

General Description

The D3W Series 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.

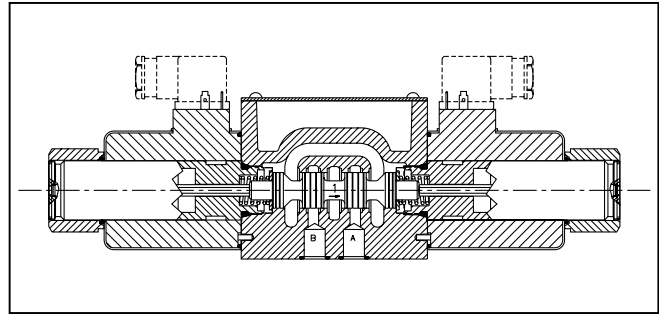
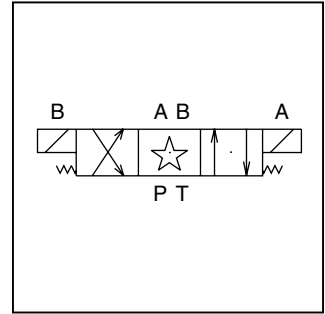
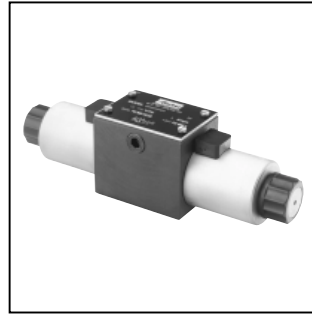
Features

- Worldwide, high flow, low pressure drop design.
- Mechanically tunable soft shift.
- 22 spools available including proportional.
- Repairable manual override for easy seal replacement.
- 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	Pull-In	Drop-Out
AC	21	35
DC	110	85

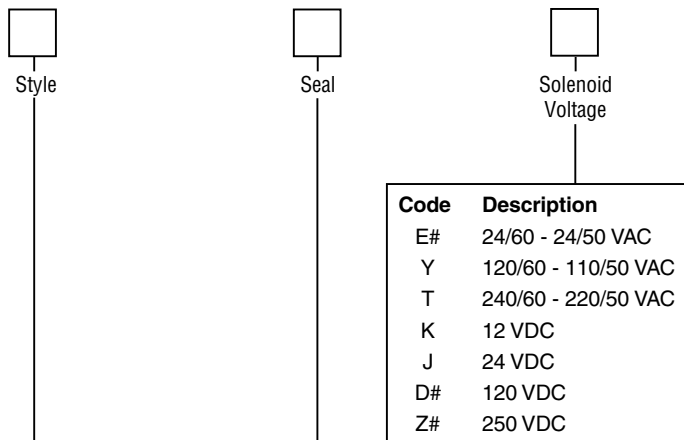
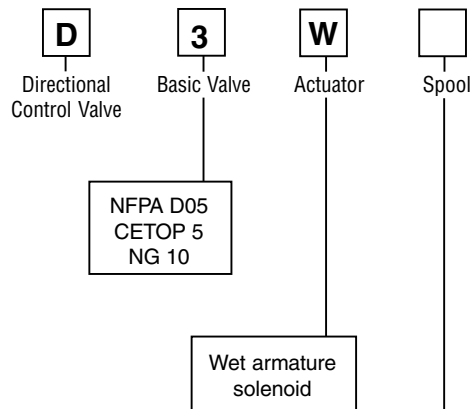


Specifications

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) Standard CSA  103 Bar (1500 PSI)
CSA File Number	LR060407



A



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			

Code	Description
N	Nitrile
V	Fluorocarbon
E	EPR

* Contact HVD for availability.

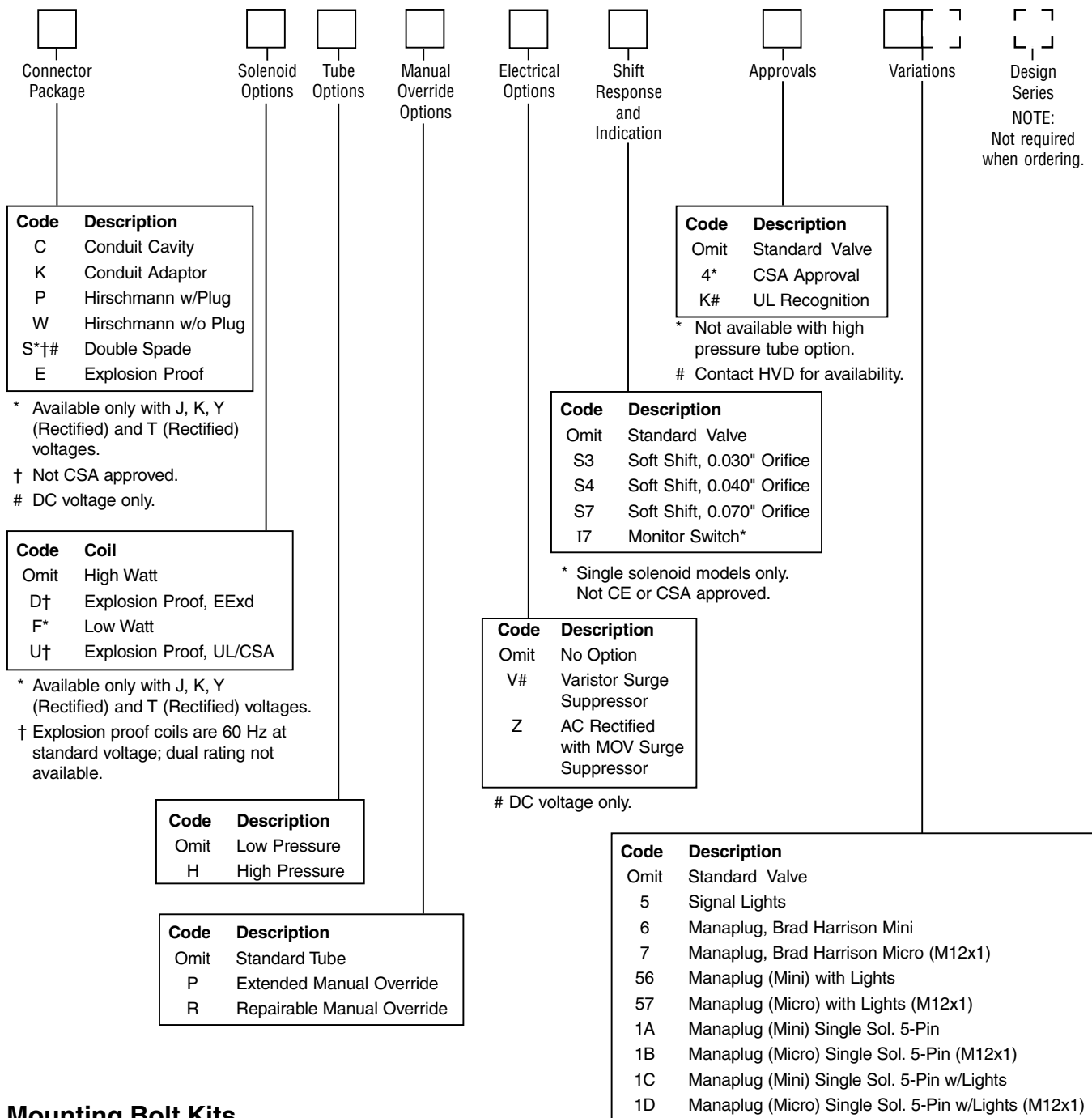
Code	Description	Symbol
B *	Single solenoid, 2 position, spring offset P to A and B to T in offset position	
C	Double solenoid, 3 position, spring centered.	
D †	Double solenoid, 2 position, detent	
E	Single solenoid, 2 position, spring centered. P to B and A to T when energized.	
F	Single solenoid, 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. A side. 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.	

* 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.

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

This condition varies with spool code.



Mounting Bolt Kits

UNC Bolt Kits for use with D3W Directional Control Valves & Manapak/Cartpak				
	Number of Manapaks/Cartpaks @ 2.00" (50mm) thickness			
	0	1	2	3
D3W	BK98 1.62"	BK141 3.50"	BK142 5.50"	BK143 7.50"
D3W with explosion proof coils	BK144 2.37"	BK61 4.25"	BK62 6.25"	BK63 8.25"

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

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.)

Standard Bolt Kit: BK98
Metric Bolt Kit: BKM98

Solenoid Ratings**

Insulation	Class H
Allowable Deviation from rated voltage	DC, AC Rect -10% to +15% AC -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	—	3.00	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	298	95	32
	110/50	294	102	
T	240/60	288	96	32
	220/50	288	101	
E	24/60	290	77	32
	24/50	381	110	
K	12 VDC	—	3.00†	36
J	24 VDC	—	1.50†	36
D	120 VDC	—	0.30†	36

† DC holding amps.

D3W Rectified AC Solenoid Electrical Characteristics‡

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

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

Explosion Proof Solenoids

Explosion Proof Solenoid Ratings

U.L. (EU) C.S.A.	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

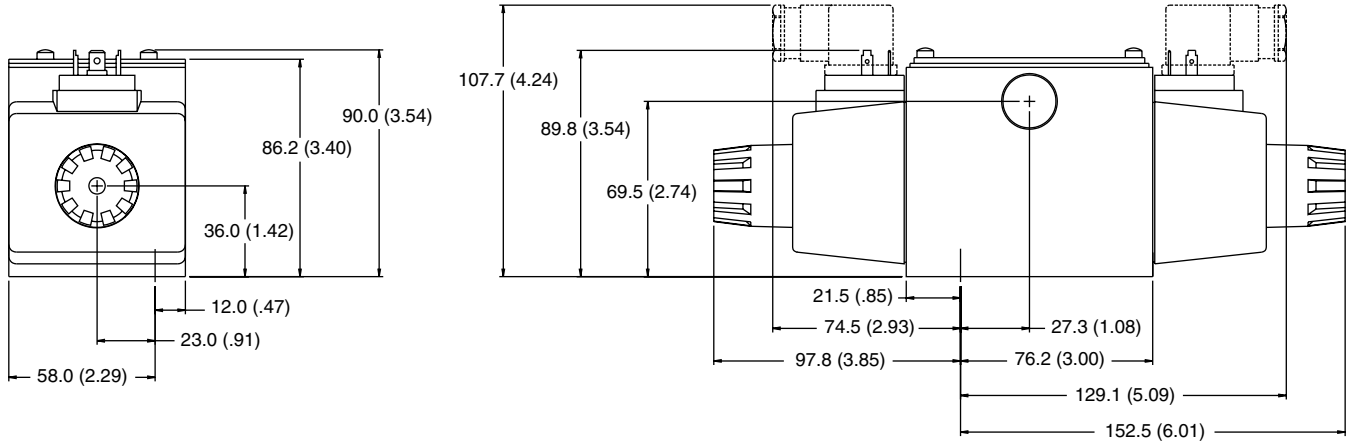
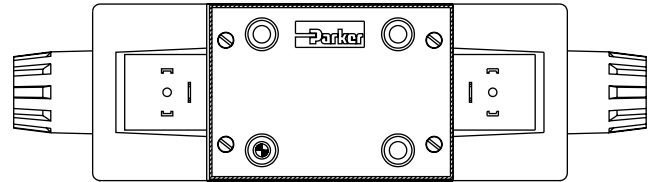
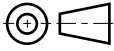
* Dual frequency not available on explosion proof coils.

† DC holding amps.

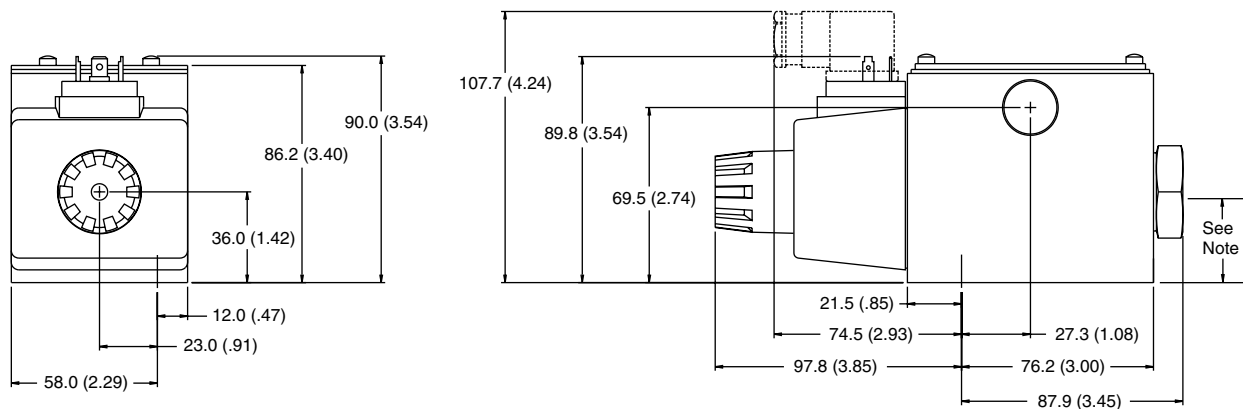
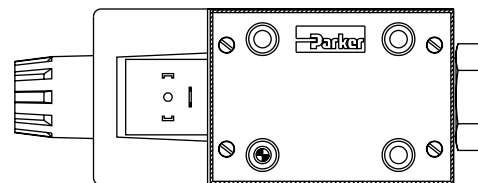
Inch equivalents for millimeter dimensions are shown in (**)

Hirschmann, Double AC Solenoid

A



Hirschmann, Single AC Solenoid

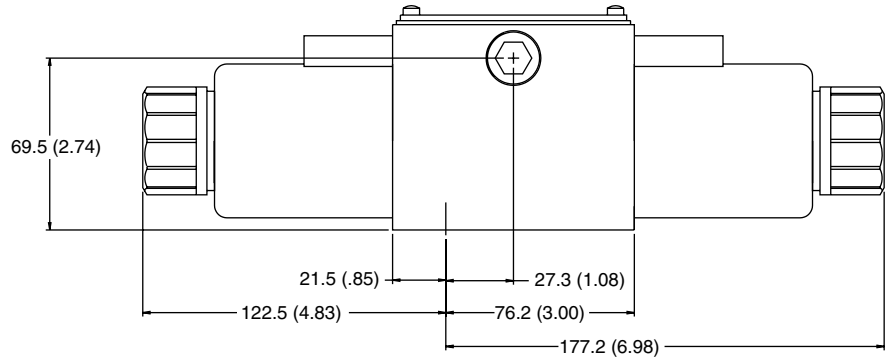
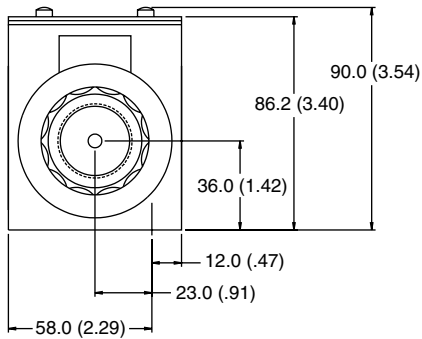
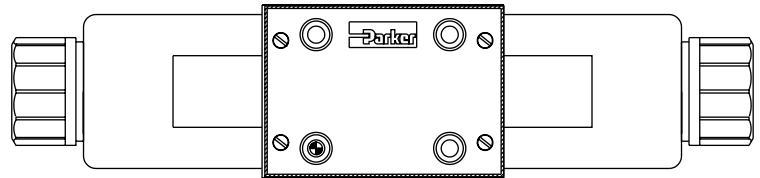
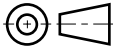


Note: 30.0mm (1.18") from bottom of bolt counterbore.

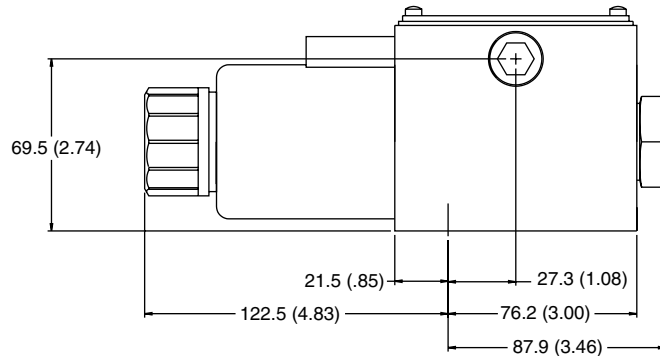
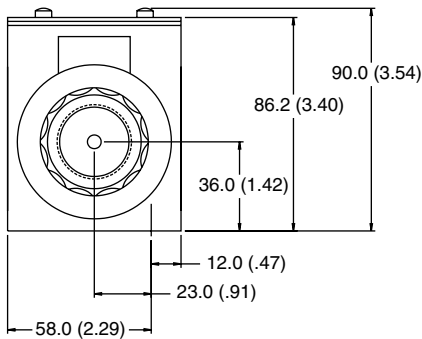
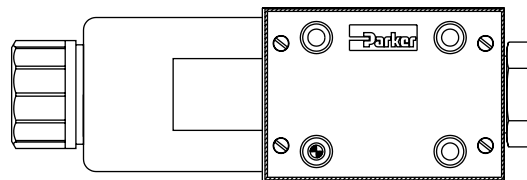
Inch equivalents for millimeter dimensions are shown in (**)

A

Conduit Cavity, Double DC Solenoid

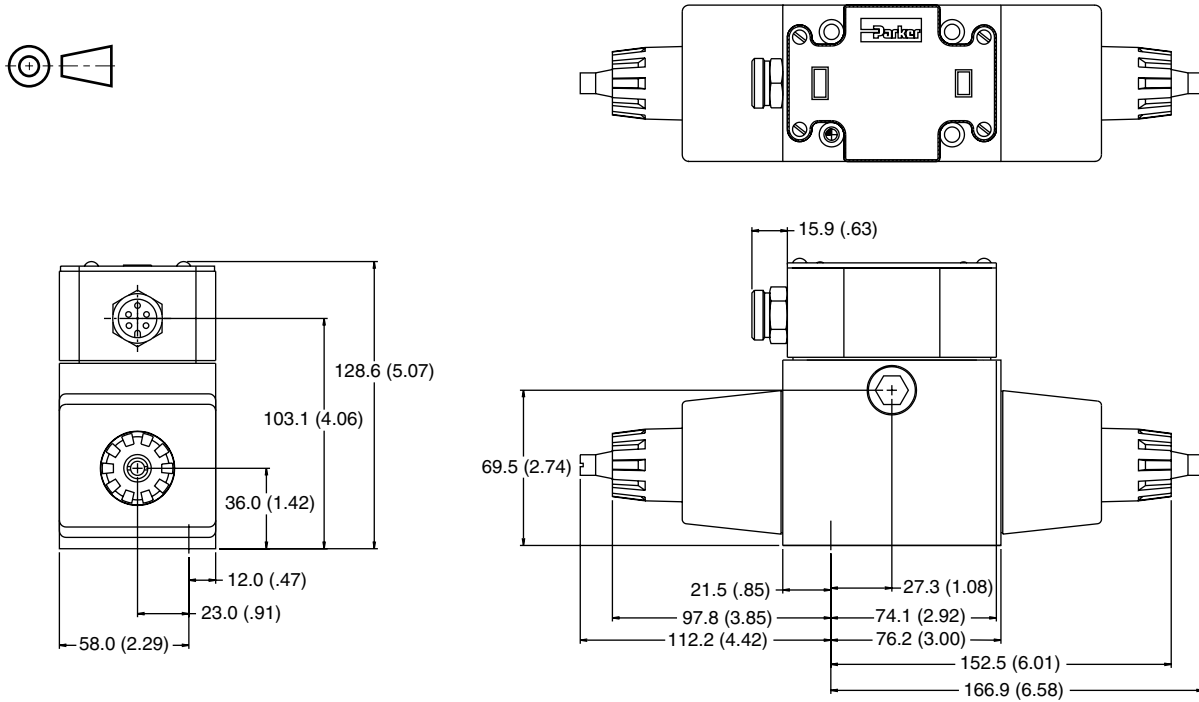


Conduit Cavity, Single DC Solenoid

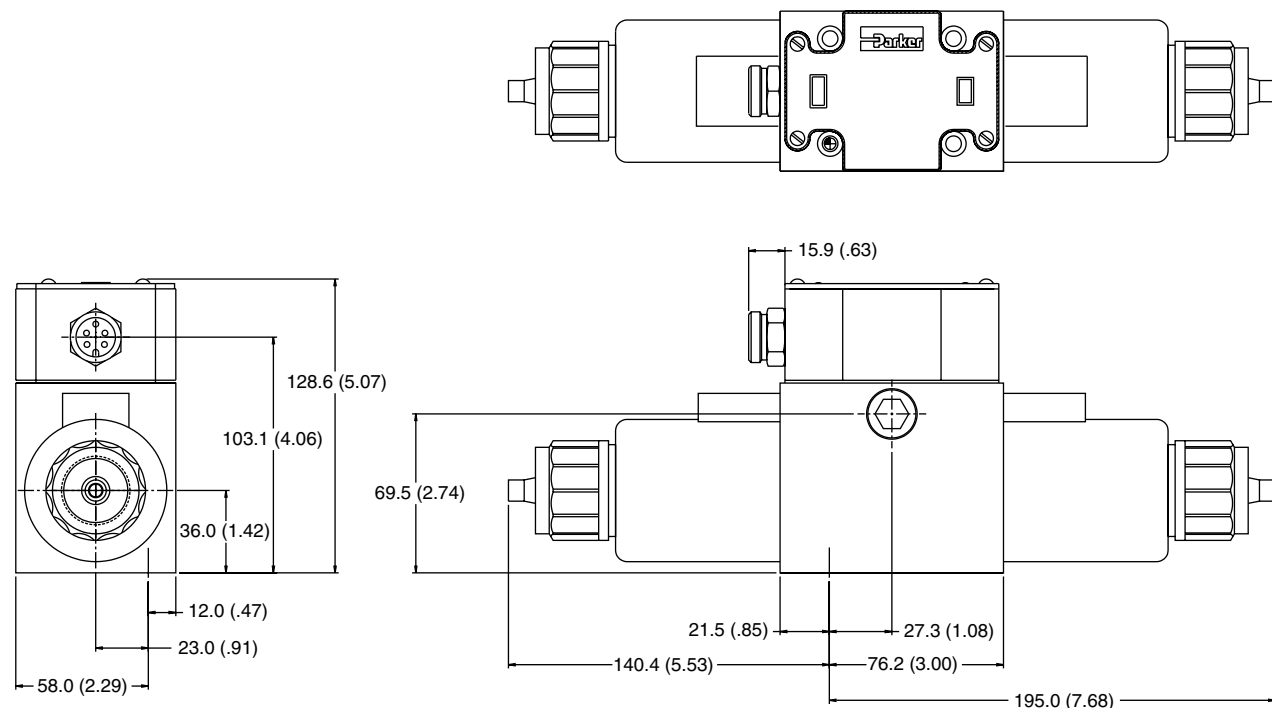


Inch equivalents for millimeter dimensions are shown in (**)

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



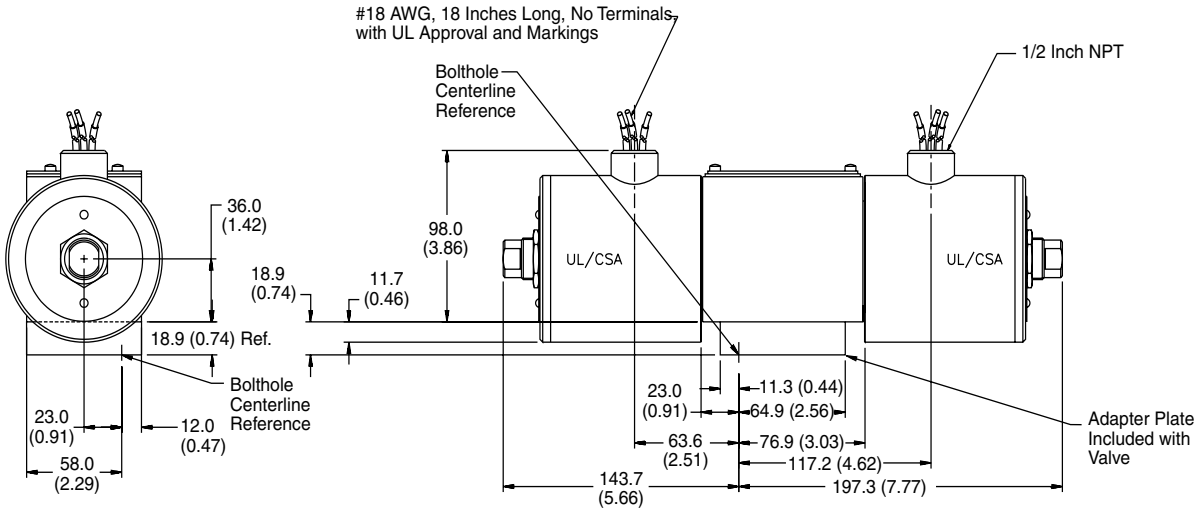
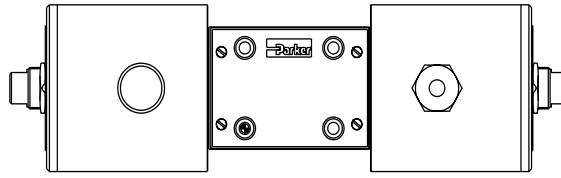
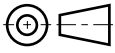
**Conduit Box Extension, Double DC Solenoid
with Variation 6 (Manaplug) & Variation P (Extended Manual Override)**



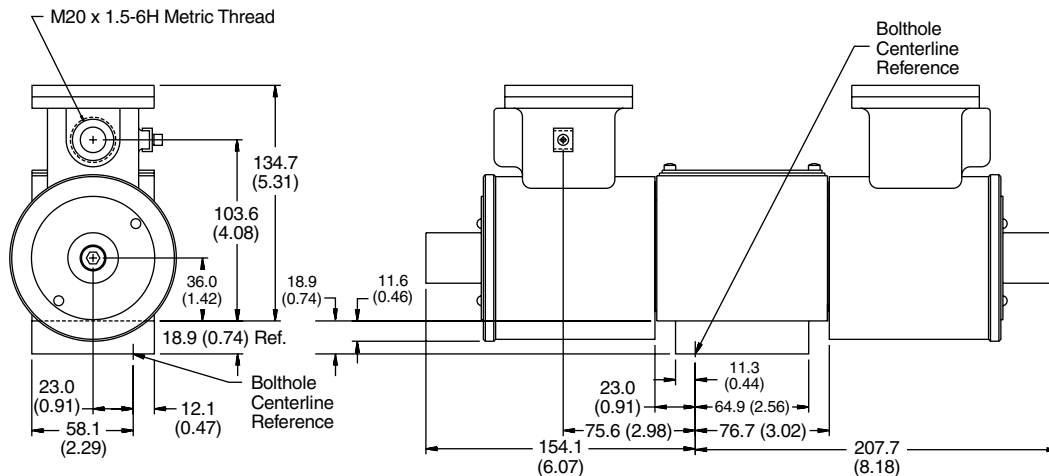
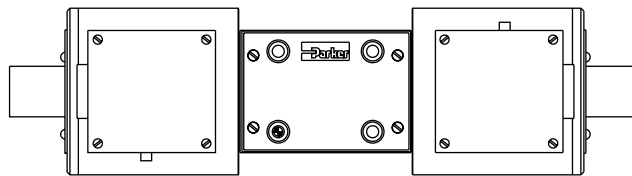
Inch equivalents for millimeter dimensions are shown in (**)

A

Explosion Proof U.L. & CSA, Double Solenoid



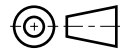
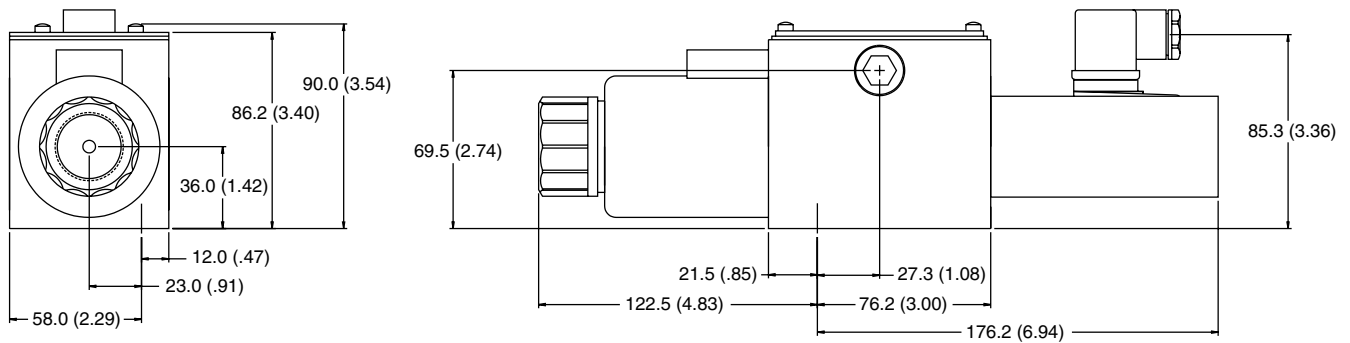
Explosion Proof ATEX, Double Solenoid



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

**Conduit Box, Single DC Solenoid
with Variation I7 (Monitor Switch)**

A

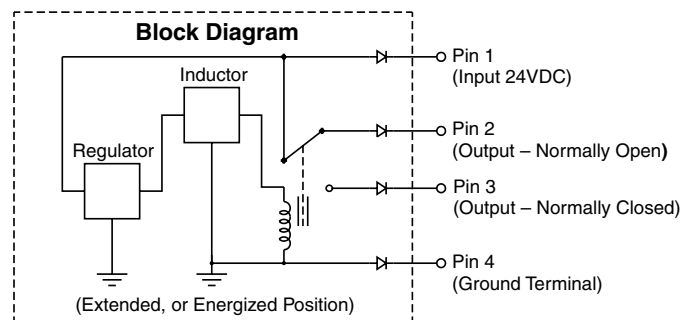


**Monitor Switch
(valve variation I7)**

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

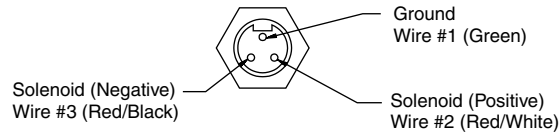
(connection option K)

- Interface
- 152.4 cm (6.0 inch) lead wires, 18 awg.
 - NEMA 4 rating available (consult factory)
 - Waterproof

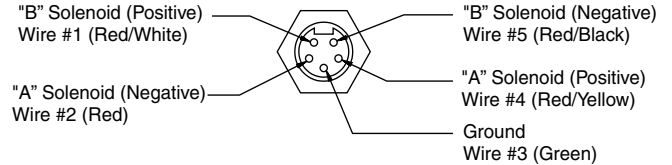
Manaplug

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

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

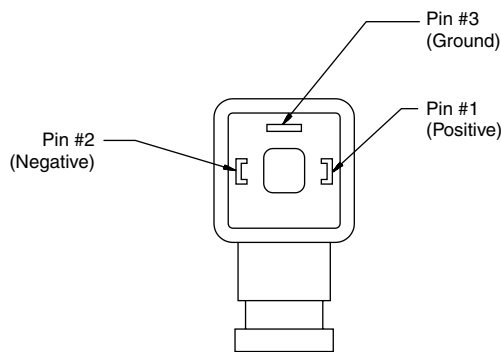


3-Pin Manaplug (Mini) with Lights
Single Solenoid Valves



5-Pin Manaplug (Mini) with Lights
Single and Double Solenoid Valves
(*"A" and "B" Solenoids Reversed for #8 and #9 Spools)

Hirschmann Plug with Lights



Face View of Plug

Conforms to DIN43650, ISO4400, Form A 3-Pin

Manplug - Micro Connector

(valve variations 7, 57, 1B, 1D)

