



# SAE cavity cartridges



## EF..M type directional solenoid valves - 2 ways / 2 positions

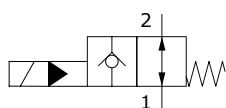
- Pilot operated
- Poppet type
- Oil leakage free from port 1 to port 2
- Normally open and closed configurations
- From SAE08 to SAE16 cavities

Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

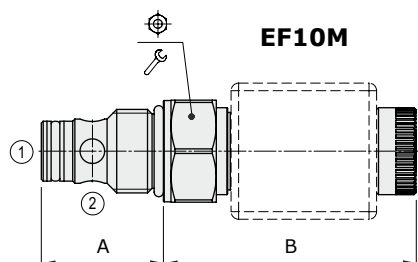
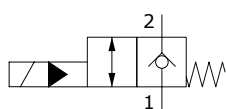
	EF08M	EF10M	EF12M	EF16M
Nominal flow	40 l/min (10.5 US gpm)	70 l/min (18.5 US gpm)	150 l/min (40 US gpm)	150 l/min (40 US gpm)
Max. pressure	380 bar (5500 psi)			
Oil leakage	at 210 bar (3050 psi)	0.50 cm <sup>3</sup> /min (0.030 in <sup>3</sup> /min)	0.50 cm <sup>3</sup> /min (0.030 in <sup>3</sup> /min)	0.50 cm <sup>3</sup> /min (0.030 in <sup>3</sup> /min)
Fluid	mineral based oil			
Viscosity	10-200 cSt			
Max level of contamination	18/16/13 ISO4406			
Fluid temperature	with NBR seals with FPM seals	from -20°C (-4°F) to 80°C (176°F) from -20°C (-4°F) to 100°C (212°F)		
Environmental temp. for working conditions	from -20°C (-4°F) to 50°C (122°F)			
Cavity	SAE 8/2	SAE 10/2	SAE 12/2	SAE 16/2
Coil type*	BER			
Nominal voltages	12 VDC - 24 VDC ± 10%			
Power rating	22.8 W (12 VDC) - 22.5 W (24 VDC)			
Weight	0.135 kg (0.30 lb)	0.170 kg (0.37 lb)	0.230 kg (0.51 lb)	0.315 kg (0.69 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt. - \*For coils further features see from page 190.

### Normally open configuration



### Normally closed configuration

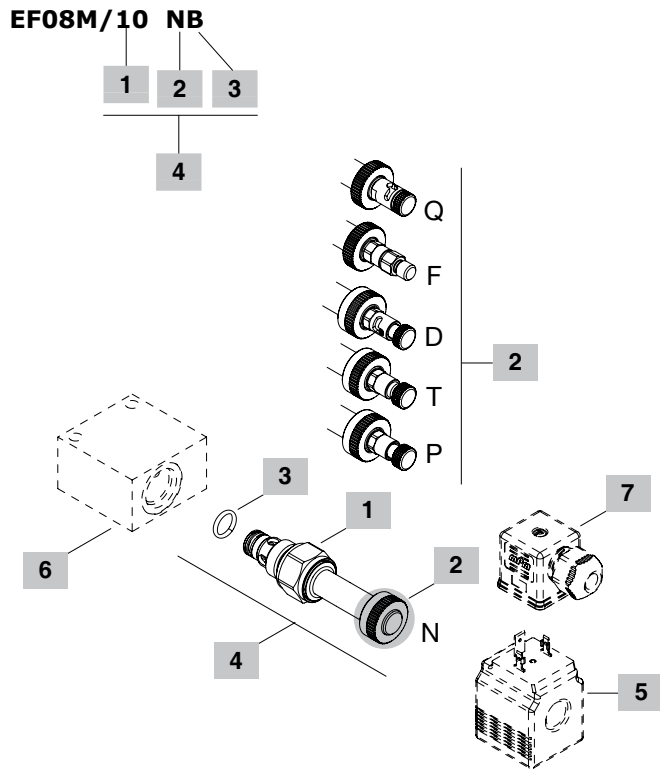


Valve type	A		B				Nm	lbft
	mm	in	mm	in				
EF08M/	10NB	67.2	2.64	28	1.10	24	30	22
	20NB	63.3	2.49	28	1.10	24	30	22
EF10M/	10NB	66.9	2.63	32.3	1.27	27	50	37
	20NB	63	2.48	32.3	1.27	27	50	37
EF12M/	10NB	61.1	2.40	45	1.77	32	80	59
	20NB	57.2	2.25	45	1.77	32	80	59
EF16M/	10NB	61.2	2.40	46	1.81	38	80	59
	20NB	57.3	2.26	46	1.81	38	80	59

For dimensions with different type of emergency see page 197



### Ordering codes and description composition



1 Spool	
TYPE	DESCRIPTION
1	Normally open configuration
2	Normally closed configuration

2 Emergency	
TYPE	DESCRIPTION
N	Without emergency
P	Push button type (N.O.)
T	Screw type
D	Push type with detent (N.O.)
F	Pull button type (N.C.)
Q	Pull type with detent (N.C.)

3 Seals	
TYPE	DESCRIPTION
B	<b>NBR (Buna)</b> o-ring seals, std configuration
V	<b>FPM (Viton)</b> o-ring seals, contact Sales Dept.

4 Cartridges		
TYPE	CODE	DESCRIPTION
<b>SAE cavity 8/2</b>		
EF08M/10NB	0EF08002000	Normally open configuration (N.O.) without emergency
EF08M/10PB	0EF08002002	(N.O.) push button emergency
EF08M/10TB	0EF08002003	(N.O.) screw type emergency
EF08M/10DB	0EF08002004	(N.O.) push type with detent emergency
EF08M/20NB	0EF08002001	Normally closed configuration (N.C.) without emergency
EF08M/20FB	0EF08002005	(N.C.) pull button emergency
EF08M/20TB	0EF08002006	(N.C.) screw type emergency
EF08M/20QB	0EF08002007	(N.C.) pull type with detent emergency

<b>SAE cavity 10/2</b>		
EF10M/10NB	0EF10002000	Normally open configuration (N.O.) without emergency
EF10M/10PB	0EF10002002	(N.O.) push button emergency
EF10M/10TB	0EF10002003	(N.O.) screw type emergency
EF10M/10DB	0EF10002004	(N.O.) push type with detent emergency
EF10M/20NB	0EF10002001	Normally closed configuration (N.C.) without emergency
EF10M/20FB	0EF10002005	(N.C.) pull button emergency
EF10M/20TB	0EF10002006	(N.C.) screw type emergency
EF10M/20QB	0EF10002007	(N.C.) pull type with detent emergency
<b>SAE cavity 12/2</b>		
EF12M/10NB	0EF12002000	Normally open configuration (N.O.) without emergency
EF12M/10PB	0EF12002002	(N.O.) push button emergency
EF12M/10TB	0EF12002003	(N.O.) screw type emergency
EF12M/10DB	0EF12002004	(N.O.) push type with detent emergency
EF12M/20NB	0EF12002001	Normally closed configuration (N.C.) without emergency
EF12M/20FB	0EF12002005	(N.C.) pull button emergency
EF12M/20TB	0EF12002006	(N.C.) screw type emergency
EF12M/20QB	0EF12002007	(N.C.) pull type with detent emergency
<b>SAE cavity 16/2</b>		
EF16M/10NB	0EF16002000	Normally open configuration (N.O.) without emergency
EF16M/10PB	0EF16002002	(N.O.) push button emergency
EF16M/10TB	0EF16002003	(N.O.) screw type emergency
EF16M/10DB	0EF16002004	(N.O.) push type with detent emergency
EF16M/20NB	0EF16002001	Normally closed configuration (N.C.) without emergency
EF16M/20FB	0EF16002005	(N.C.) pull button emergency
EF16M/20TB	0EF16002006	(N.C.) screw type emergency
EF16M/20QB	0EF16002007	(N.C.) pull type with detent emergency

5 Coils		
TYPE	CODE	DESCRIPTION
BER 12VDC	4SLE001200	12VDC-ISO4400 coil

For complete coils list see from page 190

6 Valve body		
TYPE	CODE	DESCRIPTION
SAE 08/2-G 3/8	3CC0820C11	Aluminium body for cavity 08 valve, G 3/8 std thread
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread
SAE 12/2-G 1/2	3CC1220D11	Aluminium body for cavity 12 valve, G 1/2 std thread
SAE 16/2-G 3/4	3CC1620E11	Aluminium body for cavity 16 valve, G 3/4 std thread

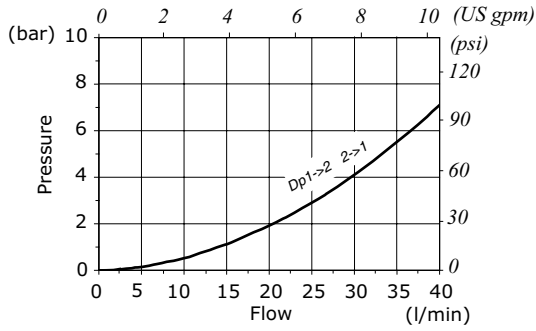
Note: aluminium body can stand up to 210 bar (3050 psi)  
For steel bodies or different threading see from page 199

7 Connector		
TYPE	CODE	DESCRIPTION
ISO4400	4CN1009995	Connector

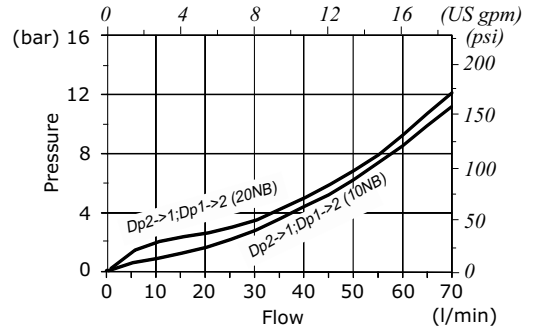
For complete connectors list see from page 190

Rating diagrams

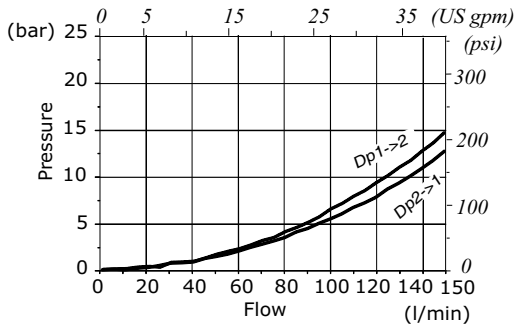
**EF08M/10NB - EF08M/20NB**  
pressure drop vs. flow



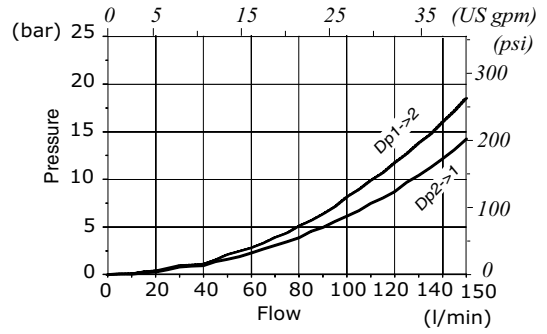
**EF10M/10NB - EF10M/20NB**  
pressure drop vs. flow



**EF12M/10NB - EF16M/10NB**  
pressure drop vs. flow



**EF12M/20NB - EF16M/20NB**  
pressure drop vs. flow



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