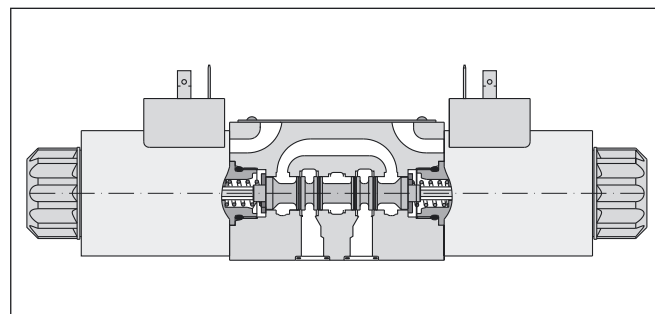
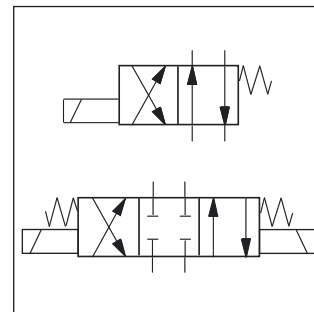


The Denison series 4D01 is a solenoid operated directional control valve size NG06 in 3-chamber design. It is direct operated by wet pin solenoids.

The 4D01 is available with a Soft Shift option for smooth operation. An additional orifice in the solenoid anchor dampens the shifting time.



2

Technical data

| | | | | | |
|-----------------------------------|-----------------|---|----------|----------------|----------------|
| General | | | | | |
| Design | | Directional spool valve | | | |
| Actuation | | Solenoid | | | |
| Nominal size | | DIN NG06 / CETOP 03 / NFPA D03 | | | |
| Mounting interface | | DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03 | | | |
| Mounting position | | Unrestricted, preferably horizontal | | | |
| Ambient temperature | [°C] | -25...+50 | | | |
| Weight | [kg] | 1 sol.: 1.4 (DC), 1.5 (AC) / 2 sol.: 1.7 (DC), 1.8 (AC) | | | |
| Hydraulic | | | | | |
| Max. operating pressure | [bar] | P, A B: 350 | | | |
| | [bar] | T: 210 (DC), 140 (AC) | | | |
| Fluid | | Hydraulic oil in accordance with DIN 51524 / 51525 | | | |
| Fluid temperature | [°C] | -25 ... +70 | | | |
| Viscosity permitted | [cSt] / [mm²/s] | 10...650 | | | |
| Viscosity recommended | [cSt] / [mm²/s] | 30 | | | |
| Filtration | | ISO 4406 (1999); 18/16/13 (meet NAS 1638: 7) | | | |
| Flow max. | [l/min] | 80 | | | |
| Leakage at 50 bar | [ml/min] | Up to 10 per flow path, depending on spool | | | |
| Static / Dynamic | | | | | |
| Step response at 95% | [ms] | Energized: 46 (DC), 20 (AC) / De-energized: 27 (DC), 18 (AC) / Quick energized: 30 (DC) | | | |
| Electrical characteristics | | | | | |
| Duty ratio | | 100% ED; CAUTION: coil temperature up to 180 °C possible | | | |
| Max. switching frequency | [1/h] | 16000 (DC), 7200 (AC) | | | |
| Protection class | | IP 65 in accordance with EN 60529 (plugged and mounted) | | | |
| | Code | G0R | G0Q | W06 | W07 |
| Supply voltage | [V] | 12 V = | 24 V = | 150 at 50Hz | 230 at 50Hz |
| Tolerance supply voltage | [%] | +5...-10 | +5...-10 | +5...-10 | +5...-10 |
| Power consumption | hold [W] | 31 | 31 | 78 | 78 |
| Power consumption | in rush [W] | 31 | 31 | 264 | 264 |
| Solenoid connection | | Connector as per EN 175301-803, solenoid identification as per ISO 9461. | | | |
| Wiring min. | [mm²] | 3 x 1.5 recommended | | | |
| Wiring length max. | [m] | 50 recommended | | | |

With electrical connections the protective conductor (PE \downarrow) must be connected according to the relevant regulations.

2



Directional control valve size DIN NG06 CETOP 03

| Code | Body |
|------|-----------------------|
| 3 | Standard |
| F | only for spool 55, 56 |

| Code | Control |
|------|--|
| 1 | 1 solenoid |
| 2 | 2 solenoids |
| 7 | 2 solenoids and 2 pos. detents (only for spool types 11, 12, 51) |

| 3 position spools | |
|-------------------|------------|
| Code | Spool type |
| 01 | |
| 02 | |
| 03 | |
| 07 | |
| 08 | |
| 09 | |
| 10 | |
| 46 | |
| 55 | |
| 56 | |
| 64 | |
| 65 | |

| 2 position spools | |
|-------------------|------------|
| Code | Spool type |
| 11 | |
| 12 | |
| 51 | |
| 52 | |
| 81 ¹⁾ | |
| 81 ²⁾ | |

¹⁾ Spool position code 01
²⁾ Spool position code 02

| Code | Options |
|------|---|
| omit | Standard valve |
| G3 | Soft shift with 1.0 mm orifice in anchor tube (for DC only) |
| 32 | Solenoid tube without manual override |

| Code | Solenoid voltage |
|------|------------------|
| G0R | 12V = |
| G0Q | 24V = |
| W06 | 115V / 50Hz |
| W07 | 230V / 50Hz |

| Code | Seals |
|------|-------|
| 1 | NBR |
| 5 | FPM |

| Code | End cap |
|------|----------------------|
| 01 | for control 1 |
| 02 | for controls 2 and 7 |

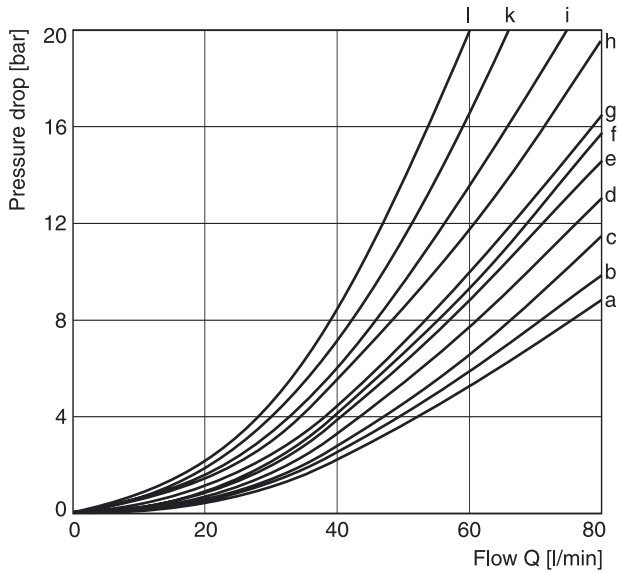
| 3 position spools | | |
|-------------------|----------------|--|
| Code | Spool position | |
| 03 | | 3 positions. Spring centered to "0". |
| 05 | | 2 positions. Spring centered to "0". Energized to "b". |
| 06 | | 2 positions. Spring centered to "0". Energized to "a". |

| 2 position spools | | |
|-------------------|----------------|--|
| Code | Spool position | |
| 01 | | 2 positions. Spring offset to "b". Energized to "a". |
| 02 | | 2 positions. Spring offset to "a". Energized to "b". |
| 09 | | 2 positions detent. Operated in "a" or "b". No centre or spring offset position. |

Further spool types, position control, mechanical operation and solenoid voltages on request.



Pressure drop



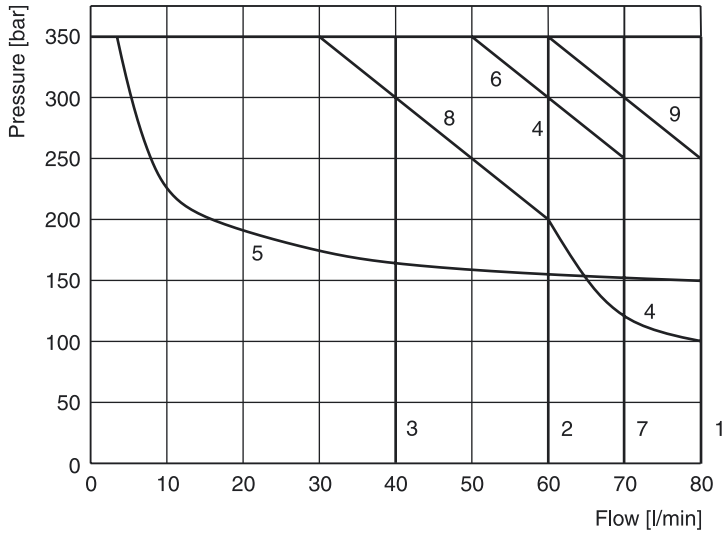
| Spool type | | | | | | | | | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 01 | 02 | 03 | 07 | 08 | 09 | 10 | 11 | 12 | 46 | 51 | 52 | 55 | 56 | 64 | 65 | 81 | 91 |
| P→A | a | e | d | l | d | c | c | c | h | a | e | f | g | g | h | l | b | i |
| P→B | a | e | d | l | d | c | c | c | h | a | e | f | g | g | l | h | b | i |
| P→T | b | - | - | i | - | - | - | - | - | - | - | - | - | - | k | k | - | - |
| A→T | c | c | d | l | a | e | a | d | - | g | g | - | f | - | k | l | e | d |
| B→T | c | c | d | l | b | a | e | d | - | g | g | - | - | f | l | k | e | d |

The diagram below specifies the shift limits for valves solenoids. The specifications apply to a viscosity of 35mm²/s and balanced flow conditions. The shift limits

can be considerably lower at unbalanced flow conditions. To avoid flow rates beyond the shift limits, a plug-in orifice can be inserted in the P-port.

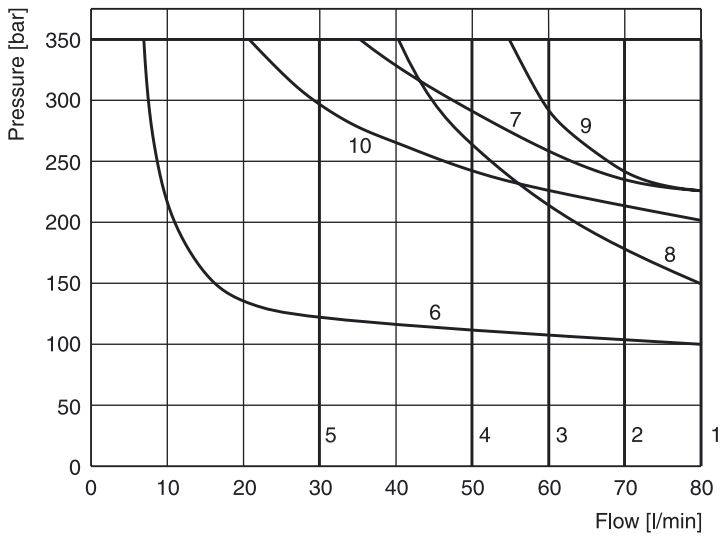
2

Valve with standard DC solenoid



| Spool type | DC Curve no | AC Curve no. |
|------------------|-------------|--------------|
| 01 | 4 | 2 |
| 02 | 9 | 6 |
| 03 | 1 | 2 |
| 07 | 5 | 3 |
| 08 | 7 | 2 |
| 09 | 10 | 7 |
| 10 | 10 | 7 |
| 11 | 2 (1) | 1 (1) |
| 12 ¹⁾ | 6 (8) | 5 (9) |
| 46 | 3 | 4 |
| 51 | 2 (1) | 2 (1) |
| 52 | 6 (8) | 5 (9) |
| 55 | 9 | 9 |
| 56 | 9 | 9 |
| 64 | 5 | 3 |
| 65 | 5 | 3 |
| 81 | 3 | 1 |
| 91 | (1) | (1) |

Valve with standard AC solenoid

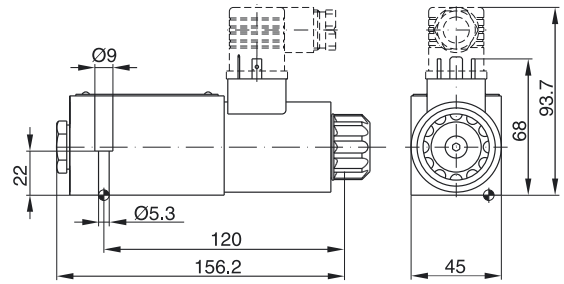
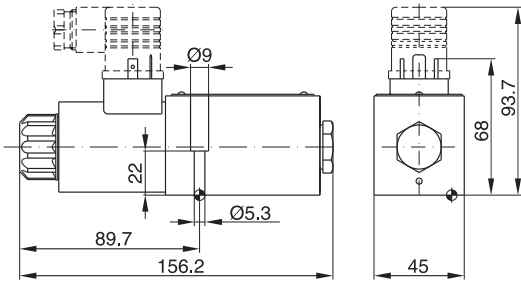


() Curves for spool with detents

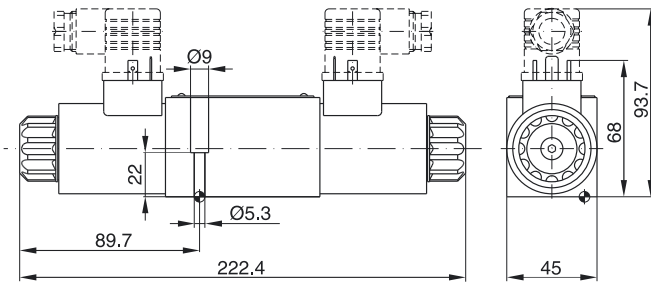
¹⁾ Only if port A or B is closed

**Interface EN 175301-803, DC solenoid
 01, 06 -style**

02, 05 -style

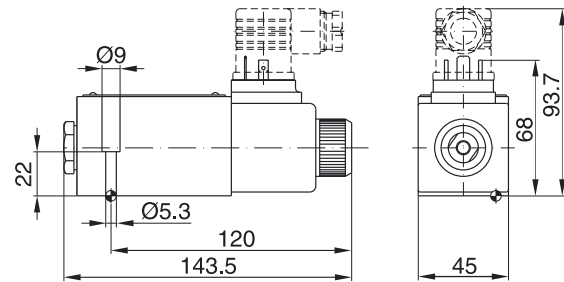
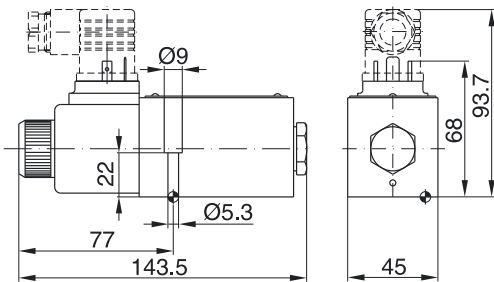


03, 09 -style

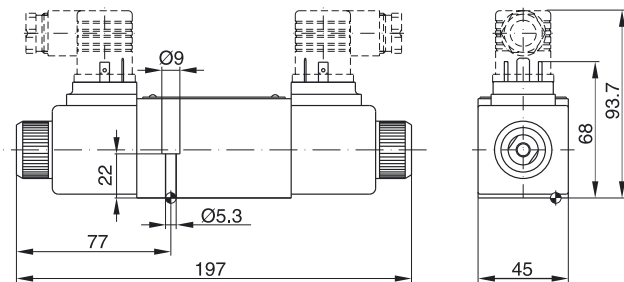






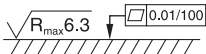
**Interface EN 175301-803, AC solenoid
 01, 06 -style**

02, 05 -style



03, 09 -style



| Surface finish |  Kit |  |  |  Kit NBR |
|---|---|---|--|--|
|  | BK375 | 4x M5x30 DIN 912 12.9 | 7.6 Nm | on request |

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.

