	2	2	—	—	—	—	—	—	—
002	2	2	1	1	2	2	2	2	2	1	1
003	3	3	2	1	—	—	—	—	—	4	—
004	3	3	1	1	—	—	—	—	—	6	6
006	3	3	1	1	—	8	8	7	7	—	—
007	3	3	1	1	5	—	4	—	—	—	1
008	5	5	6	6	7	—	—	—	—	—	—
009	6	6	6	6	5	—	—	—	—	—	—
011	3	3	1	1	—	—	—	—	—	11	11
015	3	3	1	2	—	—	—	—	—	—	4
020	7	7	4	4	—	—	—	—	—	—	—
026	6	6	—	—	—	—	—	—	—	—	—
030	2	2	1	1	—	—	—	—	—	—	—
081	9	9	10	10	—	—	—	—	—	—	—
082	10	10	10	10	—	—	—	—	—	—	—

Viscosity Correction Factor

Viscosity (SSU)	75	150	200	250	300	350	400	Curves were generated using 100 SSU hydraulic oil. For any other viscosity, pressure drop will change per chart.
% of ΔP (Approx.)	93	111	119	126	132	137	141	

Performance Curves – 10 Watt Coil


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 Parker Hannifin Corporation
 Hydraulic Valve Division
 Elyria, Ohio, USA

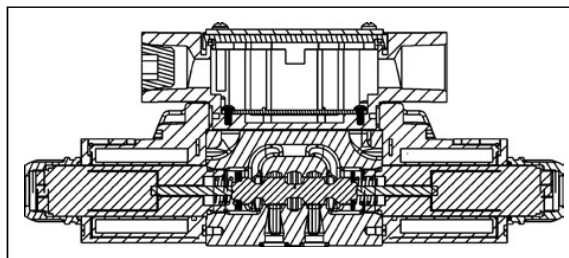
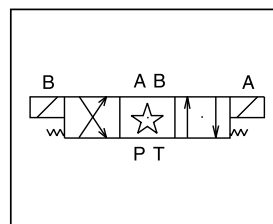
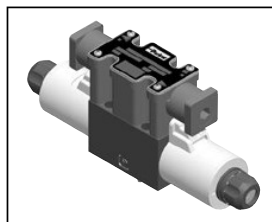
Archivierung 06/2020

General Description

Series D1VW directional control valves are high performance, 4-chamber, direct operated, wet armature solenoid controlled, 3 or 4-way valves. They are available in 2 or 3-position and conform to NFPA's D03, CETOP 3 mounting patterns.

Features

- Soft shift available.
- 19 standard spool styles available (for other spools – Consult Factory).
- Proportional spools.
- DC surge suppression.
- Eight electrical connection options.
- AC & DC lights available (CSA approval for solenoids and lights).
- Internally ground.
- Easy access mounting bolts.
- Waterproof (meets NEMA 4, up to IP67 on some models).
- Explosion proof.
- CSA approvals.



- U.L. recognized available - Contact the division.
- No tools required for coil removal.
- AC rectified coils.

Specifications

Mounting Pattern	NFPA D03, CETOP 3, NG 6	Leakage Rates* 100 SSU @ 49°C (120°F)	Maximum Allowable: 19.7 cc (1.2 Cu. in.) per Minute/Land @ 69 Bar (1000 PSI)* 73.8 cc (4.5 Cu. in.) per Minute/Land @ 207 Bar (3000 PSI)* Typical: 4.9 cc (0.3 Cu. in.) per Minute/Land @ 69 Bar (1000 PSI)* 26.2 cc (1.6 Cu. in.) per Minute/Land @ 345 Bar (5000 PSI)		
Mounting Interface	DIN 24340-A6 ISO 4401-AB-03-4-A CETOP R35H 4.2-4-03, NFPA D03				
Maximum Pressure	P, A, B 345 Bar (5000 PSI) Standard 207 Bar (3000 PSI) 10 Watt CSA  276 Bar (3750 PSI) Tank: 103 Bar (1500 PSI) AC only 207 Bar (3000 PSI) DC/AC Rectified Standard 207 Bar (3000 PSI) AC Optional CSA  103 Bar (1500 PSI)	*#008 and #009 Spools may exceed these rates. Consult Factory	Response Time Response time (milliseconds) at 345 Bar (5000 PSI) is 32 LPM (8.5 GPM).		
		Solenoid Type	Pull-In	Drop-Out	

Soft Shift	Orifice Size	Voltage	Spool Center Condition					
			Closed		Open		2-Position	
			Energize	De-Energize	Energize	De-Energize	Energize	De-Energize
S2	0.020	AC	175 ms	700 ms	600 ms	800 ms	150 ms	200 ms
		DC	200 ms	650 ms	700 ms	650 ms	175 ms	225 ms
S3	0.030	AC	150 ms	400 ms	500 ms	600 ms	100 ms	150 ms
		DC	125 ms	325 ms	550 ms	550 ms	100 ms	100 ms
S4	0.040	AC	125 ms	300 ms	450 ms	500 ms	100 ms	100 ms
		DC	100 ms	250 ms	500 ms	450 ms	75 ms	60 ms

⚠ WARNING: This product can expose you to chemicals including Lead, Nickel (Metallic), or 1,3-Butadiene which are known to the State of California to cause cancer, and Lead or 1,3-Butadiene which is known to the State of California to cause birth defects and other reproductive harm. For more information go to www.P65Warnings.ca.gov.

A01_Cat2500.indd, ddp, 04/19



Catalog MSG14-2500/US
Ordering Information
Directional Control Valves
Series D1V
A

D	1V					
Directional Control Valve	Basic Valve	Actuator	Spool	Style	Seal	Solenoid Voltage
NFPA D03 CETOP 3 DIN NG6	Code Description W* Solenoid, Wet Pin, Screw-in HW* Reversed Wiring			Code Description N Nitrile V Fluorocarbon		Code Description D†# 120 VDC E* 24 VAC/60 Hz J 24 VDC K#^ 12 VDC Q††# 100/60 VAC QD††# 100 VAC/60 Hz - 100 VAC/50 Hz T^^ 240/60 - 220/50 VAC U**# 98 VDC Y 120/60 - 110/50 VAC

* Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing solenoid A. Note operators reverse sides for #008 and #009 spools. See installation information for details. To configure per DIN standards (A coil over A port, B coil over B port) code valves as D1VHW***.

High watt only.
 * Leadwire, low watt only.
 ** DIN, Plug-In & Leadwire (all high watt only).
 ^ If leadwire, low watt not available.
 ^^ TC/TW, high watt only. TG no plugin high watt available.
 † DIN & Leadwire only. Not available with CSA.
 †† DIN only. Not available with CSA.

Code	Symbol	Code	Symbol
001		011	
002		015	
003		020*	
004		026*	
006		030**	
007		081†	
008*, 009**		082†	

* 008, 020 & 026 spools have closed crossover.
 ** 009 & 030 spools have open crossover.
 † Only DC or AC rectified.

Code	Description	Symbol
A*	Double solenoid, 2 position, no springs.	
B**	Single solenoid, 2 position, spring offset. P to A and B to T in offset position.	
C	Double solenoid, 3 position, spring centered.	
D†	Double solenoid, 2 position, detent.	
E	Single solenoid, 2 position, spring centered. P to B and A to T when energized.	
F‡	Single solenoid, 2 position. Spring offset, energized to center. Position spool spacer on A side. P to A and B to T in spring offset position.	
H**	Single solenoid, 2 position, spring offset. P to B and A to T in offset position.	
K	Single solenoid, 2 position, spring centered. P to A and B to T when energized.	
M‡	Single solenoid, 2 position, spring offset, energized to center position. Spool spacer on B side. P to B and A to T in spring offset position.	

* 020 spool only.
 ** 020, 026 and 030 spools only.
 † 020 and 030 spools only.
 ‡ High Watt only.

Bold: Designates Tier I products and options.

Non-Bold: Designates Tier II products and options. These products will have longer lead times.

A01_Cat2500.indd, ddp, 04/19



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 Hydraulic Valve Division
 Elyria, Ohio, USA

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Code	Description
C*	Leadwire Conduit Box
D**	Metric Plug (M12X1), DESINA
E†	Explosion Proof
F^x	Flying Leadwire
G††	Plug-In Conduit Box
J#	Deutsch (DT06-2S)
P	DIN with Plug
S‡	Double Spade
W†	DIN w/o Plug

Code	Description
Omit	Standard Response
S2*	Soft Shift, 0.020" Orifice
S3*	Soft Shift, 0.030" Orifice
S4*	Soft Shift, 0.040" Orifice

* Not available with low watt, detent or DESINA. AC DIN rectified coil must include plug.

Code	Description
Omit	No Options
J**	Diode Surge Suppressor
Z†	Rectified Coil

† DC tube standard, plug-in only. Polarity sensitive coil is stamped (+ -). No T voltage.
 ** DC only. DIN coil must have plug with lights. High watt only.
 # 24 VDC "ET" available. Also adds dust rating. Not polarity sensitive [IIC, D].

Code	Description
Omit	Standard Valve
4* †#	CSA Canada CSA22.2 No. 139-10

* Not available with AC high pressure tube.
 † E, J, K, Y, U, T: Voltages only. C, G, W: Solenoid connections. E & T voltages only available with C Solenoid Connection, Low Watt only. Conforms to UL429.
 # Valve is derated.

Code	Description
Omit*	High Watt
D**	Explosion Proof, EExd ATEX
E**	Explosion Proof, EExme ATEX IECEx, from Germany & CSA
F†	Low Watt
L††	10 Watt
T#	Explosion Proof Ex d IIC ATEX/CSA
U##	Explosion Proof, UL/CSA

* AC ambient temperature must not exceed 60°C (140°F).
 ** J voltage only, no options.
 † AC only.
 †† DC and AC rectified only.
 # J and Y voltage only. Y voltage is rectified.
 ## J and Y voltage only. Y voltage is not rectified.

Code	Description
Omit	Standard
P*	Extended Manual Override w/Boot
T	Covered Manual Override

* Manual override options not available on explosion proof or soft shift. Not available with high pressure AC tube "H".

Code	Description
Omit	Standard Pressure
	103.5 Bar (1500 PSI) AC
	207 Bar (3000 PSI) DC
H*	High Pressure, AC only
	207 Bar (3000 PSI)

* Not available with CSA or Explosion Proof.

Code	Description
Omit	Standard – No Variations
5**	Signal Lights - Standard
56*	Manaplug (Mini) with Lights
7B*	Manaplug (Micro) with Lights
1C*	Manaplug (Mini) Single Sol. 5-pin, with Lights
1D*	Manaplug (Micro) Single Sol. 5-pin, with Lights
1J^x	Male Weather Pack
1L^x	Male to Female Weather Pack
1M*	Manaplug Opposite of Normal
1P	Painted Body
2P	Complete Painted Valve, 1 mil thick, spec.
4D†	Twist & Lock Override (old 5426, 33 Ford Wiring)
7W*	4-pin Micro Manaplug, Special Wiring with Lights
7Y*	4-pini M12X1 Manaplug, Special Wiring with Lights (old B755)

XB990# CE Approved
 ^^ Per solenoid with DESINA Solenoid Connection.
 * Plug-in Conduit Box
 ** Plug-in, DIN, or DESINA only.
 † DC/AC Rectified only. Not available with soft shift.
 # Above 50 VAC or 75 VDC must have "4" CSA approved coils.
 x Flying leadwire only.


 NOTE:
Not required
when ordering.

Valve Weight:

 Single Solenoid 1.36 kg (3.0 lbs.)
 Double Solenoid 1.6 kg (3.5 lbs.)

Standard Bolt Kit: BK209

Metric Bolt Kit: BKM209

Seal Kit:

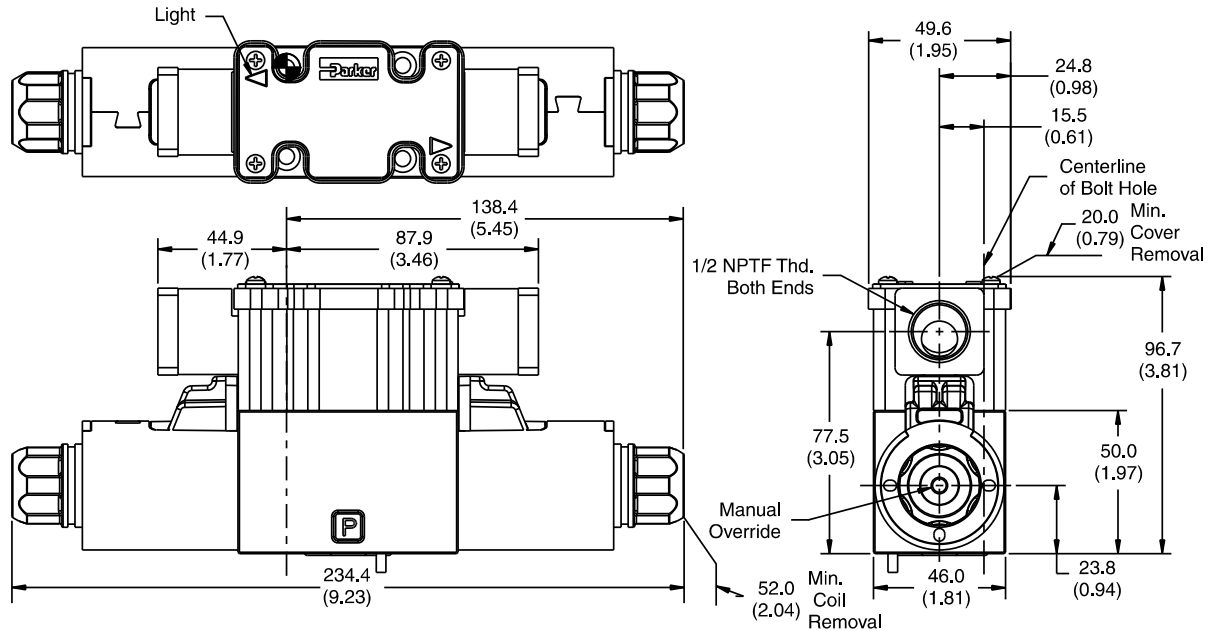
 Nitrile SKD1VWN91
 Fluorocarbon SKD1VWV91

Bold: Designates Tier I products and options.
Non-Bold: Designates Tier II products and options. These products will have longer lead times.

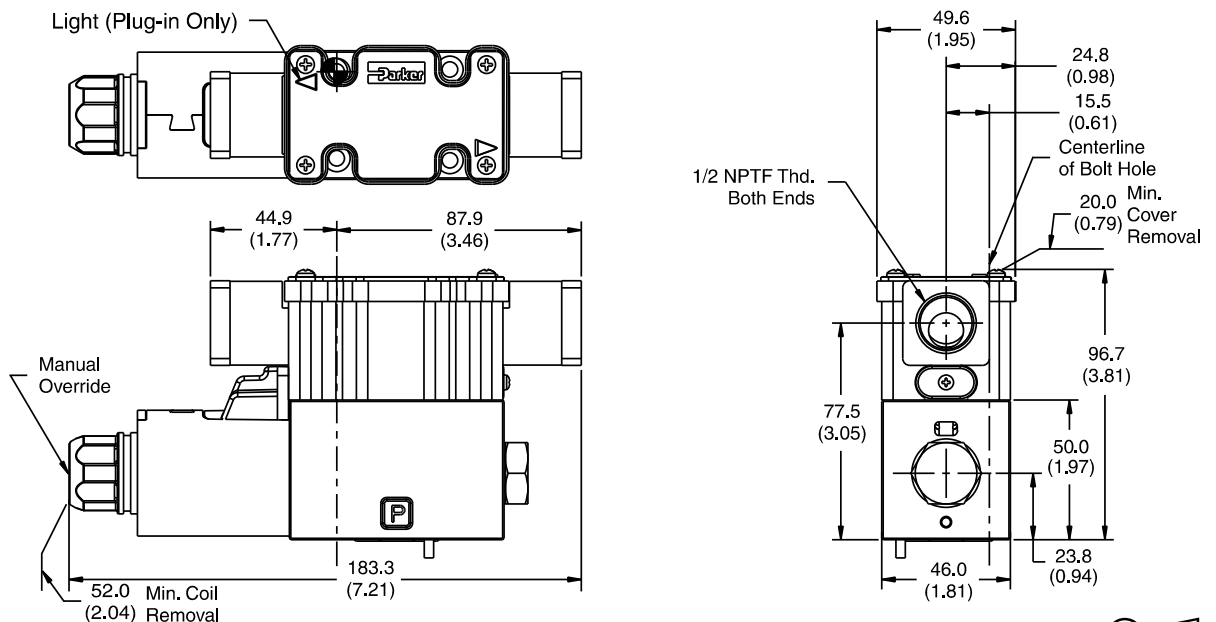
A01_Cat2500.indd, ddp, 04/19



Inch equivalents for millimeter dimensions are shown in (**)

A
**DC Plug-In Conduit Box Connector,
with Lights, Double Solenoid**


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

**DC Plug-In or Leadwire Conduit Box Connector,
with or without Lights, Single Solenoid**


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

A01_Cat2500.indd, ddp, 04/19



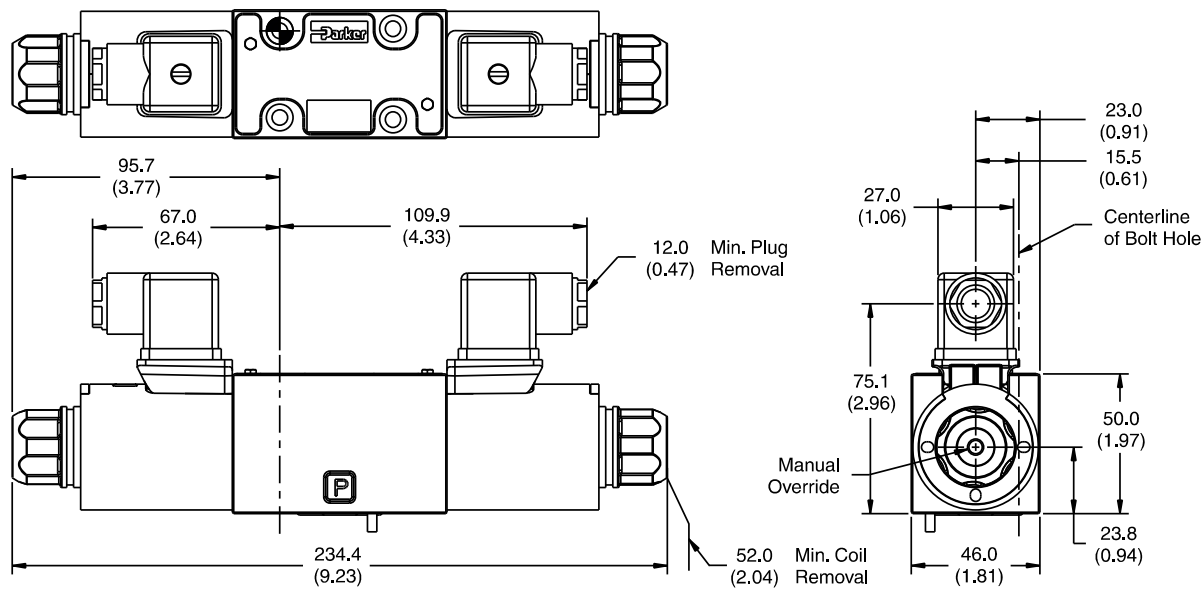
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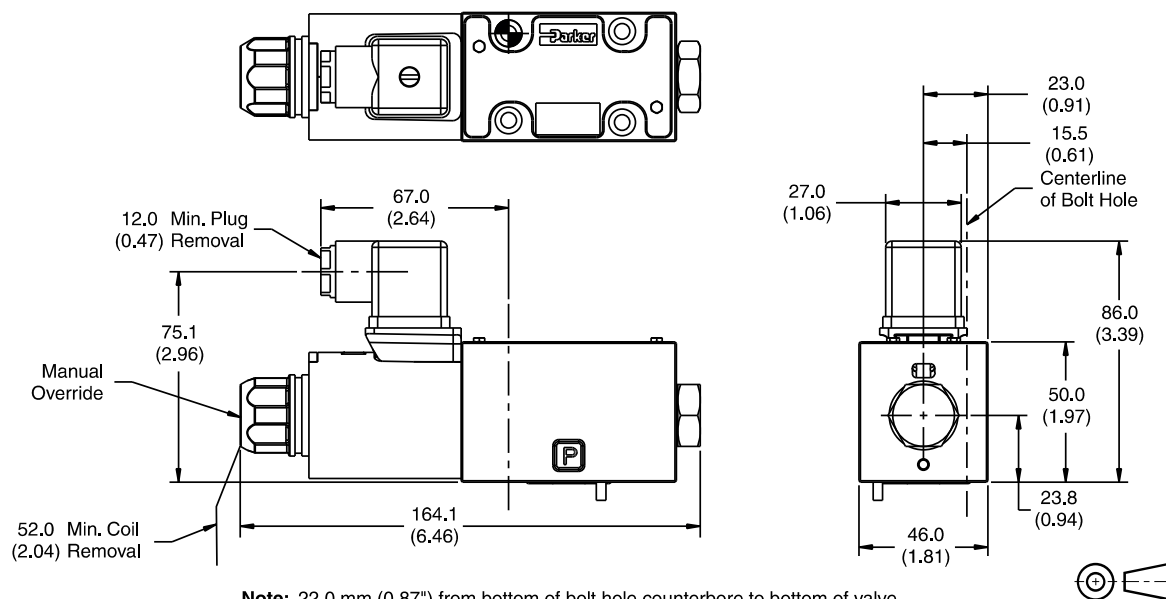
Archivierung 06/2020

Dimensions

Inch equivalents for millimeter dimensions are shown in (**)

DC DIN with Plug Connector, Double Solenoid
“P” Option Shown
A


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

DC DIN Connector, Single Solenoid
“P” Option Shown


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

A01_Cat2500.indd, ddp, 04/19

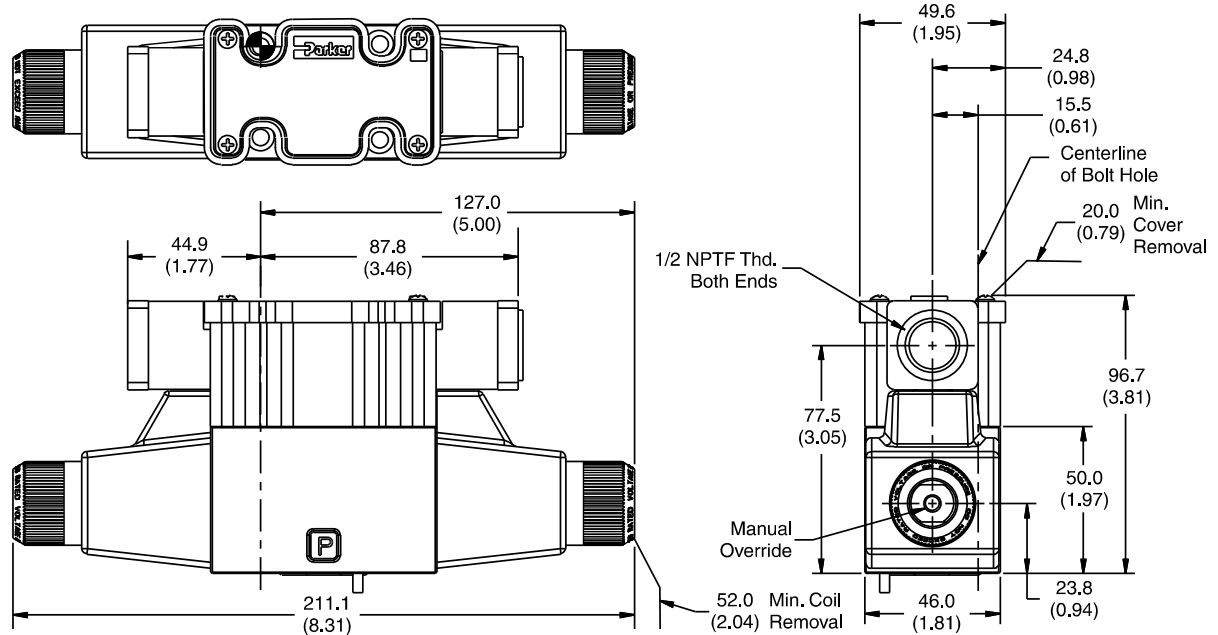


A21

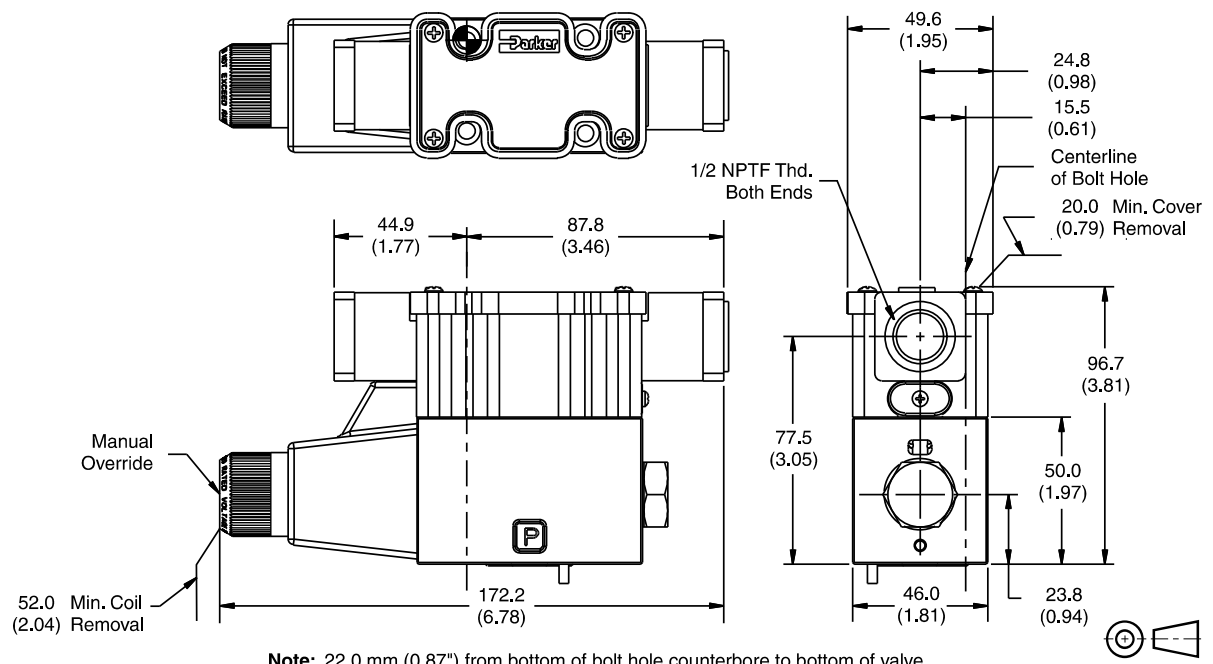
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 Hydraulic Valve Division
 Elyria, Ohio, USA

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Inch equivalents for millimeter dimensions are shown in (**)

A
**AC Leadwire Conduit Box Connector,
without Lights, Double Solenoid, "C" Option**


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

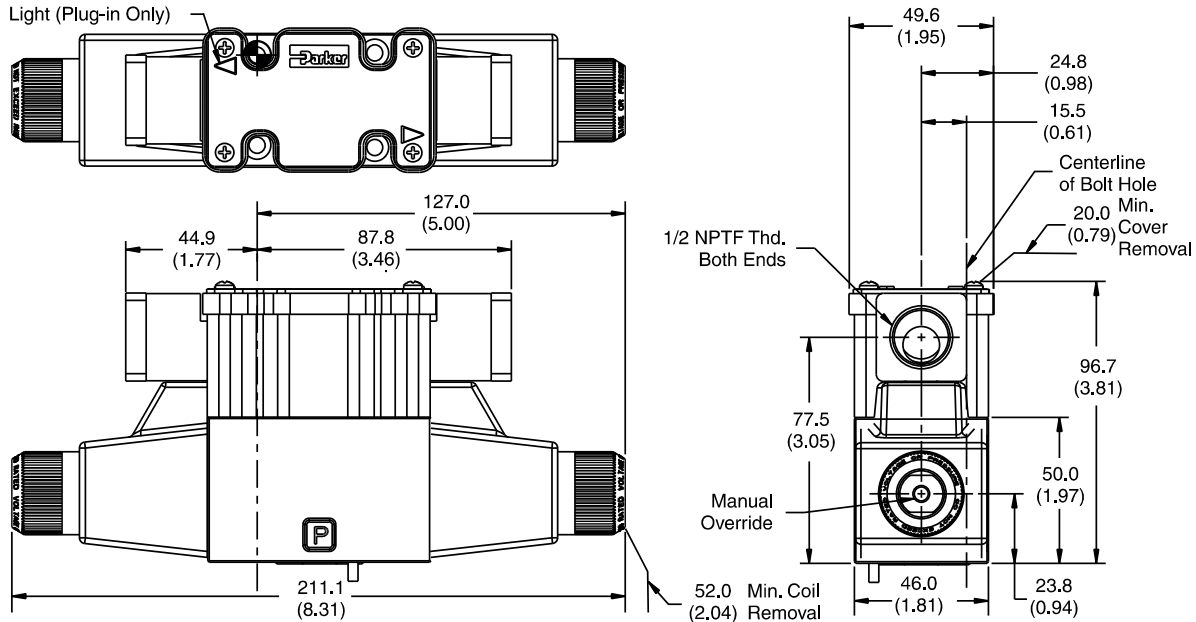
**AC Leadwire Conduit Box Connector,
without Lights, Single Solenoid, "C" Option**


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

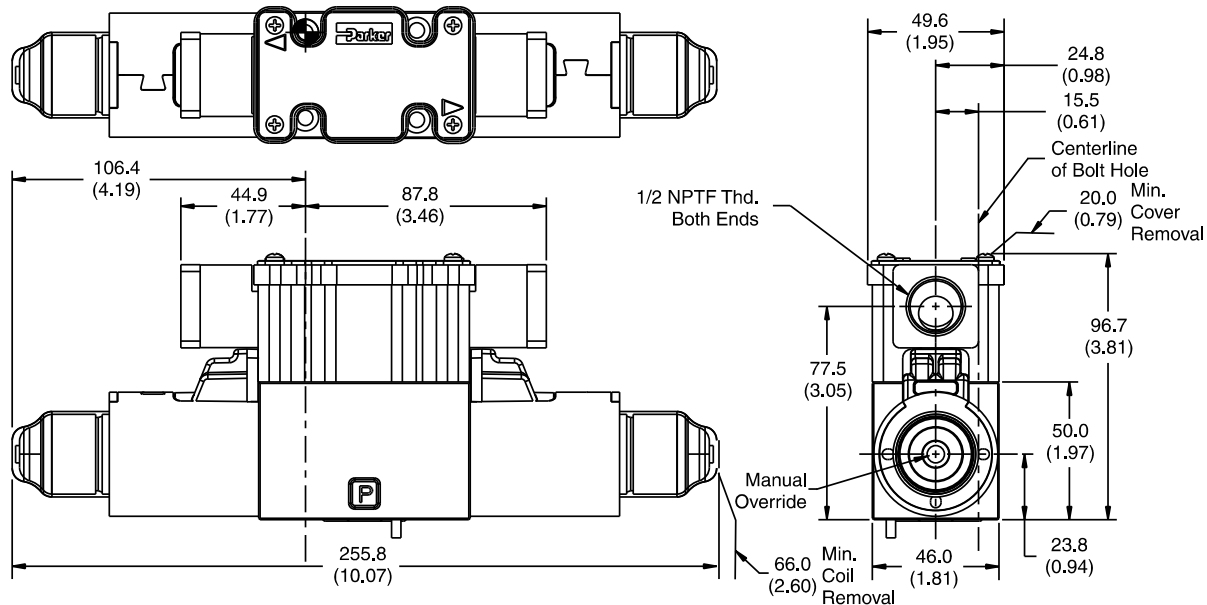
A01_Cat2500.indd, ddp, 04/19

Dimensions

Inch equivalents for millimeter dimensions are shown in (**)

AC Plug-in Conduit Box Connector, with Lights, Double Solenoid, "G" Option
A


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

DC Plug-in or Leadwire Conduit Box Connector, with or without Lights and Extended Override Tubes, Double Solenoid


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.



A01_Cat2500.indd, ddp, 04/19



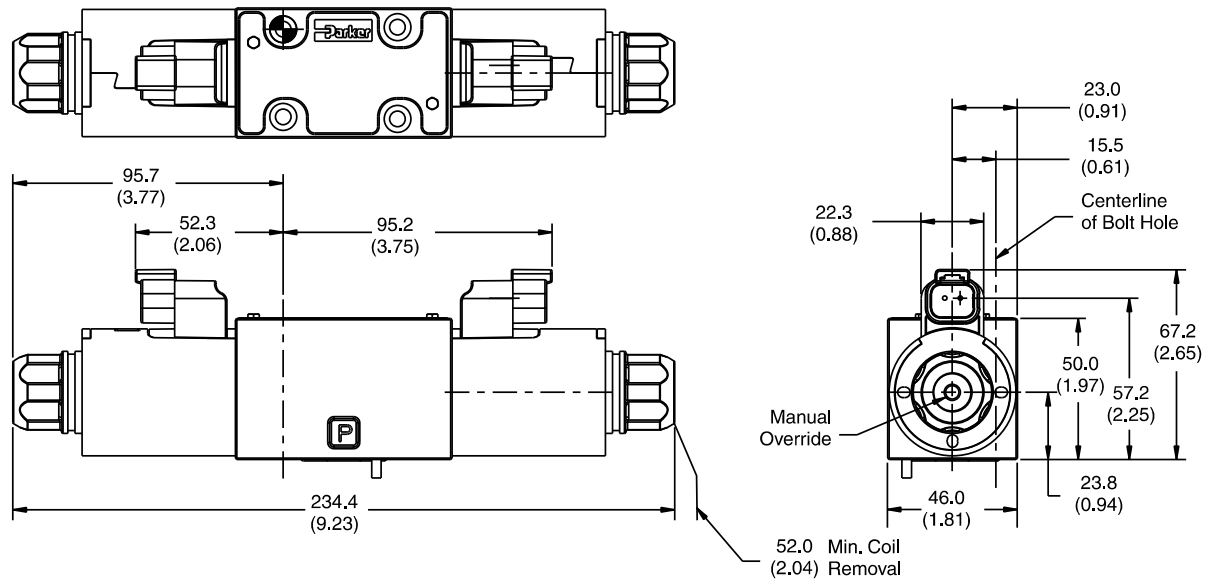
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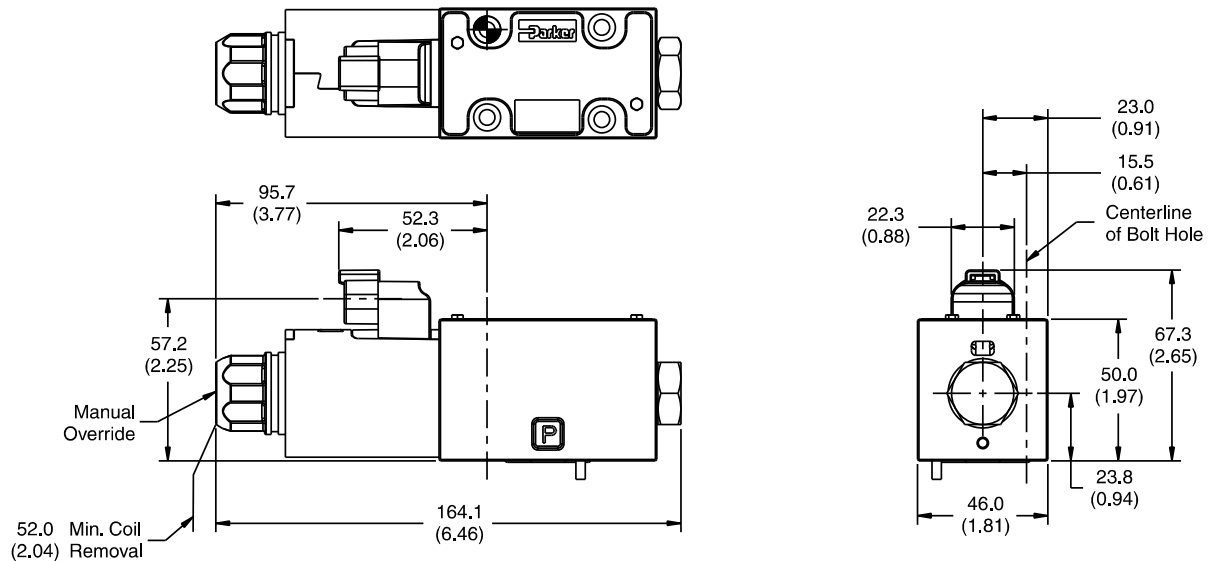
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 Hydraulic Valve Division
 Elyria, Ohio, USA

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Dimensions

Inch equivalents for millimeter dimensions are shown in (**)

A
DC Deutsch Connector, Double Solenoid

Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

DC Deutsch Connector, Single Solenoid

Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

A01_Cat2500.indd, ddp, 04/19



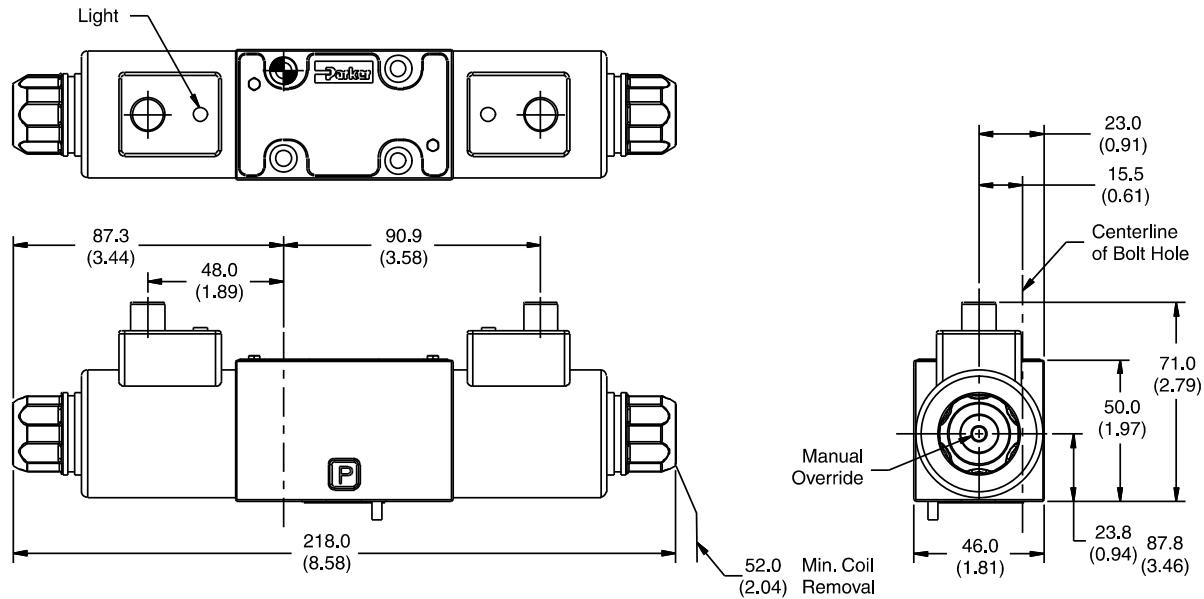
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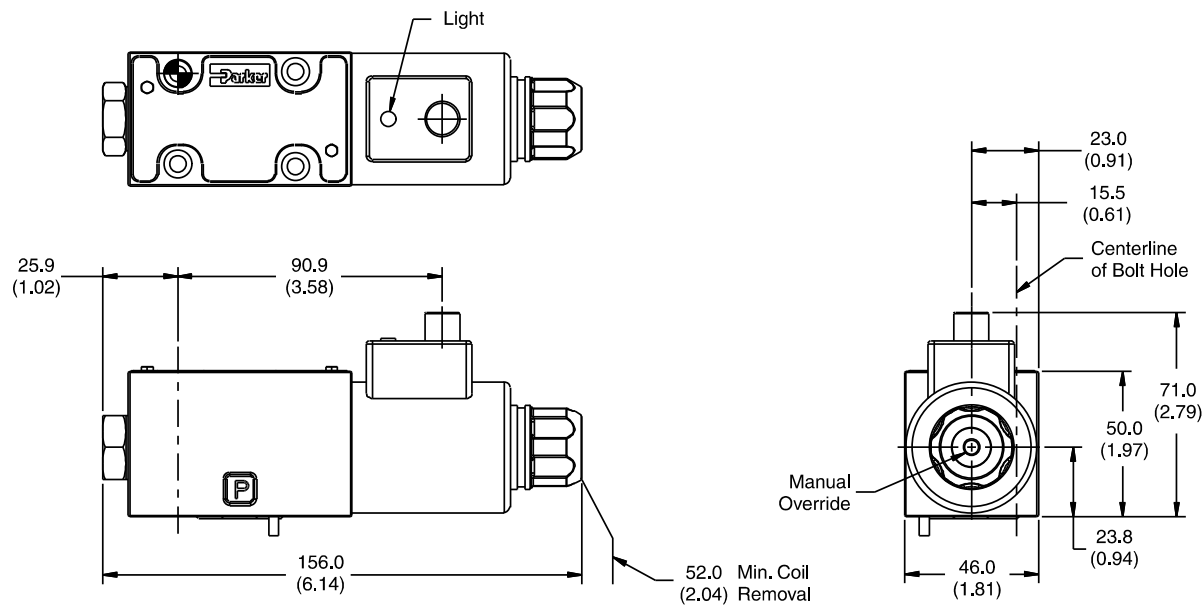
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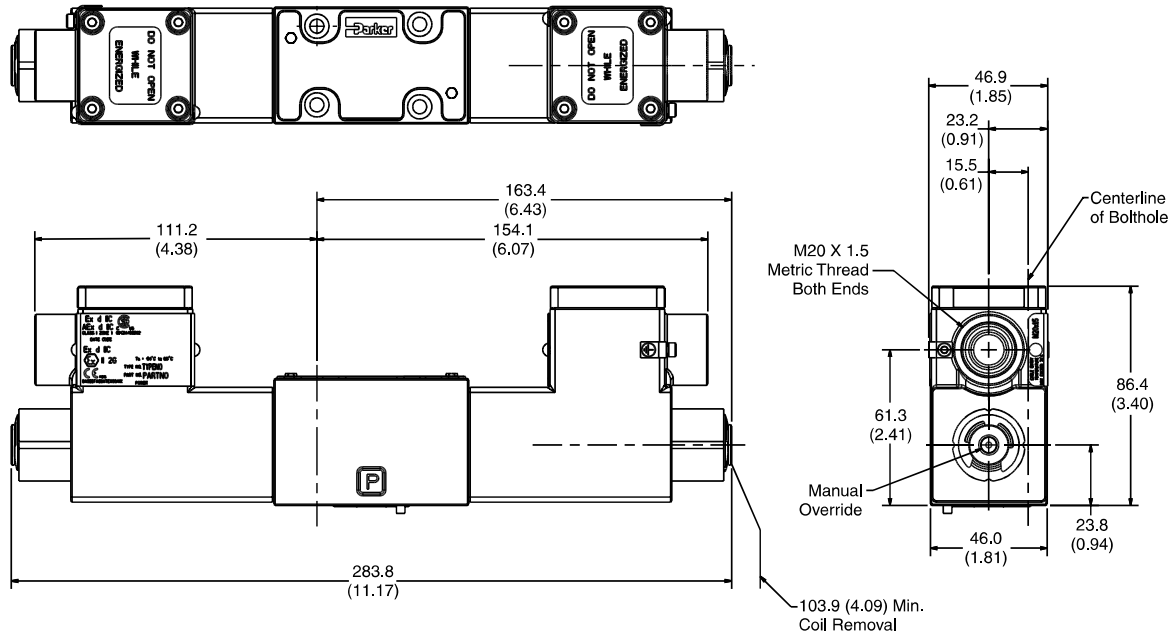
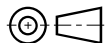
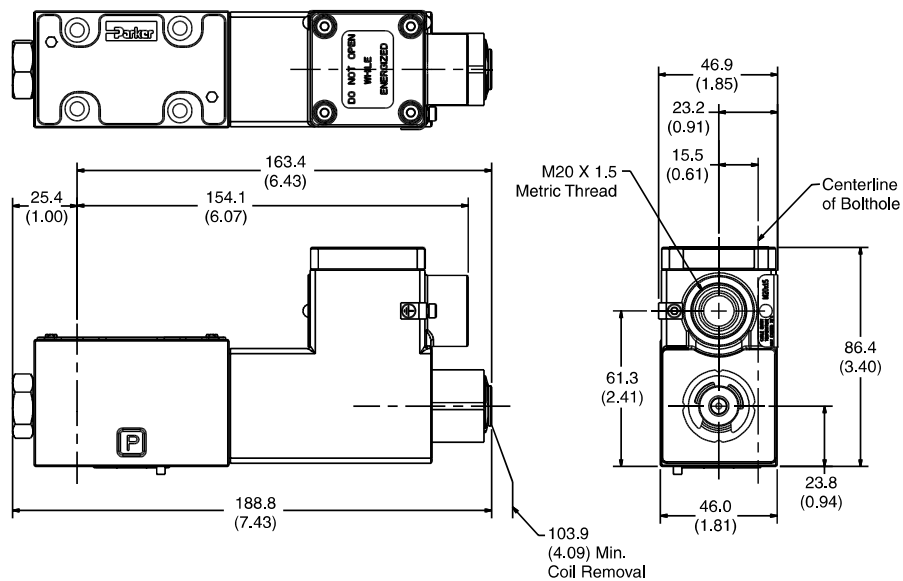
Dimensions

Inch equivalents for millimeter dimensions are shown in (**)

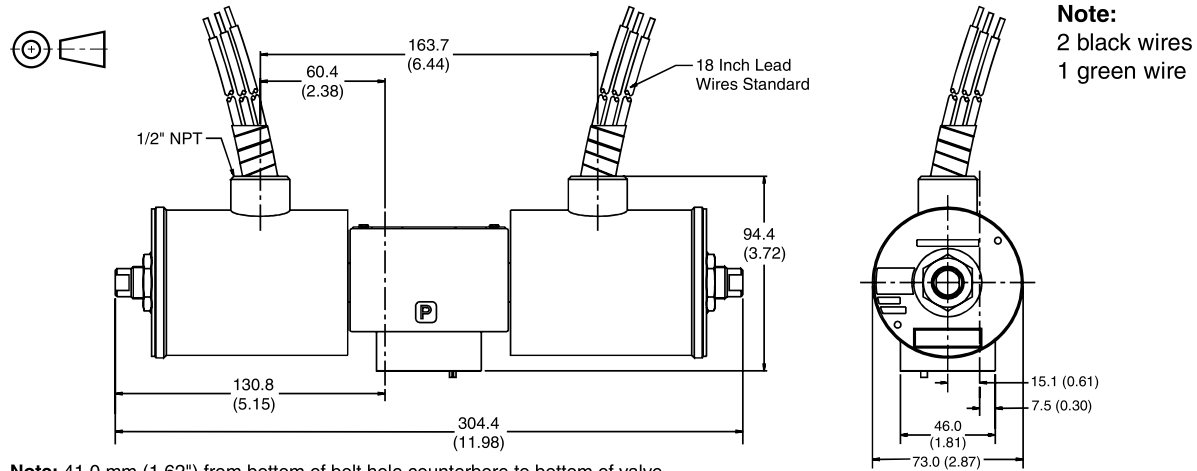
DC Desina Connector, Double Solenoid
A

Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

DC Desina Connector, Single Solenoid

Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

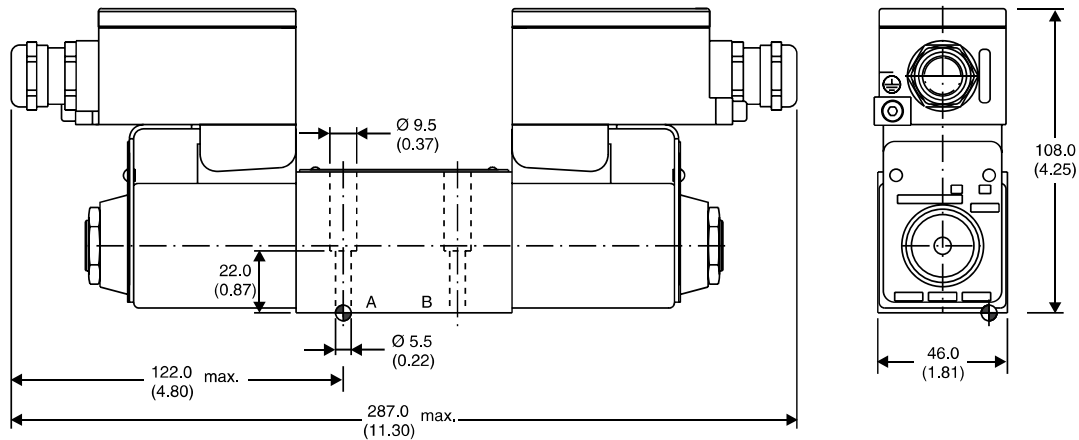

Inch equivalents for millimeter dimensions are shown in (**)

A
Explosion Proof, Ex d IIC ATEX/CSA/IECEX, Double Solenoid

Explosion Proof, Ex d IIC ATEX/CSA/IECEX, Single Solenoid


Inch equivalents for millimeter dimensions are shown in (**)

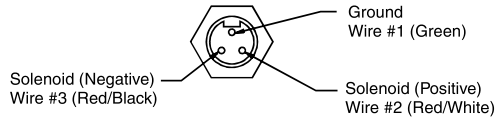
Explosion Proof U.L. & C.S.A., Double Solenoid


Note: 41.0 mm (1.62") from bottom of bolt hole counterbore to bottom of valve.

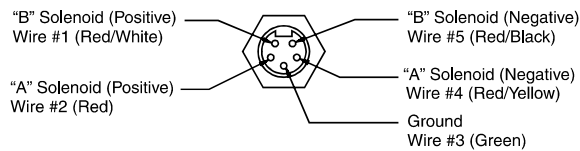
Explosion Proof, EExd ATEX, Double Solenoid


A
Manaplug (Options 56 & 1C)

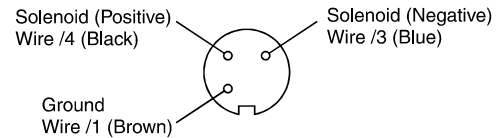
- Interface – Brad Harrison Plug
-
- 3-Pin for Single Solenoid
-
- 5-Pin for Double Solenoid


3-Pin Manaplug (Mini) with Lights

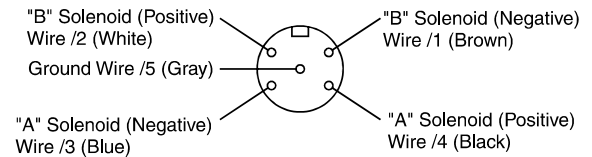
Single Solenoid Valves – Installed Opposite Side of Solenoid


5-Pin Manaplug (Mini) with Lights

 Single Solenoid Valves – Installed Opposite Side of Solenoid
 Double Solenoid Valves – Installed Over "A" Solenoid
 ("A" and "B" Solenoids Reversed for #8 and #9 Spools)

Micro Connector Options (7B & 1D)

3-Pin Manaplug (Micro) with Lights

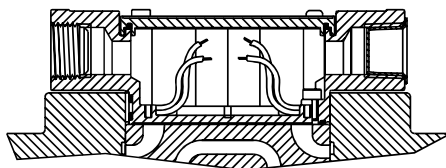
Single Solenoid Valves – Installed Opposite Side of Solenoid


5-Pin Manaplug (Micro) with Lights

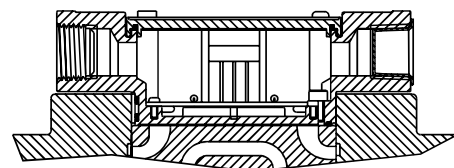
 Single Solenoid Valves – Installed Opposite Side of Solenoid
 Double Solenoid Valves – Installed Over "A" Solenoid
 ("A" and "B" Solenoids Reversed for #8 and #9 Spools)

Pins are as seen on valve (male pin connectors)
Conduit Box Option C

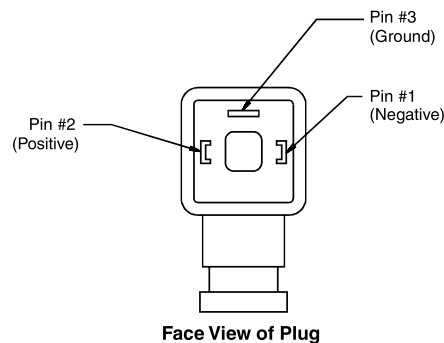
- No Wiring Options Available


Signal Lights (Option 5) — Plug-in Only

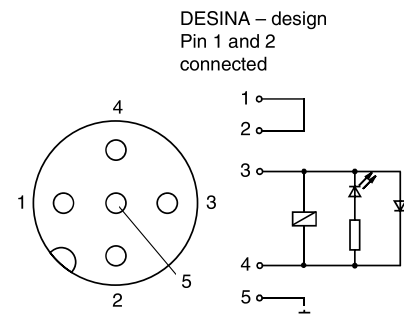
- LED Interface
-
- Meets Nema 4/IP67


Hirschmann Plug with Lights (Option P5)

ISO 4400/DIN 43650 Form "A"


Pins are as seen on valve (male pin connectors)
DESINA Connector (Option D)
**M12 pin assignment
Standard**

- 1 = Not used
-
- 2 = Not used
-
- 3 = 0V
-
- 4 = Signal (24 V)
-
- 5 = Earth Ground



Mounting Bolt Kits
Bolt Kits for use with D1V Directional Control Valves, “ET” Explosion Proof & Sandwich Valves (D1V*-91, 82 & 70/75 Design, Solenoid Operated & D1V*-72 Design, Non-Solenoid Operated)


	Number of Sandwich Valves @40 mm (1.58") thickness				
	0	1	2	3	4
0	BK209 1.25 in.	BK243 2.88 in.	BK225 4.38 in.	BK244 6.00 in.	BK245 7.50 in.
	BKM209 30 mm	BKM243 70 mm	BKM225 110 mm	BKM244 150 mm	BKM245 190 mm
1	BK246 3.00 in.	BK247 4.62 in.	BK248 6.12 in.	BK249 7.75 in.	
	BKM246 75 mm	BKM247 115 mm	BKM248 155 mm	BKM249 195 mm	
2	BK250 4.75 in.	BK251 6.38 in.	BK252 7.88 in.		
	BKM250 120 mm	BKM251 160 mm	BKM252 200 mm		
3	BK253 6.50 in.	BK254 8.12 in.			
	BKM102 170 mm	BKM254 205 mm			
4	BK103 8.25 in.				
	BKM103 210 mm				

Note: All bolts are SAE Grade 8, 10-24 UNC 2A thread (Metric-M5-0.8)
Torque to 5.6 Nm (50 in-Lb).

Bolt Kits for use with D1V Directional Control Valves with Explosion Proof Coils & Sandwich Valves (D1V*-91, 82 & 70/75 Design) Except “ET” Coil

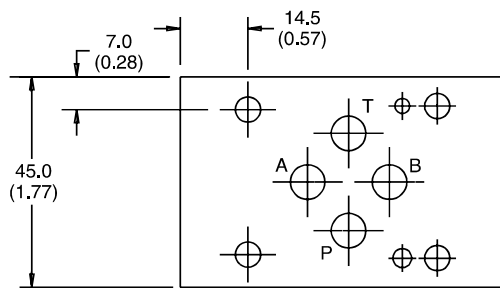
	Number of Sandwich Valves @40 mm (1.58") thickness				
	0	1	2	3	4
0	BK50 2.00 in.	BK211 3.63 in.	BK101 5.12 in.	BK102 6.75 in.	BK103 8.25 in.
	BKM50 50 mm	—	BKM101 130 mm	BKM102 170 mm	BKM103 210 mm
1	BK51 3.75 in.	BK212 5.37 in.	BK105 6.87 in.	BK106 7.75 in.	
	BKM51 95 mm	—	BKM105 180 mm	BKM106 195 mm	
2	BK52 5.50 in.	BK213 7.13 in.	BK108 8.62 in.		
	BKM52 140 mm	—	BKM108 220 mm		
3	BK53 7.25 in.	BK214 8.87 in.			
	BKM53 185 mm	—			
4	BK54 9.00 in.				
	BKM54 230 mm				

Note: All bolts are SAE Grade 8, 10-24 UNC 2A thread (Metric-M5-0.8)
Torque to 5.6 Nm (50 in-Lb).

Sandwich Valve Dimensional Data

All D03 Sandwich valves (starting with 31 Series) including CM2, CPOM2, FM2, PRDM2 and RM2 measure 40 mm (1.58") thickness.

For additional technical information about Sandwich valves, refer to the Sandwich Valve Section of this Catalog.



A01_Cat2500.indd, ddp, 04/19



General Description

Series D1VW Inductive Control Valves are direct operated directional valves with inductive position control and are typically used in safety relevant applications. The start or end position can be monitored. The position control is available for single and double solenoid valves.

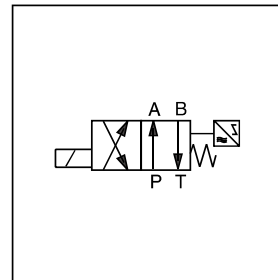
The fail-safe position of the directional valve during power failure is the spring offset or center position.

Please find detailed information on the machine directive in the position paper (see pages A39 and A40).

The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.



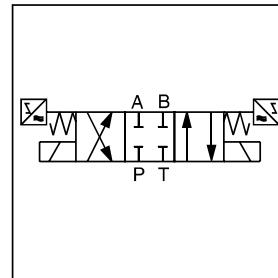
D1VW*B



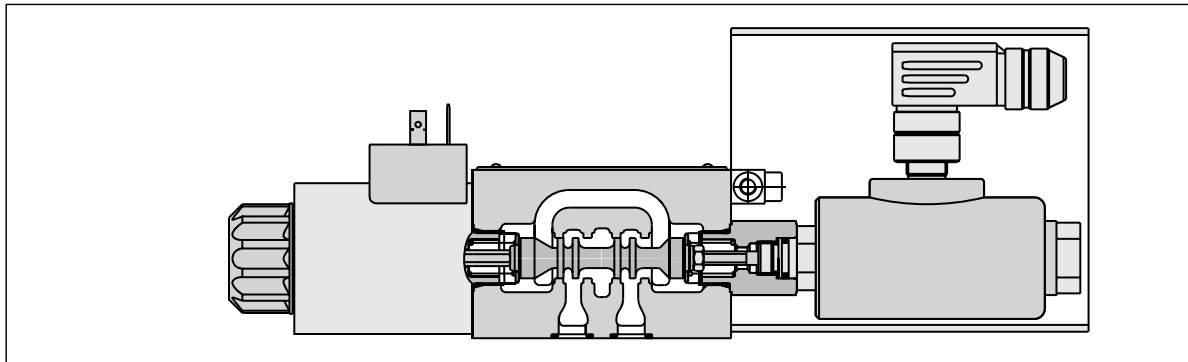
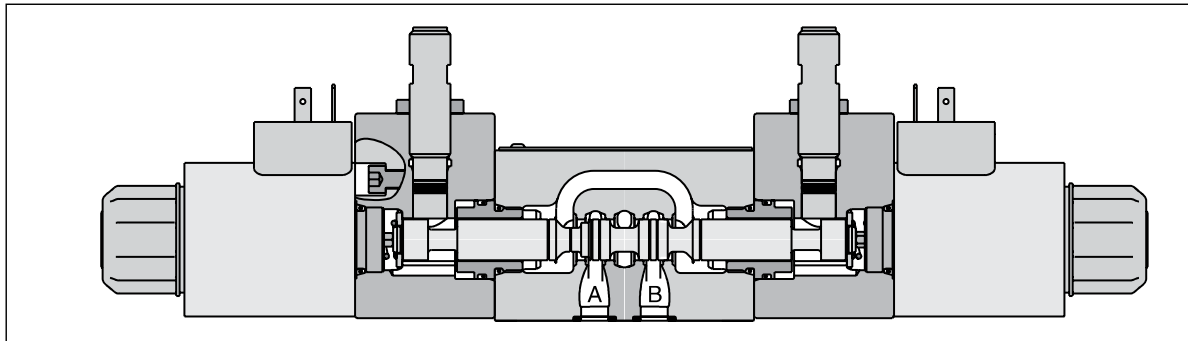
D1VW*B



D1VW*C



D1VW*C

A
D1VW*B

D1VW*C


⚠ WARNING: This product can expose you to chemicals including Lead, Nickel (Metallic), or 1,3-Butadiene which are known to the State of California to cause cancer, and Lead or 1,3-Butadiene which is known to the State of California to cause birth defects and other reproductive harm. For more information go to www.P65Warnings.ca.gov.
 A01_Cat2500.indd, ddp, 04/19

Catalog MSG14-2500/US
Ordering Information

 Directional Control Valves
Series D1VW (Inductive Position Control)

D
 Directional Control Valve

1
 Basic Valve

V
 3 Chamber Valve

W
 Actuator Solenoid Wet Pin

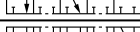
Spool

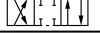
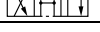
Style

Seal

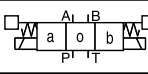
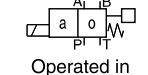
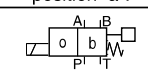
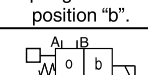
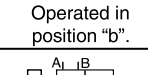
 NFPA D03
 CETOP 03
 DIN NG6

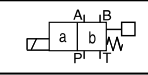
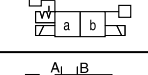
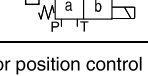
Code	Description
N	Nitrile
V	Fluorocarbon

3-Position Spools	
Code	Spool Type
	a 0 b
001	
002	
003 ¹⁾²⁾	
004	
005 ¹⁾	
015 ¹⁾³⁾	
016 ¹⁾	
076 ¹⁾	
078 ¹⁾	

2-Position Spools	
Code	Spool Type
	a b
020	
026 ⁴⁾	
030 ⁴⁾	

- 1) Spool types on request for spool position "C".
 2) Only available for spool position "E" and "F".
 3) Only available for spool position "K" and "M".
 4) Only available for spool position "B" and "H".

3-Position Spools	
Code	Spool Position
C	 3 positions. Spring offset in position "0". Operated in position "a" or "b".
E	 Operated in position "a". 2 positions. Spring offset in position "0".
F	 Spring offset in position "b". 2 positions. Operated in position "0".
K	 Operated in position "b". 2 positions. Spring offset in position "0".
M	 Spring offset in position "a". 2 positions. Operated in position "0".

2-Position Spools	
Code	Spool Position
B	 2 positions. Spring offset in position "b". Operated in position "a".
D⁵⁾	 2 positions. Spring offset in position "a". Operated in position "b".
H	 2 positions. Spring offset in position "a". Operated in position "b".

⁵⁾ Only for position control (code I3N).

Weight:

 Single Solenoid: 1.8 kg (4.0 lbs.)
 Double Solenoid: 3.8 kg (8.4 lbs.)

Bold: Designates Tier I products and options.
Non-Bold: Designates Tier II products and options. These products will have longer lead times.

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 Parker Hannifin Corporation
 Hydraulic Valve Division
 Elyria, Ohio, USA

Archivierung 06/2020

Catalog MSG14-2500/US
Ordering Information

 Directional Control Valves
Series D1VW (Inductive Position Control)

Solenoid Voltage

W

Connector as per EN 175301-803, without plug
(Please order plug separately.)*

Manual Override

Position Control

Design Series
NOTE:
Not required when ordering.

Code	Description
K	12 VDC
J	24 VDC
U ⁶⁾	98 VDC
G ⁶⁾	205 VDC

Code	Description
Omit	Standard
T ⁷⁾	No Override

⁶⁾ To be used in combination with rectifier plugs at 120VAC / 230VAC power supply. (Please order plug separately.)*

⁷⁾ For hydraulic presses according to the safety regulations EN 693, solenoid option "T" (without manual override) and accessories "I4N", "I5N" or "I6N" (start position monitored) are required.

Code	Description	Spool Position
I2N	End position monitored side B	E, F, B (Solenoid on a-side)
I5N ⁷⁾	Start position monitored side B	
I1N	End position monitored side A	K, M, H (Solenoid on b-side)
I4N ⁷⁾	Start position monitored side A	
I3N	End positions	C, D
I6N ⁷⁾	Start positions	C

* See Series D1V Technical Information.

A
Bold: Designates Tier I products and options.
Non-Bold: Designates Tier II products and options. These products will have longer lead times.

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 Parker Hannifin Corporation
 Hydraulic Valve Division
 Elyria, Ohio, USA

Archivierung 06/2020

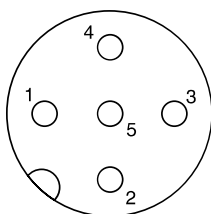
A

General					
Design		Directional Spool Valve			
Actuation		Solenoid			
Size		NG6 / CETOP 03 / NFPA D03			
Mounting Interface		DIN 24340 A6 / ISO 4401 / NFPA D03 / CETOP RP 121-H			
Mounting Position		Unrestricted, preferably horizontal			
Ambient Temperature		[°C]	0...+50; (+32°F...+122°F)		
MTTF _D Value		[years]	75		
Hydraulic					
Maximum Operating Pressure		P, A, B: 350 Bar (5045 PSI); T: 210 Bar (3045 PSI)			
Fluid		Hydraulic oil in accordance with DIN 51524 / 51525			
Fluid Temperature		[°C]	-25 ... +70 (-13°F...+158°F)		
Viscosity Permitted		[cSt]/[mm²/s]	2.8...400 (13...1854 SSU)		
Recommended		[cSt]/[mm²/s]	30...80 (139...371 SSU)		
Filtration		ISO 4406 (1999); 18/16/13 (meet NAS 1638: 7)			
Flow Maximum		80 LPM (21 GPM) See shift limits			
Leakage at 50 Bar (725 PSI) (per flow path)		[ml/min]	Up to 10 (0.003 GPM) (depending on spool)		
Static / Dynamic					
Step Response at 95%		[ms]	Energized: 32; De-energized: 40		
Electrical					
Duty Ratio		100% ED; CAUTION: coil temperature up to 150°C (302°F) possible			
Max. Switching Frequency		15000 swithcings per hour			
Protection Class		IP 65 in accordance with EN 60529 (plugged and mounted)			
	Code	K	J	U	G
Supply Voltage	[V]	12	24	98	205
Tolerance Supply Voltage	[%]	±10	±10	±10	±10
Current Consumption	[A]	2.72	1.29	0.33	0.15
Power Consumption	[W]	32.7	31	31.9	30.2
Solenoid Connection		Connector as per EN 175301-803, solenoid identification as per ISO 9461.			
Wiring Minimum		[mm²]	3 x 1.5 recommended		
Wiring Length Maximum		[m]	50 (164 ft.) recommended		

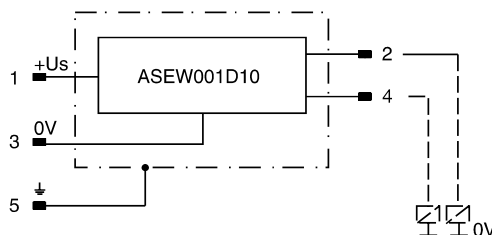
 With electrical connections the protective conductor (PE $\perp$) must be connected according to the relevant regulations.

Single Solenoid Valves
Electrical Specifications of Position Control as per IEC 61076-2-101 (M12x1)
A

Protection Class	IP 65 in accordance with EN 60529 (plugged and mounted)
Ambient Temperature [°C]	0...+50; (+32°F...122°F)
Supply Voltage U_s / Ripple [V]	18...42 $\pm$ 10%
Current Consumption without Load [mA]	$\leq$ 30
Max. Output Current per Channel, Ohmic [mA]	400
Min. Output Load per Channel, Ohmic [kOhm]	100
Max. Output Drop at 0.2A [V]	$\leq$ 1.1
Max. Output Drop at 0.4A [V]	$\leq$ 1.6
EMC	EN50081-1 / EN50082-2
Max. Tolerance Ambient Field Strength [A/m]	<1200
Min. Distance to Next AC Solenoid [m]	>0.1 (0.33 ft.)
Interface	M12x1
Wiring Minimum [mm ²]	5 x 0.25 braided shield recommended
Wiring Length Maximum [m]	50 (164 ft.) recommended

M12 Pin Assignment


- 1 U_s 18...42V
- 2 Out B: normally open
- 3 0V
- 4 Out A: normally closed
- 5 Earth ground


Definitions
Start position monitored:

The valve is de-energized. The inductive switch gives a signal at the moment the spool leaves the spring offset position (below 15% spool stroke).

At the switching point the spool is located within the closed position. It is secured so that only the flow paths of the offset position are granted.

The switch can only be located on the opposite side of the solenoid for direct operated valves. Delivery includes plug M12 x 1 (part no.: 5004109).

End position monitored:

The inductive switch gives a signal before the end position is reached. (above 85% spool stroke).

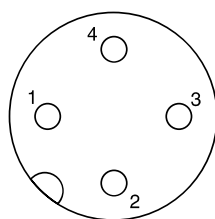
A

Double Solenoid Valves

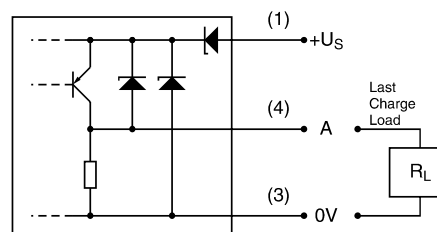
Electrical Specifications of Position Control as per IEC 61076-2-101 (M12x1)

Protection Class	IP 65 in accordance with EN 60529 (plugged and mounted)
Ambient Temperature [°C]	0...+50; (+32°F...122°F)
Supply Voltage / Ripple [V]	10...30 / ±10%
Current Consumption without Load [mA]	≤ 10
Max. Output Current per Channel, Ohmic [mA]	200
Min. Output Load per Channel, Ohmic [kOhm]	100
Max. Output Drop at 0.2A [V]	≤ 2
EMC	EN61000-6-4 / EN61000-6-2
Min. Distance to Next AC Solenoid [m]	>0.1 (0.33 ft.)
Interface	M12x1
Wiring Minimum [mm²]	3 x 0.14 braided shield recommended
Wiring Length Maximum [m]	50 (164 ft.) recommended

M12 Pin Assignment



- 1 U_s 10...30V
- 2 Not connected
- 3 0V
- 4 Out A: normally open

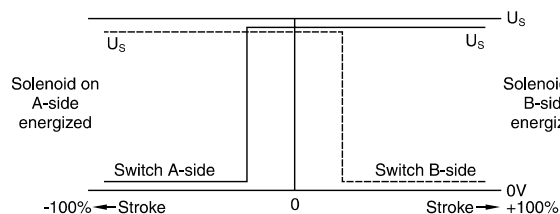


Definitions

Start position monitored:

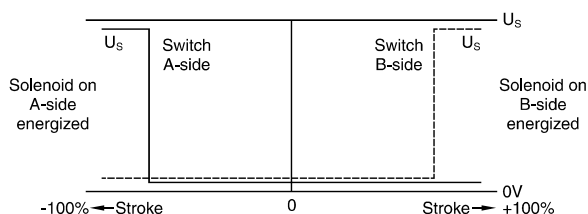
The valve is de-energized. The inductive switch gives a signal at the moment the spool leaves the center position (below 15% spool stroke).

At the switching point the spool is located within the closed position. It is secured so that only the flow paths of the offset position are granted.



End position monitored:

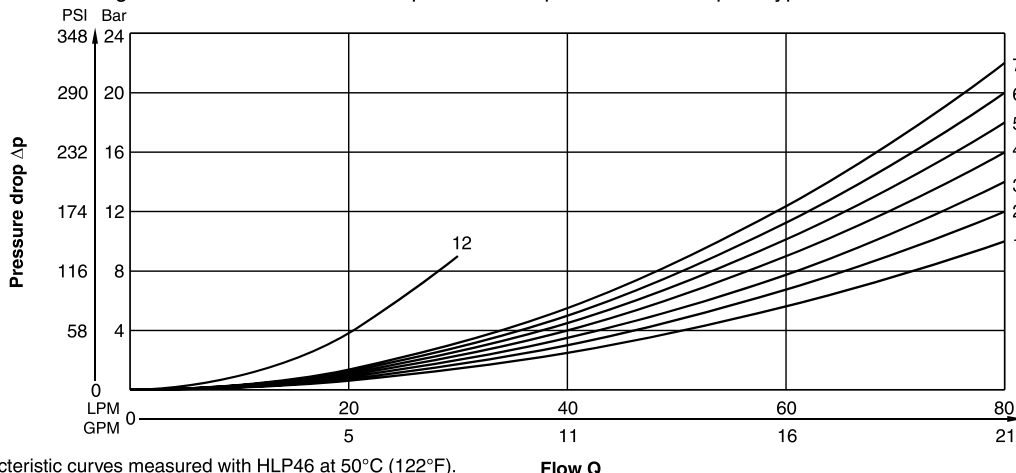
The inductive switch gives a signal before the end position is reached (above 85% spool stroke).



Please order plug M12 x 1 separately. Straight plug recommended – no defined position possible for angled plug.

Performance Curves

The flow curve diagram shows the flow versus pressure drop curves for all spool types.



All characteristic curves measured with HLP46 at 50°C (122°F).

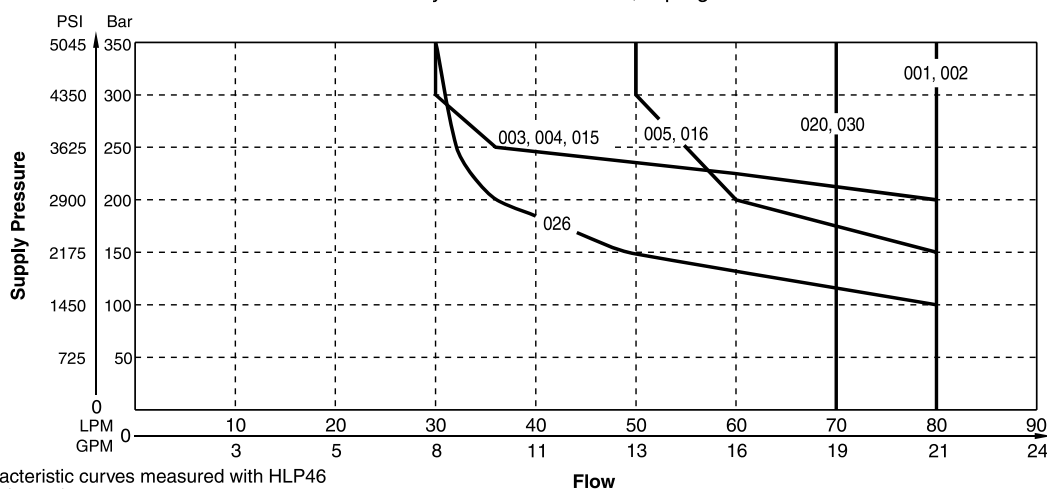
Flow Q

The relevant curve number for each spool type, operating position and flow direction is given in the table below.

Spool	Position "b"		Position "a"		Position "0"				
	P-A	B-T	P-B	A-T	P-A	P-B	A-T	B-T	P-T
001	2	2	2	2	—	—	—	—	—
002	1	4	1	4	1	1	5	5	2
003	3	4	3	6	—	—	7	—	—
004	2	3	2	3	—	—	7	7	—
005	2	2	2	2	12	—	—	—	—
015	3	6	3	4	—	—	—	7	—
016	2	2	2	2	—	12	—	—	—
020 B	4	4	2	3	—	—	—	—	—
026 B	4	—	4	—	—	—	—	—	—
030 B	2	3	1	2	—	—	—	—	—

Shift Limit Diagram

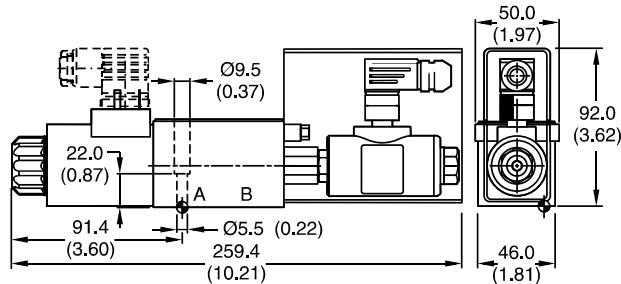
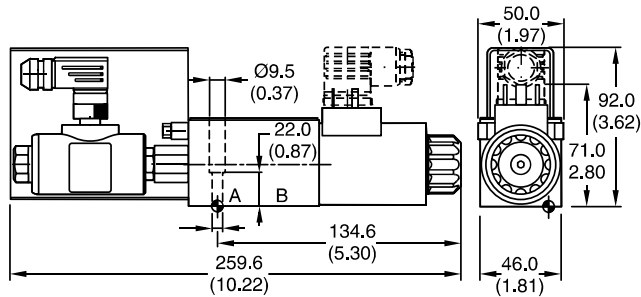
The diagram below specifies the shift limits. Valves with spool position "F" or "M" can only be operated up to 70% of the limits. The specifications apply to balanced flow conditions. The shift limits can be considerably lower at unbalanced flow conditions. To avoid flow rates beyond the shift limits, a plug-in orifice can be inserted in the P-port.

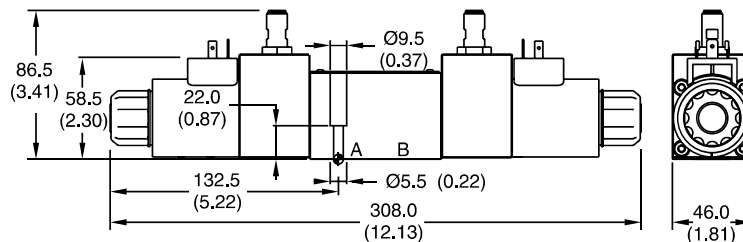


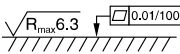
All characteristic curves measured with HLP46 at 50°C (122°F), 90% U_{nom} and warm solenoids.

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Inch equivalents for millimeter dimensions are shown in (**)

A
Interface EN 175301-803, DC solenoid, with plug M12x1¹⁾
Style B, E, F

Style H, K, M

¹⁾ Delivery includes plug M12x1. (part no.: 5004109).

Interface EN 175301-803, DC solenoid, without plug M12x1²⁾
Style C

²⁾ Please order plug M12 x 1 separately. Straight plug recommended – no defined position possible for angled plug.

Surface Finish	Kit			Seal Kit
	BK375 BK209	 4x M5x30 4x 10-24x1.25 DIN 912 12.9	 7.6 Nm (0.6 lb.-ft.)	Nitrile: SKD1VWN91 Fluorocarbon: SKD1VWV91

 The space necessary to remove the plug per DIN 43650, design type AF is at least 15 mm (0.59").
 The torque for the screw M3 of the plug has to be 0.5 (0.37 lb.-ft.) to 0.6 Nm (0.44 lb.-ft.).

The adjustment of the position control is factory set and sealed. Replacement and repairs can only be undertaken by the manufacturer.

**Position Paper of HCD
regarding
machinery directive 2006/42/EG
DIN EN ISO 13849**

A

Products made by the Hydraulic Controls Division (HCD) of Parker Hannifin GmbH are excluded from the scope of the machinery directive following the „*VDMA Position Paper on the Implementation of the Machinery Directive 2006/42/EC in the Fluid Power Industry*“ (Rev. 29.07.2009).

The only exceptions are products that comply to the definition of a safety component, defined in article 2 c) of the machinery directive.

All HCD products are designed and manufactured considering the basic as well as the proven safety principles according to EN 13849-2:2008-09, C.2 and C.3, so that the machines in which the products are incorporated meet the essential health- and safety requirements.

Components that fall within the scope of DIN EN ISO 13849-1, *Safety of machinery – Safety related components of controls – part 1: General principles for design* do not necessarily have to be placed on the market as safety components in accordance with the machinery directive.

A component that is placed on the market but not as a safety component does not necessarily provide a lower safety level.

Confirmations for components to be proven components, e. g. for validation of hydraulic systems, can only be provided after an analysis of the specific application, as the fact to be a proven component mainly depends on the specific application.

MTTF_d values for our products are part of the technical data within our catalogue.

B10_d, DC and CCF values depend on cycle time, running time and system design. Therefore they can only be provided application specific.