

Directional Valves for Mobile and Marine Applications

Series D1MW

*Catalogue HY11-3294/UK
February 2004*



Note

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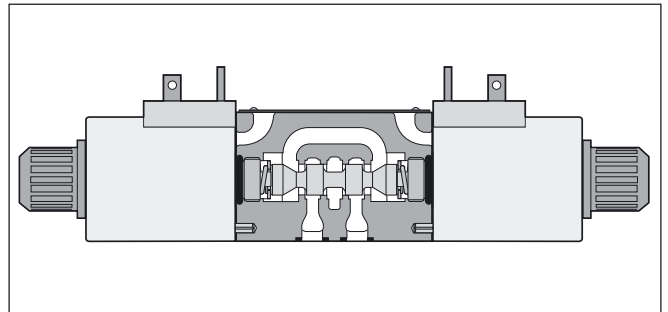
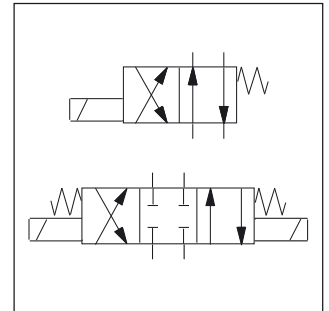
Characteristics

Directional Valve Series D1MW

The D1MW is a 3 chamber, electrically controlled 4/3 or 4/2 way directional control valve. It is activated directly by solenoids with screwed-in wet-pin armature.

The series D1MW is a high-quality valve for usage in applications with a maximum pressure of 350 bar and maximum flow of 80 l/min.

With the optional high corrosion protection and the solenoid interfaces offered, the D1MW is a valve designed for mobile or marine applications.

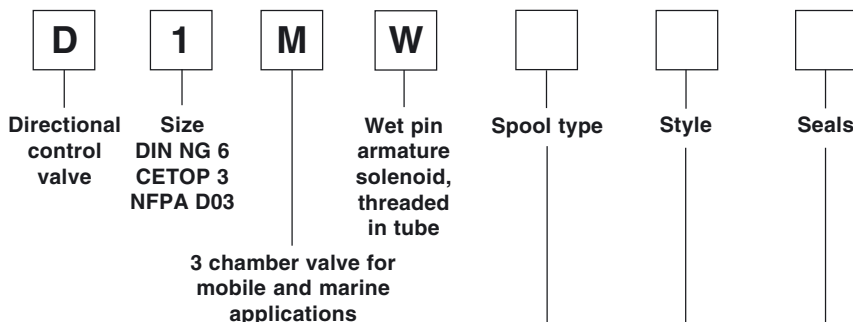


Technical features

- High corrosion protection optional
- Standard mobile solenoid interfaces
- Robust design for rough applications

Technical Data

General			
Design		Directional spool valve	
Size		DIN NG6 / CETOP 03 / NFPA D03	
Interface		DIN 24340 A6 / ISO 4401 / CETOP RP 121-H / NFPA D03	
Mounting position		unrestricted, preferably horizontal	
Environmental temperature	[°C]	-25 ... +50	
Weight			
Valve with 1 solenoid	[kg]	1.5	
Valve with 2 solenoids	[kg]	2.1	
Hydraulics			
Fluids		Hydraulic oil, in accordance with DIN 51524 / 51525	
Fluid temperature	[°C]	-25 ... +70	
Viscosity, recommended	[mm ² /s]	30 ... 80	
permitted	[mm ² /s]	20 ... 380	
Working pressure			
P, A and B	[bar]	350	
T	[bar]	210	
Leakage (at Δp = 50 bar; v = 35 mm ² /s)	[ml/min]	up to 10 per flow path, depending on spool	
Max. flow	[l/min]	80	
Max. contamination level		Class 18/16/13 in accordance with ISO 4406; x=10μm (β ₁₀ > 75) ISO 4572	
Electrical characteristics			
Duty cycle		100% ED; CAUTION: Coil temperature up to 150°C possible	
Protection class		IP 65 in accordance with DIN 40050 (plugged and mounted)	
Voltages (± 10%)			
DC voltage	Code	Power	Current
12 V	K	30 W	2.5 A
24 V	J	30 W	1.25 A
Response times (at 32 l/min and 250 bar)		DC voltage	
Energized / deenergized	[ms]	32 / 40	
Max. switching frequency		15000 switchings/hour	
Solenoid connection		Connector as per EN 175301-803, AMP Junior Timer, DP4 2-pin "Deutsch" connector. Solenoid identification according to ISO 9461.	



3 position spools	
Code	Spool type
1	
2	
4	
6	
11	
21	
22	
81	
82	

3 position spools	
Code	Spool type
8	

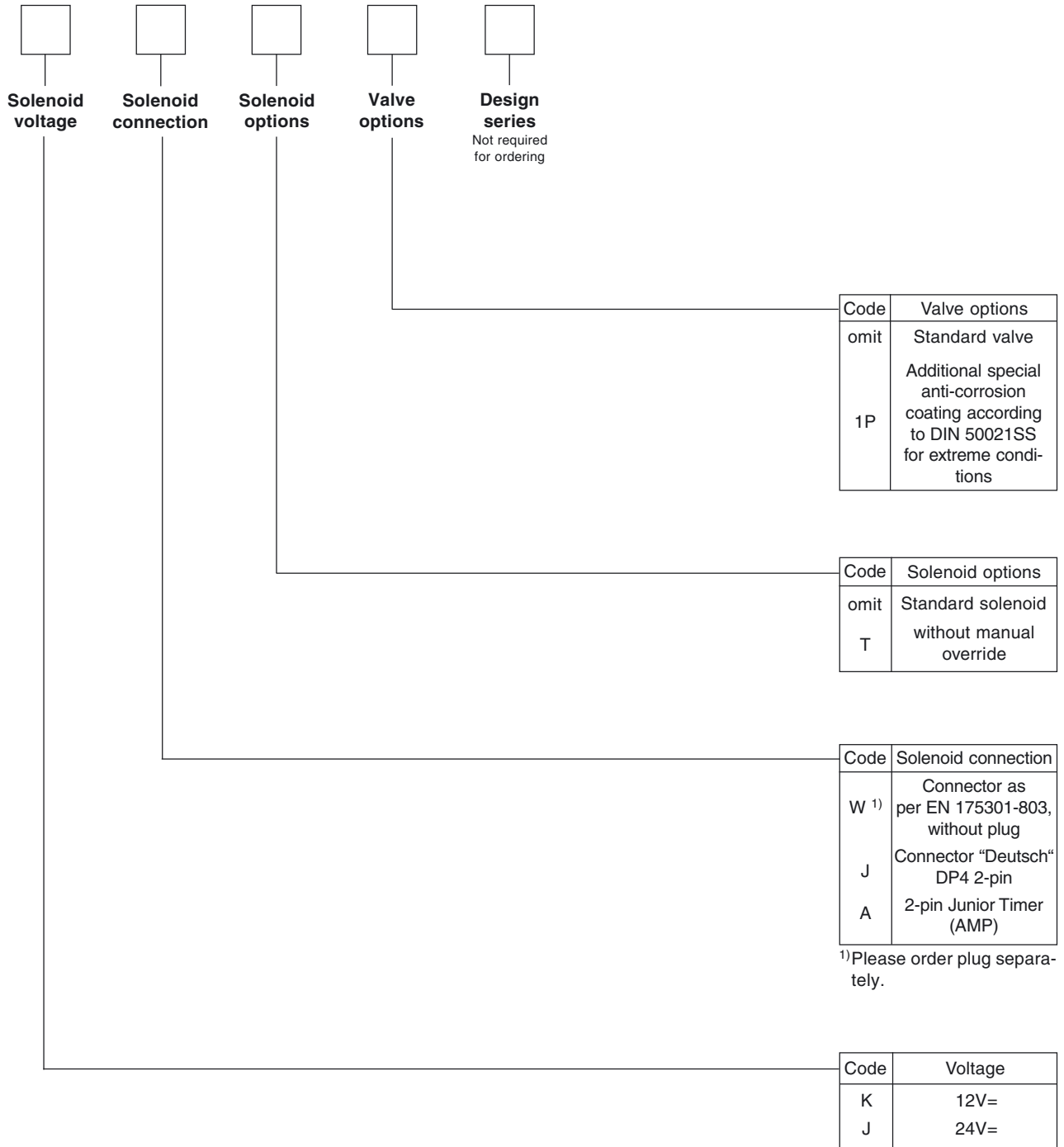
2 position spools	
Code	Spool type
20	
30	

3 position spools (except spool 8)	
Code	Description
C	 3 positions . Spring offset in position "0". Operated in position "a" or "b".
E	 2 positions. Spring offset in position "0". Operated in position "a".
F	 2 positions. Spring offset in position "b". Operated in position "0".
K	 2 positions. Spring offset in position "0". Operated in position "b".
M	 2 positions. Spring offset in position "a". Operated in position "0".

3 position spools (only for spool 8)	
Code	Description
C	 3 positions . Spring offset in position "0". Operated in position "a" or "b".
E	 2 positions. Spring offset in position "0". Operated in position "b".
F	 2 positions. Spring offset in position "a". Operated in position "0".
K	 2 positions. Spring offset in position "0". Operated in position "a".
M	 2 positions. Spring offset in position "b". Operated in position "0".

2 position spools	
Code	Description
B	 2 positions Spring offset in position "b". Operated in position "a".
D	 2 positions, detent. Operated in position "a" or "b". No centre or offset position.
H	 2 positions. Spring offset in position "a". Operated in position "b".

Code	Material
N	NBR
V	FPM



Other spool types on request.

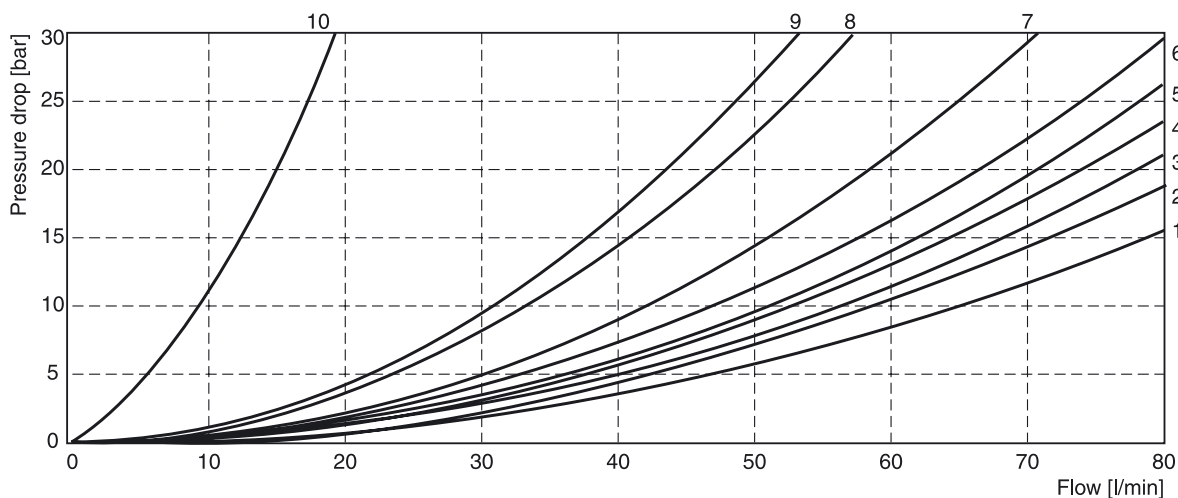
The flow curve diagram shows the flow versus pressure drop curves for all spools listed. To read the values in the diagram, the curve number for the selected spool and

desired operating position must first be determined from the table below.

Spool	Position "b"		Position "a"		Position "0"					
	P ->A	B->T	P->B	A->T	P->A	P->B	A->T	B->T	P->T	A->B
1	3	1	3	1	-	-	-	-	-	-
2	2	1	2	1	2	2	1	1	2	1
4	4	1	4	1	-	-	1	1	-	9
6	2	4	2	4	7	7	-	-	-	7
11	6	2	6	2	-	-	9	9	-	-
20	5	3	5	3	-	-	-	-	-	-
30	3	1	3	1	-	-	-	-	-	-
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	-
	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				

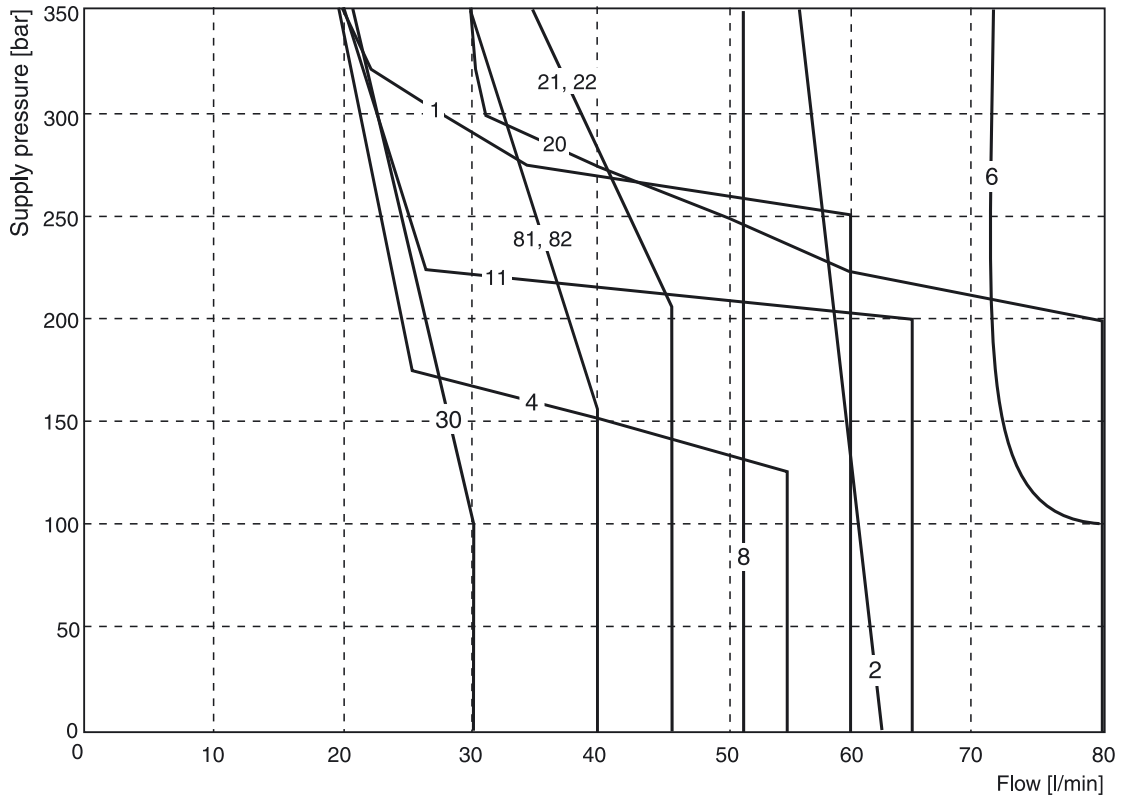
1)* Only for pressure equalisation, no higher flow possible.

Flow curve



The diagram below specifies the shift limits for valves with DC solenoids. Valves of style "F" and "M" may only be loaded at 70% of the value. The specifications apply to a viscosity of 35 mm²/s and equal flow at A and B port.

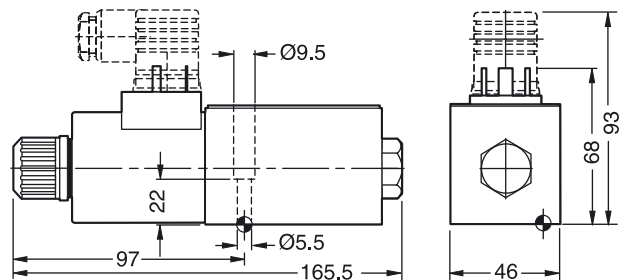
These values can be considerably lower than the represented ones by unequal flow at A and B port. To avoid flow rates above the shift limits of the valve, a plug-in orifice can be inserted in the P port.



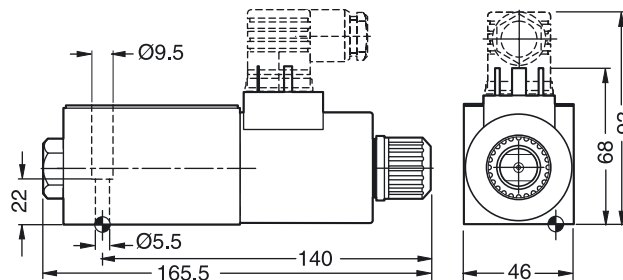
Dimensions

Dimensions with EN 175301-803 Connector

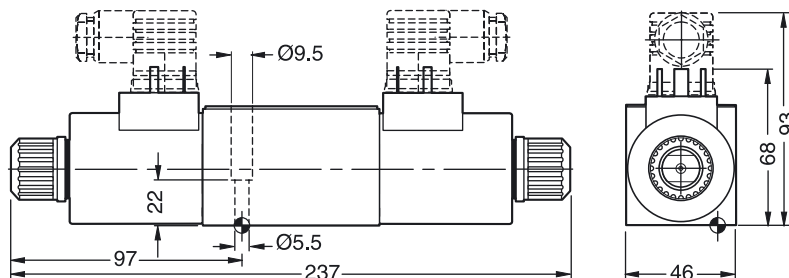
Styles B, E, F



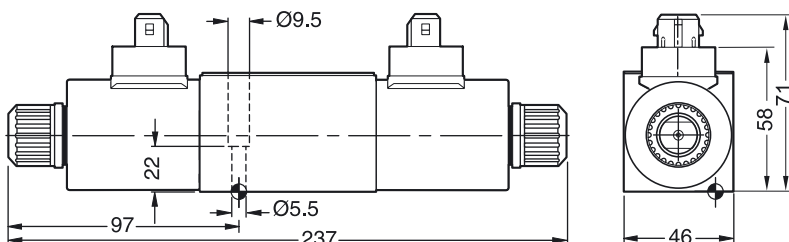
Styles H, K, M



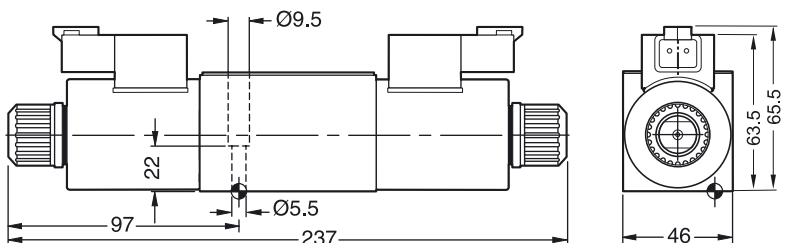
Styles C and D





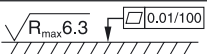


Dimensions with AMP Connector (only styles C and D shown)



Dimensions with "Deutsch" Connector (only styles C and D shown)



Surface finish	 Kit	 Kit	 Kit	 Kit
	BK 375	4 x M5x30 DIN 912 12.9	6.8Nm ±15%	NBR: SK-D1VW-70 FPM: SK-D1VW-V70

The space required to remove the plug acc. to EN 175301-803, design AF, is min. 15 mm.

The torque for the screw (M3) of the plug has to be 0.5 bis 0.6 Nm.