



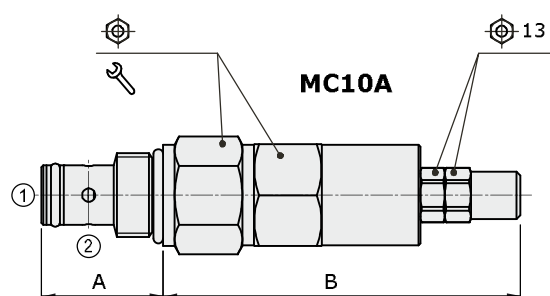
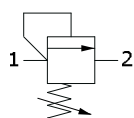
MC..A type pressure relief valves - 2 ways

- Direct acting
- Poppet type
- From SAE08 to SAE12 cavities

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

	MC08A	MC10A	MC12A
Nominal flow	10 l/min (2.6 US gpm)	40 l/min (10.5 US gpm)	100 l/min (26.4 US gpm)
Max. pressure	350 bar (5100 psi)		
Oil leakage	-		
Fluid	mineral based oil		
Viscosity	10-200 cSt		
Max level of contamination	20/18/14 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 08/2	SAE 10/2	SAE 12/2
Weight	0.19 kg (0.41 lb)	0.33 kg (0.72 lb)	0.86 kg (1.89 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt.

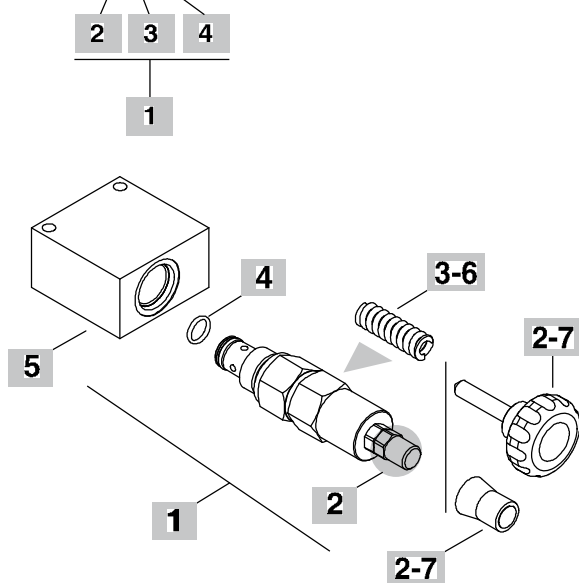


Valve type	A		B				
	mm	in	mm	in	Nm	lbft	
MC08A/0S	28	1.10	53.5	2.11	24	30	22
MC10A/0S	32.3	1.27	94.5	3.72	27	50	37
MC12A/0S	46	1.81	126.5	4.98	32	70	52

For dimensions with different type of adjustment see page 212

Ordering codes and description composition

MC08A/0S2B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 08/2		
MC08A/0S2B	0MC08002000	Cartridge
SAE cavity 10/2		
MC10A/0S2B	0MC10002000	Cartridge
SAE cavity 12/2		
MC12A/0S2B	0MC12002001	Cartridge

2 Adjustments

TYPE	DESCRIPTION
S	With screw
V	With handwheel (part code: see point 7)
X	Valve set with antitampering cap (part code: see point 7)

3 Pressure range

Standard setting is referred to 5 l/min (1.32 US gpm) flow

TYPE DESCRIPTION

SAE cavity 08/2

- Range 5÷50 bar (72.5÷725 psi); Std. setting 30 bar (435 psi) pressure increase by steps of 11,5 bar (167 psi) per screw turn
- Range 50÷200 bar (725÷2900 psi); Std. setting 150 bar (2175 psi) increase by steps of 31,5 bar (457 psi) per screw turn
- Range 150÷350 bar (2175÷5075 psi); Std. setting 250 bar (3600 psi) pressure increase by steps of 74 bar (1070 psi) per screw turn

SAE cavity 10/2

- Range 20÷100 bar (290÷1450 psi); Std. setting 50 bar (725 psi) pressure increase by steps of 7 bar (101 psi) per screw turn
- Range 50÷200 bar (725÷2900 psi); Std. setting 150 bar (2175 psi) pressure increase by steps of 24 bar (348 psi) per screw turn
- Range 150÷350 bar (2175÷5075 psi); Std. setting 250 bar (3600 psi), pressure increase by steps of 72 bar (1040 psi) per screw turn

SAE cavity 12/2

- Range 20÷100 bar (290÷1450 psi); Std. setting 50 bar (725 psi), pressure increase by steps of 5,7 bar (83 psi) per screw turn
- Range 50÷200 bar (725÷2900 psi); Std. setting 150 bar (2175 psi), pressure increase by steps of 26,5 bar (384 psi) per screw turn
- Range 150÷350 bar (2175÷5075 psi); Std. setting 250 bar (3600 psi), pressure increase by steps of 35 bar (508 psi) per screw turn

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 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	3CC1030C11	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

Note: aluminium body can stand up to 210 bar (3050 psi)

For steel bodies or different threading see from page 215

6 Springs

TYPE	CODE	DESCRIPTION
SAE cavity 08/2		
1	3ML1092500	Pressure range 1
2	3ML1092501	Pressure range 2
3	3ML1092502	Pressure range 3
SAE cavity 10/2		
1	3ML1144601	Pressure range 1
2	3ML1144602	Pressure range 2
3	3ML1144603	Pressure range 3
SAE cavity 12/2		
1	3ML1166804	Pressure range 1
2	3ML1146800	Pressure range 2
3	3ML1166805	Pressure range 3

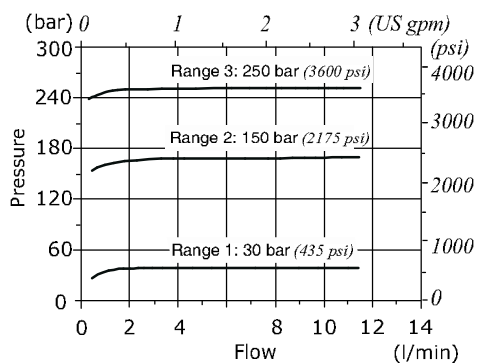
7 Accessories

TYPE	CODE	DESCRIPTION
-	4VL2407100	Handwheel
-	4COP120420	Antitampering cap

Rating diagrams

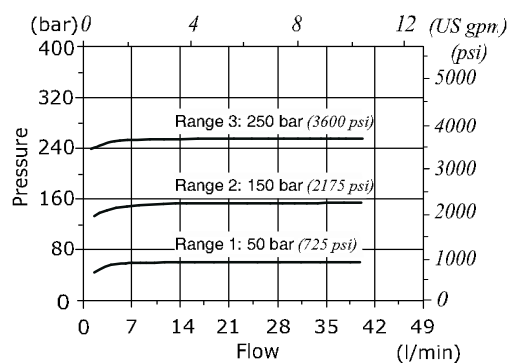
MC08A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



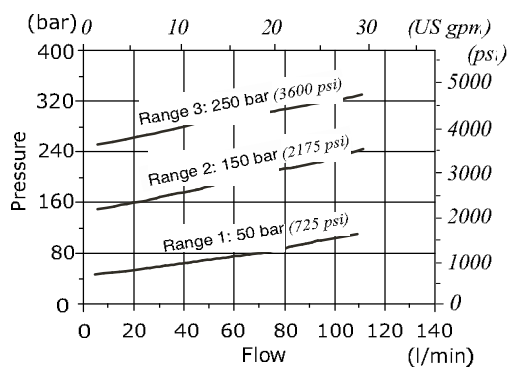
MC10A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



MC12A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)





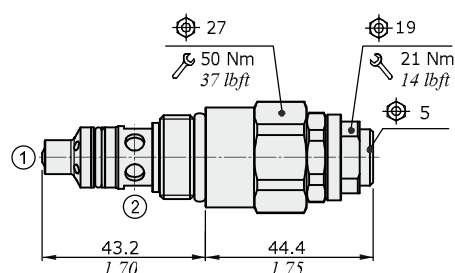
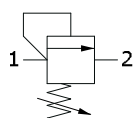
MC10M type pressure relief valve - 2 ways

- Direct acting
- Poppet type

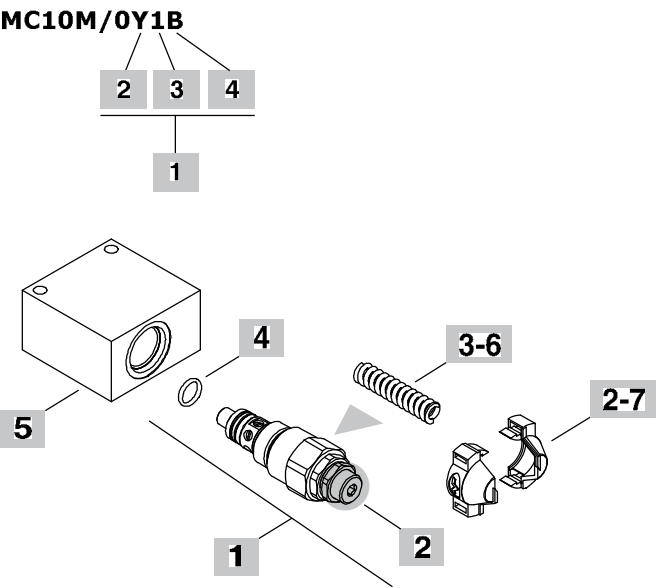
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

MC10M		
Nominal flow		70 l/min (18.5 US gpm)
Max. pressure		260 bar (3770 psi)
Oil leakage	80% of max. pressure setting	4 cm ³ /min (0.24 in ³ /min)
Fluid		mineral based oil
Viscosity		10-200 cSt
Max level of contamination		20/18/14 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 10/2 A
Weight		0.18 kg (0.396 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Ordering codes and description composition



1 Cartridges		
TYPE	CODE	DESCRIPTION
MC10M/OY1B	OMC10002026	Pressure range 1
MC10M/OY2B	OMC10002027	Pressure range 2
MC10M/OY3B	OMC10002028	Pressure range 3
MC10M/OY4B	OMC10002029	Pressure range 4

2 Adjustments	
TYPE	DESCRIPTION
Y	With screw
X	Valve set with antitampering cap (part code: see point 7)

3 Pressure range	
Standard setting is referred to 5 l/min (1.32 US gpm) flow	
TYPE	DESCRIPTION
1	Pressure range 10÷60 bar (145÷870 psi); Std. setting 50 bar (725 psi)
2	Pressure range 40÷110 bar (580÷1595 psi); Std. setting 80 bar (1160 psi)
3	Pressure range 110÷220 bar (1595÷3190 psi); Std. setting 175 bar (2540 psi)
4	Pressure range 200÷260 bar (2900÷3770 psi); Std. setting 220 bar (3190 psi)

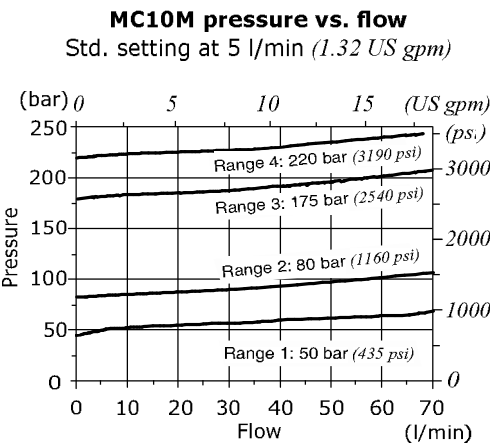
4 Seals	
TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Valve body		
TYPE	CODE	DESCRIPTION
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread
Note: aluminium body can stand up to 210 bar (3050 psi) For steel bodies or different threading see from page 215		

6 Springs		
TYPE	CODE	DESCRIPTION
1	3ML1114500	Pressure range 1
2	3ML1114502	Pressure range 2
3	3ML1114501	Pressure range 3
4	3ML1114503	Pressure range 4

7 Accessories		
TYPE	CODE	DESCRIPTION
-	4COP126301	Antitampering cap (x2)

Rating diagrams





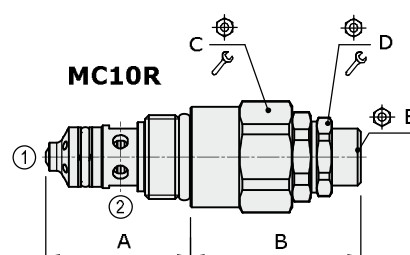
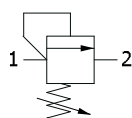
MC..R type pressure relief valves - 2 ways

- Direct acting
- Poppet type
- From SAE08 to SAE10 cavities

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

	MC08R	MC09R	MC10R
Nominal flow	25 l/min (6.6 US gpm)	35 l/min (9.2 US gpm)	50 l/min (13.2 US gpm)
Max. pressure		350 bar (5100 psi)	
Oil leakage	80% of max. pressure setting	2 cm ³ /min (0.122 in ³ /min)	
Fluid		mineral based oil	
Viscosity		10-200 cSt	
Max level of contamination		20/18/14 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 08/2 A	SAE 9/2 A	SAE 10/2 A
Weight	0.170 kg (0.37 lb)	0.230 kg (0.51 lb)	0.315 kg (0.69 lb)

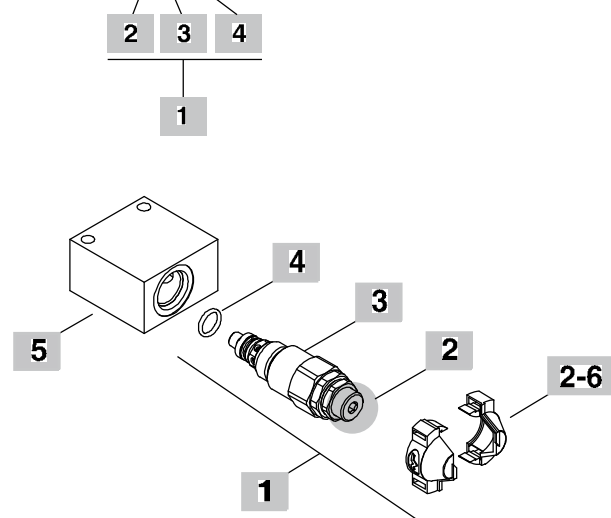
NOTE - For different conditions, please contact Walvoil Sales Dpt.



Valve type	A		B		C		D		E		C		D	
	mm	in	mm	in	mm	in	mm	in	mm	in	Nm	lbft	Nm	lbft
MC08R	34	1.34	46.6	1.83	24	19	5	30	22	25	18			
MC09R	33.8	1.33	46.6	1.83	24	19	5	42	31	25	18			
MC10R	38.3	1.50	44.4	1.75	27	19	5	50	37	25	18			

Ordering codes and description composition

MC08R/OY1B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 08/2A		
MC08R/OY1B	OMC08002050	Pressure range 1
MC08R/OY2B	OMC08002051	Pressure range 2
MC08R/OY3B	OMC08002052	Pressure range 3
SAE cavity 09/2A		
MC09R/OY1B	OMC09002000	Pressure range 1
MC09R/OY2B	OMC09002001	Pressure range 2
MC09R/OY3B	OMC09002002	Pressure range 3
SAE cavity 10/2A		
MC10R/OY1B	OMC10002023	Pressure range 1
MC10R/OY2B	OMC10002024	Pressure range 2
MC10R/OY3B	OMC10002025	Pressure range 3

2 Adjustments

TYPE	DESCRIPTION
Y	With screw
X	Valve set with antitampering cap (part code: see point 6)

3 Pressure range

Standard setting is referred to 5 l/min (1.32 US gpm) flow

TYPE	DESCRIPTION
1	Pressure range 10÷120 bar (145÷1740 psi); Std. setting 80 bar (1160 psi)
2	Pressure range 40÷200 bar (580÷2900 psi); Std. setting 175 bar (2540 psi)
3	Pressure range 200÷350 bar (2900÷5100 psi); Std. setting 250 bar (3600 psi)

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Valve body

TYPE	CODE	DESCRIPTION
SAE 08/2-G 3/8	3CC0820C11	Aluminium body for cavity 08 valve, G 3/8 std thread
SAE 09/2-G 3/8	3CC0920C11	Aluminium body for cavity 09 valve, G 3/8 std thread
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

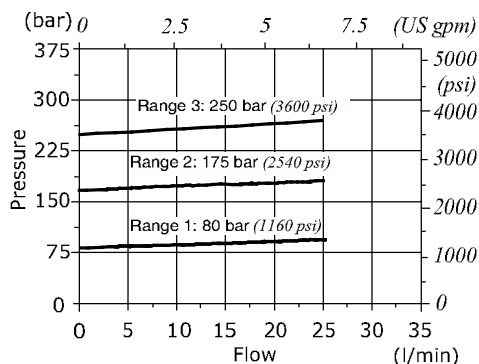
6 Accessories

TYPE	CODE	DESCRIPTION
-	4COP126301	Antitampering cap (X2)

Rating diagrams

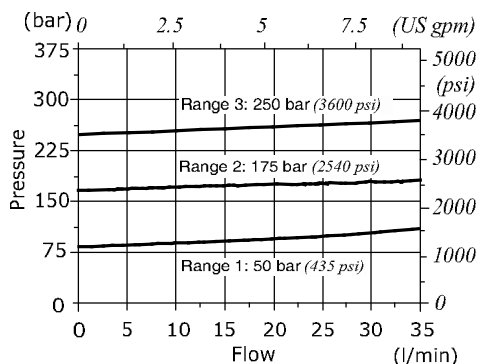
MC08R pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



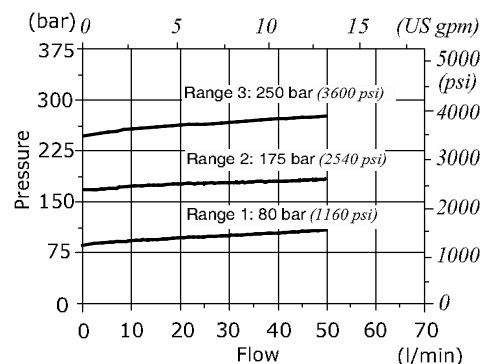
MC09R pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



MC10R pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)





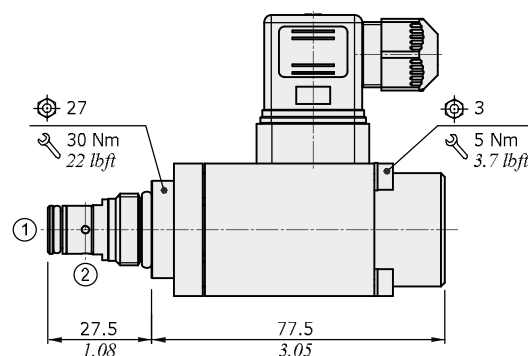
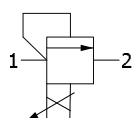
MC08Y type pressure relief valve - 2 ways

- Solenoid proportional type, direct acting
- Increasing pressure with increasing current (NO)
- Poppet type

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

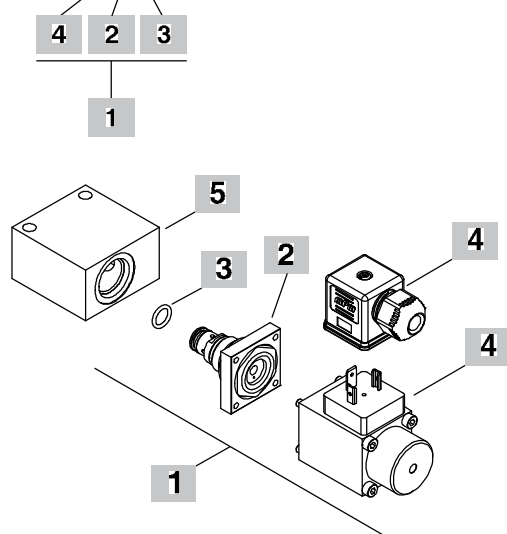
MC08Y		
Nominal flow		0.5 l/min (0.15 US gpm)
Max. flow		1 l/min (0.3 US gpm)
Max. pressure		350 bar (5100 psi)
Oil leakage	80% of max. pressure setting	2 cm ³ /min (0.122 in ³ /min)
Fluid		mineral based oil
Viscosity		10-200 cSt
Max level of contamination		18/16/13 ISO4406
Fluid temperature	with NBR 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 -40°C (-40°F) to 100°C (212°F)
Cavity		SAE 08/2
Coil type*		MP35
Nominal voltages		12 VDC - 24V DC
Power rating		11.2 W (12 VDC) - 11.4 W (24 VDC)
Max control current		12 V -> 1.1 A - 24 V -> 0.68 A
Dither frequency		150 Hz
Hysteresis		≤5%
Weight		0.55 kg (1.212 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt. - For coils further features see from page 206.



Ordering codes and description composition

MC08Y/021B



1 Cartridges

TYPE	CODE	DESCRIPTION
MC08Y/021B	0MC08002013	Pressure range 1, 12VDC
MC08Y/022B	0MC08002010	Pressure range 2, 12VDC
MC08Y/023B	0MC08002011	Pressure range 3, 12VDC
MC08Y/024B	0MC08002022	Pressure range 4, 12VDC

2 Pressure range

TYPE	DESCRIPTION
1	Pressure range 10÷100 bar (145÷1450 psi)
2	Pressure range 50÷200 bar (725÷2900 psi)
3	Pressure range 80÷350 bar (1160÷5100 psi)
4	Pressure range 5÷40 bar (72.5÷580 psi)

3 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

4 Coils and connectors

TYPE	CODE	DESCRIPTION
2) MP35 12VDC	5SL4000120	12VDC-ISO4400 coil
ISO4400	4CN1009995	Connector
4) MP35 24VDC	4SL4000240	24VDC-ISO4400 coil
ISO4400	4CN1009995	Connector

For complete coils and connectors list see from page 206

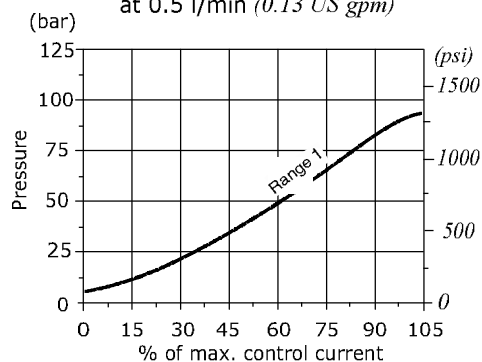
5 Valve body

TYPE	CODE	DESCRIPTION
SAE 08/2-G 1/4	3CC0820B11	Aluminium body for cavity 08 valve, G 1/4 std thread

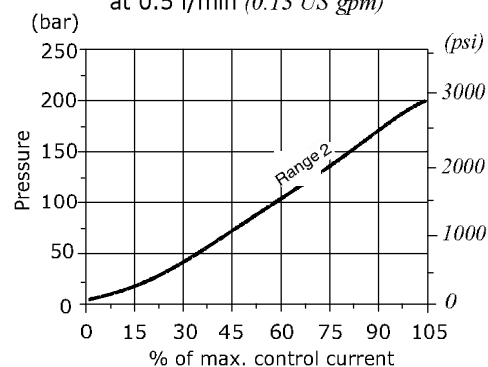
Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

Rating diagrams

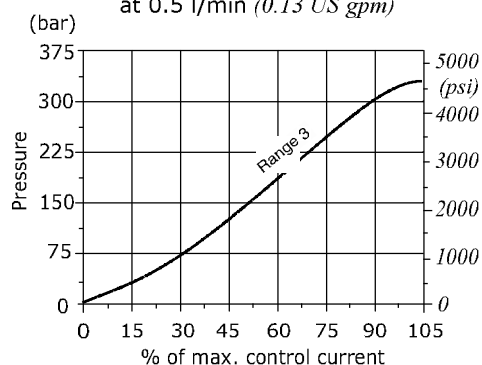
Pressure setting vs. % max. control current
at 0.5 l/min (0.13 US gpm)



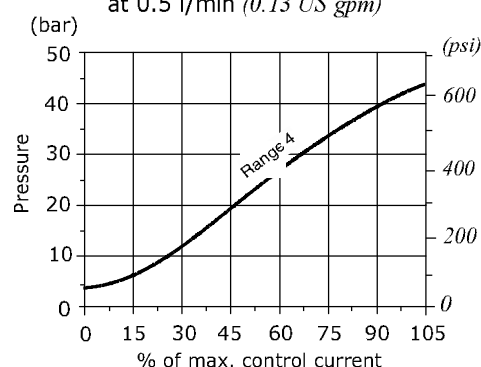
Pressure setting vs. % max. control current
at 0.5 l/min (0.13 US gpm)



Pressure setting vs. % max. control current
at 0.5 l/min (0.13 US gpm)



Pressure setting vs. % max. control current
at 0.5 l/min (0.13 US gpm)





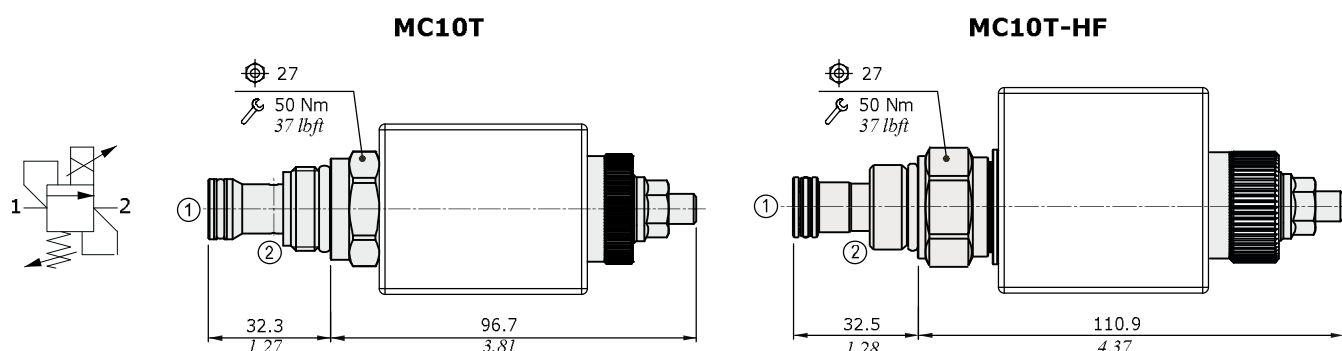
MC10T - MC10T-HF type pressure relief valve - 2 ways

- Solenoid proportional type, direct acting
- Decreasing pressure with increasing current (NC)
- Poppet type

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

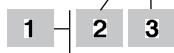
MC10T		MC10T-HF
Max. flow	3 l/min (0.79 US gpm)	10 l/min (2.64 US gpm)
Max. pressure	350 bar (5100 psi)	250 bar (3600 psi)
Oil leakage	80% of max. pressure setting	
	0.25 cm³/min (0.015 in³/min)	0.50 cm³/min (0.030 in³/min)
Fluid	mineral based oil	
Viscosity	10-200 cSt	
Max level of contamination	18/16/13 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 -40°C (-40°F) to 100°C (212°F)	
Cavity	SAE 10/2	
Coil type*	BH or BQP19	BQP19
Nominal voltages	12 VDC - 24VDC	
Power rating	20.4 W (BH) - 15 W (BQP19)	15 W
Max control current	1 2V -> 1.70 A - 24 V -> 0.85 A (BH) 12 V-> 1.25 A - 24 V -> 0.63 A (BQP19)	12 V -> 1.25 A - 24 V -> 0.63 A
Dither frequency	150 Hz	
Hysteresis	<5%	
Weight	0.54 kg (1.19 lb)	0.87 kg (1.91 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt. - For coils further features see from page 206.

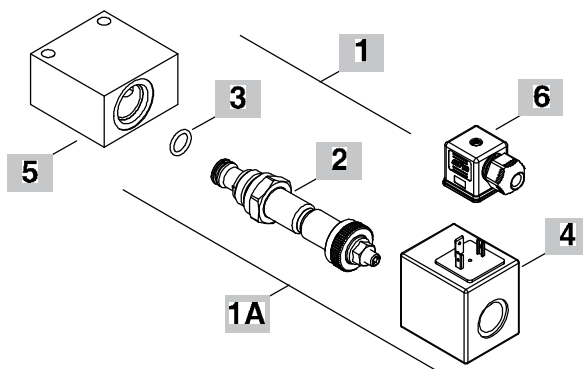
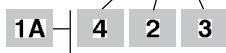


Ordering codes and description composition

MC10T/001B



MC10T/031B



1 Cartridges

TYPE	CODE	DESCRIPTION
MC10T/001B	OMC10002047	Pressure range 1
MC10T/002B	OMC10002048	Pressure range 2
MC10T/003B	OMC10002049	Pressure range 3
MC10T-HF/003B	OMC10002068	Pressure range 3

1A Complete cartridges with coil

TYPE	CODE	DESCRIPTION
MC10T/031B	OMC10002019	Pressure range 1 , 12VDC
MC10T/032B	OMC10002020	Pressure range 2 , 12VDC
MC10T/033B	OMC10002021	Pressure range 3 , 12VDC

2 Pressure range

TYPE	DESCRIPTION
MC10T	
1	Pressure range 15÷130 bar (217÷1885 psi)
2	Pressure range 15÷170 bar (217÷2465 psi)
3	Pressure range 15÷210 bar (217÷3045 psi)

MC10T-HF

3	Pressure range 20÷225 bar (290÷3260 psi)
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Note: for further pressure range contact Sales Dept.

3 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

4 Coils

TYPE	CODE	DESCRIPTION
2) BH 12VDC	4SLD001200	12VDC-ISO4400 coil
3) BQP19 12VDC	4SL5000126	12VDC-ISO4400 coil
4) BH 24VDC	4SLD002400	24VDC-ISO4400 coil
5) BQP19 24VDC	4SL5000245	24VDC-ISO4400 coil

Note: for HF version use only BQP19 coil
For complete coils list see from page 206

5 Valve body

TYPE	CODE	DESCRIPTION
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

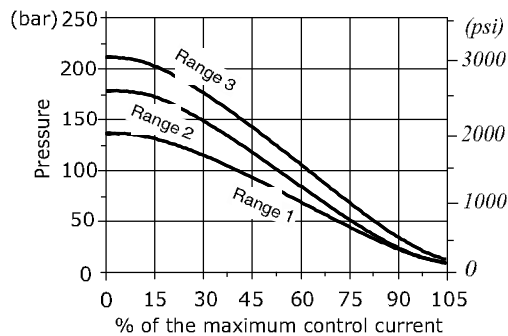
6 Connector

TYPE	CODE	DESCRIPTION
ISO4400	4CN1009995	Connector

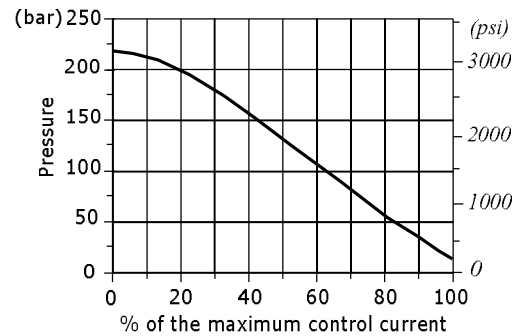
For complete connectors list see from page 206

Rating diagrams

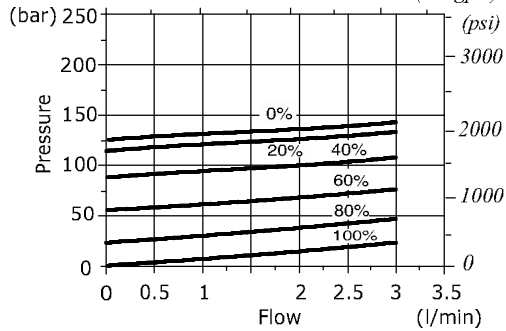
MC10T pressure setting vs. % max. control current
at 1 l/min (0.26 US gpm)



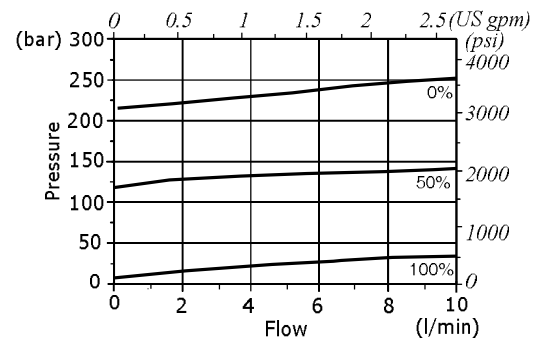
MC10T-HF pressure setting vs. % max. control current
at 2 l/min (0.53 US gpm)



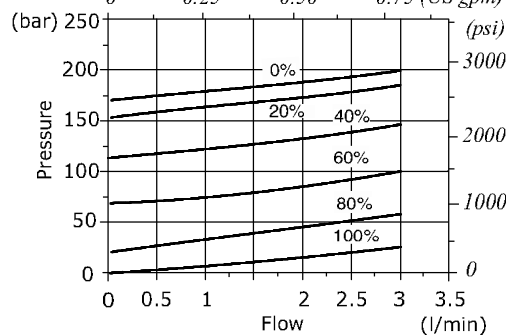
MC10T pressure vs. flow 1->2
for % of control current - Pressure range 1 -



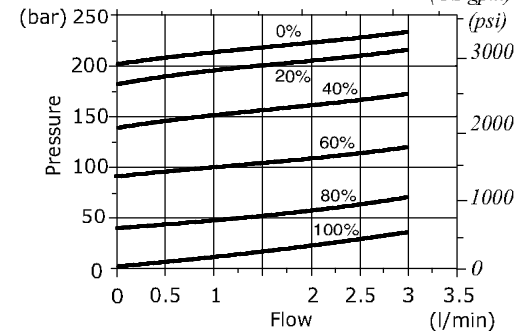
MC10T-HF pressure vs. flow 1->2
for % of control current



MC10T pressure vs. flow 1->2
for % of control current - Pressure range 2 -



MC10T pressure vs. flow 1->2
for % of control current - Pressure range 3 -





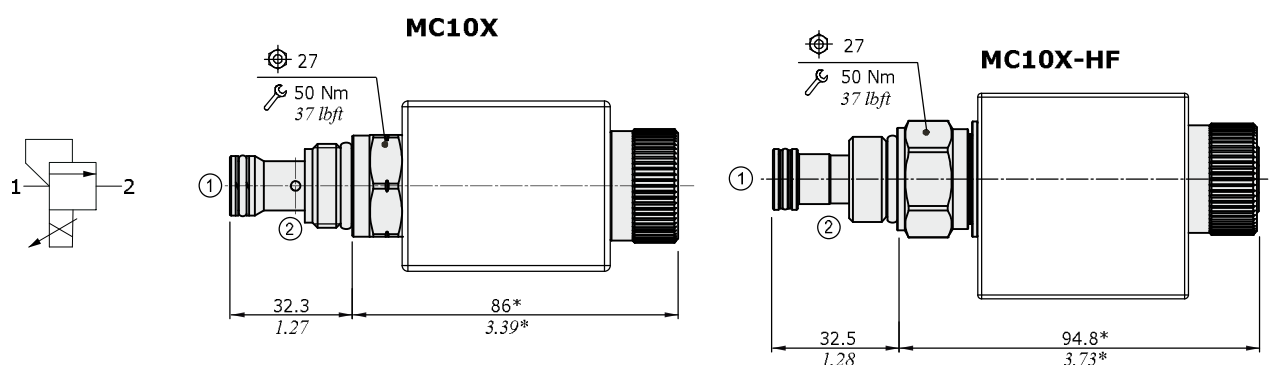
MC10X - MC10X-HF type pressure relief valve - 2 ways

- Solenoid proportional type, direct acting
- Poppet type

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

MC10X		MC10X-HF
Max. flow	3 l/min (0.79 US gpm)	10 l/min (2.64 US gpm)
Max. pressure	350 bar (5100 psi)	250 bar (3600 psi)
Oil leakage	80% of max. pressure setting	
	0.25 cm³/min (0.015 in³/min)	0.5 cm³/min (0.030 in³/min)
Fluid	mineral based oil	
Viscosity	10-200 cSt	
Max level of contamination	18/16/13 ISO4406	
Fluid temperature	with NBR seals	from -20°C (-4°F) to 80°C (176°F)
	with FPM seals	from -20°C (-4°F) to 100°C (212°F)
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)	
Cavity	SAE 10/2	
Coil type*	BH or BQP19	BQP19
Nominal voltages	12 VDC - 24 VDC	
Power rating	20.4 W (BH) - 15 W (BQP19)	15 W
Max. control current	12 V -> 1.70 A - 24 V -> 0.85 A (BH) 12 V -> 1.25 A - 24 V -> 0.63 A (BQP19)	12 V -> 1.25 A - 24 V -> 0.63 A
Dither frequency	150 Hz	
Hysteresis	<5%	
Weight	0.760 kg (1.67 lb)	0.863 kg (1.90 lb)

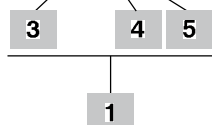
NOTE - For different conditions, please contact Walvoil Sales Dpt. - For coils further features see from page 206.



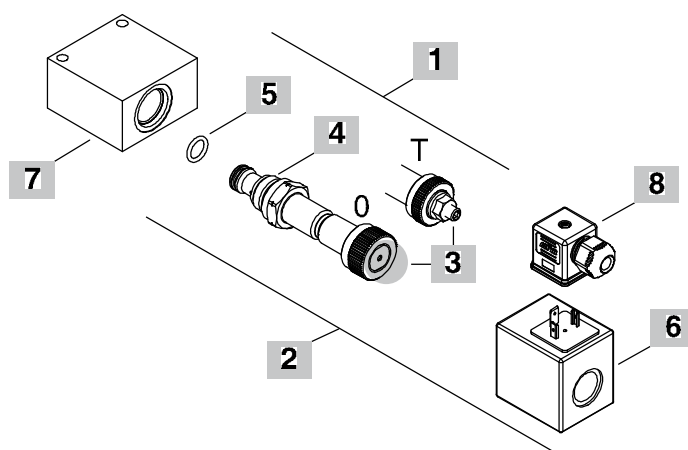
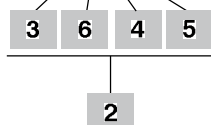
NOTE (*): dimension for configuration without override, for dimensions with different type of emergency see page 213.

Ordering codes and description composition

MC10X/001B



MC10X/031B



1 Cartridges

TYPE	CODE	DESCRIPTION
MC10X/001B	OMC10002050	Pressure range 1
MC10X/002B	OMC10002051	Pressure range 2
MC10X/003B	OMC10002052	Pressure range 3
MC10X-HF/003B	OMC10002064	Pressure range 3
MC10X-HF/T03B	OMC10002063	Pressure range 3

2 Complete cartridges with coil

TYPE	CODE	DESCRIPTION
<i>Note: not for MC10X-HF</i>		
MC10X/031B	OMC10002039	Pressure range 1, 12VDC
MC10X/032B	OMC10002040	Pressure range 2, 12VDC
MC10X/033B	OMC10002041	Pressure range 3, 12VDC

3 Emergency

TYPE	DESCRIPTION
0	Without override
T	With screw

4 Pressure range

TYPE	DESCRIPTION
MC10X	
1	Pressure range 7÷120 bar (102÷1740 psi)
2	Pressure range 7÷170 bar (102÷2450 psi)
3	Pressure range 7÷210 bar (102÷3050 psi)
MC10X-HF	
3	Pressure range 3÷230 bar (43÷3330 psi)

Note: for further pressure range contact Sales Dept.

5 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

6 Coil

TYPE	CODE	DESCRIPTION
2) BH 12VDC	4SLD001200	12VDC-ISO4400 coil
3) BQP19 12VDC	4SL5000126	12VDC-ISO4400 coil
4) BH 24VDC	4SLD002400	24VDC-ISO4400 coil
5) BQP19 24VDC	4SL5000245	24VDC-ISO4400 coil

Note: for HF version use only BQP19 coil
For complete coils list see from page 206

7 Valve body

TYPE	CODE	DESCRIPTION
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

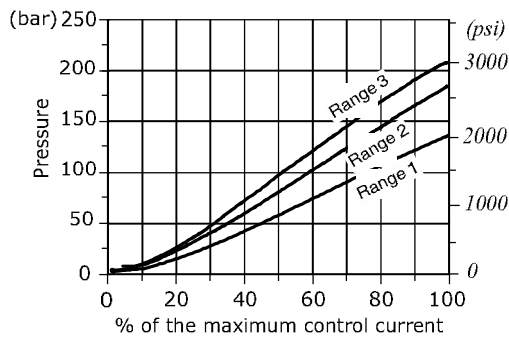
8 Connector

TYPE	CODE	DESCRIPTION
ISO4400	4CN1009995	Connector

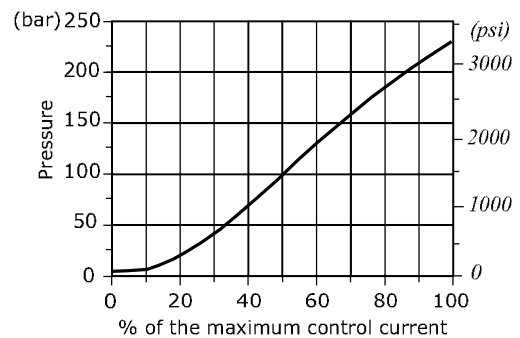
For complete connectors list see from page 206

Rating diagrams

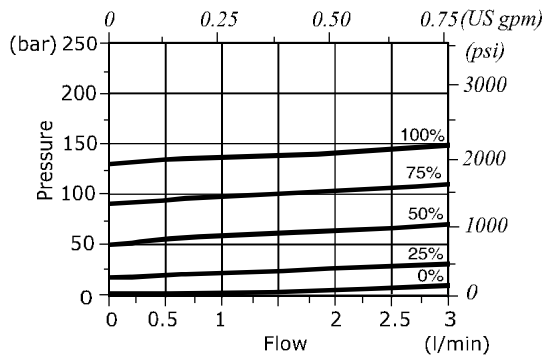
MC10X pressure setting vs. % max. control current
at 1 l/min (0.26 US gpm)



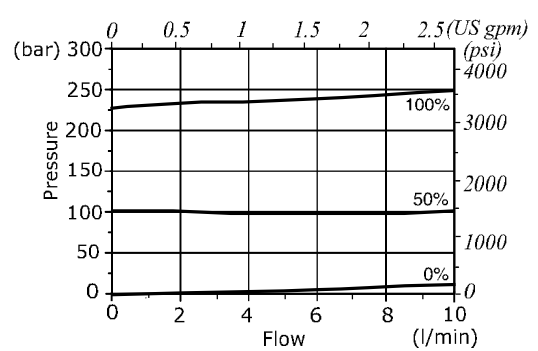
MC10X-HF pressure setting vs. % max. control current
at 2 l/min (0.53 US gpm)



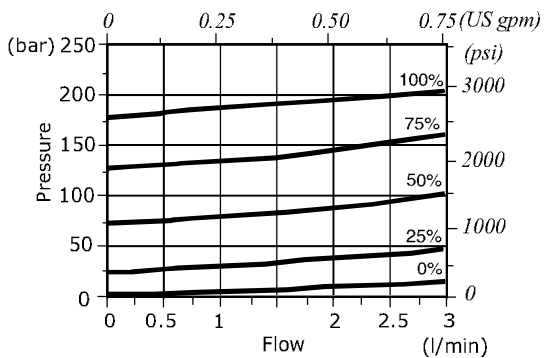
MC10X pressure vs. flow 1->2
for % of control current - Pressure range 1 -



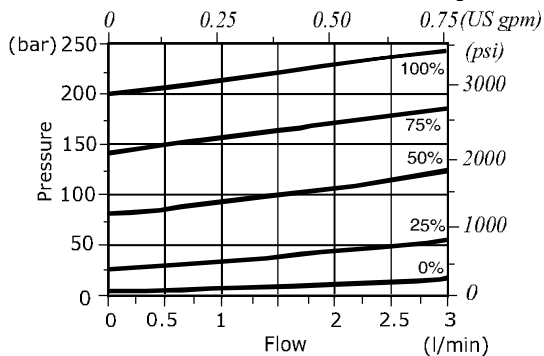
MC10X-HF pressure vs. flow 1->2
for % of control current



MC10X pressure vs. flow 1->2
for % of control current - Pressure range 2 -



MC10X pressure vs. flow 1->2
for % of control current - Pressure range 3 -





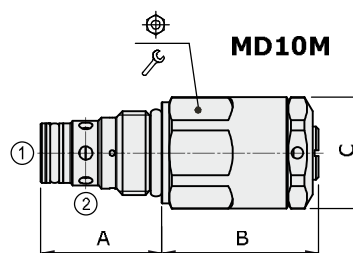
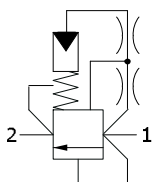
MD..M type shockless pressure relief valve - 2 ways

- Direct acting
- Poppet type
- From SAE10 to SAE12 cavities

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

MD10M		MD12M
Nominal flow	60 l/min (15.8 US gpm)	100 l/min (26.4 US gpm)
Max. pressure	350 bar (5100 psi)	
Oil leakage	at 80% of max. pressure setting	5 cm³/min (0.3 in³/min)
Fluid	mineral based oil	
Viscosity	10-200 cSt	
Max level of contamination	20/18/14 ISO4406	
Fluid temperature	with NBR seals	from -20°C (-4°F) to 80°C (176°F)
Environmental temp. for working conditions	from -20°C (-4°F) to 50°C (122°F)	
Cavity	SAE 10/2	SAE 12/2
Weight	0.200 kg (0.44 lb)	0.355 kg (0.78 lb)

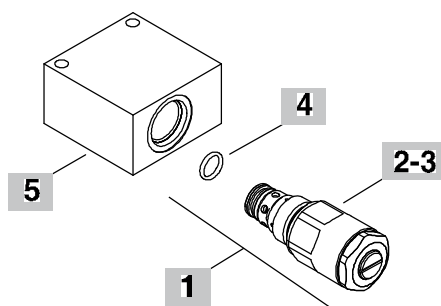
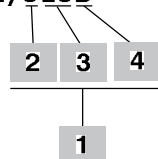
NOTE - For different conditions, please contact Walvoil Sales Dpt.



Valve type	A		B		C				
	mm	in	mm	in	mm	in			
MD10M	32	1.25	73.5	2.89	ø29.5	ø1.16	27	50	37
MD12M	46	1.81	92.5	3.64	ø35	ø1.38	32	80	59

Ordering codes and description composition

MD10M/313B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MD10M/313B	0MD10002027	Pressure range 13
SAE cavity 12/2		
MD12M/513B	0MD12002004	Pressure range 13

2 Reaction time

TYPE	DESCRIPTION
2	Reaction time 0.2 sec. (± 0.1 sec.)
3	Reaction time 0.3 sec. (± 0.1 sec.)
4	Reaction time 0.4 sec. (± 0.1 sec.)
5	Reaction time 0.5 sec. (± 0.1 sec.)
6	Reaction time 0.6 sec. (± 0.1 sec.)
7	Reaction time 0.7 sec. (± 0.1 sec.)

3 Pressure range

TYPE	DESCRIPTION
SAE cavity 10/2	
11	Pressure range 130÷200 bar (1900÷2900 psi). Pressure ratio 1.9
12	Pressure range 180÷240 bar (2610÷3480 psi). Pressure ratio 2.2
13	Pressure range 220÷290 bar (3190÷4200 psi), Setting 250 bar (3625 psi) at 25 l/min (6.6 US gpm). Pressure ratio 2.4
21	Pressure range 170÷270 bar (2465÷3915 psi). Pressure ratio 2.5
22	Pressure range 220÷290 bar (3190÷4200 psi). Pressure ratio 2.8
SAE cavity 12/2	
11	Pressure range 125÷155 bar (1810÷2250 psi). Pressure ratio 1.7
12	Pressure range 160÷190 bar (2320÷2760 psi). Pressure ratio 1.9
13	Pressure range 180÷240 bar (2610÷3480 psi), Setting 220 bar (3190 psi) at 60 l/min (16 US gpm). Pressure ratio 2.2
21	Pressure range 150÷185 bar (1900÷2685 psi). Pressure ratio 2
22	Pressure range 190÷235 bar (2760÷3400 psi). Pressure ratio 2.35
23	Pressure range 230÷275 bar (3335÷3990 psi). Pressure ratio 2.55

Note: supplied valves are set at the requested pressure and sealed

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration

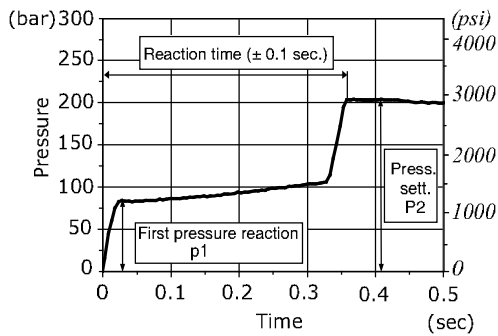
5 Valve body

TYPE	CODE	DESCRIPTION
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

Note: aluminium body can stand up to 210 bar (3050 psi)
 For steel bodies or different threading see from page 215

Rating diagrams

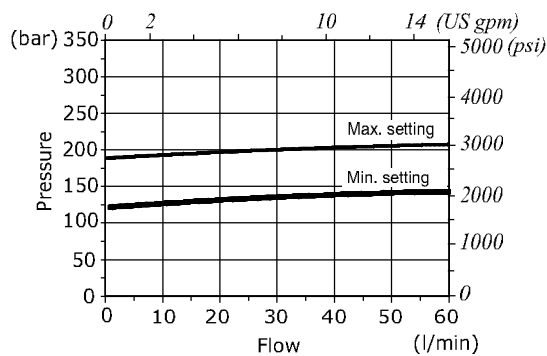
MD10M performance curve example with typical dimensions



Pressure ratio: $R_p = \frac{p_2}{p_1}$

First pressure reaction: $p_1 = \frac{p_2}{R_p}$

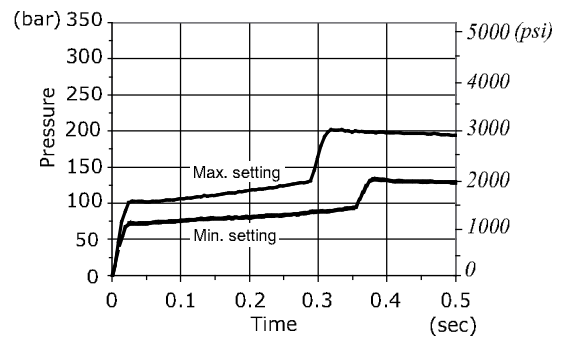
MD10M pressure vs. flow at max. and min. setting



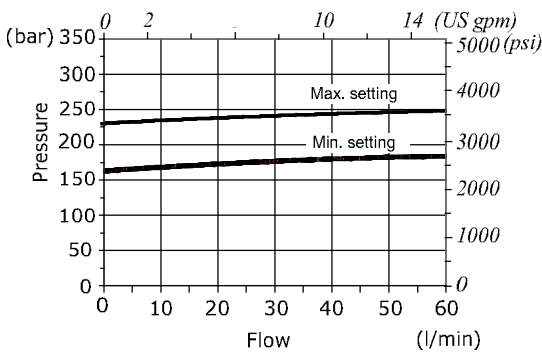
Pressure range 11

130÷200 bar
(1900÷2900 psi)
Pressure ratio 1.9
Q=60l/min
(15.8 US gpm)

MD10M performance curve at max. and min. setting



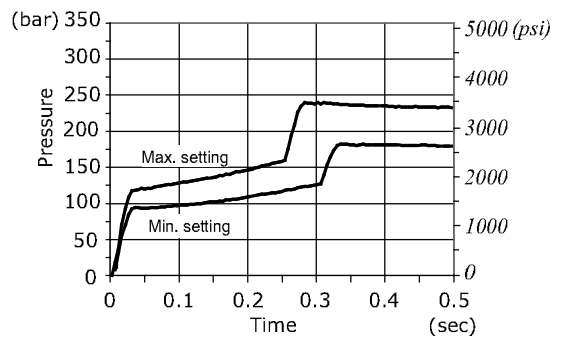
MD10M pressure vs. flow at max. and min. setting



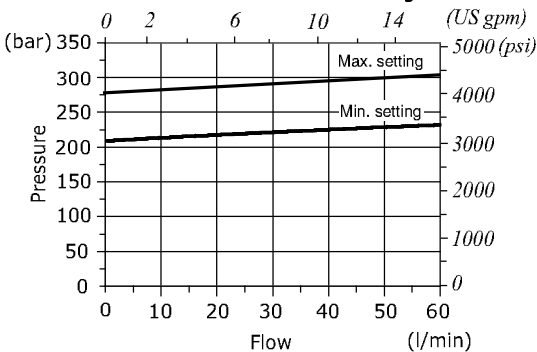
Pressure range 12

180÷240 bar
(2610÷3480 psi)
Pressure ratio 2.2
Q=60l/min
(15.8 US gpm)

MD10M performance curve at max. and min. setting



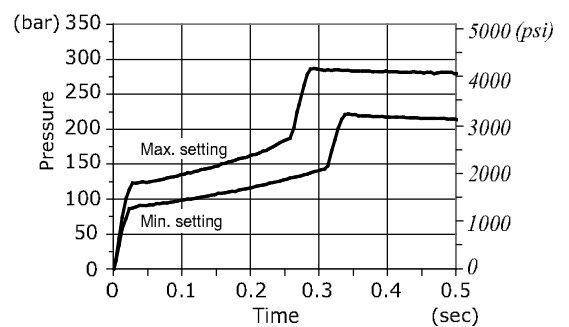
MD10M pressure vs. flow at max. and min. setting



Pressure range 13

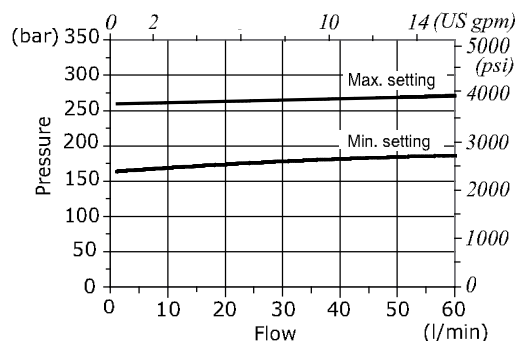
220÷290 bar
(3190÷4200 psi)
Setting 250 bar (3625 psi) at 25 l/min
(6.6 US gpm)
Pressure ratio 2.4
Q=60l/min
(15.8 US gpm)

MD10M performance curve at max. and min. setting



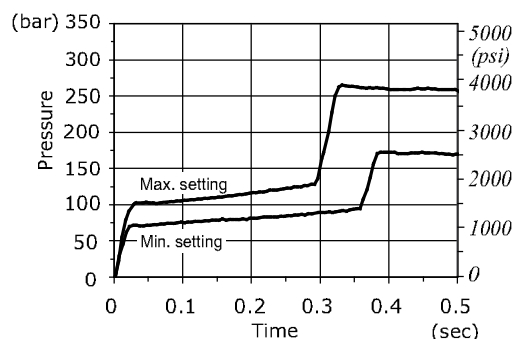
Rating diagrams

MD10M pressure vs. flow
at max. and min. setting

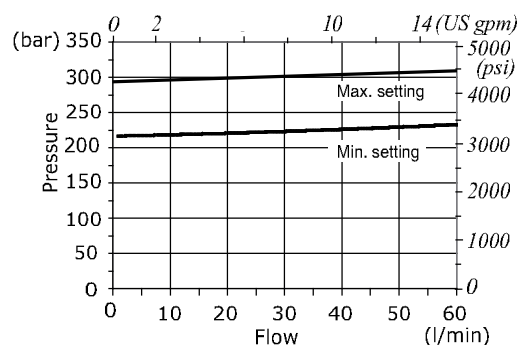


Pressure range
21
170÷270 bar
(2465÷3915 psi)
Pressure ratio 2.5
Q=60l/min
(15.8 US gpm)

MD10M performance curve
at max. and min. setting

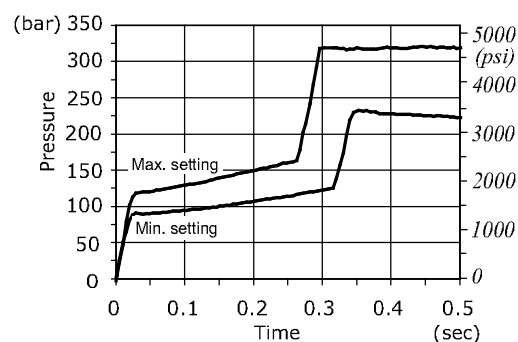


MD10M pressure vs. flow
at max. and min. setting



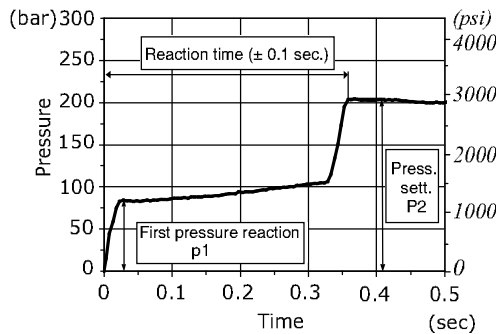
Pressure range
22
220÷290 bar
(3190÷4200 psi)
Pressure ratio 2.8
Q=60l/min
(15.8 US gpm)

MD10M performance curve
at max. and min. setting



Rating diagrams

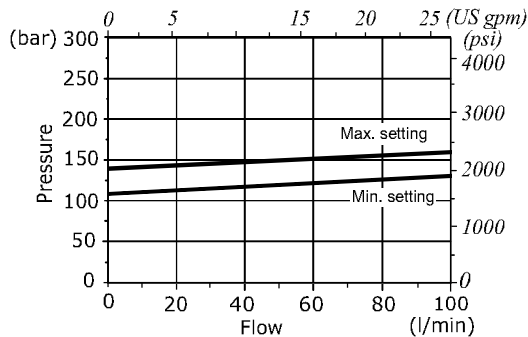
**MD12M performance curve example
with typical dimensions**



Pressure ratio: $R_p = \frac{p_2}{p_1}$

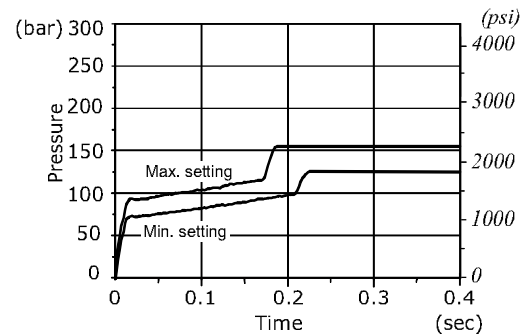
First pressure reaction: $p_1 = \frac{p_2}{R_p}$

**MD12M pressure vs. flow
at max. and min. setting**

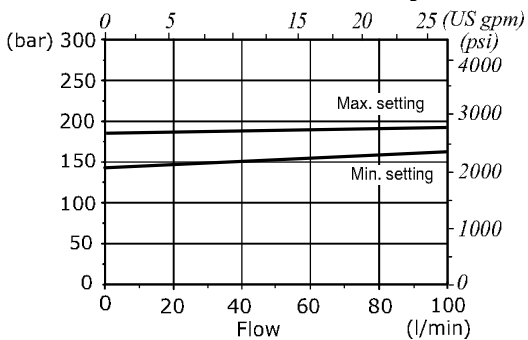


Pressure range 11
125÷155 bar
(1810÷2250 psi)
Pressure ratio 1.7
Q=100 l/min
(26.4 US gpm)

**MD12M performance curve
at max. and min. setting**

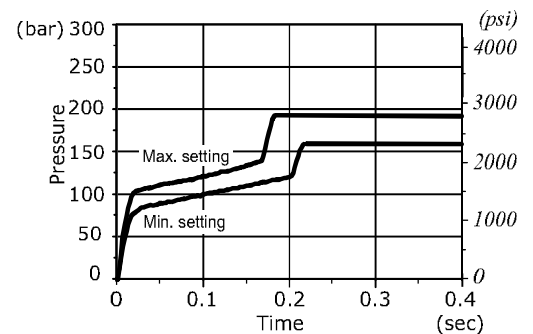


**MD12M pressure vs. flow
at max. and min. setting**

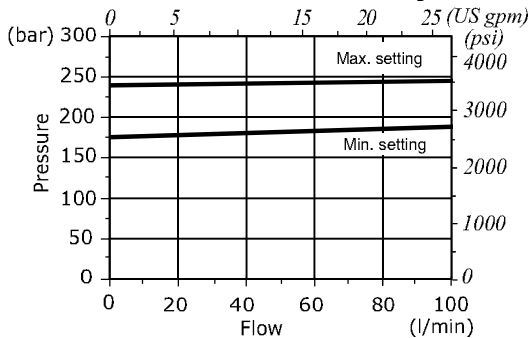


Pressure range 12
160÷190 bar
(2320÷2760 psi)
Pressure ratio 1.9
Q=100 l/min
(26.4 US gpm)

**MD12M performance curve
at max. and min. setting**

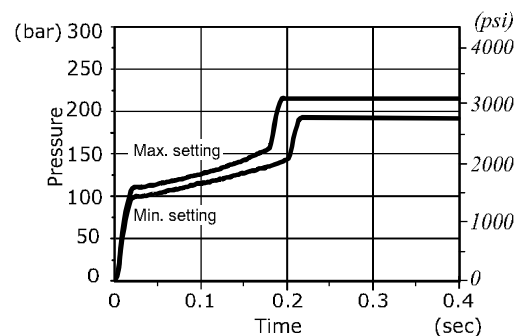


**MD12M pressure vs. flow
at max. and min. setting**



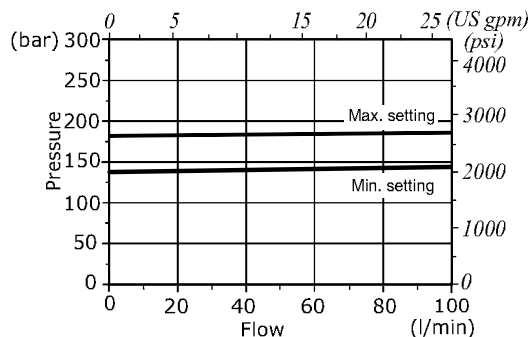
Pressure range 13
180÷220 bar
(2610÷3190 psi)
Setting 220 bar (3190 psi) at 60 l/min
(16 US gpm)
Pressure ratio 2.2
Q=100 l/min
(26.4 US gpm)

**MD12M performance curve
at max. and min. setting**



Rating diagrams

MD12M pressure vs. flow
at max. and min. setting

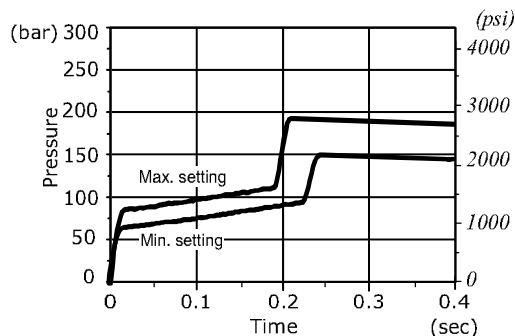


Pressure range

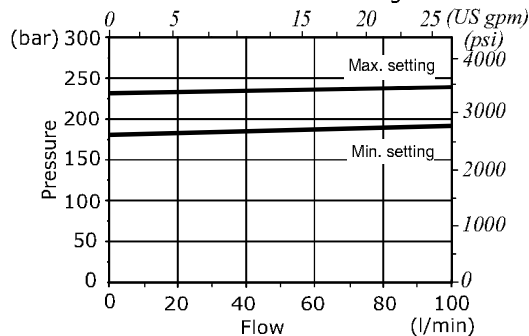
21

150÷185 bar
(1900÷2685 psi)
Pressure ratio 2
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting



MD12M pressure vs. flow
at max. and min. setting

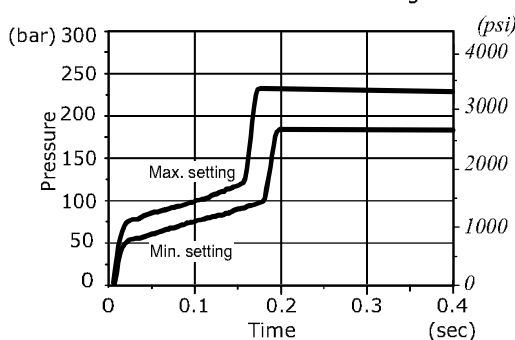


Pressure range

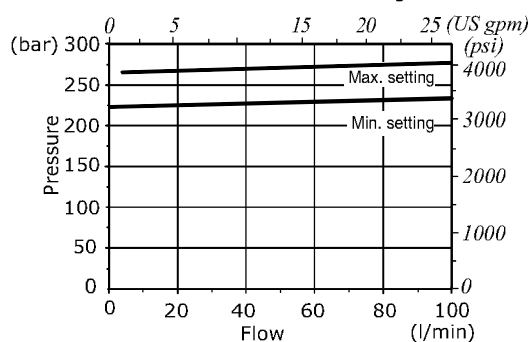
22

190÷235 bar
(2760÷3400 psi)
Pressure ratio 2.35
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting



MD12M pressure vs. flow
at max. and min. setting

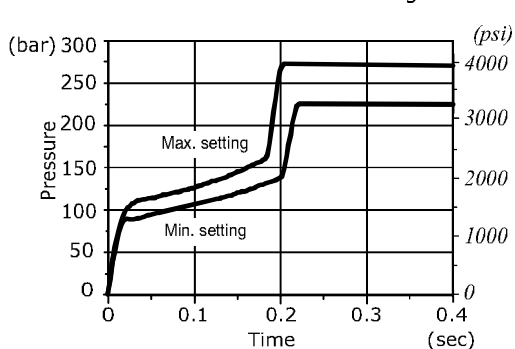


Pressure range

23

230÷275 bar
(3335÷3990 psi)
Pressure ratio 2.55
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting





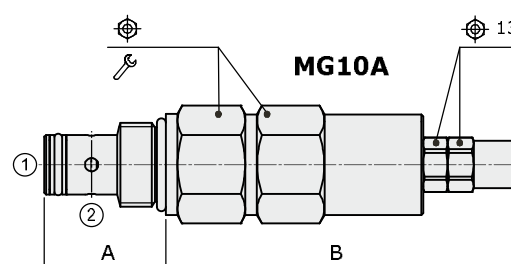
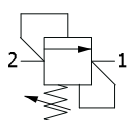
MG..A type pressure relief valve - 2 ways

- Differential operated
- Poppet type

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

	MG10A	MG12A
Nominal flow	60 l/min (15.8 US gpm)	100 l/min (26.4 US gpm)
Max. pressure	350 bar (5100 psi)	
Oil leakage	80% of max. pressure setting	2 cm ³ /min (0.122 in ³ /min)
Fluid	mineral based oil	
Viscosity	10-200 cSt	
Max level of contamination	20/18/14 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 10/2	SAE 12/2
Weight	0.34 kg (0.75 lb)	0.87 kg (1.92 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt.

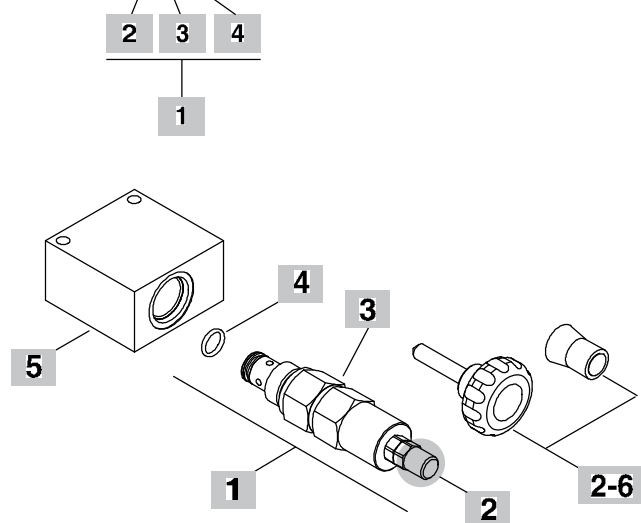


Valve type	A		B				
	mm	in	mm	in		Nm	lbft
MG10A/0S	32.3	1.27	94.5	3.72	27	50	37
MG12A/0S	46	1.81	126.5	4.98	36	80	59

For dimensions with different type of adjustment see page 212

Ordering codes and description composition

MG10A/OS1B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MG10A/OS1B	OMG10002009	Pressure range 1
MG10A/OS2B	OMG10002002	Pressure range 2
MG10A/OS3B	OMG10002003	Pressure range 3
MG10A/OS4B	OMG10002001	Pressure range 4
SAE cavity 12/2		
MG12A/OS1B	OMG12002000	Pressure range 1
MG12A/OS2B	OMG12002001	Pressure range 2
MG12A/OS3B	OMG12002002	Pressure range 3

2 Adjustments

TYPE	DESCRIPTION
S	Screw with cap
V	With handwheel (part code: see point 6)
X	Valve set with antitampering cap (part code: see point 6)

3 Pressure range

Standard setting is referred to 5 l/min (1.32 US gpm) flow

TYPE	DESCRIPTION
1	For SAE cavity 10/2: pressure range 30÷100 bar (435÷1450 psi); Std. setting 80 bar (1160 psi) For SAE cavity 12/2: pressure range 20÷100 bar (290÷1450 psi); Std. setting 50 bar (725 psi)
2	Pressure range 50÷200 bar (725÷2900 psi); Std. setting 150 bar (2175 psi)
3	Pressure range 150÷350 bar (2175÷5100 psi); Std. setting 250 bar (3625 psi)
4	Pressure range 5÷60 bar (72.5÷870 psi); Std. setting 30 bar (435 psi), only for SAE cavity 10/2

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Valve body

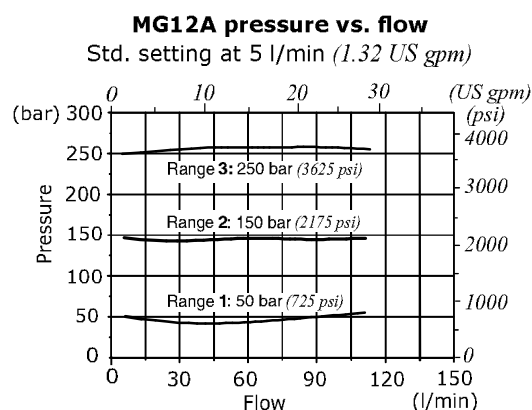
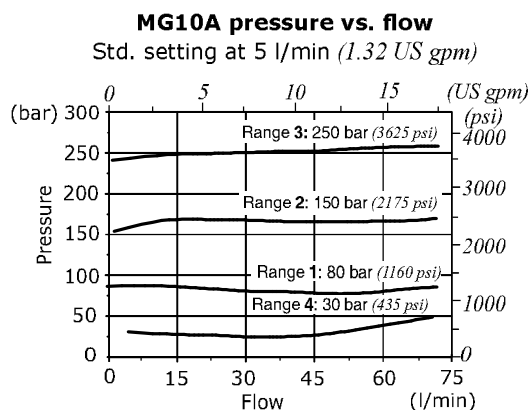
TYPE	CODE	DESCRIPTION
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread
SAE 12/2-G 1/2	3CC1220D11	Aluminium body for cavity 12 valve, G 1/2 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

6 Accessories

TYPE	CODE	DESCRIPTION
-	4VL2407100	Handwheel
-	4COP120420	Antitampering cap

Rating diagrams





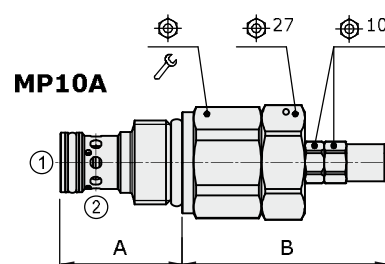
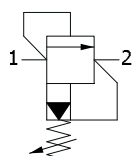
MP..A type pressure relief valves - 2 ways

- Pilot operated
- Spool type
- From SAE10 to SAE12 cavities

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

		MP10A	MP12A
Nominal flow		60 l/min (16 US gpm)	100 l/min (26.4 US gpm)
Max. pressure		350 bar (5100 psi)	
Oil leakage	80% of max. pressure setting	25 cm ³ /min (1.525 in ³ /min)	
Fluid		mineral based oil	
Viscosity		10-200 cSt	
Max level of contamination		20/18/14 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 10/2	SAE 12/2
Weight		0.190 kg (0.42 lb)	0.300 kg (0.661 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt.

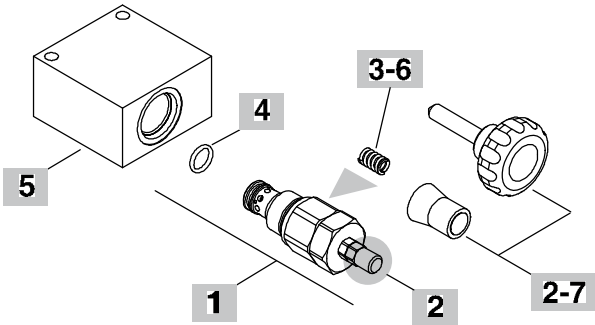
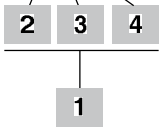


Valve type	A		B		⌀	Key	Nm	lbft
	mm	in	mm	in				
MP10A/OS	32.3	1.27	54.5	2.15	27	50	37	
MP12A/OS	46	1.81	52.5	2.07	32	80	59	

For dimensions with different type of adjustment see page 212

Ordering codes and description composition

MP10A/0S2B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MP10A/0S2B	OMP10002015	Pressure range 2
SAE cavity 12/2		
MP12A/0S2B	OMP12002000	Pressure range 2

2 Adjustments

TYPE	DESCRIPTION
S	Screw with cap
V	With handwheel (part code: see point 7)
X	Valve set with antitampering cap (part code: see point 7)

3 Pressure range

TYPE	DESCRIPTION
1	Pressure range 5÷50 bar (72.5÷725 psi)
2	Pressure range 50÷220 bar (725÷3190 psi)
3	Pressure range 150÷350 bar (2175÷5100 psi)

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Valve body

TYPE	CODE	DESCRIPTION
SAE 10/2-G 3/8	3CC1020C11	Aluminium body for cavity 10 valve, G 3/8 std thread
SAE 12/2-G 3/8	3CC1220D11	Aluminium body for cavity 12 valve, G 3/8 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

6 Springs

TYPE	CODE	DESCRIPTION
1	3ML1081400	Pressure range 1
2	3ML1081401	Pressure range 2
3	3ML1081402	Pressure range 3

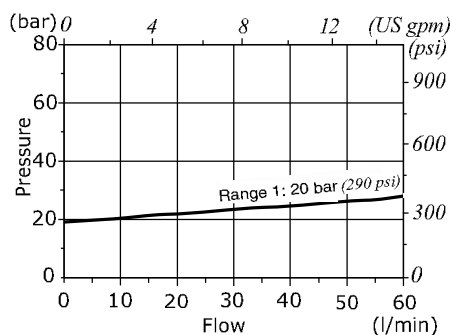
7 Accessories

TYPE	CODE	DESCRIPTION
-	4VL2307007	Handwheel (for MP10A valve)
-	4VL2307001	Handwheel (for MP12A and MP16A valves)
-	4COP116420	Antitampering cap

Rating diagrams

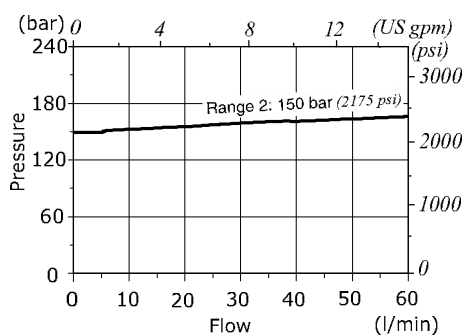
MP10A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



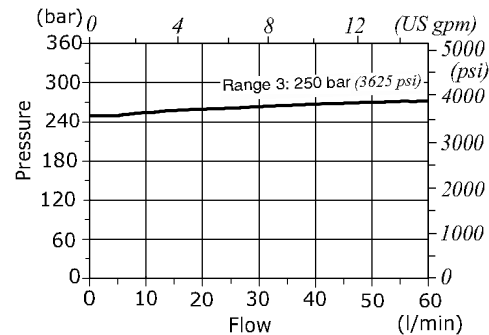
MP10A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



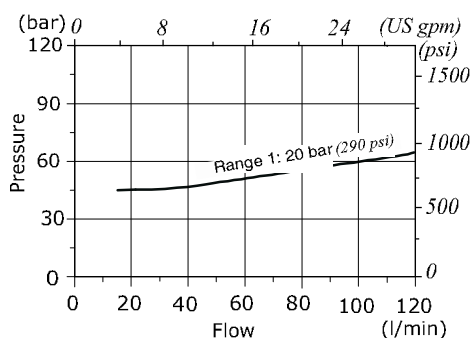
MP10A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



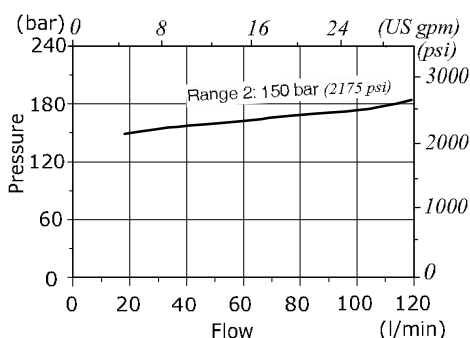
MP12A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



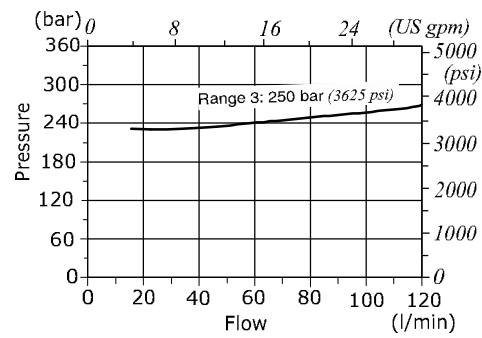
MP12A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)



MP12A pressure vs. flow

Std. setting at 5 l/min (1.32 US gpm)





MP16M type pressure relief valve - 2 ways

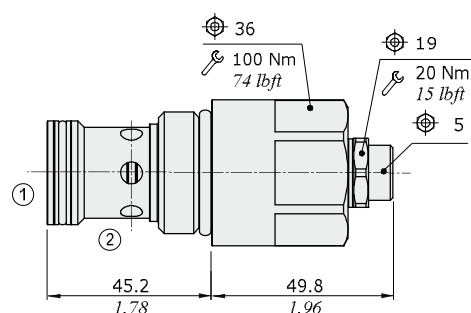
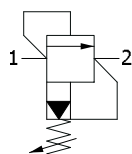
- Pilot operated
- Spool type
- SAE16 cavities

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

MP16M

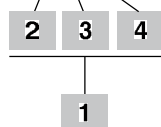
Nominal flow		400 l/min (105.67 US gpm)
Max. pressure		350 bar (5100 psi)
Oil leakage	80% of max. pressure setting	100 cm ³ /min (6.102 in ³ /min)
Fluid		mineral based oil
Viscosity		12-400 cSt
Max level of contamination		20/18/14 ISO4406
Fluid temperature	with NBR seals with FPM seals	from -20°C (-4°F) 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 16/2
Weight		0.490 kg (1.080 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt.



Ordering codes and description composition

MP16M/0Y2B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 16/2		
MP16M/0Y1B	OMP16002017	Pressure range 1
MP16M/0Y2B	OMP16002013	Pressure range 2
MP16M/0Y3B	OMP16002014	Pressure range 3

2 Adjustments

TYPE	DESCRIPTION
Y	With screw
X	Valve set with antitampering cap (part code: see point 7)

3 Pressure range

TYPE	DESCRIPTION
1	Pressure range 15÷50 bar (217.5÷725 psi)
2	Pressure range 50÷220 bar (725÷3190 psi)
3	Pressure range 150÷350 bar (2175÷5100 psi)

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Valve body

TYPE	CODE	DESCRIPTION
SAE 16/2-G 1	3CC1620F210	Steel body for cavity 16 valve, G 1 std thread

Note: aluminium body can stand up to 210 bar (3050 psi)
For other bodies or different threading see from page 215

6 Springs

TYPE	CODE	DESCRIPTION
1	3ML1081400	Pressure range 1
2	3ML1081401	Pressure range 2
3	3ML1081402	Pressure range 3

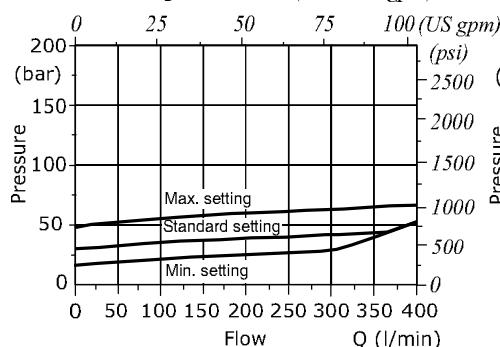
7 Accessories

TYPE	CODE	DESCRIPTION
-	4COP126300	Antitampering cap (x2)

Rating diagrams

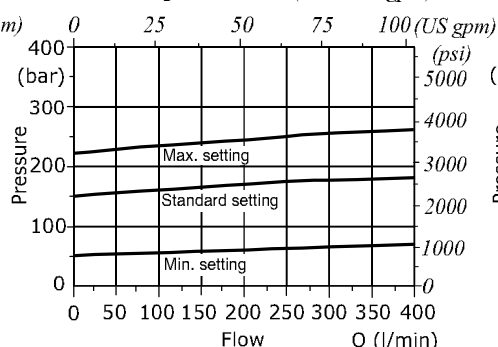
MP16M pressure vs. flow (range 1)

Std. setting at 5 l/min (1.32 US gpm)



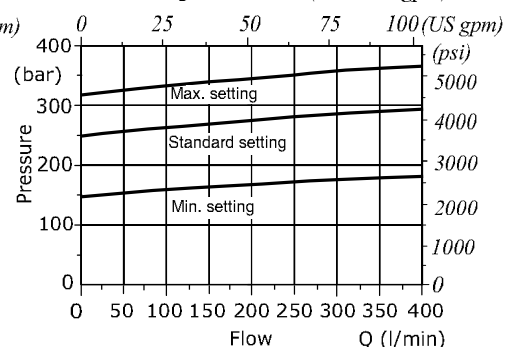
MP16M pressure vs. flow (range 2)

Std. setting at 5 l/min (1.32 US gpm)



MP16M pressure vs. flow (range 3)

Std. setting at 5 l/min (1.32 US gpm)





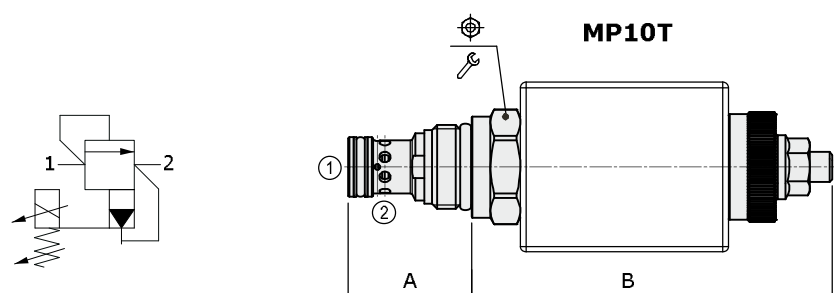
MP..T Type pressure relief valves - 2 ways

- Solenoid proportional type, pilot operated
- Decreasing pressure with increasing current (NC)
- Spool type
- From SAE10 to SAE12 cavities

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

		MP10T	MP12T
Max. flow		60 l/min (16 US gpm)	120 l/min (31.7 US gpm)
Max. pressure		350 bar (5100 psi)	
Oil leakage	at 80% of max. pressure setting	<150 cm ³ /min (9.15 in ³ /min)	<180 cm ³ /min (<10.1 in ³ /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 -40°C (-40°F) to 100°C (212°F)	
Cavity		SAE 10/2	SAE 12/2
Coil type*		BH or BQP19	
Nominal voltages		12 VDC - 24 VDC	
Power rating		20.4 W (BH) - 15 W (BQP19)	
Max control current		12 V -> 1.70 A - 24 V -> 0.85 A (BH) 12 V -> 1.25 A - 24 V -> 0.63 A (BQP19)	
Dither frequency		200 Hz	200 Hz
Hysteresis		<5%	
Weight		0.77 kg (1.70 lb)	0.92 kg (2.03 lb)

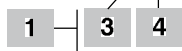
NOTE - For different conditions, please contact Walvoil Sales Dpt. - For coils further features see from page 206.



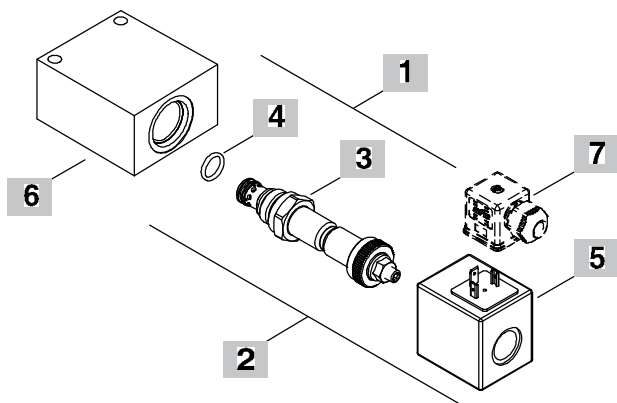
Valve type	A		B		⌀		Nm	
	mm	in	mm	in	mm	in	lbft	
MP10T	32.6	1.28	96.5	3.80	27	50	37	
MP12T	45	1.81	113	4.45	32	80	59	

Ordering codes and description composition

MP10T/001B



MP10T/031B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MP10T/031B	OMP10002051	Pressure range 1
MP10T/032B	OMP10002052	Pressure range 2
MP10T/033B	OMP10002053	Pressure range 3
SAE cavity 12/2		
MP12T/031B	OMP12002028	Pressure range 1
MP12T/032B	OMP12002029	Pressure range 2
MP12T/033B	OMP12002030	Pressure range 3
MP12T/034B	OMP12002035	Pressure range 4

2 Complete cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MP10T/031B	OMP10002035	Pressure range 1, 12VDC
MP10T/032B	OMP10002036	Pressure range 2, 12VDC
MP10T/033B	OMP10002037	Pressure range 3, 12VDC
SAE cavity 12/2		
MP12T/031B	OMP12002020	Pressure range 1, 12VDC
MP12T/032B	OMP12002021	Pressure range 2, 12VDC
MP12T/033B	OMP12002022	Pressure range 3, 12VDC
MP12T/034B	OMP12002027	Pressure range 4, 12VDC

3 Pressure range

TYPE	DESCRIPTION
1	Pressure range 8÷130 bar (116÷1900 psi)
2	Pressure range 8÷180 bar (116÷2600 psi)
3	Pressure range 8÷240 bar (116÷3500 psi)
4	Pressure range 8÷300 bar (116÷4350 psi)

Note: for further pressure range contact Sales Dept.

4 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

5 Coils

TYPE	CODE	DESCRIPTION
2) BH 12VDC	4SLD001200	12VDC-ISO4400 coil
3) BQP19 12VDC	4SL5000126	12VDC-ISO4400 coil
4) BH 24VDC	4SLD002400	24VDC-ISO4400 coil
5) BQP19 24VDC	4SL5000245	24VDC-ISO4400 coil

For complete coils list see from page 206

6 Valve body

TYPE	CODE	DESCRIPTION
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

Note: aluminium body can stand up to 210 bar (3050 psi)

For steel bodies or different threading see from page 215

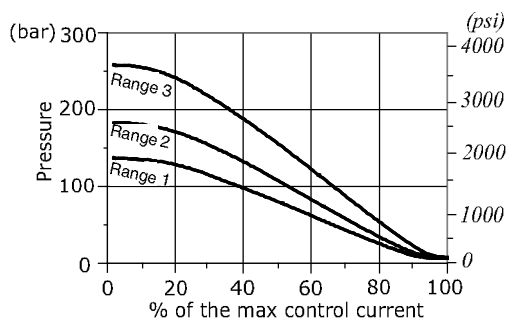
7 Connector

TYPE	CODE	DESCRIPTION
ISO4400	4CN1009995	Connector

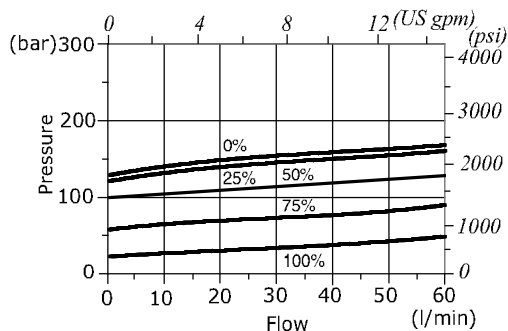
For complete connectors list see from page 206

Rating diagrams

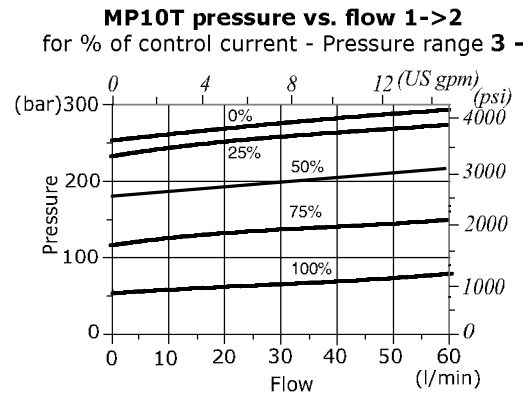
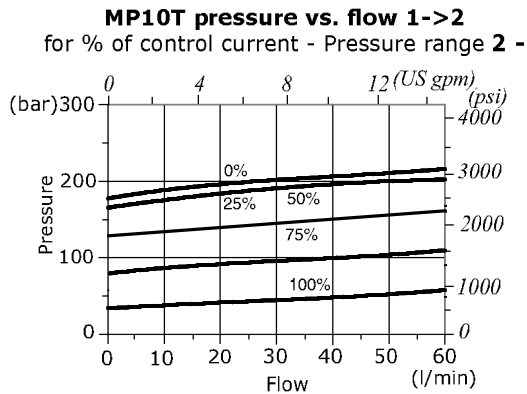
MP10T pressure setting vs. % max. control current
at 5 l/min (1.32 US gpm)



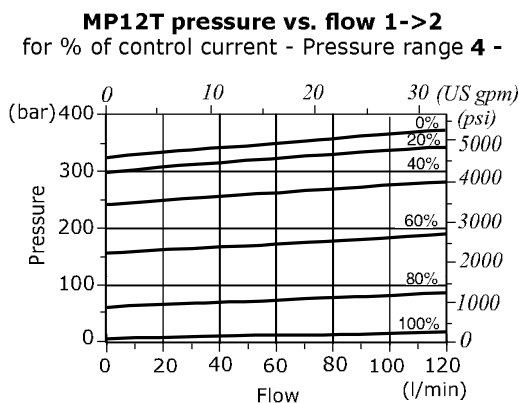
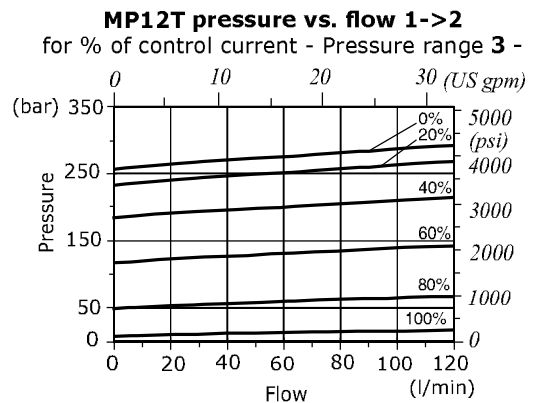
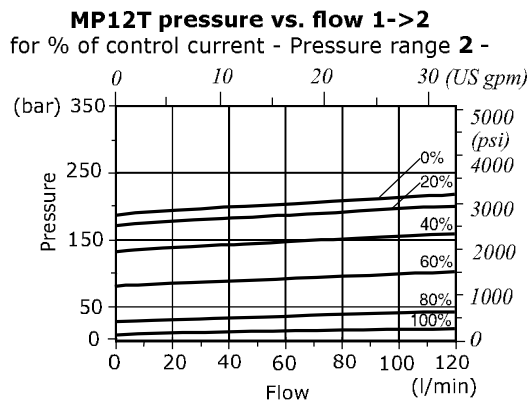
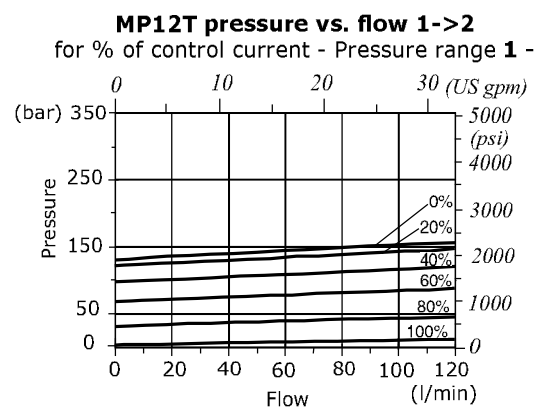
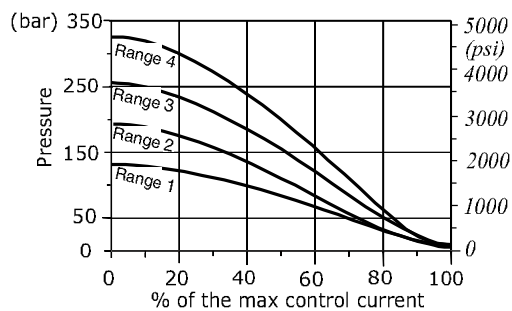
MP10T pressure vs. flow 1->2
for % of control current - Pressure range 1 -



Rating diagrams



MP12T pressure setting vs. % max. control current
at 10 l/min (2.6 US gpm)





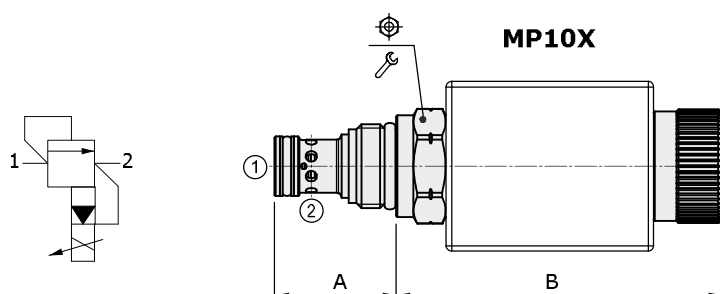
MP..X type pressure relief valves - 2 ways

- Solenoid proportional type, pilot operated
- Increasing pressure with increasing current (NO)
- Spool type
- From SAE10 to SAE12 cavities

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

		MP10X	MP12X
Max. flow		60 l/min (16 US gpm)	120 l/min (31.7 US gpm)
Max. pressure		350 bar (5100 psi)	
Oil leakage	at 80% of max. pressure setting	<150 cm³/min (9.15 in³/min)	<180 cm³/min (10.1 in³/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 -40°C (-40°F) to 100°C (212°F)	
Cavity		SAE 10/2	SAE 12/2
Coil type*		BH or BQP19	
Nominal voltages		12 VDC - 24 VDC	
Power rating		20.4 W (BH) - 15 W (BQP19)	
Max control current		12 V -> 1.70 A - 24 V -> 0.85 A (BH) 12 V -> 1.25 A - 24 V -> 0.63 A (BQP19)	
Dither frequency		180 Hz	180 Hz
Hysteresis		<5%	
Weight		0.76 kg (1.67 lb)	0.88 kg (1.94 lb)

NOTE - For different conditions, please contact Walvoil Sales Dpt. - For coils further features see from page 206.

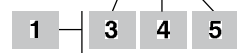


Valve type	A		B		⌀		Nm	
	mm	in	mm	in	mm	in		lbft
MP10X/0	32.3	1.27	86	3.39	27	50	37	
MP12X/0	45	1.81	102	4.02	32	80	59	

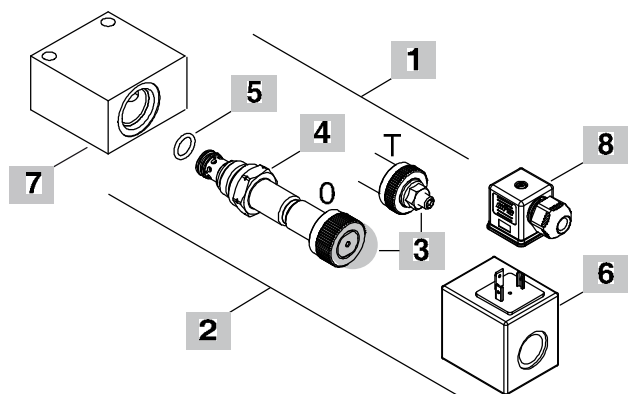
For dimensions with different type of emergency see page 213

Ordering codes and description composition

MP10X/001B



MP10X/031B



1 Cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MP10X/001B	OMP10002054	Pressure range 1
MP10X/002B	OMP10002055	Pressure range 2
MP10X/003B	OMP10002056	Pressure range 3
MP10X/004B	OMP10002057	Pressure range 4
SAE cavity 12/2		
MP12X/001B	OMP12002031	Pressure range 1
MP12X/002B	OMP12002032	Pressure range 2
MP12X/003B	OMP12002033	Pressure range 3
MP12X/004B	OMP12002034	Pressure range 4

2 Complete cartridges

TYPE	CODE	DESCRIPTION
SAE cavity 10/2		
MP10X/031B	OMP10002044	Pressure range 1, 12VDC
MP10X/032B	OMP10002045	Pressure range 2, 12VDC
MP10X/033B	OMP10002046	Pressure range 3, 12VDC
MP10X/034B	OMP10002047	Pressure range 4, 12VDC
SAE cavity 12/2		
MP12X/031B	OMP12002023	Pressure range 1, 12VDC
MP12X/032B	OMP12002024	Pressure range 2, 12VDC
MP12X/033B	OMP12002025	Pressure range 3, 12VDC
MP12X/034B	OMP12002026	Pressure range 4, 12VDC

3 Emergency

TYPE	DESCRIPTION
O	Without override
T	With screw

4 Pressure range

TYPE	DESCRIPTION
1	Pressure range 10÷120 bar (145÷1740 psi)
2	Pressure range 10÷160 bar (145÷2320 psi)
3	Pressure range 10÷230 bar (145÷3335 psi)
4	Pressure range 10÷350 bar (145÷5100 psi)

Note: for further pressure range contact Sales Dept.

5 Seals

TYPE	DESCRIPTION
B	NBR (Buna) o-ring seals, std configuration
V	FPM (Viton) o-ring seals, contact Sales Dept.

6 Coils

TYPE	CODE	DESCRIPTION
2) BH 12VDC	4SLD001200	12VDC-ISO4400 coil
3) BQP19 12VDC	4SL5000126	12VDC-ISO4400 coil
4) BH 24VDC	4SLD002400	24VDC-ISO4400 coil
5) BQP19 24VDC	4SL5000245	24VDC-ISO4400 coil

For complete coils list see from page 206

7 Valve body

TYPE	CODE	DESCRIPTION
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

Note: aluminium body can stand up to 210 bar (3050 psi)
For steel bodies or different threading see from page 215

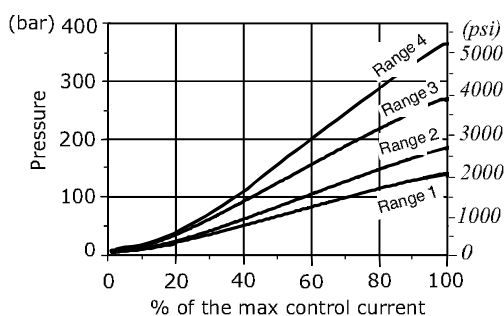
8 Connector

TYPE	CODE	DESCRIPTION
ISO4400	4CN1009995	Connector

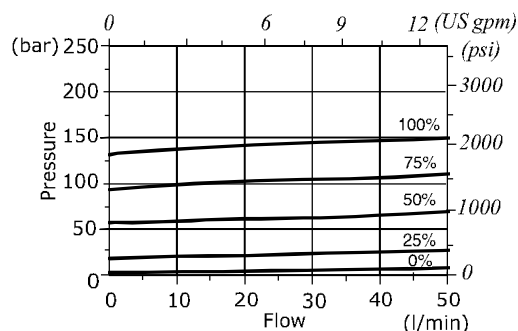
For complete connectors list see from page 206

Rating diagrams

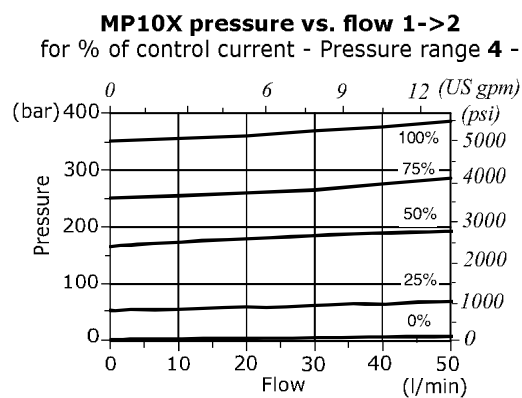
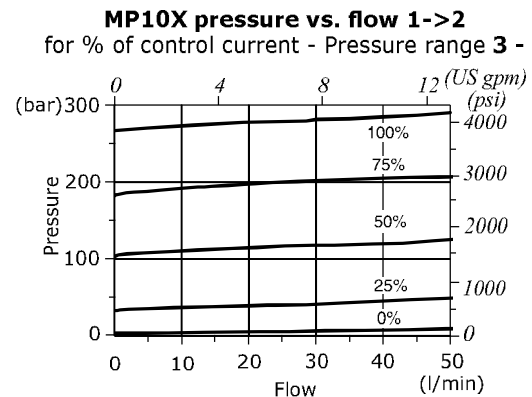
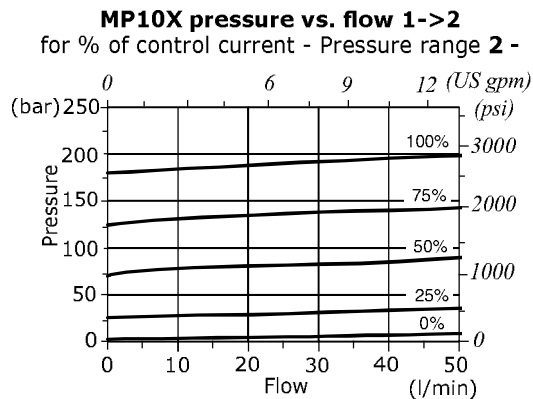
MP10X pressure setting vs. % max. control current
at 5 l/min (1.32 US gpm)



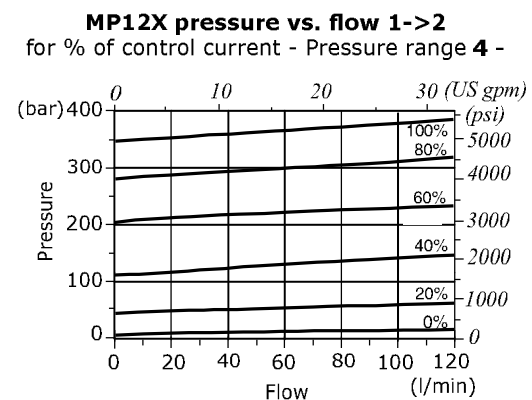
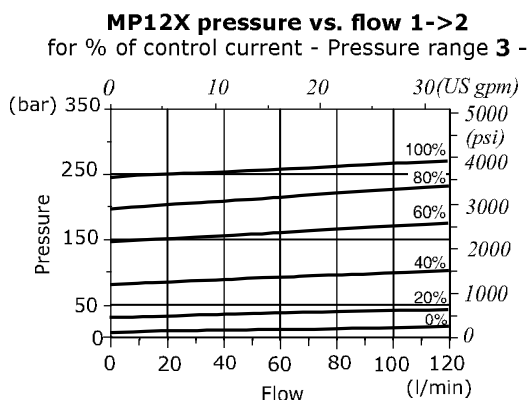
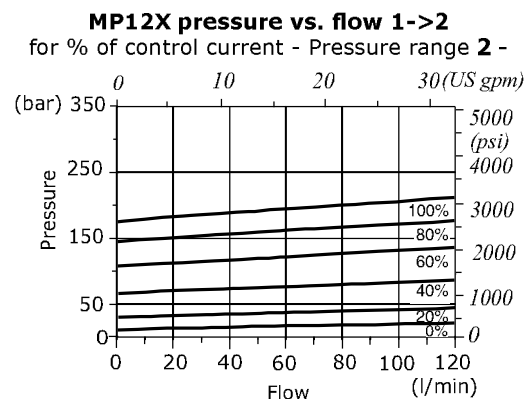
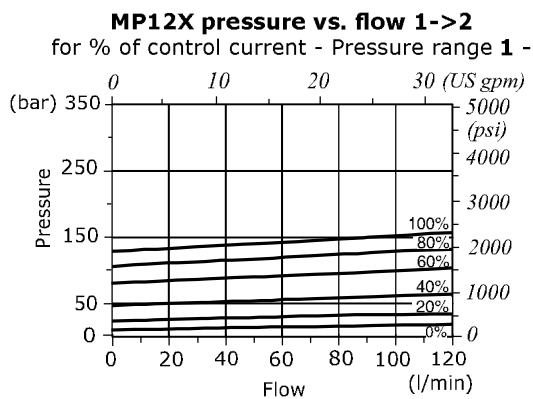
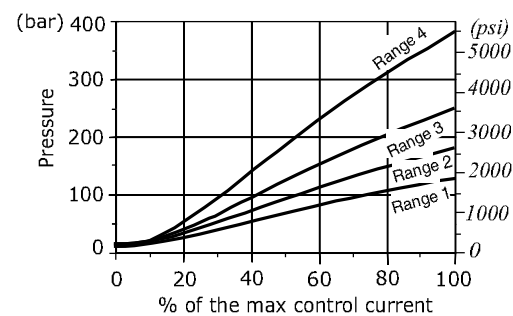
MP10X pressure vs. flow 1->2
for % of control current - Pressure range 1 -



Rating diagrams



MP12X pressure setting vs. % max. control current
at 10 l/min (2.64 US gpm)





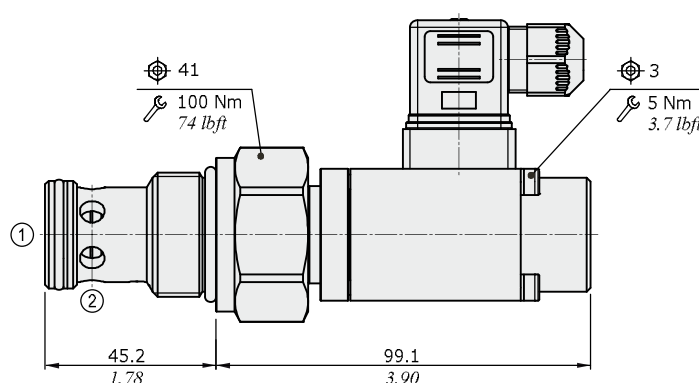
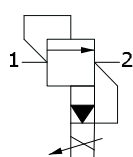
MP16Y type pressure relief valve - 2 ways

- Solenoid proportional type, pilot operated
- Increasing pressure with increasing current (NO)
- Spool type

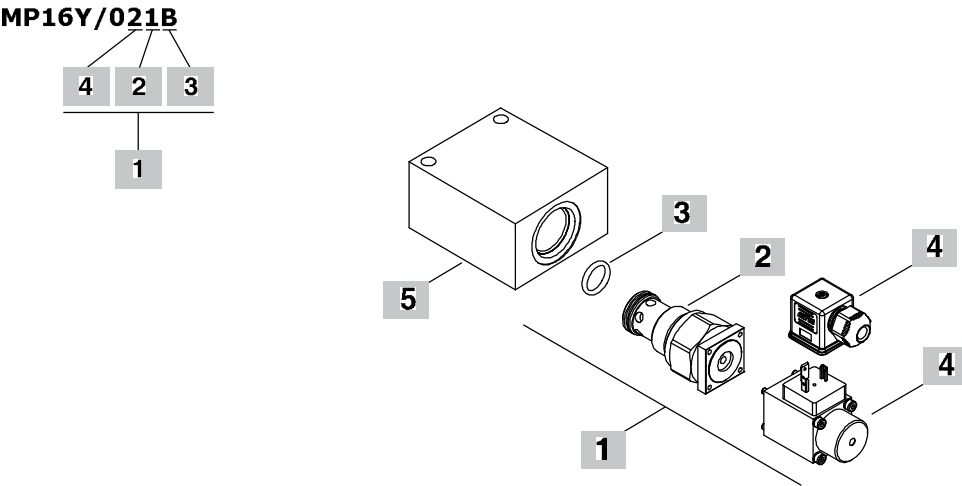
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

MP16Y		
Nominal flow		5 l/min (1.32 US gpm)
Max. flow		150 l/min (40 US gpm)
Max. pressure		Line 1=350 bar (5100 psi); Line 2=210 bar (3045 psi)
Oil leakage	80% of max. pressure setting	200 cm ³ /min (12.20 in ³ /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 -40°C (-40°F) to 100°C (212°F)
Cavity		SAE 16/2
Coil type*		MP35
Nominal voltages		12 VDC - 24VDC
Power rating		11.2 W (12 VDC) - 11.4 W (24 VDC)
Max control current		12 V -> 1.25 A - 24 V -> 0.68 A
Dither frequency		150 Hz
Hysteresis		≤4%
Weight		0.96 kg (2.11 lb)

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



Ordering codes and description composition



1 Cartridges			4 Coils and connectors		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
MP16Y/021B	OMP16002007	Pressure range 1, 12VDC	2) MP35 12VDC	5SL4000120	12VDC-ISO4400 coil
MP16Y/022B	OMP16002002	Pressure range 2, 12VDC	ISO4400	4CN1009995	Connector
MP16Y/023B	OMP16002009	Pressure range 3, 12VDC	4) MP35 24VDC	4SL4000240	24VDC-ISO4400 coil
MP16Y/024B	OMP16002011	Pressure range 4, 12VDC	ISO4400	4CN1009995	Connector

2 Pressure range			5 Valve body		
TYPE	DESCRIPTION		TYPE	CODE	DESCRIPTION
1	Pressure range 10÷100 bar (145÷1450 psi)		SAE 16/2-G 3/4	3CC1620E11	Aluminium body for cavity 16 valve, G 3/4 std thread
2	Pressure range 50÷200 bar (725÷2900 psi)		Note: aluminium body can stand up to 210 bar (3050 psi)		
3	Pressure range 80÷350 bar (1160÷5100 psi)		For steel bodies or different threading see from page 215		
4	Pressure range 5÷40 bar (72.5÷580 psi)				

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

Rating diagrams

