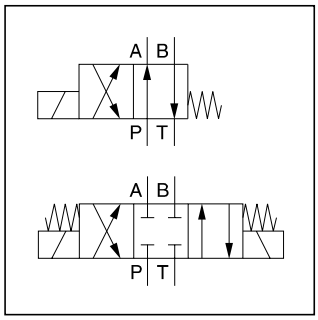
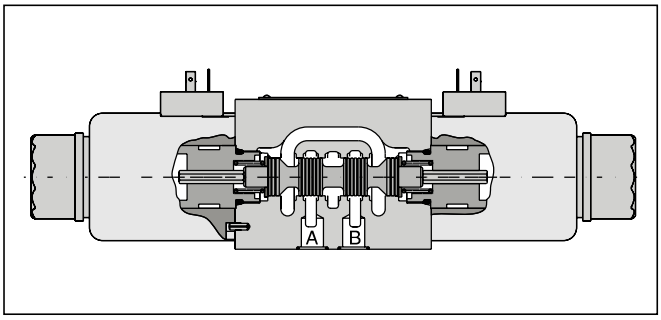
The D3MW is a solenoid operated directional control valve size NG10 in 3-chamber design. It is direct operated by wet pin solenoids.

The D3MW is designed for mobile and marine applications.

It is based on the D3W series, but offers additional corrosion protection of the valve body, the solenoid coil and the anchor tube as well as the typical solenoid connections for the mobile market such as AMP Junior Timer.





Features:

- High corrosion protection (optional)
- Solenoid connection:
  - Standard (as per EN175301-803)
  - AMP Junior Timer
  - DT04-2P “Deutsch”
- Robust design for rough applications

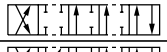
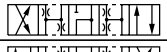
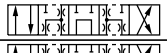
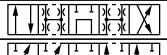
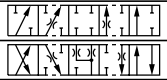
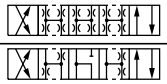
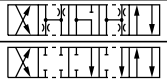
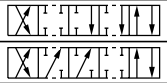
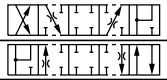
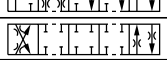
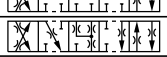
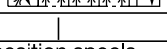
Technical data

General			
Design		Directional spool valve	
Actuation		Solenoid	
Size		DIN NG10 / CETOP 05 / NFPA D05	
Mounting interface		DIN 24340 A10 / ISO 4401 / CETOP RP 121-H / NFPA D05	
Mounting position		unrestricted, preferably horizontal	
Ambient temperature	[°C]	-25...+60	
$MTTF_D$ value	[years]	150	
Weight	[kg]	4.8 (1 solenoid), 6.3 (2 solenoids)	
Vibration resistance	[g]	10 Sinus 5...2000 Hz acc. IEC 68-2-6 30 Random noise 20...2000 Hz acc. IEC 68-2-36 15 Shock acc. IEC 68-2-27	
Hydraulic			
Max. operating pressure	[bar]	P, A B: 350; T: 210	
Fluid		Hydraulic oil according to DIN 51524	
Fluid temperature	[°C]	-20 ... +70 (NBR: -25...+70)	
Viscosity permitted /	[cSt] [mm²/s]	2.8...400	
Viscosity recommended /	[cSt] [mm²/s]	30...80	
Filtration		ISO 4406 (1999); 18/16/13	
Flow max.	[l/min]	150 (see shift limits)	
Leakage at 50 bar	[ml/min]	Up to 20 per flow path, depending on spool	
Static / Dynamic			
Step response at 95 %	[ms]	Energized: 105 De-energized: 85	
Electrical characteristics			
Duty ratio		100 % ED; CAUTION: coil temperature up to 150 °C possible	
Max. switching frequency	[1/h]	10000	
Protection class		Standard (as per EN175301-803) IP65 in acc. with EN60529 (with correctly mounted plug-in connector) AMP Junior Timer IP67 in acc. with EN60529 (with correctly mounted plug-in connector) DT04-P2 “Deutsch” IP69K (with correctly mounted plug-in connector)	
	Code	K	J
Supply voltage / ripple	[V]	12 V =	24 V =
Tolerance supply voltage	[%]	±10	±10
Current consumption	[A]	3	1.5
Power consumption	[W]	36	36
Solenoid connection		Connector as per EN 175301-803 (code W), AMP Junior Timer (code A), DT04-2P “Deutsch” connector (code J). Solenoid ident. as per ISO 9461.	
Wiring min.	[mm²]	3 x 1.5 recommended	
Wiring length max.	[m]	50 recommended	

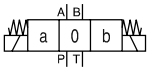
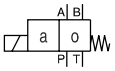
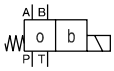
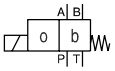
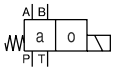
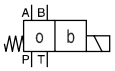
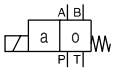
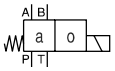
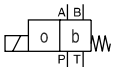
With electrical connections the protective conductor (PE ⏚) must be connected according to the relevant regulations.

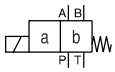
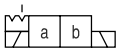
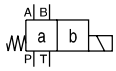
2

D	3	M	W		
Directional control valve	Size DIN NG10 CETOP 05 NFPA D05	3-chamber valve for mobile and marine applications	Wet pin solenoid	Spool type	Spool position

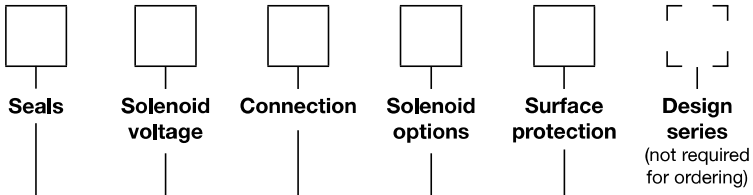
3 position spools	
Code	Spool type a 0 b
001	
002	
003	
004	
005	
006	
007	
008 [1]	
009 [1]	
010	
011	
012	
014	
015	
016	
021	
022	
031	
032	
081	
082	
102	

2 position spools	
Code	Spool type a b
020	
026	
030	
101	

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	
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 center or offset position.
H		2 positions. Spring offset in position “a“. Operated in position “b“.

[1] Consider specific spool position.
[2] Please order plug separately.
[3] Only for voltage 24 V=.



Code	Surface protection
omit	Standard, only for connection “J“ and “A“
1P	Anti corrosion coating acc. to DIN EN ISO 9227 NSS, 200 h for extreme conditions.

Code	Solenoid option
omit	manual override (Standard)
T	without manual override

Code	Connection
W [2)]	Connector as per EN 175301-803
A [2) 3)]	2-pin AMP Junior Timer
J [2) 3)]	Connector DT04-P2 “Deutsch“

Code	Voltage
K	12 V=
J	24 V=

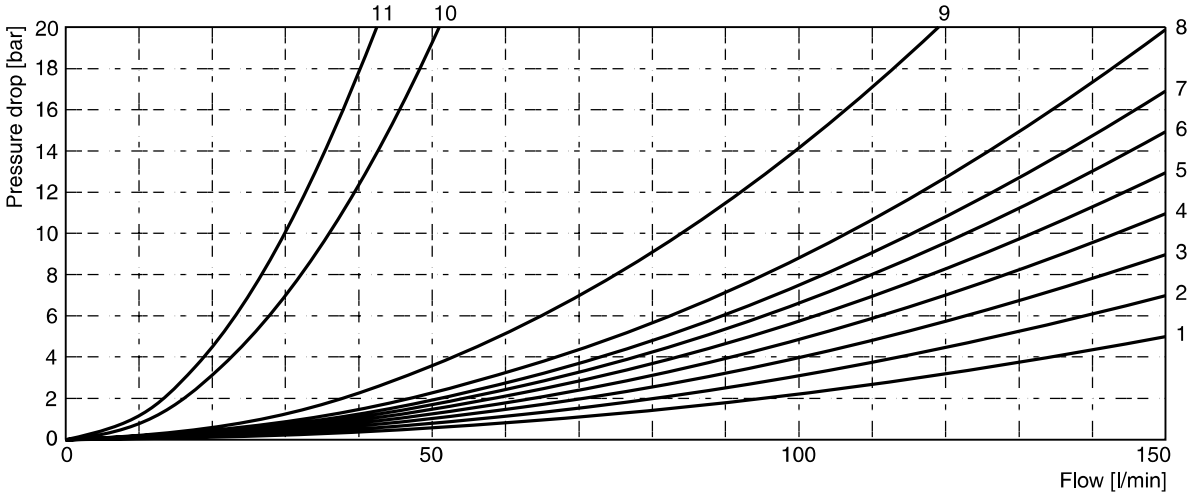
Code	Seals
N	NBR
V	FPM

Further spool types on request.

2

Flow curves

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



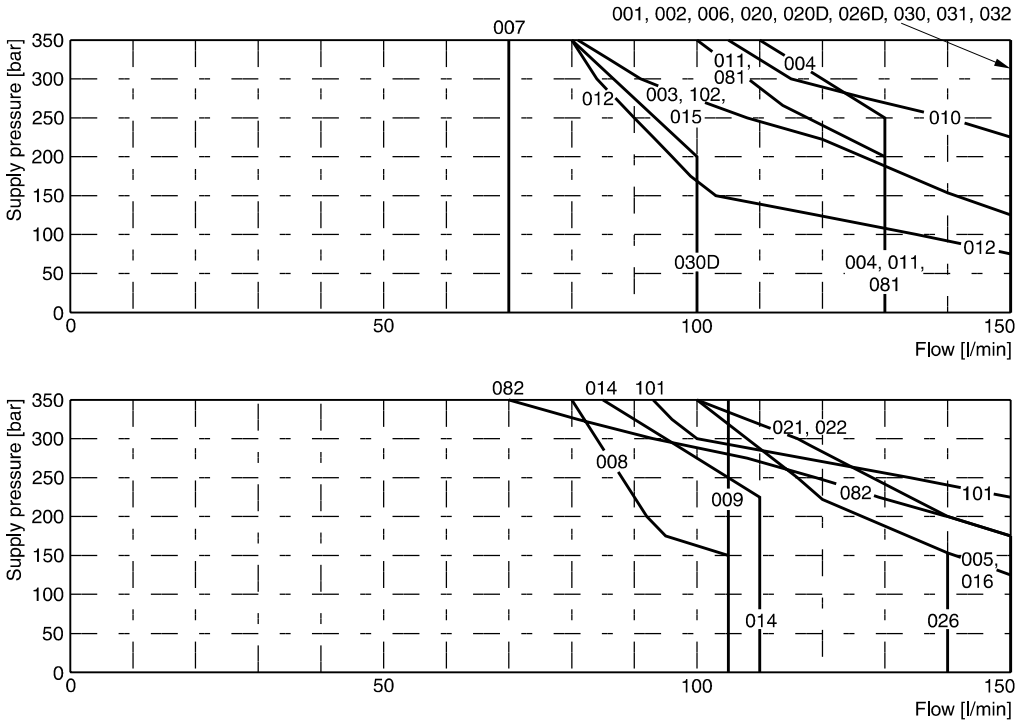
All characteristic curves measured with HLP46 at 50 °C.

	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
001	6	5	6	6	–	–	–	–	–	–
002	3	5	3	3	1	1	4	5	1	6
003	2	2	3	1	–	–	3	–	–	–
004	5	4	4	4	–	–	8	8	–	9
005	2	2	2	2	3	–	–	–	–	–
006	1	2	1	3	2	2	–	–	–	3
007	2	1	2	2	–	1	–	2	3	–
010	2	–	2	–	–	–	–	–	–	–
011	2	2	2	2	–	–	11	11	–	11
012	1	2	2	2	10	10	10	10	11	11
014	1	2	2	2	1	–	2	–	3	–
015	2	1	2	2	–	–	–	3	–	–
016	2	2	1	2	–	2	–	–	–	–
020	6	6	5	7	–	–	–	–	–	–
026	5	–	5	–	–	–	–	–	–	–
030	4	5	3	5	–	–	–	–	–	–
	P->B	A->T	P->A	B->T	P->A	P->B	A->T	B->T	P->T	A->B
008	8	7	7	6	–	–	–	–	9	–
009	4	4	5	8	–	–	–	–	9	–

	Position b			Position a		
	P->A	P->B	A->B	P->B	A->T	
021	2	4	8	3	2	
	P->A	B->T		P->A	P->B	A->B
022	3	2		3	2	8

Shift limits, DC voltage

The diagrams below specify the shift limits for valves with DC and 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 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.

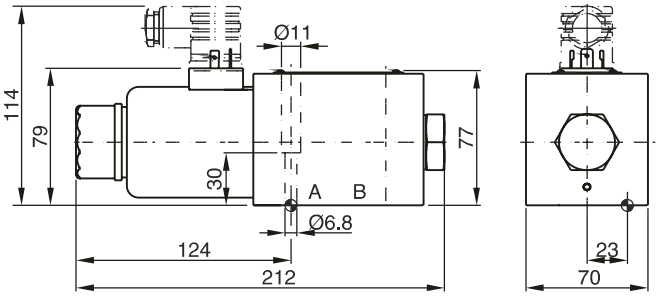


Measured with HLP46 at 50 °C, 90 % U_{nom} and warm solenoids.

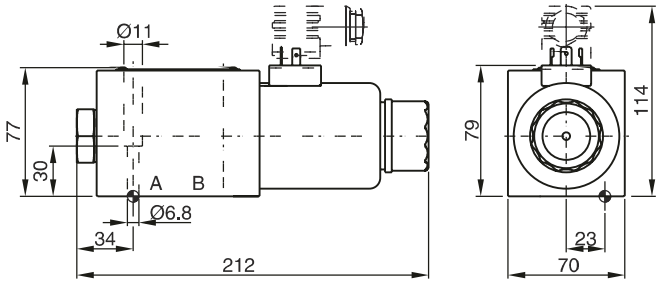
2

Interface EN 175301-803

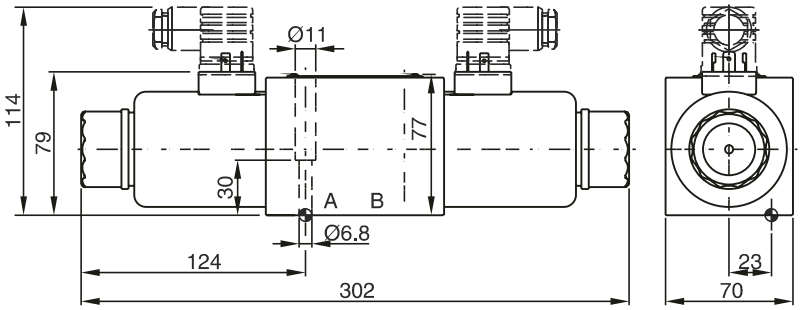
B, E, F -style



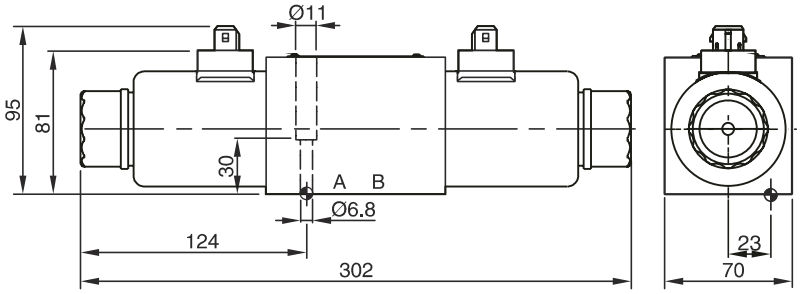
H, K, M -style



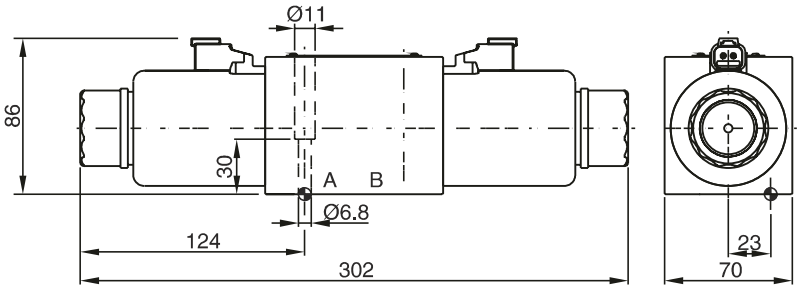
C, D -style



Dimensions with AMP Connector (only C and D -style shown)



Dimensions with DT04-P2 “Deutsch“ Connector (only C and D -style shown)



Surface finish	Kit			Kit
$\sqrt{R_{max}6.3}$ 0.01/100	BK385	4x M6x40 ISO 4762-12.9	13.2 Nm ±15 %	**NBR: SK-D3W-N-30** FPM: SK-D3W-V-30

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.