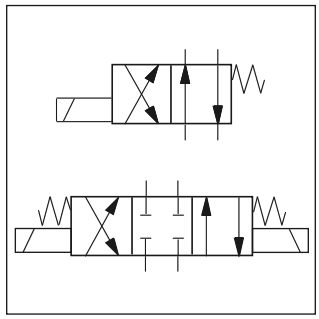
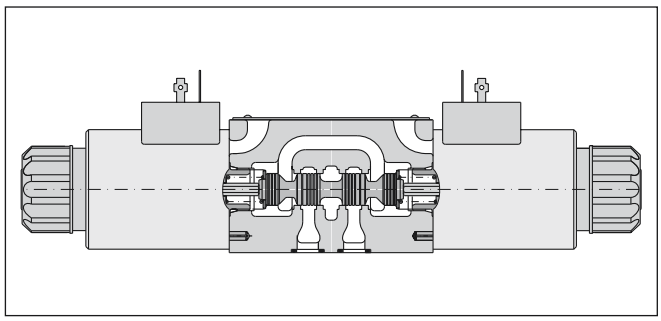
The D1VW is a solenoid operated directional control valve size NG06 in 3-chamber design. It is direct operated by wet pin solenoids.

The D1VW is available with a soft shift option for smooth operation. An additional orifice in the solenoid anchor dampens the shifting time.





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]	1.5 (1 solenoid), 2.1 (2 solenoids)				
Hydraulic							
Max. operating pressure		[bar]	P, A B: 350				
		[bar]	T: 210 (DC), 105 (AC), 210 (AC Code “H“)				
Fluid			Hydraulic oil in accordance with DIN 51524 / 51525				
Fluid temperature		[°C]	-25 ... +70				
Viscosity permitted		[cSt] / [mm²/s]	2.8...400				
Viscosity recommended		[cSt] / [mm²/s]	30...80				
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			see table response time				
Electrical characteristics							
Duty ratio			100% ED; CAUTION: coil temperature up to 150 °C possible				
Max. switching frequency		[1/h]	15000				
Protection class			IP 65 in accordance with EN 60529 (plugged and mounted)				
		Code	K	J	U	G	Y	T
Supply voltage		[V]	12 V =	24 V =	98 V =	205 V =	110 at 50Hz / 120 at 60Hz	230 at 50Hz / 240 at 60Hz
Tolerance supply voltage		[%]	±10	±10	±10	±10	±5	±5
Current consumption	hold	[A]	2.5	1.25	0.31	0.15	0.58 / 0.49	0.31 / 0.26
Current consumption	in rush	[A]	2.5	1.25	0.31	0.15	2.1 / 2.0	1.05 / 1.0
Power consumption	hold	[W]	30	30	30	30	64 / 59 [VA]	68 / 62 [VA]
Power consumption	in rush	[W]	30	30	30	30	231 / 240 [VA]	231 / 240 [VA]
Solenoid connection			Connector as per EN 175301-803, solenoid identification as per ISO 9461 (code W). Conduit box with plug-in coil and central plug M12x1 as per IEC 61076-2-101 (M12x1) (code G).					
Wiring min.		[mm²]	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.

D1VW stand_UK.INDD CM

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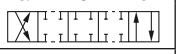
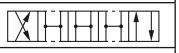
Kaarst, Germany

2

D	1	V	W			
Directional control valve	**Size DIN NG06 CETOP 03 NFPA D03**	**3-chamber valve**	**Wet pin armature solenoid, threaded in tube**	**Spool type**	**Spool position**	**Seals**

3 position spools	
Code	Spool type a 0 b
1	
2	
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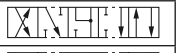
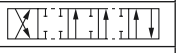
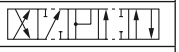
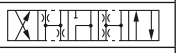
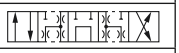
4	
5	
6	
7	
8 [1]	
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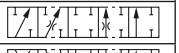
10	
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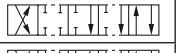
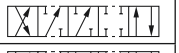
14	
15	
16	
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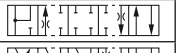
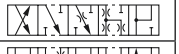
22	
31	
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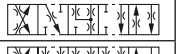
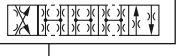
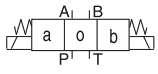
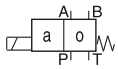
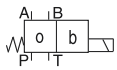
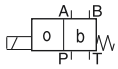
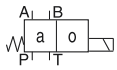
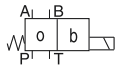
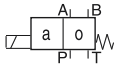
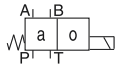
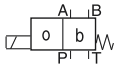
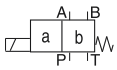
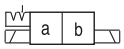
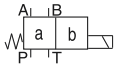
76	
78	
81	
82	
102	

2 position spools	
Code	Spool type a b
20	
26	
30	
101	

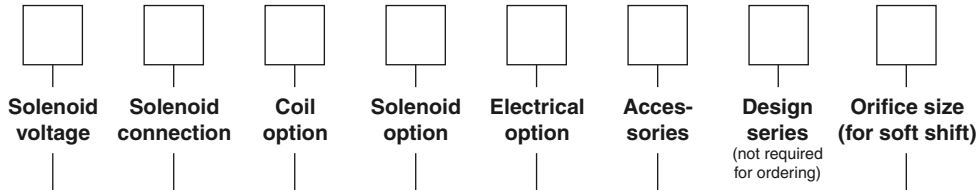
[1] Consider specific spool position.

Code	Seals
N	**NBR**
V	FPM

3 position spools			
Code	all 3 position spools		
C			**3 positions. Spring offset in position “0“. Operated in position “a“ or “b“.**
	Standard	Spool type 8 and 9	
E	 Operated in position “a“.	 Operated in position “b“.	**2 positions. Spring offset in position “0“.**
F	 Spring offset in position “b“.	 Spring offset in position “a“.	2 positions. Operated in position “0“.
K	 Operated in position “b“.	 Operated in position “a“.	**2 positions. Spring offset in position “0“.**
M	 Spring offset in position “a“.	 Spring offset in position “b“.	2 positions. Operated in position “0“.

2 position spools		
Code	Spool position	
B		**2 positions. Spring offset in position “b“. Operated in position “a“.**
D		**2 positions. Operated in position “a“ or “b“. No centre or offset position.**
H		**2 positions. Spring offset in position “a“. Operated in position “b“.**

Bold letters =
Short-term availability



Code	Voltage
K	**12V =**
J	**24V =**
U [2]	98V =
G [2]	205V =
Y	110V 50Hz / 120V 60Hz
T	230V 50Hz / 240V 60Hz

[2] Rectifier needed for DC solenoid when used with AC input.

Code	Solenoid connection
G [3]	Conduit box with plug-in coil
W [4]	**Connector as per EN 175301-803, without plug**

[3] Only available for 24 VDC.
[4] Please order plug separately.

Code	Coil option
omit	**Standard valve (in combination with solenoid connection "W")**
M	Plug in coil (in combination with solenoid connection "G")

Code	Solenoid option
omit	**Standard solenoid with manual override**
H	High pressure solenoid tube for AC. Tank pressure up to 210 bar
T	without manual override
S	**Soft shift with built in combination with orifice size XB07* (for DC only).**

Code	Orifice diameter
omit	Standard response
XB072	0.5 mm
XB073	0.75 mm
XB074	**1.0 mm**

Code	Accessories
omit	**Standard valve (in combination with solenoid connection "W")**
7W [5]	M12 x 1 plug (4pin) pin1: not connected pin2: solenoid A 24V pin3: common 0V pin4: solenoid B 24V
7Y [5]	M12 x 1 plug (4pin) pin1: not connected pin2: solenoid B 24V pin3: common 0V pin4: solenoid A 24V

[5] Only available for solenoid connection code "G".

Solenoid identification acc. to ISO 9461

Code	Electrical option
omit	**Standard valve (in combination with solenoid connection "W")**
J	Surge diode with LED, max. voltage peak 50V (only available in combination with solenoid conn. "G")

Further spool types and solenoid voltages on request.

2

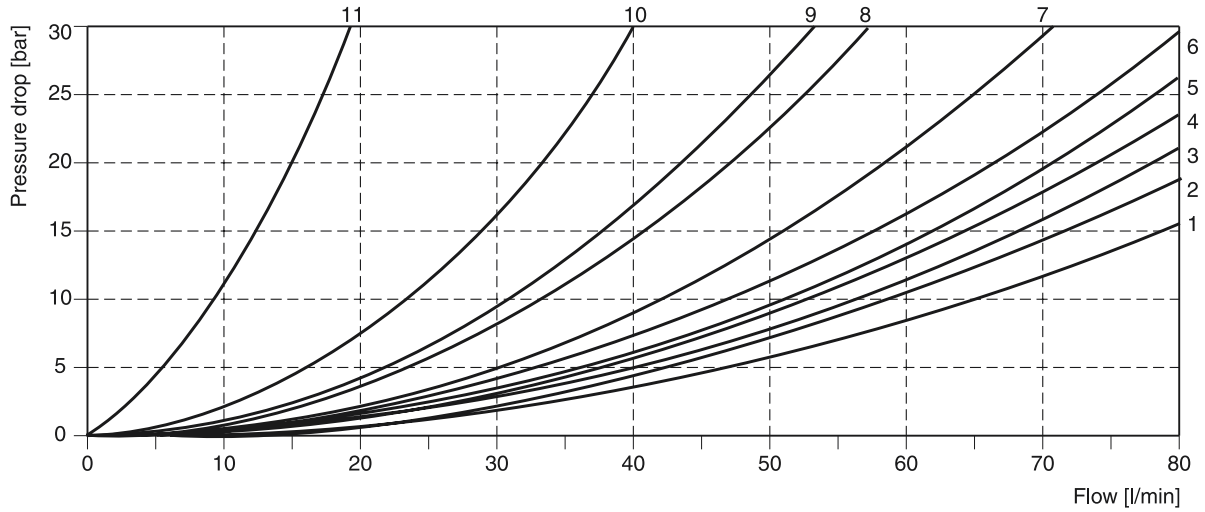
The flow curve diagram shows the flow versus pressure drop curves for all spool types. The relevant curve number for each spool type, operating position and flow direction is given in the table below.

	Position „b“		Position „a“		Position „0“					
Spool	P->A	B->T	P->B	A->T	P->A	P->B	A->T	B->T	P->T	A->B
1	4	1	4	1	–	–	–	–	–	–
2	5	2	5	2	4	4	1	1	6	1
3	4	1	4	2	–	–	8	–	–	–
4	4	2	4	2	–	–	7	7	–	9
5	4	1	5	1	9	–	–	–	–	–
6	5	1	5	1	9	9	–	–	–	9
7	5	2	4	1	–	5	–	1	7	–
10	4	–	4	–	–	–	–	–	–	–
11	4	2	4	2	–	–	11	11	–	–
14	4	1	5	2	5	–	1	–	7	–
15	4	2	4	1	–	–	–	8	–	–
16	5	1	4	1	–	9	–	–	–	–
20	5	1	5	1	–	–	–	–	–	–
26	6	–	6	–	–	–	–	–	–	–
30	5	1	5	1	–	–	–	–	–	–
76	–	2	–	–	–	–	3	–	–	–
78	–	–	–	2	–	–	–	3	–	–
81	10	10	10	10	–	–	–	–	–	–
82	10	10	10	10	–	–	[1]	[1]	–	–
	P->B	A->T	P->A	B->T	P->A	P->B	A->T	B->T	P->T	A-> B
8	2	2	2	2	–	–	–	–	8	–
9	3	3	3	3	–	–	–	–	9	–

	Position „b“			Position „a“		
	P->A	P->B	A->B	P->B	A->T	
21	3	3	3	6	1	
	P->A	B->T		P->A	P->B	A->B
22	6	1		3	3	3

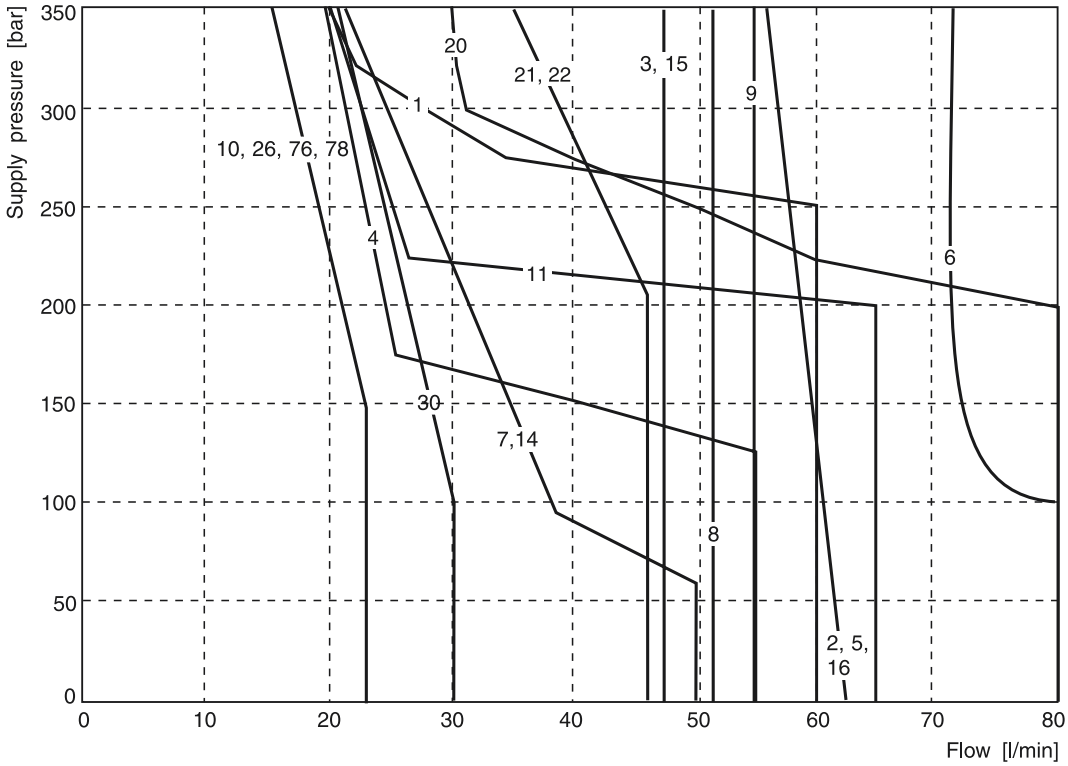
[1] Only for pressure compensation, no high flow possible.

Flow curve diagram

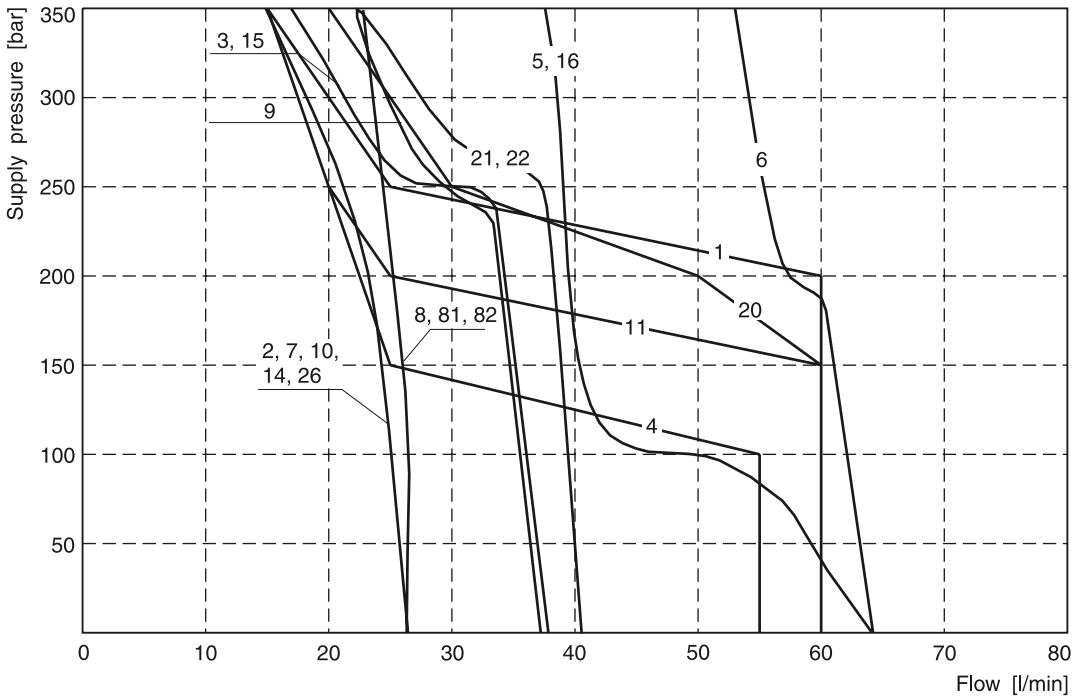


The diagram below specifies the shift limits for valves with DC solenoids. Valves with spool position “F” or “M” can only be operated up to 70% of the limits. The specifications apply to a viscosity of 35mm²/s and balanced flow conditions. The shift limits can be considerably lower at unbalanced flow conditions. To avoid flow rates beyond the shift limits, a plug-in orifice can be inserted in the P-port.

Shift limit diagram - Standard



Shift limit diagram - Soft shift



D1VW stand_UK.INDD CM

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Hydraulic Controls Division
Kaarst, Germany

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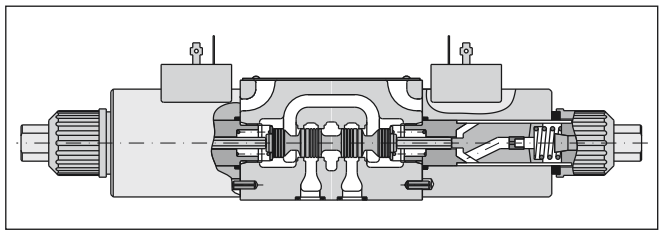
Response times D1VW Standard and Soft Shift

X-Number	Orifice size	3 positions: spool center condition				2 positions	
		Closed		Open			
		Energize	De-energize	Energize	De-energize	Energize	De-energize
(Standard)	–	32 (DC) 13 (AC)*	40 ms (DC) 20 ms (AC)*	32 ms (DC) 13 ms (AC)*	40 ms (DC) 20 ms (AC)*	32 ms (DC) 13 ms (AC)*	40 ms (DC) 20 ms (AC)*
XB072	0.50	200 ms	650 ms	700 ms	650 ms	175 ms	225 ms
XB073	0.75	125 ms	325 ms	550 ms	550 ms	100 ms	100 ms
XB074	1.00	100 ms	250 ms	500 ms	450 ms	75 ms	60 ms

* For AC input and soft shift use rectifier plug.

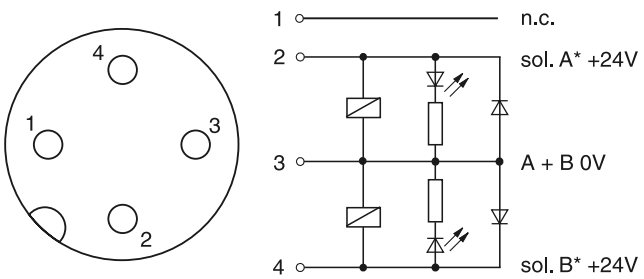
Step response times were obtained under the following conditions: υ = 35 mm²/s at 50°C with the valve operating at nominal pressure and flow. Published response times are nominal and may vary with spool, flow, pressure and temperature.

Acceleration for orifice size 1.00, code "XB074" (archived against a valve without soft shift)

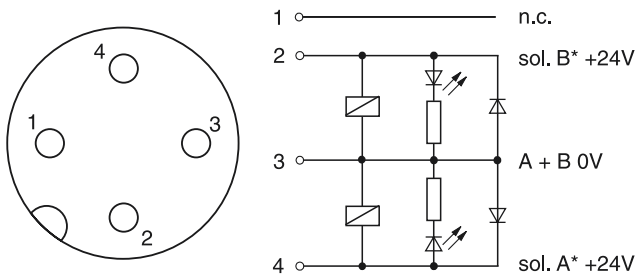


For even softer shifting, the proportional spools 81, 82, 101 and 102 can be used.

Pin assignment code "7W"
M12 x 1 - conduit box

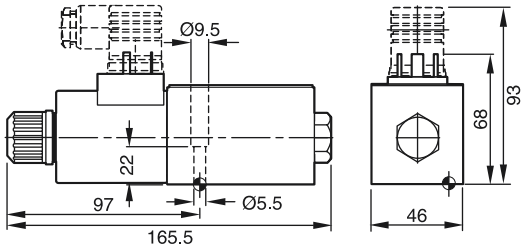


Pin assignment code "7Y"
M12 x 1 - conduit box

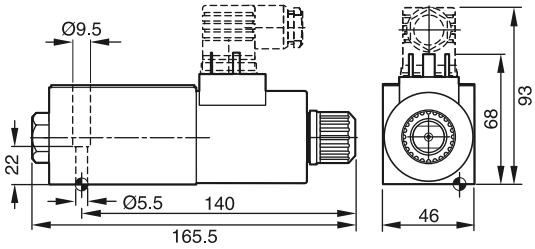


* Solenoid A: When energized, connects P to A.
Solenoid B: When energized, connects P to B.
(according to ISO 9461)

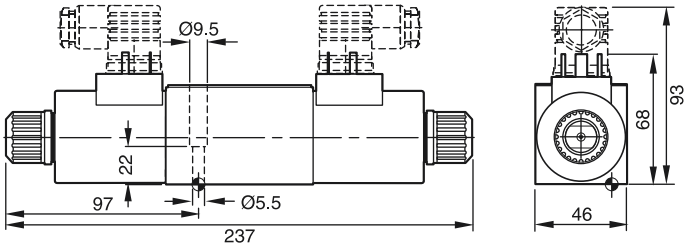
Interface EN 175301-803, DC solenoid B, E, F -style



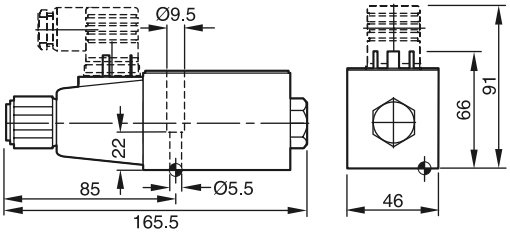
H, K, M -style



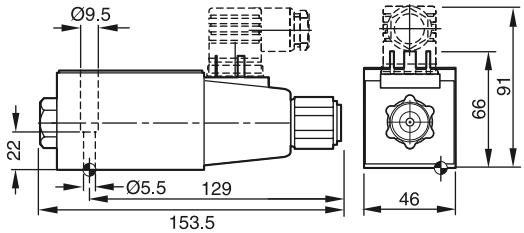
C, D -style



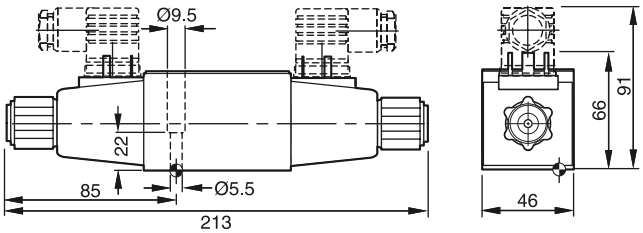
Interface EN 175301-803, AC solenoid B, E, F -style



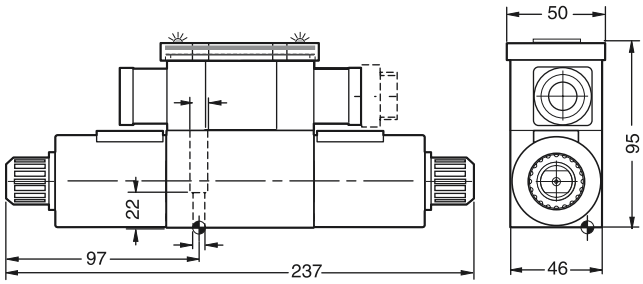
H, K, M -style



C, D -style



Conduit box (only C, D -style shown) DC solenoid



D1VW stand_UK.INDD CM

Parker Hannifin GmbH & Co. KG
Hydraulic Controls Division
Kaarst, Germany

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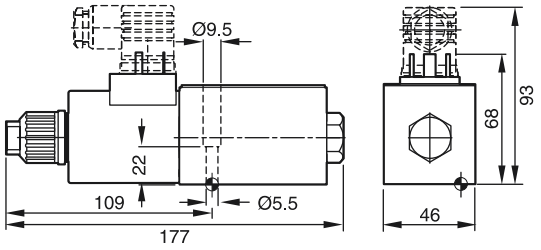
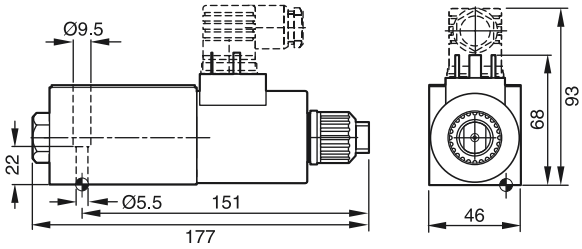
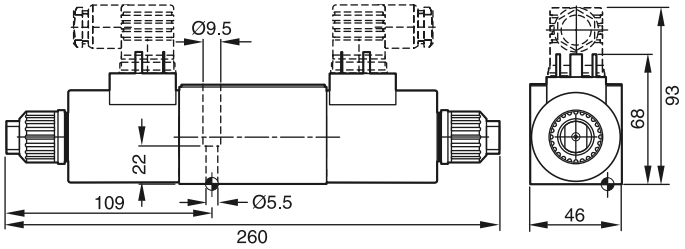
Interface EN 175301-803, DC solenoid B, E, F -style

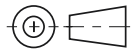


H, K, M -style



C, D -style





Surface finish	Kit			Kit NBR
R_{max}6.3 ⏥ 0.01/100	BK375	4x M5x30 DIN 912 12.9	7.6 Nm ±15%	**NBR: SK-D1VW-70** FPM: SK-D1VW-V70

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.