

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.

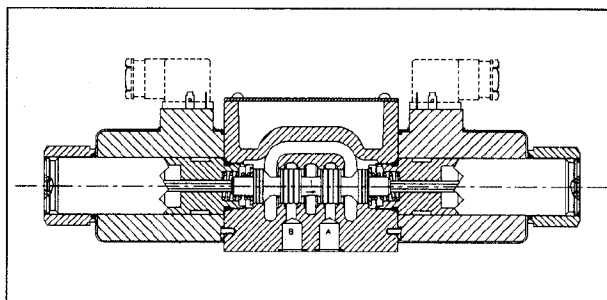
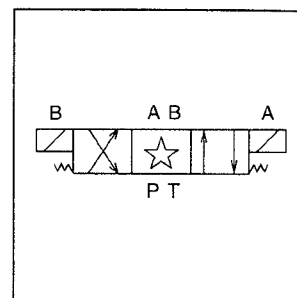
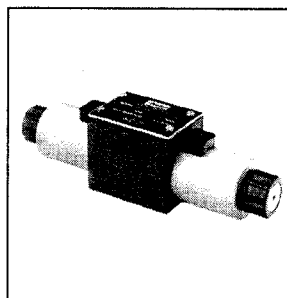
Features



- 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

LAST REV. DATE - 7-16-04
 REVISION LEVEL - 000
 CHANGED BY - KPM
 CATALOG NUMBER - HY14-2502
 (if not printed on the catalog page)
 PART NUMBER - 250-1174

A

D Directional Control Valve
3 Basic Valve
W Actuator
4 Spool

NFPA D05
 CETOP 5
 NG 10

Wet armature
 solenoid

C Style

N Seal

J Solenoid
 Voltage

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
Z#	250 VDC

High Watt Coil only.

Code	Description
N	Nitrile
V	Fluorocarbon
E	EPR

* Contact HVD for availability.

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. 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.	

* Only spools 20, 26 & 30.

† Only spools 20 & 30.

This condition varies with spool code.



 Connector Package	 Solenoid Options	 Tube Options	 Manual Override Options	 Electrical Options	 Shift Response and Indication	 Approvals	 Variations	 Design Series NOTE: Not required when ordering.
-----------------------	----------------------	------------------	-----------------------------	------------------------	-----------------------------------	---------------	----------------	---

Code	Description
C	Conduit Cavity
K	Conduit Adaptor
P	Hirschmann w/Plug
W	Hirschmann w/o Plug
S*†#	Double Spade
E	Explosion Proof

* Available only with J, K, Y (Rectified) and T (Rectified) voltages.
† Not CSA approved.
DC voltage only.

Code	Coil
Omit	High Watt
D†	Explosion Proof, EExd
F*	Low Watt
U†	Explosion Proof, UL/CSA

* Available only with J, K, Y (Rectified) and T (Rectified) voltages.
† Explosion proof coils are 60 Hz at standard voltage; dual rating not available.

Code	Description
Omit	Low Pressure
H	High Pressure

Code	Description
Omit	Standard Tube
P	Extended Manual Override
R	Repairable Manual Override

Code	Description
Omit	Standard Valve
4*	CSA Approval
K#	UL Recognition

* Not available with high pressure tube option.
Contact HVD for availability.

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*

* Single solenoid models only.
Not CE or CSA approved.

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

DC voltage only.

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)

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)

2502-A2.p65, dd



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

LAST REV. DATE - 7-16-84
REVISION LEVEL - 000
CHANGED BY - KPM
CATALOG NUMBER -
(if not printed on the catalog page)
PART NUMBER - 250-1174

Solenoid Ratings**

A

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	120/60 110/50	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

† 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. (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.

LAST REV. DATE - 7-16-04
REVISION LEVEL - 000
CHANGED BY - KPM
CATALOG NUMBER -
(if not printed on the catalog page)
PART NUMBER - 250-1174