Return to ALPHA TOC
Return to SECTION TOC

Industrial Hydraulic Valves

Directional Control, Pressure Control, Sandwich, Subplates & Manifolds, Accessories

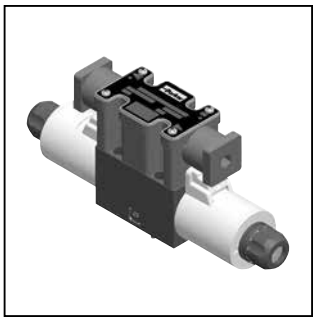
Catalog HY14-2500/US

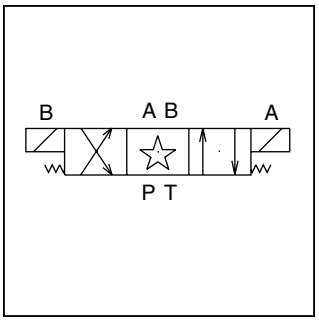
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

ENGINEERING YOUR SUCCESS.

General Description

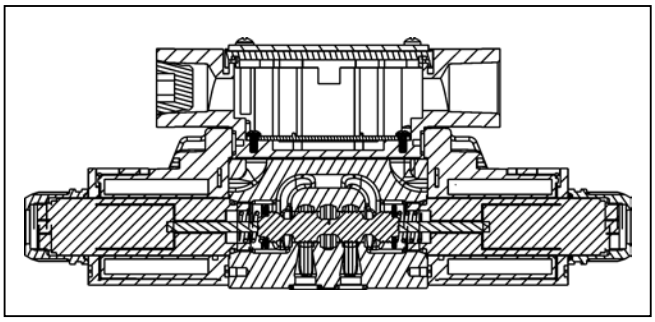
Series D1VW directional control valves are high performance, 4-chamber, direct operated, wet armature solenoid controlled, 3 or 4-way valves. They are available in 2 or 3-position and conform to NFPA's D03, CETOP 3 mounting patterns.





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
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)

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)*
*#008 and #009 Spools may exceed these rates. Consult Factory	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)

Response Time

Response time (milliseconds) at 345 Bar (5000 PSI) is 32 LPM (8.5 GPM).

Solenoid Type	Pull-In	Drop-Out
AC	13	20
DC 10 Watt	61	22
DC 30 Watt	51	21

		Spool Center Condition					
	Orifice	Closed		Open		2-Position	
Soft Shift	Size	Energize	De-Energize	Energize	De-Energize	Energize	De-Energize
S2	0.020	125 ms	920 ms	200 ms	275 ms	51 ms	100 ms
S5	0.050	51 ms	675 ms	50 ms	27 ms	51 ms	21 ms

D	1V					
Directional Control Valve	Basic Valve	Actuator	Spool	Style	Seal	Solenoid Voltage

Basic Valve

NFPA D03
CETOP 3
DIN NG6

Actuator

Code	Description
W*	**Solenoid, Wet Pin, Screw-in**
HW*	**Reversed Wiring**

Seal

Code	Description
N	**Nitrile**
V	**Fluorocarbon**
E*	EPR

* Contact HVD for availability.

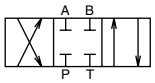
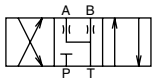
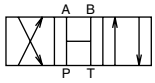
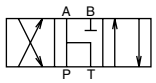
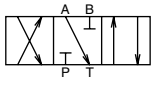
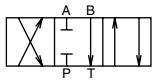
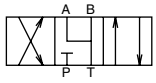
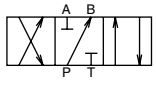
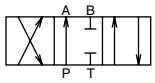
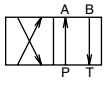
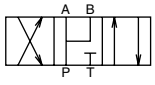
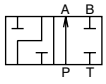
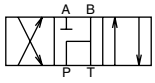
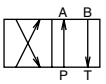
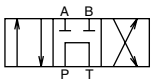
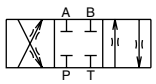
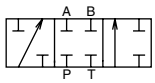
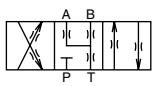
Solenoid Voltage

Code	Description	Code	Description
A**	24/50 VAC	Q**	100/60 VAC
D	120 VDC	QD†	100/60 - 100/50 VAC
G	198 VDC	R	24/60 VAC
J	**24 VDC**	**T**	**240/60 - 220/50 VAC**
K	**12 VDC**	U	98 VDC
L	6 VDC	**Y**	**120/60 - 110/50 VAC**
N***	220/50 VAC	Z	250 VDC
P***	110/50 VAC		

** High Watt only
*** Explosion Proof only.
† Available in DIN only.

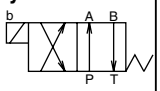
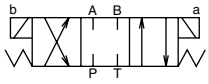
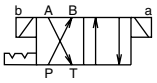
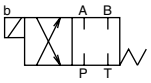
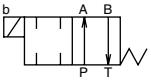
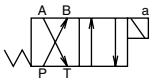
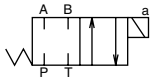
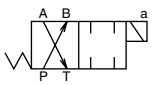
* Valve schematic symbols are per NFPA/ ANSI standards, providing flow P to A when energizing solenoid A. Note operators reverse sides for #008 and #009 spools. See installation information for details. To configure per DIN standards (A coil over A port, B coil over B port) code valves as D1VHW***.

Spool

Code	Symbol	Code	Symbol
001		011	
002		014	
003		015	
004		016	
005		**020***	
006		026*	
007		**030****	
008*, 009**		**081**	
010		**082**	

* 008, 020 & 026 spools have closed crossover.
** 009 & 030 spools have open crossover.

Style

Code	Description	Symbol
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, 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.

Solenoid Connection

Code	Description
C*	**Leadwire Conduit Box**
D**	Metric Plug (M12X1), DESINA
E†	Explosion Proof
G††	**Plug-In Conduit Box**
J#	**Deutsch (DT06-2S)**
M#	Metri-Pack (150)
P	**DIN with Plug**
S#	Dual Spade
W†	**DIN w/o Plug**

* No variations – See Plug-in.
** DC only, lights, diode surge suppressor, not CSA approved.
† Not available with lights.
†† Required for variations on conduit box style. Must have lights.
# DC only, no lights, not CSA approved.

Coil Options

Code	Description
Omit*	**High Watt**
D**	Explosion Proof, EEXD ATEX
E**	Explosion Proof, EEXME ATEX
F†	Low Watt
L††	10 Watt
O**	Explosion Proof, MSHA
T#	Explosion Proof, Ex d IIC ATEX/CSA
U**	Explosion Proof, UL/CSA

* AC ambient temperature must not exceed 60°C (140°F).
** 60 Hz only on AC, no options.
† AC only.
†† DC and AC rectified only.
# J, K and Y voltages only. Dual frequency on AC, no options.

Tube Options

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.

Manual Override Options

Code	Description
Omit	**Standard**
T*†	No Override
P*	Extended Manual Override w/Boot

* Manual override options not available on explosion proof or soft shift.
† DC/AC rectified only.

Electrical Options

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

† DC tube standard.
** DC only. DIN coil must have plug with lights.

Shift Response and Indication

Code	Description
Omit	**Standard Response**
S2*	Soft Shift, 0.020" Orifice
S3*	Soft Shift, 0.030" Orifice
S4*	Soft Shift, 0.040" Orifice
S5*	Soft Shift, 0.050" Orifice
I7**	Monitor Switch Direct Op. End Stroke
I8**	Monitor Switch Direct Op. Start Stroke

* Not available with 10 watt. AC DIN coil must include plug.
** Single solenoid models only. Not CE or CSA approved.

Approvals

Code	Description
Omit	**Standard Valve**
3*†	CSA US
4*#	**CSA Canada**

* Not available with AC high pressure tube.
† B, C, H styles only. J, K, Y, U voltages only. C, G, W sol. connections only. Conforms to UL429.
# Valve is derated.

Valve Variations

Code	Description
Omit	**No Variations**
5**	**Signal Lights**
56*	**Manaplug (Mini) with Lights**
7B*	Manaplug (Micro) with Lights
1C*	**Manaplug (Mini) Single Sol. 5-pin, with Lights**
1D*	Manplug (Micro) Single Sol. 5-pin, with Lights
1M*	Manaplug Opposite of Normal
4D†	Twist & Lock Override (Old 5426, 33 Ford wiring)
4E†	Push Manual Override (Old x5450)
4F	Heavy Duty Detent
1P	Painted Body
7Y*	4-pin M12x1 Manaplug, special wiring with lights (Old B755)

* Plug-in Conduit Box
** Plug-in, DIN, or DESINA only
† DC/AC Rectified only. Not available with soft shift.

Design Series
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.

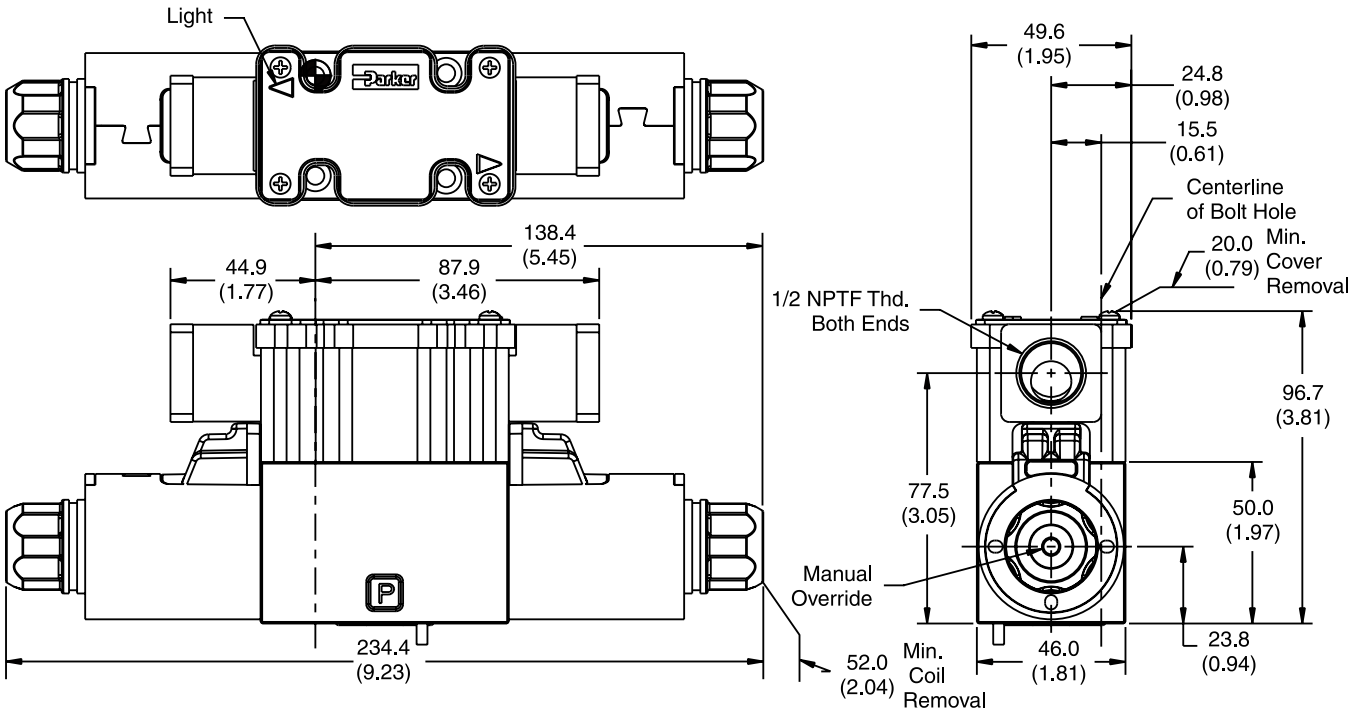
D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

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

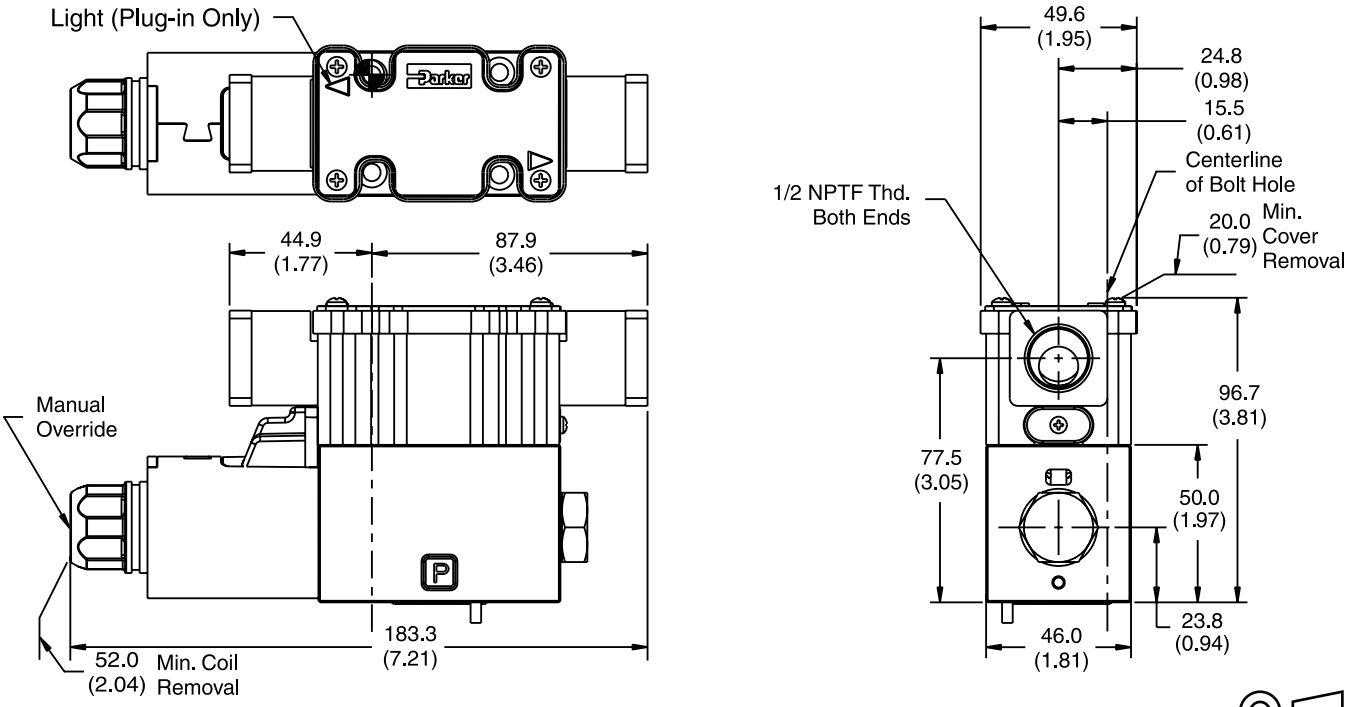
A

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



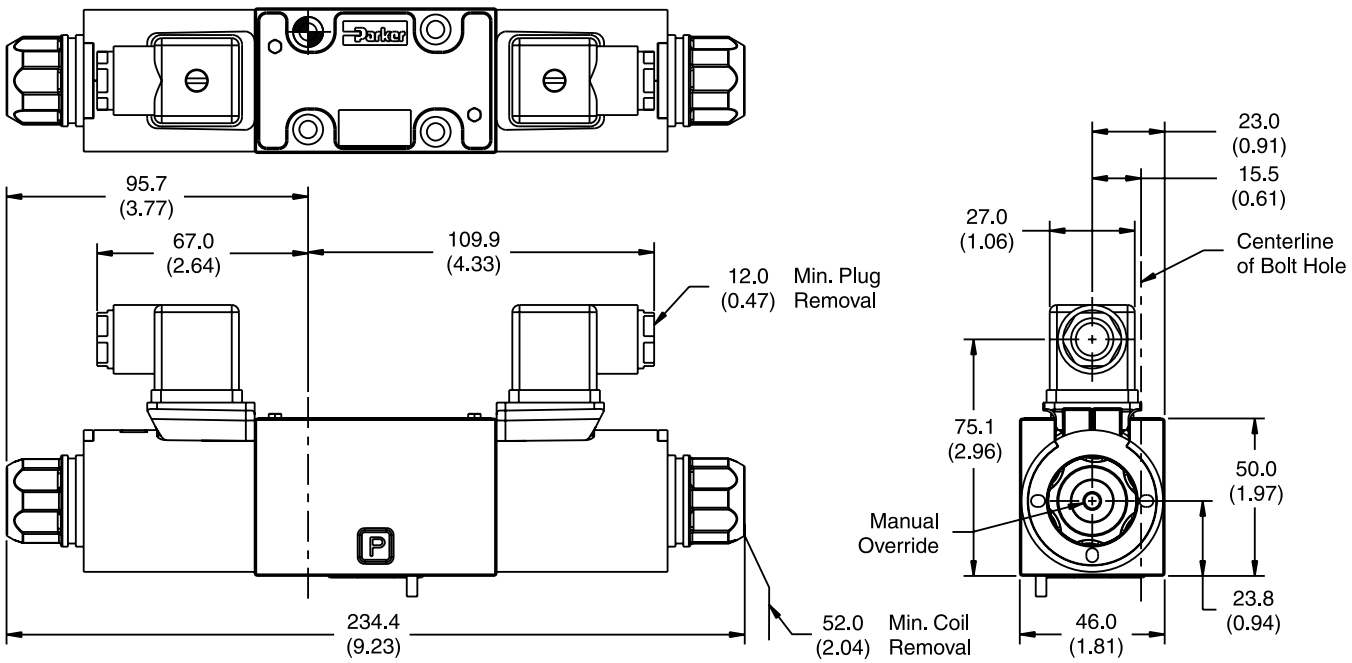
Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

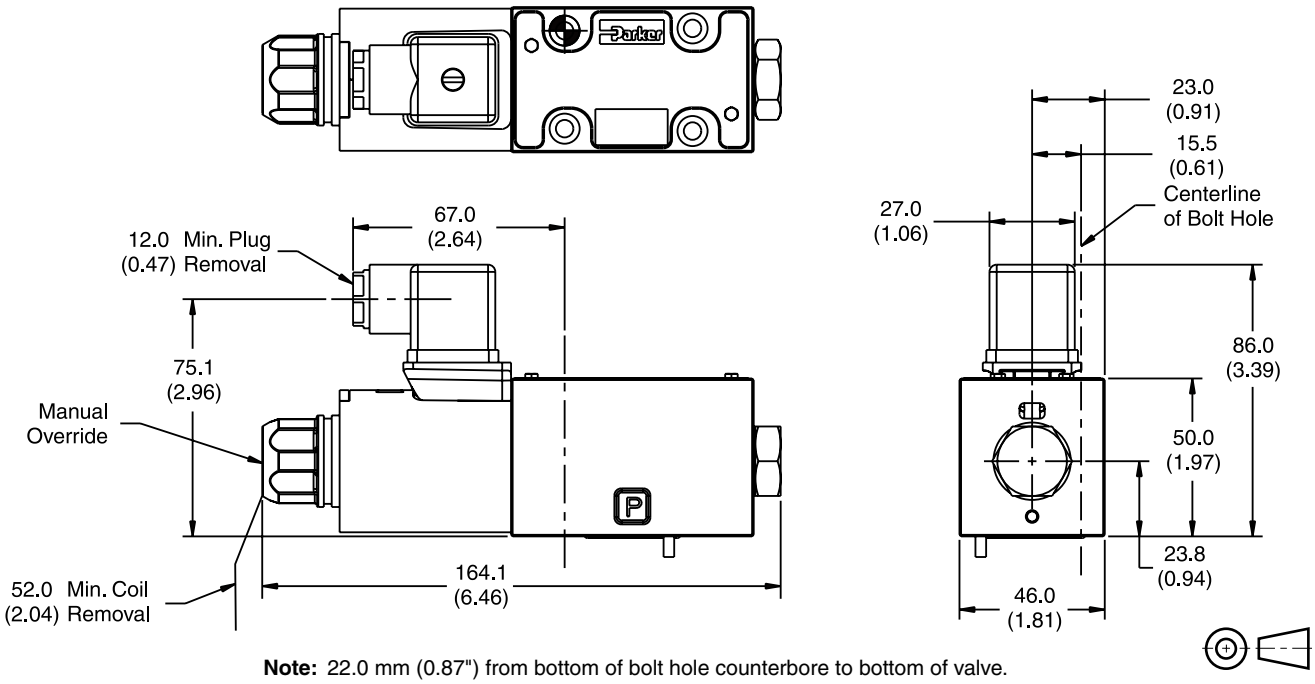
Inch equivalents for millimeter dimensions are shown in (**)

DC DIN with Plug Connector, Double Solenoid
"P" Option Shown



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.

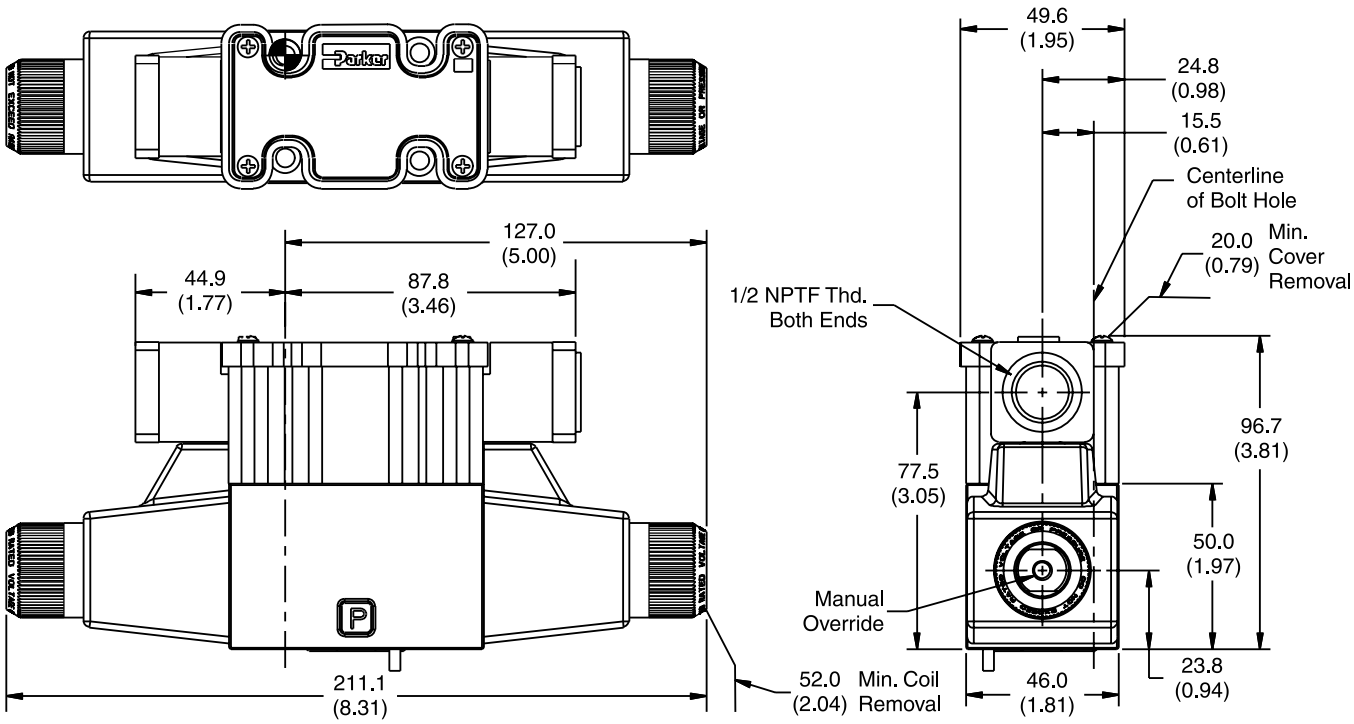
D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

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

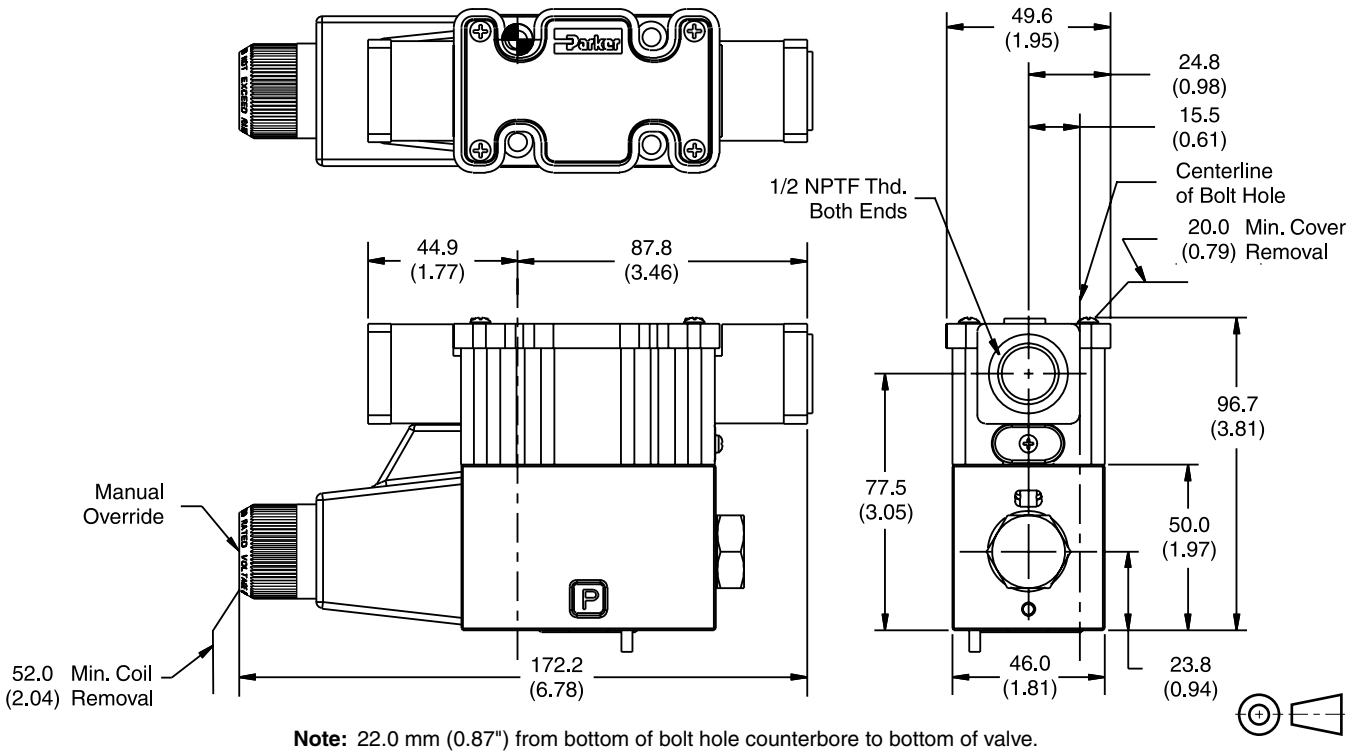
A

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



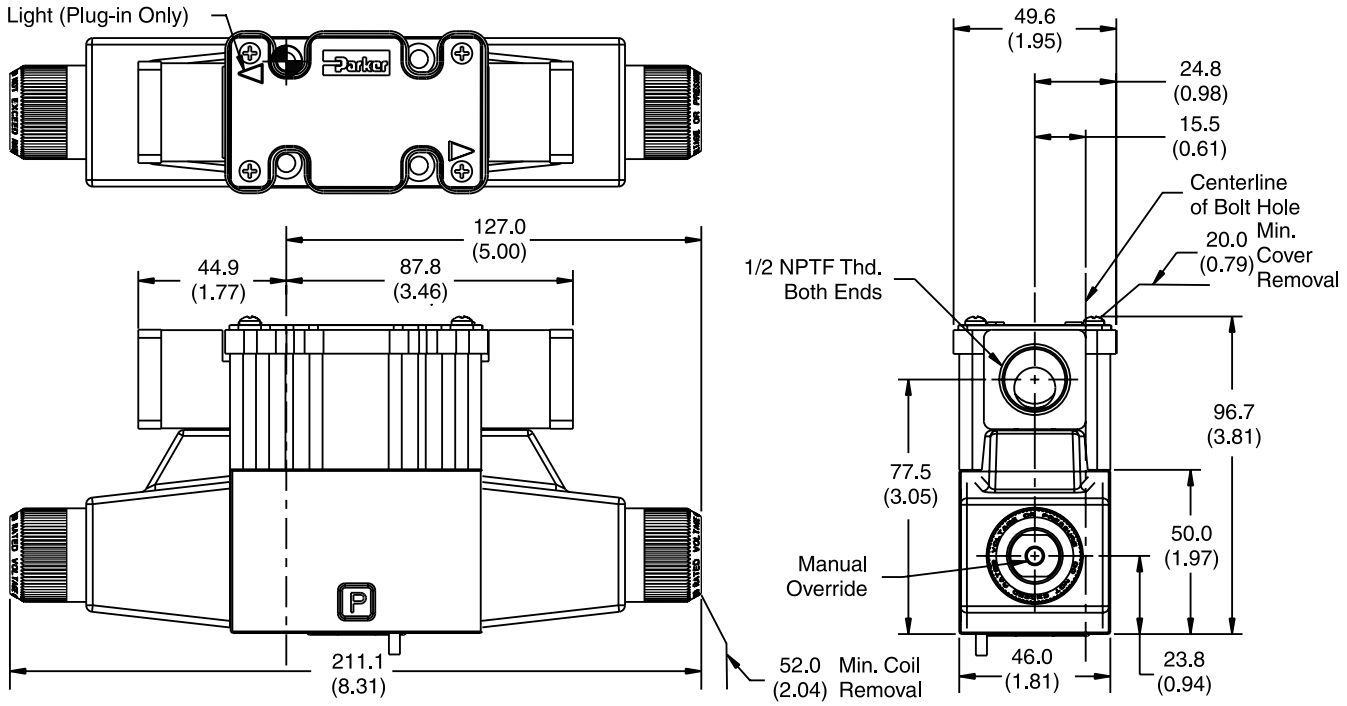
Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

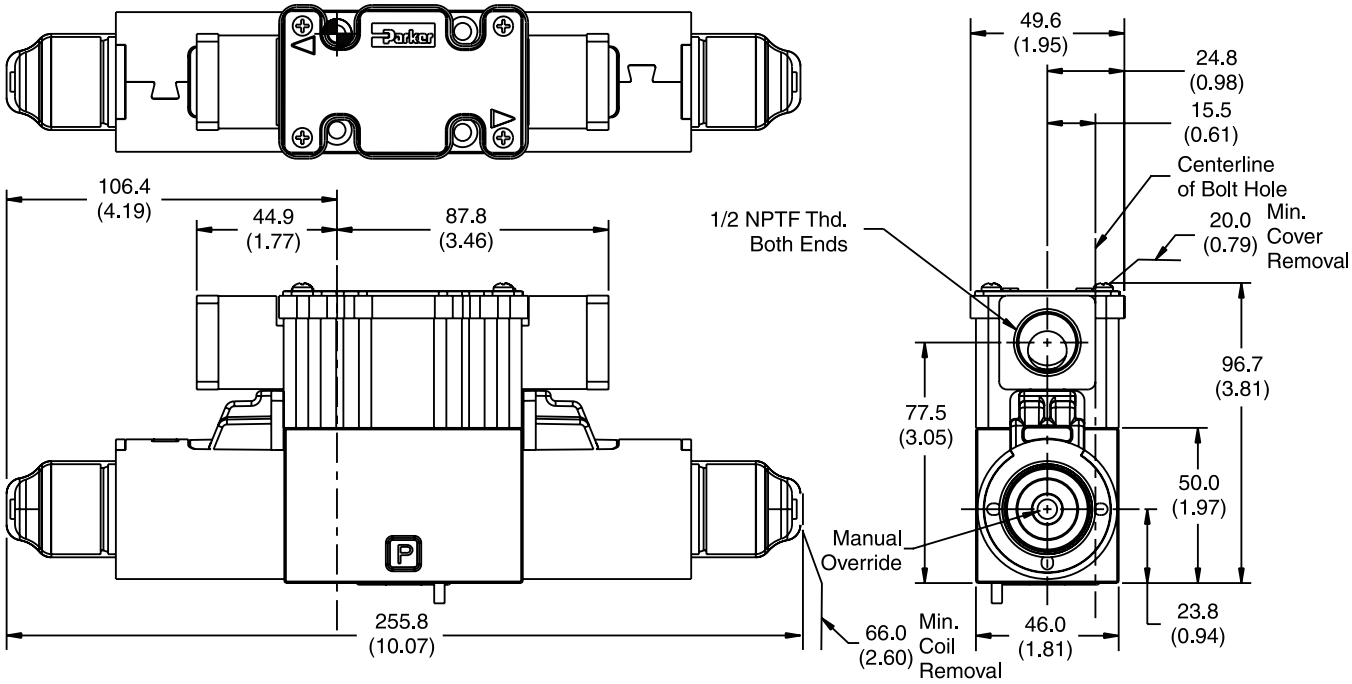
Inch equivalents for millimeter dimensions are shown in (**)

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



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.

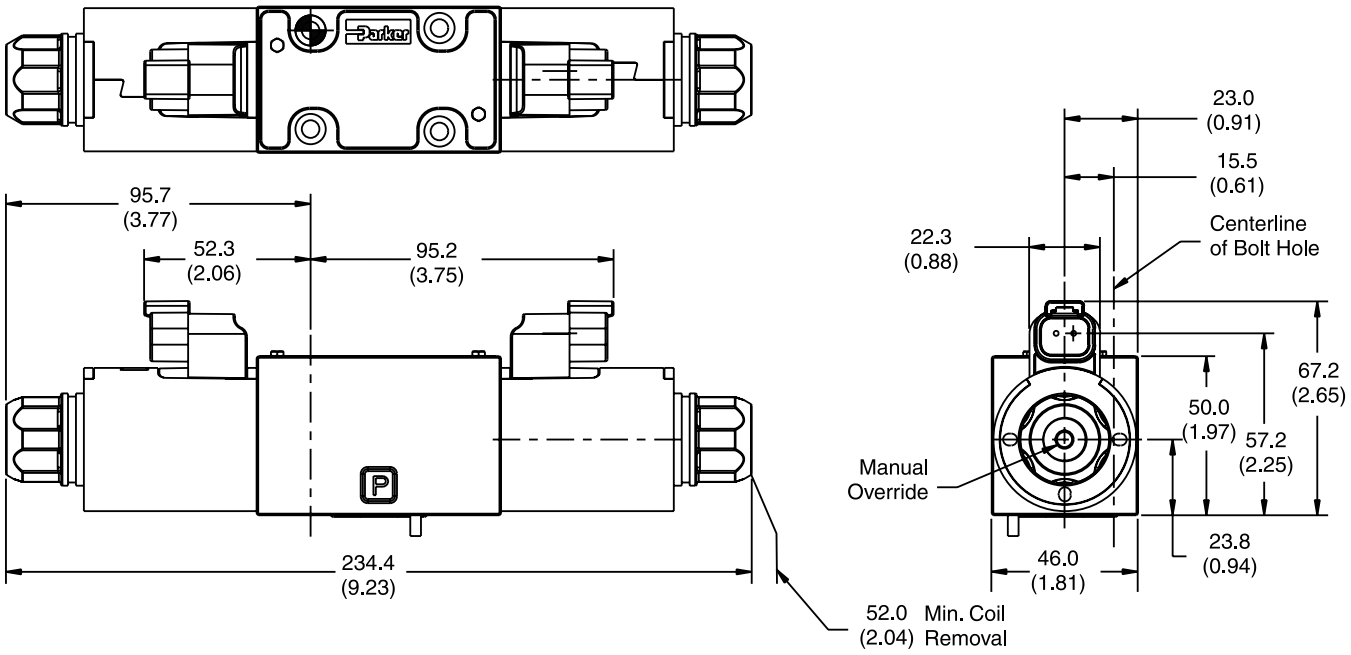
D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

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

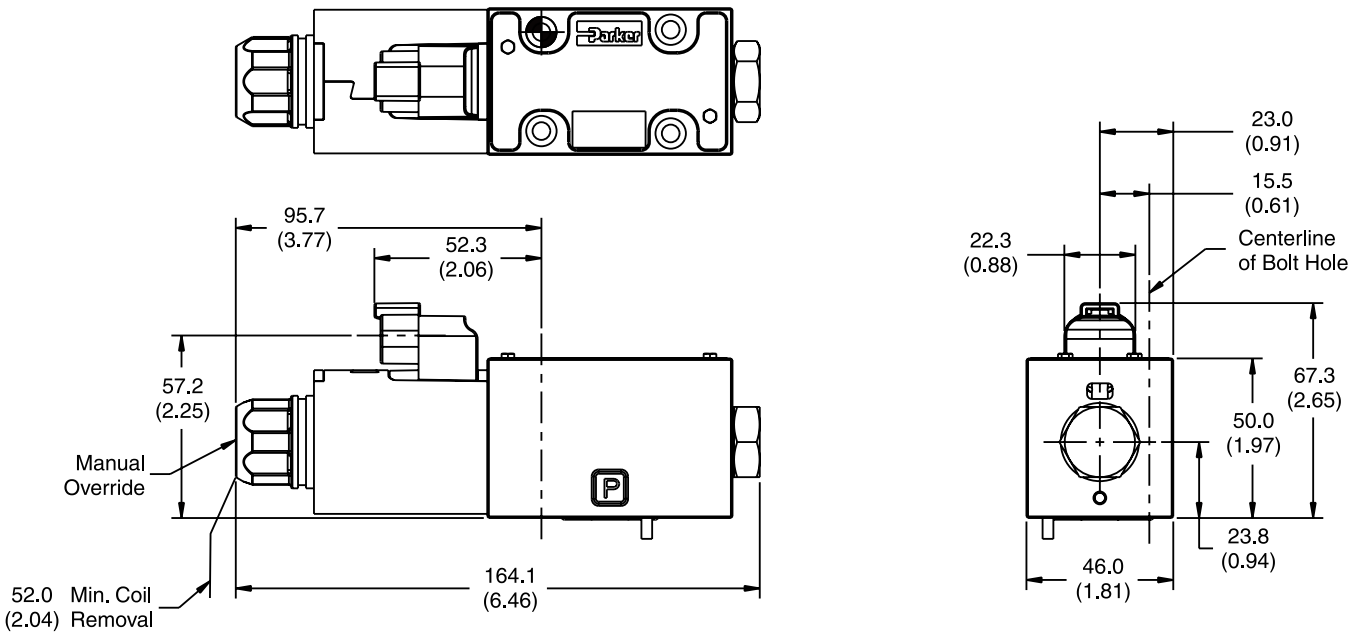
A

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.

D1.indd, dd

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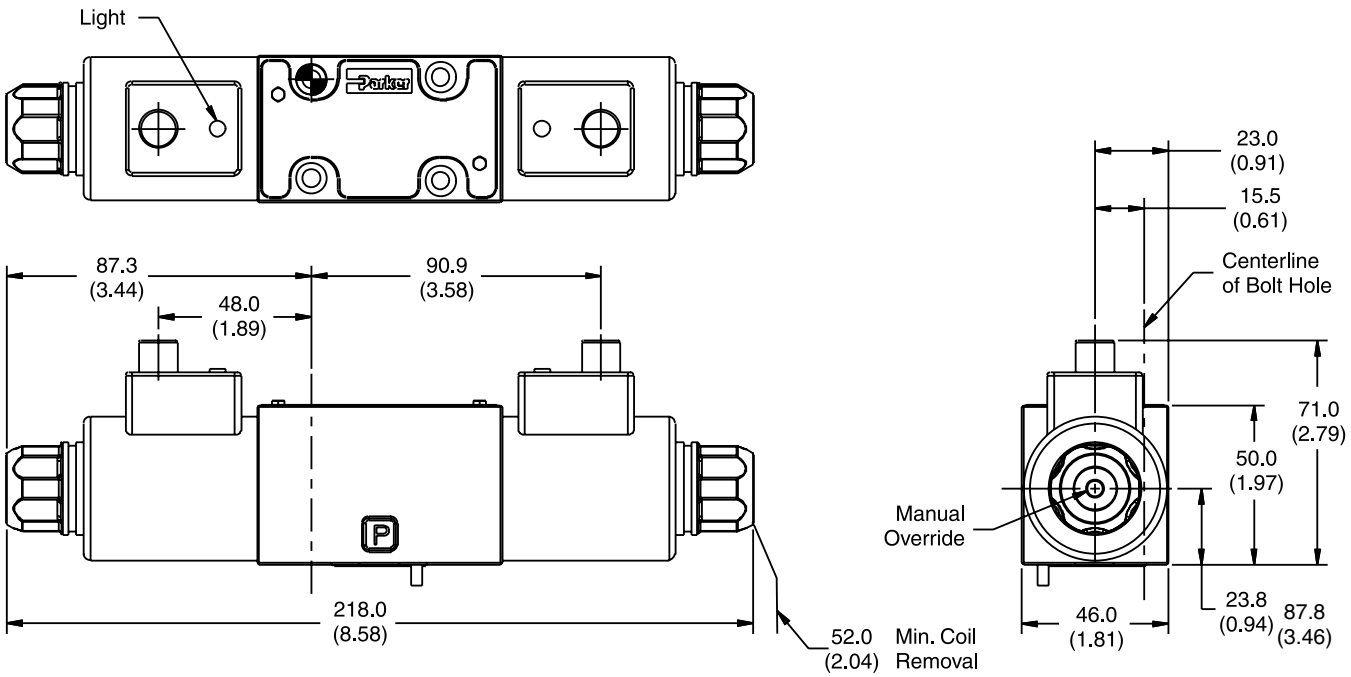
Hydraulic Valve Division
Elyria, Ohio, USA

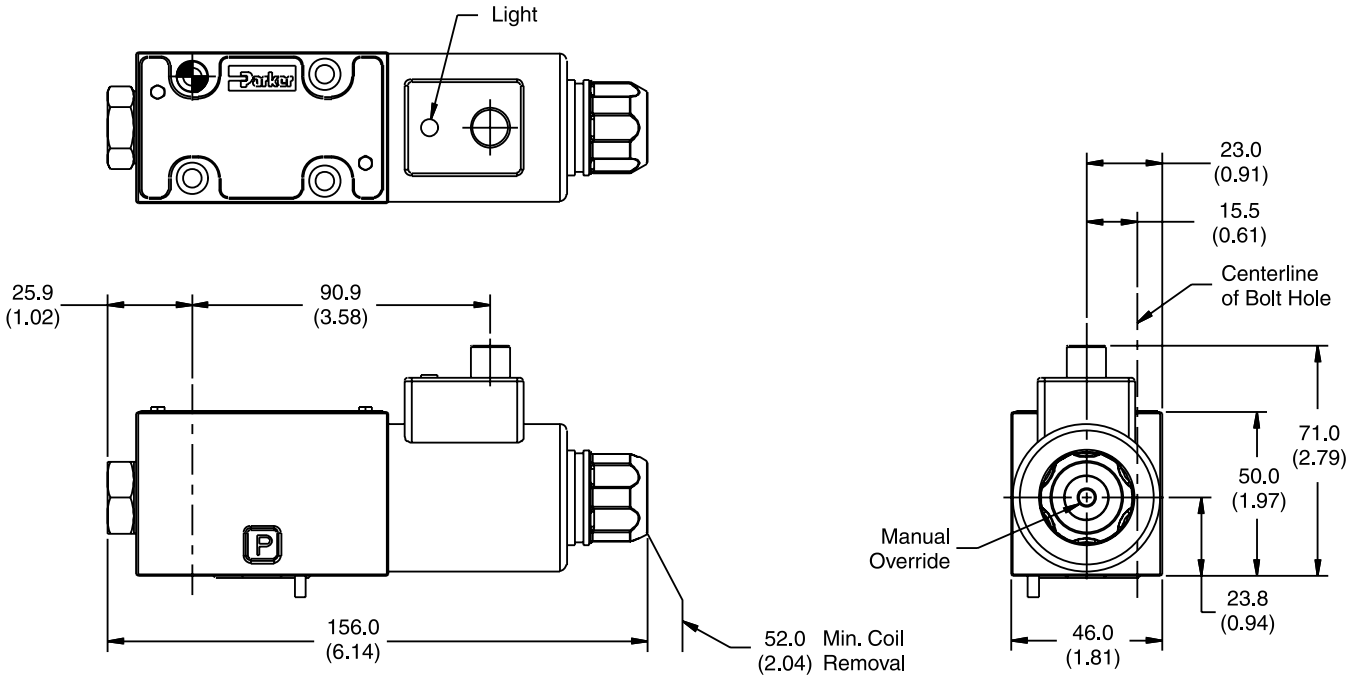
Inch equivalents for millimeter dimensions are shown in (**)

DC Desina Connector, Double Solenoid



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.

D1.indd, dd

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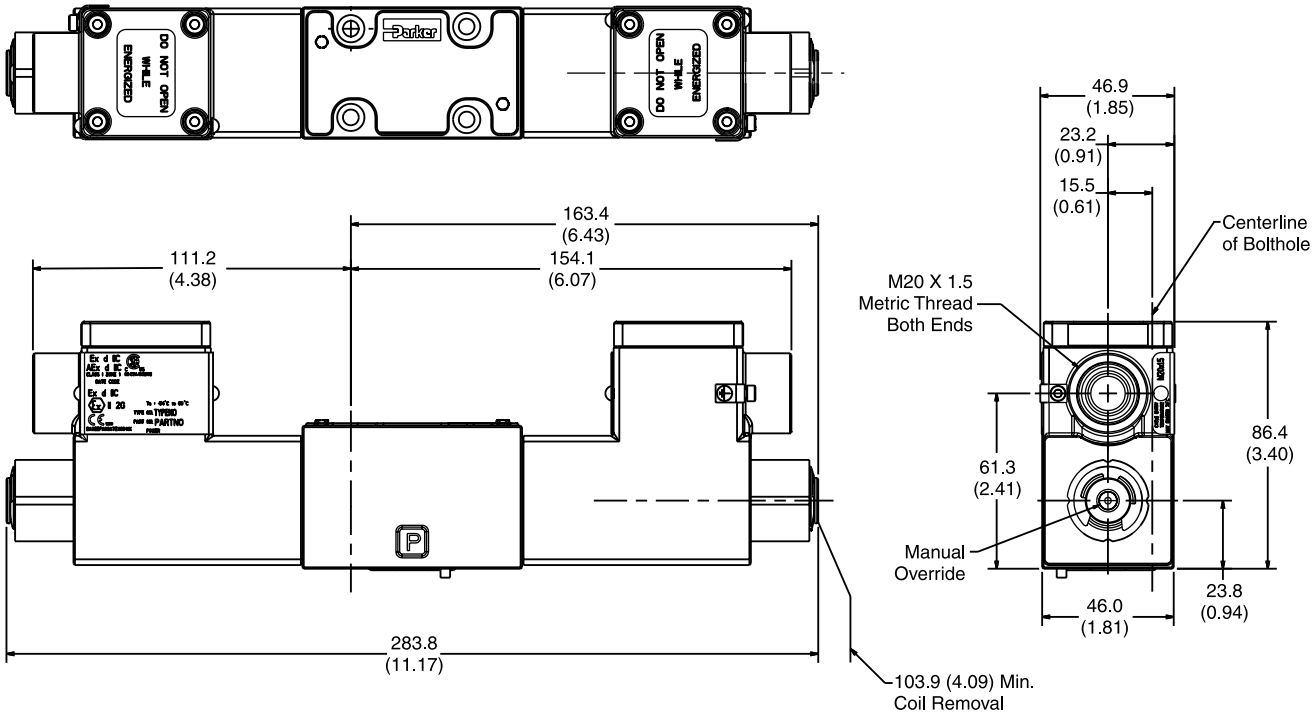
Hydraulic Valve Division
Elyria, Ohio, USA

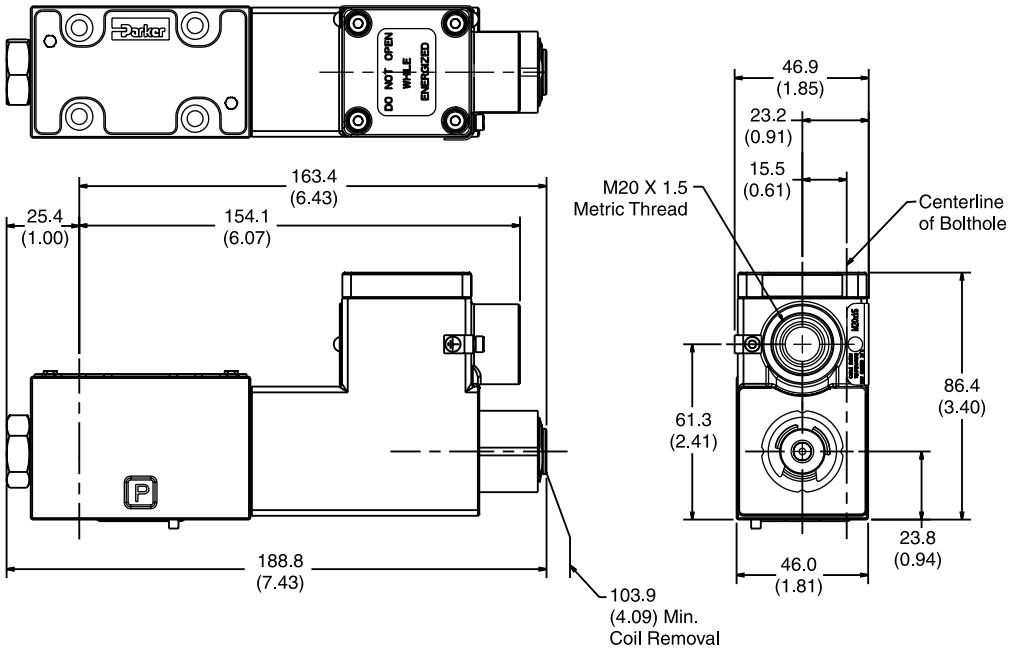
Inch equivalents for millimeter dimensions are shown in (**)

A

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



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



D1.indd, dd

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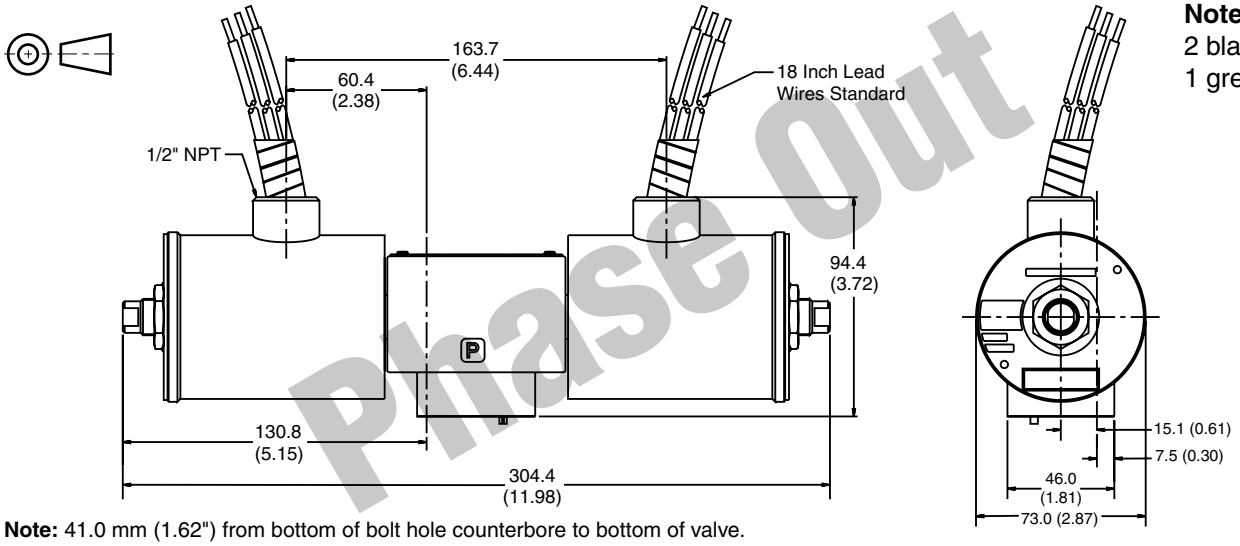
Hydraulic Valve Division
Elyria, Ohio, USA

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

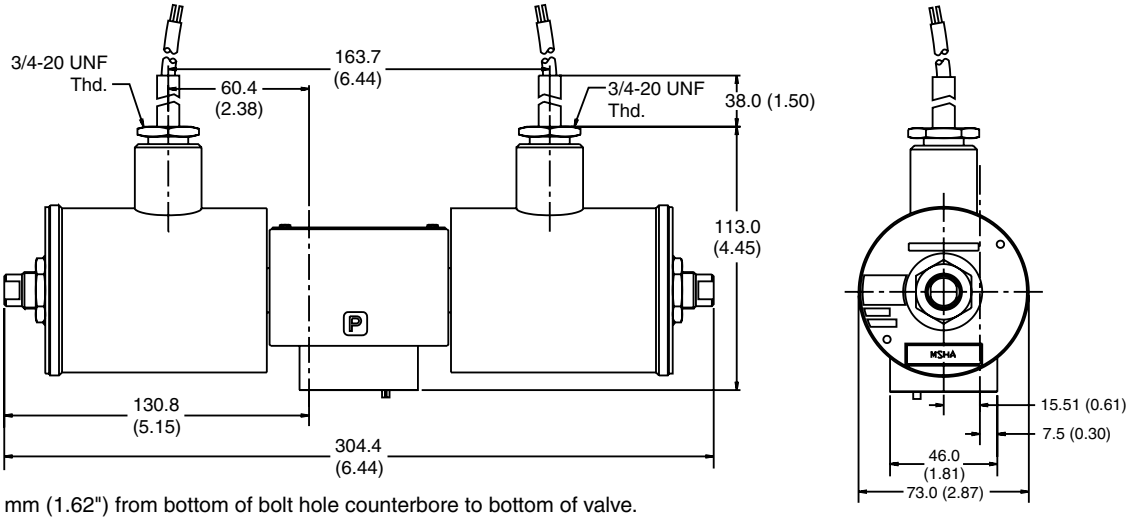
Explosion Proof U.L. & C.S.A., Double Solenoid



Note:
2 black wires
1 green wire

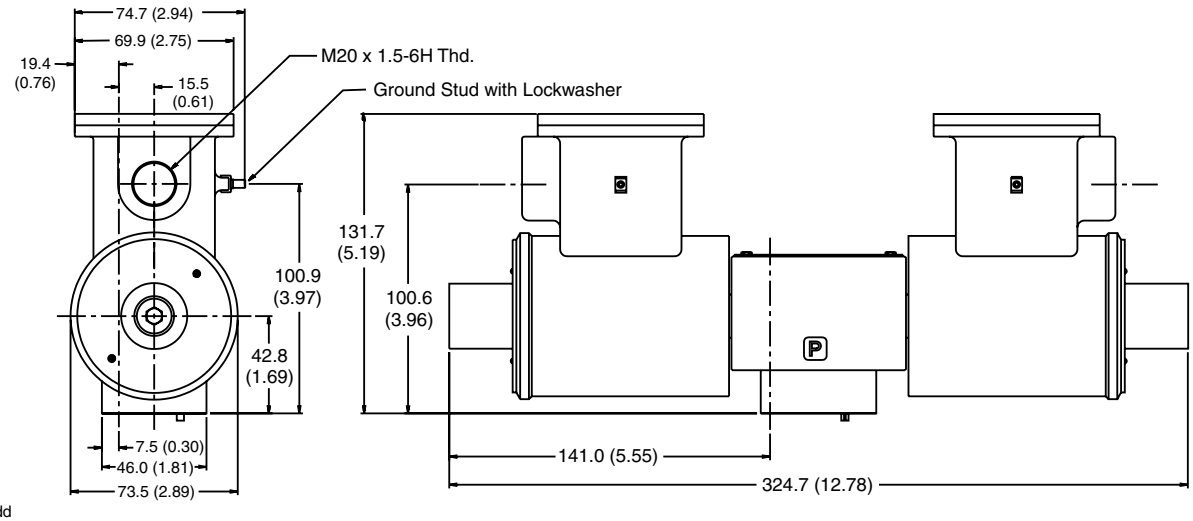
Note: 41.0 mm (1.62") from bottom of bolt hole counterbore to bottom of valve.

Explosion Proof M.S.H.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



D1.indd, dd

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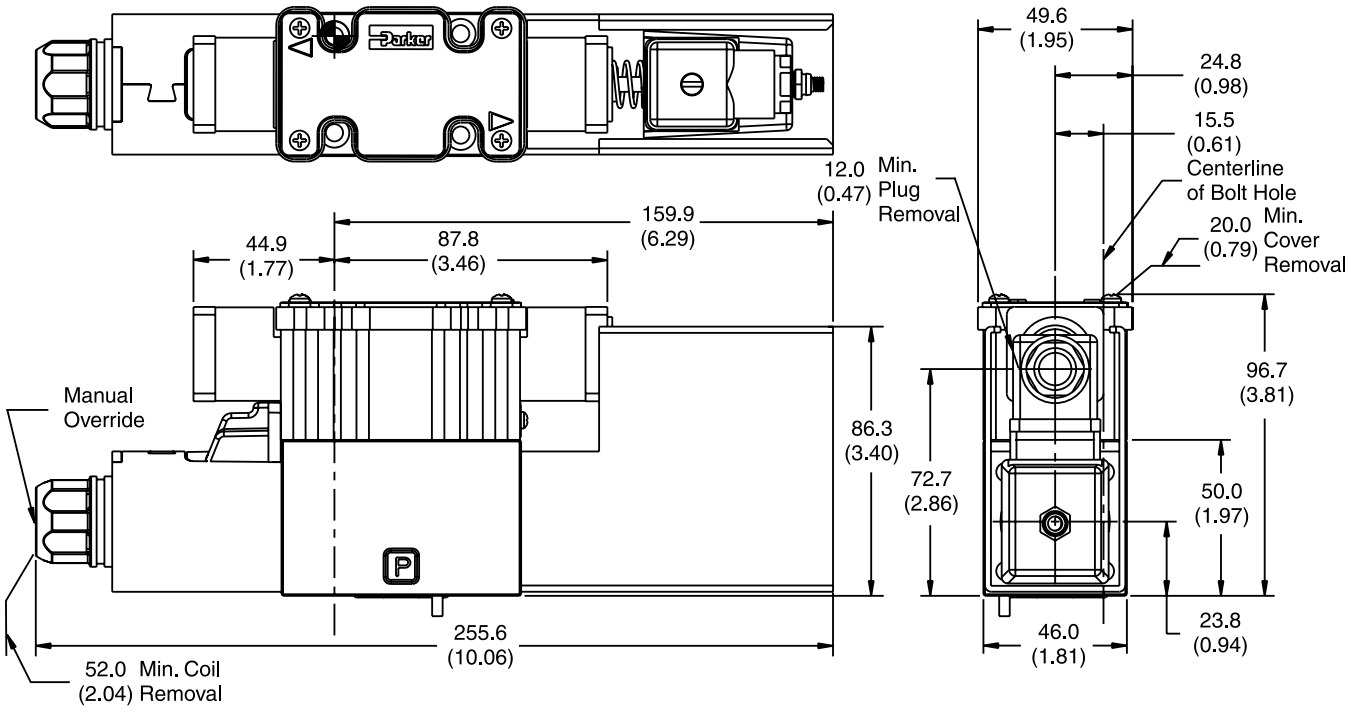
Hydraulic Valve Division
Elyria, Ohio, USA

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

A

DC Plug-in or Leadwire Conduit Box with Monitor Switch, with or without Lights, Single Solenoid



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

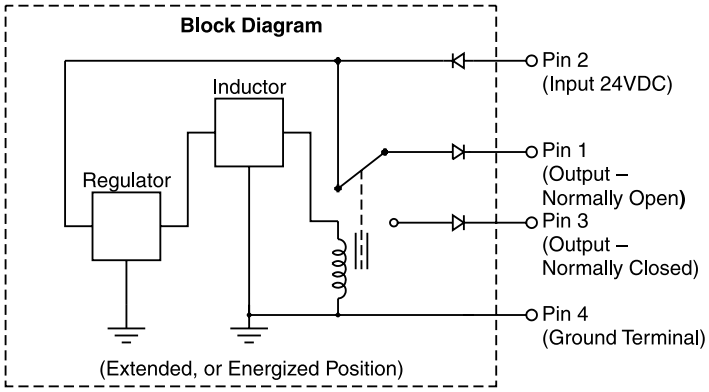
Monitor Switch

(Variation I7 and I8)

This feature provides for electrical confirmation of the spool shift. This can be used in safety circuits, to assure proper sequencing, etc.

Switch Data

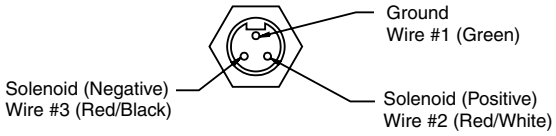
Inductive switch requiring +18-42 volt input. Outputs “A” and “B” are opposite; one at “0” voltage, the other at input voltage. During switching, “A” and “B” outputs reverse. Provides 0.4A switching current.



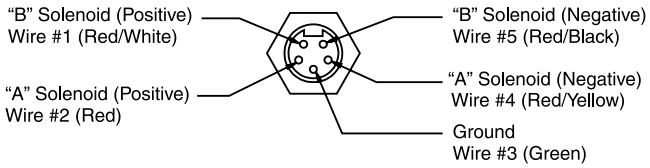
For repetitive switch power-up conditions, please consult factory.

Manaplug (Options 56 & 1C)

Interface
- 3-Pin for Single Solenoid
- 5-Pin for Double Solenoid

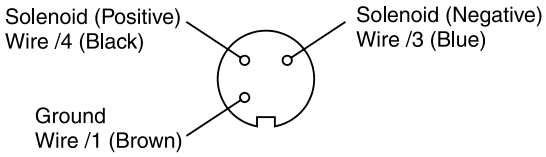


3-Pin Manaplug (Mini) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid

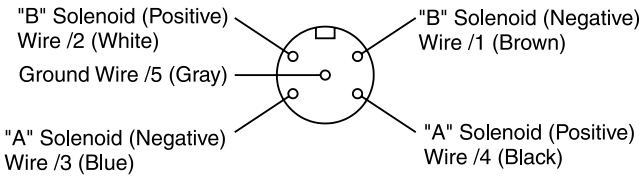


5-Pin Manaplug (Mini) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid
Double Solenoid Valves – Installed Over "A" Solenoid
("A" and "B" Solenoids Reversed for #8 and #9 Spools)

Micro Connector Options (7B & 1D)



3-Pin Manaplug (Micro) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid

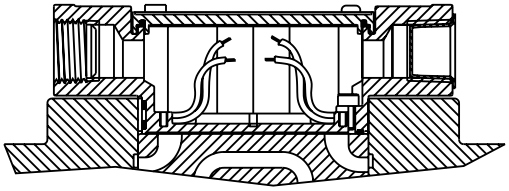


5-Pin Manaplug (Micro) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid
Double Solenoid Valves – Installed Over "A" Solenoid
("A" and "B" Solenoids Reversed for #8 and #9 Spools)

Pins are as seen on valve (male pin connectors)

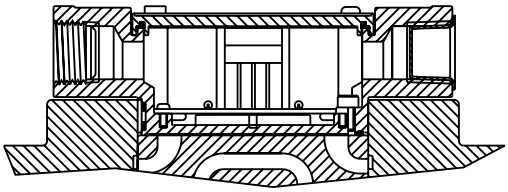
Conduit Box Option C

- No Wiring Options Available



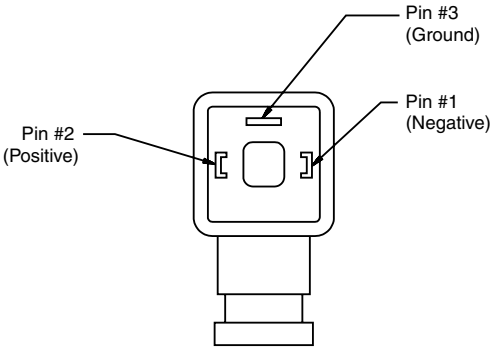
Signal Lights (Option 5) — Plug-in Only

- LED Interface
- Meets Nema 4/IP67



Hirschmann Plug with Lights (Option P5)

ISO 4400/DIN 43650 Form "A"

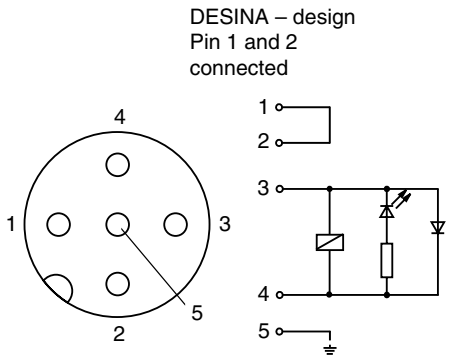


Face View of Plug

DESINA Connector (Option D)

M12 pin assignment Standard

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



Pins are as seen on valve (male pin connectors)

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Elyria, Ohio, USA

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 at 44.5mm (1.75") Thickness	Number of Sandwich Valves @40mm (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

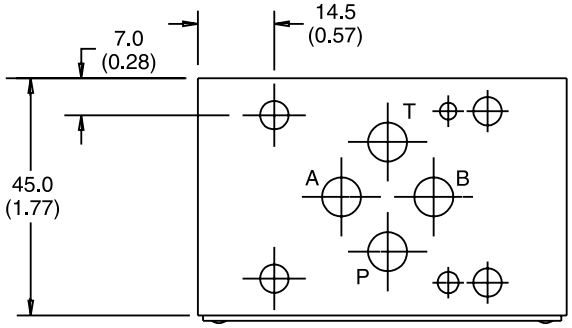
Number of Sandwich Valves at 44.5mm (1.75") Thickness	Number of Sandwich Valves @40mm (1.58") thickness									
	0		1		2		3		4	
0	BK50	2.00 in.	BK211	3.63 in.	BK101	5.12 in.	BK102	6.75 in.	BK103	8.25 in.
	BKM50	50 mm	—		BKM101	130 mm	BKM102	170 mm	BKM103	210 mm
1	BK51	3.75 in.	BK212	5.37 in.	BK105	6.87 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

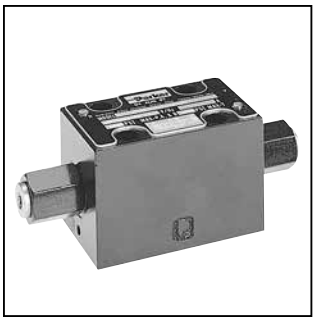
All D03 Sandwich valves (starting with 31 Series) including CM2, CPOM2, FM2, PRDM2 and RM2 measure 40mm (1.58") thickness.

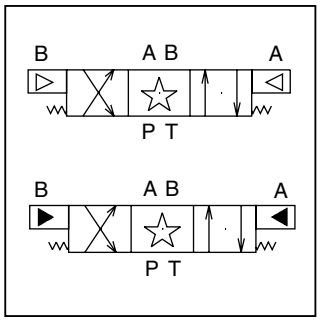
For additional technical information about Sandwich valves, refer to the Sandwich Valve Section of this Catalog.



General Description

Series D1VA and D1VP directional control valves are high performance, 4 and 5-chamber, direct operated, air and oil pilot 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

- Low pilot pressure required.
  D1VA – 4.1 Bar (60 PSI) minimum
  D1VP – 15.2 Bar (220 PSI) minimum

Air Operated

Shift Volume. The air pilot chamber requires a volume of 1.8 cc (.106 in.^{3}) for complete shift from center to end.

Pilot Piston. The pilot piston area is 506 mm^2 (.785 in.^{2}). Pilot piston stroke is 3.4 mm (.135 in.).

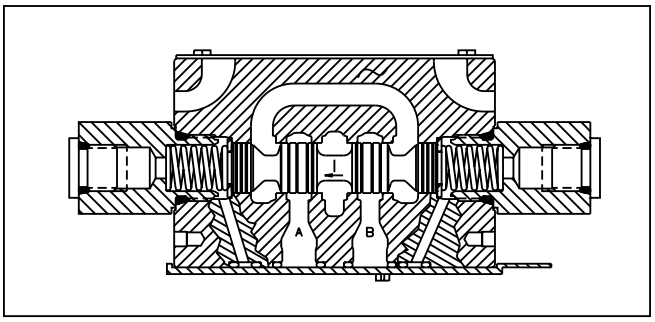
Response Time. Response time will vary with pilot line size, pilot line length, pilot pressure, air control valve shift time and air valve flow capacity (Cv).

Oil Operated

Shift Volume. The hydraulic pilot chamber requires a volume of 0.7 cc (.042 in.^{3}) for complete shift from center to end.

Pilot Piston. The hydraulic piston area is 198 mm^2 (.307 in.^{2}). Pilot piston stroke is 3.4 mm (.135 in.).

Response Time. Response time will vary with pilot line size, pilot line length, pilot pressure, pilot valve shift time and oil valve flow capacity (GPM).

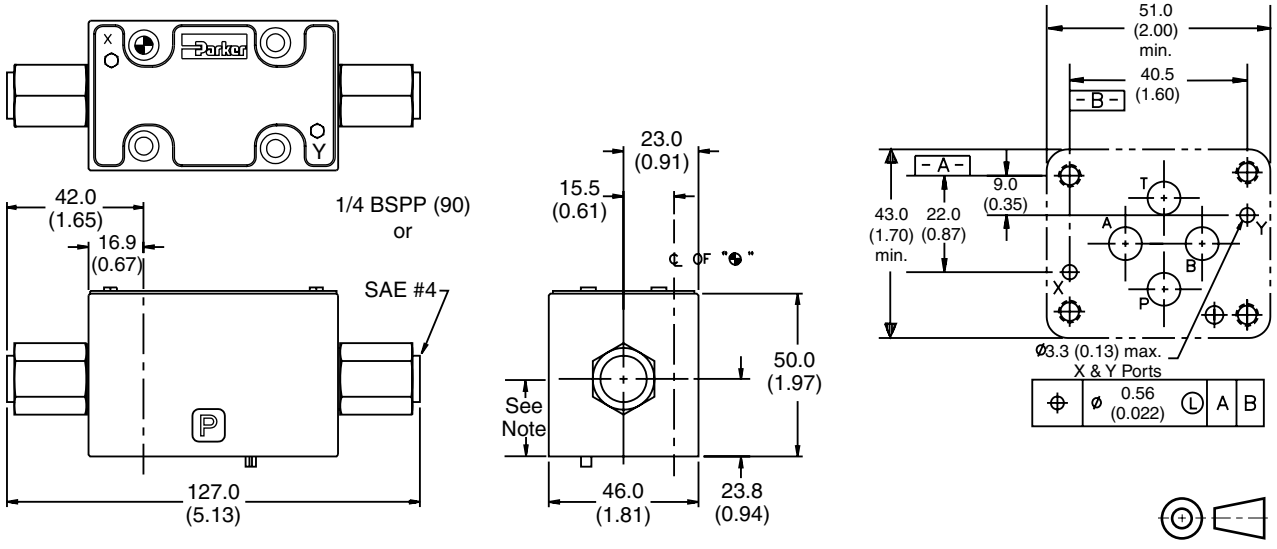


Specifications

Mounting Pattern	NFPA D03, CETOP 3, NG 6
Maximum Pressure	Operating: 345 Bar (5000 PSI) Tank Line: D1VA 34 Bar (500 PSI) D1VP 207 Bar (3000 PSI)
Maximum Flow	See Reference Data
Pilot Pressure	D1VA: Air Minimum 4.1 Bar (60 PSI) Air Maximum 10.2 Bar (150 PSI) D1VP: Oil Minimum 15.2 Bar (220 PSI) Oil Maximum 207 Bar (3000 PSI)

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

Oil Operated D1VP, Single and Double Pilot



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

D1.indd, dd

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Hydraulic Valve Division
Elyria, Ohio, USA

D — Directional Control Valve

1V — Basic Valve
NFPA D03
CETOP 3

P — Actuator
Oil Operator

Spool

Style

Seal

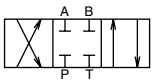
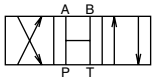
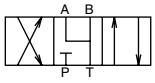
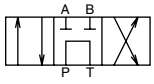
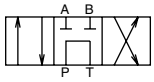
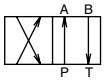
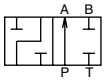
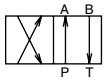
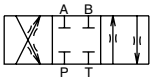
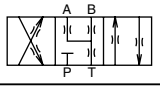
Variations

Design Series
NOTE: Not required when ordering.

Code	Description
Omit	**Standard**
P10*	Monitor Switch
4F	Heavy Duty Detent
90	BSPP Threads

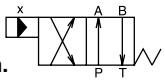
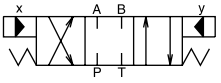
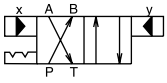
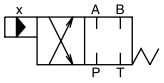
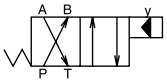
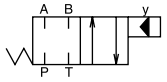
* Not available on C and D styles. Not CE or CSA approved.

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

Code	Symbol
001	
002	
004	
008*	
009**	
020*	
026*	
030**	
081	
082	

* 008, 020 and 026 spools have closed crossover.

** 009 and 030 spools have open crossover.

Code	Description	Symbol
B#	**Single operator, two position spring offset. P to A and B to T in offset position.**	
C	**Double operator, three position, spring centered.**	
D	**Double operator, two position, detent.**	
E#	Two position, spring centered. P to B and A to T in shifted position.	
H#	**Single operator, two position, spring offset. P to B and A to T in offset position.**	
K#	Two position, spring centered. P to A and B to T in shifted position.	

\# D available with 020 and 030 spools only.
B & H available with 020, 026 and 030 spools only.
E & K not available with 020, 026 and 030 spools.

This condition varies with spool code.

Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing operator X. Note operators reverse sides for #008 and #009 spools. See installation information for details.

Valve Weight:	1.90 kg (4.2 lbs.)
Standard Bolt Kit:	BK209 10–24x1.25
Metric Bolt Kit:	BKM209 M5–0.8x30mm
Seal Kit:	
Nitrile	SKD1VP
Fluorocarbon	SKD1VPV

Bold: Designates Tier I products and options.

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

D1.indd, dd

D Directional Control Valve

1V Basic Valve
- NFPA D03 CETOP 3

A Actuator
- Air Operator

Spool

Style

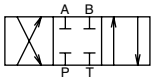
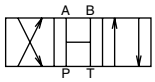
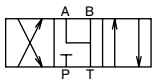
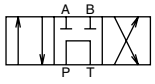
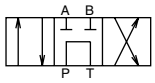
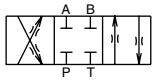
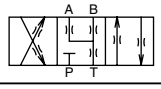
Seal

Variations

Code	Description
Omit	**Standard**
P10*	Monitor Switch
90	1/4 BSPP Threads

* Not available on C & D styles.
Not CE or CSA approved.

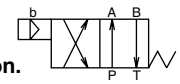
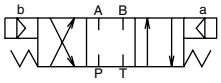
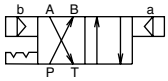
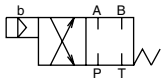
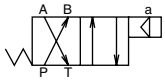
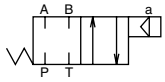
Design Series
NOTE: Not required when ordering.

Code	Symbol
001	
002	
004	
008*	
009**	
081	
082	

* 008 spool has closed crossover.

** 009 spool has open crossover.

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

Code	Description	Symbol
B	**Single operator, two position spring offset. P to A and B to T in offset position.**	
C	**Double operator, three position, spring centered.**	
D	**Double operator, two position, detent.**	
E	Two position, spring centered. P to B and A to T in shifted position.	
H	**Single operator, two position, spring offset. P to B and A to T in offset position.**	
K	Two position, spring centered. P to A and B to T in shifted position.	

Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing operator A. Note operators reverse sides for #008 and #009 spools. See installation information for details.

This condition varies with spool code.

Valve Weight:	1.60 kg (3.5 lbs.)
Standard Bolt Kit:	BK209 10–24x1.25
Metric Bolt Kit:	BKM209 M5–0.8x30mm Grade 8 bolts required
Seal Kit:	
Nitrile	SKD1VA
Fluorocarbon	SKD1VAV

Bold: Designates Tier I products and options.

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

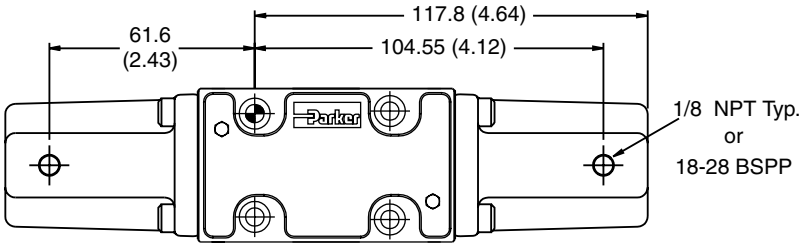
D1.indd, dd

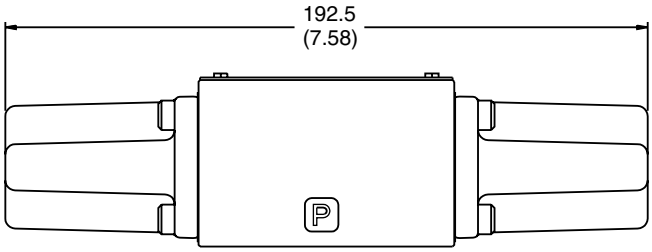
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

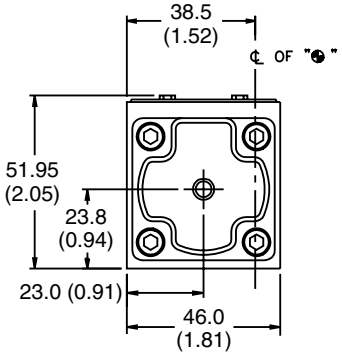
Inch equivalents for millimeter dimensions are shown in (**)

A

Air Operated D1VA, Double Pilot

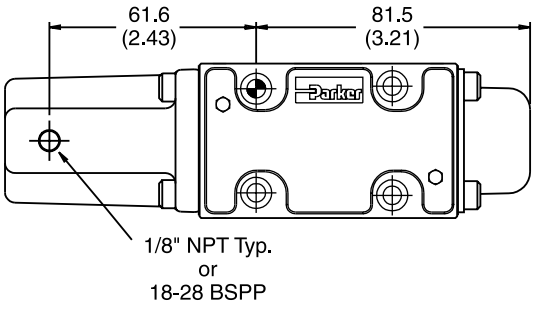


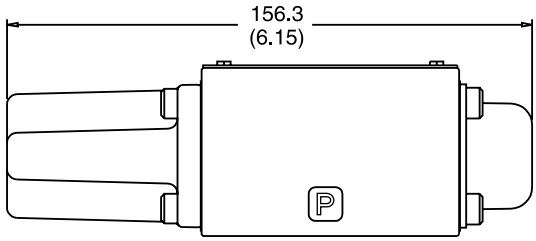


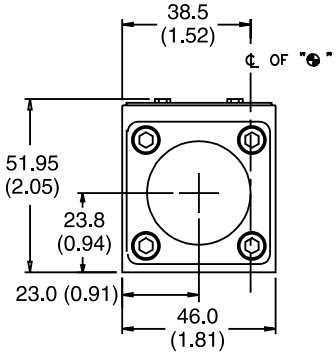


Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

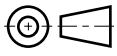
Air Operated D1VA, Single Pilot





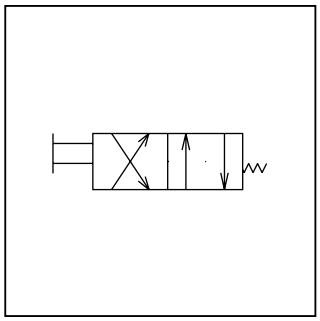


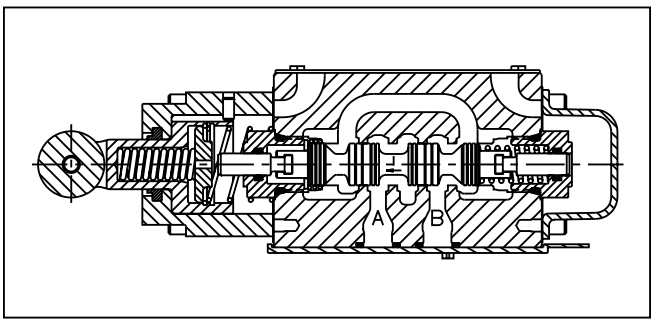
Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.



General Description

Series D1VC, D1VD and D1VG directional control valves are high performance, 4-chamber, direct operated, cam controlled, 4-way valves. They are available in 2-position and conform to NFPA's D03, CETOP 3 mounting patterns.





Features

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

Specifications

Mounting Pattern	NFPA D03, CETOP 3, NG 6
Maximum Pressure	Operating: 345 Bar (5000 PSI) Tank Line: 34 Bar (500 PSI)
Nominal Flow	32 LPM (8.5 GPM)
Maximum Flow	See Reference Data
Force Required to Shift	D1VC, D1VD: 107 N (24 lbs.) D1VG: 36 N (8 lbs.)
Maximum Cam Angle	30°

Ordering Information

D — Directional Control Valve

1V — Basic Valve

NFPA D03
CETOP 3

Actuator

Code	Description
C	**Cam (90° to mounting surface)**
D	**Cam parallel to mounting surface**
G	Cam Lever

Spool

Code	Symbol
001	
002	
004	
008*	
009†	
081	
082	

Style

Code	Description	Symbol
B	**Two position, spring offset operator at "A" port end.**	
H	**Two position, spring offset operator at "B" port end.**	

Valve schematic symbols are per NFPA/ ANSI standards, providing flow P to A when energized. Note flow paths reverse sides for #008 and #009 spools.

Seal

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

Variations

Code	Description
Omit	**Standard**
P05	Short Stroke
P10*	Monitor Switch

* Not CE or CSA approved.

Design Series

NOTE: Not required when ordering.

Valve Weight: Type C & D 1.44 kg (3.2 lbs.)
Type G 1.6 kg (3.7 lbs.)
Standard Bolt Kit: BK209 1–24x1.25
Metric Bolt Kit: BKM209 M5–0.8x30mm
Seal Kit:
Nitrile SKD1VC
Fluorocarbon SKD1VCV

* 008 spool has closed crossover.
† 009 spool has open crossover.

Bold: Designates Tier I products and options.

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

D1.indd, dd

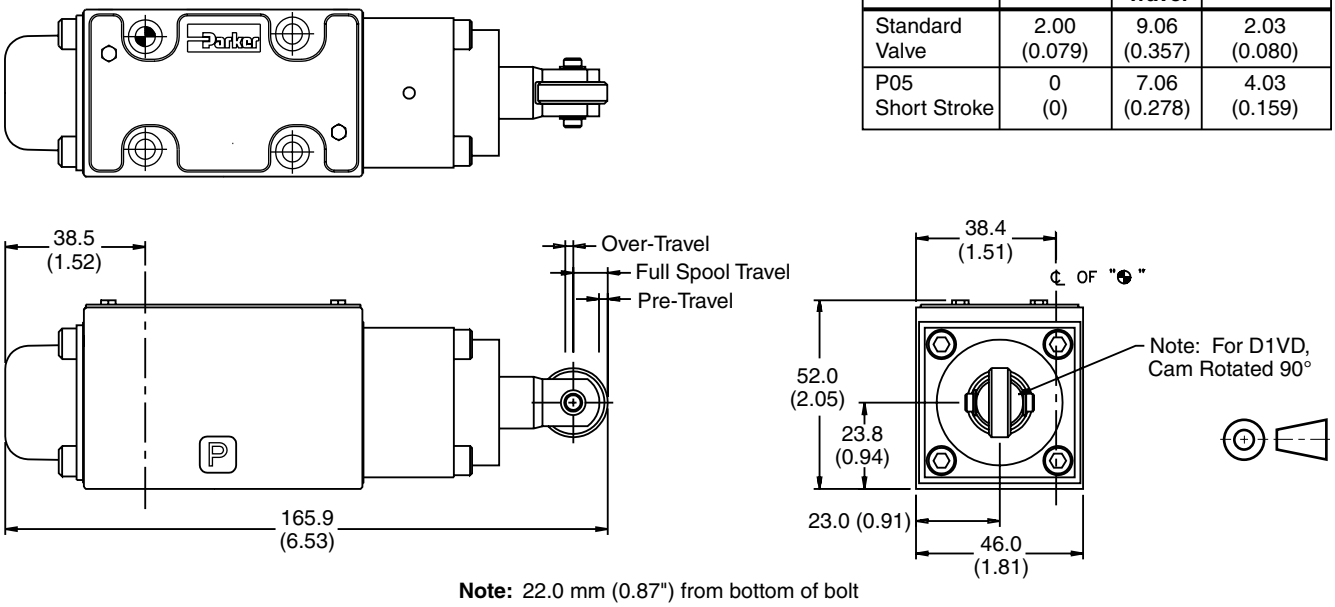
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

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

A

Cam Operated D1VC and D1VD

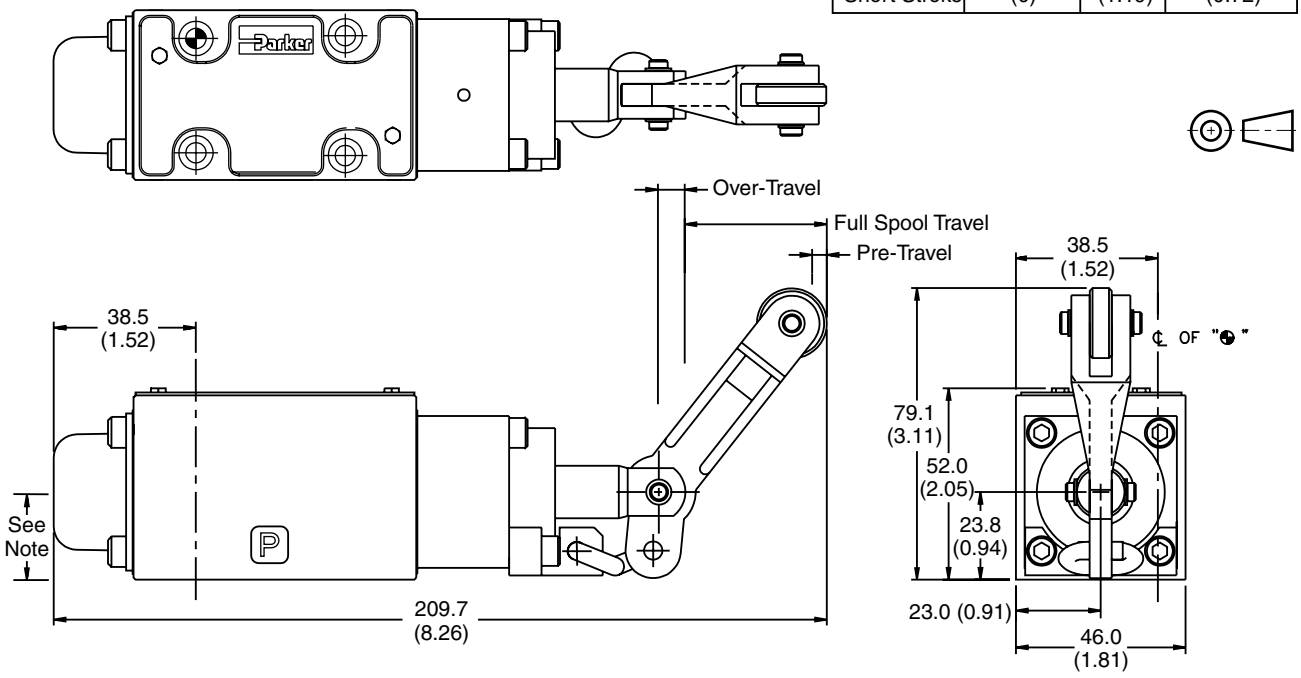
Valve Type	Pre-Travel	Full Spool Travel	Over-Travel
Standard Valve	2.00 (0.079)	9.06 (0.357)	2.03 (0.080)
P05 Short Stroke	0 (0)	7.06 (0.278)	4.03 (0.159)



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

Cam Lever Operated D1VG

Valve Type	Pre-Travel	Full Spool Travel	Over-Travel
Standard Valve	6.95 (0.27)	39.63 (1.56)	10.00 (0.39)
P05 Short Stroke	0 (0)	30.12 (1.19)	18.40 (0.72)



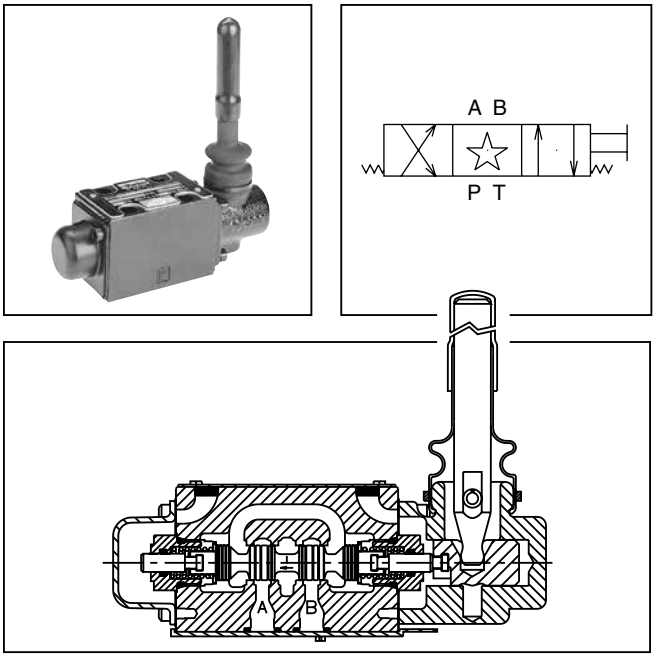
Note: 22.0 mm (0.87") from bottom of bolt hole counterbore to bottom of valve.

D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series D1VL directional control valves are high-performance, 4-chamber, direct operated, lever controlled, 4-way valves. They are available in 2 or 3-position and conform to NFPA's D03, CETOP 3 mounting patterns.



Features

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

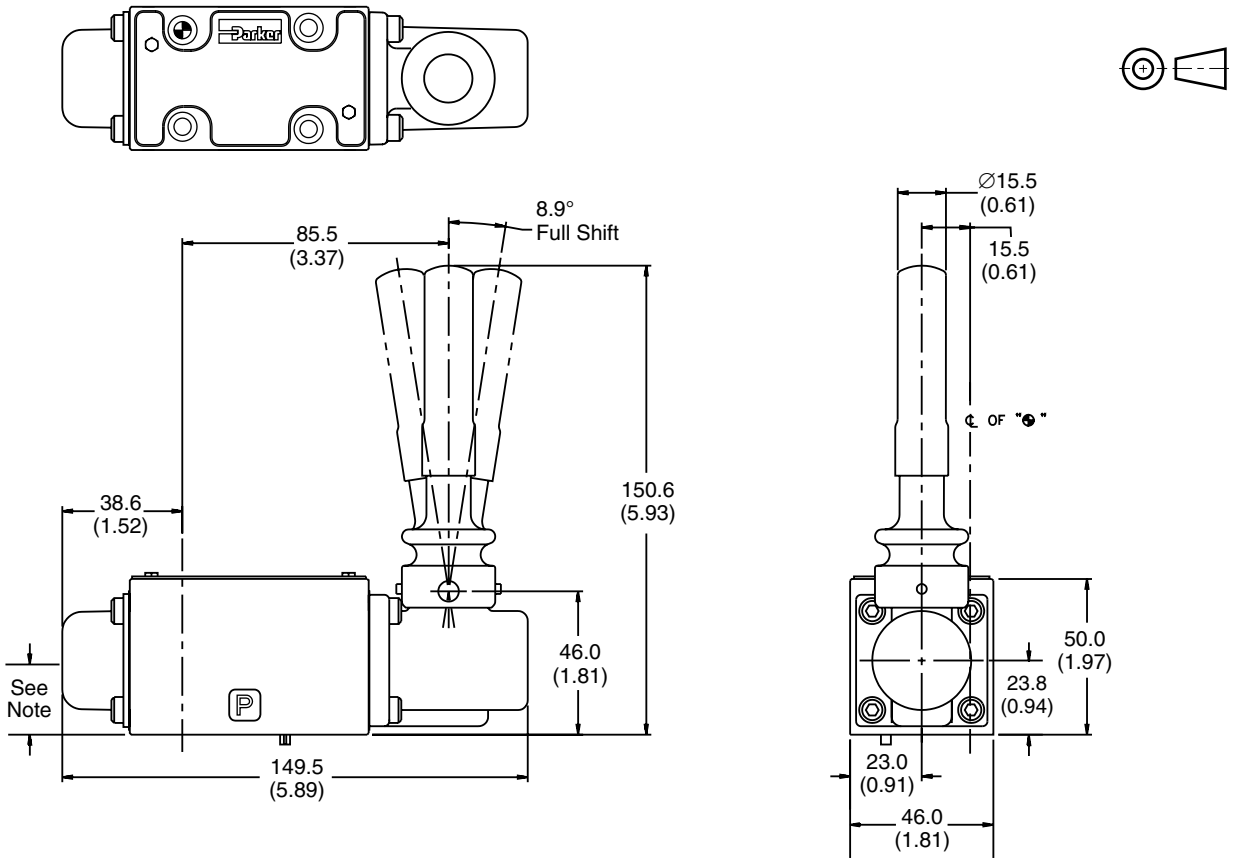
Specifications

Mounting Pattern	NFPA D03, CETOP 3, NG 6
Maximum Pressure	Operating: 345 Bar (5000 PSI) Tank Line: 34 Bar (500 PSI)
Maximum Flow	See Reference Data
Force Required to Shift Lever Operator	25 N (5.6 lbs)

Dimensions

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

Lever Operated D1VL



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

D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

D — Directional Control Valve

1V — Basic Valve

NFPA D03
CETOP 3

Operator Type and Location

Spool

Style

Seal

Variations

Design Series

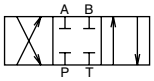
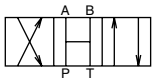
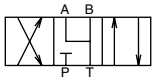
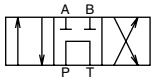
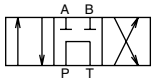
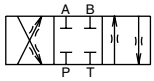
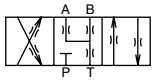
NOTE: Not required when ordering.

Code	Description
Omit	**Standard**
P10*	Monitor Switch

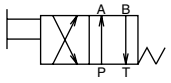
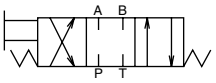
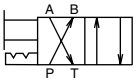
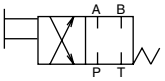
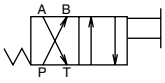
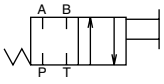
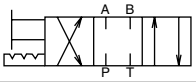
* Not available on C,D or N styles. Not CE or CSA approved.

Code	Operator Type	Operator Location (A or B Port End) For Valve Style						
		B	**C**	**D**	**E**	**H**	**K**	**N**
L	Lever (Standard)	B	B	B	A	B	B	B
LB	Lever (Alternate)	A	A	A	N/A	A	N/A	A

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

Code	Symbol
001	
002	
004	
008*	
009†	
081*	
082	

* 008 and 081 spools have closed crossover.
† 009 has open crossover.

Code	Description	Symbol
B	**Two position, spring offset. P to A and B to T in offset position.**	
C	**Three position, spring centered.**	
D	**Two position, detent.**	
E	Two position, spring centered. P to B and A to T in shifted position.	
H	**Two position, spring offset. P to B and A to T in offset position.**	
K	Two position, spring centered. P to A and B to T in shifted position.	
N	Three position, detent.	

This condition varies with spool code.

Valve schematic symbols are per NFPA/ ANSI standards, providing flow P to A when energizing operator A. Note flow paths reverse sides for #008 and #009 spools in three position valves.

Valve Weight:	1.60 kg (3.5 lbs.)
Standard Bolt Kit:	BK209 10–24x1.25
Metric Bolt Kit:	BKM209 M5–0.8x30mm Grade 8 bolts required
Seal Kit:	
Nitrile	SKD1VL
Fluorocarbon	SKD1VLV

Bold: Designates Tier I products and options.

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

D1.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Fluid Recommendations

Premium quality hydraulic oil with a viscosity range between 32-54 cst. (150-250 SSU) at 38°C (100°F) is recommended. The absolute operation viscosity range is from 16-220 cst. (80-1000 SSU). Oil should have maximum anti-wear properties and rust and oxidation treatments.

Fluids and Seals

Valves using synthetic, fire-resistant fluids require special seals. When phosphate ester or its blends are used, FLUOROCARBON seals are required. Water-glycol, (95/5) water-in-oil emulsions, and petroleum oil may be used with NITRILE seals.

Temperature Recommendation

Recommended oil temperature:
-29°C to +71°C (-20°F to +160°F)

Ambient temperature:

AC High Watt ambient temperature cannot exceed 60°C (140°F).

DC High Watt, DC Low Watt and AC Low Watt ambient temperature cannot exceed 71°C (160°F).

Filtration

For maximum valve and system component life, the system should be protected at a contamination level not to exceed 125 particles greater than 10 microns per milliliter of fluid. (SAE Class 4 or better, ISO Code 16/13).

Tank Line Surges

If several valves are piped with a common tank line, flow surges in the line may cause unexpected spool shift. Detent style valves are most susceptible to this. Separate tank lines should be used when line surges are expected in an application.

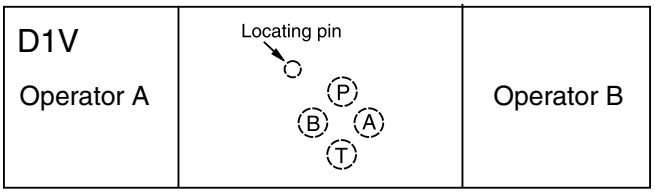
Recommended Mounting Position

Valve Type	Recommended Mounting Position
Detent (Solenoid)	Horizontal
Spring Centered	Unrestricted
Spring Offset	Unrestricted

Silting

Silting can cause any sliding spool valve to stick and not spring return, if held shifted under pressure for long periods of time. The valve should be cycled periodically to prevent sticking.

Flow Path Data



*Note: On valves with 008 or 009 spool, A and/or B operators reverse sides. Flow paths remain the same as viewed from top of valve.

Single Pass Operation

Valve flow ratings are for double pass operation (with equal flow in both paths). When using these components in single pass applications, flow capabilities may be reduced. Consult your local Parker representative for details.

Double Solenoid. With solenoid "A" energized, flow path is P→A and B→T. When solenoid "B" is energized, flow path is P→B and A→T. The center condition on a spring-centered valve exists when both coils are de-energized, or during a complete shift, as the spool passes through center.

Detent and Spring Offset. The center condition exists on detent and spring offset valves only during spool crossover. To shift and hold a detented spool, only a momentary energizing of the solenoid is necessary. The minimum duration of the signal is approximately 0.1 seconds for DC voltages. This position will be held provided the spool center line is in a horizontal plane, and no shock or vibration is present to displace the spool.

Single Solenoid. Spring offset valves can be ordered in styles B, E, F, H, K and M. Flow path data for the various styles are described in the order chart.

Electrical Failure

Should electric power fail, spring offset and spring centered valves will shift to the spring held position. Detented valves will stay in the last position held before power failure. If main flow does not fail or stop simultaneously, machine actuators may continue to function in an undesirable manner or sequence.

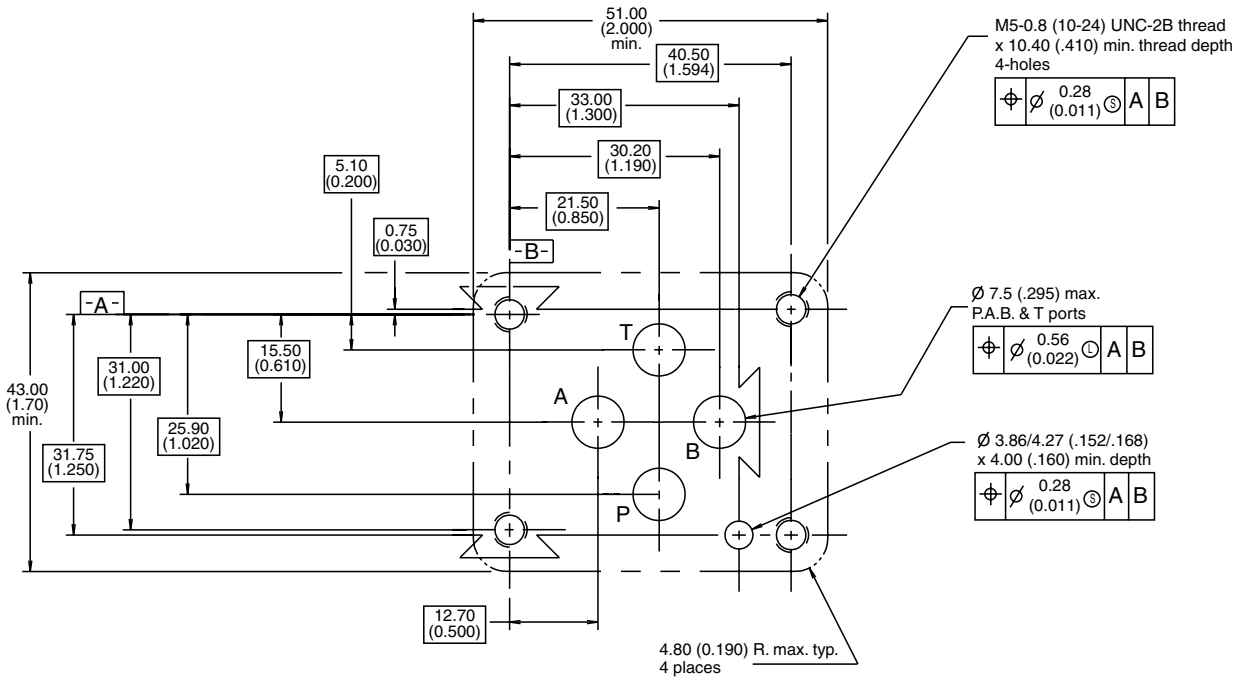
Torque Specifications

Torque values recommended for the bolts which mount the valve to the manifold or subplate are as follows:

#10-24 thread (M5-0.8) torque 5.6 Nm (50 in-lbs).

Mounting Pattern — NFPA D03, CETOP 3, NG 6

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

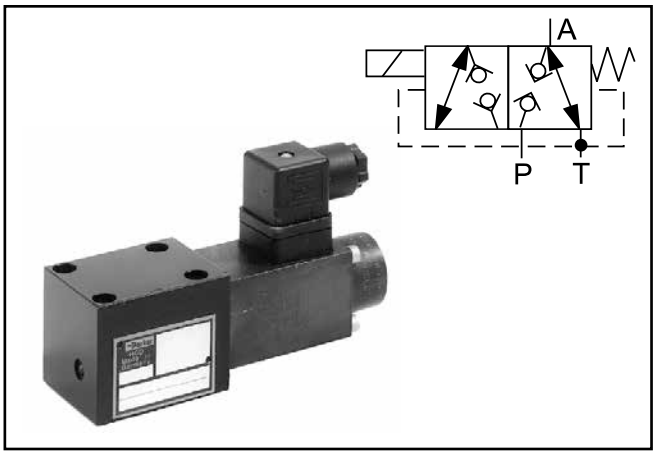


General Description

Series D1SE directional control valves are equipped with a wet pin armature solenoid, drain-free, tapered poppet valve and compatible with the standards DIN NG6, CETOP 3, and NFPA D03. Due to the 3/2 way design, port A is either connected with P or discharged in the tank. The neutral position (solenoid not activated) is taken automatically by a return spring. This position remains until the solenoid is energized.

The valve poppet including activation lever and armature of the solenoid are located in the pressurized oil chamber of connection T. The valve poppet is designed such that there can be no differential area in its axial operational direction (opening, closing). Thus it is statically pressure-balanced so that the valve can be switched in both flow directions even under pressure.

The unit has an all-steel design, the important functional inner parts are hardened, the poppet and seat are ground.



Features

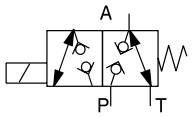
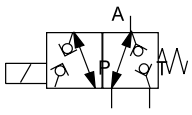
- Low leakage poppet design.
- Fits NFPA D03 mountng.
- Pressure balanced.

Ordering Information

D	1	S	E		B			W	
Directional Control Valve	Basic Valve	Seat Valve	Wet Pin Armature Solenoid, Flanged	Spool	Style	Seal	Solenoid Voltage	Solenoid Connection Without Plug	Design Series

NOTE: Not required when ordering.

DIN NG6
CETOP 3
NPPA D03

Code	Description
30	
83	

Code	Description
K	12V
J	24V
U*	98V
G*	205V

* For alternating current use plug with rectifier.

Code	Description
N	Nitrile
V	Fluorocarbon

Coils for repair

Voltage	Ordering Code
12V	7329700 - 12V
24V	7329700 - 24V
98V	7329700 - 98V
205V	7329700 - 205V

Weight: 0.8 kg (1.76 lbs)

Bold: Designates Tier I products and options.

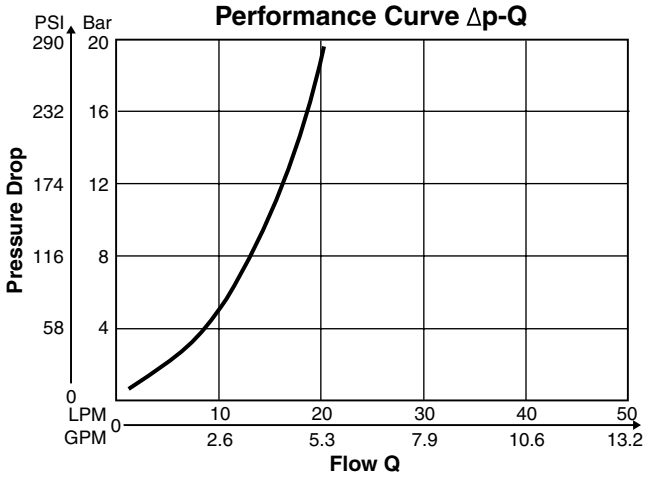
Non-Bold: Designates Tier II products and options.
These products will have longer lead times.

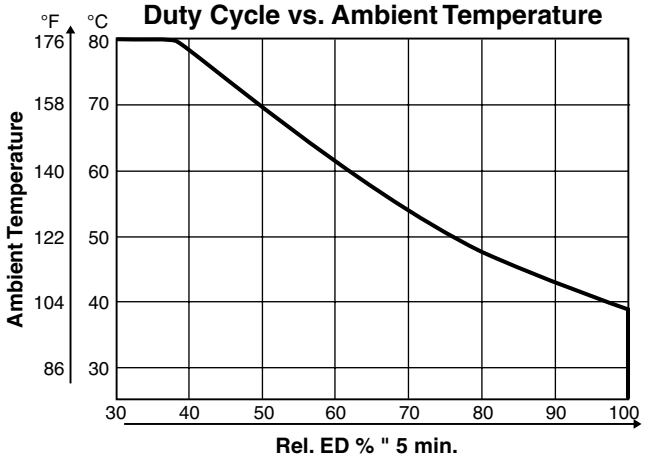
General	
Design	Directional poppet valve
Actuation	Solenoid
Size	DIN NG6 / CETOP 3 / NFPA D03
Mounting Interface	DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03
Mounting Position	Unrestricted
Ambient Temperature	-25°C to +50°C (-13°F to +122°F), observe permissible duty cycle
Hydraulic	
Max. Operating Pressure	350 Bar (5075 PSI) (P, A, and T)
Fluid	Hydraulic oil in accordance with DIN 51524 / 51525
Fluid Temperature	-25°C to +70°C (-13°F to +158°F)
Viscosity Permitted **Recommended**	10...500 cSt / mm²/s (46...2318 SSU) 30...80 cSt / mm²/s (139...371 SSU)
Filtration	ISO 4406 (1999); 18/16/13 (meet NAS 1638: 7)
Internal Leakage	3-5 DPM per seat
Maximum Flow	20 LPM (5.28 GPM) (at Δp = 10 bar)

Static / Dynamic				
Step Response	Energized: approx. 50 ms De-energized: approx. 60 ms			
Electrical Characteristics				
Duty Ratio	See Diagram			
Max. Switching Frequency	2000 1/h			
Protection Class	IP 65 in accordance with DIN 40050 (plugged and mounted)			
Code	K	J	U*	G*
Supply Voltage	12 VDC	24 VDC	98 VDC	205 VDC
Tolerance Supply Voltage	±10%	±10%	±10%	±10%
Current Consumption	1.95A	1.1A	0.25A	0.13A
Power Consumption	23.4 W	26.4 W	24.3 W	26.6 W
Solenoid Connection	Connector as per EN 175301-803			
Min. Wiring	3 x 1.5 mm^2 recommended			
Max. Wiring Length	50m (164') recommended			

* For a silicon bridge rectifier, set up apart from unit for connecting to a 50 or 60 Hz power supply, 110 V~(98=) or 230V~ (205V=).
With electrical connections the protective conductor (PE⏚) must be connected according to the relevant regulations.

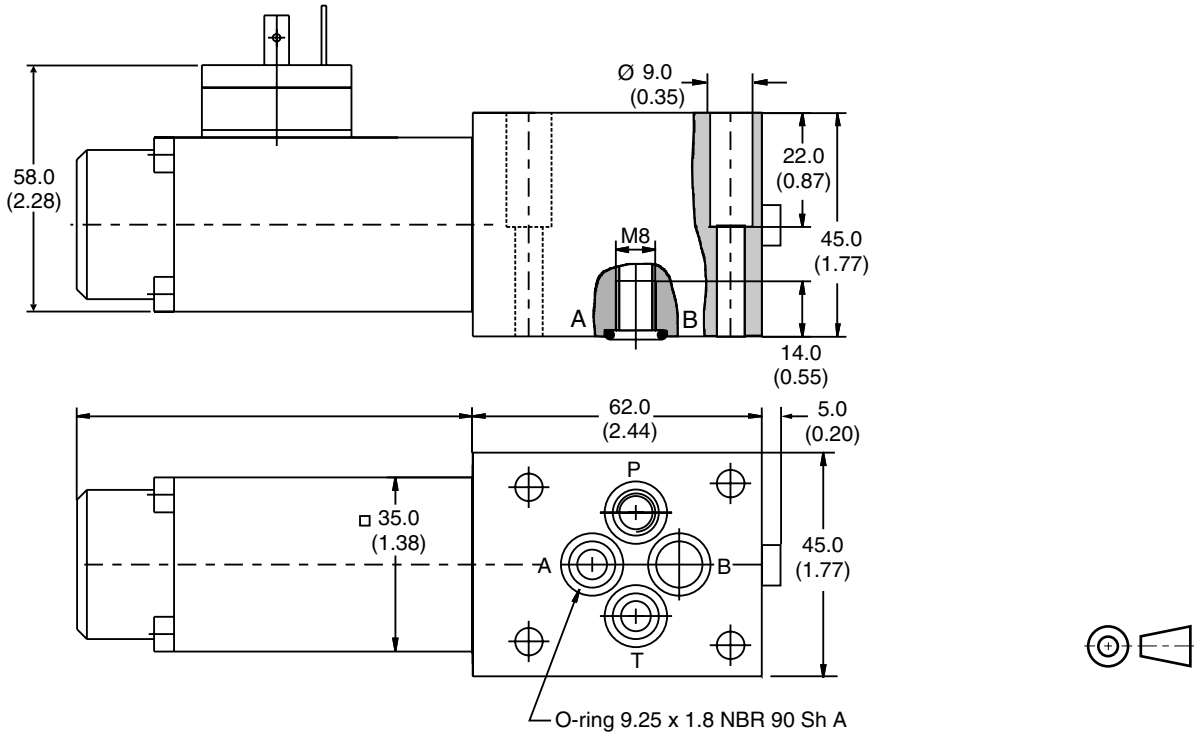
Performance Curves





Dimensions

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



Surface Finish	Kit			Seal Kit
R_{max}6.3 ⏥ 0.01/100	BK375	4x M5x30 DIN 912 12.9	6.8 Nm ± 15%	Nitrile: SK-D1SE-70 Fluorocarbon: SK-D1SE-V70

The space necessary to remove the plug per EN 175301-803, design type AF is at least 15 mm.
The torque for the screw M3 of the plug has to be 0.5 to 0.6 Nm.

Application

Series D3 hydraulic directional control valves are high performance, direct operated 4-way valves, available in 2 or 3-position. They are manifold mounted which conform to NFPA's D05, CETOP 5, ISO NG10 mounting patterns. These valves were designed for industrial and mobile hydraulic applications which require high cycle rates, long life and high efficiency.

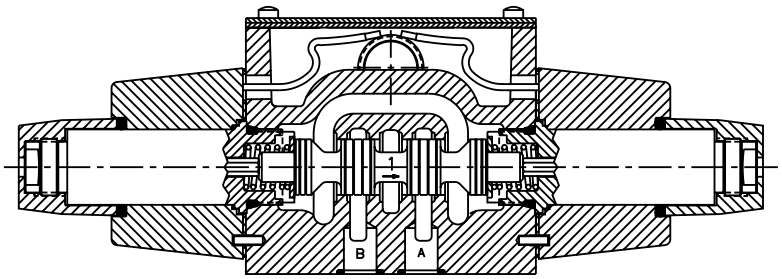
Operation

Series D3 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, or air pilot.

Features

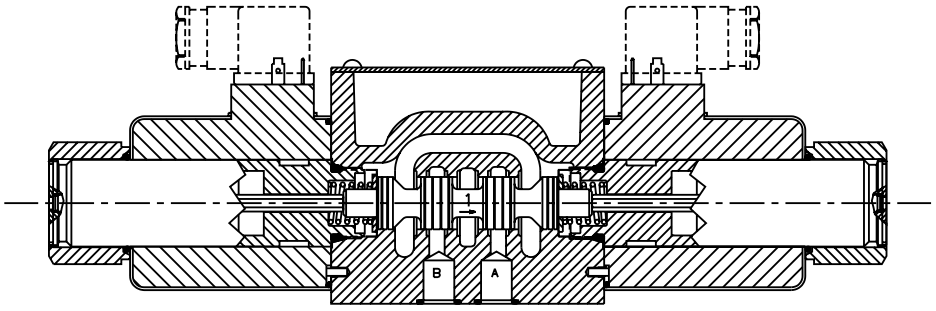
- Easy access mounting bolts.
- 345 Bar (5000 PSI) pressure rating.
- Flows to 40 GPM depending on spool.
- Choice of four operator styles.
- Rugged four land spools.
- Low pressure drop.
- Phosphate finish body.
- CSA approved and UL recognized available.
- Proportional spool available.

D3W Solenoid Operated Conduit Cavity Style



- Wired in cavity.
- Easy access mounting bolts.
- 22 spool styles available.
- Three electrical connection options.
- AC and DC lights available.
- CSA approved.
- Available in low-watt DC version.

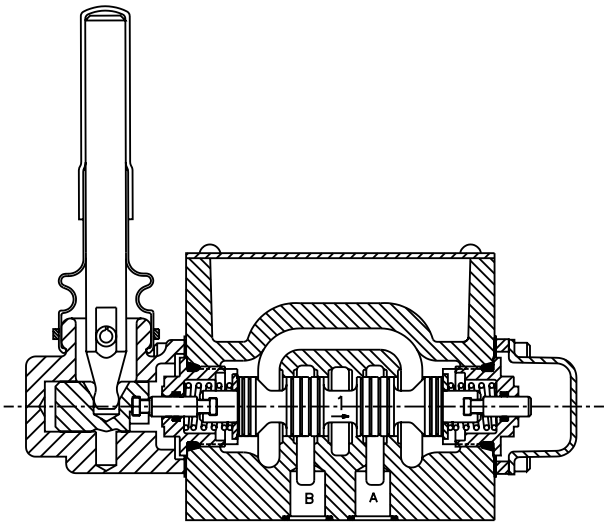
D3W Solenoid Operated Hirschmann (DIN) Style



- DIN Style (43650) Hirschmann.
- 22 spool styles available.
- No tools required for coil removal.
- Easy coil replacement.
- AC and DC lights available.
- CSA approved.
- Available in low-watt DC version.

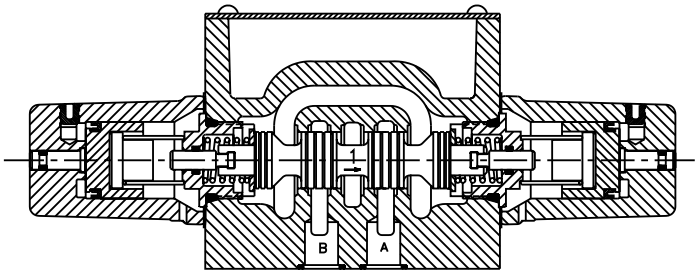
D3L Lever Operated

- Spring return or detent styles available.
- Heavy duty handle design.
- High flow, low pressure drop design.



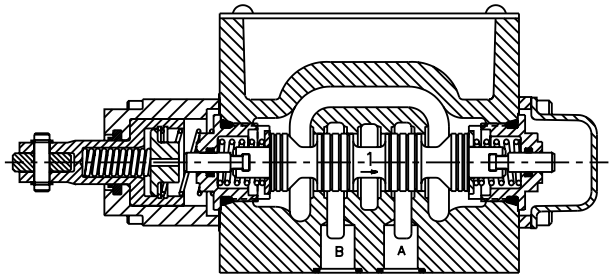
D3A Air Operated

- Low pilot pressure required – 4.1 Bar (60 PSI) minimum.
- High flow, low pressure drop design.



D3C Cam Operated

- Choice of 2 cam roller positions (D3C and D3D).
- Short stroke option.
- High flow, low pressure drop design.



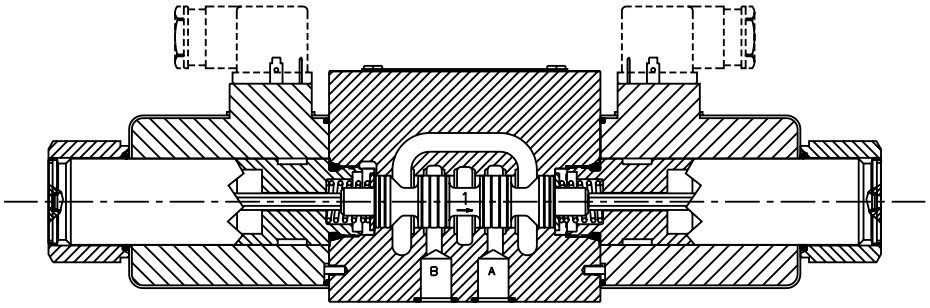
Application

Series D3DW hydraulic directional control valves are high performance, direct operated 4-way valves, available in 2 or 3-position. They are manifold mounted which conform to NFPA's D05, CETOP 5, ISO NG10 mounting pattern. These valves were designed for industrial and mobile hydraulic applications which require high cycle rates, long life and high efficiency.

Operation

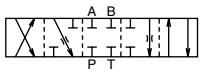
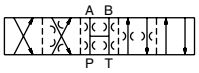
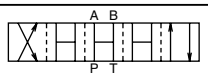
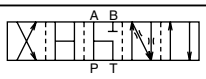
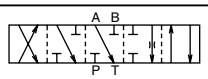
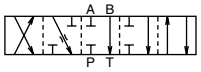
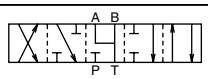
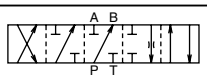
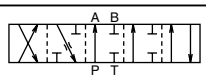
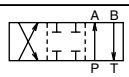
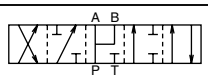
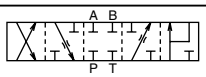
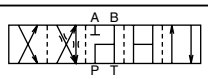
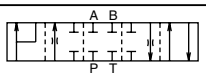
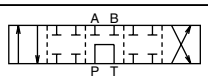
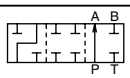
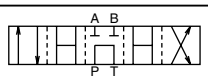
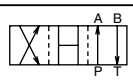
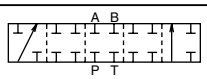
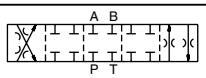
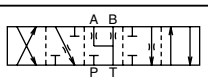
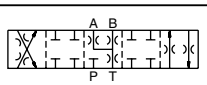
Series D3DW directional control valves consist of a 5-chamber style body, and a case hardened sliding spool.

D3DW Solenoid Operated Hirschmann (DIN) Style



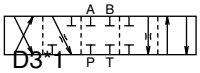
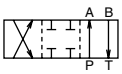
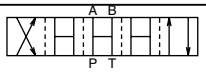
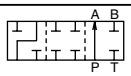
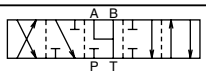
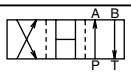
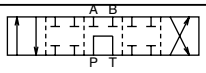
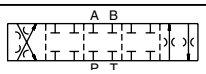
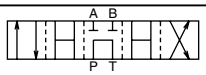
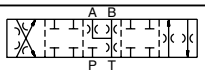
- Easy access mounting bolts.
- No tools required for coil removal.
- 22 spool styles available.
- Signal lights available.
- CSA approved.

D3 Spool Reference Data

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		
		D3W	D3W*F†	D3DW			D3W	D3W*F†	D3DW
D3*1		150 (40)	78 (20)	130 (33)	D3*12		95 (24)	59 (15)	75 (19)
D3*2		150 (40)	78 (20)	115 (30)	D3*14		50† (13)	59# (15)	70† (18)
D3*3		150 (40)	78 (20)	120 (31)	D3*15		150 (40)	78 (20)	120 (31)
D3*4		150 (40)	59 (15)	130 (33)	D3*16		150 (40)	78 (20)	130 (33)
D3*5		150 (40)	78 (20)	130 (33)	D3*20		150 (40)	78 (20)	130 (33)
D3*6		150 (40)	78 (20)	130 (33)	D3*21		115 (30)	N/A	120 (31)
D3*7		50† (13)	59# (15)	70† (18)	D3*22		115 (30)	N/A	120 (31)
D3*8		50‡ (13)	59# (15)	39 (10)	D3*26		115 (30)	N/A	75 (19)
D3*9		39 (10)	59# (15)	75 (19)	D3*30		39 (10)	59# (15)	75 (19)
D3*10		115 (30)	N/A	75 (19)	D3*81		115† (30)	N/A	130 (33)
D3*11		115 (30)	59# (15)	130 (33)	D3*82		115† (30)	N/A	130 (33)

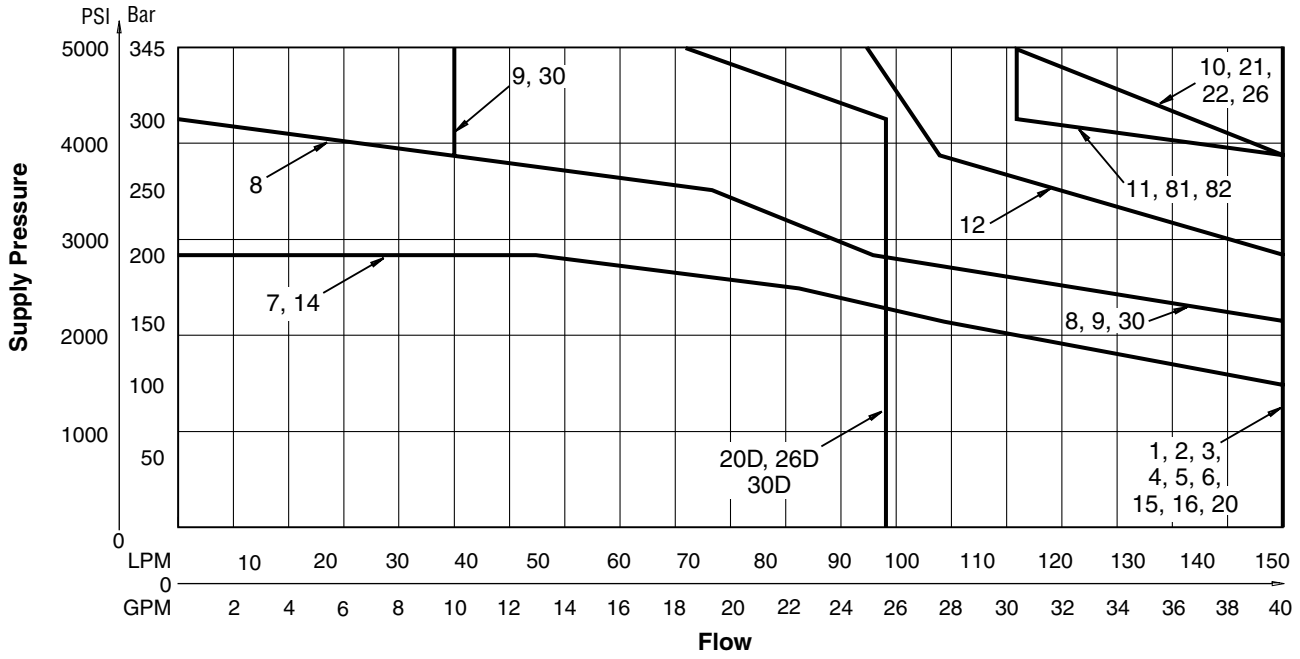
Center or De-energized position is indicated by P, A, B & T port notation.
† 3000 PSI Max. ‡ 2900 PSI Max. # 1500 PSI Max.

D3A, D3C, D3L Spool Reference Data (Four Chamber Body Only)

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
D3*1		150 (40)	D3*20		150 (40)
D3*2		150 (40)	D3*26		115 (30)
D3*4		150 (40)	D3*30		39 (10)
D3*8		50 (13)	D3*81		115 (30)
D3*9		39 (10)	D3*82		115 (30)

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

D3W-30/32 DC and AC Rectified Shift Limits

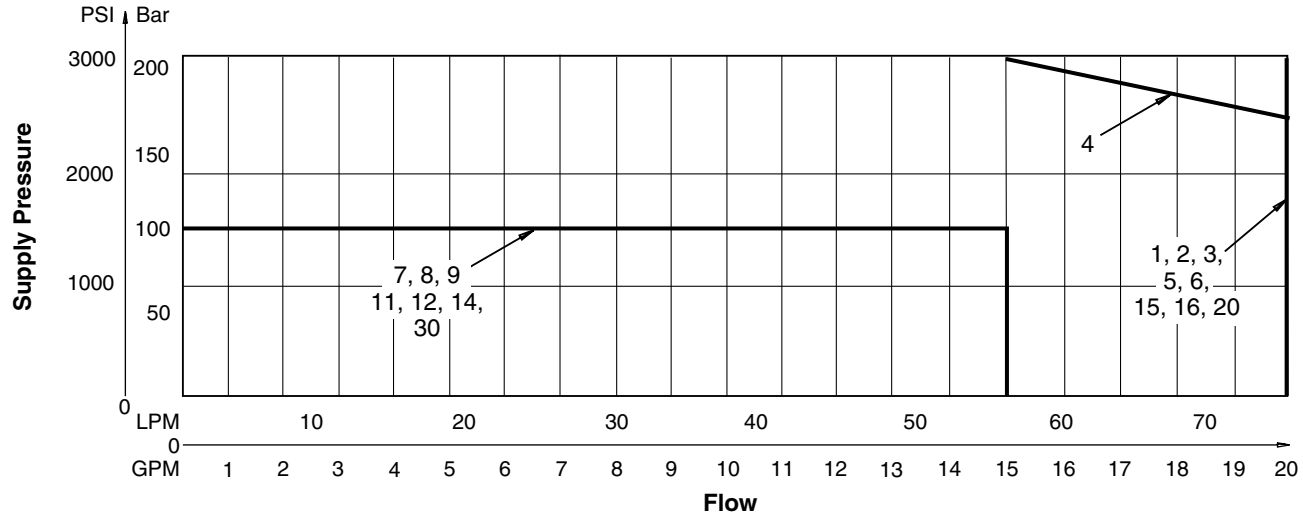


Example:

Determine the maximum allowable flow of a D3W Series valve (20D) at 150 Bar (2175 PSI) supply pressure. Locate the curve marked “20D”. At 150 Bar (2175 PSI) supply pressure, the maximum flow is 98 LPM (25 GPM). At 345 Bar (5000 PSI), the flow is 72 LPM (18.5 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 and B ports will reduce flow to 70% of that shown.

D3W-30/32 Low Watt DC and AC Rectified Shift Limits



D3.indd, dd

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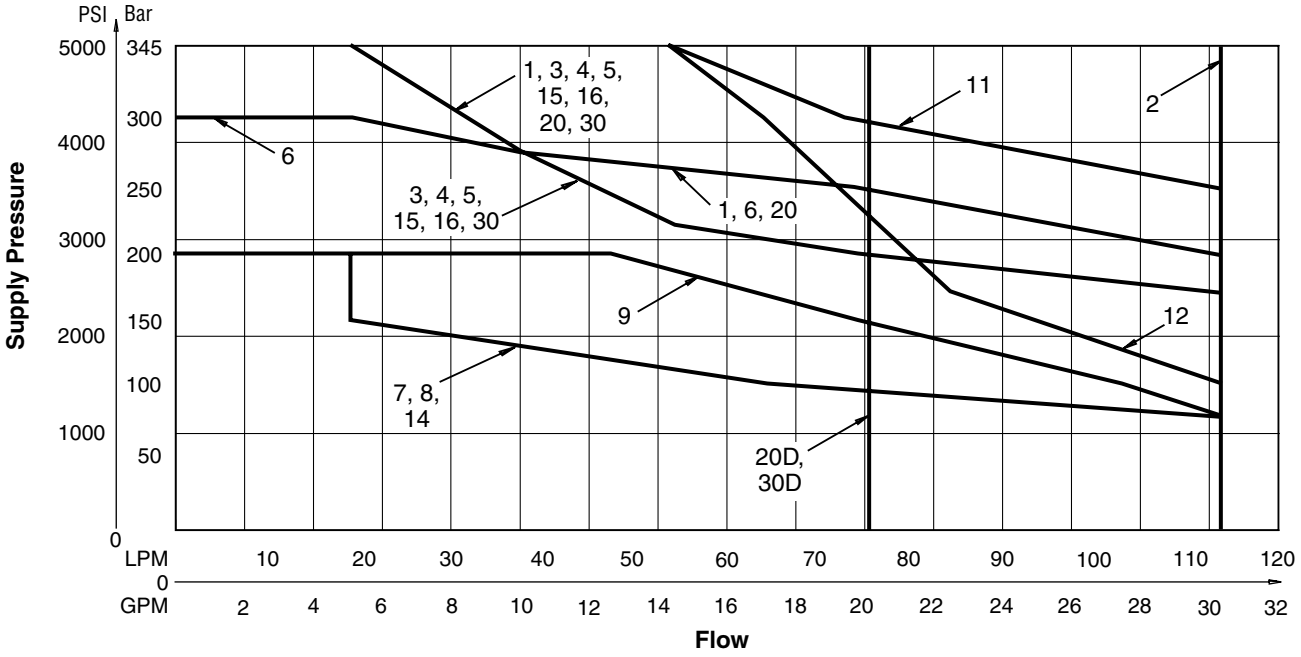
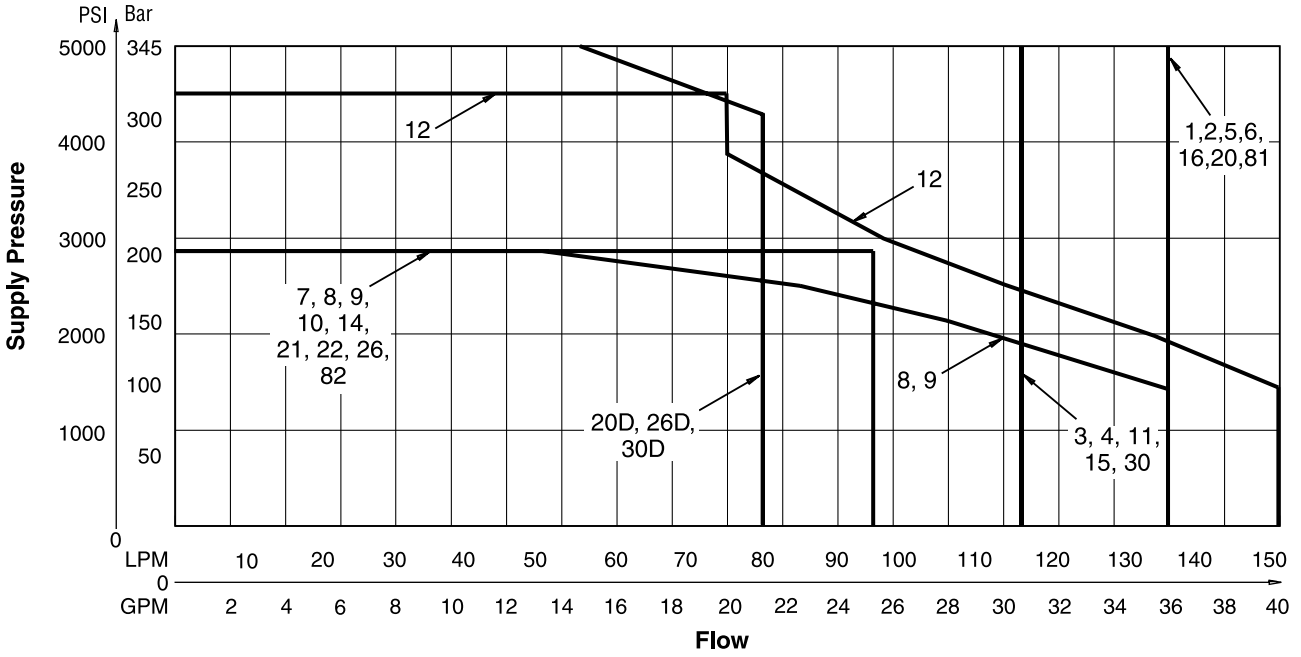
Hydraulic Valve Division
Elyria, Ohio, USA

D3W-30/32 AC Shift Limits



D3W-30/32 Soft Shift Limits (High Watt Coil Only)



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 and B ports will reduce flow to 70% of that shown.

D3.indd, dd

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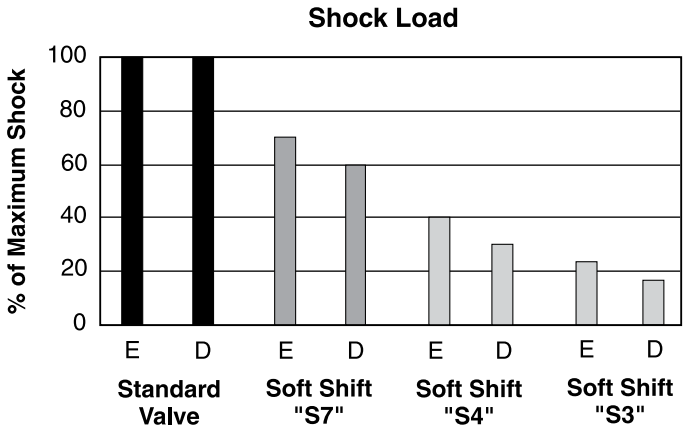
Hydraulic Valve Division
Elyria, Ohio, USA

D3W-30/32 Soft Shift Response



E = Energize
D = De-energize

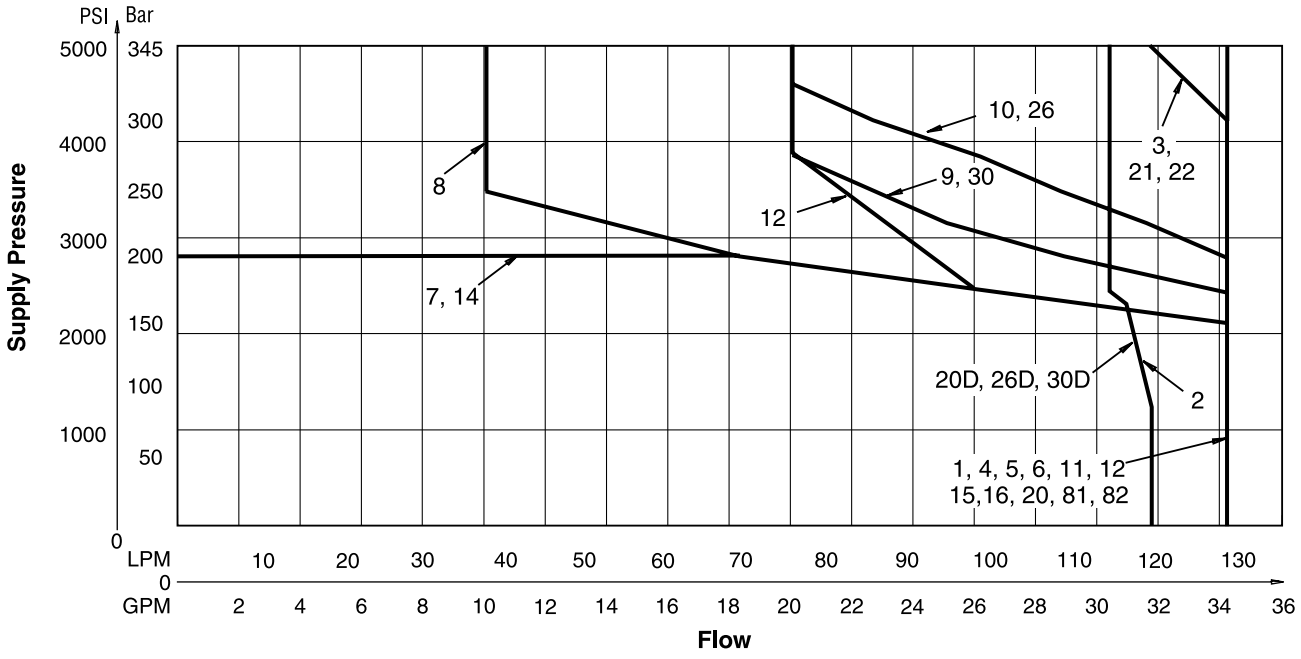
Response Time*

Signal to 95% spool stroke measured at 172 Bar (2500 PSI) and 65 LPM (17 GPM).

Soft Shift Option	Energize	De-energize
S3	400	650
S4	320	550
S7	160	370

* For reference only. Response time varies with flow, pressure and oil viscosity.

D3DW-40/41 Shift Limits



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 and B ports will reduce flow to 70% of that shown.

Pressure Drop vs. Flow

The table shown provides flow vs. pressure drop curve reference for D3 Series valves by spool type.

The chart below demonstrates graphically the performance characteristics of the D3. The low watt coil and other design features of the standard D3W*****F accommodate a maximum flow of 78 LPM (20 GPM) at 207 Bar (3000 PSI).

D3W and D3DW Pressure Drop Reference Chart

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)
1	5	5	2	2	—	—	—	—	—	—	—
2	4	4	1	1	2	3	3	3	3	1	1
3	5	5	2	3	—	—	—	—	—	1	—
4	4	4	3	3	—	—	—	—	—	1	1
5	6	5	2	2	—	—	—	2	—	—	—
6	6	6	2	2	—	4	4	2	2	—	—
7	5	4	2	1	3	—	—	—	3	—	1
8	8	8	7	7	6	—	—	—	—	—	—
9	5	5	4	4	7	—	—	—	—	—	—
10	5	5	—	—	—	—	—	—	—	—	—
11	5	5	2	2	—	—	—	—	—	10	10
12	5	5	2	2	11	—	—	10	10	10	10
14	4	5	1	2	3	—	—	3	—	1	—
15	5	5	3	2	—	—	—	—	—	—	1
16	5	6	2	2	—	—	—	—	2	—	—
20	5	5	2	2	—	—	—	—	—	—	—
21	5	4	—	1	—	9	—	—	—	—	—
22	4	5	1	—	—	—	9	—	—	—	—
26	5	5	—	—	—	—	—	—	—	—	—
30	5	5	2	2	—	—	—	—	—	—	—

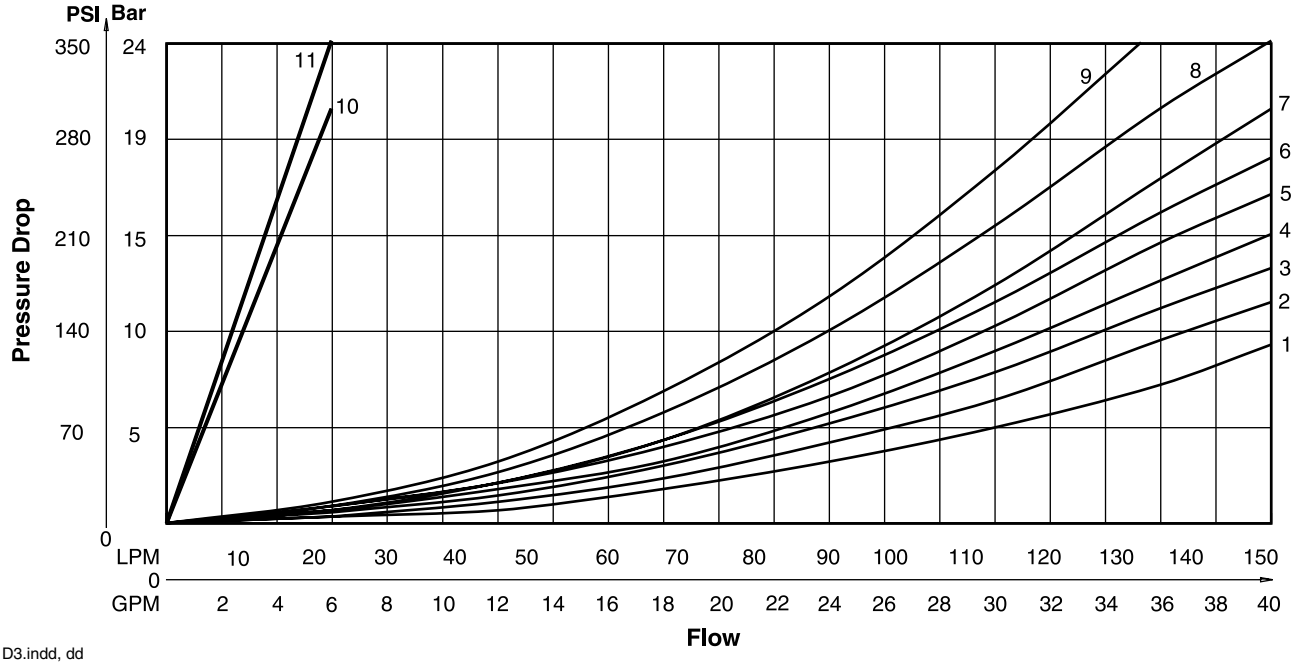
Note:
For 81 and 82 spools, consult factory.

Viscosity Correction Factor

Viscosity (SSU)	75	150	200	250	300	350	400
% of ΔP (Approx.)	93	111	119	126	132	137	141

Curves were generated using 110 SSU hydraulic oil.
For any other viscosity, pressure drop will change per chart.

Performance Curves



D3.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Notes

Return to ALPHA TOC
Return to SECTION TOC
A

D3.indd, dd

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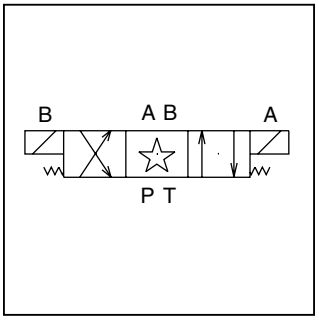
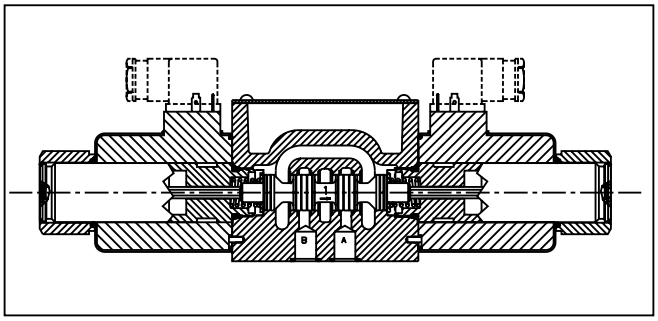
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series D3W 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 D05, CETOP 5 mounting patterns.





Features

- Worldwide, high flow, low pressure drop design.
- Soft shift available.
- 22 spools available including proportional.
- DC surge suppression available to protect electrical equipment.
- Three electrical connection options.
- AC & DC lights available.
- Easy access mounting bolts.
- Explosion proof availability.
- CSA approved.
- No tools required for coil removal.
- Rectified coils available for high flow AC applications.

Response Time (ms)

Signal to 95% spool stroke measured at 172 Bar (2500 PSI) and 75 LPM (20 GPM)

Solenoid Type	m sec
AC Energize	21
AC De-energize	35
DC Energize	110
DC De-energize	85

Specifications

Interface	NFPA D05, CETOP 5, NG 10
Max. Operating Pressure	P, A, B: 345 Bar (5000 PSI) Standard CSA 207 Bar (3000 PSI) Tank: 103 Bar (1500 PSI) AC Standard 207 Bar (3000 PSI) AC Optional DC/AC Rectified Standard CSA 103 Bar (1500 PSI)
CSA File Number	LR060407
Leakage Rates 100 SSU @ 49°C (120°F)	Maximum Allowable: 19.6 cc (0.38 Cu. in.) per Minute/ Land @ 69 Bar (1000 PSI)* 35 cc (2.19 Cu. in.) per Minute/ Land @ 207 Bar (3000 PSI)*

* #008 and #009 Spools may exceed these rates, consult factory

D	3	W				
Directional Control Valve	Basic Valve	Actuator	Spool	Style	Seal	Solenoid Voltage

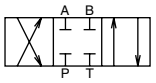
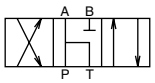
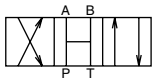
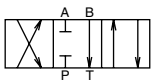
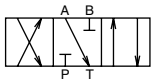
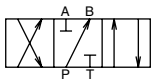
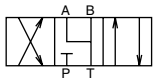
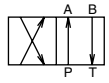
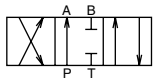
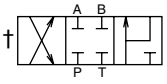
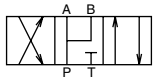
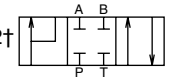
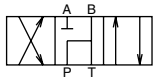
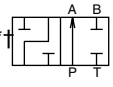
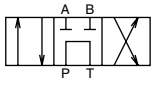
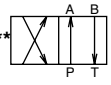
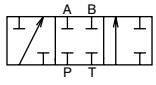
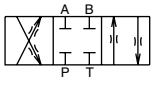
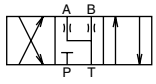
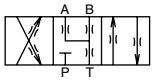
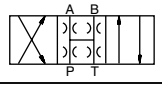
Basic Valve: NFPA D05, CETOP 5, NG 10

Actuator: Wet armature solenoid

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

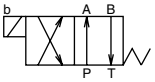
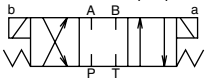
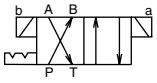
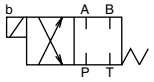
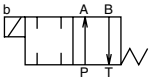
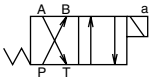
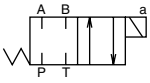
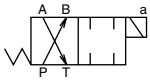
Code	Description
E#	24/60 - 24/50 VAC
Y	**120/60 - 110/50 VAC**
T	**240/60 - 220/50 VAC**
K	**12 VDC**
J	**24 VDC**
D#	120 VDC
U#	98 VDC
Z#	250 VDC

High Watt Coil only.

Code	Symbol	Code	Symbol
1		14	
2		15	
3		16	
4		**20***	
5		21†	
6		22†	
7		26*†	
8* **9****		**30****	
10†		**81† ††**	
11		**82† ††**	
12			

* 8, 20 & 26 spools have closed crossover.
** 9 & 30 spools have open crossover.
† Available only with high-watt rectified AC coils or high-watt DC coils.
†† Spring centered versions C, E, F, K & M only.

Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing solenoid A. Note operators reverse sides for #8 and #9 spools. See installation information for details.

Code	Description	Symbol
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.	

* Only spools 20, 26 & 30.
** High Watt Coil.
† Only spools 20 & 30.

This condition varies with spool code.

Bold: Designates Tier I products and options.

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

D3.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Solenoid Connection

Code	Description
C**	**Conduit Cavity**
K	**Conduit Box**
J#*	Deutsch (DT06-2S)
P	**Hirschmann w/Plug**
W*	**Hirschmann w/o Plug**
E*	Explosion Proof

* Lights not available.
** No variations (See "K").
# DC voltage only.

Solenoid/Tube Options

Options	Coil	Tube Rating	
		AC	DC/AC Rectified
Omit	**High Watt**	**103.5 Bar (1500 PSI)**	**207 Bar (3000 PSI)**
F*#	Low Watt	n/a	207 Bar (3000 PSI)
H	**High Watt**	**207 Bar (3000 PSI)**	**n/a**
D†	Explosion Proof, EEXD ATEX		
U†	Explosion Proof, UL/CSA		

* Available only with J, K and Y (Rectified), T (Rectified) voltages.
# Not available with soft shift or with F and M style valves.
† Explosion proof coils are 60 Hz at standard voltage; dual rating not available.

Valve Weight:

Single Solenoid:
AC 4.3 kg (9.5 lbs.)
DC 5.3 kg (11.6 lbs.)

Double Solenoid:
AC 5.0 kg (11.0 lbs.)
DC 7.3 kg (16.0 lbs.)

Seal Kit:
Nitrile SKD3W
Fluorocarbon SKD3WV

Manual Override Options

Code	Description
Omit	**Standard Tube**
P*	Extended Manual Override

* Not available with soft shift or explosion proof.

Electrical Options

Code	Description
Omit	**No Option**
V#	Varistor Surge Suppressor
Z	AC Rectified with MOV Surge Suppressor

DC voltage only.

Shift Response and Indication

Code	Description
Omit	**Standard Valve**
S3**	Soft Shift, 0.030" Orifice
S4**	Soft Shift, 0.040" Orifice
S7**	Soft Shift, 0.070" Orifice
I7*	Monitor Switch Direct Op. End Stroke
I8*	Monitor Switch

* Single solenoid models only. Not CE or CSA approved. Spools 8, 9, 81 & 82 not available.
** High watt coil only.

Approvals

Code	Description
Omit	**Standard Valve**
3*†	CSA US (UL429)
4*	**CSA Canada**

* Not available with AC high pressure tube.
† B, C, H styles only. Y voltage with conduit connection only, must be rectified.

Variations

Code	Description
Omit	**Standard Valve**
5	**Signal Lights**
6	**Manaplug, Brad Harrison Mini**
7	Manaplug, Brad Harrison Micro (M12x1)
56	**Manaplug (Mini) with Lights**
57	Manaplug (Micro) with Lights (M12x1)
1A	**Manaplug (Mini) Single Sol. 5-Pin**
1B	Manaplug (Micro) Single Sol. 5-Pin (M12x1)
1C	**Manaplug (Mini) Single Sol. 5-Pin w/Lights**
1D	Manaplug (Micro) Single Sol. 5-Pin w/Lights (M12x1)
1M	Manaplug Opposite Normal

Design Series
NOTE: Not required when ordering.

Mounting Bolt Kits

UNC Bolt Kits for use with D3W Directional Control Valves & Sandwich Valves		Number of Sandwich Valves @ 2.00" (50mm) thickness			
		0	**1**	**2**	**3**
D3W	Standard:	BK98 1.62"	BK141 3.50"	BK142 5.50"	BK143 7.50"
	Metric:	BKM98 40mm	BKM141 90mm	BKM142 140mm	BKM143 190mm
D3W with explosion proof coils	Standard:	BK144 2.37"	BK61 4.25"	BK62 6.25"	BK63 8.25"
	Metric:	BKM144 60mm	BKM61 110mm	BKM62 160mm	BKM63 210mm

NOTE: All bolts are SAE grade 8, 1/4-20 UNC-2A thread, torque to 16 Nm (12 ft-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

Solenoid Ratings**

Insulation	Class H	
Allowable Deviation from rated voltage	DC, AC Rect AC	-10% to +15% -5% to +5%
Armature	Wet pin type	

** DC Solenoids available with optional molded metal oxide varistor (MOV) for surge suppression.
Leadwire length 6" from coil face.

D3W*****F Solenoid Electrical Characteristics‡

Solenoid Code	Nominal Volts/Hz	In Rush Amps	Holding Amps	Watts
KF	12 VDC	—	1.50	18
JF	24 VDC	—	0.75	18

‡ Based on nominal voltage @ 22°C (72°F)

D3W Solenoid Electrical Characteristics†

Solenoid Code	Nominal Volts/Hz	In Rush VA	Holding VA	Nominal Watts (Ref)
Y	120/60 110/50	298 294	95 102	32
T	240/60 220/50	288 288	96 101	32
E	24/60 24/50	290 381	77 110	32
K	12 VDC	—	3.00†	36
J	24 VDC	—	1.50†	36
D	120 VDC	—	0.30†	36
U	98 VDC	—	0.37†	36
Z	250 VDC	—	0.14†	36

† DC holding amps.

D3W Rectified AC Solenoid Electrical Characteristics‡

Solenoid Code	Nominal Volts/Hz	In Rush Amps	Holding Amps	Watts
Y	120/60 110/50	—	.37	36
T	240/60 220/50	—	.18	36
YF	120/60 110/50	—	.18	18
TF	240/60 220/50	—	.09	18

‡ Based on nominal voltage @ 22°C (72°F)

Explosion Proof Solenoids

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	Complies with ATEX requirements for: Exd, Group IIB; EN50014: 1999+ Amds 1 & 2, EN50018: 200

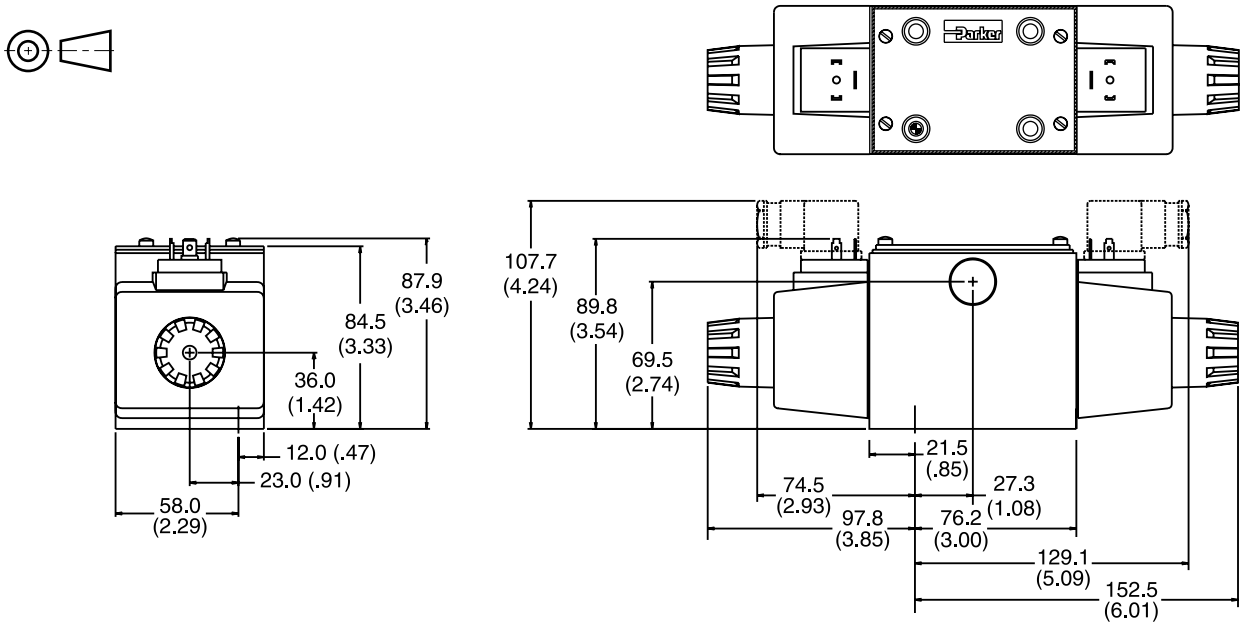
Electrical Characteristics* ED and EU†

Solenoid Code	Nominal Volts/Hz	In Rush VA	Holding VA	Nominal Watts (Ref)
Y	120/60	266	82	36
T	240/60	266	82	36
K	12 VDC	—	3.00†	36
J	24 VDC	—	1.50†	36
D	120 VDC	—	0.30†	36

* Dual frequency not available on explosion proof coils.
† DC holding amps.

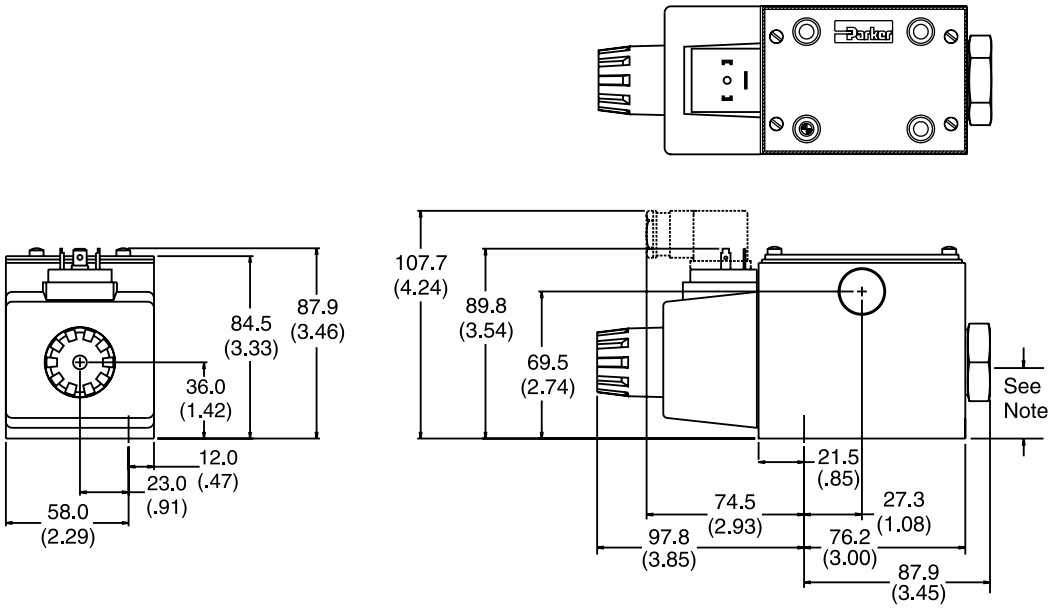
Inch equivalents for millimeter dimensions are shown in (**)

Hirschmann, Double AC Solenoid



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

Hirschmann, Single AC Solenoid

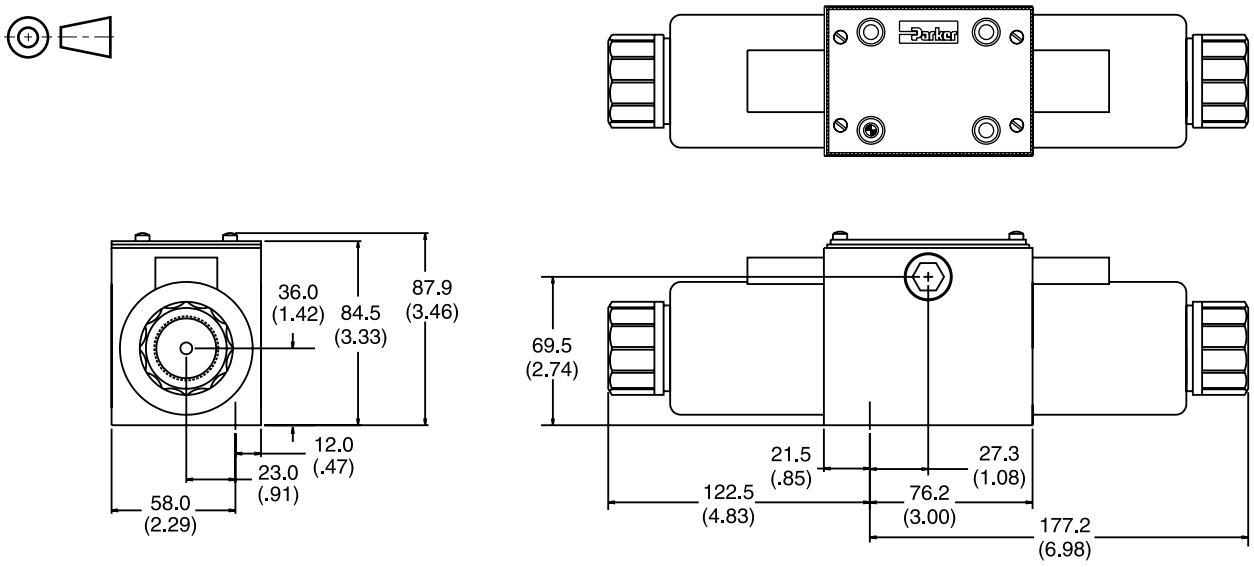


Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

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

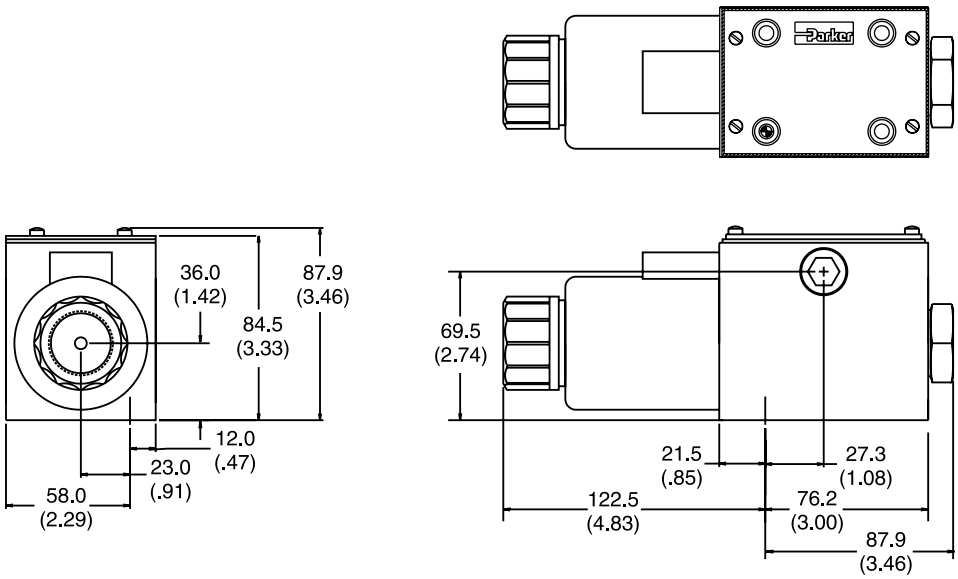
A

Conduit Cavity, Double DC Solenoid



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

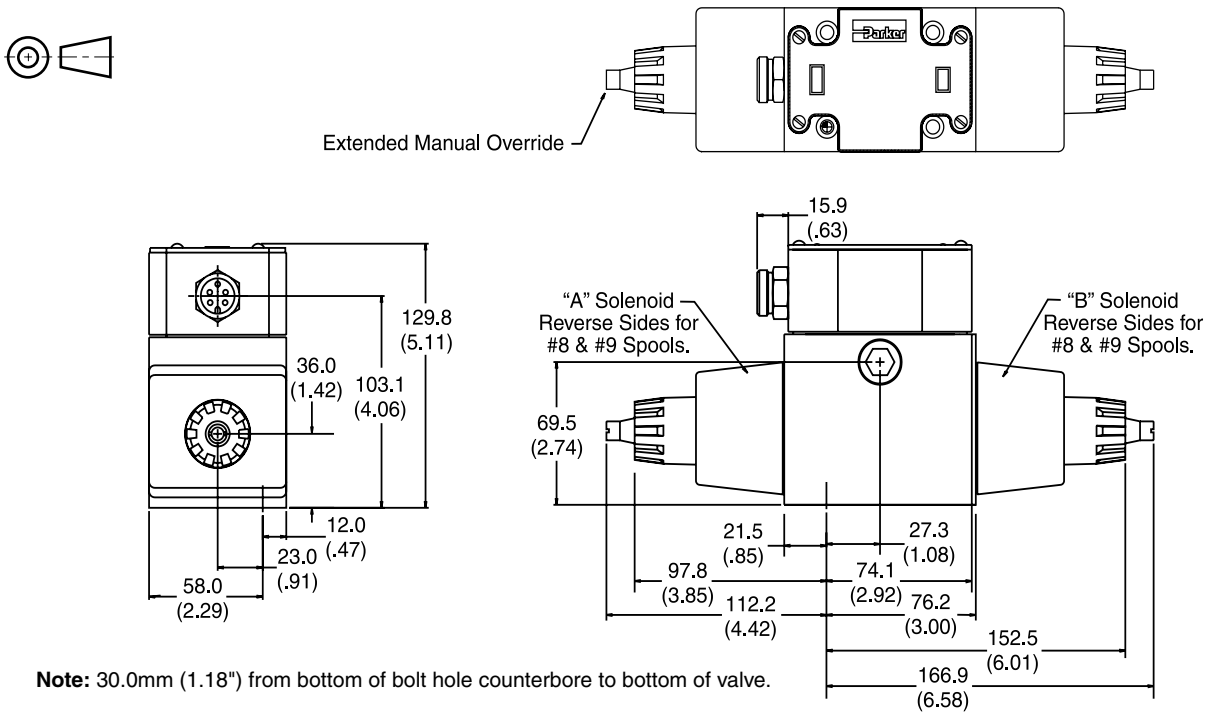
Conduit Cavity, Single DC Solenoid



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

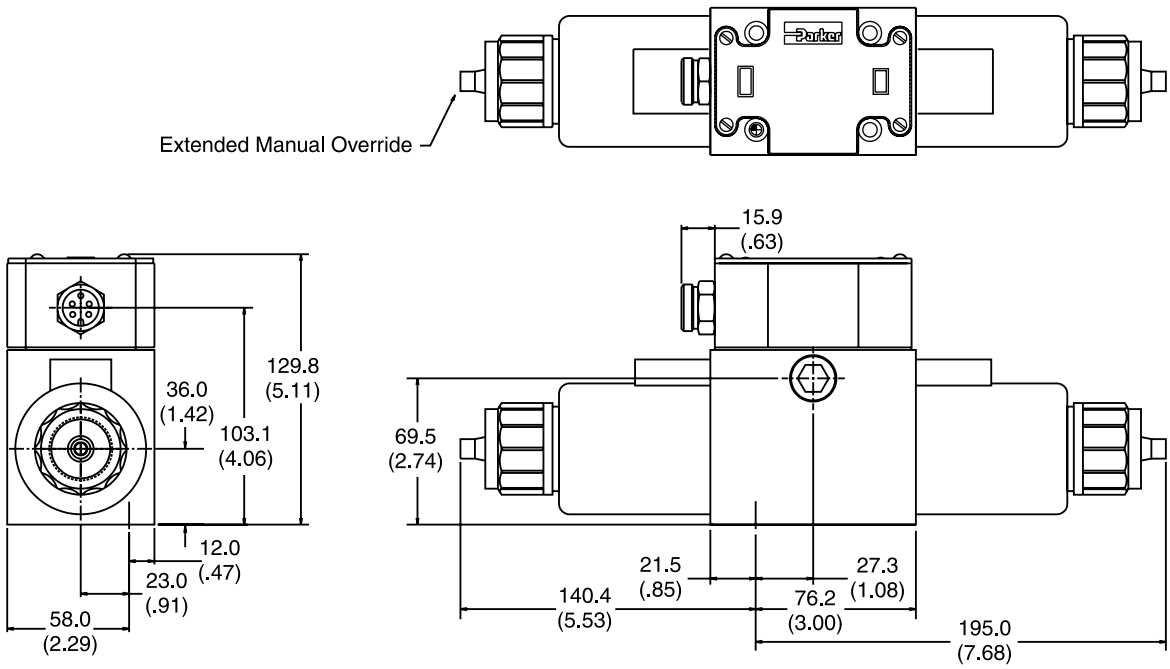
Inch equivalents for millimeter dimensions are shown in (**)

Conduit Box, Single AC Solenoid
with Variation 6 (Manaplug) & Variation P (Extended Manual Override)



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

Conduit Box, Double DC Solenoid
with Variation 6 (Manaplug) & Variation P (Extended Manual Override)



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

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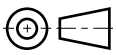
Hydraulic Valve Division
Elyria, Ohio, USA

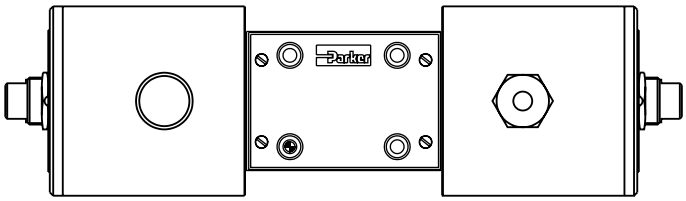
Inch equivalents for millimeter dimensions are shown in (**)

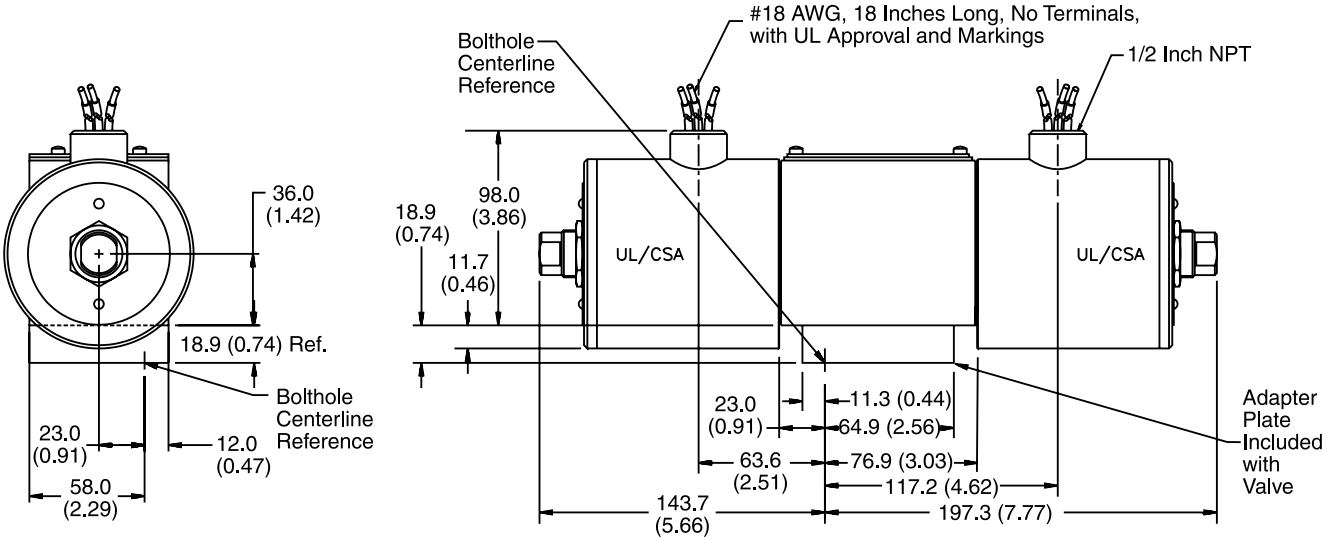
A

Explosion Proof U.L. & CSA, Double Solenoid



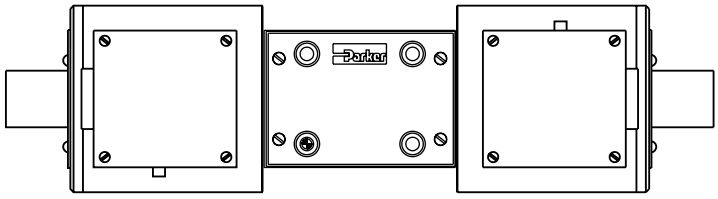
Note:
2 Black Wires
1 Green Wire

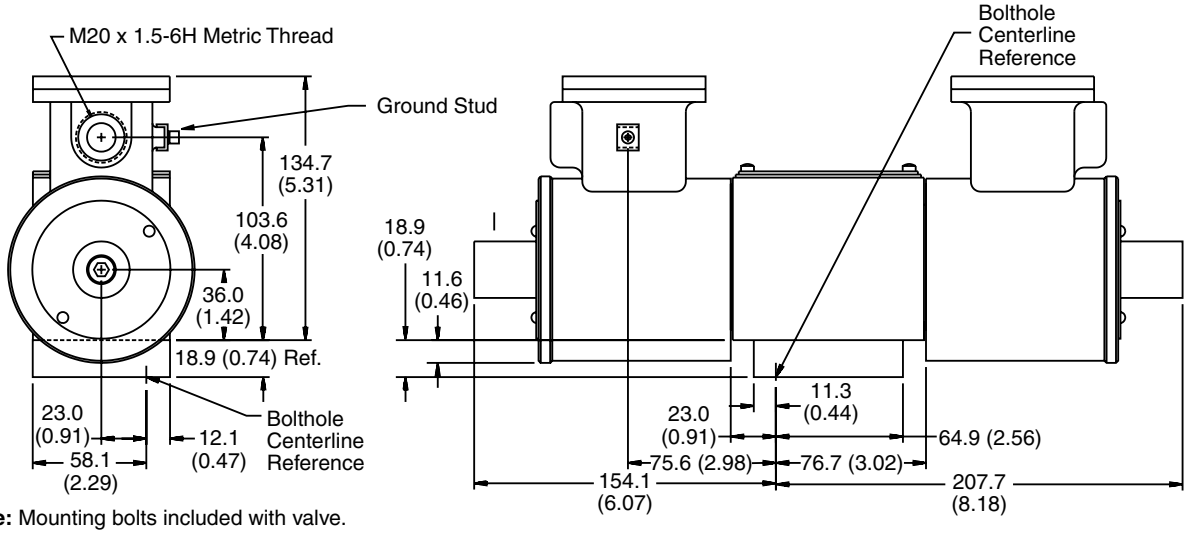




Note: Mounting bolts included with valve.

Explosion Proof ATEX, Double Solenoid





Note: Mounting bolts included with valve.

D3.indd, dd

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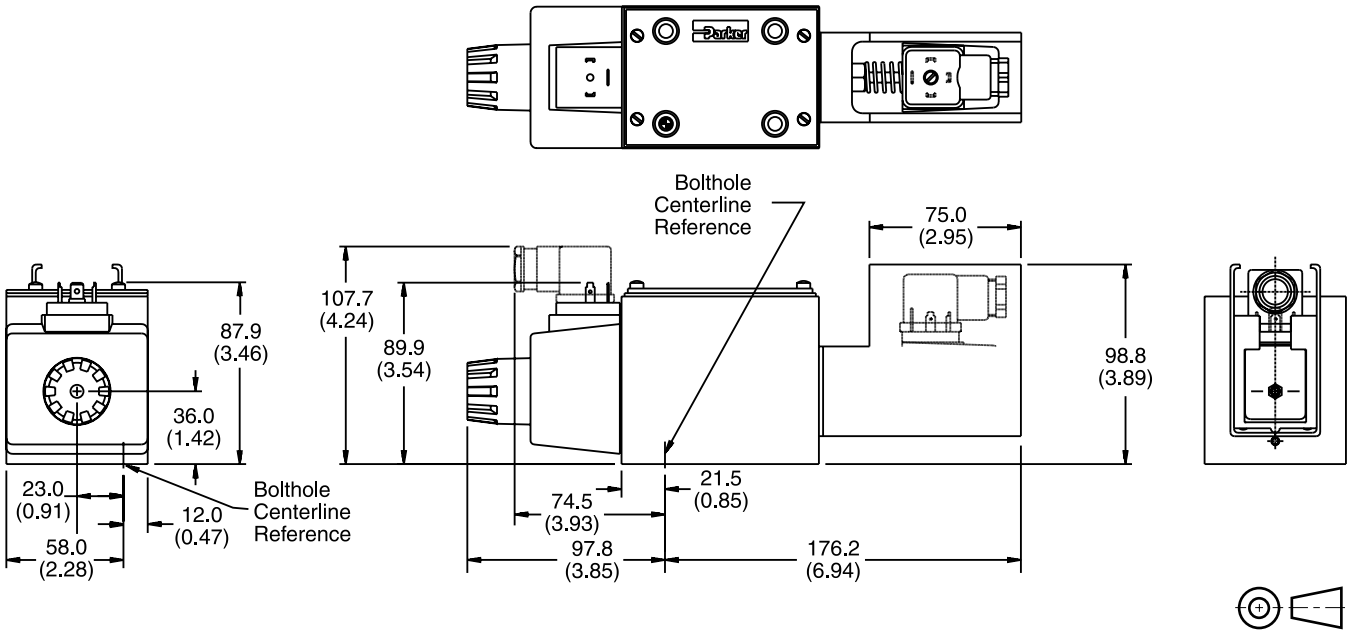
Hydraulic Valve Division
Elyria, Ohio, USA

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

Hirschmann, Single AC Solenoid
with Variation I7 (Monitor Switch)



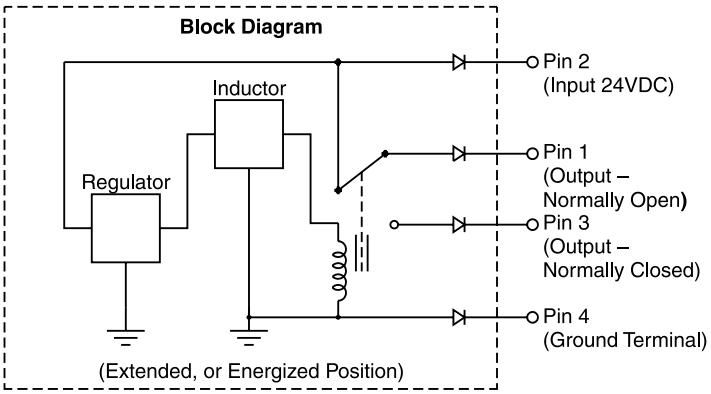
Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

Monitor Switch
(Variation I7) End of Stroke

This feature provides for electrical confirmation of the spool shift. This can be used in safety circuits, to assure proper sequencing, etc.

Switch Data

Inductive switch requiring +18-42 volt input. Outputs “A” and “B” are opposite; one at “0” voltage, the other at input voltage. During switching, “A” and “B” outputs reverse. Provides 0.4A switching current.



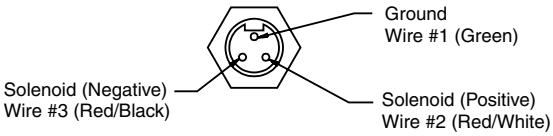
For repetitive switch power-up conditions, please consult factory.

Conduit Box
(connection option K)

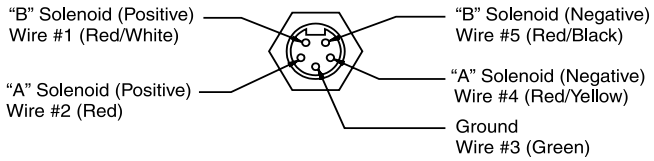
Interface – 152.4 cm (6.0 inch) lead wires, 18 awg.
– Meets NEMA 4 and IP65

Manaplug
(valve variations 6, 56, 1A, 1C)

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



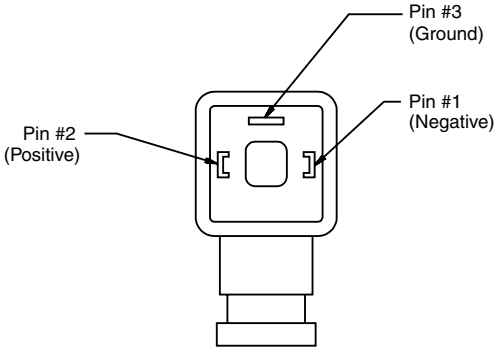
3-Pin Manaplug (Mini) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid



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)

Pins are as seen on valve (male pin connectors)

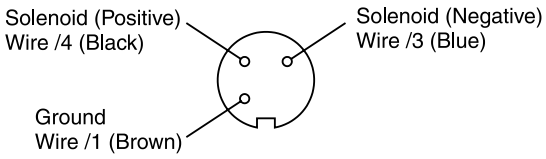
Hirschmann Plug with Lights (P5)



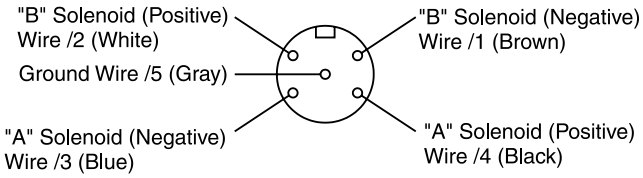
Face View of Plug

Conforms to DIN43650, ISO4400, Form A 3-Pin

Manaplug - Micro Connector
(valve variations 7, 57, 1B, 1D)



3-Pin Manaplug (Micro) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid

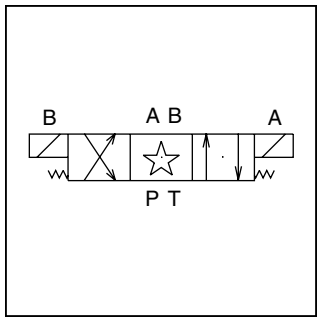


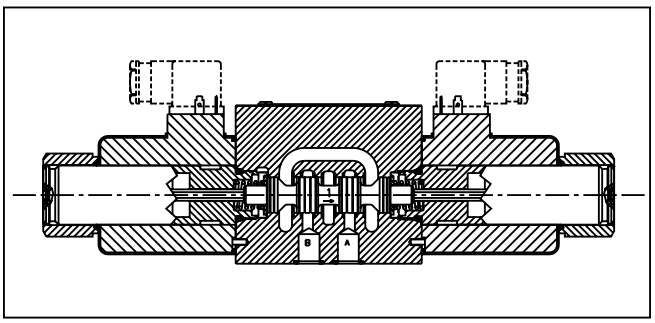
5-Pin Manaplug (Micro) with Lights
Single Solenoid Valves – Installed Opposite Side of Solenoid
Double Solenoid Valves – Installed Over "A" Solenoid
("A" and "B" Solenoids Reversed for #8 and #9 Spools)

Pins are as seen on valve (male pin connectors)

General Description

Series D3DW directional control valves are high performance, 5-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 D05, CETOP 5 mounting patterns.





Features

- 22 spools available including proportional.
- DC surge suppression available to protect electrical equipment.
- Easy access mounting bolts.
- CSA approved.
- No tools required for coil removal.
- High pressure tank line capability.
- Monitor switch available.

Response Time (ms)

Signal to 95% spool stroke measured at 175 Bar (2500 PSI) and 75 LPM (20 GPM)

Solenoid Type	Pull-In	Drop-Out
DC	110	85

Solenoid Ratings**

Insulation	Class H
Allowable Deviation from rated voltage	DC only -10% to +15%
Armature	Wet pin type

** DC Solenoids available with optional molded metal oxide varistor (MOV) for surge suppression.

D3DW Solenoid Electrical Characteristics

Solenoid Code	Nominal Volts	In Rush Amps	Holding Amps	Nominal Watts (Ref)
K	12 VDC	—	3.00	36
J	24 VDC	—	1.50	36
D	120 VDC	—	0.30	36
Y*	120/60 110/50	—	0.37	36
T*	240/60 220/50	—	0.18	36

* AC input rectified to DC

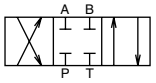
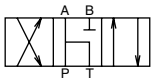
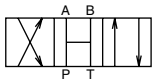
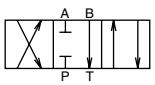
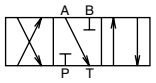
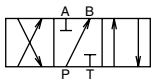
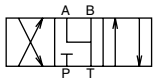
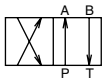
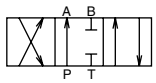
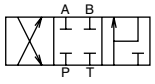
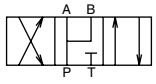
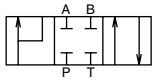
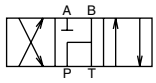
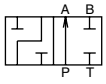
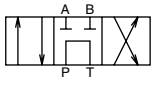
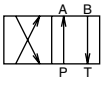
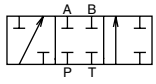
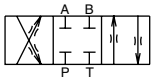
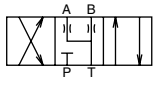
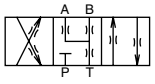
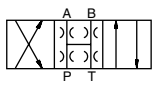
Specifications

Interface	NFPA D05, CETOP 5, NG 10
Max. Operating Pressure	P, A, B: 345 Bar (5000 PSI) Standard CSA 207 Bar (3000 PSI) Tank: 207 Bar (3000 PSI) Standard CSA 103 Bar (1500 PSI)
Maximum Flow	See Spool Reference Chart
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)

* #008 and #009 Spools may exceed these rates, consult factory.

D	3	D	W				
Directional Control Valve	Basic Valve	Body	Actuator	Spool	Style	Seal	Solenoid Voltage

- Basic Valve: NFPA D05, CETOP 5, NG 10
- Body: 5-Chamber Body
- Actuator: Wet armature solenoid

Code	Symbol	Code	Symbol
1		14	
2		15	
3		16	
4		**20***	
5		21	
6		22	
7		26*	
8* 9**		**30****	
10		**81**	
11		**82**	
12			

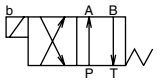
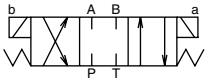
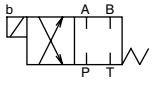
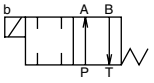
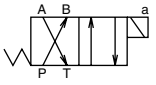
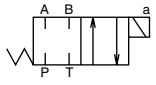
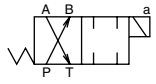
* 8, 20 & 26 spools have closed crossover.
** 9 & 30 spools have open crossover.

Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing solenoid A. Note operators reverse sides for #8 and #9 spools. See installation information for details.

Code	Description
N	**Nitrile**
V	**Fluorocarbon**

Code	Description	Symbol
K	**12 VDC**	
J	**24 VDC**	
D	120 VDC	
Y*	120/60 AC 110/50	
T*	240/60 AC 220/50	

* Must be rectified.

Code	Description	Symbol
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.	

* Only spools 20, 26 & 30.
† Only spools 20 & 30.

 This condition varies with spool code.

Bold: Designates Tier I products and options.

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

Solenoid Connector

Code	Description
P	**Hirschmann w/Plug**
W*	**Hirschmann w/o Plug**

* Not available with signal lights.

Manual Override Options

Code	Description
Omit	**Standard Tube**
P	Extended Manual Override

Electrical Options

Code	Description
Omit	**No Option**
V#	Varistor Surge Suppresor
Z	AC Rectified with MOV

\# DC Voltage only.

Shift Indication

Code	Description
Omit	**Standard Valve**
I7*	Monitor Switch

* Single solenoid models only. Not CE or CSA approved. Not available with spools 8, 9, 81 & 82.

Approvals

Code	Description
Omit	**Standard Valve**
4	**CSA Approval**

Variations

Code	Description
Omit	**Standard Valve**
5	**Signal Lights**

Design Series

NOTE: Not required when ordering.

Mounting Bolt Kits

UNC Bolt Kits for use with D3DW Directional Control Valves & Sandwich Valves					
		Number of Sandwich Valves @ 2.00" (50mm) thickness			
		0	**1**	**2**	**3**
D3DW	Standard:	BK98 1.62"	BK141 3.50"	BK142 5.50"	BK143 7.50"
	Metric:	BKM98 40mm	BKM141 90mm	BKM142 140mm	BKM143 190mm

NOTE: All bolts are SAE grade 8, 1/4-20 UNC-2A thread, torque to 16 Nm (12 ft-lbs).

Valve Weight:

Single Solenoid	5.3 kg (11.6 lbs.)
Double Solenoid	7.3 kg (16.0 lbs.)

Seal Kit:

Nitrile	SKD3DW
Fluorocarbon	SKD3DWV

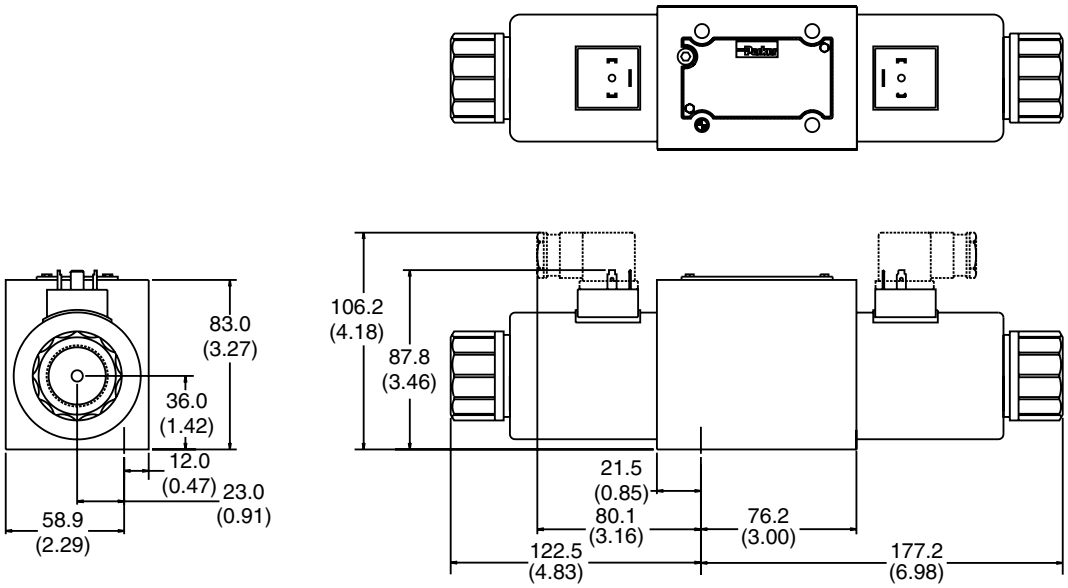
Bold: Designates Tier I products and options.

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

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

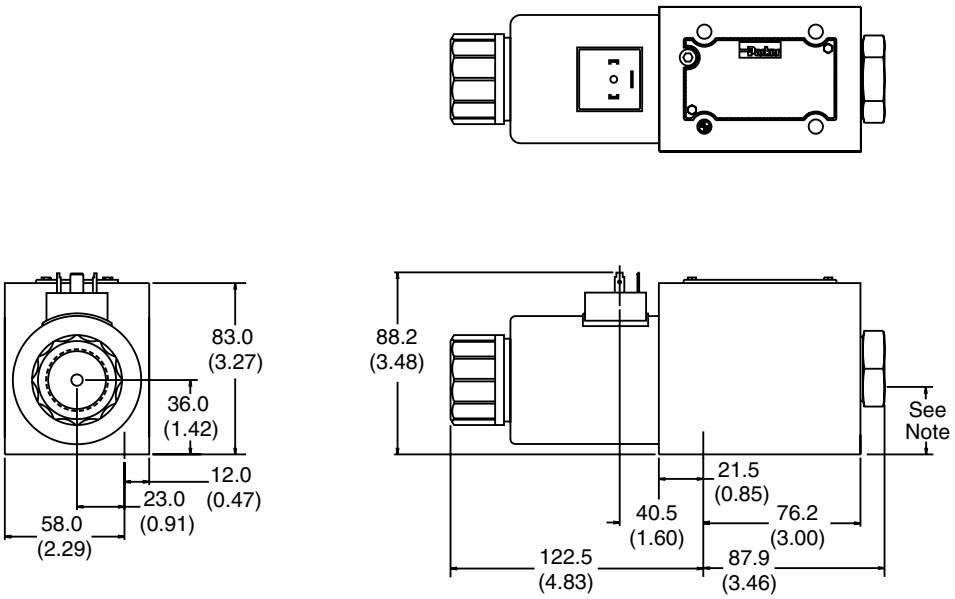
A

Hirschmann, Double DC Solenoid



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

Hirschmann, Single DC Solenoid



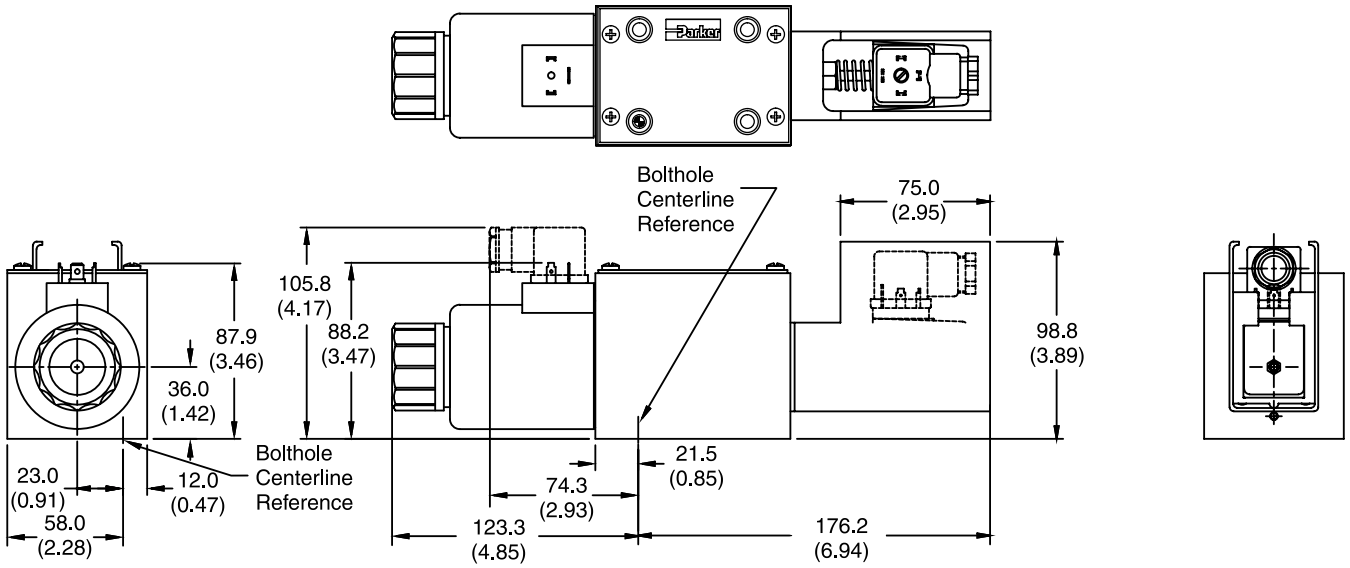
Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

D3.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

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

Hirschmann, Single DC Solenoid
with Variation I7 (Monitor Switch)



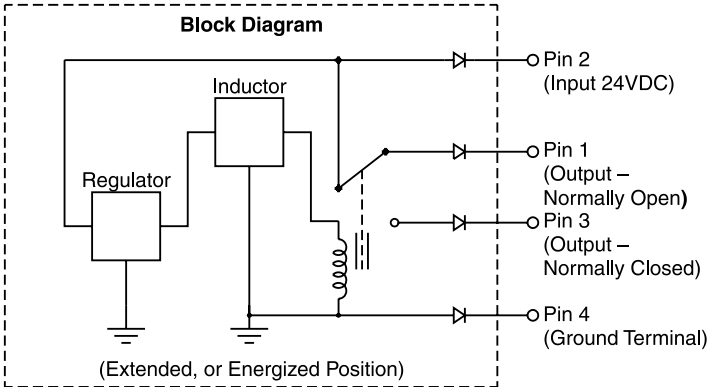
Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

Monitor Switch
(Variation I7) End of Stroke

This feature provides for electrical confirmation of the spool shift. This can be used in safety circuits, to assure proper sequencing, etc.

Switch Data

Inductive switch requiring +18-42 volt input. Outputs “A” and “B” are opposite; one at “0” voltage, the other at input voltage. During switching, “A” and “B” outputs reverse. Provides 0.4A switching current.



For repetitive switch power-up conditions, please consult factory.