MD..M type

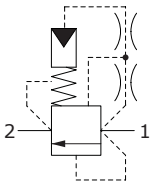
shockless pressure relief valve - 2 way

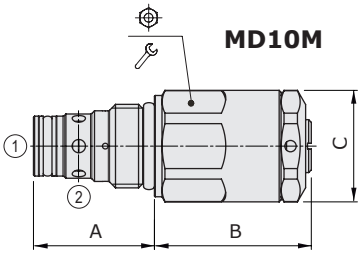
- Direct acting
- Poppet type
- From SAE10 to SAE12 cavities

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)*	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.

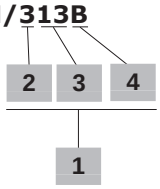


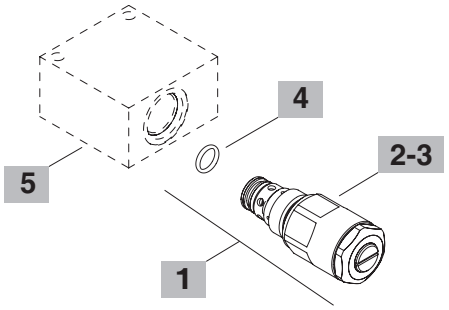


Valve type	A		B		C				
	mm	*in*	mm	*in*	mm	*in*		Nm	*lbft*
MD10M	32	*1.25*	73.5	*2.89*	ø29.5	*ø1.16*	27	50	*37*
MD12M	46	*1.81*	92.5	*3.64*	ø35	*ø1.38*	32	80	*59*

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

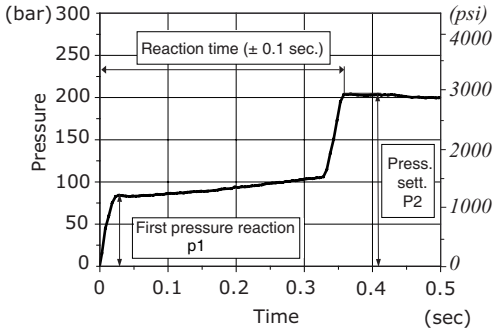
5 Valve body

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

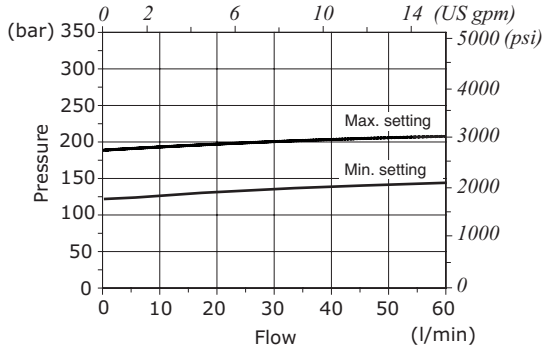
MD10M performance curve example with typical dimensions



Pressure ratio: $Rp = \frac{p2}{p1}$

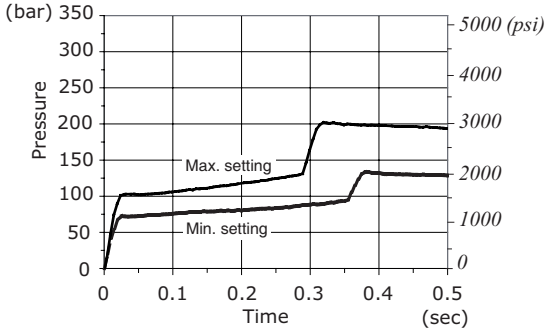
First pressure reaction: $p1 = \frac{p2}{Rp}$

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

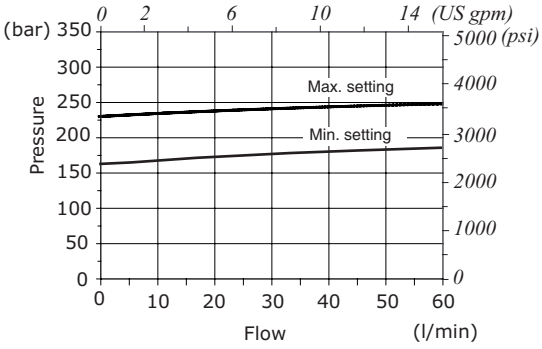


Pressure range 11
130÷200 bar *(1900÷2900 psi)*
Pressure ratio 1.9
Q=60l/min *(15.8 US gpm)*

MD10M performance curve
at max. and min. setting

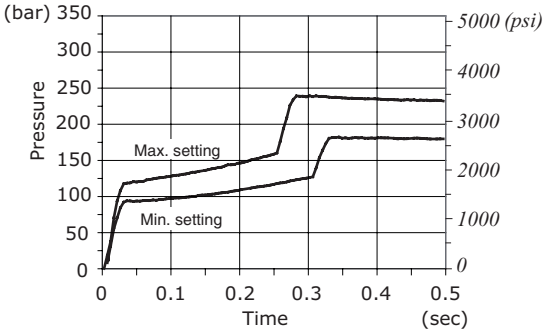


MD10M pressure vs. flow
at max. and min. setting

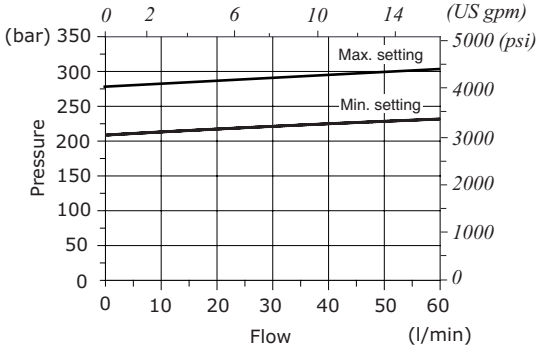


Pressure range 12
180÷240 bar *(2610÷3480 psi)*
Pressure ratio 2.2
Q=60l/min *(15.8 US gpm)*

MD10M performance curve
at max. and min. setting

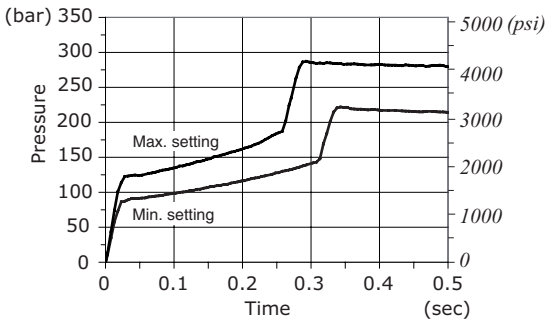


MD10M pressure vs. flow
at max. and min. setting



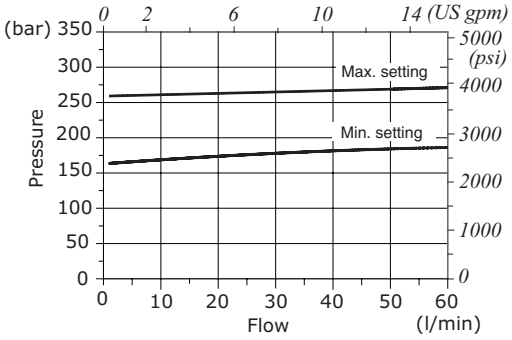
Pressure range 13
220÷290 bar *(3190÷4200 psi)*
Setting 250 bar *(3625 psi)* at 25 l/min *(6.6 US gpm)*
Pressure ratio 2.4
Q=60l/min *(15.8 US gpm)*

MD10M performance curve
at max. and min. setting



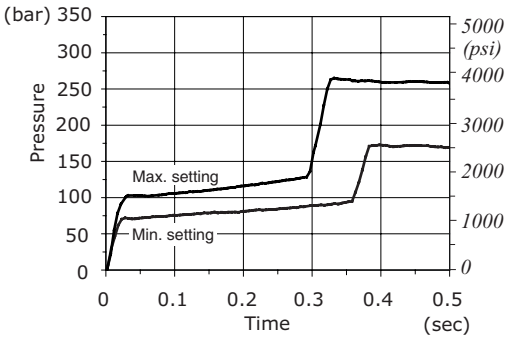
Rating diagrams

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

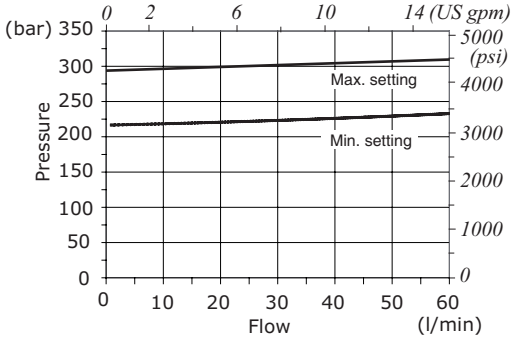


Pressure range
21
170÷270 bar
(2465÷3915 psi)
Pressure ratio 2.5
Q=60l/min
(15.8 US gpm)

MD10M performance curve
at max. and min. setting

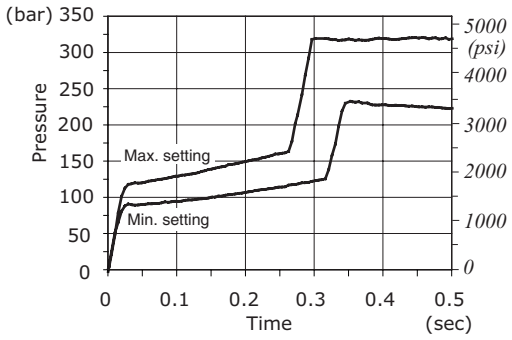


MD10M pressure vs. flow
at max. and min. setting



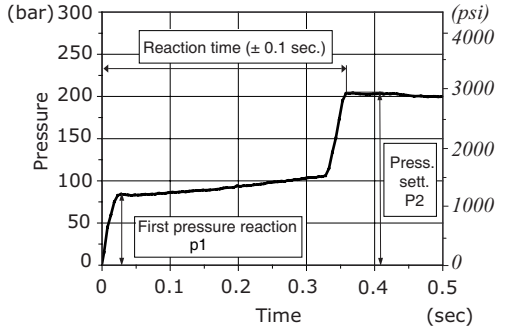
Pressure range
22
220÷290 bar
(3190÷4200 psi)
Pressure ratio 2.8
Q=60l/min
(15.8 US gpm)

MD10M performance curve
at max. and min. setting



Rating diagrams

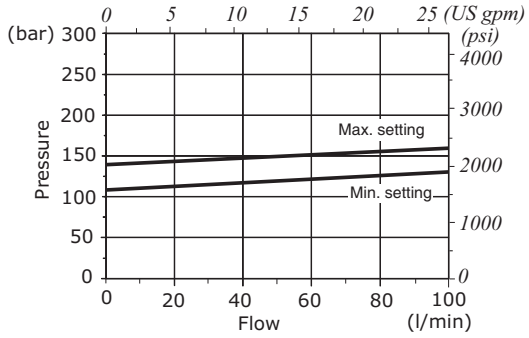
MD12M performance curve example with typical dimensions



Pressure ratio: $Rp = \frac{p2}{p1}$

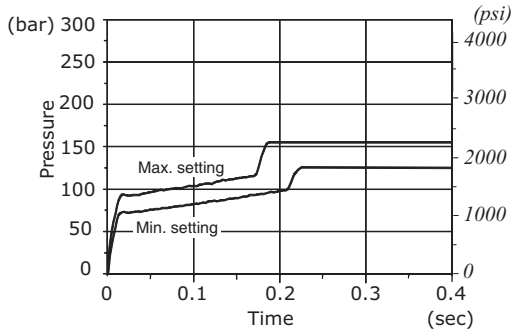
First pressure reaction: $p1 = \frac{p2}{Rp}$

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

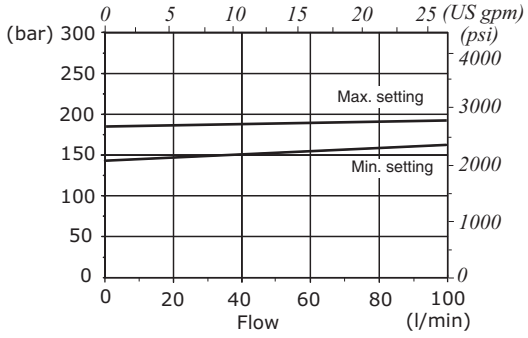


Pressure range 11
125÷155 bar
(1810÷2250 psi
Pressure ratio 1.7
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting

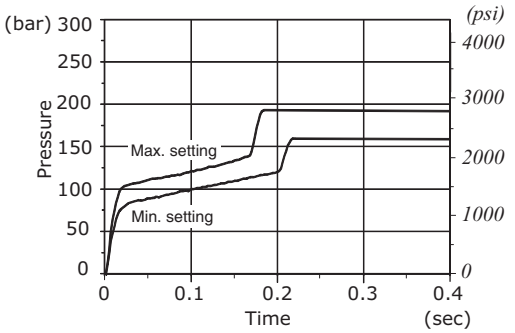


MD12M pressure vs. flow
at max. and min. setting

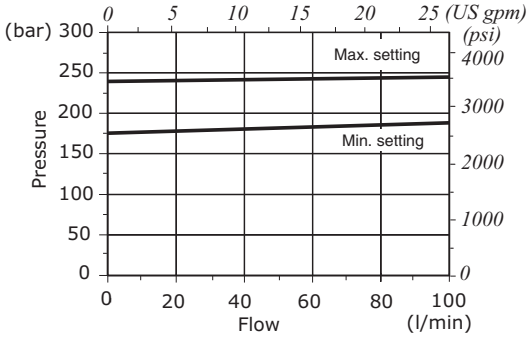


Pressure range 12
160÷190 bar
(2320÷2760 psi
Pressure ratio 1.9
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting

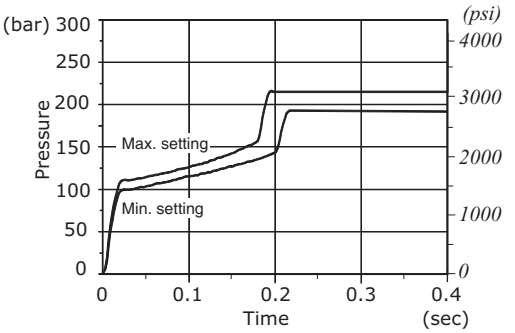


MD12M pressure vs. flow
at max. and min. setting



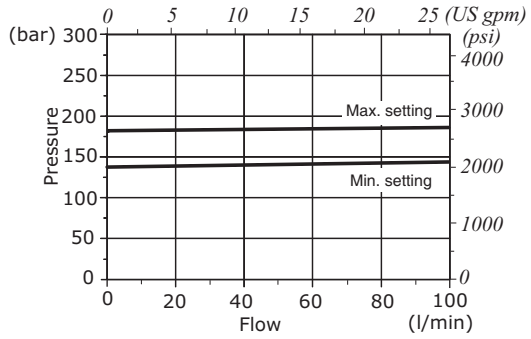
Pressure range 13
180÷220 bar
(2610÷3190 psi)
Setting 220 bar *(3190 psi)* at 60 l/min
(16 US gpm)
Pressure ratio 2.2
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting



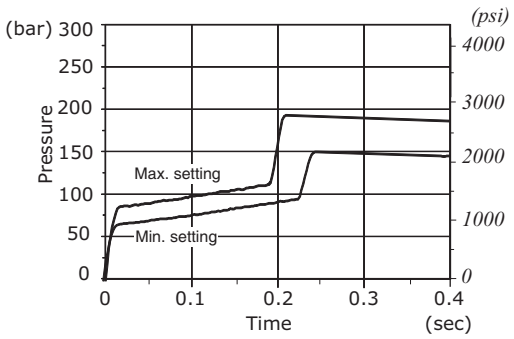
Rating diagrams

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

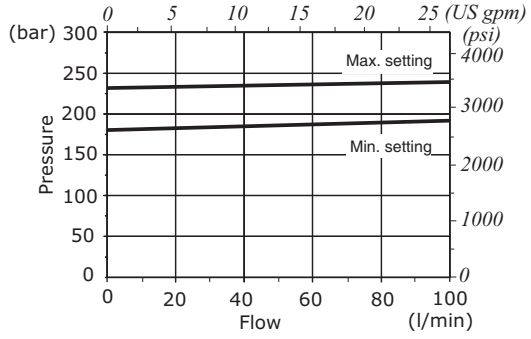


Pressure range
21
150÷185 bar
(1900÷2685 psi)
Pressure ratio 2
Q=100 l/min
(26.4 US gpm)

MD12M performance curve
at max. and min. setting

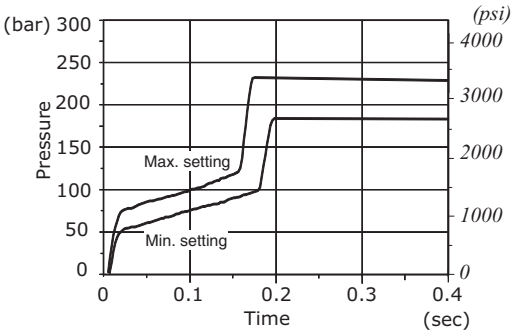


MD12M pressure vs. flow
at max. and min. setting

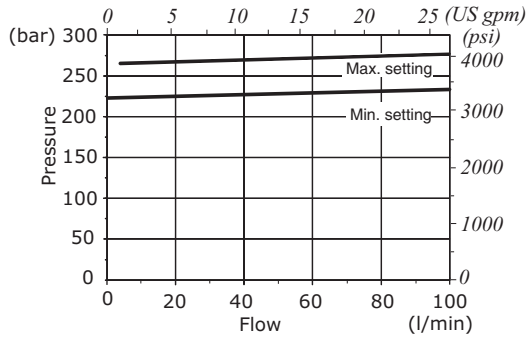


Pressure range
22
190÷235 bar
(2760÷3400 psi)
Pressure ratio 2.35
Q=100 l/min
(26.4 US gpm)

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