

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.

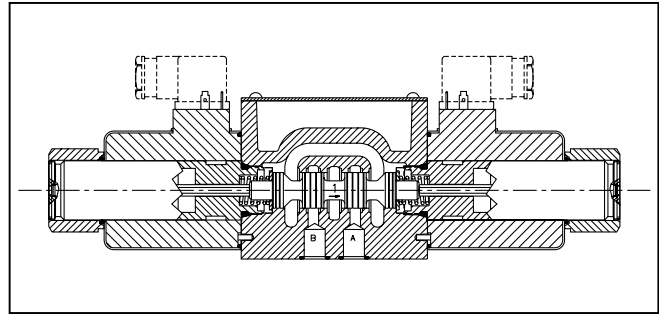
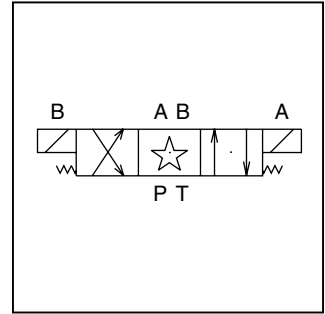
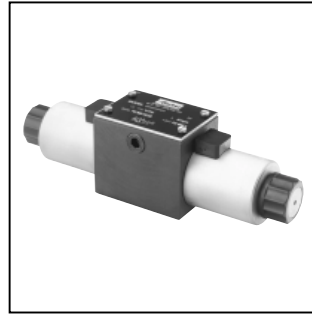
Features

- 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 |

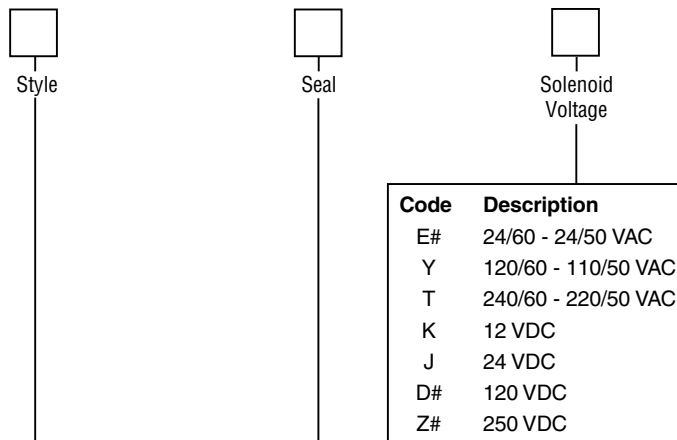
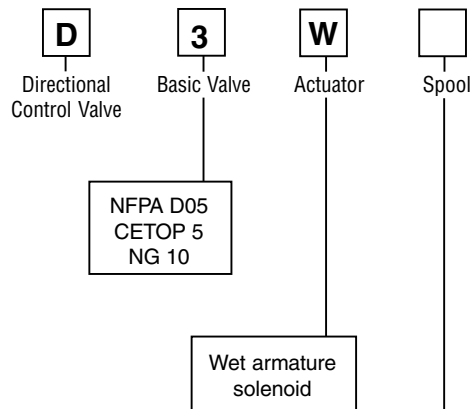


Specifications

| | |
|--------------------------------|---|
| 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.

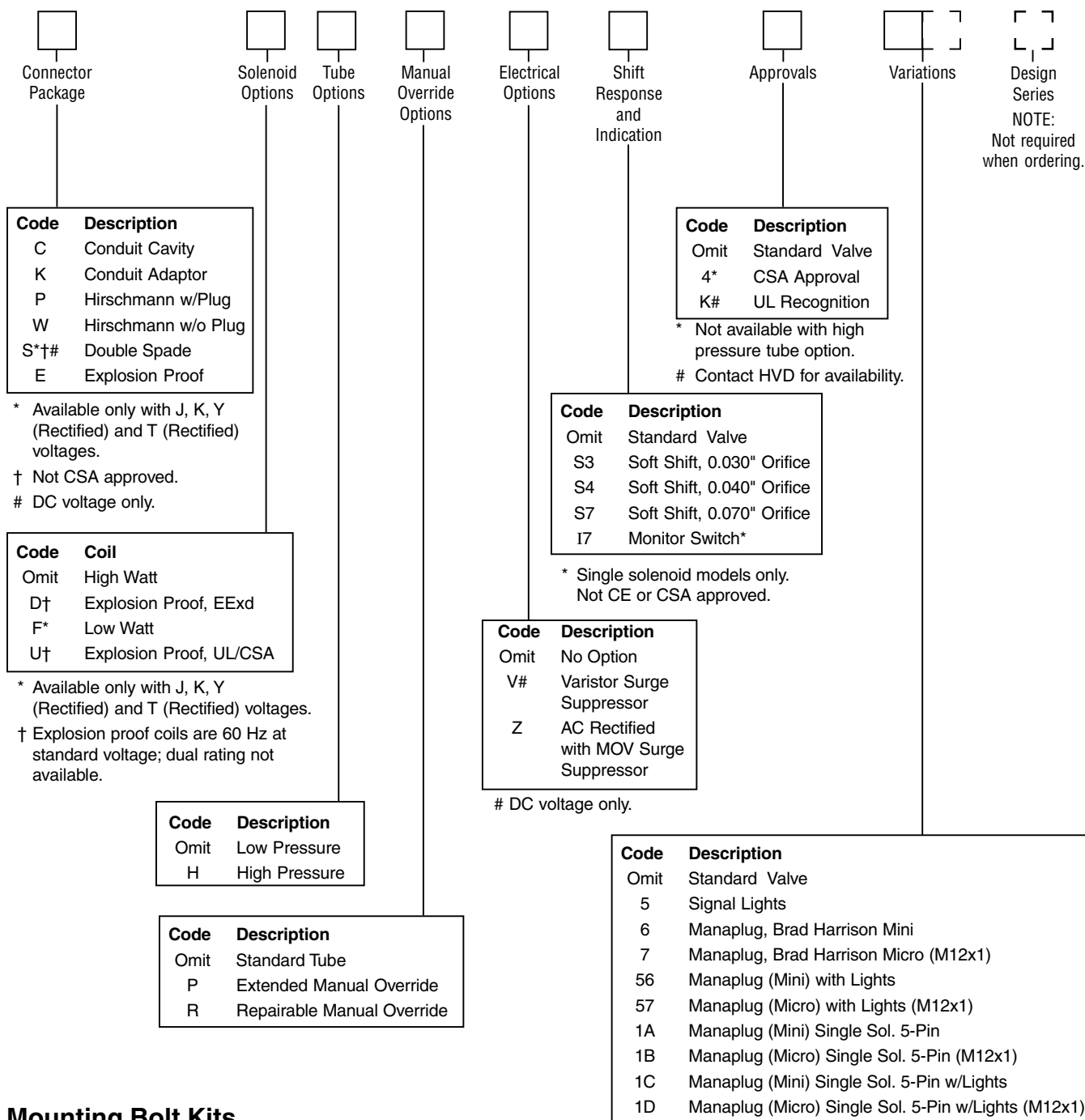
| Code | Description | Symbol |
|------|--|--------|
| B * | Single solenoid, 2 position, spring offset P to A and B to T in offset position | |
| C | Double solenoid, 3 position, spring centered. | |
| D † | Double solenoid, 2 position, detent | |
| E | Single solenoid, 2 position, spring centered.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

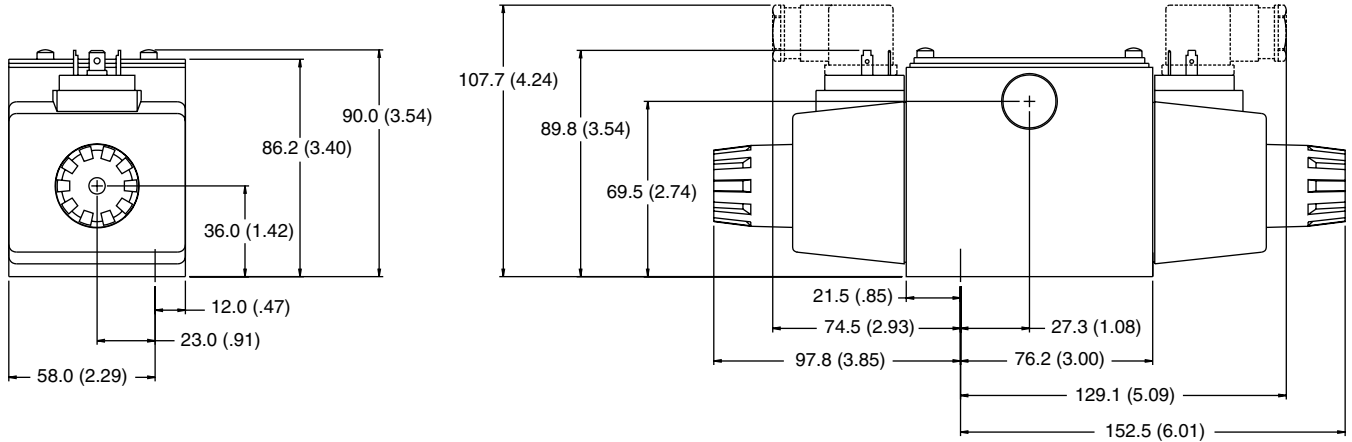
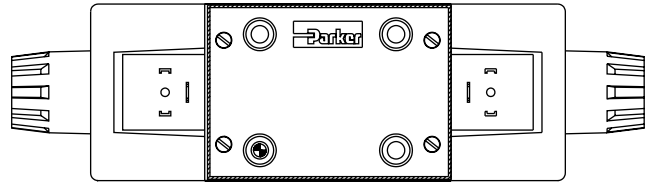
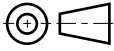
| Solenoid Code | Nominal Volts/Hz | In Rush VA | Holding VA | Nominal Watts (Ref) |
|---------------|------------------|------------|------------|---------------------|
| Y | 120/60 | 266 | 82 | 36 |
| T | 240/60 | 266 | 82 | 36 |
| K | 12 VDC | — | 3.00† | 36 |
| J | 24 VDC | — | 1.50† | 36 |
| D |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

* Dual frequency not available on explosion proof coils.

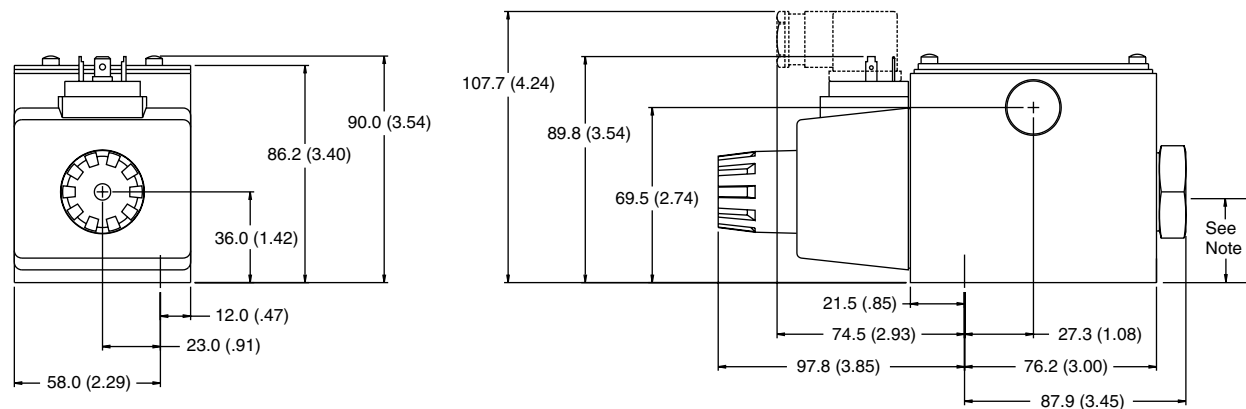
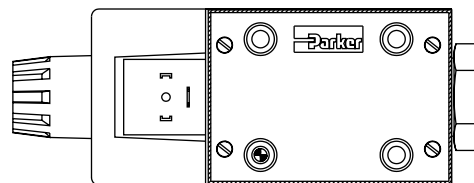
† DC holding amps.

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

Hirschmann, Double AC Solenoid



Hirschmann, Single AC Solenoid

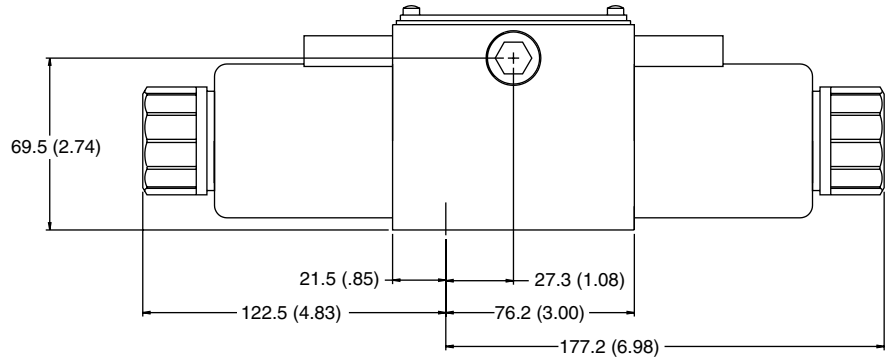
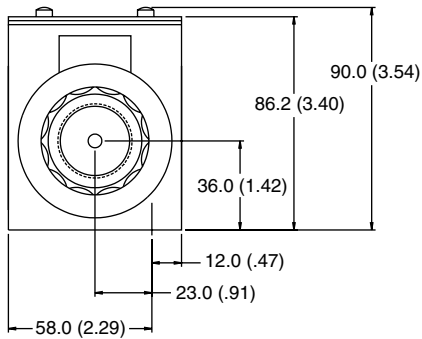
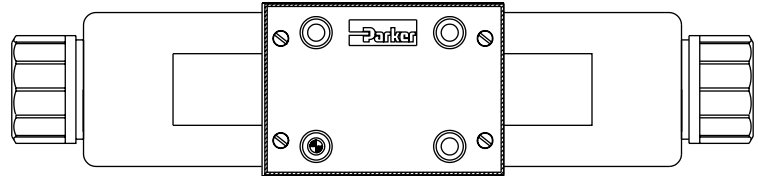
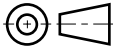


Note: 30.0mm (1.18") from bottom of bolt counterbore.

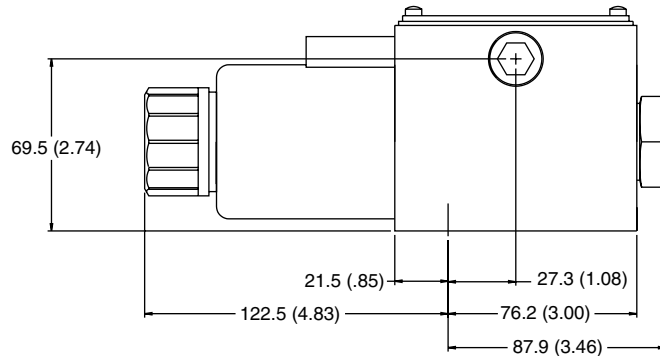
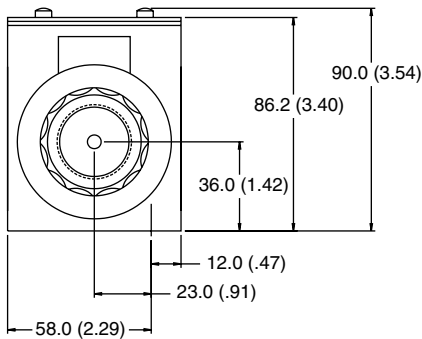
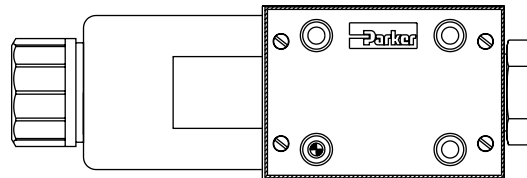
Inch equivalents for millimeter dimensions are shown in (**)

A

Conduit Cavity, Double DC Solenoid



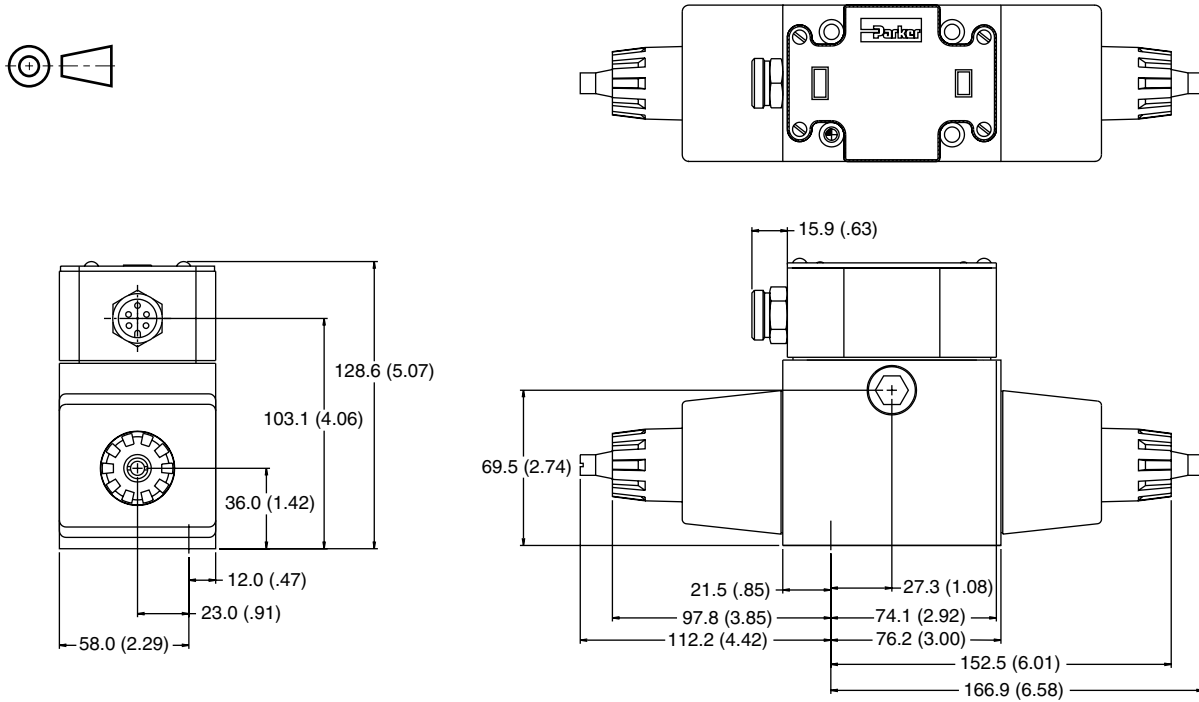
Conduit Cavity, Single DC Solenoid



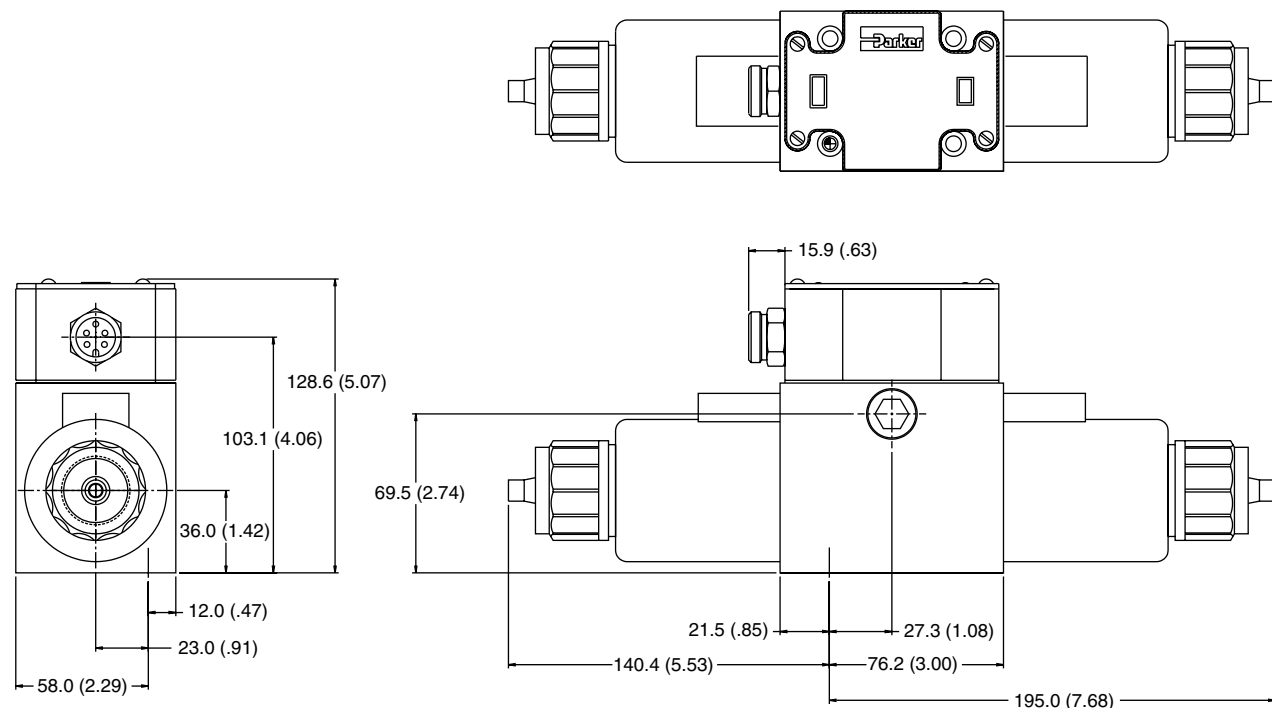
Inch equivalents for millimeter dimensions are shown in (**)

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

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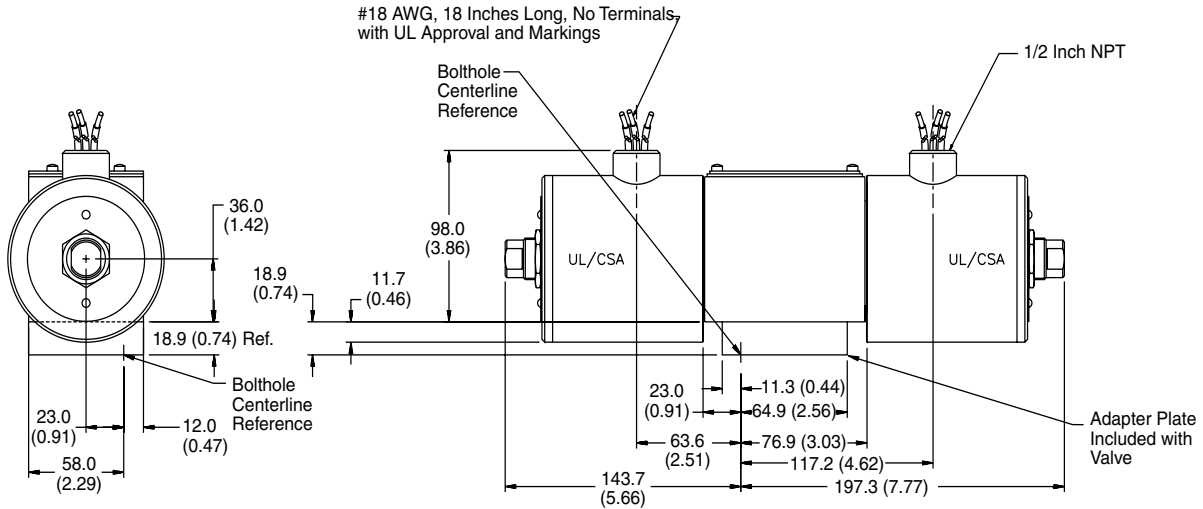
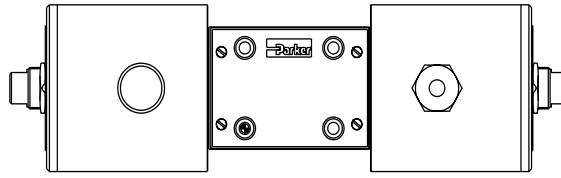
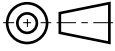
**Conduit Box Extension, Double DC Solenoid
with Variation 6 (Manaplug) & Variation P (Extended Manual Override)**



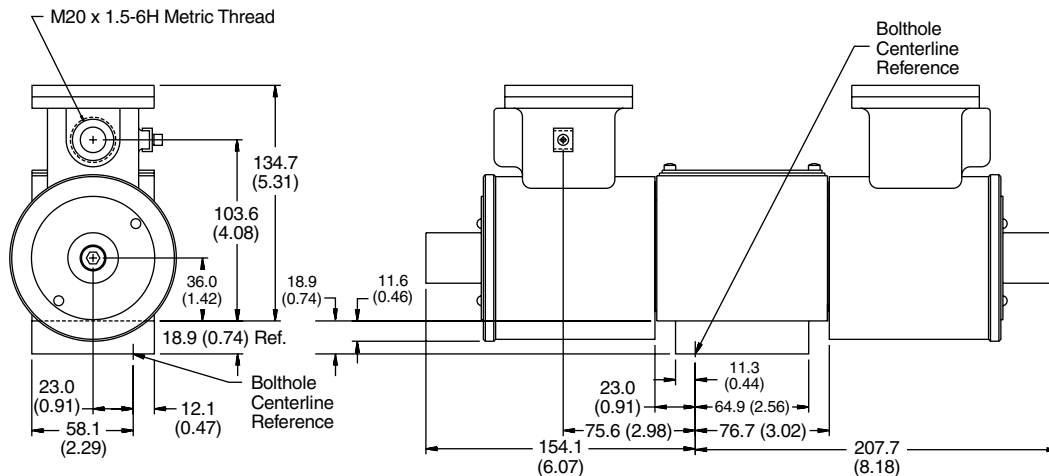
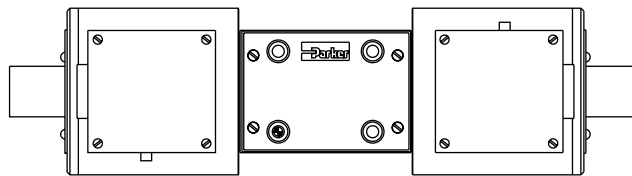
Inch equivalents for millimeter dimensions are shown in (**)

A

Explosion Proof U.L. & CSA, Double Solenoid



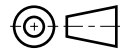
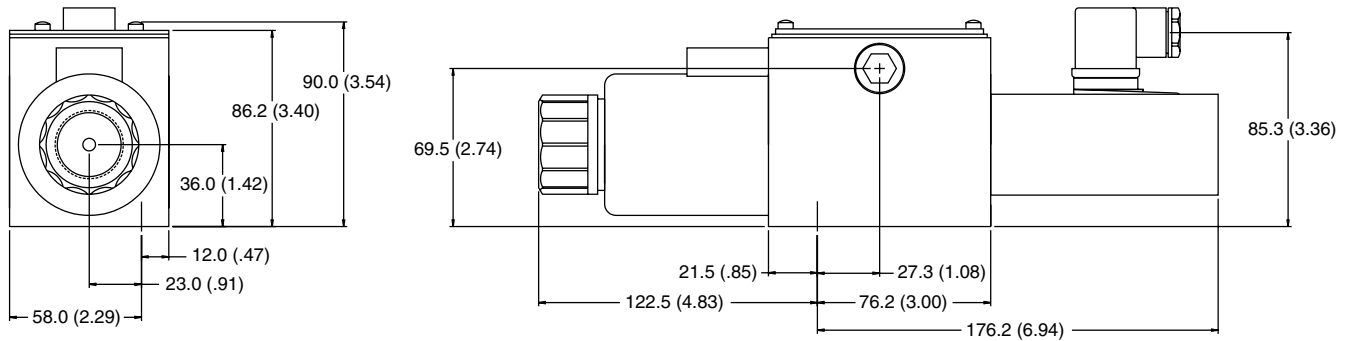
Explosion Proof ATEX, Double Solenoid



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

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

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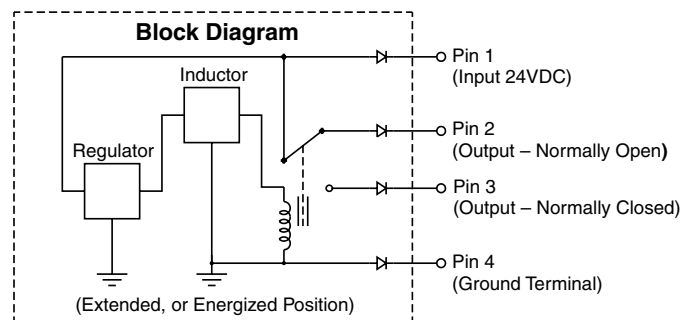


**Monitor Switch
(valve variation I7)**

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

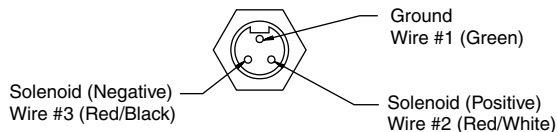
(connection option K)

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

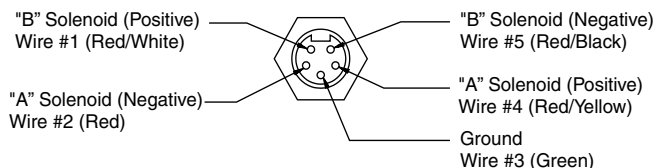
Manaplug

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

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

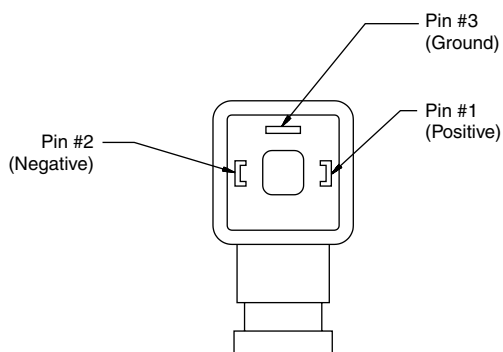


3-Pin Manaplug (Mini) with Lights
Single Solenoid Valves



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)

