



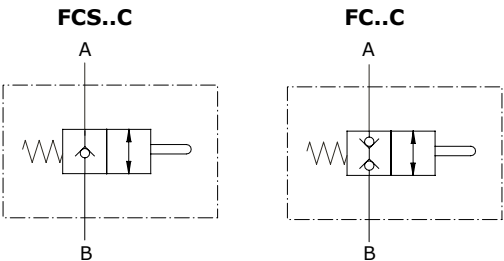
Type FCS..C / FC..C
End stroke valves

- Normally closed
- FC..C double lock

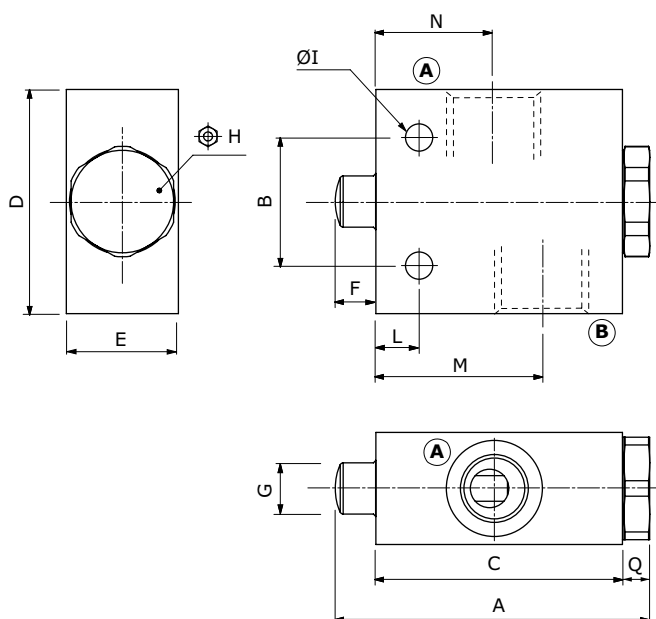
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

	FCS02C		FCS03C	FC02C	FC03C
Max. flow	30 l/min (7.9 US gpm)		60 l/min (15.9 US gpm)	30 l/min (7.9 US gpm)	60 l/min (15.9 US gpm)
Max. pressure	300 bar (4350 psi)				
Fluid	mineral based oil				
Max. stroke	10 mm (0.39 in)		12 mm (0.47 in)	10 mm (0.39 in)	12 mm (0.47 in)
Spring force	20 N (4.5 lbf)			80 N (18 lbf)	
Viscosity	from 10 to 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)				
Environmental temperature for working conditions	from -40°C (-40°F) to 100°C (212°F)				
Weight	steel	0.79 kg (1.74 lb)	1.28 kg (2.82 lb)	0.79 kg (1.74 lb)	1.30 kg (2.87 lb)

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



Dimensions



Valve type	(A) (B)
FCS02C	G3/8
FCS03C	G1/2

Dimensions are in mm-in

Valve type	A	B	C	D	E	F	G	ØH	ØI	L	M	N	Q
FCS02C	83.7 3.30	35 1.38	65 2.56	60 2.36	30 1.18	13.2 0.52	8 0.31	27	8.5 0.33	13.5 0.53	43 1.69	30 1.18	5.5 0.22
FCS03C	98.3 3.87	40 1.57	77 3.03	70 2.76	35 1.38	12.8 0.50	12 0.47	32	10.5 0.41	13.5 0.53	51 2.01	37 1.46	8.5 0.33

Valve type	(A) (B)
FC02C	G3/8
FC03C	G1/2

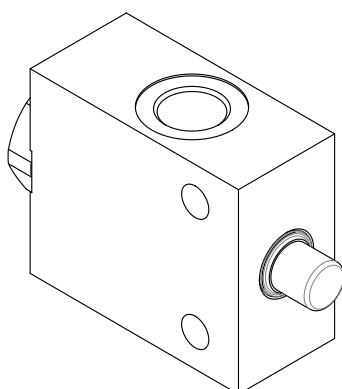
Dimensions are in mm-in

Valve type	A	B	C	D	E	F	G	ØH	ØI	L	M	N	Q
FC02C	86.2 3.39	35 1.38	65 2.56	55 2.17	30 1.18	13.2 0.52	12 0.47	27	8.5 0.33	13.5 0.53	43 1.69	30 1.18	8 0.31
FC03C	98.6 3.88	40 1.57	77 3.03	70 2.76	35 1.38	13 0.51	16 0.63	32	8.5 0.33	13.5 0.53	51 2.01	37 1.46	8.5 0.33

Ordering codes and description composition

FC 03 C

Port size



FC-C complete valves

TYPE	CODE	DESCRIPTION
FCS02C	1419622101	Steel body, G3/8 ports
FCS03C	1419632101	Steel body, G1/2 ports
FC02C	1419722100	Steel body, G3/8 ports
FC03C	1419732100	Steel body, G1/2 ports

For SAE thread, please contact our Sales Dpt.



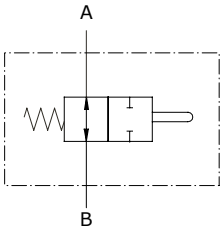
Type FC..A
End stroke valves

- Normally open

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

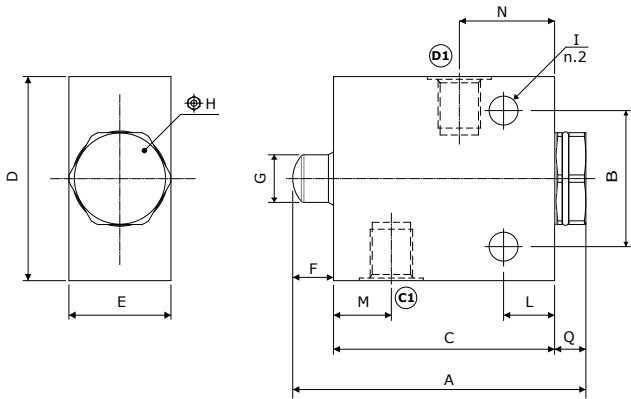
	FC02A	FC03A
Max. flow	30 l/min (7.9 US gpm)	60 l/min (15.9 US gpm)
Max. pressure	300 bar (4350 psi)	
Fluid	mineral based oil	
Max. stroke	7 mm (0.27 in)	7 mm (0.27 in)
Spring force	100 N (22.48 lbf)	
Viscosity	from 10 to 200 cSt	
Max. level of contamination	18/16/13 ISO4406	
Fluid temperature	with NBR seals from -30°C (-22°F) to 100°C (212°F)	
Environmental temperature for working conditions	from -40°C (-40°F) to 100°C (212°F)	
Weight	steel 0.75 kg (1.65 lb)	0.77 kg (1.70 lb)

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



Dimensions

FC02A - FC03A



Valve type	A	B
FC02A	G3/8	
FC03A	G1/2	

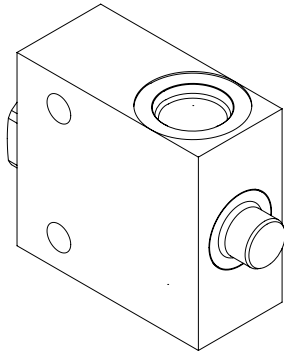
Dimensions are in mm-in

Valve type	A	B	C	D	E	F	G	H	I	L	M	N	Q
FC02A	86,2	40	65	60	30	12	14		8.5	15	17	28	9,2
	3.39	1.57	2.56	2.36	1.18	0.47	0.55	27	0.33	0.59	0.67	1.1	0.36
FC03A	86,2	40	65	60	30	12	14		8.5	15	17	28	9,2
	3.39	1.57	2.56	2.36	1.18	0.47	0.55	27	0.33	0.59	0.67	1.1	0.36

Ordering codes and description composition

FC 03 A

Port size



FC..A Complete valves

TYPE	CODE	DESCRIPTION
FC02A	1419822101	Steel body, G3/8 ports
FC03A	1419832100	Steel body, G1/2 ports

For SAE thread, please contact our Sales Dpt.



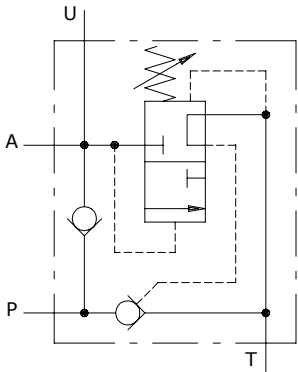
Type VDA
unloader valves

- Single acting
- Built-in check

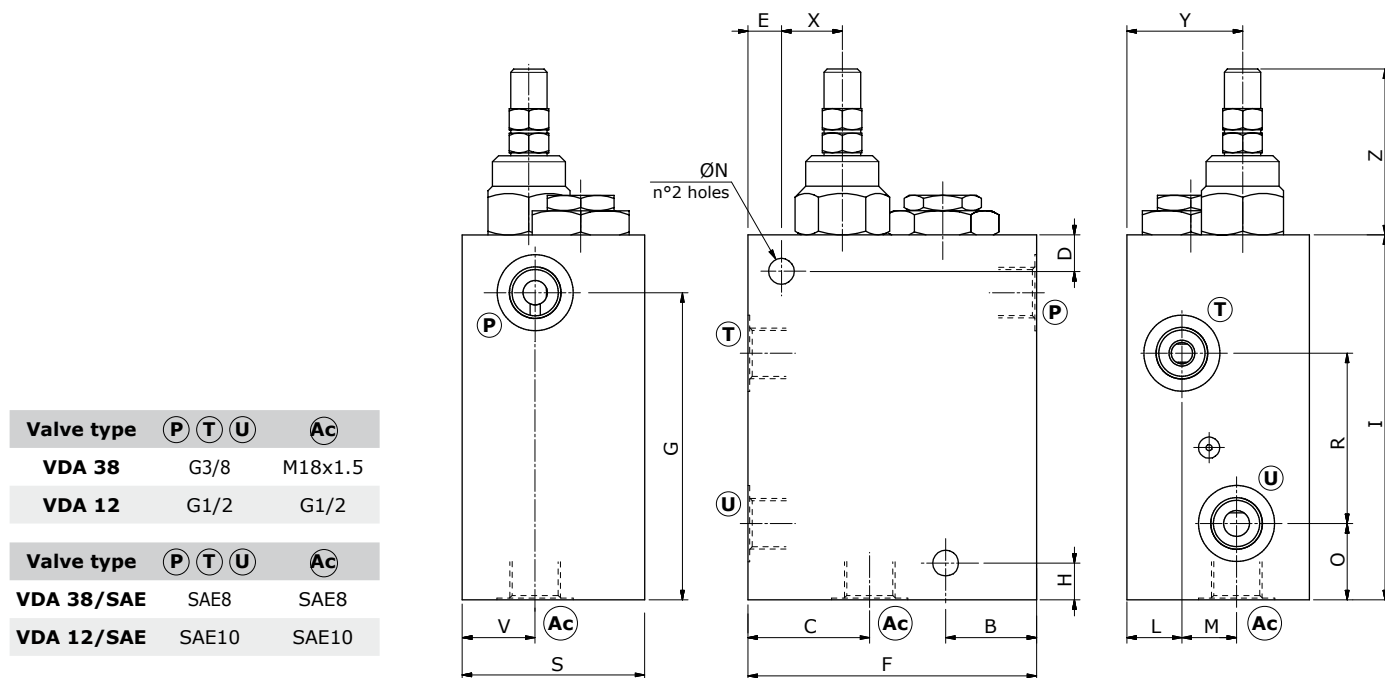
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

VDA 38		VDA 12	VDA 34	
Nominal flow	25 l/min (6.6 US gpm)	50 l/min (13.2 US gpm)	100 l/min (26.4 US gpm)	
Max. pressure	Aluminium body = 210 bar (3050 psi) Steel body = 350 bar (5100 psi)			
Fluid	mineral based oil			
Viscosity	from 10 to 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)			
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)			
Weight	aluminium	2.15 kg (4.73 lb)	2.35 kg (5.18 lb)	3.24 kg (7.14 lb)
	steel	5.05 kg (12.13 lb)	5.57 kg (12.28 lb)	8.10 kg (17.86 lb)

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

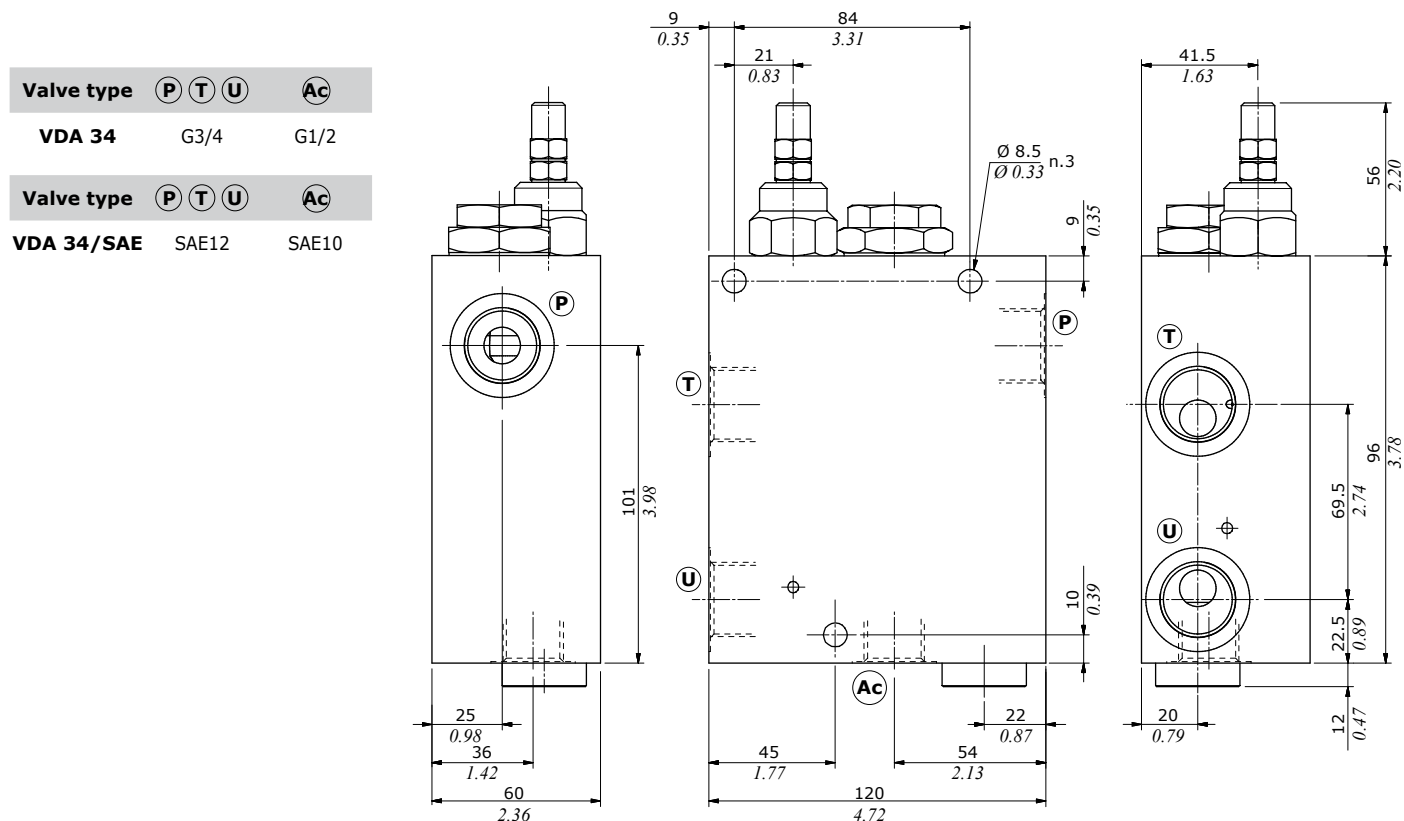


Dimensions



Dimensions are in mm-in

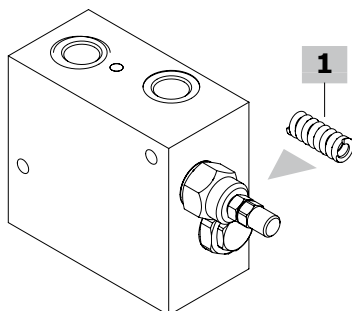
Valve type	B	C	D	E	F	G	H	I	L	M	ØN	O	R	S	V	X	Y	Z
VDA 38	30-1.18	40-1.57	12-0.47	11-0.43	95-3.74	101-3.98	12-0.47	120-4.72	18-0.71	18-0.71	8.5-0.33	25-0.98	56-2.20	60-2.36	24-0.94	20-0.79	38-1.50	56-2.20
VDA 38/SAE																		
VDA 12	42-1.65	42-1.65	13-0.51	12-0.47	108-4.25	101-3.98	11-0.43	120-4.72	19-0.75	11-0.43	8.5-0.33	25-0.98	56-2.20	60-2.36	23-0.91	22-0.87	38-1.50	56-2.20
VDA 12/SAE																		



Ordering codes and description composition

Port size
VDA 38/TR.S.VRR

1



VDA complete valves

Single type valve configuration

Standard setting 200 bar at 5 l/min (2900 psi at 1.32 US gpm)

Standard differential pressure 15%

TYPE	CODE	DESCRIPTION
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Configuration with G3/8 standard thread

VDA 38/TR.S.VRR	1210021101	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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VDA 38/DR/TR.S.VRR	1210021113	As previous one, with Drain port
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VDA 38/TR.S.VRR/ac	1210022101	Steel body, setting range 100-250 bar (1450-3600 psi)
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Configuration with G1/2 standard thread

VDA 12/TR.S.VRR	1210031101	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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VDA 12/DR/TR.S.VRR	1210031104	As previous one, with Drain port
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VDA 12/TR.S.VRR/ac	1210032101	Steel body, setting range 100-250 bar (1450-3600 psi)
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Configuration with G3/4 standard thread

VDA 34/TR.S.VRR	1210041101	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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VDA 34/DR/TR.S.VRR	1210041108	As previous one, with Drain port
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VDA 34/TR.S.VRR/ac	1210042100	Steel body, setting range 100-250 bar (1450-3600 psi)
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Configuration with SAE8 standard thread

VDA 38/TR.S.VRR/SAE	1210021200	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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Configuration with SAE10 standard thread

VDA 12/TR.S.VRR/SAE	1210031200	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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VDA 12/TR.S.VRR/ac/SAE	1210032102	Steel body, setting range 100-250 bar (1450-3600 psi)
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Configuration with SAE12 standard thread

VDA 34/TR.S.VRR/SAE	1210041200	Aluminium body, setting range 100-250 bar (1450-3600 psi)
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VDA 34/TR.S.VRR/ac/SAE	1210042200	Steel body, setting range 100-250 bar (1450-3600 psi)
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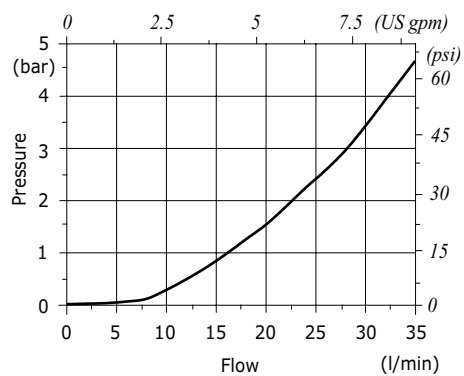
For other steel body configurations, SAE thread and configurations with FPM (Viton) seals, contact our Sales Dpt.

1 Pressure setting springs

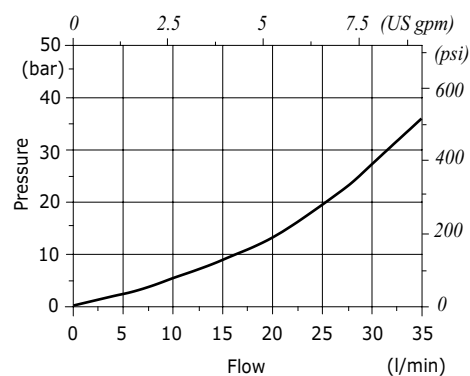
TYPE	CODE	DESCRIPTION
TV	3ML1164000	Setting range 5-110 bar (72.5-1600 psi)
TR	3ML1164001	Setting range 100-250 bar (1450-3600 psi)

Rating diagrams

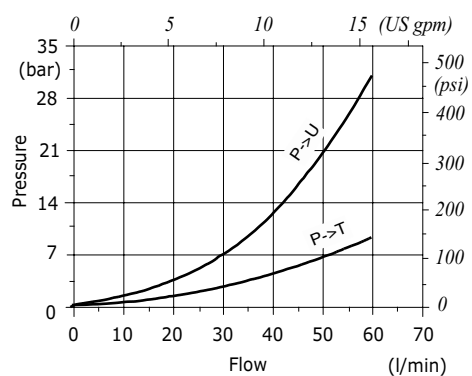
VDA 38 P→T pressure drop vs. flow



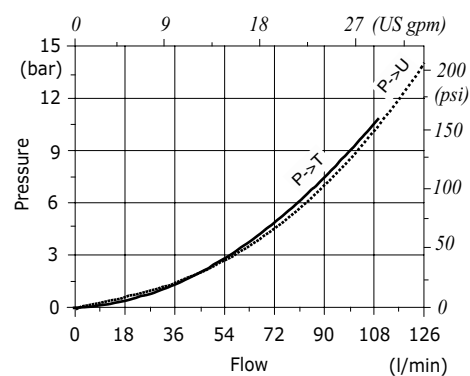
VDA 38 P→U pressure drop vs. flow



VDA 12 and VDA 12/DR pressure drop vs. flow



VDA 34 pressure drop vs. flow





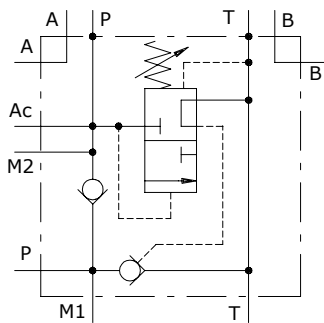
Type VDA/FL
unloader valves

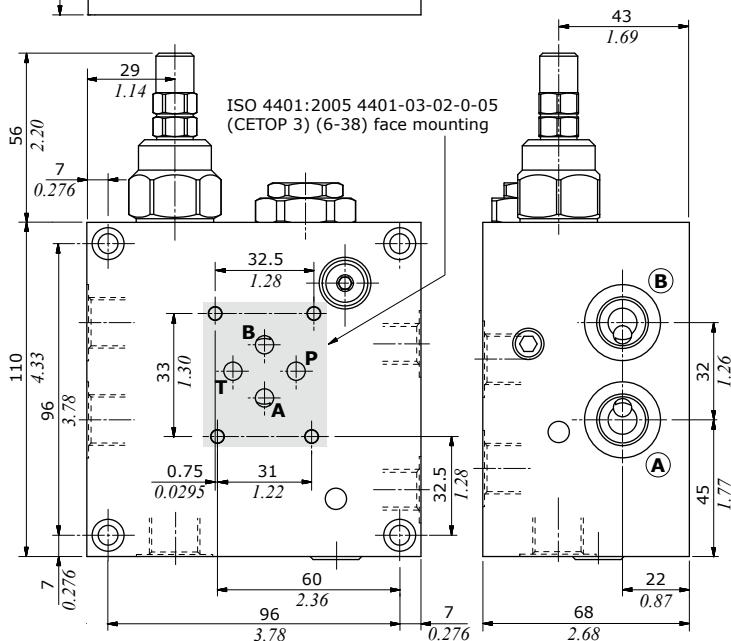
- Face mounting cetop 3 (6-38) or cetop 5 (10-12)
- Built-in check

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

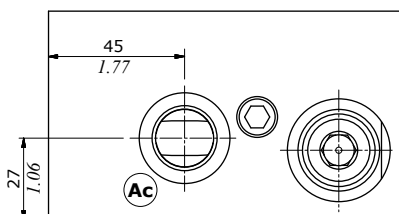
	VDA/FL 38	VDA/FL 12
Nominal flow	25 l/min (6.6 US gpm)	50 l/min (13.2 US gpm)
Max. pressure	Aluminium body = 210 bar (3050 psi) Steel body = 350 bar (5100 psi)	
Fluid	mineral based oil	
Viscosity	from 10 to 200 cSt	
Max. level of contamination	18/16/13 ISO4406	
Fluid temperature	with NBR seals from -20°C (-4°F) to 80°C (176°F)	
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)	
Weight	aluminium	2.43 kg (5.35 lb)
	steel	6 kg (13.23 lb)
		2.80 kg (6.17 lb)
		7.05 kg (15.54 lb)

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



[illegible]

Valve type	A-B	P-T	M1	M2	Ac
VDA/FL 6-38	G3/8	G3/8	G1/4	G1/4	G3/8
VDA/FL 10-12	G1/2	G1/2	G1/4	G1/4	G1/2



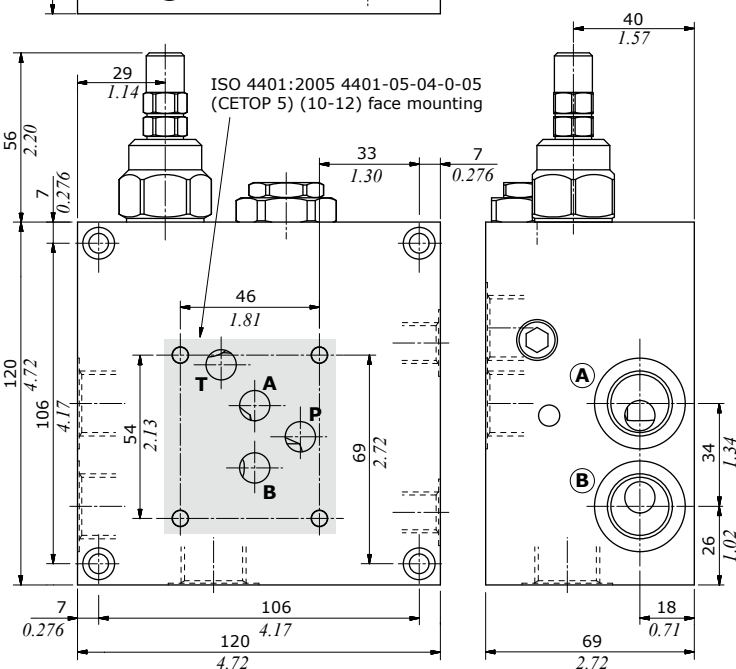
Technical drawing showing two views of a mechanical component, likely a valve or fitting, with dimensions in millimeters (mm) and inches (in).

Left View (Front View):

- Overall width: 53 mm (2.09 in)
- Overall height: 60 mm (2.36 in)
- Top flange diameter: $\frac{\varnothing 6.5}{\varnothing 0.256}$ N°4
- Central circular feature labeled **T**.
- Smaller circular feature labeled **P**.
- Dimensions for feature **P**: 24 mm (0.94 in) width, 60 mm (2.36 in) height.
- Dimensions for feature **T**: 53 mm (2.09 in) width, 25 mm (0.98 in) height.

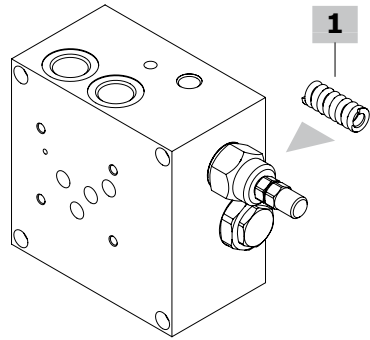
Right View (Side View):

- Overall width: 27 mm (1.06 in)
- Overall height: 56 mm (2.20 in)
- Top flange diameter: $\frac{\varnothing 6.5}{\varnothing 0.256}$ N°4
- Central circular feature labeled **M1**.
- Smaller circular feature labeled **M2**.
- Dimensions for feature **M1**: 27 mm (1.06 in) width, 56 mm (2.20 in) height.
- Dimensions for feature **M2**: 27 mm (1.06 in) width, 24 mm (0.94 in) height.



Ordering codes and description composition

Port size
VDA/FL 6-38/TR.S.VRR
1



VDA/FL complete valves

Standard setting 200 bar (2900 psi) at 5 l/min (1.32 US gpm)

Standard differential pressure 15%

TYPE	CODE	DESCRIPTION
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Configuration with G3/8 standard thread

VDA/FL 6-38/TR.S.VRR	1214021101	Aluminium body, range 100-250 bar (1450-3600 psi)
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VDA/FL 6-38/TR.S.VRR/ac	1214022100	Steel body, as previous one
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Configuration with G1/2 standard thread

VDA/FL 10-12/TR.S.VRR	1214031101	Aluminium body, range 100-250 bar (1450-3600 psi)
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VDA/FL 10-12/TR.S.VRR/ac	1214032100	Steel body, as previous one
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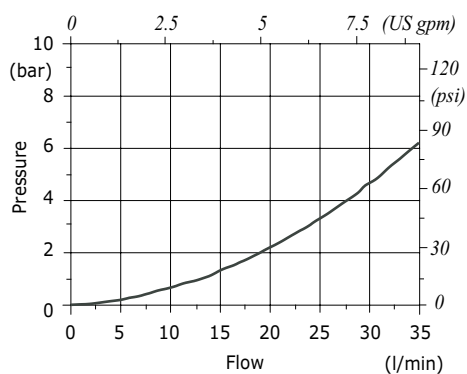
For other steel body configurations, SAE thread and configurations with FPM (Viton) seals, contact our Sales Dpt.

1 Pressure setting springs

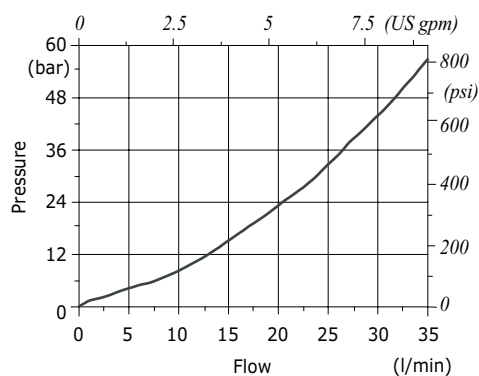
TYPE	CODE	DESCRIPTION
TV	3ML1164000	Setting range 5-110 bar (72.5-1600 psi)
TR	3ML1164001	Setting range 100-250 bar (1450-3600 psi)

Rating diagrams

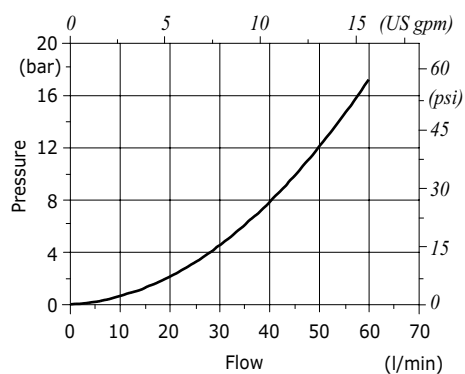
VDA/FL 6-38 P→T pressure drop vs. flow



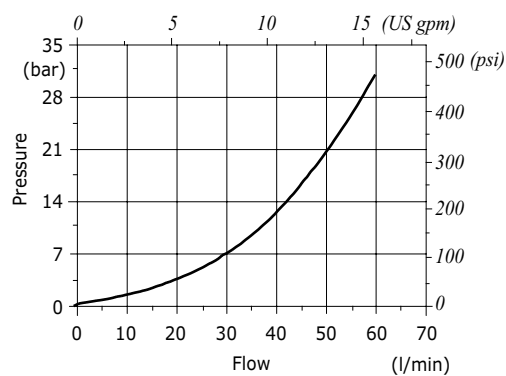
VDA/FL 6-38 P→P cetop pressure drop vs. flow



VDA/FL 10-12 P→T pressure drop vs. flow



VDA/FL 10-12 P→P cetop pressure drop vs. flow





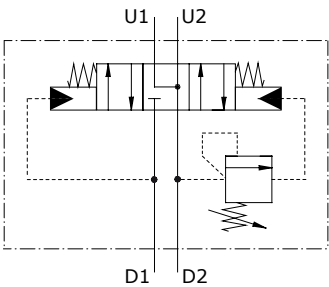
Type VRCL/KD regenerative valves

- Regenerative

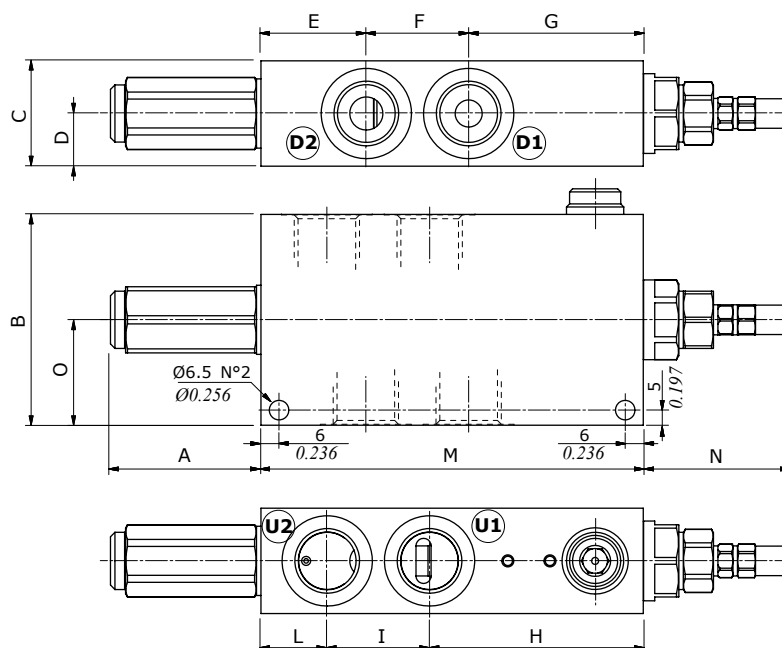
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

	VRCL/KD 38	VRCL/KD 12	VRCL/KD 34	VRCL/KD 100
Nominal flow	30 l/min (7.9 US gpm)	50 l/min (13.2 US gpm)	90 l/min (23.8 US gpm)	150 l/min (39.6 US gpm)
Max. pressure	350 bar (5100 psi)			
Fluid	mineral based oil			
Viscosity	from 10 to 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)			
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)			
Weight	steel 3.65 kg (8.05 lb)	3.55 kg (7.83 lb)	5.50 kg (12.12 lb)	10.12 kg (22.31 lb)

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



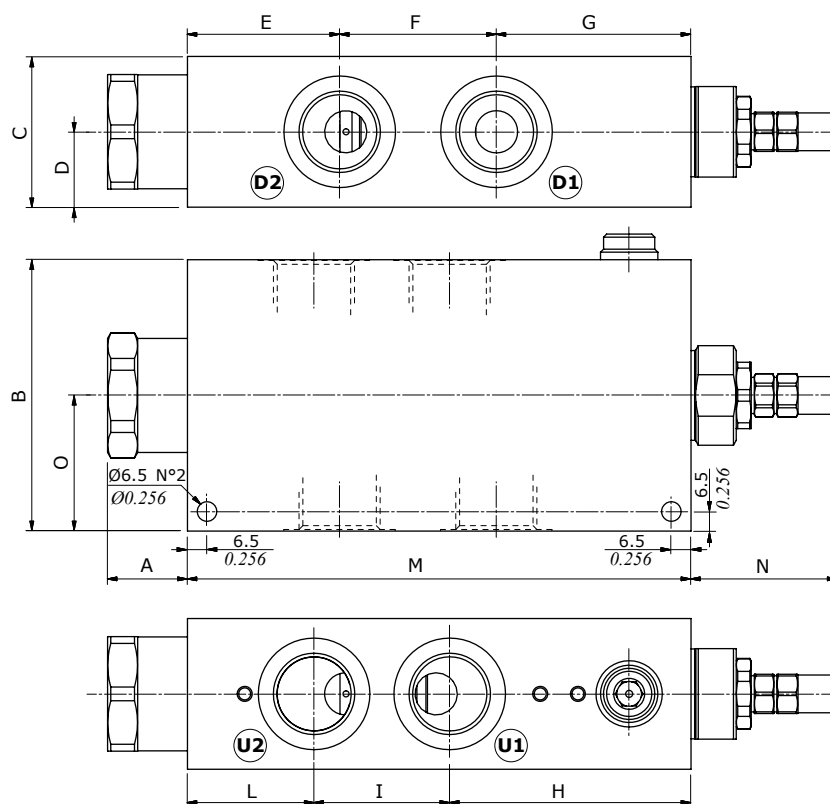
Dimensions



Valve type	All ports
VRCL/KD 38	G3/8
VRCL/KD 12	G1/2

Dimensions are in mm-in

Valve Type	A	B	C	D	E	F	G	H	I	L	M	N	O
VRCL/KD 38	50-1.97	70-2.75	35-1.38	17.5-0.69	35-1.38	34-1.34	58-2.28	71-2.79	34-1.34	22-0.87	127-5	48.5-1.91	35-1.38
VRCL/KD 12	50-1.97	70-2.75	35-1.38	17.5-0.69	35-1.38	34-1.34	58-2.28	71-2.79	34-1.34	22-0.87	127-5	48.5-1.91	35-1.38



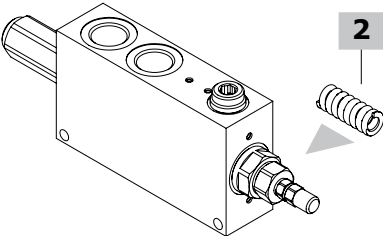
Valve type	All ports
VRCL/KD 34	G3/4
VRCL/KD 100	G1"

Dimensions are in mm-in

Valve Type	A	B	C	D	E	F	G	H	I	L	M	N	O
VRCL/KD 34	27-1.06	90-3.54	50-1.97	25-0.98	50.5-1.99	52-2.05	64.5-2.54	80-3.15	45-1.77	42-1.65	167-6.57	48.5-1.91	45-1.77
VRCL/KD 100	26-1.02	100-3.94	60-2.36	30-1.18	77-3.03	68-2.68	90-3.54	111.5-4.39	57-2.24	66.5-2.62	235-9.25	43-1.69	50-1.97

Ordering codes and description composition

Port size
VRCL/KD 38/TS.S
1



VRCL/KD complete valves

Cast iron body, standard setting 100 bar (1450 psi) at 10 l/min (2.64 US gpm)

TYPE	CODE	DESCRIPTION
VRCL/KD 38/TS.S/gh	1245023103	G3/8 port thread, setting range 50-220 bar (725-3200 psi)
VRCL/KD 12/TS.S/gh	1245033108	G1/2 port thread, setting range 50-220 bar (725-3200 psi)
VRCL/KD 34/TS.S/gh	1245043107	G3/4 port thread, setting range 50-220 bar (725-3200 psi)
VRCL/KD 100/TS.S/gh	1245053104	G1" port thread, setting range 50-220 bar (725-3200 psi)

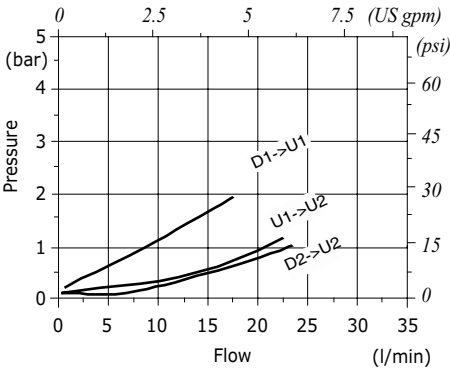
For other configurations, SAE threads and configurations with FPM (Viton) seals, please contact our Sales Dpt.

1 Pressure setting springs

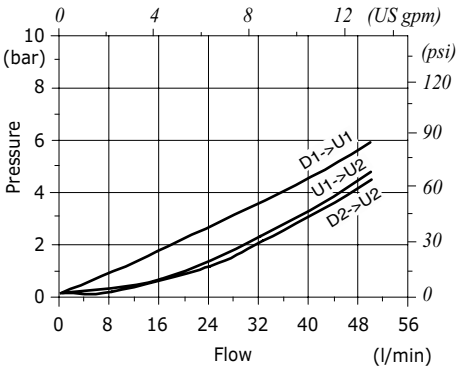
TYPE	CODE	DESCRIPTION
For VRCL/KD 38 and VRCL/KD 12 valves		
TB	3ML1081400	Setting range 5-80 bar (72.5-725 psi)
TS	3ML1081401	Setting range 50-220 bar (725-3200 psi)
TR	3ML1081402	Setting range 180-350 bar (2600-5100 psi)
For VRCL/KD 34 and VRCL/KD 100 valves		
TV	3ML1092500	Setting range 5-50 bar (72.5-1150 psi)
TS	3ML1092501	Setting range 20-220 bar (290-3200 psi)
TR	3ML1092502	Setting range 180-350 bar (2600-5100 psi)

Rating diagrams

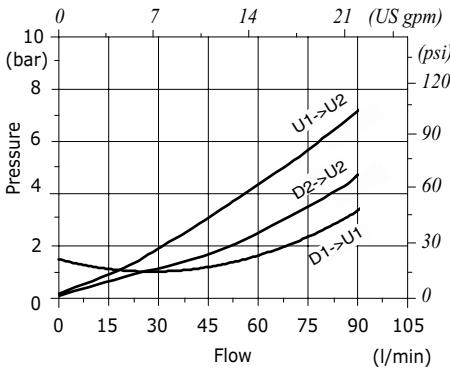
VRCL/KD 38 pressure drop vs. flow



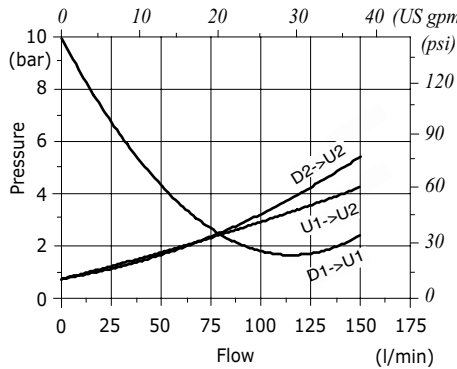
VRCL/KD 12 pressure drop vs. flow



VRCL/KD 34 pressure drop vs. flow



VRCL/KD 100 pressure drop vs. flow





Type VEP

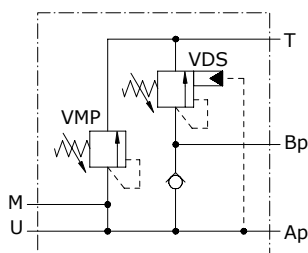
two pump "high-low" unloading valves

- Single acting
- "High-low pressure"

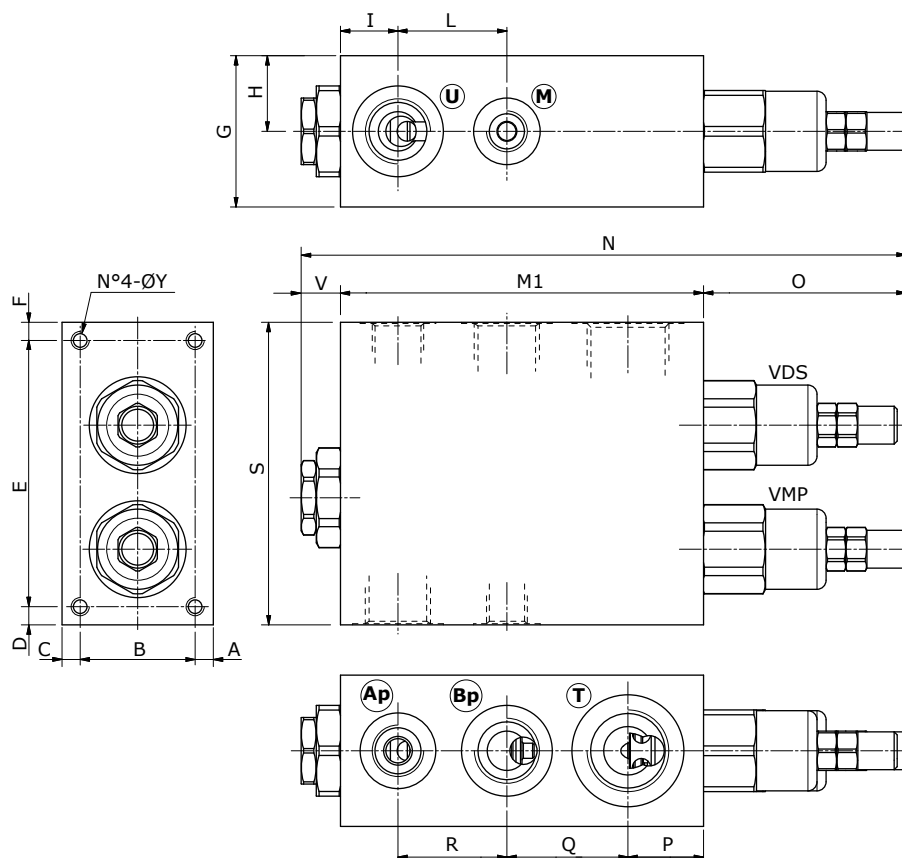
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

Line		VEP 38	VEP 12	VEP 34	VEP 100	VEP 114
Nominal flow	Ap (high pressure inlet port)	10 l/min (2.6 US gpm)	20 l/min (5.3 US gpm)	30 l/min (7.9 US gpm)	50 l/min (13.2 US gpm)	80 l/min (21.1 US gpm)
	Bp (low pressure inlet port)	25 l/min (6.6 US gpm)	45 l/min (11.9 US gpm)	80 l/min (21.1 US gpm)	150 l/min (39.6 US gpm)	200 l/min (52.8 US gpm)
	U (work port)	30 l/min (7.9 US gpm)	55 l/min (14.5 US gpm)	100 l/min (26.4 US gpm)	180 l/min (47.6 US gpm)	250 l/min (66 US gpm)
Max. pressure		Aluminium body = 210 bar (3050 psi) Steel body = 350 bar (5100 psi)				
Fluid		mineral based oil				
Viscosity		from 10 to 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)				
Environmental temp. for working conditions		from -40°C (-40°F) to 100°C (212°F)				
Weight	aluminium	1.20 kg (2.64 lb)	2.05 kg (4.52 lb)	3.70 kg (8.16 lb)	5.92 kg (13.05 lb)	11.67 kg (25.72 lb)
	steel	2.63 kg (5.80 lb)	4.50 kg (9.92 lb)	9.37 kg (20.66 lb)	14.48 kg (31.92 lb)	19.50 kg (42.99 lb)

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



Dimensions



Valve type	U	M	T	Ap	Bp	Valve type	U	M	T	Ap	Bp
VEP 38	G3/8	G1/4	G1/2	G1/4	G3/8	VEP 38/SAE	SAE8	SAE6	SAE10	SAE6	SAE8
VEP 12	G1/2	G1/4	G3/4	G3/8	G1/2	VEP 12/SAE	SAE10	SAE6	SAE12	SAE8	SAE10
VEP 34	G3/4	G1/4	G1"	G1/2	G3/4	VEP 34/SAE	SAE12	SAE6	SAE16	SAE10	SAE12
VEP 100	G1"	G1/4	G1"1/4	G3/4	G1"	VEP 100/SAE	SAE16	SAE6	SAE20	SAE12	SAE16
VEP 114	G1"1/4	G1/4	G1"1/2	G3/4	G1"1/4	VEP 114/SAE	SAE20	SAE6	SAE24	SAE12	SAE20

Dimensions are in mm-in

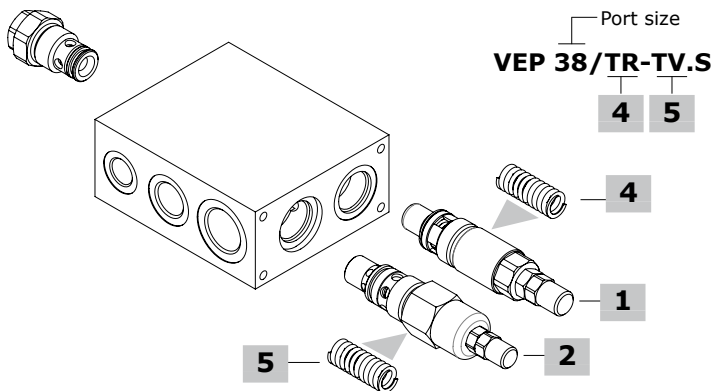
Valve type	A	B	C	D	E	F	G	H	I	L	M1	N	O	ØY	P	Q	R	S	V
VEP 38	6	28	6	6	78	6	40	20	17	28	98	168.5	60	M6	20	33	29	90	10.5
VEP 38/SAE	0.24	1.10	0.24	0.24	3.07	0.24	1.57	0.79	0.67	1.10	3.85	6.63	2.36		0.79	1.30	1.14	3.54	0.41
VEP 12	6	38	6	6	88	6	50	25	19	36	120	200	67	M6	25	40	36	100	13
VEP 12/SAE	0.24	1.50	0.24	0.24	3.46	0.24	1.97	0.98	0.75	1.42	4.72	7.87	2.64		0.98	1.57	1.42	3.94	0.51
VEP 34	8	44	8	8	114	8	60	30	30	40	150	243	76.5	M8	28	52	40	130	16.5
VEP 34/SAE	0.31	1.73	0.31	0.31	4.49	0.31	2.36	1.18	1.18	1.57	5.90	9.57	3.01		1.10	2.05	1.57	5.11	0.65
VEP 100	10	50	10	10	130	10	70	35	30	70	180	285	88.5	M6	32	60	58	150	16.5
VEP 100/SAE	0.39	1.97	0.39	0.39	5.11	0.39	2.75	1.38	1.18	2.75	7.09	11.22	3.48		1.26	2.36	2.28	5.90	0.65
VEP 114	10	60	10	10	160	10	80	40	40	80	200	304	88.5	M8	35	70	60	180	15.5
VEP 114/SAE	0.39	2.36	0.39	0.39	6.3	0.39	3.15	1.57	1.57	3.15	7.87	11.97	3.48		1.38	2.75	2.34	7.09	0.61

Logic valves

Two pump "hi-low" unloading-valves

VEP

Ordering codes and description composition



VEP complete valves

Single type valve configuration

High pressure (Ap): range 180-350 bar (2600-5075 psi) and standard setting 280 bar (4060 psi) at 5 l/min (1.32 US gpm); Low Pressure (Bp): see below

TYPE CODE DESCRIPTION

Configuration with G3/8 standard thread

VEP 38/TR-TV.S 1220021101 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

VEP 38/TR-TV.S/ac 1220022102 Steel body, as previous one

Configuration with G1/2 standard thread

VEP 12/TR-TV.S 1220031101 Aluminium body
Bp: range 5-80 bar (72.5-1160 psi) - Standard setting 40 bar (580 psi) at 5l/min (1.32 US gpm)

VEP 12/TR-TV.S/ac 1220032100 Steel body, as previous one

Configuration with G3/4 standard thread

VEP 34/TR-TV.S 1220041101 Aluminium body
Bp: range 10-80 bar (145-1160 psi) - Standard setting 50 bar (725 psi) at 5 l/min (1.32 US gpm)

VEP 34/TR-TV.S/ac 1220042100 Steel body, as previous one

Configuration with G1" standard thread

VEP 100/TR-TV.S 1220051101 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

VEP 100/TR-TV.S/ac 1220052101 Steel body, as previous one

Configuration with G1"1/4 standard thread

VEP 114/TR-TV.S 1220061101 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

VEP 114/TR-TV.S/ac 1220062100 Steel body, as previous one

Configuration with SAE8 standard thread

VEP 38/TR-TV.S/SAE 1220021200 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

Configuration with SAE10 standard thread

VEP 12/TR-TV.S/SAE 1220031101 Aluminium body
Bp: range 5-80 bar (72.5-1160 psi) - Standard setting 40 bar (580 psi) at 5l/min (1.32 US gpm)

Configuration with SAE12 standard thread

VEP 34/TR-TV.S/SAE 1220041200 Aluminium body
Bp: range 10-80 bar (145-1160 psi) - Standard setting 50 bar (725 psi) at 5 l/min (1.32 US gpm)

Configuration with SAE16 standard thread

VEP 100/TR-TV.S/SAE 1220051200 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

VEP complete valves (continue)

TYPE CODE DESCRIPTION

Configuration with SAE20 standard thread

VEP 114/TR-TV.S/SAE 1220061200 Aluminium body
Bp: range 20-80 bar (290-1160 psi) - Standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

For other steel body configurations, other port sizes and configurations with FPM (Viton) seals, contact our Sales Dpt.

1 Direct acting pressure relief valve

Standard setting 160 bar at 5 l/min (2320 psi at 1.32 US gpm)

TYPE CODE DESCRIPTION

For G3/8 and SAE8 ports configuration

VMP 5/TR.S 1100520401 Setting range 50-220 bar (725-3200 psi) (Ap)

For G1/2, G3/4, SAE10 and SAE12 ports configuration

VMP 10/TR.S 1100530401 Setting range 50-220 bar (725-3200 psi) (Ap)

For G1", G1"1/4, SAE16 and SAE20 ports configuration

VMP 20/TR.S 1100540403 Setting range 50-220 bar (725-3200 psi) (Ap)

2 Sequence valve

Setting range 20-80 bar (290-1150 psi) (Lp)

Standard setting 50 bar at 5 l/min (725 psi at 1.32 US gpm)

TYPE CODE DESCRIPTION

VDS/VEP 38/TV.S 1205020400 For G3/8 - SAE8 port configuration

VDS/VEP 12/TV.S 1205030400 For G1/2 - SAE10 port configuration

VDS/VEP 34/TV.S 1205040405 For G3/4 - SAE12 port configuration

VDS/VEP 100/TV.S 1205050400 For G1" - SAE16 port configuration

VDS/VEP 114/TV.S 1205060400 For G1"1/4 - SAE20 port configuration

3 Check valve

Opening pressure 0.5 bar (7.25 psi)

TYPE CODE DESCRIPTION

VUI 38/Pa0,5 1300020400 For G3/8 - SAE8 port configuration

VUI 12/Pa0,5 pass.magg 1300030401 For G1/2 - SAE10 port configuration

VUI 34/Pa0,5 pass.magg 1300040401 For G3/4, G1", SAE12, SAE16 port config.

VUI 100/Pa0,5 pass.magg 1300050401 For G1"1/4, SAE20 port configuration

4 Pressure setting springs

TYPE CODE DESCRIPTION

For VMP 5 valve on VEP 38 complete valve (Ap)

TS 3MOL315330 Setting range 50-220 bar (725-3200 psi)

TR 3ML1143600 Setting range 180-350 bar (2600-5100 psi)

For VMP 10 valve on VEP 12 and VEP 34 complete valves (Ap)

TS 3MOL317420 Setting range 50-220 bar (725-3200 psi)

TR 3MOL317440 Setting range 180-350 bar (2600-5100 psi)

For VMP 20 valve on VEP 100 and 114 complete valves (Ap)

TS 3ML1204200 Setting range 50-220 bar (725-3200 psi)

TR 3ML1214500 Setting range 180-350 bar (2600-5100 psi)

5 Pressure setting springs

TYPE CODE DESCRIPTION

For VDS/VEP 38 valve on VEP 38 complete valve (Bp)

TB 3MOL314311 Setting range 5-40 bar (72.5-580 psi)

TV 3MOL314330 Setting range 20-80 bar (290-1150 psi)

For VDS/VEP 12 valve on VEP 12 complete valve (Bp)

TV 3MOL317420 Setting range 5-80 bar (72.5-1150 psi)

For VDS/VEP 34 valve on VEP 34 complete valve (Bp)

TB 3ML1174500 Setting range 10-50 bar (145-725 psi)

TV 3ML1204200 Setting range 10-80 bar (145-1150 psi)

For VDS/VEP 100 valve on VEP 100 complete valve (Bp)

TB 3MOL314311 Setting range 5-40 bar (72.5-580 psi)

TV 3MOL314330 Setting range 20-80 bar (290-1150 psi)

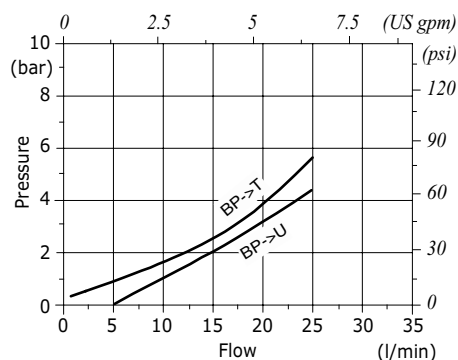
For VDS/VEP 114 valve on VEP 114 complete valve (Bp)

TB 3MOL314311 Setting range 5-40 bar (72.5-580 psi)

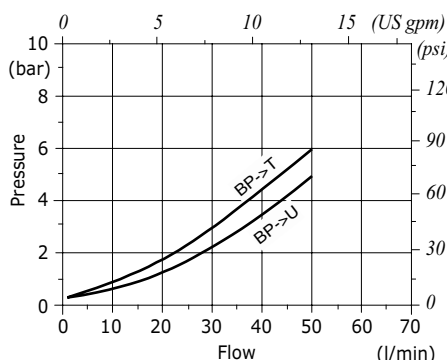
TV 3MOL314330 Setting range 20-80 bar (290-1150 psi)

Rating diagrams

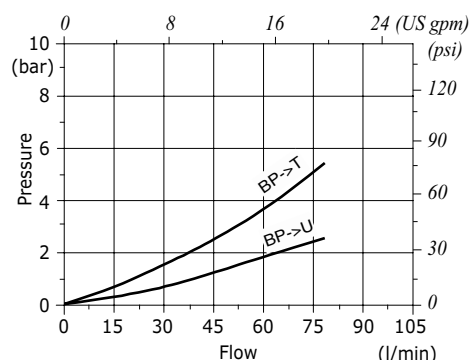
VEP 38 pressure drop vs. flow
from Bp→T and Bp→U



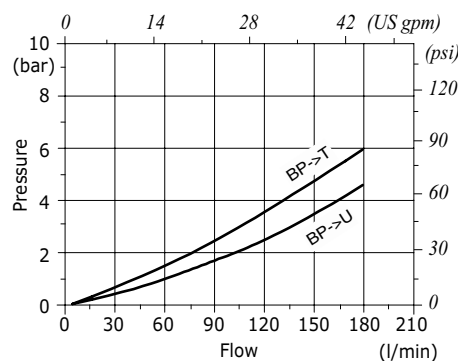
VEP 12 pressure drop vs. flow
from BP→T and BP→U



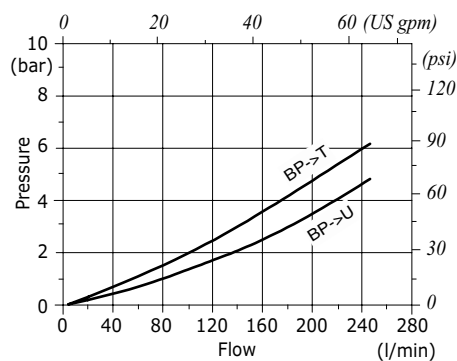
VEP 34 pressure drop vs. flow
from Bp→T and Bp→U



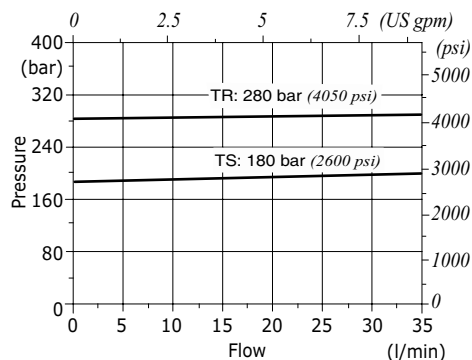
VEP 100 pressure drop vs. flow
from Bp→T and Bp→U



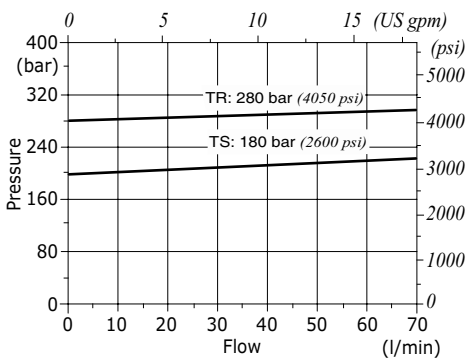
VEP 114 pressure drop vs. flow
from Bp→T and Bp→U



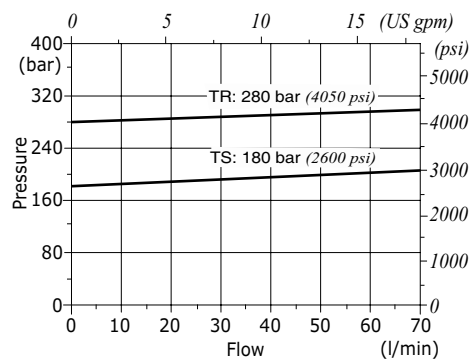
VEP 38: VMP setting example
at 5 l/min (1.32 US gpm)



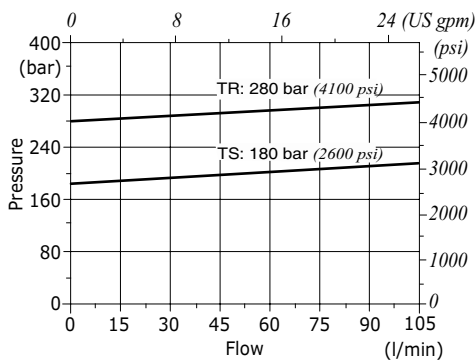
VEP 12: VMP setting example
at 5 l/min (1.32 US gpm)



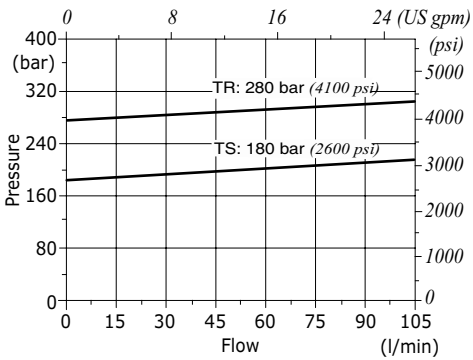
VEP 34: VMP setting example
at 5 l/min (1.32 US gpm)



VEP 100: VMP setting example
at 5 l/min (1.32 US gpm)



VEP 114: VMP setting example
at 5 l/min (1.32 US gpm)





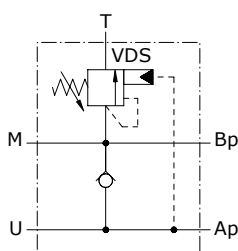
Type VEP/FC two pump "high-low" unloading valves

- Single acting
- Flanged solution

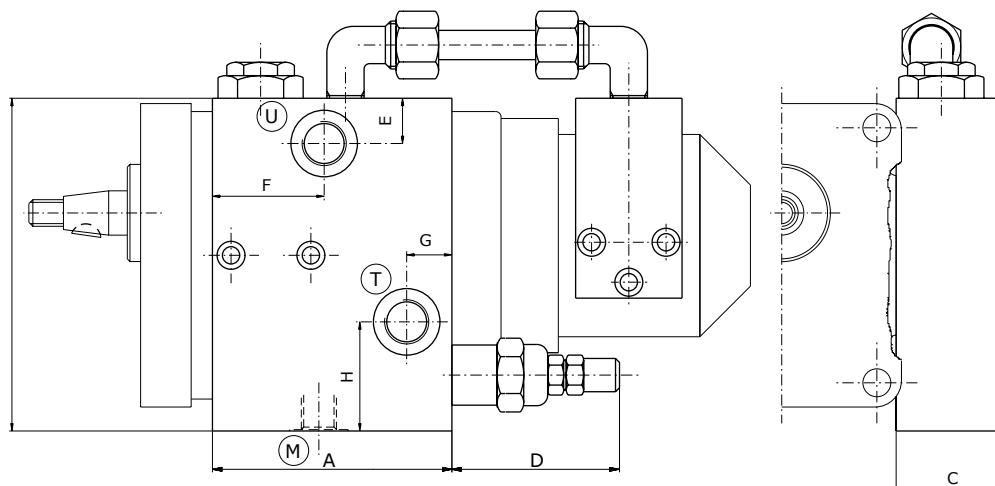
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

Line		VEP/FC 38	VEP/FC 12	VEP/FC 34	VEP/FC 100
Nominal flow	Ap (high pressure inlet port)	10 l/min (2.6 US gpm)	20 l/min (5.3 US gpm)	30 l/min (7.9 US gpm)	50 l/min (13.2 US gpm)
	Bp (low pressure inlet port)	25 l/min (6.6 US gpm)	45 l/min (11.9 US gpm)	80 l/min (21.1 US gpm)	150 l/min (39.6 US gpm)
	U (work port)	30 l/min (7.9 US gpm)	55 l/min (14.5 US gpm)	100 l/min (26.4 US gpm)	180 l/min (47.6 US gpm)
Max. pressure		Aluminium body = 210 bar (3050 psi) Steel body = 350 bar (5100 psi)			
Fluid		mineral based oil			
Viscosity		from 10 to 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)			
Weight	aluminium	1.36 kg (3.05 lb)	2.50 kg (5.51 lb)	3.50 kg (7.72 lb)	6.21 kg (13.69 lb)
	steel	2.48 kg (5.47 lb)	4.22 kg (9.30 lb)	7.91 kg (17.44 lb)	-

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



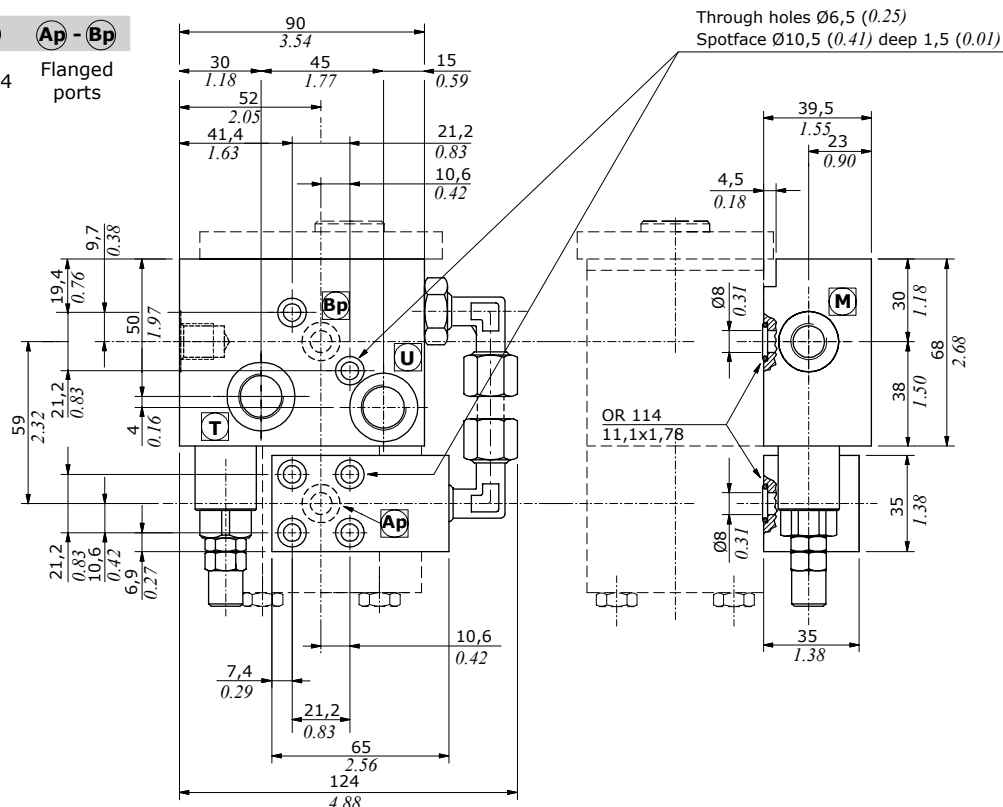
Valve type		(M)	(T-U)
VEP/FC 38 Gr 1+1	G1/4	G3/8	
VEP/FC 12 Gr 2+1	G1/4	G1/2	
VEP/FC 12 Gr 2+2	G1/4	G1/2	
VEP/FC 34 Gr 3+1	G1/4	G3/4	
VEP/FC 34 Gr 3+1	G1/4	G3/4	
VEP/FC 34 Gr 3+2	G1/4	G3/4	
VEP/FC 50 Gr 3+3	G1/4	G1"	
VEP/FC 100 Gr 3,5+3	G1/4	G1"	



Dimensions are in mm-in

Valve type	A	B	C	D	E	F	G	H	Ap	Bp
VEP/FC 38 Gr 1+1	80 3.15	90 3.54	40 1.57	60 2.36	15 0.59	46 1.81	18 0.7	30 1.18	10 0.39	25 0.98
VEP/FC 12 Gr 2+1	90 3.54	125 4.92	40 1.57	65 2.56	17 0.67	43 1.69	17 0.67	41 1.61	15 0.59	45 1.77
VEP/FC 12 Gr 2+2	90 3.54	125 4.92	40 1.57	65 2.56	17 0.67	43 1.69	17 0.67	41 1.61	25 0.98	45 1.77
VEP/FC 34 Gr 3+1	120 4.72	130 5.11	60 2.36	72 2.83	30 1.18	64 2.52	22 0.86	51 2	20 0.79	80 3.15
VEP/FC 34 Gr 3+1	120 4.72	130 5.11	60 2.36	72 2.83	30 1.18	64 2.52	22 0.86	51 2	35 1.38	80 3.15
VEP/FC 34 Gr 3+2	120 4.72	130 5.11	60 2.36	72 2.83	30 1.18	64 2.52	22 0.86	51 2	45 1.77	80 3.15
VEP/FC 50 Gr 3+3	140 5.51	160 6.3	75 2.95	90 3.54	31 1.22	84 3.3	32 1.26	66 2.6	60 2.36	120 4.72
VEP/FC 100 Gr 3,5+3	140 5.51	160 6.3	75 2.95	90 3.54	31 1.22	84 3.3	32 1.26	66 2.6	80 3.15	150 5.9

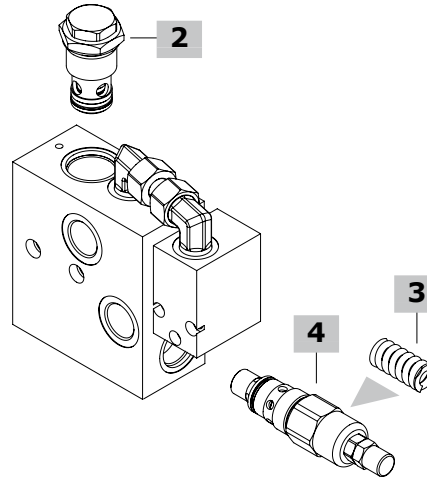
Valve type	(U)	(T)	(M)	(Ap - Bp)
VEP/FC 38 Gr 1+1 PLP	G3/8	G3/8	G1/4	Flanged ports



Ordering codes and description composition

Port size
VEP/FC 38/Gr1+1/TV.S

3


VEP/FC complete valves

Single type valve configuration; standard setting is referred to 5 l/min (1.32 US gpm)

Configuration with G3/8 standard thread

TYPE: **VEP/FC 38/Gr1+1/TV.S** CODE: 1222021100
DESCRIPTION: Aluminium body, range 20-80 bar (290-1160 psi), standard setting 60 bar (870 psi)

TYPE: **VEP/FC 38/Gr1+1/TV.S/ac** CODE: 1222022100
DESCRIPTION: Steel body, as previous one

TYPE: **VEP/FC 38/Gr1+1/PLP/TV.S** CODE: 1222021107
DESCRIPTION: Aluminium body, range 20-80 bar (290-1160 psi), standard setting 60 bar (870 psi), with "PLP" special flange

Configuration with G1/2 standard thread

TYPE: **VEP/FC 12/Gr2+1/TV.S** CODE: 1222031100
DESCRIPTION: Aluminium body, range 5-80 bar (72.5-1160 psi), standard setting 40 bar (580 psi)

TYPE: **VEP/FC 12/Gr2+1/TV.S/ac** CODE: 1222032105
DESCRIPTION: Steel body, as previous one

TYPE: **VEP/FC 12/Gr2+2/TV.S** CODE: 1222031101
DESCRIPTION: Aluminium body, range 5-80 bar (72.5-1160 psi), standard setting 40 bar (580 psi)

TYPE: **VEP/FC 12/Gr2+2/TV.S/ac** CODE: 1222032100
DESCRIPTION: Steel body, as previous one

Configuration with G3/4 standard thread

TYPE: **VEP/FC 34/Gr3+1/TV.S** CODE: 1222041100
DESCRIPTION: Aluminium body, range 10-50 bar (145-725 psi), standard setting 50 bar (725 psi)

TYPE: **VEP/FC 34/Gr3+2/TV.S** CODE: 1222041101
DESCRIPTION: Aluminium body, range 10-80 bar (145-1160 psi), standard setting 50 bar (725 psi)

TYPE: **VEP/FC 34/Gr3+2/TV.S/ac** CODE: 1222042101
DESCRIPTION: Steel body, as previous one

TYPE: **VEP/FC 34/Gr3+3/TV.S** CODE: 1222041102
DESCRIPTION: Aluminium body, range 10-80 bar (145-1160 psi), standard setting 50 bar (725 psi)

Configuration with G 1" standard thread

TYPE: **VEP/FC 100/Gr3,5+3/TV.S** CODE: 1222051100
DESCRIPTION: Aluminium body, range 20-80 bar (290-1160 psi), standard setting 60 bar (870 psi)

For not listed steel body configurations, different flanging, SAE thread, or configurations with FPM (Viton) seals, please contact our Sales Dpt.

1 Sequence valve

Setting range 20-80 bar (290-1150 psi) (Lp)

Standard setting 160 bar at 5 l/min (2320 psi at 1.32 US gpm)

TYPE	CODE	DESCRIPTION
VDS/VEP 38/TV.S	1205020400	For G3/8 port configuration
VDS/VEP 12/TV.S	1205030400	For G1/2 port configuration
VDS/VEP 34/TV.S	1205040405	For G3/4 port configuration
VDS/VEP 100/TV.S	1205050400	For G1" port configuration

2 Check valve

Opening pressure 0.5 bar (7.25 psi)

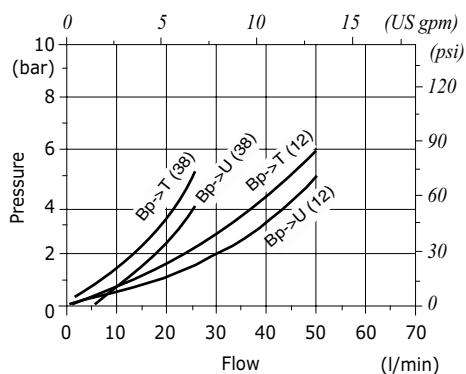
TYPE	CODE	DESCRIPTION
VUI 38/Pa0,5	1300020400	For G3/8 port configuration
VUI 12/Pa0,5 pass.magg	1300030401	For G1/2 port configuration
VUI 34/Pa0,5 pass.magg	1300040401	For G3/4 and G1" port configuration

3 Pressure setting springs

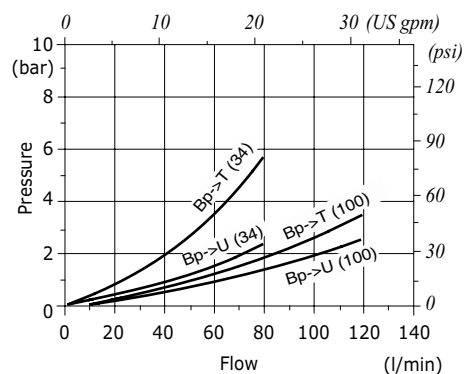
TYPE	CODE	DESCRIPTION
For VDS/VEP 38 valve on VEP/FC 38 complete valve		
TB	3MOL314311	Setting range 5-40 bar (72.5-580 psi)
TV	3MOL314330	Setting range 20-80 bar (290-1150 psi)
For VDS/VEP 12 valve on VEP/FC 12 complete valve		
TV	3MOL317420	Setting range 5-80 bar (72.5-1150 psi)
For VDS/VEP 34 valve on VEP/FC 34 complete valve		
TB	3ML1174500	Setting range 10-50 bar (145-725 psi)
TV	3ML1204200	Setting range 10-80 bar (145-1150 psi)
For VDS/VEP 100 valve on VEP/FC 100 complete valve		
TB	3MOL314311	Setting range 5-40 bar (72.5-580 psi)
TV	3MOL314330	Setting range 20-80 bar (290-1150 psi)

Rating diagrams

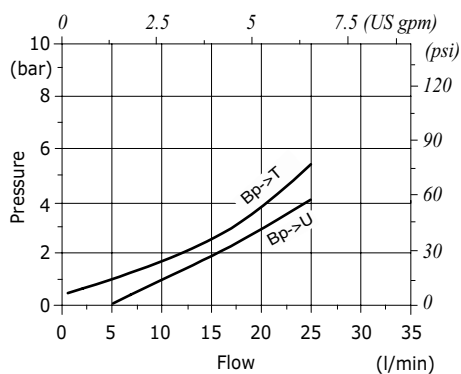
**VEP/FC 38-12 pressure drop vs. flow
from Bp→T and Bp→U**



**VEP/FC 34-100 pressure drop vs. flow
from Bp→T and Bp→U**



**VEP/FC 38 PLP pressure drop vs. flow
from Bp→T and Bp→U**





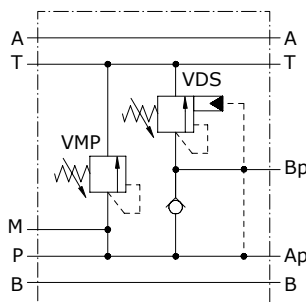
Type VEP/FL two pump "high-low" unloading valves

- Cetop 3 (6-38) - 5 (10-12) - 7 (16-34 and 16-100) flanging
- Flange assembling according to ISO 4401:2005 (CETOP)

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

Line		VEP/FL 6-38	VEP/FL 10-12	VEP/FL 16-34	VEP/FL 16-100
Nominal flow	Ap (high pressure inlet port)	10 l/min (2.6 US gpm)	20 l/min (5.3 US gpm)	30 l/min (7.9 US gpm)	30 l/min (7.9 US gpm)
	Bp (low pressure inlet port)	25 l/min (6.6 US gpm)	45 l/min (11.9 US gpm)	80 l/min (21.1 US gpm)	80 l/min (21.1 US gpm)
	U (work port)	30 l/min (7.9 US gpm)	55 l/min (14.5 US gpm)	100 l/min (26.4 US gpm)	100 l/min (26.4 US gpm)
Max. pressure		Aluminium body = 210 bar (3050 psi) Steel body = 350 bar (5100 psi)			
Fluid		mineral based oil			
Viscosity		from 10 to 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)			
Environmental temp. for working conditions		from -40°C (-40°F) to 100°C (212°F)			
Weight	aluminium	1.56 kg (3.44 lb)	3.01 kg (6.63 lb)	7.05 kg (15.54 lb)	6.32 kg (13.93 lb)
	steel	3.58 kg (7.89 lb)	6.65 kg (14.66 lb)	17.58 kg (38.76 lb)	14.97 kg (33.00 lb)

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



Dimensions

Dimensions are in mm-in

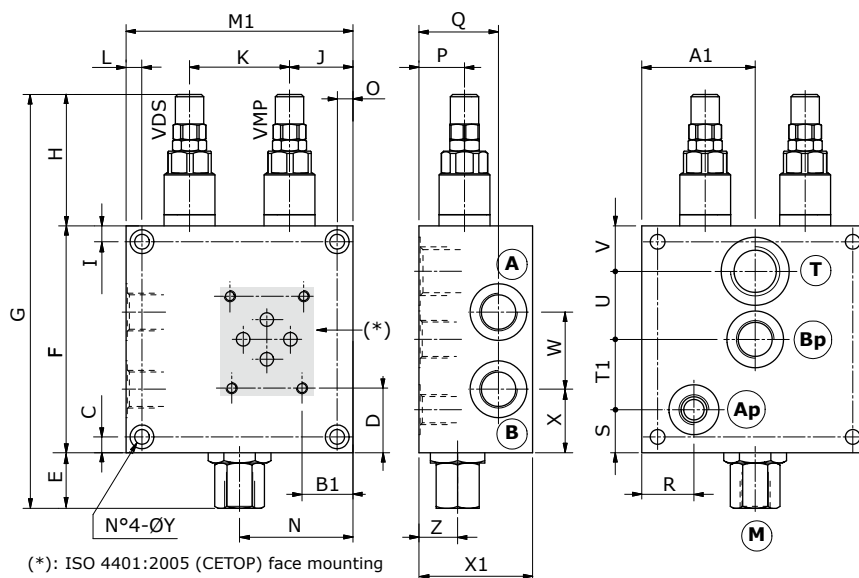
Valve type	A1	B1	ØY	C	D	E
VEP/FL 6-38	50 1.97	21.75 0.86	6,5 0.25	7 0.27	28.5 1.12	26.5 1.04
VEP/FL 10-12	60 2.36	37 1.46	6.5 0.25	7 0.27	30 1.18	33 1.30

Valve type	F	G	H	I	L	M1
VEP/FL 6-38	100 3.94	184.5 7.26	58 2.28	7 0.27	7 0.27	100 3.94
VEP/FL 10-12	120 4.72	219 8.62	66 2.60	7 0.27	7 0.27	120 4.72

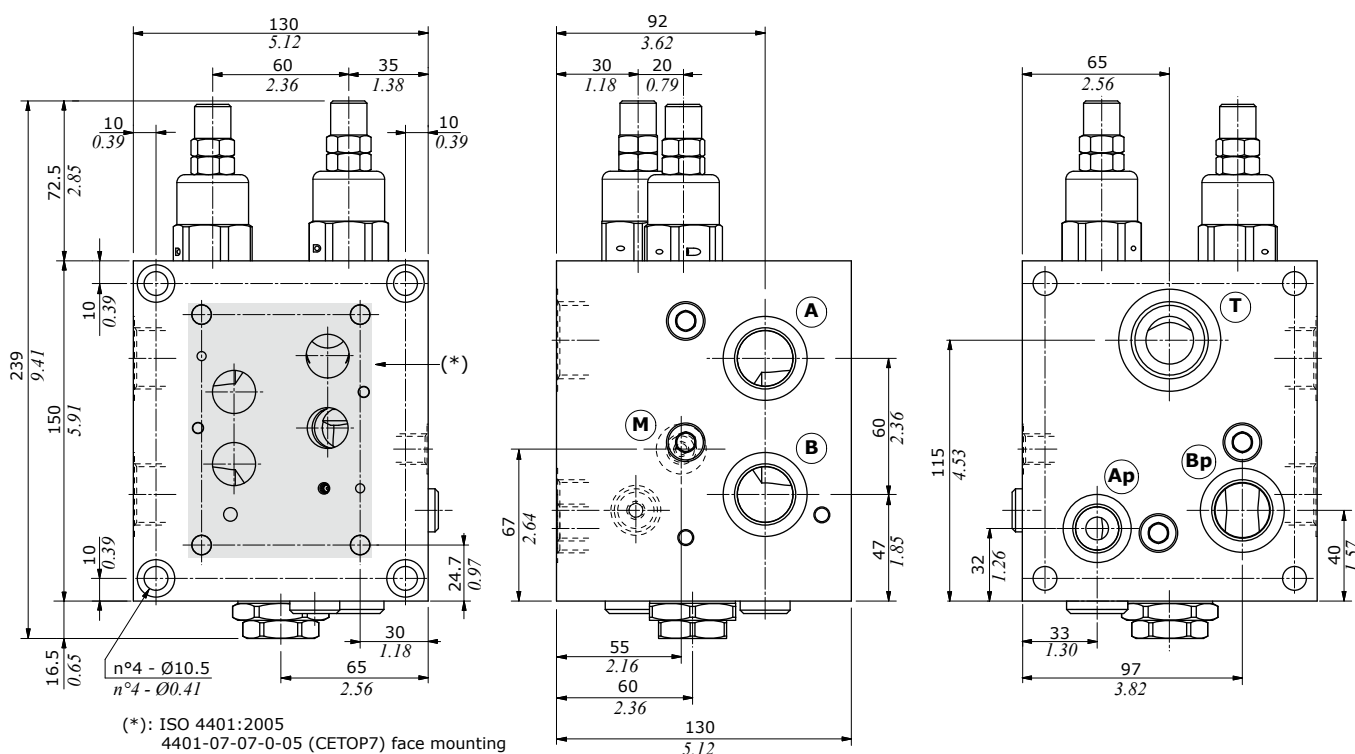
Valve type	N	O	P	Q	R	S
VEP/FL 6-38	50 1.97	7 0.27	20 0.79	35 1.38	23 0.91	19 0.75
VEP/FL 10-12	60 2.36	7 0.27	25 0.98	46 1.81	28 1.10	22 0.87

Valve type	T1	U	V	W	X	X1	Z
VEP/FL 6-38	31 1.22	30 1.18	20 0.79	34 1.34	28 1.10	50 1.97	17 0.67
VEP/FL 10-12	27 1.06	44 1.73	27 1.06	38 1.50	35 1.38	69 2.71	69 2.71

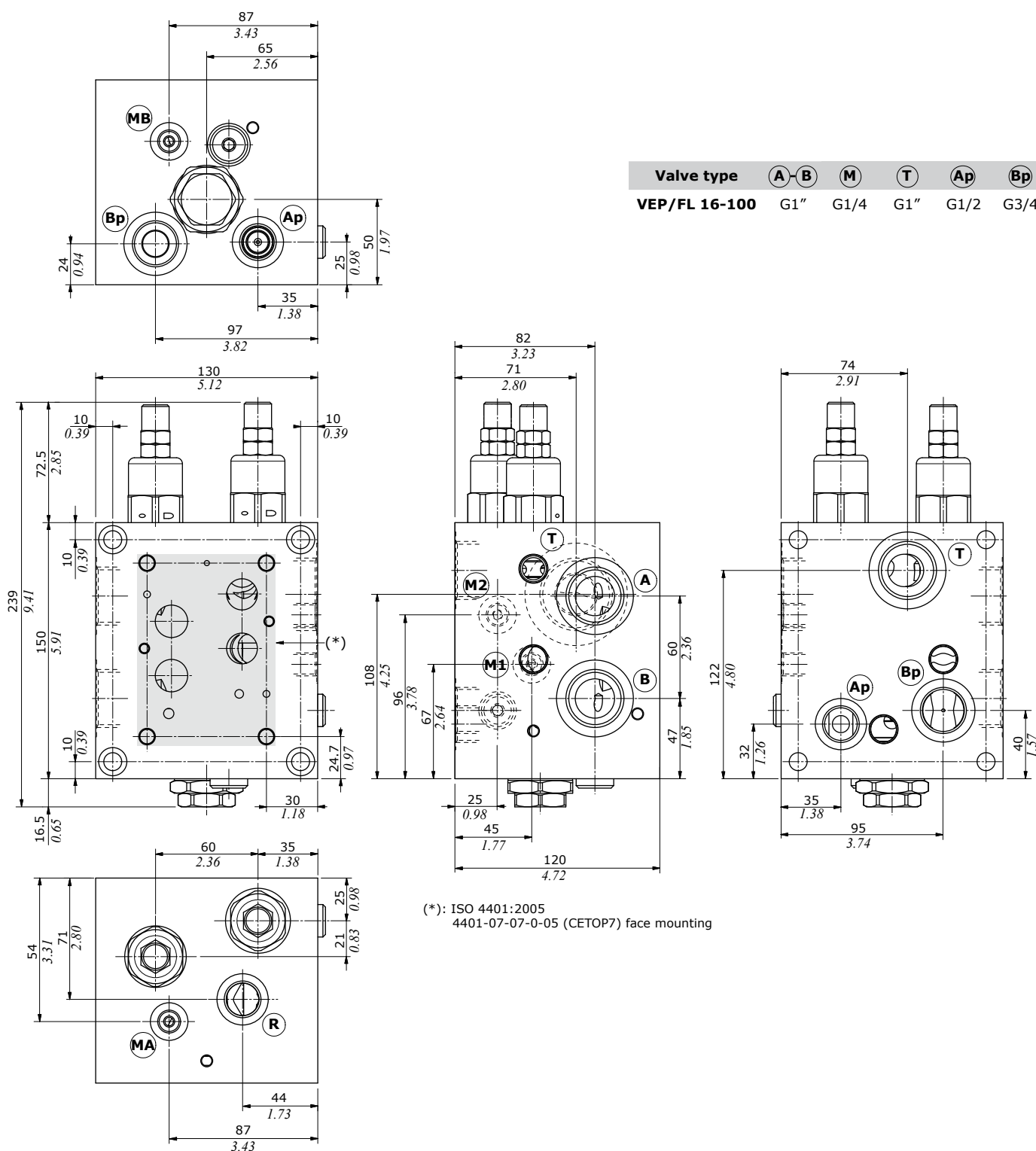
Valve type	A-B	M	T	Ap	Bp
VEP/FL 6-38	G3/8	G1/4	G1/2	G1/4	G3/8
VEP/FL 10-12	G1/2	G1/4	G3/4	G3/8	G1/2



Valve type	A-B	M	T	Ap	Bp
VEP/FL 16-34	G3/4	G1/4	G1"	G1/2	G3/4



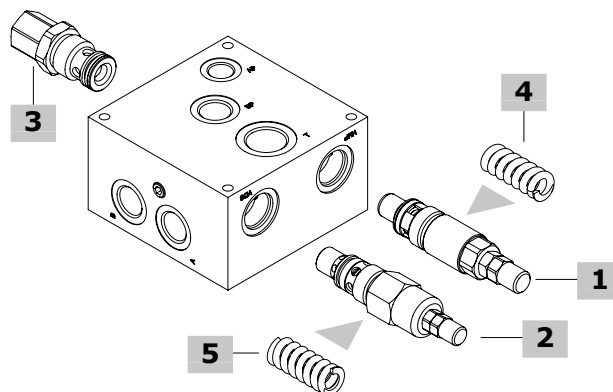
Dimensions



Ordering codes and description composition

Port size
VEP/FL 6-38/TR-TV.S

4 5



VEP/FL complete valves

Single type valve configuration

High pressure (Ap): range 180-350 bar (2600-5075 psi) and standard setting 280 bar (4060 psi) at 5 l/min (1.32 US gpm); Low Pressure (Bp): see below

Configuration with G3/8 standard thread

TYPE: **VEP/FL 6-38/TR-TV.S** CODE: 1224021101

DESCRIPTION: Aluminium body, Bp: range 20-80 bar (290-1160 psi), standard setting 60 bar (870 psi) at 5l/min (1.32 US gpm)

TYPE: **VEP/FL 6-38/TR-TV.S/ac** CODE: 1224022100

DESCRIPTION: Steel body, as previous one

Configuration with G1/2 standard thread

TYPE: **VEP/FL 10-12/TR-TV.S** CODE: 1224031101

DESCRIPTION: Aluminium body, Bp: range 5-80 bar (72.5-1160 psi), standard setting 40 bar (870 psi) at 5l/min (1.32 US gpm)

TYPE: **VEP/FL 10-12/TR-TV.S/ac** CODE: 1224032100

DESCRIPTION: Steel body, as previous one

Configuration with G3/4 standard thread

TYPE: **VEP/FL 16-34/TR-TV.S** CODE: 1224041101

DESCRIPTION: Aluminium body, Bp: range 10-80 bar (145-1160 psi), standard setting 50 bar (725 psi) at 5 l/min (1.32 US gpm)

TYPE: **VEP/FL 16-34/TR-TV.S/ac** CODE: 1224042101

DESCRIPTION: Steel body, as previous one

Configuration with G1" standard thread

TYPE: **VEP/FL 16-100/TR-TV.S** CODE: 1224041151

DESCRIPTION: Aluminium body, Bp: range 10-50 bar (290-1160 psi), standard setting 30 bar (870 psi) at 5l/min (1.32 US gpm)

TYPE: **VEP/FL 16-100/TR-TV.S/ac** CODE: 1224042150

DESCRIPTION: Steel body, as previous one

For other steel body configurations, SAE threads and configurations with FPM (Viton) seals, please contact our Sales Dpt.

1 Direct acting pressure relief valve

Standard setting 160 bar at 5 l/min (2320 psi at 1.32 US gpm)

TYPE	CODE	DESCRIPTION
------	------	-------------

For G3/8 port configuration valve

VMP 5/TR.S	1100520401	Setting range 50-220 bar (725-3200 psi) (Ap)
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For VEP 10-12 and VEP 16-34 valves

VMP 10/TR.S	1100530401	Setting range 50-220 bar (725-3200 psi) (Ap)
--------------------	------------	--

For VEP 16-100 valve

VMP 20/TR.S	1100540403	Setting range 50-220 bar (725-3200 psi) (Ap)
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2 Sequence valve

Sequence cartridge setting range 20-80 bar (290-1150 psi) (Lp)

Standard setting 160 bar at 5 l/min (2320 psi at 1.32 US gpm)

TYPE	CODE	DESCRIPTION
VDS/VEP 38/TV.S	1205020400	For G3/8 port configuration
VDS/VEP 12/TV.S	1205030400	For G1/2 port configuration
VDS/VEP 34/TV.S	1205040405	For G3/4 port configuration
VDS/VEP 34/TB.S	1205040401	For G1" port configuration

3 Check valves

Opening pressure 0.5 bar

TYPE	CODE	DESCRIPTION
VUI 38/Pa0,5.man	1300020413	For G3/8 port configuration
VUI 12/Pa0,5 pass.magg.man	1300030402	For G1/2 port configuration
VUI 34/Pa0,5 pass.magg	1300040401	For G3/4 and G1" port configuration

4 Pressure relief valve setting springs

TYPE	CODE	DESCRIPTION
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For VMP 5 valve on VEP/FL 6-38 complete valve (Ap)

TS	3MOL315330	Setting range 50-220 bar (725-3200 psi)
TR	3ML1143600	Setting range 180-350 bar (2600-5100 psi)

For VMP 10 valve on VEP/FL 10-12 complete valve (Ap)

TS	3MOL317420	Setting range 50-220 bar (725-3200 psi)
TR	3MOL317440	Setting range 180-350 bar (2600-5100 psi)

For VMP 20 valve on VEP/FL 16-34 and 16-100 complete valves (Ap)

TS	3ML1204200	Setting range 50-220 bar (725-3200 psi)
TR	3ML1214500	Setting range 180-350 bar (2600-5100 psi)

5 Sequence valve setting springs

TYPE	CODE	DESCRIPTION
------	------	-------------

For VDS/VEP 38 valve on VEP/FL 6-38 complete valve (Bp)

TB	3MOL314311	Setting range 5-40 bar (72.5-580 psi)
TV	3MOL314330	Setting range 20-80 bar (290-1150 psi)

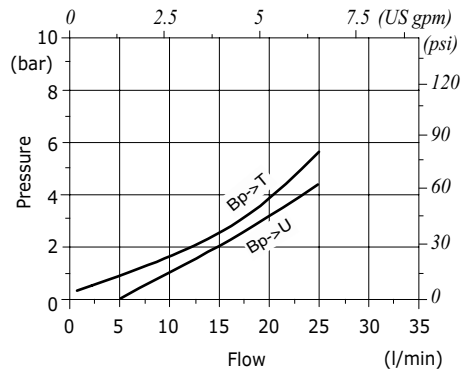
For VDS/VEP 12 valve on VEP/FL 10-12 complete valve (Bp)

TV	3MOL317420	Setting range 5-80 bar (72.5-1150 psi)
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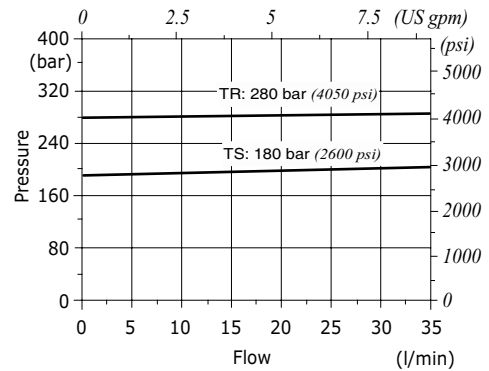
For VDS/VEP 34 valve on VEP/FL 16-34 and 16-100 complete valves (Bp)

TB	3ML1174500	Setting range 10-50 bar (145-725 psi)
TV	3ML1204200	Setting range 10-80 bar (145-1150 psi)

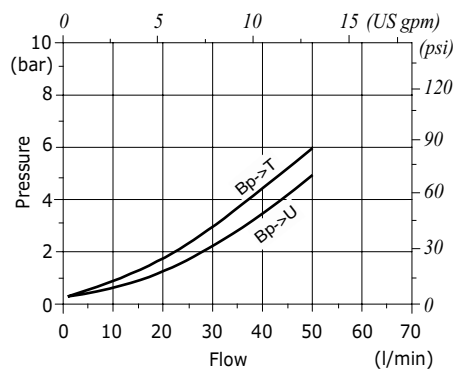
**VEP/FL 6-38 pressure drop vs. flow
from Bp→T and Bp→U**



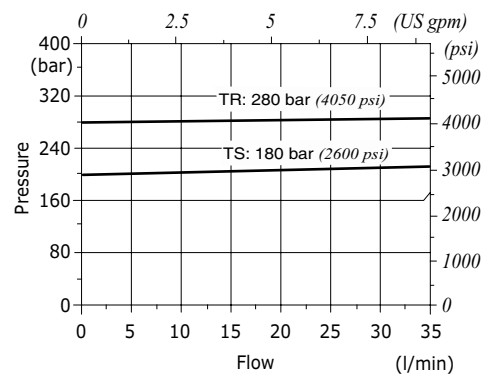
**VEP/FL 6-38: VMP setting example
at 5 l/min (1.32 US gpm)**



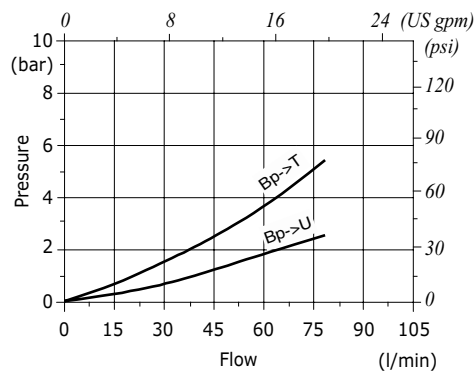
**VEP/FL 10-12 pressure drop vs. flow
from Bp→T and Bp→U**



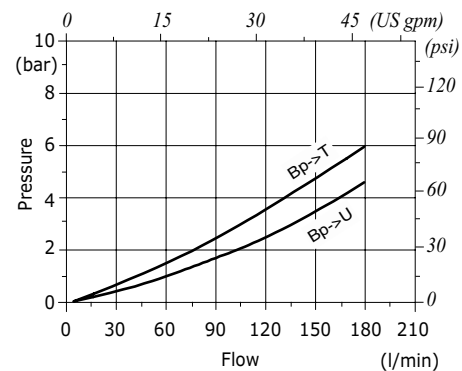
**VEP/FL 10-12: VMP setting example
at 5 l/min (1.32 US gpm)**



**VEP/FL 16-34 pressure drop vs. flow
from Bp→T and Bp→U**



**VEP/FL 100 pressure drop vs. flow
from Bp→T and Bp→U**





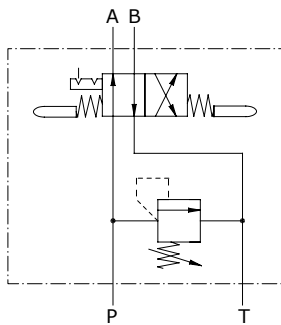
Type SD../IAM automatic reversing valves

- Mechanical control
- Cast iron body

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

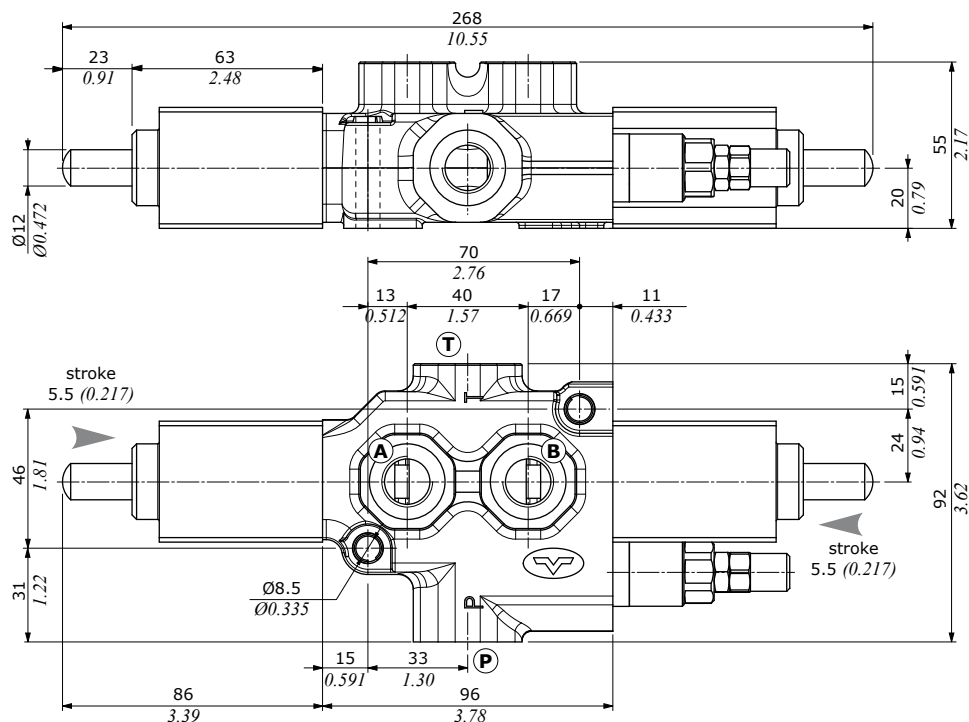
	SD4/IAM 38-12	SD11/IAM 12
Nominal flow	35 l/min (9.2 US gpm)	65 l/min (17.2 US gpm)
Max. pressure	210 bar (3050 psi)	
Fluid	mineral based oil	
Viscosity	from 10 to 200 cSt	
Max. level of contamination	18/16/13 ISO4406	
Fluid temperature	with NBR seals from -20°C (-4°F) to 80°C (176°F)	
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)	
Weight	cast iron 2.45 kg (5.40 lb)	6.16 kg (13.58 lb)

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

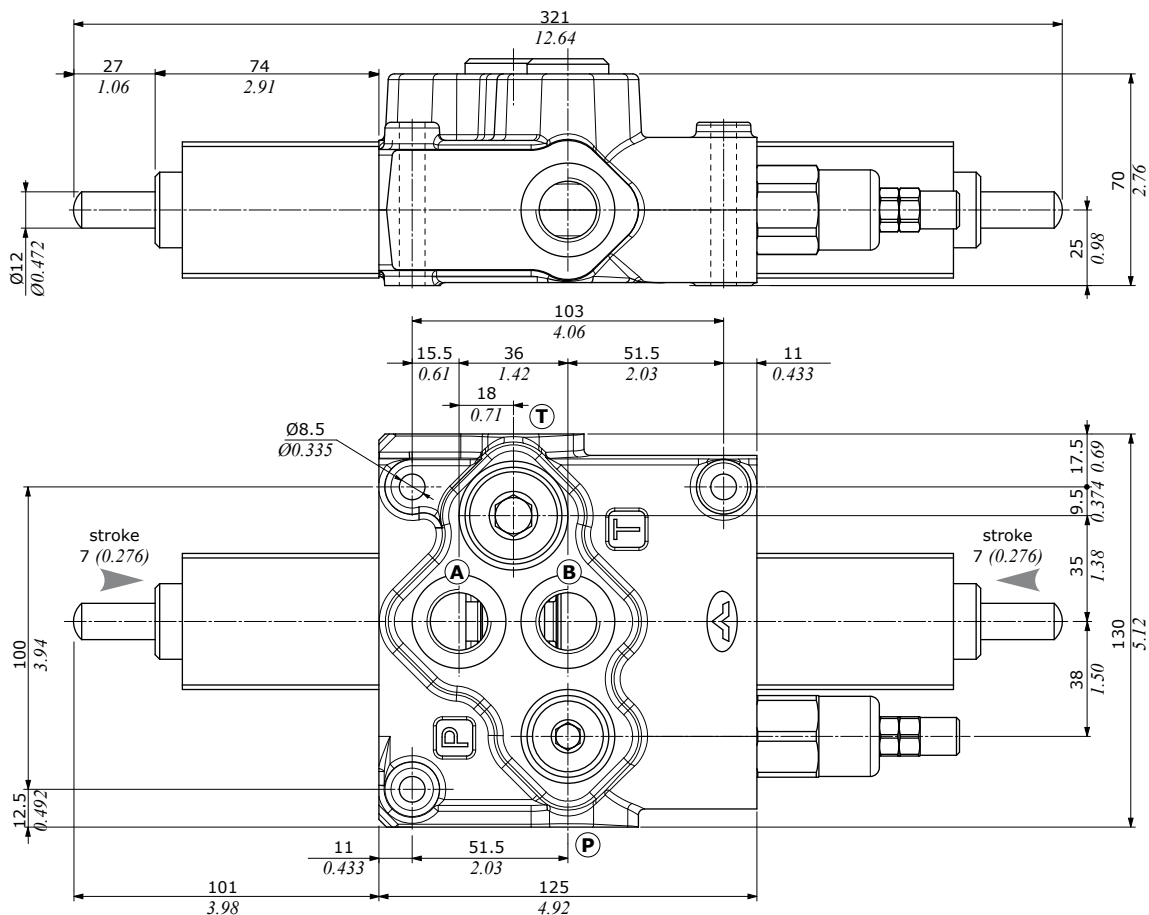


Dimensions

Valve type	All ports
SD4/IAM 38	G3/8
SD4/IAM 12	G1/2



Valve type	P	A	B	T
SD11/IAM 12	G1/2	G3/4		



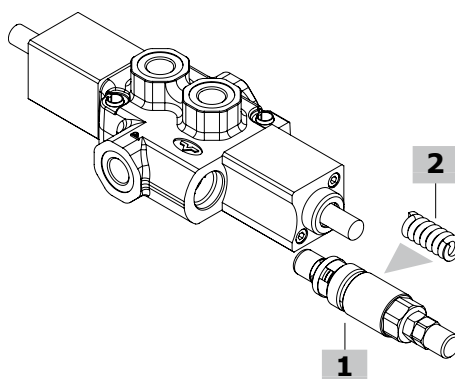
Ordering codes and description composition

Port size

SD4/IAM 38/VMP 5.TS.S/gh

2

1



SD../IAM complete valves

Configuration with G3/8 ports

TYPE: **SD4/IAM 38/VMP 5.TS.S/gh** CODE: 1910023102
DESCRIPTION: With pressure relief valve, range 50-220 bar (725-3200 psi), std. setting 160 bar @ 5 l/min (2320 psi @ 1.32 US gpm)
TYPE: **SD4/IAM/SV 38/gh** CODE: 1910023103
DESCRIPTION: Without pressure relief valve

Configuration with G1/2 ports

TYPE: **SD4/IAM 12/VMP 5.TS.S/gh** CODE: 1910023152
DESCRIPTION: With pressure relief valve, range 50-220 bar (725-3200 psi) std. setting 160 bar @ 5 l/min (2320 psi @ 1.32 US gpm)
TYPE: **SD11/IAM 12/VMP 10.TS.S/gh** CODE: 1910033102
DESCRIPTION: With pressure relief valve, range 50-220 bar (725-3200 psi) std. setting 160 bar @ 5 l/min (2320 psi @ 1.32 US gpm)
TYPE: **SD4/IAM/SV 12/gh** CODE: 1910023153
DESCRIPTION: Without pressure relief valve
TYPE: **SD11/IAM/SV 12/gh** CODE: 1910033103
DESCRIPTION: Without pressure relief valve
For different port threads configuration, SAE thread and configurations with FPM (Viton) seals, please contact our Sales Dpt.

1 Pressure relief valves

TYPE	CODE	DESCRIPTION
VMP 5/TS.S	1100520400	For SD4 valve, range 50-220 bar (725-3200 psi)
VMP 10/TS.S	1100530400	For SD11 valve, range 50-220 bar (725-3200 psi)

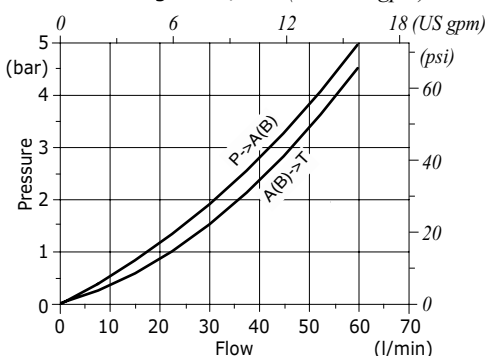
2 Pressure setting spring

TYPE	CODE	DESCRIPTION
For VMP 5 valve		
TB	3MOL314311	Setting range 5-40 bar (72.5-580 psi)
TV	3MOL314330	Setting range 20-80 bar (290-1160 psi)
TS	3MOL315330	Setting range 50-220 bar (725-3200 psi)
For VMP 10 valve		
TB	3MOL316410	Setting range 5-40 bar (72.5-580 psi)
TV	3ML1154300	Setting range 20-80 bar (290-1160 psi)
TS	3MOL317420	Setting range 50-220 bar (725-3200 psi)

Rating diagrams

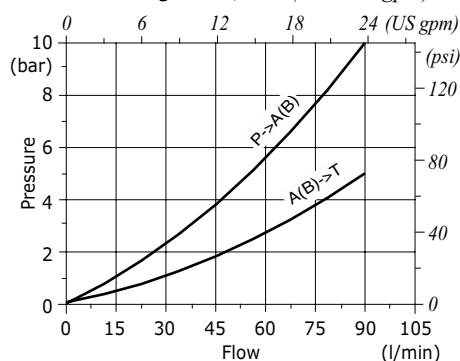
SD4/IAM 38 pressure drop vs. flow

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



SD11/IAM 12 pressure drop vs. flow

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





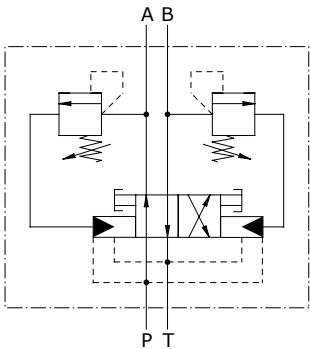
Type VIA/AP automatic reversing valves

- Face mounting cetop 3 (6-38) or cetop 5 (10-12)
- Cast iron body

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

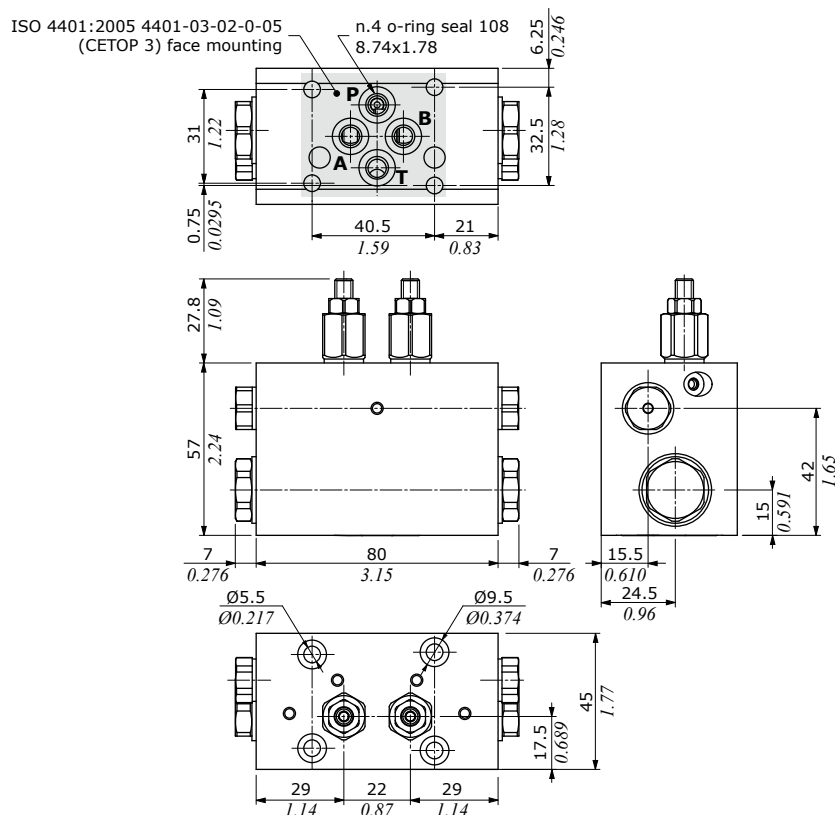
	VIA/AP 6-38	VIA/AP 10-12
Nominal flow	30 l/min (7.9 US gpm)	60 l/min (15.9 US gpm)
Min. flow		4 l/min (1.06 US gpm)
Max. pressure		210 bar (3050 psi)
Max. reversing frequency		30/min
Fluid		mineral based oil
Viscosity		from 10 to 200 cSt
Max. level of contamination		18/16/13 ISO4406
Fluid temperature		with NBR seals from -20°C (-4°F) to 80°C (176°F)
Environmental temp. for working conditions		from -40°C (-40°F) to 100°C (212°F)
Weight	cast iron	
	1.45 kg (3.20 lb)	2.31 kg (5.09 lb)

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

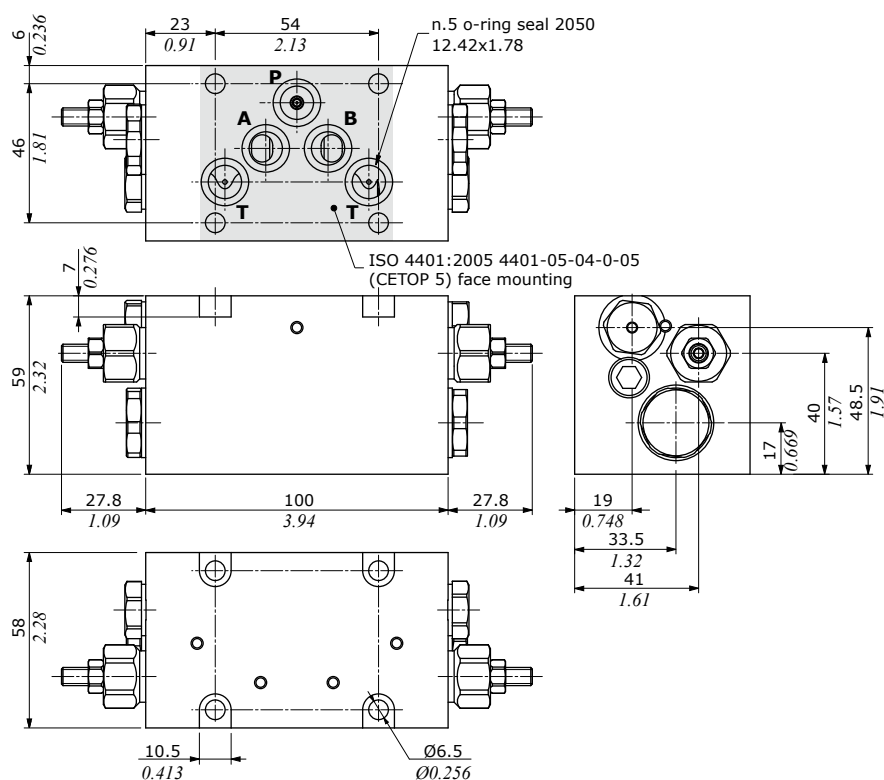


Dimensions

VIA/AP 6-38

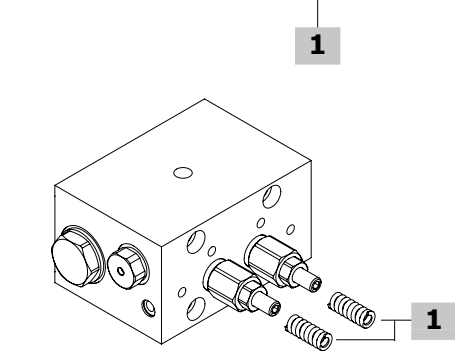


VIA/AP 10-12

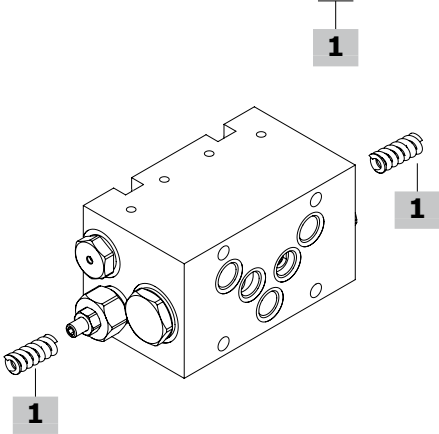


Ordering codes and description composition

VIA/AP 6-38/VMP01/TS.S/gh



VIA/AP 10-12/VMP02/TS.S/gh



VIA/AP complete valves

VMP direct type valve configuration; range 50-220 bar (725-3200 psi), standard setting 150 bar @ 3 l/min (2175 psi @ 0.79 US gpm)

TYPE: **VIA/AP 6-38/VMP01/TS.S/gh** CODE: 1915023101

DESCRIPTION: Cast iron body,, CETOP 3 flange

TYPE: **VIA/AP 10-12/VMP02/TS.S/gh** CODE: 1915033101

DESCRIPTION: Cast iron body, CETOP 5 flange

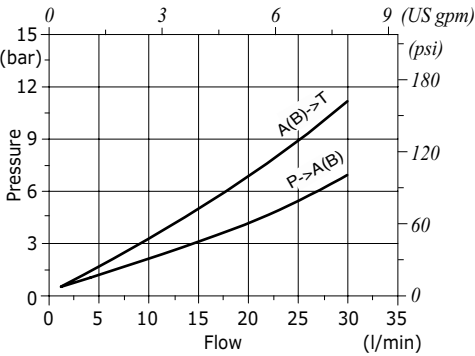
For configurations with FPM (Viton) seals and SAE threads, please contact our Sales Dpt.

1 Pressure setting spring

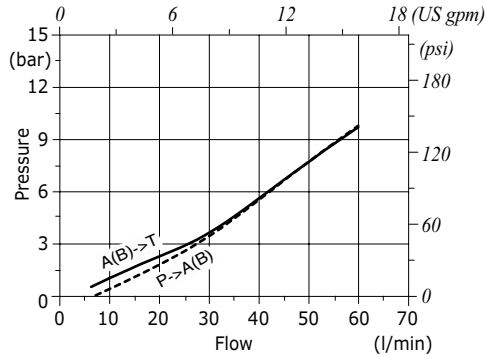
TYPE	CODE	DESCRIPTION
For VIA/AP 6-38 valve		
TV	3ML1061900	Setting range 50-80 bar (72.5-1160 psi)
TS	3ML1071900	Setting range 50-220 bar (725-3200 psi)
For VIA/AP 10-12 valve		
TV	3ML1081400	Setting range 50-80 bar (72.5-1160 psi)
TS	3ML1081401	Setting range 50-220 bar (725-3200 psi)

Rating diagrams

VIA/AP 6-38 pressure drop vs. flow



VIA/AP 10-12 pressure drop vs. flow





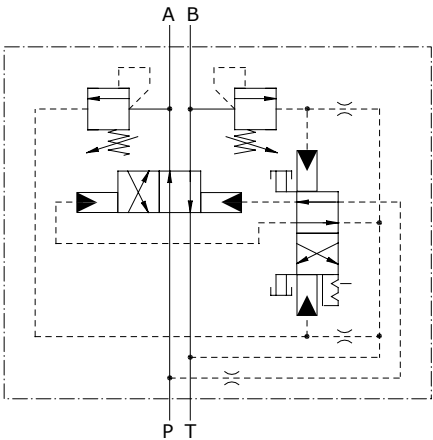
Type VIA/AP 12/L/CMEB automatic reversing valves

- Mechanical and hydraulic control
- Cast iron body

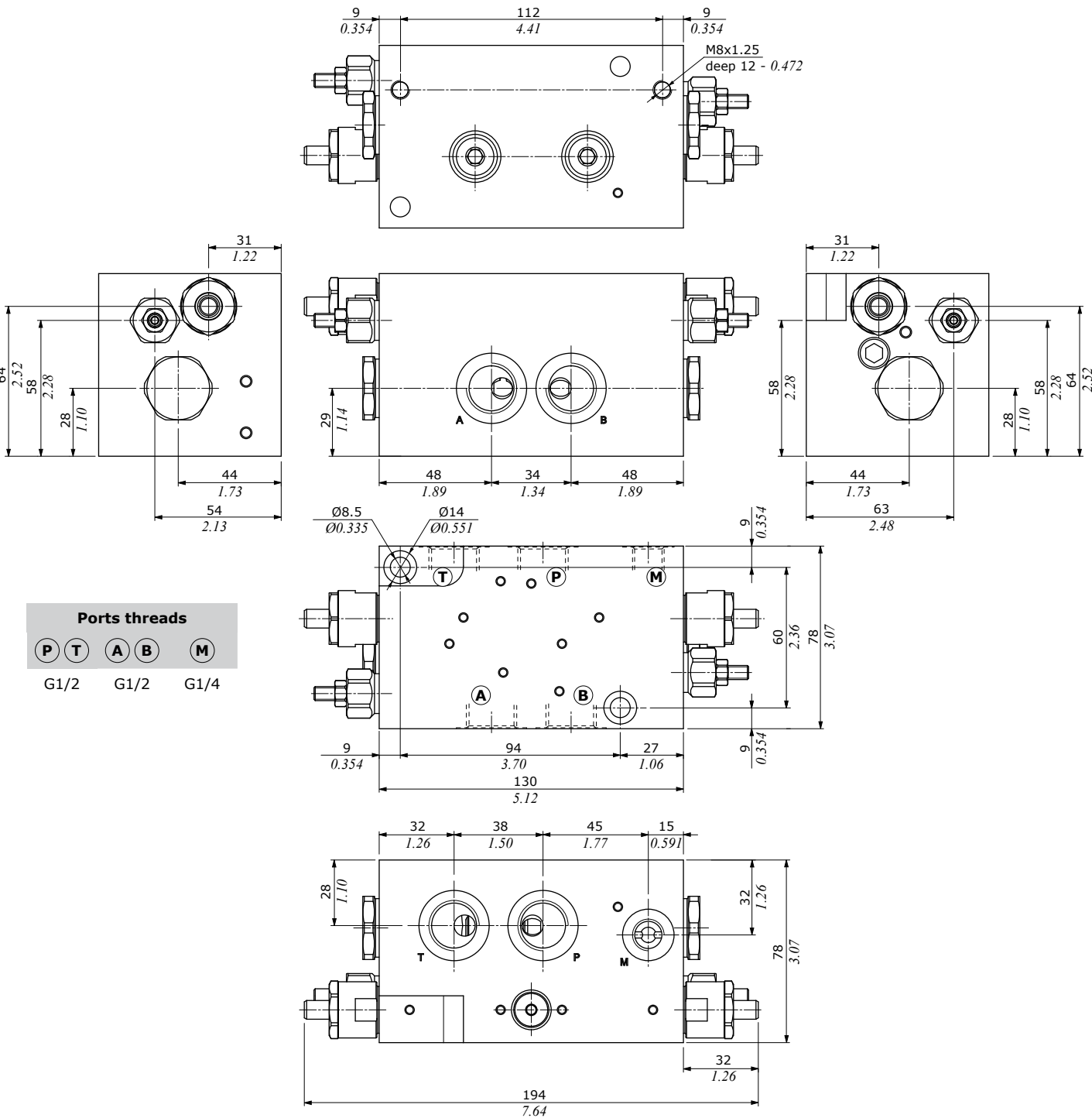
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

VIA/AP 12/L/CMEB	
Nominal flow	60 l/min (15.9 US gpm)
Min. flow	4 l/min (1.06 US gpm)
Max. pressure	210 bar (3050 psi)
Max. reversing frequency	30/min
Fluid	mineral based oil
Viscosity	from 10 to 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)
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)
Weight	cast iron 5.2 kg (11.46 lb)

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

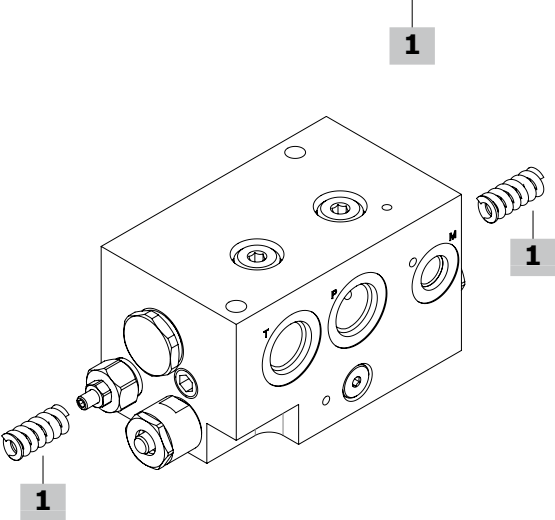


Dimensions



Ordering codes and description composition

Port size
VIA/AP 12/L/CMEB/VMP02/TS.S/gh



Complete valves

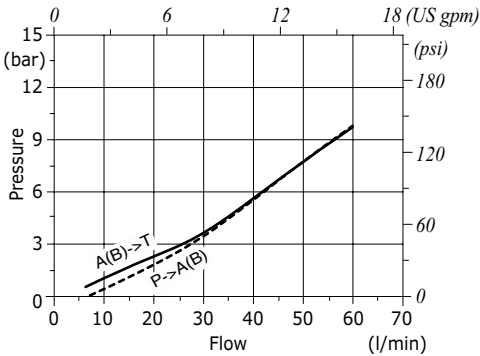
TYPE: **VIA/AP 12/L/CMEB/VMP02/TS.S/gh** CODE: 1915033904
 DESCRIPTION: Cast iron body, G1/2 ports, with direct type pressure relief valves, range 50-220 bar (725-3200 psi), standard setting 150 bar at 3 l/min (2175 psi at 0.79 US gpm)
 For different port threads configuration, SAE thread and configurations with FPM (Viton) seals, please contact our Sales Dpt.

1 Pressure setting spring

TYPE	CODE	DESCRIPTION
TV	3ML1081400	Setting range 5-80 bar (72.5-1160 psi)
TS	3ML1081401	Setting range 50-220 bar (725-3200 psi)

Rating diagrams

Pressure drop vs. flow





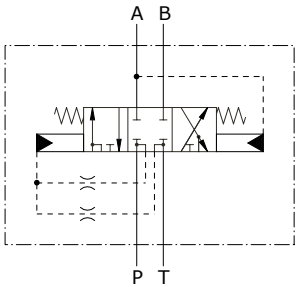
Type VIA/DSL automatic reversing valves

- Face mounting cetop 5
- Cast iron body

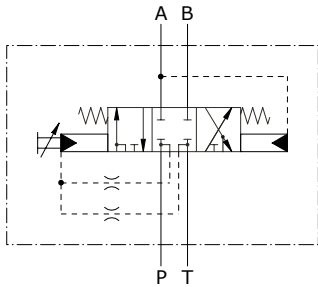
Technical specifications and diagrams are measured with mineral oil of 46 cSt viscosity at 40°C (104°F) temperature.

VIA/DSL 10-12		
Nominal flow	60 l/min (15.9 US gpm)	
Min. flow	10 l/min (2.6 US gpm)	
Max. pressure	210 bar (3050 psi)	
Max. reversing frequency	30/min	
Fluid	mineral based oil	
Viscosity	from 10 to 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)	
Environmental temp. for working conditions	from -40°C (-40°F) to 100°C (212°F)	
Weight	cast iron	2.2 kg (4.85 lb)
		with stroke limiter configuration: 2.3 kg (5.07 lb)

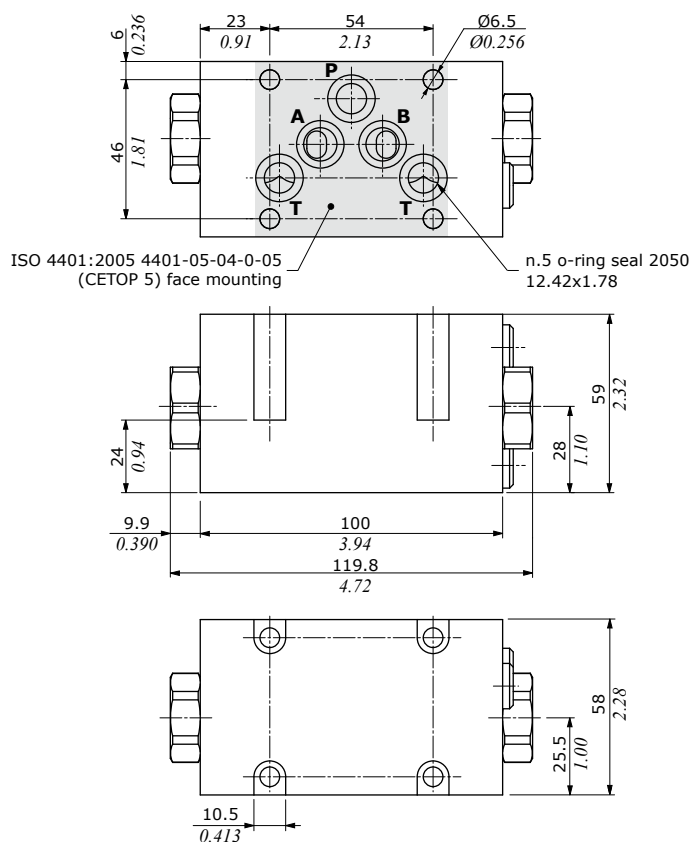
NOTE - For different conditions, please contact Walvoil Sales Dpt.



With stroke limiter

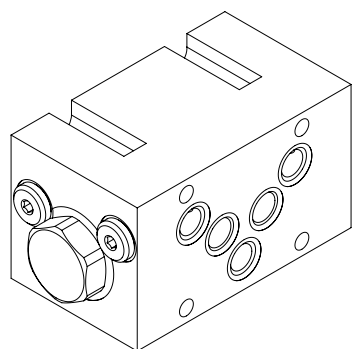


Dimensions



Ordering codes and description composition

VIA/DSL 10-12/gh



Complete valves

TYPE: **VIA/DSL 10-12/gh**

CODE: 1915033903

DESCRIPTION: Cast iron body, CETOP 5 flange

TYPE: **VIA/DSL 10-12/gh pass.magg. con fine corsa**

CODE: 1915033910

DESCRIPTION: cast iron body, increased spool, with stroke limiter
For configurations with FPM (Viton) seals and SAE threads, please contact our Sales Dpt.