

Characteristics

The NG06 directional control valve series D1VW provides high functional limits up to 80 l/min in combination with a very low, energy-saving pressure drop.

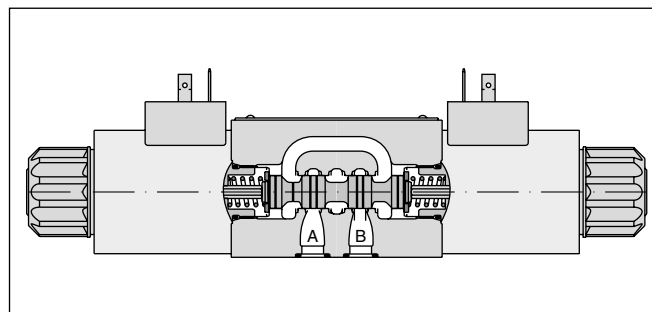
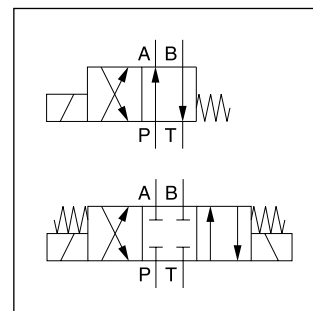
A wide variety of spool options allows to design an unlimited number of hydraulic circuits.

Versions with 8 watt coils, position control, ATEX approval, surface protection and connector variants are shown in the following chapters.

The valve is also available as sandwich type, see series Z1DW in chapter 7.

Valves with explosion proof solenoids Ex e mb II see series D1VW Explosion Proof in chapter 2 and catalogue MSG11-3343/UK.

Download of the PDF file at www.parker.com/ISDE, see "Support".



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Technical data

| | | | | | | | | | | | | | |
|--|--|---|--|--------|--|--------|--|---------|--|-----------------------------------|--|-----------------------------------|--|
| General | | Directional spool valve | | | | | | | | | | | |
| Design | | Solenoid | | | | | | | | | | | |
| Actuation | | DIN NG06 / CETOP 03 / NFPA D03 | | | | | | | | | | | |
| Nominal size | | DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03 | | | | | | | | | | | |
| Mounting interface | | unrestricted, preferably horizontal | | | | | | | | | | | |
| Mounting position | | -25...+60 | | | | | | | | | | | |
| Ambient temperature [°C] | | 150 | | | | | | | | | | | |
| MTTF _D value [years] | | 1.5 (1 solenoid), 2.1 (2 solenoids) | | | | | | | | | | | |
| Weight [kg] | | 10 Sinus 5...2000 Hz acc. IEC 68-2-6 | | | | | | | | | | | |
| Vibration resistance [g] | | 30 Random noise 20...2000 Hz acc. IEC 68-2-36 | | | | | | | | | | | |
| | | 15 Shock acc. IEC 68-2-27 | | | | | | | | | | | |
| Hydraulic | | P, A, B: 350; T: 210 (DC), T: 140 (AC) | | | | | | | | | | | |
| Max. operating pressure [bar] | | Hydraulic oil according to DIN 51524 | | | | | | | | | | | |
| Fluid | | -20 ... +70 (NBR: -25...+70) | | | | | | | | | | | |
| Fluid temperature [°C] | | 2.8...400 | | | | | | | | | | | |
| Viscosity permitted [cSt] / [mm ² /s] | | 30...80 | | | | | | | | | | | |
| Viscosity recommended [cSt] / [mm ² /s] | | ISO 4406 (1999); 18/16/13 | | | | | | | | | | | |
| Filtration | | 80 (see shift limits) | | | | | | | | | | | |
| Flow max. [l/min] | | Up to 10 per flow path, depending on spool, up to 15 per flow path for spool type 008 + 009 | | | | | | | | | | | |
| Leakage at 50 bar [ml/min] | | | | | | | | | | | | | |
| Static / Dynamic | | see table response time | | | | | | | | | | | |
| Step response | | | | | | | | | | | | | |
| Electrical characteristics | | 100 ED; CAUTION: coil temperature up to 150 °C possible | | | | | | | | | | | |
| Duty ratio [%] | | 15000 (not for soft shift) | | | | | | | | | | | |
| Max. switching frequency [1/h] | | IP65 in accordance with EN 60529 (with correctly mounted plug-in connector) | | | | | | | | | | | |
| Protection class | | Code | | | | | | | | | | | |
| | | K | | J | | U | | G | | Y | | T | |
| Supply voltage [V] | | 12 V = | | 24 V = | | 98 V = | | 205 V = | | 110 V at 50 Hz/ 120 V at 60 Hz | | 230 V at 50 Hz/ 240 V at 60 Hz | |
| Tolerance supply voltage [%] | | ±10 | | ±10 | | ±10 | | ±10 | | ±5 | | ±5 | |
| Current consumption hold [A] | | 2.72 | | 1.29 | | 0.33 | | 0.13 | | 0.6 / 0.55 | | 0.3 / 0.27 | |
| Current consumption in rush [A] | | 2.72 | | 1.29 | | 0.33 | | 0.13 | | 2.5 / 2.4 | | 1.25 / 1.2 | |
| Power consumption hold [W] | | 32.7 W | | 31 W | | 31.9 W | | 28.2 W | | 70 / 70 VA | | 70 / 70 VA | |
| Power consumption in rush [W] | | 32.7 W | | 31 W | | 31.9 W | | 28.2 W | | 280 / 290 VA | | 280 / 290 VA | |
| Solenoid connection | | Connector as per EN 175301-803, solenoid identification as per ISO 9461 (code W). | | | | | | | | | | | |
| Wiring min. [mm ²] | | 3 x 1.5 recommended | | | | | | | | | | | |
| Wiring length max. [m] | | 50 recommended | | | | | | | | | | | |

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

2



Directional control valve



**Size
 DIN NG06
 CETOP 03
 NFPA D03**



3-chamber valve



Wet pin armature solenoid, threaded in tube



Spool type



Spool position

| 3 position spools | |
|-------------------|------------|
| Code | Spool type |
| | a 0 b |
| 001 | |
| 002 | |
| 003 | |
| 004 | |
| 005 | |
| 006 | |
| 007 | |
| 008 ¹⁾ | |
| 009 ¹⁾ | |
| 010 | |
| 011 | |
| 014 | |
| 015 | |
| 016 | |
| 021 | |
| 022 | |
| 031 | |
| 032 | |
| 034 | |
| 035 | |
| 061 | |
| 081 | |
| 082 | |
| 102 | |
| 204 ¹⁾ | |
| 205 ¹⁾ | |

| 2 position spools | |
|-------------------|------------|
| Code | Spool type |
| | a b |
| 020 | |
| 026 | |
| 030 | |
| 083 ¹⁾ | |
| 101 | |
| 208 | |

| 3 position spools | | | |
|-------------------|----------------------------------|----------------------------------|---|
| Code | Spool position | | |
| C | | | 3 positions. Spring offset in position "0". Operated in position "a" or "b". |
| | Standard | Spool type 008,009, 204, 205 | |
| E | | | 2 positions. Spring offset in position "0". |
| | Operated in position "a". | Operated in position "b". | |
| F | | | 2 positions. Operated in position "0". |
| | Spring offset in position "b". | Spring offset in position "a". | |
| K | | | 2 positions. Spring offset in position "0". |
| | Operated in position "b". | Operated in position "a". | |
| M | | | 2 positions. Operated in position "0". |
| | Spring offset in position "a". | Spring offset in position "b". | |

| 2 position spools | | | |
|-------------------|----------------|----------------|--|
| Code | Spool position | | |
| | Standard | Spool type 083 | |
| B | | | 2 positions. Spring offset in position "b". Operated in position "a". |
| D | | | 2 positions. Operated in position "a" or "b". No center or offset position. |
| H | | | 2 positions. Spring offset in position "a". Operated in position "b". |

- 1) Consider specific spool position.
- 2) To be used in combination with rectifier plugs at 120 VAC / 230 VAC power supply.
- 3) DC only

Ordering Code

2



Seals



Solenoid voltage



Solenoid connector as per EN 175301-803, without plug (other connectors are available for D1MW Series)



Solenoid option



Design series (not required for ordering)

| Code | Solenoid option |
|------------------|-----------------------------------|
| omit | manual override (standard) |
| T | without manual override |
| S2 ³⁾ | Soft shift orifice size 0.5 mm. |
| S3 ³⁾ | Soft shift orifice size 0.75 mm. |
| 4N ³⁾ | with lockable manual override |

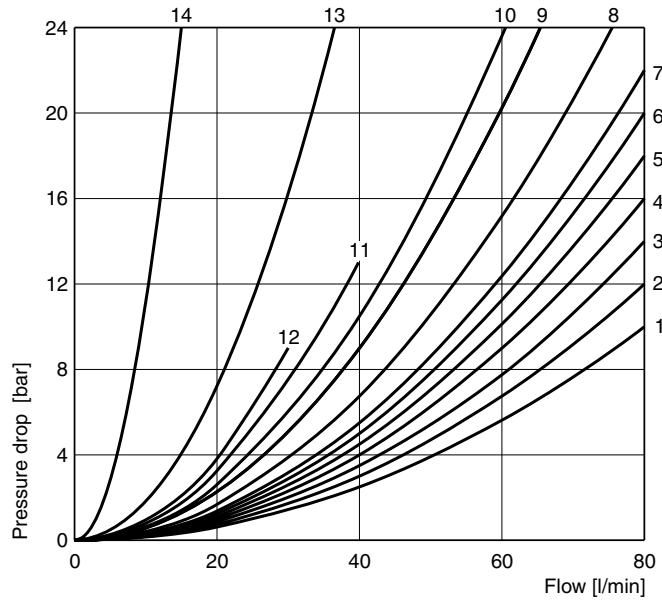
| Code | Voltage |
|-----------------|---------------------------|
| K | 12 V = |
| J | 24 V = |
| U ²⁾ | 98 V = |
| G ²⁾ | 205 V = |
| Y | 110 V 50 Hz / 120 V 60 Hz |
| T | 230 V 50 Hz / 240 V 60 Hz |

| Code | Seals |
|----------|------------|
| N | NBR |
| V | FPM |

Bold letters = Short-term availability

Further spool types, solenoid voltages and connectors on request.

Flow curve



All characteristic curves measured with HLP46 at 50 °C.

| Spool | Position "b" | | | Position "a" | | | Position "0" | | | | |
|-------|--------------|-----|-----|--------------|-----|-----|--------------|-----|-----|-----|-----|
| | P-A | B-T | P-B | P-B | A-T | P-A | P-A | P-B | A-T | B-T | P-T |
| 001 | 2 | 2 | | 2 | 2 | | | | | | |
| 002 | 1 | 4 | | 1 | 4 | | 1 | 1 | 5 | 5 | 2 |
| 003 | 3 | 4 | | 3 | 6 | | | | 7 | | |
| 004 | 2 | 3 | | 2 | 3 | | | | 7 | 7 | |
| 005 | 2 | 2 | | 2 | 2 | | 12 | | | | |
| 006 | 1 | 4 | | 1 | 4 | | 7 | 7 | | | |
| 007 | 3 | 2 | | 2 | 2 | | | 3 | | 2 | 7 |
| 010 | 3 | | | 3 | | | | | | | |
| 011 | 2 | 2 | | 2 | 2 | | | | 14 | 14 | |
| 014 | 3 | 2 | | 2 | 2 | | 3 | | 2 | | 7 |
| 015 | 3 | 6 | | 3 | 4 | | | | | 7 | |
| 016 | 2 | 2 | | 2 | 2 | | | 12 | | | |
| 020B | 4 | 4 | | 2 | 3 | | | | | | |
| 026B | 4 | | | 4 | | | | | | | |
| 030B | 2 | 3 | | 1 | 2 | | | | | | |
| 034 | 4 | | 8 | 3 | 3 | | | | 5 | 7 | |
| 035 | 3 | 3 | | 4 | | 8 | | | 7 | 5 | |
| 081 | 13 | 13 | | 13 | 13 | | | | | | |
| 082 | 13 | 13 | | 13 | 13 | | | | 1) | 1) | |
| 101B | 11 | 10 | | 10 | 9 | | | | | | |
| 102 | 1 | 4 | | 1 | 4 | | 5 | 5 | 8 | 8 | 6 |
| 61 | 1 | 3 | | 1 | 3 | | 3 | 2 | | | |
| 83H | 5 | 2 | | 5 | 2 | | | | | | |
| 208 | 3 | | | 2 | | | | | | | |
| | P-B | A-T | | P-A | B-T | | P-A | P-B | A-T | B-T | P-T |
| 008 | 4 | 5 | | 4 | 5 | | | | | | 9 |
| 009 | 5 | 5 | | 6 | 7 | | | | | | 7 |
| 83B | 5 | 2 | | 5 | 2 | | | | | | |
| 204 | 1 | 3 | | 4 | 3 | | 7 | | 4 | | 7 |
| 205 | 4 | 3 | | 1 | 3 | | | 7 | | 4 | 5 |

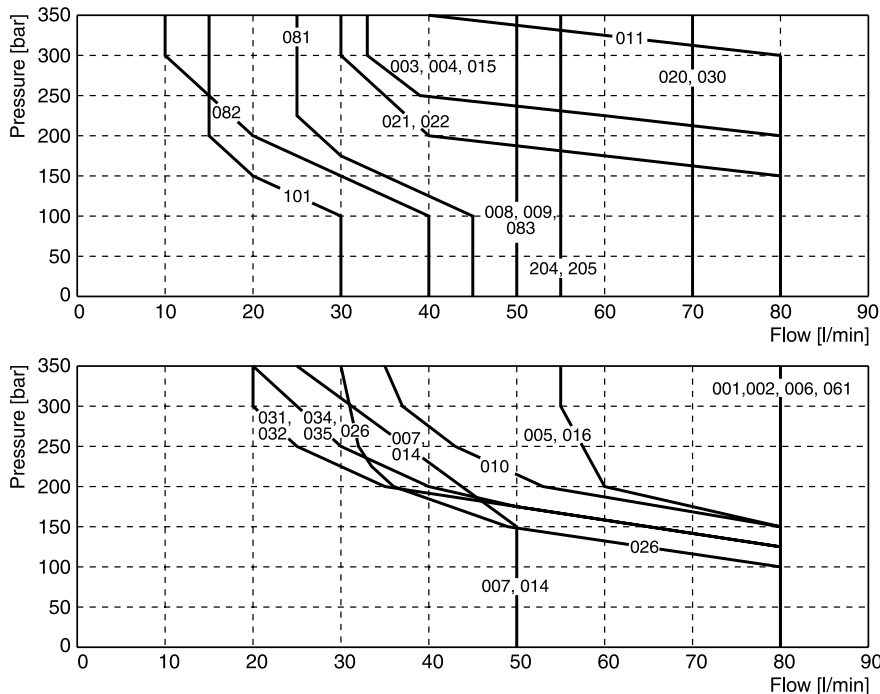
| Spool | Position "b" | | | Position "a" | | |
|-------|--------------|-----|-----|--------------|-----|-----|
| | P-A | P-B | A-B | P-B | A-T | |
| 021 | 2 | 4 | | 4 | 2 | |
| | P-A | B-T | | P-A | P-B | A-B |
| 022 | 6 | 2 | | 5 | 2 | |

1) Only for pressure compensation, no high flow possible.

The diagram below specifies the shift limits for valves with DC & AC solenoids. Valves with spool position “F” or “M” can only be operated up to 70 % of the limits. The specifications apply to a viscosity of 40 mm²/s and bal-

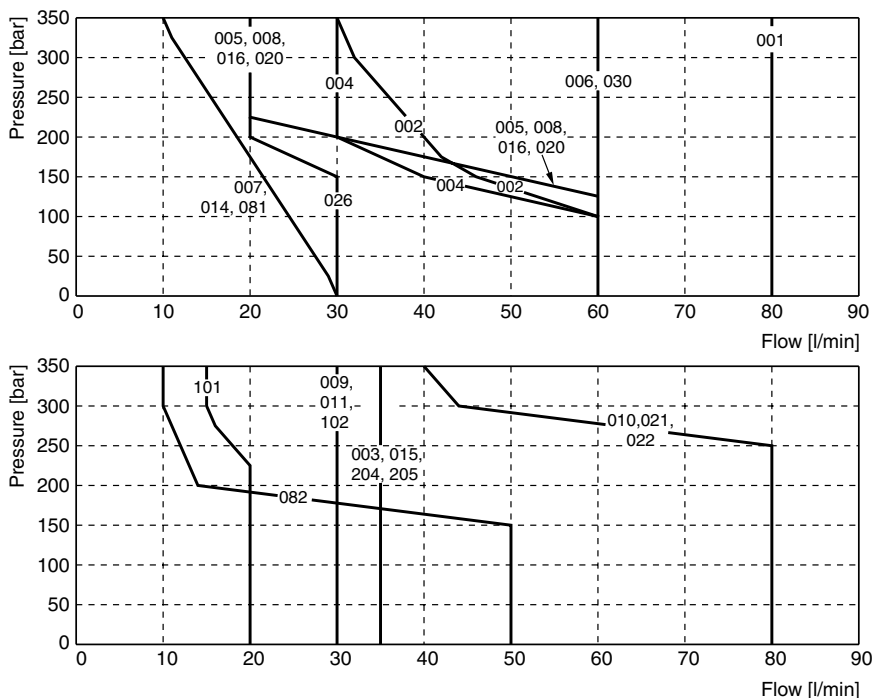
anced flow conditions. The shift limits can be considerably lower at unbalanced flow conditions. To avoid flow rates beyond the shift limits, a plug-in orifice can be inserted in the P-port.

Valve with standard DC solenoid



Measured with HLP46 at 50 °C, 90 % U_{nom} and warm solenoids

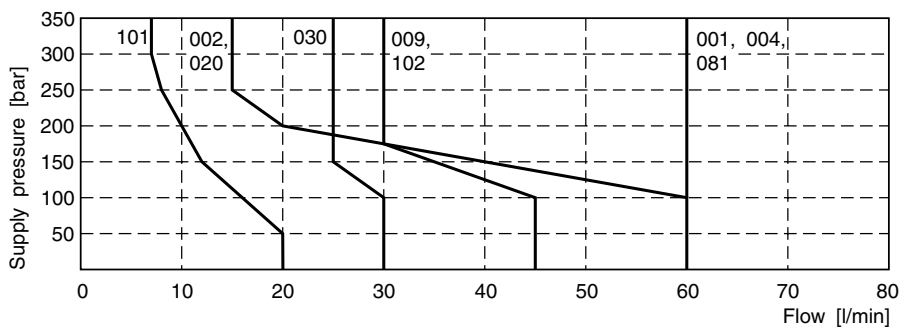
Valve with standard AC solenoid



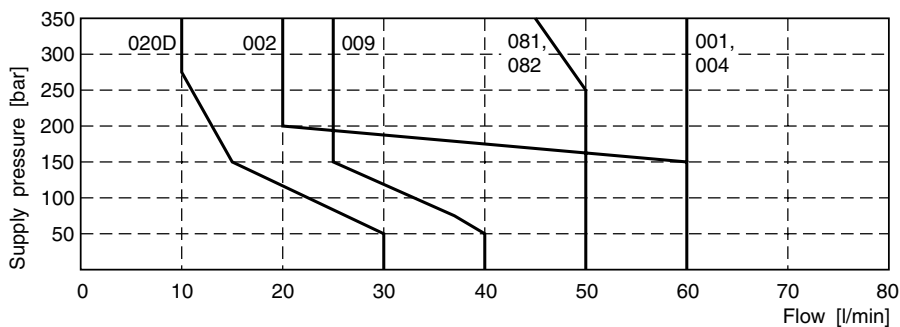
Measured with HLP46 at 50 °C, 95 % U_{nom} and warm solenoids

Shift Limits / Response Times

Shift limit diagram - Soft shift with 1 DC solenoid



Shift limit diagram - Soft shift with 2 DC solenoids



Measured with HLP46 at 50 °C, 90 % U_{nom} and warm solenoids.

Response times D1VW Standard and Soft Shift [ms]

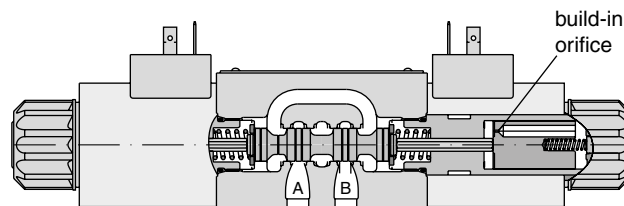
| Standard solenoid | | Orifice | | Energize | | De-energize | |
|---------------------------------|--|---------|--|----------|--|-------------|--|
| Standard DC | | w/o | | 45 - 60 | | 20 - 30 | |
| Standard AC | | w/o | | 13 | | 20 | |
| Standard DC with rectifier plug | | w/o | | 60 - 70 | | 70 - 90 | |

| Response times soft shift | | 2 solenoid valve | | 2 solenoid valve | | 1 solenoid valve | |
|---------------------------|--------------|-------------------------|-------------|-----------------------|-------------|------------------|-------------|
| | | 3 positions | | 3 positions | | 2 positions | |
| Code | Orifice size | Center position: Closed | | Center position: Open | | Energize | De-energize |
| | | Energize | De-energize | Energize | De-energize | | |
| S2 | 0.50 mm | 200 - 750 | 310 - 650 | 220 - 400 | 350 - 750 | 90 - 350 | 160 - 500 |
| S3 | 0.75 mm | 180 - 300 | 300 - 400 | 200 - 350 | 300 - 500 | 90 - 350 | 130 - 350 |

The lower value applies to small flow rates and low pressure, the upper value to high flow rates and high pressure.

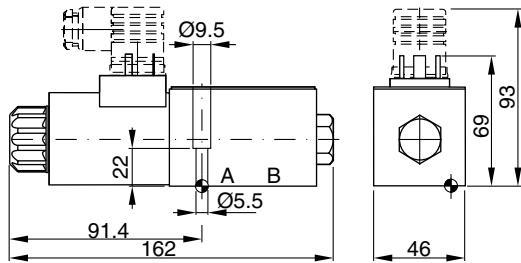
Step response times were obtained under the following conditions: HLP46 at 50 °C with the valve operating at nominal pressure and flow. Published response times are nominal and may vary with spool, flow, pressure and temperature.

Acceleration for orifice size 0.75, code "S3" (measured against a standard valve)

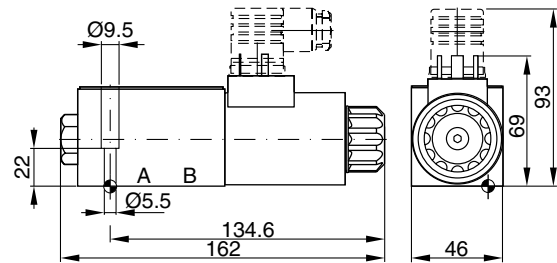


For even softer shifting, the proportional spools 081, 082, 101 and 102 can be used.

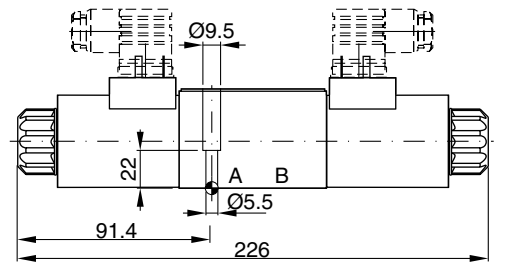
**Interface EN 175301-803, DC solenoid
 B, E, F -style**



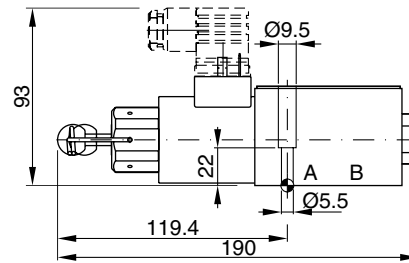
H, K, M -style



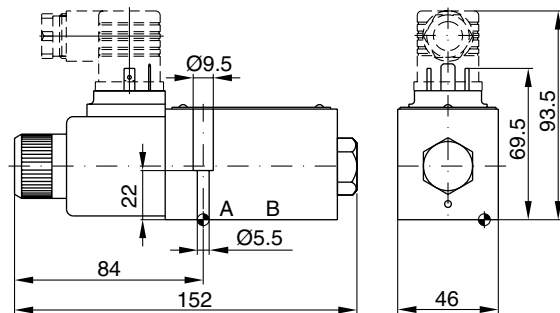
C, D -style



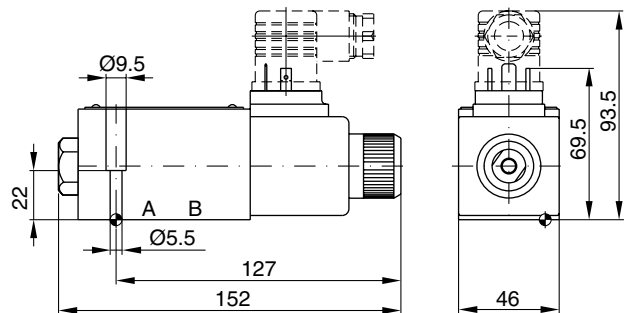
**Option 4N, with lockable manual override
 (available for all styles, DC only)**



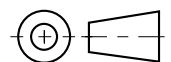
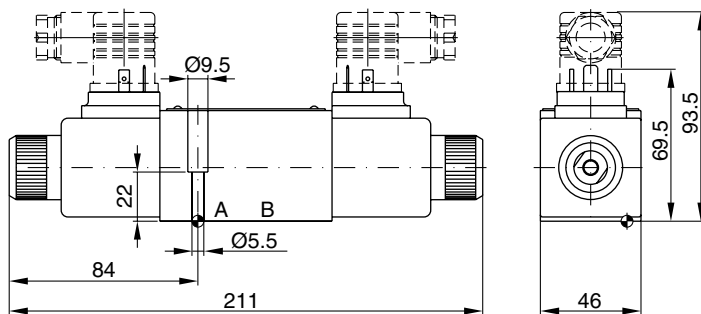
**Interface EN 175301-803, AC solenoid
 B, E, F -style**



H, K, M -style



C, D -style



| Surface finish | Kit | Kit | Kit | Kit |
|---|-------|---------------------------|-----------------|--|
| $\sqrt{R_{max} 6.3}$ $\square 0.01/100$ | BK375 | 4x M5x30 ISO 4762-12.9 | 7.6 Nm ±15 % | NBR: SK-D1VW-N-91 FPM: SK-D1VW-V-91 |

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.

