

Directional Valves



Pilot Operated Directional Valves

(F*) - DG5V -10- * - (R) - (B) - ** (L) - (***) - (X) - (*) - (E) - (T) - (*) - (V)M - (S*) - * ** * * (L) - (*) - ** - (***) - 10 - (EN***)

| Main stage spool type | Available valve type | Spool |
|-----------------------|----------------------|-------------|
| 0 | A/B/C/D/N | 02-317225 |
| 1/11 | | 02-317226 * |
| 2 | | 02-317237 |
| 3/31 ◊ | | 02-317227 * |
| 4 ◊ ▶ | | 02-317231 |
| 6 | | 02-317238 |
| 7 | | 02-317228 |
| 8 ◊ ▶ | | 02-317233 |
| 9 | | 02-317250 |
| 33 | | 02-317234 |
| 52/521 ◻ | | 02-317235 * |
| 56/561 ◻ | | 02-321158 * |

* Spool assembly note
 Assemble type 1 & 3 spools with narrow center land toward "A" end of valve. "A" end is defined as being closest to CYL. port "A".
 Assemble type 11 & 31 spools with narrow center land toward CYL. port "B".
 Assemble type 52 spool with narrow center land & type 56 spool with double lands toward CYL. port "B".
 Assemble type 521 spool with narrow land & type 561 spool with double lands toward CYL. port "A".

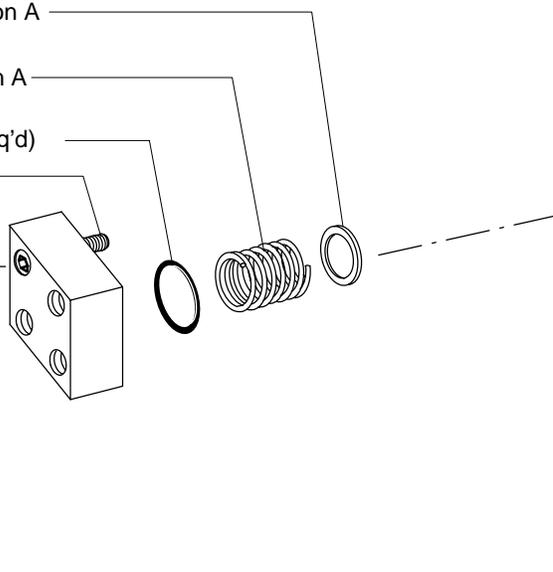
◊ Spool types 4, 8, & 31 are not available on "A" offset valve models.
 ▶ Spool types 4 & 8 are not available on "N" models with "A" or "W" pilot valves.
 ◻ Spool types 31, 52, 521, 56, & 561 are not available on "D" pressure centered model valves.

★ Spring Options

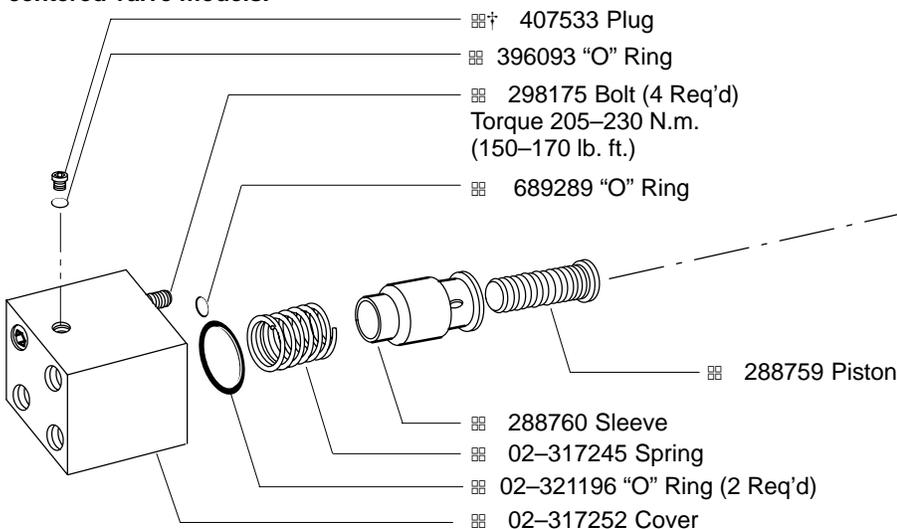
| Part No. | Description |
|----------|---------------------------|
| 247287 | K-0.3 bar (5 psi) spring |
| 247288 | Q-2.4 bar (35 psi) spring |
| 276428 | R-3.4 bar (50 psi) spring |
| 432353 | S-5.2 bar (75 psi) spring |

Arrangement for standard & check valve models.

- ♣★ 02-317247 Washer (Omit on A offset models)
- ♣★ 02-317246 Spring (Omit on A offset models)
- ♣★ 02-321196 "O" Ring (2 Req'd)
- ♣★ 298171 Bolt (8 Req'd)
Torque 205-230 N.m.
(150-170 lb. ft.)
- ♣★ 02-317242 Cover (2 Req'd)

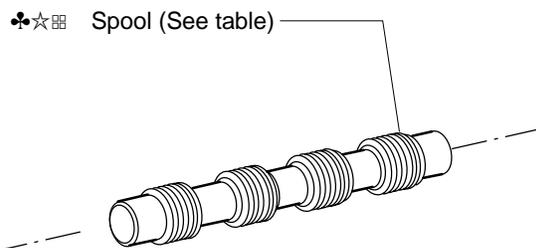


Arrangement for "D" pressure centered valve models.



| Pilot attaching bolts | | |
|-------------------------|--------|--------|
| Pilot type | H or S | A or W |
| Pilot only | 10358 | 1034 |
| Pilot / choke | 207897 | 10938 |
| Pilot / reducer | 207897 | 10940 |
| Pilot / choke / reducer | 417423 | 238151 |

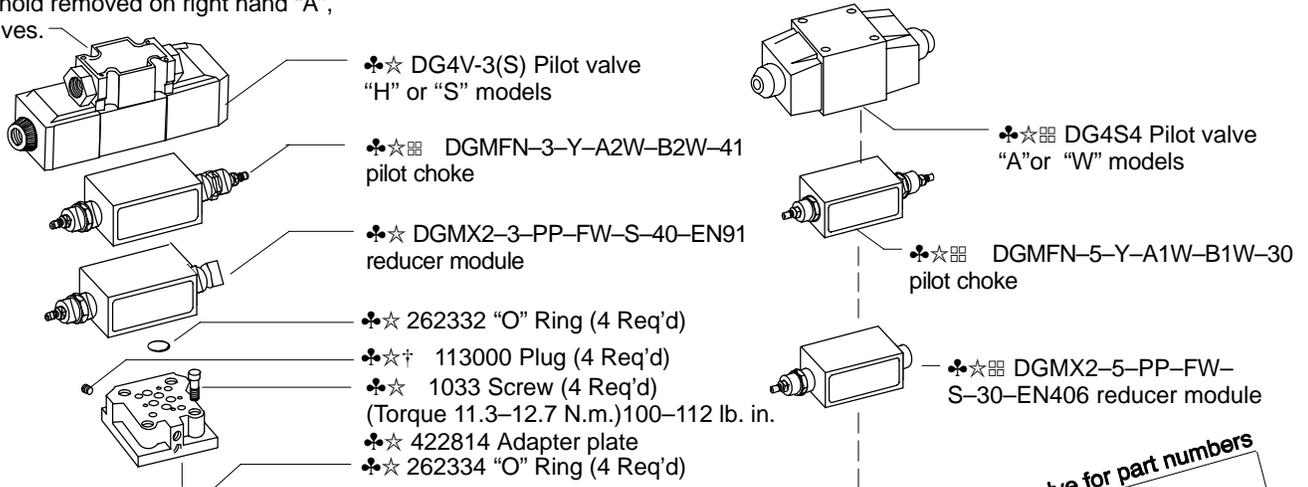
| Seal Kits | |
|------------------------|------------|
| Location | Kit Number |
| Mainstage | 02-329888 |
| Mainstage F3 | 02-329889 |
| Mainstage F6 | 02-329890 |
| With 'P' Port Check | 02-329891 |
| With 'P' Port Check F3 | 02-329892 |
| With 'P' Port Check F6 | 02-329893 |
| Pressure Centered | 02-329894 |
| Pressure Centered F3 | 02-329895 |
| Pressure Centered F6 | 02-329896 |



Note
 Parts included in service kits are not sold separately.

- † Plug torques oiled (See table).
- ♣ Used on standard models.
- ★ Used on check valve models.
- ⊞ Used on pressure centered valve.
- Plug positions used on standard & check valve models only.
- ⊞ Plug positions used on pressure centered valve models only.

This solenoid removed on right hand "A", & "B" valves.



♣☆ DG4V-3(S) Pilot valve "H" or "S" models

♣☆⊞ DGMFN-3-Y-A2W-B2W-41 pilot choke

♣☆ DGMX2-3-PP-FW-S-40-EN91 reducer module

♣☆ 262332 "O" Ring (4 Req'd)

♣☆† 113000 Plug (4 Req'd)

♣☆ 1033 Screw (4 Req'd) (Torque 11.3–12.7 N.m.)100–112 lb. in.

♣☆ 422814 Adapter plate

♣☆ 262334 "O" Ring (4 Req'd)

♣☆⊞ DG4S4 Pilot valve "A" or "W" models

♣☆⊞ DGMFN-5-Y-A1W-B1W-30 pilot choke

♣☆⊞ DGMX2-5-PP-FW-S-30-EN406 reducer module

Refer to other end of valve for part numbers

† 7074 Plug (Remove for "T" pilot)

† 407533 Plug
396093 "O" Ring
893186 I.D. plate

416834 Rivet (4 Req'd)

♣ 02-309664 Body
☆ 02-309668 Body
⊞ 02-309668 Body

† 407533 Plug
396093 "O" Ring
† 407533 Plug

†⊞ B Plug & ⊞ C Plug (See table)

118202 "O" Ring

†⊞ A Plug (See table)

396093 "O" Ring

† 407533 Plug

☆ 245802 Sleeve

☆ 6422 Poppet

☆ 200145 "O" Ring (4 Req'd A,B,P, & T ports STD. models, 3 Req'd A,B, & T ports)
☆ 200149 "O" Ring (P port)

† 363889 Plug
396095 "O" Ring
† 407533 Plug
396093 "O" Ring

† 407533 Plug (2 Req'd)
396093 "O" Ring (2 Req'd)
396093 "O" Ring (3 Req'd)
† 407533 Plug (3 Req'd)
†⊞ A Plug & ⊞ B Plug (See table)
396095 "O" Ring
† 363889 Plug
195450 Rest pin (2 Req'd)
118202 "O" Ring
396095 "O" Ring
† 363889 Plug

396094 "O" Ring (2 Req'd)
† 343740 Plug (2 Req'd)
☆ Spring (See table)

☆ 02-309667 Seat

† Plug torques (oiled)

| Plug | N.m | lb. in. |
|--------|-----------|---------|
| 7074 | 8.5–9.6 | 75–85 |
| 30560 | 8.5–9.6 | 75–85 |
| 113000 | 5.0–5.9 | 45–52 |
| 161809 | 5.0–5.9 | 45–52 |
| 343740 | 15.0–16.0 | 133–147 |
| 363889 | 20.5–22.5 | 181–199 |
| 407533 | 12.1–12.4 | 107–110 |

■ Plug installation table (refer to model code breakdown page for more information)
DG5V-10-*(R)-A/B/C/N-(L)-(**)-(X)-(*)-(E)-(T)-(K/Q/R/S)-10-(EN***)

9 11 13 25

⊞ Plug installation table (refer to model code breakdown page for more detail)
DG5V-10-*(D)-(X)-(*)-(E)-10-(EN***)

6 9 11 25

| Model | ■ "A" plug | ■ "B" plug | ■ "C" plug |
|-----------------|------------|------------|------------|
| -10 | — | 30560 | — |
| -E-10 | — | 7074 | 30560 |
| -X-10 | — | — | — |
| -X-E-10 | — | — | — |
| -K/Q/R/S-10 | 161809 | — | — |
| -E-K/Q/R/S-10 | 113000 | 7074 | 30560 |
| -X-K/Q/R/S-10 | — | — | — |
| -X-E-K/Q/R/S-10 | 113000 | — | — |

| Model | ⊞ "A" plug | ⊞ "B" plug |
|-----------|------------|------------|
| D-10 | 226987 | — |
| D-E-10 | 7074 | 226987 |
| DA-10 | 30560 | — |
| DA-E-10 | 7074 | 30560 |
| DA-X-10 | — | — |
| DA-X-E-10 | 7074 | — |
| DB-10 | 224026 | — |
| DB-E-10 | 7074 | 224026 |

Note

SAE straight thread plugs used on exterior of valve.

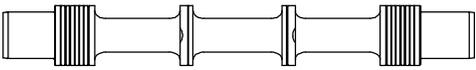
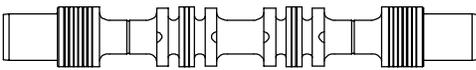
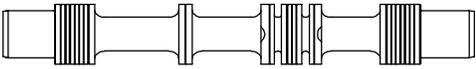
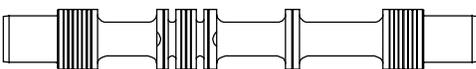
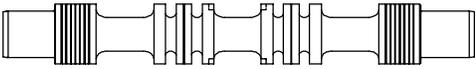
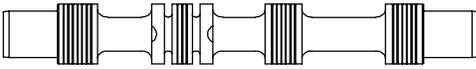
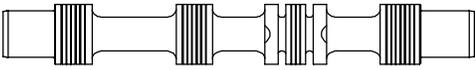
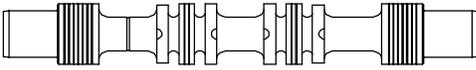
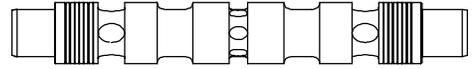
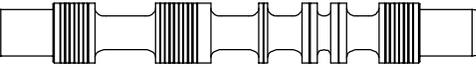
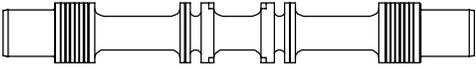
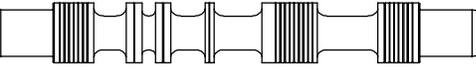
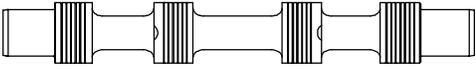
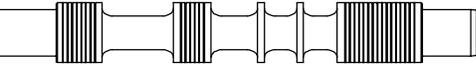
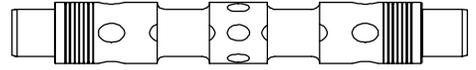
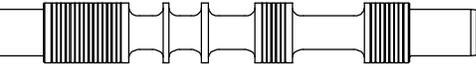
Note

All internal seals of the mainstage are F3 (Viton®). Mounting face seals are standard (Buna-N). F6 seal are special (Nitrile) and are used throughout the valve assembly.

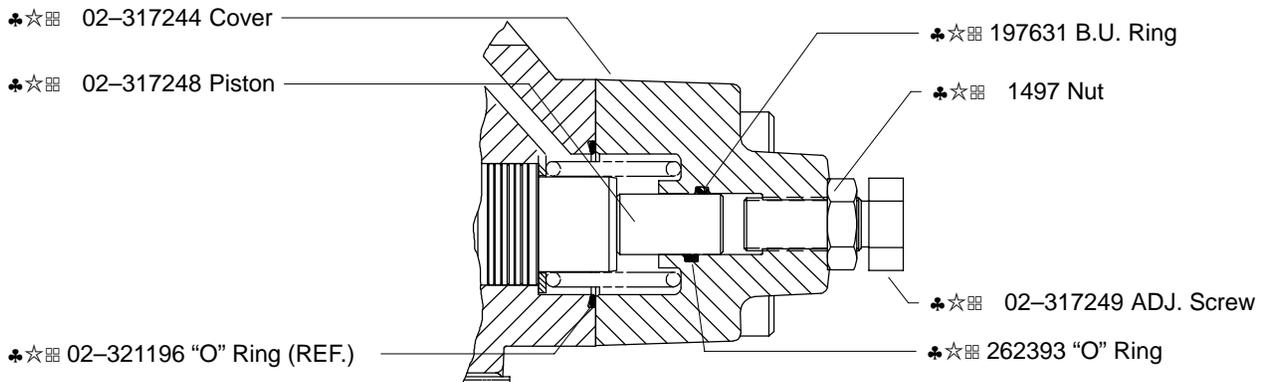
® Viton is a registered trademark of E.I. DuPont

| Valve model code | Main stage spool type | Pilot valve model code |
|----------------------|-------------------------------------|-------------------------------------|
| DG5V-10-A/W-(R)-*A-* | All except 4 & 8 4 & 8 only | DG4S4-012A- DG4S4-0128A-* |
| DG5V-10-A/W-(R)-*B-* | All except 4 & 8 4 & 8 only | DG4S4-016B- DG4S4-0168B-* |
| DG5V-10-A/W-(R)-*C-* | All except 4 & 8 4 & 8 only | DG4S4-016C- DG4S4-0168C-* |
| DG5V-10-A/W-(R)-*D-* | 0,1,2,3,4,6,8,9,11,33 4 & 8 only | DG4S4-017C- DG4S4-0178C-* |
| DG5V-10-A/W-(R)-*N-* | All except 4 & 8 | DG4S4-012N-* |
| DG5V-10-H/S-(R)-*A-* | All except 4 & 8 4 & 8 only | DG4V-3(S)-2A- DG4V-3(S)-2AL-VM-* |
| DG5V-10-H/S-(R)-*B-* | All except 4 & 8 4 & 8 only | DG4V-3(S)-6B- DG4V-3(S)-6BL-VM-* |
| DG5V-10-H/S-(R)-*C-* | All except 4 & 8 4 & 8 only | DG4V-3(S)-6C- DG4V-3(S)-6C-VM-* |
| DG5V-10-H/S-(R)-*N-* | All except 4 & 8 4 & 8 only | DG4V-3(S)-6N- DG4V-3(S)-6N-VM-* |

Spool Orientation Table

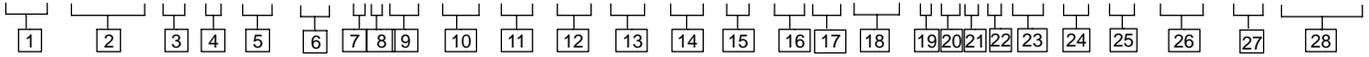
| | | | |
|---------------------------|---|-----------------------------|---|
| P/N 02-317225 Type "0" |  | P/N 02-317250 Type "9" |  |
| P/N 02-317226 Type "1" |  | P/N 02-317226 Type "11" |  |
| P/N 02-317237 Type "2" |  | P/N 02-317227 Type "31" |  |
| P/N 02-317227 Type "3" |  | P/N 02-317234 Type "33" |  |
| P/N 02-317231 Type "4" |  | P/N 02-317235 Type "52" |  |
| P/N 02-317238 Type "6" |  | P/N 02-317231 Type "521" |  |
| P/N 02-317228 Type "7" |  | P/N 02-321158 Type "56" |  |
| P/N 02-317233 Type "8" |  | P/N 02-321158 Type "561" |  |

Stroke Adjustment Option



Model Code

(F*) - DG5V -10- *- (R) - (B) - ** (L) - (**)- (X) - (*) - (E) - (T) - (*) - (VM) - (S*) - * * * * (L) - (*) - ** - (***) - 10 - (EN***)



1 Special Seals

(Omit if not required)

- F3** - Seals for fire resistant fluids
- F6** - Seals for water glycol

2 Directional Control Valve

DG5V - Subplate mounting; solenoid controlled; pilot operated. Pressure rating 350 bar (5000 psi) for P, A, & B ports.

3 Valve Size

10 - Valve size CETOP 10, NFPA D10

4 Pilot Valve Type

- H** - CETOP 3 mounting pattern, High performance
- S** - CETOP 3 mounting pattern, Std. performance
- A** - CETOP 5 mounting pattern, Air gap
- W** - CETOP 5 mounting pattern, Wet armature

5 Reducer Module

(Omit if not required)

R - A (air gap) and **W** (wet armature) piloted models when pilot pressure exceeds 210 bar (3000 psi)

6 Gauge Ports

- Blank** - .4375-20 UNF-2B Thread
- B** - 1/4 BSP Thread

7 Spool Types

- 0** - Open to T all ports
- 1** - Open P&A to T, closed B
- 2** - Closed to T all ports
- 3** - Closed P&B, open A to T
- 4** - Tandem P to T, closed crossover
- 6** - Closed P only, open A&B to T
- 7** - Open P to A&B, closed T
- 8** - Tandem P to T, open crossover
- 9** - Open to T all ports over tapers
- 11** - Open P&B to T, closed A
- 31** - Closed P&A, open B to T
- 33** - Closed P, open A&B to T over tapers
- 52** - Closed center, regen. by sol. 'A'
- 56** - A&B to T, P blocked, regen. by sol. 'A'
- 521** - Closed center, regen. by sol. 'B'
- 561** - A&B to T, P blocked, regen. by sol. 'B'

8 Spool/Spring Arrangement

- A** - Spring offset
- B** - Spring centered with solenoid 'A' removed
- C** - Spring centered
- D** - Pressure centered 210-350 bar (2000-3000 psi)
- DA** - Pressure centered 20-70 bar (300-1000 psi)
- DB** - Pressure centered 70-210 bar (1000-2000 psi)
- N** - No-spring detented

9 Left Hand Build

L - Single solenoid models only, omit if not required.

10 Manual Override Options

CETOP 3 piloted models only, omit if not required.

- Blank** - Plain override in solenoid ends only.
- H** - Waterproof override in solenoid ends only.
- H2** - Waterproof override in both ends of single solenoid.
- P2** - Plain override in both ends of single solenoid.
- Y** - Lockable manual override in solenoid ends only.
- Z** - No override in either end.

11 Fast Response

X - (Omit for standard internal pilot pressure models)

12 Spool Control Modifications

(Omit if not required)

- 1** - Stroke adjustment (both ends) (available on B, C, & N models)
- 2** - Pilot choke adjustment (available on all models)
- 3** - Pilot choke and stroke adjustments (both ends) (available on B, C, & N models)
- 7** - Stroke adjustment on cylinder 'A' end only (available on A, B, C, & N models)
- 8** - Stroke adjustment on cylinder 'B' end only (available on AL, B, C, N, & D(*) models)
- 2-7** - If both are required (available on A, B, C, & N models)
- 2-8** - If both are required (available on AL, B, C, N, & D(*) models)

13 External Pilot Pressure

E - External pilot pressure. Omit for internal pilot pressure models.

14 Internal Pilot Drain

T - Internal pilot drain to 'T' port. Omit for internal pilot pressure models.

15 Check Valve in Pressure Port

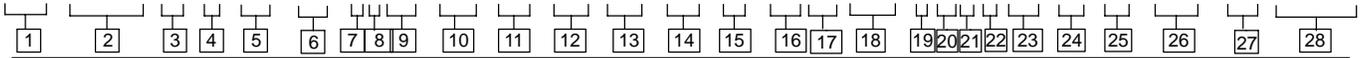
(Omit if not required)

Not available for D(*) models.

- K** - 0,3 bar (5 psi) check
- Q** - 2,5 bar (35 psi) check
- R** - 3,5 bar (50 psi) check
- S** - 5, bar (75 psi) check

Model Code (continued)

(F*) - DG5V -10- *- (R) - (B) - ** (L) - (***) - (X) - (*) - (E) - (T) - (*) - (V)M - (S*) - * * * * (L) - (*) - ** - (***) - 10 - (EN***)



16 Solenoid Energization Identity
Blank - Standard arrangement for ANSI B93.9 (i.e. energize solenoid A to follow flow P to A).
V - Solenoid identification determined by position of solenoid (i.e. solenoid A at port A end/solenoid B at port B end).

Note

4 and 8 type spools are always V.
 Solenoid energization identity is independent of mainstage porting.

17 Heading Electrical Flag Symbol
M - Features and options for pilot valve.

18 Pilot Valve Monitoring Switch
 (Omit if not required)
S - Indicator switch (A & W piloted models only)
S3- Limit switch normally open, wired to electrical connector with PA/PB/PA5 (H piloted models only)
S4- Limit switch normally closed, wired to electrical connector with PA/PB/PA5 (H piloted models only)
S5- Limit switch - FW, FJ (H piloted models only)
S6- Position switch with U coils (H piloted models only)

19 Coil Type
F - Flying lead (required for wiring housing option)
KU - Top exit flying lead (H & S piloted models only)
P - Plug in (H & S piloted models only)
SP1- Single 6.3mm spade (H & S piloted models only)
SP2- Dual 6.3mm spade (H & S piloted models only)
U - ISO 4400 (DIN 43650)
X - Explosion proof solenoids ('A' piloted models only)
X1 - Flameproof solenoids BASEEFA/CENELEC (S piloted models only)
X2 - Explosion proof solenoids CSA/UL (S piloted models only)
X3 - Explosion proof solenoids BASEEFA ExS (S piloted models only)

20 Electrical Connections
 (F type coils only, omit if not required)
PA - Insta-plug, male receptacle only
PB - Insta-plug, male and female receptacle
PA3- 3-pin connector
PA5- 5-pin connector
T - Wired terminal block (wiring housing option also required)

21 Wiring Housing
Blank - Optional for A & W piloted models only
W - 1/2" NPT threaded connection
J - 20mm threaded connection

22 Electrical Options
 (Omit if not required)
 U-type coils only
1- Fitted connector
2- Fitted connector and variable grommet
3- Fitted connector with lights

23 Solenoid Indicator Lights
 (Omit if not required)

24 Surge Suppressor/Damper
 DC voltages only, omit if not required. For H, S, & W piloted models only.
D1- Encapsulated diode (industrial applications)
D2- Encapsulated diode (mobile applications)
D7- Encapsulated tranzorb

25 Coil Voltage Identification Letter

26 Pilot Valve Port Orifices
 For H & S piloted models only, omit if not required.

27 Design Number

28 Special Modifications
 (Omit if not required)