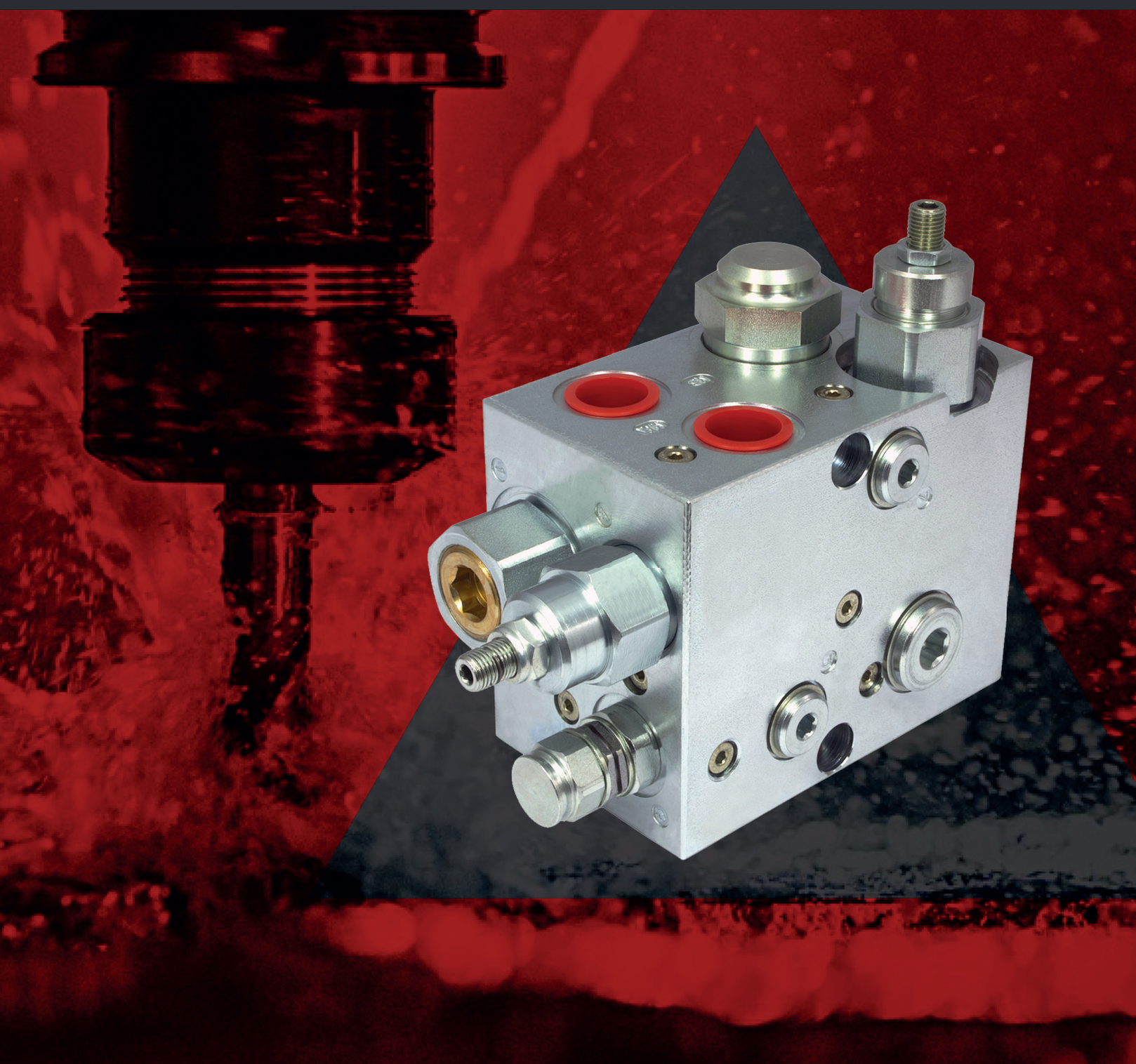
Related
Fluid Power

Standard Hydraulic Circuit Savers



Based in the UK, Related Fluid Power are market leaders in the design, development, manufacture and supply of hydraulic valves, hydraulic manifold systems, hydraulic power packs and geared flow dividers. Customer focus, innovative design, exceptional application knowledge and engineering experience are just some of the attributes which enable us to provide both standard and custom designed products to customers worldwide.

This Standard Hydraulic Circuit Savers catalogue represents a selected range of our standard hydraulic manifold control systems. These offer energy efficient, compact and cost-effective solutions to meet the needs of a range of different applications across many industry sectors.

These standard solutions combine a number of individual valves to create a variety of hydraulic circuits, providing the benefits of reduced pipework, minimising pressure drop (energy saving), potential leakage points and labour. Further benefits include; reduced space requirements, lower weights and a reduction of inventory costs of ordering multiple in-line component valves

We continue to innovate and add to this range, however if you require a solution that is not covered, please enquire with our sales team who will be happy to help you.

Please also be aware of our extensive range of Line Mounted Valves, Mini Hydraulic Power Units and Geared Flow Dividers to meet your needs.

Related Fluid Power are committed to Quality. Our Procedures and processes throughout are accredited to ISO9001_2015

We create excellence through innovation, technology and continuous development. We power success for our people, our customers and our planet.

Related Fluid Power

QUALITY SYSTEM CERTIFICATION DNV ISO 9001

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Our manufacturing facility utilises the latest in CNC machining technology and tooling, with a range of 4 and 5 axis machining centres, CNC Saws and Automatic Parts washing system. From design and manufacturing, right through to after-sales support, the entire process is carried out in-house by our dedicated and passionate team.


Yale

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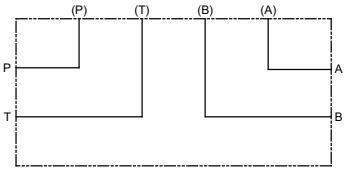
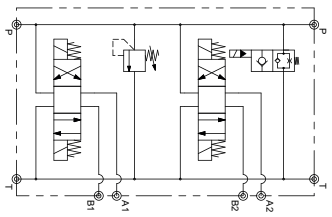
Base subplate		25	350	RF C21694	22
Side Ported, Multi Station Parallel 1 > 8 stations with relief and Dump options		30	350	RF C21860	23-24

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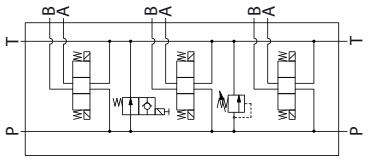
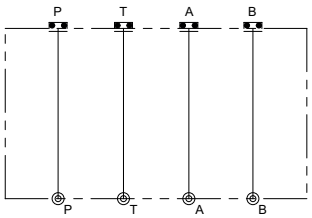
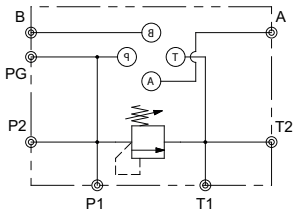
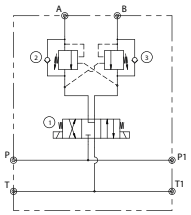
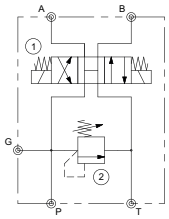
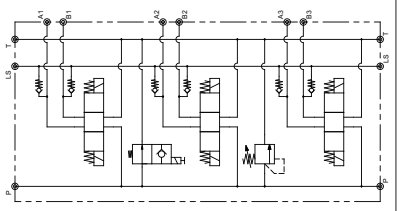
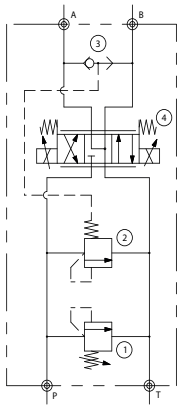
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Side Ported, Multi Station Parallel 1 > 8 stations with relief and Dump options		50	350	RF C384	26
Base subplate		50	350	RF C3853	27
Base Subplate with Relief		30	350	RF C3855	28-29
Base Subplate with Integral Dual Overcentres		25	350	RF C34446	30-31
Subplate with Direct-Acting Relief valve		50	350	RF C34746	32-33

CETOP 3 (Cont)					SECTION 2
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Side Ported, Multi Station Parallel 2 > 8 stations with Load sense. Relief and Dump options		50	350	RF C35080	34-35
Pressure Compensated P line with Relief		40	350	RF C34659	36-37

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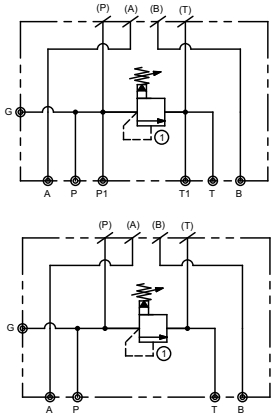
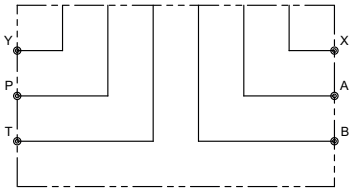
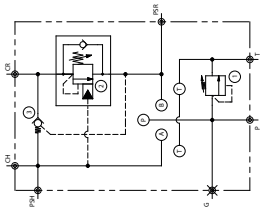
Subplate with relief, Side with Base port options		80	350	RF C51146	40-41
Base Subplate with side ports		100	350	RF C51469	42
Regenerative Control – Line mounted		160	350	RF C53810	43

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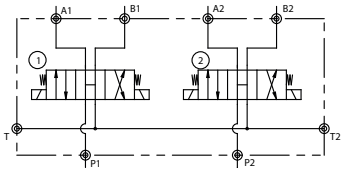
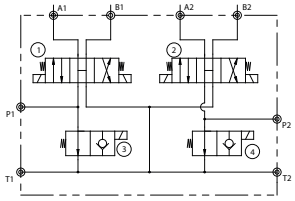
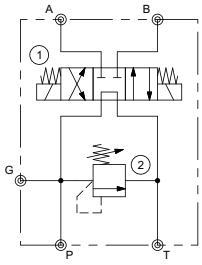
Dual cetop 5 Directional Control – Line Mounted		100	350	RF C54444	44
Tracking Control Cetop 5, dual station subplate Dual pump Input, with solenoid operated unloading valves		80	350	RF C55261	45-46
Subplate with Relief, Bottom ports		80	350	RF C54745	47-48

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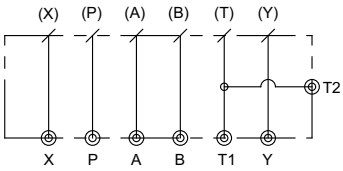
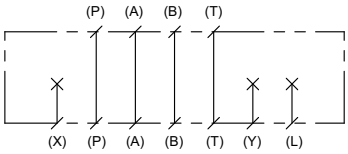
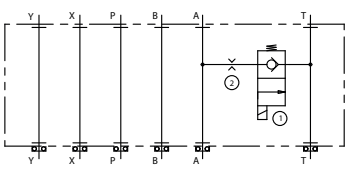
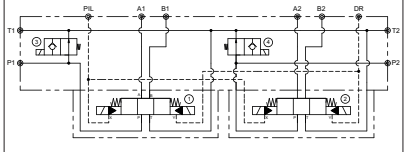
Subplate with Side ports		200	350	RF C71357	50-51
Cetop 5 to Cetop 7 adaptor		100	350	RF C71558	52-53
Decompression, A line, Module		20	350	RF C72341	54-55
Dual Pump cetop 7, Dump valves		150	300	RF C75094	56-57

FLOW CONTROLS — SECTION 5

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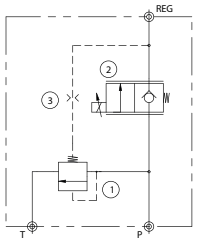
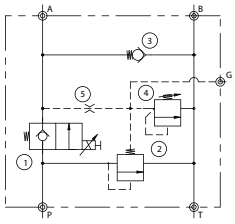
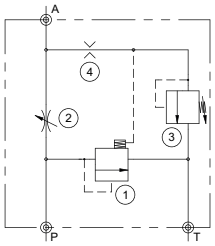
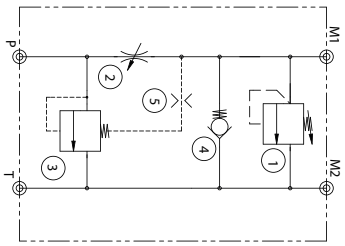
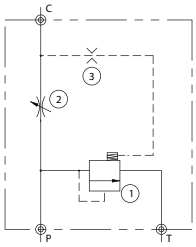
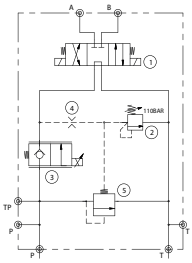
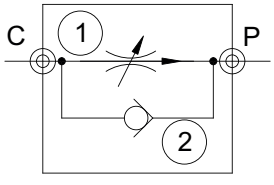
Pressure Compensated Flow Control Proportional – Line mounted		120	250	RF FC4120	68-69
Pressure Compensated Flow Control Proportional with Priority Relief & Anti Cavitation – Line mounted		150	240	RF FC4139	70-71
Pressure Compensated Flow Control with Priority Relief – Line mounted		200	240	RF FC4227	72-73
Pressure Compensated Flow Control with Priority Relief & Anti Cavitation – Line mounted		250	240	RF FC4334	74-75
Pressure Compensated Flow Control – Line mounted		150	240	RF FC4413	76-77
Subplate with P line Pressure compensated with Bypass flow control (Proportional or manual) & Relief		100	245	RF FC5062	78-79
Pressure Compensated Flow Control with reverse check – Line mounted		350	34	RF FC5095	80-81

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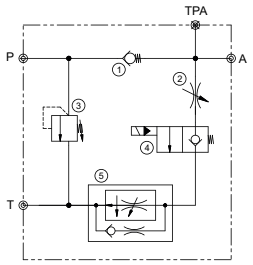
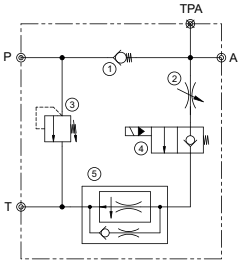
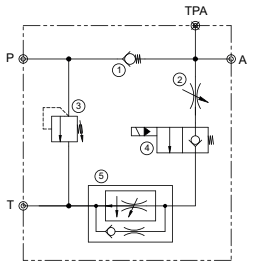
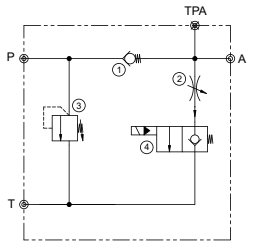
Lift Block – Line Mounted		30	350	RF LB5088	84-85
Lift Block – Line Mounted		55	350	RF LB5089	86-87
Lift Block – Line Mounted		95	350	RF LB5103	88-89
Lift Block – Line Mounted		150	350	RF LB5104	90-91

LOAD CONTROLS — SECTION 7

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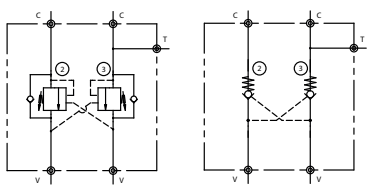
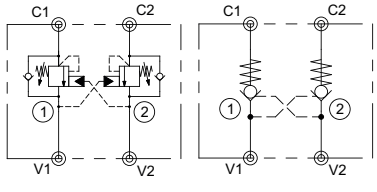
Dual Load holding or Load Control – Line mounted		30	350	RF LC73	94-95
Dual Load holding or Load Control – Weld On		60	350	RF LC412	96-97

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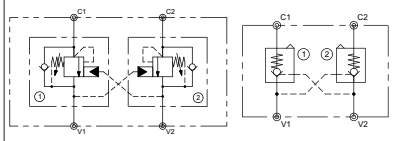
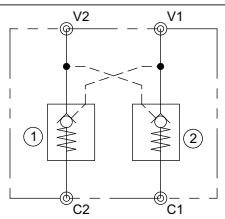
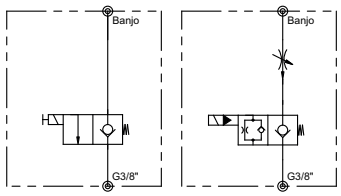
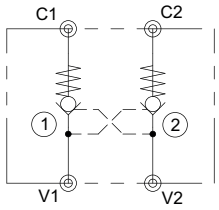
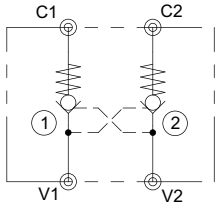
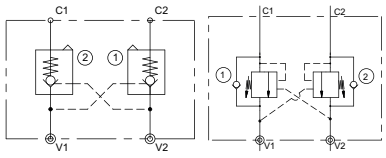
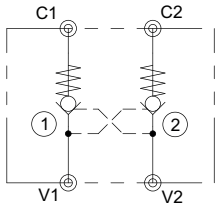
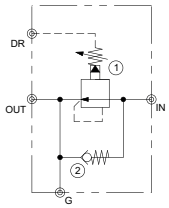
Dual Load holding or Load Control – Line mounted		60	350	RF LC414	98-99
Pilot operated Check Valve, Single or Dual – Line mounted		60	240	RF LC673	100
Cylinder Lock Valve – Banjo Mounted		55	240	RF LC1062	101-102
Dual Pilot Operated Check valve – Flange mount		19	240	RF LC1065	103-104
Dual Pilot Operated check valve – Line Mounted		20	240	RF LC1090	105
Dual load control or load hold – Line Mounted		60	350	RF LC1099	106-107
Dual Pilot Operated Check Valve – Flange Mounted		20	240	RF LC1127	108-109
Pressure Reducing with Reverse Check – Line mounted		160	350	RF LC1211	110-111

LOAD CONTROLS (Cont)					SECTION 7
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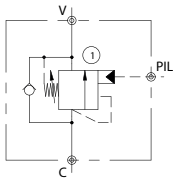
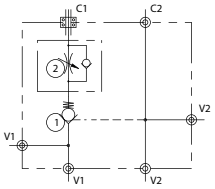
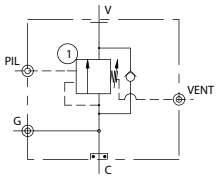
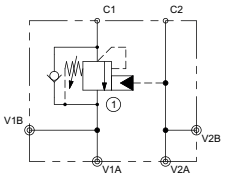
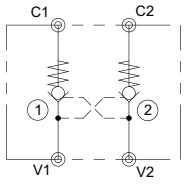
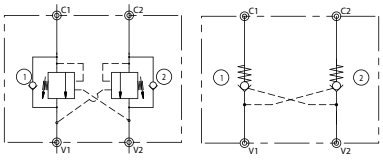
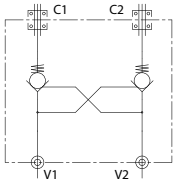
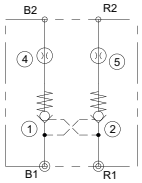
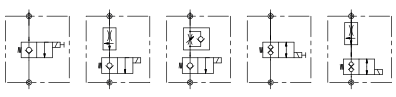
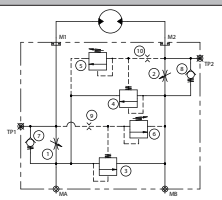
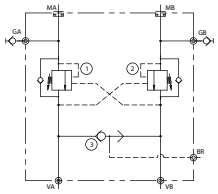
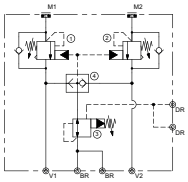
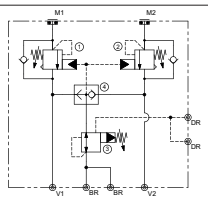
Single Overcentre or Pilot Operated Check – Banjo Mounted		60	350	RF LC1217	112-113
Single Pilot Operated check valve – Banjo Mounted		23	240	RF LC1242	114-115
Single Load Control or Load Hold – ¾”SAE-62 Mounted		60	350	RF LC1271	116-117
Single Load control or load hold – Weld mounted		40	350	RF LC1510	118-119
Dual Pilot operated Check – Dual Banjo Mounted		57	240	RF LC1563	120-121
Dual Load Control or load hold – Line Mounted		120	350	RF LC1896	122-123
Dual Pilot operated Check – Dual Banjo Mounted		40	240	RF LC1952	124-125
Dual pilot operated check – Weld mounted		19	240	RF LC2557	126-127
Cylinder lock Valve – G14” Banjo Mounted		30	240	RF LC3535	128-129

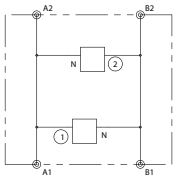
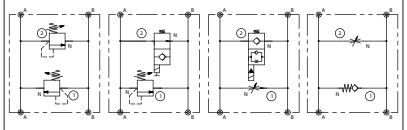
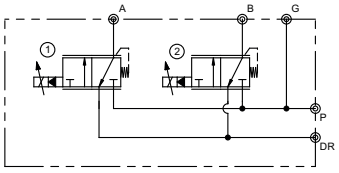
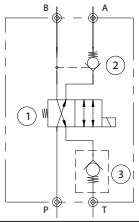
LOAD CONTROLS (Cont) — SECTION 7

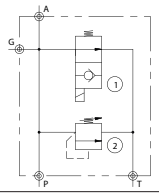
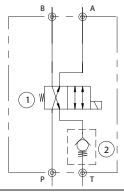
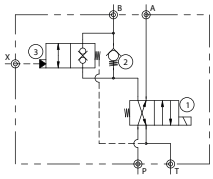
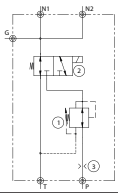
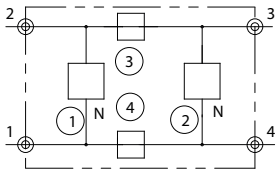
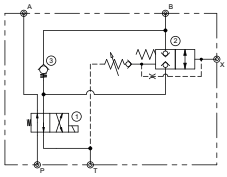
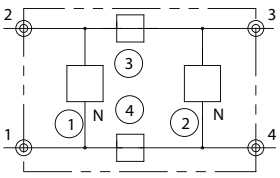
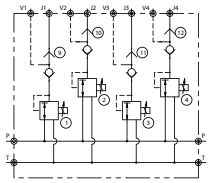
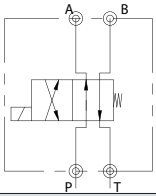
MOTOR CONTROLS — SECTION 8

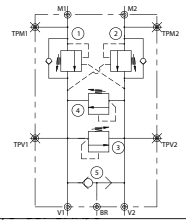
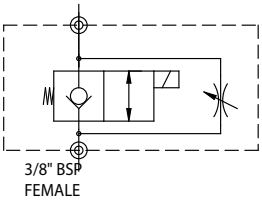
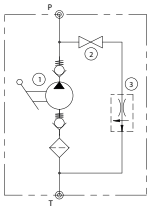
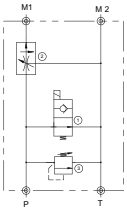
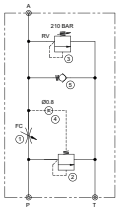
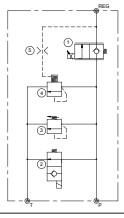
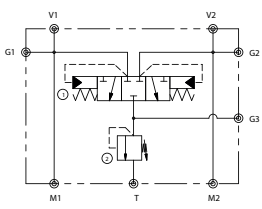
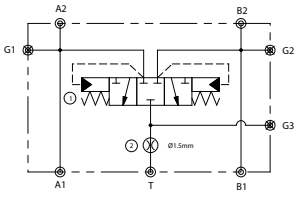
MOTOR CONTROLS (Cont) — SECTION 8

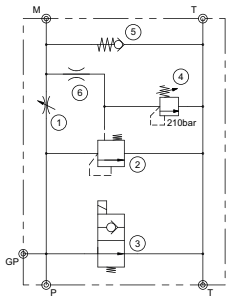
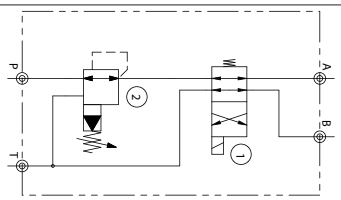
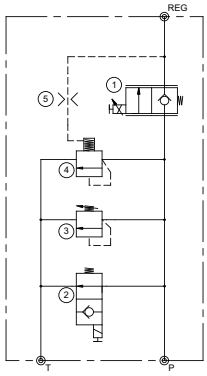
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Pressure Compensated Flow Control c/w Relief – Motor Mount – OMP/R		170	250	RF MC3993	147
Dual Overcentre & Brake – Motor Mount – OMP/R		60	350	RF MC5029	148-149
Dual Overcentre & Brake with Pressure reducer – Motor mounted – A2FE90		240	240	RF MC5115	150-151
Dual Overcentre & Brake with Pressure reducer – Motor mounted – A2FE125		240	350	RF MC5116	152-153

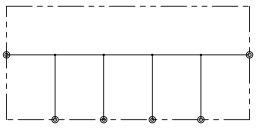
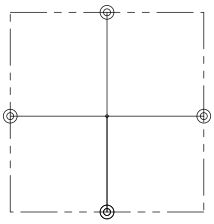
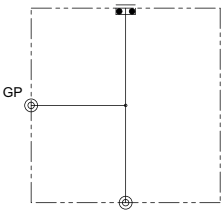
MULTI FUNCTION — SECTION 9

DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Multi-function, Cross Port, valve control – Line Mounted		50	350	RF MF232	156-157
Multi-function, Cross Port, valve control – Line Mounted		40	350	RF MF1202	158-159
Dual Proportional Pressure Reducing – Line Mounted		30	240	RF MF1363	160-162
Quick Hitch – Line Mounted		20	350	RF MF1478	163

MULTI FUNCTION (Cont)					SECTION 9
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Relief Unloader – Line Mounted		80	210	RF MF1500	164-165
Quick hitch – Line mounted		30	350	RF MF1774	166
Quick Hitch		30	350	RF MF2463	167
Pressure Reduced Selector – Line Mounted		17	210	RF MF3023	168-169
Multi-Function, Multiple valve configurations – Line mounted		60	240	RF MF3378	170-171
Quick Hitch – Line mounted		30	350	RF MF3629	172
Multi-Function, Multiple valve configurations – Line mounted		40	240	RF MF3682	173-174
Multi Station Pilot Control -		4	240	RF MF3800	175-176
Quick Hitch – Line mounted		30	350	RF MF3937	177

MULTI FUNCTION (Cont)					SECTION 9
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Overcentre with Relief & Brake – Line mounted		40	350	RF MF4113	178
Cylinder Lock Valve – Banjo Mounted		55	240	RF MF4158	179-180
Hand Pump with Manual release – Tank Mounted		V	240	RF MF4161	181-182
Priority Flow control with Dump & relief – Line Mounted		38	240	RF MF4183	183-184
Priority Flow control with Anti-Cav & Relief – Line Mounted		150	240	RF MF4470	185-186
Proportional Flow control with Dump & Relief – Line mounted		55	240	RF MF4623	187-188
Hot Oil Shuttle with Relief – Line Mounted		60	350	RF MF4677	189-190
Hot Oil Shuttle with orifice – Line mounted		40	350	RF MF4885	191-192

MULTI FUNCTION (Cont)					SECTION 9
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Compensated Flow Control with Relief, Anti-cav & Unloader – Line Mounted		150	240	RF MF4963	193-194
Quick Hitch – Line mounted		38	240	RF MF5005	195-196
Priority Proportional Pressure Compensated flow control with Relief & Unloader		150	240	RF MF5098	197-198

PIPE MANIFOLDS					SECTION 10
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
6 Ported, G34" (x2) & G12" (x4) – Line Mounted		V	350	RF PM4108	200
4 Ported, G12"		V	350	RF PM4275	201
2" SAE – 3000 > G2" with Test point - Adaptor		240	210	RF PM4319	202

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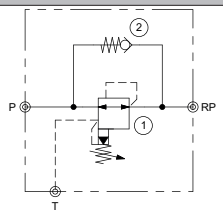
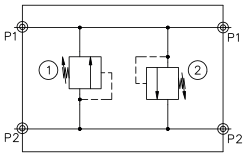
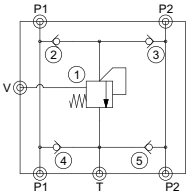
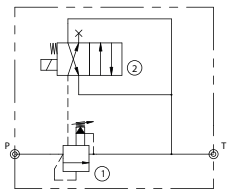
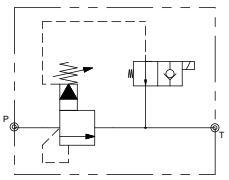
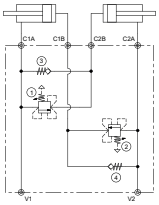
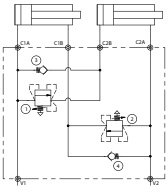
PRESSURE REDUCERS — SECTION 11

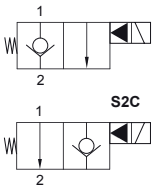
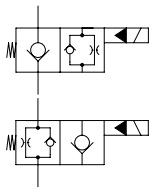
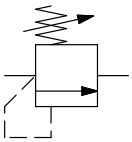
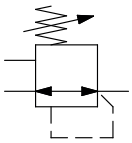
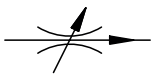
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Reducer with Reverse Check – Line Mounted		40	210	RF PR1490	204-205

RELIEF VALVES — SECTION 12

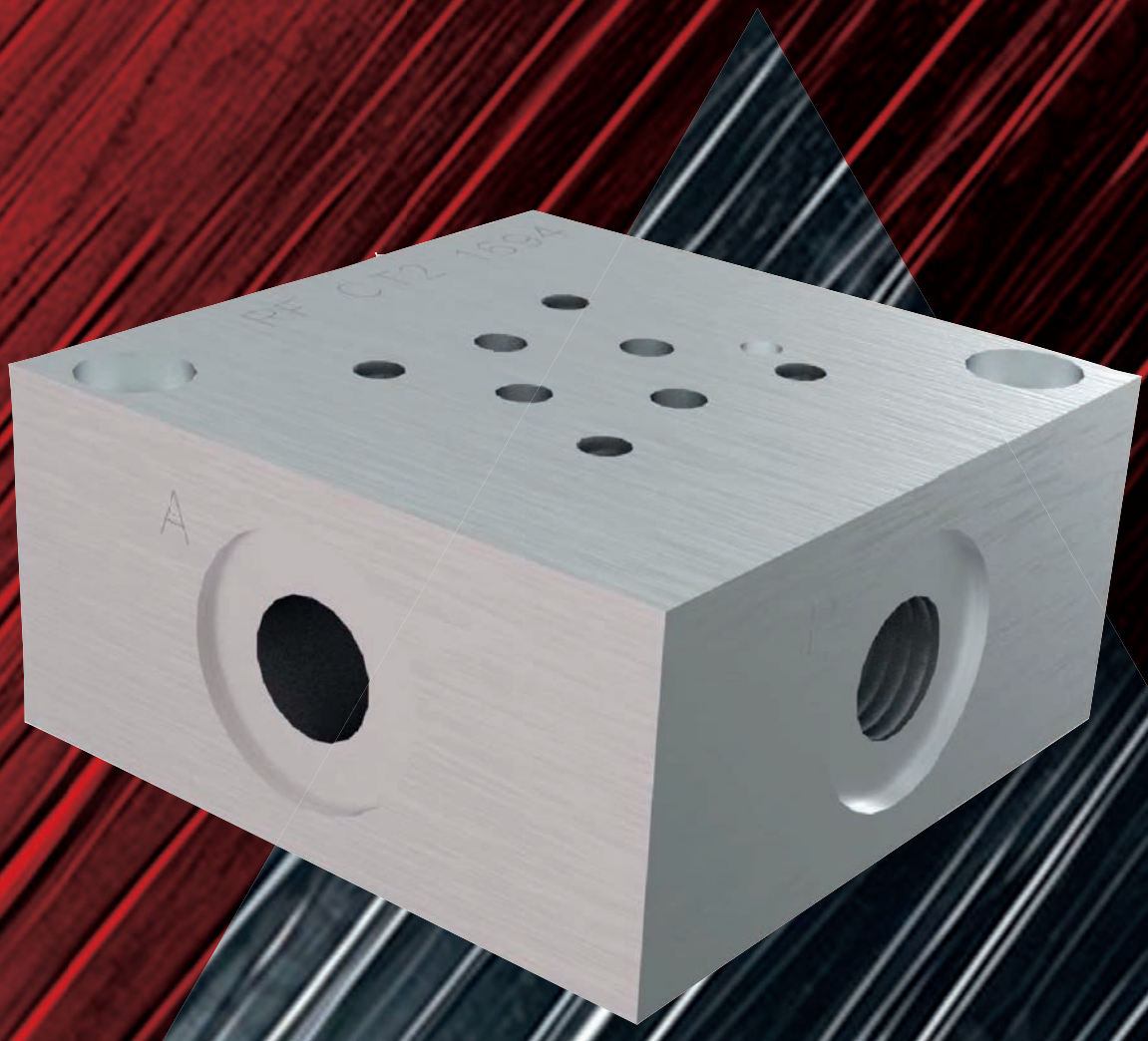
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Cross Line – Line Mounted		150	350	RF RV3883	208-209
Ventable cross line with Anti-Cav – Line Mounted		240	350	RF RV4215	210-211
Vented Relief with Cetop Pilot Control – Line mounted		240	350	RF RV4304	212-213
Vented Relief with Solenoid control – Line Mounted		120	350	RF RV5117	214-215

SEQUENCE — SECTION 13

DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Sequence control – Line mounted		40	350	RF SQ3896	218-219
Dual Sequence control – Line mounted		20	350	RF SQ4897	220-221

LINE MOUNTED VALVE					SECTION 14
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Solenoid Operated Valve		55	240	D-DES2AC	224-225
Solenoid Operated Valve		115	240	D-SJS2AC	226-227
Pressure Control		80	350	V-RVSOS10	228-229
Pressure Reducer		43	350	R-PRR1PO10	230-231
Flow Control		30	350	R-FCCS 10S30N	232-233
Flow Control		45	250	R-FCNS-10S45N	234-235

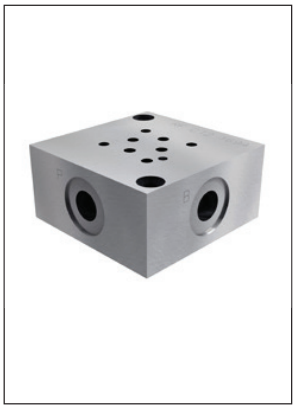
SECTION 1
CETOP 2



Related Fluid Power

Cetop 2 Base Subplate
Side ported, G1/4”

RF C21694

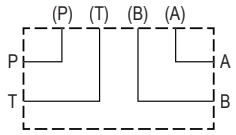


Up to 350 bar - Up to 25 lpm

Description
A compact subplate with basic 4 port layout. Optimised internal drillings ensure that pressure drops are minimised for best system efficiency. Typical applications include road sweepers and sprayer applications where space is at a premium.

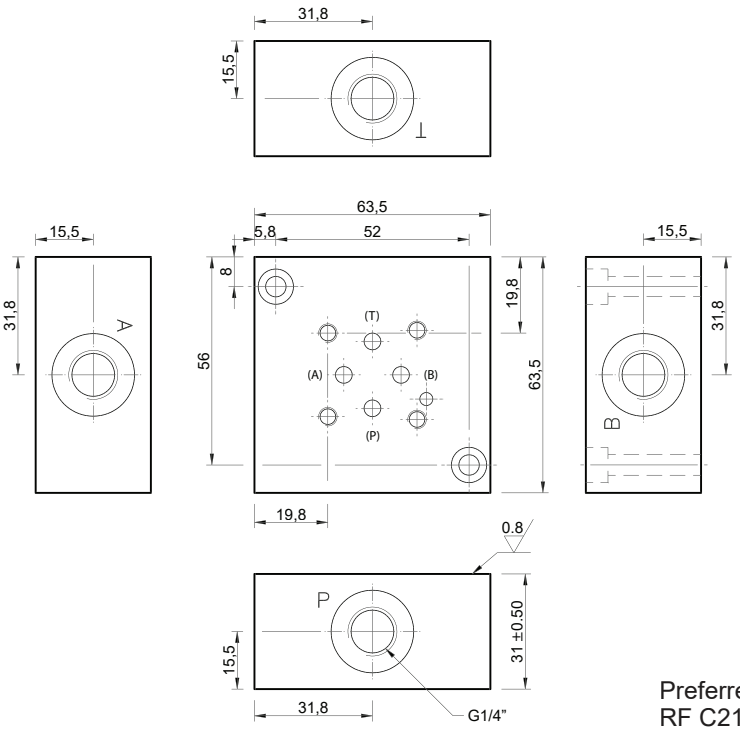
Features
- Aluminium (anodised) or Steel (zinc plated) material options.
- Compact, efficient design.
- Various valve options available on request.
- Compact, efficient design.

Symbol



Flow Range (lpm)	25
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC21694
Weight	0.31 kg (alum) 0.9 kg (steel)

Dimensions



Ordering Code

Preferred Standard Model Code(s):
RF C21694000000A
RF C21694071312A
RF C21694071324A

RF C21694 ******** ****** ******

Directional Valve
e.g.0630, 0710 etc. See data sheet **RS2-****** for codes.
0000 - No valve.

Voltage
00 = No Coil
12 = 24 Vdc
24 = 24 Vdc
DIN connection only

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Related Fluid Power

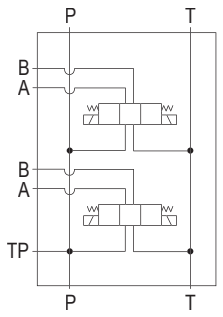
Side Ported Multi-Station Parallel Manifold

With relief and solenoid operated unloader valve options, Cetop 2

RF C21860

Up to 350 bar - Up to 30 lpm

Circuit



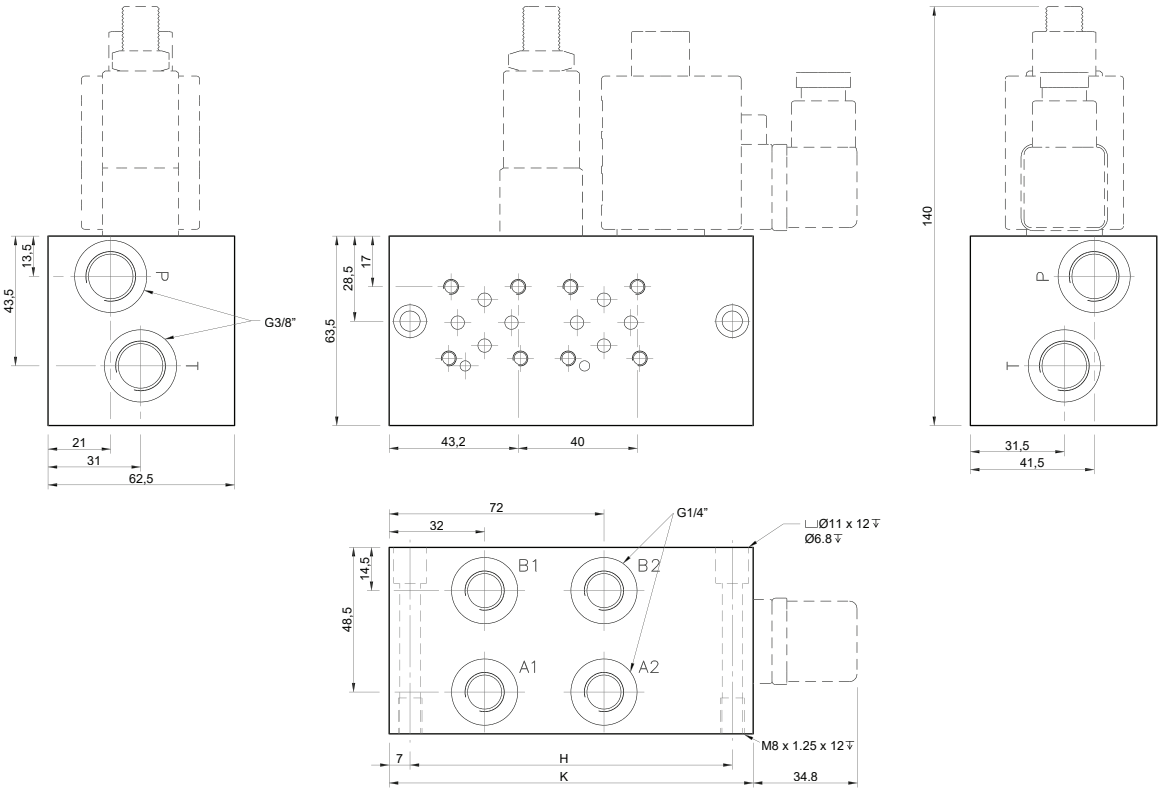
Description

Designed for applications where the control of multiple services is required. With options for relief and unloader cartridges, both space and cost savings can be achieved. Through pressure and tank ports also allow for further flexibility with option to connect to other (parallel) services beyond. A wide rand of directional control and modular valves can be specified separately.

Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Through pressure and Tank ports.
- Up to 8 sections as standard.
- Optional cavities for relief and unloader starting on 2 station manifolds.
- Multiple voltage options.
- Wide pressure ranges available.
- Compact, low pressure drop design.

Dimensions



N° Stations	H	K	Kg (Alum)	Options Available
1	68	82	0.9	None
2	108	122	1.3	Relief or dump
3	130	144	1.5	Relief and/or dump valve
4	170	184	1.9	
5	210	224	2.4	
6	250	264	2.8	
7	290	304	3.0	
8	330	344	3.4	

Related Fluid Power

Side Ported Multi-Station Parallel Manifold

With relief and solenoid operated unloader valve options, Cetop 2

RF C21860

Ordering Code

RF C21860 * * B A * * ** * ** * **

Design No.
K = Parallel, side ported
L = Par. side & base ported
M = Series, side ported

No. of Stations
1 - 8 = 1 to 8 stations

P & T Ports
B = 3/8" BSP

A & B Ports
A = 1/4" BSP

Manifold Material
A = Aluminium
S = Steel
For pressures over 210 bar use steel.

Relief Valve Options
V = c/w Relief
S = Relief to be preset**
Omit if Relief not required
** preset in 10 bar increments e.g. 15 = 150 bar

Pressure Settings
02 = 3 - 14 bar
15 = 14 -103 bar
20 = 103 - 207 bar
27 = 172 - 275 bar
35 = 70 - 350 bar
Omit if Relief not required

Voltage
12 = 12vdc
24 = 24vdc
25 = 25vac
11 = 110vac
23 = 250vac

Coil Terminations
H = EN 175301-803*
D = Deutsch (I-Coil)
*Formerly DIN43650 Hirschman connection

Valve Options
00 = Standard
V0 = Viton
A0 = Screen
W0 = Viton / Screen
OK = Screw Knob override
VK = Screw Knob override
B5 = Nitrile / Screen / Screw knob
V5 = Viton / Screen / Screw knob
Omit if Sol. unloader not required

Solenoid Unloader Options
C = c/w N.O. Solenoid Unloader **Note:** 210 bar max with this option
Omit if not required

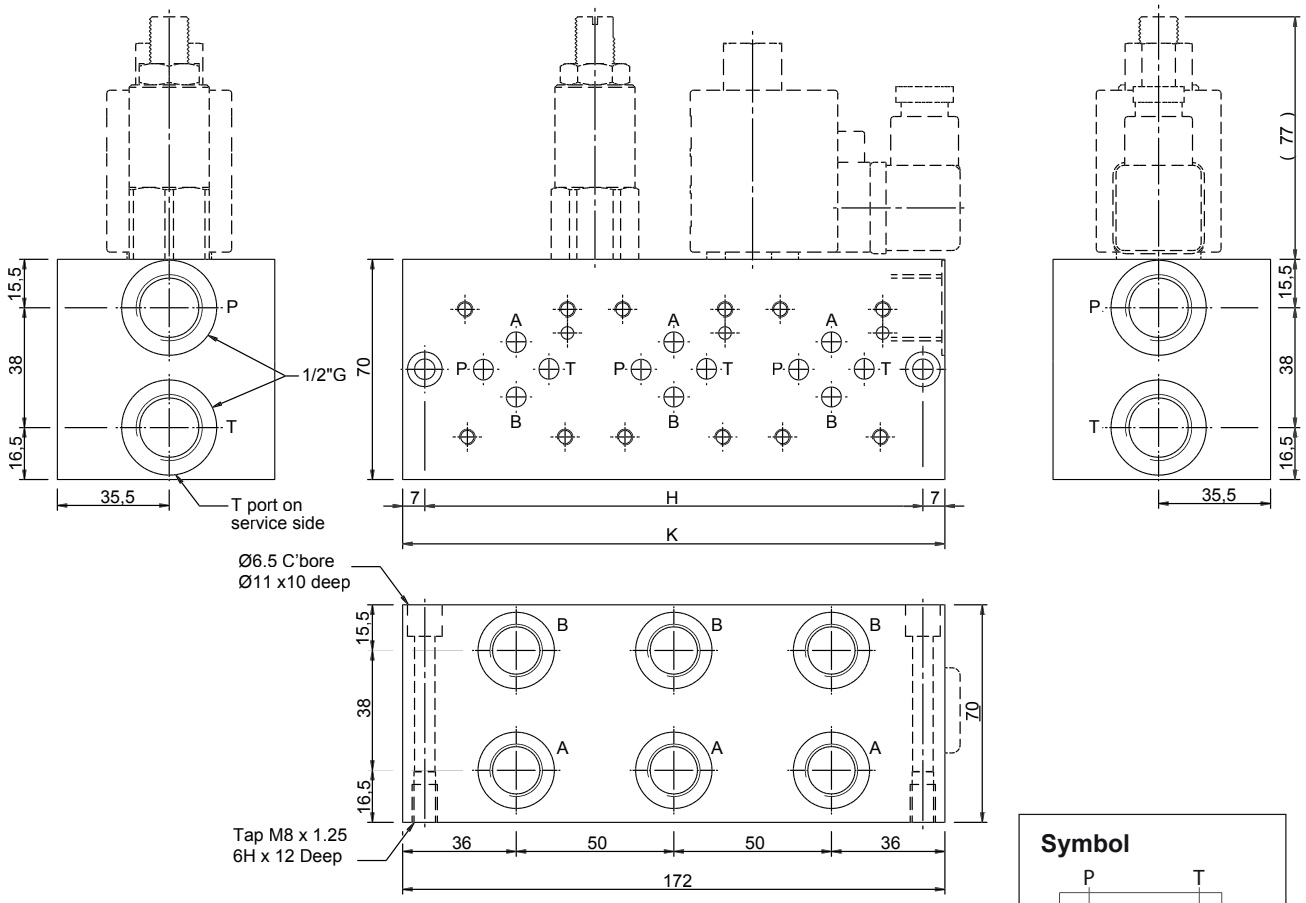
SECTION 2
CETOP 3

Related Fluid Power

Side Ported Multistation Parallel Manifold

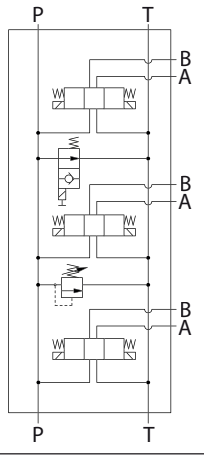
with Relief/Dump Options. Cetop 3

RF C384*



No. Elem.	H	K	Kg	Options available
1	58	72	2.0	None
2	119	133	4.0	Relief or dump
3	158	172	5.0	Relief and/or dump valve
4	208	222	6.5	
5	258	272	8.0	
6	308	322	9.5	
7	358	372	11.0	
8	408	422	12.5	

Symbol



Ordering Code

RF C384 * R C M ** *

No. Sections
1 > 8

Relief Valve (diff. area).
4 - 275 bar. Specify when ordering (omit if not needed)

N.O. dump valve
7 bar ΔP@50 lpm (omit if not needed)

Manual override
Screw in adj. (omit if not needed)

Voltage
12 - 12Vdc
24 - 24Vdc
11 - 11Vac
23 - 23Vac
25 - 24Vac

Material
S - Steel
A - Alum

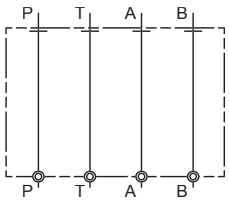
Related Fluid Power

Cetop 3 Base Subplate

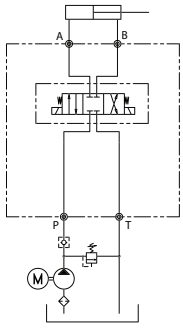
RF C3 853

Up to 210/350 bar

Symbol

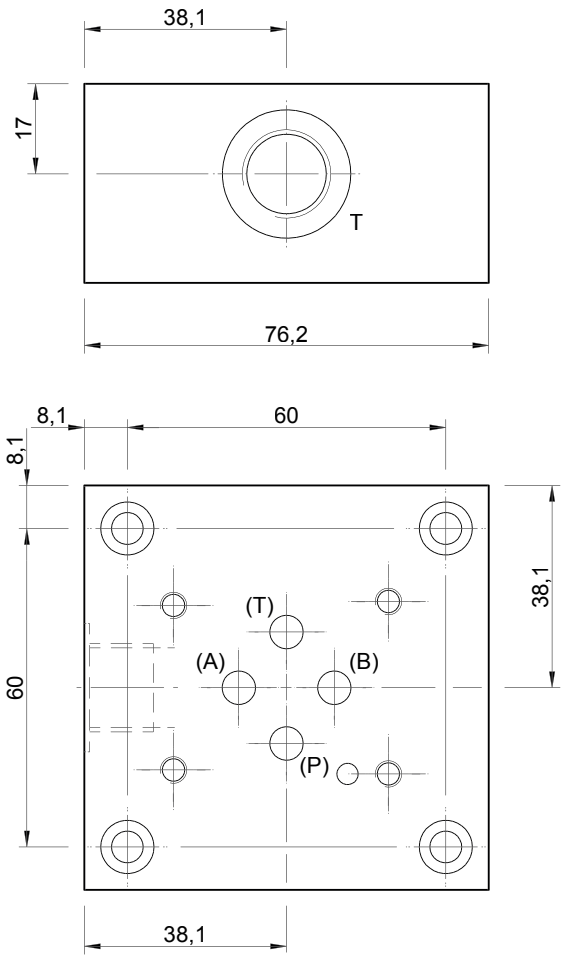


Typical Schematic

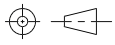


Dimensions

[mm]



Interface: ISO 4401:2005



Ordering Code

RF 3853 * *

Port Size
B = 3/8" BSP
C = 1/2" BSP

Manifold Material
A = Aluminium. 210 bar max. Clear anodised. Weight = 0.51kg
S = Steel. 350 bar max. Zinc plated. Weight = 1.47kg

Related Fluid Power

Cetop 3 Subplate with Direct-Acting Relief

Base & Side P+T Ports

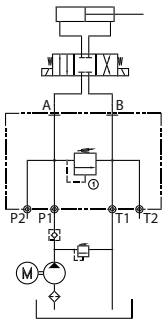
RF C3855

Up to 350 bar

Description

This is a compact Cetop 3 single station sub-plate with high capacity, direct acting relief with low pressure rise characteristics. The relief is fast acting and is extremely stable in response to load changes. This sub-plate offers the choice of base or side entry P and T ports and is ideal for either tank top mounting or as a stand-alone valve. A variety of relief adjustment ranges are available between 5 to 350 bar.

Symbol



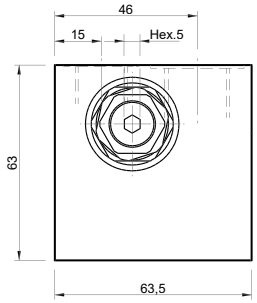
Features

- Steel (zinc plated) or Aluminium (anodised) material options.
- Port sizes, G3/8” for Pressure and services, G1/2” for tank.

Specifications

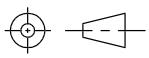
Flow Range (lpm)	50
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC3855
Weight	1.3 kg (alum) 3.2 kg (steel)

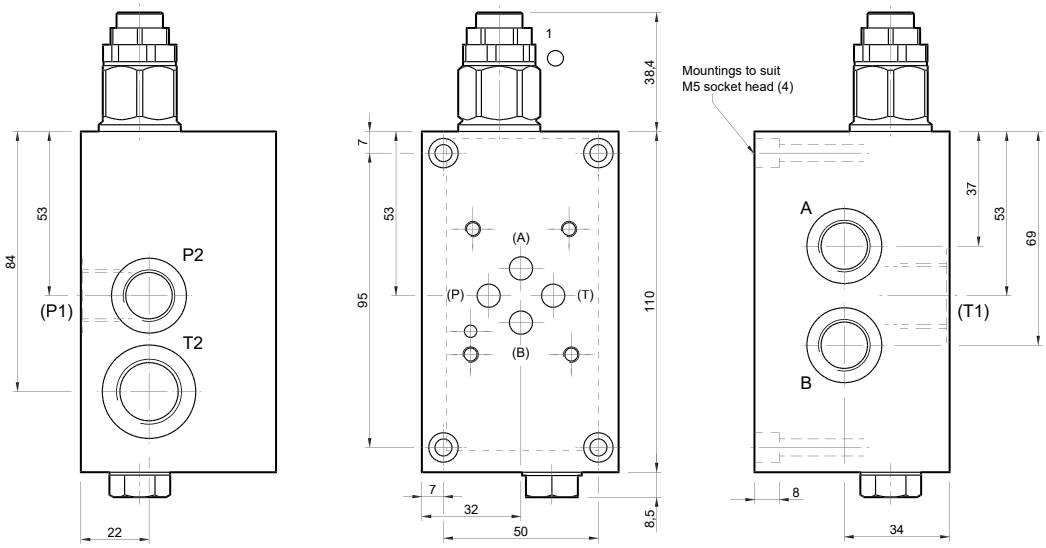
Dimensions



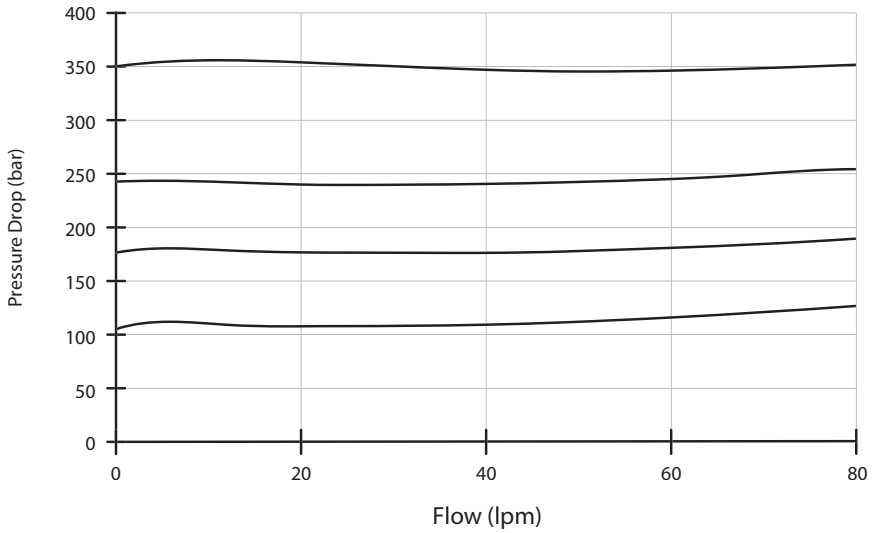
Ports

A, B, P1, P2 = G.3/8
T1, T2 = G.1/2





Performance



Ordering Example

RF C3855 ** ** *

Options
00 = Standard Allen
0C = Tamper proof cap

Pressure Setting
11 = 5 - 110 Bar
18 = 10 - 180 Bar
24 = 10 - 240 Bar
35 = 50 - 350 Bar

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

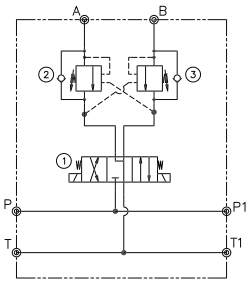
Related Fluid Power

Cetop 3 Subplate Assembly with Integral Dual Overcentre Valves.
Line mounted, P & T – G1/2", A & B – G3/8"

RF C34446

Up to 350 bar - 25 lpm

Symbol



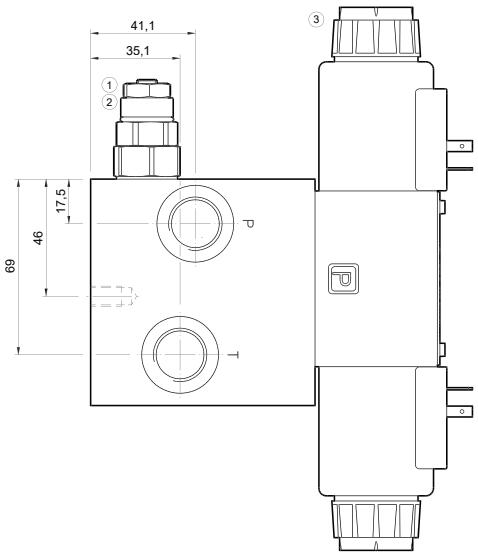
Description

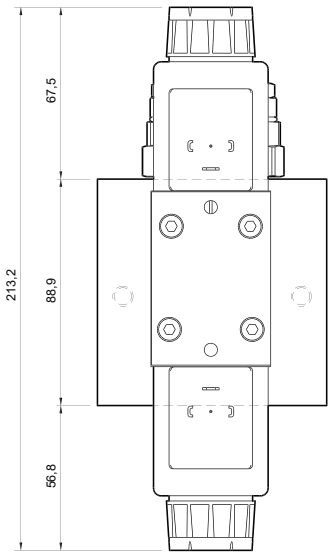
Ideal for various applications where load holding and metering of a load is required. These controls use dual overcentre valves to give meter out flow control and prevent overrun caused by external loads. Additionally the overcentre valves offer relief protection on both services when in neutral (1.3 times system relief pressure). The combination of overcentre valves into the subplate leads to a compact layout with a reduction in potential leak points when compared to other designs.

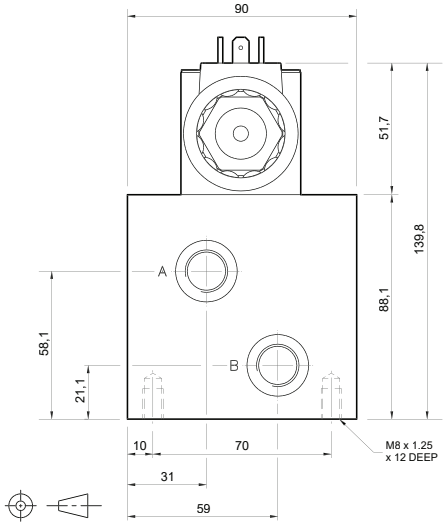
Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Excellent metering and load holding.
- Compact, efficient design.
- Standard overcentre setting = 210 bar.
- Thru Pressure & Tank Port.
- EN 175301-803 coil termination.
- Special builds available on request.

Dimensions



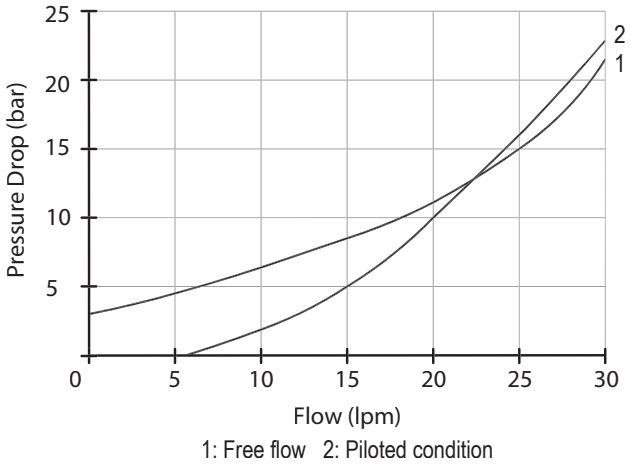




Flow Range (lpm)	25
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC34446
Weight	4.8 kg (alum) 7.9 kg (steel)

Pressure Drop Curves - Overcentre Valve

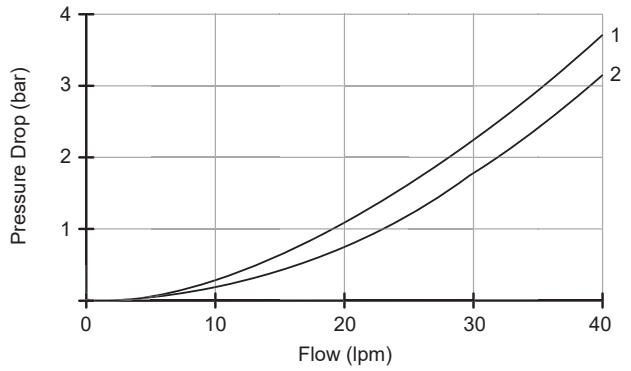
Oil viscosity 24 cSt
Temperature 50 °C



1: Free flow 2: Piloted condition

Pressure Drop Curves - Cetop Valve

Oil viscosity 41 cSt
Temperature 50 °C



Spool Code	Direction			
	P → A	P → B	A → T	B → T
0713	1	1	2	1

Ordering Example

RF C34446 ****** ****** ****** *****

Pressure Setting Overcentre 1
21 = 210 Bar**
**10 Bar increments
****21** = std. setting

Pressure Setting Overcentre 2
21 = 210 Bar**
**10 Bar increments
****21** = std. setting

Voltage
12 - 12 Vdc
24 - 24 Vdc

Manifold Material
A = Aluminium (210 bar max)
S = Steel (350 bar max, zinc plated)

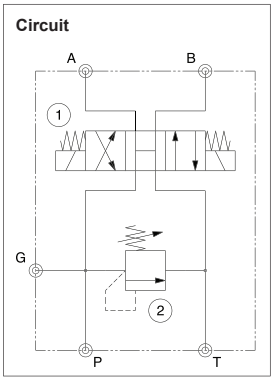
Preferred Part No. - RF C34446212112A / RF C34446212124A

Related Fluid Power

Cetop 3 Subplate with Direct-Acting Relief
Line mounted / Tank top mounted, Base ported

RF C34746

Up to 350 bar max - Up to Variable lpm



Description

The RF C34746 is a circuit saver valve assembly combining a subplate along with direct acting relief valve as the main pressure control. The relief is fast acting and is extremely stable in response to load changes. The subplate also benefits from maximised internal drillings with exceptionally low pressure drops being realised. A variety of relief adjustment ranges are available between 5 to 350 bar.

NOTES:

(i) Includes directional valve

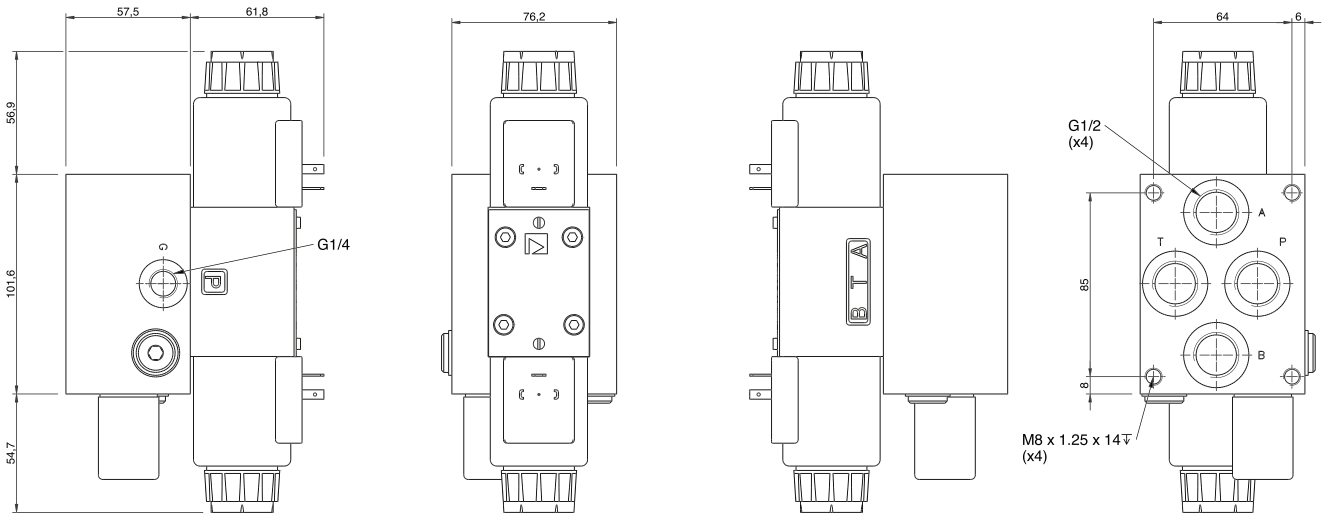
(ii) Other configurations including valve modules available on request. Contact sales office for further information

Features

- 1/2" BSP Ports
- Ideal for multiple applications
- See RF Ct4745 for higher flow, cetop 5 version

Flow Range (lpm)	see curves for various versions
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC34746
Weight	3.9 kg (alum) 5.8 kg (steel)

Dimensions



Ordering Example

RF C34746 | * | ** | ** | * | * | *** | *

Relief valve Pressure range	Cetop Overide	Pressure setting	Seal Type	Spool Configuration	Coils & Voltage	Manifold Material
Y = 5-30 bar	**00** = no override (std.)	**21** = 210 Bar** **10 Bar increments **21** = std. setting	**0** - Buna	**A** - 1710	**HC1** = 12V DC DIN	**A** = Aluminium (240 bar max, clear anodised)
N = 5 to 110 bar	**0M** = over-ride		**V** - Viton	**B** - 1711	**HC2** = 24V DC DIN	**S** = Steel (350 bar max, zinc plated)
B = 10 – 180 bar				**C** = 1713	**ID1** = 12V DC Deutsch	
G = 10 – 240 bar				**D** = 1714	**ID2** = 24V DC Deutsch	
W = 50 – 350 bar				**0** = DCV not included		
				**Show symbols with code		

Related Fluid Power

Cetop 3, multi station with load sense
Parallel Circuit

RF C35080

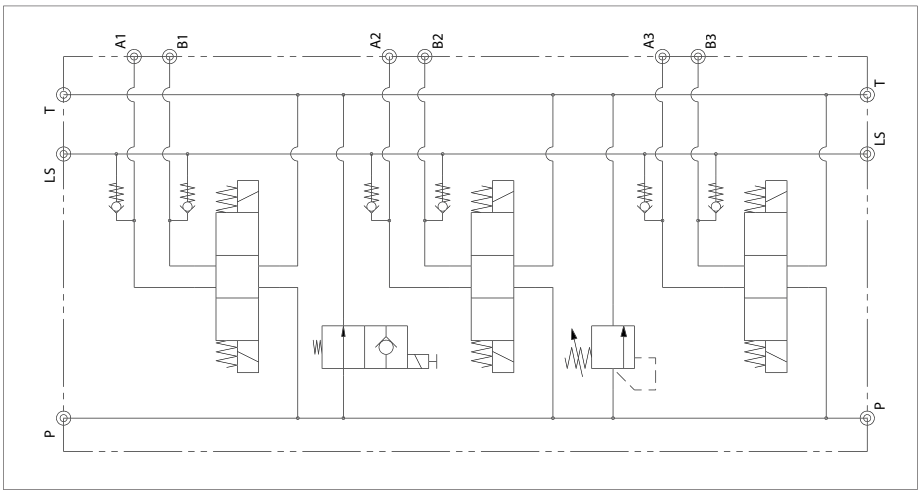
Variable, 350 bar max. - Up to Variable lpm

Description

The RF 5080 is a multi station valve control suitable for use in systems where a load sense pump is in use. The layout is based on conventional parallel multi station controls but with an emphasis on low pressure drop for internal galleries. Load sense setup is an ultra low leakage check valve system

These manifolds can be configured depending on the amount of control stations required as well as port size, provision is also made for optional safety relief and unloader protection. Cetop directional and modular valves are specified seperatly. Please contact our Sales office for more information and guidance on what compatible products are available and control that can be achieved.

Circuit

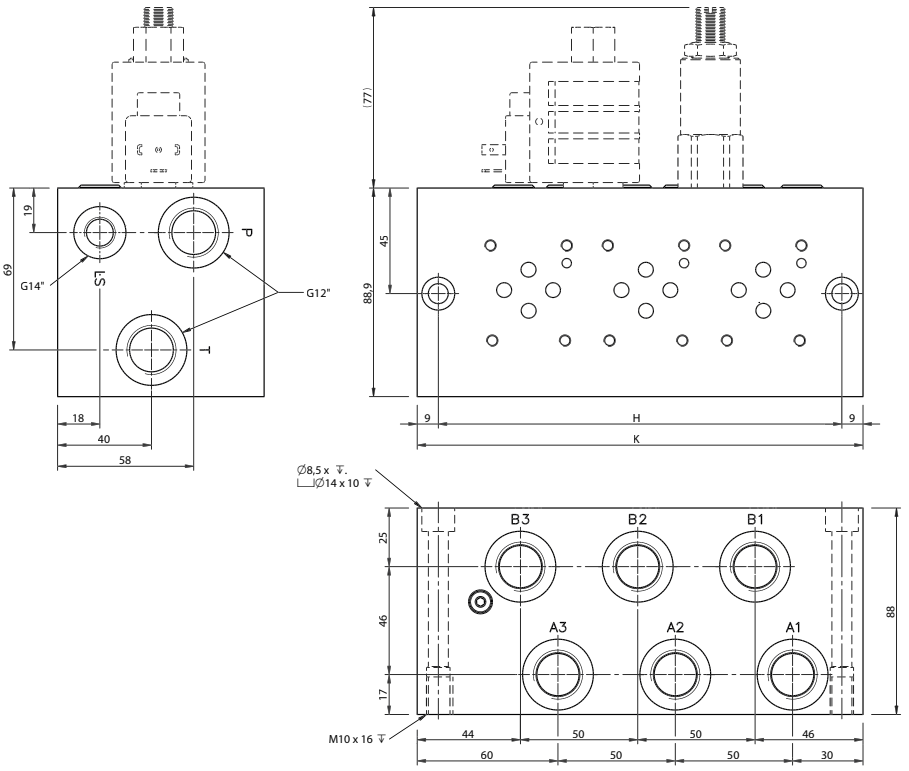


Features

- Multi-function circuit capability
- Ideal for new installations as well as retrofit
- Compact and efficient design, suitable for use at moderate flow rates
- Available in light weight aluminium, Anodised (240 bar) or high pressure (350 bar) steel, zinc plated options
- 2 to 8 Station Available.

Flow Range (lpm)	Varible, Dependant on Valves.
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC35080*
Weight	See table

Dimensions



NO. SECTIONS	H	K	Kg(Alum)	Kg(Steel)
2	132	150	2.7	7.8
3	172	190	3.4	9.7
4	222	240	4.3	12.3
5	272	290	5.2	14.9
6	322	340	6.1	17.4
7	372	390	7.0	20.0
8	422	440	7.9	22.6

Ordering Example

RF C35080

*	*	*	*	*	**	*	*	*	*

No. of Stations	P & T ports	A & B ports	Manifold Material	Relief valve Options	Pressure Settings	Voltage	Coil Ter-minations	Valve Options	Solenoid Unloader Options
1 - 8 = 1 to 8 stations	**C** = 1/2" BSP	**C** = 1/2" BSP	**A** = Aluminium (clear anodised)	**V** = c/w Relief	**02** = 3-14 bar	**A** = 12V DC	**H** = EN175301-803*	**A** = Stand-ard (Nitrile)	**C** = c/w/ N.O. Solenoid Unloader
		B = 3/8" BSP	**S** = Steel (zinc, clear passivate)	**S** = Relief to be preset**	**15** = 14-103 bar	**B** = 24V DC	**D** = Deutsch (I-coil)	**B** = Viton	**Note:** 240 bar max. with this option
				X = if not required	**20** = 103-207 bar	**C** = 24V AC	* - Formerly DIN 43650 Hirschmann Connector	**C** = Screen	**X** = if not required
				**Preset in 10 bar incre-ments eg 15 = 150 bar	**35** = 70 - 350 bar	**D** = 110V AC		**D** = Viton +Screen	
						E = 250V AC		**E** = Screw Knob Overide	
								F = Screw Knob overide	
								G = Nitrile +Screen + override	
								H = Viton + Screen + Override	

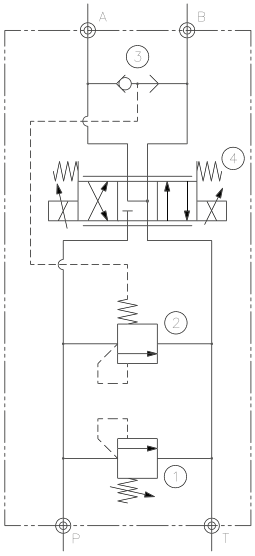
Related Fluid Power

Cetop 3 subplate, Pressure compensated control for use with proportional flow controls Line mounted

RF C34659

Up to 350 bar max - Up to 40 lpm max

Circuit



Description

The RF C34659 is a circuit saver valve assembly that has inlet pressure control along with pressure compensator and service line shuttle valve to give pressure compensated flow control when paired with a suitable proportional flow control valve. The maximum flow output achieved is a product of compensator setting versus proportional valve and manifold pressure drops. An adjustable compensator is used to give best compromise in terms of stability, energy efficiency, controllability and attainment of flow range. When used with a P blocked spool the compensator offers a safety pressure unload feature in neutral (at compensator setting). The main relief valve is a direct acting type; offering high pressure capability along with generous flow capacity and fast response.

NOTES:

(i) Cetop control not supplied. Consult RFP sales office for further assistance.

(ii) Circuit shown with typical A + B > T cetop, ref only.

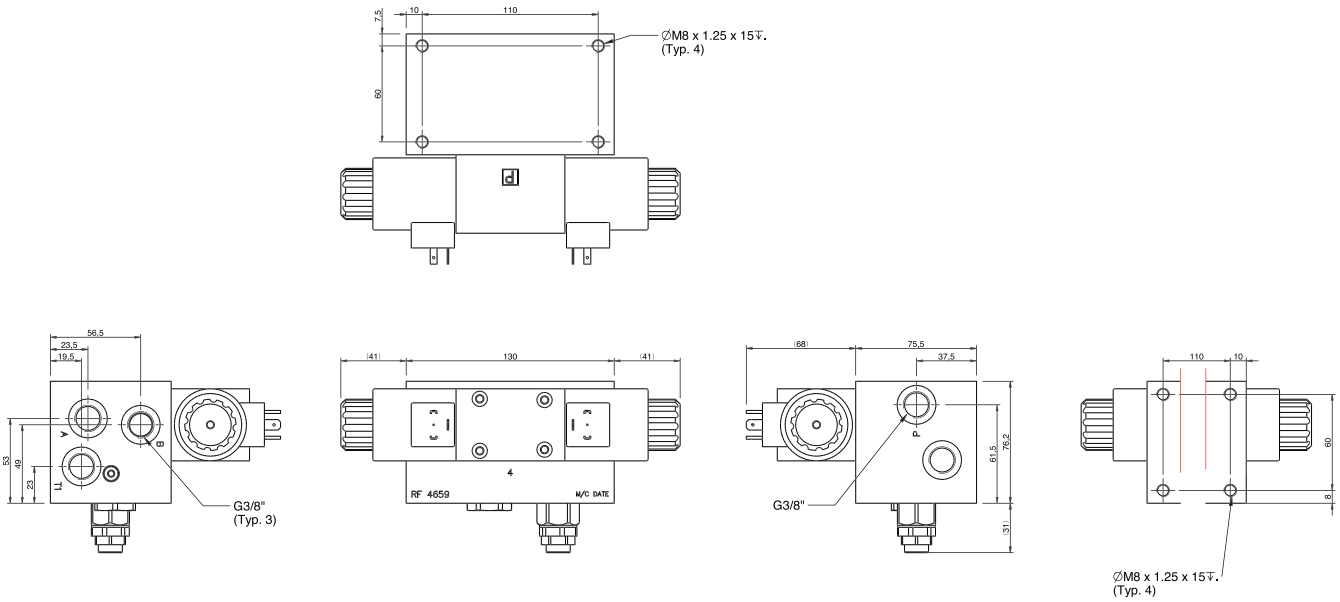
(iii) Compensator adjustment range is 2.8-20.7 bar. Higher pressure settings should be avoided in interest of energy consumption / waste energy

Features

- Optimised for low manifold pressure drop
- Multi-configuration capability
- G3/8” Ports
- Ideal for multiple applications using fixed displacement gear pumps

Flow Range (lpm)	40
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF4659
Weight	4.9 kg (alum) 8.3 kg (steel)

Dimensions



Ordering Example

RF C34659 | ** | * | ** | * | *

Compensator valve pressure range
03 = 2.8 bar
05 = 5.5 bar
10 = 10.4 bar
14 = 13.8 bar
30 = 6.8 - 20.7 bar **Adjustable, NOT SET**

Relief valve Pressure range
Y = 5-30 bar
N = 5 to 110 bar
B = 10 – 180 bar
G = 10 – 240 bar
W = 85 – 350 bar

Pressure setting
21 = 210 Bar**
**10 Bar increments
00 = Std. setting
(Y = 20 bar)
(N = 100 bar)
(B = 140 bar)
(G/W = 210 bar)

Seal Type
0 - Buna
V - Viton

Manifold Material
A = Aluminium (240 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

SECTION 3
CETOP 5

Related Fluid Power

Cetop 5 Subplate with Relief

Base & Side P+T Ports

RF C51146

Up to 350 bar

Description

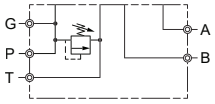
This is a compact Cetop 5 single station sub-plate with high capacity pilot operated relief with low pressure rise characteristics, offering a smooth transition in response to load changes. This sub-plate offers the choice of base and / or side entry P and T ports and is ideal for either tank top mounting or as a stand-alone valve. The relief also has a knob (with lock knob) option and is capable of full adjustment between 69 and 345 bar.

Features

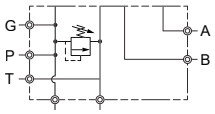
• Steel (zinc plated) or Aluminium (anodised) material options.

Schematic

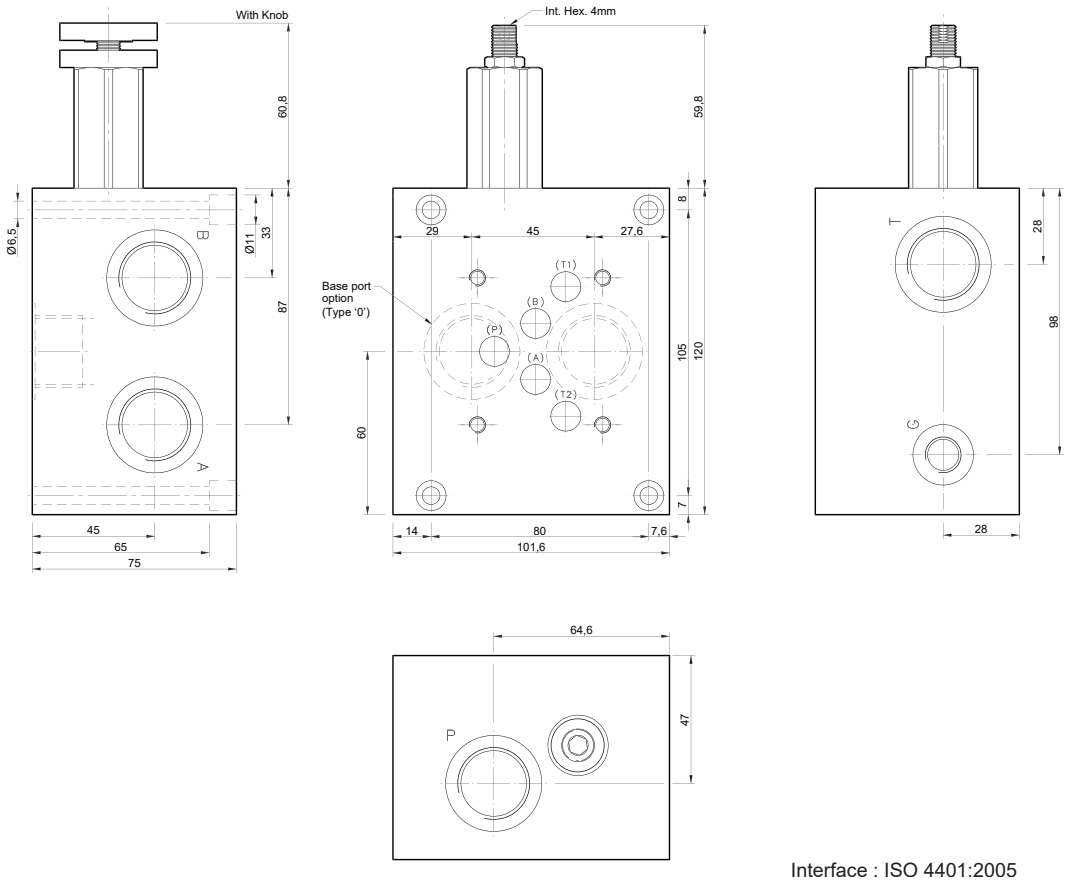
Type B*



Type 0*



Dimensions

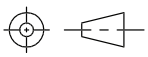


Ports

A, B, P, (P1), T, (T1) = G3/4”

G = G1/4”

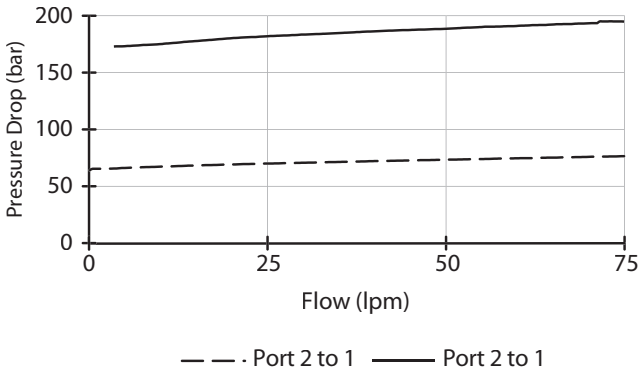
Interface : ISO 4401:2005



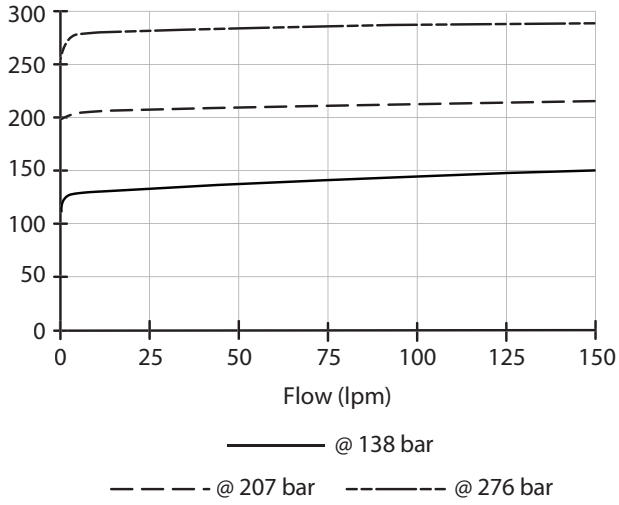
Performance

32 cSc / 38°C.

D-DERWP004000



D-HERWP005000



Ordering Example

RF C51146 ** ** * *

Options
00 = Nitrile
V0 = Viton
0K = Nitrile, Knob*
VK = Viton, Knob*
*Adjustment: 69 - 345 bar

Pressure Adjustment
28 = 69 to 280 bar Cartridge D-DERWP004000
35 = 69 to 350 Cartridge D-HERWP005000

Base Port Options
0 = All ports on side
B = P&T on side and base. A&B on side

Body Material
A - Aluminium
S - Steel
For pressures over 210 bar use steel.

Preferred Standard Model Code(s):
RF C511460028BA

Cetop 5 Subplate.
Side ported, G3/4”

RF C51469

Up to 350 bar

Description

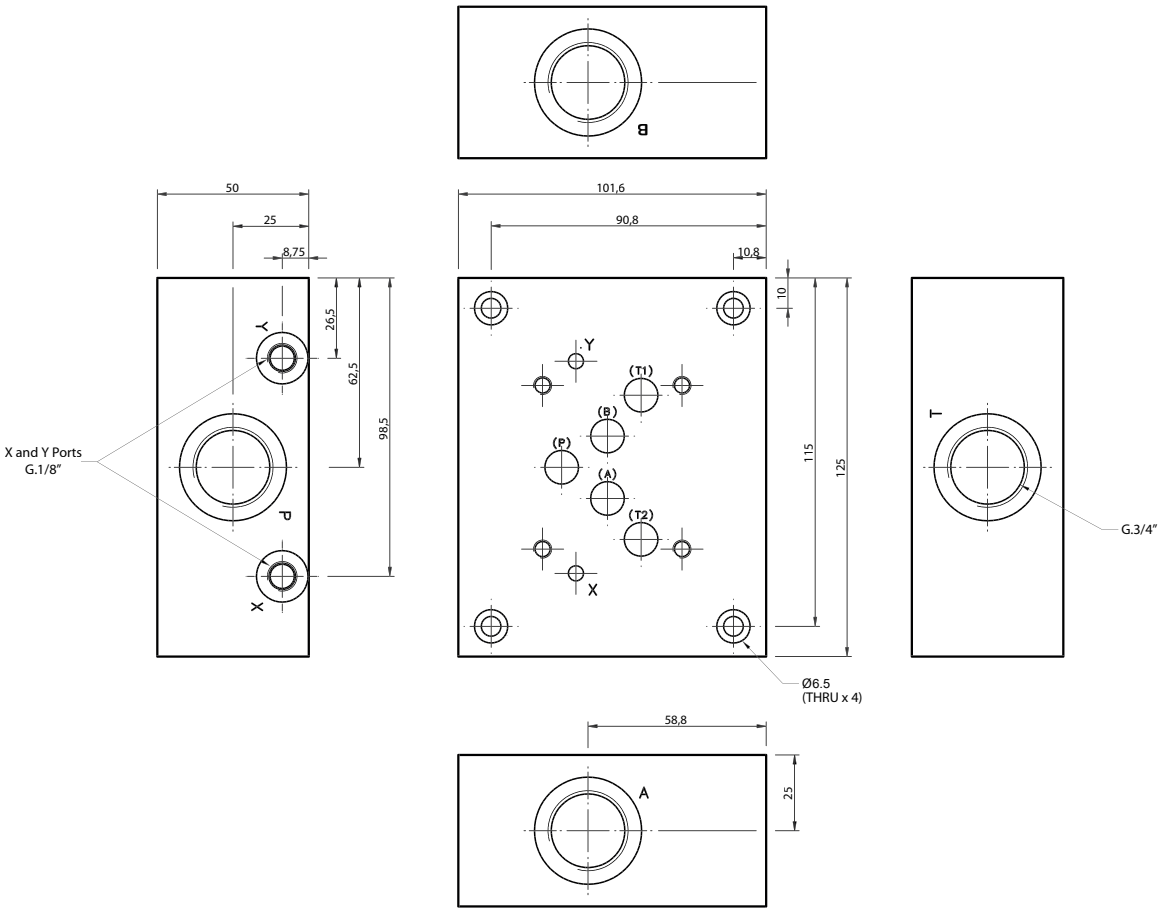
A compact subplate with basic 4 port layout. Optimised internal drillings ensure that pressure drops are minimised for best system efficiency. G3/4” ports, optional G1/8” pilot & Drain ports. (denoted by XY in part code).

Features

- Steel (zinc plate, clear passivate).
- Compact, efficient design.

Symbol

Dimensions



Ordering Example

RF C51469 | ** | *

Options	Manifold Material
XY = 1/8” BSP pilot & drain ports Omit if not required	**S** = Steel (350 bar max, zinc plated)

Preferred Part No. - RF C51469XYS

Regenerative Control
Line mounted, Cetop 5

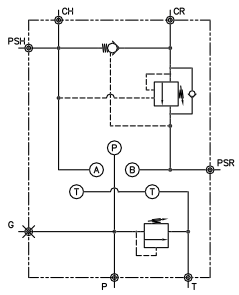
RF C53810

Up to 350 bar - Up to 160 lpm

Description

These regenerative controls are designed for cylinder applications where a fast approach is required. The regenerative function combines pump flow with the oil displaced from the annulus of the cylinder. In the extend mode the cylinder starts at a fast speed: As load progressively increases nearer to the end of the cylinder stroke the regenerative flow is unloaded to tank. Remaining cylinder stoke is completed at the speed determined by the pump flow rate. In retract mode the cylinder is allowed to retract at the normal speed (pump flow rate).

Symbol

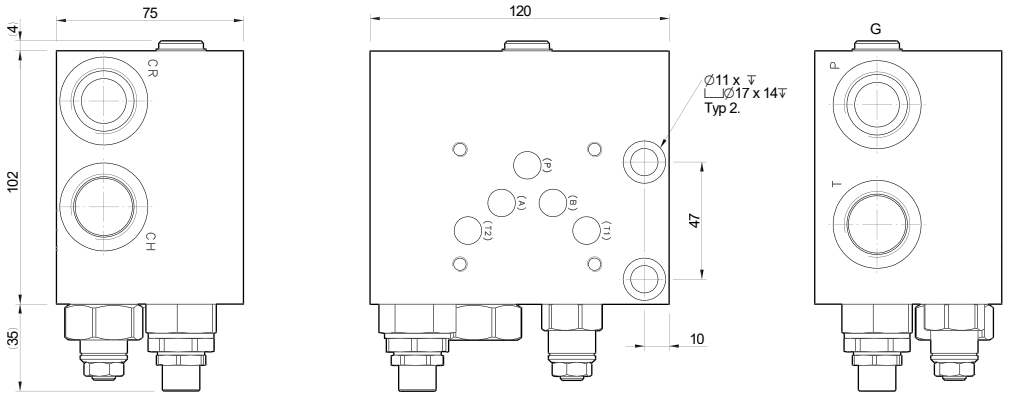


Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Adjustable relief valve.
- Compact, efficient design.
- Interface only, as standard. Directional valves available on request.

Flow Range (lpm)	60lpm inlet, 160lpm max. Regen
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC53810
Weight	2.6 kg (alum) 6.2 kg (steel)

Dimensions



P,T, CH & CR - G3/4" Ports
G, PSR & PSH - G1/4" Ports

Ordering Example

RF C53810 ****** *****

Pressure Setting
21 = 210 Bar**
**10 Bar increments
****21** = std. setting

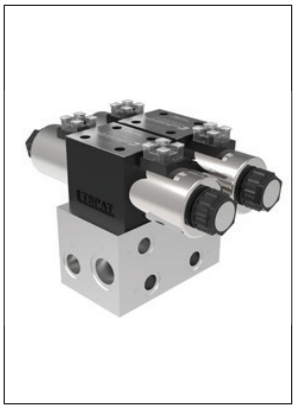
Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF C5381021A

Dual Cetop 5 Directional Control Assembly

Line Mounted, P=G3/4", T = G1", A&B = G1/2"

RF C54444

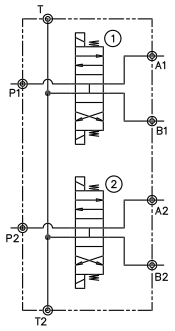


Up to 350 bar - Up to 100 lpm

Description

This assembly is typically used in mobile machinery tracking applications to control the forward and reverse operation of crawler tracks. Optimised manifold design ensures that hydraulic efficiency (tractive effort) is uncompromised with lower heat generation in comparison to other market solutions. Through porting and compact design make this valve assembly an ideal and flexible solution on installations where space is at a premium.

Symbol

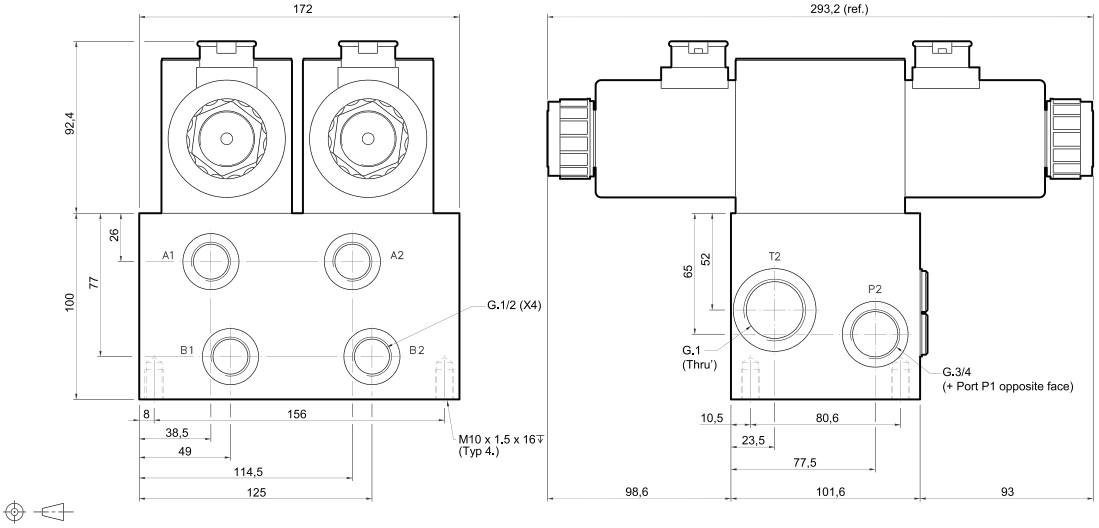


Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Compact, efficient design.
- Various valve options available on request.
- Various voltage options available on request.

Flow Range (lpm)	100
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC54444
Weight	22.5 kg (alum) 30 kg (steel)

Dimensions



Ordering Example

RF C54444 ** — ** — **

Spool Configuration	Voltage	Manifold Material
10 = Open centre 4w3p spools on stations 1 & 2	**12** = 12 Vdc	**A** = Aluminium (210 bar max, clear anodised)
Other configurations available on request	**24** = 24 Vdc	**S** = Steel (350 bar max, zinc plated)
	Other voltages available on request	

Preferred Standard Model Code(s):
RF C544441012A
RF C544441024A

Related Fluid Power

Tracking Control Cetop 5, dual station subplate
Dual pump Input, with solenoid operated unloading valves

RF C55261

Up to 350 bar - Up to Variable lpm

Description

This is a compact Cetop 5 dual station sub-plate designed specifically for modern vehicle tracking applications, where there is a requirement for increased safety. The assembly offers a conventional layout with seperate pressure inlets and a generously sized combined tank outlet. The internal design of the maifold has been optimised to minimise pressure drop and maximise tractive effort with reduced heat generation. On each pump inlet, there is a normally open, solenoid operated unloading valve, which must be operated at the same time as the tracking directional valve, when a tracking operation is required. There are a good selection of spool valves available depending on preference.

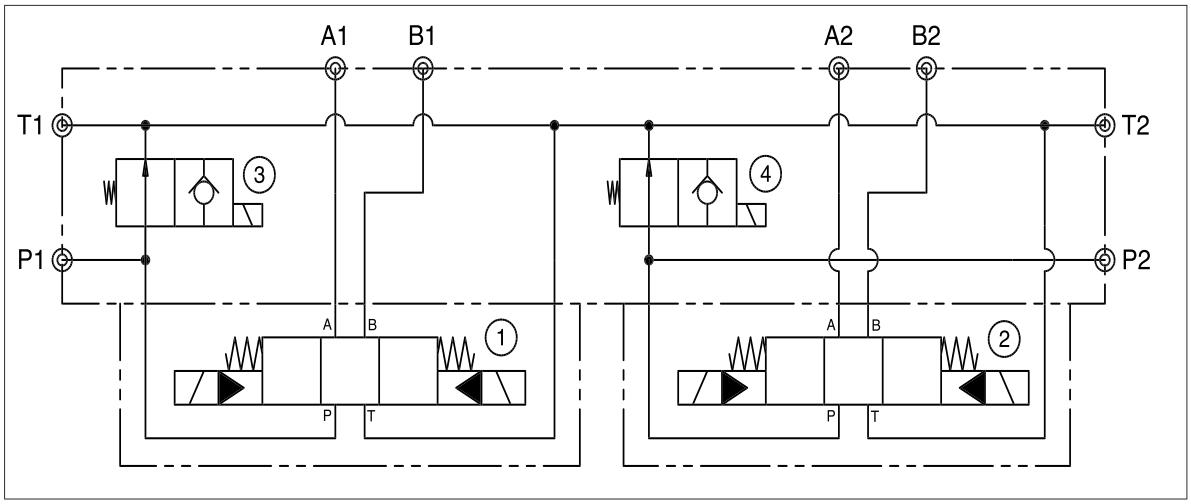
**Notes:

1. Other solenoid valve terminations available on request.
2. See valve curves for maximum flow capability. For special applications, higher flow valves are available on request.
3. Contact RFP sales office for other valve sizes / custom requirements.

Features

- Compact and efficient design with low pressure drop
- Available in light weight aluminium (anodised) 210bar or high pressure Steel (zinc plated) 350bar.

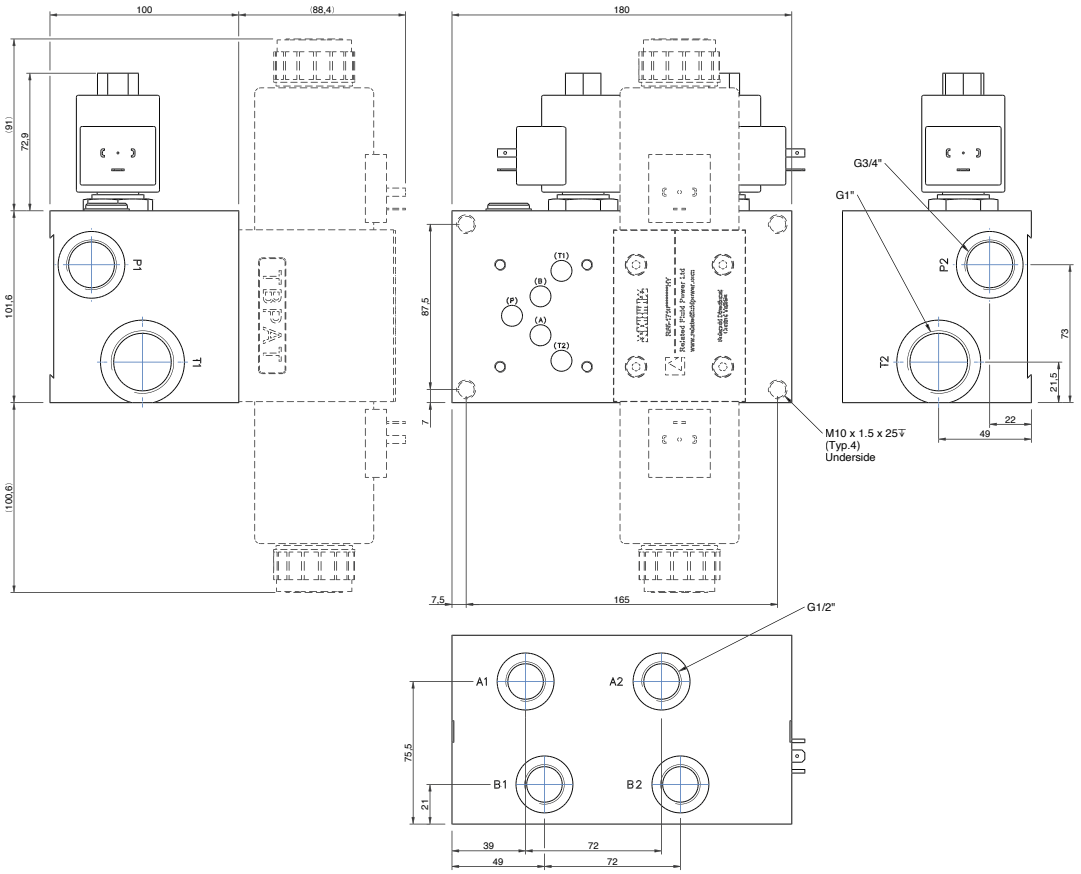
Circuit



Specifications

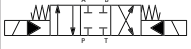
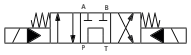
Flow Range (lpm)	Variable
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFC55261
Weight	5.0 kg (alum) 12.6 kg (steel)

Dimensions



Ordering Code

RF C55261 ** ** *

Valve Configuration	
00 = DCV'S not supplied	
10 = Open Centre spool valves fitted (all ports open)	
11 = Closed centre spool valves fitted (all ports blocked)	
13 = Motor spools fitted (A & P > T, P blocked)	
14 = Tandem centre spools fitted P>T, A + B blocked	

Voltage
H1 = 12 Vdc (Din)
H2 = 24 Vdc (Din)
D1 = 12 Vdc
D2 = 24 Vdc (Deutsch)

Manifold Material
A = Aluminium (clear anodised)
S = Steel (350 bar max, zinc clear passivate)

Preferred Part No. -

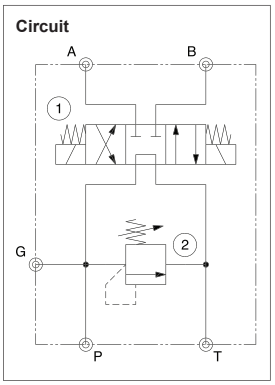
RF C5526110H1A
RF C5526110H2A

Related Fluid Power

Cetop 5 Subplate with Direct-Acting Relief
Line mounted, Base ported

RF C54745

Up to 350 bar max - Variable lpm



Description

The RF C54745 is a circuit saver valve assembly combining a subplate along with direct acting relief valve as the main pressure control. The relief is fast acting and is extremely stable in response to load changes. The subplate also benefits from maximised internal drillings with exceptionally low pressure drops being realised. A variety of relief adjustment ranges are available between 5 to 350 bar.

NOTES:

(i) Includes directional valve

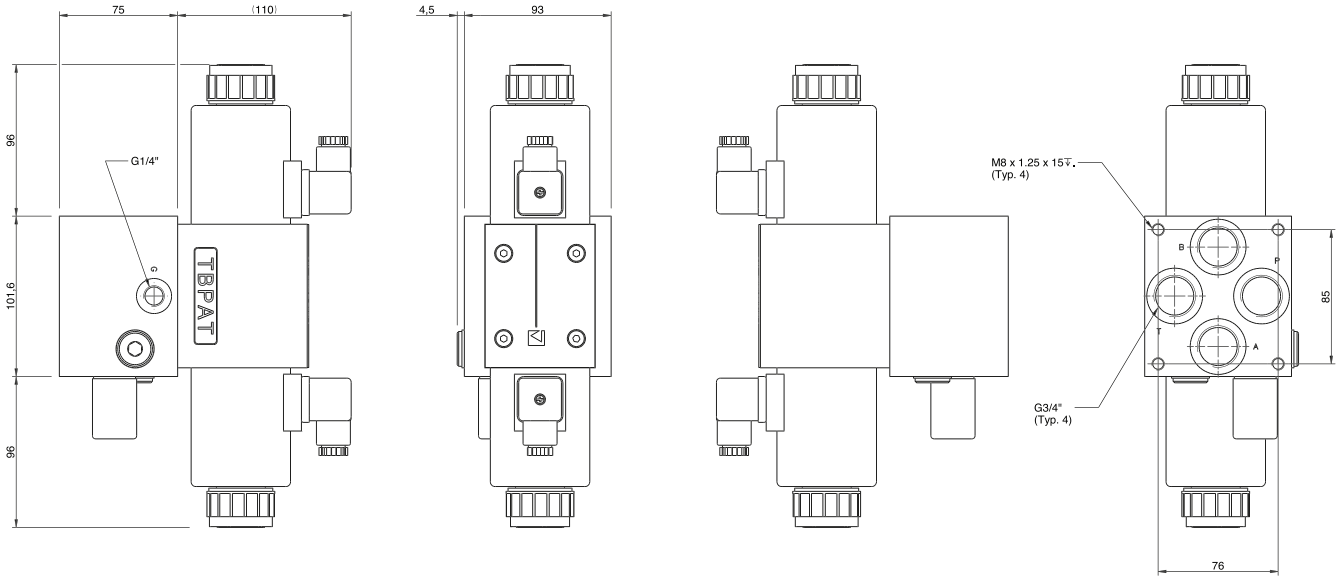
(ii) Other configurations including valve modules available on request. Contact sales office for further information

Features

- G3/4" Ports
- Ideal for multiple applications

Flow Range (lpm)	see curves for various versions
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF4745
Weight	9.9 kg (alum) 12.9 kg (steel)

Dimensions

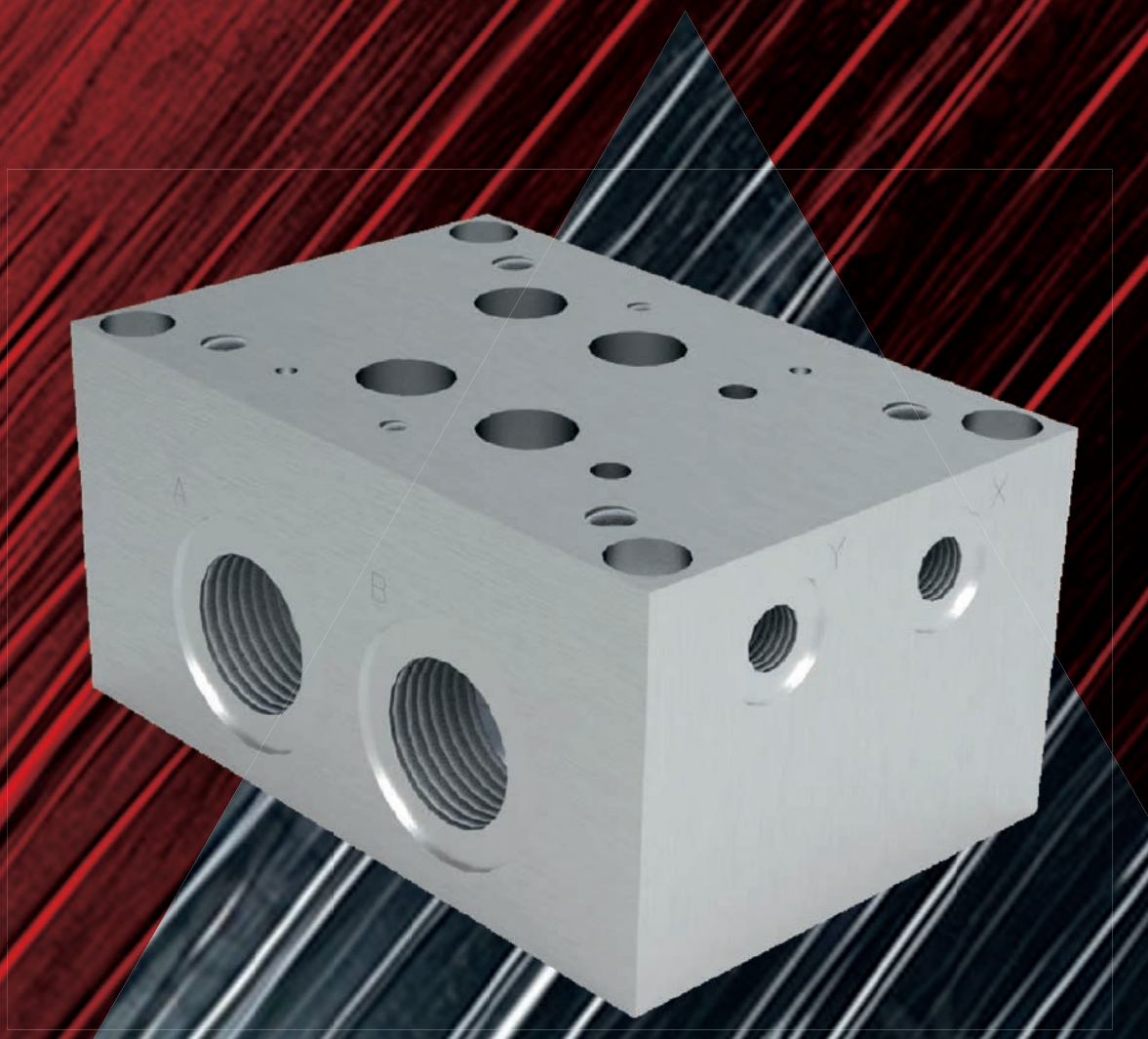


Ordering Example

RF C54745 | * | ** | ** | * | * | *** | *

Relief valve Pressure range	Cetop Overide	Pressure setting	Seal Type	Spool Configuration	Coils & Voltage	Manifold Material
Y = 5-30 bar	**00** = no override (std.)	**21** = 210 Bar** **10 Bar increments **21** = std. setting	**0** - Buna	**A** - 1710	**HC1** = 12V DC DIN	**A** = Aluminium (240 bar max, clear anodised)
N = 5 to 110 bar	**0M** = override		**V** - Viton	**B** - 1711	**HC2** = 24V DC DIN	**S** = Steel (350 bar max, zinc plated)
B = 10 – 180 bar				**C** = 1713	**ID1** = 12V DC Deutsch	
G = 10 – 240 bar				**D** = 1714	**ID2** = 24V DC Deutsch	
W = 50 – 350 bar				**0** = DCV not included		
				**Show symbols with code		

SECTION 4
CETOP 7



Related Fluid Power

Cetop 7 subplate
Side P & T ports, base mounted T port

RF C71357

Up to 350 bar max - Variable lpm

Description

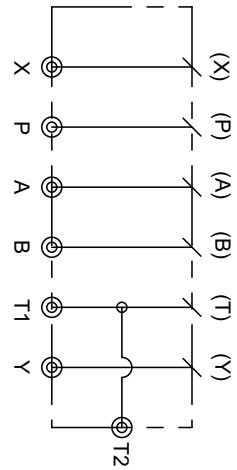
The RF C71357 is a compact Cetop 7 single station sub-plate with capability for external pilot and drain ports, This sub-plate also offers the choice of base and / or side entry T port and is ideal for either tank top mounting or as a stand-alone valve.

NOTES:

(i) Cetop valves(s) not supplied. Consult RFP sales office for further assistance

(ii) Supplied with 1 x plug for unused T port

Circuit

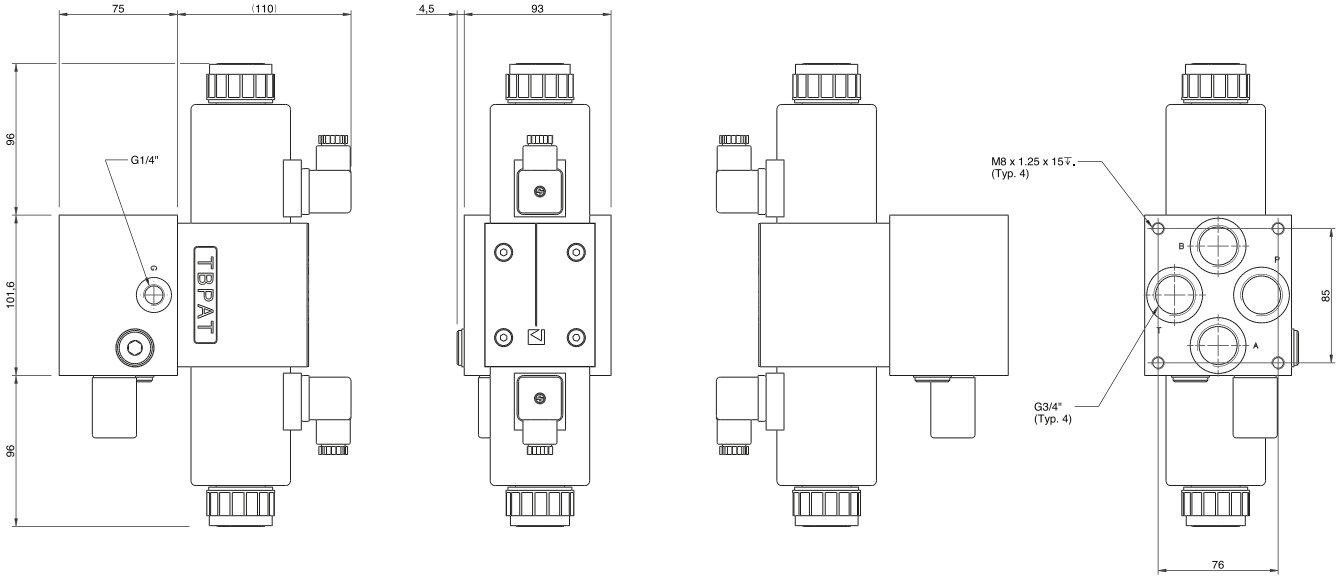


Features

- Multi-configuration capability
- 1” BSP Ports
- Option of aluminium or steel manifolds

Flow Range (lpm)	Variable
Max. Pressure (bar)	Aluminium = 240 bar Steel = 350 bar
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	Variable
Filtration	N/A
Operating Temp.	-40 to 120˚C
Spare Seal Kit	N/A
Weight	2.6 kg (alum) 7.4 kg (steel)

Dimensions



Ordering Example

RF C71357 *

Manifold Material
A = Aluminium (240 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Related Fluid Power

Cetop 5 to Cetop 7 adaptor (valve to subplate)
Sandwich mounted

RF C71558

Up to 350 bar max - Variable, valve / system dependant lpm

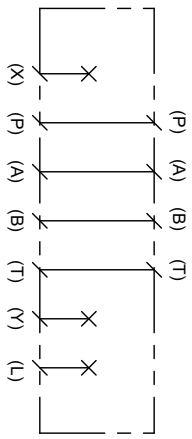
Description

An adaptor manifold that allows the fitment of a cetop 5 control valve onto a cetop 7 manifold mount (reduction). Sealing for L, X & Y ports is present on the cetop 7 interface but are blank and not carried through to the cetop 5 valve.

NOTES:

(i) Consult factory for other possible valve / build options

Circuit

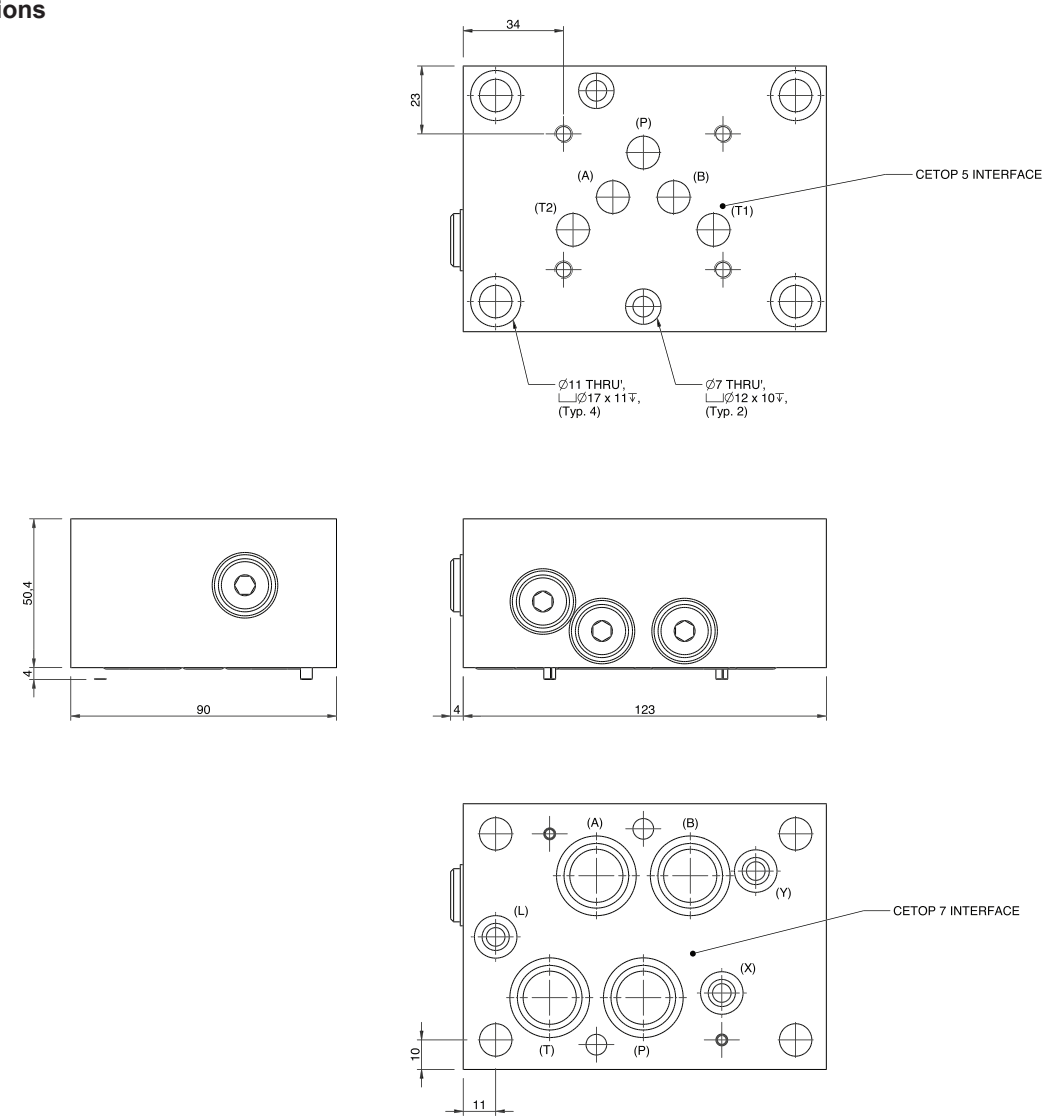


Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design that is optimised for low pressure drop / high flow performance
- Supplied with seals and bolts to suit cetop 7 interface

Flow Range (lpm)	Variable
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFC71558
Weight	1.4 kg (alum) 3.7 kg (steel)

Dimensions



Ordering Example

RF C71558 *

Manifold Material
A = Aluminium (clear anodised)
S = Steel, clear (zinc passivate)

Cetop 7 decompression assembly on A line
Module

RF C72341

Up to 350 bar max - Variable lpm

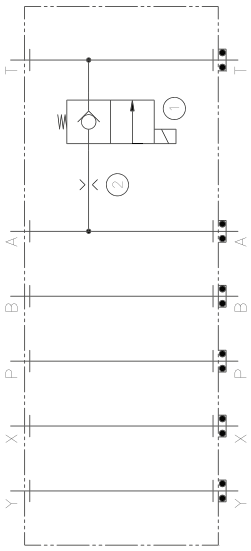
Description

The RF C72341 is a circuit saver valve assembly using a size 08 poppet valve and orifice restriction to give a decompression function on circuits where there is a large volume of pressured oil that needs to be vented in a controlled manner. The module can be used on new applications using cetop valves or as a retrofit to an existing machine circuit. The module should be applied on the load holding side of the circuit that it is used on. Load holding is maintained by the use of the low leakage poppet valve. In use, the poppet valve is energised momentarily, allowing a controlled decay in load pressure before the main directional valve is energised. The result is a much smoother operation of the equipment with minimal noise or shock.
There are multiple options on orifice sizes. Consult RFP spares for spare orifice / sizes

NOTES:

(i) Consult factory for other voltages / terminations

Circuit

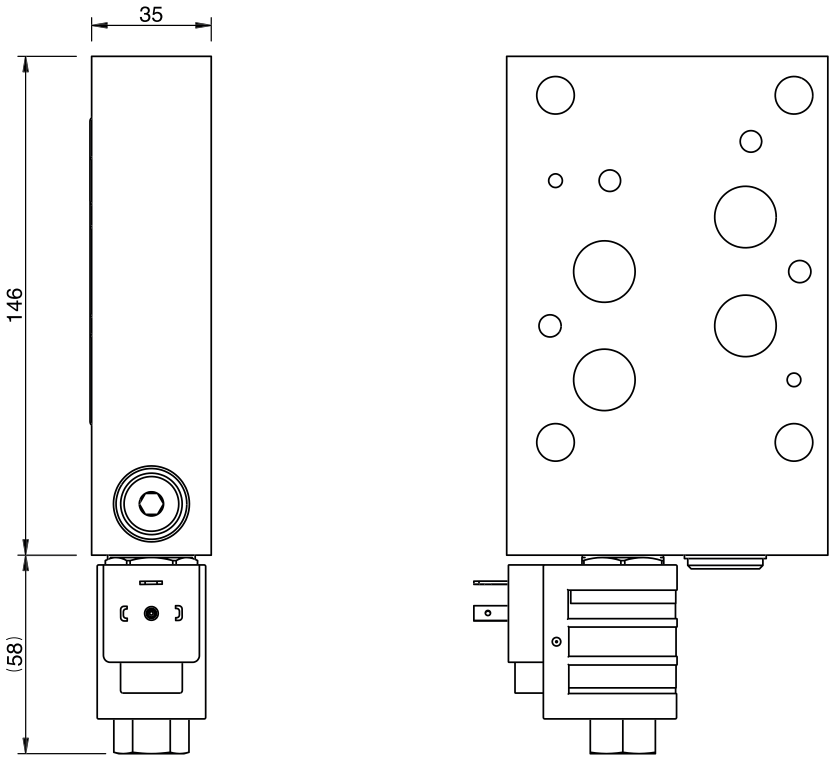


Features

- Ideal as a retrofit or new application
- Super slim module
- Multiple solenoid / seal & orifice options.

Flow Range (lpm)	Variable
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFC72341
Weight	1.9 kg (alum) 3.9 kg (steel)

Dimensions



Ordering Example

RF C72341 | ** | * | **** | *

Orifice Size	Seal Type	Coils & Voltage	Manifold Material
05 = 0.5mm 08 = 0.8mm 10 = 1.0mm 12 = 1.2mm 15 = 1.5mm 20 = 2.0mm 25 = 2.5mm 30 = 3.0mm	**0** - Buna **V** - Viton	**HC12** = 12V DC DIN **HC24** = 24V DC DIN **ID12** = 12V DC Deutsch **ID24** = 24V DC Deutsch	**A** = Aluminium (210 bar max, clear anodised) **S** = Steel (350 bar max, zinc plated)

Related Fluid Power

Cetop 7, 2 station directional control assembly
Separate sections with dedicated pressure supply ports and solenoid unloaders

RF C75094

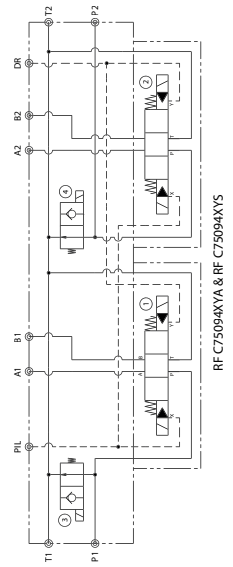
Variable, 350 bar max. - Up to 150 lpm max.

Description

The RF C75094 is a valve control for the operation of two services from two separate pump supplies. The most typical application is for the control of two drive motors on a piece of mobile machinery. Each side of the valve circuit has a normally open safety unloader adding an extra level of protection to prevent unwanted operation / pressurisation of the hydraulic circuit. Valve sizing and optimised manifold design ensures that hydraulic efficiency (tractive effort) is uncompromised with lower heat generation being seen in comparison to other market solutions. Cetop directional valves are specified separately**, it is recommended that open centre (all ports open in neutral) or figure 4 (P blocked, A & B to T in neutral) spools are used. Please contact our sales offer for more information and guidance on what compatible products are available and control that can be achieved.

**Note: actual pressure and flow ranges achieved are governed by valve selection.

Circuit

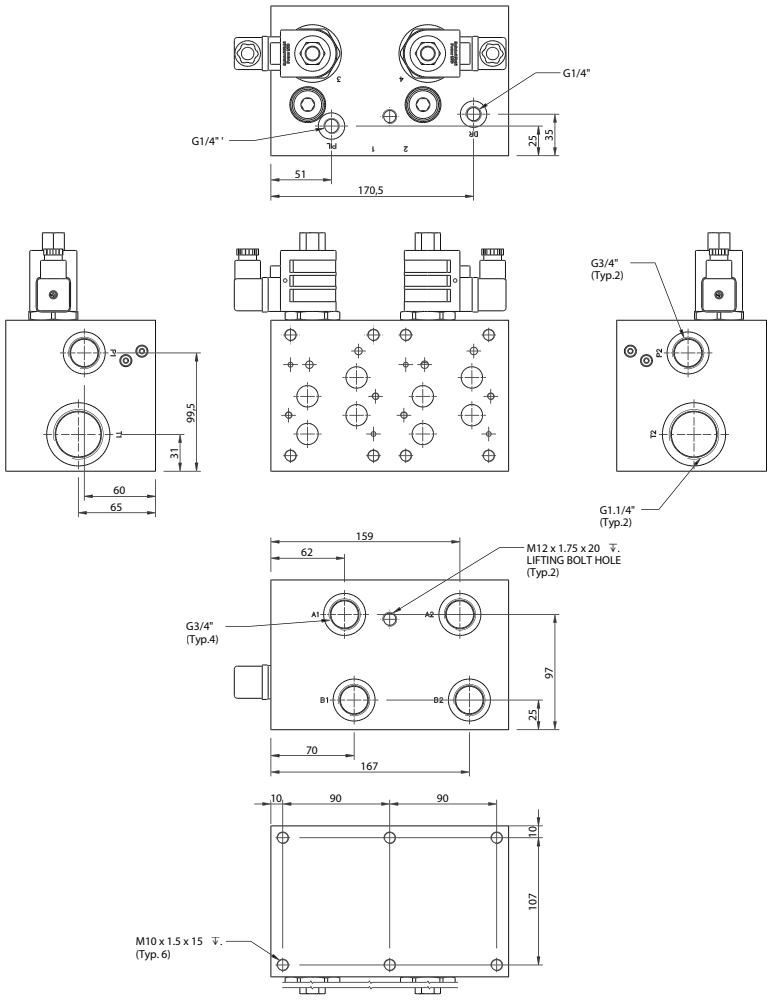


Features

- Multi-function circuit capability
- Compact and efficient design, suitable for use at flow rates up to / around 150 lpm (unloaders)
- External pilot and drain ports
- Available in lightweight aluminium, anodised (240 bar) or high pressure (300 bar) steel, zinc plated options

Flow Range (lpm)	300
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFC75094
Weight	8.0 kg (alum) 20.6 kg (steel)

Dimensions



Ordering Example

RF C75094 — ** — ** — *

Preferred Standard Model Code(s):
RF C750940000S
RF C750941012S
RF C750941312S
RF C750941324S

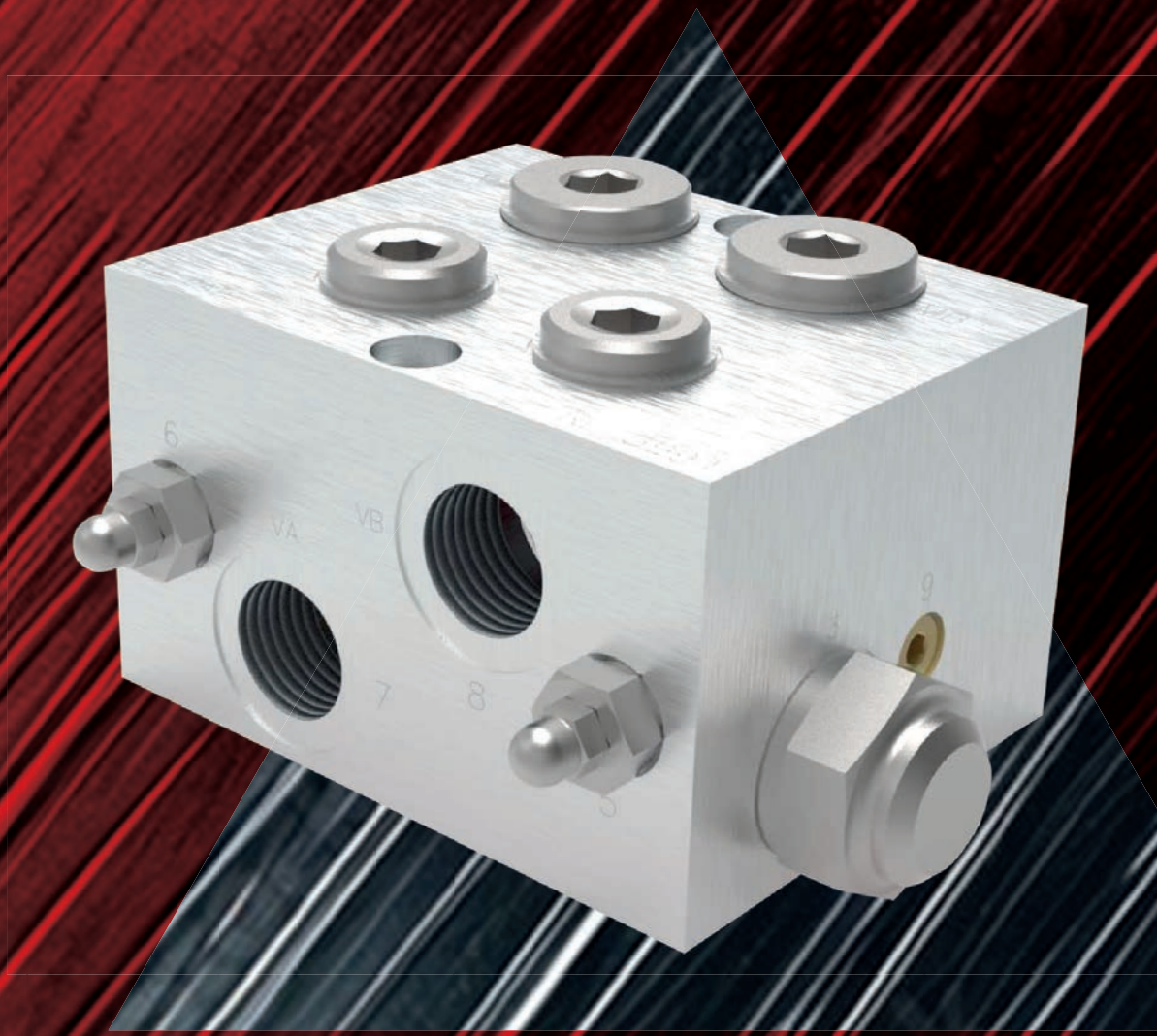
Valve configuration
00 = DCV's not supplied
10 = Open Centre
11 = Closed Centre
13 = A & B > T
14 = Tandem Centre

Voltage
12 = 12 Vdc
24 = 24 Vdc

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, clear, zinc passivate)

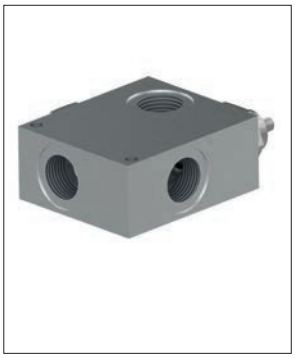
Related Fluid Power

SECTION 5
FLOW CONTROL



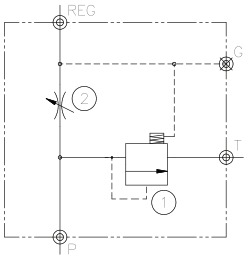
Pressure Compensated Flow Control
Line mounted, Single G1”

RF FC1725



Up to 240 bar - Up to 150 lpm regulated (150 Lpm max. bypass).

Circuit



Description

Ideal for various applications where uni-directional speed control of an actuator is required. These controls offer priority flow control with a variable/adjustable priority flow control setting and excess flow being bypassed. Designed to accept a high input flow, the assembly uses a variable orifice and compensating element to limit the maximum priority flow supplied to the actuator regardless of load variations.

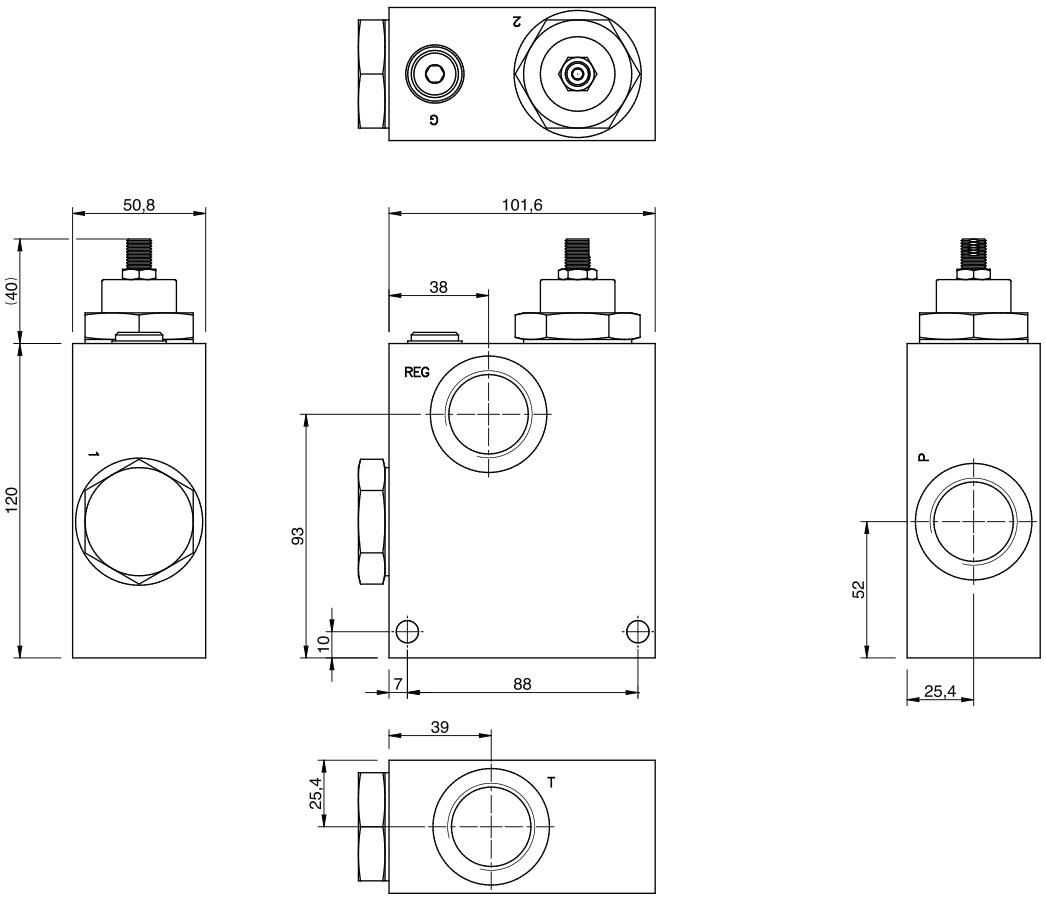
Typical applications include but are not limited to: (i) conveyor speed control (ii) sweeper motor control. Please contact our sales office for more information and guidance on types of flow controls that are available.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optimised internal galleries for low hydraulic losses
- Lockable handwheel or allen key adjustment on flow controls

Flow Range (lpm)	150 lpm max regulated 150 lpm max on bypass
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-30 to 110˚C
Spare Seal Kit	SK-RFFC1725
Weight	x x kg (alum) y.y kg (steel)

Dimensions



Ordering Example

RF FC1725

**	***	**	*
Compensator Setting	**Flow Setting (Priority)**	**Valve options**	**Material**
07 = 7 bar	000 = Unset	00 = Std seals	**A** = Aluminium (clear anodised)
10 = 10 bar	050 = 50 lpm	V0 = Viton seals	**S** = Steel, clear (zinc passivate)
	120 = 120 lpm etc.	0K = Std seals, override on solenoid valve	
		VK = Viton seals, override on solenoid valve	

Preferred Part No. - RF FC17251000000A

Pressure Compensated Priority Flow Control c/w Relief.

Line mounted, G1/2”

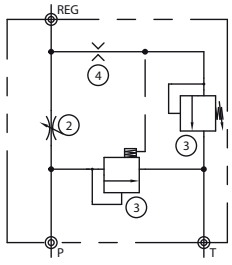
RF FC2397

240 bar - 100 lpm

Description

Ideal for various applications where speed control is required. These controls offer meter in priority flow control with optional relief protection. Designed to accept high input flow, the controls use an adjustable orifice to limit the maximum priority flow to the service. Knob option for the flow control with excellent control resolution. Higher resolution with lower priority flow capability can be achieved through model RF MF2397NVB.
The small relief valve sensing the priority signal acts as a pilot stage for the main stage compensator element, relieving flow to the tank

Symbol



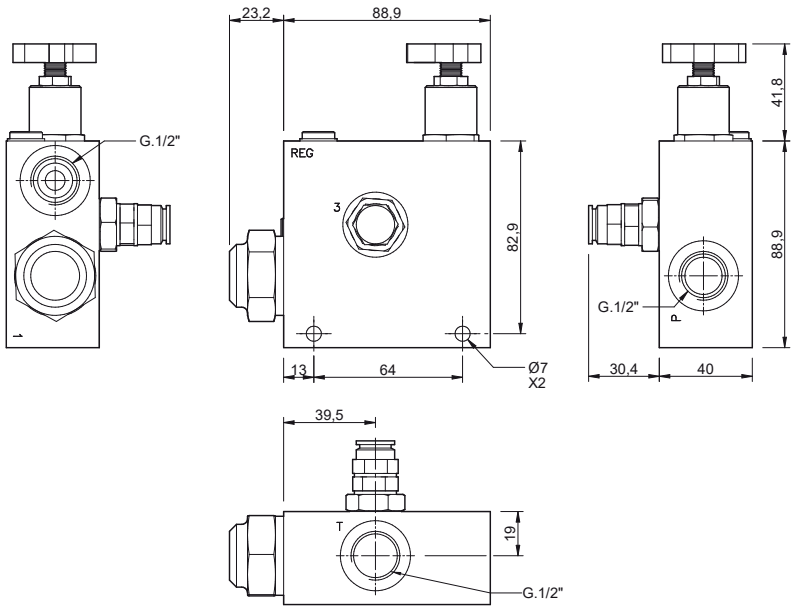
Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Compact, efficient design.
- Adjustable setting, zero to 26 lpm priority.
- Compact, efficient design.
- Relief option with wide pressure range.

Note: pressure in bypass line must be kept lower than than priority line to maintain compensation.

Flow Range (lpm)	240
Max. Pressure (bar)	100
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFMF2397
Weight	1.3 kg (alum) 2.5 kg (steel)

Dimensions



Ordering Example

RF FC2397 ** ** ** **

Options	Adjuster Type	Pressure Setting	Manifold Material
NVA = 26 lpm	**00** = Standard	**21** = 210 Bar**	**A** = Aluminium (210 bar max, clear anodised)
NVB = 15 lpm	**0K** = Knob	**10 Bar increments	**S** = Steel (240 bar max, zinc plated)
		****21** = std. setting	
		00 = No relief	

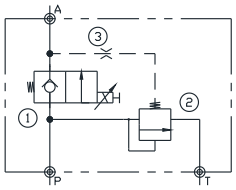
Preferred Part No. - RF MF2397NVA0K21A

Proportional Priority Flow Control Assembly.
Line mounted, G1”

RF FC3362

Up to 250 bar - 150 lpm input

Symbol



Description

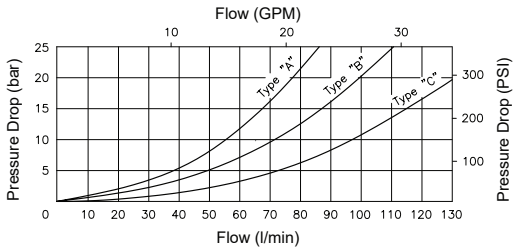
A manifold control system comprising of separate proportional metering control and 3 port bypass compensator. The proportional valve is normally closed in the de-energised condition. In this state there is zero priority flow – all oil supplied is passed to bypass. As current supplied to the proportional valve increases a priority flow is supplied, excess flow is then bypassed. In the event of any load variation a constant flow output is maintained. The bypass line can be pressurised but bypass pressure must be lower than priority pressure to maintain compensation on the priority line. These valves are used in a wide variety of applications where remote variable supply to actuators is required.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design
- Easy access, in-line porting
- Multiple coil and termination options

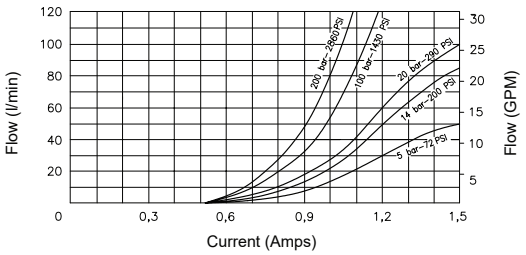
Pressure Drop

1 to 2 with valve completely open



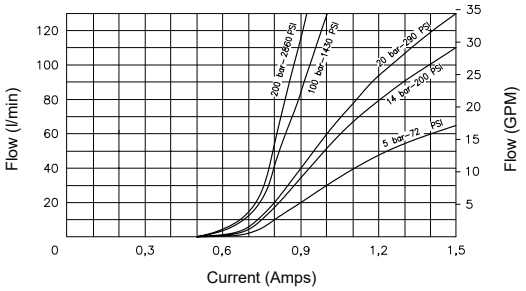
Flow vs. Current at different Pressure Drop

***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Flow vs. Current at different Pressure Drop

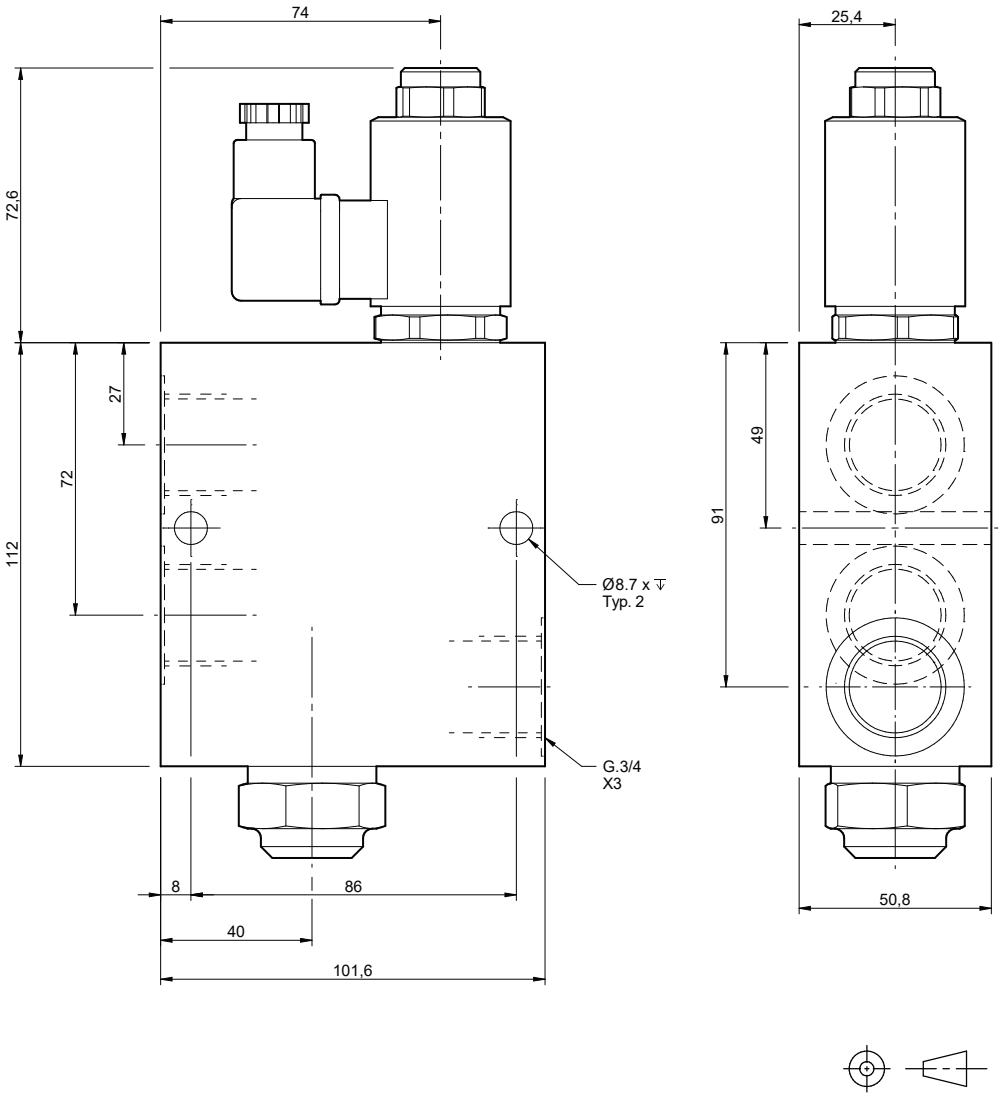
***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Performance

Typical Internal Leakage	0-10 drops/min at 250 bar
Hysteresis	+/- 3%
Viscosity Range	3 to 647 cSt
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40˚C to + 120˚C
Operating Fluid Media	General Purpose Hydraulic Fluid
Seal Kit	SK-RFFC3362
PWM or Dither frequency suggest	100 - 150 Hz

Dimensions



Ordering Example

RF FC3362 | * | * | ** | ** | ** | *

Nom. Flow Range
B = 0-85 Lpm
C = 0-110 Lpm

Compensator Settings
0 = 14 Bar
1 = 16 Bar
2 = 18 Bar
3 = 20 Bar
**Other compensator settings available on request.

Port Size
12 = G1/2”
34 = G3/4”

Override
00 = no override (std.)
0M = override

Coil & Voltage
H1 = 12V DC DIN
H2 = 24V DC DIN
D1 = 12V DC Deutsch
D2 = 24V DC Deutsch

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

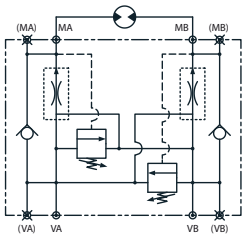
Preferred Part No. - RF FC336201200H1A

Dual Pressure Compensated Flow Control c/w Relief
Line mounted, G3/4”

RF FC3994

Up to 350 bar - Up to 170 lpm

Symbol



Description

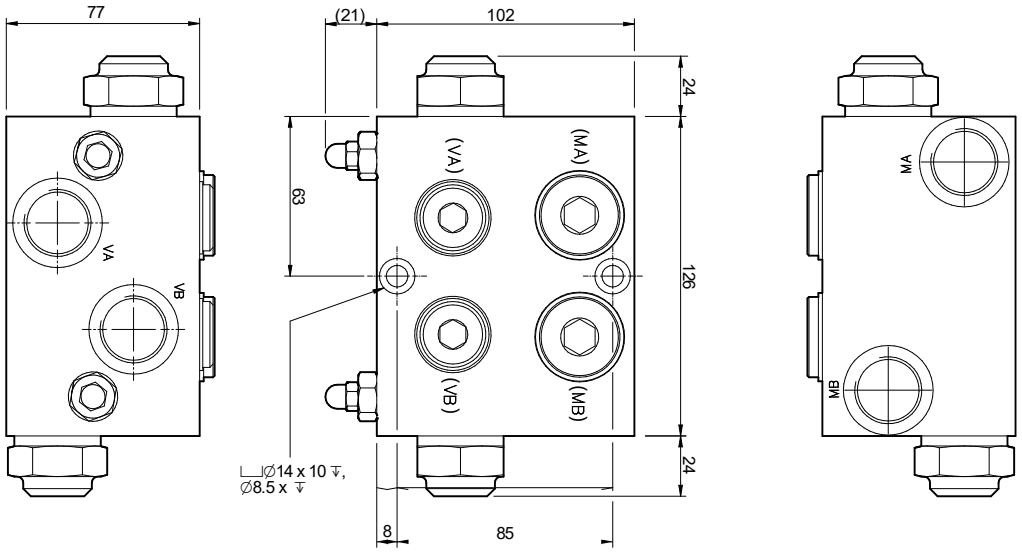
Ideal for various applications where pressure compensated speed control of an actuator in both directions is required. These controls offer meter in priority flow control with relief protection in both directions. Designed to accept a high input flow, the controls use a fixed orifice with compensator to limit the maximum priority flow supplied to the actuator regardless of load variations. Excess flow is returned to tank via the opposite service return line. A relief valve sensing on each priority output and relieving to the opposite service return line provides system relief protection. High performance check valves on each side of the circuit allow return flow from the actuator to pass back to tank with minimal loss.

Features

- Steel (zinc plated) or Aluminium (anodised) material options
- Optional port positions
- Fixed setting, no externally adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Compact, efficient design

Flow Range (lpm)	170lpm inlet, 120lpm max. bypass
Max. Pressure (bar)	Standard 260 (350 on request)
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFFC3994
Weight	3.2 kg (alum) 6.9 kg (steel)

Dimensions



Ports

VA,VB,MA,MB = G.3/4

Alternative Ports

(VA), (VB) = G.1/2
(MA), (MB) = G.3/4

Ordering Example

RF FC3994 ** ** ** ** *

Priority Flow Rate V1-M1
30 = 30 Lpm
80 = 80 Lpm
****5 Lpm increments
80 = max setting
40 = std. setting

Priority Flow Rate V2-M2
30 = 30 Lpm
80 = 80 Lpm
****5 Lpm increments
80 = max setting
40 = std. setting

Pressure Setting V1-M1
21 = 210 Bar**
****10 Bar increments
****17** = std. setting

Pressure Setting V2-M2
21 = 210 Bar**
****10 Bar increments
****17** = stnd. setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF FC399440401717S

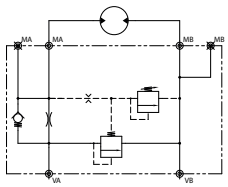
Related Fluid Power

Pressure Compensated Flow Control c/w Relief
Line mounted, Single G3/4”

RF FC3995

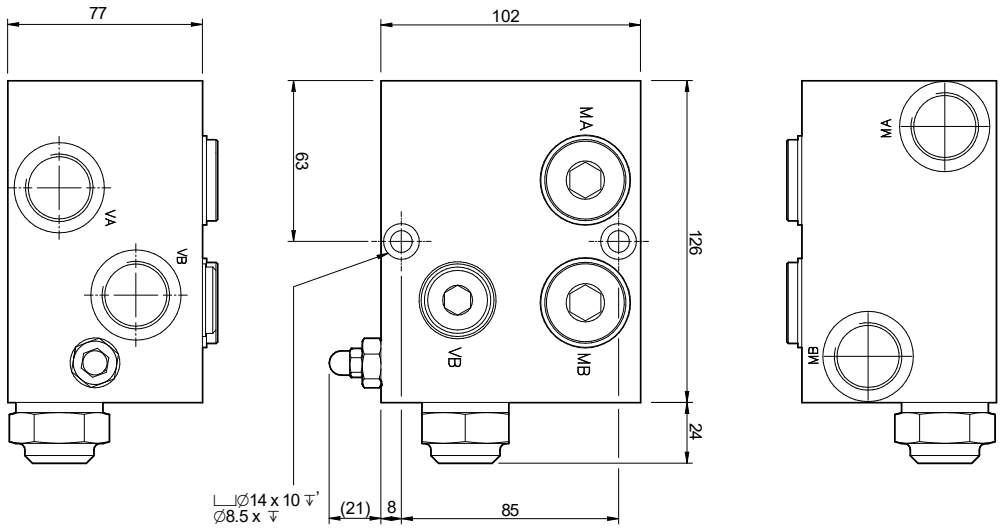
Up to 350 bar - Up to 170 lpm

Description
Ideal for various applications where uni-directional speed control of an actuator is required. These controls offer priority flow control with relief protection. Designed to accept a high input flow, the controls use a fixed orifice to limit the maximum priority flow supplied to the actuator regardless of load variations. A small relief valve sensing on the priority output acts as a pilot stage for the main compensator element relieving flow to the bypass port. A high performance check valve allows for unrestricted reverse flow of the actuator.

Symbol


Features
- Aluminium (anodised) or Steel (zinc plated) material options
- Optional port positions
- Fixed setting, no externally adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Compact, efficient design

Flow Range (lpm)	170lpm inlet, 120lpm max. bypass
Max. Pressure (bar)	Standard 260 (350 on request)
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFFC3995
Weight	2.8 kg (alum) 6.8 kg (steel)

Dimensions


Ordering Example

RF FC3995 ** ** *

Priority Flow Rate V1-M1
30 = 30 Lpm
80 = 80 Lpm
**5 Lpm increments
80 = max setting
40 = std. setting

Pressure Setting V1-M1
21 = 210 Bar**
**10 Bar increments
****17** = std. setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

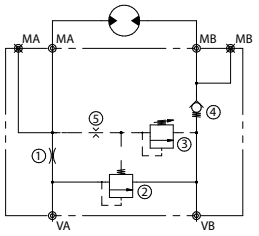
Preferred Part No. - RF FC39954017S

Pressure Compensated Flow Control c/w Relief
Line mounted, Single G3/4”

RF FC3996

Up to 350 bar - Up to 170 lpm

Symbol



Description

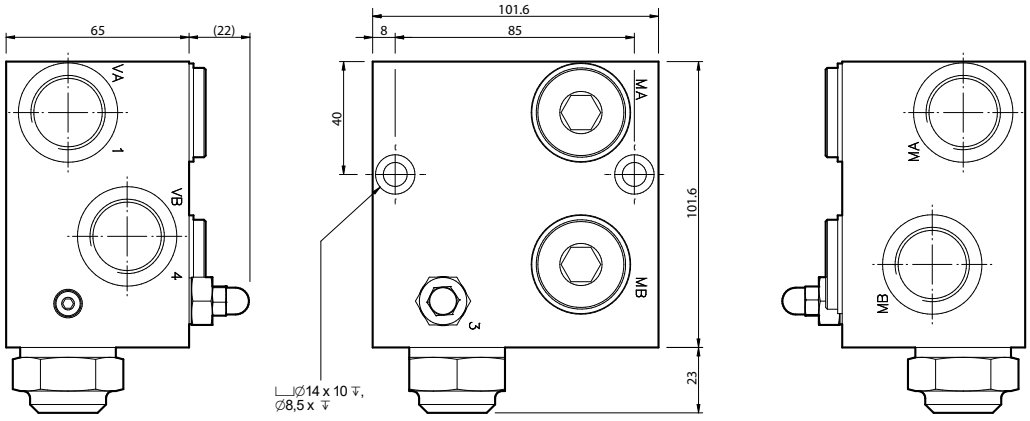
Ideal for motor applications where uni-directional speed control and flow direction is required. These controls offer priority flow control with relief protection. Designed to accept a high input flow, the controls use a fixed orifice to limit the maximum priority flow supplied to the actuator regardless of load variations. A small relief valve sensing on the priority output acts as a pilot stage for the main compensator element relieving flow to the bypass port. A high performance check valve on the return line prevents reversal of the motor.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optional port positions
- Fixed setting, no externally adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Compact, efficient design
- Up to 170 Lpm inlet (120 Lpm max. bypass).
- STANDARD up to 260BAR, 350BAR on request

SECTION 5 FLOW CONTROL

Dimensions



Ordering Example

RF FC3996 | ** | ** | *

Priority Flow Rate VA-MA
30 = 30 Lpm
80 = 80 Lpm
**5 Lpm increments
80 = max setting
40 = std. setting

Pressure Setting VA-MA
21 = 210 Bar**
**10 Bar increments
****17** = std. setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF FC39964017S

Proportional pressure compensated priority flow control
Line mounted, normally closed, G1/2" & G3/4"

RF FC4120

250bar -120lpm input

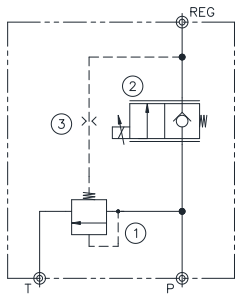
Description

A manifold control system comprising of separate proportional metering control and 3 port bypass compensator. The proportional valve is normally closed in the de-energised condition. In this state there is zero priority flow – all oil supplied is passed to bypass. As current supplied to the proportional valve increases a priority flow is supplied, excess flow is then bypassed. In the event of any load variation a constant flow output is maintained. The bypass line can be pressurised but bypass pressure must be lower than priority pressure to maintain compensation on the priority line. These valves are used in a wide variety of applications where remote variable supply to actuators is required.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design
- Easy access, in-line porting
- Multiple coil and termination options

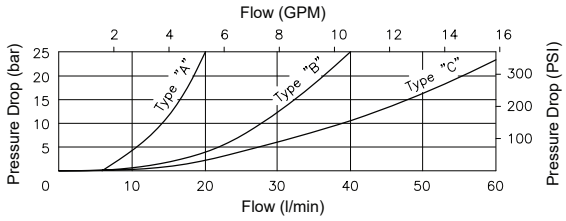
Symbol



Performance

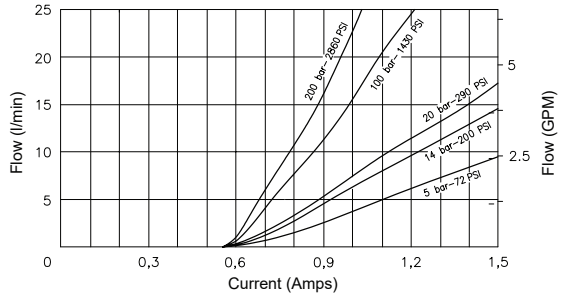
Pressure Drop

1 to 2 with valve completely open



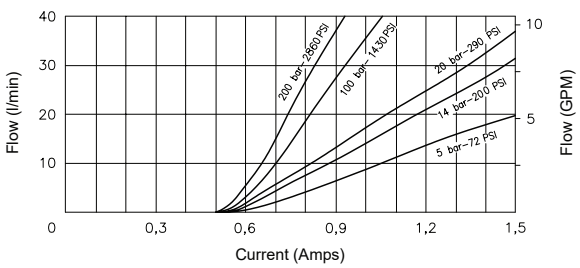
Flow vs. Current at different Pressure Drop

***Poppet type A** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



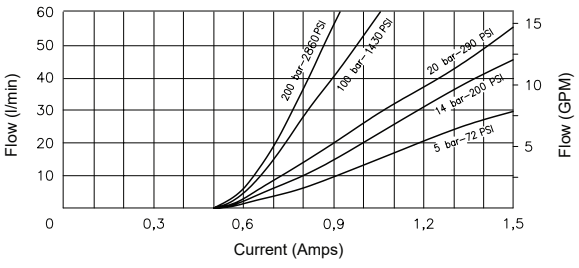
Flow vs. Current at different Pressure Drop

***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Flow vs. Current at different Pressure Drop

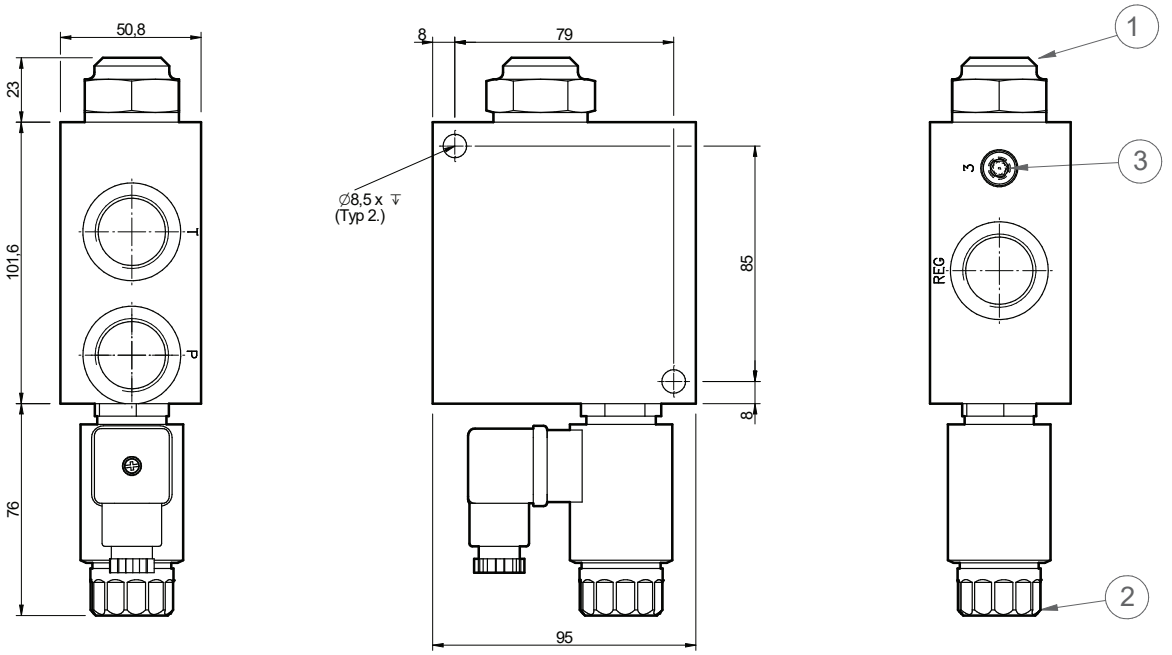
***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Specifications

Typical Internal Leakage	0-10 drops/min at 250 bar
Hysteresis	+/- 3%
Viscosity Range	3 to 647 cSt
Filtration	ISO 18/16/13
Media Operating Temperature Range	-40˚C to + 120˚C
Operating Fluid Media	General Purpose Hydraulic Fluid
Seal Kit	SK-RFFC4120
PWM or Dither frequency suggest	100 - 150 Hz

Dimensions



Ordering Example

RF FC4120 * * ** ** ** *

Nom. Flow Range
A = 0-15 Lpm
B = 0-30 Lpm
C = 0-45 Lpm

Compensator Settings
0 = 14 Bar
1 = 16 Bar
2 = 18 Bar
3 = 20 Bar
**Other compensator settings available on request.

Port Size
12 = G1/2"
34 = G3/4"

Override
00 = no override (std.)
0M = override

Coil & Voltage
H1 = 12V DC DIN
H2 = 24V DC DIN
D1 = 12V DC Deutsch
D2 = 24V DC Deutsch

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF FC4120A11200H2A
RF FC4120B11200H2A
RF FC4120C11200H2A

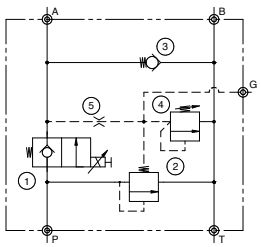
Related Fluid Power

Proportional pressure compensated priority flow control with anti-cavitation check. Line mounted

RF FC4139

Up to 240 bar - Up to 150 lpm on inlet, 110 lpm max priority

Circuit



Description

A manifold control system comprising of separate proportional metering control and 3 port bypass compensator, relief and anti-cavitation check valve. The proportional valve is normally closed in the de-energised condition. In this state there is zero priority flow – all oil supplied is passed to bypass over the compensator valve. When operated, a current is supplied to the proportional valve. Depending on the input current, a priority flow is supplied out of the A port with any excess flow bypassed to tank. In the event of any load variation a constant flow output is maintained. These valve systems are used in a wide variety of applications where remote variable supply to actuators is required but are most typically used as speed control for a motor circuit where run-down protection is needed. Please contact our sales offer for more information and guidance on options and what control that can be achieved. PWM Drivers can also be offered to compliment this assembly.

**Note: actual flow ranges achieved are governed by valve selection.

Features

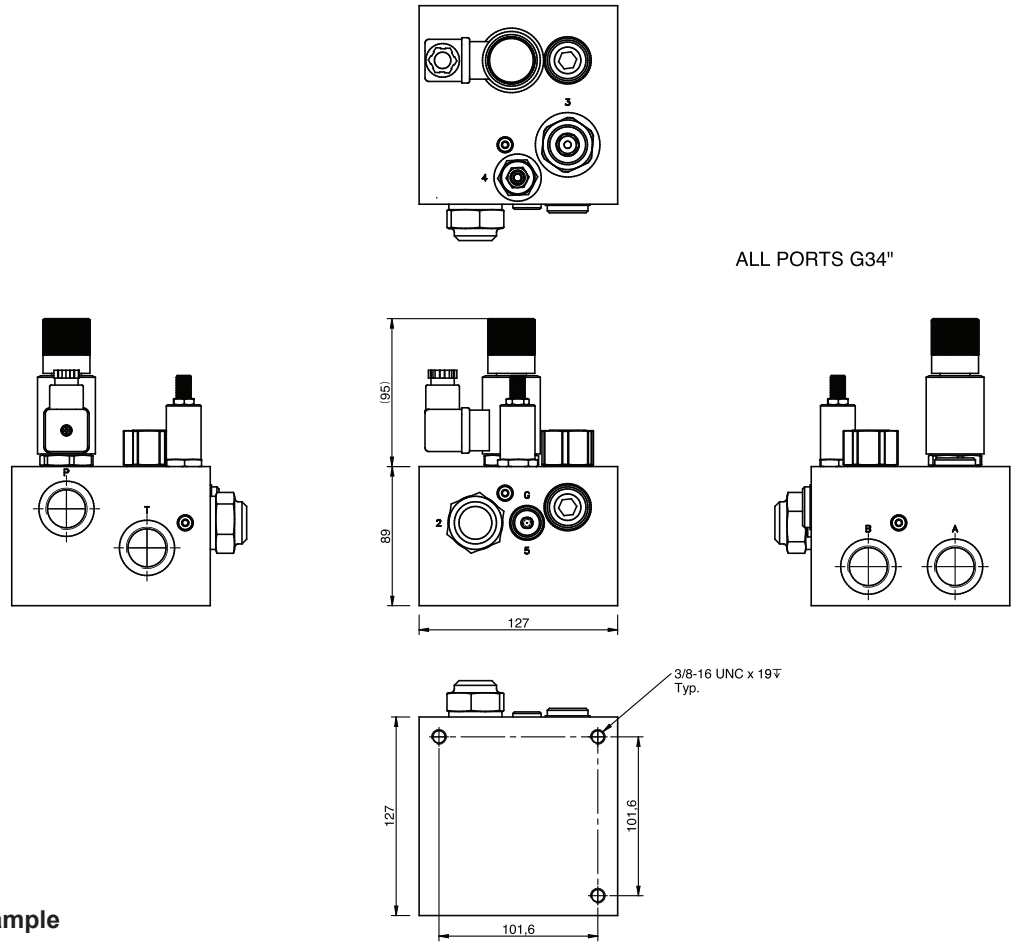
- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design with easy access, in-line porting
- Manual override option available for emergency operation
- Multiple Voltage and coil termination options

Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF4139
Weight	5.1 kg (alum) 11.1 kg (steel)

Coil Specifications

Current Supply	PWM (Pulse Width Modulation)
Rated Current Range	500 - 1450 mA
PWM or Super-imposed Dither Frequency	100 Hz
Coil Resistance	7.2 Ohm +/- 5% at 20°C

Dimensions



Ordering Example

RF FC4139 * * ** ** * * *

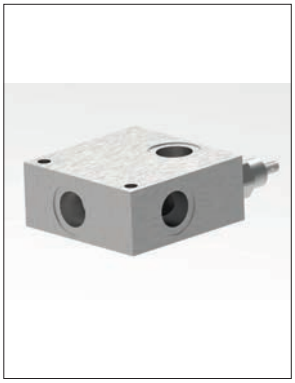
Nom. Flow Range	Compensator Setting	Pressure setting	Valve options	Coil Termination	Voltage	Material
A = 0-85 lpm	0 = 14 bar	21 = 210 Bar** **10 Bar increments **21 = std. setting	As per cartridge data sheet i.e.	H = DIN, EN 175301-803	1 = 12 Vdc	**A** = Aluminium (clear anodised)
B = 0-110 lpm	1 = 16 bar		00 = Std	D = Deutsch, DT04	2 = 24 Vdc	**S** = Steel, clear (zinc passivate)
	2 = 18 bar		V0 = Viton seals	**Other coil terminations available on request.		
	3 = 20 bar		0M = standard seals + override knob on solenoid valves			
			VM = Viton seals + override knob on solenoid valves			

Preferred Part No. -

RF FC4139B22100H1A
RF FC4139B22100H2A

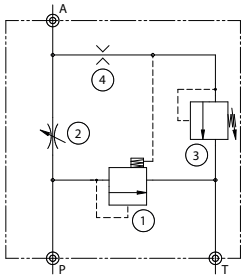
Pressure compensated priority flow control with priority relief Line mounted, manual, adjustable

RF FC4227



Variable, 240 bar max -
Up to 200 lpm on inlet, 110 lpm max priority

Circuit



Description

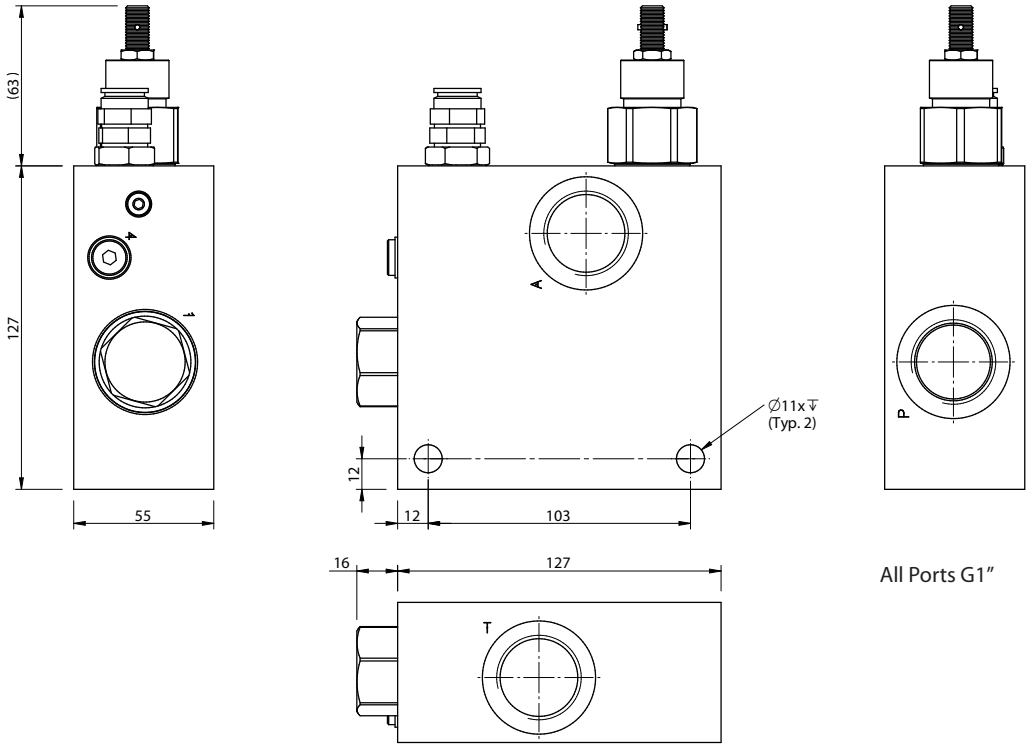
A circuit saver control system comprising of separate manual adjustable metering control, 3 port bypass compensator and relief valves. When the flow (metering) control is fully closed there is zero priority flow, i.e. all oil supplied is passed to bypass over the compensator valve. When opened and depending on how much the flow control has been opened, a priority flow is supplied out of the A port with any excess flow bypassed to tank. In the event of any load variation a constant flow output is maintained. The relief operation is by means of a small pilot relief valve that vents the bypass compensator creating a 2 stage arrangement. These valve systems are used in a wide variety of applications where the pump output is too high and a variable supply to actuators is required. Please contact our sales offer for more information and guidance on options and what control that can be achieved.
**Note: Actual flow ranges achieved are governed by valve selection.

Features

- Aluminium (anodise) or Steel (zinc plated) or material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design

Flow Range (lpm)	Inlet max = 390, Priority max = 150
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFFC4227
Weight	2.6 kg (alum) 5.9 kg (steel)

Dimensions



All Ports G1"

Ordering Example

RF FC4227 * *** ** **

Compensator Setting	Flow Setting (Priority)	Pressure setting	Valve options	Manifold Material	*
0 = 7 bar	000 = Unset	**21** = 210 Bar** **10 Bar increments **21 = std. setting	As per cartridge data sheet i.e.	**A** = Aluminium (clear anodised)	
1 = 10 bar	050 = 50 lpm		**00** = Std	**S** = Steel, clear (zinc passivate)	
2 = 14 bar	120 = 120 lpm etc.		**V0** = Viton seals		

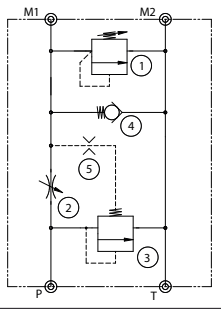
Preferred Standard Model Code(s):
RF 422720002100A
RF 422710002100A

Priority Flow Control with Relief and anti-cavitation protection Line Mounted

RF FC4334

Up to 240 bar - Up to 250 lpm (Priority 100 max, Bypass 150 max.)

Circuit



Description

A circuit saver control system comprising of separate manual adjustable metering control, 3 port bypass compensator, relief and ant-cavitation check valves. When the flow (metering) control is fully closed there is zero priority flow, i.e., all oil supplied is passed to bypass over the compensator valve. When opened and depending on how much the flow control has been opened, a priority flow is supplied out of the M1 port with any excess flow bypassed to tank. In the event of any load variation a constant flow output is maintained. The relief operation is by means of a direct acting high-capacity relief valve that vents directly from port M1 to M2/T. An anti-cavitation check valve is present between port M1 and M2/T. This feature offers cavitation protection as a result of extreme pressure fluctuations or other negative pressure conditions such as uncontrolled motor run-down. These valve systems are used in a wide variety of applications where the pump output is too high and a variable supply to actuators is required. Typically, they are used as speed control for a motor circuit where run-down protection is needed. Please contact our sales office for more information and guidance on options and what control that can be achieved

**Note:

(i) Actual flow ranges achieved are governed by valve selection.

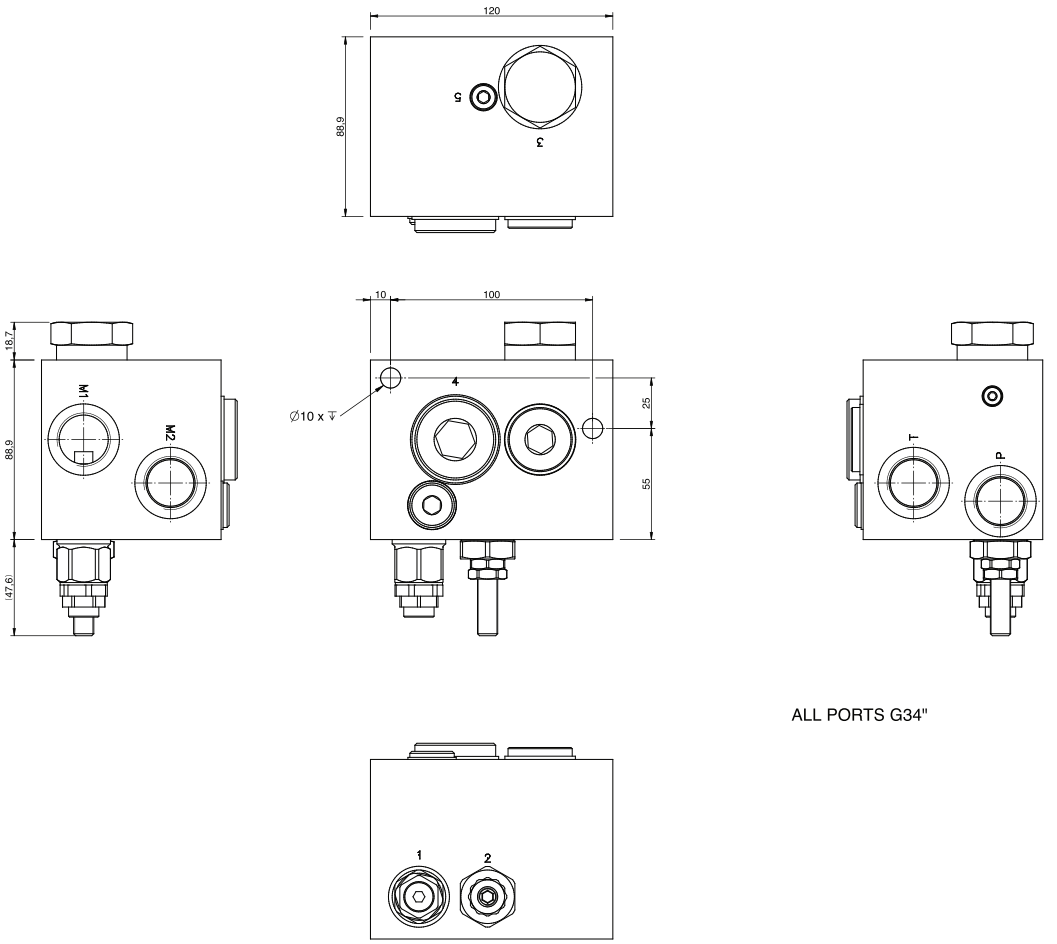
(ii) Contact RFP sales office for other configurations such as proportional flow control

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design with easy access, in-line porting
- Manual override option available for emergency operation

Flow Range (lpm)	Priority 100 max, Bypass 150 max
Max Pressure (bar)	245
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFFC4334
Weight	3.0 kg (alum) 6.6 kg (steel)

Dimensions



ALL PORTS G34"

Ordering Example

RF FC4334 * *** * ** * *

Relief valve Pressure range	Flow Setting	Compensator Settings	Pressure setting	Seal Type	Manifold Material
B = 10-110 bar	000 = Unset	**0** = 10 Bar	**21** = 210 Bar** **10 Bar increments **21 = std. setting	**0** - Buna	**A** = Aluminium (210 bar max clear anodised)
G = 10 to 210 bar	050 = 100 lpm	**1** = 16 Bar		**V** - Viton	**S** = Steel (350 bar max zinc plated)
	Max = 100 lpm	**2** = 18 Bar			
		3 = 20 Bar			

Preferred Part No. - RF FC4334G0000210A / RF FC4334G0001210A

Priority flow control, mechanical
Line mounted, G3/4”

RF FC4413

Up to 240 bar - Up to 150 lpm

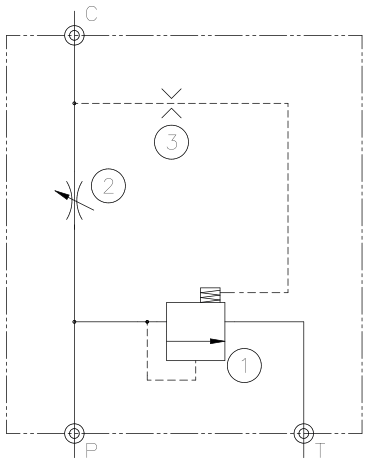
Description

A manifold control system comprising of separate manual flow control and 3 port bypass compensator, this valve provides a set amount of regulated (priority) flow out of port “C” via the manual flow control with any excess flow bypassed to tank over the compensator valve. In the event of any load variation a constant flow output is maintained. Port “T” may be pressurised without affecting pressure compensation but maximum pressure on port “T” must not exceed the pressure seen on port “C”. Maximum oil flow out of these valve assemblies is a combination of: (i) orifice opening (ii) Compensator bias setting. See graphs for further information. These valve systems are used in a wide variety of applications where fixed oil flow supply to actuators is required. Please contact our sales offer for more information and guidance on options and what control that can be achieved.

Features

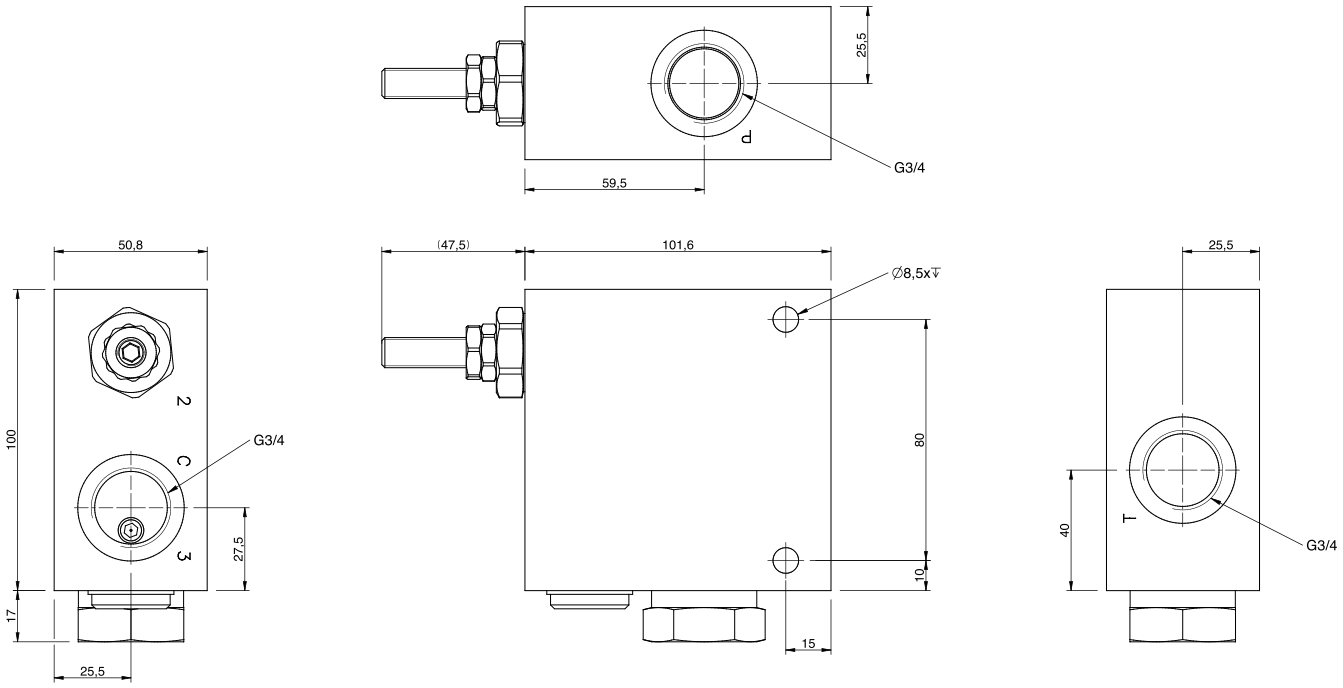
- Aluminium (anodised) or Steel (zinc plated) material options
- Stable flow control
- Compact, efficient design
- Easy access, in-line porting
- Excellent compensation characteristic
- Hand wheel or Allen key adjustment options

Circuit



Flow Range Input (lpm)	150 lpm nominal
Flow Range Output (lpm)	140 lpm nominal
Max. Pressure (bar)	240 lpm nominal
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	6 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFFC4413
Weight	1.6 kg (alum) 3.7 kg (steel)

Dimensions



Ordering Example

RF FC4413 | * | ** | *

Compensator Setting	Valve options	Manifold Material
0 = 6 bar	**00** = Std, allen key adj.	**A** = Aluminium (clear anodised)
1 = 10 bar	**V0** = Viton seals, allen key adj	**S** = Steel (zinc, clear passivate)
2 = 15 bar	**0K** = standard seals + handwheel knob on flow control	
	VK = Viton seals + handwheel knob on flow control	

Preferred Part No. - RF FC4413100A / RF FC4413200A

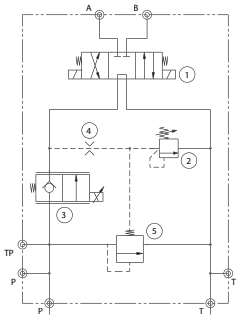
Related Fluid Power

Manual or Proportional PCFC and directional control assembly Single station

RF FC5062

Variable, 245 bar max. - Variable lpm

Circuit



Description

The RF 5062 is a circuit saver valve assembly combining a manual or proportional pressure compensated flow control with high performance directional control. The proportional flow control is available with a number of flow range options. Pressure compensation is achieved using a bypass type compensator meaning that priority flow is maintained regardless of load pressure with unregulated flow being bypassed to tank. An internal dampening orifice ensures flow output stability where there are fluctuating load conditions. Priority circuit relief protection is also present in the form of a 2 stage circuit using a small pilot relief and the bypass compensator. Directional control of the circuit is achieved using our high performance Cetop 5 valves

Features

- Multi-function capability
- 3/4" BSP Ports
- Various options, seals, flow ranges, spool types, voltages, emergency manual overrides etc.
- Multiple metering, and compensator bias pressure setting options
- Ideal for conveyor type applications
- Consult factory for any non-listed or load holding requirements
- Consult factory for applications where the tank line needs to be pressurised.

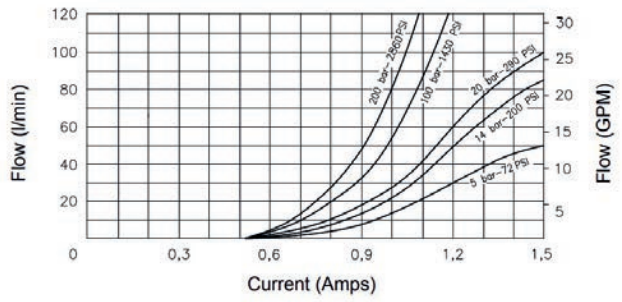
Flow Range (lpm)	see curves for various versions
Max. Pressure (bar)	245
Proportional Valve Leakage	0 - 0.50 cc/min at 245 bar
Proportional Valve Hysteresis	+/- 3%
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF5062
Weight	12 kg (alum) 17.7 kg (steel)

Proportional Coil Specifications

Current Supply	PWM (Pulse Width Modulation)
Rated Current Range	500 - 1450 mA
PWM or Super-imposed Dither Frequency	100 Hz
Coil Resistance	7.2 Ohm +/- 5% at 20°C

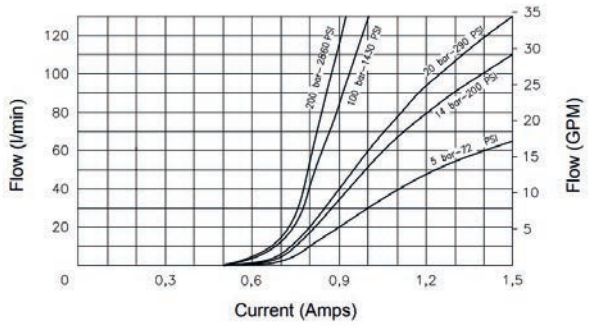
Flow vs. Current at different Pressure Drop

***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*

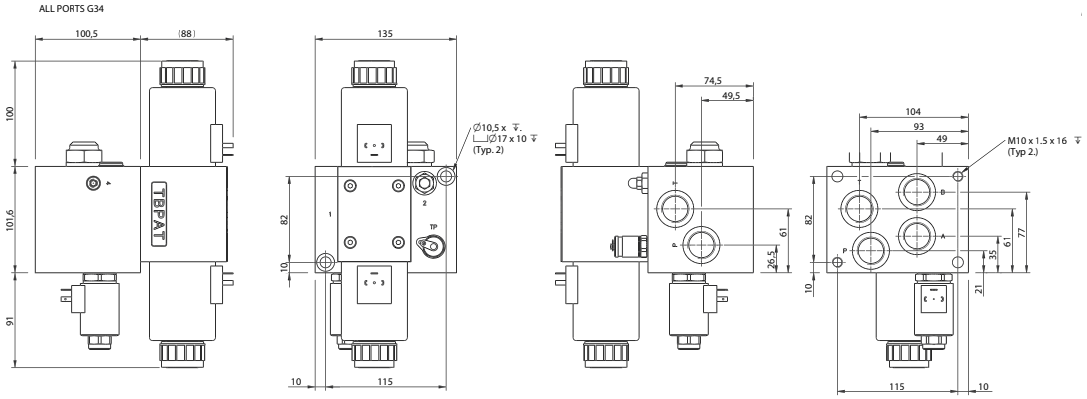


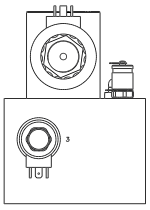
Flow vs. Current at different Pressure Drop

***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Dimensions





Preferred Standard Model Code(s):
RF FC5062B200210AH2A
RF FC5062B200210BH2A
RF FC5062B200210CH2A
RF FC5062B200210DH2A

Ordering Example

RF FC5062 * * ** ** * * **** *

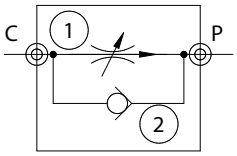
Nom. Flow Rate	Compensator Settings	Overide	Pressure setting	Seal Type	Spool Configuration	Coils & Voltage	Manifold Material
B = 0 up to 85 Lpm	**0** = 14 Bar	**00** = no override (std.)	**21** = 210 Bar**	**0** - Buna	**A** - 1710	**H1** = 12V DC DIN	**A** = Aluminium (210 bar max, clear anodised)
C = 0 up to 110 Lpm	**1** = 16 Bar	**0M** = override	**10 Bar increments	**V** - Viton	**B** - 1711	**H2** = 24V DC DIN	**S** = Steel (350 bar max, zinc plated)
	2 = 18 Bar		**21** = std. setting		**C** = 1713	**D1** = 12V DC Deutsch	
	3 = 20 Bar				**D** = 1714	**D2** = 24V DC Deutsch	
					0 = DCV not included		
					**Show symbols with code		

Pressure Compensated Flow Control c/w reverse free flow check Line mounted, Single G3/8”

RF FC5095

Variable, 350 bar max - Up to 34 lpm

Circuit



Description

Ideal for various applications where uni-directional speed control of an actuator is required. These controls offer fully adjustable pressure compensated flow control with a reverse free flow check and are comprised of separate cartridge and insert elements. In operation the valve assembly is able to regulate a steady output flow regardless of load pressure. In the reverse direction the free flow check allows easy passage of oil over the valve with minimal hydraulic losses. The valve assembly can be used either as an in line flow control or bleed off flow control with anti-cavitation capability.

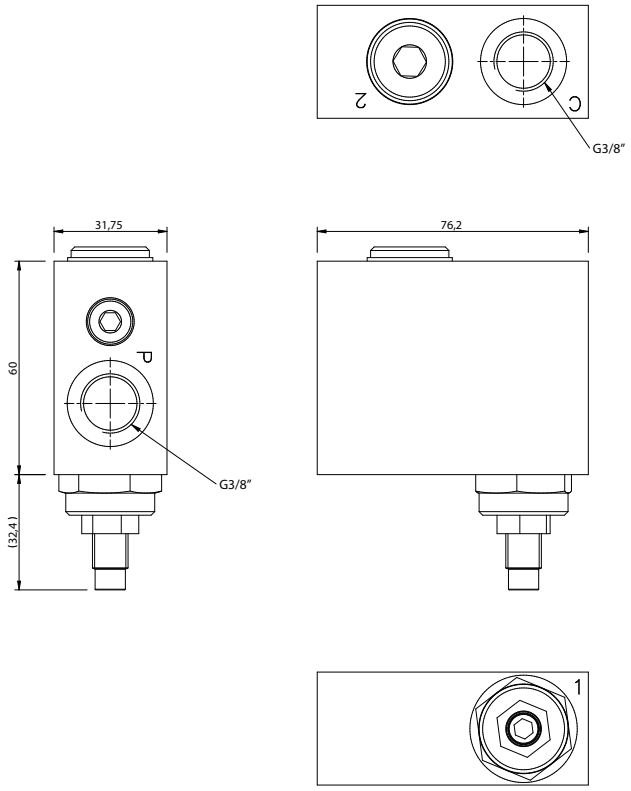
Typical applications include but are not limited to: (i) conveyor speed control (ii) sweeper motor control (iii) meter in or out cylinder control. Please contact our sales office for more information and guidance on types of flow controls that are available.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- 90 degree porting
- Ground and hardened parts for long service life

Flow Range (lpm)	34 lpm max. regulated flow
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-30 to 110˚C
Spare Seal Kit Weight	SK-RFFC5095
Weight	0.5 kg (alum) 1.1 kg (steel)

Dimensions



Ordering Example

RF FC5095 | ** | ** | *

Flow Setting (Priority)	Valve options	Manifold Material
00 = Unset	00 = Std seals	**A** = Aluminium (clear anodised) 240 bar max
05 = 5 lpm	V0 = Viton seals	**S** = Steel, clear (zinc passivate) 350 bar max
10 = 10 lpm etc.	0K = Std seals, override on solenoid valve	
**34 lpm max	VK = Viton seals, override on solenoid valve	

Preferred Part No. - RF FC50950000A

Related Fluid Power

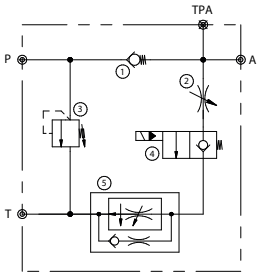
SECTION 6
LIFT BLOCKS

Lift block, G3/8”
Lift, check lower functions with optional PCFC on lower

RF LB5088

Up to 350 bar - Up to 30 lpm

Circuit



Description

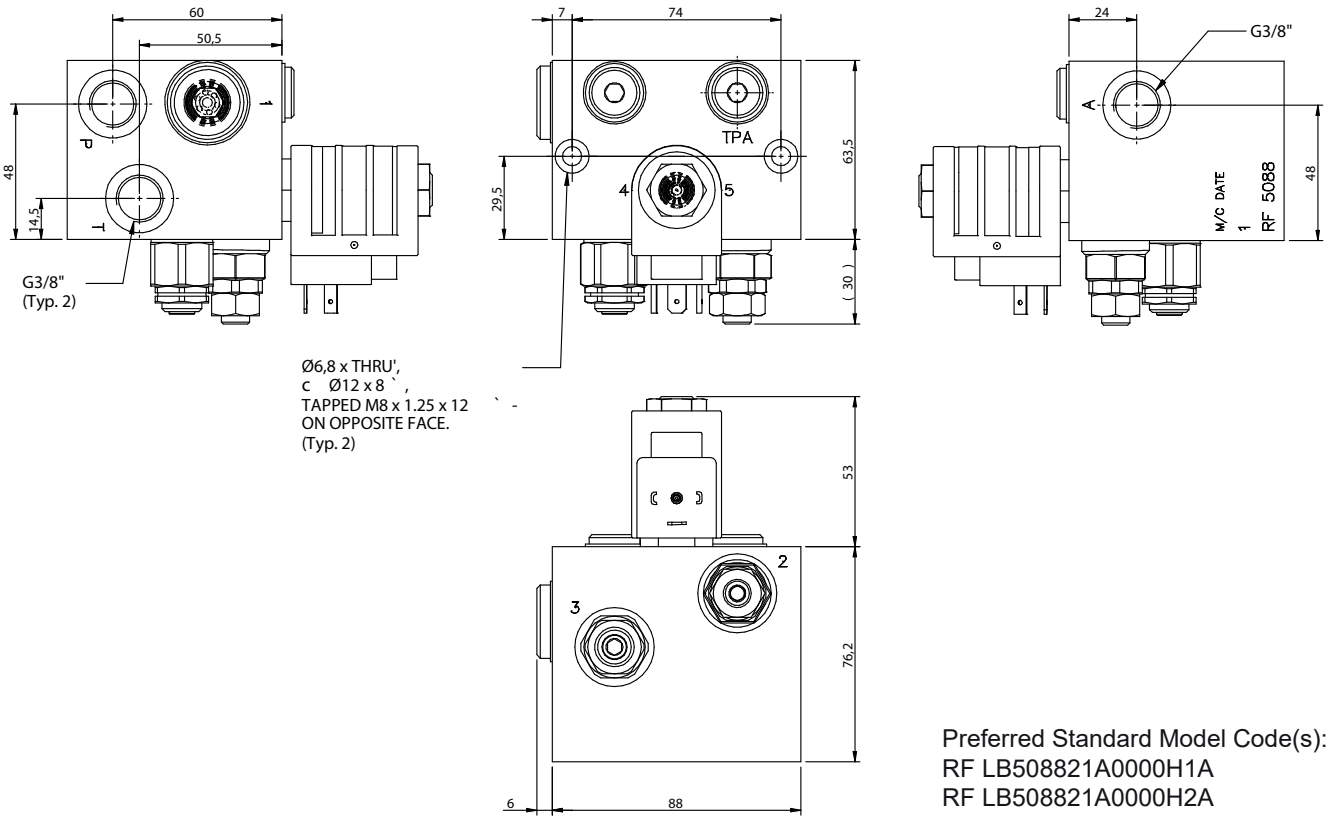
The RF LB5088 is a lift control valve for the operation of a single acting cylinder circuit. Speed control on raise is determined by flow delivered into the assembly. Speed control on lowering is determined by the setting of valves 2 or 5. The assembly comprises of the following valves and functions. 1. Check valve for load holding of the cylinder and prevention of reverse flow to the pump. 2. Flow control for speed control on lowering, if required this can be pressure compensated for more consistent speed if there are varying load conditions 3. Relief valve to limit max. lift pressure (force)
4. Solenoid operated, normally closed poppet valve for load lowering
5. Optional fixed pressure compensated flow control for control of a safe lowering speed regardless of load. Please contact our sales office for more information on other circuit and mounting options.

Features

- Fast acting relief with excellent crack to re-seat characteristic
- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design
- Available in lightweight aluminium, anodised (240 bar) or high pressure (350 bar) steel, zinc plated options

Flow Range (lpm)	30
Max Pressure (bar)	350
Relief valve reseat pressure	Nominal 90% of crack ng pressure
Hyd raulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLB5088N (Nitrile) SK-RFLB5088V (Viton)
Weight	1.9 kg (alum) 3.7 kg (steel)

Dimensions



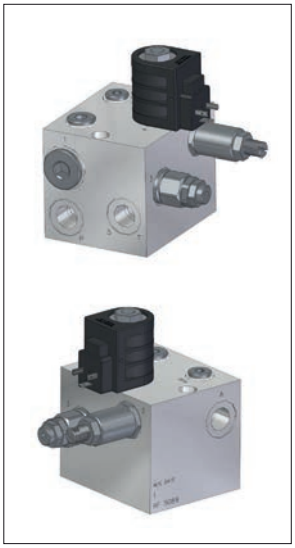
Preferred Standard Model Code(s):
RF LB508821A0000H1A
RF LB508821A0000H2A

Ordering Example

RF LB5088	**	**	**	**	*	**	*
Model Code	Pressure setting	Flow Control Options	Flow Setting (Lowering)	Valve options	Coil Termination	Voltage /	Material
	21 = 210 Bar** **10 Bar increments **__21__ = std. setting	A = Adjustable, compensated	00 = Non compensated Unset	00 = Std	H = DIN, EN 175301-803	1 = 12 Vdc	A = Alum (anodised, clear)
		B = Adjustable, compensated with adjustment knob	05 = 5 lpm	V0 = Viton seals	D = Deutsch, DT04	2 = 24 Vdc	S = Steel (zinc, clear passivate)
		F = Fixed setting compensated	10 = 10 lpm etc.	0M = standard seals + override knob on solenoid valve	**Other coil terminations available on request.	**Other voltages available on request	
		N = Adjustable Non-compensated	10 lpm max for fixed (Increments 1lpm) 15 lpm max for adjustable	VM =Viton seals + override knob on solenoid valve			

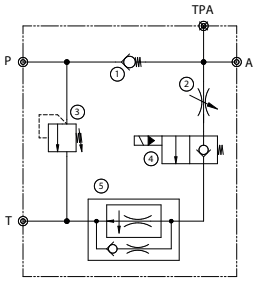
Lift block, G1/2”
Lift, check lower functions with optional PCFC on lower

RF LB5089



Up to 350 bar - Up to 55 lpm

Circuit



Description

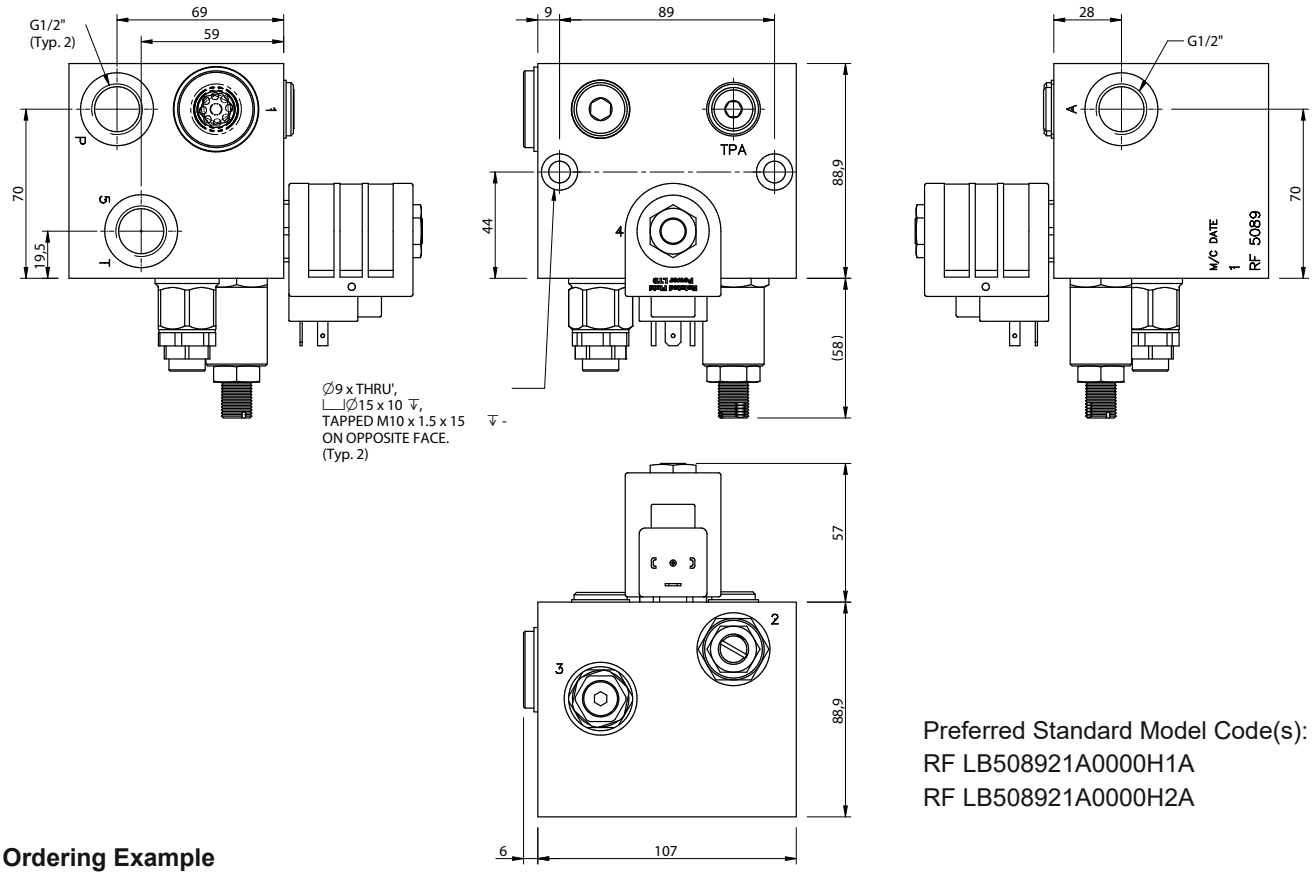
The RF LB5089 is a lift control valve for the operation of a single acting cylinder circuit. Speed control on raise is determined by flow delivered into the assembly. Speed control on lowering I determined by the setting of valves 2 or 5. The assembly comprises of the following valves and functions. 1. Check valve for load holding of the cylinder and prevention of reverse flow to the pump. 2. Flow control for speed control on lowering, if required this can be pressure compensated for more consistent speed if there are varying load conditions 3. Relief valve to limit max. lift pressure (force)
4. Solenoid operated, normally closed poppet valve for load lowering
5. Optional fixed pressure compensated flow control for control of a safe lowering speed regardless of load. Please contact our sales office for more information on other circuit and mounting options.

Features

- Fast acting relief with excellent crack to re-seat characteristic
- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design,
- Available in lightweight aluminium, anodised (240bar) or high pressure (350bar) steel, zinc plated options

Flow Range (lpm)	55
Max Pressure (bar)	350
Relief valve reseat pressure	Nominal 90% of crack ng pressure
Hyd raulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFLB5089N (Nitrile) SK-RFLB5089V (Viton)
Weight	2.9 kg (alum) 6.6 kg (steel)

Dimensions



Preferred Standard Model Code(s):
RF LB508921A0000H1A
RF LB508921A0000H2A

Ordering Example

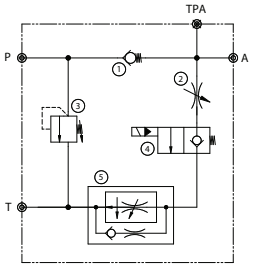
RF LB5089	**	**	**	**	*	**	*
Model Code	Pressure setting	Flow Control Options	Flow Setting (Lowering)	Valve options	Coil Termination	Voltage /	Material
	21 = 210 Bar** **10 Bar increments ****21** = std. setting	A = Adjustable, compensated	00 = Non compensated Unset	00 = Std	H = DIN, EN 175301-803	1 = 12 Vdc	A = Alum (anodised, clear)
		B = Adjustable, compensated with adjustment knob	05 = 5 lpm	V0 = Viton seals	D = Deutsch, DT04	2 = 24 Vdc	S = Steel (zinc, clear passivate)
		F = Fixed setting compensated	10 = 10 lpm etc.	0M = standard seals + override knob on solenoid valve	**Other coil terminations available on request.	**Other voltages available on request	
		N = Adjustable Non-compensated	20 lpm max for fixed (Increments 1lpm) 38 lpm max for adjustable	VM = Viton seals + override knob on solenoid valve			

Lift block, G3/4”
Lift, check lower functions with optional PCFC on lower

RF LB5103

Up to 350 bar - Up to 95 lpm

Circuit



Description

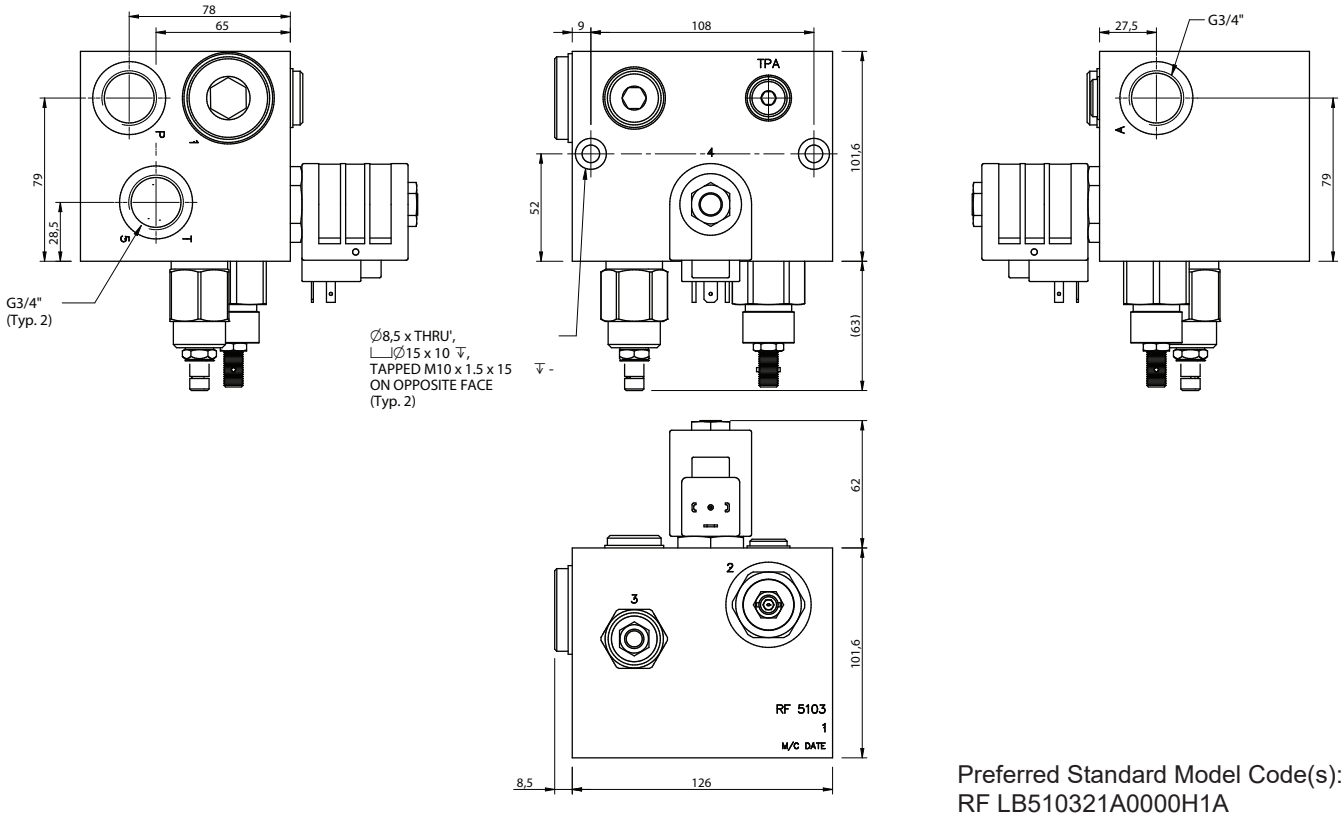
The RF LB5103 is a lift control valve for the operation of a single acting cylinder circuit. Speed control on raise is determined by flow delivered into the assembly. Speed control on lowering is determined by the setting of valves 2 or 5. The assembly comprises of the following valves and functions. 1. Check valve for load holding of the cylinder and prevention of reverse flow to the pump.
2. Flow control for speed control on lowering, if required this can be pressure compensated for more consistent speed if there are varying load conditions 3. Relief valve to limit max. lift pressure (force) 4. Solenoid operated, normally closed poppet valve for load lowering 5. Optional fixed pressure compensated flow control for control of a safe lowering speed regardless of load. Please contact our sales office for more information on other circuit and mounting options.

Features

- Fast acting relief with excellent crack to re-seat characteristic
- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design,
- Available in lightweight aluminium, anodised (240bar) or high pressure (350bar) steel, zinc plated options

Flow Range (lpm)	95
Max Pressure (bar)	207
Relief valve reseat pressure	Nominal 90% of crack ng pressure
Hyd raulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLB5103
Weight	4.1 kg (alum) 9.6 kg (steel)

Dimensions



Preferred Standard Model Code(s):
RF LB510321A0000H1A
RF LB510321A0000H2A

Ordering Example

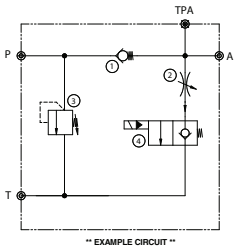
RF LB5103	**	**	**	**	*	**	*
Model Code	Pressure setting	Flow Control Options	Flow Setting (Lowering)	Valve options	Coil Termination	Voltage /	Material
	21 = 210 Bar** **10 Bar increments **21** = std. setting	A = Adjustable, compensated	00 = Non compensated Unset	00 = Std	H = DIN, EN 175301-803	1 = 12 Vdc	A = Alum (anodised, clear)
	Range = 70 – 207 bar	B = Adjustable, compensated with adjust-ment knob	05 = 5 lpm	V0 = Viton seals	D = Deutsch, DT04	2 = 24 Vdc	S = Steel (zinc, clear passivate)
		F = Fixed setting com-pensated	10 = 10 lpm etc.	0M = stand-ard seals + override knob on solenoid valve	**Other coil terminations available on request.	**Other voltages available on request	
		N = Adjustable Non-compensated	45 lpm max for fixed (Increments 1lpm) 76 lpm max for adjustable	VM =Viton seals + override knob on solenoid valve			

Lift block, G1”
Lift, check lower functions with optional PCFC on lower

RF LB5104

Up to 350 bar - Up to 150 lpm

Circuit



Description

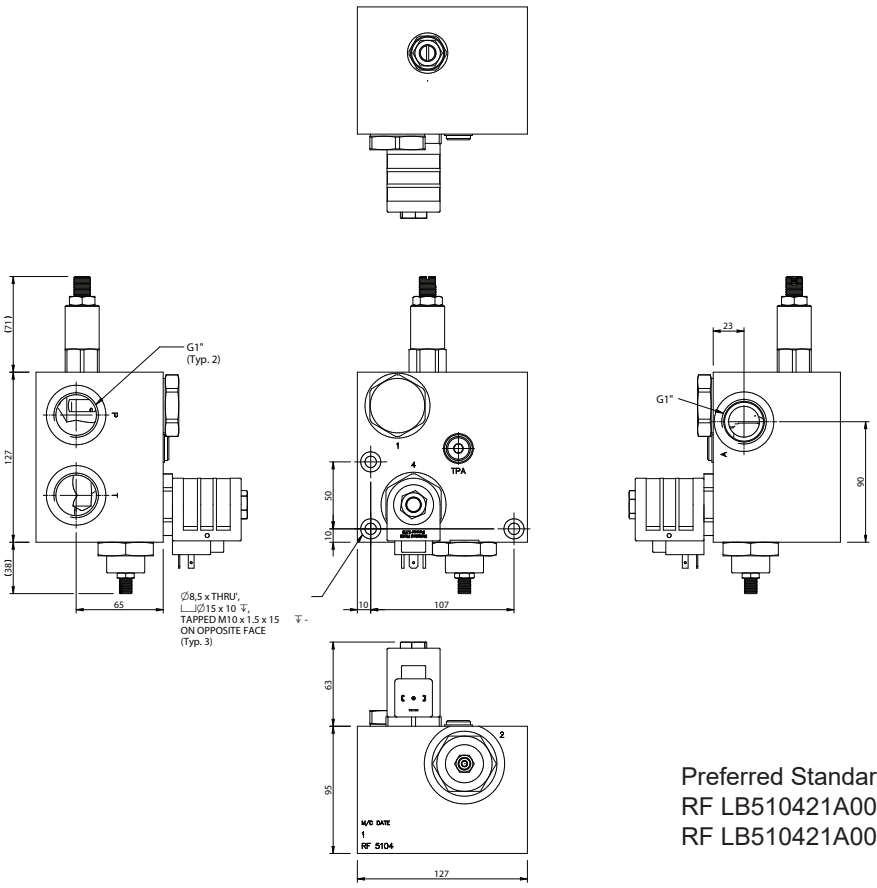
The RF LB5104 is a lift control valve for the operation of a single acting cylinder circuit. Speed control on raise is determined by flow delivered into the assembly. Speed control on lowering is determined by the setting of valve 2. The assembly comprises of the following valves and functions. 1. Check valve for load holding of the cylinder and prevention of reverse flow to the pump. 2. Flow control for speed control on lowering, if required this can be pressure compensated for more consistent speed if there are varying load conditions 3. Relief valve to limit max. lift pressure (force)
4. Solenoid operated, normally closed poppet valve for load lowering. Please contact our sales office for more information on other circuit and mounting options.

Features

- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design,
- Available in lightweight aluminium, anodised (240bar) or High pressure (350bar) steel, zinc plated options

Flow Range (lpm)	150
Max Pressure (bar)	240
Relief valve reseat pressure	Nominal 90% of crack ng pressure
Hyd raulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLB5104
Weight	4.3 kg (alum) 10.5 kg (steel)

Dimensions



Preferred Standard Model Code(s):
RF LB510421A0000H1A
RF LB510421A0000H2A

Ordering Example

RF LB5104	**	**	**	**	*	**	*
Model Code	Pressure setting	Flow Control Options	Flow Setting (Lowering)	Valve options	Coil Termination	Voltage /	Material
	21 = 210 Bar** **10 Bar increments **21** = std. setting	A = Adjustable, compensated	00 = Non compensated Unset	00 = Std	H = DIN, EN 175301-803	1 = 12 Vdc	A = Alum (anodised, clear)
	Range = 40 – 350 bar	B = Adjustable, compensated with adjustment knob	05 = 5 lpm	V0 = Viton seals	D = Deutsch, DT04	2 = 24 Vdc	S = Steel (zinc, clear passivate)
		F = Fixed setting compensated	10 = 10 lpm etc.	0M = standard seals + override knob on solenoid valve	**Other coil terminations available on request.	**Other voltages available on request	
		N = Adjustable Non-compensated	Compensated flows: 95 lpm max for adjustable	VM =Viton seals + override knob on solenoid valve			

Related Fluid Power

SECTION 7
LOAD CONTROLS

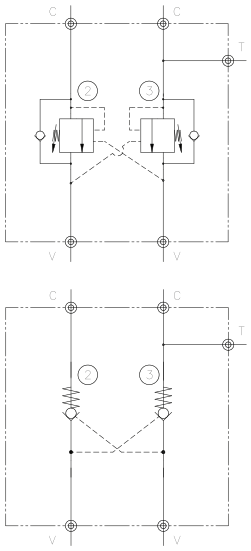
Related Fluid Power

Dual load hold / load control assembly
Line mounted G1/4”

RF LC73

Up to 350 bar - Variable up to 30 lpm

Circuit



Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of valve options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up line mounted block, these assemblies can be used in applications where space is at a premium or as an easy retrofit to improve the level of control in motor or cylinder circuits. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

A small G1/8” port is available as an emergency let down port. As standard this port is supplied plugged and sealed.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

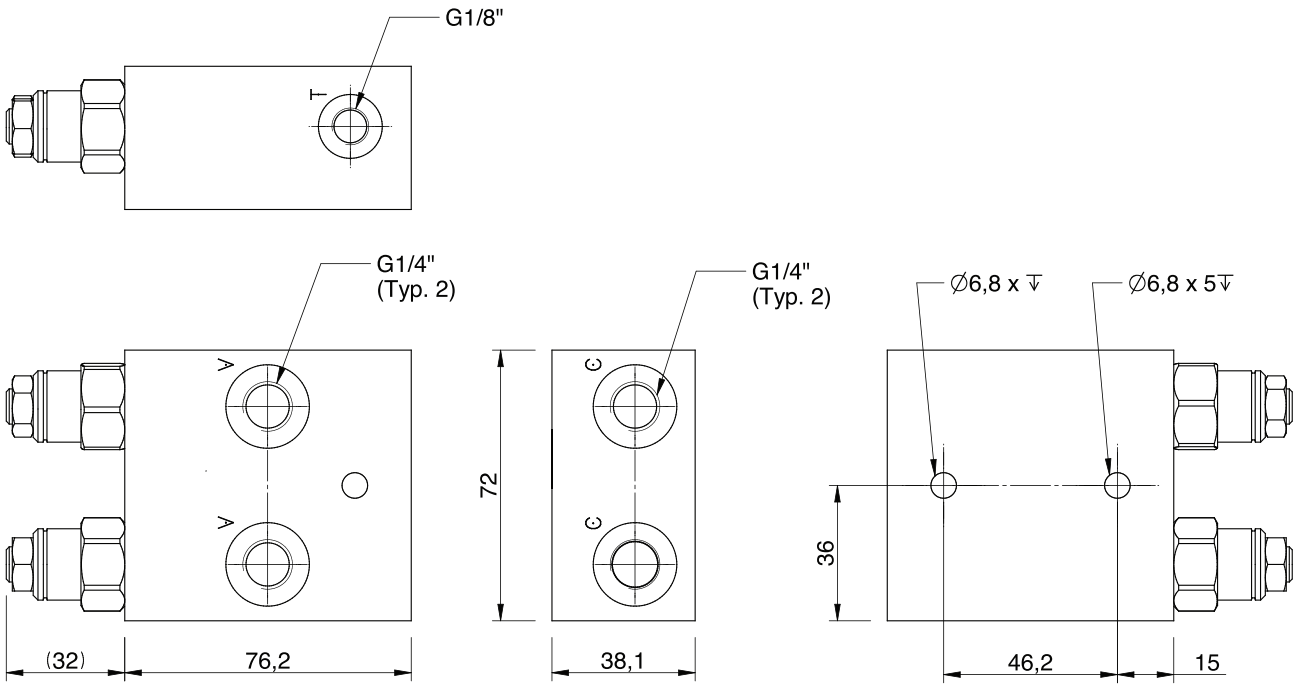
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) - standard or Steel (zinc plated) material options
- Compact, efficient design
- Easy access in-line porting
- Other body configurations including weld on cylinder mount are available

Flow Range (lpm)	30
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC73
Weight	0.8 kg (alum) 1.6 kg (steel)

Dimensions



Ordering Example

RF LC73 * * * ** * * * ** *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Manifold Material
A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21 = std. setting	A = 3:1 over-centre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21 = std. setting	**A** = Alumin-ium (clear anodised)
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals		B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals		**S** = Steel, clear (zinc passivate)
C = 3:1 P.O. Check (std.)	6 = 60 lpm			C = 3:1 P.O. Check (std.)	6 = 60 lpm			
D = 3:1 overcentre (atmos. vent.)				D = 3:1 overcentre (atmos. vent.)				
E = 5:1 overcentre (atmos. vent.)				E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (at-mos. vent.)				F = 3:1 P.O. Check (at-mos. vent.)				

Preferred part No. - RF LC73A6021A6021A / RF LC73A1021A1021A

Dual load hold / load control assembly

Cylinder mounted, Weld on

RF LC412

Up to 350 bar max - Variable up to 60 lpm

Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of interchangeable valves with options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up block, these assemblies can be used in applications where space is at a premium in cylinder circuits. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

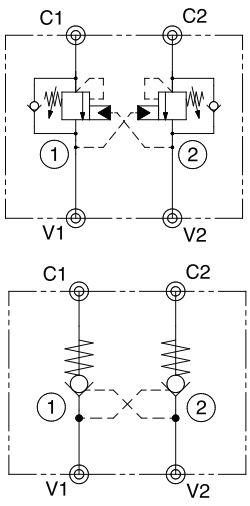
NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Cartridge valve supplied loose for fitting after welding.

(iii) Consult factory for other possible valve / build options

Circuit



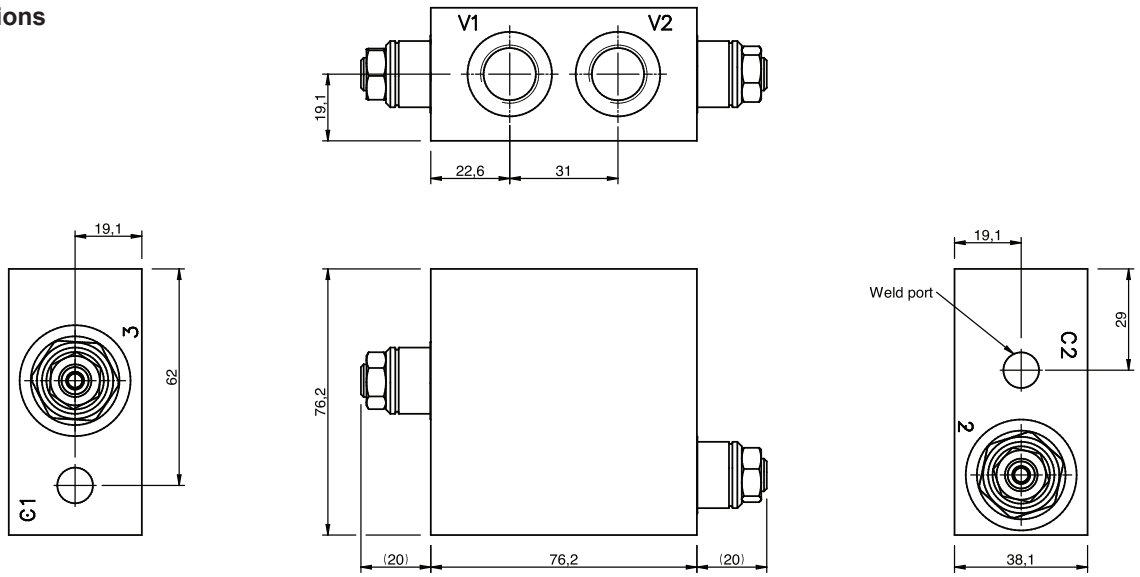
Features

- Steel (un-plated plated)
- Compact, efficient design
- Easy access, in-line porting
- Other body configurations are available
- Weld options, 6, 8, 10, 12 or 16mm (10mm Standard)
- G3/8” ports

Specification

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC412
Weight	1.6 kg (steel)

Dimensions



RF LC412 * * * * ** * * * ** *

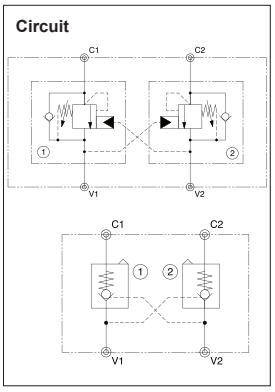
Weld prep size	Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Manifold Material
V = 6mm	A = 3:1 over-cen-tre (std.)	1 = 15 lpm	A = Std	**21** = 210 Bar** **10 Bar increments **21 = std. setting	A = 3:1 overcentre (std.)	1 = 15 lpm	A = Std	**21 = 210 Bar**** **10 Bar in-crements **21 = std. setting	**S** = Steel
W = 8mm	B = 4.5:1 over-cen-tre (std.)	4 = 40 lpm	B = Viton seals	**Settings on apply to overcentre valves	B = 4.5:1 overcentre (std.)	4 = 40 lpm	B = Viton seals	**Settings on apply to overcentre valves	
X = 10mm (Std)	C = 3:1 P.O. Check (std.)	6 = 60 lpm			C = 3:1 P.O. Check (std.)	6 = 60 lpm			
Y = 12mm	D = 3:1 over-cen-tre (at-mos. vent.)				D = 3:1 overcentre (atmos. vent.)				
Z = 16mm	E = 5:1 over-cen-tre (at-mos. vent.)				E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (atmos. vent.)	F = 3:1 P.O. Check (atmos. vent.)				F = 3:1 P.O. Check (atmos. vent.)				

Preffered Part No: RF LC412XA6A21A6A21S

Dual load hold / load control assembly
Line mounted

RF LC414

Up to 350 bar - Up to 60 lpm



Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of interchangeable valves with options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up block, these assemblies can be used in applications where space is at a premium in cylinder and motor circuits. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

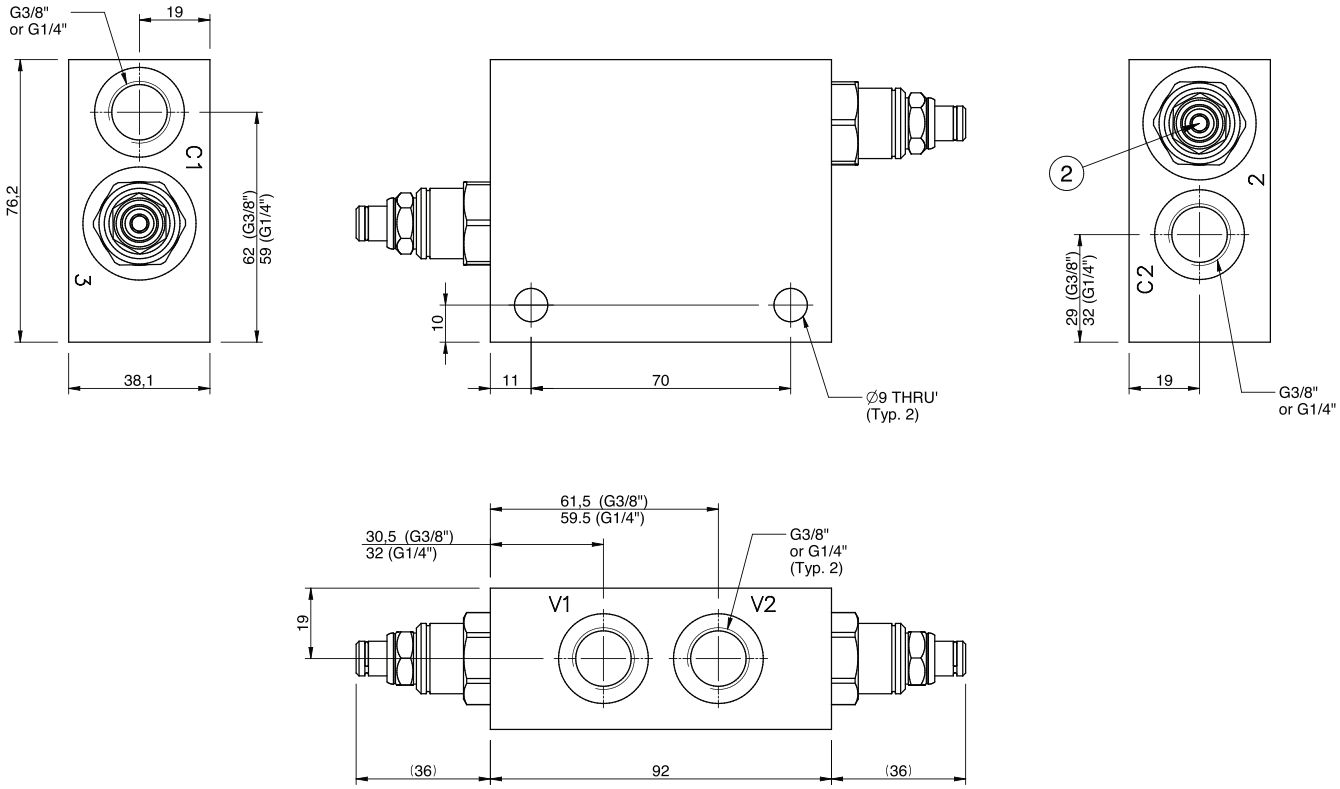
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting
- Other body configurations are available

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC414
Weight	1.0 kg (alum) 2.0 kg (steel)

Dimensions



Ordering Example

RF LC414 * * * ** * * * * * * *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Port Size	Manifold Material
A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21** = std. setting	A = 3:1 over-centre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21** = std. setting	**A** = G14"	**A** = Alumin-ium (clear anodised)
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals	**Settings on apply to overcentre valves	B = 4.5:1 overcentre (std.)	6 = 60 lpm	V = Viton seals	**Settings on apply to overcentre valves	**B** = G38"	**S** = Steel, clear (zinc passivate)
C = 3:1 P.O. Check (std.)	6 = 60 lpm			C = 3:1 P.O. Check (std.)					
D = 3:1 overcentre (atmos. vent.)				D = 3:1 overcentre (atmos. vent.)					
E = 5:1 overcentre (atmos. vent.)				E = 5:1 overcentre (atmos. vent.)					
F = 3:1 P.O. Check (at-mos. vent.)				F = 3:1 P.O. Check (at-mos. vent.)					

Preferred Part No.

RF LC414A1021A1021BS

RF LC414A6021A6021BS

Pilot Operated Check Valve

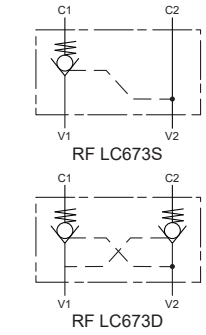
Single & Double — 240 bar - 60lpm

RF LC673

Description

These valves are pilot operated check valves which can be used for lock ng both double and single acting actuators in position.
The typ ical operation of the dual version RF LC673D valve is as follows: the passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V2.
When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2. The single version RF LC673S work s similarly but with only one load holding check on one side.
Option “SP” for a sealed pilot piston is used on lower flow systems where leak ge is critical.

Symbol

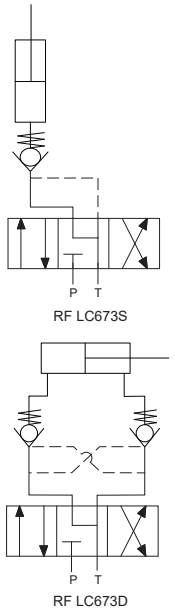


Specifications

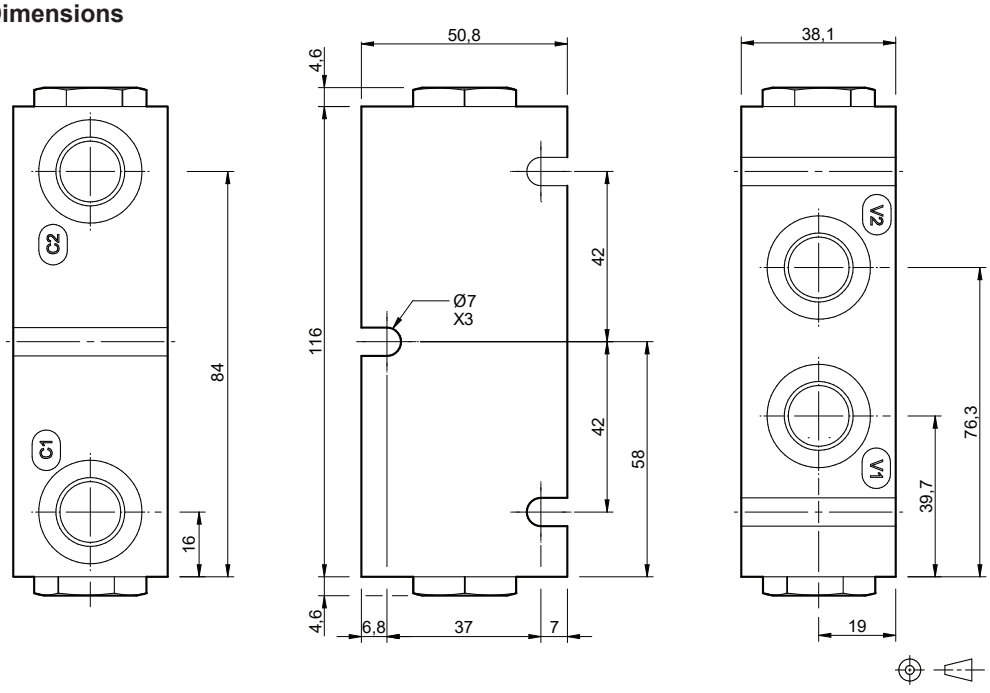
Size (BSP)	3/8”	Operating Temp.	-40 to 120˚C
Nom. Flow (lpm)	60	Pilot Ratio	4:1
Max Pressure (bar)	240	Body Material	Steel
Hyd raulic Oil	General purpose hydraulic fluid	Valve Characteristics	See data sheet D-DECVA
Viscosity Range	3 to 640 cSt		

SECTION 7 LOAD CONTROLS

Typical Schematic



Dimensions



Ordering Example

RF LC673 * **

Valve Type
S = Single
D = Double

Sealed Pilot Piston
Omit if not required
SP = Sealed Piston

Preferred Part No. -

RF LC673D

Related Fluid Power

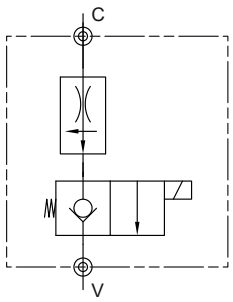
G38” Cylinder Lock Valve

Banjo Mounted, Solenoid Operated Normally Closed Poppet Valve

RF LC1062

Up to 240 bar - Up to 55 lpm

Typical Symbol



Description

This assembly is designed for single acting cylinder applications where a lift, hold and lower operation is required. A compact banjo mounted design is used which allows for fitting direct onto the loaded port of a cylinder. In the first part of the cycle oil is allowed to pass freely through the valve assembly with the solenoid valve being energised or de-energised depending on valve selection / desired operation. When stopped, the solenoid valve is de-energised thus holding the cylinder in place and preventing the cylinder from being able to move back. The final part of the cycle sees the solenoid valve being energised allowing the cylinder to return back to its initial position. When used with the pressure compensated flow control, controlled retraction / lowering regardless of load is achieved. This assembly also offers improved safety in the event of a hose failure due to the pressure compensated flow control (when used) being an integral part of the design.

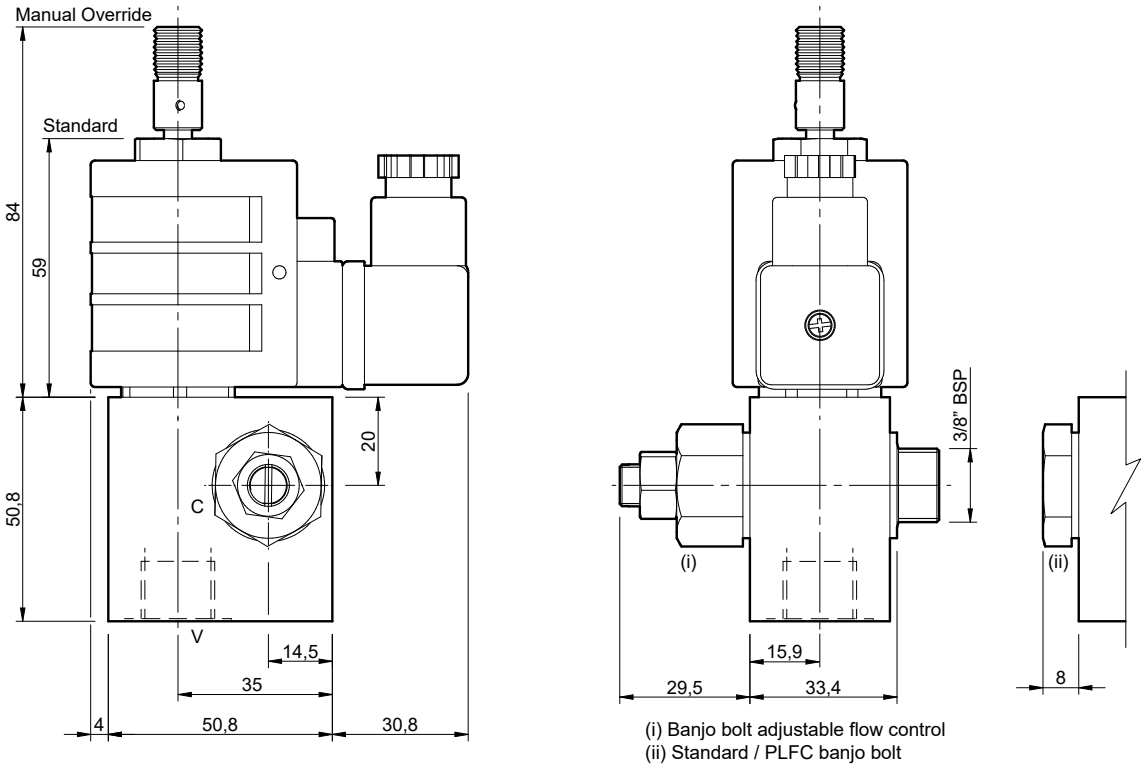
Features

- Aluminium body, clear anodised.
- G3/8” ports
- Optional fixed setting pressure compensated flow control for controlled lowering (not field adjustable).
- Large selection of interchangeable solenoid valves for varied application requirements.
- Poppet valve used for good load holding characteristics.
- Optional overrides (use and safety is application dependant).
- Large selection of coil terminations available.
- Compact, efficient and economical design

Specifications

Flow Range (lpm)	55lpm
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFLC1062
Weight	6.2 kg (alum)

Dimensions



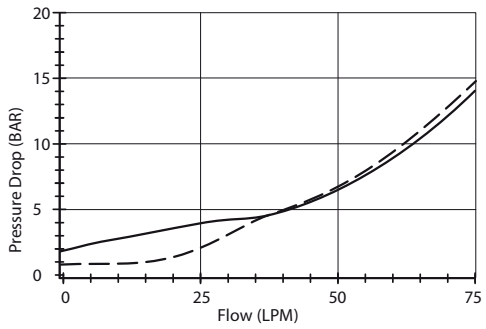
(i) Banjo bolt adjustable flow control
(ii) Standard / PLFC banjo bolt

SECTION 7 LOAD CONTROLS

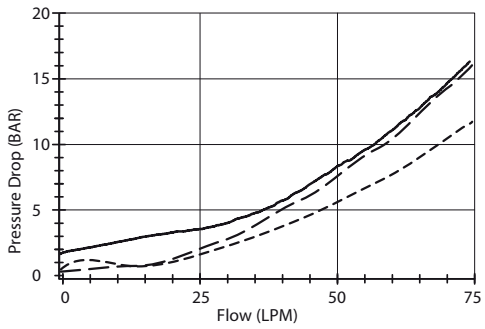
Performance

32 cSt / 38°C.

D-DES2A



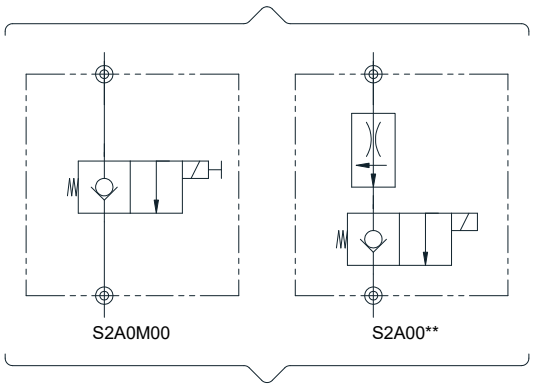
D-DES2B



— — – Port 1 to 2 (eng) ——— Port 2 to 1 (de-eng) – – – – Port 1 to 2 (eng) — — – Port 2 to 1 (eng) ——— Port 2 to 1 (de-eng)

Circuit Examples

3/8" BSP Banjo



3/8" BSP Female

Ordering Code

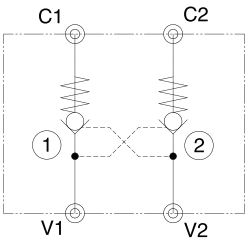
RF 1062 ** ** ** ** ** *

Valve Type	Override	Flow Rate M1-V1	Coil Termination	Voltage	Manifold Material
A = S2A (restrictive flow de-energised)	**00** = No override	**00** = Standard Banjo, No pressure compensated flow control	**HC** = DIN type A, IP65	**12** = 12 Vdc	**A** = Aluminium (210 bar max, clear anodised)
B = S2B (Rev. free flow de-energised)	**0M** = Pull override	**08** = Pressure compensated flow control set at 8 lpm**	**ID** = Deutsch weather-proof coil, IP67	**24** = 24 Vdc	**S** = Steel - (available on request)
Other valves available on request. See individual data sheets	Other overrides available on request. Overide availability dependant on valve selection.	**FC** = Adj. banjo bolt flow control		*Other voltages available on request	
		XX = No banjo bolt & seals			
		**1 lpm increments. Up to 10 lpm max.			

Dual pilot operated check valve assembly, 6.7:1
Flange mounted

RF LC1065

Up to 240 bar - Up to 19 lpm



Description

A compact valve system in a flange mounted format that gives dual pilot operated check valve operation. Valve construction is by use of two standard poppet type check valves and a central pilot piston that shuttles between the two checks.

The pilot piston is sealed as standard making it ideal for systems with flows < 5 lpm

Housed in an easy to pipe up, flange mounted block, these assemblies can be used in applications where space is at a premium in both cylinder and motor circuits. Direct flange mounting to the actuator means that there is a reduced requirement for piping / hosing and adaptors as well as giving the benefit of increased safety levels

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

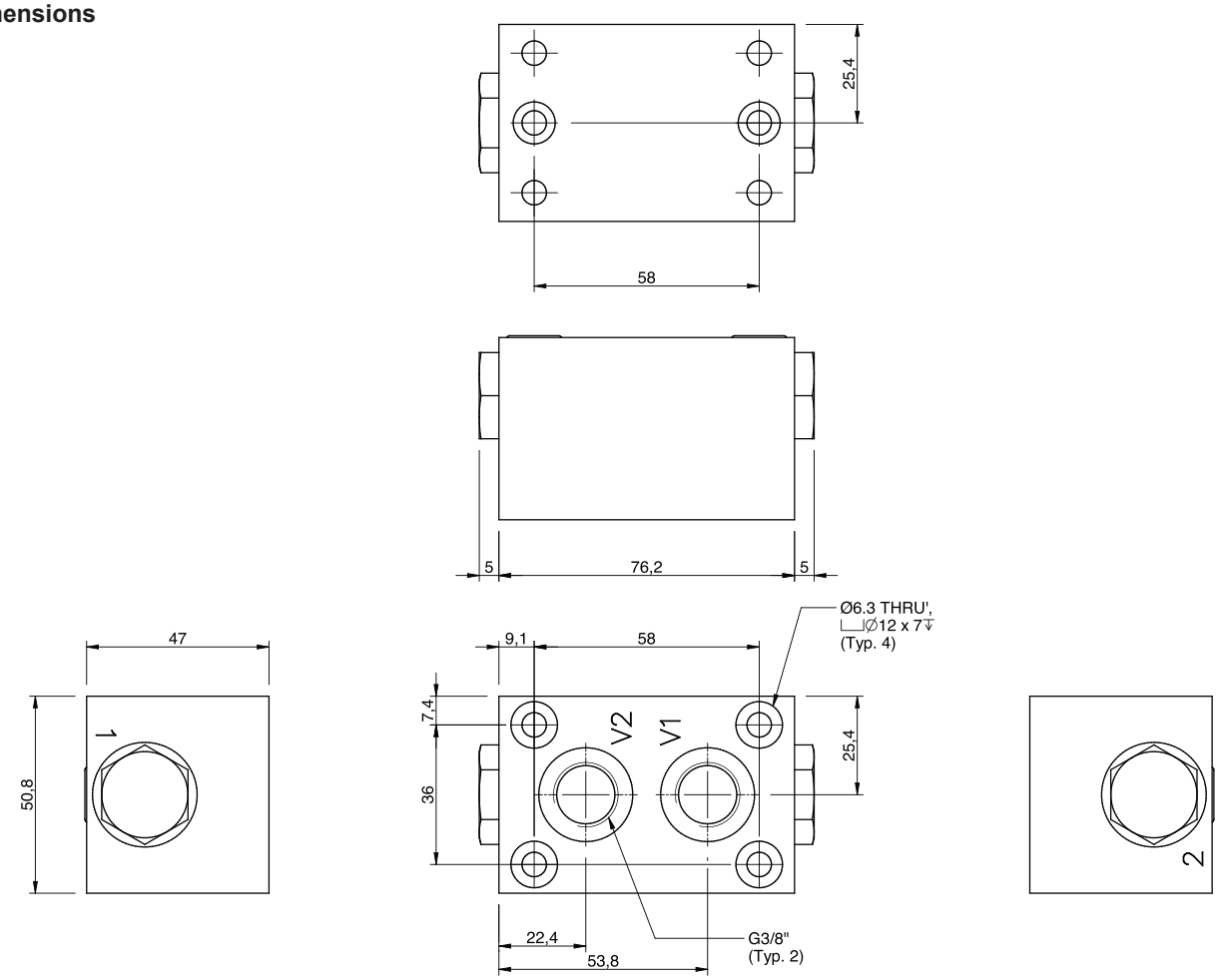
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting and easy to install flange on mounting
- Other body configurations are available
- 6.7:1 pilot ratio, ideal for motor circuits and most cylinder applications

Flow Range (lpm)	19
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1065
Weight	0.52 kg (alum) 1.32 kg (steel)

Dimensions



Ordering Example

RF LC1065 ****** *****

Valve 1 options
00 = Std
V0 = Viton seals

Manifold Material
A = Aluminium (clear anodised)
S = Steel (zinc, clear passivate)

Preferred Part No. - RF LC106500A

Double Pilot Operated Check Valve

240 bar - 20lpm

RF LC1090

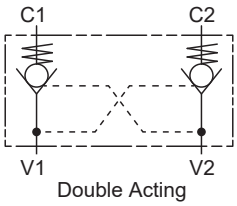
Description

These valves are used mainly in circuits where a double acting hydraulic cylinder is required to be locked in a load holding position when the pump flow is off.

Valve operation is as follows: The passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V2.

When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2.

Symbol

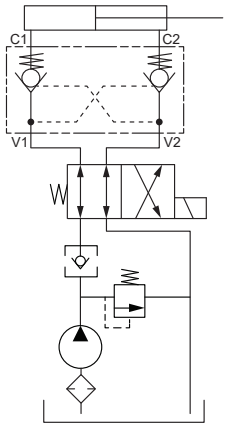


Double Acting

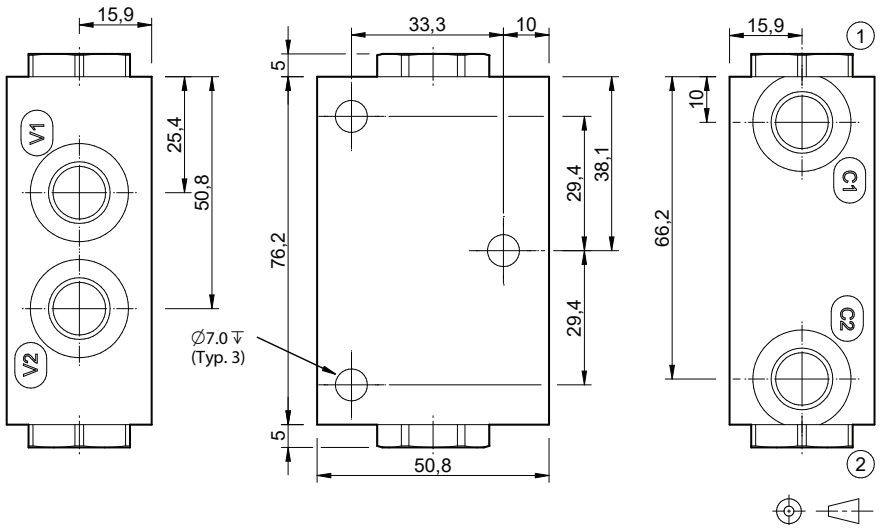
Specifications

Port Size	G1/4”	Hydraulic Oil	General Purpose Hydraulic
Nom. Flow (lpm)	20	Pilot Ratio	6.7 : 1
Max Pressure (bar)	240	Body Material	Steel (Zinc plate)
Viscosity Range	3 to 647 cST	Valve Characteristics	See data sheet D-MACVA
Operating Temp.	-40˚C to + 120˚C	Spare Seal Kit	SK-RF LC1090

Typical Schematic



Dimensions



Ordering Example

RF LC1090 **

Piston Configuration
Omit = Unsealed, Buna
SP = Sealed piston, Buna*
* Sealed pilot piston version available. Used in low flow systems where leakage across pilot piston is important.

Preferred Part No. -

RF LC1090SP

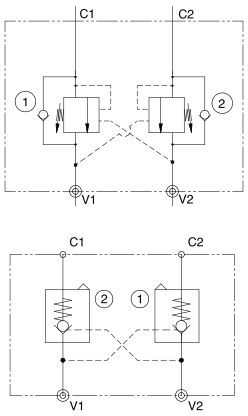
SECTION 7 LOAD CONTROLS

Dual load hold / load control assembly
Line mounted

RF LC1099

Up to 350 bar - Up to 60 lpm

Circuit



Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of valve options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up, weld on manifold block for mounting onto a hydraulic cylinder, these assemblies can be used in applications where there is a requirement for improved safety with a system that uses steel tubes on the load holding side of the circuit – as opposed to flexible hoses. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Consult factory for other possible valve / build options

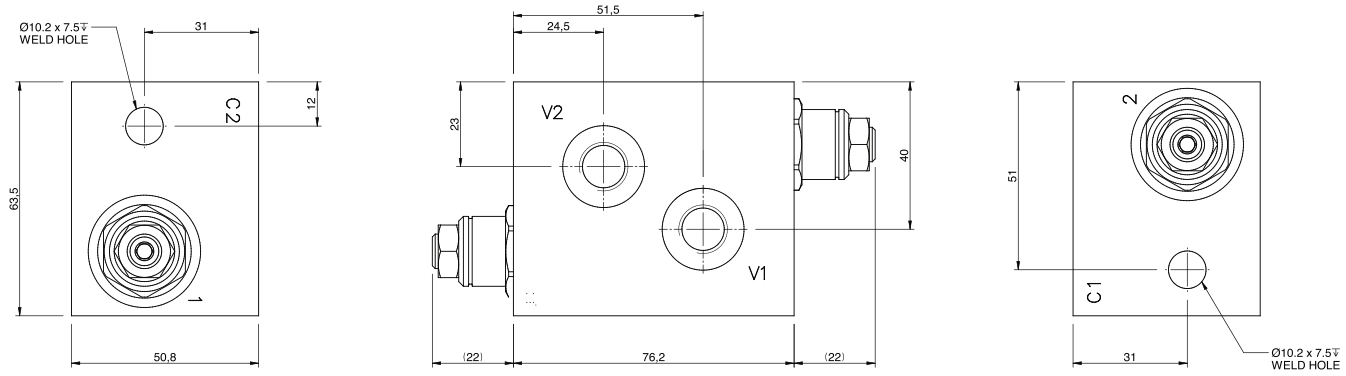
(iii) See RF 4138 for G½" version

Features

- Compact, efficient design
- Easy access porting
- Other body configurations including line mount are also available
- Standard porting is G¼" but other port sizes are available on request
- Standard weld prep port size is dia. 10mm but other port sizes are available on request

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF1099
Weight	1.9 kg (steel)

Dimensions



Ordering Example

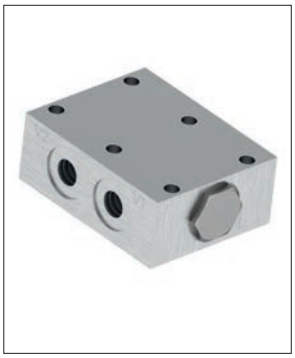
RF LC1099 * * * * ** * * * ** *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Manifold Material
A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar**	A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar**	**S** = Steel
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals	**10 Bar increments	B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals	**10 Bar increments	
C = 3:1 P.O. Check (std.)	6 = 60 lpm		****21** = std. setting	C = 3:1 P.O. Check (std.)	6 = 60 lpm		****21** = std. setting	
D = 3:1 overcentre (atmos. vent.)				D = 3:1 overcentre (atmos. vent.)				
E = 5:1 overcentre (atmos. vent.)				E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (atmos. vent.)				F = 3:1 P.O. Check (atmos. vent.)				

Preferred Part No. - RF LC1099A6021A6021S

Double Pilot Operated Check Valve Assembly
Flange mounted

RF LC1127

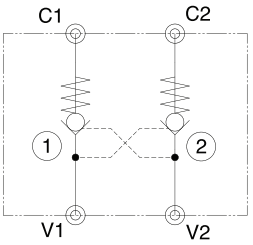


Up to 240 bar - Up to 20 lpm

Description

These valves are used mainly in circuits where a double acting hydraulic cylinder is required to be locked in a load holding position when the pump flow is off. Valve operation is as follows: The passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V2. When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2. The flange mount design allows for a direct and leak free mounting onto the actuator.

Circuit

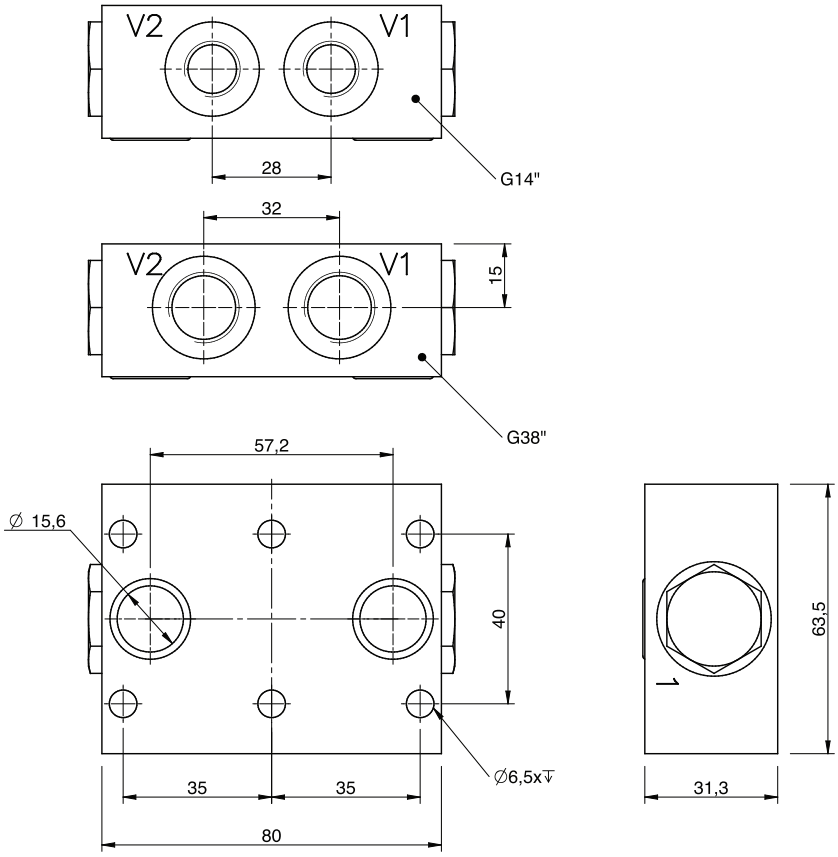


Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient, flange mounted design
- Easy access porting
- Other body configurations including line mount are also available

Flow Range (lpm)	40
Max. Pressure (bar)	240
Pilot Ratio	6.7:1
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1127
Weight	0.5 kg (alum) 1.2 kg (steel)

Dimensions



Ordering Example

RF LC1127 ****** ****** *****

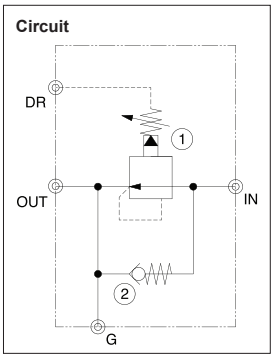
Piston Configuration	Port Size	Manifold Material
Omit = Unsealed, Buna	**14** = G14"	**A** = Aluminium (clear Anodised)
SP = Sealed piston, Buna*	**38** = G38"	**S** = Steel (Zinc plate, clear passivate)
* Sealed pilot piston version available. Used in low flow systems where leakage across pilot piston is important.		

Preferred Part No. - RF LC1127SP14A

Pressure Reducing Assembly with Reverse Flow Check
Line mounted

RF PR1211

Up to 350 bar - Up to 160 lpm



Description

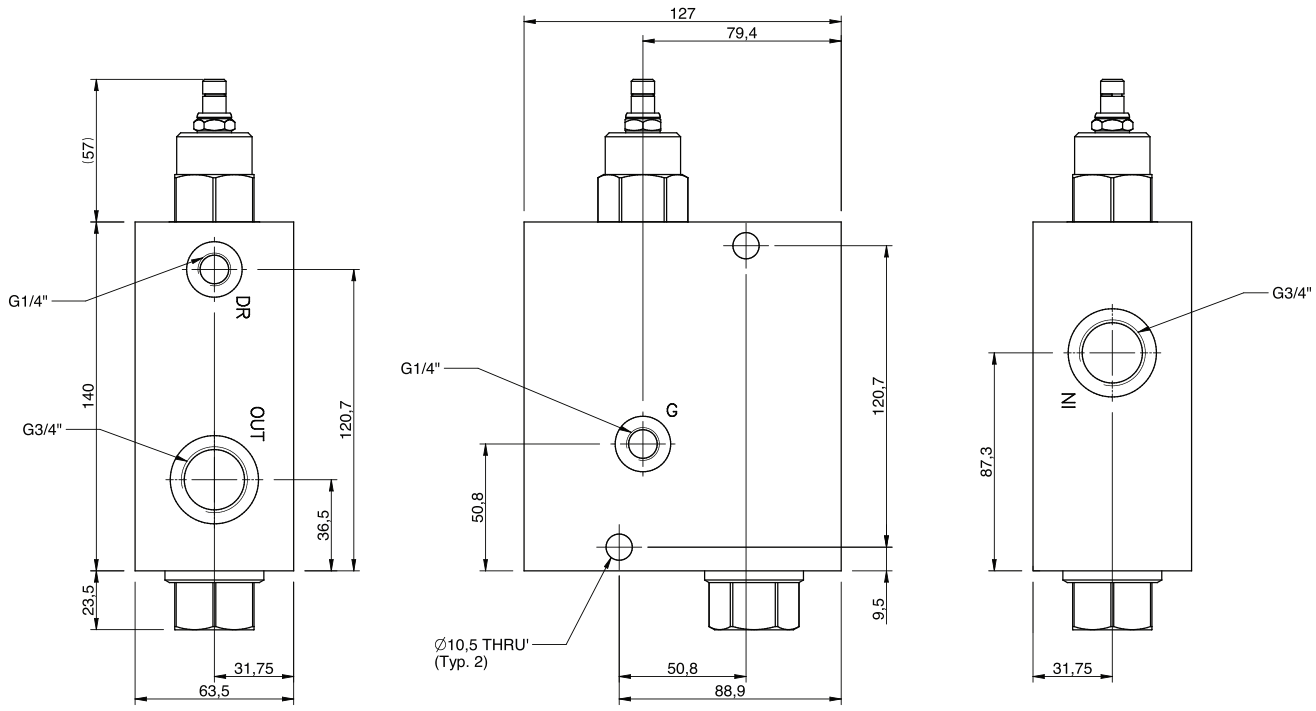
A line mounted pressure reducing valve which can be used in multiple applications where reduced pressure is required in one direction, but normal system pressure is required in an opposite direction. The incorporation of a reverse free flow check ensures that returning oil is unrestricted thus eliminating any issues such as pressure intensification. Note: Any back pressure applied to port 'T' will be additive to the setting on the valve 1.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Easy access, in-line porting
- Low profile, compact and efficient design

Flow Range (lpm)	160
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1277
Weight	3.2 kg (alum) 7.8 kg (steel)

Dimensions



Ordering Example

RF PR1211 | ** | ** | *

Pressure setting	Valve options	Manifold Material
21 = 210 Bar** **10 Bar increments ****21** = std. setting ****31** = max setting ****01** = min setting	00 = Std seals	**A** = Aluminium (clear anodised)
	V0 = Viton seals	**S** = Steel, clear (zinc passivate)
	0K = standard seals + override knob on reducing valve	
	VK = Viton seals + override knob on reducing valve	

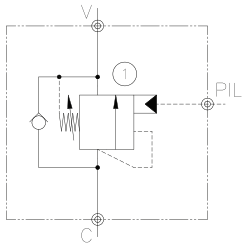
Preferred Part No. - RF PR12112100A

Single Overcentre / Pilot operated check
Banjo mounted

RF LC1217

Up to 350 bar - Up to 60 lpm

Circuit



Description

A versatile manifold control system that gives the options of pilot operated check valve or overcentre valves. Versatility is further extended with a wide range of valve options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to install manifold for direct mounting onto a hydraulic cylinder port via a banjo bolt, these assemblies can be used in applications where there is a requirement for improved safety. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

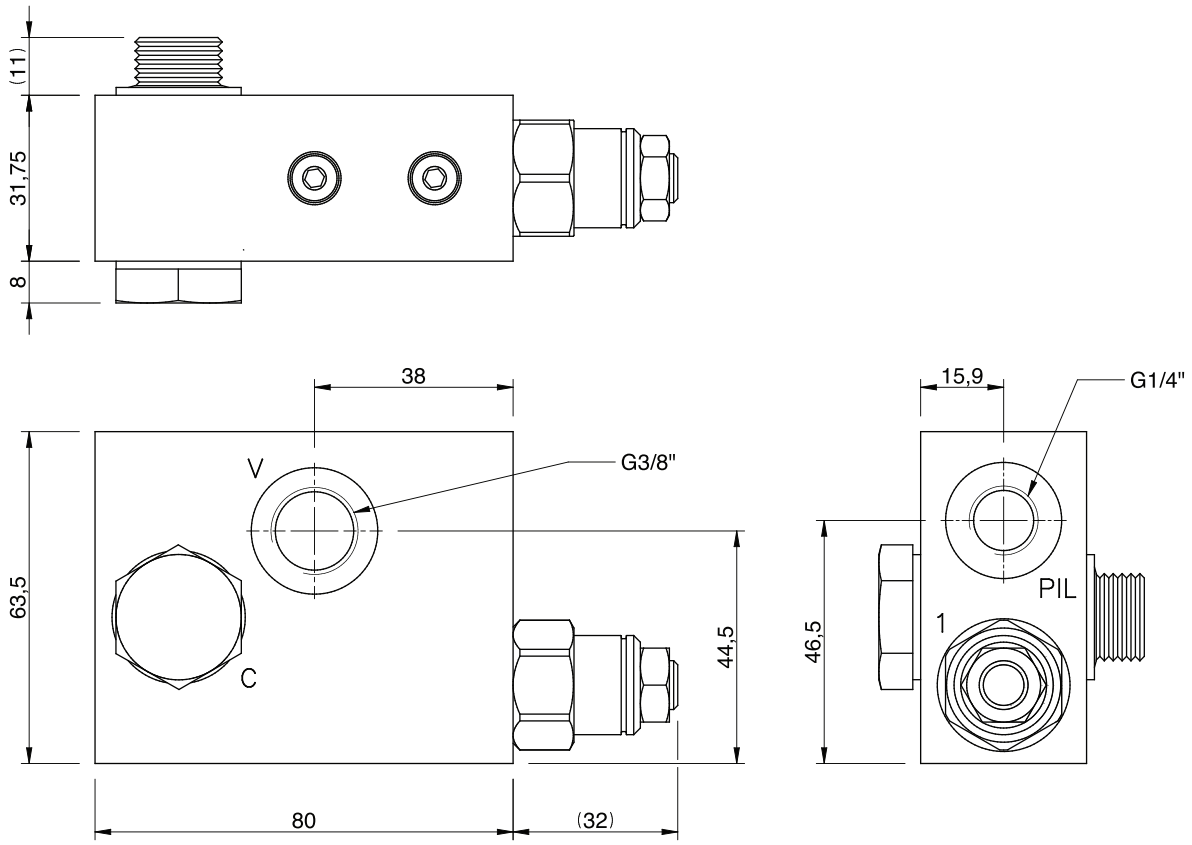
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) – Standard or Steel (zinc plated) material options
- Compact, lightweight, efficient design
- Easy access porting
- Supplied with banjo bolt and bonded seal washers for banjo bolt.

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1217
Weight	0.7 kg (alum) 1.3 kg (steel)

Dimensions



Ordering Example

RF LC1217 * * * ** *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Manifold Material
A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21 = std. setting	**A** = Aluminium (clear anodised)
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals		**S** = Steel, clear (zinc passivate)
C = 3:1 P.O. Check (std.)	6 = 60 lpm			
D = 3:1 overcentre (atmos. vent.)				
E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (atmos. vent.)				

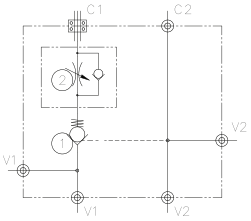
Preferred Part No. - RF LC1217A6021A

Pilot operated check, single
Banjo mounted

RF LC1242

Up to 240 bar - Up to 23 lpm

Circuit



Description

A pilot operated check valve (single) for use on cylinder applications where there is a requirement to load hold / hydraulically lock in pressure. The valve body is configured for easy installation to the cylinder with options on feed port positions on either side of the valve body.

Operation: With port C1 connected to the cylinder port that required load holding, When oil is fed into V1 port oil and exits via the banjo bolt (supplied) fitted into port C1. Returning oil from the opposing side of the cylinder is fed into port C2 which then exits back to the directional valve / tank via ports V2. When the cylinder is not in operation, load will be held on port C1. When oil is fed back into ports V2 oil then exits port C2. Once sufficient load pressure is reached the internal pilot piston in valve 1 is operated allowing oil to escape via port C1 and back through ports V1 and then on to the directional valve / tank. An optional flow control is available which gives uni-directional speed control functionality as well as dampening system response when the load is released.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Where flow control valves are used, flow setting is set by customer

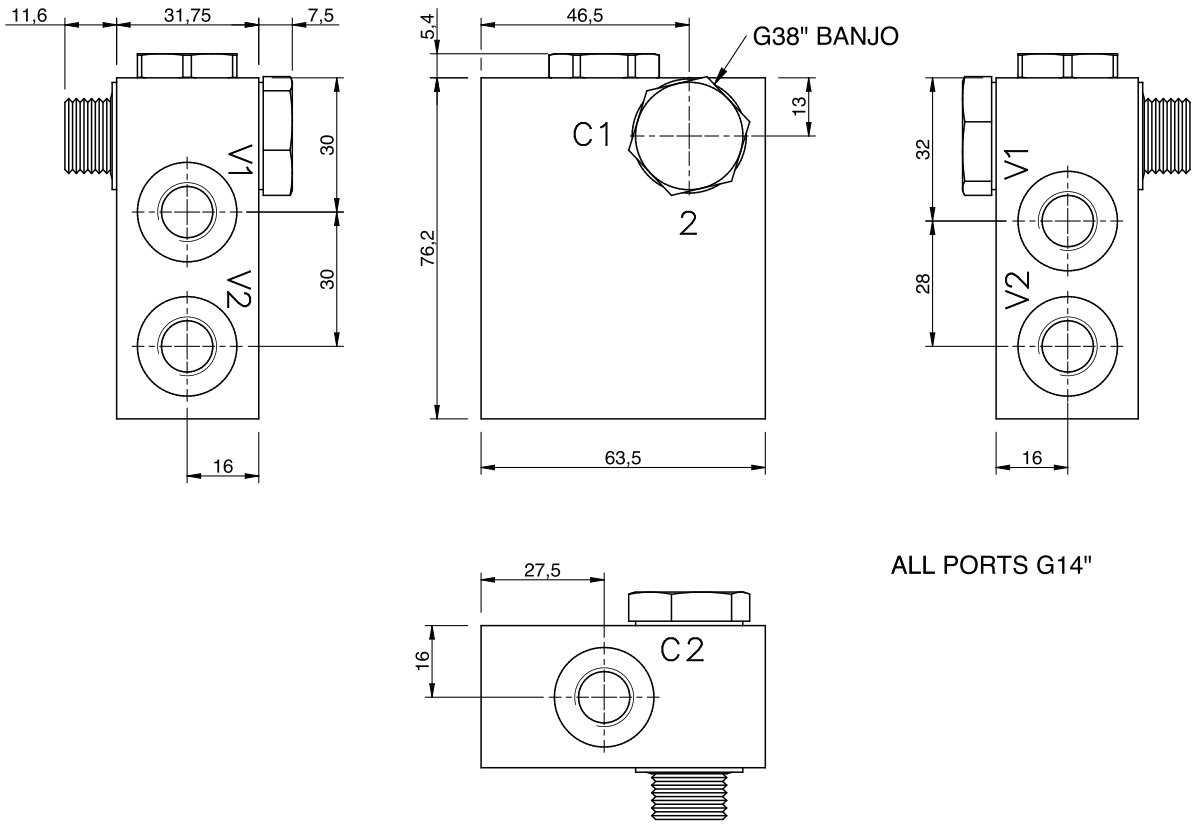
(iii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, lightweight, efficient design
- Easy access porting, with multiple options
- Supplied with banjo bolt and bonded seal washers for banjo bolt.

Flow Range (lpm)	23
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Pilot Ratio	4:1
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1242
Weight	0.5 kg (alum) 1.1 kg (steel)

Dimensions



ALL PORTS G14"

Ordering Example

RF LC1242 - ** *

Valve 1 options
00 = Std nitrile seals + standard banjo bolt
V0 = Viton seals + standard banjo bolt
0F = Std nitrile seals + banjo bolt flow control
VF = Viton seals + banjo bolt flow control

Manifold Material
A = Aluminium (clear anodised)
S = Steel, clear (zinc passivate)

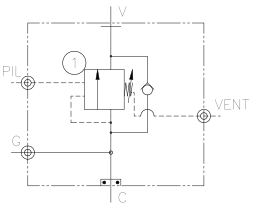
Preferred Part No. - RF LC124200A

Single load hold / load control assembly
Cylinder mounted – ¾" SAE 6000 Flange

RF LC1271

Up to 350 bar - Up to 60 lpm

Circuit



Description

A versatile manifold control system that gives the options of either 4 port vented pilot operated check valve or 4 port vented overcentre valve. These valve assemblies are insensitive to back pressure and typically used on systems that use mechanical or proportional flow control. The vented design lends itself to improved stability and load holding performance.

Housed in an easy to pipe up, weld on manifold block for direct mounting onto a hydraulic cylinder. These assemblies can be used in applications where there is a requirement for improved safety with a system that uses steel tubes on the load holding side of the circuit – as opposed to flexible hoses. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Consult factory for other possible valve / build options

(iii) Bolts to be supplied and fitted by customer

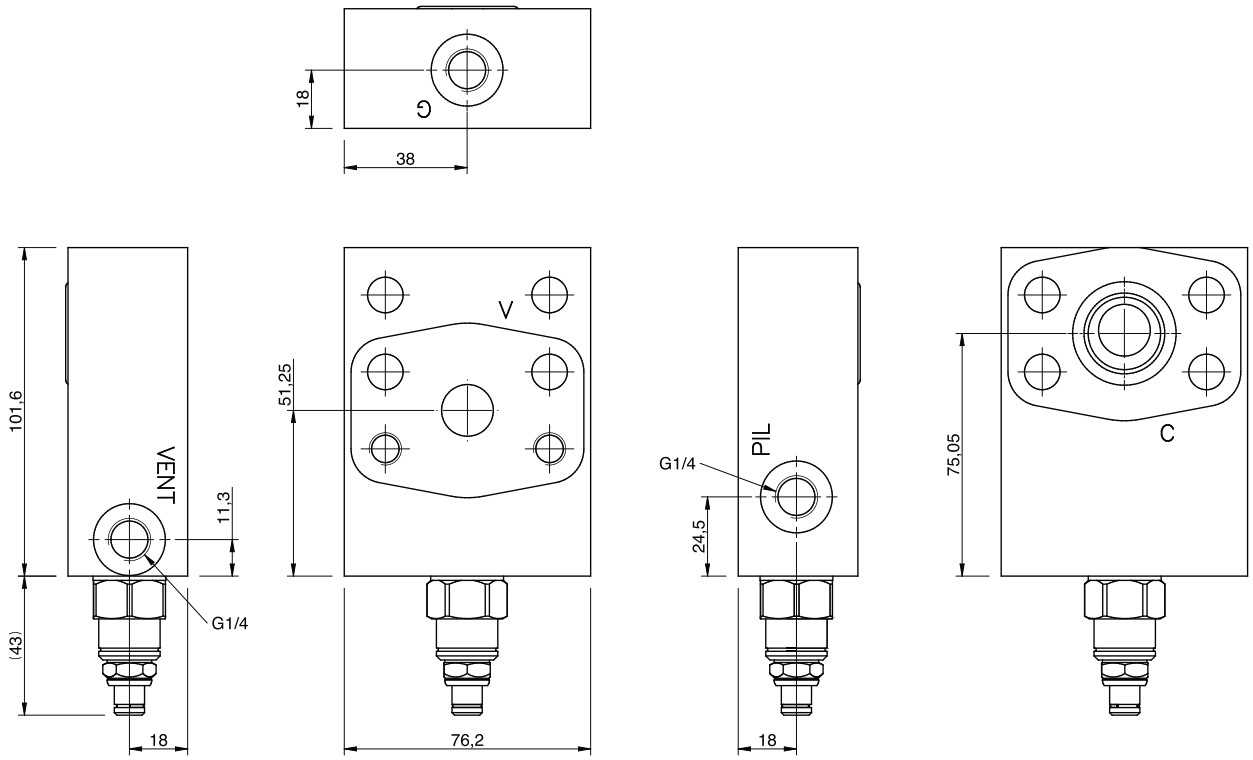
(iv) Max. setting pressure – overcentres:
- a. 3:1 = 280 bar
- b. 5:1 = 420 bar

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, low profile design
- Easy access porting
- Other body configurations including line mount are also available

Flow Range (lpm)	60
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF1271
Weight	2.1 kg (steel)

Dimensions



Ordering Example

RF LC1271 * * * ** *

Valve Type	Valve Capacity	Valve Options	Valve Setting	Coil Termination
A = 3:1 overcentre (std.)	6 = 60 lpm	0 = Std	**21** = 210 Bar** **10 Bar increments **21** = std. setting	**S** = Steel, clear (zinc passivate)
B = 5:1 overcentre (std.)		V = Viton seals		
C = 3:1 P.O. Check (std.)				

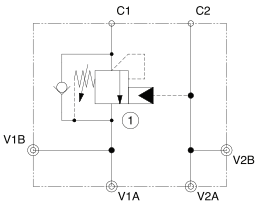
Preferred Part No. - RF LC1271A6021S

Load hold / load control assembly, single
Cylinder mounted

RF LC1510

Up to 350 bar max - Variable Up to 40 lpm

Circuit



Description

A versatile manifold control system that gives the options of pilot operated check valve or overcentre valve. Versatility is further extended with a wide range of interchangeable valves with options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up block, with dual inlet ports these assemblies can be used in applications where space is at a premium in cylinder circuits but there is a requirement for piping or valve control options. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Cartridge valve supplied loose for fitting after welding. Where applicable valves are pre-set

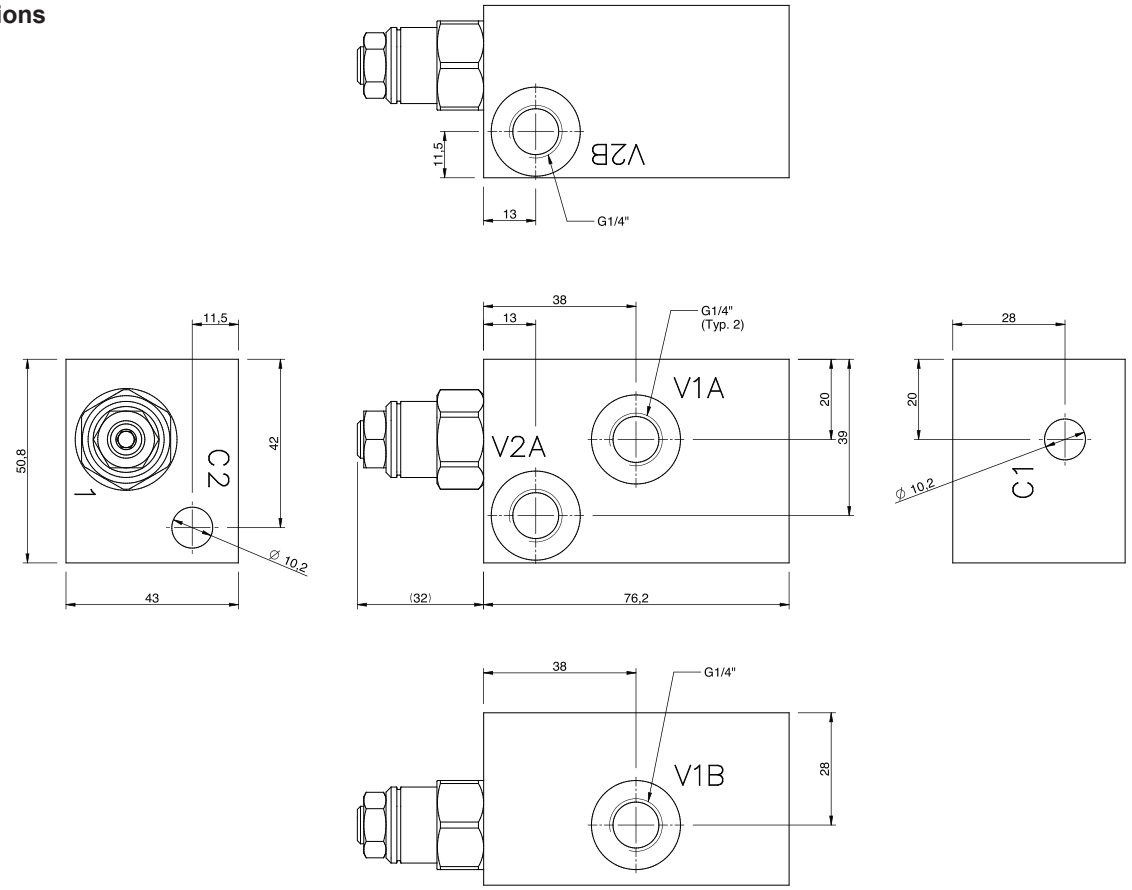
(iii) Consult factory for other possible valve / build options

Features

- Steel (un-plated plated)
- Compact, efficient design
- Easy access porting
- Dia. 10mm weld prep.ports
- Other body configurations are available on request

Flow Range (lpm)	40
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1510
Weight	1.3 kg (steel)

Dimensions



Ordering Example

RF LC1510 * * ** **

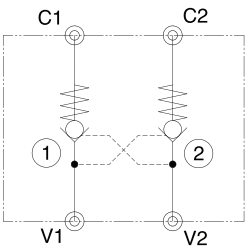
Valve Type	Valve Capacity	Valve options	Valve setting	Manifold Material
A = 3:1 overcentre (std.)	1 = 15 lpm	00 = Std	**21** = 210 Bar**	**S** = Steel, unplated
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V0 = Viton seals	**10 Bar increments **21 = std. setting	
C = 3:1 P.O. Check (std.)	6 = 60 lpm		**Settings on application overcentre values	
D = 3:1 overcentre (atmospheric)				
E = 5:1 overcentre (atmospheric)				
F = 3:1 P.O. Check (atmospheric)				

Pilot operated check, dual
Banjo mounted

RF LC1563

Variable, 240 bar max - 57 lpm max

Circuit



Description

A pilot operated check valve (dual) for use on cylinder or motor applications (with 44mm port centres) where there is a requirement to load hold / hydraulically lock in pressure. The valve body is configured for easy installation to the actuator with options on feed port positions on either side of the valve body.

Operation: the passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V2. When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

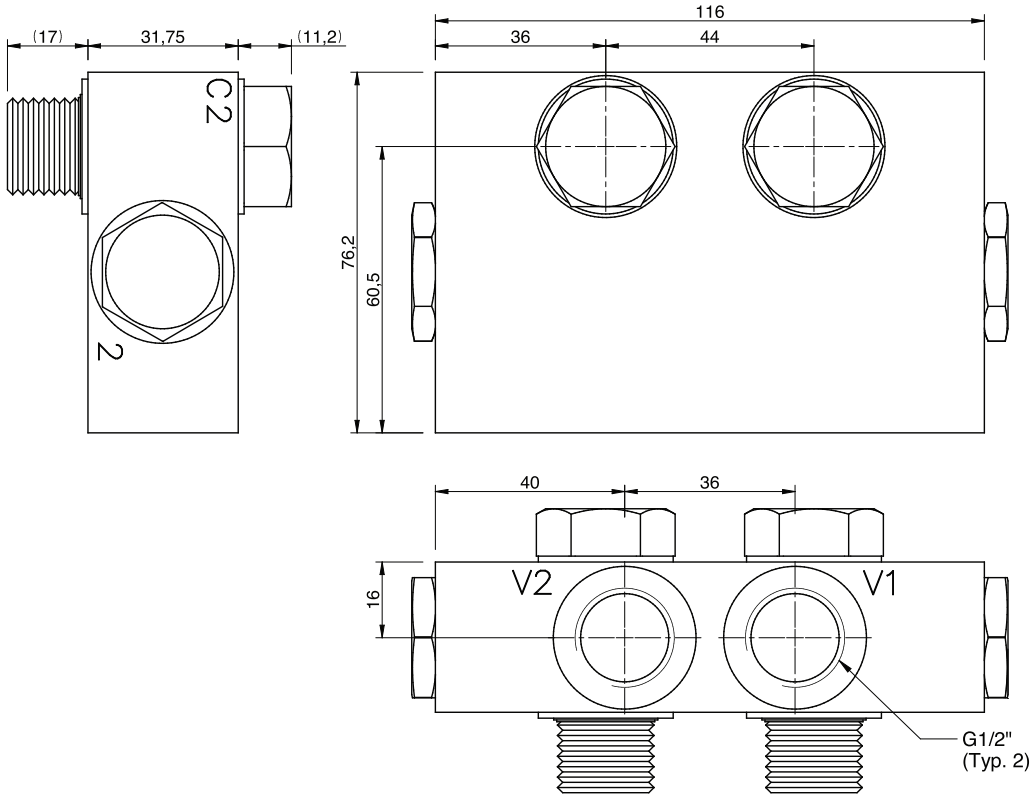
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, lightweight, efficient design
- Easy access porting, with multiple options
- Supplied with banjo bolts and bonded seal washers for banjo bolt.

Flow Range (lpm)	57
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Pilot Ratio	4:1
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1563
Weight	1.1 kg (alum) 2.2 kg (steel)

Dimensions



Ordering Example

RF LC1563

**	*

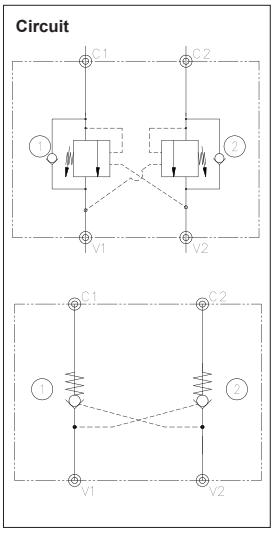
Valve 1 options
00 = Std nitrile seals + standard banjo bolt
V0 = Viton seals + standard banjo bolt

Manifold Material
A = Aluminium (clear anodised)
S = Steel, clear (zinc passivate)

Dual load hold / load control assembly
Line mounted

RF LC1896

Up to 350 bar - Up to 120 lpm



Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of interchangeable valves with options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up block, these assemblies can be used in applications where space is at a premium in cylinder and motor circuits. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

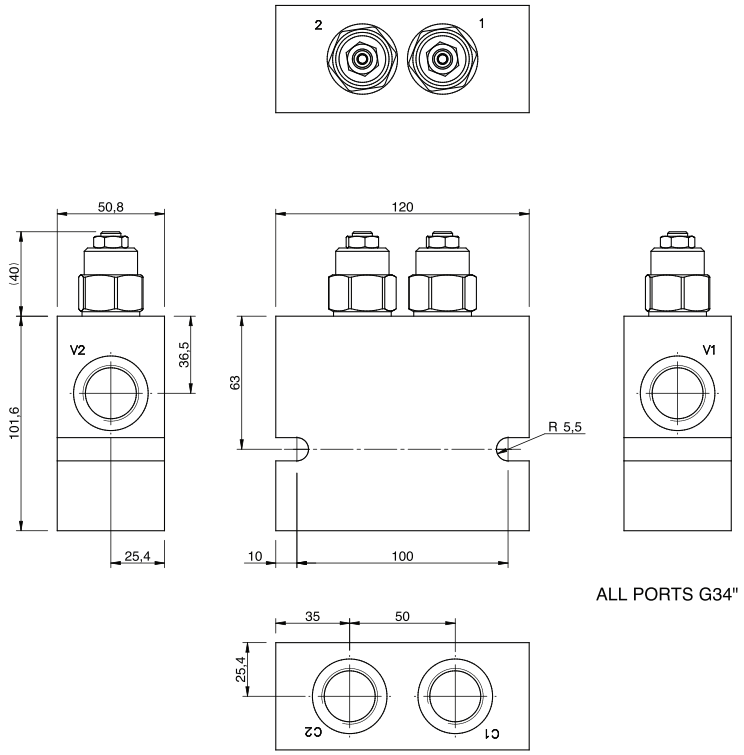
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access in-line porting
- Other body configurations are available

Flow Range (lpm)	120
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC1896
Weight	2.0 kg (alum) 4.5 kg (steel)

Dimensions



Ordering Example

RF LC1896 * * ** ** * * ** ** *

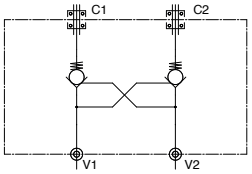
Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Manifold Material
A = 3:1 ove re ntre (s d.)	1 = 20 lpm	00 = Std	**21** = 210 Bar** **10 Bar inc ements **21 = s d. e tting	A = 3:1 ove re ntre (s d.)	1 = 20 lpm	00 = Std	**21** = 210 Bar** **10 Bar inc ements **21 = s d. e tting	**A** = Aluminium (c ear anodie d)
B = 4.5:1 ove re ntre (s d.)	4 = 80 lpm	V0 = Viton e als	**Settings on apply to ove re ntre a le s	B = 4.5:1 ove re ntre (s d.)	4 = 80 lpm	V0 = Viton e als	**Settings on apply to ove re ntre a le s	**S** = Steel, c ear (z nc pas a te)
C = 3:1 P.O. Chek (s d.)	6 = 120 lpm			C = 3:1 P.O. Chek (s d.)	6 = 120 lpm			
D = 3:1 ove re ntre (atmos vent.)				D = 3:1 ove re ntre (atmos e nt.)				
E = 5:1 ove re ntre (atmos vent.)				E = 5:1 ove re ntre (atmos e nt.)				
F = 3:1 P.O. Chek (atmos vent.)				F = 3:1 P.O. Chek (atmos e nt.)				

Pilot operated check, dual
G38" Banjo mounted

RF LC1952

Up to 240 bar - Up to 40 lpm

Circuit



Description

A pilot operated check valve (dual) for use on cylinder or motor applications (with 44.45mm port centres) where there is a requirement to load hold / hydraulically lock in pressure. The valve body is configured for easy installation to the actuator with options on feed port positions on either side of the valve body.

Operation: the passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V2. When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

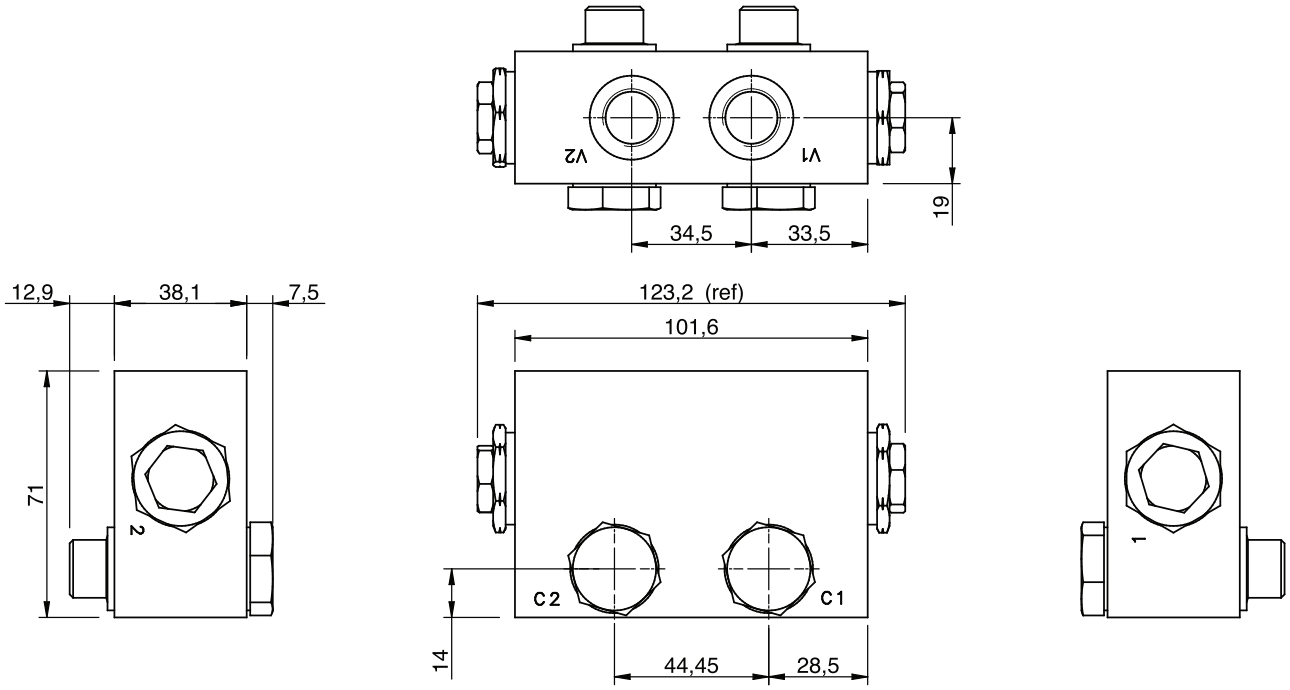
(ii) Consult factory for other possible valve / build options

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, lightweight, efficient design
- Easy access porting
- Supplied with banjo bolts and bonded seal washers for banjo bolt.

Flow Range (lpm)	40
Max Pressure (bar)	350 bar max
Hydraulic Oil	General purpose hydraulic fluid
Pilot Ratio	3.4:1
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF1952
Weight	1.1 kg (alum) 2.1 kg (steel)

Dimensions



Ordering Example

RF LC1952 **

RF LC1952 * *

Valve 1 options
00 = Std nitrile seals + standard banjo bolt
V0 = Viton seals + standard banjo bolt
0F = Std nitrile seals + banjo bolt flow controls
VF = Viton seals + banjo bolt flow controls

Manifold Material
A = Aluminium (clear anodised)
S = Steel, clear (zinc passivate)

Preferred Part No. - RF LC195200A

Dual P.O. Check Valve
Weld on

RF LC2557

Up to 240 bar

Description

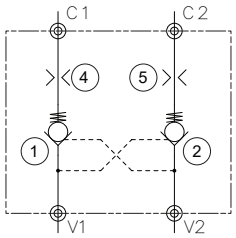
These valves are used mainly in circuits where a double acting hydraulic cylinder is required to be locked in a load holding position when the pump flow is off.

Valve operation is as follows: The passage of oil from V1 to C1 allows the pilot piston to open the check on port C2 thereby permitting free oil flow from port C2 to port V1.

When oil flows from V2 to C2 the reverse effect is obtained. When the directional valve is in the neutral position the load is held on ports C1 and C2.

- Valve assembly is supplied in kit form (due to welding). Valves to be installed as per recommended torque on data sheet.
- A sealed piston is used for improved performance on low flow systems. Care must be taken on installation to avoid seal damage.

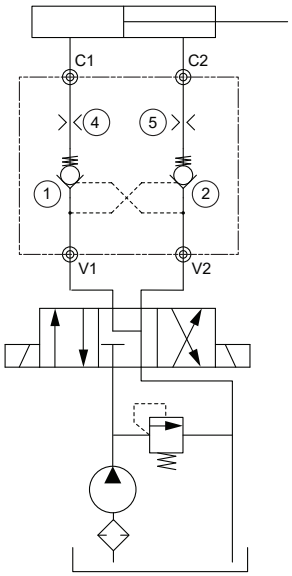
Schematic



Features

- Compact low profile design
- Typically used on vehicle stabiliser/outrigger applicances
- Low leakage

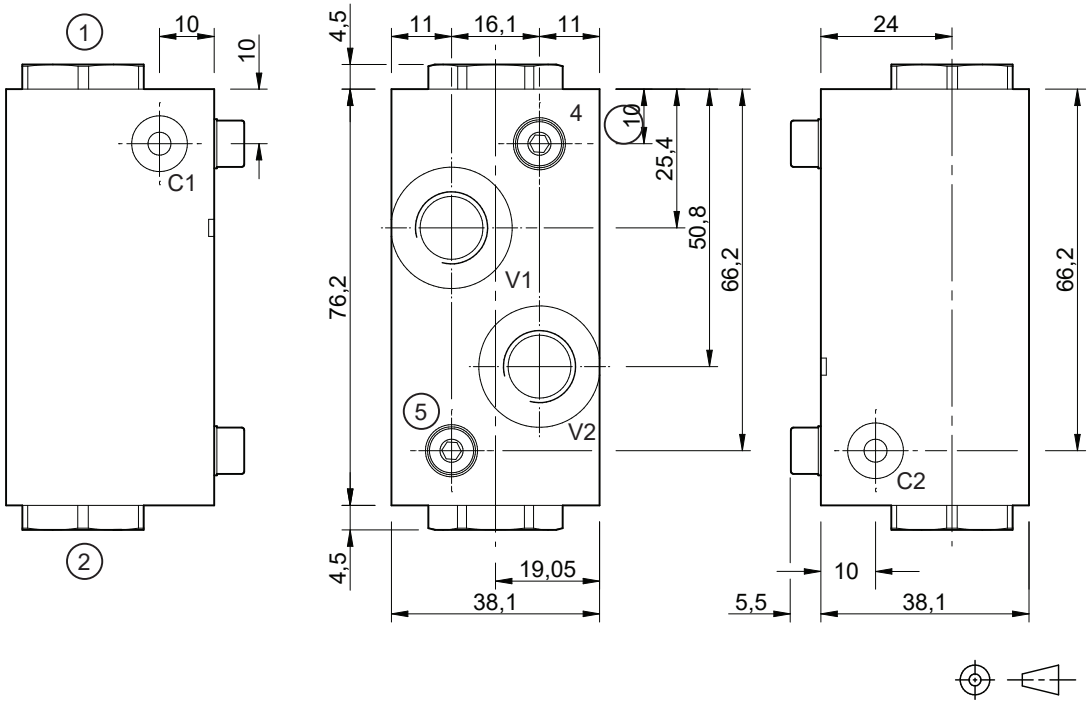
Schematic



Specifications

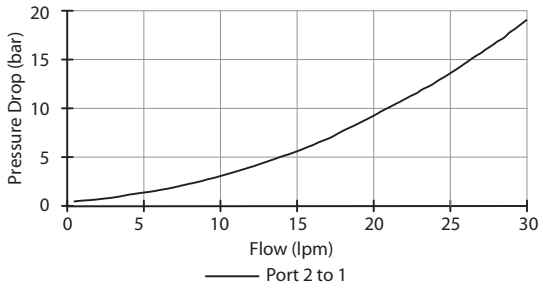
Port Size	V1 & V2	G1/4”
	C1 & C2	Ø10mm weld prep.
Nom. Flow (lpm)	19	
Max Pressure (bar)	240	
Viscosity Range	3 to 647 cSt	
Operating Temp.	-40˚C to + 120˚C	
Hydraulic Oil	General Purpose Hydraulic Fluid	
Pilot Ratio	6.7 : 1	
Body Material	Steel	
Valve Characteristics	See data sheet D-MACVA	

Dimensions



Valve Performance (D-MACVA)

32 cSc / 38°C.



Ordering Code

RF LC2557 | *

Orifice on C1/C2
e.g. **075** - Ø0.75
Omit if not required
Other orifice sizes available on request

Preferred Part No. -

RF LC2557

Related Fluid Power

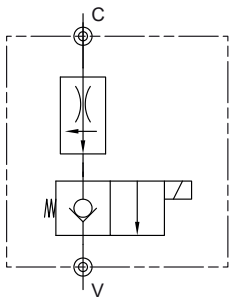
G3/8” Banjo Mounted Cylinder Lock Valve

Solenoid Operated Normally Closed Poppet Valve

RF LC3535

Up to 240 bar - Up to 30 lpm

Typical Symbol



Description

This assembly is designed for single acting cylinder applications where a lift, hold and lower operation is required. A compact banjo mounted design is used which allows for fitting direct onto the loaded port of a cylinder. In the first part of the cycle oil is allowed to pass freely through the valve assembly with the solenoid valve being energised or de-energised depending on valve selection / desired operation. When stopped, the solenoid valve is de-energised thus holding the cylinder in place and preventing the cylinder from being able to move back. The final part of the cycle sees the solenoid valve being energised allowing the cylinder to return back to its initial position. When used with the pressure compensated flow control, controlled retraction / lowering regardless of load is achieved. This assembly also offers improved safety in the event of a hose failure due to the pressure compensated flow control (when used) being an integral part of the design.

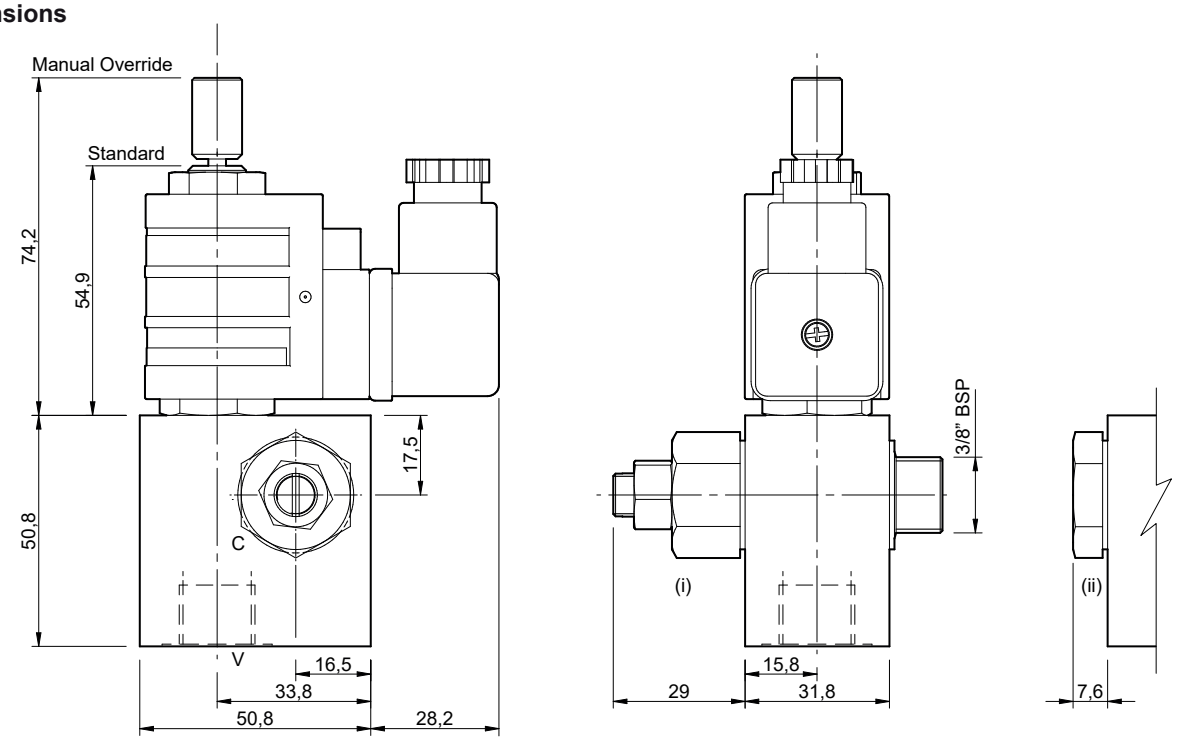
Features

- Aluminium body, clear anodised.
- G3/8” ports
- Optional fixed pressure compensated flow control or adjustable needle flow control with reverse check.
- Large selection of interchangeable solenoid valves for varied application requirements.
- Poppet valve used for good load holding characteristics.
- Optional overrides (use and safety is application dependant).
- Large selection of coil terminations available.
- Compact, efficient and economical design.
- For higher flow capacity see RF LC1062

Specifications

Flow Range (lpm)	30
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC3535
Weight	0.9 kg (alum)

Dimensions

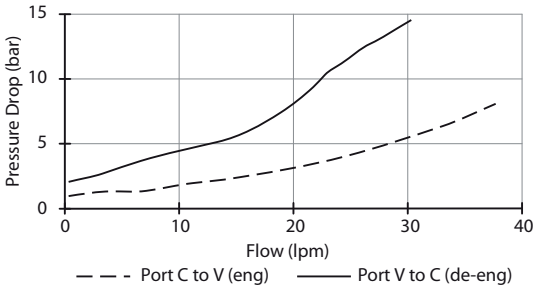


(i) Banjo bolt adjustable flow control
(ii) Standard / PLFC banjo bolt

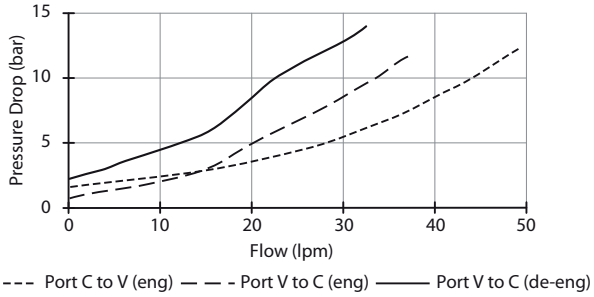
Performance

32 cSt / 38°C.

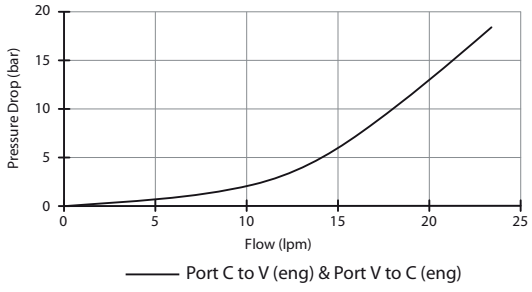
D-PBS2A



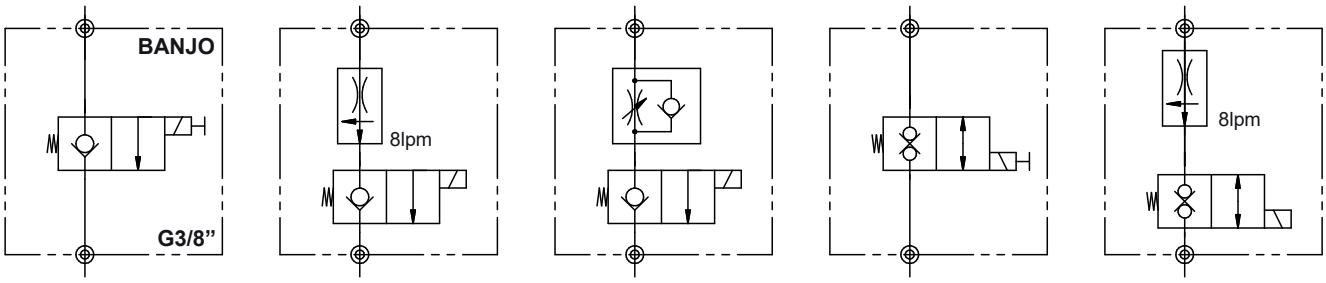
D-PBS2B



T-PBS2I



Circuit Examples



RF LC3535A0M00*****

RF LC3535A0008*****

RF LC3535A00FC*****

RF LC3535I0M00*****

RF LC3535I0008*****

Ordering Code

RF LC3535 ** ** ** ** ** *

Valve Type	Override	Flow Rate M1-V1	Coil Termination	Voltage	Manifold Material
A = S2A (restrictive flow de-energised)	**00** = No override	**00** = Standard Banjo, No pressure compensated flow control	**HC** = DIN type A, IP65	**12** = 12 Vdc	**A** = Aluminium (210 bar max, clear anodised)
B = S2B (Rev. free flow de-energised)	**0M** = Pull override	**08** = Pressure compensated flow control set at 8 lpm**	**ID** = Deutsch weather-proof coil, IP67	**24** = 24 Vdc	**S** = Steel - (available on request)
I = S2I (bi-directional N.C.)	**0K** = Push override -S2I valves	**FC** = Adj. banjo bolt needle flow control with reverse check	**HC** = Standard coil	*Other voltages available on request	
Other valves available on request. See individual data sheets	Other overrides available on request. Overide availability dependant on valve selection.	**XX** = No banjo bolt & seals			
		**1 lpm increments. Up to 10 lpm max.			

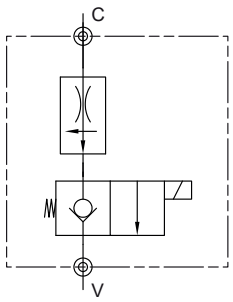
Cylinder Lock Valve

Banjo Mounted, Solenoid Operated Normally Closed Poppet Valve

RF LC3818

Up to 240 bar - Up to 30 lpm

Typical Symbol



Description

This assembly is designed for single acting cylinder applications where a lift, hold and lower operation is required. A compact banjo mounted design is used which allows for fitting direct onto the loaded port of a cylinder.

In the first part of the cycle oil is allowed to pass freely through the valve assembly with the solenoid valve being energised or de-energised depending on valve selection / desired operation. When stopped, the solenoid valve is de-energised thus holding the cylinder in place and preventing the cylinder from being able to move back

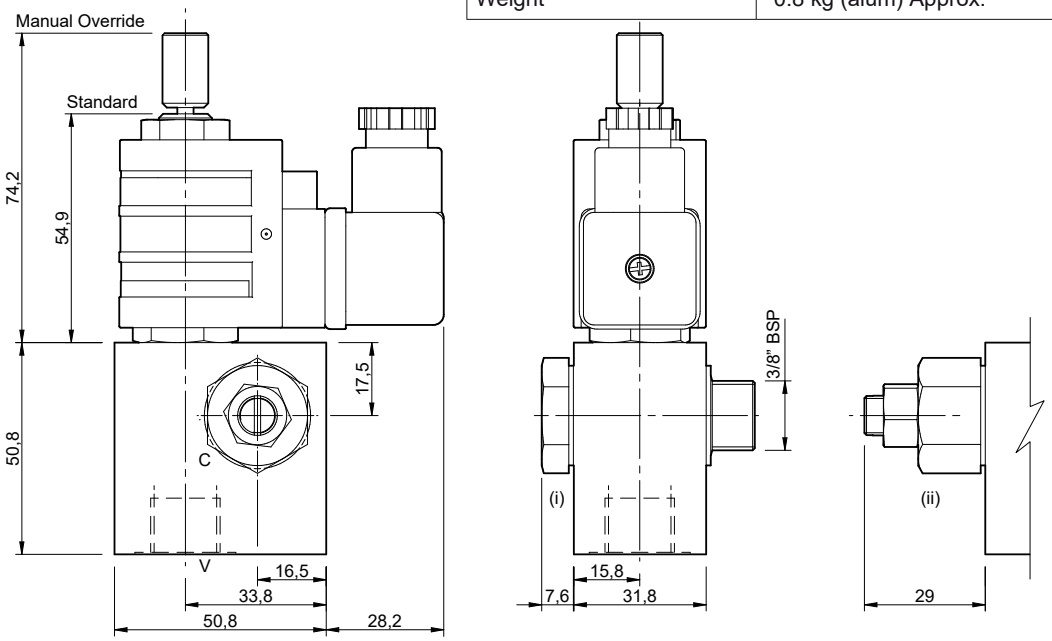
The final part of the cycle sees the solenoid valve being energised allowing the cylinder to return back to its initial position. When used with the pressure compensated flow control, controlled retraction / lowering regardless of load is achieved. This assembly also offers improved safety in the event of a hose failure due to the pressure compensated flow control (when used) being an integral part of the design.

Features

- Aluminium body, clear anodised.
- G3/8" ports
- Optional fixed setting pressure compensated flow control for controlled lowering (not field adjustable).
- Large selection of interchangeable solenoid valves for varied application requirements.
- Poppet valve used for good load holding characteristics.
- Optional overrides (use and safety is application dependant).
- Large selection of coil terminations available.
- Compact, efficient and economical design.
- For higher flow capacity see RF 1062.

Flow Range (lpm)	30
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFLC3818*
Weight	0.8 kg (alum) Approx.*

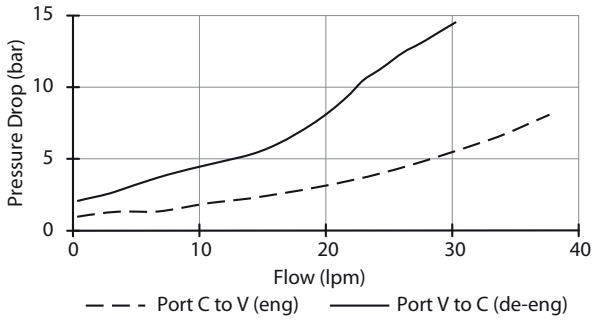
Dimensions



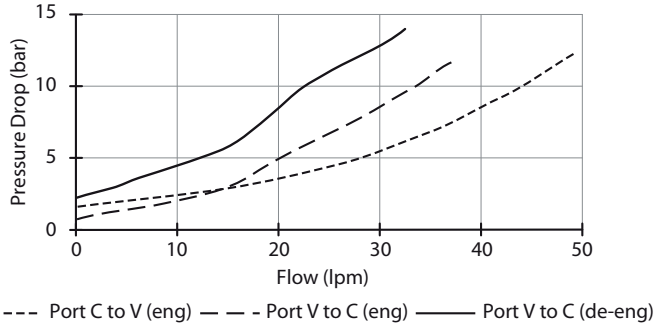
Performance

32 cSt / 38°C.

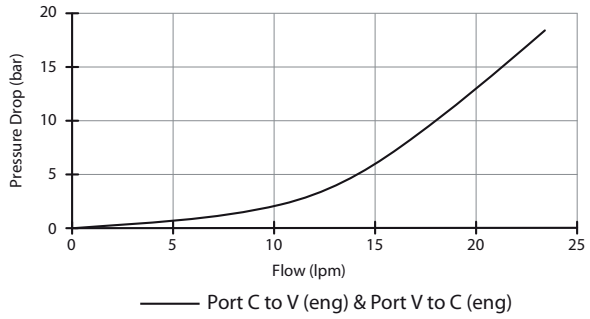
D-PBS2A



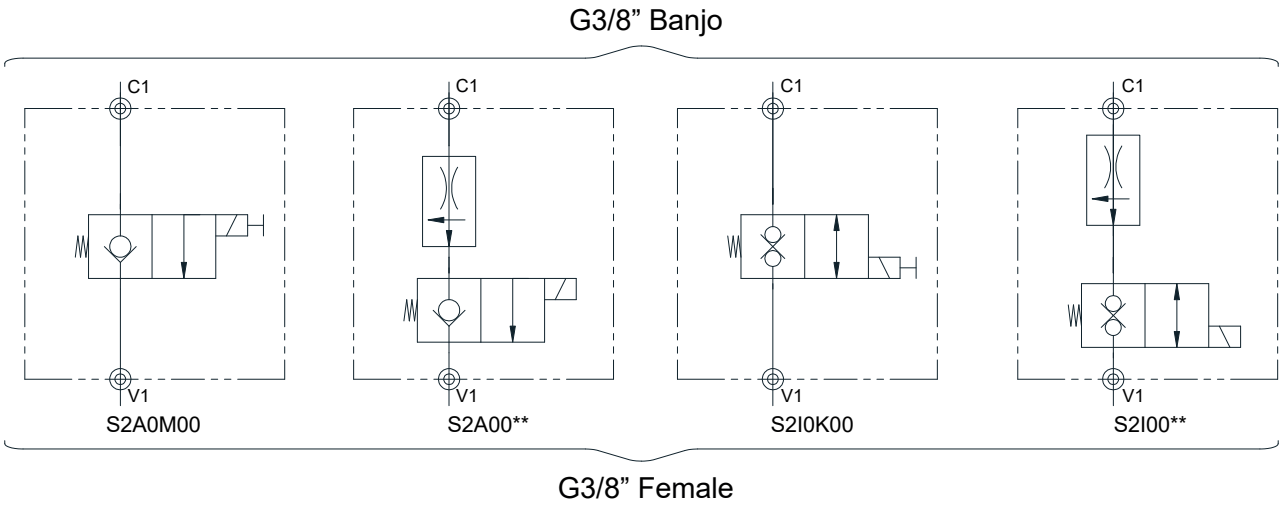
D-PBS2B



T-PBS2I



Circuit Examples



Ordering Example

RF LC3818 * * * *** * ** * *

Supplier Code
D = Delta
T = Tecnord
V = Vis

Valve Type
A = S2A (NC, restrictive flow energised)
B = S2B (NC, reverse free flow energised)
C = S2C (NO, reverse free flow energised)
I = S2I (NC, bi-directional)
Other valves available on request. See individual data sheets.

Override
A = No override
B = Override, detent
C = Override, non-detent
D = Override, non-detent, screen
E = Override, detent, screen
Other overrides available on request. Overide availability dependant on valve selection.

Flow Rate V1-C1
000 = Standard banjo bolt (no PCFC)
045 = PCFC banjo bolt (set to 4.5 Lpm**)
080 = PCFC banjo bolt (set to 8.0 Lpm**)
100 = PCFC banjo bolt (set to 10.0 Lpm**)
FCX = Adjustable flow control banjo bolt (non-compensated)
XXX = No banjo bolt & seals
**1.5 lpm increments. Up to 10 Lpm max.

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (available on request)
B = Aluminium (210 bar max, blue anodised)

Fitting Termination
A = G1/4”
B = G3/8”
C = G1/2”
X = No fitting

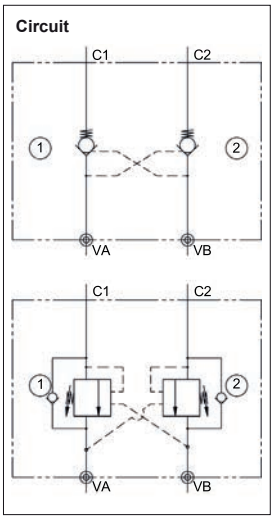
Voltage
12 = 12 Vdc
24 = 24 Vdc
25 = 24 Vac
XX = No voltage (no coil)
*Other voltages available on request

Coil Termination
H = DIN
N = DIN - No connector
I = Deutsch
L = Dual lead
S = Dual spade
K = Kostal
X = No coil

Dual load hold / load control assembly
Weld mounted

RF LC4138

Up to 350 bar - Up to 60 lpm



Description

A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of valve options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting.

Housed in an easy to pipe up, weld on manifold block for mounting onto a hydraulic cylinder, these assemblies can be used in applications where there is a requirement for improved safety with a system that uses steel tubes on the load holding side of the circuit – as opposed to flexible hoses. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Consult factory for other possible valve / build options

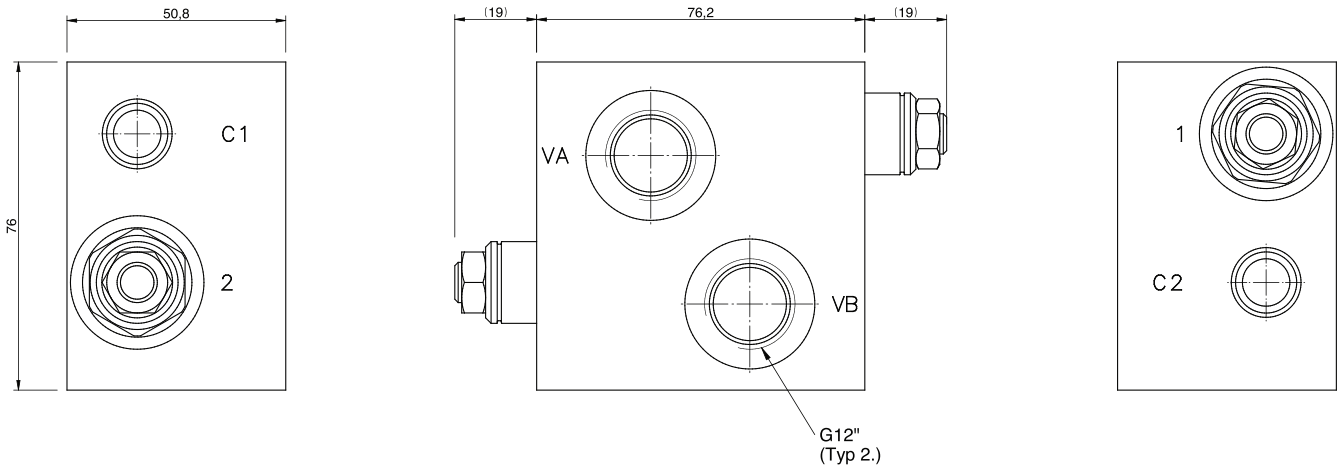
(iii) See RF 1099 for G¼" version

Features

- Compact, efficient design
- Easy access porting
- Other body configurations including line mount are also available
- Standard weld prep port size is dia. 14mm but other port sizes are available on request

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFLC4138
Weight	2.4 kg (steel)

Dimensions



Ordering Example

RF LC4138 * * * ** * * * ** *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 options	Valve 2 setting	Weld Prep. Dia
A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar**	A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	**21** = 210 Bar**	**1** = 10
B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals	**10 Bar increments	B = 4.5:1 overcentre (std.)	4 = 40 lpm	V = Viton seals	**10 Bar increments	**2** = 12
C = 3:1 P.O. Check (std.)	6 = 60 lpm		***21** = std. setting	C = 3:1 P.O. Check (std.)	6 = 60 lpm		***21** = std. setting	**4** = 14
D = 3:1 overcentre (atmos. vent.)				D = 3:1 overcentre (atmos. vent.)				
E = 5:1 overcentre (atmos. vent.)				E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (atmos. vent.)				F = 3:1 P.O. Check (atmos. vent.)				

Preferred Part No. - RF LC4138C6000C60004 / RF LC4138A6021A60214

Related Fluid Power

Multi-function, Cross Port, Valve Control
Line Mounted

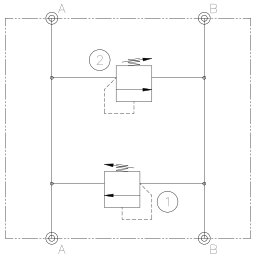
RF LC4519

Variable bar - Variable lpm

Description

The RF 4519 is a cross port valve control suitable for a wide range of motor and cylinder applications. The design layout with two sets of through ports allows for easy inline piping from valve to actuator. Two valve cavities are teed across the lines in parallel. These cavities can be fitted with cartridges from our standard range of two-way, size 10 valves. Various valve functions are available to achieve speed control as well as offer over-pressure or anti-cavitation protection. Typical application is for a dual cross port relief assembly.

Circuit

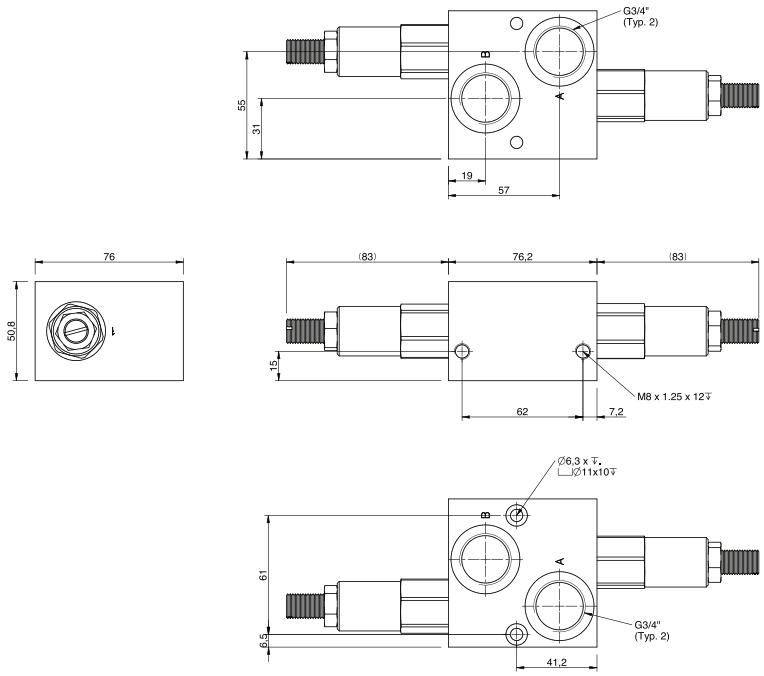


Features

- Multi-function capability.
- Multi mounting option.
- Compact and efficient design.
- Various options, seals, overrides, pressure settings etc.

Flow Range (lpm)	See curves for various versions
Max Pressure (bar)	Variable
Proportional Valve Leakage	0 - 0.50 cc/min at 245 bar
Proportional Valve Hysteresis	+/- 3%
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFLC4519
Weight	VARIABLE DEPENDING ON BUILD 1.3 kg (alum) 2.4 kg (steel) (RD version)

Dimensions



Ordering Example

RF LC4519 ** * ** ** * ** *

Valve 1 type

RA - Direct acting relief (****RVA**)
RD - Differential area relief (****RVD**)
CA - Direct acting check (****CVA**)
CC - Direct acting check, ball (****CVC**)
CR - Reverse flow check (****CVR**)
SA - 2 way N.C. poppet (****S2A**)
SB - 2 way N.C. poppet (****S2B**)
SC - 2 way N.O. poppet (****S2C**)
SD - 2 way N.O. poppet (****S2D**)
NA - Adj. flow con-trol, fine adj. (****NVA**)
NB - Adj. flow control, std. adj. (****NVB**)
FA - Adj. flow con-trol, pres. comp. (****FCA**)
FC - Adj. flow con-trol, pres. comp. (****FCC**)
For valve performance see data sheet.

Valve 1 options

A - Nitrile
B - Viton
C - Nitrile & Knob
D - Viton & Knob
E - Nitrile, o/ride, detent
F - Viton, o/ride, detent
For further options see specific valve data sheet

Valve 1 Voltage / Pressure Range

12 - 12 Vdc
24 - 24 Vdc
48 - 48 Vdc
25 - 24 Vac
11 - 110 Vac
23 - 250 Vac
05 - 7 to 34 bar
15 - 34 to 103 bar
30 - 103 to 207 bar
For further options see specific valve data sheet
DIN 43650 coils as std. Other terminations available on request.

Valve 2 type

RA - Direct acting relief (****RVA**)
RD - Differential area relief (****RVD**)
CA - Direct acting check (****CVA**)
CC - Direct acting check, ball (****CVC**)
CR - Reverse flow check (****CVR**)
SA - 2 way N.C. poppet (****S2A**)
SB - 2 way N.C. poppet (****S2B**)
SC - 2 way N.O. poppet (****S2C**)
SD - 2 way N.O. poppet (****S2D**)
NA - Adj. flow con-trol, fine adj. (****NVA**)
NB - Adj. flow con-trol, std. adj. (****NVB**)
FA - Adj. flow con-trol, pres. comp. (****FCA**)
FC - Adj. flow con-trol, pres. comp. (****FCC**)
For valve performance see data sheet.

Valve 2 options

A - Nitrile
B - Viton
C - Nitrile & Knob
D - Viton & Knob
E - Nitrile, o/ride, detent
F - Viton, o/ride, detent
For further op-tions see specific valve data sheet

Valve 2 Voltage / Pressure Range

12 - 12 Vdc
24 - 24 Vdc
48 - 48 Vdc
25 - 24 Vac
11 - 110 Vac
23 - 250 Vac
05 - 7 to 34 bar
15 - 34 to 103 bar
30 - 103 to 207 bar
For further options see specific valve data sheet
DIN 43650 coils as std.
Other terminations available on request.

Manifold Material

A = Aluminium (240 bar max, c ear anodis d)

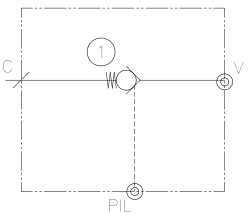
S = Steel (zinc, clear pas a te)

Single P.O. check valve assembly
Banjo mounted, G1/4”

RF LC4529

Variable, 240 bar max - 15-23 lpm

Circuit



Description

The RF 4529 is a banjo mounted pilot operated check valve assembly. The valve carries out a basic load hold functions on one port for single or double acting actuators. This valve is used in low flow / speed applications where there is a requirement for improved system safety and load holding. The banjo bolt is on the load holding port and is used to mount directly onto an actuator with feed pipes connected to the “V” and “PIL” ports. In normal operation oil flow in from the “V” port through the valve and into the actuator. When oil flow stops the load on the actuator is maintained. To release the load, a pressure greater than one fourth of the load on the “C” port should be applied.

Notes:

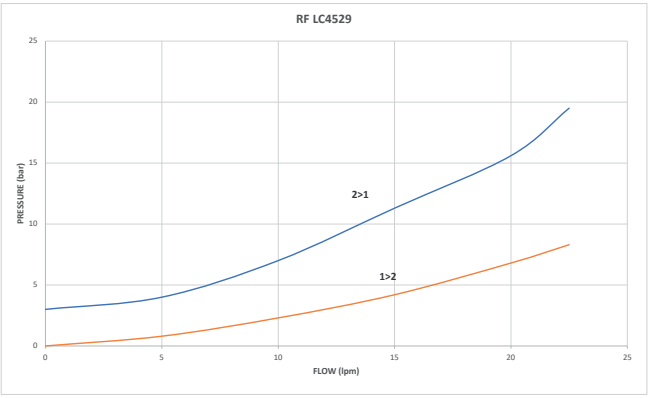
(i) Should not be used on cylinders that have a cylinder ratio greater than 4:1

(ii) Consult RFP sales office for pressure compensated banjo bolt flow control options

(iii) Consult RFP sales office for other cylinder mounted valve options.

Features

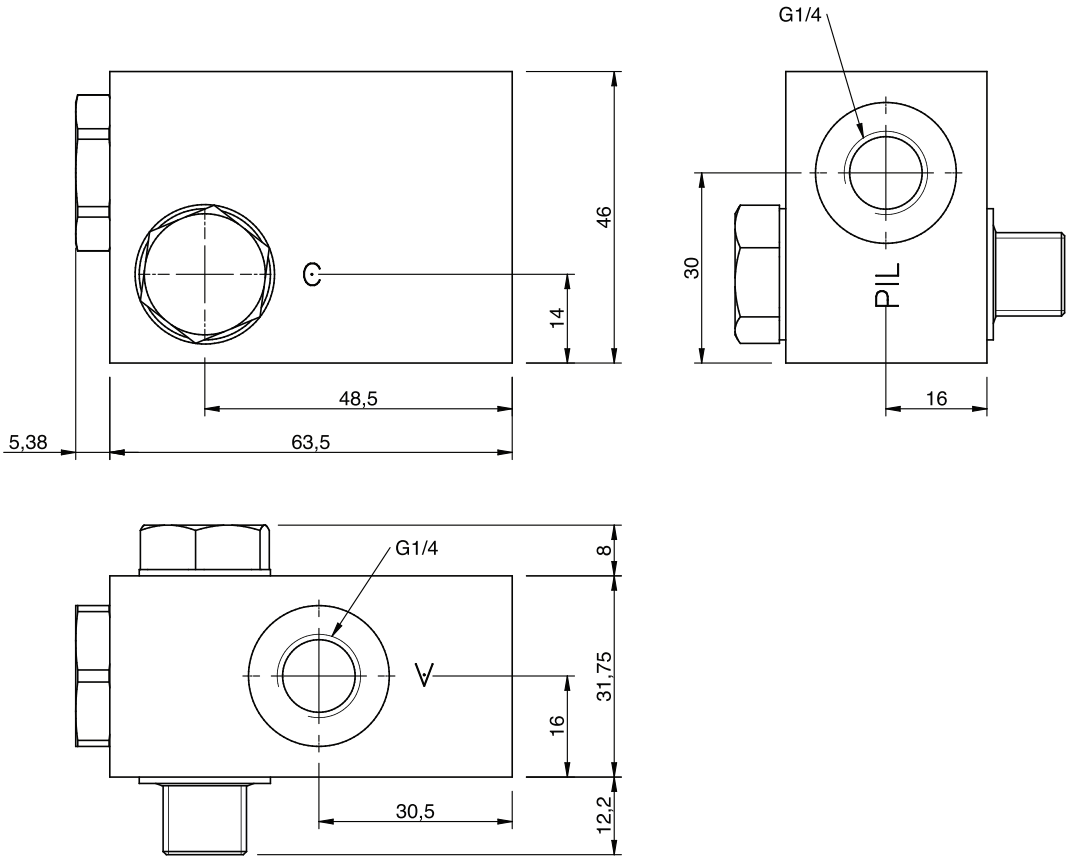
- Supplied with banjo bolt and bonded seal washers
- G1/4” Ports
- Ideal for multiple applications
- Compact and lightweight design



Flow Range (lpm)	23 (C > V) 15 (V > C)
Max Pressure (bar)	240
Pilot Ratio	4 : 1
Banjo bolt torque	35Nm
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF4529
Weight	0.35 kg (alum) 0.75 kg (steel)

SECTION 7
LOAD CONTROLS

Dimensions



Ordering Example

RF LC4529 * *

Seal Type
0 - Buna
V - Viton

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Dual P.O. check
G12” Banjo mounted

RF LC4695

240 bar - 20 lpm

Description

A banjo mounted dual pilot operated check valve. Using two separate cartridges and a pilot piston, this valve assembly is a compact and economical solution for applications that require minimal use of connections, elbow and pipes. In neutral the check valves are closed with each of the poppets held again the valve seats by the bias springs. When there is sufficient pressure a check valve will open on one side of the circuit simultaneously pushing the opposing check valve open by means of the pilot piston. The same operation is seen in the reverse condition.

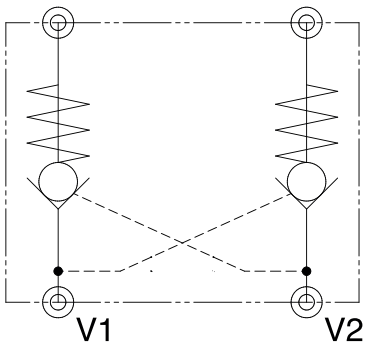
Typical applications include but are not limited to: (i) conveyor fold / locking (ii) various outrigger/ stabiliser applications. Please contact our sales office for more information and guidance on higher pressure options that are available.

Notes:
(i) These assemblies are not recommended for systems with flows less than 5 lpm
(ii) Aluminium body is the standard part number option

Features

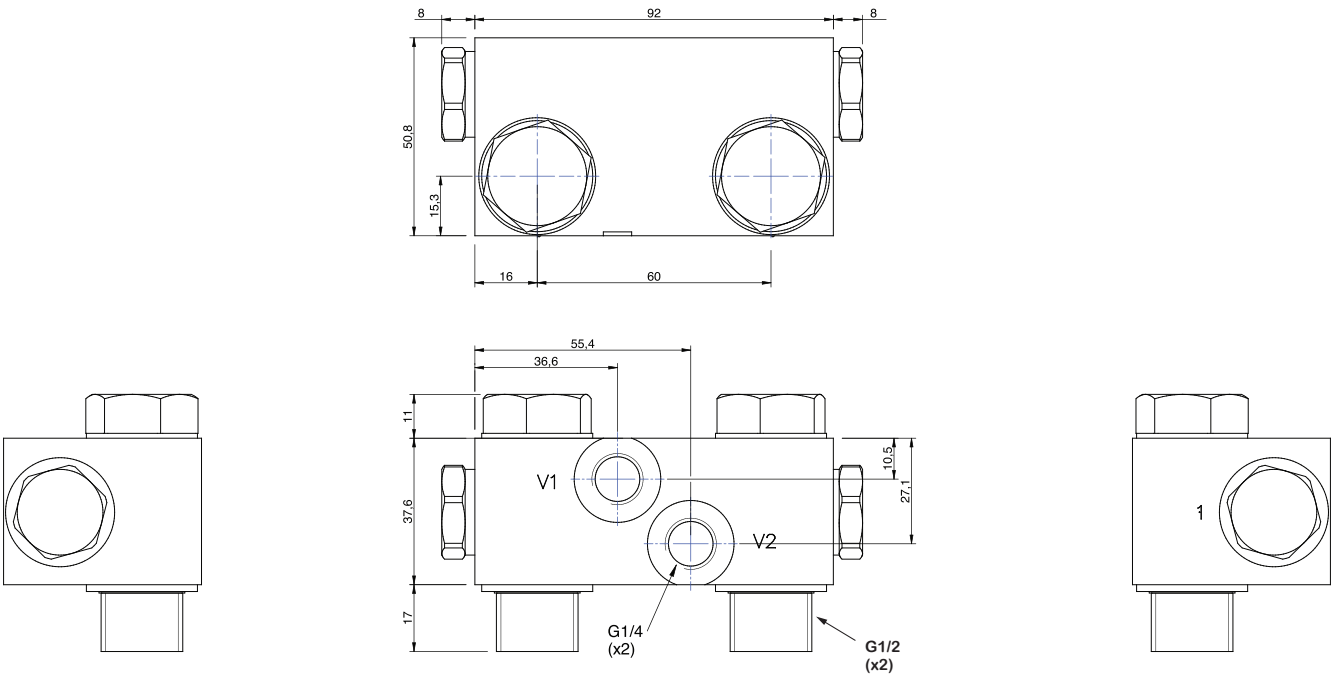
- Aluminium (anodised) or Steel (zinc plated) or material options
- Compact and low profile
- Direct mounting onto the actuator for maximum safety
- Hardened and ground parts for minimal wear and extended service life
- Uses standard size 08 cartridge valves
- Includes G12” Banjo bolts

Circuit



Flow Range (lpm)	20
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Pilot Ratio	4.5:1
Leakage rate	<= 0.1cc/min. @ 420 bar
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-30 to 110˚C
Spare Seal Kit	SK-RFLC4695
Weight	1.1 kg (alum) 1.7 kg (steel)

Dimensions



Ordering Example

RF LC4695 ** *

Valve options
00 = Std
V0 = Viton seals

Manifold Material
A = Aluminium (clear anodised)
S = Steel (350 bar max zinc, clear passivate)

Preferred Part No. - RF LC469500A

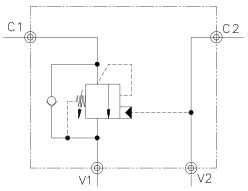
Related Fluid Power

Single load hold / load control assembly
Line Mounted

RF LC4872

Up to 350 bar max - Up to 60 lpm max

Circuit



Description

A versatile manifold control system that gives the options of single pilot operated check valve or single overcentre valve. Versatility is further extended with a wide range of valve options including but not limited to flow capacity, pressure setting, pilot ratio as well as atmospheric venting. Housed in an easy to pipe up, manifold block with in line load ports, these assemblies can be used in applications where there is a requirement for improved safety by allowing the assembly to be mounted easily and closely to cylinder ports. As well as being able to offer load holding, the overcentre options also offer benefits in terms of thermal relief protection and metering control.

NOTES:

(i) Please keep cylinder ratios in mind as a multiplier for return flow rates

(ii) Consult factory for other possible valve / build options

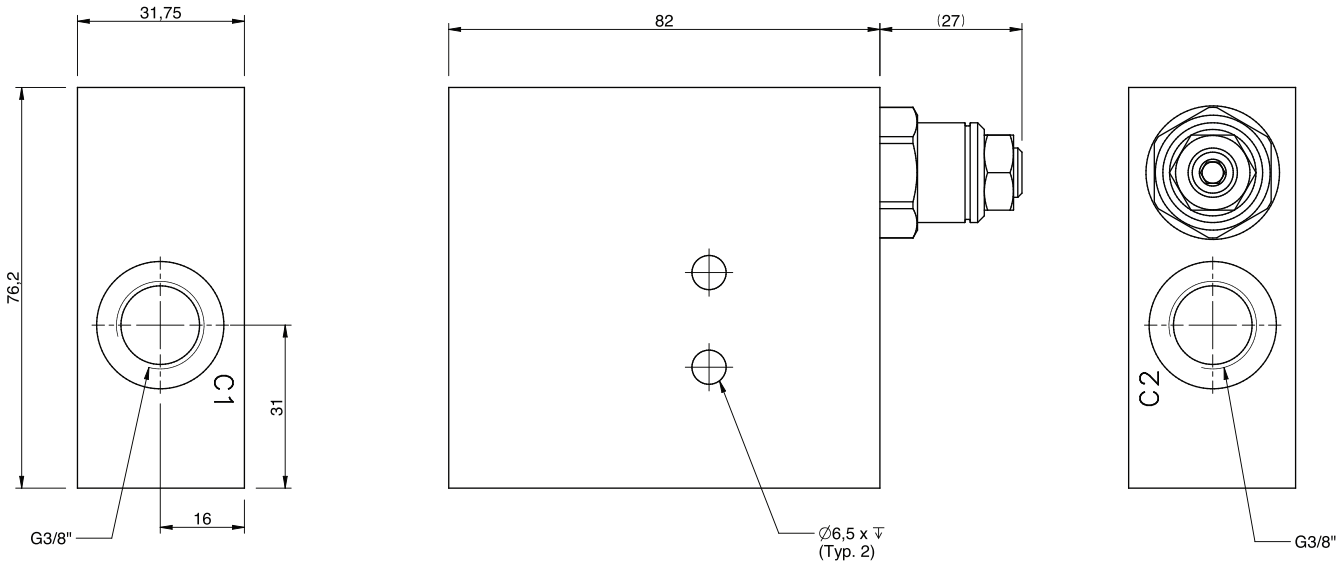
SECTION 7 LOAD CONTROLS

Features

- Multi-configuration capability
- 3/8” BSP Ports but other sizes available on request
- Ideal for multiple applications

Flow Range (lpm)	60 max
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF4872
Weight	0.62 kg (alum) 1.41 kg (steel)

Dimensions



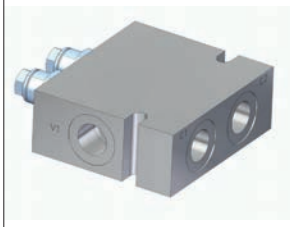
Ordering Example

RF LC4872 * * ** ** *

Valve 1 Type	Valve 1 Capacity	Valve 1 options	Valve 1 setting	Manifold Material
A = 3:1 ove re ntre (s d.)	1 = 15 lpm	00 = Std	**21** = 210 Bar** **10 Bar inc ements **21 = s d. e tting	**S** = Steel
B = 4.5:1 ove re ntre (s d.)	4 = 40 lpm	V0 = Viton e als		
C = 3:1 P.O. Chek (s d.)	6 = 60 lpm			
D = 3:1 ove re ntre (atmos e nt.)				
E = 5:1 ove re ntre (atmos e nt.)				
F = 3:1 P.O. Chek (at-mos e nt.)				

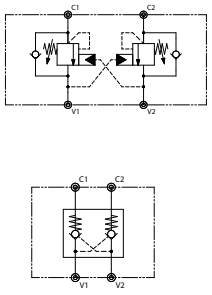
Dual P.O. Check / Dual Overcentre Assembly
Line mounted

RF LC5050



Variable, 350 bar max - Up to 60 lpm

Circuit



Description

A line mounted dual pilot operated check valve / dual over centre valve or mix. Using two separate cartridges from a selection of pilot operated check or overcentre this valve assembly is a compact and economical solution for applications that require minimal use of connections, elbow and pipes. In neutral the valves are closed with each of the poppets held again the valve seats by the bias springs. When oil flow is applied to one side of the circuit e.g. port V1, the check feature in valve 1 is overcome with oil flow exiting port C1. When there is sufficient load, a pilot signal is communicated to valve 2 allowing it to open. Oil exits the actuator returning via port C2, through valve 2, then out of port V2. On the return side, if a P.O. check is used the valve will fully open with no metering, if an overcentre valve is used, metering will be present dependant on load / pilot pressure. The same operation is seen in the reverse condition V2 > C2, C1 > C1. Atmospheric vented cartridge option (insensitive to back pressure) is available for systems using meter out flow control upstream of the valve assembly.

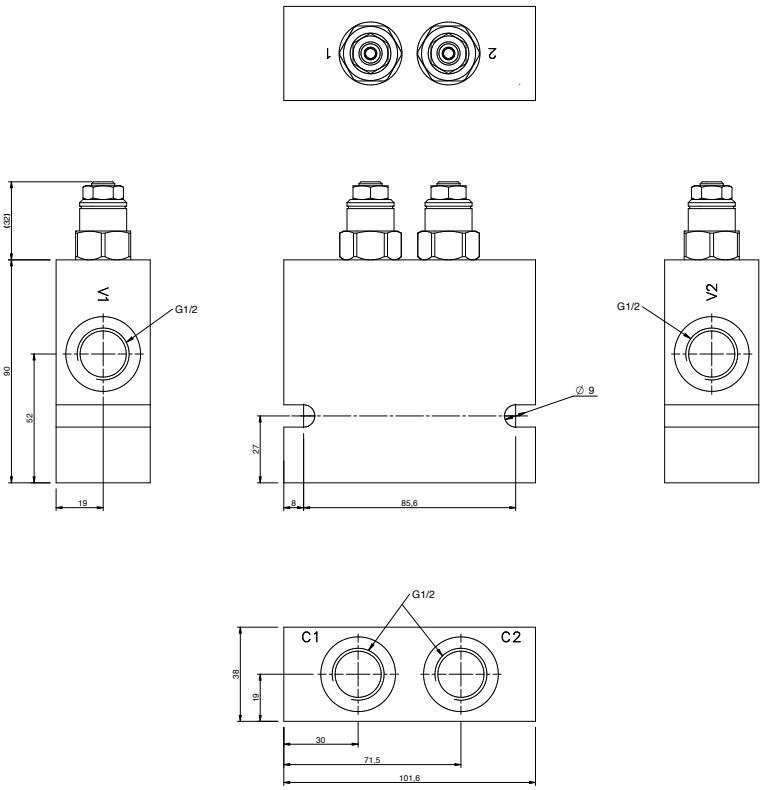
These valve assemblies can be applied a wide range of motor and cylinder applications where load holing or metering of a load is required. Such applications include but are not limited to: (i) conveyor position and drive (ii) various outrigger/stabiliser applications (iii) Articulated booms. Please contact our sales office for more information and guidance on other options that are available.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact and low profile
- Maximised internal galleries for optimised efficiency.
- Uses standard T-11A cartridge valves
- Four cartridge options available with additional options available on request

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Pilot Ratio	See options table
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-30 to 110˚C
Spare Seal Kit	SK-RFLC5050
Weight	1.1 kg (alum) 2.5 kg (steel)

Dimensions



Ordering Example

RF LC5050 * ** * ** ** *

Valve 1 type	Valve 2 Pressure setting	Valve 2 type	Valve 2 Pressure setting	Seal options	Manifold Material
A = P.O. b ek unre nted, 3:1	XX = N/A	A = P.O. b ek unre nted, 3:1	XX = N/A	00 = Std	**A** = Aluminium (c ear anodis d) 240 bar max
B = P.O. b ek re nted, 3:1	**21** = 210 Bar** **10 Bar inc ements **21** = s d. s tting	B = P.O. b ek re nted, 3:1	**21** = 210 Bar** **10 Bar inc ements **21** = s d. s tting	V0 = Viton s als	**S** = Steel, c ear (z nc pas a te) 250 bar max
C = Ove re ntre, unre nted, 3:1	Min. s tting = 70 bar	C = Ove re ntre, unre nted, 3:1	Min s tting = 70 bar		
D = Ove re ntre, re nted, 3:1	Max s tting = 210 bar	D = Ove re ntre, re nted, 3:1	Max s tting = 210 bar		

Related Fluid Power

SECTION 8
MOTOR CONTROLS

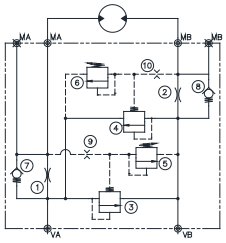
Dual Pressure Compensated Flow Control c/w Relief

G1/2" Banjo mounted, G3/4" Ports

RF MC3909

Up to 350 bar - Up to 170 lpm

Symbol



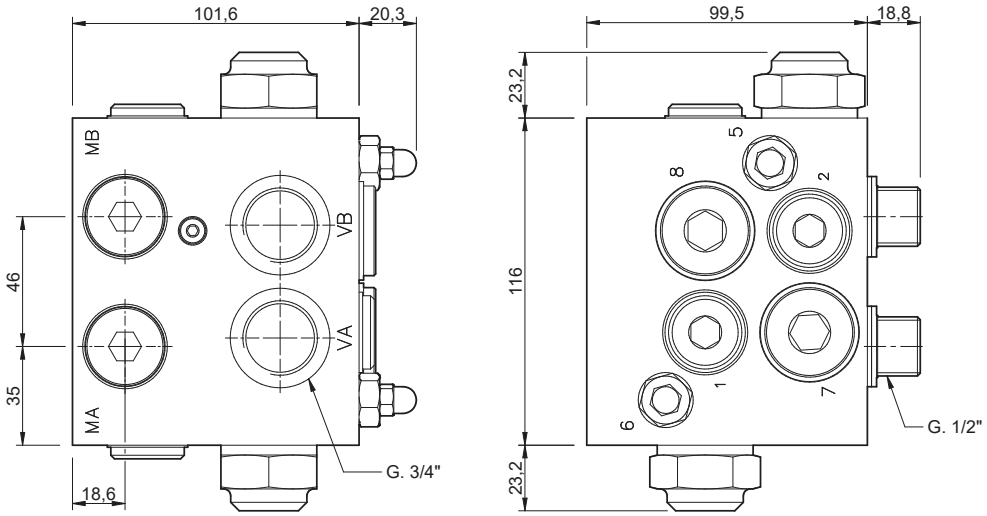
Description

Ideal for various applications where speed control of an actuator in both directions is required. These controls offer meter in priority flow control with relief protection in both directions. Designed to accept a high input flow, the controls use a fixed orifice to limit the maximum priority flow supplied to the actuator regardless of load variations. A small relief valve sensing on each priority output acts as a pilot stage for the main compensator element relieving flow to the bypass port. High performance check valves on each side of the circuit allow return flow from the actuator to pass back to tank with minimal loss.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optimised design for low pressure drop.
- Fixed setting, no externally adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Compact, efficient design
- Up to 170 Lpm inlet (120 Lpm max. bypass).

Dimensions



Ordering Example

RF MC3909 — ** — ** — ** — ** / *

Priority Flow Rate V1-M1
30 = 30 Lpm
80 = 80 Lpm
**5 Lpm increments
80 = max setting
40 = std. setting

Priority Flow Rate V2-M2
30 = 30 Lpm
80 = 80 Lpm
**5 Lpm increments
80 = max setting
40 = std. setting

Pressure Setting V1-M1
21 = 210 Bar**
**10 Bar increments
****17** = std. setting

Pressure Setting V2-M2
21 = 210 Bar**
**10 Bar increments
****17** = stnd. setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF MC390940401717S

Related Fluid Power

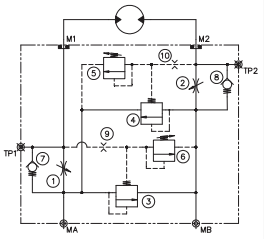
Dual Pressure Compensated Flow Control c/w Relief

Motor mounted, to suit White WP & Danfoss OMP/OMR motors, G3/4"

RF MC3993

Up to 250 bar - Up to 170 lpm

Symbol



Description

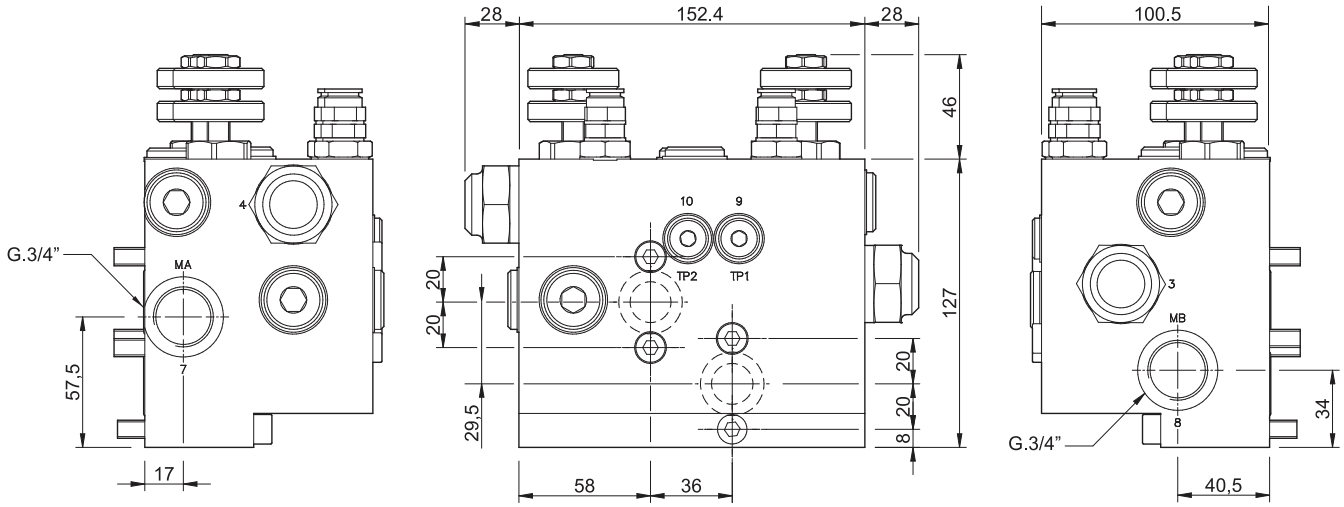
Ideal for various applications where speed control of a motor in both directions is required. These controls offer meter in priority flow control with relief protection in both directions. Designed to accept a high input flow, the controls use an adjustable orifice to limit the maximum priority flow supplied to the actuator regardless of load variations. A small relief valve sensing on each priority output acts as a pilot stage for the main compensator element relieving flow to the bypass port. High performance check valves on each side of the circuit allow return flow from the actuator to pass back to tank with minimal loss.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optional port positions
- Variable setting, adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Compact, efficient design

Flow Range (lpm)	170lpm inlet, 120lpm max. bypass
Max. Pressure (bar)	250
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFFC3993
Weight	6.2 kg (alum) 13.3 kg (steel)

Dimensions



Ordering Example

RF MC3993 – ** – ** / *

Pressure Setting V1-M1
21 = 210 Bar**
**10 Bar increments
17 = std. setting

Pressure Setting V2-M2
21 = 210 Bar**
**10 Bar increments
17 = std. setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF MC39931717S

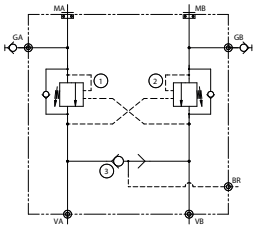
SECTION 8 MOTOR CONTROLS

Motor control - Dual overcentre & brake shuttle
Interface (B) – Danfoss OMP & OMR. Flange Mounted

RF MC5029

Variable, 350 bar max - Up to 60 lpm

Circuit



Description

This is a dual overcentre valve assembly which flanges direct onto a Danfoss OMP/OMR type motor or equivalent. The functions of this assembly are: (i) to prevent unwanted motor movement when the system is not actively pressurised (ii) provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor load.

Operation of the assembly is as follows: (i) The check section of the overcentre allows free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises (ii) a pressure signal is communicated over the shuttle to release the brake & (iii) a pilot signal is affected on the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

The relief valve section is normally set at 1.3 times the expected load induced pressure

Pressure required to open the overcentre and start actuator movement is as follows:

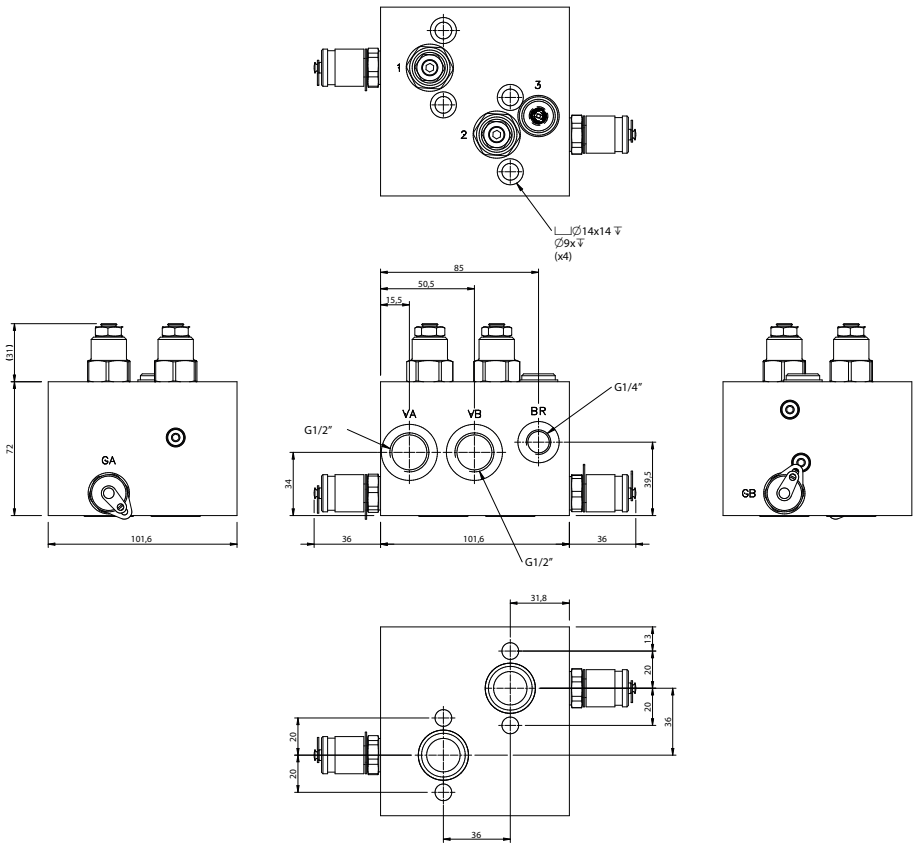
Pressure to start motion in motor circuits = [Valve relief setting] – [Load pressure] / [Pilot Ratio] + 1

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Pilot Ratio = 4.5:1 (standard), other pilot rations available on request
- Compact, efficient design with direct flange mounting to motor for reduced pipe work and potential leak points
- Easy access, in-line porting

Flow Range (lpm)	60
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMC5029
Weight	2.2 kg (alum) 5.4 kg (steel)

Dimensions



Ordering Example

RF MC5029 * * ** **

Nom. Flow Range	Pilot Ratio	Pressure setting	Valve options
A = 0-15 lpm	3 = 3:1	**21** = 210 Bar**	00 = Std
B = 0-30 lpm	5 = 4.5:1(std.)	**10 Bar increments	V0 = Viton seals
C = 0-60 lpm		***21* = std. setting	

** **

Special Options
00 = includes bolts, seals and pressure test points
01 = includes bolts & seals only

*

Manifold Material
A = Aluminium (clear anodised)
S = Steel, clear (zinc passivate)

Preferred Part No. - RF MC5029C3210000A

Motor control - Dual overcentre with brake shuttle & pressure reducing valves Interface – Rexroth A2FE 90

RF MC5115

Up to 350 bar max. - Up to 240 lpm

Description

This is a dual overcentre valve assembly which flanges direct onto a Rexroth A2FE90 type motor or equivalent. The functions of this assembly are: (i) to prevent unwanted motor movement when the system is not actively pressurised (ii) provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor load.

Operation of the assembly is as follows: (i) The check section of the overcentre allows free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises (ii) a pressure signal is communicated over the shuttle and through the reducing valve to release the brake & (iii) a pilot signal is affected on the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

The relief valve section is normally set at 1.3 times the expected load induced pressure

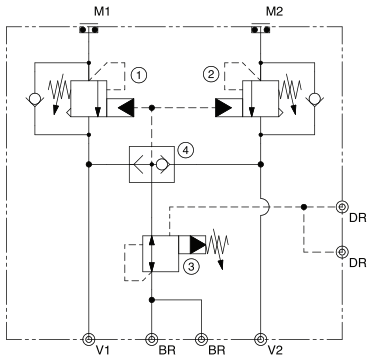
Pressure required to open the overcentre and start actuator movement is as follows:

Pressure to start motion in motor circuits = [Valve relief setting] – [Load pressure] / [Pilot Ratio] + 1

Features

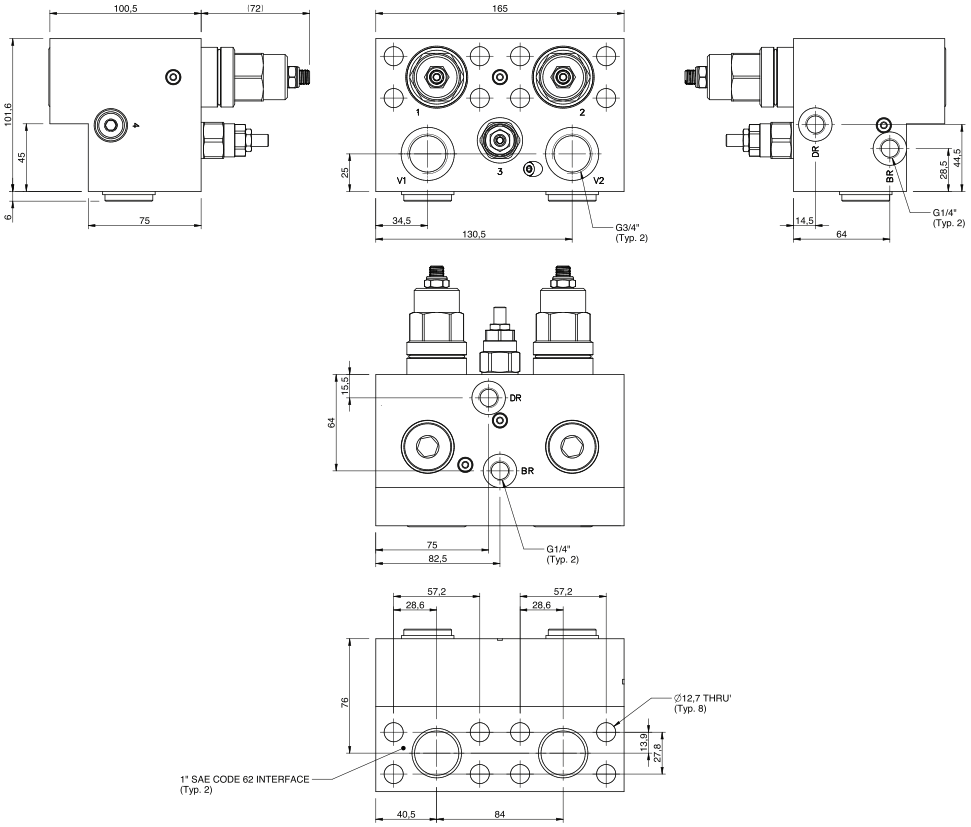
- Aluminium (anodised) or Steel (zinc plated) material options
- Pilot Ratio = 5:1 (standard), other pilot ratios available on request
- Compact, efficient design with direct flange mounting to motor for reduced pipe work and potential leak points
- Easy access porting
  - o Optional input port positions
  - o Optional Brake and drain port positions
- Insensitive to system back pressures

Circuit



Flow Range (lpm)	240
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMC5115
Weight	5.2 kg (alum) 10.7 kg (steel)

Dimensions



Ordering Example

RF MC5115 ** * ** ** ** *

Reducer - Pressure setting	Pilot Ratio	Overcentre -Pressure setting	Valve options	Special Options	Manifold Material
20 – 40 bar range **1 Bar increments ****25** = std. setting	3 = 3:1 5 = 4.5:1(std.)	140-420 bar range (5:1 ratio) **21** = 210 Bar** **10 Bar increments ****28** = std. setting	**00** = Std **V0** = Viton seals	**00** = includes bolts, seals and pressure test points **01** = includes bolts & seals only	**A** = Aluminium (clear anodised) **S** = Steel (zinc, clear passivate)

Preferred Part No. - RF MC51152552800000S

Motor control - Dual overcentre with brake shuttle & pressure reducing valves Interface – Rexroth A2FE 125

RF MC5116

Up to 350 bar max. - Up to 240 lpm

Description

This is a dual overcentre valve assembly which flanges direct onto a Rexroth A2FE125 type motor or equivalent. The functions of this assembly are: (i) to prevent unwanted motor movement when the system is not actively pressurised (ii) provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor load.

Operation of the assembly is as follows: (i) The check section of the overcentre allows free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises (ii) a pressure signal is communicated over the shuttle and through the reducing valve to release the brake & (iii) a pilot signal is effected on the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

The relief valve section is normally set at 1.3 times the expected load induced pressure

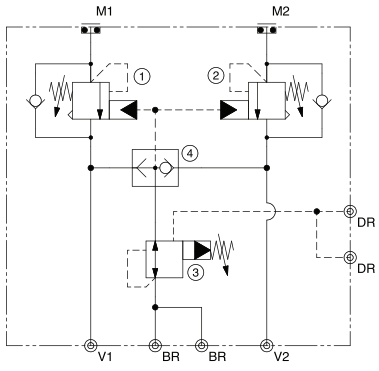
Pressure required to open the overcentre and start actuator movement is as follows:

Pressure to start motion in motor circuits = [Valve relief setting] – [Load pressure] / [Pilot Ratio] + 1

Features

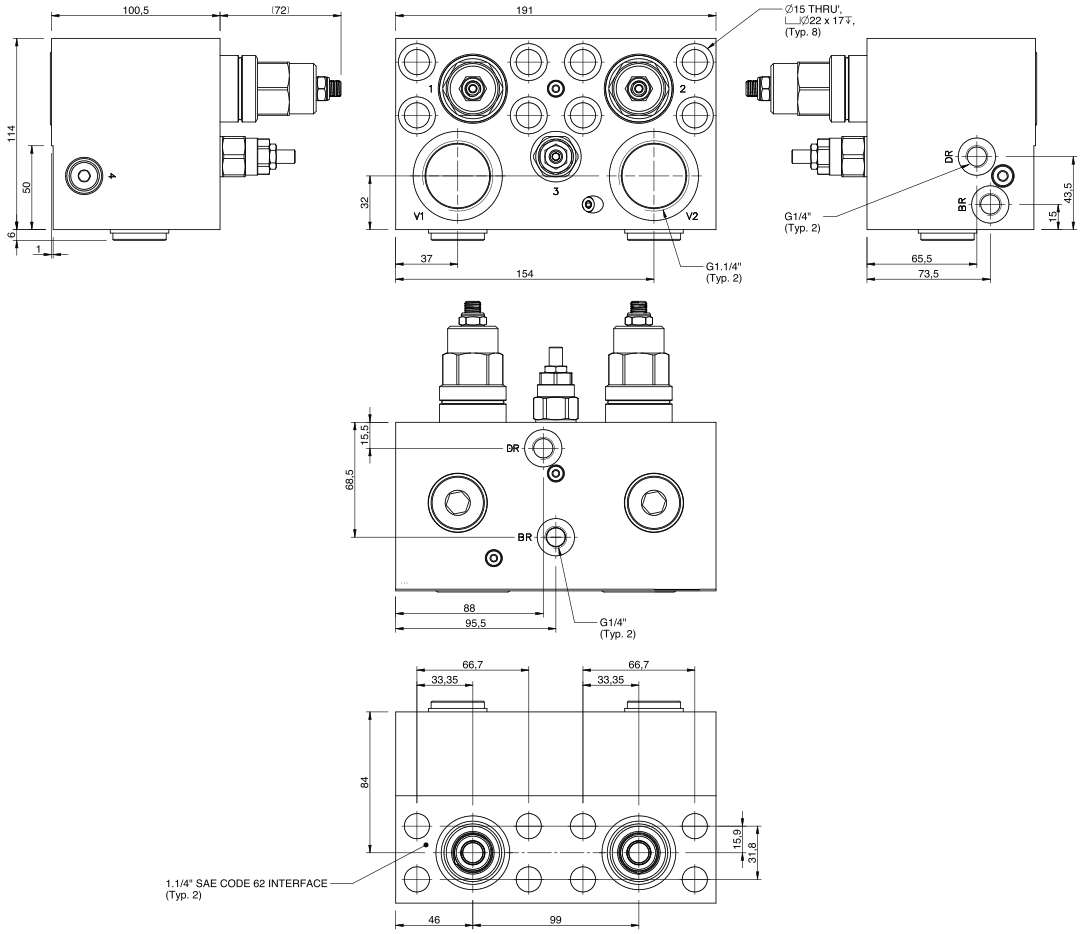
- Aluminium (anodised) or Steel (zinc plated) material options
- Pilot Ratio = 5:1 (standard), other pilot ratios available on request
- Compact, efficient design with direct flange mounting to motor for reduced pipe work and potential leak points
- Easy access porting
  - o Optional input port positions
  - o Optional Brake and drain port positions
- Insensitive to system back pressures

Circuit



Flow Range (lpm)	240
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF5116
Weight	6.6 kg (alum) 14.7 kg (steel)

Dimensions



Ordering Example

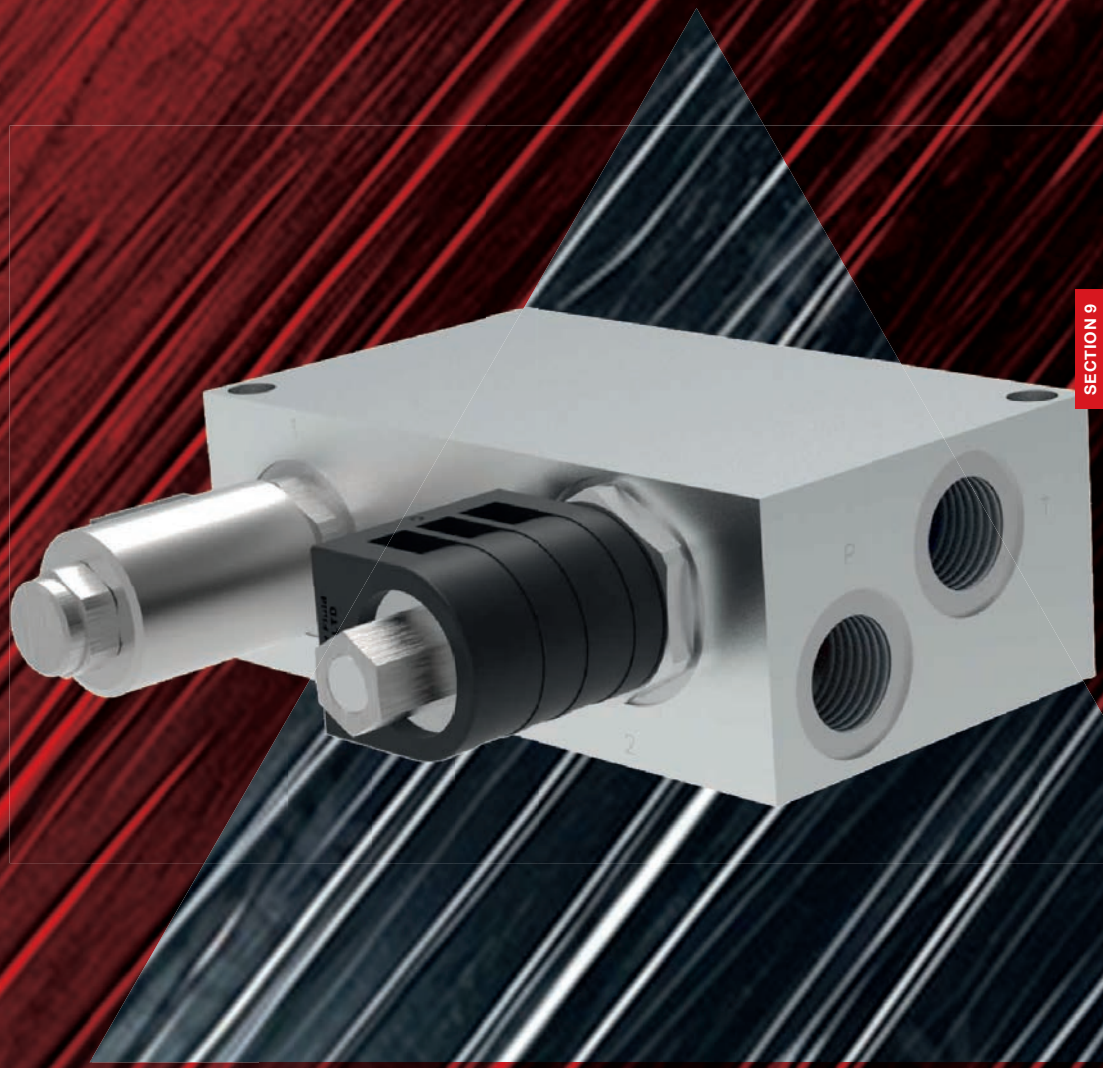
RF MC5116 ****** ***** ****** ****** ****** *****

Reducer - Pressure setting	Pilot Ratio	Overcentre -Pressure setting	Valve options	Special Options	Manifold Material
20 – 40 bar range **1 Bar increments ****25** = std. setting	**3** = 3:1 **5** = 4.5:1(std.)	140-420 bar range(5:1 ratio) **21** = 210 Bar** **10 Bar increments ****28** = std. setting	**00** = Std **V0** = Viton seals	**00** = includes bolts, seals and pressure test points **01** = includes bolts & seals only	**A** = Aluminium (clear anodised) **S** = Steel (zinc, clear passivate)

Preferred Part No. - RF MC5116255280000A

Related Fluid Power

SECTION 9
MULTI FUNCTION



Multi-function, Cross Port, Valve Control.

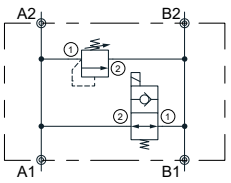
Dual cartridge

RF MF232

Up to 350 bar

The RF 232 is a cross port valve control suitable for a wide range of motor and cylinder applications. The design layout with two sets of through ports allows for easy inline piping from valve to actuator. Two valve cavities are teed across the lines in parallel. These cavities can be fitted with cartridges from our standard range of two way, size 10 valves. Various valve functions are available to achieve speed control as well as offer over-pressure or anti-cavitation protection.

Typical Schematic



Features

- Multi-function capability.
- Compact and efficient design.
- Various options, seals, overrides, pressure settings etc..

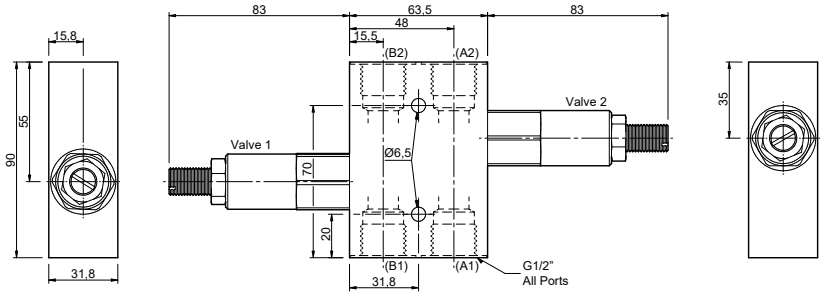
Flow Range (lpm)	50 (Nominal)
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFMF232*
Weight	1.0 kg (alum) 1.6 kg (steel) Approx.

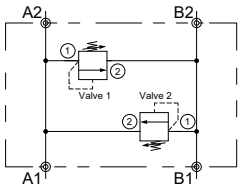
Control Options

Dimensions

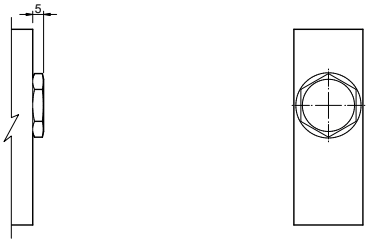
Symbol

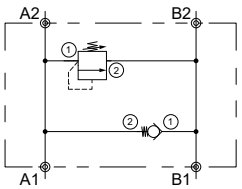
RA / RD



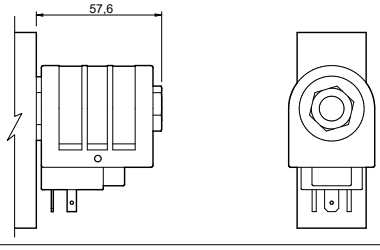


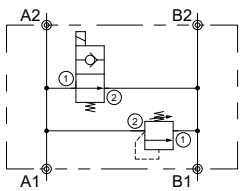
RD / CR



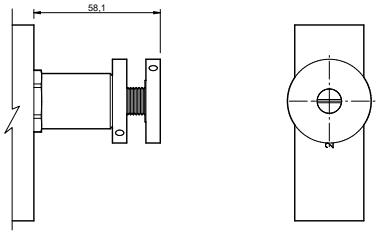


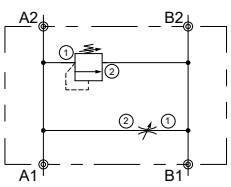
RA / SD





RD / NB

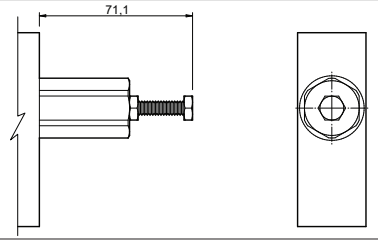
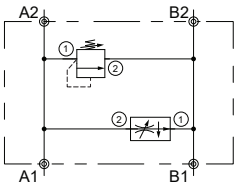
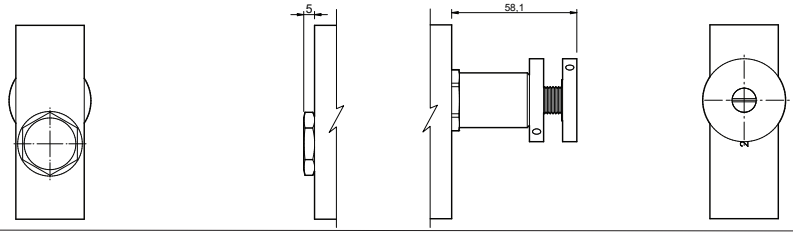
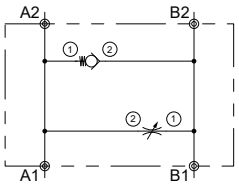
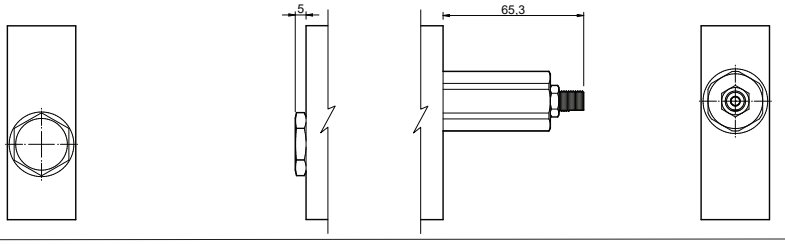
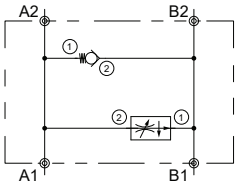
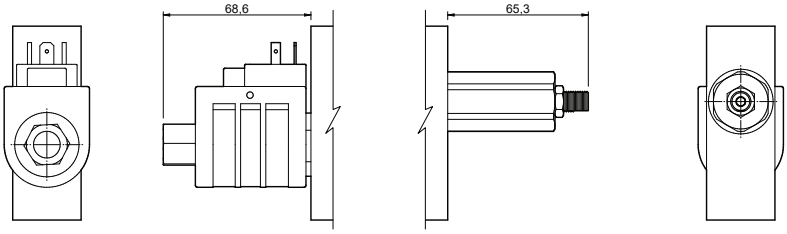
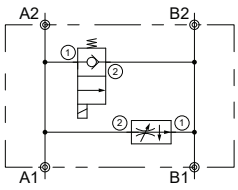
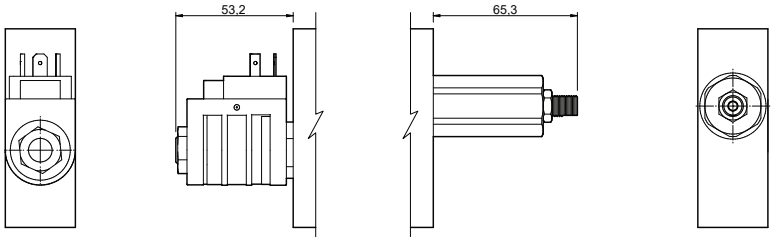
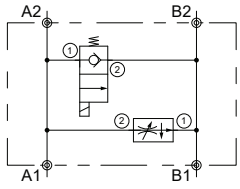




Multi-function, Cross Port, Valve Control.

Dual cartridge

RF MF232

Control Options	Dimensions	Symbol
RD / FA		
CA / NB		
CA / FC		
SC / FC		
SA / FC		

Related Fluid Power

G3/8" Multi-function, cross port, valve control
Dual cartridge

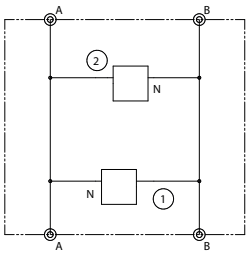
RF MF1202

Up to 240 bar - Variable lpm

Description

The RF 1202 is a cross port valve control suitable for a wide range of motor and cylinder applications. The design layout with two sets of through ports allows for easy inline piping from valve to actuator. Two valve cavities are teed across the lines in parallel. These cavities can be fitted with cartridges from our standard range of two-way, size 08 valves. Various valve functions are available to achieve speed control as well as offer over-pressure or anti-cavitation protection.

Circuit



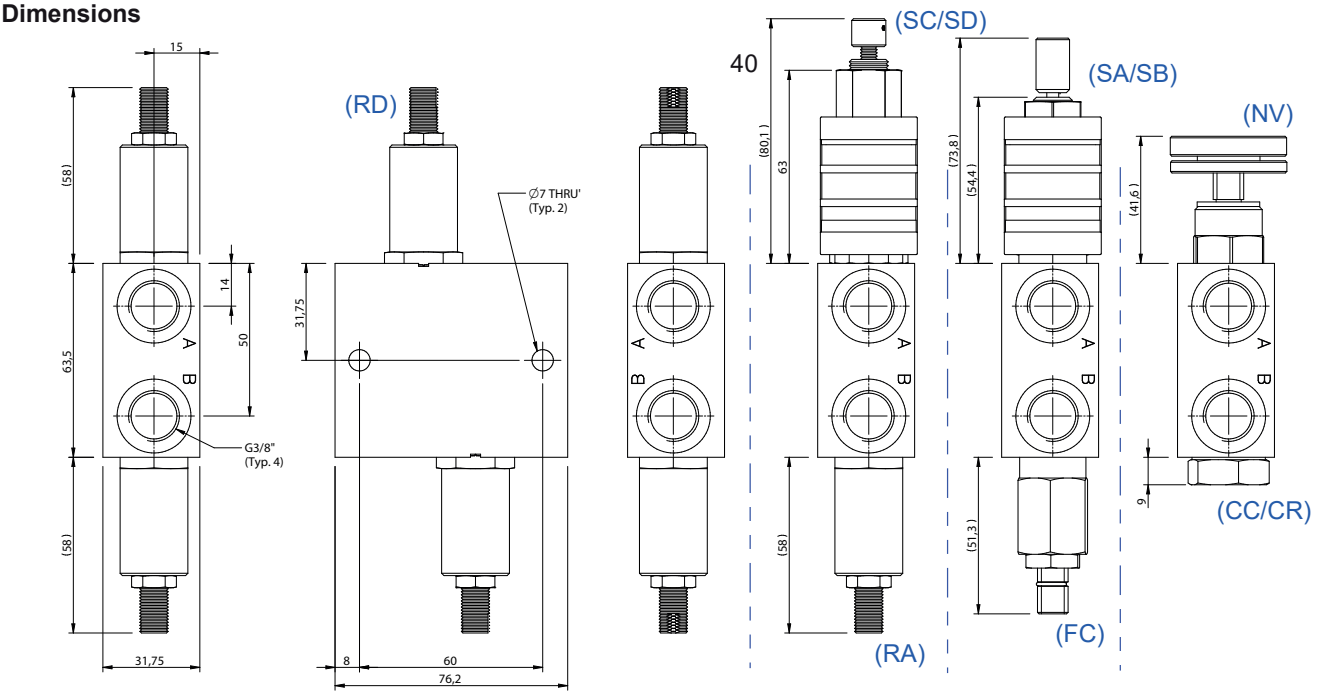
Features

- Multi-function capability
- Compact and efficient design
- Various options, seals, overrides, pressure settings etc.
- 240 bar capability depending on valve and body material selection, higher pressure capability confirmed on request. Contact factory for further information.

Specifications

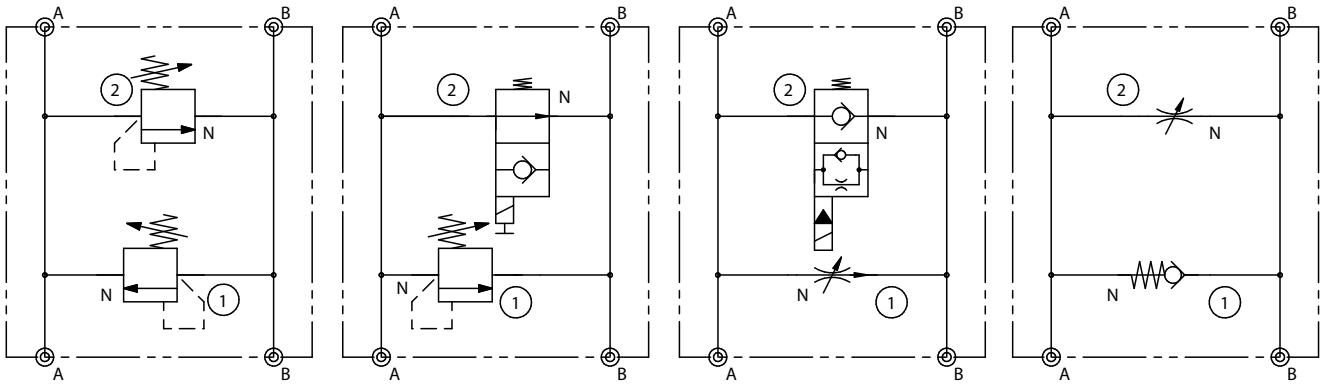
Flow Range (lpm)	40
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RF1202* (Valve dependant)
Weight (Typ.)	1.0 kg (alum) 1.6 kg (steel) Approx

Dimensions



SECTION 9
MULTI FUNCTION

Typical Circuits



Ordering Code

RF MF1202 ** * ** ** * ** *

Valve Type
RA - Direct acting relief (30lpm)
RD - Differential relief (25lpm)
CC - Direct acting check, g.ball (20lpm)
CR - Reverse flow check (20lpm)
SA - 2 way N.C. poppet (30lpm)
SB - 2 way N.C. poppet (30lpm)
SC - 2 way N.O. poppet (30lpm)
SD - 2 way N.O. poppet (30lpm)
NV - Adj, flow control (18lpm @ 5.5bar)
FC - Adj, flow control, pres. comp (2-20lpm)
Note. alternative valves maybe available. Not all suitable for 350bar. Consult sales for options.

Valve Options
A - Nitrile
B - Viton
C - Nitrile & Knob
D - Viton & Knob
E - Nitrile, o/ride, detent (Sol only)
F - Viton, o/ride, detent (Sol only)
For further options see specific valve data sheet

Voltage / Pressure & Flow range
H1 - 12 Vdc Din
H2 - 24 Vdc Din
D1 - 12 Vdc Deutsch
D2 - 24 Vdc Deutsch
01 - 15 to 60 bar (RA)
02 - 25 to 135 bar (RA)
03 - 50 to 220 bar (RA)
04 - 120 to 350 bar (RA)
05 - 10.5 to 48 bar (RD)
06 - 17 to 230 bar (RD)
07 - 0.3 bar (CC)
08 - 0.7 bar (CC / CR)
09 - 1.4 bar (CR)
10 - 2.1 bar (CC)
XX - Closed (NV)
02>20 - 2>20 lpm, increments of 1lpm (FC)

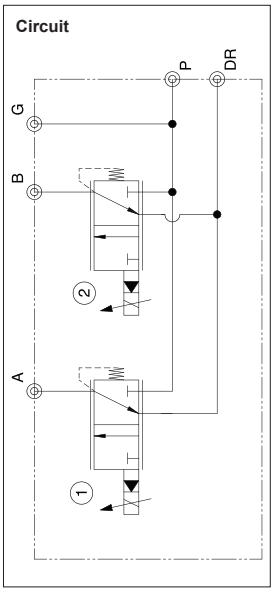
Body Material
A - Aluminium
S - Steel
For pressures over 210 bar use steel.

Preferred Standard Model Code(s):
RF MF1202RAA03RAA03A / RF MF1202RAA03SCAH1A
RF MF1202RDA06RDA06A / RF MF1202RAA03SCAH2A

Dual Proportional Pressure Reducing Assembly
Line Mounted

RF MF1363

Up to 240 bar max - Up to 30 lpm



Description

A line mounted dual proportional pressure reducing valve assembly which can be used in multiple applications where reduced pressure is required in either of two directions. The assembly is able to replace a conventional P blocked, A & B > T directional but has the benefit of being able to offer variable pressure (force) control on one side of the actuator. Typical applications may include but are not limited to: operation of a servo cylinder on variable displacement pumps, force control on a double acting cylinder or two single acting cylinders. Operation of the solenoids is via PWM current control.

Notes:

- Any back pressure seen at the valve port is directly additive to the valve setting
- Excludes PWM driver(s)
- Contact factory for any non-listed requirements

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Easy access in-line porting
- Low profile, compact and efficient design
- Continuously rated solenoids

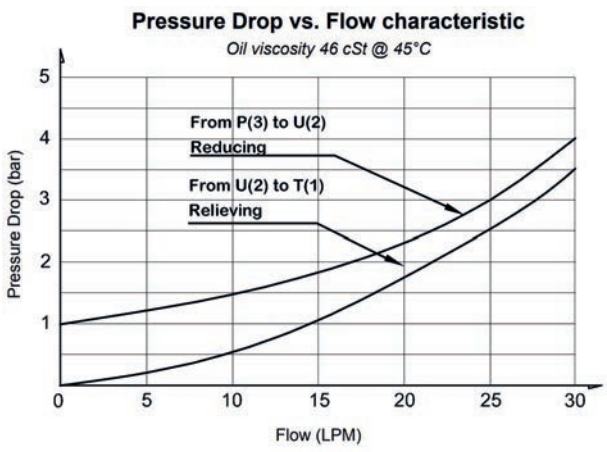
Valve Specifications: 9

Flow Range (lpm)	30
Max Pressure (bar)	05 = 50 bar 14 & 21 = 240 bar
Hydraulic Oil	General purpose hydraulic fluid
Control Pressure Ranges	See Graphs
Max pressure @ T port	20 bar
Viscosity Range	3 to 420 cSt
Max internal leakage	05 - 700 ml/min @ 50 bar inlet press 14 & 21 - 1500 ml/min @ 200 bar inlet press
Filtration	ISO 18/16/13
Operating Temp.	-30 to 100˚C
Spare Seal Kit	SK-RFMF1363
Weight	2.0 kg (alum) 3.8 kg (steel)

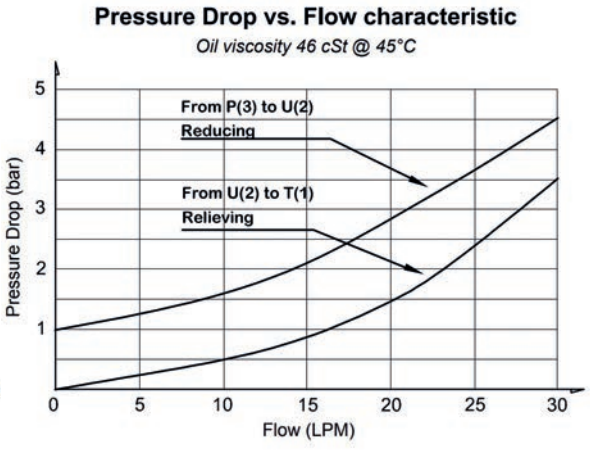
Coil Specifications: 9

Current Supply Characteristics	PWM
Rated Current Range	05: 100-1000mA – 12 Vdc 50 – 500mA – 24 Vdc 14 & 21: 100-1200mA – 12 Vdc 50 – 600mA – 24 Vdc
PWM dither frequency	150-200 Hz
Coil resistance (+/- 5%, @ 20deg. Celcius)	05: 7.8 Ohms – 12 Vdc 32 Ohms – 24 Vdc 14 & 21: 6.85 Ohms – 12 Vdc 27 Ohms – 24 Vdc
Max power consumption	05 = 18 Watts 14 & 21 = 21 Watts

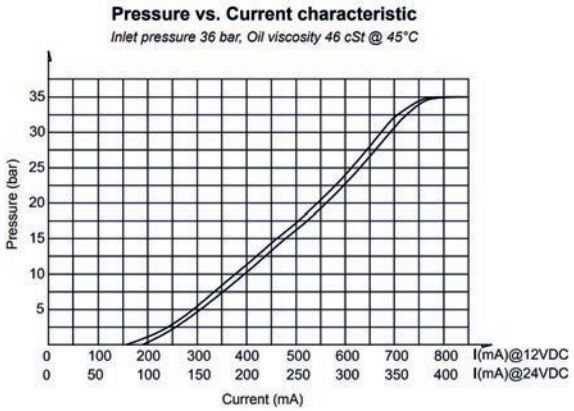
GRAPH PRESSURE DROP LOW



GRAPH PRESSURE DROP HIGH



GRAPH PRESSURE-CURRENT LOW



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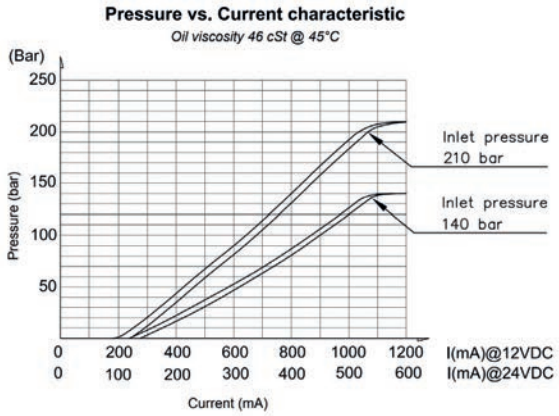
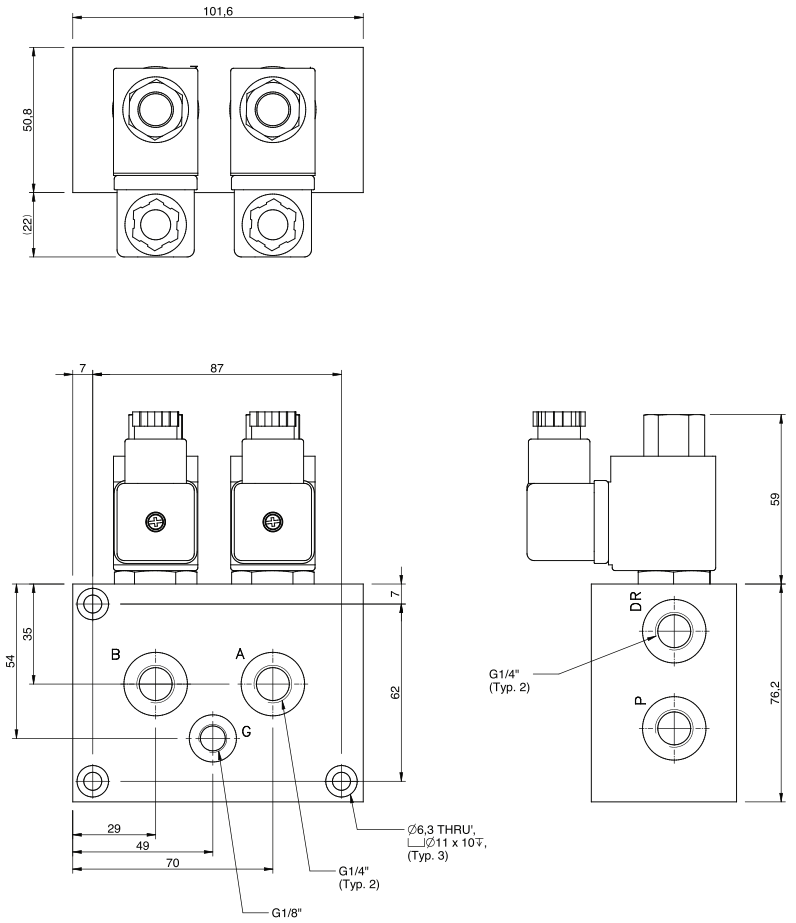


SECTION 9 MULTI FUNCTION

Dimensions



Ordering Example

RF MF1363 ****** ****** ****** ****** *****

Pressure range	Valve options	Coil Termination	Voltage	Manifold Material
05 = 50 Bar max inlet pressure, 0-35 bar reduced pressure	**00** = Std seals	**H** = DIN, EN 175301-803	**1** = 12 Vdc	**A** = Aluminium (clear anodised)
14 = 240 Bar max inlet pressure, 0-140 bar reduced pressure	**V0** = Viton seals	**D** = Deutsch, DT04	**2** = 24 Vdc	**S** = Steel, clear (zinc passivate)
21 = 240 Bar max inlet pressure, 0-210 bar reduced pressure		******Other coil terminations available on request.	******Other voltages available on request	

Quick Hitch Valve
Quick Hitch Valve with Pilot Operated Check on 'A'

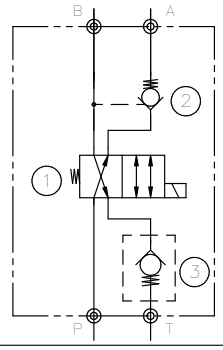
RF MF1478

Up to 310 bar

Description

The quick hitch valve is used to control the "close/open" function by electrical selection from within the cab.
The pilot operated check valve (2) on port 'A' provides load holding when this function is not present on the hitch.
Optional Tank line check

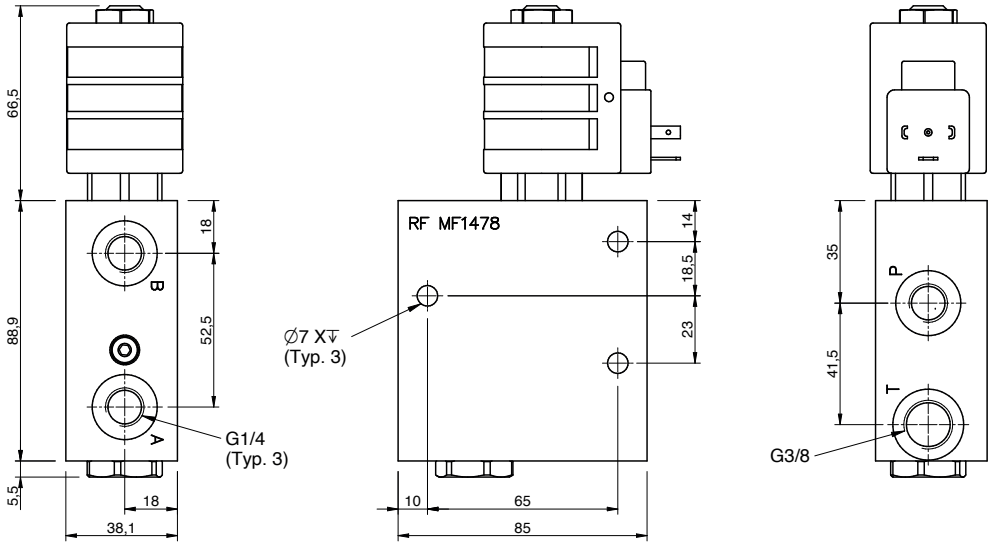
Schematic



Specifications

Port Size (BSP)	A-B-P: 1/4" - T: 3/8"	Voltage	12 or 24 Vdc
Max Pressure (bar)	310	Body Material	Steel
Cartridge Material	Steel	Hydraulic Oil	General Purpose Hydraulic Fluid
Viscosity Range	3 to 640 cSt	Operating Temperature	-30˚C to + 95˚C
Filtration	ISO 18/16/13	Weight	2.9kg

Dimensions



Ordering Code

RF MF1478 ****** *******

Check Valve
00 - Not required
CV - Check Valve 1 bar / T line

Voltage
H12 - 12 Vdc (DIN)
H24 - 24 Vdc (DIN)
D12 - 12 Vdc (Deutsch)
D24 - 24 Vdc (Deutsch)

SECTION 9 MULTI FUNCTION

Relief unloader assembly
Line mounted

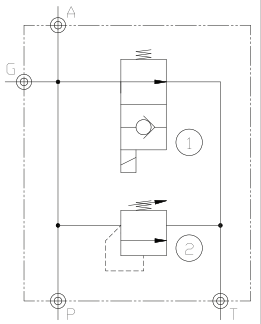
RF MF1500

Up to 210 bar - Up to 80 lpm

Description

The RF 1500 is a valve assembly with a dedicated function to unload pressure and flow in a hydraulic system. Common application is for use directly after a pump in a hydraulic circuit. In neutral the valve assembly unloads oil to tank at a low pressure drop ensuring that there is minimal heat generation. When the solenoid valve is energised the oil pathway to tank is closed allowing system pressure to be raised. A pressure relief valve is present to limit the maximum system pressure.

Circuit

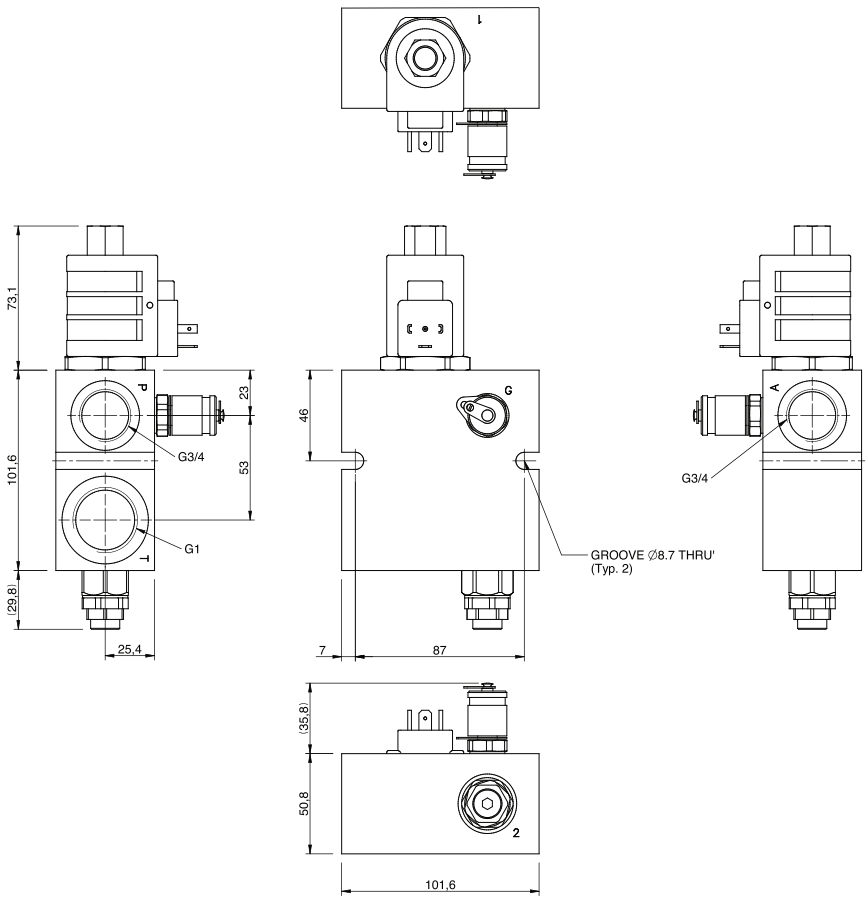


Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multi-function capability
- Compact and efficient design
- Wide adjustment range on relief valve
- Consult factory for possible other options.
- Pressure test point fitted as standard for easy setting and monitoring of system pressure.

Flow Range (lpm)	80
Max. Pressure (bar)	210
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF1500
Weight	1.8 kg (alum) 3.8 kg (steel)

Dimensions



Ordering Example

RF MF1500 ** ** * ** *

Valve options	Pressure setting	Coil Termination	Voltage	Material
As per cartridge data sheet i.e.	**21** = 210 Bar** **10 Bar increments up to 210 bar **21 = std. setting	**H** = DIN, EN 175301-803	1 = 12 Vdc	A = Alum (anodised, clear)
00 = Std seals		**D** = Deutsch, DT04	2 = 24Vdc	S = Steel (zinc, clear passivate)
V0 = viton seals		**Other coil terminations available on request.	**Other voltages available on request	
0K =override knob, standard seals				
VK, override knob, Viton seals				

Preferred Part No. - RF MF150000H1A / RF MF150000H2A

Quick Hitch Valve

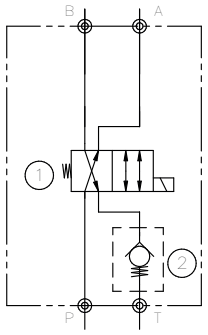
RF MF1774

Up to 310 bar

Description

The quick hitch valve is used to control the “close/open” function by electrical selection from within the cab.
Optional Tank line check

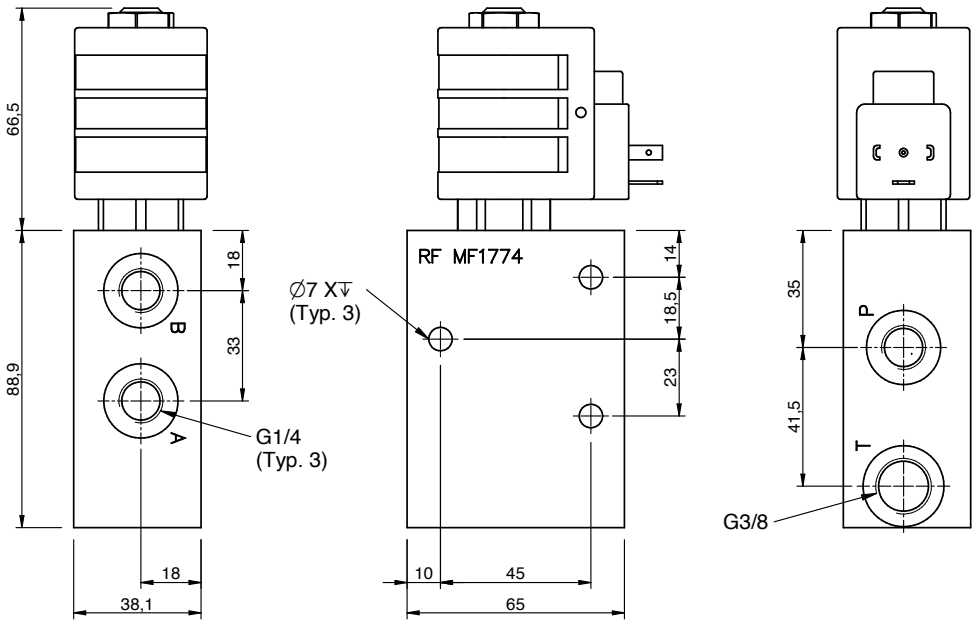
Schematic



Specifications

Port Size (BSP)	A-B-P: 1/4” - T: 3/8”	Voltage	12 or 24 Vdc
Max Pressure (bar)	310	Body Material	Steel
Cartridge Material	Steel	Hydraulic Oil	General Purpose Hydraulic Fluid
Viscosity Range	3 to 640 cSt	Operating Temperature	-30˚C to + 95˚C
Filtration	ISO 18/16/13	Weight	2.4kg

Dimensions



Ordering Code

RF MF1774 ****** *******

Check Valve
00 - Not required
CV - Check Valve 1 bar / T line

Voltage
H12 - 12 Vdc (DIN)
H24 - 24 Vdc (DIN)
D12 - 12 Vdc (Deutsch)
D24 - 24 Vdc (Deutsch)

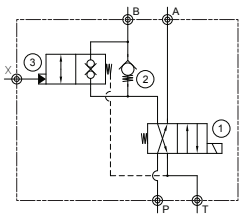
Related Fluid Power

Quick Hitch Valve
5 Port Type, Cartridge Directional Control Valve

RF 2463

Up to 350 bar - 30 lpm

Schematic



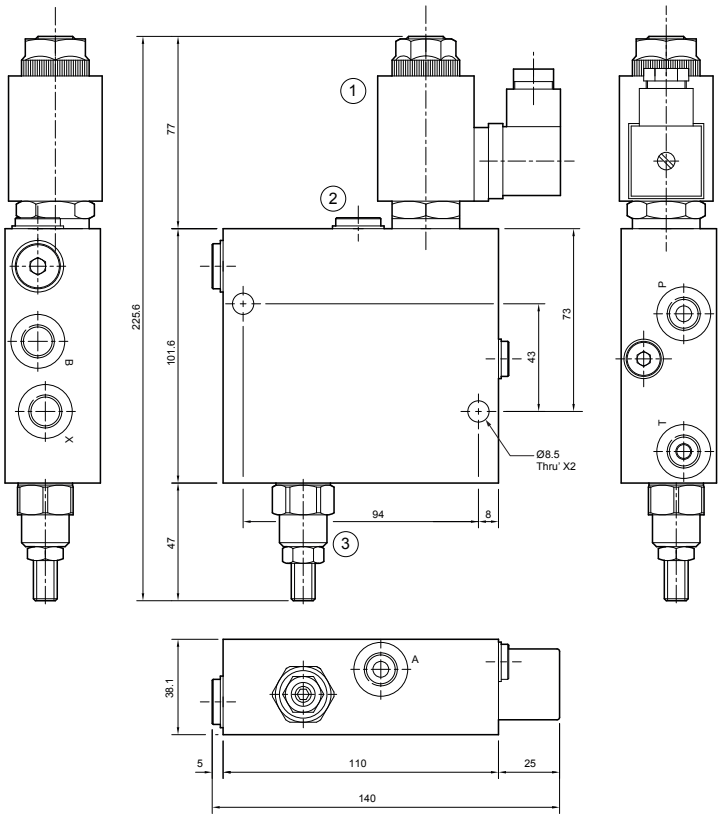
Description

The Quick Hitch Valve is used to control the close / open function by electrical selection from within the cab. This valve has a remote pilot feature creating a hydraulic safety interlock.
Robust steel manifold, zinc plated for corrosion protection in arduous environments. High quality, 350 bar (peak pressure) rated solenoid valve, with Din plug (IP65) as standard.
All solenoids are continuously rated, power efficient, and have a generous operating voltage tolerance.

Specifications

Port Size (BSP)	P-T-A-B: 1/4”	Voltage	12 or 24 Vdc
Max. Pressure (bar)	350	Body Material	Steel
Cartridge Material	Steel	Hydraulic Oil	General Purpose Hydraulic Fluid
Viscosity Range	3 to 640 cSt	Operating Temperature	-30˚C to + 95˚C
Filtration	ISO 18/16/13		

Dimensions



Ordering Example

RF 2463 ***** **

Pilot valve setting
180 = 180 bar
280 = 280 bar
Other settings available on request

Voltage
12 = 12 Vdc
24 = 24 Vdc

SECTION 9 MULTI FUNCTION

Pressure reducer and selector assembly
Line mounted, G1/4”

RF MF3023

210 bar - 17 lpm on inlet

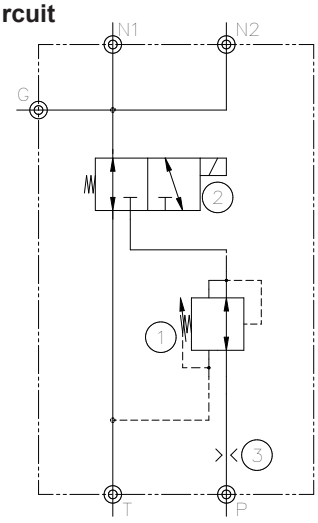
Description

A manifold control system comprising of a 3W2P position solenoid operated spool valve along with a pilot operated pressure reducing valve. In the de-energised condition oil is prevented from being delivered to the service ports, while the connection from the service ports is vented to tank. When energised, the service port connection to tank is closed and oil is allowed to pass to the service ports at a pressure limit determined by the setting of the pressure reducing valve. A dampening orifice is provided on the inlet to the valve circuit to offer protection to the valves from flow surges. These valve systems are used in a wide variety of applications where remote variable supply to actuators is required, typical applications include but are not limited to: (i) off-highway braking (ii) multi speed motor – displacement control (iii) pump displacement control (iv) SA cylinder force control. (v) clutch control. Please contact our sales office for more information and guidance on higher pressure options that are available.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Dual service ports
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation of solenoid valve
- Multiple Voltage and coil termination options

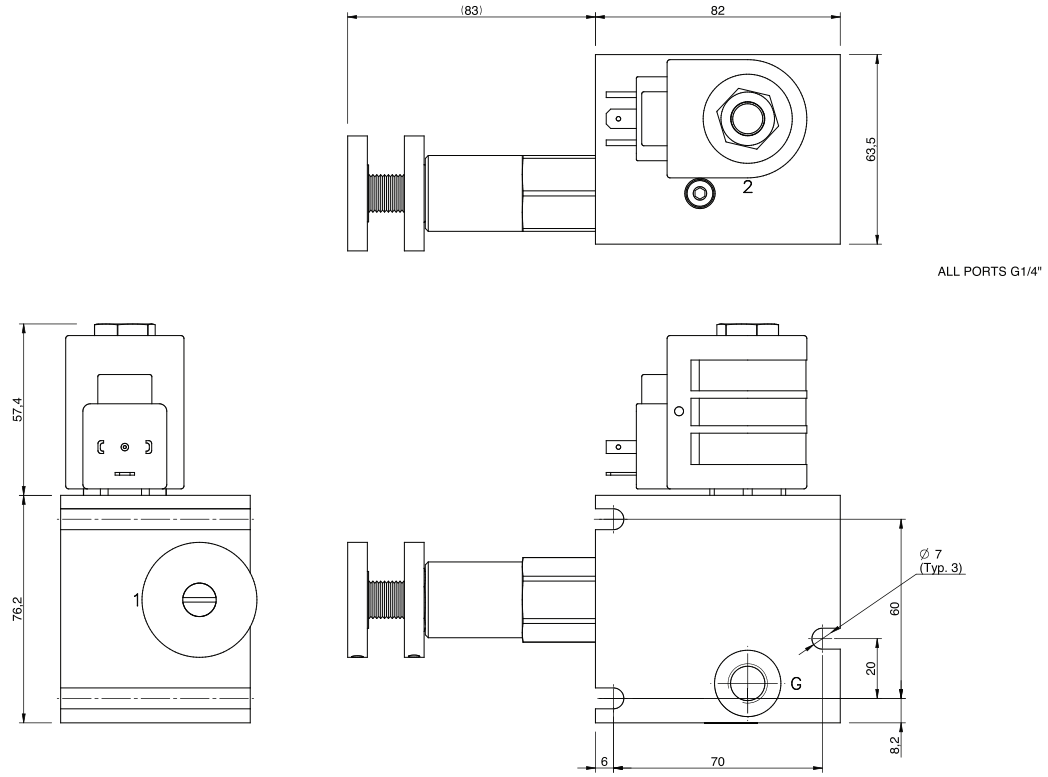
Circuit



Specification

Flow Range (lpm)	17
Max Pressure (bar)	210
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFMF3023
Weight	1.7 kg (alum) 3.4 kg (steel)

Dimensions



Ordering Example

RF MF3023 * ** **

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Pressure Reducer
A = 7-55 bar
B = 210 bar

Pressure setting
Reducer Option A: **30** = 30 Bar** **1 Bar increments 07-55 bar ****30** = std. setting
Reducer Option B: **21** = 210 Bar** **10 Bar increments 10-210 bar ****21** = std. setting

Valve options
00 = Std
V0 = Viton seals
0M = standard seals + override ⇘ ob on solenoid valve
VM = Viton seals + override ⇘ ob on solenoid valve
0K = standard seals + handwheel ⇘ ob on pressure reducing valve
VP= Viton seals + override ⇘ ob on solenoid valve + handwheel ⇘ ob on pressure reducing valve

Coil Termination
HC = DIN, EN 175301-803
ID = Deutsch, DT04
**Other coil terminations available on request.

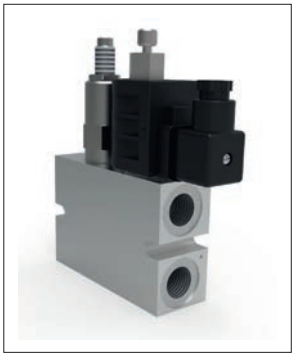
Voltage
12 = 12 Vdc
24 = 24 Vdc
**Other voltages available on request

Manifold Material
A = Aluminium (clear anodised)
S = Steel (zinc, clear passivate)

Preferred Part No. - RF MF3023A3000ID12A / RF MF3023A3000ID24A

Multi-function, valve control
Dual cartridge, series connection, Line mounted, G1/2" Ports

RF MF3378



Variable up to 240 bar max - 60 lpm max

Description

The RF MF3378 is a multi-function valve control suitable for a wide range of functions, using a combination of two cartridges. The design layout is exceptionally flexible with multiple configurations being possible as a result of port options and the two internal galleries that can be open or closed. Typical circuits can include, but are not limited to: A relief unloader; two speed control; lowering control or two stage pressure control. The valve cavities can be fitted with cartridges from our wide range of standard two-way SAE 10 valves, so that versitile and economic controls can easily be produced. The through ports and compact size also allow for easy inline piping in the installation.

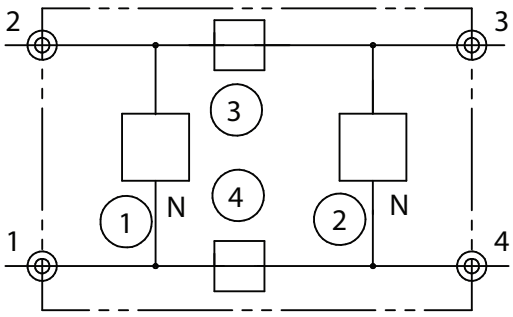
Features

- Multi-function capability
- Swappable leak free internal connections
- Compact and efficient design, also suitable for pilot control of larger systems
- Various options, seals, overrides, pressure settings etc.
- Plugs Automatically added to suit circuit logic.
- Other cartridge options available on request – speak to factory for further information.
- See RF MF3682 for lower flow capacity valve with same functions

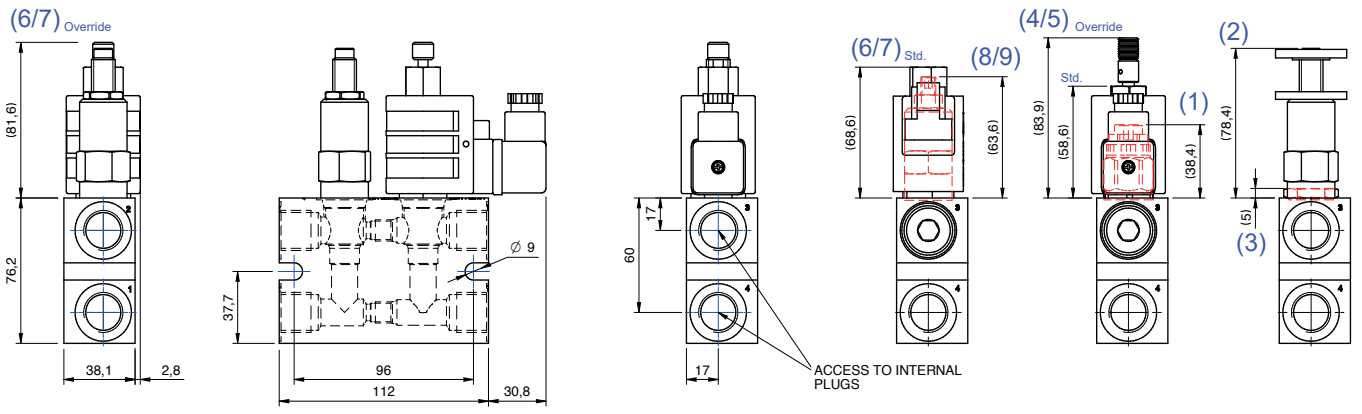
Specifications

Flow Range (lpm)	see curves for various versions
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF3378* (Valve Dependant)
Weight	1.3 kg (alum) 2.6 kg (steel) Typical.

Circuit



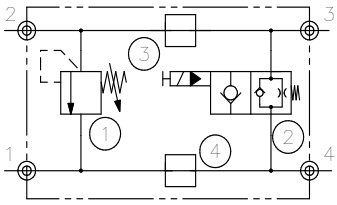
Dimensions



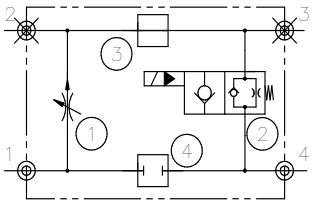
(*) = Valve type

SECTION 9 MULTI FUNCTION

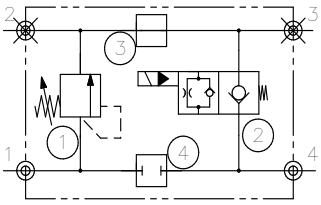
Circuit Examples



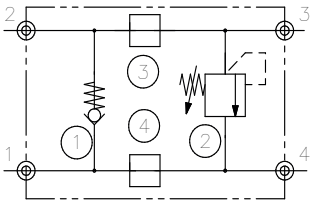
RF MF336820350621HA



RF MF3378901X2601DA



RF MF337810352402HA



RF MF3378300502035A

Ordering Code

RF MF3378 * * ** * * * ** *

Valve Type	Valve options	Voltage / Pressure / Flow Range	Plug requirement	Valve Type	Valve options	Voltage / Pressure Range	Manifold Material
1 = RVSO Direct Acting relief	As per cartridge data sheet i.e.	**1H** = 12 Vdc Din	**0** = No plugs	**1 = RVSO** Direct Acting relief	As per cartridge data sheet i.e.	**1H** = 12 Vdc Din	**A** = Alum (anodised, clear)
2 = RV1DI Diff. Area relief	**0** = 00 Std	**2H** = 24 Vdc Din	**1** = Top plug	**2 = RV1DI** Diff. Area re-lief	**0 =** 00 Std	**2H** = 24 Vdc Din	**S** = Steel (zinc, clear passivate)
3 = CVA Check, Valve	**1** = V0 Viton seals	**1D** = 12 Vdc Deutsch	**2** = Bottom plug	**3 = CVA** Check, Valve	**1 =** V0 Viton seals	**1D** = 12 Vdc Deutsch	
4 = S2A 2 way N.C. poppet	**2** = 0K override knob	**2D** = 24 Vdc Deutsch	**3** = Top & Bottom Plugs	**4 = S2A** 2 way N.C. poppet	**2 =** 0K over-ride knob	**2D** = 24 Vdc Deutsch	
5 = S2B 2 way N.C. poppet		**35** = 17 - 240bar **RV1DI**. 10 – 240bar **RVSO**.		**5 = S2B** 2 way N.C. poppet		**35** = 17 - 240bar **RV1DI**. 10 – 240bar **RVSO**.	
6 = S2C 2 way N.O. poppet		**1X** = 0.8 – 28 lpm		**6 = S2C** 2 way N.O. poppet		**1X** = 0.8 – 28 lpm	
7 = NVA Adj. flow control,		**XX** – NVA (38lpm) / NVB (57lpm)		**7 = NVA** Adj. flow control,		**XX** – NVA (38lpm) / NVB (57lpm)	
8 = NVB Adj. flow control, fine adj.		**05** = 5 psi (Check only)		**8 = NVB** Adj. flow control, fine adj.		**05** = 5 psi (Check only)	
9 = FCCS Adj. flow control, pres. comp.				**9 = FCCS** Adj. flow control, pres. comp.			

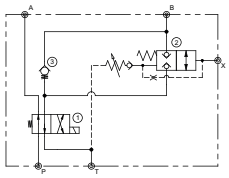
Related Fluid Power

Quick Hitch Valve
5 Port Type, Cetop 3 Directional Control Valve

RF MF3629

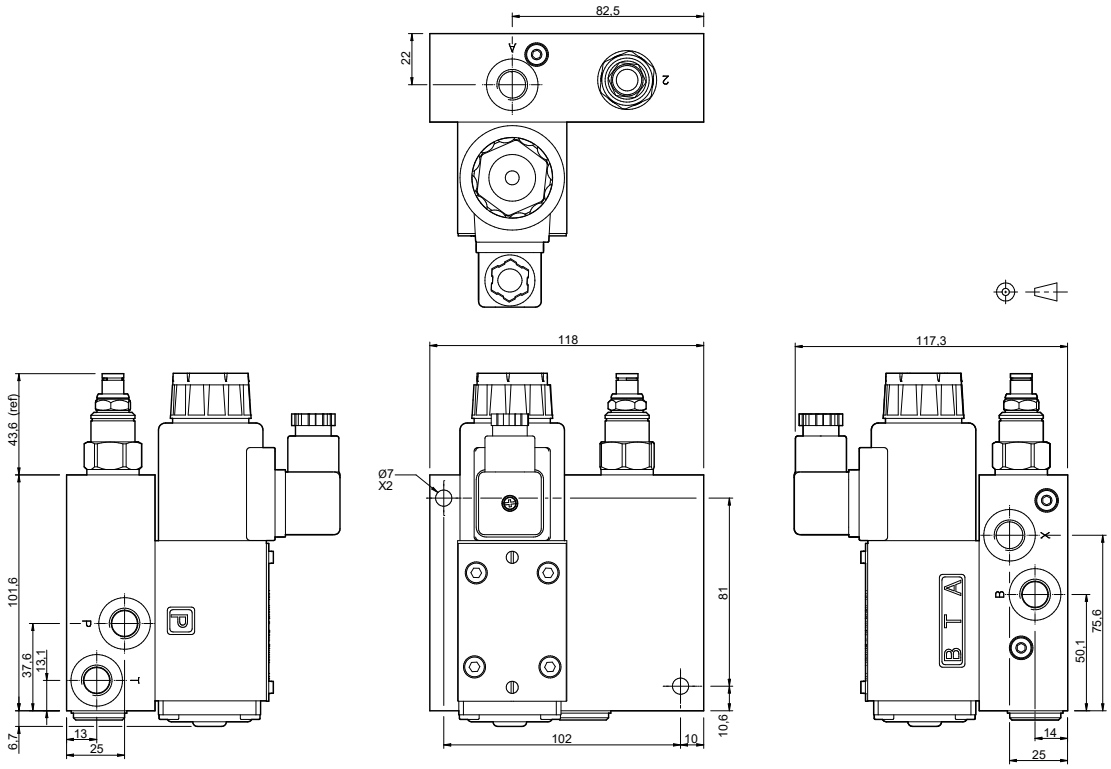
Up to 350 bar

Description
The Quick Hitch Valve is used to control the close / open function by electrical selection from within the cab. This valve has a remote pilot feature creating a hydraulic safety interlock.
Robust steel manifold, zinc plated for corrosion protection in arduous environments. High quality, 350 bar (peak pressure) rated solenoid valve, with Din plug (IP65) as standard with Deutsch coil (IP67) connector option available on request.
All solenoids are continuously rated, power efficient, and have a generous operating voltage tolerance.

Schematic


Specifications

Port Sizes	G1/4”	Voltage	12 or 24 Vdc
Max. Pressure (bar)	350	Body Material	Steel
Cartridge Material	Steel	Hydraulic Oil	General Purpose Hydraulic Fluid
Viscosity Range	3 to 647 cSt	Operating Temperature	-40˚C to + 120˚C
Filtration	ISO 18/16/13		

Dimensions


Ordering Example

RF MF3629 *** ** **

Pilot valve setting	Connector	Voltage
180 = 180 bar	**HC** = DIN	**12** = 12 Vdc
280 = 280 bar	**ID** = Deutsch	**24** = 24 Vdc
Other settings available on request		

SECTION 9 MULTI FUNCTION

Multi-function, valve control
Dual cartridge, series connection, Line mounted, G3/8" Ports

RF MF3682

Variable up to 240 bar max - 40 lpm max

Description

The RF MF3682 is a multi-function valve control suitable for a wide range of functions, using a combination of two cartridges. The design layout is exceptionally flexible with multiple configurations being possible as a result of port options and the two internal galleries that can be open or closed. Typical circuits can include, but are not limited to: A relief unloader; two speed control; lowering control or two stage pressure control. The valve cavities can be fitted with cartridges from our wide range of standard two-way SAE 08 valves, so that versitile and economic controls can easily be produced. The through ports and compact size also allow for easy inline piping in the installation.

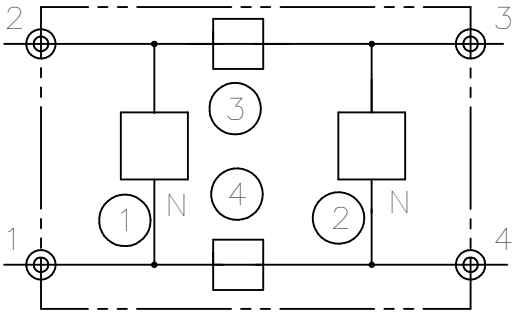
Features

- Multi-function capability
- Swappable leak free internal connections
- Compact and efficient design, also suitable for pilot control of larger systems
- Various options, seals, overrides, pressure settings etc.
- Plugs Automatically added to suit circuit logic.
- Other cartridge options available on request – speak to factory for further information.
- See RF MF3378 for higher flow capacity valve with same functions

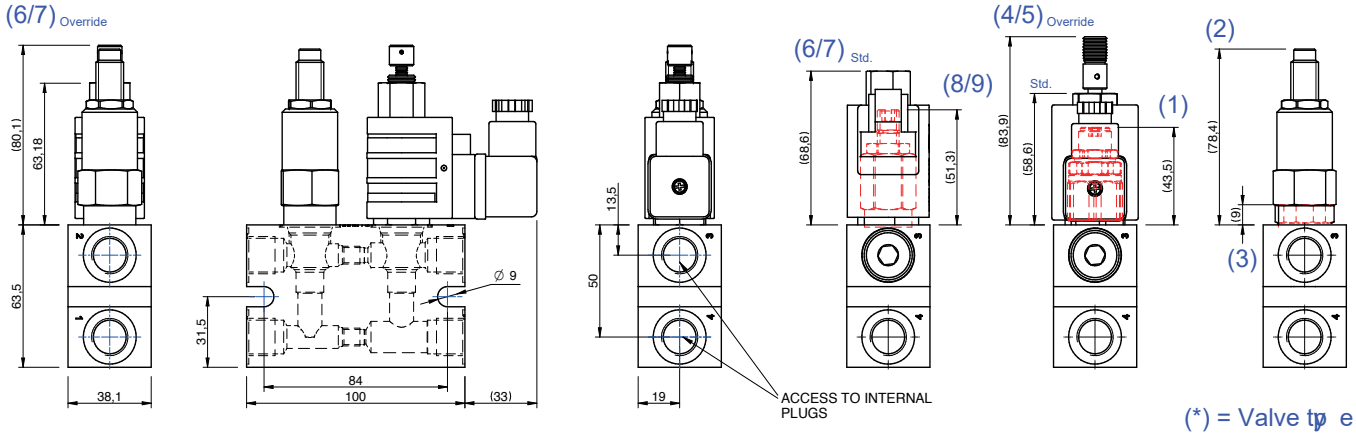
Specifications

Flow Range (lpm)	see curves for various versions
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RF3682* (Valve Dependant)
Weight	1.3 kg (alum) 2.3 kg (steel) Typical.

Circuit



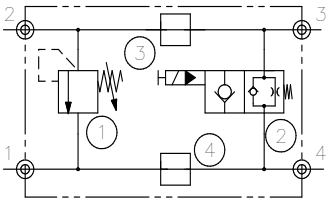
Dimensions



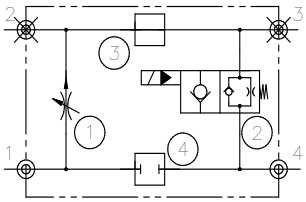
(*) = Valve type

SECTION 9 MULTI FUNCTION

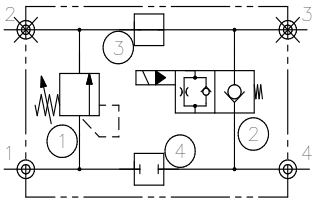
Circuit Examples



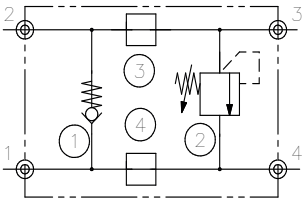
RF MF368220220621HA



RF MF3689901X2601DA



RF MF368910222402HA



RF MF3689300502022A

Ordering Code

RF MF3682 * * ** * * * ** *

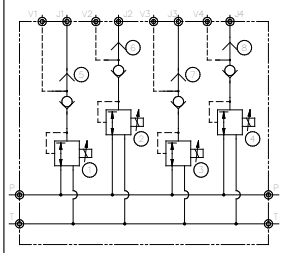
Valve Type	Valve options	Voltage / Pressure / Flow Range	Plug requirement	Valve Type	Valve options	Voltage / Pressure Range	Manifold Material
1 = RVCO Direct Acting relief	As per cartridge data sheet i.e.	**1H** = 12 Vdc Din	**0** = No plugs	**1 = RVCO** Direct Acting relief	As per car-tridge data sheet i.e.	**1H** = 12 Vdc Din	**A** = Alum (anodised, clear)
2 = RV1DI Diff. Area relief	**0 =** 00 Std	**2H** = 24 Vdc Din	**1** = Top plug	**2 = RV1DI** Diff. Area relief	**0 = 00 Std**	**2H** = 24 Vdc Din	**S** = Steel (zinc, clear passivate)
3 = CVC Check, Valve	**1 =** V0 Viton seals	**1D** = 12 Vdc Deutsch	**2** = Bottom plug	**3 = CVC** Check, Valve	**1 = V0 Viton seals**	**1D** = 12 Vdc Deutsch	
4 = S2A 2 way N.C. poppet	**2 =** 0K over-ride knob	**2D** = 24 Vdc Deutsch	**3** = Top & Bottom Plugs	**4 = S2A** 2 way N.C. poppet	**2 = 0K over-ride knob**	**2D** = 24 Vdc Deutsch	
5 = S2B 2 way N.C. poppet		**13** = 25 – 135bar **RVCO ONLY**		**5 = S2B** 2 way N.C. poppet		**13** = 25 – 135bar **RVCO ONLY**	
6 = S2C 2 way N.O. poppet		**22** = 50-220bar **RVCO**.		**6 = S2C** 2 way N.O. poppet		**22** = 50-220bar **RVCO**.	
7 = NVA Adj. flow control,		17-228bar **RV1DI**		**7 = NVA** Adj. flow control,		17-228bar **RV1DI**	
8 = NVB Adj. flow control, fine adj.		**1X** = 2- 20lpm (FCCS)		**8 = NVB** Adj. flow control, fine adj.		**1X** = 2- 20lpm (FCCS)	
9 = FCCS Adj. flow control, pres. comp.		**XX** – NVA (23lpm) / NVB (12lpm)		**9 = FCCS** Adj. flow control, pres. comp.		**XX** – NVA (23lpm) / NVB (12lpm)	
		05 = 5 psi (Check only)				**05** = 5 psi (Check only)	

Multi Station Pilot Control Assembly
Line mounted

RF MF3800

Up to 350 bar - Up to 4 lpm

Typical Circuit



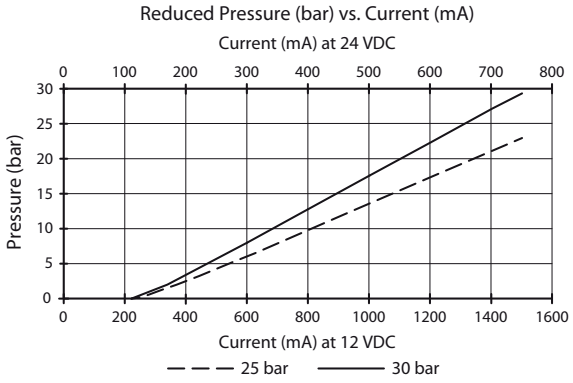
Description

Used in applications where a secondary control system is required. A typical example of which would be in the conversion of an excavator machine for use in a demolition site environment. When applied, these manifolds are used to tee in between a hydraulic joystick control mounted in the cab and the directional spool valves on the machine. A separate pilot feed from the machine is connected to this assembly along with a low-pressure return. The valve assembly would then be connected to an electrical control system capable of PWM output for each of the proportional pressure control valves. In the instance of the machine being used in a demolition role a separate radio remote control system would be used for the operation of the machine.

Features

- Aluminium (anodised) manifold
- Available as a 4, 6 or 8 station assembly
- High input pressure capability
- IP67 electrical connections
- Integral shuttle valves for automatic control and isolation of the cab controls
- See factory for custom requirements

Performance.



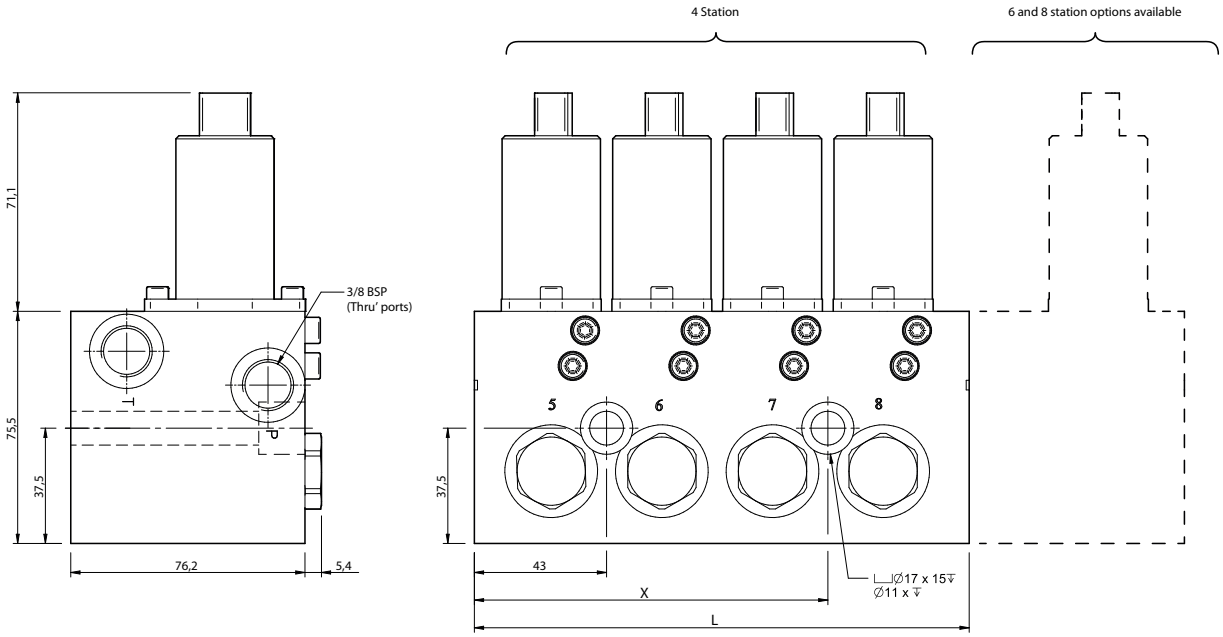
Coil Specifications

Current Supply	PWM (Pulse Width Modulation)
Rated Current Range	200 - 1500 mA (12 Volts) 100 - 750 mA (24 Volts)
PWM or Super-imposed Dither Frequency	100 - 200 Hz
Coil Resistance (12 vdc)	5.4 Ohm +/- 5% at 20°C
Coil Resistance (24 vdc)	22 Ohm +/- 5% at 20°C
Max Power Consumption	12 Watt (20°C)
Protection Degree	IP67 according to IEC 529
Coil Termination	Deutsch-Integral DT04-2P Amp Junior Timer 84-9419

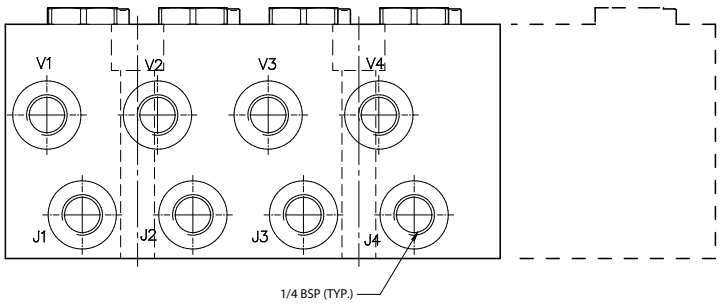
Valve Specifications

Flow Range (lpm)	4 lpm @ 8 bar Delta P
Max Pressure (bar)	350
Controlled Pressure Range	0-25 bar / 0-30 bar (see graph)
Reduced Pressure Tolerance	+/- 5%
Max Back pressure at T port	20 bar
Internal Leakage	up to 35 cc/min @ 350 bar
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/15/13
Operating Temp.	-25 to 90˚C
Spare Seal Kit (Viton) Complete	SK-RF3800V
Spare Seal Kit (Viton) Shuttle Valve	SK-DPPBV
Spare Seal Kit (Viton) Reducer	SK-TT043V

Dimensions



Station Dimensions	X	L
RF3800***4****A	115	161
RF3800***6****A	187	233
RF3800***8****A	259	305



Ordering Code

RF MF3800 * ** * ** ** *

Input Pressure Capability
H - 240 bar (std. Alum.) - 350 bar (Steel)
L - 50 bar

Output Pressure Range
30 - 0-30 bar (std.) 'H' Only
25 - 0-25 bar 'L' Only

Stations
4 - 4 station
6 - 6 station
8 - 8 station

Terminations
ID - Deutsch DT04-2P
IJ - AMP Junior Timer

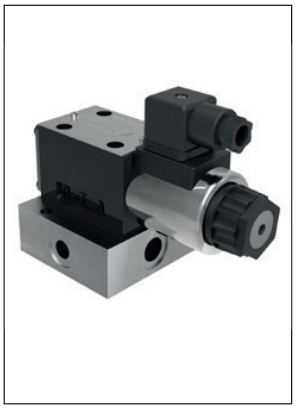
Voltage
12 - 12 vdc
24 - 24 vdc

Manifold Material
A - Aluminium (240 bar max, clear anodised)
S - Steel (350 bar max, Zinc clear)

Related Fluid Power

Quick Hitch Valve
4 Port Type, Cetop 3 Type

RF MF3937



Up to 350 bar

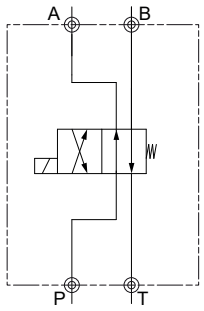
Description

The Quick Hitch Valve is used to control the close / open function by electrical selection from within the cab. This valve has a remote pilot feature creating a hydraulic safety interlock.

Robust steel manifold, zinc plated for corrosion protection in arduous environments. High quality, 350 bar (peak pressure) rated solenoid valve, with Din plug (IP65) as standard with Deutsch coil (IP67) connector option available on request.

All solenoids are continuously rated, power efficient, and have a generous operating voltage tolerance.

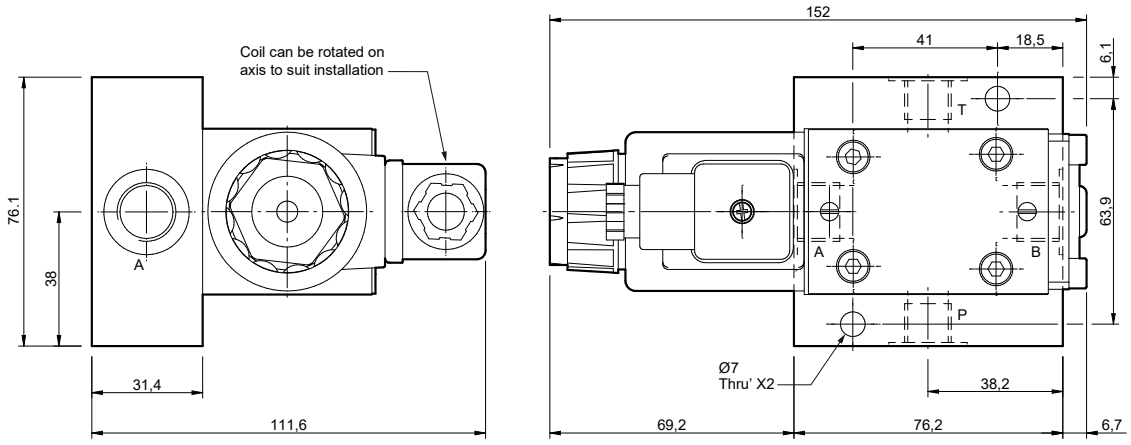
Schematic



Specifications

Port Size (BSP)	P-T: 1/4" A-B: 1/4"	Voltage	12 or 24 Vdc
Max. Pressure (bar)	350	Body Material	Steel
Valve Material	Steel	Hydraulic Oil	General Purpose Hydraulic Fluid
Viscosity Range	3 to 640 cSt	Operating Temperature	-30˚C to + 95˚C
Filtration	ISO 18/16/13		

Dimensions



Ordering Code

RF MF3937 | **0630** | ** | **

Spool code	Connector	Voltage
0630 - As diagram with open centre transient.	**HC** - DIN	**12** - 12 Vdc
	ID - Deutsch	**24** - 24 Vdc

SECTION 9 MULTI FUNCTION

Related Fluid Power

Dual overcentre and relief control with brake shuttle
Line mounted - G3/8”

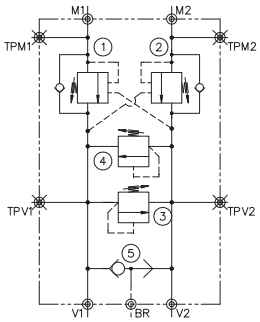
RF MF4113

350 bar - 40 lpm

Description

Ideal for motor applications where load control and pressure limitations are required. These controls are able to meter loads in both directions, which prevents a run-away situation when a sudden increase in load is applied. In addition the two inlet pressure reliefs offer control of the drive pressure. A brake shuttle is also present for the operation of the motor brake.

Symbol

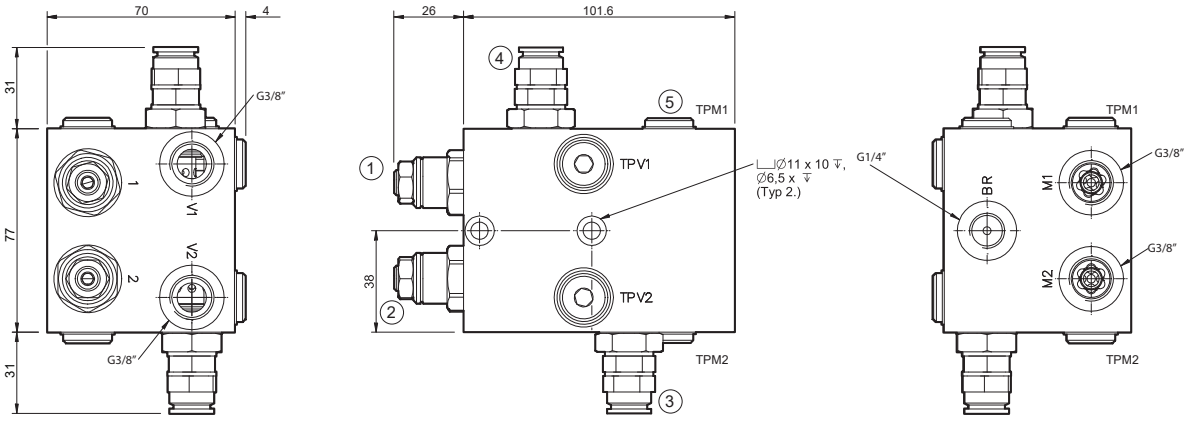


Features

- Aluminium (anodised) or Steel (zinc plated) material options.
- Multiple metering, pilot ratio and pressure setting options.
- Compact, efficient design.
- Easy access, in-line porting.
- Multiple test ports for system monitoring.

Flow Range (lpm)	40
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFMF4113
Weight	1.8 kg (alum) 4.0 kg (steel)

Dimensions



Ordering Example

RF MF4113 * * ** ** ** *

Overcentre
2 = 40 Lpm
3 = 15 Lpm
4 = 10 Lpm
5 = Vented (60 Lpm)**
**Atmospheric vent.

Pilot Ratio
3 = 3 : 1
5 = 4.5 : 1

Overcentre Settings
28 = 280 bar**
**10 bar increments
**28 = standard setting

Relief (V1) Settings
21 = 210 bar**
**10 bar increments
**21 = standard setting

Relief (V2) Settings
21 = 210 bar**
**10 bar increments
**21 = standard setting

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No. - RF MF411323282121A

Cylinder Lock Valve G3/8" Banjo mounted, solenoid operated normally closed poppet valve & emergency override

RF MF4158

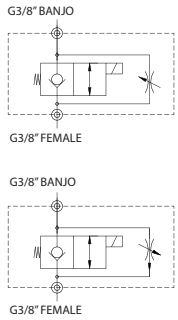
Variable, 240 bar max - Up to 55 lpm

Description

This assembly is designed for single acting cylinder applications where a lift, hold and lower operation is required. A compact banjo mounted design is used which allows for fitting direct onto the loaded port of a cylinder. In the first part of the cycle, oil is allowed to pass freely through

the valve assembly with the solenoid valve being energised or de-energised depending on valve selection / desired operation. When stopped, the solenoid valve is de-energised thus holding the cylinder in place (A, B & I valve options) and preventing the cylinder from being able to move back. The final part of the cycle sees the solenoid valve being energised allowing the cylinder to return back to its initial position. When used with the pressure compensated flow control, controlled retraction / lowering speed regardless of load is achieved. This assembly also offers improved safety in the event of a hose failure due to the pressure compensated flow control (when used) being an integral part of the design. A hand operated manual override is present for emergency operation of an actuator.

Circuit



Features

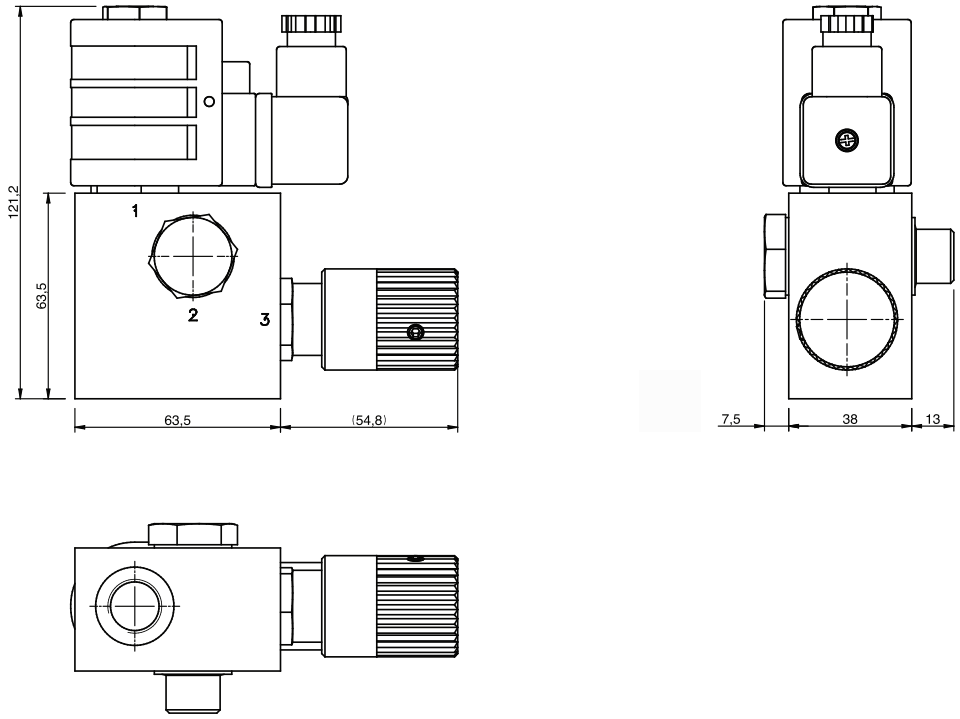
- Aluminium body, clear anodised.
- G3/8" ports
- Optional fixed setting pressure compensated flow control for controlled lowering (not field adjustable).
- Large selection of interchangeable solenoid valves for varied application requirements.
- Poppet valve used for good load holding characteristics.
- Large selection of coil terminations available with high IP rating
- Compact, efficient and economical design.

Note: Use and application of override is safety dependant

Specifications

Flow Range (lpm)	55
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF4158
Weight	0.9 kg (alum) 1.5 kg (steel)

Dimensions



Ordering Code

RF MF4158 | ** | ** | *** | ** | *

Valve Type	Valve Options	Flow rate C → V	Voltage & Coil	Manifold Material
A = S2A (NC, restrictive flow energised) **B** = S2B (NC, reverse free flow energised) **C** = S2C (NO, reverse free flow energised) **I** = S2I (NC, bi-directional)	**00** = standard seals **V0** = Viton seals **A0** = standard seals + screen **W0** = Viton seals + screen	**000** = Standard banjo bolt (no PCFC) **045** = PCFC banjo bolt (set to 4.5 Lpm**) **080** = PCFC banjo bolt (set to 8.0 Lpm**) **100** = PCFC banjo bolt (set to 10.0 Lpm**) **FCX** = Adjustable flow control banjo bolt (non-compensated) **XXX** = No banjo bolt or seals	H1 = 12 Vdc(Din) H2 = 24 Vdc(Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch)	**A** = Aluminium (clear anodised) **Standard** **S** = Steel, clear (zinc passivate)
Other valves available on request. See individual data sheets.	Other overrides available on request. Override availability dependant on	**0.5 lpm increments. Up to 10 Lpm max		

Preferred Part No. - RF MF4158B00000D1A / RF MF4158B00000D2A

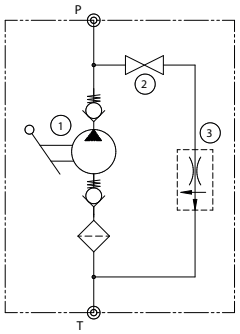
Related Fluid Power

Handpump with manual override and pressure compensated lowering valve Line mounted

RF MF4161

Variable, 240 bar max - Up to Variable lpm

Circuit



Description

This assembly is designed for emergency operation of hydraulic circuits in the event on main power failure. The hand pump has integral check valves and is unaffected by other hydraulic power sources. In the event of main hydraulic power failure, operation of the hand pump creates a low displacement into the system with actual flow rate being dependant on pump displacement and frequency of operation of the handle. Maximum load pressure is dependent on load, load protection, lever length and effort applied to lever. A lowering function is incorporated into the valve. When the manual release valve is operated using the notch on the hand pump handle, oil is allowed to return to tank via the pressure compensated flow control, presence of the pressure compensated flow control ensures controlled retraction / lowering speed regardless of load.

Notes:

- The displacement of the hand pump should be considered when operation of circuit with high leakage rates
- See displacement / force curve for achievable pressures
- Handle ordered separately – PT-LEV009

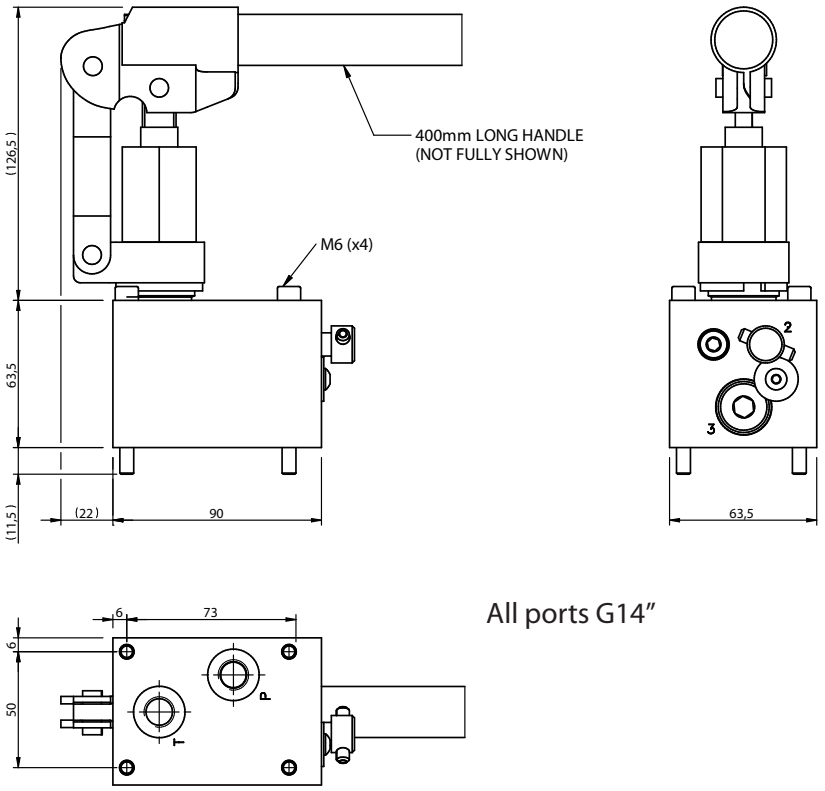
Features

- Aluminium (anodised) or steel (zinc plated) body
- Include mounting socket head cap screw mounting bolts
- Low leakage / load holding design
- G1/4" ports
- Optional fixed setting pressure compensated flow control for controlled lowering (not field adjustable).
- Compact, efficient and economical design.

Specifications

Flow Range (lpm)	4cc/stroke or 8cc/stroke
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RF4161
Weight	2.8 kg (alum) 4.4 kg (steel)

Dimensions



All ports G14"

Ordering Code

RF MF4161 — ** — *** — *

Hand pump Displacement	Flow rate P > T	Manifold Material
A = 4cc/rev **B** = 8cc/rev	**000** = No PCFC **015** = PCFC (Set to 1.5lpm) **060** = PCFC (Set to 6.0lpm) **0.5 lpm increments. From 1.5 lpm up to 8 lpm max	**A** = Aluminium (clear anodised) **S** = Steel (zinc, clear passivate)

Preferred Standard Model Code(s):
RF MF4161A015A

Solenoid operated unloader, relief and pressure compensated priority flow control Line mounted

RF MF4183

Variable, 240 bar max. - Up to Variable lpm

Description

This assembly is designed for a hydraulic circuit where there is a requirement for:
1. Unoading of flow with minimal losses.
2. Pressure limitations / protection for pump.
3. Trimming or adjustment of output flow from the pump.

The specifically designed manifold combines solenoid operated unload with relief and pressure compensated priority flow control. When in operation with the solenoid valve de-energised, the oil is allowed to circulate to tank with minimal losses and no load present on the output port. When the solenoid valve is energised, depending on the load, the system pressure will increase up to the relief valve setting. Actuator speed is controlled via the priority flow control; this valve takes flow from the pump and satisfies the priority setting first with any remaining flow by passed to tank. The priority flow setting is maintained regardless of variations in load pressures. This valve control is used in new installations as well as retrofit where there is need to control the speed of an actuator such as a conveyor circuit.

Notes:
- Consult factory for higher flow / pressure capacity builds or build requiring hand wheel adjustment on the flow control
- Flow control adjustment is flat blade screw driver with locking nut
- Relief valve adjustment is allen key with locking nut

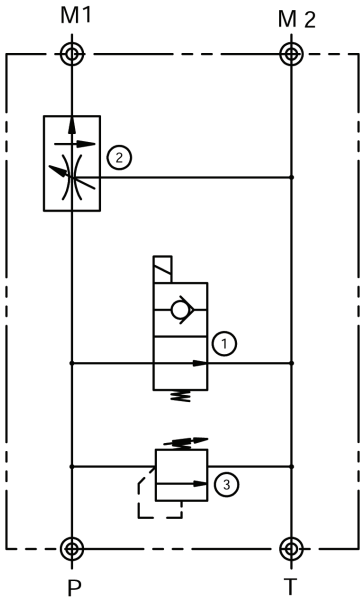
Features

- Aluminium (anodised) or steel (zinc plated) Manifolds
- G3/8” ports
- Compact, efficient and economical design with easy access inline ports

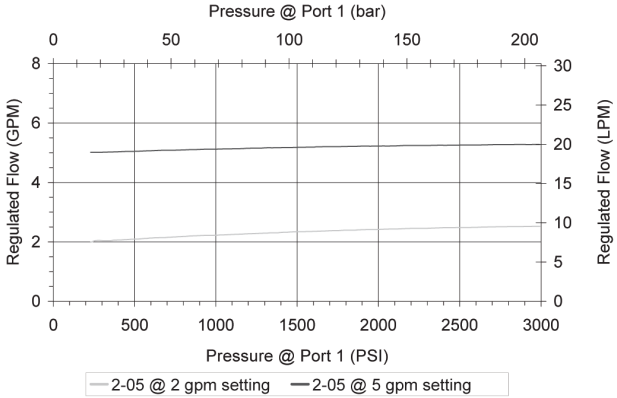
Specifications

Flow Range (lpm)	38 lpm
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFMF4183
Weight	1.8 kg (alum) 3.0 kg (steel)

Circuit

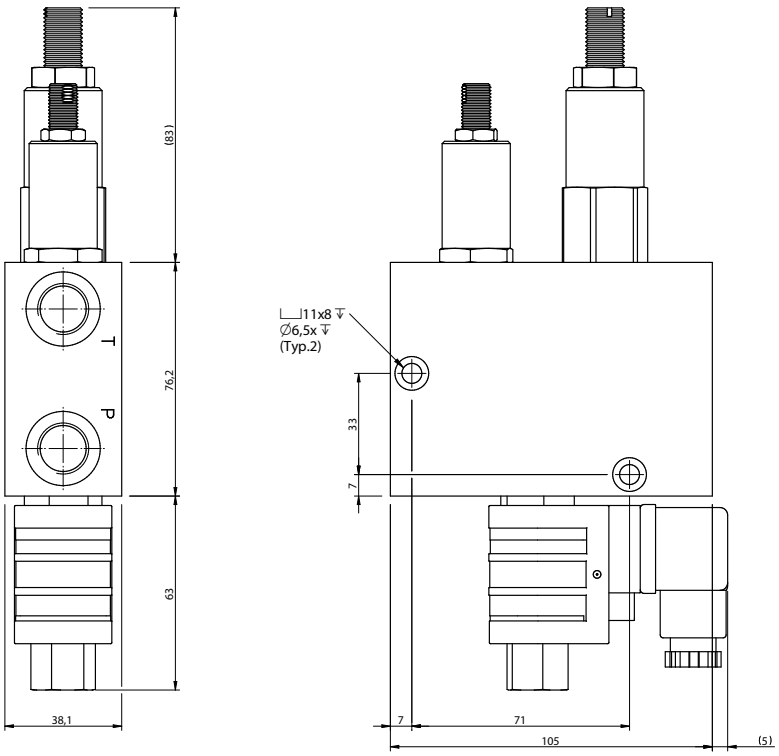


Compensation Performance



SECTION 9 MULTI FUNCTION

Dimensions



Ordering Code

RF MF4183 | ** | ** | ** | ** | *

Relief Valve Setting	Priority Flow Setting	General Valve Options	Voltage & Coil	Manifold Material
01 = 10 bar crack ng (min. setting**) **24** = 240 bar (max setting**) **AZ** = Unset, 7 to 55 bar range **BZ** = Unset, 55 to 138 bar range **CZ** = Unset, 138 to 240 bar range	**07** = 7 lpm (min. setting**) **38** = 38 lpm (max set-ting**) **AX** = Unset, 7 to 21 lpm range **BX** = Unset, 21 to 38 lpm range	**00** = Standard seals **V0** = Viton seals	H1 = 12 Vdc(Din) H2 = 24 Vdc(Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch)	**A** = Aluminium (clear anodised) **S** = Steel (zinc, clear passivate)
**10 bar increments. From 10 bar up to 240 bar max	**1 lpm increments. From 7 lpm up to 38 lpm max			

Preferred Standard Model Code(s):
RF MF418321BX00H2A

Priority flow control, mechanical
Line mounted, 1” BSP

RF MF4470

Up to 240 bar - Up to150 lpm (100 lpm priority)

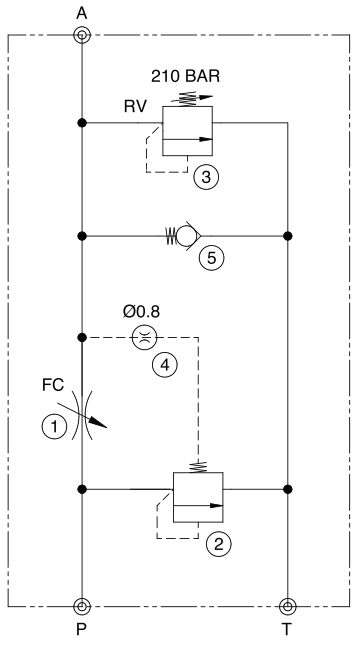
Description

A manifold control system comprising of separate manual flow control and 3 port bypass compensator. This valve provides a set amount of regulated (priority) flow out of port “A” via the manual flow control with any excess flow bypassed to tank over the compensator valve. In the event of any load variation a constant flow output is maintained. Port “T” may be pressurised without affecting pressure compensation but maximum pressure on port “T” must not exceed the pressure seen on port “A”. Any backpressure seen on port “T” will be additive to the setting of the relief valve no. 3. Maximum oil flow out of these valve assemblies is a combination of: (i) orifice opening (ii) Compensator bias setting. See graphs for further information. Service line over pressure and high-capacity anti-cavitation protection is present in the event of an unexpected stop or high load condition. Please contact our sales offer for more information and guidance on options and what control that can be achieved.

Features

- Aluminium (anodised) or Steel (zinc plated) material options (aluminium is standard offering)
- Stable flow control
- Compact, efficient design
- Easy access porting
- Excellent compensation characteristic
- Hand wheel or allen key adjustment options

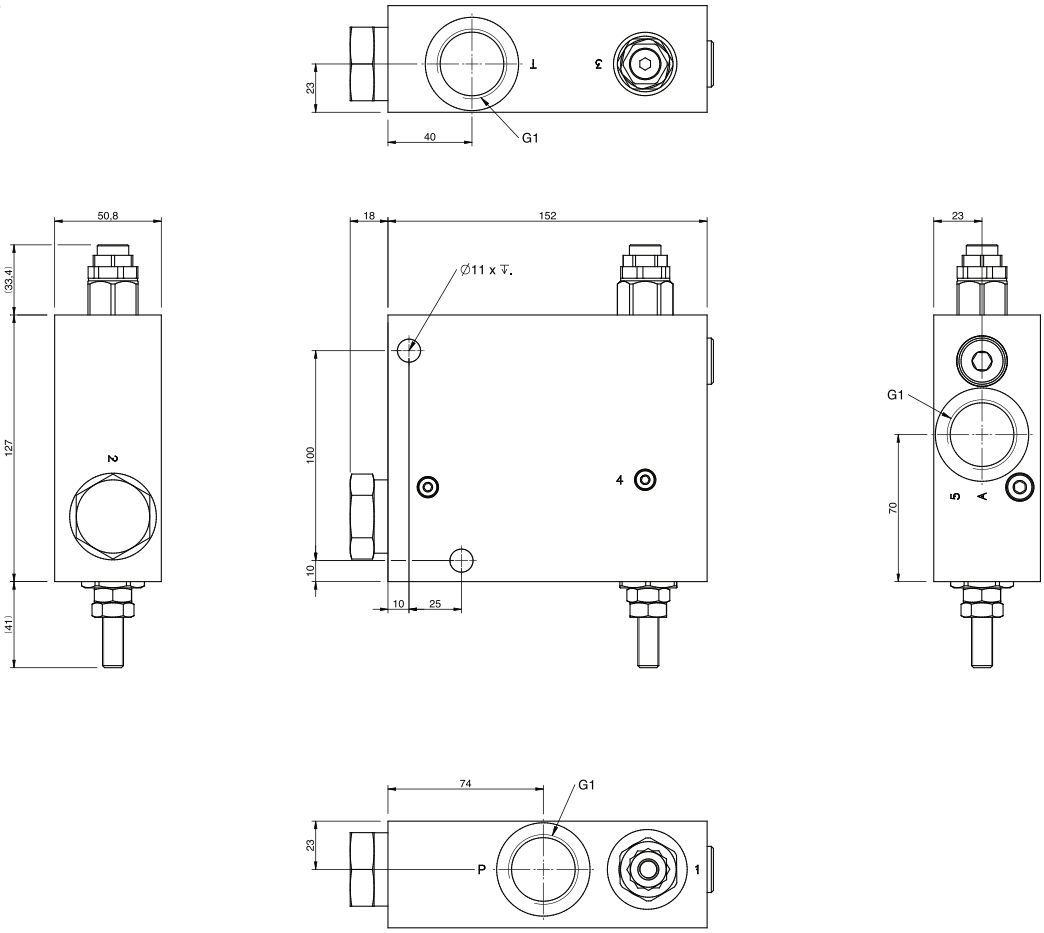
Circuit



Specifications

Flow Range (lpm)	150 max
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	6 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFMF4470
Weight	2.8 kg (alum) 6.6 kg (steel)

Dimensions



Ordering Code

RF MF4470 | * | ** | ** | *

Compensator Setting	Pressure setting	Valve options	Manifold Material
0 = 6 bar	**21** = 210 Bar** **10 Bar increments **21 = std. setting	**00** = Std, allen key adj.	**A** = Aluminium (clear anodised)
1 = 10 bar		**V0** = Viton seals, allen key adj	**S** = Steel (zinc, clear passivate)
2 = 15 bar		**0K** = standard seals + handwheel knob on flow control	
		VK = Viton seals + handwheel knob on flow control	

Preferred Part No.- RF MF447012100A / RF MF447022100A

Proportional pressure compensated priority flow control with relief and dump. Line mounted.

RF MF4623

Up to 240 bar - Up to 55 lpm on inlet

Description

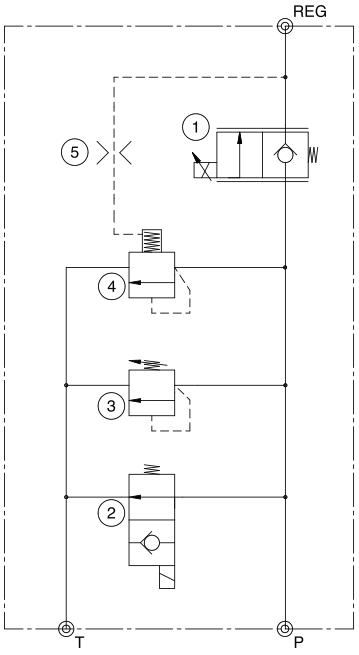
A manifold control system comprising of separate proportional metering control and 3 port bypass compensator, relief and dump valves. The proportional valve is normally closed in the de-energised condition. In this state there is zero priority flow – all oil supplied is passed to bypass or over the dump valve. When operated, the dump valve is energised and a current supplied to the proportional valve. Depending on the input current a priority flow is supplied with any excess flow bypassed to tank. In the event of any load variation a constant flow output is maintained. These valve systems are used in a wide variety of applications where remote variable supply to actuators is required. Please contact our sales offer for more information and guidance on options and what control that can be achieved. PWM Drivers can also be offered to compliment this assembly.

**Note: actual flow ranges achieved are governed by valve selection.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Easy access, in-line porting
- Compact, efficient design
- Manual override option available for emergency operation
- Multiple Voltage and coil termination options

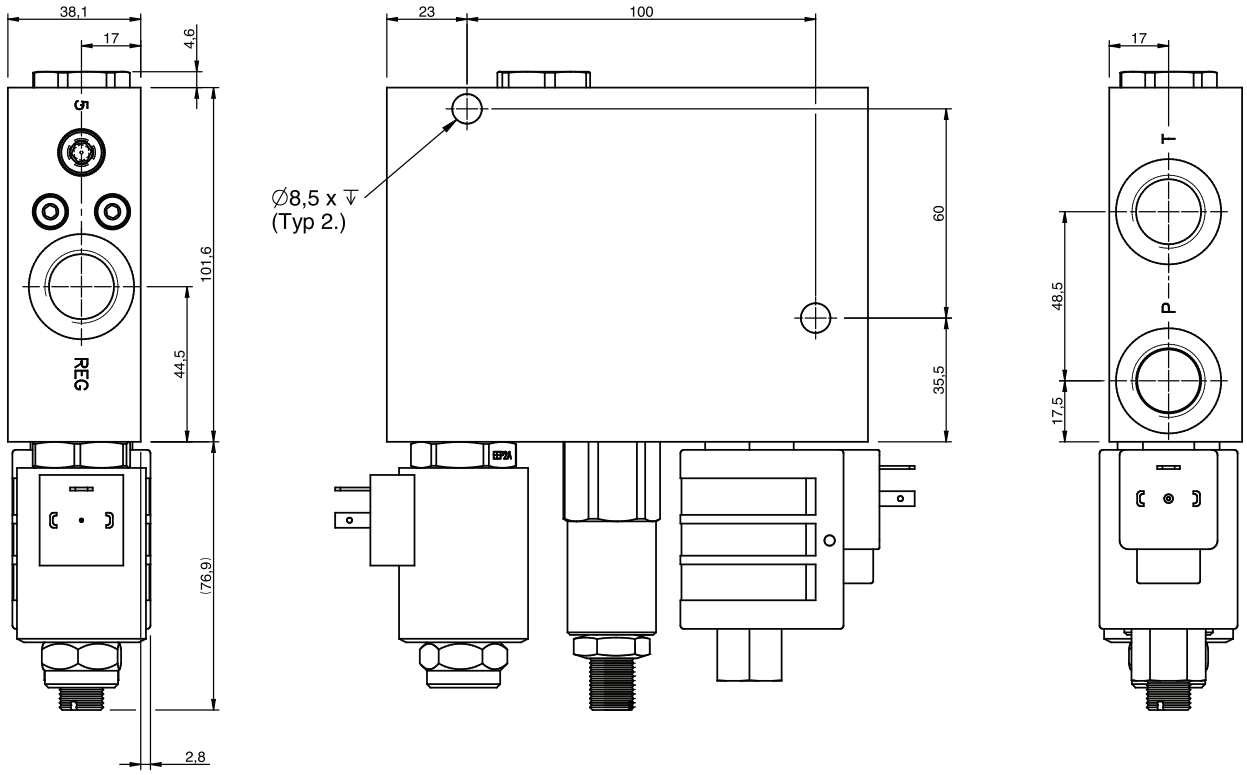
Circuit



Specifications

Flow Range (lpm)	55
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit Weight	SK-RFMF4623
Weight	2.6 kg (alum) 4.7 kg (steel)

Dimensions



Ordering Code

RF MF4623 * ** ** ** *

Nom. Flow Range
A = 0-15 lpm
B = 0-30 lpm
C = 0-45 lpm

Pressure setting
21 = 210 Bar** **10 Bar increments **21 = std. setting

Valve options
As per cartridge data sheet i.e.
00 = Std
V0 = Viton seals
0M = standard seals + override ob on solenoid valves
VM = Viton seals + override ob on solenoid valves

Voltage & Coil
H1 = 12 Vdc(Din)
H2 = 24 Vdc(Din)
D1 = 12 Vdc (Deutsch)
D2 = 24 Vdc (Deutsch)

Manifold Material
A = Aluminium (clear anodised)
S = Steel (zinc, clear passivate)

Preferred Standard Model Code(s):
RF MF4623C2100D1A
RF MF4623C2100D2A

Hot Oil Shuttle assembly with purge relief
Line Mounted

RF MF4677

Up to 350bar - Variable purge up to 60 lpm

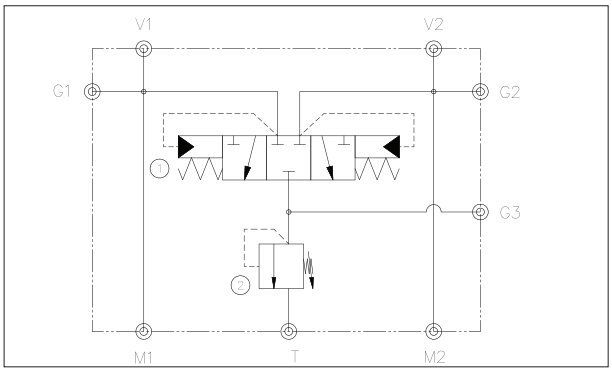
Description

The RF MF4677 is a circuit saver valve assembly for hydrostatic transmissions with the purpose of removing heat and any potential contamination, as a result a higher degree of reliabilty can be achieved in closed loop applications when these valves are used.
The valves are tee'd off the line allowing for low pressure drop performance.
During operation, the hot oil flushing circuit allows a discharge of oil from the low pressure side of the cooling loop produced by the charge pump. The oil flow in the cooling loop combines with the main power loop giving continual introduction of cooler and cleaner oil into the system. The hot oil discharged through the valve circuit is often passed through the case of the pump and motor providing cooling of each element. In some circuit designs a heat exchanger is fitted before the final return to the reservoir.
When the main power loop circuit is in neutral, the charge pressure is controlled by the charge pump relief. When the hot oil shuttle opens, some or all the charge pump flow is re-directed through the hydrostatic shuttle and over the purge relief. The charge pump relief must be set high enough so that there is sufficient flow passed over the purge relief. The higher the setting of the charge pump relief, the higher the potential hot oil flow. The amount of hot oil flow is determind by the differential pressure setting between the charge relief and purge relief. Pipe lengths and pipe pressure drops must also be taken into consideration. Consult factory for further guidance.

Features

- Compact line mount design
- G1.1/4" main Ports, G3/4" - 'T' port
- See RF MF4958 for lower capacity version

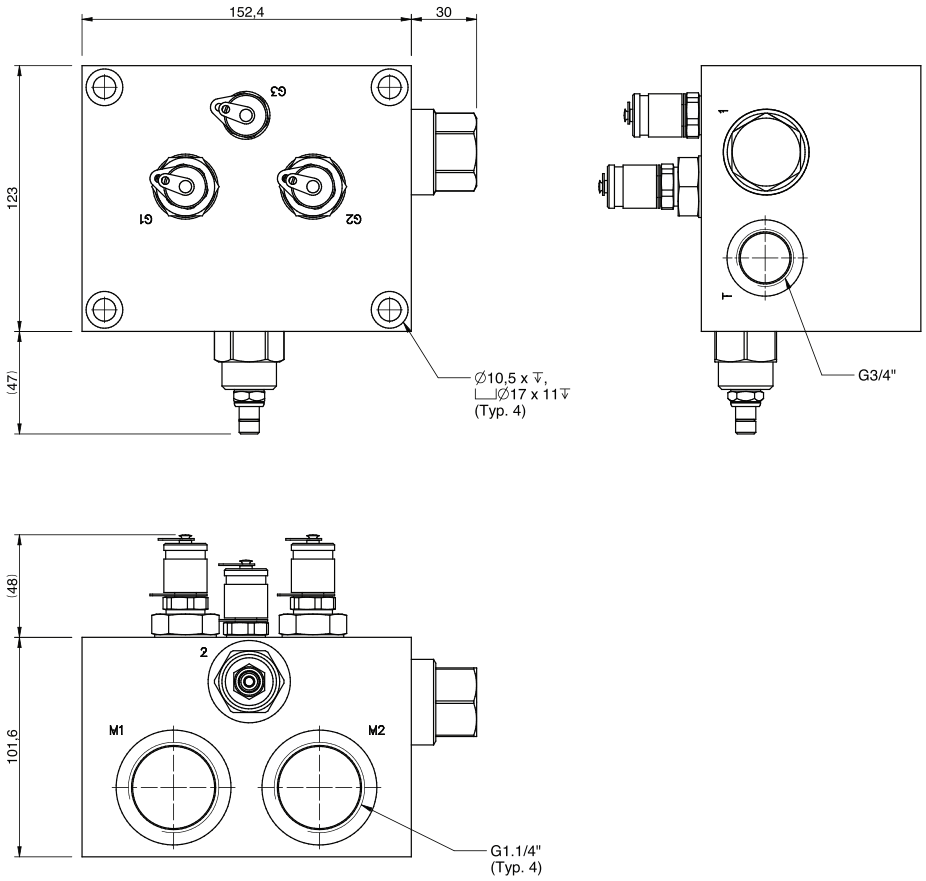
Circuit



Specifications

Flow Range (lpm)	Variable + 60 lpm max. on purge
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF4677
Weight	5.3 kg (alum) 12.4 kg (steel)

Dimensions



Ordering Code

RF MF4677 | ** | ** | * | *

HOS – Shift pressure	Purge Relief Setting	Seal Type	Manifold Material
05 = 5 Bar	**20** = 20 bar **To** **30** = 30 bar ** 1 bar increments	**0** = Buna (std)	**A** = Aluminium (210 bar max clear anodised)
07 = 7 Bar	Min. setting = 16 bar Max setting = 30 bar	**V** = Viton	**S** = Steel (350 bar max zinc plated)
10 = 10.5 Bar (std setting)	**20 = std. setting		

Hot Oil Shuttle assembly with purpose orifice
Line Mounted

RF MF4885

Up to 350bar - Variable purge up to 40 lpm

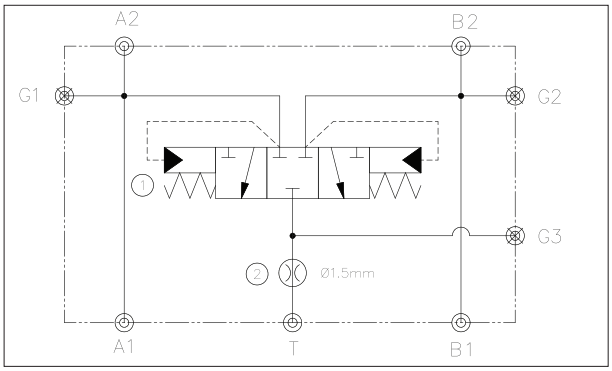
Description

The RF MF4885 is a circuit saver valve assembly for hydrostatic transmissions with the purpose of removing heat and any potential contamination, as a result a higher degree of reliabilty can be achieved in closed loop applications when these valves are used.
The valves are tee'd off the line allowing for low pressure drop performance.
During operation, the hot oil flushing circuit allows a discharge of oil from the low pressure side of the cooling loop produced by the charge pump. The oil flow in the cooling loop combines with the main power loop giving continual introduction of cooler and cleaner oil into the system. The hot oil discharged through the valve circuit is often passed through the case of the pump and motor providing cooling of each element. In some circuit designs a heat exchanger is fitted before the final return to the reservoir.
When the main power loop circuit is in neutral, the charge pressure is controlled by the charge pump relief. When the hot oil shuttle opens, some or all the charge pump flow is re-directed through the hydrostatic shuttle and over the purge orifice. The charge pump relief must be set high enough so that there is sufficient flow passed over the purge orifice. The higher the setting of the charge pump relief, the higher the potential hot oil flow. The amount of hot oil flow is determind by the differential pressure setting between the charge relief and orifice. Pipe lengths and pipe pressure drops must also be taken into consideration. Consult factory for further guidance.

Features

- Compact line mount design
- G3/4" main Ports, G1/2" - 'T' port

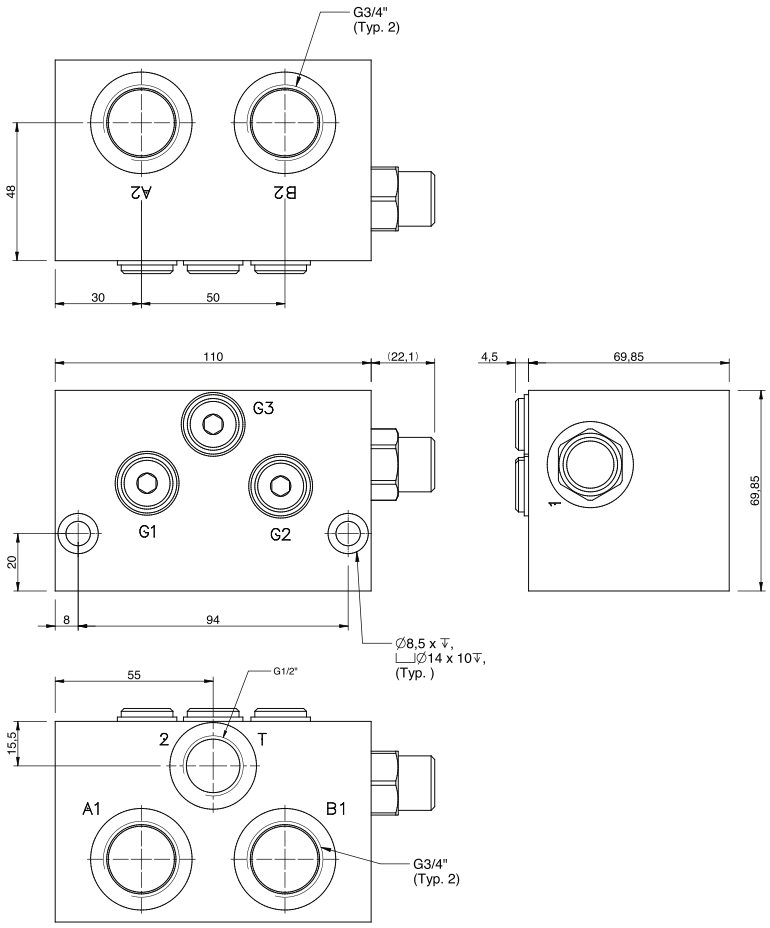
Circuit



Specifications

Flow Range (lpm)	Variable + 40 lpm max. on purge
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF4885
Weight	1.4 kg (alum) 3.6 kg (steel)

Dimensions



Ordering Code

RF MF4885 ****** ****** ***** *****

HOS – Shift pressure	Purge flow	Seal Type	Manifold Material
05 = 5 Bar	**05** = 5 lpm To **40** = 30 lpm ** 1 lpm increments	**0** = Buna (std)	**A** = Aluminium (210 bar max clear anodised)
10 = 10.5 Bar (std setting)	Min. setting = 05 lpm Max setting = 40 lpm	**V** = Viton	**S** = Steel (350 bar max zinc plated)
14 = 14 Bar	****20** = std. setting		

Pressure Compensated Flow Control c/w Relief and solenoid unloader Line mounted, Single G34”

RF MF4963

Up to - 240 bar
Up to 150 lpm on inlet (120 Lpm max bp ass).

Description

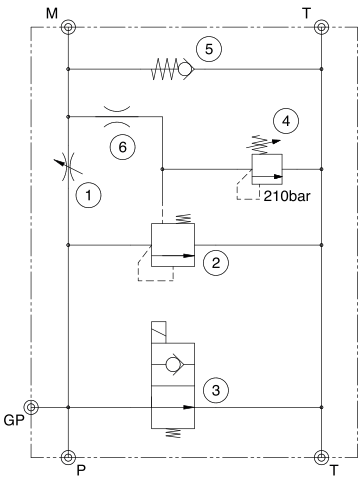
Ideal for various applications where uni-directional speed control of an actuator is required. These controls offer priority flow control with relief and anti-cavitation protection. Designed to accept a high input flow, the assembly uses a variable orifice and compensating element to limit the maximum priority flow supplied to the actuator regardless of load variations. A small relief valve sensing on the priority output acts as a pilot stage on the compensator relieving flow to the bypass port. A high-performance unloader valve is present for circuit safety minimising likelihood or run on/freewheeling. An anti-cavitation check is present for the protection of the motor during abrupt shutdown and high-level cyclic loading.

Typical applications include but are not limited to: (i) conveyor speed control (ii) sweeper motor control. Please contact our sales office for more information and guidance on types of flow controls that are available.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optimised internal galleries for low hydraulic losses
- Through porting for compact and efficient installation
- Pressure test point fitted as standard
- Lockable handwheel or allen key adjustment on flow controls
- Circuit design offers high levels of motor protection against over speeding, high loads and cavitation ensuring longevity of actuators

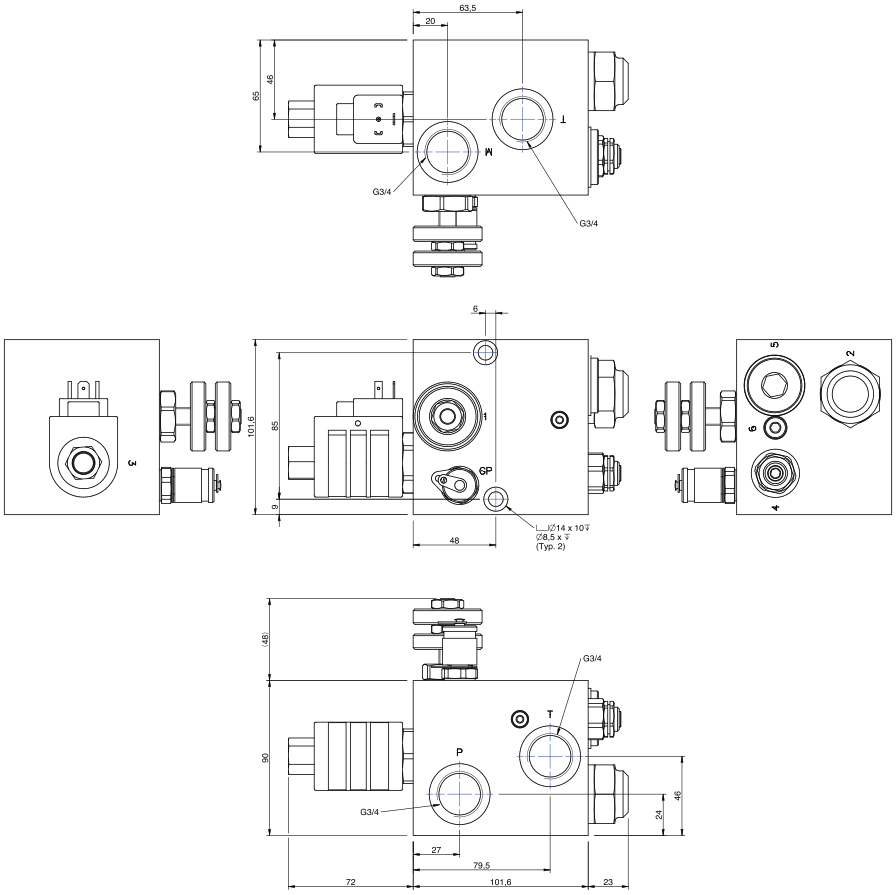
Circuit



Specifications

Flow Range (lpm)	170 lpm max 120 lpm max on bp ass
Max Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-30 to 110˚C
Spare Seal Kit	SK-RFMF4963
Weight	3.3 kg (alum) 4.8 kg (steel)

Dimensions



Ordering Code

RF MF4963 | ** | ** | ** | ** | ** | *

Pressure setting	Compensator Setting	Flow Setting (Priority)	Valve options	Voltage & Coil	Manifold Material
21 = 210 Bar** **10 Bar increments **21 = std. setting	**14** = 15 bar	**00** = Unset	**00** = Std seals	H1 = 12 Vdc(Din)	**A** = Aluminium (clear anodised)
	16 = 16 bar	**05** = 5 lpm	**V0** = Viton seals	H2 = 24 Vdc(Din)	**S** = Steel (zinc, clear passivate)
	18 = 18 bar	**10** = 10 lpm etc.	**0K** = Std seals, override on solenoid valve	D1 = 12 Vdc (Deutsch)	
	20 = 20 bar		**VK** = Viton seals, override on solenoid valve	D2 = 24 Vdc (Deutsch)	
			VM = Viton seals + override ‘h ob on solenoid valves		

Preferred Standard Model Code(s):
RF MF496321160000D1A
RF MF496321160000D2A
RF MF496321180000D1A
RF MF496321180000D2A

SECTION 9 MULTI FUNCTION

Related Fluid Power

Quick Hitch Valve
4 Port Type with 'P' Line Pressure Reducer

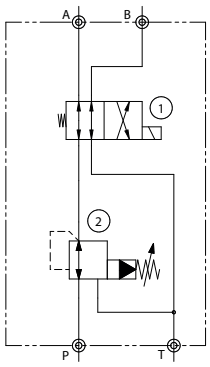
RF MF5005

350 bar inlet / 240 bar services - Up to 38 lpm

Description

The quick hitch valve is used to control the "close/open" function of the bucket hitch on excavators by electrical selection from within the cab. This version is fitted with a pressure reducer valve, limiting pressure out of ports A and B. Manual override options are available on request. Note: For aftermarket applications, separate safety interlock and redundancy must be considered ensuring that the hitch system is compliant with current regulations at time of installation.

Circuit



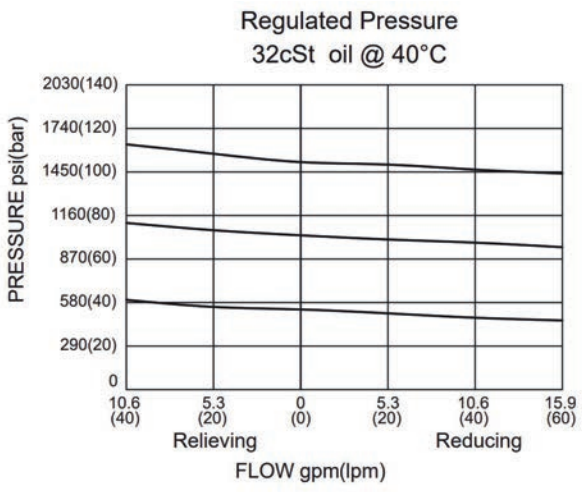
Features

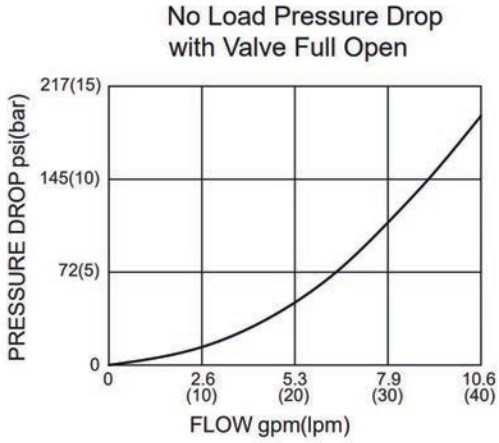
- Steel (zinc plated) material
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation of solenoid valve
- Multiple Voltage and coil termination options

Specifications

Flow Range (lpm)	38
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF5005
Weight	1.3 kg (alum) 2.6 kg (steel)

Reducer Performance Graphs

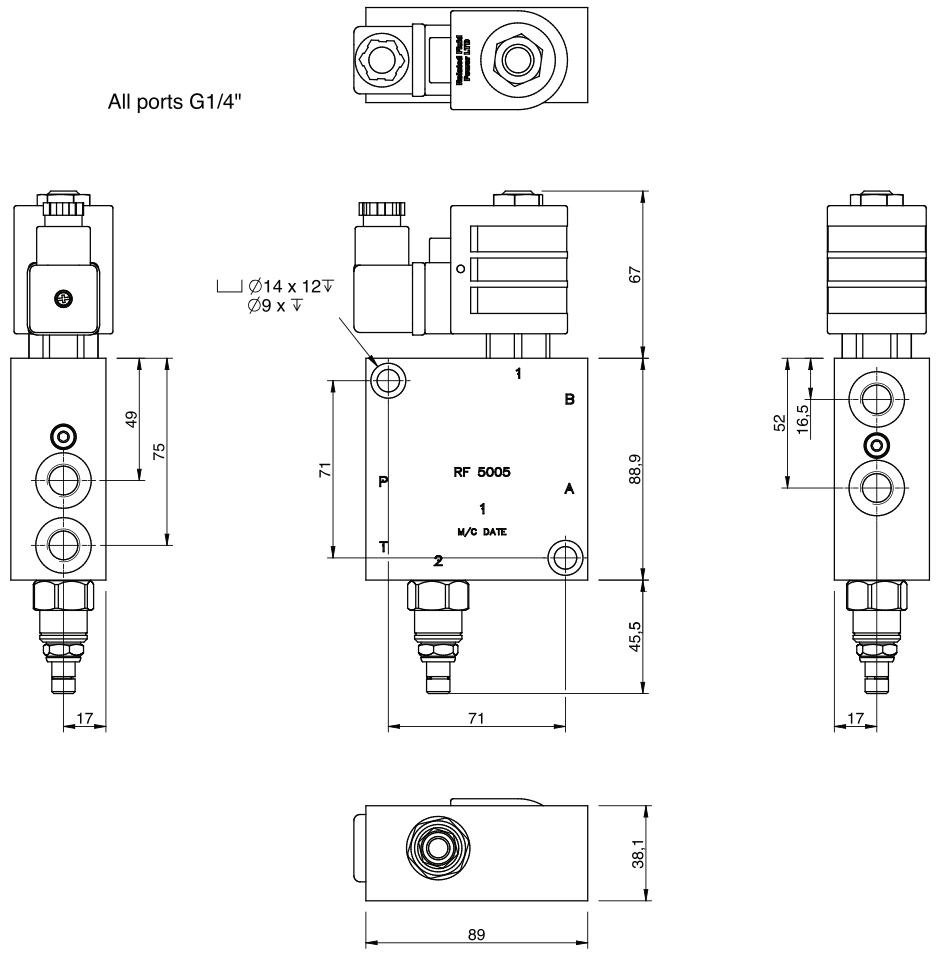




SECTION 9 MULTI FUNCTION

Dimensions

All ports G1/4"



Ordering Code

RF MF5005 **** ** ** *

Pressure setting	Valve options	Voltage & Coil	Material
21 = 210 Bar** **10 Bar increments 10-210 bar **21 = std. setting	00 = Std V0 = Viton seals 0M = standard seals + override knob on solenoid valve VM = Viton seals + override knob on solenoid valve	H1 = 12 Vdc(Din) H2 = 24 Vdc(Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch)	**S** = Steel (zinc, clear passivate)

Preferred Part No. - RF MF50052100H1S / RF MF50052100H2S

Related Fluid Power

Proportional pressure compensated priority flow control with relief and unloader Line Mounted

RF MF5098

Variable 240 bar - Variable up to 150 lpm on inlet, 110 lpm max. priority

Description

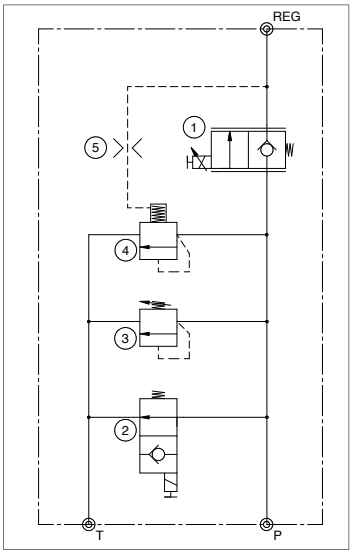
A manifold control system comprising of separate proportional metering control and 3 port bypass compensator, releif and solenoid operated unloading valve. The proportional valve is normally closed in the de-energised condition. In this state there is zero priority flow, all oil supplied is passed over the unloader valve. When the assebly is operated, the unloader valve is energised and a cuurent is supplied to the proportional valve. Depending on the input current, a priority flow is supplied out of the REG port with excess flow bypassed to tank. In the event of any load variations a constant flow will be maintained.
These valve systems are used in a wide variety of applications.
Please contact our sales for more information and guidance on options and what control can be achieved. PWM drivers can also be offered to compliment this assembly.

• Note: Actual flow ranges achieved are governed by valve selection.

Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation
- Multiple Voltage and coil termination options
- G34" ports

Circuit



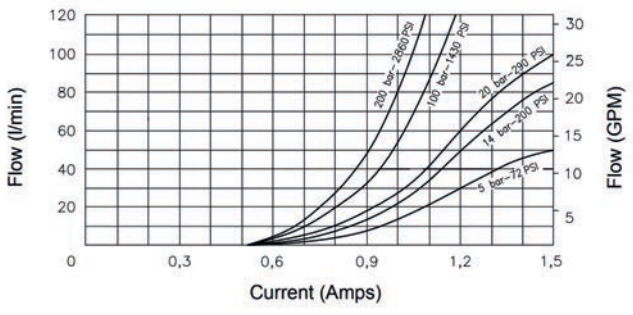
Specifications

Flow Range (lpm)	110
Max. Pressure (bar)	240
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFMF5098
Weight	4.2 kg (alum) 8.5 kg (steel)

Proportional valve Current (12vdc, half for 24vdc)

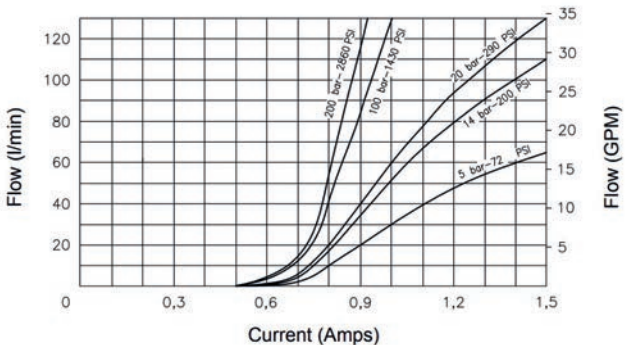
Flow vs. Current at different Pressure Drop

***Poppet type B** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*



Flow vs. Current at different Pressure Drop

***Poppet type C** - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)*

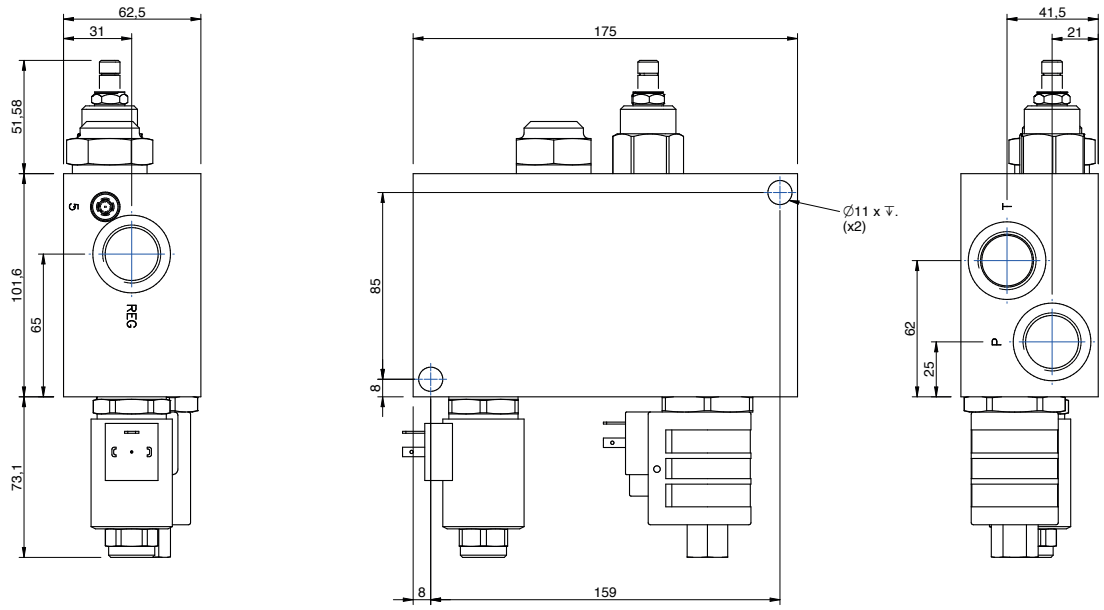


SECTION 9 MULTI FUNCTION

Coil

Current Supply Characteristics	PWM (Pulse Width Modulation)
Rated current range	400 -1400 mA
PWM or Super-Imposed Dither Frequency	100 Hz
Coil Resistance (12Vdc)	7.2 Ohm +/-5% @ 68°F (20°C)

Dimensions

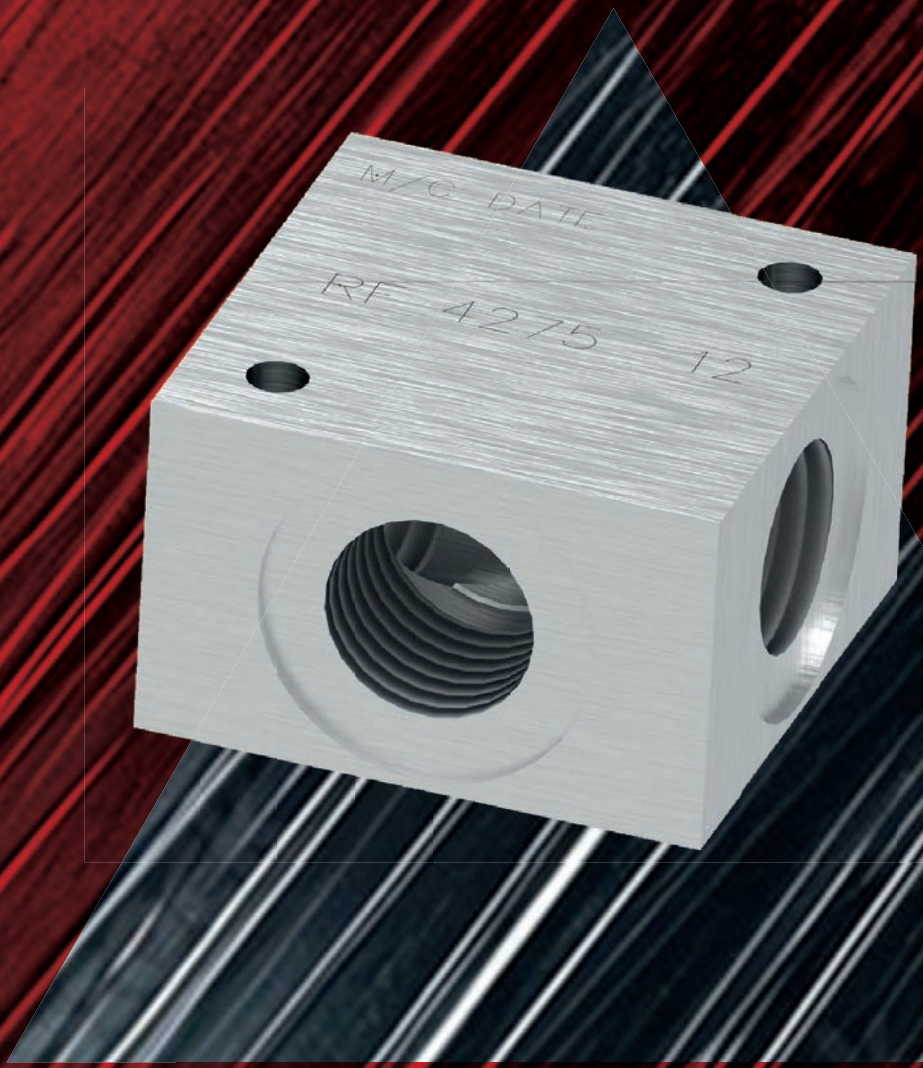


Ordering Code

RF MF5098 * * ** ** ** ** *

Nom. Flow Range	Compensator Setting	Pressure setting	Valve options	Coil Termination	Voltage	Manifold Material
B = 0-85 lpm	0 = 14 bar	**21** = 210 Bar**	As per cartridge data sheet i.e.	HC = DIN	12 = 12 Vdc	**A** = Aluminium (240 bar max clear anodised)
C = 0-110 lpm	1 = 16 bar	**10 Bar in-cre-ments	00 = Std	ID = Deutsch	24 = 24 Vdc	**S** = Steel (zinc, clear passivate)
	2 = 18 bar	****21** = std. setting	V0 = Viton seals	**Other coil terminations available on re-quest.	**Other Voltages available on request.	
	3 = 20 bar		0M = stand-ard seals + override ꝁ ob on sole-noid valves			
			VM = Vi-ton seals + override ꝁ ob on sole-noid valves			

SECTION 10
PIPE MANIFOLDS



Pipe manifold, 6 ported
Line Mounted

RF PM4108

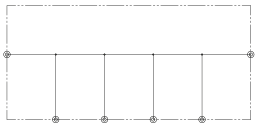
350 bar - Variable lpm

Description

An in-line porting manifold with facility to used select or all available ports.

Ports: G1" (x2) & G34" (x4)

Circuit

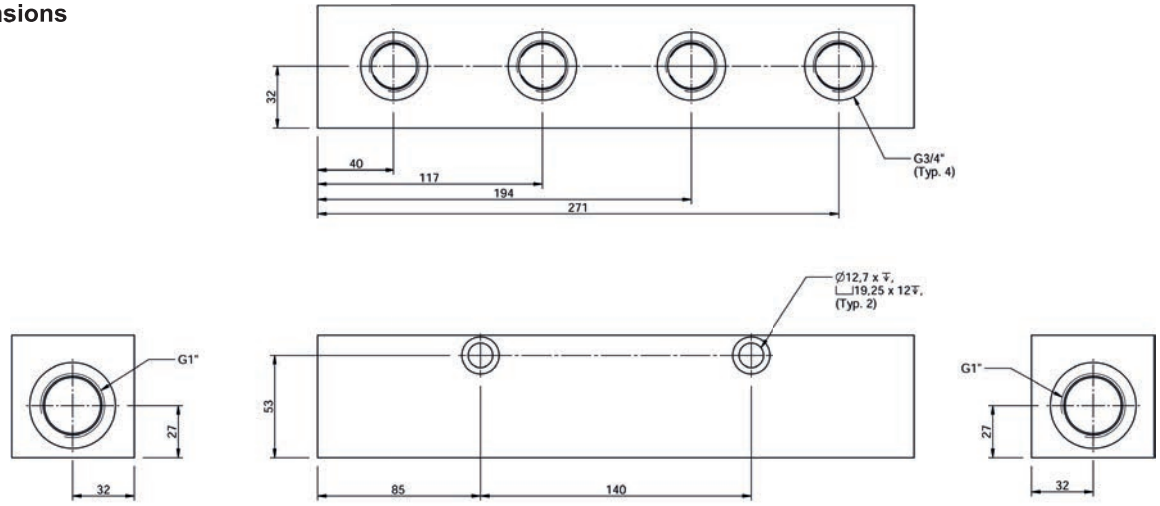


Features

- Maximized internal bores for low pressure drop
- Excellent pressure capability and cleanliness compared to welded alternatives
- Easy access porting
- Other body configurations are available on request

Flow Range (lpm)	variable
Max. Pressure (bar)	Up to 350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Weight	2.7 kg (aluminium), 7.7 kg (steel)

Dimensions



Ordering Example

RF PM4108 *

Manifold Material
A = Aluminium, Clear anodised. **standard**
S = Steel, zinc, plated

Preferred Part No. - RF PM4108A

Pipe manifold, 4 ported, G12”
Line Mounted

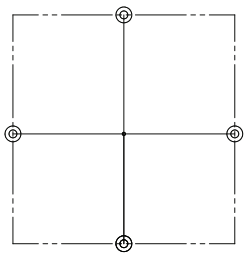
RF PM4275

350 bar - Up to Variable lpm

Description

A cross ported, 4 port pipe manifold with facility to user select some or all available ports.

Circuit

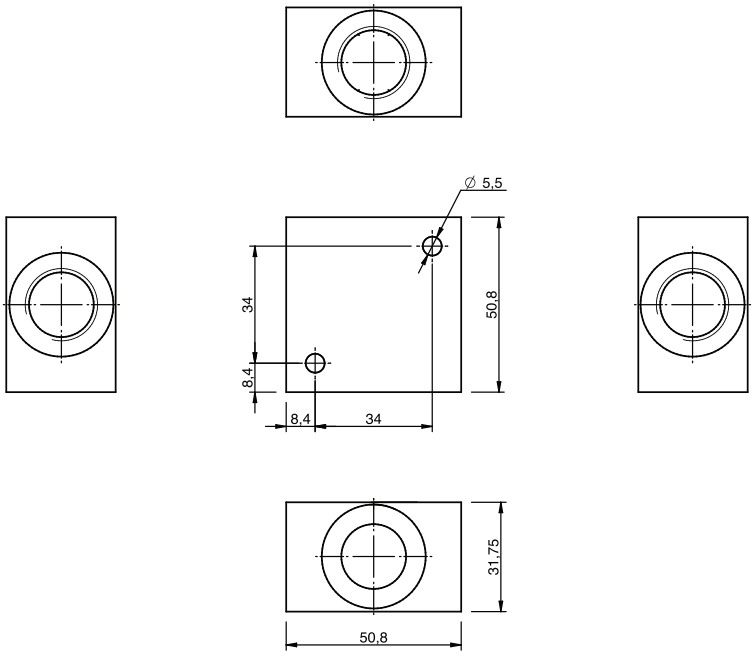


Features

- Maximized internal bores for low pressure drop
- Excellent pressure capability and cleanliness compared to welded alternatives
- Extremely compact and lighweight
- Other body configurations are available on request

Flow Range (lpm)	variable
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	N/A
Weight	0.15 kg (aluminium), 0.44 kg (steel)

Dimensions



Ordering Example

RF PM4275 *

Manifold Material
A = Aluminium, clear anodised **standard**
S = Steel, zinc plated

Preferred Part No. -

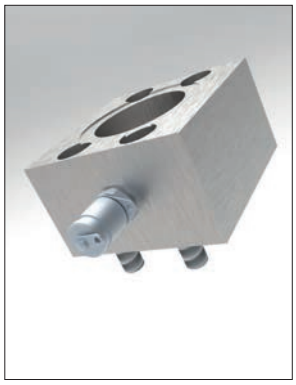
RF PM4275A

SECTION 10 PIPE MANIFOLDS

Related Fluid Power

Adaptor, Single port, G2”
Flange mounted, 2” SAE - 3000

RF PM4319



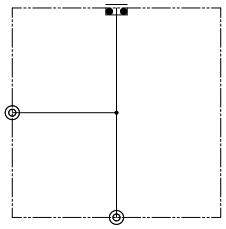
210 bar max - 240 lpm max

Description

The RF PM4319 is single port adaptor block converting from 2” BSP to 2” SAE-3000. Primarily designed for pump application that require adaptation and monitoring of suction line pressures this adaptor can be used up to pressures of 210 bar.

Consult RFP sales office for other unlisted options and alternative designs.

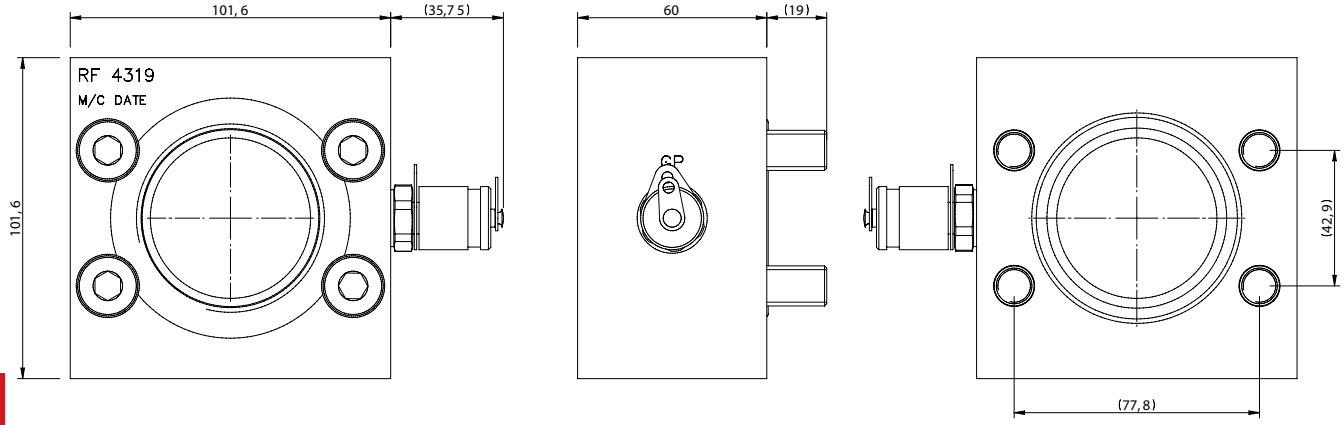
Circuit



Features

- Includes bolts, seal and pressure test point
- Captive o-ring design offers improved resistance to leaks
- Large unrestricted through bore

Dimensions



Specifications

Flow Range (lpm)	Variable
Max Pressure (bar)	210
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFPM4319
Weight	1.3 kg (alum) 3.5 kg (steel)

Ordering Code

RF PM4319 *

Manifold Material
A = Aluminium (210 bar max clear anodised)
S = Steel (350 bar max zinc plated)

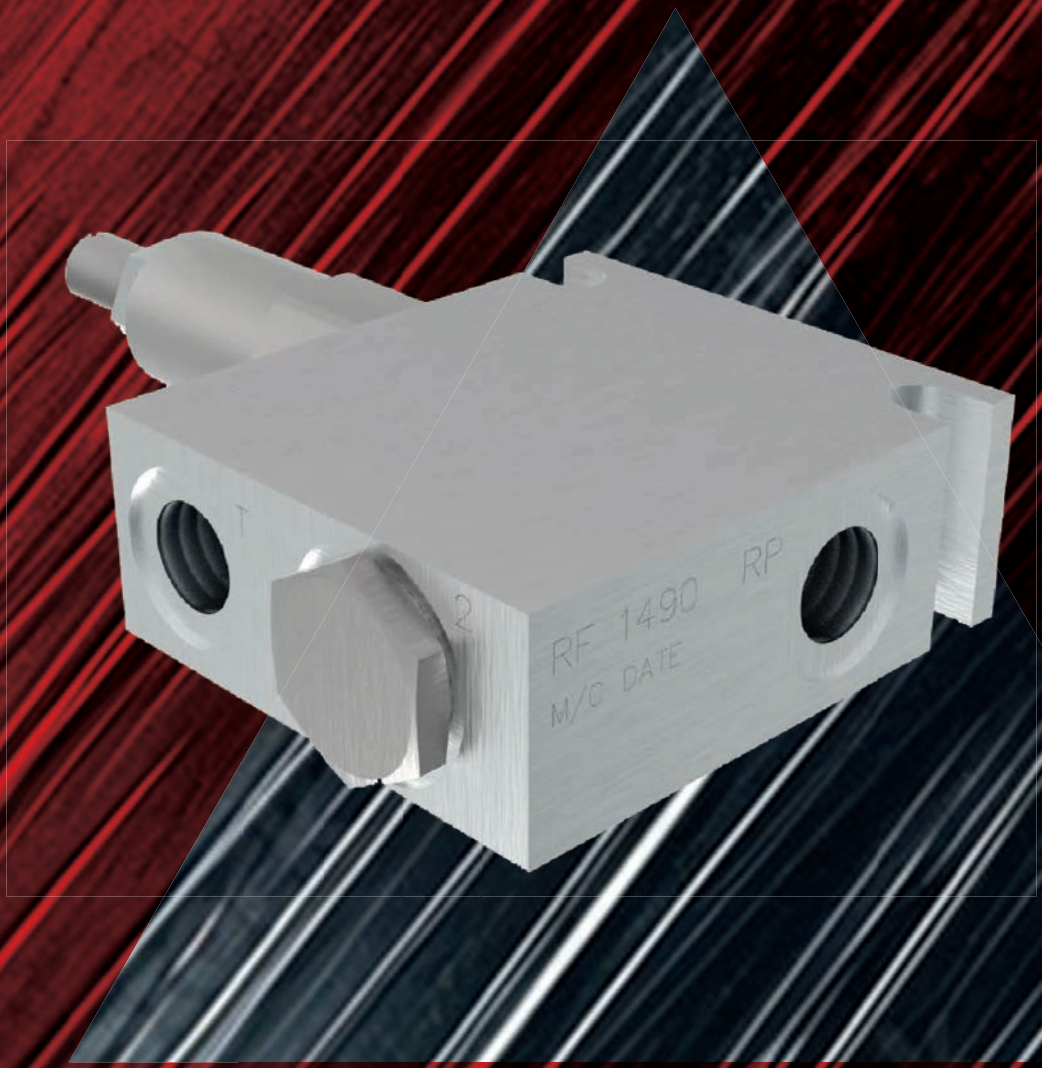
Preferred Part No. - RF PM4319A

SECTION 10 PIPE MANIFOLDS

Related Fluid Power

SECTION 11

PRESSURE REDUCERS

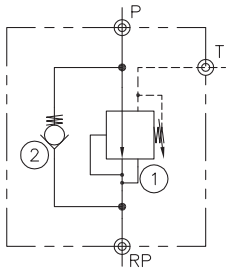


Pressure Reducing Assembly with Reverse Flow Check.
Line mounted, G3/8”

RF PR1490

Up to 275 bar - 40 lpm

Schematic



Description

A line mounted pressure reducing valve which can be used in multiple applications where reduced pressure is required in one direction but normal system pressure is required in an opposite direction. The incorporation of a reverse free flow check ensures that returning oil is unrestricted thus eliminating any issues such as pressure intensification.
Note: Any back pressure applied to port ‘T’ will be additive to the setting on the valve ①.

Features

- Low profile, compact and efficient design
- Multiple pressure ranges.
- Multiple adjustment types.

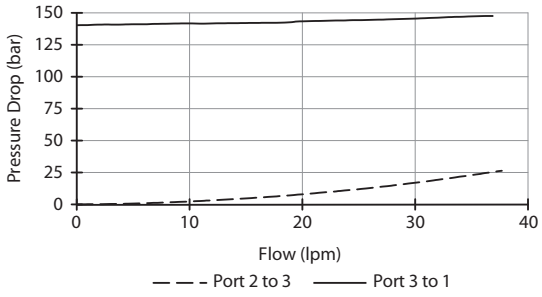
Specifications

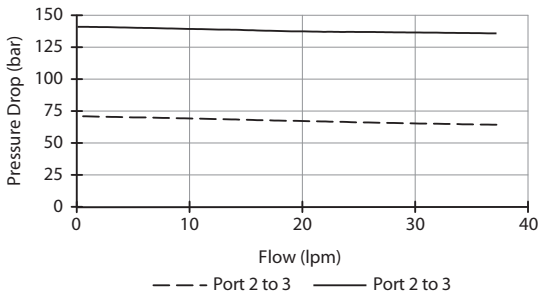
Flow Range (lpm)	40
Max. Pressure (bar)	275
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFPR1490
Weight	0.9 kg (alum) 1.7 kg (steel)

Performance

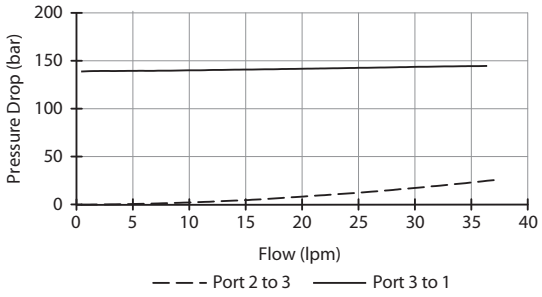
32 cSc / 38°C.

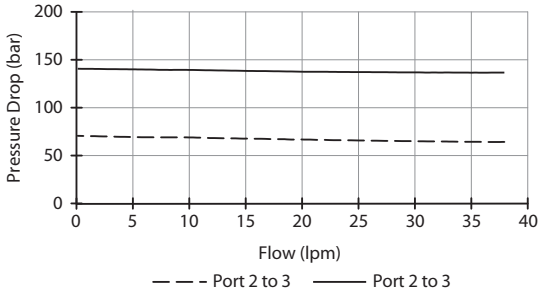
D-DFPWP Pressure reducing valve setting ‘H’





D-DFPRP Pressure reducing valve setting ‘M’ & ‘L’

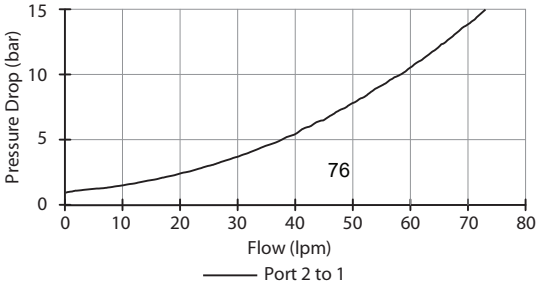




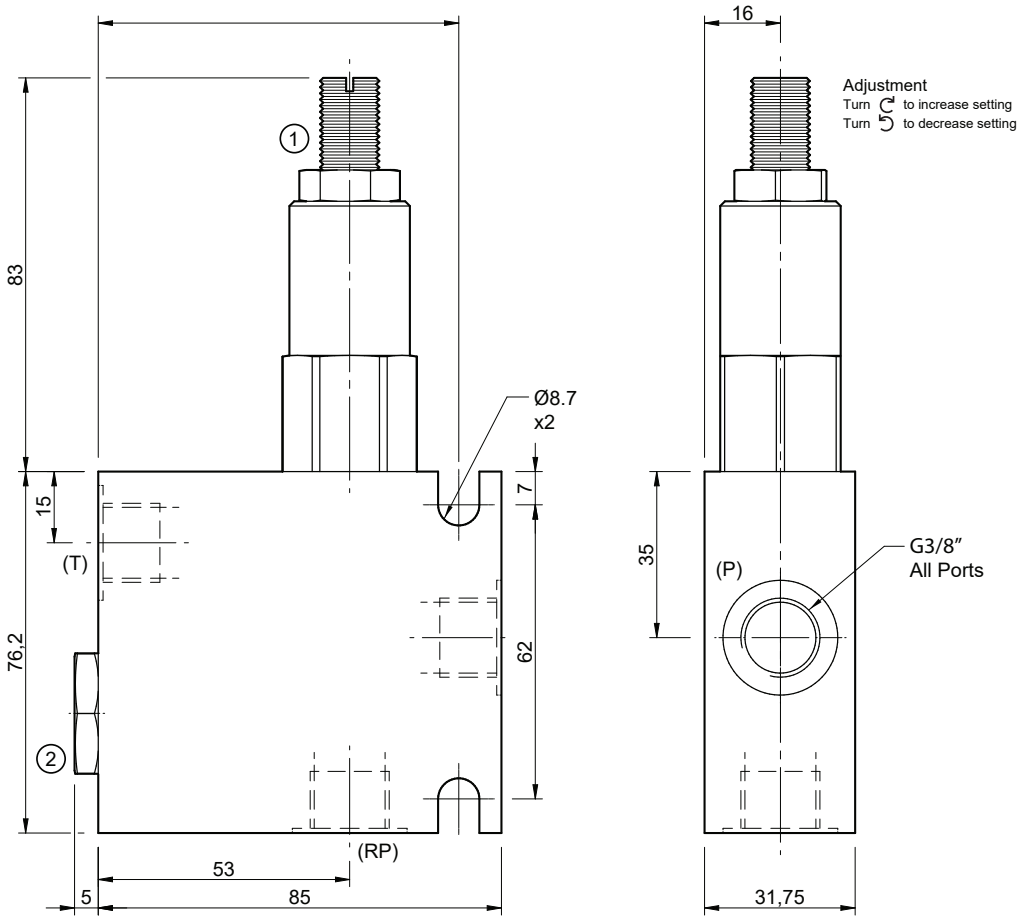
SECTION 11
PRESSURE REDUCERS

Performance

D-DECVA Return flow ΔP



Dimensions



Ordering Code

RF PR1490 * * *

Pressure Reducing Valve
H - 7-275 bar
M - 7-210 bar (standard)
L - 5-55 bar

Adjuster Type
S - Screwdriver (standard) Not available on ‘**H**’ valve
H - Handwheel
A - Allen key

Manifold Material
A - Aluminium (210 bar max. clear anodised)
S - Steel (275 bar max. zinc plated)

Preferred Part No. - RF PR1490LSA / RF PR1490MSA

Related Fluid Power

SECTION 12
RELIEF VALVES

Dual Cross Line Relief Assembly.
Line mounted, G1”

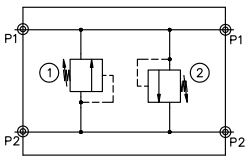
RF RV3883

Up to 350 bar - Up to150 Lpm

Description

This assembly is used in applications that require high capacity relief protection on both services (P1 → P2 & P2 → P1). The relief valve for each service is separately adjustable and are secured with a lock nut. Through porting and compact design makes this valve assembly an ideal solution on installations where space is at a premium.

Symbol

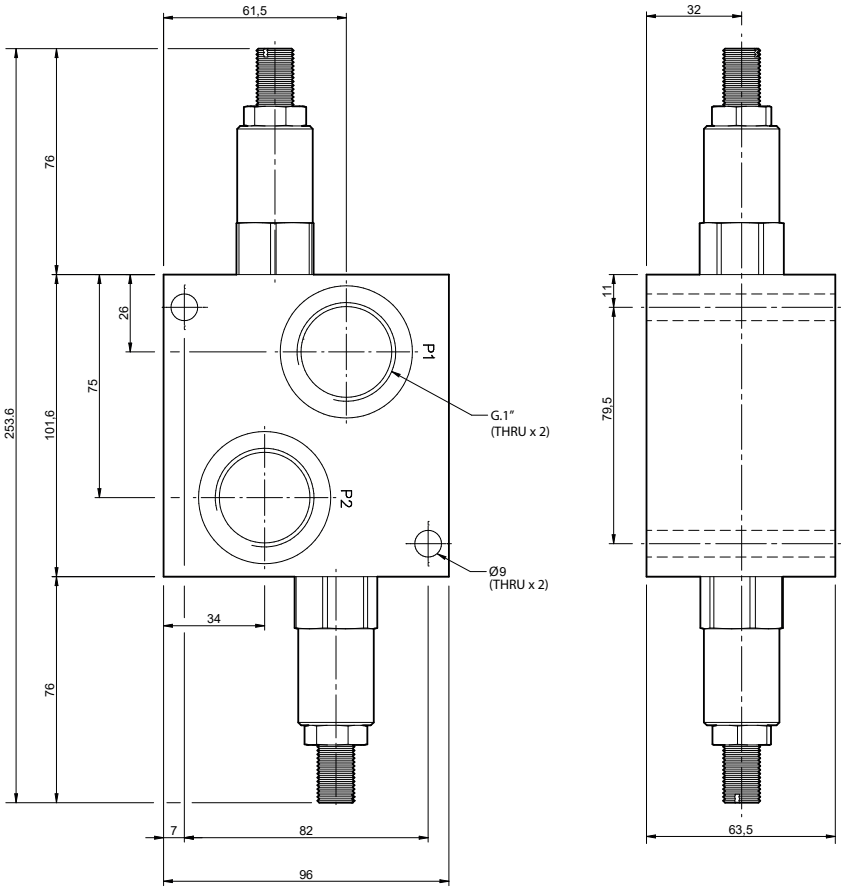


Features

- Aluminium (Clear Anodised) or Steel (Zinc clear) material options.
- Good load holding.
- Compact, efficient design.
- Standard relief setting = 210 bar (cracking).
- Thru Pressure & Tank Port.
- Low pressure rise, stable relief characteristic.
- Poppet type relief, dirt tolerant.

Flow Range (lpm)	150
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFRV3883
Weight	2.0 kg (alum) 4.4 kg (steel)

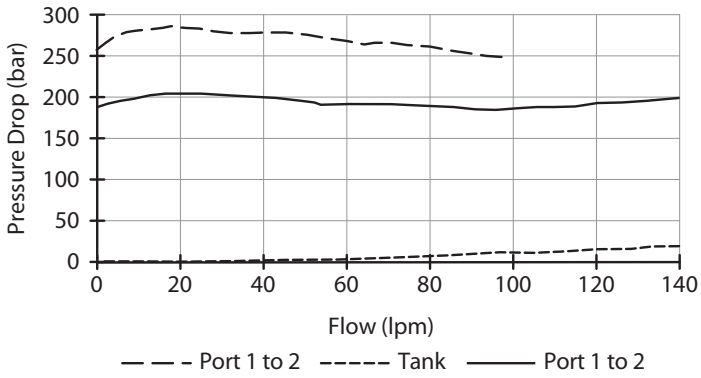
Dimensions



Relief Valve Performance

Oil viscosity 32 cSt

Temperature 38 °C



Recommended return line pressure as shown on Performance graph.

Ordering Example

RF RV3883 ** ** *

Pressure Setting
21 = 210 Bar**
**10 Bar increments
****21** = std. setting

Pressure Setting
15 = 150 Bar**
**10 Lpm increments
150 Lpm maximum

Manifold Material
A = Aluminium (210 bar max)
S = Steel (350 bar max, zinc plated)

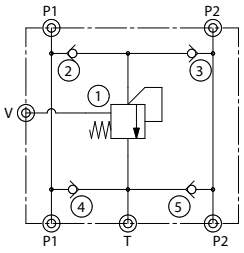
Preferred Standard Model Code(s):
RF RV38832121S

Ventable cross line relief valve with anti-cavitation protection Line mounted

RF RV4215

Variable, 350 bar max - Variable up to 240 lpm

Circuit



Description

The RF 4215 is a circuit saver valve assembly offering vented relief and anti-cavitation protection in an all-in-one package. The assembly is configured to protect two services using a single vented relief valve cartridge. The vented relief valve has pressure adjustment but is intended to be operated from a separate pressure / loading control. When the pressure setting of either the pilot control or valve itself is reached, the valve will open venting oil from the highest pressure side to the lowest pressure side. Oil flow will take a path of: High pressure > check valve > Vented relief valve > tank / check valve. > Low pressure. The check valves are high capacity and have low impact on hydraulic losses or pressure rise. The two check valves mounted between the tank port and the services also have the capacity to offer anti-cavitation protection which can be a result of high pressure events or actuator run on. Typical applications include cylinder and motor load limiting.

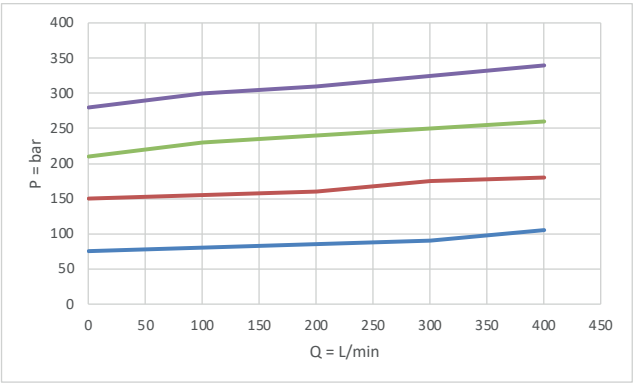
Notes:

- The relief valve is a spool type and not suitable for load holding applications
- Pilot control valves not included. Contact RFP sales office for further information and support.

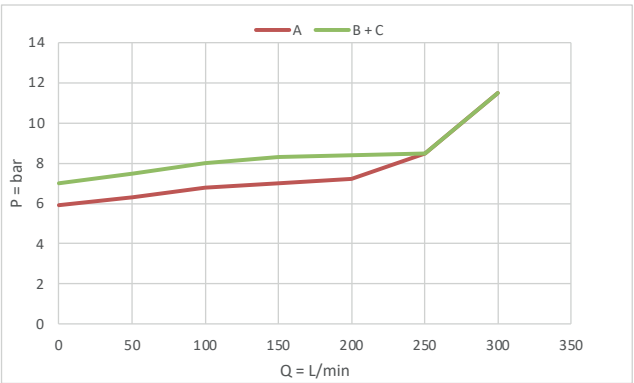
Features

- High flow capacity
- Low pressure rise, quiet and moderately fast operation on relief valve
- Option for dual or back up pressure setting when used with a pilot control that has pressure adjustment.
- G1" Ports
- Contact factory for other flow capacity / non listed options

Pressure Rise:

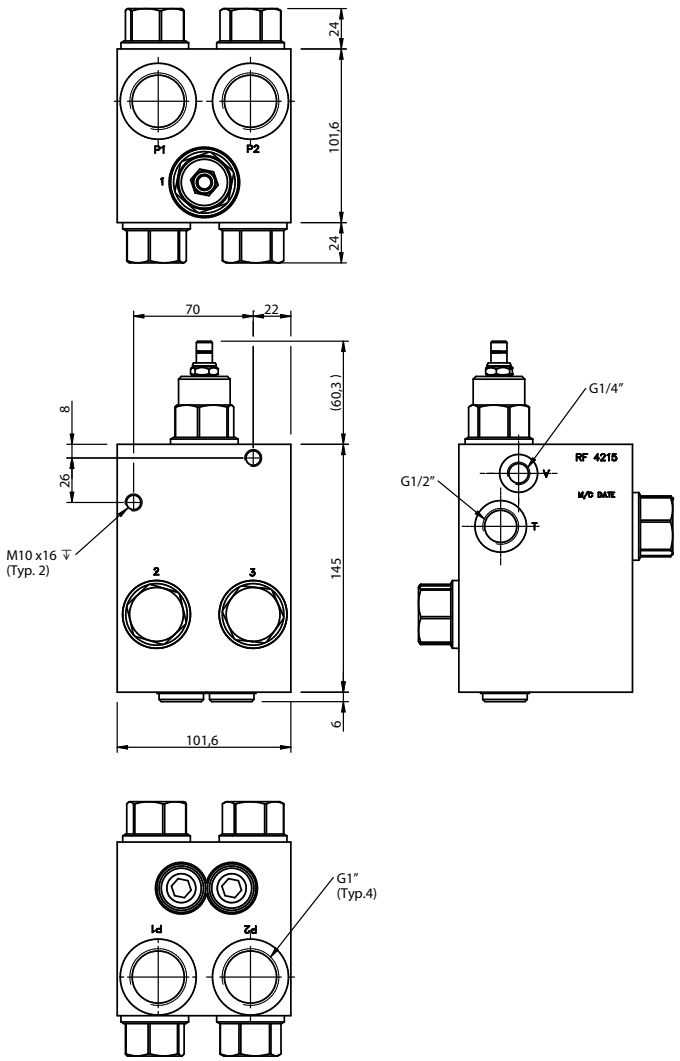


Pressure Drop:



Flow Range (lpm)	240
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit Weight	SK-RFRV4215
Weight	5.3 kg (alum) 10.2 kg (steel)

Dimensions



Ordering Example

RF RV4215 * ** * *

Relief valve Pressure range	Pressure setting	Seal Type	Manifold Material
A = 10-210 bar	**21** = 210 Bar** **10 Bar increments **21 = std. setting	**0** - Buna	**A** = Aluminium (210 bar max clear anodised)
B = 10 to 310 bar		**V** - Viton	**S** = Steel (350 bar max zinc plated)
C = 10 – 420 bar (350 bar max)			

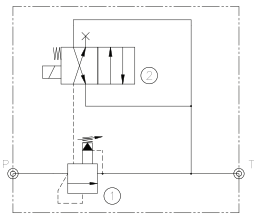
Preferred Part No. - RF RV4215C210S

Vented relief valve with Cetop interface for pilot control
Line Mounted, G1”

RF RV4304

350 bar max - Up to 240 lpm max

Circuit



Description

The RF LC4304 is a circuit saver valve assembly using a vented relief valve as the main pressure control. The vented relief valve has pressure adjustment but is intended to be operated from a separate pressure / loading control. When the pressure setting of either the pilot control or valve itself is reached the vented relief valve will open. This valve assembly is supplied without pilot control however many different pilot configurations can be achieved such as: (i) remote or on-board pressure control (ii) solenoid, mechanical or air operated loading valve (iii) basic ON/OFF or explosion proof loading valve (iv) Normally open or normally closed loading valve.

Notes:

(i) Cetop pilot control(s) not supplied. Consult RFP sales office for further assistance here

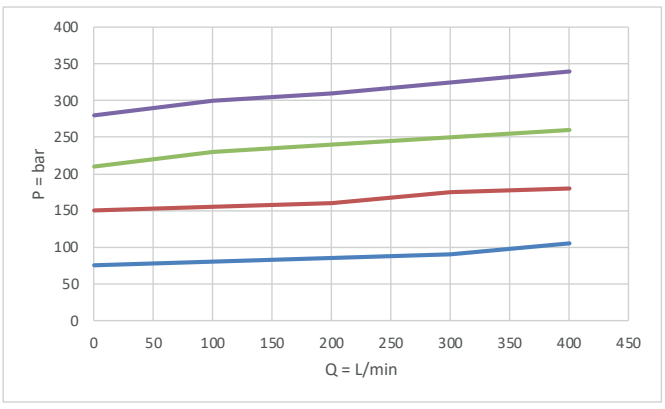
(ii) Other configurations including but not limited to, port size, logic setup and position monitoring available on request

Features

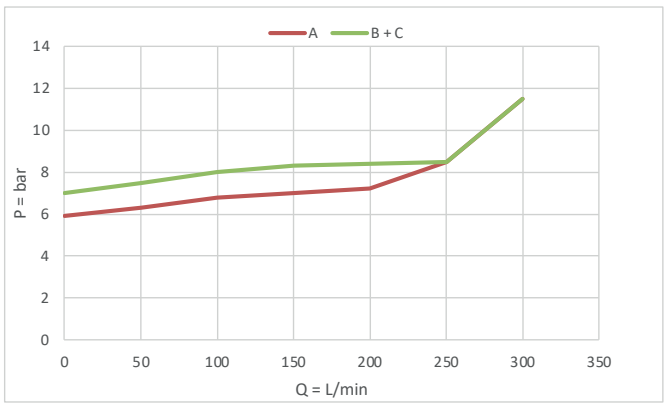
- Multi-configuration capability
- G1” Ports
- Ideal for multiple applications

Flow Range (lpm)	240
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFRV4304
Weight	2.3 kg (alum) 5.2 kg (steel)

Pressure Rise:

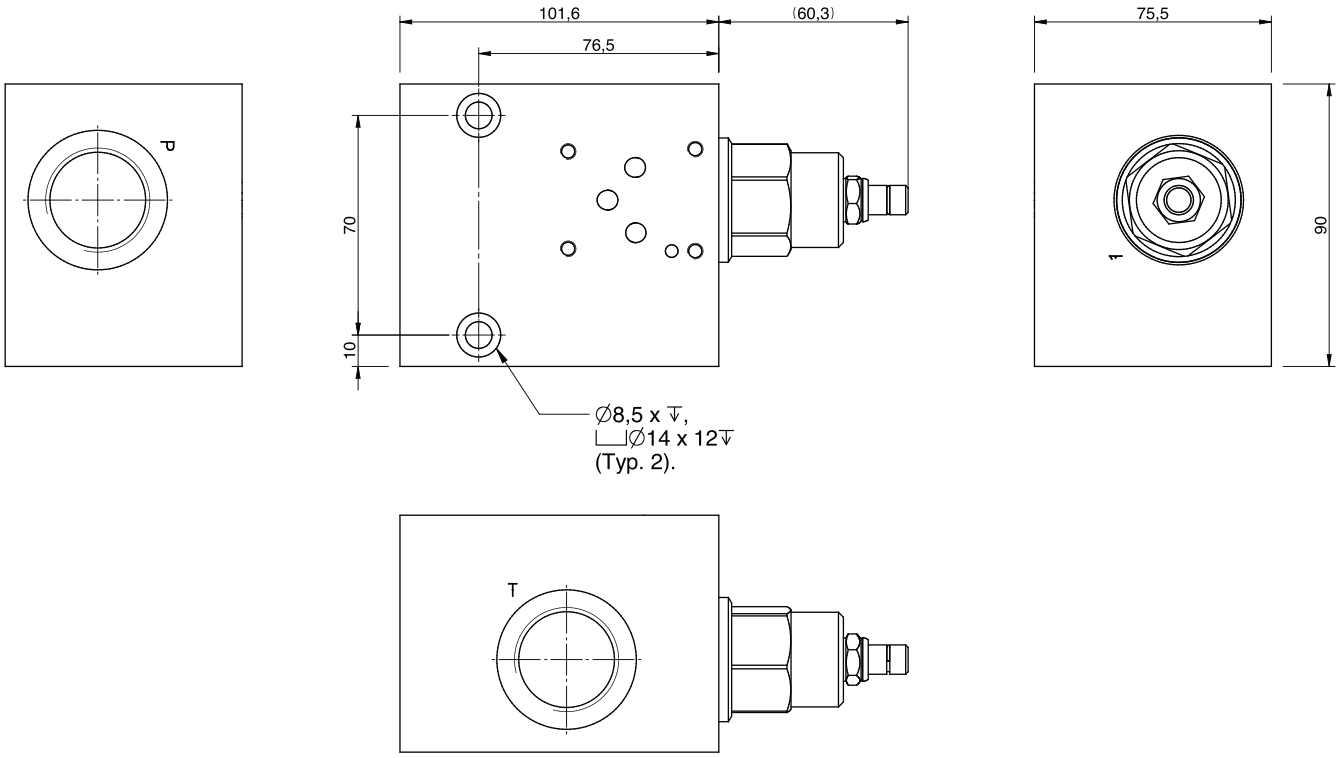


Pressure Drop:



SECTION 12 RELIEF VALVES

Dimensions



Ordering Example

RF RV4304 * ** * *

Relief valve Pressure range	Pressure setting	Seal Type	Manifold Material
A = 10-210 bar	**21 =** 210 Bar** **10 Bar increments ****21** = std. setting	**0** - Buna	**A** = Aluminium (210 bar max clear anodised)
B = 10 to 310 bar		**V** - Viton	**S** = Steel (350 bar max zinc plated)
C = 10 – 420 bar (350 bar max)			

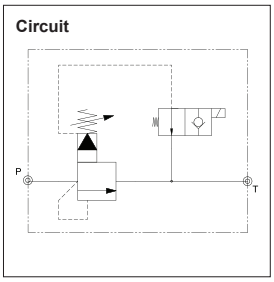
Preferred Part No. - RF RV4304C210S

Related Fluid Power

Vented relief valve assembly
Line Mounted

RF RV5117

Up to 350 bar max - Up to 120 lpm



Description

A manifold control system comprising of separate vented relief valve and pilot normally open poppet unloader valve. In neutral the internal chamber of the vented relief valve (acting as a main stage) is open to tank via the unloader (which acts as a second stage). In this condition the vented relief opens and passes oil from P to T at a low pressure drop. When the unloader is closed, the main stage remains closed allowing for a build-up of system pressure. In the event that system pressure exceeds the setting of the vented relief, the main stage of the vented relief is once again allowed to open but maintains system pressure at the valve setting.

Please contact our sales office for more information and guidance on options and what control that can be achieved.

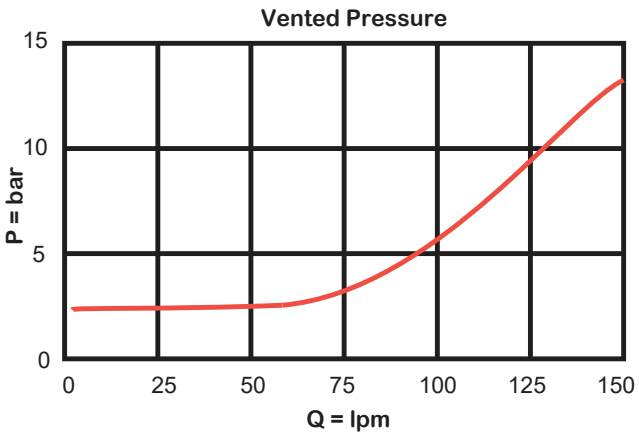
Features

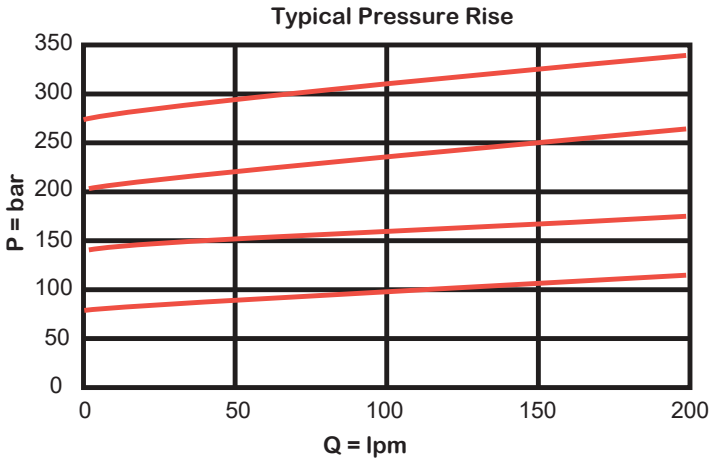
- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation
- Multiple Voltage and coil termination options

Specifications

Flow Range (lpm)	120
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Spare Seal Kit	SK-RFRV5117
Weight	1.3 kg (alum) 2.3 kg (steel)

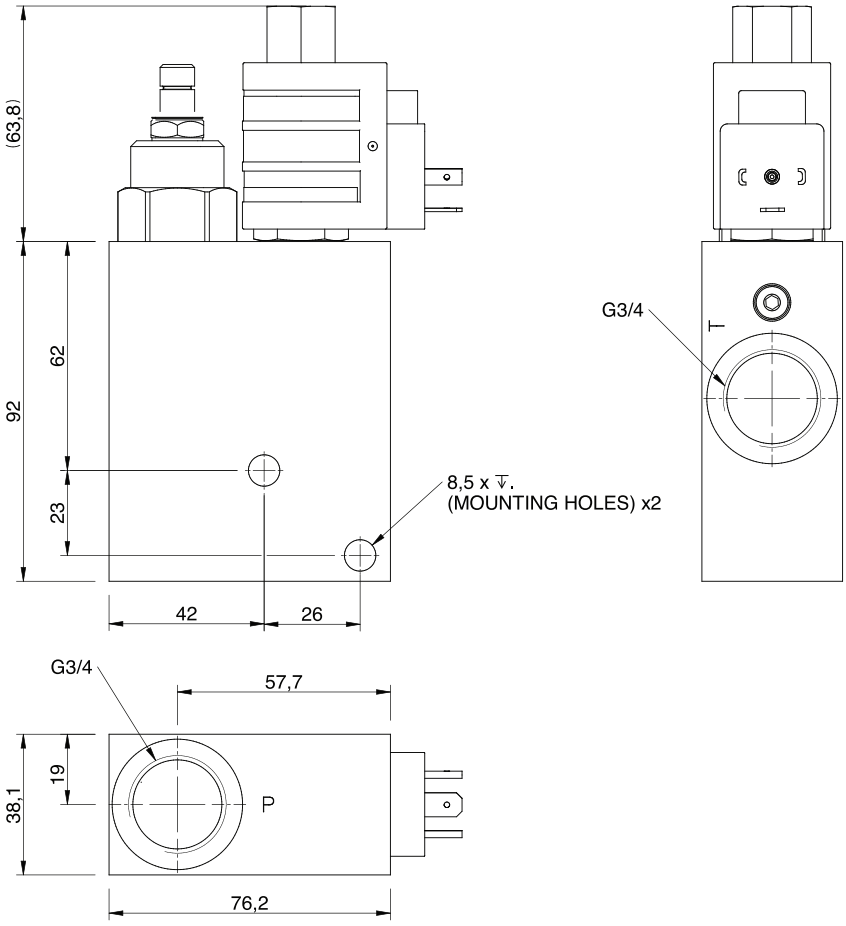
Relief Graph





SECTION 12
RELIEF VALVES

Dimensions



Ordering Code

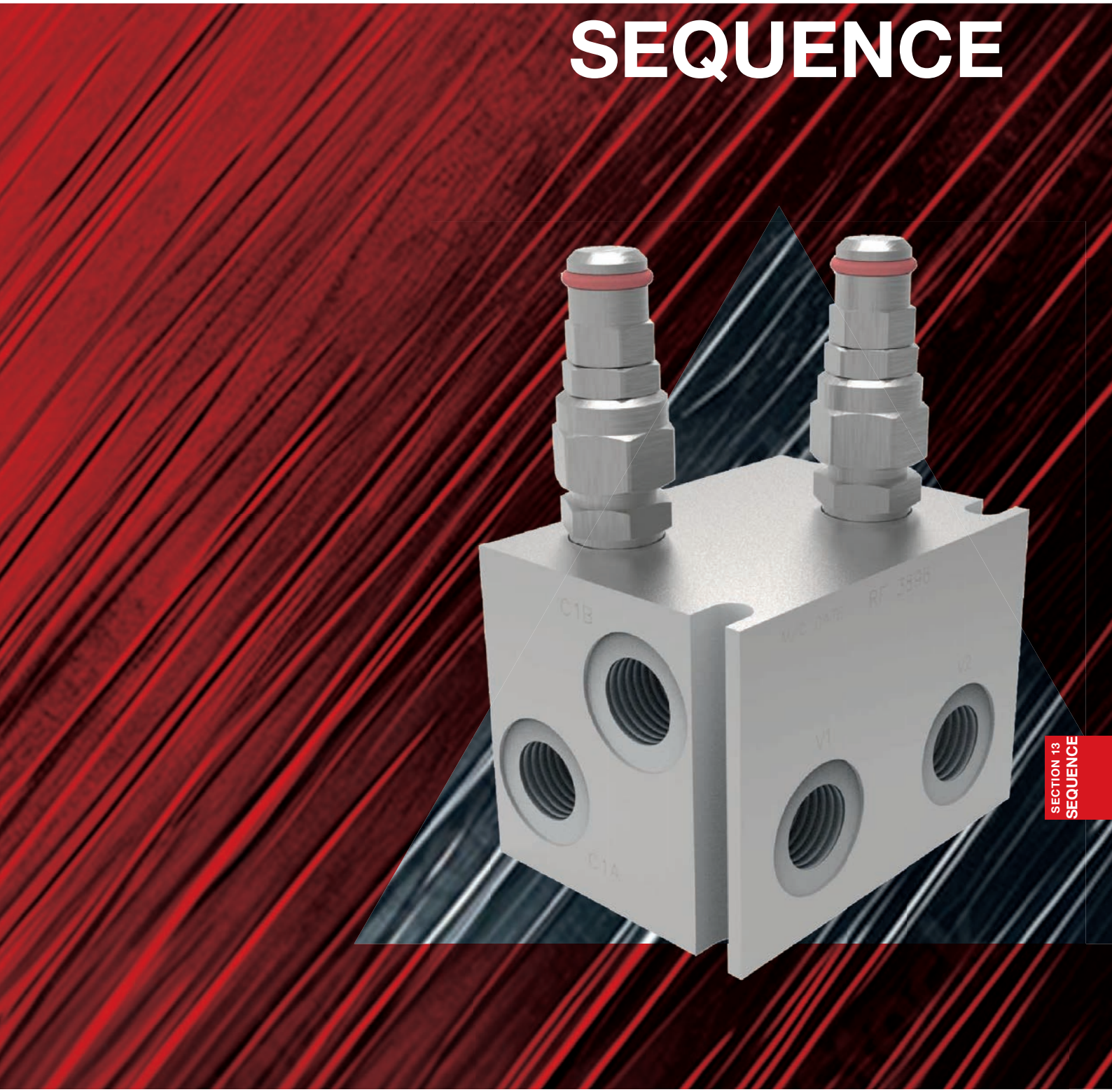
RF LC5117 ** ** ** ** *

Pressure setting	Valve options	Coil Termination	Voltage	Manifold Material
21 = 210 Bar** **10 Bar increments ****21** = std. setting	As per cartridge data sheet i.e.	HC = DIN	12 = 12 Vdc	**A** = Aluminium (clear anodised)
	00 = Std	ID = Deutsch	24 = 24 Vdc	**S** = Steel, clear (zinc passivate)
	V0 = Viton seals	**Other coil terminations available on request.	**Other Voltages available on request.	
	0K = standard seals + override knob on sole-noid valves			
	VK = Viton seals + override knob on solenoid valves			

SECTION 12 RELIEF VALVES

Related Fluid Power

SECTION 13
SEQUENCE



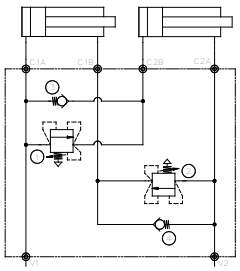
Related Fluid Power

Dual Sequence Control Assembly
Line mounted, G1/2”

RF SQ3896

Up to 350 bar - Up to 40 lpm

Symbol



Description

This assembly is designed for sequencing of double acting cylinder applications, where one cylinder must extend/retract before a second cylinder moves.

In the first part of the cycle, oil flows into V1 and out of C1A until cylinder C1 is extended. Return flow from the opposite side of the cylinder, free flows through check valve 4 and out of V2. Sequence valve 1 then opens at a set pressure allowing flow out of port C2B, extending cylinder C2. This operation then also works in the same principle when oil flow is supplied in port V2.

A compact design allows this manifold control to easily integrate into many hydraulic systems negating the need for multiple line mounted valves, associated pipework and assembly time whilst also reducing potential leak points.

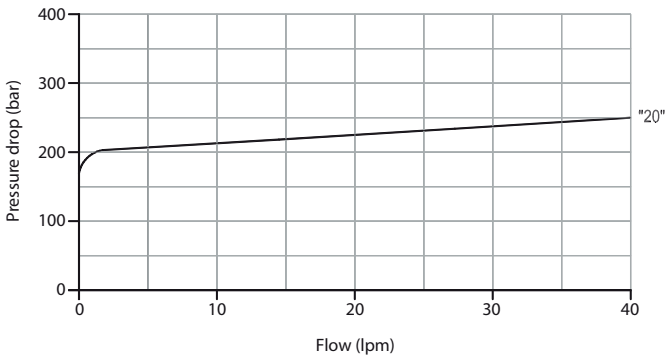
Features

- Aluminium body (clear anodised) or steel body (zinc plate clear passivate)
- Optional sequence valve pre-setting 50 - 220 bar (other ranges available upon request)
- Atmospherically vented sequence valves are used and are immune to system back pressures
- Also available in G1/4” ported version in another series (RF SQ4897). Consult RFP if required

Flow Range (lpm)	40
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFSKSQ3896
Weight	1.7 kg (alum) 4 kg (steel)

Performance - Sequence Valve

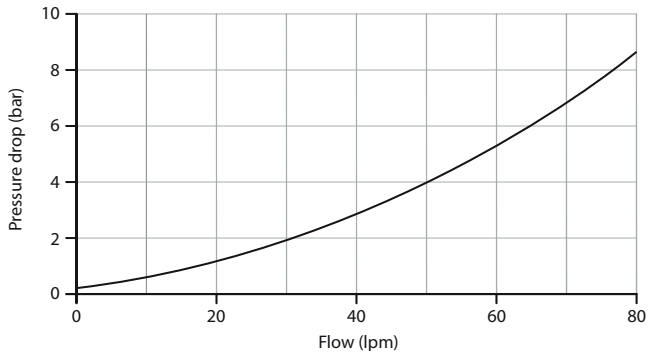
24 cSt / 50°C.



Sequence Valve Specifications	
Rated flow	40 Lpm
Max. pressure	350 bar
Installation torque	45-50 Nm
Valve weight	0.180 Kg

Performance - Check Valve

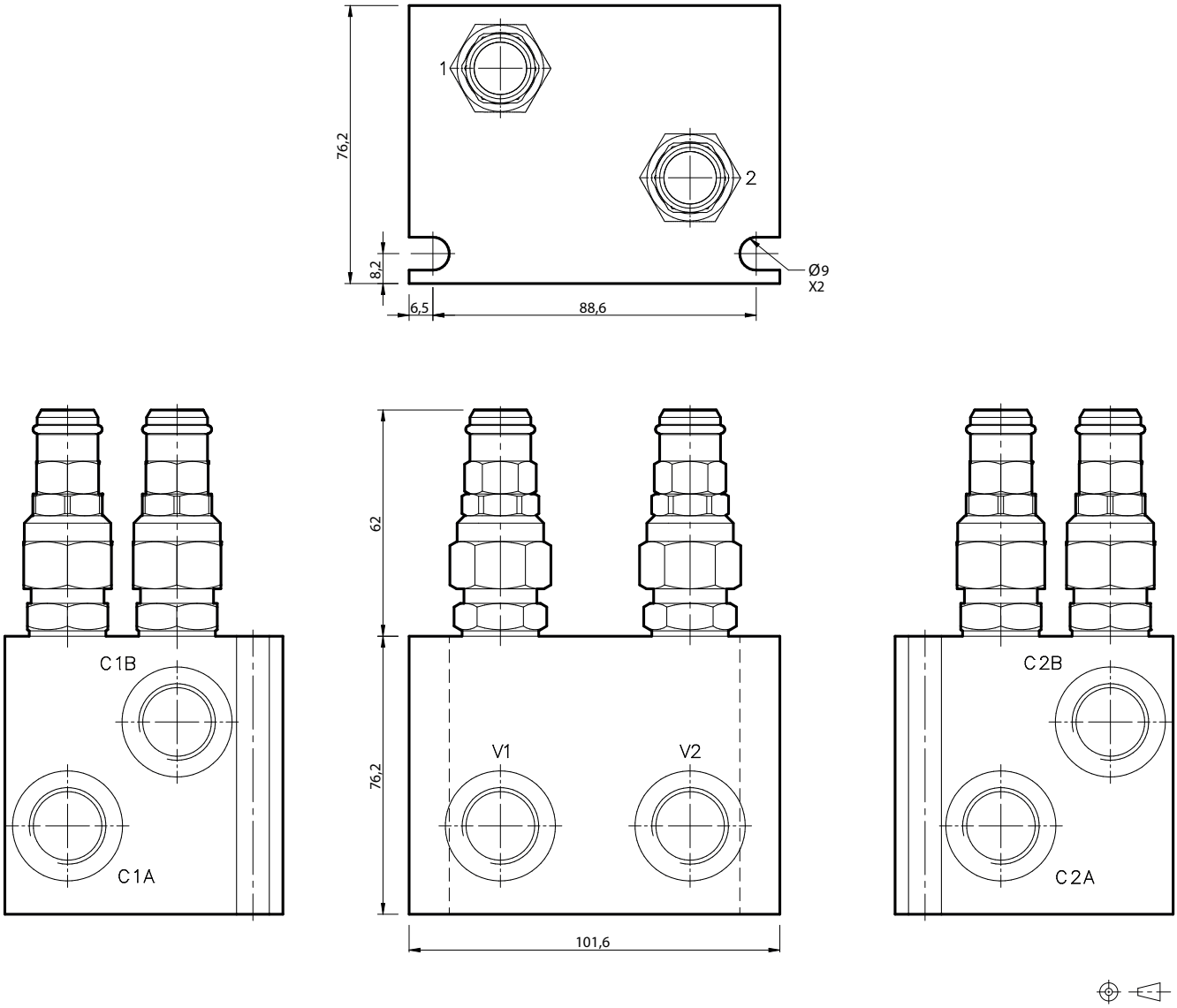
24 cSt / 50°C.



Check Valve Specifications	
Rated flow	40 Lpm
Max. pressure	350 bar
Installation torque	6 Nm
Valve weight	0.019 Kg

SECTION 13 SEQUENCE

Dimensions



Ordering Example

RF SQ3896 | ** | ** | **

Sequence Valve 1 **Pressure Setting** (50-220 bar)
05 = 50 Bar**
12 = 120 Bar**
**10 Bar increments
10 = std. setting100 bar

Sequence Valve 2 **Pressure Setting** (50-220 bar)
05 = 50 Bar**
12 = 120 Bar**
**10 Bar increments
10 = std. setting100 bar

Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

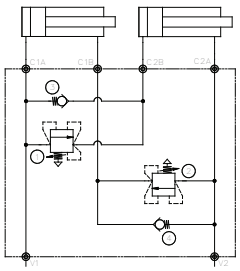
Preferred Part No. - RF SQ38961010A

Dual Sequence Control Assembly
Line mounted, G1/4”

RF SQ4897

Up to 350 bar - Up to 20 lpm

Circuit



Description

This assembly is designed for sequencing of double acting cylinder applications, where one cylinder must extend/retract before a second cylinder moves.

In the first part of the cycle, oil flows into V1 and out of C1A until cylinder C1 is extended. Return flow from the opposite side of the cylinder, free flows through check valve 4 and out of V2. Sequence valve 1 then opens at a set pressure allowing flow out of port C2B, extending cylinder C2. This operation then also works in the same principle when oil flow is supplied in port V2.

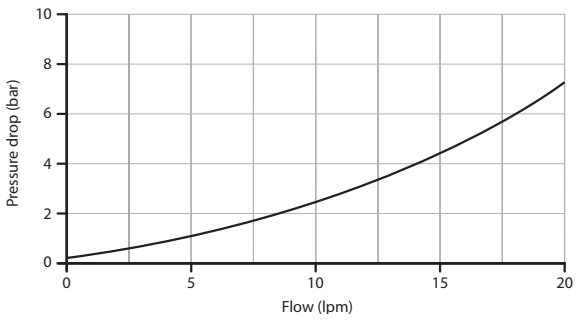
A compact design allows this manifold control to easily integrate into many hydraulic systems negating the need for multiple line mounted valves, associated pipework and assembly time whilst also reducing potential leak points.

Features

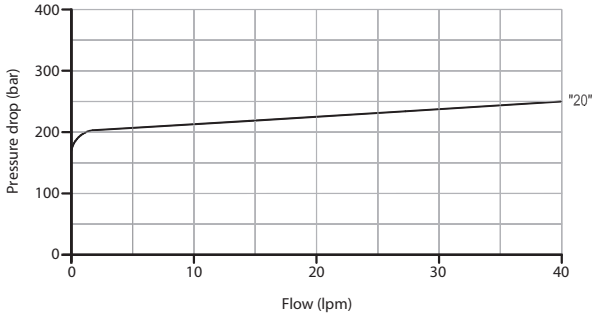
- Aluminium body (clear anodised) or steel body (zinc plate clear passivate)
- Optional sequence valve pre-setting 50 - 220 bar (other ranges available upon request)
- Atmospherically vented sequence valves are used and are immune to system back pressures
- Also available in G1/2” ported version in another series (RF MF3896). Consult RFP if required

Flow Range (lpm)	20
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Spare Seal Kit	SK-RFSQ4897
Weight	1.2 kg (alum) 2.9 kg (steel)

Performance - Check Valve
24 cSt / 50°C.

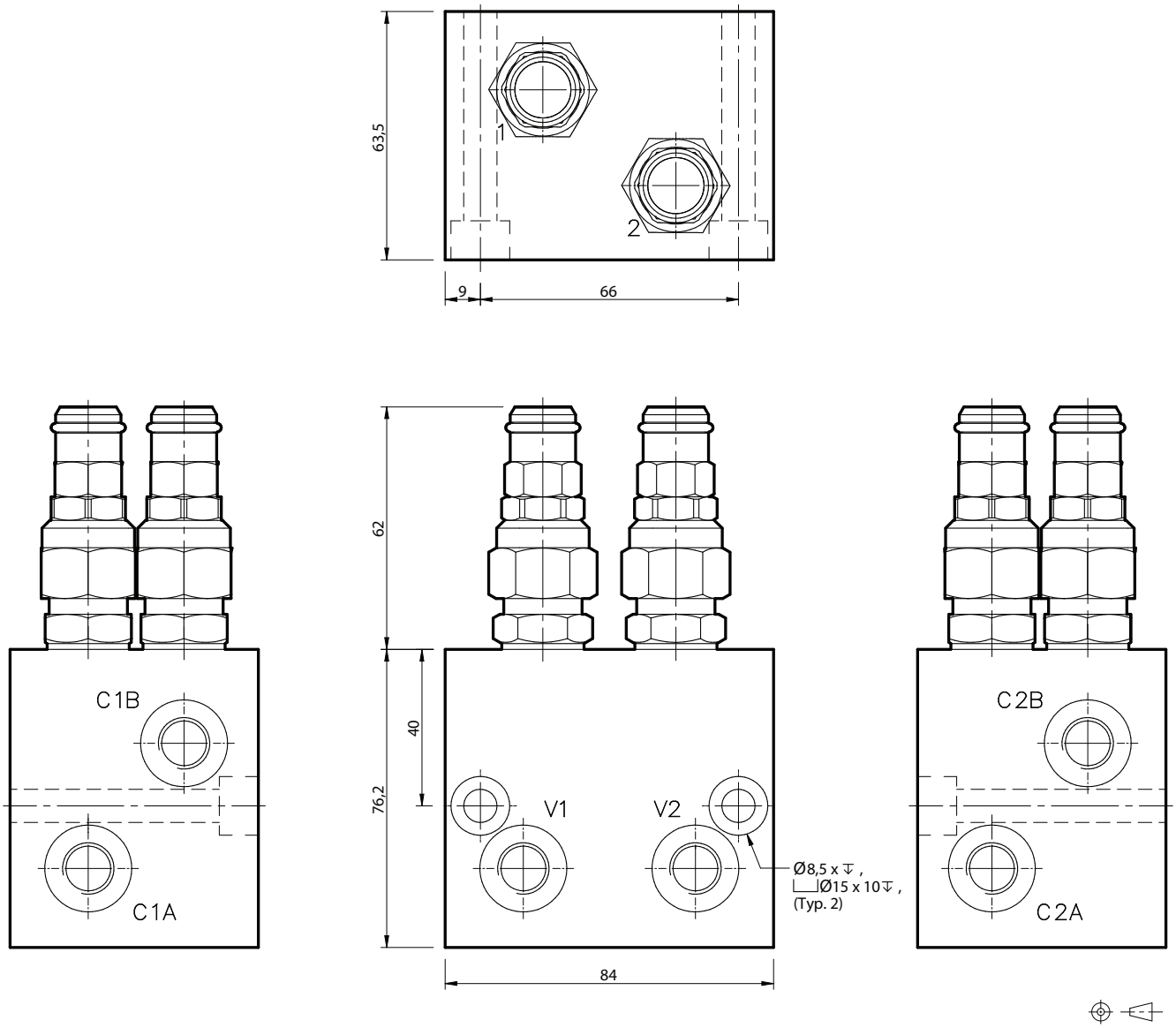


Performance - Sequence Valve
24 cSt / 50°C.



SECTION 13 SEQUENCE

Dimensions



Ordering Example

RF SQ4897 ** ** **

Sequence Valve 1 **Pressure Setting** (50-220 bar)
05 = 50 Bar**
12 = 120 Bar**
**10 Bar increments
10 = std. setting100 bar

Sequence Valve 2 **Pressure Setting** (50-220 bar)
05 = 50 Bar**
12 = 120 Bar**
**10 Bar increments
10 = std. setting100 bar

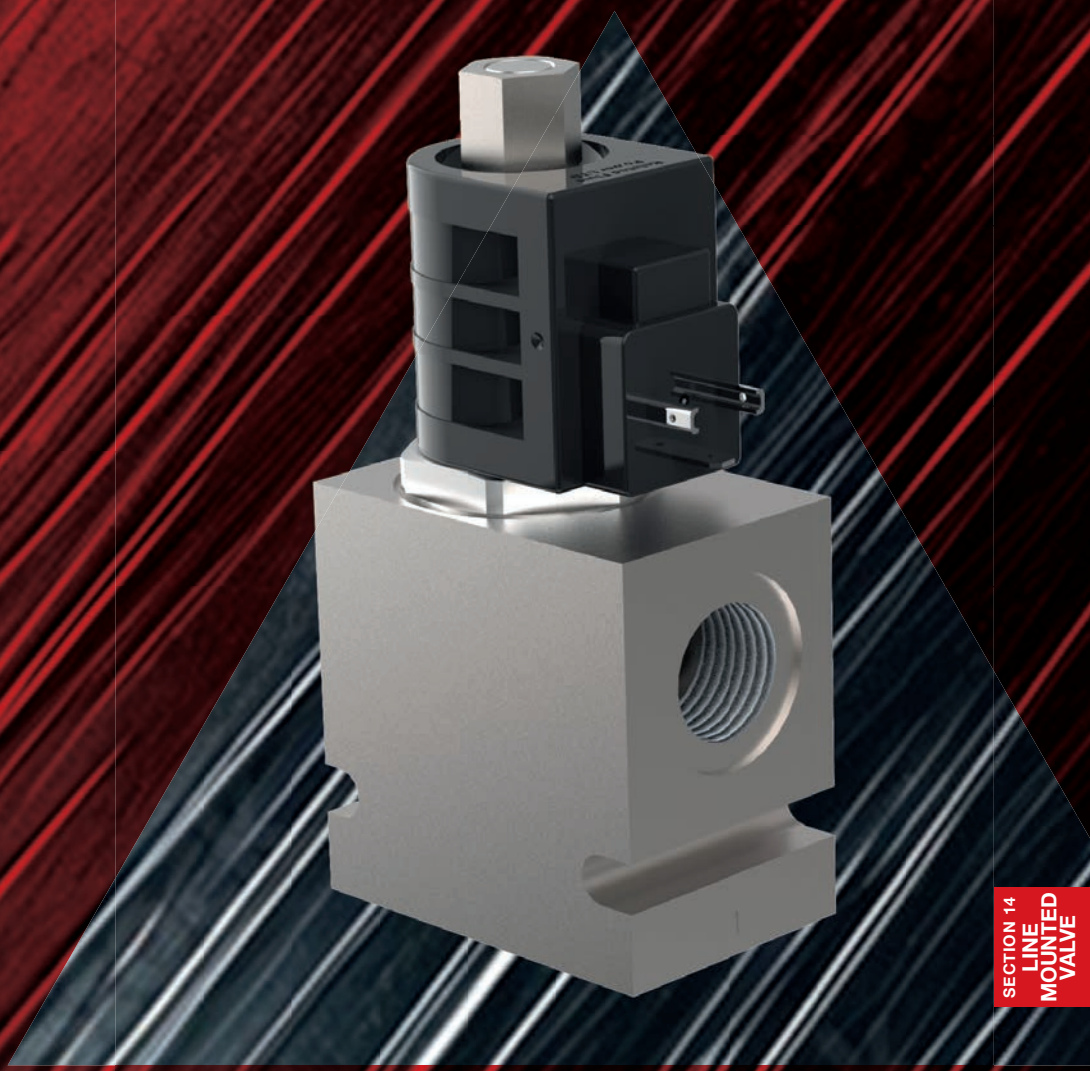
Manifold Material
A = Aluminium (210 bar max, clear anodised)
S = Steel (350 bar max, zinc plated)

Preferred Part No.- RF SQ48971010A

Related Fluid Power

SECTION 14

LINE MOUNTED VALVE



Related Fluid Power

Solenoid Operated Valve.
2 Position 2 Way Poppet - Size 10

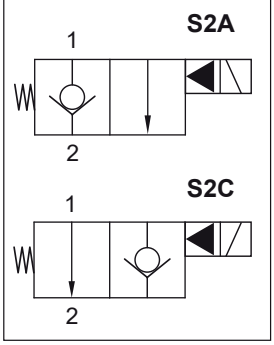
D-DES2

Up to 240 bar - 55 lpm

Operation
These are solenoid operated 2 way normally closed or open poppet valves.
The S2A, typically used to lock a load in postion when de-energised from 1>2 & when energised the poppet opens and allows free flow 1>2.
The S2C, typically used as a dump valve, when de-energised flow goes from 1>2, energised the poppet is closed and flow is blocked 1>2.

Manual override options available.

Symbol



Features
- Hardened parts for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Manual override options.
- Industry common cavity.
- Unitised, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.
- Optional “I” Coil: Weatherproof, Thermal, Shock, Immersion Safe.

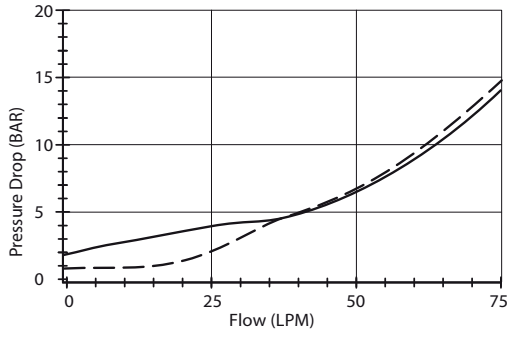
Specifications

Cartridge Torque	41 Nm
Coil Nut Torque	5 to 8 Nm
Cavity	DE10-2 (see cavity data page **CAV-DE10-2**)
Spare Seal Kit	SK-DDE00
Weight - Cartridge only	0.13 kg
Weight - Cartridge + Coil	0.46 kg
Weight - Cartridge + Coil + Body	0.69 kg (alum) 1.11 kg (steel)

Nom. Flow (lpm)	55
Max. pressure (bar)	240
Internal Leakage (32 cSt)	0 to 0.25 cc/min at 240 bar
Hydraulic oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating temp.	-40 to 120˚C
Voltage	DC / AC (see coil data page **Coil-D**)
Cartridge Torque	41 Nm

Performance
32 cSt / 38°C.

S2A

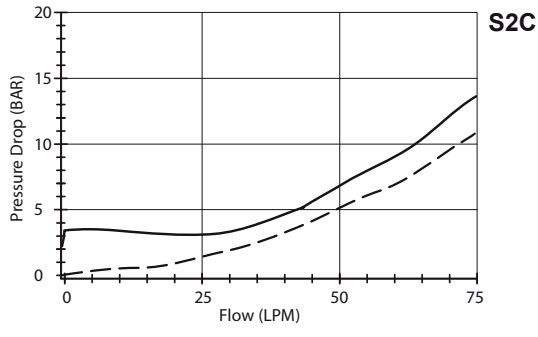


— — – Port 1 to 2 (eng) ——— Port 2 to 1 (de-eng)

Energisation Chart

Solenoid	Flow Direction	
	1→2	2→1
De-energised	Load holding	Free flow
Energised	Free flow	Restricted flow

S2C

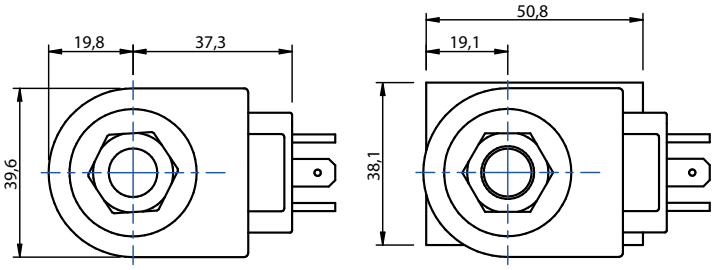


— — – Port 1 to 2 (de-eng) ——— Port 2 to 1 (eng)

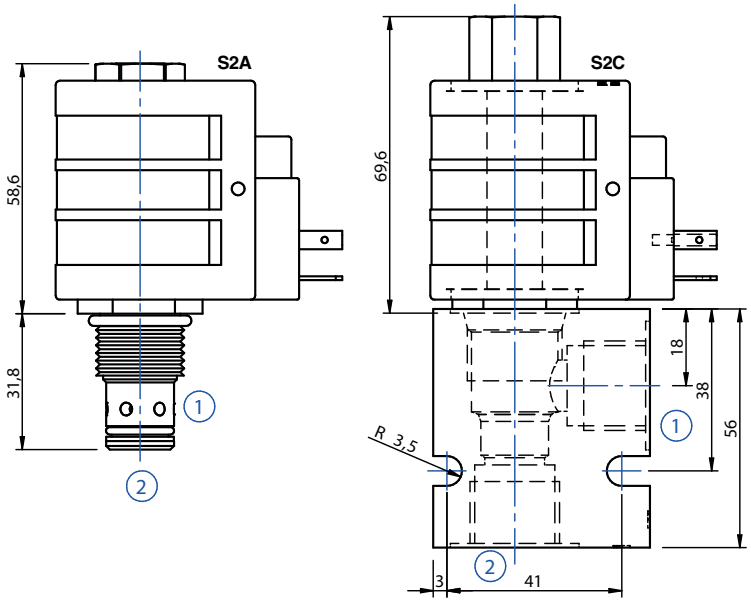
Energisation Chart

Solenoid	Flow Direction	
	1→2	2→1
De-energised	Free flow	Restricted flow
Energised	Load holding	

Dimensions
[mm]



Coils can be fitted in any orientation.



Ordering Code

D-DES2 | ** | ** | ** | * | * | *

Options	Seal / Override	Voltage	Port size (BSP)	No. of ports	Body material
A - Normally Closed	**00** - Nitrile / No Override	**HC12** - 12 Vdc	**C** - 1/2"	**2** - 2 ports	**A** - Aluminium
C - Normally open		**HC24** - 24 Vdc			**S** - Steel
					For pressures over 210 bar use steel.

Preffered Part Nos. - **D-DES2A00HC12C2A**
D-DES2A00HC24C2A
D-DES2C00HC24C2A
D-DES2C00HC24C2A

Related Fluid Power

Solenoid Operated Valve.
2 Position 2 Way Poppet - Size 16

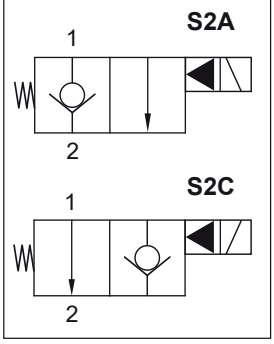
D-SJS2

Up to 240 bar - 115 lpm

Operation
These are solenoid operated 2 way normally closed or open poppet valves.
The S2A, typically used to lock a load in postion when de-energised from 1>2 & when energised the poppet opens and allows free flow 1>2.
The S2C, typically used as a dump valve, when de-energised flow goes from 1>2, energised the poppet is closed and flow is blocked 1>2.

Manual override options available.

Symbol



Features
- Hardened parts for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Manual override options.
- Industry common cavity.
- Unitised, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.
- Optional “I” Coil: Weatherproof, Thermal, Shock, Immersion Safe.

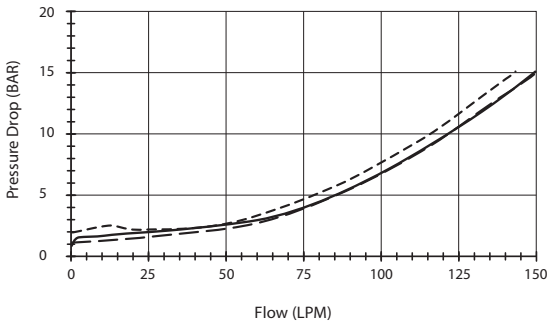
Specifications

Cartridge Torque	122 Nm
Coil Nut Torque	5 to 8 Nm
Cavity	S1 6-2 (see cavity data page **CAV-DE16-2**)
Spare Seal Kit	SK-DS0 0
Weight - Cartridge only	0.32 kg
Weight - Cartridge + Coil	0.65 kg
Weight - Cartridge + Coil + Body	1.23 kg (alum) 3.57 kg (steel)

Nom. Flow (lpm)	115
Max. pressure (bar)	240
Internal Leakage (32 cSt)	0 to 0.25 cc/min at 240 bar
Hydraulic oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating temp.	-40 to 120˚C
Voltage	DC / AC (see coil data page **Coil-D**)
Cartridge Torque	122 Nm

Performance
32 cSt / 38°C.

S2A

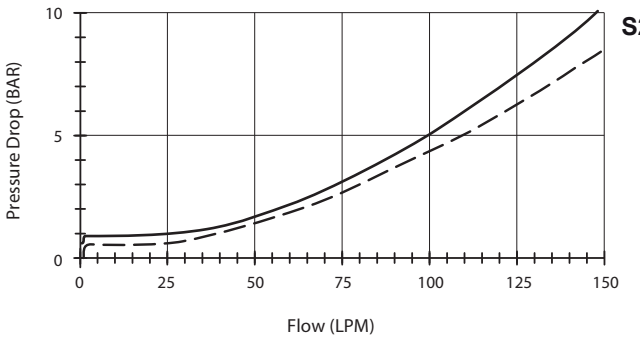


----- Port 1 to 2 (eng) — — - Port 2 to 1 (eng)
——— Port 2 to 1 (de-eng)

Energisation Chart

Solenoid	Flow Direction	
	1→2	2→1
De-energised	Load holding	Free flow
Energised	Free flow	Restricted flow

S2C



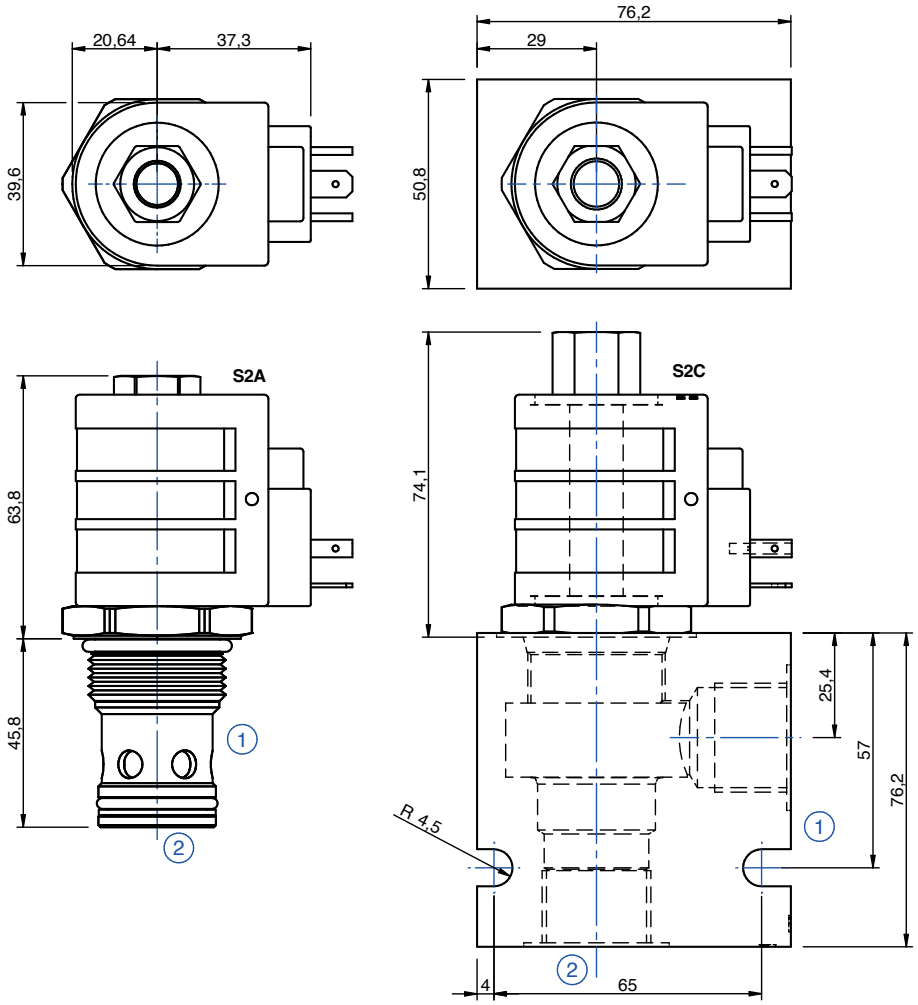
— — - Port 1 to 2 (de-eng) ——— Port 2 to 1 (eng)

Energisation Chart

Solenoid	Flow Direction	
	1→2	2→1
De-energised	Free flow	Restricted flow
Energised	Load holding	

SECTION 14 IN LINE MOUNTED VALVE

Dimensions
[mm]



Coils can be fitted in <u>any</u> orientation.

Ordering Code

D-SJS2 | ** | ** | ** | * | * | *

Options	Seal / Override	Voltage	Port size (BSP)	No. of ports	Body material
A - Normally Closed	**00** - Nitrile / No Override	**HC12** - 12 Vdc	**C** - 1/2"	**2** - 2 ports	**A** - Aluminium
C - Normally open		**HC24** - 24 Vdc			**S** - Steel
					For pressures over 210 bar use steel.

Preffered Part Nos. - **D-SJS2A00HC12C2A**
D-SJS2A00HC24C2A
D-SJS2C00HC24C2A
D-SJS2C00HC24C2A

Related Fluid Power

Pressure Control.

Direct Acting - Poppet Type Relief Valve - Size 10.

V-RVSOS10

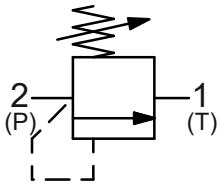
Up to 350 bar - 80 lpm

This is a direct-acting poppet type relief valve, typically used to provide relief protection. It is a fast acting, dirt tolerant with good low pressure rise and the design guarantees great stability.
Ideal for service line or system protection.

Operation

The V-RVSOS10 blocks flow from (2) to (1) untill sufficient pressure is present at (2) to force the poppet open and allow metered flow from (2) to (1).
The cartridge offers smooth transition in response to load changes in common hydraulic circuits.

Symbol



Adjustment

Turn ↻ to increase pressure.

Features

- Hardened parts for long life.
- Industry common cavity.

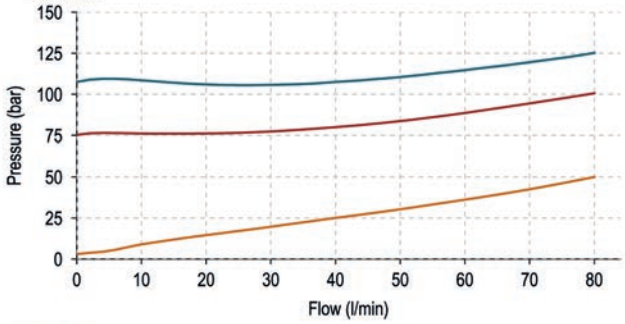
Specifications

Nom. Flow (lpm)	80
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110˚C
Cartridge Torque	60 Nm
Cavity	DE10-2 (see cavity data page **CAV-DE10-2**)
Spare Seal Kit (Viton)	SK-RVSO
Weight - Valve only	0.17 kg
Weight - Valve + Body	0.40 kg (alum) 0.82 kg (steel)

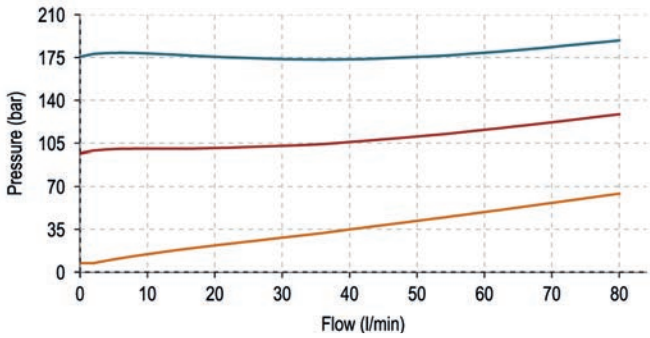
Performance

46 cSc / 40°C.

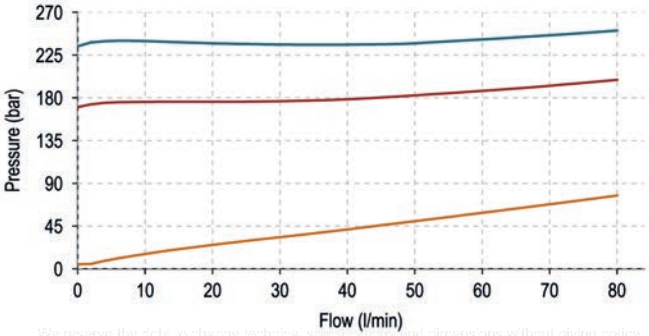
SPRING N



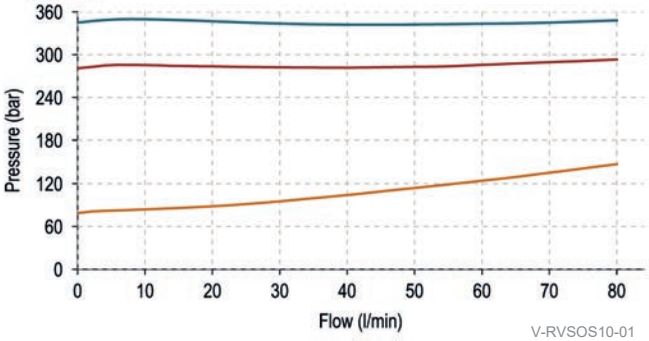
SPRING B



SPRING G

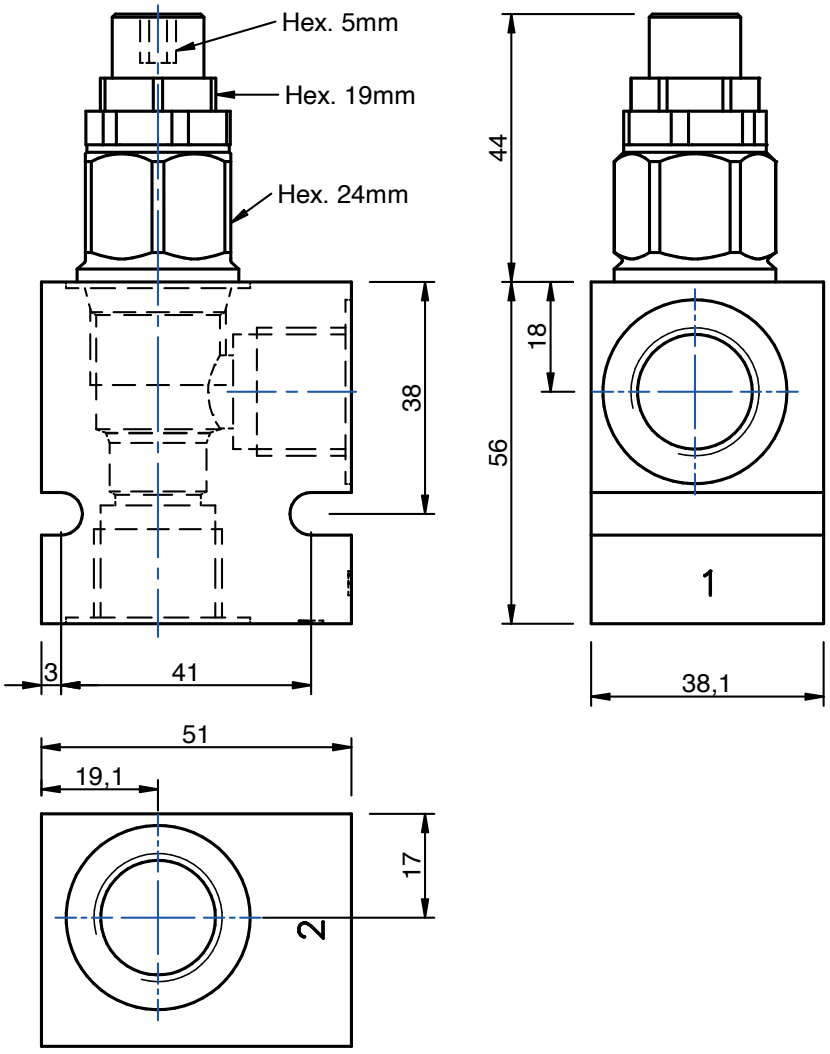


SPRING W



V-RVSOS10-01

Dimensions
[mm]



Ordering Code

V-RVSOS10 * * * *

Pressure setting	
N	- 5 to 110 bar
B	- 10 to 180 bar
G	- 10 to 240 bar
W	- 85 to 350 bar

Port size (BSP)
C - 1/2"

No. of ports
2 - 2 ports

Body material
A - Aluminium
S - Steel
For pressures over 210 bar use steel.

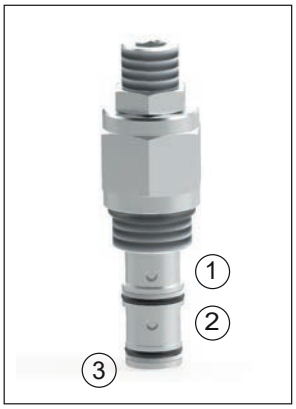
Preffered Part Nos: - V-RVSOS10BC2A / V-RVSOS10GC2A

Related Fluid Power

PRESSURE REDUCER

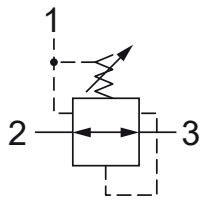
Pilot Operated Pressure Reducing, Relieving Valve - Size 10.

R-PRR1PO10



350 bar - 43 lpm

Symbol



Description

The R-PRR1PO10 in its steady state allows flow to pass from (2) to (3), with the spring chamber constantly draind at (1). When a pre-determind reduced pressure is reached at (3), the spool shifts to restrict input flow at (2), thereby reducing (restricting) flow.
If pressure at port (3) exceeds the setting, the spool shifts to open passage at port (1), thereby regulating pressure at port (3) by relieving excess.
This valve is ideal for secondary reduced pressure control in common hydraulic circuits. The valve offers smooth transition in response to load changes.

Features / Specification

- Hardened parts for long life.
- Industry common cavity.

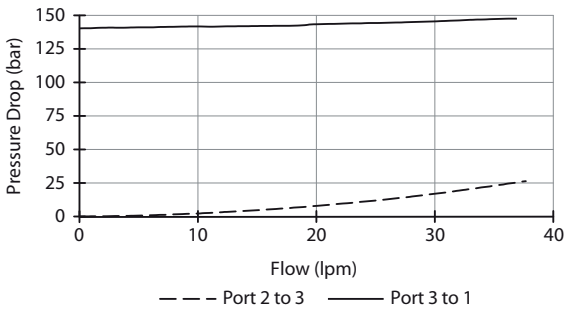
Adjustment

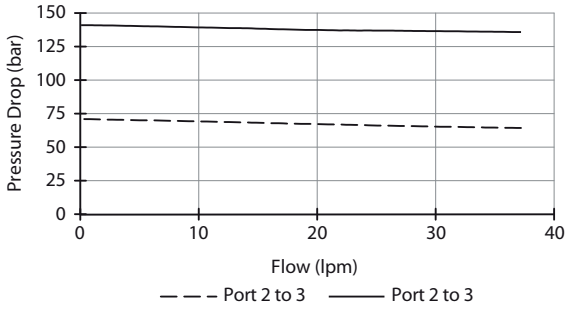
Turn ↻ to increase pressure.

Nom. Flow (lpm)	43
Max Pressure (bar)	3.5 to 350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Cartridge Torque	41 Nm
Cavity	DF10-3 (see cavity data page **CAV-DF10-3**)
Spare Seal Kit (Viton)	SK-RRPP1PO10
Weight - Valve only	0.26 kg
Weight - Valve + Body	0.62 kg (alum) 1.29 kg (steel)

Performance

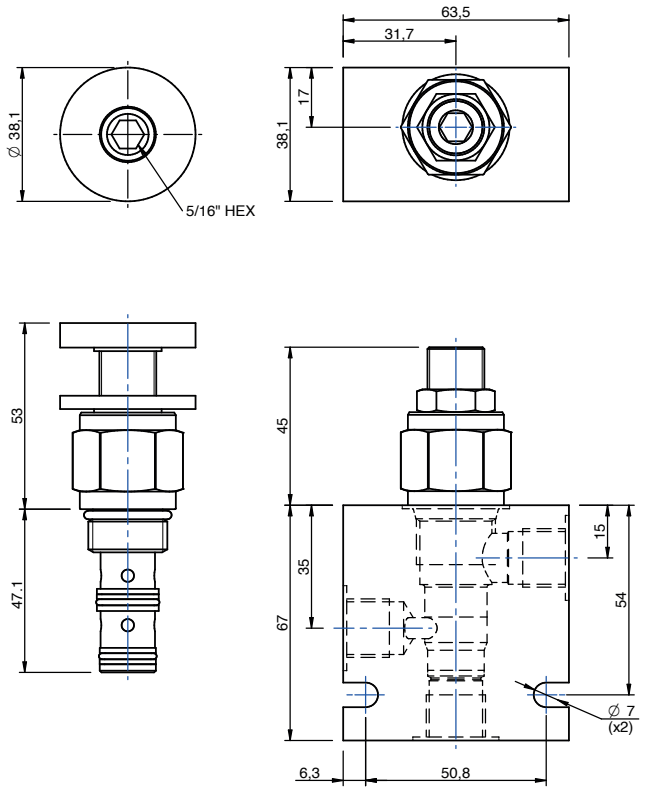
32 cSc / 38°C.





SECTION 14 IN LINE MOUNTED VALVE

Dimensions



Ordering Code

R-PRR1PO10 * ** * ** * * *

Options	Pressure Range	Seal Type	Custom Setting	Port size (BSP)	No. of ports	Body material
S - Standard Adjust	**15** - 3.5 to 103 bar (Pre 52bar)	**N** - Nitrile	**XX** - Std	**A** - 1/4"	**3** - 3 ports	**A** - Aluminium
K - Knob Adjust	**30** - 3.5 to 207 bar (Pre 103bar)	**V** - Viton	**20** = 200bar	**B** - 3/8"	**Options** - See page **B-DDF**	**S** - Steel
	50 - 3.5 to 350 bar (Pre 175bar)	**Options** - Nitrile Standard	** 10bar Increments	**Options** - See page **B-DDF**		**For pressures over 210 bar use steel.**

Preferred Part Nos. - R-PRR1PO1015N / R-PRR1PO1015NXXB3A

Flow Control.
Adjustable Flow Control Valve, Pressure Compensated - Size 10.

R-FCCS10S30N

Up to 350 bar - 30 lpm

This is an adjustable, fixed orifice type, pressure compensated flow control which can be used to control flow regardless of varying load pressures for both meter-in and meter-out applications. Where load pressure and inlet flow are relatively constant the valve can be used to provide accurate control in bleed-off circuits. The valves are adjustable within pre-selected flow range.

Operation

The R-FCCS10S30N maintains a constant flow rate out of (1) regardless of load pressure changes in the circuit downstream of (1). The adjustable control differential spring load can be set to customer flow specification.
flow (1) to (2) returns through the control orifice and is non-compensated.

Symbol

Features

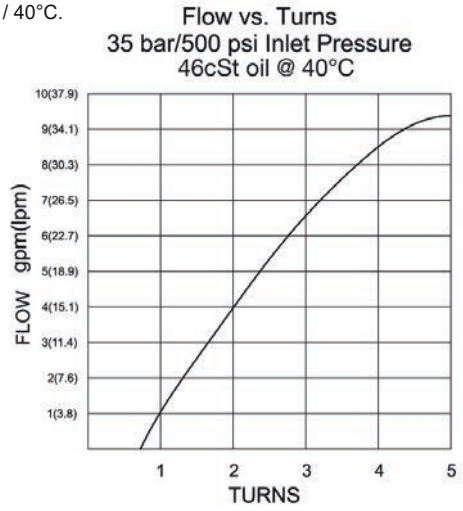
- Hardened parts for long life.
- Industry common cavity.
- Fine low-torque adjustment.

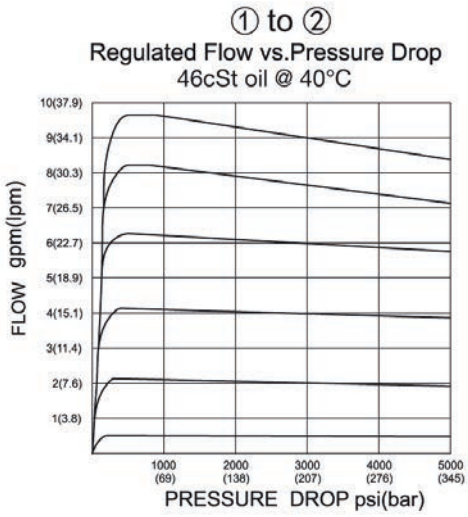
Adjustment

Turn ↻ to increase flow.

Performance

46 cSc / 40°C.



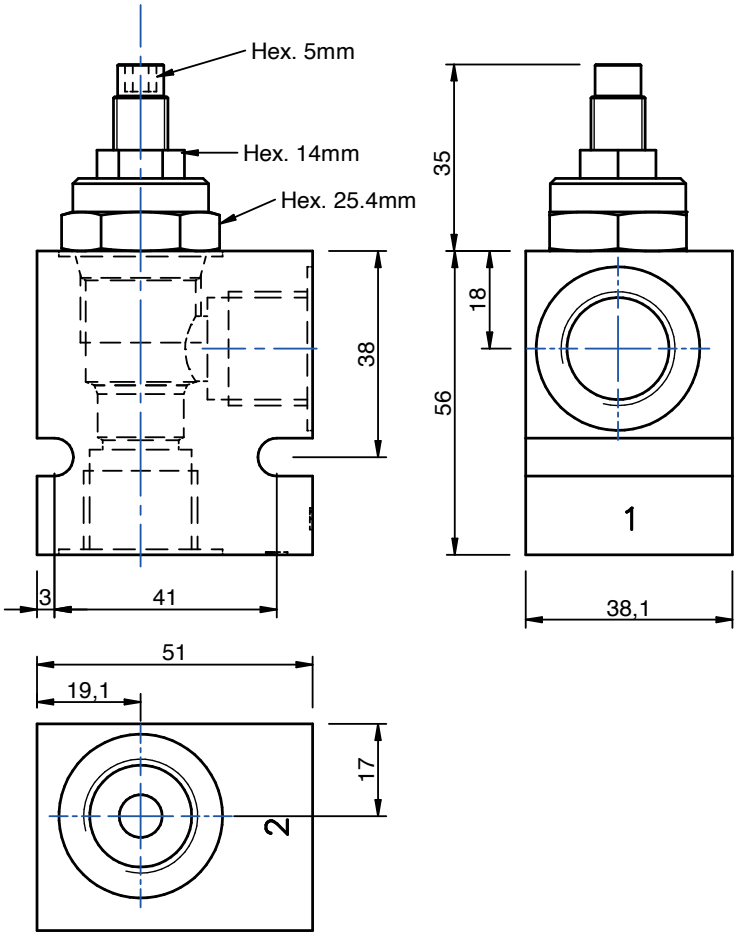


Specifications

Nom. Flow (lpm)	30
Max Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Cartridge Torque	41 Nm
Cavity	DE10-2 (see cavity data page **CAV-DE10-2**)
Spare Seal Kit (Viton)	SK-RFCCS10N
Weight - Valve only	0.22 kg
Weight - Valve + Body	0.45 kg (alum) 0.87 kg (steel)

SECTION 14 LINE MOUNTED VALVE

Dimensions
[mm]



Ordering Code

R-FCCS10 * ** * * * *

Options	Flow	Seal	Port size (BSP)	No. of ports	Body material
S - Standard Adjuster	**30** - 1 to 30 lpm	**N** - Nitrile	**C** - 1/2"	**2** - 2 ports	**A** - Aluminium
					S - Steel
					For pressures over 210 bar use steel.

Flow Control.
Needle Type, Standard Adjust - Size 10.

R-FCNS10

Up to 250 bar - 45 lpm

Operation
The R-FCNS10 varies flow from fully open to fully closed adjusting screw clockwise. When adjusted open the valve allows flow (1) to (2) and (2) to (1). When fully closed the valve blocks flow from (1) to (2) and (2) to (1).
This valve can be used to vary flow and also as a shut-off valve.

Symbol

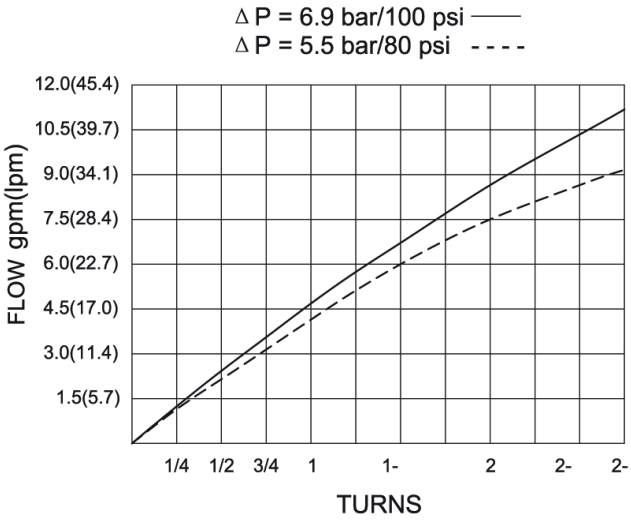
Features
- Hardened cage and spool for long life.
- Industry common cavity.

Adjustment
Turn ↻ to decrease flow and shut off.

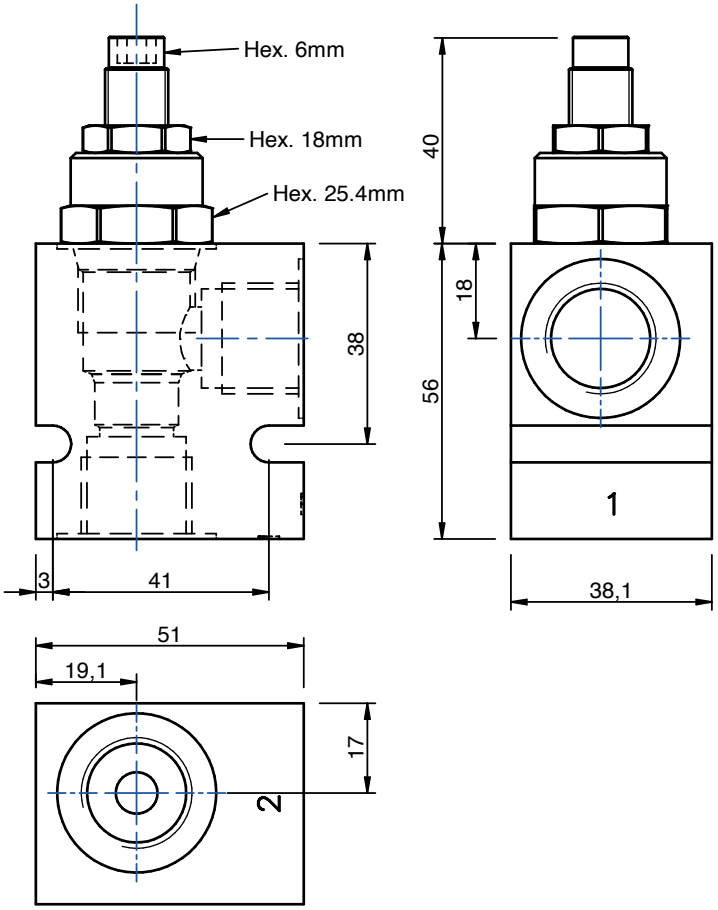
Specifications

Nom. Flow (lpm)	45
Max. Pressure (bar)	250
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120˚C
Cartridge Torque	41 Nm
Cavity	DE10-2 (see cavity data page **CAV-DE10-2**)
Spare Seal Kit (Viton)	SK-R-FCNS10
Weight - Valve only	0.21 kg
Weight - Valve + Body	0.44 kg (alum) 0.86 kg (steel)

Performance
32 cSc / 38°C.



Dimensions
[mm]



Ordering Code

R-FCNS10 * ** * * * *

Options	Flow (lpm)	Seal	Port size (BSP)	No. of ports	Body material
S - Standard Adjuster	**45** - 1/2"	**N** - Nitrile	**C** - 1/2"	**2** - 2 ports	**A** - Aluminium
					S - Steel
					For pressures over 210 bar use steel.

Preffered Part No. - R-FCNS10S45NC2A

Section 15 - TECHNICAL INFORMATION

Fast track hydraulic formulae

Pumps and Motors

Flow Rate (l/min)	$Q = \frac{D \times n}{1000}$
Shaft Torque (Nm)	$T = \frac{D \times \Delta p}{20\pi}$
Shaft Power (kW)	$P = \frac{T \times n}{9550}$
Hydraulic Power (kW)	$P = \frac{Q \times p}{600}$

Cylinders

Force (N)	$F = p \times A \times 10$
Velocity (m/s)	$v = \frac{Q \times 0.167}{A}$
Area (cm^2)	$A = \frac{\pi d^2}{400}$

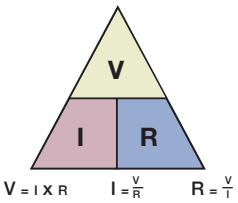
Note: component efficiencies need to be considered for a more precise analysis.

Where:

Q = Flow Rate [L/min]
n = Shaft Speed [rev/min]
p = Pressure [bar]
P = Power [kW]
D = Displacement [cm^3/rev]
F = Force [N]
v = Velocity [m/s]
T = Torque [Nm]
A = Area [cm^2]
d = Pipe Diameter [mm]
Δp = Pressure Drop (bar)

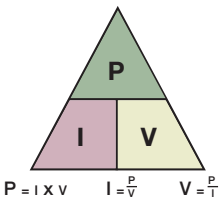
Electronics formulae

Ohms law:



V=Voltage (volts) **I**=Current (amps) **R**=Resistance (ohms)

Power:



P=Power (watts)

Flushing formulae

Flushing is a process designed to remove dirt introduced into the system during manufacture, assembly and initial operation. It is also used when significant maintenance is undertaken.
The requirements are summarised below:-

- A turbulent flow regime to pick-up the particles from the walls of components and transport them to the flushing filter.
- The Reynolds number (Re) defines the flow condition and should be greater than 4,000 and can be calculated using:

Reynolds Number $Re = \frac{21{,}200 \times Q}{v \times d}$

Or, to achieve Re > 4,000 $Q > 0.189 \times v \times d$

Where:
Q = Flow Rate (l/min)
v = Viscosity (cSt)
d = Pipe Diameter (mm)
Re = Reynolds Number

- A 'fine' filter to capture transported particles quickly and effectively.

Hydraulic pipes and hoses formulae

Velocity of fluid in pipe (m/s) $v = \frac{Q \times 21.22}{d^2}$

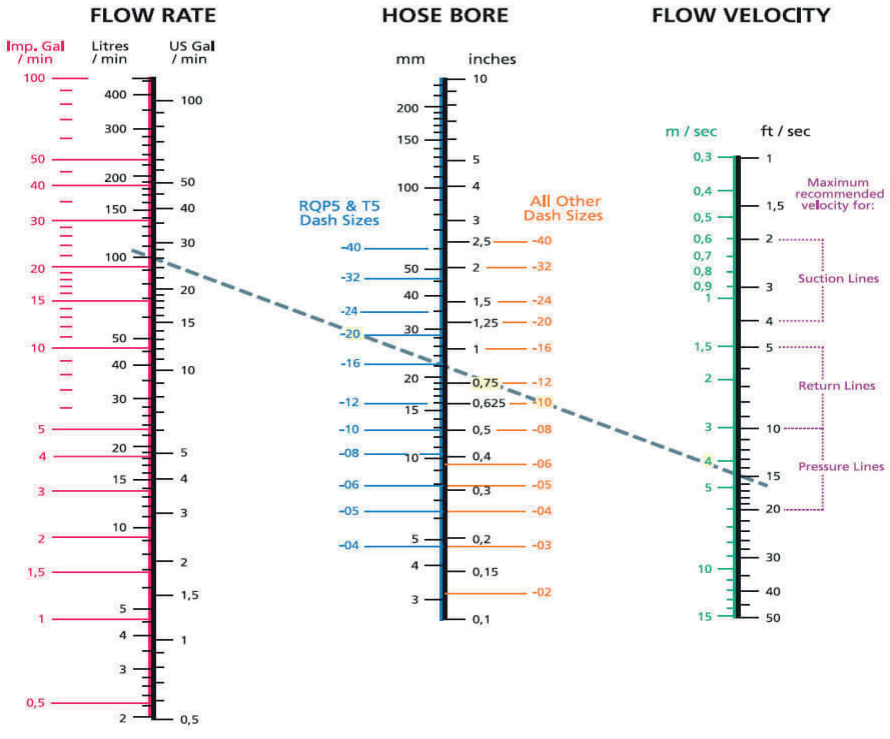
Where:
d = Pipe Diameter (mm)

Recommended fluid velocity ranges:

Suction lines: 0.625m/s – 1.25m/s
Pressure lines: 2.1m/s – 4.75m/s

Based on oils having a maximum viscosity grade of 70 cSt at 38°C and operating between 18°C and 51°C.

Note: For pipe runs greater than 10m the pipe size should be increased correspondingly. The intake line should never exceed 1m in length.



Notes

Notes

Section 15 - CONTACTS

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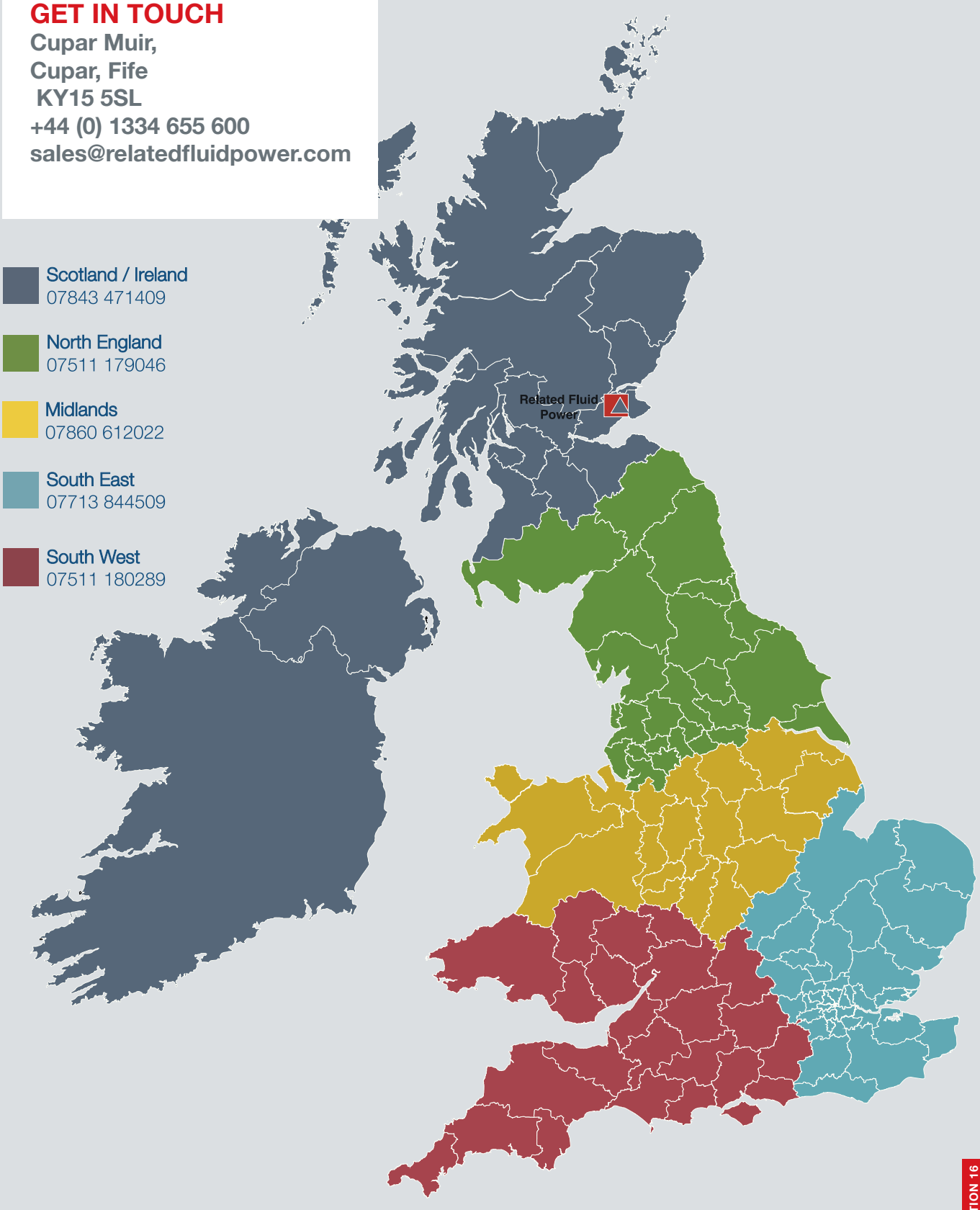
sales@relatedfluidpower.com



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