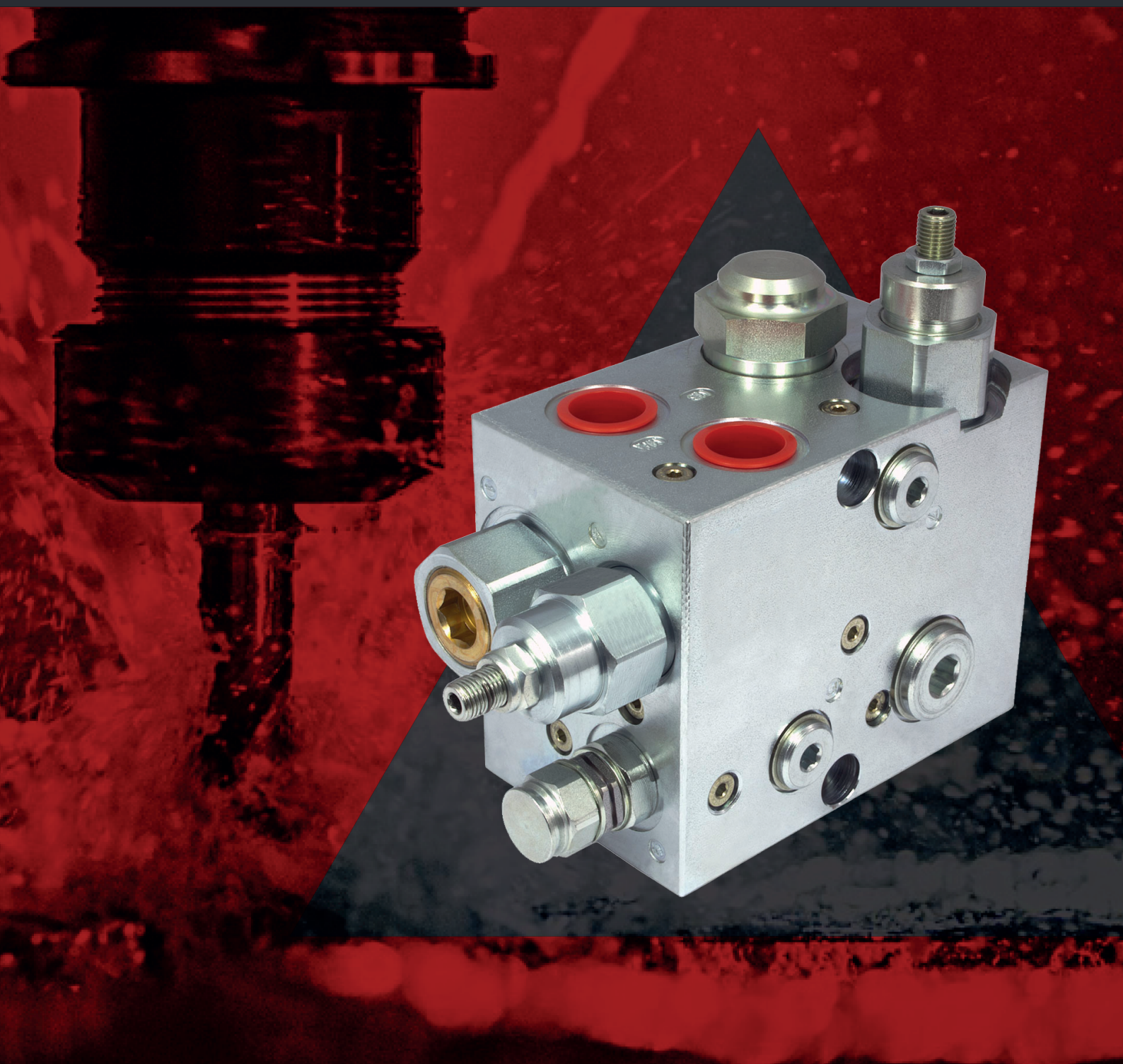




Standard Hydraulic Circuit Savers





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.

Whilst we use all reasonable efforts to ensure that the information published in this catalogue is accurate, current, and complete at the date of publication, no representations or warranties are made (express or implied) as to the accuracy, currency or completeness of such information. We cannot accept any responsibility (to the extent permitted by law) for any loss arising directly or indirectly from the use of, or any action taken in reliance on, any information appearing in this catalogue. We reserve the right to amend specifications at our discretion.



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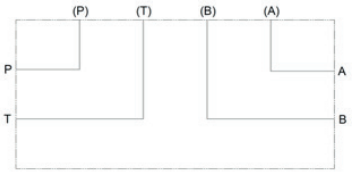
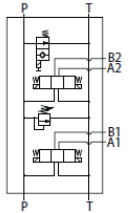
Our manufacturing facility utilises the latest in CNC machining technology and tooling, with a range of 4 and 5 axis machining centres, CNC Saws and Automatic Parts washing system. From design and manufacturing, right through to after-sales support, the entire process is carried out in-house by our dedicated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

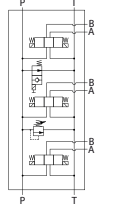
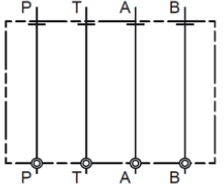
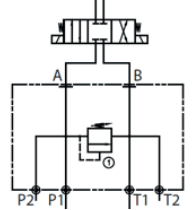
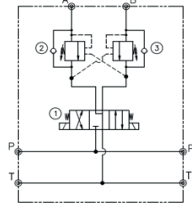
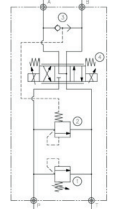


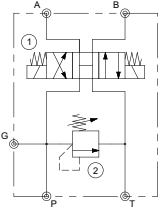
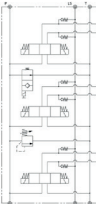
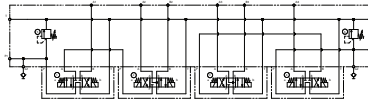


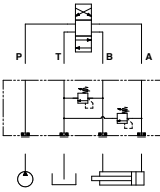
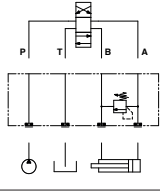
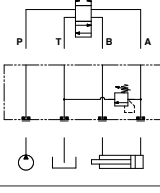
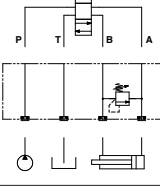
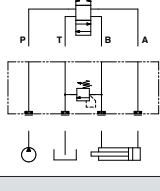
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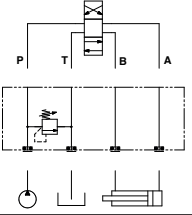
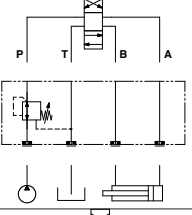
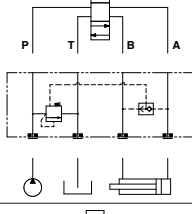
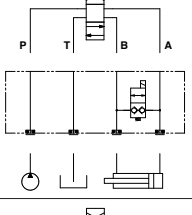
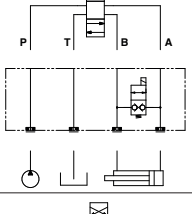
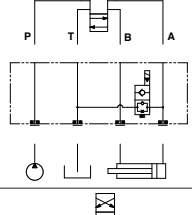
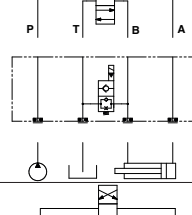
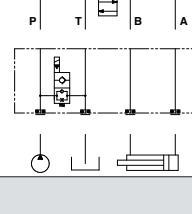
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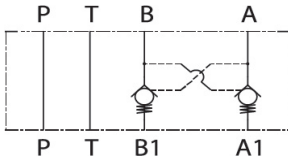
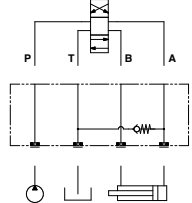
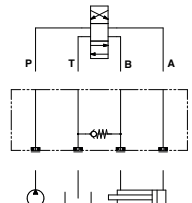
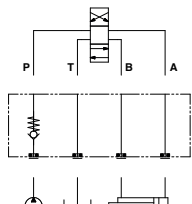
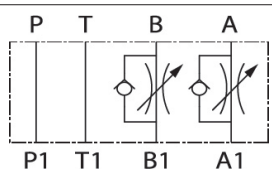
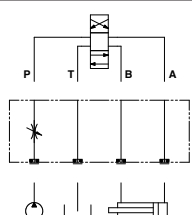
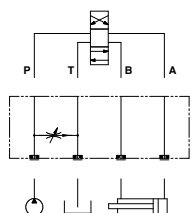
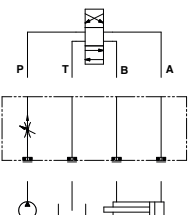
CETOP 2 ASSEMBLIES					SECTION 1
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Base subplate		25	350	RF C21694	26
Side Ported, Multi Station Parallel 1 > 8 stations with relief and Dump options		25	350	RF C21860	27-28

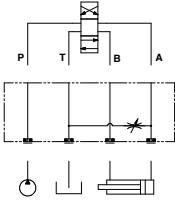
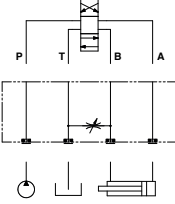
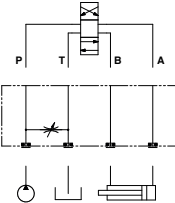
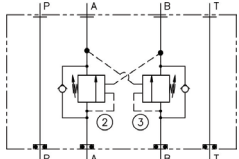
CETOP 3 ASSEMBLIES					SECTION 2
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Side Ported, Multi Station Parallel 1 > 8 stations with relief and Dump options		50	350	RF C384	30-31
Base subplate		50	350	RF C3853	32
Base Subplate with Relief		50	350	RF C3855	33-34
Base Subplate with Integral Dual Overcentres		25	350	RF C34446	35-36
Pressure Compensated P line with Relief		40	350	RF C34659	37-38

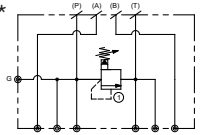
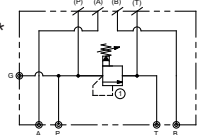
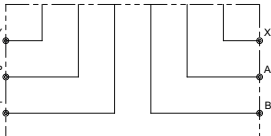
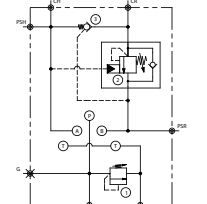
CETOP 3 ASSEMBLIES (Cont)					SECTION 2
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Subplate with Direct-Acting Relief valve		50	350	RF C34746	39-40
Side Ported, Multi Station Parallel 2 > 8 stations with Load sense. Relief and Dump options		50	350	RF C35080	41-42
Track & Conveyor Control – Line Mounted		40	350	RF C35363	43-44

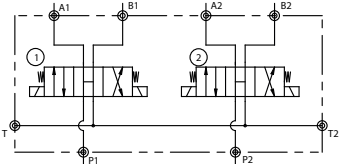
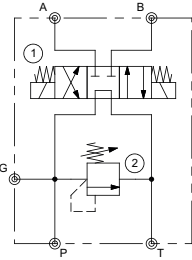
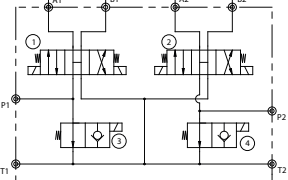
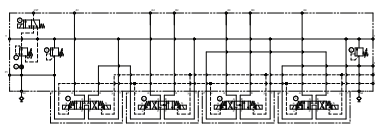
CETOP 3 MODULES					SECTION 3
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cetop 3 Module Control Assembly, Relief Valve A & B > T		40	350	C3-DABTNS2RVS	46
Cetop 3 Module Control Assembly, Relief Valve A > B		40	350	C3-SABSN2RVS	47
Cetop 3 Module Control Assembly, Relief Valve A > T		40	350	C3-SATNS2RVS	48
Cetop 3 Module Control Assembly, Relief Valve B > A		40	350	C3-SBASN2RVS	49
Cetop 3 Module Control Assembly, Relief Valve B > T		40	350	C3-SBTNS2RVS	50

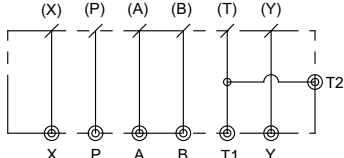
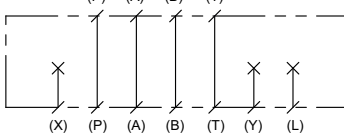
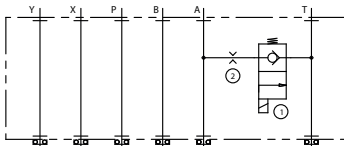
CETOP 3 MODULES (Cont)					SECTION 3
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cetop 3 Module Control Assembly, Relief Valve $P > T$		40	350	C3-SPTNS2RVS	51
Cetop 3 Module Control Assembly, Pressure Reducer P Line		43	350	C3-SPPSN2PRR	52
Cetop 3 Module Control Assembly, Bypass Compensator $P > T$		40	240	C3-SPTNS2LMNC	53
Cetop 3 Module Control Assembly, Double Blocker Normally Closed $A > B$		50	350	C3-SABSN2S2I	54
Cetop 3 Module Control Assembly, Double Blocker Normally Closed $B > A$		50	350	C3-SBASN2S2I	55
Cetop 3 Module Control Assembly, Solenoid Unloader $A > T$		40	350	C3-SATSN2S2C	56
Cetop 3 Module Control Assembly, Solenoid Unloader $A > T$		40	350	C3-SBTSN2S2C	57
Cetop 3 Module Control Assembly, Solenoid Unloader $P > T$		40	350	C3-SPTSN2S2C	58

CETOP 3 MODULES (Cont)					SECTION 3
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cetop 3 Pilot Operated Check Valve Module		60	315	RM3-CP	59
Cetop 3 Module Control Assembly, Anti-Cav Check A > T		40	350	C3-SATSN2CVA	60
Cetop 3 Module Control Assembly, Anti-Cav Check B > T		40	350	C3-SBTNS2CVA	61
Cetop 3 Module Control Assembly, Line Check Valve P > P		38	350	C3-SPPNS2CV1	62
Cetop 3 Flow Control with Check Valve Module		50	315	RM3-FC	63
Cetop 3 Module Control Assembly, Needle Flow Valve P > P		40	350	C3-SPPSN2FCN	64
Cetop 3 Module Control Assembly, Compensated Bleed off Valve P > T		28	350	C3-SPTNS2FCC	65
Cetop 3 Module Control Assembly, Pressure Compensated Flow Valve P > P		28	350	C3-SPPNS2FCC	66

CETOP 3 MODULES (Cont)					SECTION 3
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cetop 3 Module Control Assembly, Needle Unloader Valve A > T		40	350	C3-SATSN2FCN	67
Cetop 3 Module Control Assembly, Needle Unloader Valve A > T		40	350	C3-SBTSN2FCN	68
Cetop 3 Module Control Assembly, Needle Unloader Valve P > T		40	350	C3-SPTSN2FCN	69
Cetop 3 Dual Over-centre Assembly		60	350	C3-DOC	70-71

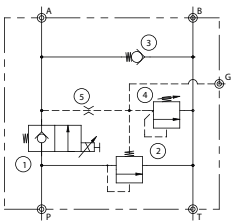
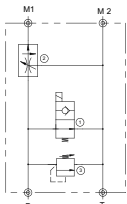
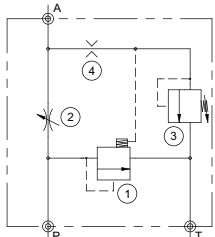
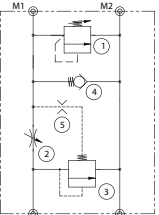
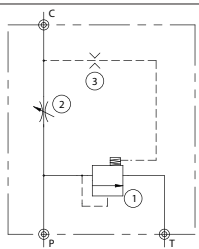
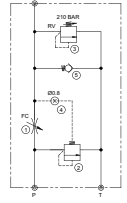
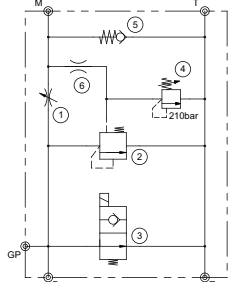
CETOP 5 ASSEMBLIES					SECTION 4
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Subplate with relief, Side with Base port options	Type B*  Type O* 	100	350	RF C51146	74-75
Base Subplate with side ports		100	350	RF C51469	76
Regenerative Control – Line mounted		160	350	RF C53810	77

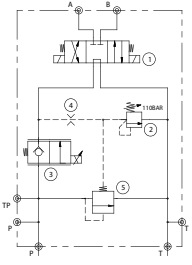
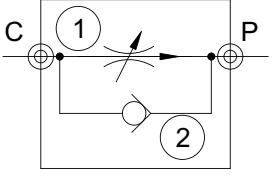
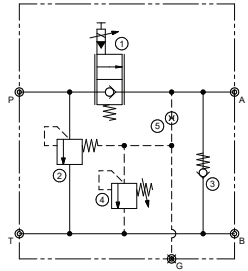
CETOP 5 ASSEMBLIES (Cont)					SECTION 4
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual cetop 5 Directional Control – Line Mounted		100	350	RF C54444	78
Subplate with Relief, Bottom ports		80	350	RF C54745	79-80
Tracking Control Cetop 5, dual station subplate Dual pump Input, with solenoid operated unloading valves		80	350	RF C55261	81-82
Cetop 5 Track with 2 speed & Conveyor Control		80	350	RF C55311	83-84

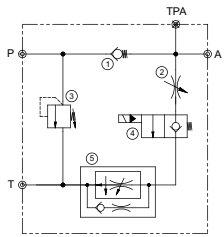
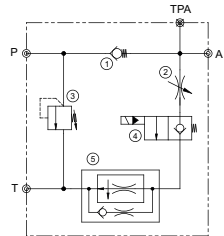
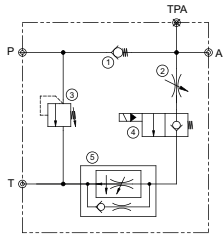
CETOP ASSEMBLIES 7					SECTION 5
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Subplate with Side ports		200	350	RF C71357	86
Cetop 5 to Cetop 7 adaptor		100	350	RF C71558	87
Decompression, A line, Module		20	350	RF C72341	88

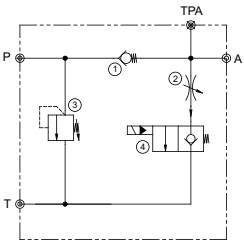
CETOP ASSEMBLIES 7 (Cont)					SECTION 5
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Pump cetop 7, Dump valves		150	350	RF C75094	89-90
Cetop 7 Track with 2 speed & Conveyor Control		200	350	RF C75362	91-92

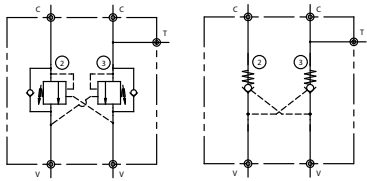
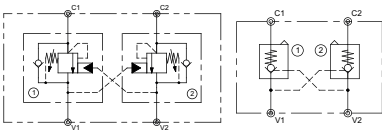
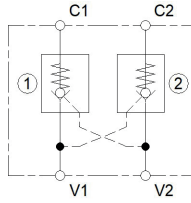
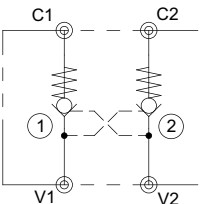
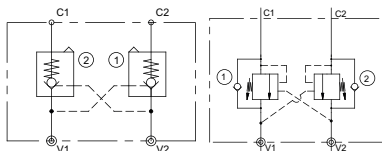
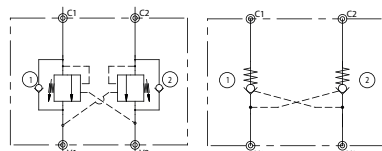
FLOW CONTROLS					SECTION 6
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Compensated Flow Control – Line mounted		150	240	RF FC1725	94-95
Pressure Compensated Flow Control Proportional – Line mounted		150	250	RF FC3362	96-97
Dual Pressure Compensated flow control (Fixed) – Line mounted		170	350	RF FC3994	98
Single Pressure Compensated flow control (Fixed) with Relief – Line mounted		170	350	RF FC3995	99
Single Pressure Compensated flow control (Fixed) with Relief, Uni Direction – Line mounted		170	350	RF FC3996	100
Pressure Compensated Flow Control Proportional – Line mounted		120	250	RF FC4120	101-102

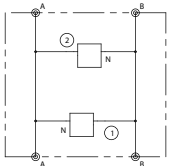
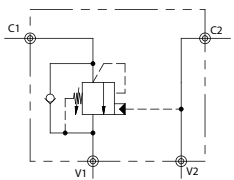
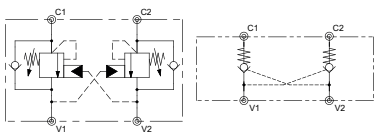
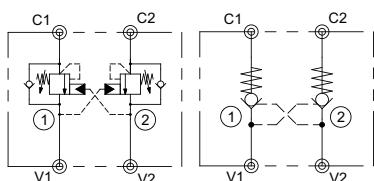
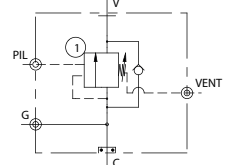
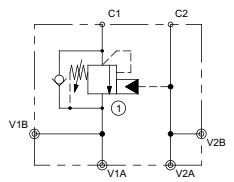
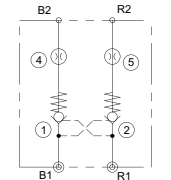
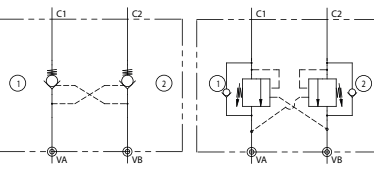
FLOW CONTROLS (Cont)					SECTION 6
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Compensated Flow Control Proportional with Priority Relief & Anti Cavitation – Line mounted		150	240	RF FC4139	103-104
Priority Flow control with Dump & relief – Line Mounted		38	240	RF FC4183	105-106
Pressure Compensated Flow Control with Priority Relief – Line mounted		200	240	RF FC4227	107
Pressure Compensated Flow Control with Priority Relief & Anti Cavitation – Line mounted		250	240	RF FC4334	108-109
Pressure Compensated Flow Control – Line mounted		150	240	RF FC4413	110-111
Priority Flow control with Anti-Cav & Relief – Line Mounted		150	240	RF FC4470	112-113
Pressure Compensated Flow Control with Relief, Anti-cav & Unloader – Line Mounted		170	240	RF FC4963	114-115

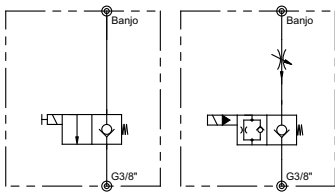
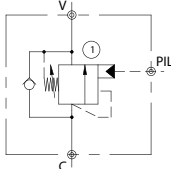
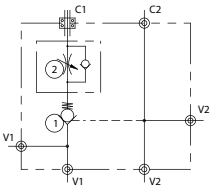
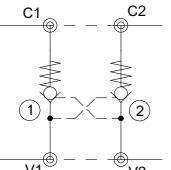
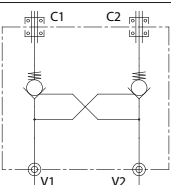
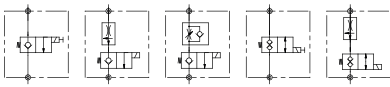
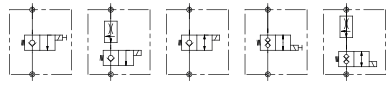
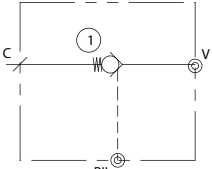
FLOW CONTROLS (Cont)					SECTION 6
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Subplate with P line Pressure compensated with Bypass flow control (Proportional or manual) & Relief		100	245	RF FC5062	116-117
Pressure Compensated Flow Control with reverse check – Line mounted		34	350	RF FC5095	118
Proportional Pressure Compensated Priority Flow Control with Anti-Cavitation Check – Line Mounted		50	240	RF FC5345	119-120

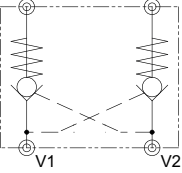
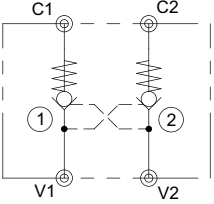
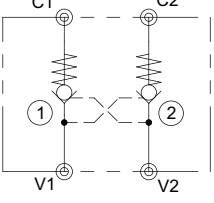
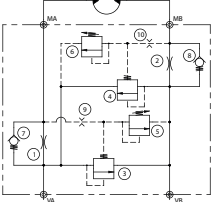
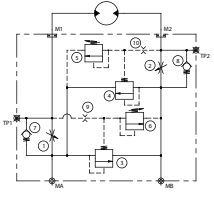
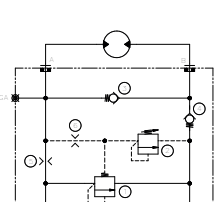
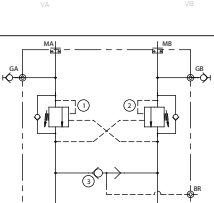
LIFT BLOCKS					SECTION 7
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Lift Block – Line Mounted		30	350	RF LB5088	122-123
Lift Block – Line Mounted		55	350	RF LB5089	124-125
Lift Block – Line Mounted		95	350	RF LB5103	126-127

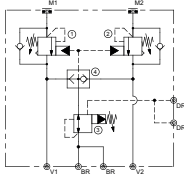
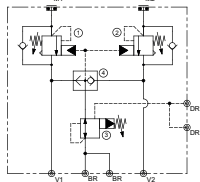
LIFT BLOCKS (Cont)					SECTION 7
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Lift Block – Line Mounted		150	350	RF LB5104	128-129

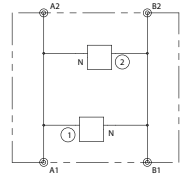
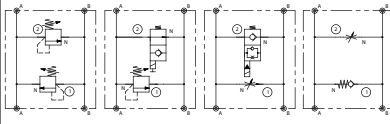
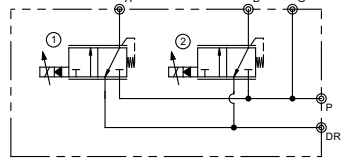
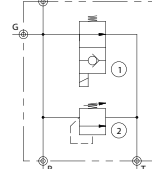
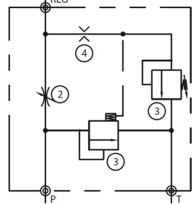
LOAD CONTROLS					SECTION 8
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Load holding or Load Control – Line mounted		30	350	RF LC73	132-133
Dual Load holding or Load Control – Line mounted		60	350	RF LC414	134-135
Pilot operated Check Valve, Single or Dual – through ported		60	210	RF LC673	136
Dual Pilot Operated check valve – Line Mounted		20	240	RF LC1090	137
Dual load control or load hold – Line Mounted		60	350	RF LC1099	138-139
Dual Load Control or load hold – Line Mounted		120	350	RF LC1896	140-141

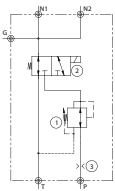
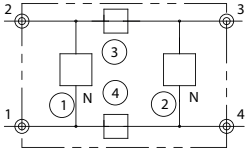
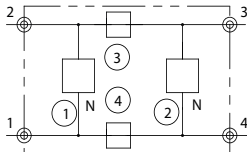
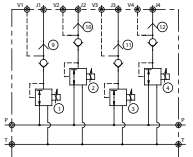
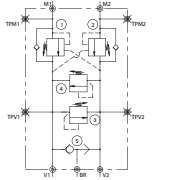
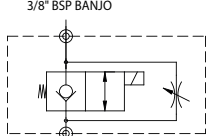
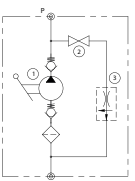
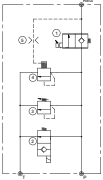
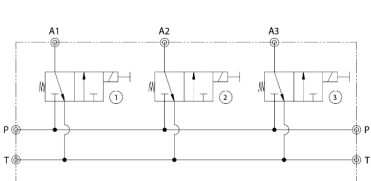
LOAD CONTROLS (Cont)					SECTION 8
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Multi-function, Cross Port, valve Control – Line Mounted		150	350	RF LC4519	142-143
Single Load Control or Load Hold – Line mounted		60	350	RF LC4872	144-145
Dual Load Control or Load Hold – Line mounted		60	350	RF LC5050	146-147
Dual Load holding or Load Control – Weld On		60	350	RF LC412	148-149
Single Load Control or Load Hold – 3/4"SAE-62 Mounted		60	350	RF LC1271	150-151
Single Load control or load hold – Weld mounted		40	350	RF LC1510	152-153
Dual pilot operated check – Weld mounted		19	240	RF LC2557	154-155
Dual Load Control or load hold – Weld Mounted		60	350	RF LC4138	156-157

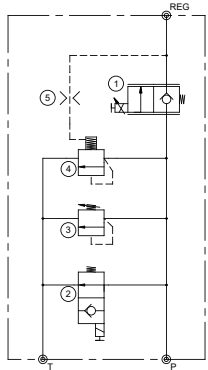
LOAD CONTROLS (Cont)					SECTION 8
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cylinder Lock Valve – Banjo Mounted		55	240	RF LC1062	158-159
Single Overcentre or Pilot Operated Check – Banjo Mounted		60	350	RF LC1217	160-161
Single Pilot Operated check valve – Banjo Mounted		23	240	RF LC1242	162-163
Dual Pilot operated Check – Dual Banjo Mounted		57	240	RF LC1563	164
Dual Pilot operated Check – Dual Banjo Mounted		40	350	RF LC1952	165-166
Cylinder lock Valve – G1/4\" Banjo Mounted		30	210	RF LC3535	167-168
Cylinder lock Valve – G1/4\" Banjo Mounted		20	210	RF LC3818	169-170
Single Pilot operated valve – G1/4\" Banjo Mounted		23	350	RF LC4529	171-172

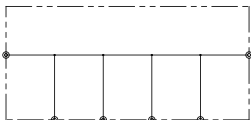
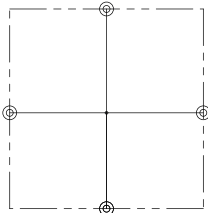
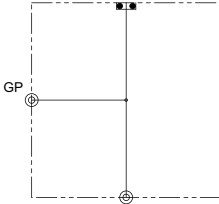
LOAD CONTROLS (Cont)					SECTION 8
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Pilot operated valve – dual G1/2” Banjo Mount		20	240	RF LC4695	173-174
Dual Pilot Operated Check valve – Flange mount		19	240	RF LC1065	175-176
Dual Pilot Operated Check Valve – Flange Mounted		20	240	RF LC1127	177
MOTOR CONTROLS					SECTION 9
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual pressure Compensated flow control c/w Relief – Dual Banjo Mounted To Suit CE and RE Motors		170	350	RF MC3909	180
Dual Pressure Compensated Flow Control c/w Relief – Motor Mount – OMP/R		170	250	RF MC3993	181
Pressure Compensated Flow Control c/w Relief – Motor mounted – OMP/R		200	250	RF MC4955	182
Dual Overcentre & Brake – Motor Mount – OMP/R		60	350	RF MC5029	183-184

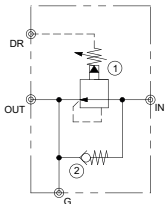
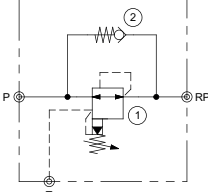
MOTOR CONTROLS (Cont)					SECTION 9
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Overcentre & Brake with Pressure reducer – Motor mounted – A2FE90		240	350	RF MC5115	185-186
Dual Overcentre & Brake with Pressure reducer – Motor mounted – A2FE125		240	350	RF MC5116	187-188

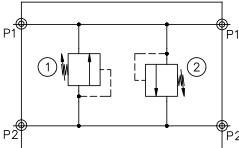
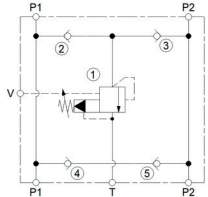
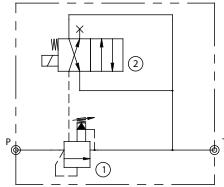
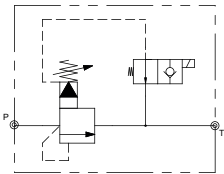
MULTI FUNCTION					SECTION 10
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Multi-function, Cross Port, valve control – Line Mounted		50	350	RF MF232	190-191
Multi-function, Cross Port, valve control – Line Mounted		40	240	RF MF1202	192-193
Dual Proportional Pressure Reducing – Line Mounted		30	240	RF MF1363	194-195
Relief Unloader – Line Mounted		80	210	RF MF1500	196-197
Pressure Compensated Flow Control with relief – Line mounted		100	240	RF MF2397	198

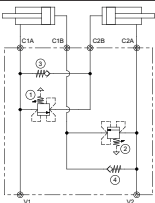
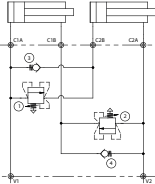
MULTI FUNCTION (Cont)					SECTION 10
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Reduced Selector – Line Mounted		17	210	RF MF3023	199-200
Multi-Function, Multiple valve configurations – Line mounted		55	240	RF MF3378	201-202
Multi-Function, Multiple valve configurations – Line mounted		40	240	RF MF3682	203-204
Multi Station Pilot Control -		4	350	RF MF3800	205-206
Dual Overcentre with Relief & Brake – Line mounted		40	350	RF MF4113	207
Cylinder Lock Valve – Banjo Mounted		55	240	RF MF4158	208-209
Hand Pump with Manual release – Tank Mounted		V	240	RF MF4161	210-211
Proportional Flow control with Dump & Relief – Line mounted		55	240	RF MF4623	212-213
Multi Section Selector – Line mounted		11	210	RF MF4925	214-215

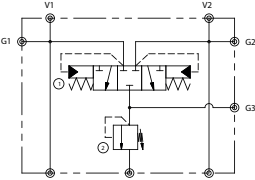
MULTI FUNCTION (Cont)					SECTION 10
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Priority Proportional Pressure Compensated flow control with Relief & Unloader		150	240	RF MF5098	216-217

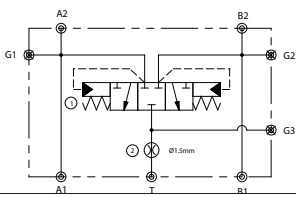
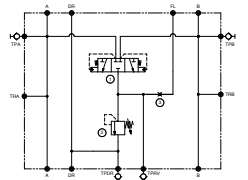
PIPE MANIFOLDS					SECTION 11
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
6 Ported, G3/4" (x2) & G1/2" (x4) – Line Mounted		V	350	RF PM4108	220
4 Ported, G1/2"		V	350	RF PM4275	221
2" SAE – 3000 > G2" with Test point - Adaptor		240	210	RF PM4319	222

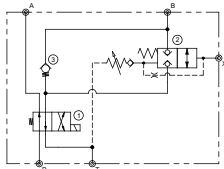
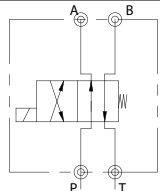
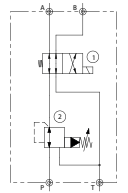
PRESSURE REDUCERS					SECTION 12
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Reducing with Reverse Check – Line mounted		160	350	RF PR1211	224-225
Reducer with Reverse Check – Line Mounted		40	210	RF PR1490	226-227

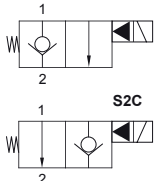
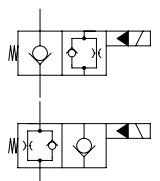
RELIEF VALVES					SECTION 13
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Cross Line – Line Mounted		150	345	RF RV3883	230-231
Ventable cross line with Anti-Cav – Line Mounted		240	350	RF RV4215	232-233
Vented Relief with Cetop Pilot Control – Line mounted		240	350	RF RV4304	234-235
Vented Relief with Solenoid control – Line Mounted		120	350	RF RV5117	236-237

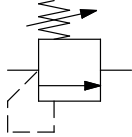
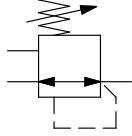
SEQUENCE VALVES					SECTION 14
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Dual Sequence control – Line mounted		40	350	RF SQ3896	240-241
Dual Sequence control – Line mounted		20	350	RF SQ4897	242-243

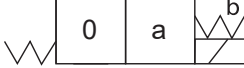
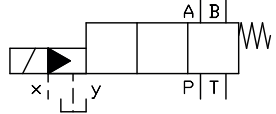
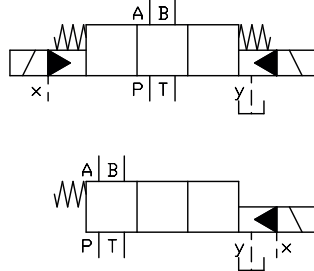
HOT OIL SHUTTLES					SECTION 15
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Hot Oil Shuttle with Relief – Line Mounted		60	350	RF HS4677	246-247

HOT OIL SHUTTLES					SECTION 15
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Hot Oil Shuttle with orifice – Line mounted		40	350	RF HS4885	248-249
Hot Oil Shuttle with Purge Orifice – Thru' Ported		80	350	RF HS4887	250-251

QUICK HITCH CONTROLS					SECTION 16
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Quick Hitch – Line mounted		25	350	RF QH3629	254
Quick Hitch – Line mounted		25	350	RF QH3937	255
Quick Hitch – Line mounted		38	240	RF QH5005	256-257

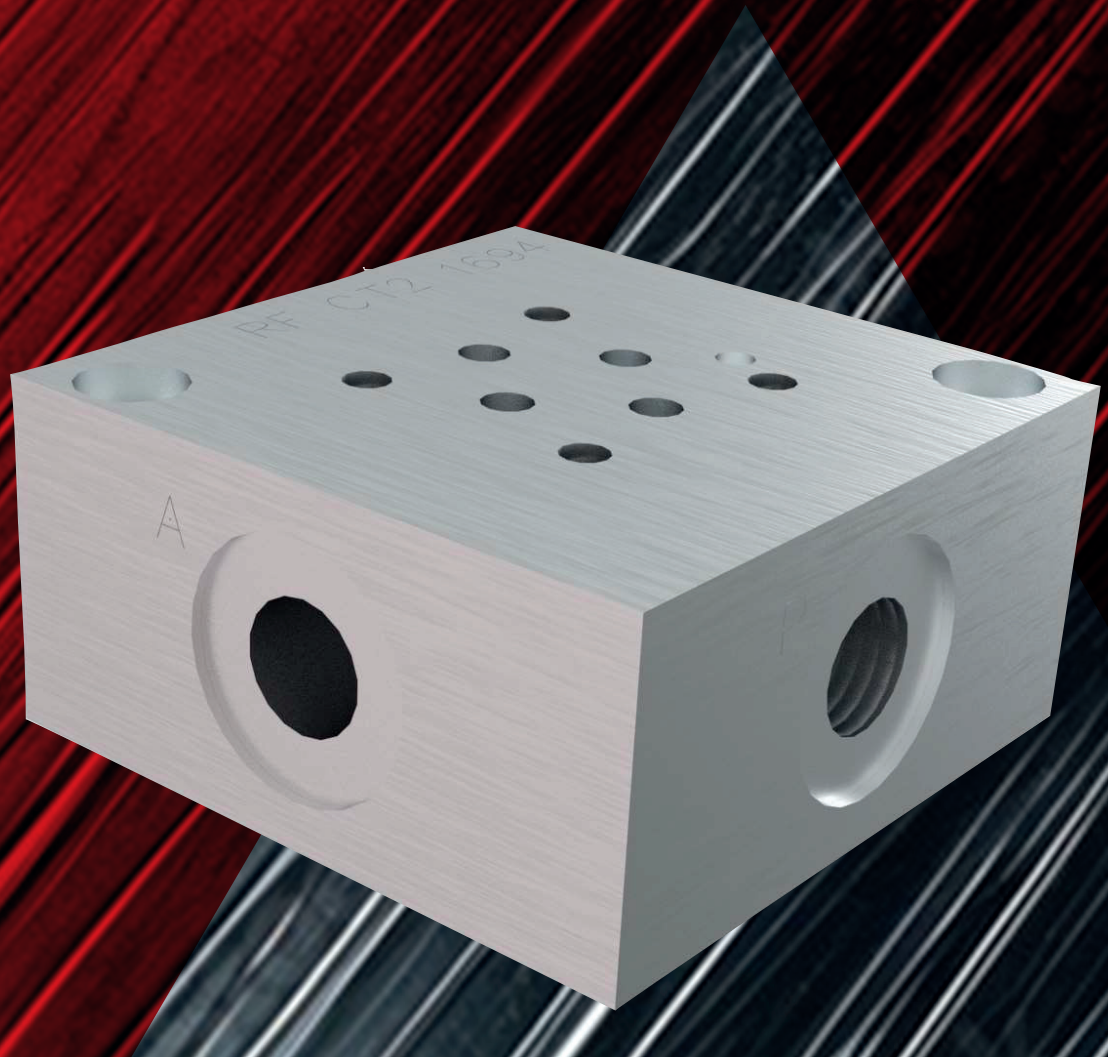
LINE MOUNTED VALVE					SECTION 17
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Solenoid Operated Valve		55	240	D-DES2	260-261
Solenoid Operated Valve		115	240	D-SJS2	262-263

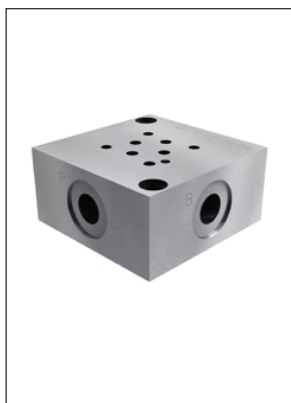
LINE MOUNTED VALVE					SECTION 17
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Pressure Control		80	350	V-RVSOS10	264-265
Pressure Reducer		43	350	R-PRR1PO10	266-267
Flow Control		30	350	R-FCCS 10S30N	268-269
Flow Control		45	250	R-FCNS10	270-271

CETOP VALVE INFORMATION					SECTION 18
DESCRIPTION	CIRCUIT	FLOW (lpm)*	PRESSURE (BAR)**	PART CODE***	PAGE
Cetop 2 Direct Operated Directional Control Valve		25	350	RS2	274-275
Cetop 3 Direct Operated Directional Control Valve		80	350	RS3	276-278
Cetop 5 Direct Operated Directional Control Valve		120	350	RS5	279-281
Cetop 5 Pilot Operated Directional Control Valve		160	350	RH5	282-284
Cetop 7 Pilot Operated Directional Control Valve		300	350	RH7	285-287

SECTION 1

CETOP 2 - ASSEMBLIES



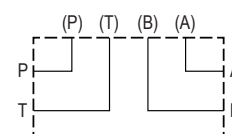


Up to 350 bar - Up to 25 lpm

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.

Symbol



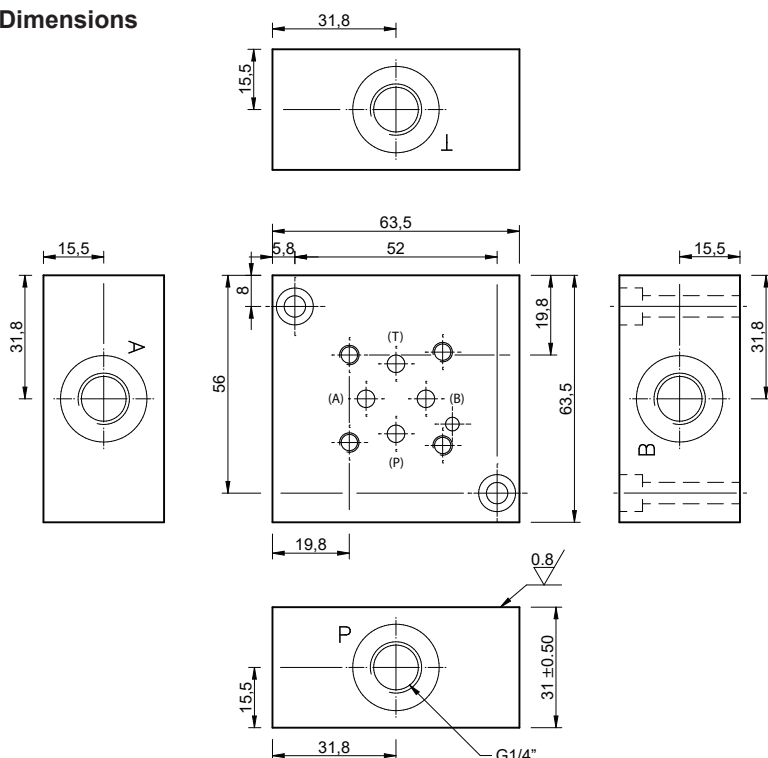
Features

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

Specifications

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



Compatible Valves see Data sheets

- RS2 - Cetop 2 directional valves
- RM2 - Cetop 2 PO check valves
- RP2 - Cetop 2 Proportional valves
- C2* - Cetop 2 modular valves

Ordering Example

RF C21694 *

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C21694A	CETOP 2 SIDE ENTRY SUBPLATE G1/4"	210	25

RF-C21694-01

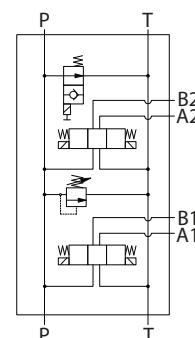


Up to 350 bar - Up to 25 lpm

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 range of directional control and modular valves can be specified separately.

Circuit

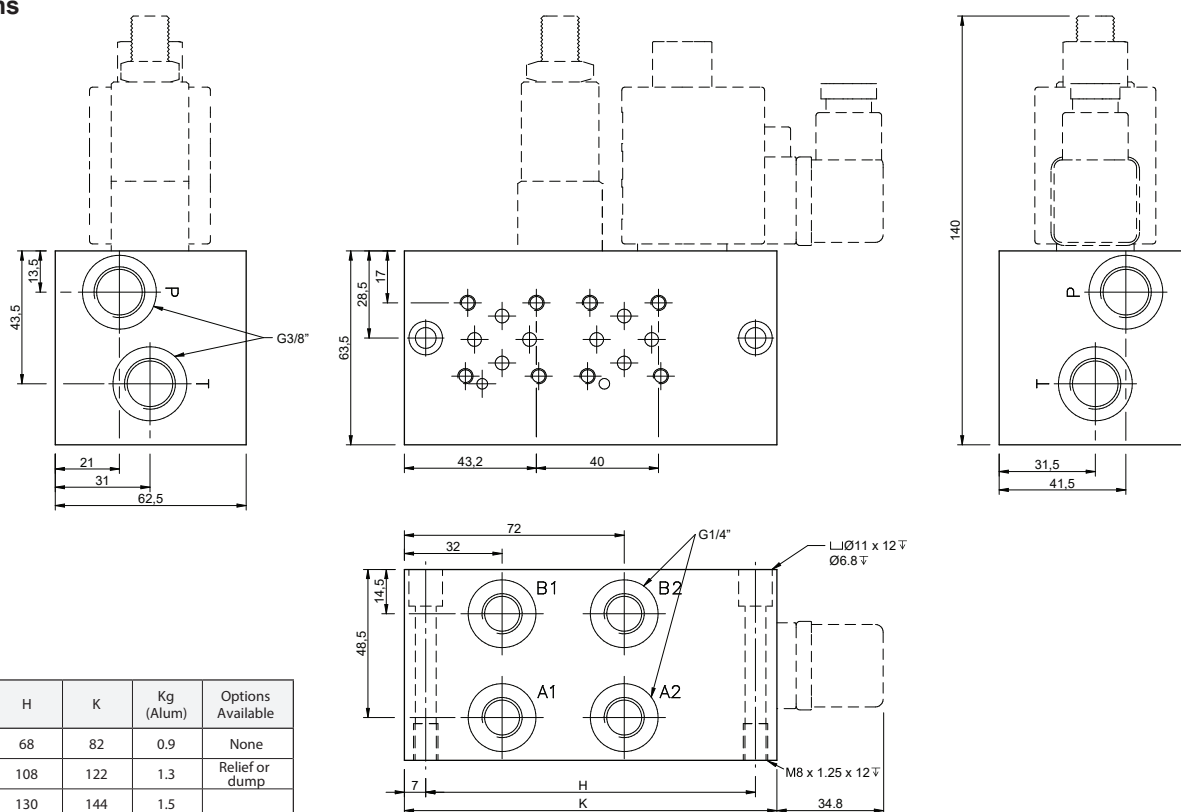


Features

- 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.

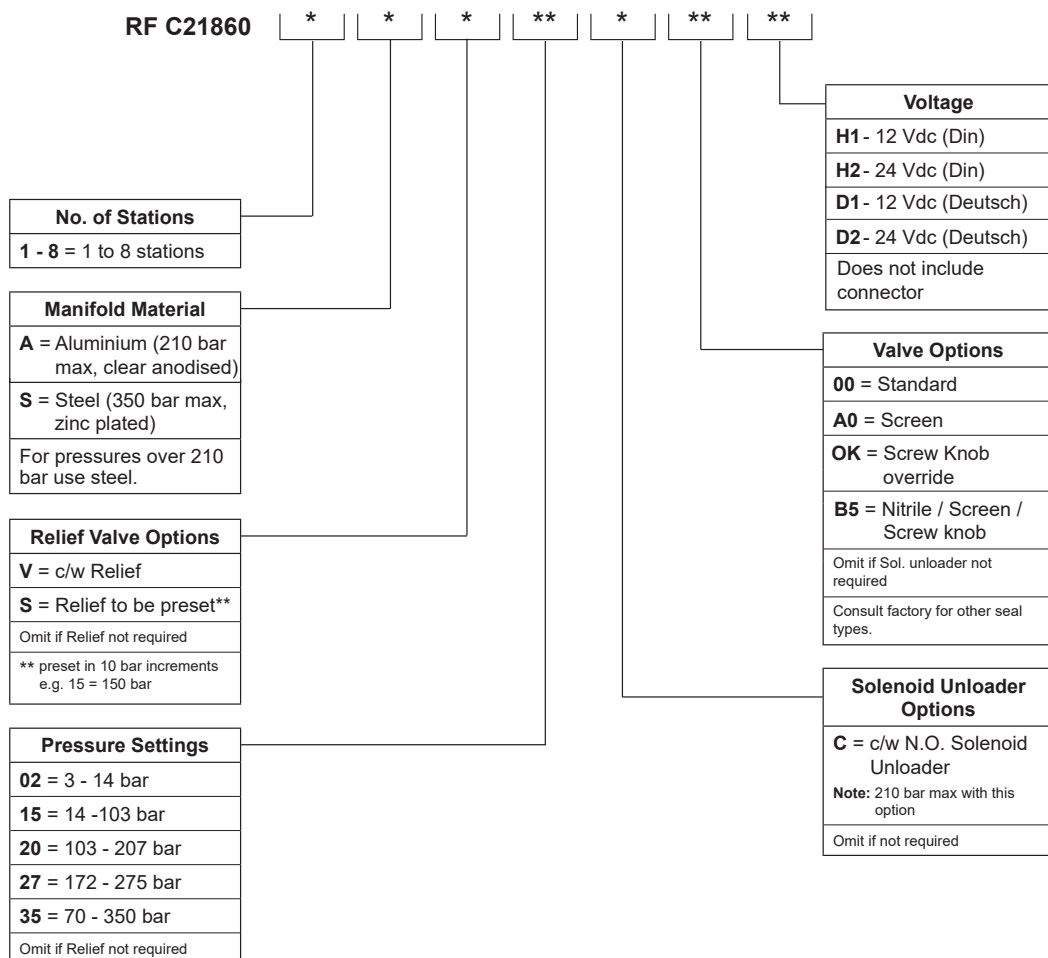
Note: Consult RS2 datasheet for Cetop valves

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	

RF-C21860-01

Ordering Example

Standard Options

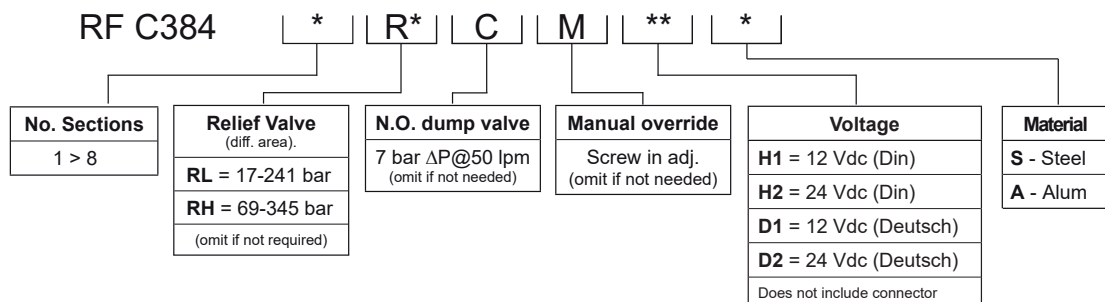
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C218602A	CETOP 2, 2 STN SUBPL. P & T G3/8" SERVICE G1/4"	210	25
RF C218604A	CETOP 2, 4 STN SUBPL. P & T G3/8" SERVICE G1/4"	210	25
RF C218606A	CETOP 2, 6 STN SUBPL. P & T G3/8" SERVICE G1/4"	210	25

SECTION 2

CETOP 3 - ASSEMBLIES



Ordering Example

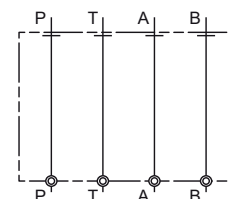


Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF C3842A	CETOP 3 SUBPLATE 2 STATION	210	50		
RF C3842RLA	CETOP 3 SUBPLATE 2 STATION + RV	210	50		17 - 241
RF C3844A	CETOP 3 SUBPLATE 4 STATION	210	50		
RF C3844RLA	CETOP 3 SUBPLATE 4 STATION + RV	210	50		17 - 241
RF C3844RLCH1A	CETOP 3 SUBPLATE 4 STATION + RV + 12VDC DUMP	210	50	12 VDC (Din)	17 - 241
RF C3844RLCH2A	CETOP 3 SUBPLATE 4 STATION + RV + 24VDC DUMP	210	50	24 VDC (Din)	17 - 241
RF C3846A	CETOP 3 SUBPLATE 6 STATION	210	50		
RF C3844RLA	CETOP 3 SUBPLATE 6 STATION + RV	210	50		17 - 241
RF C3844RLCH1A	CETOP 3 SUBPLATE 6 STATION + RV + 12VDC DUMP	210	50	12 VDC (Din)	17 - 241
RF C3844RLCH2A	CETOP 3 SUBPLATE 6 STATION + RV + 24VDC DUMP	210	50	24 VDC (Din)	17 - 241

Up to 210/350 bar

Symbol



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.

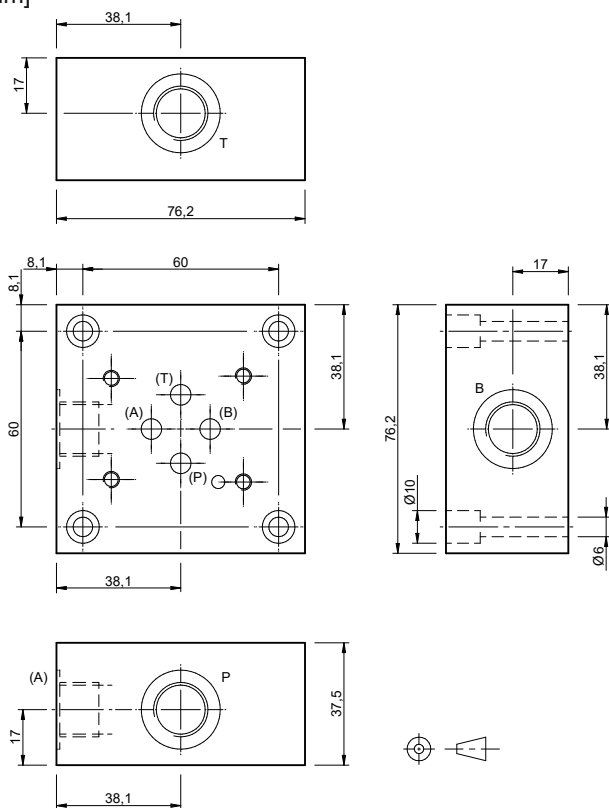
Features

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



Dimensions

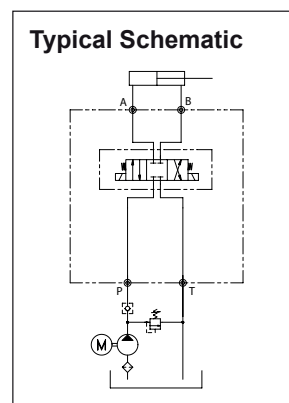
[mm]



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-RFC3853
Weight	0.51 kg (alum) 1.47 kg (steel)

Typical Schematic



Ordering Example

RF C3853

	*	*
Port Size		Manifold Material
B = G3/8"		A = Aluminium. 210 bar max. Clear anodised.
C = G1/2"		S = Steel. 350 bar max. Zinc plated.

Compatible Valves see Data sheets

- RS3 - Cetop 3 directional valves
- RM3 - Cetop 3 PO check valves
- RP3 - Cetop 3 Proportional valves
- C3* - Cetop 3 modular valves

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C3853BS	CETOP 3 SUBPLATE G3/8"	350	50

RF C3853-01

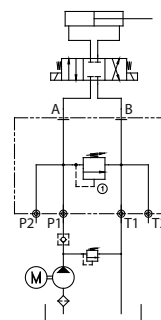


Up to 350 bar

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

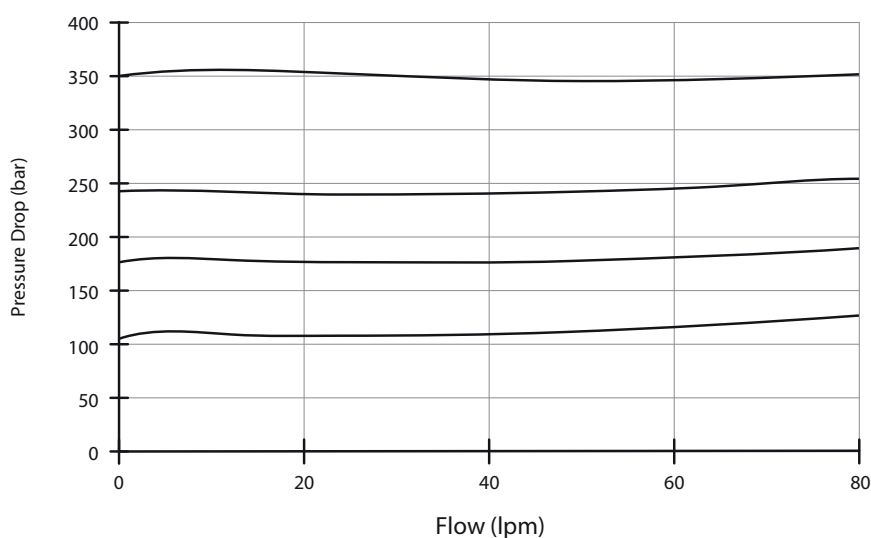
- Steel (zinc plated) or Aluminium (anodised) material options.
- Port sizes, G3/8" for Pressure and services, G1/2" for tank.

Note: For performance on valves see RS3 Cetop 3 section

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)

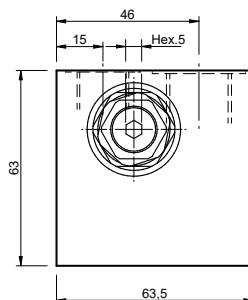
Performance



RF C3855-01

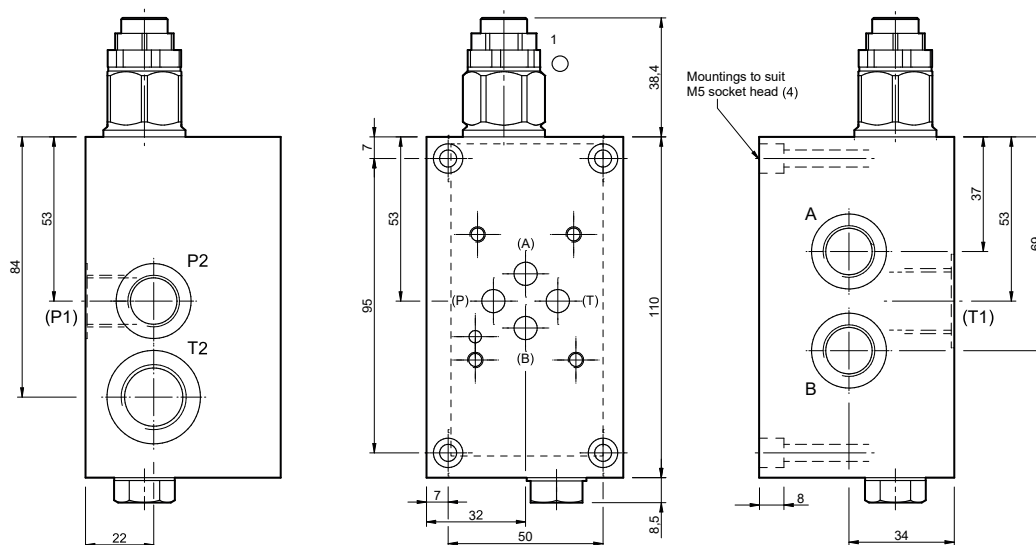
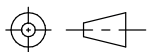
Up to 350 bar

Dimensions

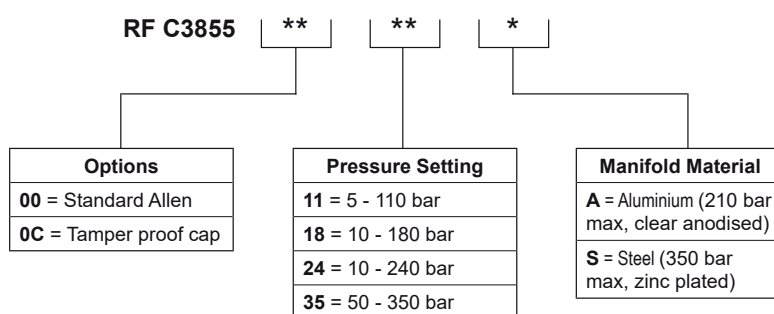


Ports

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



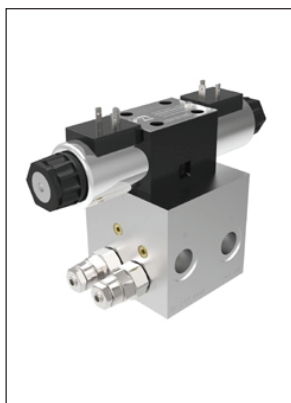
Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C38550024S	CETOP 3 SUBPLATE + RELIEF 10-240 BAR	240	50
RF C38550035S	CETOP 3 SUBPLATE + RELIEF 50-350 BAR	350	50

RF C3855-01

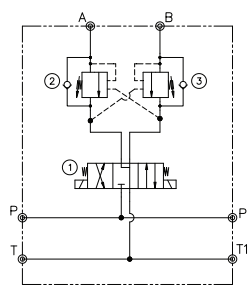


Up to 350 bar - 25 lpm

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.

Symbol



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.

Note: For performance on valves see RS3 Cetop 3 section

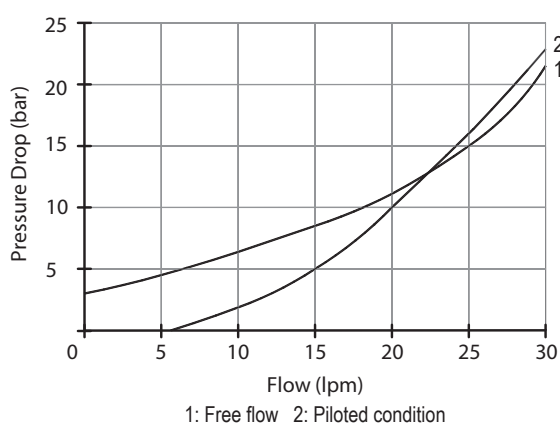
Specifications

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)

Performance

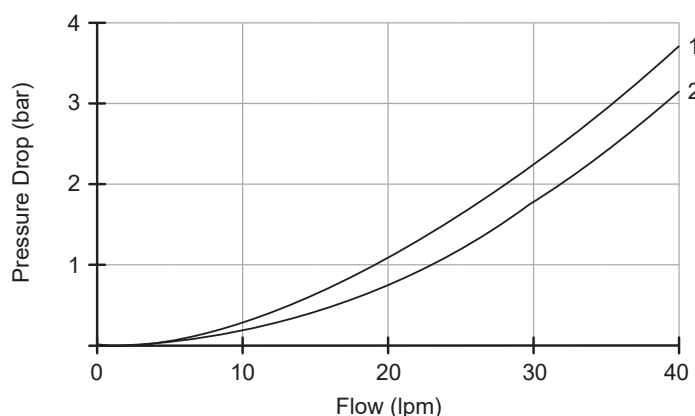
Pressure Drop Curves - Overcentre Valve

Oil viscosity 24 cSt
Temperature 50 °C



Pressure Drop Curves - Cetop Valve

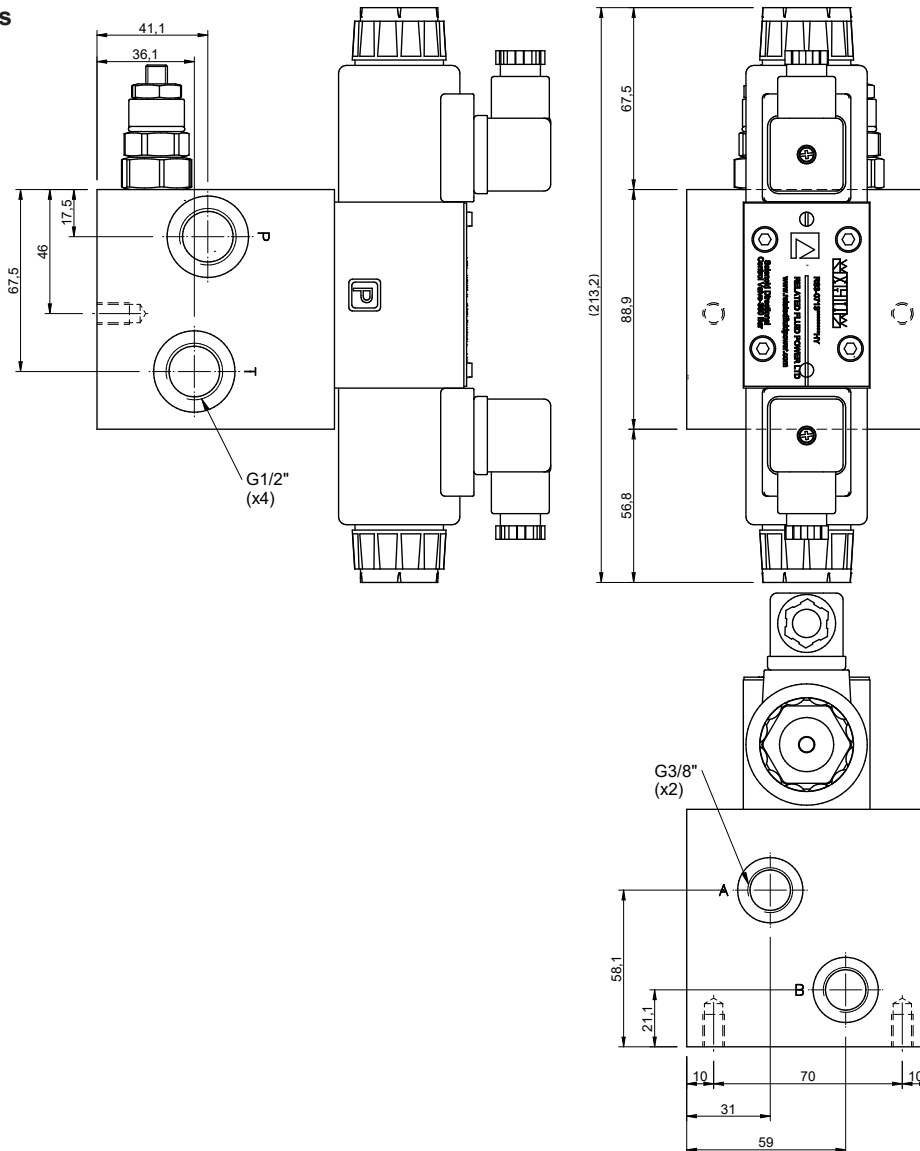
Oil viscosity 41 cSt
Temperature 50 °C



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

RF C34446-01

Dimensions



Ordering Example

RF C34446

**	**	**	*
Pressure Setting Overcentre 1	Pressure Setting Overcentre 2	Voltage	Manifold Material
21 = 210 bar**	21 = 210 bar**	H1 - 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
**10 bar increments	**10 bar increments	H2 - 24 Vdc (Din)	S = Steel (350 bar max, zinc plated)
**21 = std. setting	**21 = std. setting	D1 - 12 Vdc (Deutsch)	
		D2 - 24 Vdc (Deutsch)	
		Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C344462121H1A	CETOP 3 SUBPLATE ASSEMBLY + DUAL O/CENTRE 12VDC	210	25	12 VDC
RF C344462121H2A	CETOP 3 SUBPLATE ASSEMBLY + DUAL O/CENTRE 24VDC	210	25	24 VDC

RFC34446-01

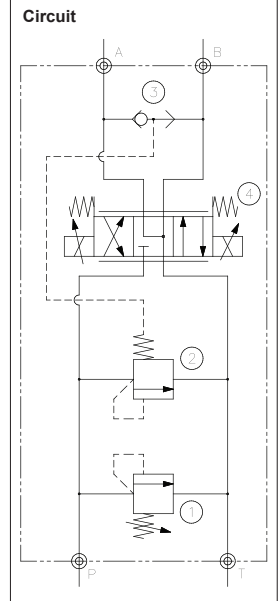


Up to 350 bar max - Up to 40 lpm max

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.



Features

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

Notes:

- Cetop control not supplied. Consult RFP factory for further assistance.
- Circuit shown with typical $A + B > T$ cetop, ref only.
- Compensator adjustment range is 2.8-20.7 bar. Higher pressure settings should be avoided in interest of energy consumption / waste energy

Note: For performance on valves see RS3 Cetop 3 section

Specifications

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)

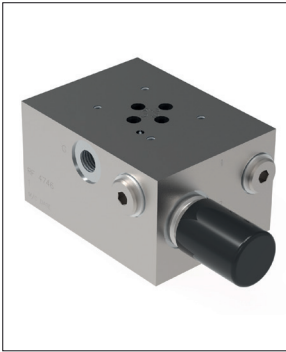
SECTION 2 CETOP 3 ASSEMBLIES



C34659

Compensator valve pressure range	Relief valve Pressure range	Pressure setting	Manifold Material
03 = 2.8 bar	Y = 5 - 30 bar	21 = 210 bar** **10 bar increments	A = Aluminium (210 bar max, clear anodised)
05 = 5.5 bar	N = 5 - 110 bar	00 = Std. setting	S = Steel (350 bar max, zinc plated)
10 = 10.4 bar	B = 10 – 180 bar	Y = 20 bar	
14 = 13.8 bar	G = 10 – 240 bar	N = 100 bar	
30 = 6.8 - 20.7 bar	W = 85 – 350 bar	B = 140 bar	
Adjustable, NOT SET		G/W = 210 bar	

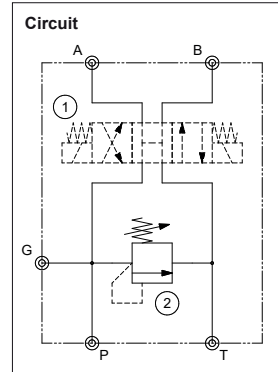
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF C3465910G00A	CETOP 3 SUBPLATE WITH RV & PRESSURE COMPENSATOR	210	40	10 - 210



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.



Features

- G1/2" Ports
- Ideal for multiple applications
- See RF C54745 for higher flow applications, Cetop 5.

Notes:

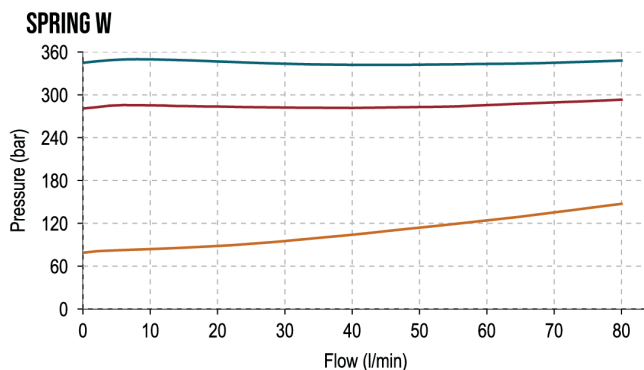
- Excludes directional valve
- Other configurations including valve modules available on request. Consult factory for further information.

Note: For performance on valves see RS3 Cetop 3 section

Specifications

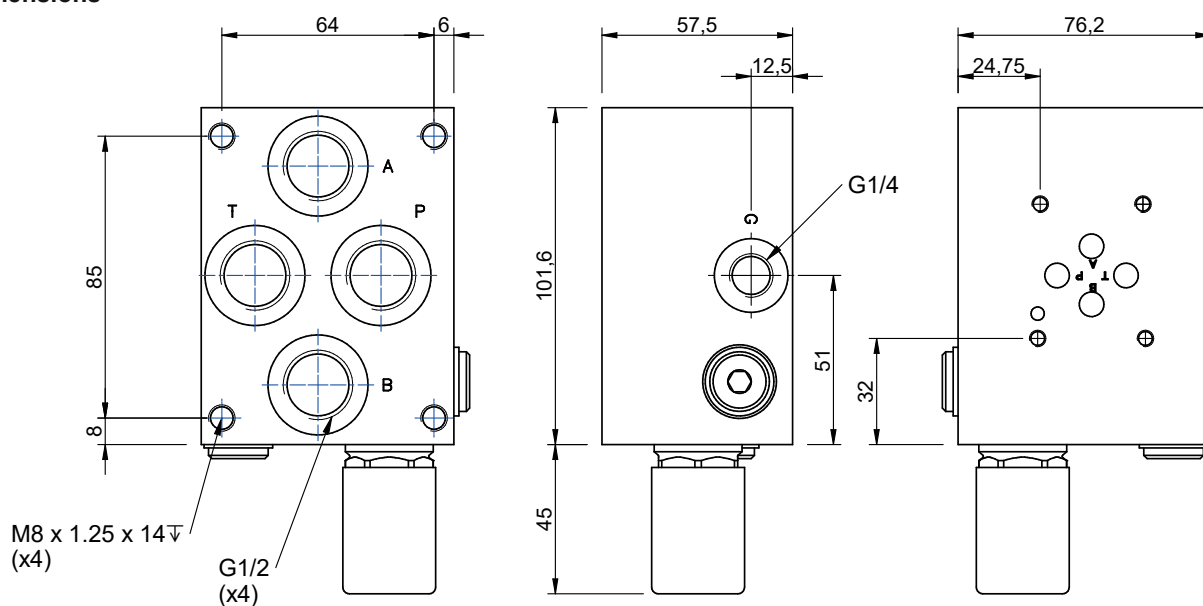
Flow Range (lpm)	For performance on valves see RS3 Cetop 3 section
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RFC34746
Weight	3.9 kg (alum) 5.8 kg (steel)

Performance



RF-C34746-01

Dimensions



Ordering Example

RF C34746

Relief valve Pressure range	Pressure setting	Manifold Material
Y = 5-30 bar N = 5 to 110 bar B = 10 – 180 bar G = 10 – 240 bar W = 50 – 350 bar	21 = 210 bar** **10 bar increments ** 21 = std. setting	A = Aluminium (210 bar max, clear anodised) S = Steel (350 bar max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF C34746G21S	CETOP 3 SUBPLATE + RV TANK TOP MTD 210 BAR SETTING	210	50	10-240



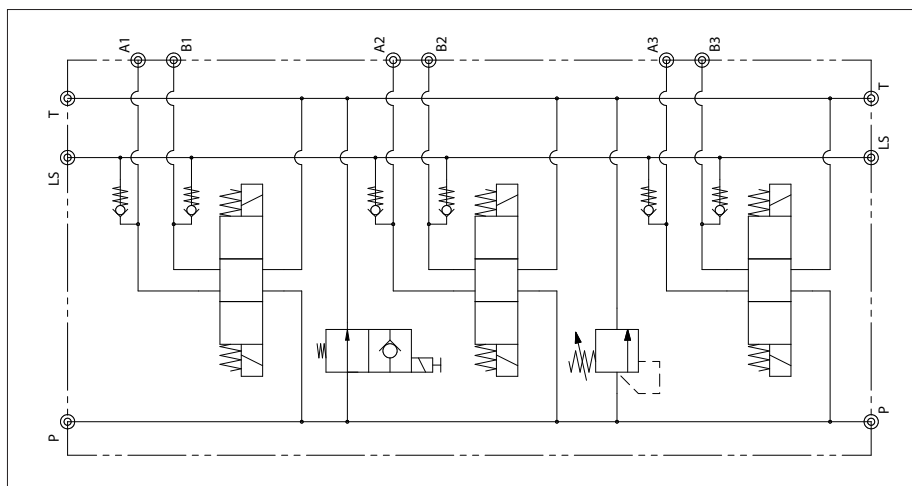
Variable, 350 bar max. - Up to Variable lpm

Description

The RF C35080 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 separately. Please consult factory 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 lightweight aluminium, Anodised (210 bar) or high pressure (350 bar) steel, zinc plated options
- 2 to 8 Station Available.

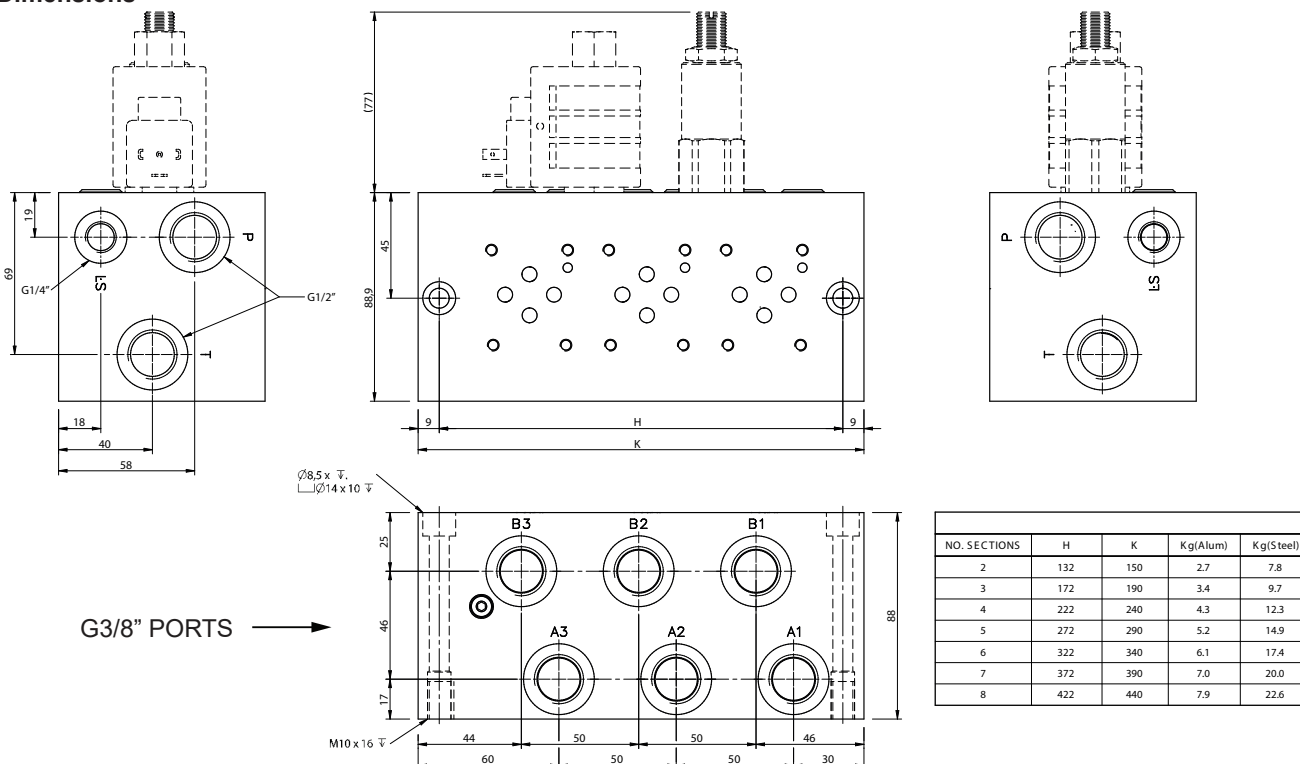
Note: For performance on valves see RS3 Cetop 3 section

Specifications

Flow Range (lpm)	Variable, 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

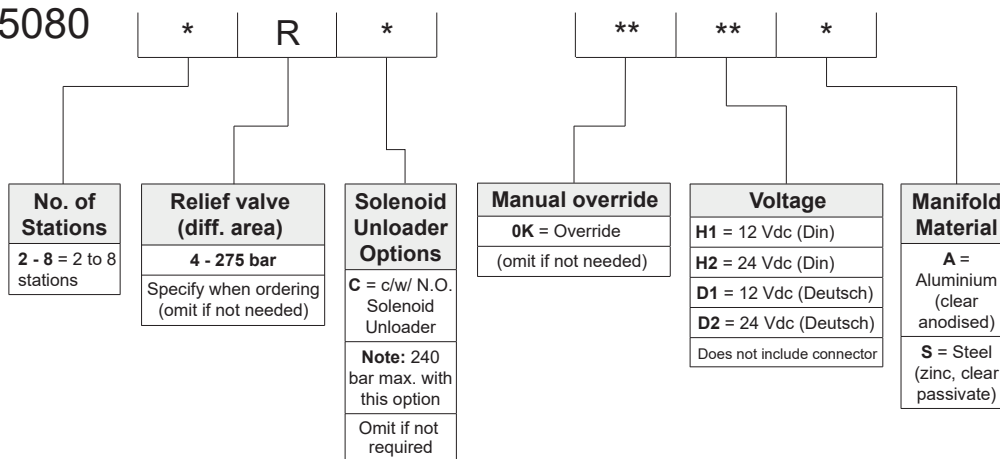
RF-C35080-01

Dimensions



Ordering Example

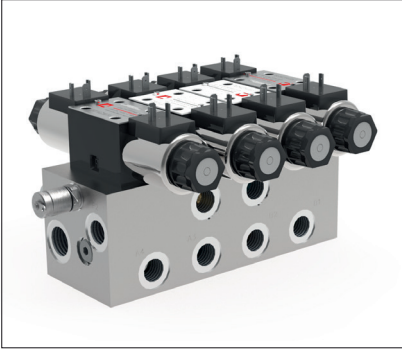
RF C35080



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF C350802A	CETOP 3 L.S. SUBPLATE 2 STATION	210	50	-	-
RF C350802RA	CETOP 3 L.S. SUBPLATE 2 STATION + RV	210	50	-	4 - 275
RF C350804A	CETOP 3 L.S. SUBPLATE 4 STATION	210	50	-	-
RF C350804RA	CETOP 3 L.S. SUBPLATE 4 STATION + RV	210	50	-	4 - 275
RF C350804RCH1A	CETOP 3 L.S. SUBPLATE 4 STATION + RV + 12VDC DUMP	210	50	12 VDC (Din)	4 - 275
RF C350804RCH2A	CETOP 3 L.S. SUBPLATE 4 STATION + RV + 24VDC DUMP	210	50	24 VDC (Din)	4 - 275
RF C350806A	CETOP 3 L.S. SUBPLATE 6 STATION	210	50	-	-
RF C350806RA	CETOP 3 L.S. SUBPLATE 6 STATION + RV	210	50	-	4 - 275
RF C350806RCH1A	CETOP 3 L.S. SUBPLATE 6 STATION + RV + 12VDC DUMP	210	50	12 VDC (Din)	4 - 275
RF C350806RCH2A	CETOP 3 L.S. SUBPLATE 6 STATION + RV + 24VDC DUMP	210	50	24 VDC (Din)	4 - 275

RF-C35080-01



Variable up to 350 bar max - 40 lpm

Description

This is a compact Cetop 3, four station sub-plate, specifically for modern vehicle tracking applications with conveyors or aux. applications. The assembly offers a conventional layout with separate pressure inlets and a combined, generously sized tank outlet. The internal design of the manifold has been optimised to minimise pressure drop and heat generation. On each pump inlet there is a Cetop 3 P>T spool (1&4) for unloading the flow in neutral.

On operation of the Cetop 3 P>T valve, flow can be diverted to either the track function or the conveyors, both functions have a main relief for max pressure protection. When in track operation, the cetop 3 control valve is an A+B>T spool (2&3), In neutral this allows back pressure to be dissipated to allow braking, while at the same time blocking pressure from the P line. Activation of the A+B>T spool (2&3) will engage forward or reverse tracking.

Features

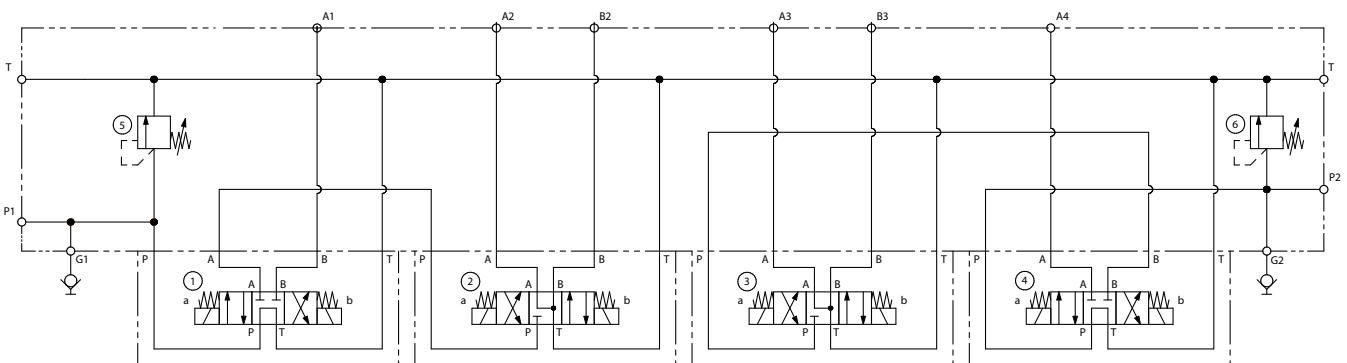
- Compact and efficient design with low pressure drop
- Available in lightweight Aluminum (Anodised) 210 bar or high pressure steel (Zinc plated) 350 bar
- Redundancy feature for tracking safety.
- For Higher flow see RF C55311 or RF C75362
- P line test points

Note: For performance on valves see RS3 Cetop 3 section

Specifications

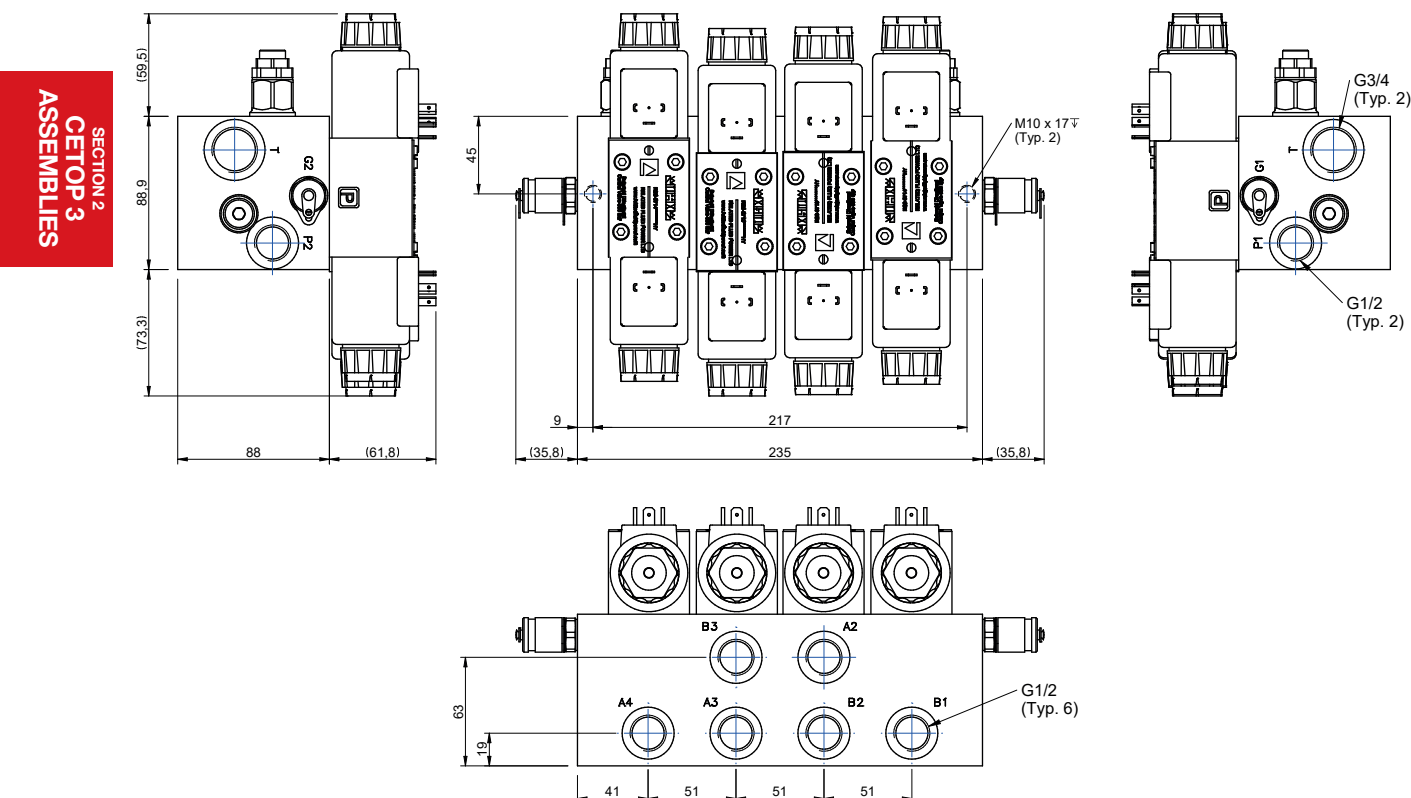
Flow Range (lpm)	40
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120 °C
Spare Seal Kit	SK-RFC35363
Weight	15.4 kg (alum) 23.5 kg (steel)

Circuit



RF C35363-01

Dimensions



Ordering Example

RF C35363

**	**	**
Relief Setting 21 = 210 bar Standard Setting Aluminum 35 = 350 bar Standard Setting Steel XX = Custom Setting Relief range 50 - 350bar increments of 10 bar	Voltage H1 = 12 Vdc (DIN) H2 = 24 Vdc (DIN) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector	Manifold Material A = Aluminium (210 bar max, anodised, clear) S = Steel (350 bar max, zinc, clear passivate)

Standard Options

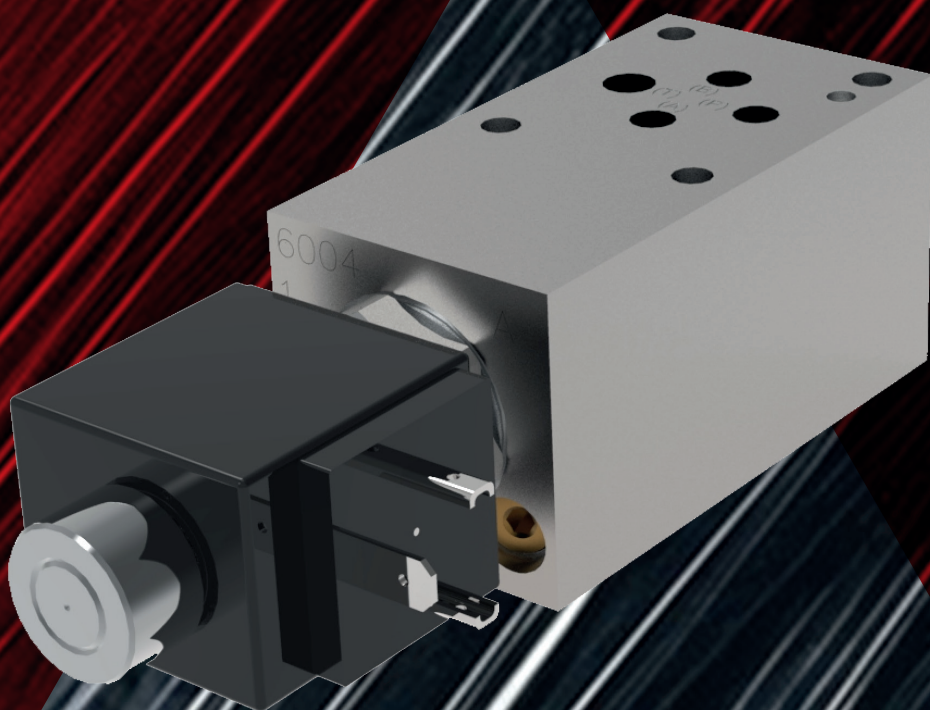
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C3536321H1A	CETOP 3 TRACK & CONVEYOR CONTROL VALVE 12VDC	210	40	12 VDC (Din)
RF C3536321H2A	CETOP 3 TRACK & CONVEYOR CONTROL VALVE 24VDC	210	40	24 VDC (Din)

RF C35363-01

SECTION 3

CETOP 3 - MODULES

SECTION 3
CETOP 3
MODULES



Pressure Control Relief Valves	46-51
Pressure Reducing Valves	52
Pressure Compensator Valves	53
Solenoid Operated Valves	54-58
Pilot Operated and Direct Acting Check Valves	59-62
Flow Control Valves	63-69
Overcentre/Counterbalance Modules	70-71



Up to 350 bar - Up to 40 lpm

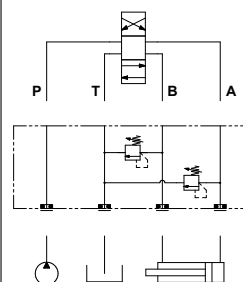
Description

The C3-DABTNS2RVS module is an 'A' & 'B' line service relief valve. Connecting the service pressure line (A) & line (B) to the tank line (T).

Ideal for protecting service parts from pressure spikes.

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



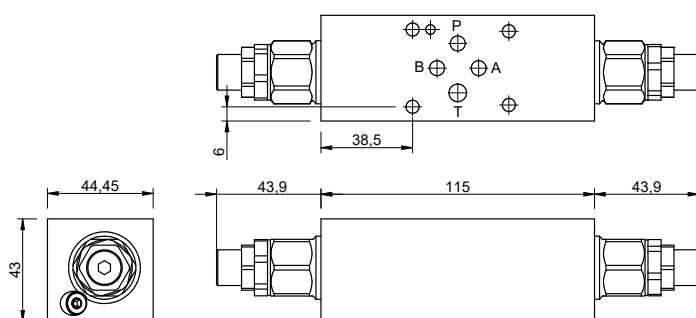
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Nitrile seals as standard (Consult factory for options)

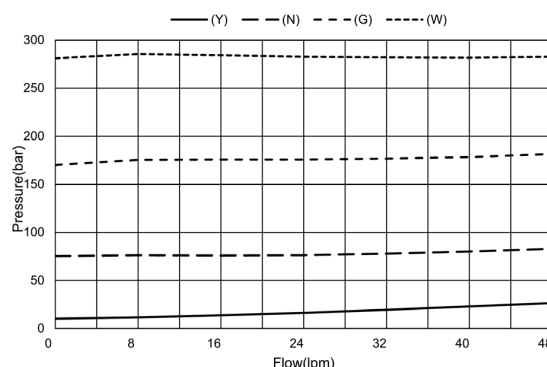
Specifications

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-C3-DABTNS2RVS
Weight	0.9 kg (alum) 1.7 kg (steel)

Dimensions



Performance



Ordering Example

C3-DABTNS2RVS				
	*	***	*	***
Pressure Range (A)				
Y = 5-30 bar				
N = 5-110 bar				
G = 10-240 bar				
W = 85-350 bar				
Pressure Setting (A)				
02 = 20 bar**				
21 = 210 bar**				
**10 bar increments				
00 = no setting				
Pressure Range (B)				
Y = 5-30 bar				
N = 5-110 bar				
G = 10-240 bar				
W = 85-350 bar				
Pressure Setting (B)				
02 = 20 bar**				
21 = 210 bar**				
**10 bar increments				
00 = no setting				
Manifold Material				
A = Aluminium (210 bar max, clear anodised)				
S = Steel (350 bar max, zinc plated)				

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-DABTNS2RVSG00G00A	CETOP 3 A & B TO T RELIEF VALVE MODULE 10-210 BAR	210	40	10 - 210

C3-DABTNS2RVS-01



Up to 350 bar - Up to 40 lpm

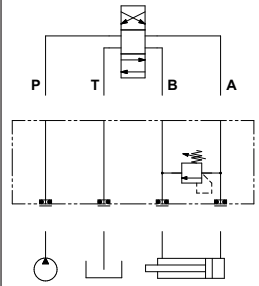
Description

The C3-SABSN2RVS module is a relief valve. Connecting the service pressure line (A) to the service line (B).

When the pressure on the 'A' line reaches the pre-determined setting of the valve, oil will flow to the 'B' line.

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



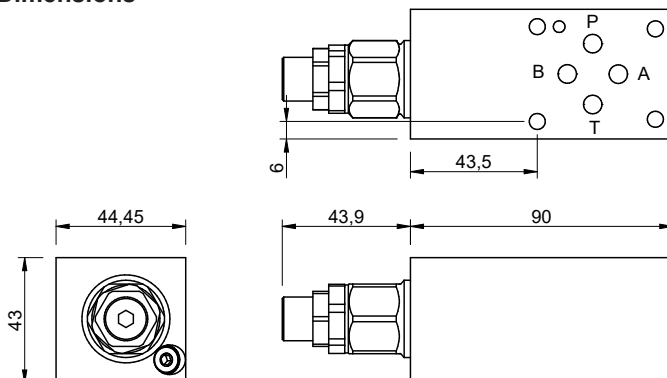
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

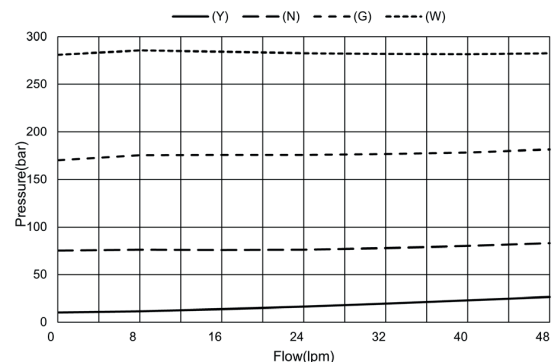
Specifications

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-C3-SABSN2RVS
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SABSN2RVS	*	***	*
Pressure Range		Pressure Setting	Manifold Material
Y = 5-30 bar		020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)
N = 5-110 bar		210 = 210 bar**	S = Steel (350 bar max, zinc plated)
G = 10-240 bar		**5 bar increments	
W = 85-350 bar		000 = no setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SABSN2RVSG000A	CETOP 3 A TO B RELIEF VALVE MODULE 10-210 BAR	210	40	10 - 210

C3-SABSN2RVS-01



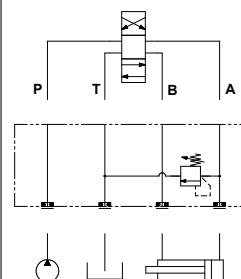
Up to 350 bar - Up to 40 lpm

Description

The C3-SATNS2RVS module is an 'A' line service relief valve. Connecting the service pressure line (A) to the tank line (T).

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



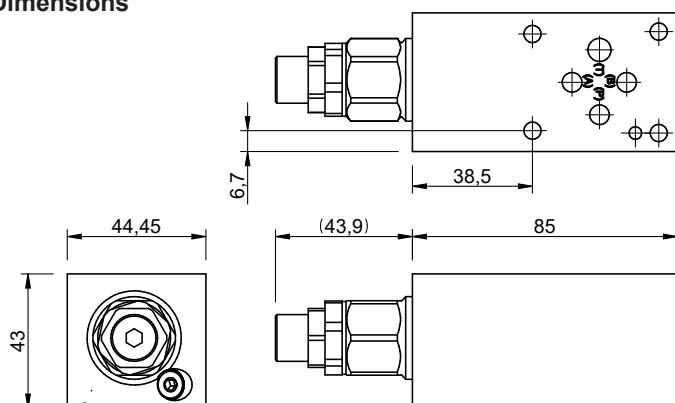
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

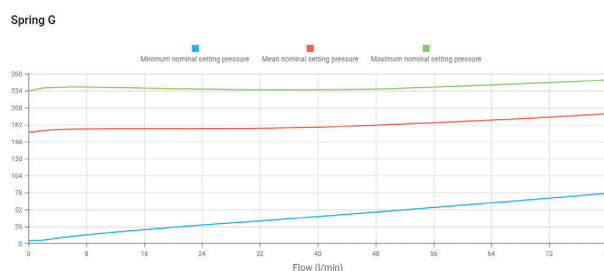
Specifications

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-C3-SATNS2RVS
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



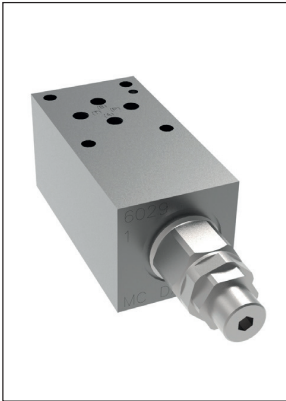
Ordering Example

C3-SATNS2RVS	*	***	*
Pressure Range	Pressure Setting	Manifold Material	
Y = 5-30 bar	020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)	
N = 5-110 bar	210 = 210 bar**	S = Steel (350 bar max, zinc plated)	
G = 10-240 bar	**5 bar increments		
W = 85-350 bar	000 = no setting		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SATNS2RVSG000A	CETOP 3 A TO T RELIEF VALVE MODULE 10 - 210 BAR	210	40	10 - 210

C3-SATNS2RVS-01



Up to 350 bar - Up to 40 lpm

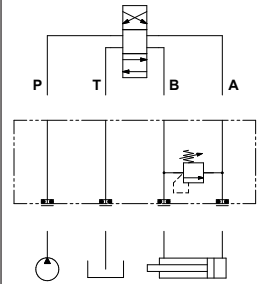
Description

The C3-SBASN2RVS module is a relief valve. Connecting the service pressure line (B) to the service line (A).

When the pressure on the 'B' line reaches the pre-determined setting of the valve, oil will flow to the 'A' line.

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



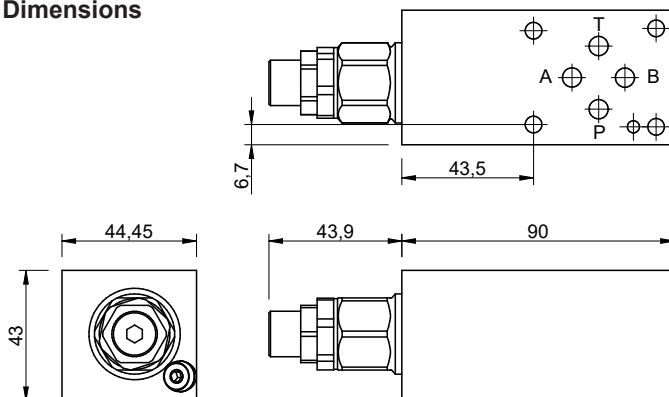
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

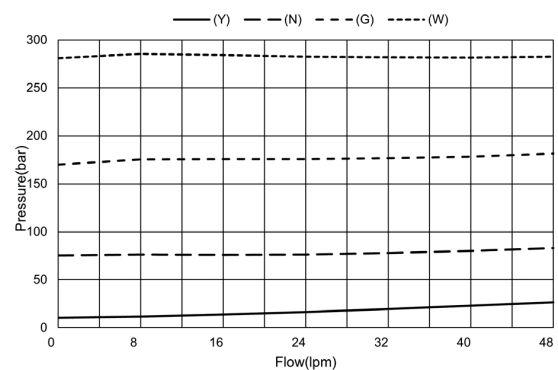
Specifications

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-C3-SBASN2RVS
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SBASN2RVS	*	***	*
	Pressure Range	Pressure Setting	Manifold Material
	Y = 5-30 bar	020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)
	N = 5-110 bar	210 = 210 bar**	S = Steel (350 bar max, zinc plated)
	G = 10-240 bar	**5 bar increments	
	W = 85-350 bar	000 = no setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SBASN2RVSG000A	CETOP 3 B TO A RELIEF VALVE MODULE 10-210 BAR	210	40	10 - 210

C3-SBASN2RVS-01



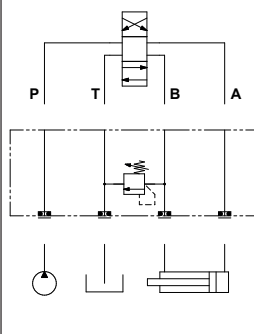
Up to 350 bar - Up to 40 lpm

Description

The C3-SBTNS2RVS module is an 'A' line service relief valve. Connecting the service pressure line (B) to the tank line (T).

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



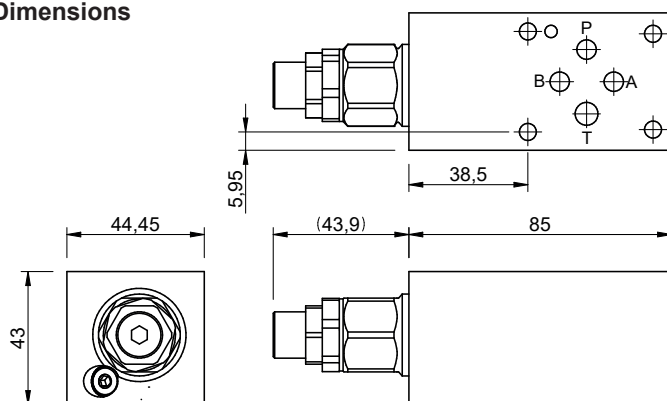
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

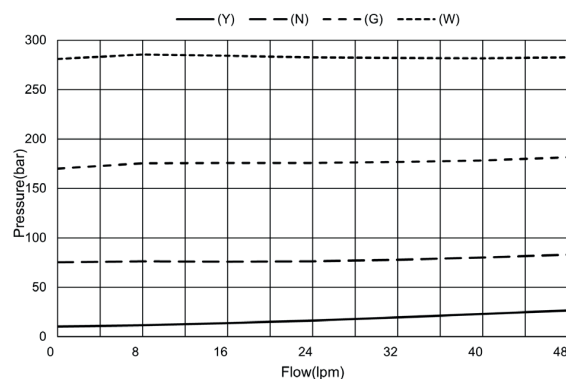
Specifications

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-C3-SBTNS2RVS
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SBTNS2RVS	*	***	*
Pressure Range	Pressure Setting	Manifold Material	
Y = 5-30 bar	020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)	
N = 5-110 bar	210 = 210 bar**	S = Steel (350 bar max, zinc plated)	
G = 10-240 bar	**5 bar increments		
W = 85-350 bar	000 = no setting		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SBTNS2RVSG000A	CETOP 3 B TO T RELIEF VALVE MODULE 10 - 210 BAR	210	40	10 - 210

C3-SBTNS2RVS-01



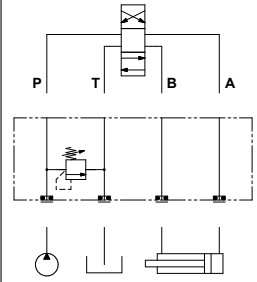
Up to 350 bar - Up to 40 lpm

Description

The C3-SPTNS2RVS module is an 'A' line service relief valve. Connecting the service pressure line (P) to the tank line (T).

It uses a typical size 10 cartridge valve, direct acting with good low-pressure rise.

Circuit



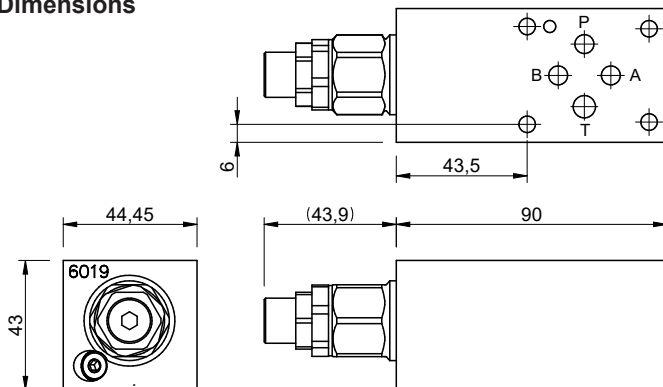
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

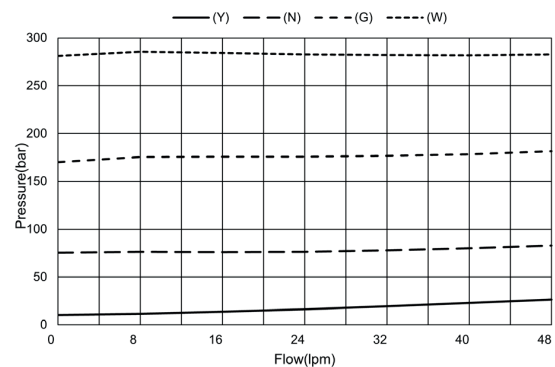
Specifications

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-C3-SPTNS2RVS
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SPTNS2RVS	*	***	*
Pressure Range	Pressure Setting	Manifold Material	
Y = 5-30 bar	020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)	
N = 5-110 bar	210 = 210 bar**	S = Steel (350 bar max, zinc plated)	
G = 10-240 bar	**5 bar increments		
W = 85-350 bar	000 = no setting		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SPTNS2RVSG000A	CETOP 3 P TO T RELIEF VALVE MODULE 10-210 BAR	210	40	10 - 210

C3-SPTNS2RVS-01



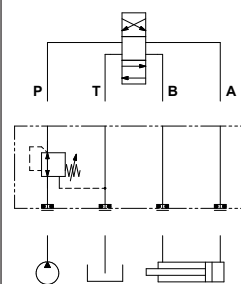
Up to 350 bar - Up to 43 lpm

Description

The C3-SPPSN2PRR module is a P line pressure reducer. It takes the input pressure and reduces to a pre-defined setting. This can then be used on either of the cetop output services. Should there be an increase in pressure from the services, the relieving function will take up a small amount of this.

It uses a typical size 10 cartridge valve, pilot operated with good low-pressure rise.

Circuit



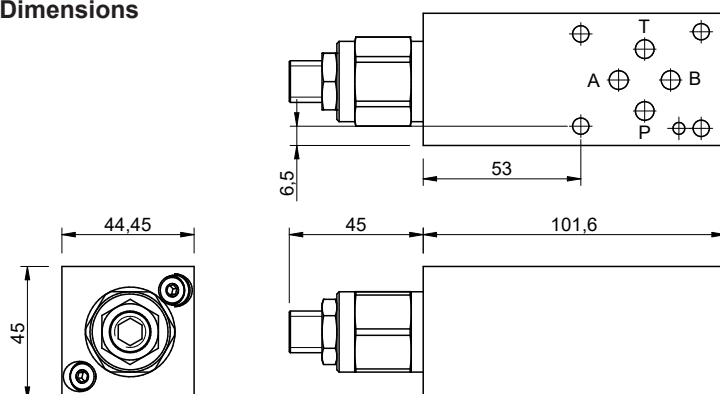
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

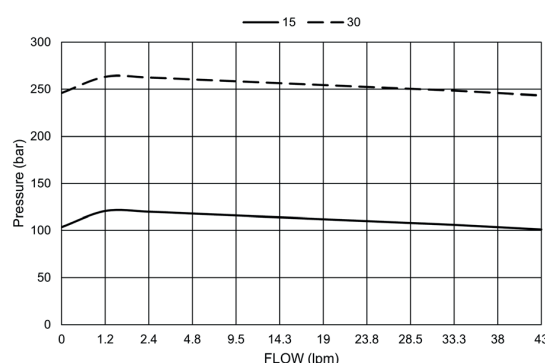
Specifications

Flow Range (lpm)	43
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-C3SPPSN2PRR
Weight	0.7 kg (alum) 1.4 kg (steel)

Dimensions



Performance



Ordering Example

C3-SPPSN2PRR	*	***	*
Pressure Range		Pressure Setting	Manifold Material
15 = 3.5-100 bar		020 = 20 bar**	A = Aluminium (210 bar max, clear anodised)
30 = 3.5-205 bar		210 = 210 bar**	S = Steel (350 bar max, zinc plated)
50 = 28-350 bar		**5 bar increments	
		000 = no setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SPPSN2PRR15000A	CETOP 3 P LINE PRESSURE REDUCING MODULE	210	43	3.5 - 100
C3-SPPSN2PRR30000A	CETOP 3 P LINE PRESSURE REDUCING MODULE	210	43	3.5 - 200

C3-SPPSN2PRR-01



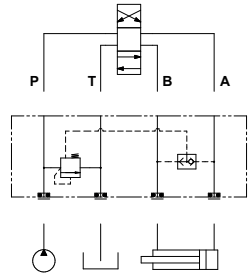
Up to 240 bar - Up to 40 lpm

Description

The C3-SPTNS2LMNC module is a P line bypass compensator to tank. It takes the input pressure from 'A' line or 'B' line via a shuttle for the control signal. This is ideal for proportional Cetop valves. It will maintain the flow to a service no matter how the load is affected.

It uses a typical size 10 cartridge valve. Pilot operated with good low-pressure rise.

Circuit



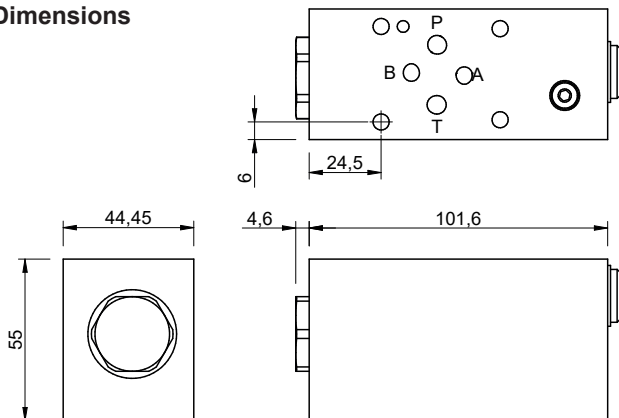
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.

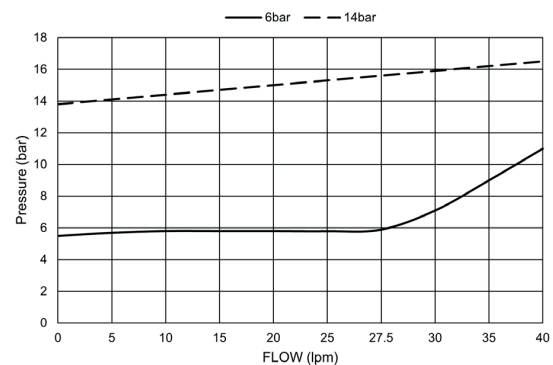
Specifications

Flow Range (lpm)	40
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-C3-SPTNS2LMNC
Weight	0.9 kg (alum) 1.7 kg (steel)

Dimensions



Performance



Ordering Example

C3-SPTNS2LMNC

****** *****

Pressure Range

05 = 5.5 bar
14 = 14 bar

Manifold Material

A = Aluminium
(210 bar max,
clear anodised)
S = Steel (240 bar
max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Compensation Pressure (bar)
C3-SPTNS2LMNC05A	CETOP 3 BYPASS COMPENSATOR MODULE	210	40	5.5
C3-SPTNS2LMNC14A	CETOP 3 BYPASS COMPENSATOR MODULE	210	40	14

C3-SPTNS2LMNC-01



Up to 350 bar - Up to 50 lpm

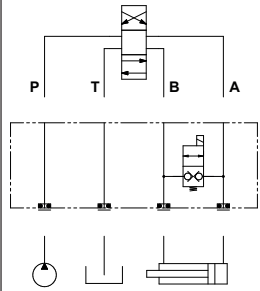
Description

The C3-SABSN2S2I module is a double blocking valve. Connecting the service pressure line (A) to the service pressure line (B).

When energised on the 'A' line will connect to the 'B' line.

Typically used to create a float function on a cylinder or motor. It uses a typical size 10 cartridge valve. Pilot operated with good low-pressure rise.

Circuit



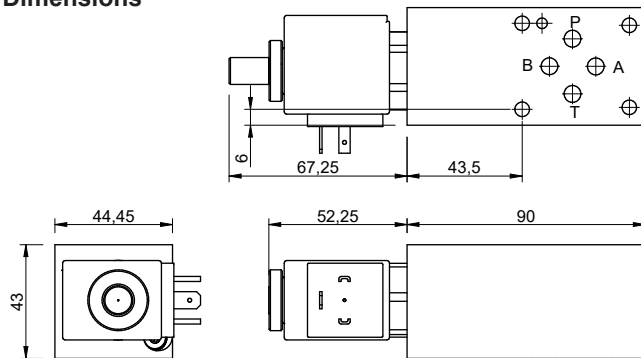
Features

- Aluminium (clear anodised) or steel (zinc Clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in manual override
- Valve on the 'B' side

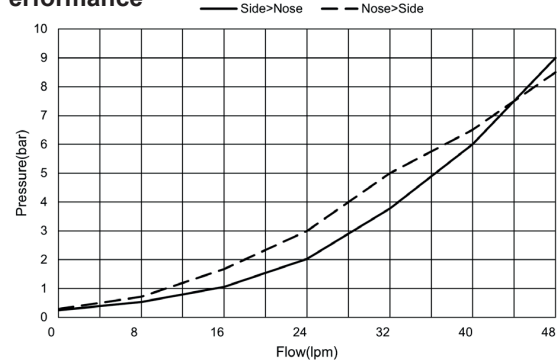
Specifications

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-C3-SABSN2S2I
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SABSN2S2I			*	**	*			
Override			Coils & Voltage			Manifold Material		
0 = No override (std.)			H1 = 12 Vdc (Din)			A = Aluminium (210 bar max, clear anodised)		
S = Screw override (std.)			H2 = 24 Vdc (Din)			S = Steel (350 bar max, zinc plated)		
			D1 = 12 Vdc (Deutsch)					
			D2 = 24 Vdc (Deutsch)					
			Does not include connector					

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
C3-SABSN2S2I0H1A	CETOP 3 A TO B SOL NC DOUBLE BLOCKER MODULE 12VDC	210	50	12 VDC (Din)
C3-SABSN2S2I0H2A	CETOP 3 A TO B SOL NC DOUBLE BLOCKER MODULE 24VDC	210	50	24 VDC (Din)
C3-SABSN2S2I0D1A	CETOP 3 A TO B SOL NC DOUBLE BLOCKER MODULE 12VDC	210	50	12 VDC (Deutsch)
C3-SABSN2S2I0D2A	CETOP 3 A TO B SOL NC DOUBLE BLOCKER MODULE 24VDC	210	50	24 VDC (Deutsch)

C3-SABSN2S2I-01



Up to 350 bar - Up to 50 lpm

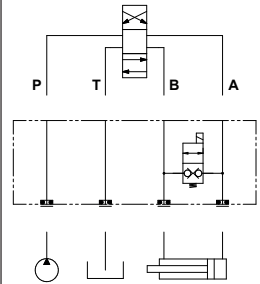
Description

The C3-SBASN2S2I module is a double blocking valve. Connecting the service pressure line (B) to the service pressure line (A).

When energised on the 'B' line will connect to the 'A' line. Typically used to create a float function on a cylinder or motor.

It uses a typical size 10 cartridge valve. Pilot operated with good low-pressure rise.

Circuit



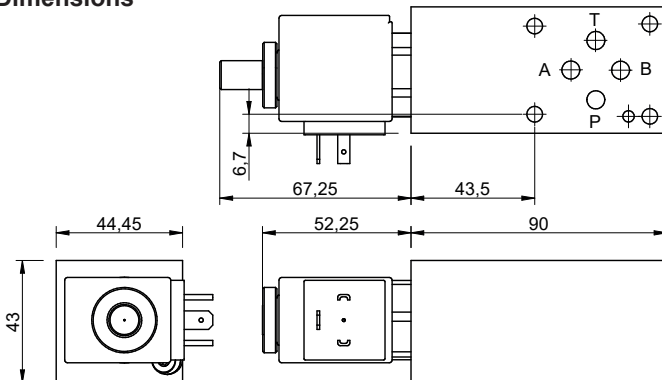
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in manual override
- Valve on the 'A' side

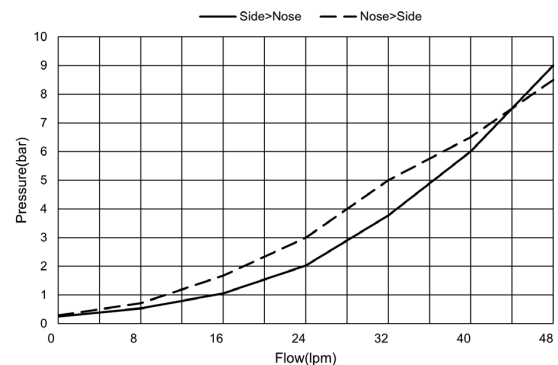
Specifications

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-C3-SBASN2S2I
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions



Performance



Ordering Example

C3-SBASN2S2I	*	**	*
Override		Coils & Voltage	Manifold Material
0 = No override (std.)		H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
S = Screw override (std.)		H2 = 24 Vdc (Din)	S = Steel (350 bar max, zinc plated)
		D1 = 12 Vdc (Deutsch)	
		D2 = 24 Vdc (Deutsch)	
		Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
C3-SBASN2S2I0H1A	CETOP 3 B TO A SOL NC DOUBLE BLOCKER MODULE 12VDC	210	50	12 VDC (Din)
C3-SBASN2S2I0H2A	CETOP 3 B TO A SOL NC DOUBLE BLOCKER MODULE 24VDC	210	50	24 VDC (Din)
C3-SBASN2S2I0D1A	CETOP 3 B TO A SOL NC DOUBLE BLOCKER MODULE 12VDC	210	50	12 VDC (Deutsch)
C3-SBASN2S2I0D2A	CETOP 3 B TO A SOL NC DOUBLE BLOCKER MODULE 24VDC	210	50	24 VDC (Deutsch)

C3-SBASN2S2I-01



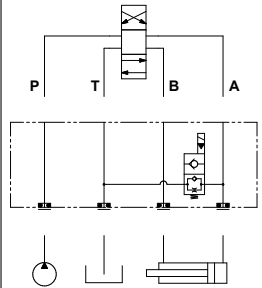
Up to 350 bar - Up to 40 lpm

Description

The C3-SATSN2S2C module is a solenoid pilot operated unloader valve. Connecting the service pressure line (A) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop.

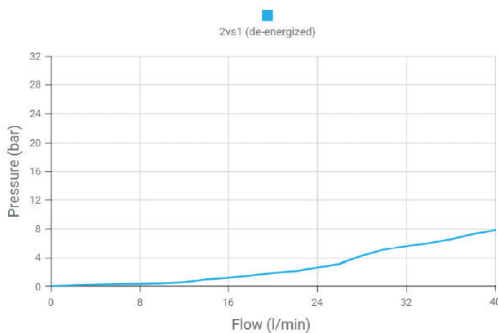
In neutral conditions oil will flow to tank; while energising the solenoid, flow will go to the service.

Circuit



Performance

SVJ0.S10



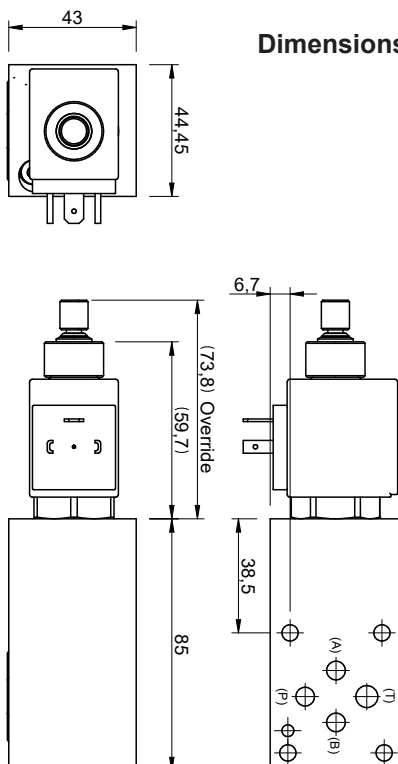
Features

- Aluminium (Clear anodised) or Steel (Zinc Clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface

Specifications

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-C3SATSN2S2C
Weight	0.95 kg (alum) 1.65 kg (steel)

Dimensions



Ordering Example

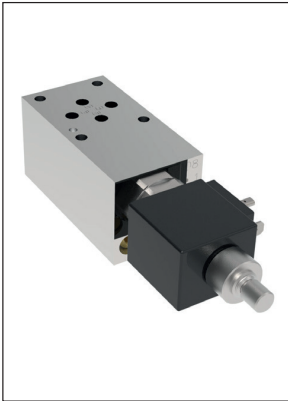
C3-SATSN2S2C

	*	**	*
Override	Coils & Voltage	Manifold Material	
0 = no override (std)	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)	
M = override	H2 = 24 Vdc (Din)	S = Steel (350 bar max, zinc plated)	
	D1 = 12 Vdc (Deutsch)		
	D2 = 24 Vdc (Deutsch)		
	Does not include connector		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
C3-SATSN2S2C0H1A	CETOP 3 SOLENOID UNLOADER MODULE A TO T 12VDC	210	40	12 VDC (Din)
C3-SATSN2S2C0H2A	CETOP 3 SOLENOID UNLOADER MODULE A TO T 24VDC	210	40	24 VDC (Din)

C3-SATSN2S2C-01



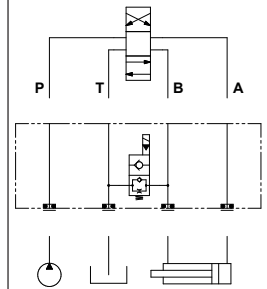
Up to 350 bar - Up to 40 lpm

Description

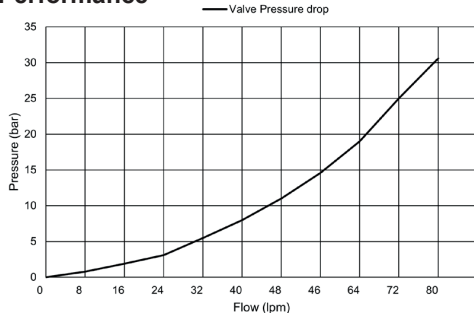
The C3-SBTSN2S2C module is a solenoid pilot operated unloader valve. Connecting the service pressure line (B) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop.

In neutral conditions oil will flow to tank; while energising the solenoid, flow will go to the service.

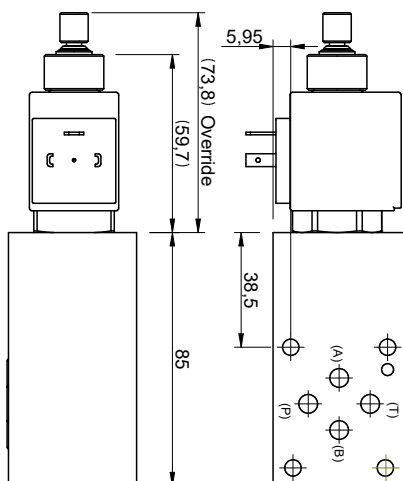
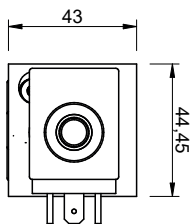
Circuit



Performance



Dimensions



Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface

Specifications

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-C3SBTSN2S2C
Weight	0.8 kg (alum) 1.65 kg (steel)

Ordering Example

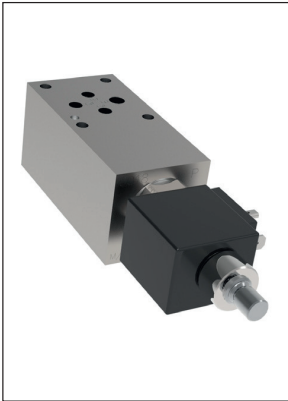
C3-SBTSN2S2C

	*	**	*
Override			
0 = no override (std)			
M = override			
Coils & Voltage			
H1 = 12 Vdc (Din)			
H2 = 24 Vdc (Din)			
D1 = 12 Vdc (Deutsch)			
D2 = 24 Vdc (Deutsch)			
Does not include connector			
Manifold Material			
A = Aluminium (210 bar max, clear anodised)			
S = Steel (350 bar max, zinc plated)			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
C3-SBTSN2S2C0H1A	CETOP 3 SOLENOID UNLOADER MODULE B TO T 12VDC	210	40	12 VDC (Din)
C3-SBTSN2S2C0H2A	CETOP 3 SOLENOID UNLOADER MODULE B TO T 24VDC	210	40	24 VDC (Din)

C3-SBTSN2S2C-01



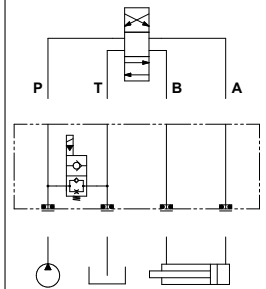
Up to 350 bar - Up to 40 lpm

Description

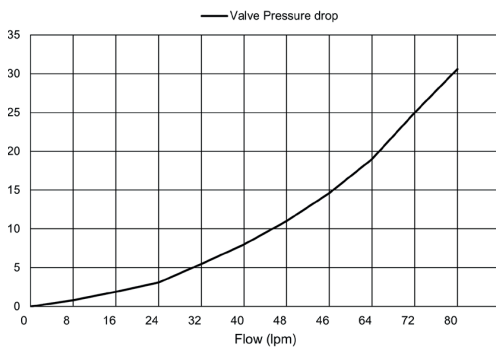
The C3-SPTSN2S2C module is a solenoid pilot operated unloader valve. Connecting the service pressure line (P) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop.

In neutral conditions oil will flow to tank; while energising the solenoid, flow will go to the service.

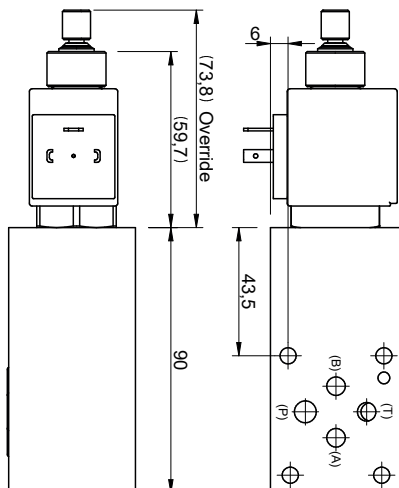
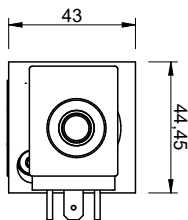
Circuit



Performance



Dimensions



Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface

Specifications

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-C3SPTSN2S2C
Weight	0.8 kg (alum) 1.65 kg (steel)

Ordering Example

C3-SPTSN2S2C

	*	**	*
Override			
0 = no override (std)			
M = override			
Coils & Voltage			
H1 = 12 Vdc (Din)			
H2 = 24 Vdc (Din)			
D1 = 12 Vdc (Deutsch)			
D2 = 24 Vdc (Deutsch)			
Does not include connector			
Manifold Material			
A = Aluminium (210 bar max, clear anodised)			
S = Steel (350 bar max, zinc plated)			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SPTSN2S2C0H1A	CETOP 3 SOLENOID UNLOADER MODULE P TO T 12VDC	210	40
C3-SPTSN2S2C0H2A	CETOP 3 SOLENOID UNLOADER MODULE P TO T 24VDC	210	40

C3-SPTSN2S2C-01

Cetop 3 Series

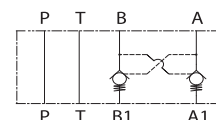
Up to 315 bar - Up to 60 lpm

Description

Pilot operated check valves allow flow in one direction, while normally blocking in the other direction with the aid of a bias spring on the poppet. With the application of pilot pressure to open the valve, flow is allowed in the reverse direction, automatically closing again when pilot pressure is vented.

These modules are designed to fit under directional control valves, sometimes are also known as sandwich valves.

Symbol



Features

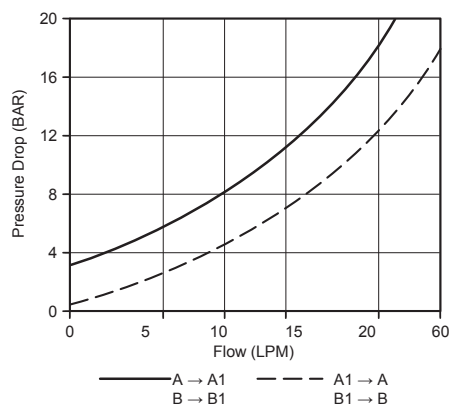
- ISO 4401-03 (NG6) interface
- Hardened and ground seat and poppet for long life.
- Fully serviceable.
- High pressure rated, phosphated cast iron body.
- Options of A, B or A&B line control.
- Low pressure drop characteristics.

Specifications

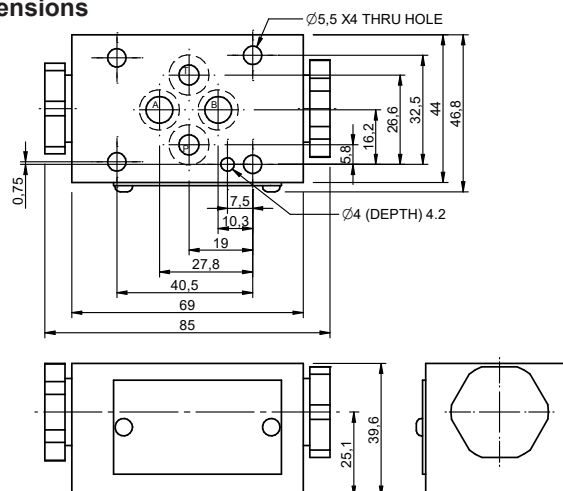
Flow Range (lpm)	60
Max. Pressure (bar)	315
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RM3CP
Weight	0.95 kg

Performance

36 cSt / 50°C.



Dimensions



Ordering Example

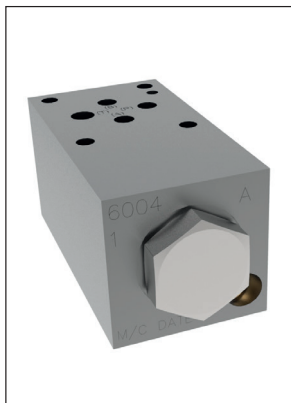
RM3 — ** — 3 — * — * — HY50

Check Valve	Port	Ratio	Bias Spring	Seal	Series No.
CP = Pilot Operated	A = Check on A B = Check on B AB = Check on A&B	3:5:1	2.5 = 2.5 bar	N = Nitrile	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RM3-CPA325NHY50	CETOP 3 SINGLE P.O. CHECK MODULE - A LINE	315	60
RM3-CPB325NHY50	CETOP 3 SINGLE P.O. CHECK MODULE - B LINE	315	60
RM3-CPAB325NHY50	CETOP 3 DUAL P.O. CHECK MODULE - A & B LINES	315	60

RM3-CP-01



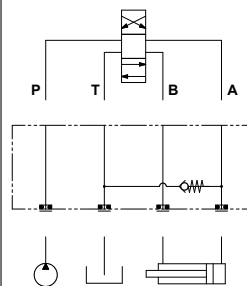
Up to 350 bar - Up to 40 lpm

Description

The C3-SATSN2CVA module is an 'A' line anti-cavitation check. It draws oil from the tank should there be a sudden stop and demand from a service. Helps protect motors and cylinders.

It uses a typical size 10 cartridge valve, giving good low pressure drop.

Circuit



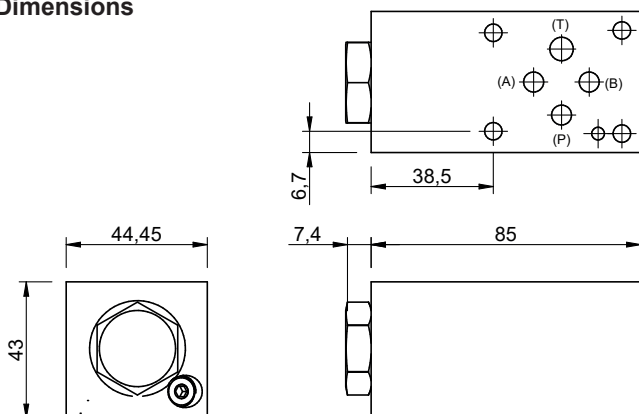
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.

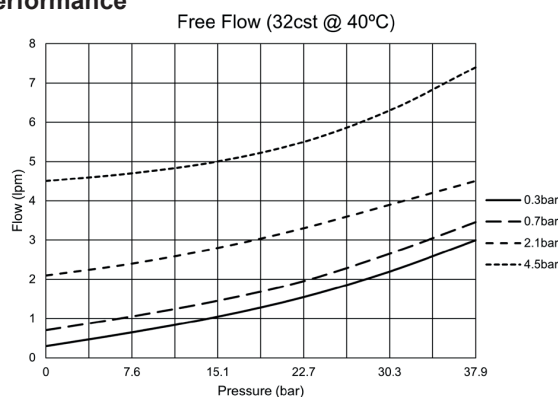
Specifications

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-C3-SATSN2CVA
Weight	0.5 kg (alum) 1.2 kg (steel)

Dimensions



Performance



Ordering Example

C3-SATSN2CVA

****** *****

Cracking Pressure

03 = 0.3 bar
07 = 0.7 bar
21 = 2.1 bar
45 = 4.5 bar

Manifold Material

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SATSN2CVA03A	CETOP 3 A TO T ANTI-CAVITATION MODULE	210	40

C3-SATSN2CVA -01



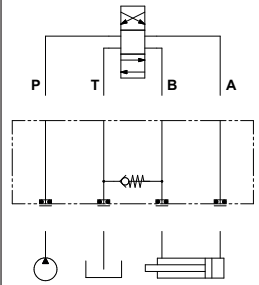
Up to 350 bar - Up to 40 lpm

Description

The C3-SBTSN2CVA module is a 'B' line anti-cavitation check. It draws oil from the tank should there be a sudden stop and demand from a service. Helps protect motors and cylinders.

It uses a typical size 10 cartridge valve, giving good low pressure drop.

Circuit



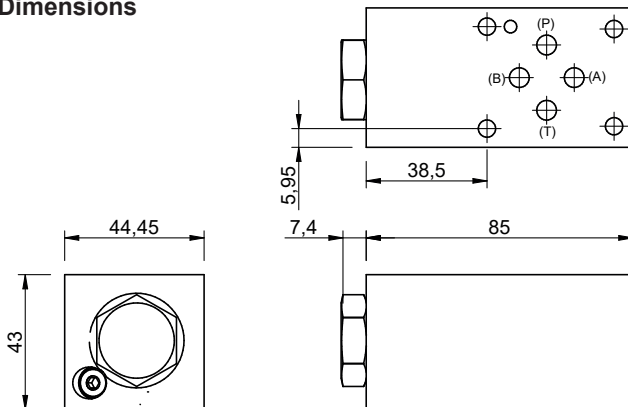
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.

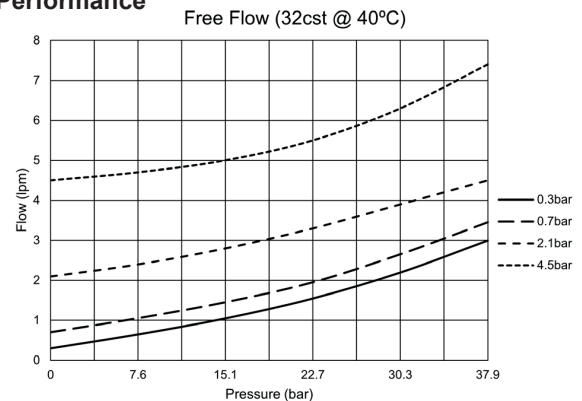
Specifications

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-C3-SBTSN2CVA
Weight	0.5 kg (alum) 1.2 kg (steel)

Dimensions



Performance



Ordering Example

C3-SBTSN2CVA

****** *****

Cracking Pressure

03 = 0.3 bar
07 = 0.7 bar
21 = 2.1 bar
45 = 4.5 bar

Manifold Material

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SBTSN2CVA03A	CETOP 3 B TO T ANTI-CAVITATION MODULE	210	40

C3-SBTSN2CVA-01



Up to 350 bar - Up to 38 lpm

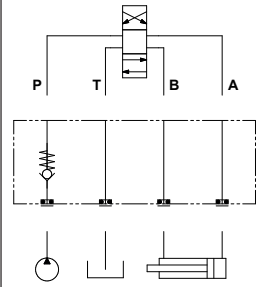
Description

The C3-SPPNS2CV1 module is an 'P' line check valve. Fitted prior to the Cetop valve, this module allows flow to services but blocks any pressure surges on return.

Ideal for protecting other services

It uses a typical size 10 cartridge valve.

Circuit



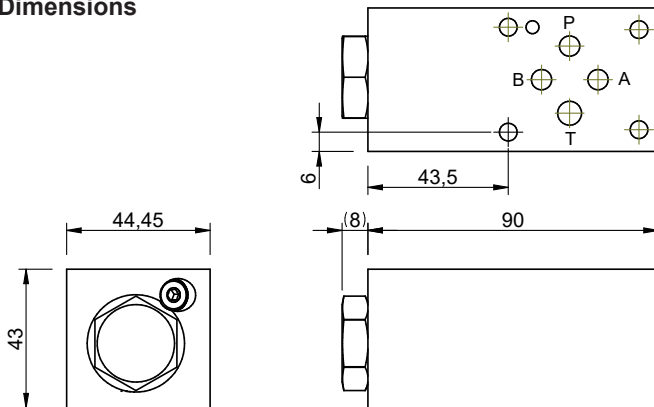
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

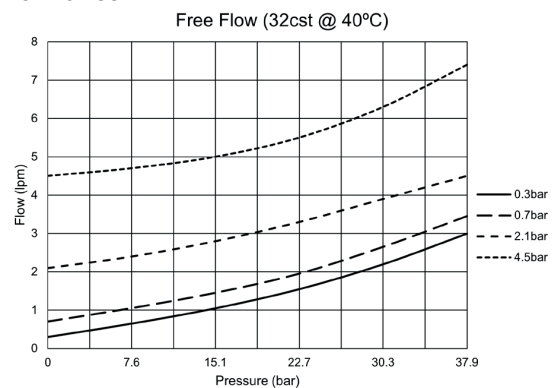
Specifications

Flow Range (lpm)	38
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-C3-SPPNS2CV1
Weight	0.6 kg (alum) 1.3 kg (steel)

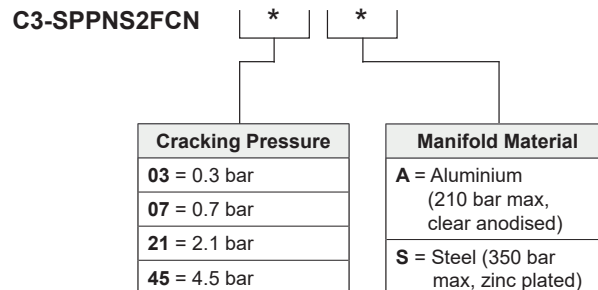
Dimensions



Performance



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SPPNS2CV103A	CETOP 3 P LINE CHECK VALVE MODULE	210	38

C3-SPPNS2CV1-01



Cetop 3 Series

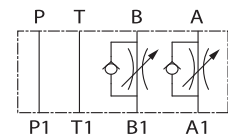
Up to 315 bar - Up to 50 lpm

Description

These Cetop 3 dual flow control modules can be used to control the speed of an actuator in forward and reverse direction. Each service allows free flow into the actuator with metering of the actuator on the output; adjusting each flow control inwards increases flow metering. Single flow control options are also available as well as an alternative meter in module available in single and dual options.

These valves will interchange with all Cetop 3 valves which conform to the ISO/Cetop standards

Symbol



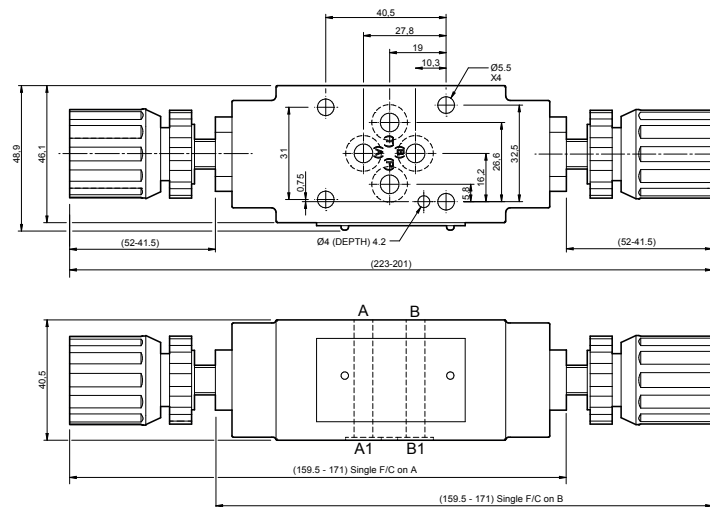
Features

- ISO 4401-03 (NG6) interface
- Hardened and ground seat and poppet for long life.
- Fully serviceable.
- High pressure rated, phosphated cast iron body.
- Options of A, B or A&B line control.
- Low pressure drop characteristics.
- Lockable handwheel.

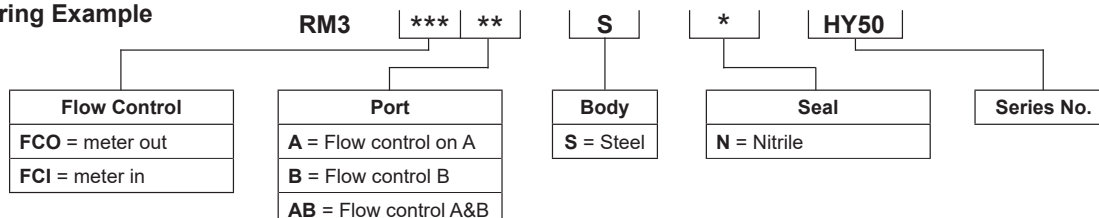
Specifications

Flow Range (lpm)	50
Max. Pressure (bar)	315
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-RM3FC
Weight	1.1 kg

Dimensions



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RM3-FCIABS NHY50	CETOP 3 DUAL METER IN FLOW CONTROL MODULE	315	50
RM3-FCOABS NHY50	CETOP 3 DUAL METER OUT FLOW CONTROL MODULE	315	50

RM3-FC-01



Up to 350 bar - Up to 40 lpm

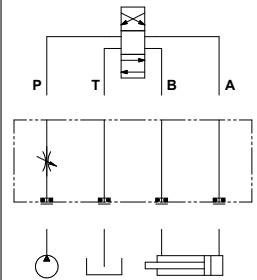
Description

The C3-SPPSN2FCN module is an 'P' line needle flow valve. Connecting the service pressure line (P) and reducing the flow to the service.

Ideal for limiting the flow to services.

It uses a typical size 10 cartridge valve.

Circuit



Features

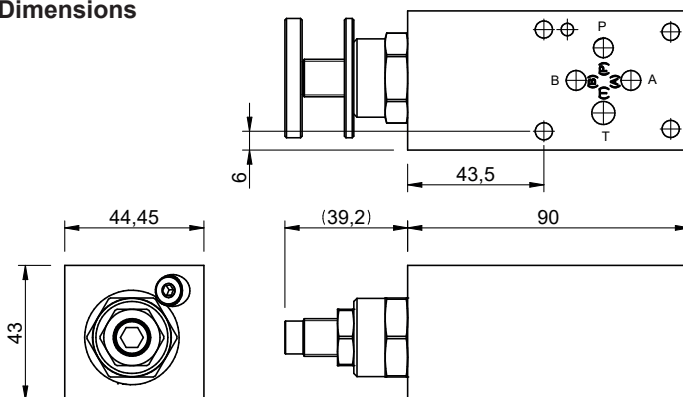
- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

Note: This is not compensated and will fluctuate depending on loads.

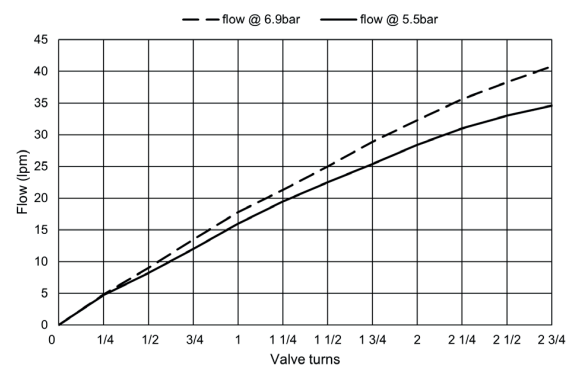
Specifications

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-C3-SPPSN2FCN
Weight	0.6 kg (alum) 1.3 kg (steel)

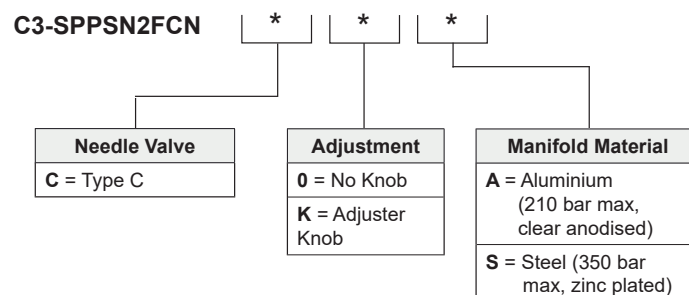
Dimensions



Performance



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SPPSN2FCNC0A	CETOP 3 P LINE NEEDLE FLOW CONTROL MODULE	210	40

C3-SPPSN2FCN-01



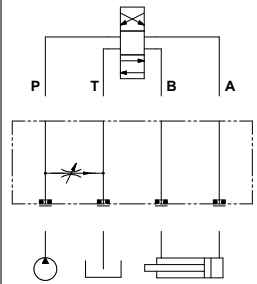
Up to 350 bar - Up to 28 lpm

Description

The C3-SPTNS2FCC module is an 'P' compensated bleed off valve. Connecting the service pressure line (P) to the tank line (T). Ideal for trimming the flow to services.

It uses a typical size 10 cartridge valve.

Circuit



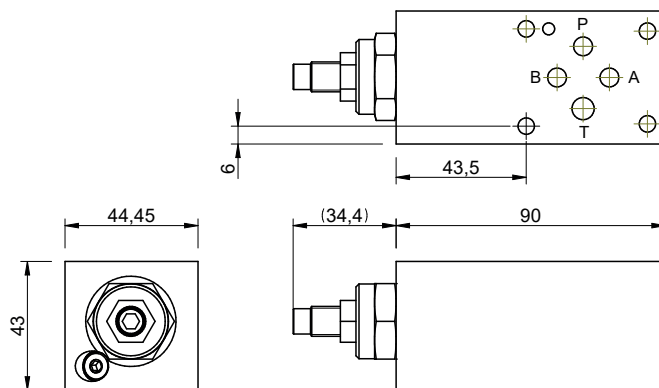
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

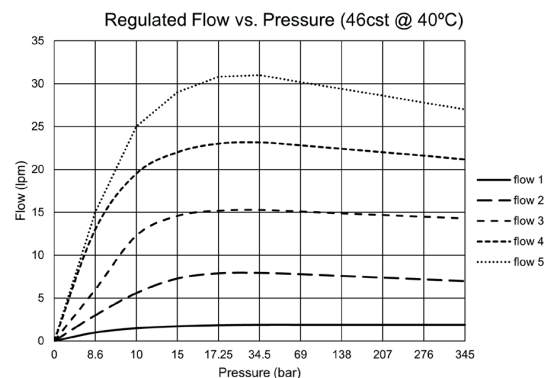
Specifications

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-C3-SPTNS2FCC
Weight	0.6 kg (alum) 1.3 kg (steel)

Dimensions

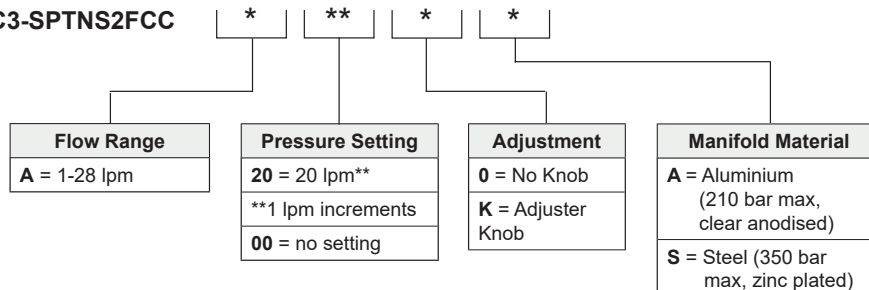


Performance



Ordering Example

C3-SPTNS2FCC



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SPTNS2FCCA000A	CETOP 3 P TO T PRESSURE COMP. BLEED OFF MODULE	210	40	1 - 28

C3-SPTNS2FCC-01



Up to 350 bar - Up to 28 lpm

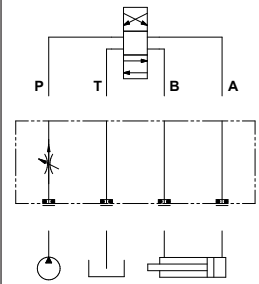
Description

The C3-SPPNS2FCC module is an 'P' line pressure compensated valve. Connecting the service pressure line (P) and reducing the flow to the service and controlling this no matter what the pressure change is.

Ideal for trimming the flow to services.

It uses a typical size 10 cartridge valve.

Circuit



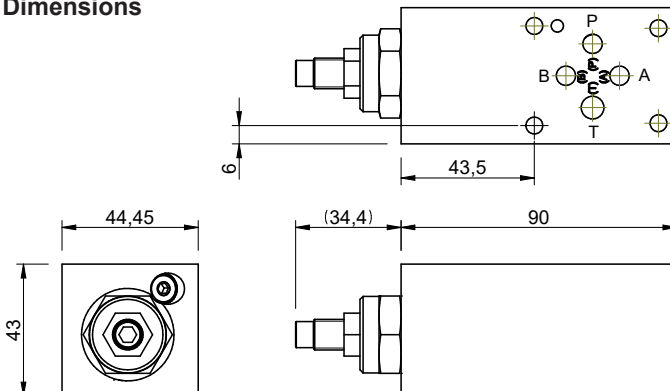
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to increase pressure

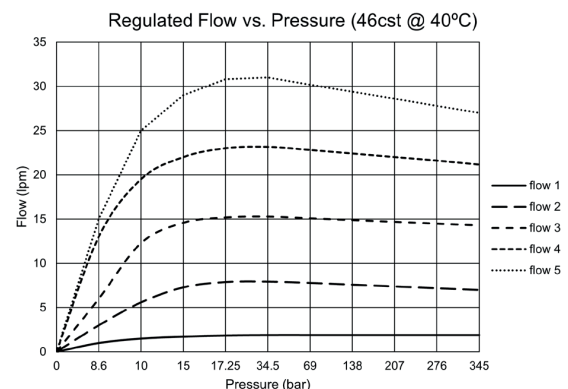
Specifications

Flow Range (lpm)	28
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-C3-SPPNS2FCC
Weight	0.6 kg (alum) 1.3 kg (steel)

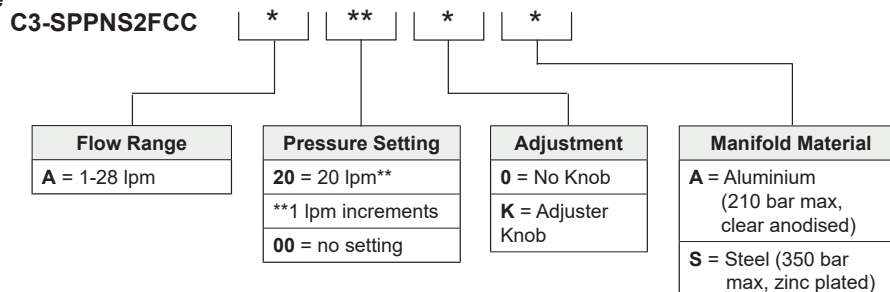
Dimensions



Performance



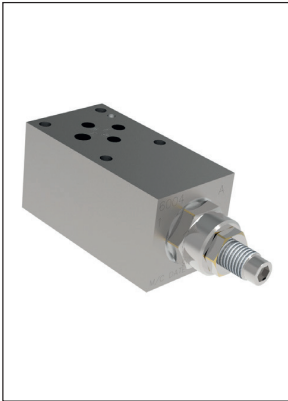
Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-SPPNS2FCCA000A	CETOP 3 PRESSURE COMP. FLOW CONTROL P LINE MODULE	210	28	1 - 28

C3-SPPNS2FCC-01

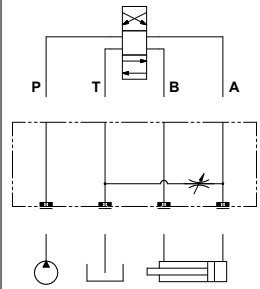


Up to 350 bar - Up to 40 lpm

Description

The C3-SATSN2FCN module is a needle unloader valve. Connecting the service pressure line (A) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop. In closed conditions oil will flow to the service, while in open conditions oil will bleed to tank. The needle valve can be adjusted to give meter the flow, allowing safe manual control of the service.

Circuit



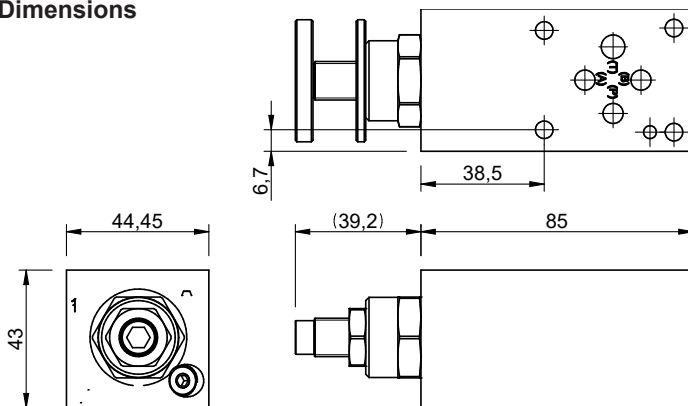
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to close.
- Options with knob.

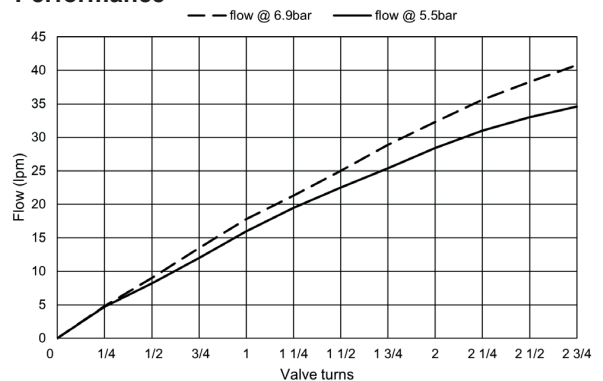
Specifications

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-C3SATSN2FCN
Weight	0.6 kg (alum) 1.3 kg (steel)

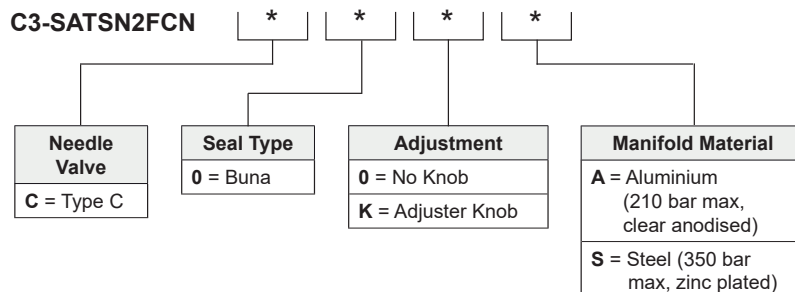
Dimensions



Performance



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SATSN2FCNC00A	CETOP 3 A TO T NEEDLE VALVE MODULE	210	40

C3-SATSN2FCN-01

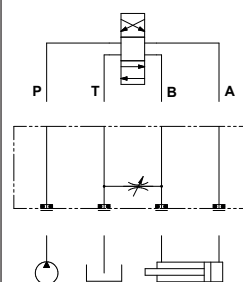


Up to 350 bar - Up to 40 lpm

Description

The C3-SBTSN2FCN module is a needle unloader valve. Connecting the service pressure line (A) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop. In closed conditions oil will flow to the service, while in open conditions oil will bleed to tank. The needle valve can be adjusted to give meter the flow, allowing safe manual control of the service.

Circuit



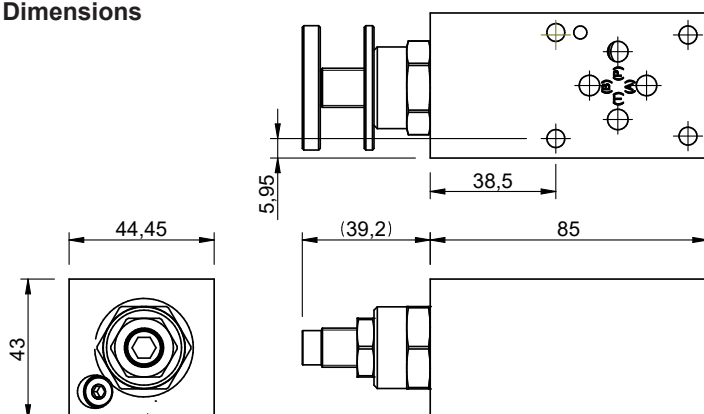
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to close.
- Options with knob.

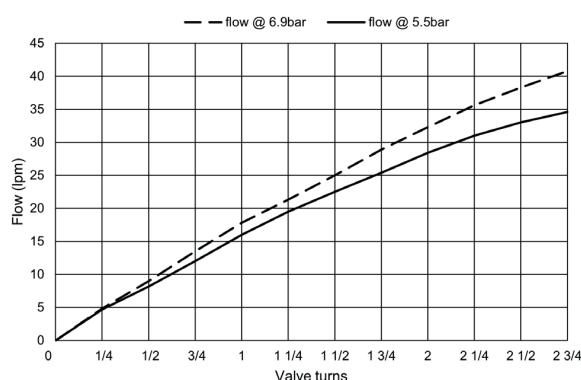
Specifications

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-C3SBTSN2FCN
Weight	0.6 kg (alum) 1.3 kg (steel)

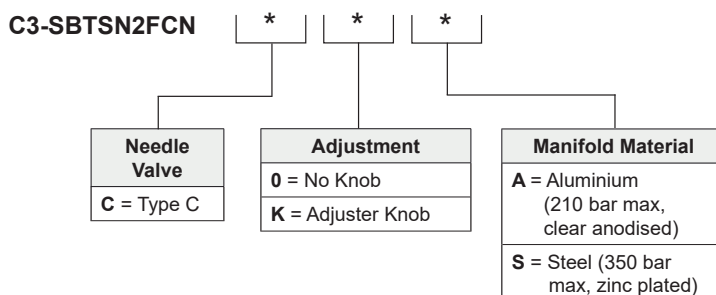
Dimensions



Performance



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SBTSN2FCNC00A	CETOP 3 B TO T NEEDLE VALVE MODULE	210	40

C3-SBTSN2FCN-01

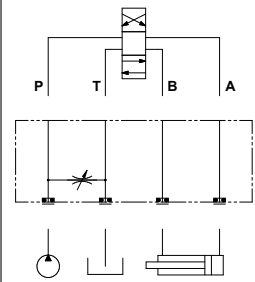


Up to 350 bar - Up to 40 lpm

Description

The C3-SPTSN2FCN module is a needle unloader valve. Connecting the service pressure line (P) to the tank line (T). It uses a typical size 10 cartridge valve, giving good low pressure drop. In closed conditions oil will flow to the service, while in open conditions oil will bleed to tank. The needle valve can be adjusted to give meter the flow, allowing safe manual control of the service.

Circuit



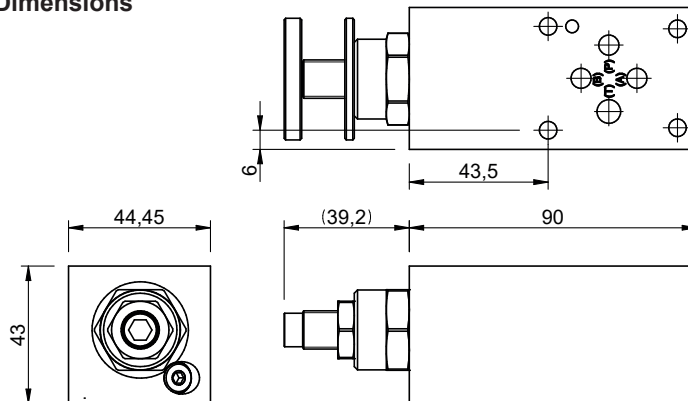
Features

- Aluminium (clear anodised) or steel (zinc clear)
- Designed for low pressure drop
- Ideal for multiple applications
- Standard ISO Cetop 3 interface.
- Screw in, to close.
- Options with knob.

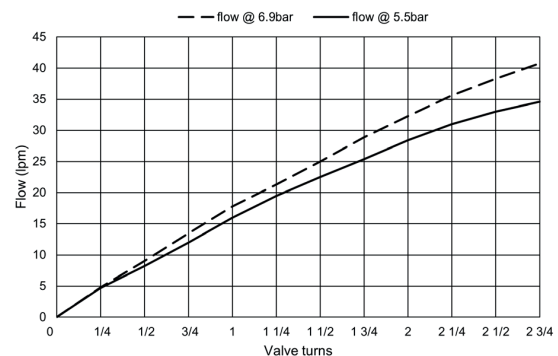
Specifications

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-C3SPTSN2FCN
Weight	0.6 kg (alum) 1.3 kg (steel)

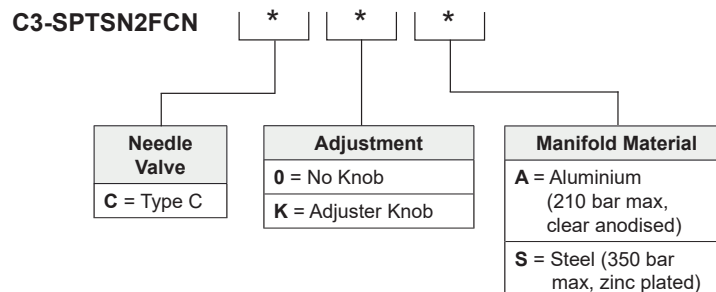
Dimensions



Performance



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
C3-SPTSN2FCNC0A	CETOP 3 P TO T NEEDLE VALVE UNLOADER MODULE	210	40

C3-SPTSN2FCN-01

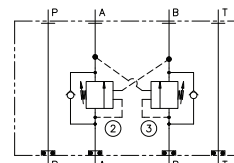


Up to 350 bar - Up to 60 lpm

Operation

Housed as a Cetop 3 module, 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 and thermal relief protection in cylinder circuits these controls are able to meter loads in both directions, which prevents a run-away situation when a sudden increase in load is applied.

Symbol

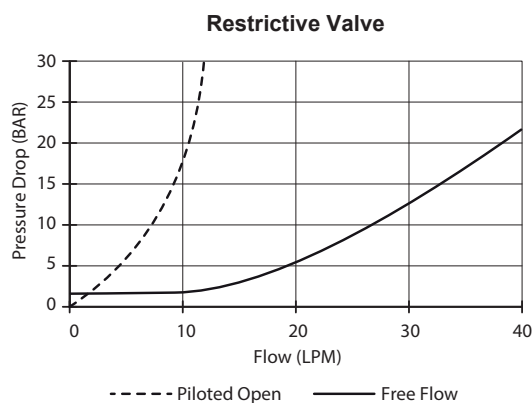


Features

- Steel or aluminium material options.
- Various valve options available on request.
- Easily installed.

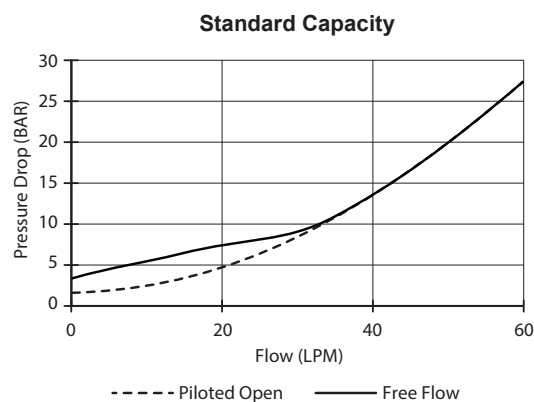
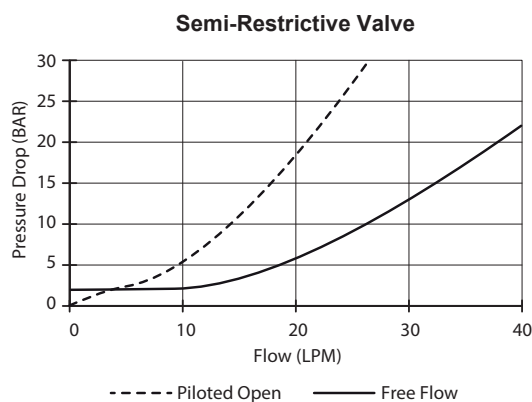
Performance

26 cSc / 42°C.



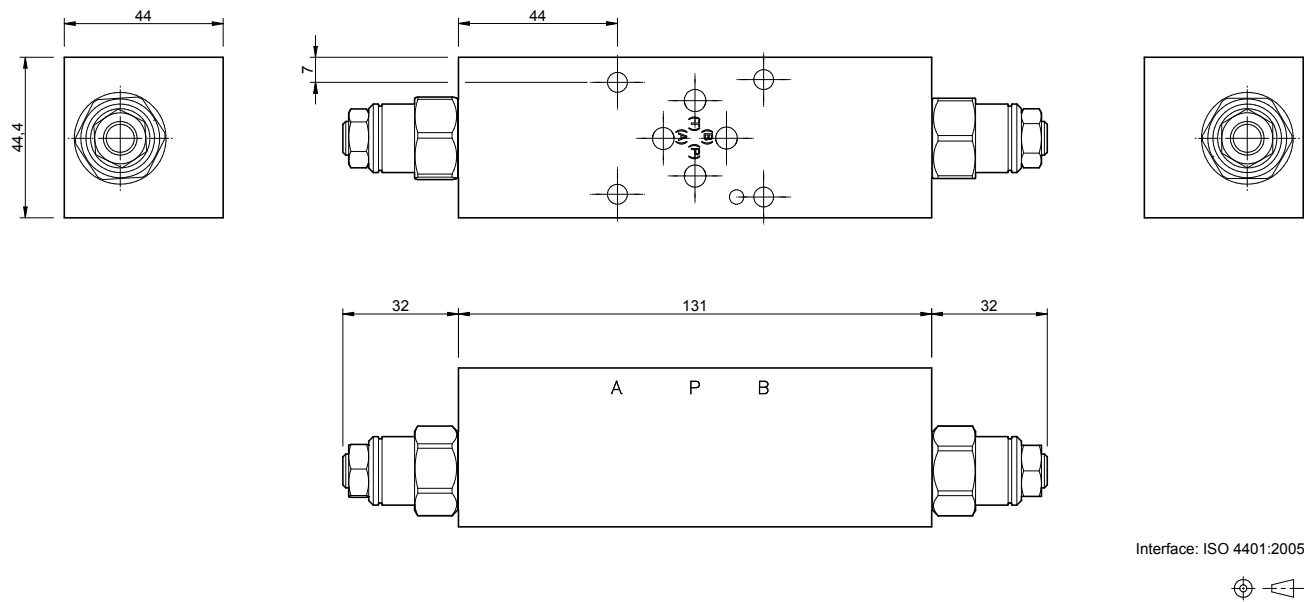
Specifications

Max. pressure (bar)	350
Nom. flow (lpm)	40
Operating temp.	-20°C to +50°C
Fluid temp.	-20°C to +80°C
Viscosity range	6 to 420 Cst
Pilot ratio	3:1
Crack pressure	3.5 bar
Filtration	ISO 19/17/14
Hydraulic oil	General Purpose Hydraulic Fluid
Spare Seal Kit	SK-C3DOC
Weight	1.9 kg (alum) 4.09 (steel)



C3-DOC-01

Dimensions
[mm]



Ordering Example

C3-DOC	*	*	**	*	*	**	*
Valve Type (A Side)		Pressure Range (A Side)	Pressure Setting (A Side)	Valve Type (B Side)	Pressure Range (B Side)	Pressure Setting (B Side)	Body Material
R - Restrictive valve, 20 lpm, 3:1 ratio		A - 70 - 280 bar Std. setting = 210 bar	21 - 210 bar	R - Restrictive valve, 20 lpm, 3:1 ratio	A - 70 - 280 bar Std. setting = 210 bar	21 - 210 bar	A - Aluminium (210 bar max. clear anodised)
I - Semi restrictive valve, 40 lpm, 3:1 ratio		B - 28 - 105 bar Std. setting = 70 bar	10 bar increments	I - Semi restrictive valve, 40 lpm, 3:1 ratio	B - 28 - 105 bar Std. setting = 70 bar	10 bar increments	S - Steel (350 bar max, zinc plated)
S - Standard 60 lpm valve, 3:1 ratio				S - Standard 60 lpm valve, 3:1 ratio			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
C3-DOCRA21RA21A	CETOP 3 DUAL OVERCENTRE MODULE - RESTRICTIVE	210	20	70 - 210
C3-DOCIA21IA21A	CETOP 3 DUAL OVERCENTRE MODULE - SEMI RESTRICTIVE	210	40	70 - 210
C3-DOCSA21SA21A	CETOP 3 DUAL OVERCENTRE MODULE - STANDARD CAPACITY	210	60	70 - 210

SECTION 4

CETOP 5 - ASSEMBLIES

SECTION 4
CETOP 5
ASSEMBLIES





Up to 345 bar

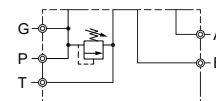
Description

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.

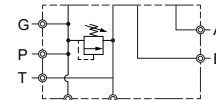
This subplate offers the choice of base and / or side entry P and T ports and is ideal for either tank top mounting or as a stand-alone valve. The relief also has a knob (with lock knob) option and is capable of full adjustment between 69 and 345 bar.

Schematic

Type B*



Type 0*



Features

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

Note: For performance on valves see RS5 Cetop 5 section

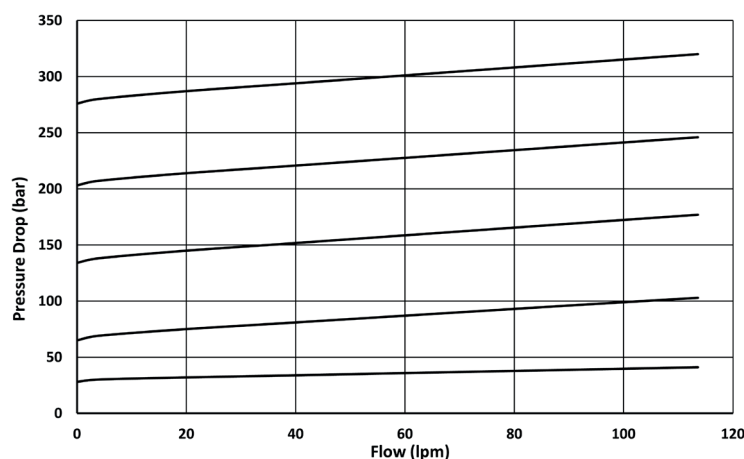
Specifications

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-RFC51146
Weight	2.4 kg (alum) 6.3 kg (steel)

Performance

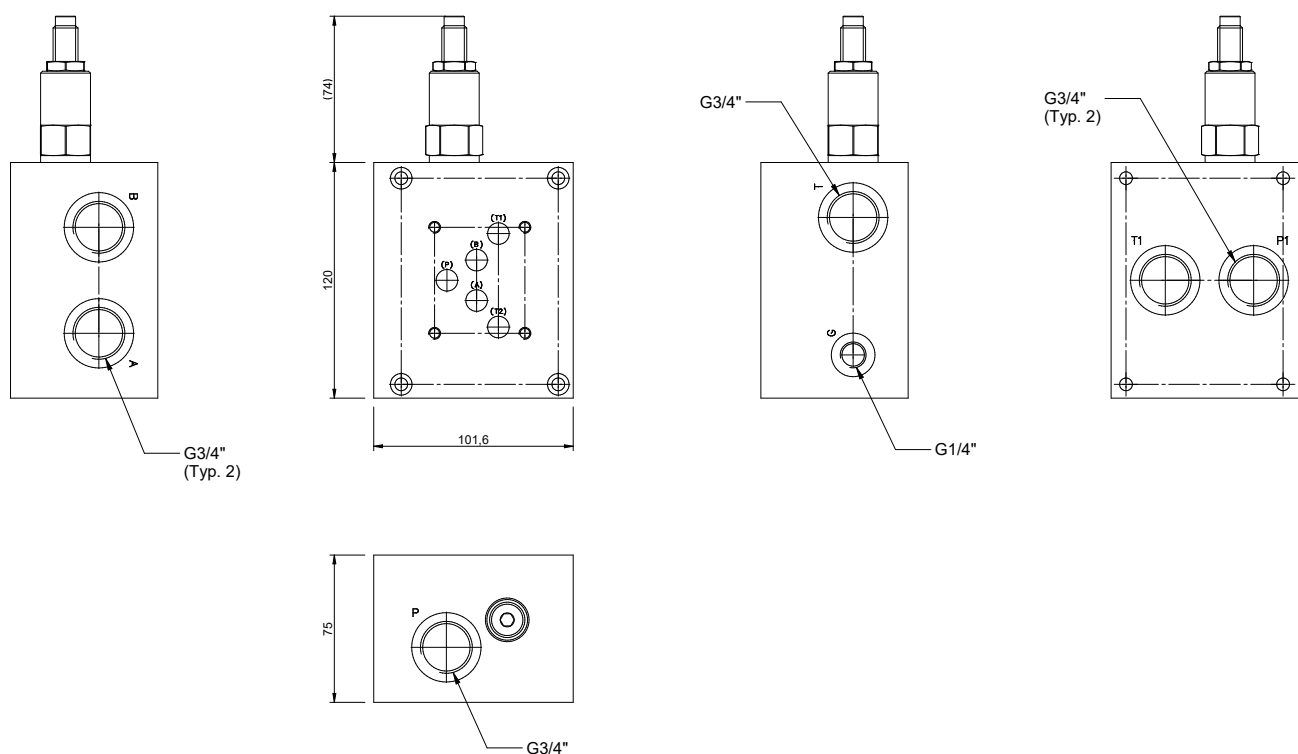
32 cSc / 38°C.

R-RV2PO1OS50N



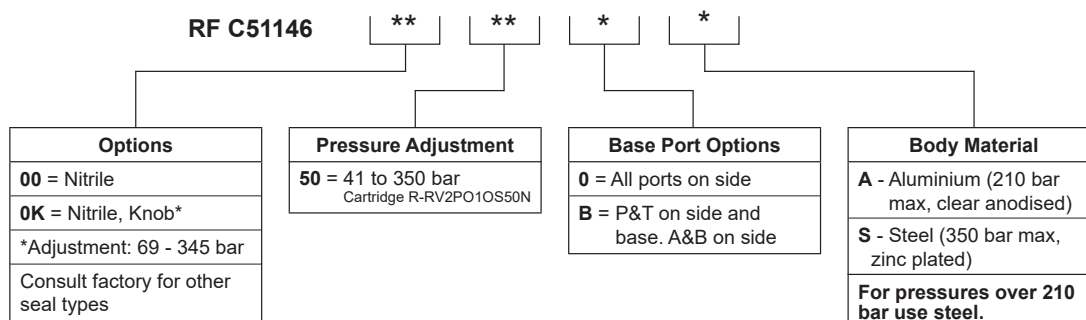
Up to 345 bar

Dimensions



SECTION 4
CETOP 5
ASSEMBLIES

Ordering Code



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF C511460050BS	CETOP 5 RELIEF SUBPLATE G3/4"	350	100	41-350

RF C51146-01



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).

Symbol



Features

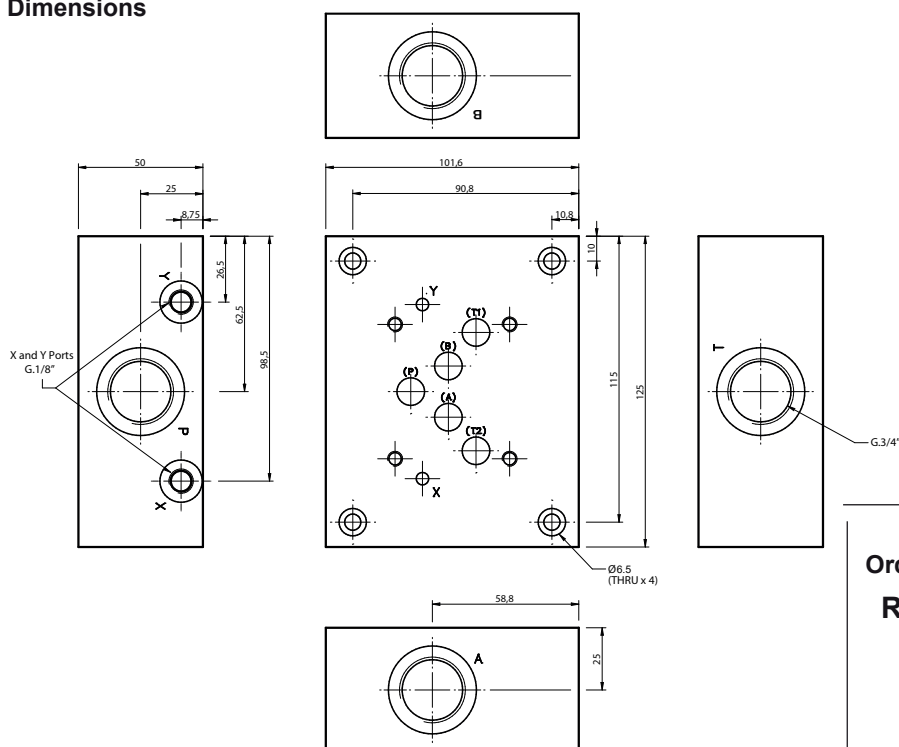
- Steel (zinc plate, clear passivate).
- Compact, efficient design.

Note: For performance on valves see RS5 Cetop 5 section

Specifications

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	N/A
Weight	4.4 kg (steel)

Dimensions



Ordering Code

RF C51469

**

*

Options

XY = G1/8" pilot & drain ports
Omit if not required

Manifold Material

S = Steel (350 bar max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C51469XYS	CETOP 5 SIDE ENTRY SUBPLATE G3/4"	350	Variable

RF C51469-01

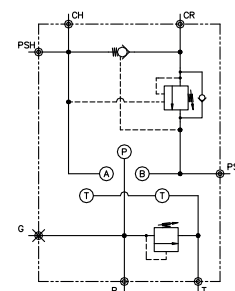


Up to 350 bar - Up to 160 lpm

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 stroke 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

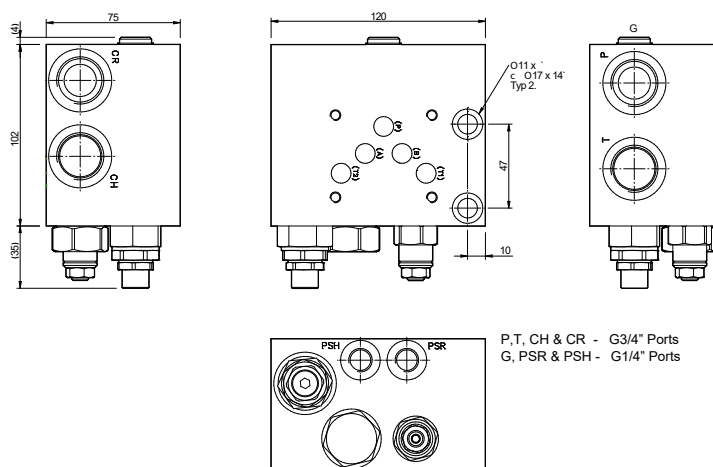
- Aluminium (anodised) or Steel (zinc plated) material options.
- Adjustable relief valve.
- Compact, efficient design.
- Interface only, as standard. Directional valves available on request.

Note: For performance on valves see RS5 Cetop 5 section

Specifications

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 Code

RF C53810

****** *****

Pressure Setting

21 = 210 bar**

**10 bar increments

**21 = std. setting

Manifold Material

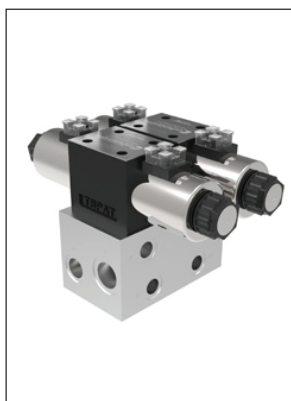
A = Aluminium (210 bar max, clear anodised)

S = Steel (350 bar max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF C5381021A	CETOP 5 REGEN MANIFOLD - MAX REGEN FLOW 160 LPM	210	160

RF C53810-01

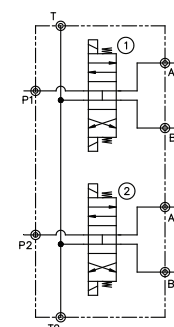


Up to 350 bar - Up to 100 lpm

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

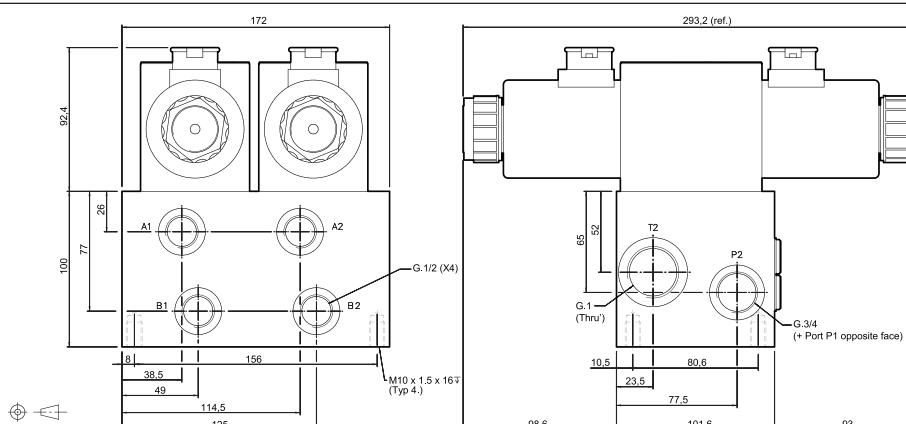
- Aluminium (anodised) or Steel (zinc plated) material options.
- Compact, efficient design.
- Various valve options available on request.
- Various voltage options available on request.

Specifications

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)

Note: For performance on valves see RS5 Cetop 5 section

Dimensions



Ordering Code

RF C54444

Spool Configuration 10 = Open centre 4w3p spools on stations 1 & 2 Other configurations available on request			Voltage H1 - 12 Vdc (Din) H2 - 24 Vdc (Din) D1 - 12 Vdc (Deutsch) D2 - 24 Vdc (Deutsch) Other voltages available on request. Does not include connector			Manifold Material A = Aluminium (210 bar max, clear anodised) S = Steel (350 bar max, zinc plated)		
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Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C5444410H1A	CETOP 5 DUAL DIRECTIONAL CONTROL ASSEMBLY 12VDC	210	100	12 VDC
RF C5444410H2A	CETOP 5 DUAL DIRECTIONAL CONTROL ASSEMBLY 24VDC	210	100	24 VDC

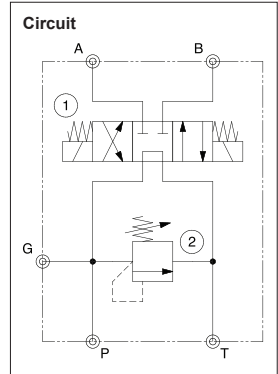
RF C54444-01



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.



Features

- G3/4" Ports
- Ideal for multiple applications

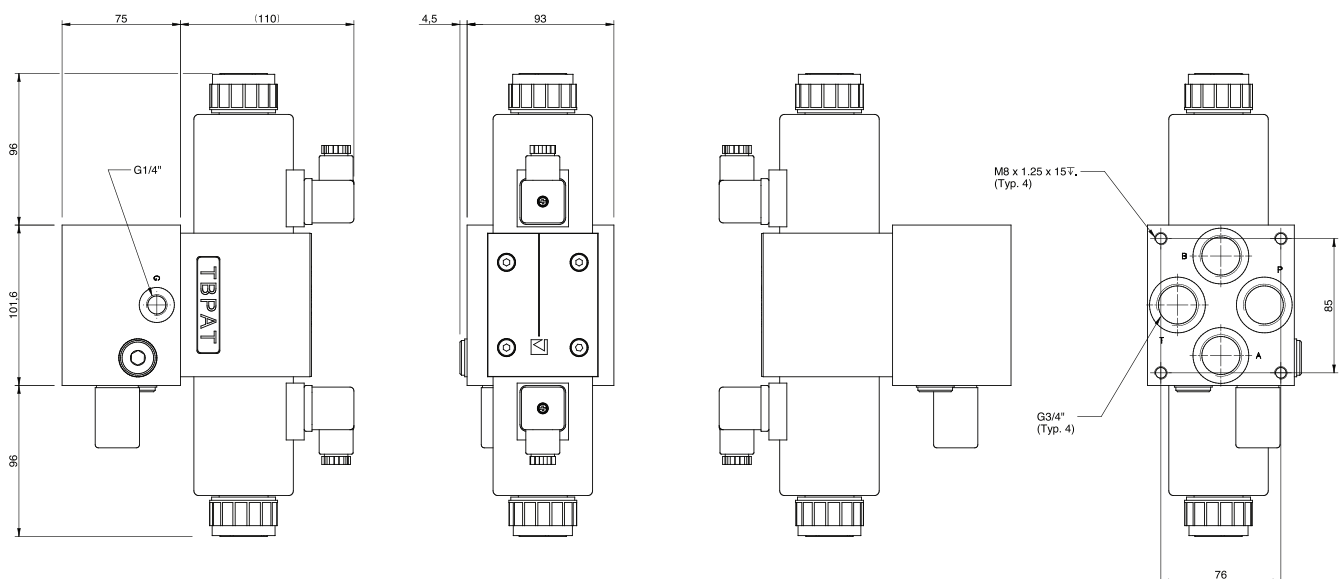
Notes

- (i) Includes directional valve
- (ii) Other configurations including valve modules available on request. Consult factory for further information.

Specifications

Flow Range (lpm)	For performance on valves see RS5 & RH5 Cetop 5 section
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)

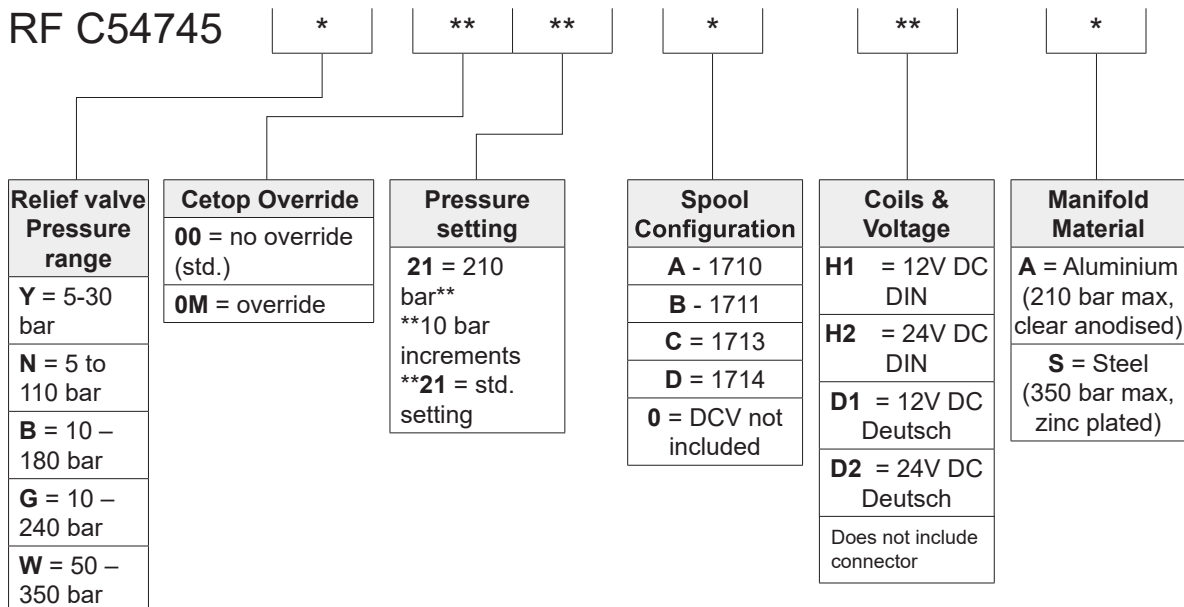
Dimensions



RF C54745-01

Ordering Example

RF C54745



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF C54745G0021AH1A	CETOP 5 SUBPLATE + RELIEF 12VDC	210	Variable	12 VDC (Din)	10-210
RF C54745G0021AH2A	CETOP 5 SUBPLATE + RELIEF 24VDC	210	Variable	24 VDC (Din)	10-210



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 separate pressure inlets and a generously sized combined tank outlet. The internal design of the manifold 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.

Features

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

Note: For performance on valves see RS5 Cetop 5 section

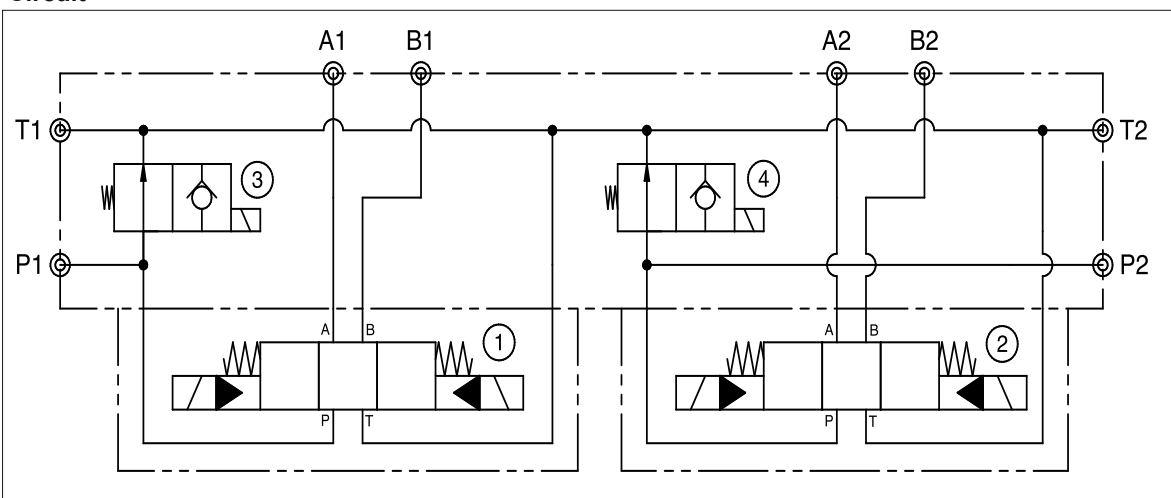
Specifications

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)

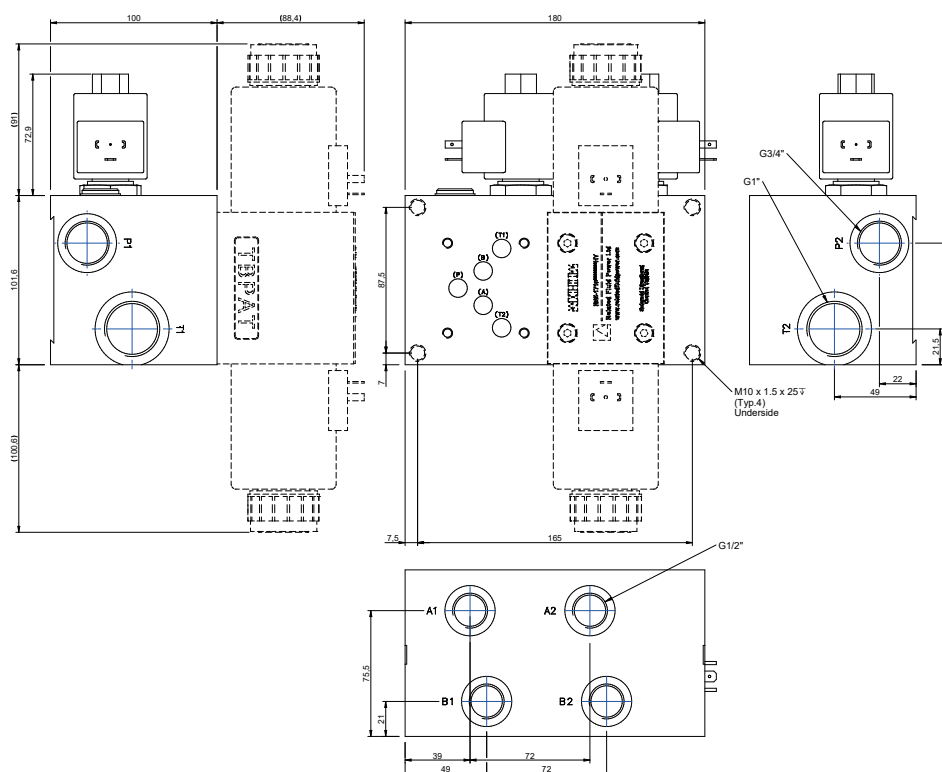
Notes:

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. Consult factory for other valve sizes / custom requirements.

Circuit

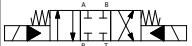
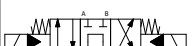


Dimensions



Ordering Code

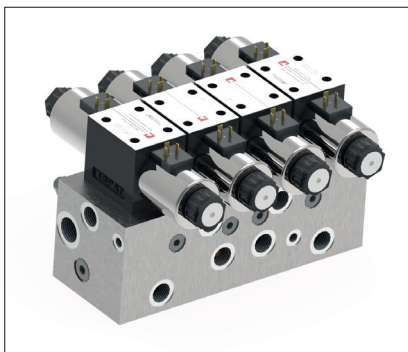
RF C55261

Valve Configuration		Voltage	Manifold Material
00 = DCV'S not supplied		H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
10 = Open Centre spool valves fitted (all ports open)		H2 = 24 Vdc (Din)	S = Steel (350 bar max, zinc clear passivate)
11 = Closed centre spool valves fitted (all ports blocked)		D1 = 12 Vdc (Deutsch)	
13 = Motor spools fitted (A & P > T, P blocked)		D2 = 24 Vdc (Deutsch)	
14 = Tandem centre spools fitted P>T, A + B blocked		Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C5526110H1A	CETOP 5 DUAL TRACK CONTROL WITH UNLOAD 12VDC	210	Variable	12 VDC (Din)
RF C5526110H2A	CETOP 5 DUAL TRACK CONTROL WITH UNLOAD 24VDC	210	Variable	24 VDC (Din)

RF C55261-01



Variable up to 350 bar max - 80 lpm

Description

This is a compact Cetop 5, four station sub-plate, specifically for modern vehicle tracking applications with conveyors or aux. applications. The assembly offers a conventional layout with separate pressure inlets and a combined, generously sized tank outlet. The internal design of the manifold has been optimised to minimise pressure drop and heat generation.

On each pump inlet there is a Cetop 5 P>T spool (1&4) for unloading the flow in neutral. On operation of the Cetop 5 P>T valve, flow can be diverted to either the track function or the conveyors, both functions have a main relief for max pressure protection. When in track operation, the cetop 5 control valve is an A+B>T spool (2&3). In neutral this allows back pressure to be dissipated to allow braking, while at the same time blocking pressure from the P line. Activation of the A+B>T spool (2&3) will engage forward or reverse tracking. On the P1 line, there is also a function for two speed motor control, activated by a single solenoid and pressure controlled via a pressure reducer. 2 speed tracking comes as standard but can be ordered without.

Features

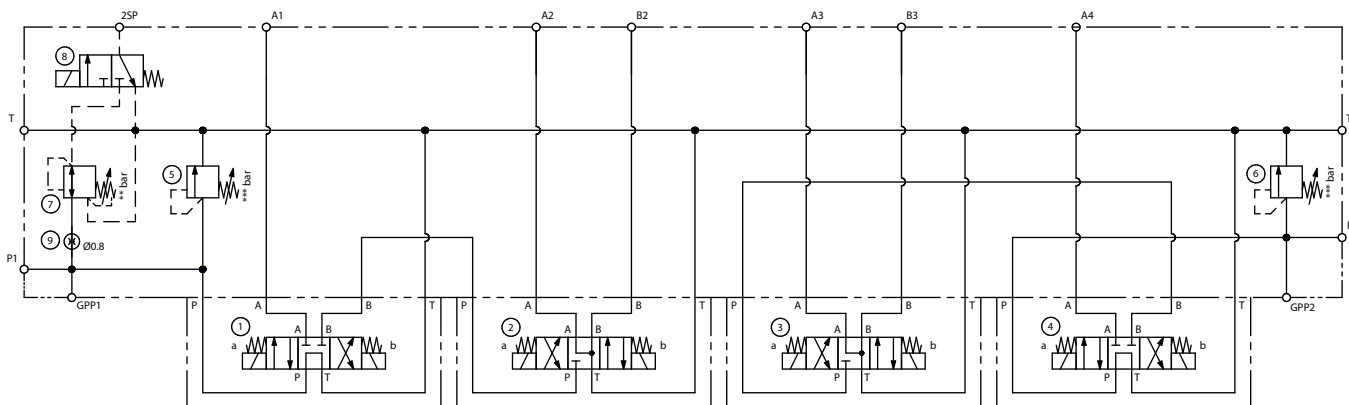
- Compact and efficient design with low pressure drop
- Available in lightweight aluminium (anodised) 210 bar or high pressure steel (zinc plated) 350 bar
- Redundancy feature for tracking safety
- For lower flow see RF C35363 or higher flow see RF C75362
- P line test points

Note: For performance on valves see RS5 Cetop 5 section

Specifications

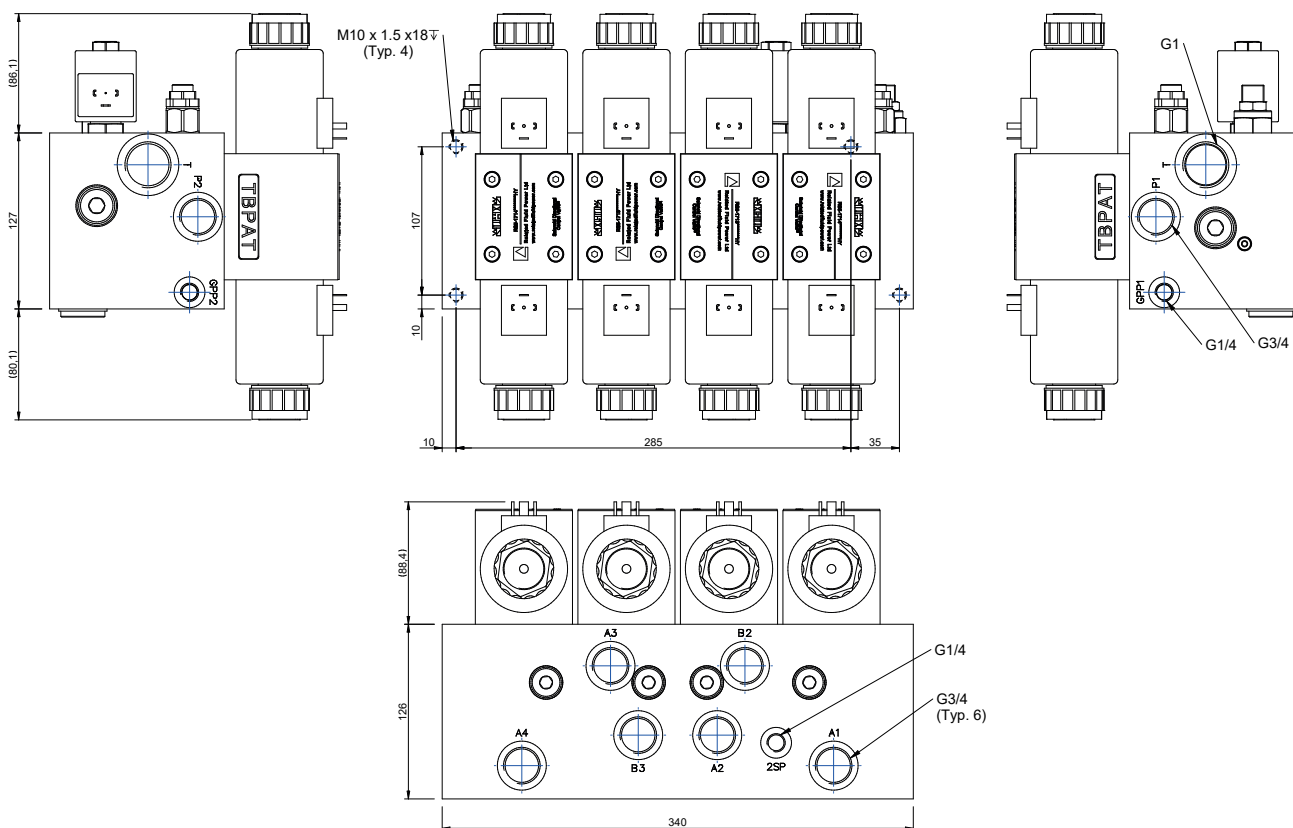
Flow Range (lpm)	80
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RFC55311
Weight	47 kg (alum) 71 kg (steel)

Circuit



RF C55311-01

Dimensions



Ordering Example

RF C55311

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Pressure Reducer

30 = 30 bar
Standard Setting

XX = Custom Setting
Reducer range 5 - 205bar
increments of 5 bar

****Omit if 2 speed tracking**
is not required.

Relief Setting

21 = 210 bar
Standard Setting Aluminum

35 = 350 bar
Standard Setting Steel

XX = Custom Setting
Relief range 50 - 350 bar
increments of 10 bar

Voltage

H1 = 12 Vdc (DIN)

H2 = 24 Vdc (DIN)

D1 = 12 Vdc (Deutsch)

D2 = 24 Vdc (Deutsch)

Does not include connector

Manifold Material

A = Aluminium
(210 bar max,
clear anodised)

S = Steel
(350 bar max,
zinc plated)

Standard Options

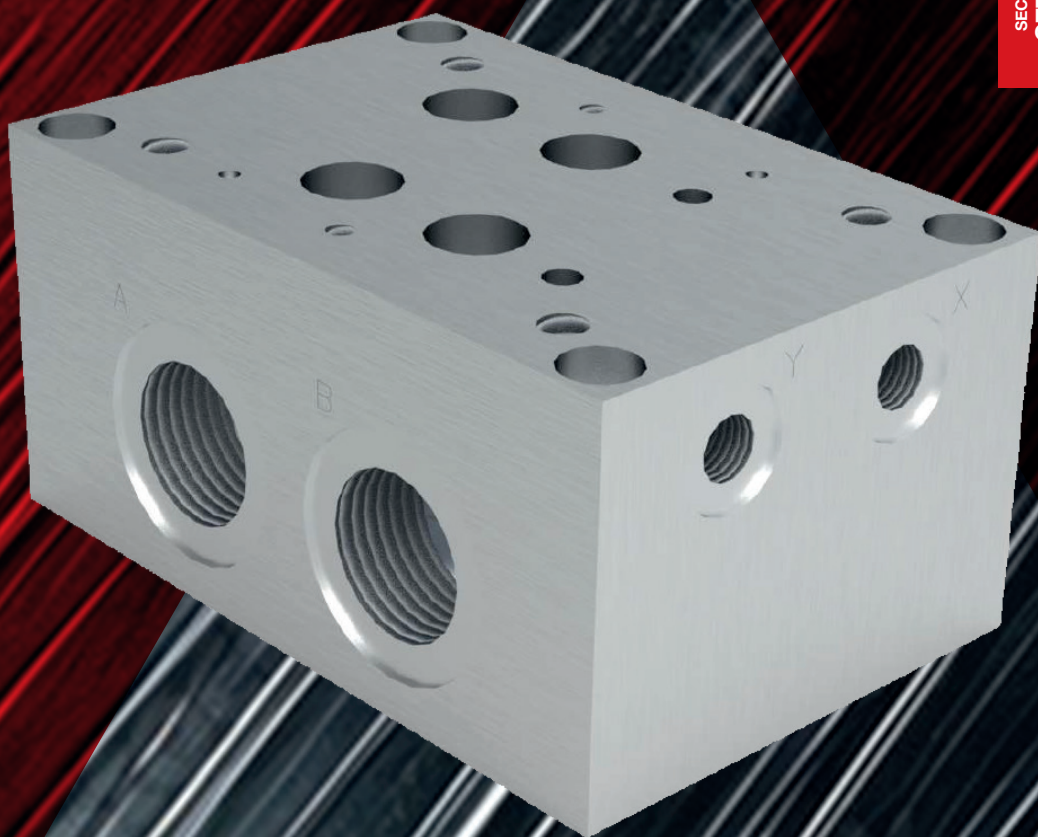
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C553113021H1A	CETOP 5 TRACK & CONVEYOR CONTROL VALVE 12VDC	210	80	12 VDC (Din)
RF C553113021H2A	CETOP 5 TRACK & CONVEYOR CONTROL VALVE 24VDC	210	80	24 VDC (Din)

RF C55311-01

SECTION 5

CETOP 7 - ASSEMBLIES

SECTION 5
CETOP 7
ASSEMBLIES





Up to 350 bar max - Variable lpm

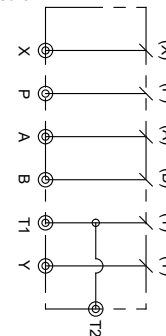
Description

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 valve(s) not supplied. Consult RFP factory for further assistance
- (ii) Supplied with 1 x plug for unused T port

Circuit



Features

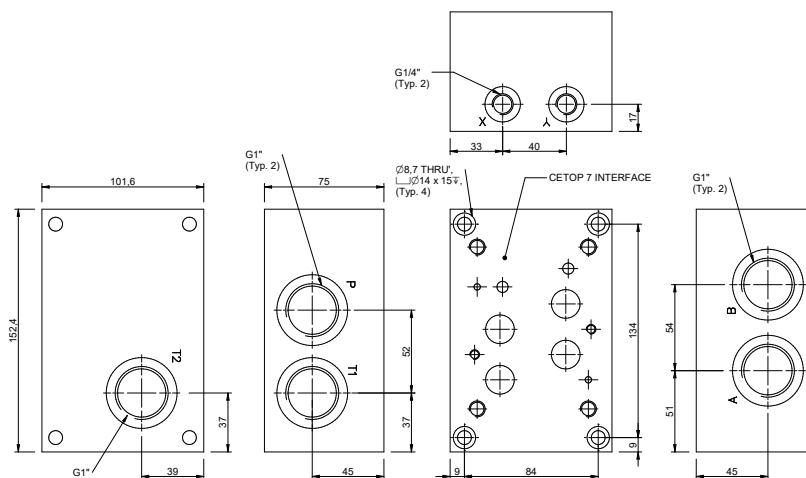
- Multi-configuration capability
- G1" Ports
- Option of aluminium or steel manifolds

Note: For performance on valves see RH7 Cetop 7 section

Specifications

Flow Range (lpm)	Variable
Max. Pressure (bar)	Aluminium = 210 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

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Manifold Material

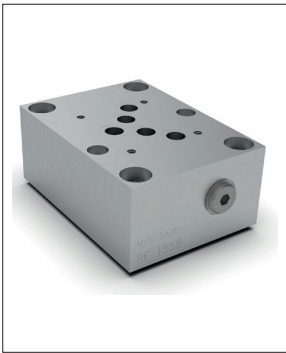
A = Aluminium
(210 bar max,
clear anodised)

S = Steel
(350 bar max,
zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)
RF C71357S	CETOP 7 SUBPLATE SIDE PORTED + EXTRA BASE T PORT	350

RF C71357-01

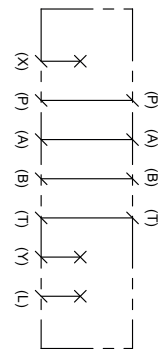


Up to 350 bar max - Variable, valve / system dependant lpm

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 on the Cetop 7 and are not carried through.

Circuit



Features

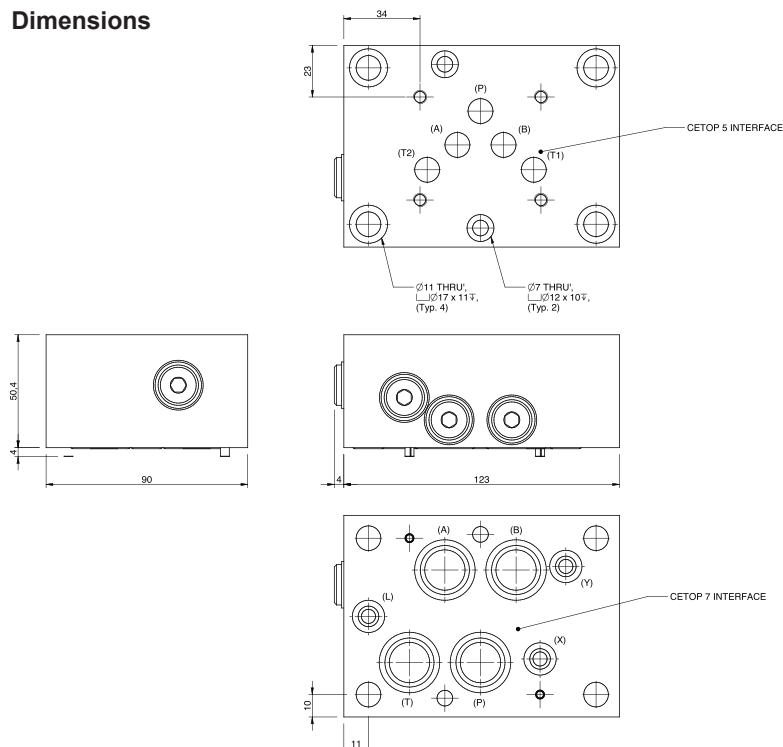
- Aluminium (anodised) or steel (zinc plated) material options
- Compact, efficient design that is optimised for low pressure drop/high flow performance
- Supplied with seals and bolts to suit Cetop 7 interface

Note: For performance on valves see RH7 Cetop 7 section

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	SK-RFC71558
Weight	1.4 kg (alum) 3.7 kg (steel)

Dimensions



Ordering Example

RF C71558

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Manifold Material

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

Standard Options

Part No.	Description	Max. pressure (bar)
RF C71558A	CETOP 5 to 7 ADAPTOR PLATE - (VALVE TO SUBPLATE)	210

RF C71558-01



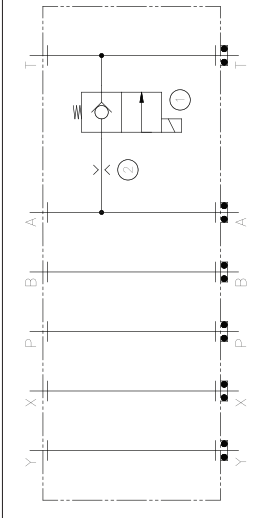
Up to 350 bar max - Variable lpm

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 sales for spare orifice / sizes.

Circuit



Features

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

Note:

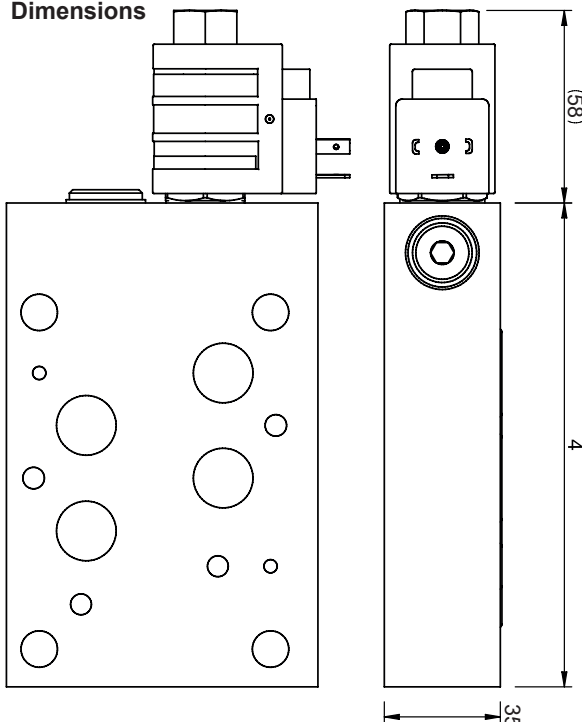
Consult factory for other voltages / terminations

Note: For performance on valves see RH7 Cetop 7 section

Specifications

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

05 = 0.5mm
08 = 0.8mm
10 = 1.0mm
12 = 1.2mm
15 = 1.5mm
20 = 2.0mm
25 = 2.5mm
30 = 3.0mm

Coils & Voltage

H1 = 12VDC (DIN)
H2 = 24VDC (DIN)
D1 = 12VDC (Deutsch)
D2 = 24VDC (Deutsch)
Does not include connector

Manifold Material

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

RFC72341-01



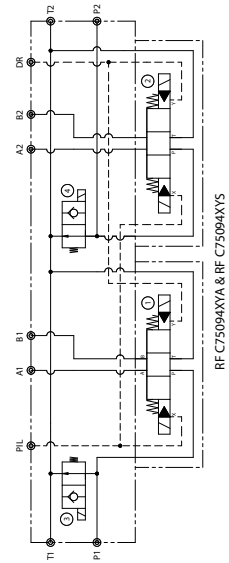
Variable, 300 bar max. - Up to 150 lpm max per side.

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 consult factory for more information and guidance on what compatible products are available and control that can be achieved.

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 (210 bar) or high pressure (300 bar) steel, zinc plated options

Note: Actual pressure and flow ranges achieved are governed by valve selection

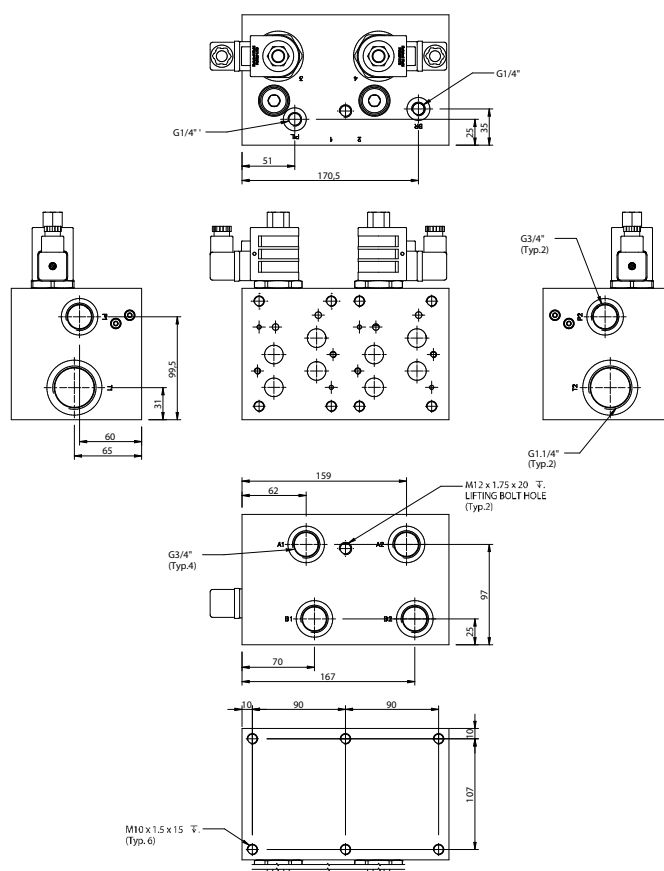
Note: For performance on valves see RH7 Cetop 7 section

Specifications

Flow Range (lpm)	300 lpm all, 150 per side
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)

RF C75094-01

Dimensions



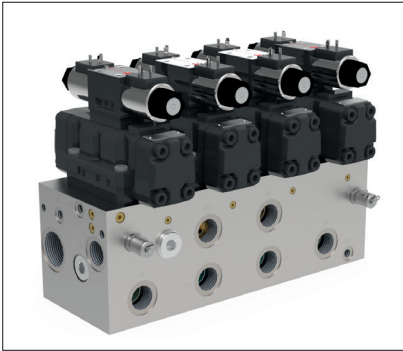
Ordering Example

RF C75094 — ** — ** — *

Valve configuration	Voltage	Manifold Material
00 = DCV's not supplied	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
10 = Open Centre	H2 = 24 Vdc (Din)	S = Steel (350 bar max, clear, zinc passivate)
11 = Closed Centre	D1 = 12 Vdc (Deutsch)	
13 = A & B > T	D2 = 24 Vdc (Deutsch)	
14 = Tandem Centre	Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C7509410H1S	CETOP 7, 2 STATION DIRECTIONAL CTRL + UNLOAD 12VDC	350	150	12 VDC
RF C7509410H2S	CETOP 7, 2 STATION DIRECTIONAL CTRL + UNLOAD 24VDC	350	150	24 VDC



Variable up to 350 bar max - 200 lpm

Description

This is a compact Cetop 7, four station sub-plate, specifically for modern vehicle tracking applications with conveyors or aux. applications. The assembly offers a conventional layout with separate pressure inlets and a combined, generously sized tank outlet. The internal design of the manifold has been optimised to minimise pressure drop and heat generation.

On each pump inlet there is a Cetop 7 P>T spool (1&4) for unloading the flow in neutral. On operation of the Cetop 7 P>T valve, flow can be diverted to either the track function or the conveyors, both functions have a main relief for max pressure protection. When in track operation, the Cetop 7 control valve is an A+B>T spool (2&3), In neutral this allows back pressure to be dissipated to allow braking, while at the same time blocking pressure from the P line. Activation of the A+B>T spool (2&3) will engage forward or reverse tracking. On the P1 line, there is also a function for two speed motor control, activated by a single solenoid and pressure controlled via a pressure reducer. 2 speed tracking comes as standard but can be ordered without.

Features

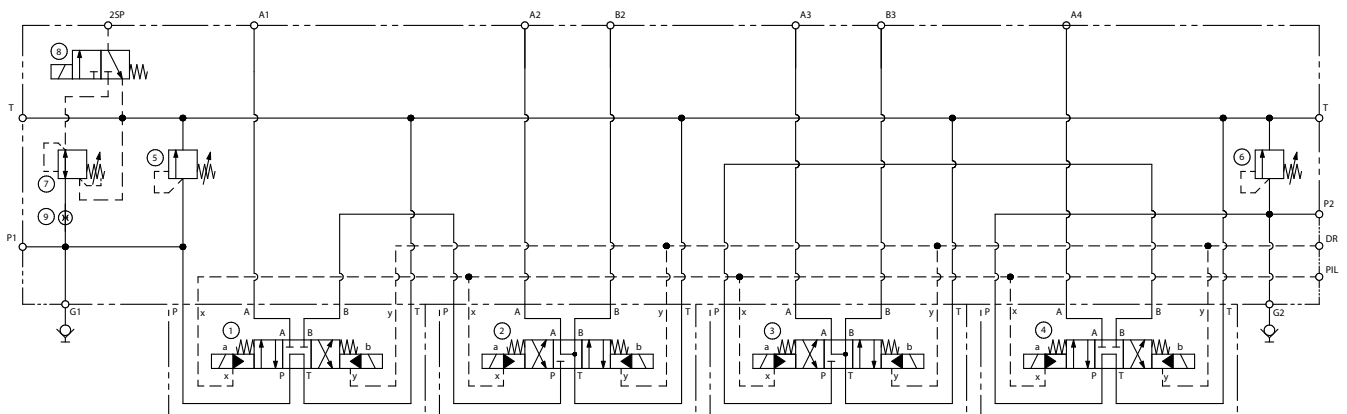
- Compact and efficient design with low pressure drop
- Available in lightweight Aluminum (Anodised) 210bar or high pressure steel (Zinc plated) 350bar
- Redundancy feature for tracking safety.
- For lower flow see RF C35363 or RF C55311
- P line test points

Note: For performance on valves see RH7 Cetop 7 section

Specifications

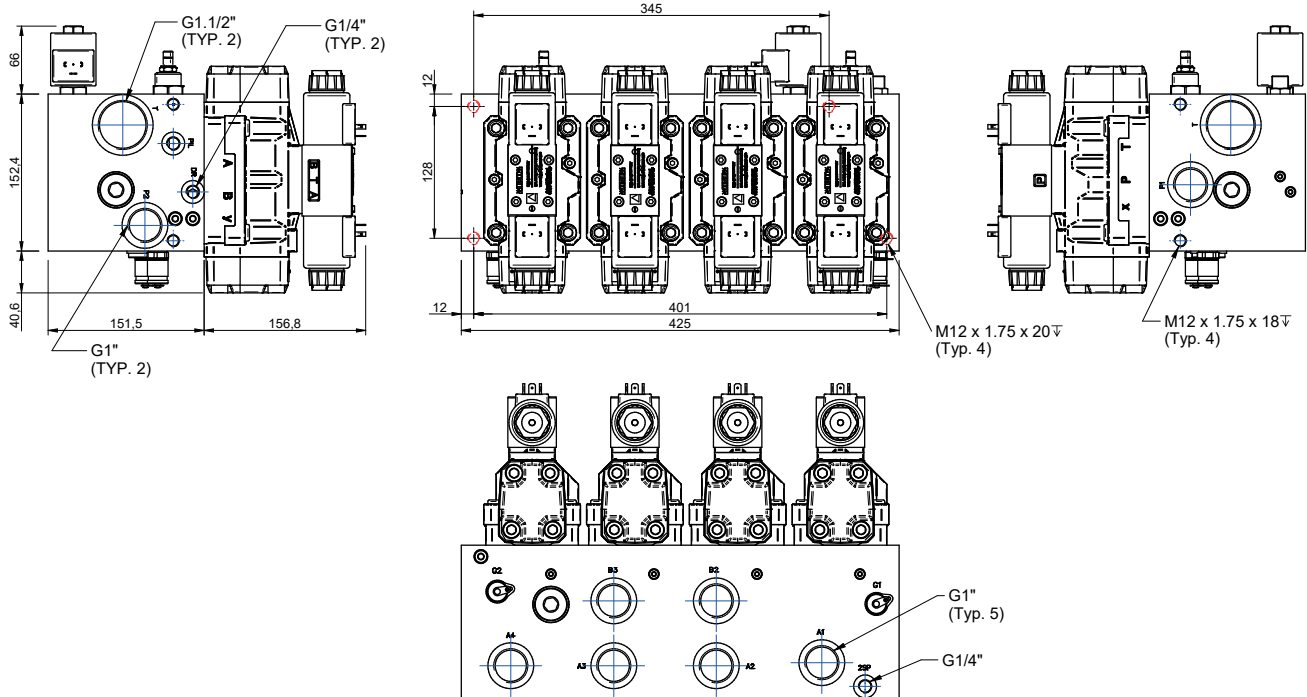
Flow Range (lpm)	200
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RFC75362
Weight	61 kg (alum) 102 kg (steel)

Circuit



RF C75362-01

Dimensions



Ordering Example

RF C75362

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Pressure Reducer

30 = 30 bar
Standard Setting

XX = Custom Setting
Reducer range 5 - 205bar
increments of 5 bar

**Omit if 2 speed tracking
is not required

Relief Setting

21 = 210 bar
Standard Setting Aluminum

35 = 350 bar
Standard Setting Steel

XX = Custom Setting
Relief range 50 - 350bar
increments of 10 bar

Voltage

H1 = 12 Vdc (DIN)

H2 = 24 Vdc (DIN)

D1 = 12 Vdc (Deutsch)

D2 = 24 Vdc (Deutsch)

Does not include connector

Manifold Material

A = Aluminium
(210 bar max,
clear anodised)

S = Steel
(350 bar max,
zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF C753623021H1A	CETOP 7 TRACK & CONVEYOR CONTROL VALVE 12VDC	210	200	12 VDC (Din)
RF C753623021H2A	CETOP 7 TRACK & CONVEYOR CONTROL VALVE 24VDC	210	200	24 VDC (Din)

RF C75362-01

SECTION 6

FLOW CONTROL



SECTION 6
FLOW
CONTROL

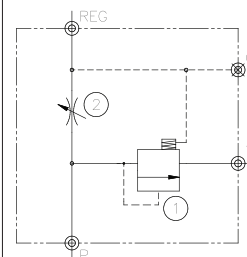


Up to 240 bar - Up to 150 lpm regulated (150 Lpm max. bypass).

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.

Circuit



Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Optimised integral galleries for low pressure drop.
- Handwheel or Allen key adjustment

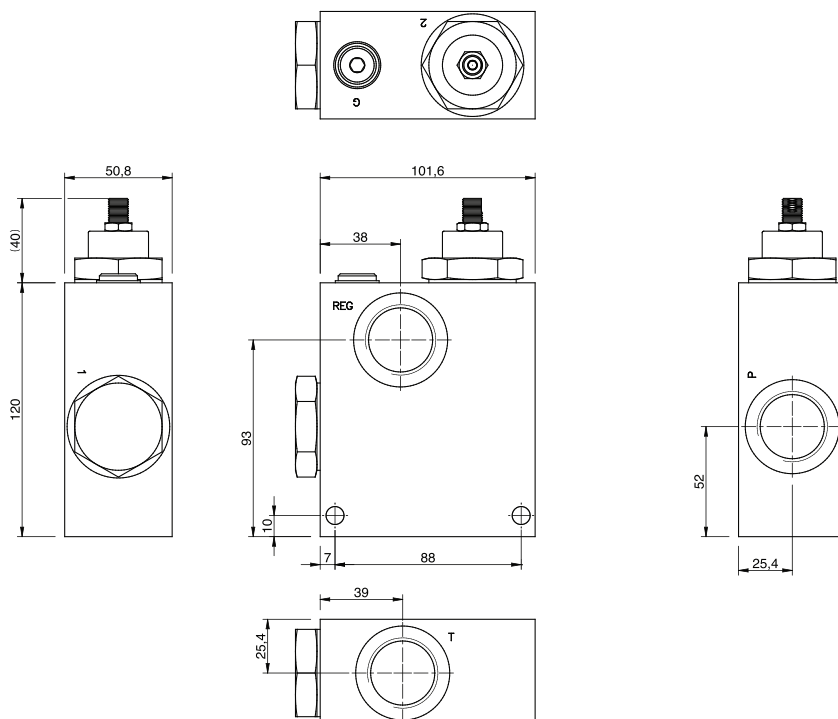
Notes

Typical applications include but are not limited to: Conveyor speed control or sweeper control. Please consult factory for more information and guidance on types of flow controls that are available.

Specifications

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	2.1 kg (alum) 4.3 kg (steel)

Dimensions



RF FC1725-01

Ordering Example
RF FC1725

**	***	**	*
Compensator Setting	Flow Setting (Priority)	Valve options	Material
07 = 7 bar	000 = Unset	00 = Std seals	A = Aluminium (210 bar max, clear anodised)
10 = 10 bar	050 = 50 lpm	0K = Std seals, screw knob	S = Steel (240 bar max, clear zinc passivate)
	120 = 120 lpm etc.	Consult factory for other seal types	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC17251000000A	PRESSURE COMP FLOW CONTROL G1"	210	150

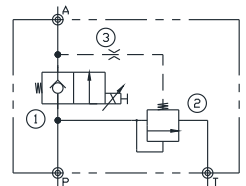


Up to 250 bar - 150 lpm input

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.

Symbol



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

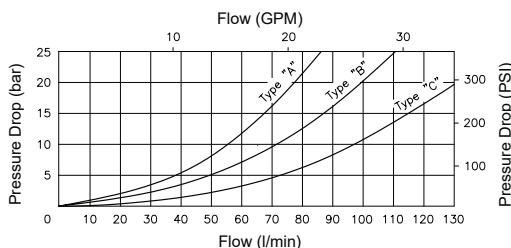
Specifications

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-RFFC3362
PWM or Dither frequency suggest	100 - 150 Hz
Weight	2.3 kg (alum)

Performance

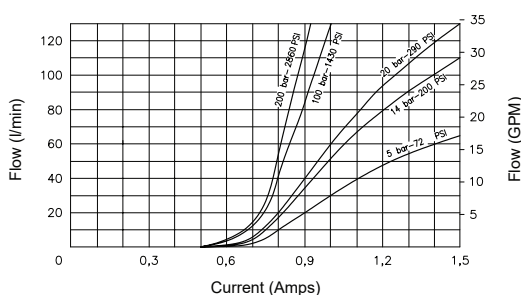
Pressure Drop

1 to 2 with valve completely open



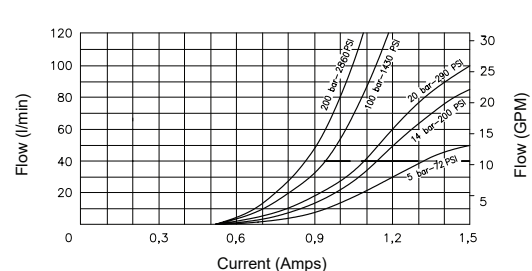
Flow vs. Current at different Pressure Drop

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



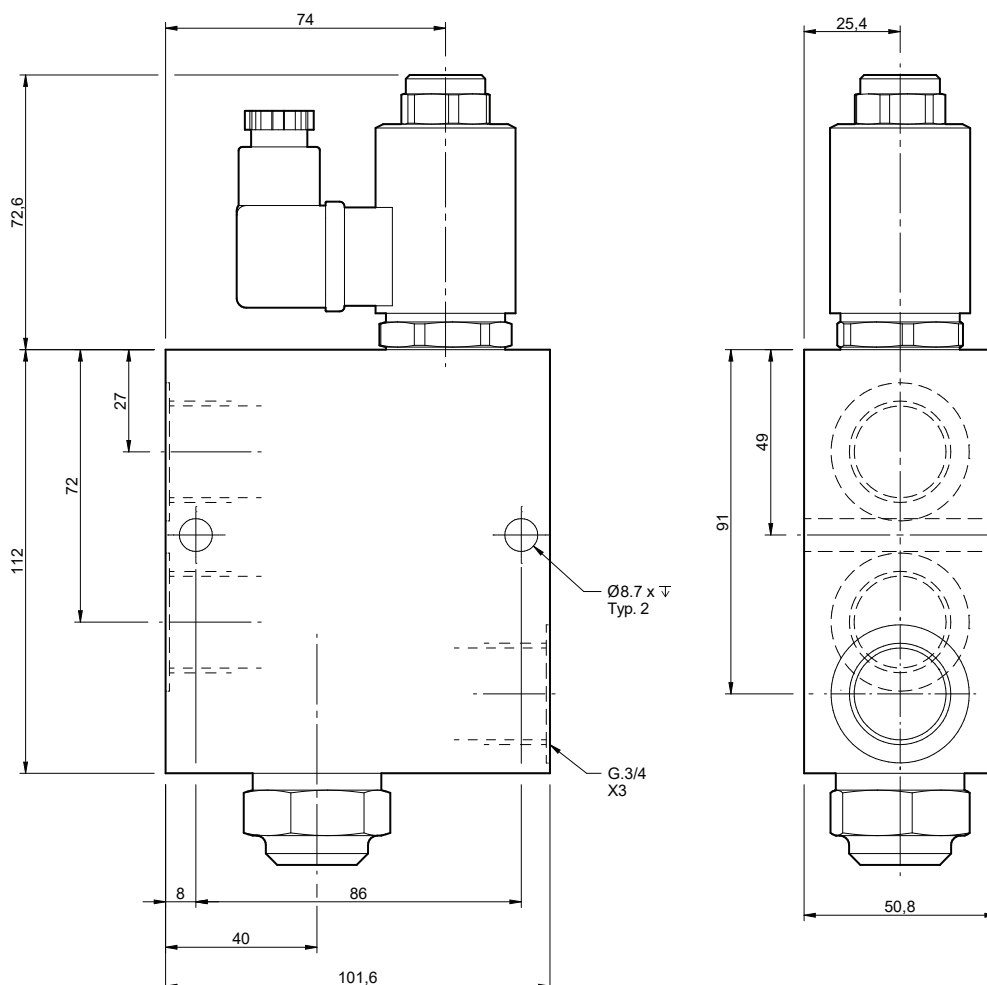
Flow vs. Current at different Pressure Drop

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



RF FC3362-01

Dimensions



Ordering Example

RF FC3362						*	*	**	**	**	*
Nom. Flow Range		Compensator Settings		Port Size	Override	Coil & Voltage		Manifold Material			
B = 0-85 lpm		0 = 14 bar		12 = G1/2"	00 = no override (std.)	H1 = 12V DC DIN		A =Aluminium (210 bar max, clear anodised)			
C = 0-110 lpm		1 = 16 bar		34 = G3/4"	0M = override	H2 = 24V DC DIN		S = Steel (350 bar max, zinc plated)			
		2 = 18 bar				D1 = 12V DC Deutsch					
		3 = 20 bar				D2 = 24V DC Deutsch					
		**Other compensator settings available on request.				Does not include connector					

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF FC336201200H1A	PROPORTIONAL PRIORITY FLOW CONTROL G1/2" 12 VDC	210	150	12 VDC (Din)

RF FC3362-01

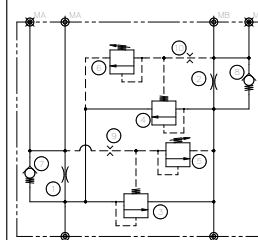


Up to 350 bar - Up to 170 lpm

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.

Symbol

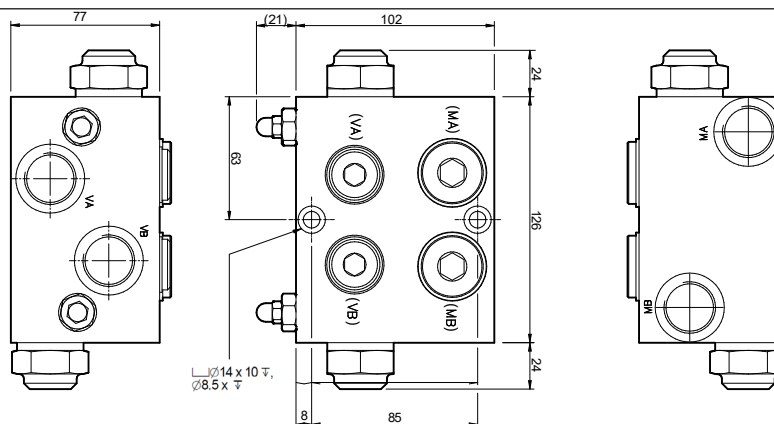


Features

- 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	Priority Flow Rate V2-M2	Pressure Setting V1-M1	Pressure Setting V2-M2	Manifold Material
30 = 30 lpm	30 = 30 lpm	21 = 210 bar**	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)
80 = 80 lpm	80 = 80 lpm	**10 bar increments	**10 bar increments	S = Steel (350 bar max, zinc plated)
**5 lpm increments	**5 lpm increments	**17 = std. setting	**17 = std. setting	
80 = max setting	80 = max setting			
40 = std. setting	40 = std. setting			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC399440401717S	DUAL FIXED PCFC + RELIEF - G3/4"	260	170

RF FC3994-01

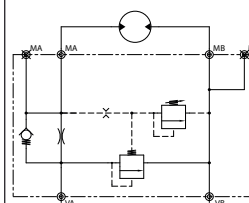


Up to 350 bar - Up to 170 lpm

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



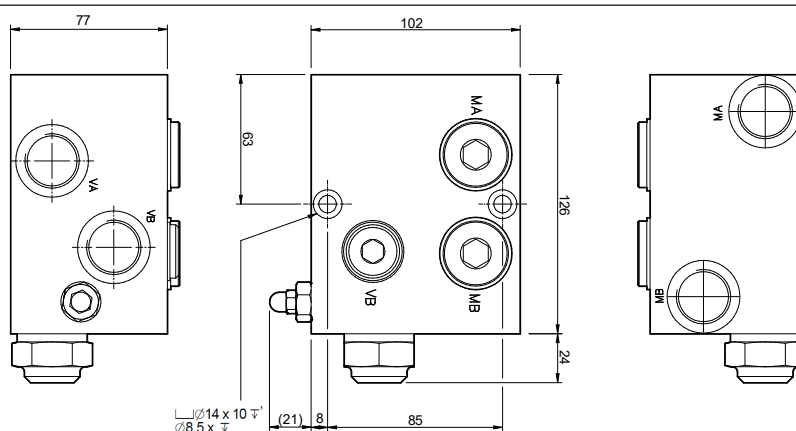
Features

- 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

Specifications

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)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC39954017S	FIXED PRESS. COMP FLOW CTRL + RELIEF - G3/4"	260	170

RF FC3995-01

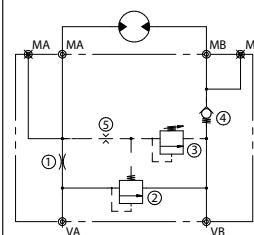


Up to 350 bar - Up to 170 lpm

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.

Symbol



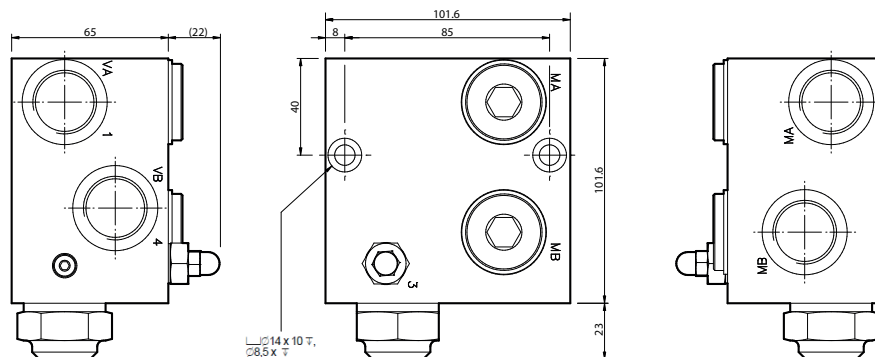
Features

- 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
- Up to 170 lpm inlet (120 lpm max. bypass).
- STANDARD up to 260 bar, 350 bar on request

Specifications

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-RFFC3996
Weight	3.2 kg (alum) 6.9 kg (steel)

Dimensions



Ordering Code

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

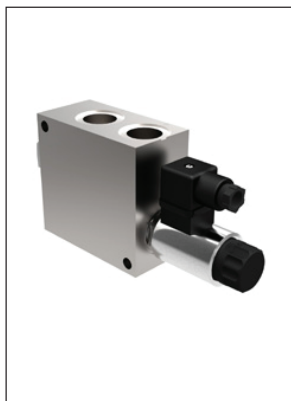
Manifold Material

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC39964017S	FIXED PRESS. COMP FLOW CTRL + RELIEF - G3/4"	260	170

RF FC3996-01

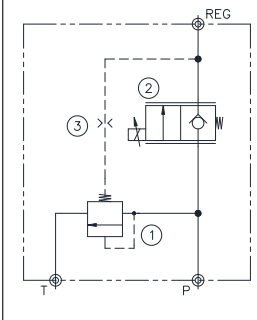


250bar -120lpm input

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.

Symbol



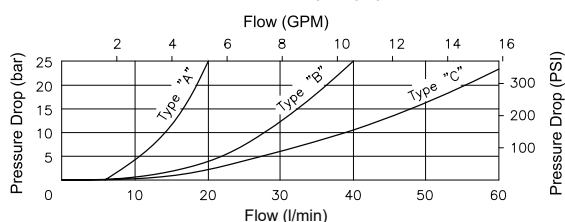
Features

- 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

Performance

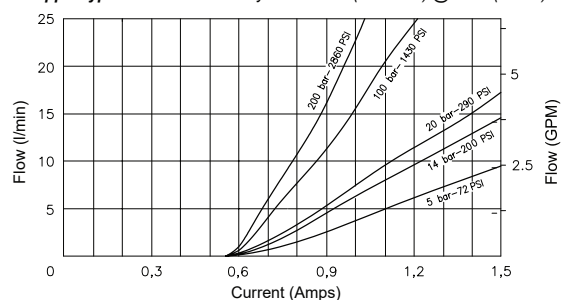
Pressure Drop

1 to 2 with valve completely open



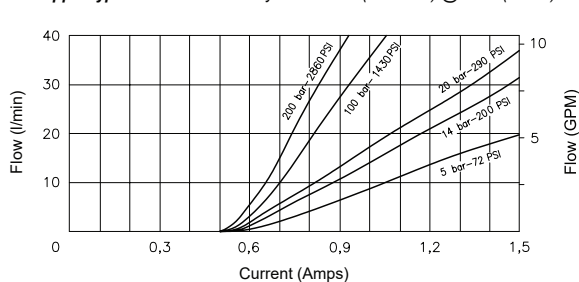
Flow vs. Current at different Pressure Drop

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



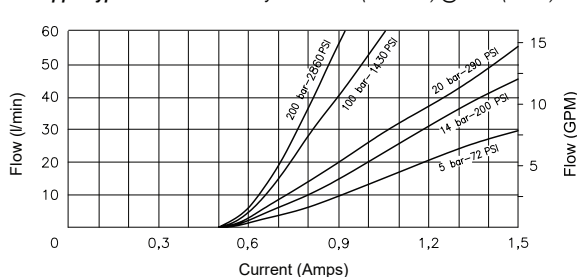
Flow vs. Current at different Pressure Drop

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



Flow vs. Current at different Pressure Drop

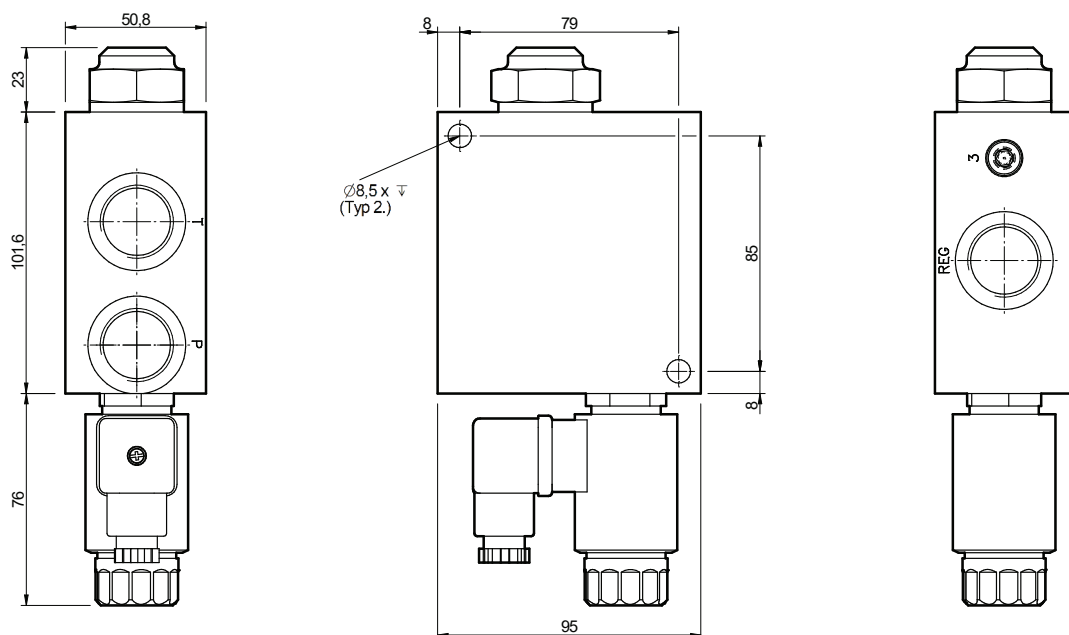
Poppet type C - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)



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
Weight	2.1 kg (alum) 4.1 kg (steel)

Dimensions



Ordering Example

RF FC4120

Nom. Flow Range	Compensator Settings	Port Size	Override	Coil & Voltage	Manifold Material
A = 0-15 lpm	0 = 14 bar	12 = G1/2"	00 = no override (std.)	H1 = 12V DC DIN	A = Aluminium (210 bar max, clear anodised)
B = 0-30 lpm	1 = 16 bar	34 = G3/4"	0M = override	H2 = 24V DC DIN	S = Steel (350 bar max, zinc plated)
C = 0-45 lpm	2 = 18 bar			D1 = 12V DC Deutsch	
	3 = 20 bar			D2 = 24V DC Deutsch	
	**Other compensator settings available on request.			Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF FC4120A11200H2A	PROPORTIONAL PRESS. COMP PRIORITY FLOW CTRL 24VDC	210	120	24 VDC (Din)	0-15
RF FC4120B11200H2A	PROPORTIONAL PRESS. COMP PRIORITY FLOW CTRL 24VDC	210	120	24 VDC (Din)	0-30
RF FC4120C11200H2A	PROPORTIONAL PRESS. COMP PRIORITY FLOW CTRL 24VDC	210	120	24 VDC (Din)	0-45

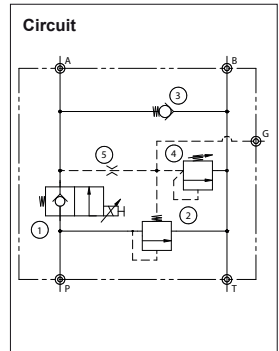


Up to 240 bar - Up to 200 lpm on inlet, 110 lpm max. priority

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 consult factory for more information and guidance on options and what control that can be achieved. PWM Drivers can also be offered to compliment this assembly.



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

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

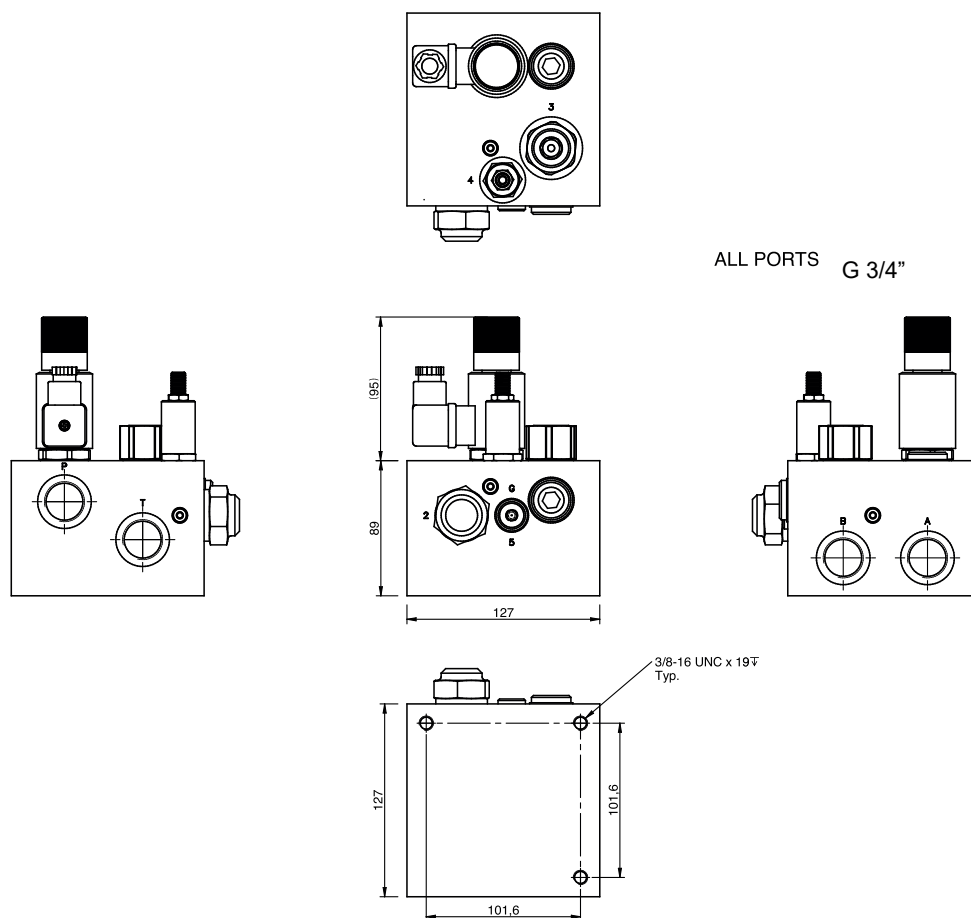
Specifications

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-RFFC4139
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

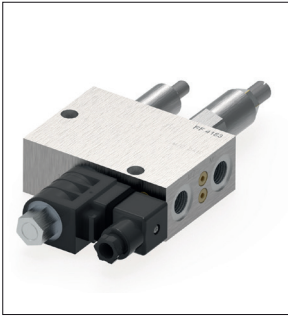
RF FC4139

	*	*	**	**	**	*
Nom. Flow Range						
A = 0-85 lpm						
B = 0-110 lpm						
Compensator Setting						
0 = 14 bar						
1 = 16 bar						
2 = 18 bar						
3 = 20 bar						
Pressure setting						
21 = 210 bar**						
**10 bar increments						
**21 = std. setting						
Valve options						
As per cartridge data sheet i.e.						
00 = Std						
0M = standard seals + override knob on solenoid valves						
Consult factory for other seal types						
Voltage & Coil						
H1 = 12 Vdc(Din)						
H2 = 24 Vdc(Din)						
D1 = 12 Vdc (Deutsch)						
D2 = 24 Vdc (Deutsch)						
Does not include connector						
Material						
A = Aluminium (210 bar max, clear anodised)						
S = Steel, clear (240 bar max, zinc passivate)						

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF FC4139B22100H1A	PROPORTIONAL PRIORITY FLOW CTRL + ANTI CAV 12 VDC	210	110-150	12 VDC	0-110
RF FC4139B22100H2A	PROPORTIONAL PRIORITY FLOW CTRL + ANTI CAV 24 VDC	210	110-150	24 VDC	0-110

RF-FC4139-01



Variable, 240 bar max. - Up to Variable lpm

Description

This assembly is designed for a hydraulic circuit where there is a requirement for:

1. Unloading 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.

Features

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

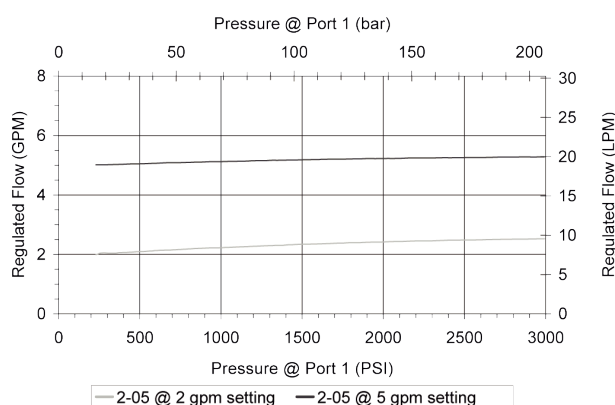
Notes:

- 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

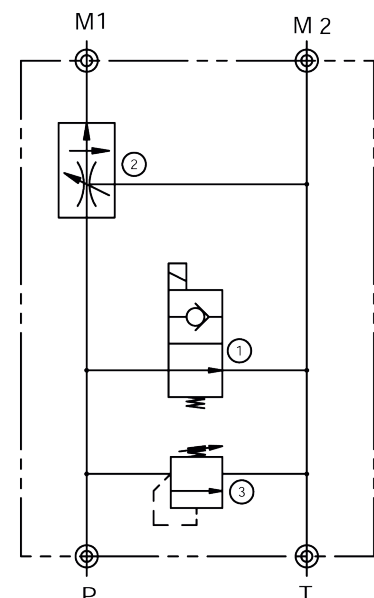
Specifications

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)

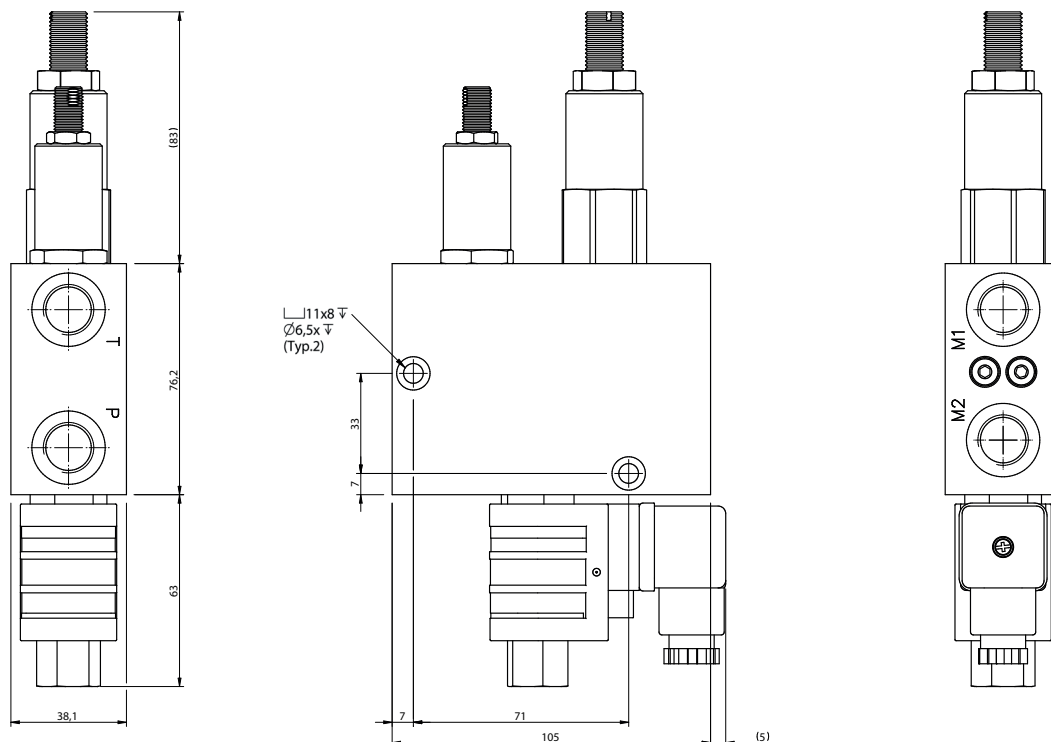
Compensation Performance



Circuit



Dimensions



Ordering Example

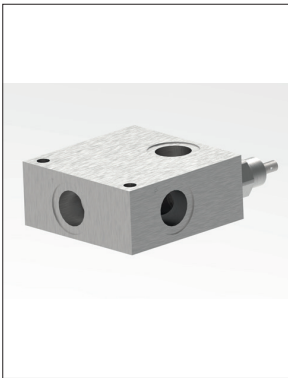
RF FC4183

Relief Valve Setting	Priority Flow Setting	General Valve Options	Voltage & Coil	Manifold Material
01 = 10 bar cracking (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 **10 bar increments. From 10 bar up to 240 bar max.	07 = 7 lpm (min. setting ^{**}) 38 = 38 lpm (max. setting ^{**}) AX = Unset, 7 to 21 lpm range BX = Unset, 21 to 38 lpm range **1 lpm increments. From 7 lpm up to 38 lpm max.	00 = Standard seals Consult factory for other seal types	H1 = 12 Vdc(Din) H2 = 24 Vdc(Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (240 bar max, zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF FC418321BX00H2A	PRIORITY PCFC WITH RELIEF + SOLENOID UNLOAD	210	38	24 VDC (Din)

RF-FC4183-01

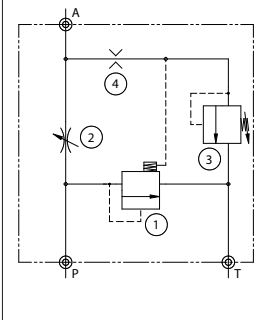


Variable, 240 bar max. -
Up to 200 lpm on inlet, 110 lpm max. priority

Description

A circuit saver control system comprising separate manually adjustable metering control, 3-port bypass compensator, and relief valves. When the metering control is fully closed, priority flow is zero—oil is diverted to bypass via the compensator valve. When opened, depending on the degree of opening, priority flow exits through the A port, and excess flow is bypassed to tank. Constant flow output is maintained despite load variations. Relief is achieved via a pilot valve that vents the bypass compensator, creating a two-stage system. These valves are used in various applications requiring variable actuator supply and reduced pump flow output.

Circuit



Features

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

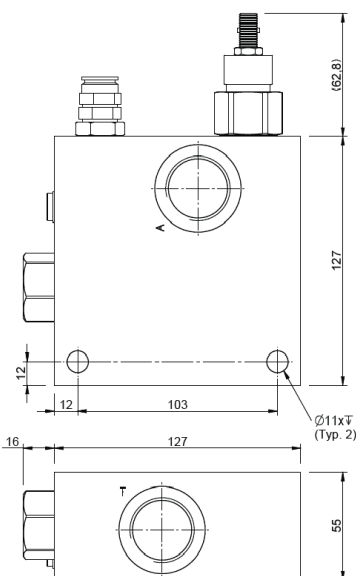
Notes

Actual flow ranges achieved are governed by valve selection
Please consult factory for more information and guidance on options and what control can be achieved.

Specifications

Flow Range (lpm)	Inlet max. = 150, Priority max. = 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-RFFC4227
Weight	2.6 kg (alum) 5.9 kg (steel)

Dimensions



Ordering Example

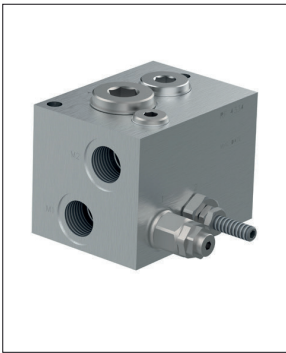
RF FC4227

	*	***	**	**	*
Compensator Setting					
0 = 7 bar					
1 = 10 bar					
2 = 14 bar					
Flow Setting (Priority)					
000 = Unset					
050 = 50 lpm					
120 = 120 lpm etc.					
Pressure setting					
21 = 210 bar**					
**10 bar increments					
**21 = std. setting					
Valve options					
As per cartridge data sheet i.e.					
00 = Std					
Consult factory for other seal types					
Manifold Material					
A = Aluminium (210 bar max, clear anodised)					
S = Steel, clear (240 bar max, zinc passivate)					

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC422720002100A	PRESS COMP PRIORITY FLOW CONTROL + RELIEF	210	110-200
RF FC422710002100A	PRESS COMP PRIORITY FLOW CONTROL + RELIEF	210	110-200

RF-FC4227-01

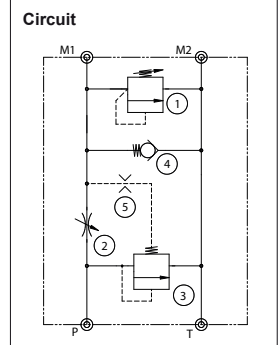


Up to 240 bar - Up to 250 lpm (Priority 100 max, Bypass 150 max.)

Description

A circuit saver control system comprising of separate manual adjustable metering control, 3 port bypass compensator, relief and anti-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 consult factory for more information and guidance on options and what control that can be achieved



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

Notes:

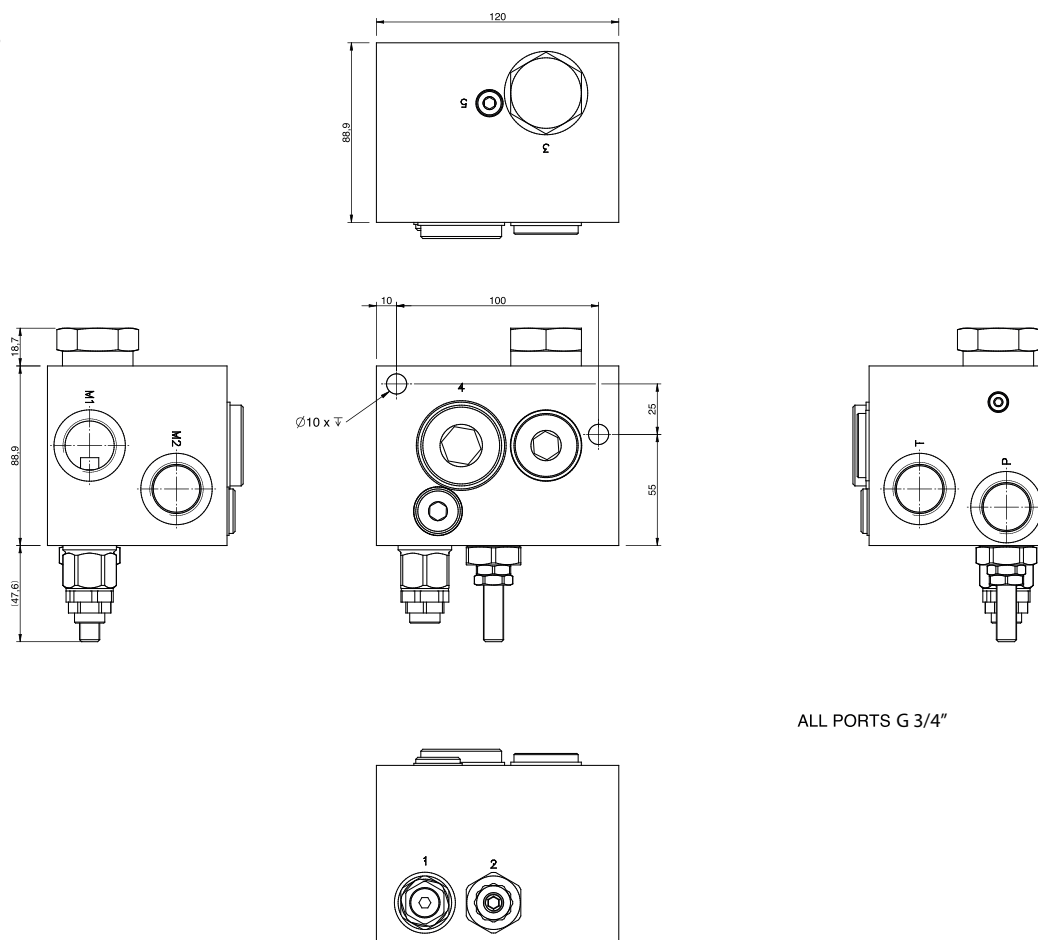
- Actual flow ranges achieved are governed by valve selection.
- Consult factory for other configurations such as proportional flow control.

Specifications

Flow Range (lpm)	Priority 100 max, Bypass 150 max.
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-RFFC4334
Weight	3.0 kg (alum) 6.6 kg (steel)

RF FC4334-01

Dimensions



Ordering Example

RF FC4334

Relief valve Pressure range	Flow Setting	Compensator Settings	Pressure setting	Manifold Material
B = 10-110 bar	000 = Unset	0 = 10 bar	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)
G = 10 to 210 bar	050 = 100 lpm	1 = 16 bar	**10 bar increments	S = Steel (240 bar max, zinc plated)
	Max = 100 lpm	2 = 18 bar	**21 = std. setting	
		3 = 20 bar		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF FC4334G000021A	PRIORITY FLOW CONTROL WITH RELIEF + ANTI CAV	210	250	10-210
RF FC4334G000121A	PRIORITY FLOW CONTROL WITH RELIEF + ANTI CAV	210	250	10-210

RF-FC4334-01



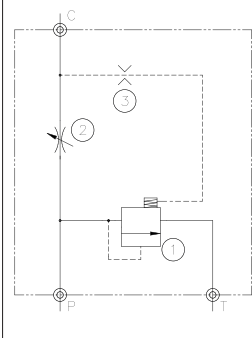
Up to 240 bar - Up to 150 lpm

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.

Circuit



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

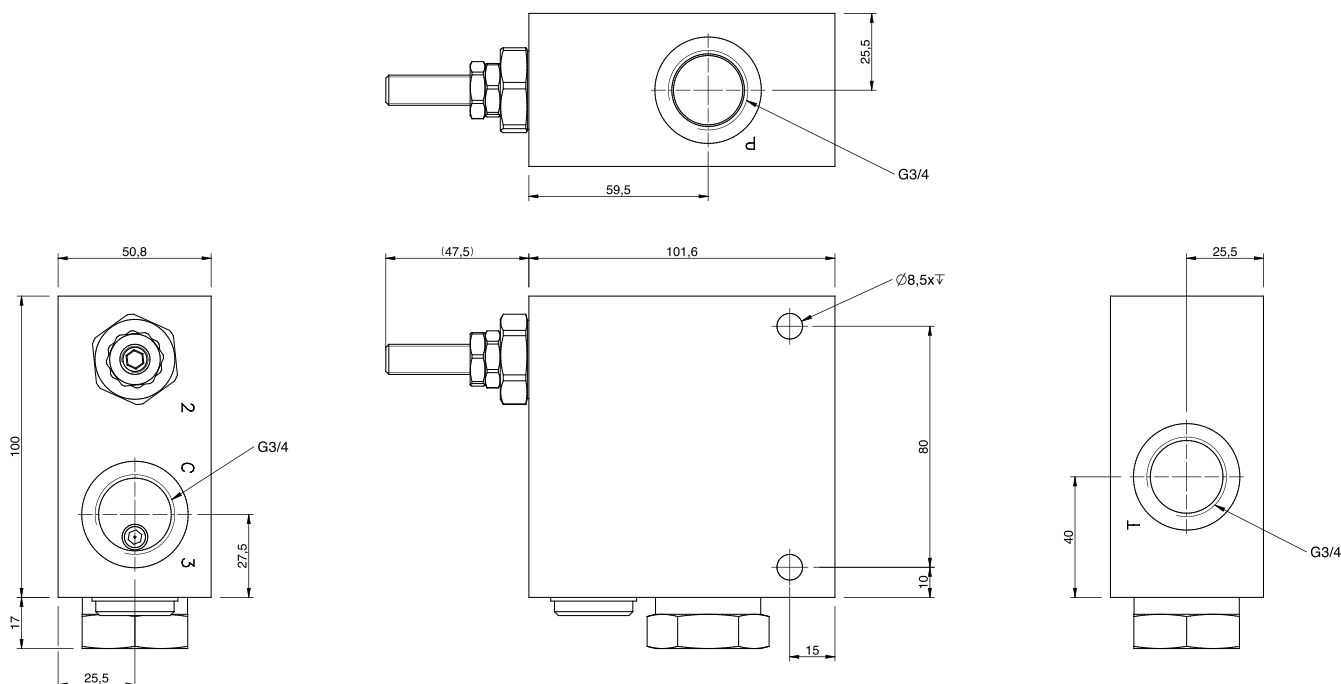
Note:

Please consult factory for more information and guidance on options and what control that can be achieved.

Specifications

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)

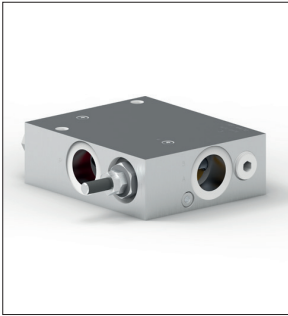
RF FC4413-01

Dimensions

Ordering Example
RF FC4413

Compensator Setting	Valve options	Manifold Material
0 = 6 bar	00 = Std, allen key adj.	A = Aluminium (210 bar, clear anodised)
1 = 10 bar	0K = standard seals + handwheel knob on flow control	S = Steel (240 bar, zinc, clear passivate)
2 = 15 bar	Consult factory for other seal types	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC4413100A	PRIORITY FLOW CONTROL G3/4"	210	150
RF FC4413200A	PRIORITY FLOW CONTROL G3/4"	210	150



Up to 240 bar - Up to 150 lpm (100 lpm priority)

Description

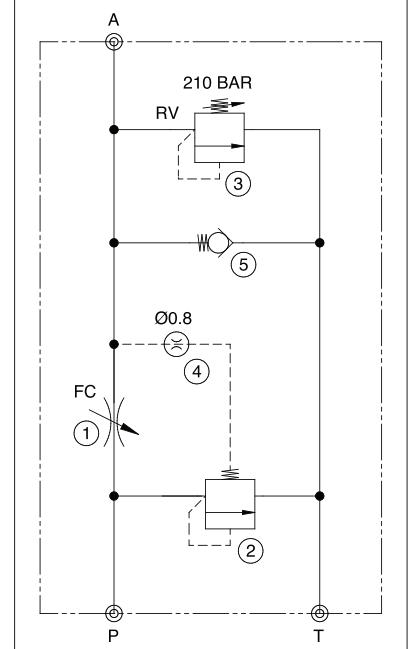
A manifold control system comprising of separate manual flow control and 3 port bypass compensator. This valve provides a set amount of regulated (priority) flow out of port "A" via the manual flow control with any excess flow bypassed to tank over the compensator valve. In the event of any load variation 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. Consult with factory for valve performance.

Service line over pressure and high-capacity anti-cavitation protection is present in the event of an unexpected stop or high load condition. Please consult factory 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

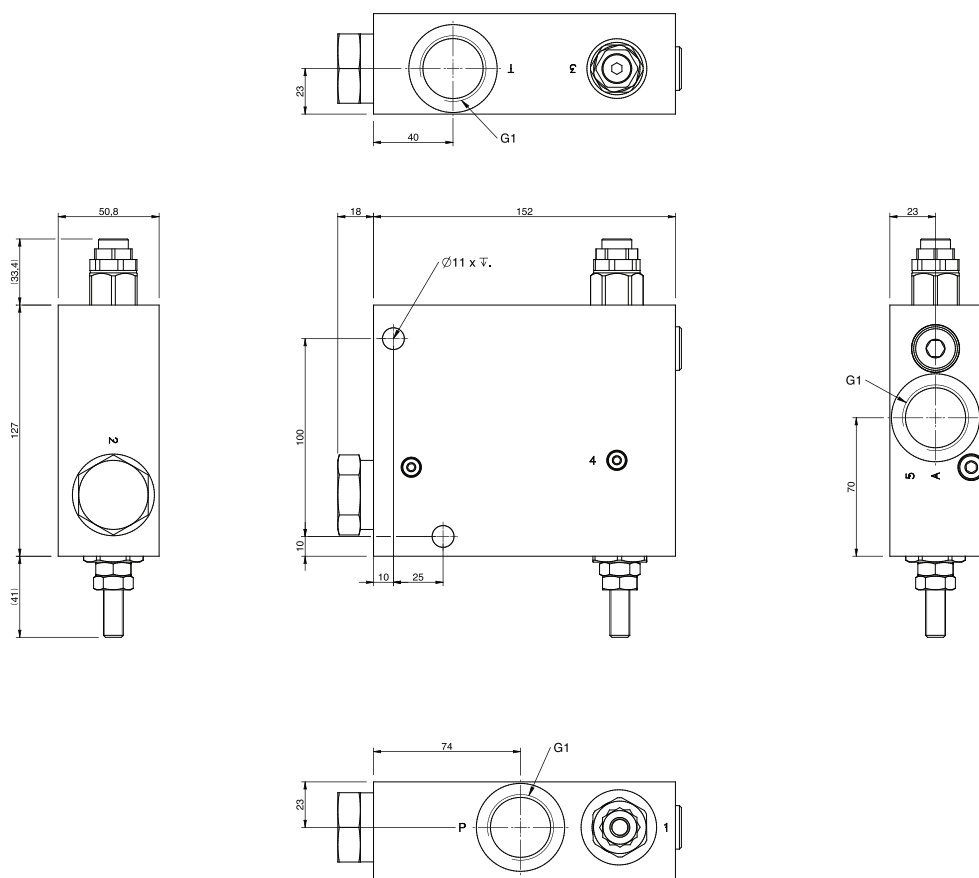


Specifications

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)

RF FC4470-01

Dimensions



Ordering Example

RF FC4470			
*	**	**	*
Compensator Setting	Pressure setting	Valve options	Manifold Material
0 = 6 bar	21 = 210 bar**	00 = Std, allen key adj.	A = Aluminium (210 bar max, clear anodised)
1 = 10 bar	**10 bar increments	0K = standard seals + handwheel knob on flow control	S = Steel (240 bar max, zinc, clear passivate)
2 = 15 bar	**21 = std. setting	Consult factory for other seal types	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC447012100A	PRIORITY PCFC, R.V. + ANTI-CAV G1" 10 BAR COMP	210	150
RF FC447022100A	PRIORITY PCFC, R.V. + ANTI-CAV G1" 15 BAR COMP	210	150

RF FC4470-01



Up to - 240 bar
Up to 170 lpm on inlet (120 Lpm max. bypass).

Description

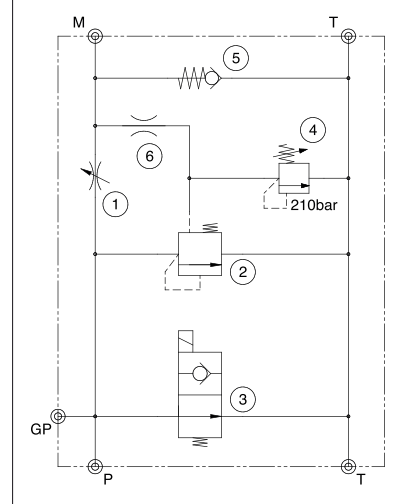
Ideal for various applications where uni-directional speed control of an actuator is required. These controls offer priority flow control with relief and anti-cavitation protection. Designed to accept a high input flow, the assembly uses a variable orifice and compensating element to limit the maximum 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 of 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 consult factory 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

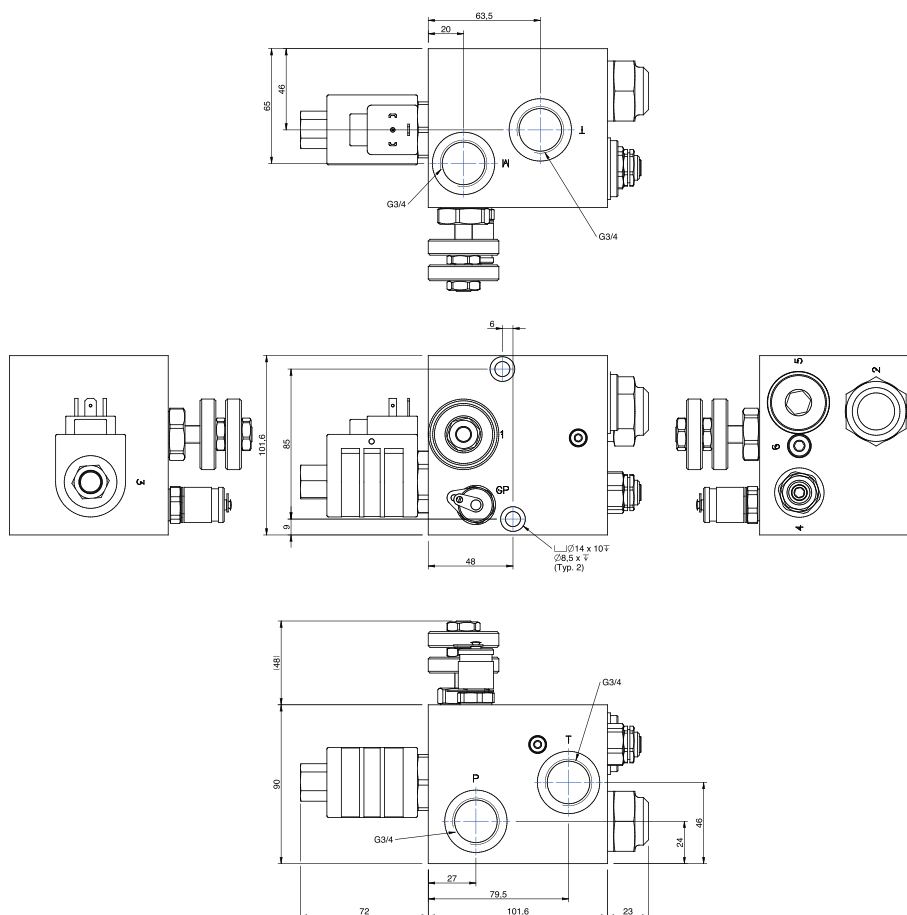


Specifications

Flow Range (lpm)	170 lpm max. 120 lpm max on 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-RFMF4963
Weight	3.3 kg (alum) 4.8 kg (steel)

RF FC4963-01

Dimensions



Ordering Example

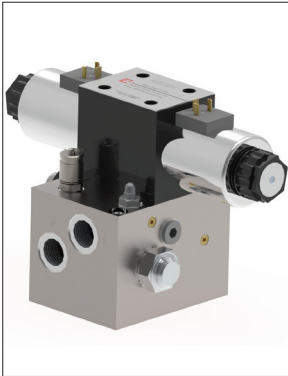
RF FC4963

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 16 = 16 bar 18 = 18 bar 20 = 20 bar	00 = Unset 05 = 5 lpm 10 = 10 lpm etc.	00 = Std seals 0K = Std seals, override on solenoid valve Consult factory for other seal types	H1 = 12 Vdc(Din) H2 = 24 Vdc(Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (240 bar max, zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF FC496321160000D1A	PCFC, RV, SOLENOID UNLOAD & ANTI-CAV 16 BAR COMP	210	170	12 VDC (Deutsch)
RF FC496321160000D2A	PCFC, RV, SOLENOID UNLOAD & ANTI-CAV 16 BAR COMP	210	170	24 VDC (Deutsch)
RF FC496321180000D1A	PCFC, RV, SOLENOID UNLOAD & ANTI-CAV 18 BAR COMP	210	170	12 VDC (Deutsch)
RF FC496321180000D2A	PCFC, RV, SOLENOID UNLOAD & ANTI-CAV 18 BAR COMP	210	170	24 VDC (Deutsch)

RF FC4963-01

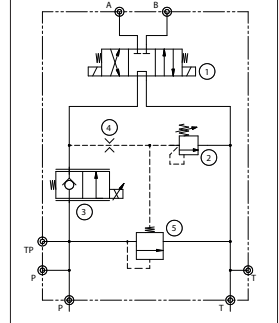


Variable, 245 bar max. - Variable lpm

Description

The RF FC5062 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

Circuit



Features

- Multi-function capability
- G3/4" 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.

Specifications

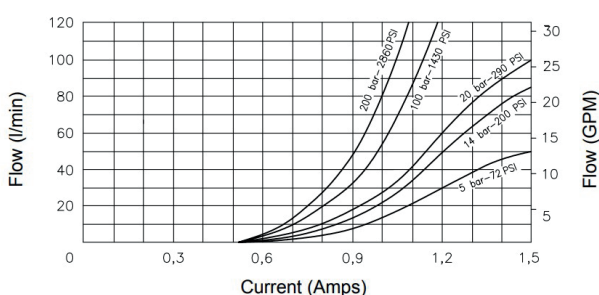
Flow Range (lpm)	see curves for various versions
Max. Pressure (bar)	245
Proportional Valve Leakage	0 - 0.50 cc/min at 245 bar
Proportional Valve Hysteresis	+/- 3%
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal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

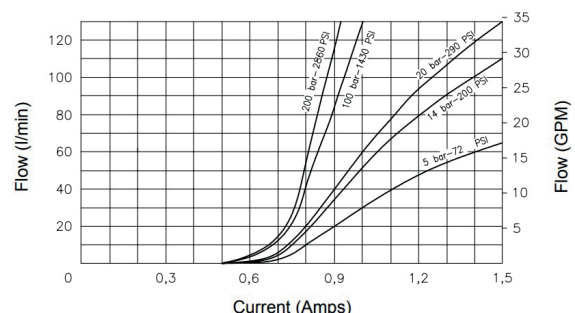
Flow vs. Current at different Pressure Drop

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



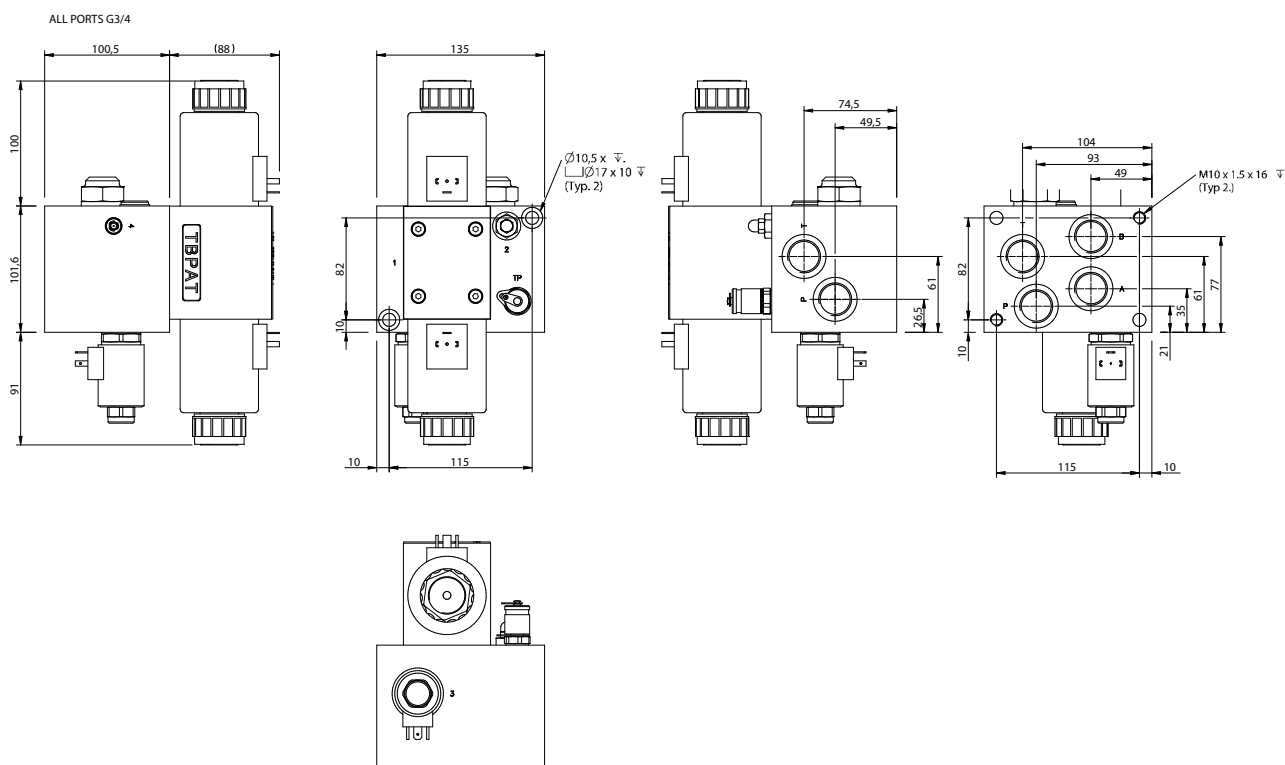
Flow vs. Current at different Pressure Drop

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



RF FC5062-01

Dimensions



Ordering Example

RF FC5062

Nom. Flow Rate	Compensator Settings	Override	Pressure setting	Spool Configuration	Coils & Voltage	Manifold Material
B = 0 up to 85 lpm	0 = 14 bar	00 = no override (std.)	21 = 210 bar**	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	B - 1711	H2 = 24V DC DIN	S = Steel (245 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	Does not include connector	
				**For performance on valves see RS5 Cetop 5 section		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF FC5062B20021AH2A	PCFC + DIRECTIONAL CONTROL ASSEMBLY G3/4" 24VDC	210	Variable	24 VDC (Din)	0-85
RF FC5062B20021BH2A	PCFC + DIRECTIONAL CONTROL ASSEMBLY G3/4" 24VDC	210	Variable	24 VDC (Din)	0-85
RF FC5062B20021CH2A	PCFC + DIRECTIONAL CONTROL ASSEMBLY G3/4" 24VDC	210	Variable	24 VDC (Din)	0-85
RF FC5062B20021DH2A	PCFC + DIRECTIONAL CONTROL ASSEMBLY G3/4" 24VDC	210	Variable	24 VDC (Din)	0-85



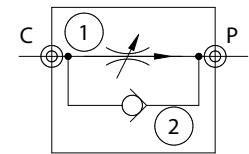
Variable, 350 bar max. - Up to 34 lpm

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 consult factory for more information and guidance on types of flow controls that are available.

Circuit



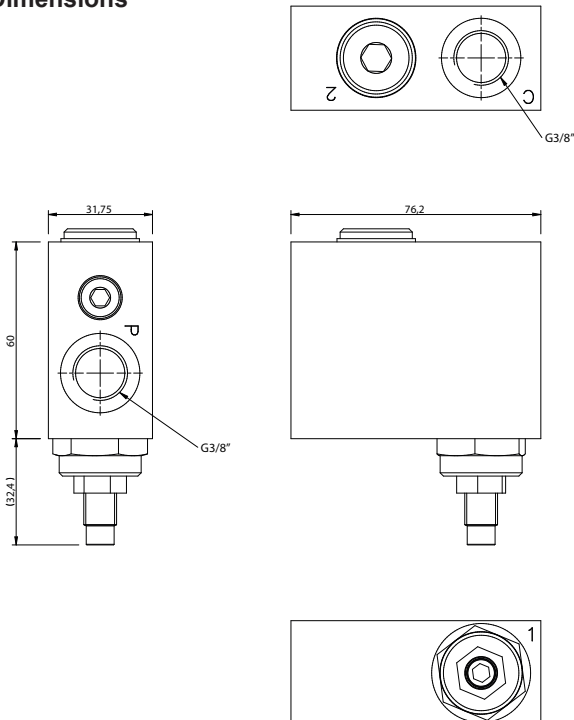
Features

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

Specifications

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) 210 bar max.
05 = 5 lpm	0K = Std seals, screw knob	S = Steel, clear (zinc passivate) 350 bar max.
10 = 10 lpm etc.	Consult factory for other seal types	
**34 lpm max.		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF FC50950000A	PRESSURE COMP FLOW CONTROL + REVERSE CHECK	210	34

RF FC5095-01

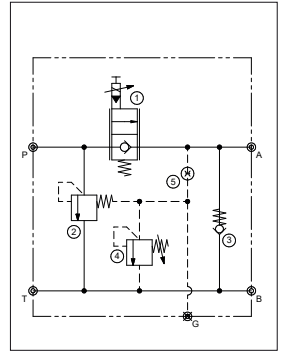


Up to 240 bar - Up to 50 lpm on inlet, 45 lpm max. priority

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 consult factory for more information and guidance on options and what control that can be achieved. PWM Drivers can also be offered to compliment this assembly.



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

Note:

Actual flow ranges achieved are governed by valve selection.

Specifications

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-RFFC5345
Weight	2.7 kg (alum) 5.4 kg (steel)

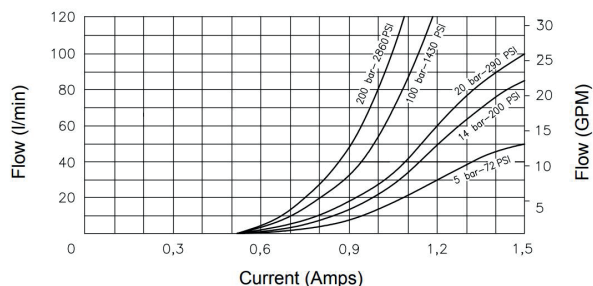
Coil Specifications

Current Supply	PWM (Pulse Width Modulation)
Rated Current Range	400 - 1400 mA
PWM or Super-imposed Dither Frequency	100 Hz
Coil Resistance	7.2 Ohm +/- 5% at 20°C

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

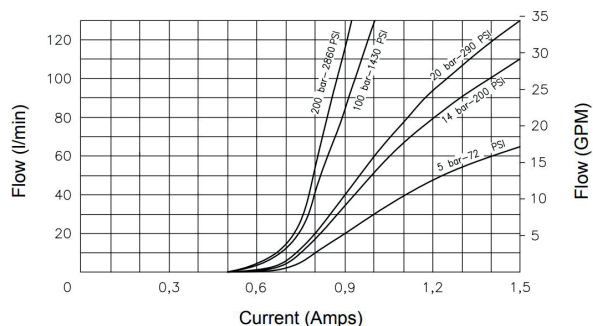
Flow vs. Current at different Pressure Drop

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

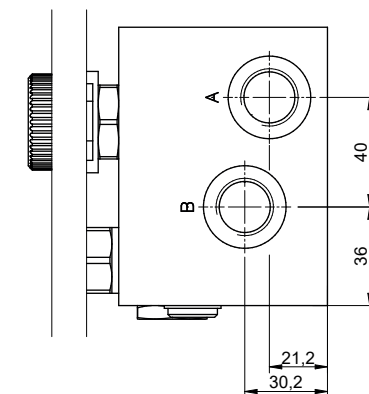
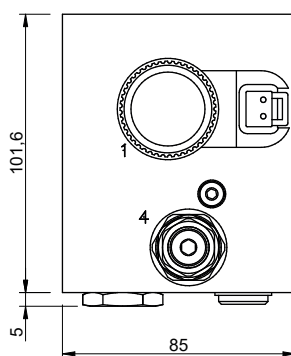
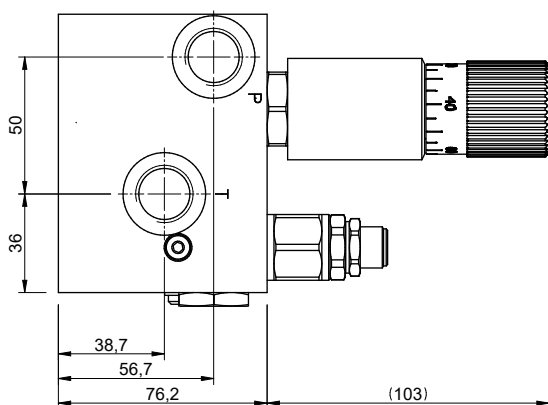


Flow vs. Current at different Pressure Drop

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



Dimensions



All Ports G1/2"

Ordering Example

RF FC5345

Nom. Flow Range	Compensator Setting	Pressure setting	Valve options	Voltage & Coil	Material
A = 0-30 lpm	0 = 2.8 bar	21 = 210 bar**	As per cartridge data sheet	H1 = 12 Vdc(Din)	A = Aluminium (210 bar max, clear anodised)
B = 0-45 lpm	1 = 5.5 bar	**10 bar increments	00 = Std	H2 = 24 Vdc(Din)	S = Steel, clear (240 bar max, zinc passivate)
	2 = 10.3 bar	**21 = std. setting	0S = standard seals + Screw override knob on solenoid valves	D1 = 12 Vdc (Deutsch)	
	3 = 13.8 bar		0S = standard seals + Graduated Screw override knob on solenoid valves	D2 = 24 Vdc (Deutsch)	
			Consult factory for other seal types	Does not include connector	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF FC5345B22100H1A	PROPORTIONAL PCFC + ANTI CAV 12 VDC	210	50	12 VDC (Din)	0-45
RF FC5345B22100H2A	PROPORTIONAL PCFC + ANTI CAV 24 VDC	210	50	24 VDC (Din)	0-45

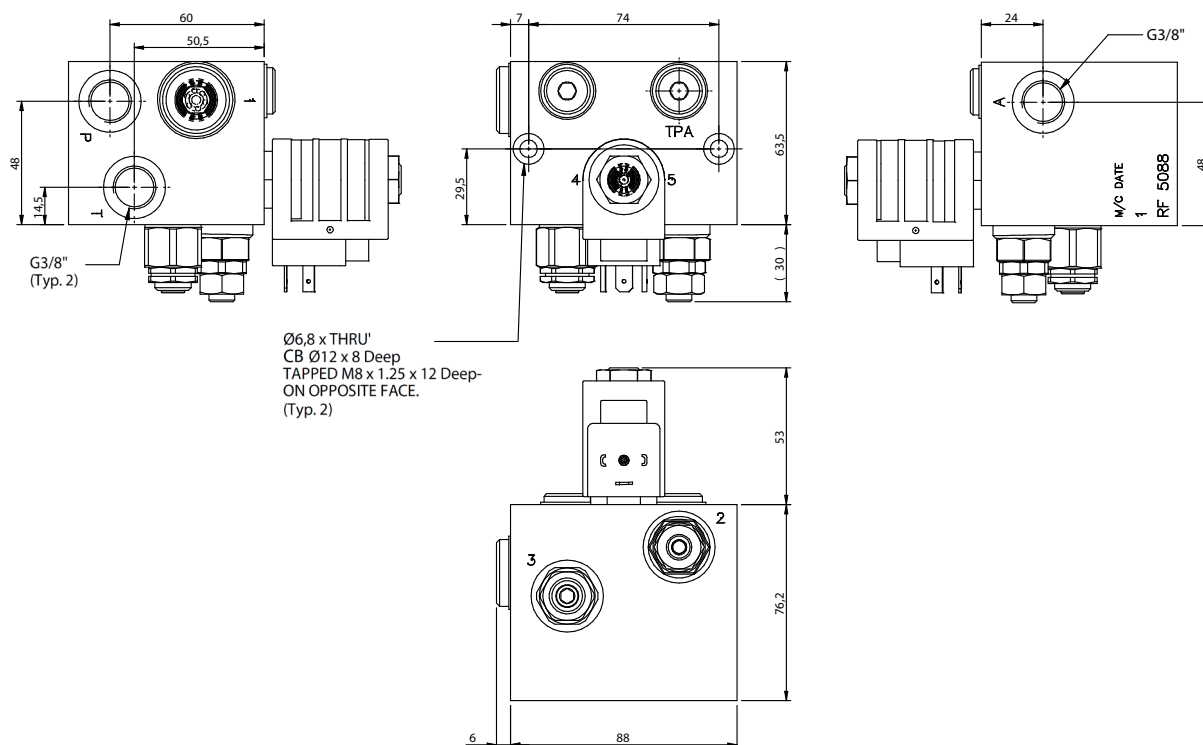
RF FC5345-01

SECTION 7

LIFT BLOCKS



Dimensions



Ordering Example

RF LB5088

Pressure Setting	Flow Control Options	Flow Setting (Lowering)	Valve Options	Voltage	Material
21 = 210 bar** **10 bar increments **21 = std. setting	A = Adjustable, compensated B = Adjustable, compensated with adjustment knob F = Fixed setting compensated N = Adjustable non-compensated	00 = Non compensated unset 05 = 5 lpm 10 = 10 lpm etc. 10 lpm max. for fixed (increments 1 lpm) 15 lpm max. for adjustable	00 = Std 0M = standard seals + override knob on solenoid valve Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Other voltages available on request. Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (350 bar max, zinc plated)

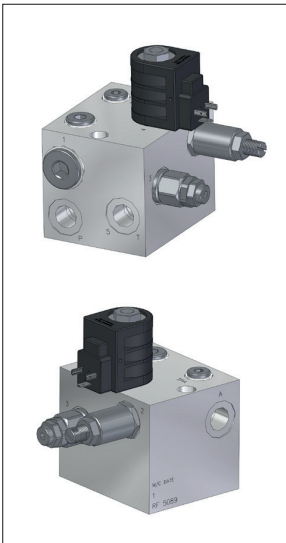
Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF LB508821A0000H1A	LIFT BLOCK + ADJUSTABLE PCFC G3/8" 12VDC	210	30	12 VDC
RF LB508821A0000H2A	LIFT BLOCK + ADJUSTABLE PCFC G3/8" 24VDC	210	30	24 VDC

Lift block, G1/2"

Lift, check, lower functions with optional PCFC on lower

RF LB5089



Up to 350 bar - Up to 55 lpm

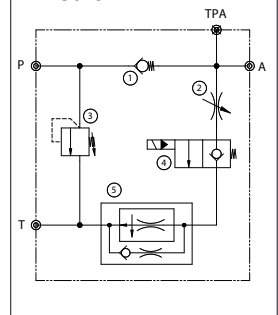
Description

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 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 consult factory for more information on other circuit and mounting options.

Circuit



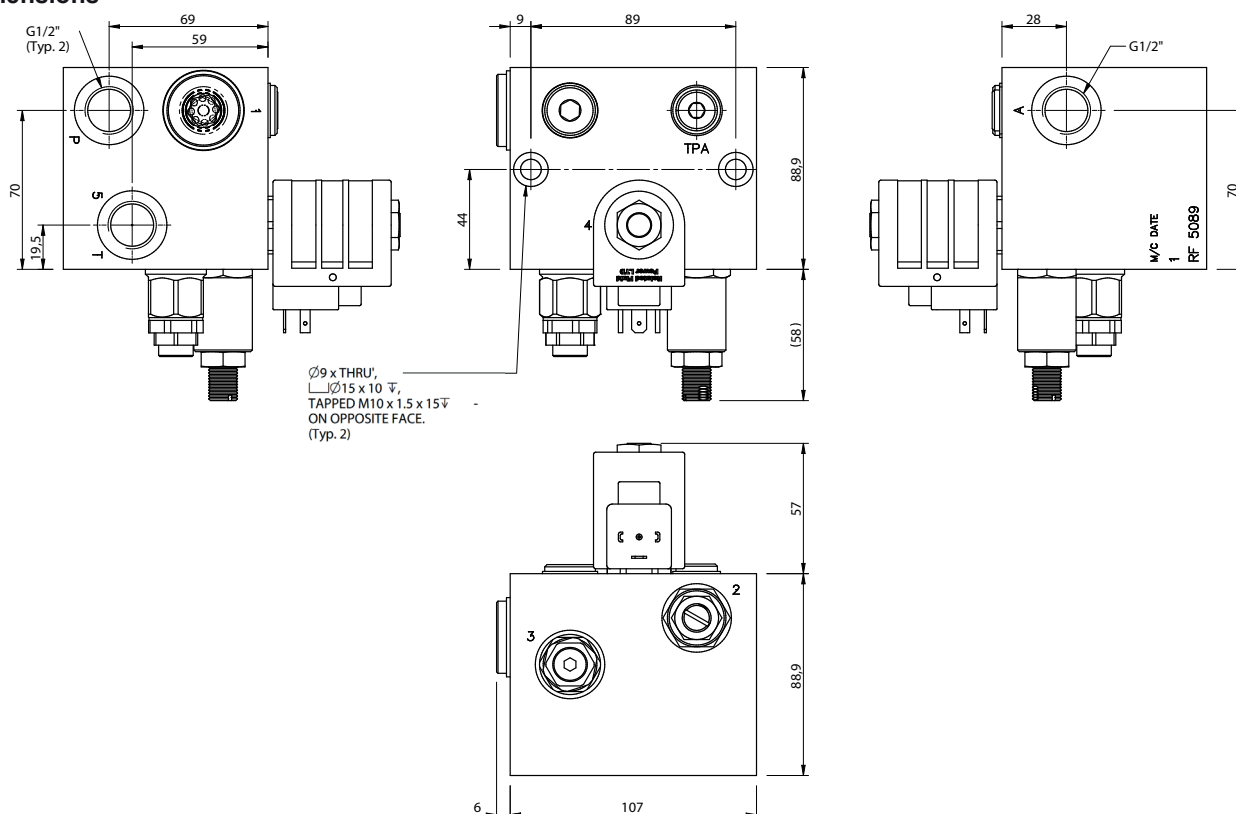
Features

- 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 (210bar) or high pressure (350bar) steel, zinc plated options

Specifications

Flow Range (lpm)	55
Max. Pressure (bar)	350
Relief valve reseal pressure	Nominal 90% of cracking pressure
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-RFLB5089N (Nitrile) SK-RFLB5089V (Viton)
Weight	2.9 kg (alum) 6.6 kg (steel)

RF LB5089-01

Dimensions

Ordering Example
RF LB5089

Pressure Setting	Flow Control Options	Flow Setting (Lowering)	Valve Options	Voltage	Material
21 = 210 bar**	A = Adjustable, compensated	00 = Non compensated unset	00 = Std	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
**10 bar increments	B = Adjustable, compensated with adjustment knob	05 = 5 lpm	0M = standard seals + override knob on solenoid valve	H2 = 24 Vdc (Din)	S = Steel (350 bar max, zinc plated)
**21 = std. setting	F = Fixed setting compensated	10 = 10 lpm etc.	Consult factory for other seal types	D1 = 12 Vdc (Deutsch)	
	N = Adjustable non-compensated	20 lpm max. for fixed (increments 1 lpm) 38 lpm max. for adjustable		D2 = 24 Vdc (Deutsch)	
				Other voltages available on request. Does not include connector	

Standard Options

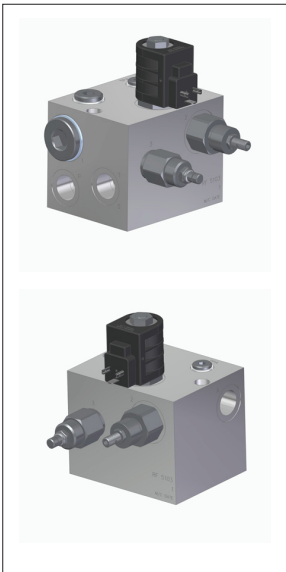
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF LB508921A0000H1A	LIFT BLOCK + ADJUSTABLE PCFC G1/2" 12VDC	210	55	12 VDC
RF LB508921A0000H2A	LIFT BLOCK + ADJUSTABLE PCFC G1/2" 24VDC	210	55	24 VDC

RF LB5089-01

Lift block, G3/4"

Lift, check, lower functions with optional PCFC on lower

RF LB5103



Up to 350 bar - Up to 95 lpm

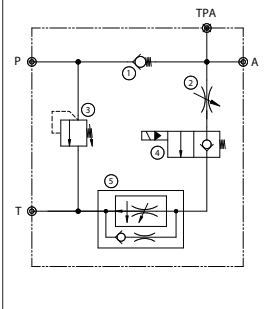
Description

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 consult factory for more information on other circuit and mounting options.

Circuit



Features

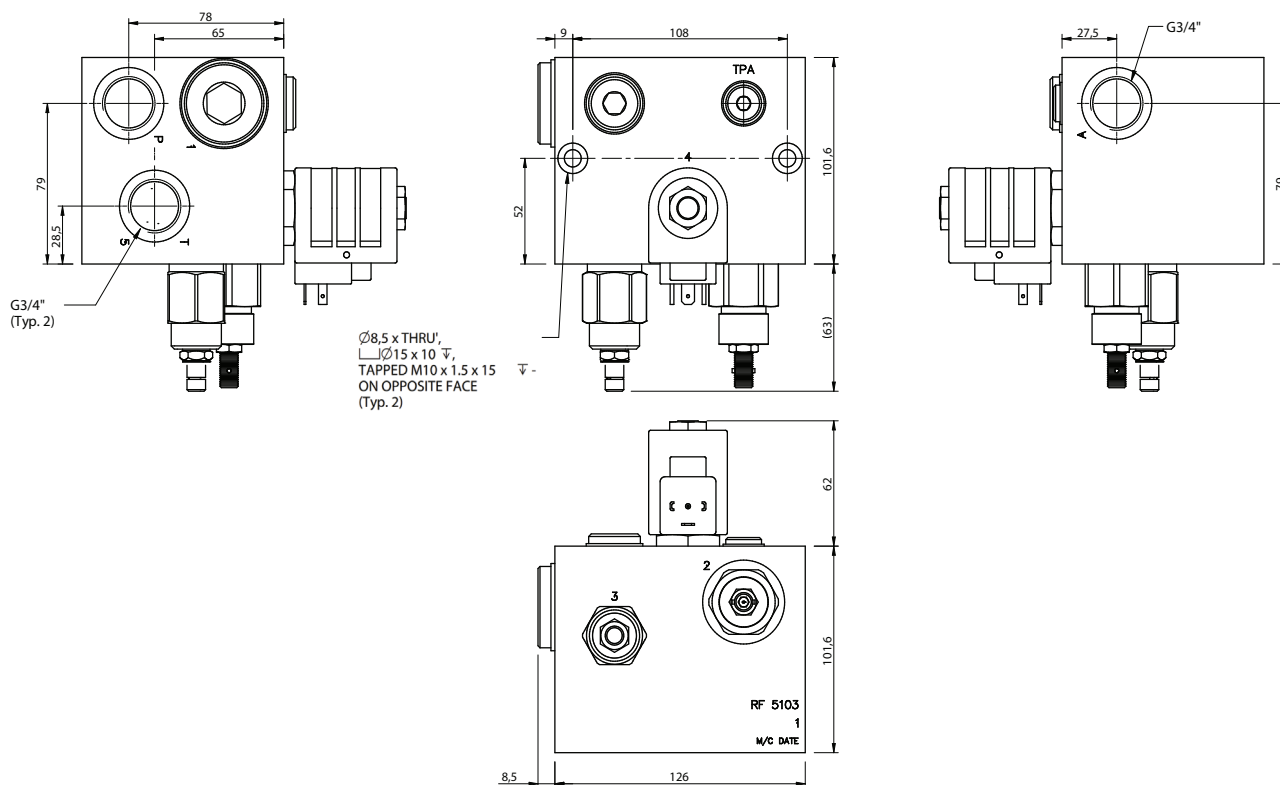
- Fast acting relief with excellent crack to re-seat characteristic
- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design,
- Available in lightweight aluminium, anodised (210bar) or high pressure (350bar) steel, zinc plated options

Specifications

Flow Range (lpm)	95
Max. Pressure (bar)	210
Relief valve reseal pressure	Nominal 90% of cracking pressure
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-RFLB5103
Weight	4.1 kg (alum) 9.6 kg (steel)

M-LB5103-01

Dimensions



Ordering Example

RF LB5103

RF LB5103

Pressure Setting	Flow Control Options	Flow Setting (Lowering)	Valve Options	Voltage	Material
21 = 210 bar** **10 bar increments **21 = std. setting Range = 70 - 207 bar	A = Adjustable, compensated B = Adjustable, compensated with adjustment knob F = Fixed setting compensated N = Adjustable non-compensated	00 = Non compensated unset 05 = 5 lpm 10 = 10 lpm etc. 45 lpm max. for fixed (increments 1 lpm) 76 lpm max. for adjustable	00 = Std 0M = standard seals + override knob on solenoid valve Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Other voltages available on request. Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (350 bar max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF LB510321A0000H1A	LIFT BLOCK + ADJUSTABLE PCFC G3/4" 12VDC	210	95	12 VDC
RF LB510321A0000H2A	LIFT BLOCK + ADJUSTABLE PCFC G3/4" 24VDC	210	95	24 VDC

Lift block, G1"

Lift, check, lower functions with optional PCFC on lower

RF LB5104

Up to 350 bar - Up to 150 lpm

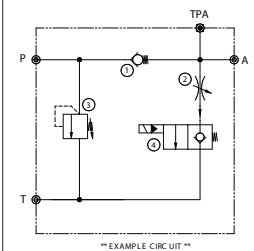
Description

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 consult factory for more information on other circuit and mounting options.

Circuit



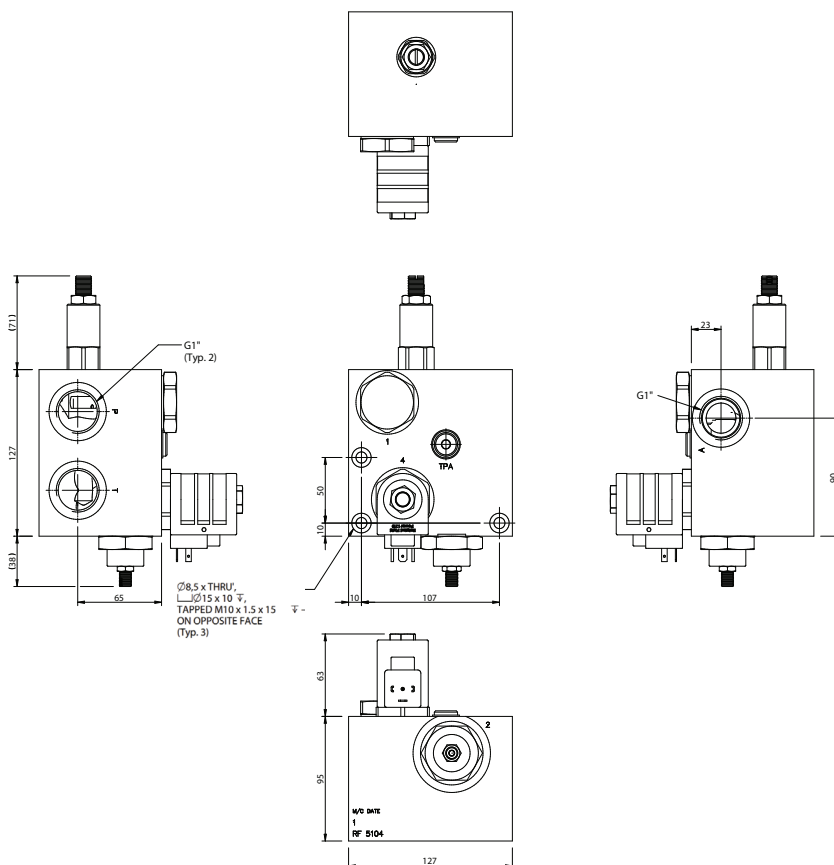
Features

- Multiple valve options available
- Excellent load holding characteristics
- Compact and efficient design,
- Available in lightweight aluminium, anodised (210bar) or High pressure (350bar) steel, zinc plated options

Specifications

Flow Range (lpm)	150
Max. Pressure (bar)	210
Relief valve reseal pressure	Nominal 90% of cracking pressure
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-RFLB5104
Weight	4.3 kg (alum) 10.5 kg (steel)

RF LB5104-01



RF LB5104

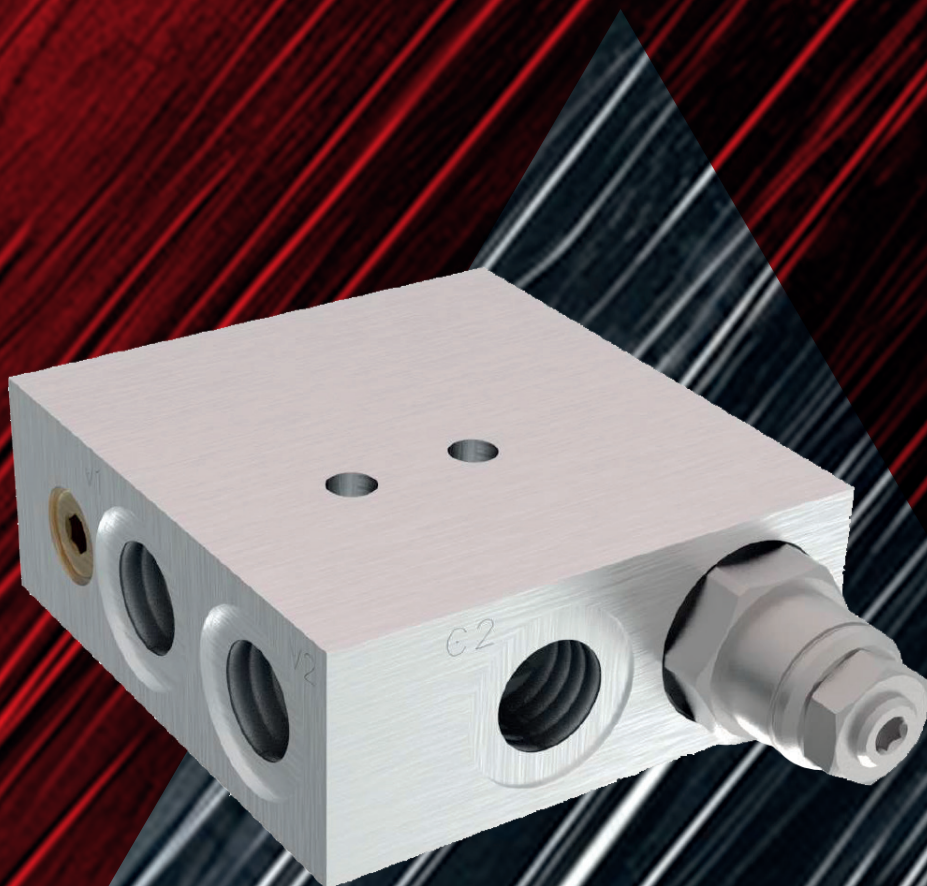
Pressure Setting	Flow Control Options	Flow Setting (Lowering)	Valve Options	Voltage	Material
21 = 210 bar** **10 bar increments **21 = std. setting Range = 40 - 350 bar	A = Adjustable, compensated B = Adjustable, compensated with adjustment knob F = Fixed setting compensated N = Adjustable non-compensated	00 = Non compensated unset 05 = 5 lpm 10 = 10 lpm etc. Compensated flows: 95 lpm max. for adjustable	00 = Std 0M = standard seals + override knob on solenoid valve Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Other voltages available on request. Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (350 bar max, zinc plated)

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF LB510421A0000H1A	LIFT BLOCK + ADJUSTABLE PCFC G1" 12VDC	210	150	12 VDC
RF LB510421A0000H2A	LIFT BLOCK + ADJUSTABLE PCFC G1" 24VDC	210	150	24 VDC

RF LB5104-01

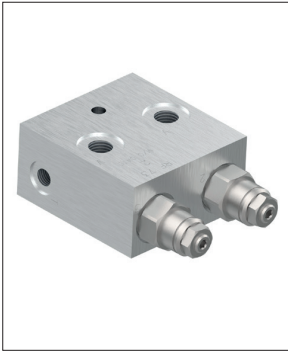
SECTION 8

LOAD CONTROLS



SECTION 8
LOAD
CONTROLS

Line Mounted	132-147
Weld Mounted	148-157
Banjo Mounted	158-174
Flange Mounted	175-177



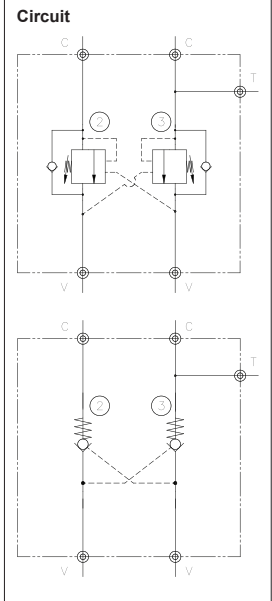
Up to 350 bar - Variable up to 30 lpm

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 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.



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

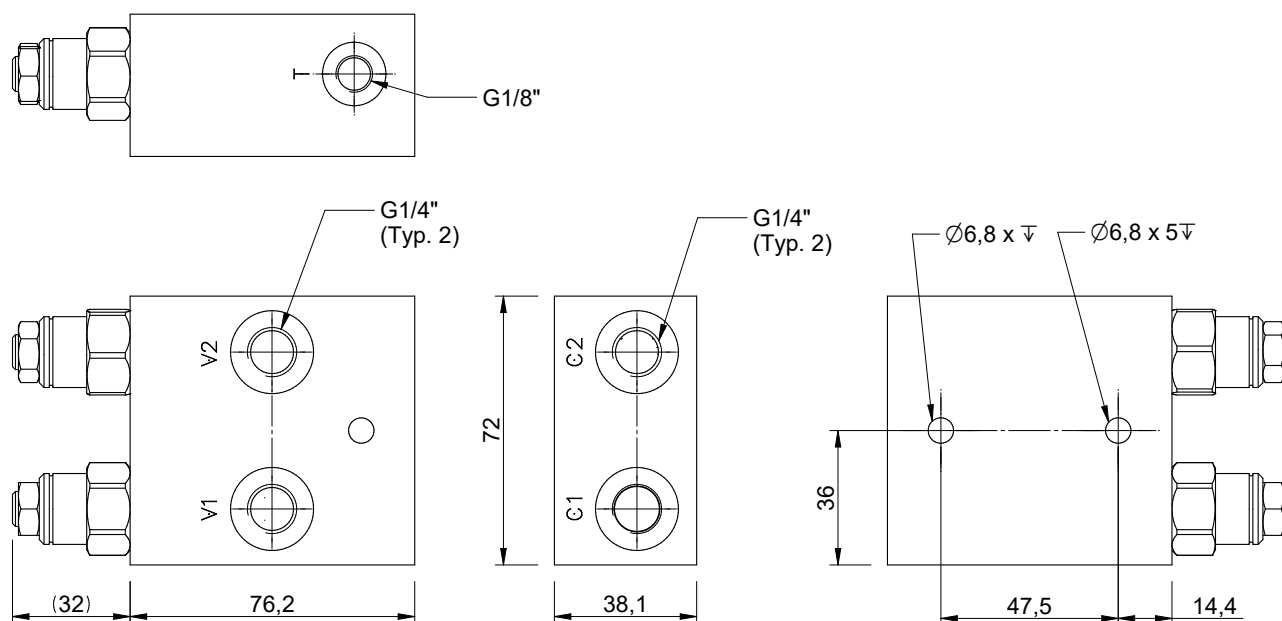
Notes:

- Please keep cylinder ratios in mind as a multiplier for return flow rates
- Consult factory for other possible valve / build options

Specifications

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)

RF LC73-01

Dimensions

Ordering Example
RF LC73

C73

	*	*	*	**	*	*		*	**	*
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**	A = Aluminium (clear anodised)		
B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**10 bar increments	B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**10 bar increments	S = Steel, clear (zinc passivate)		
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.)						

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC73A6021A6021A	DUAL OVERCENTRE ASSEMBLY, G1/4"	210	30 (Variable)
RF LC73A1021A1021A	DUAL OVERCENTRE ASSEMBLY, G1/4"	210	30 (Variable)

RF LC73-01

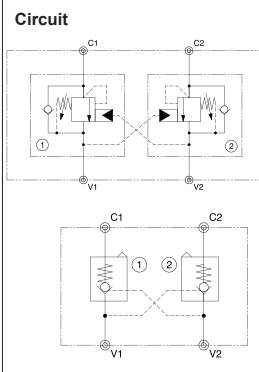


Up to 350 bar - Up to 60 lpm

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.



Features

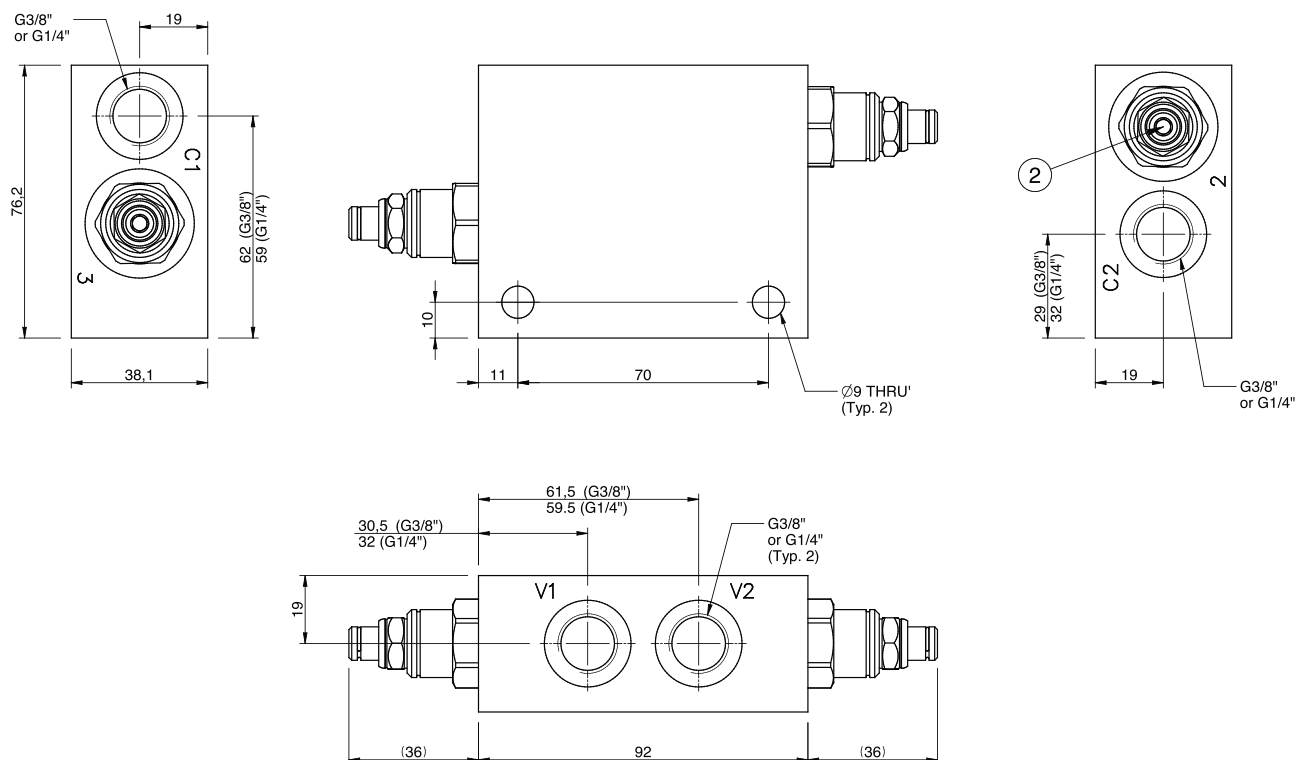
- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting
- Other body configurations are available

Notes:

- Please keep cylinder ratios in mind as a multiplier for return flow rates
- Consult factory for other possible valve / build options

Features

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**	A = 3:1 overcentre (std.)	1 = 15 lpm	0 = Std	21 = 210 bar**	A = G1/4"	A = Aluminium (clear anodised)		
B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**10 bar increments	B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**10 bar increments	B = G3/8"	S = Steel, clear (zinc passivate)		
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.)			**Settings only apply to overcentre valves	D = 3:1 overcentre (atmos. vent.)			**Settings only apply to overcentre valves				
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.)							

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC414A1021A1021BS	DUAL OVERCENTRE ASSEMBLY, G3/8"	350	60
RF LC414A6021A6021BS	DUAL OVERCENTRE ASSEMBLY, G3/8"	350	60

RF LC414-01

210 bar - 60 lpm

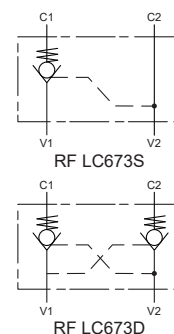
Description

These valves are pilot operated check valves which can be used for locking both double and single acting actuators in position. The typical 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 works 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 leakage is critical.

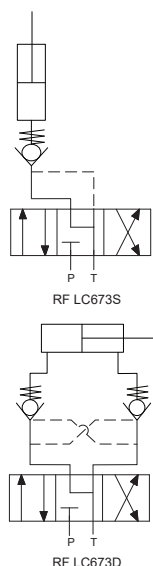
Symbol



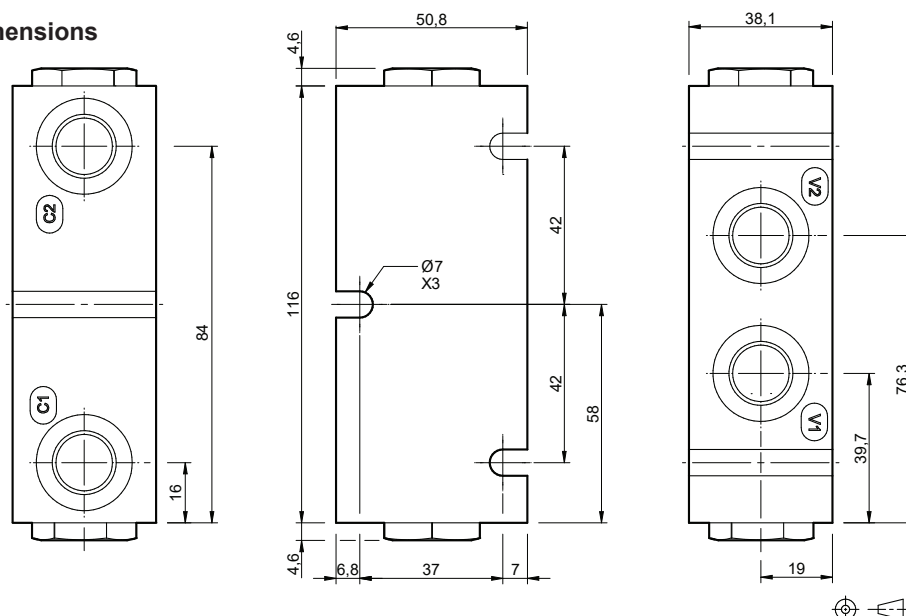
Specifications

Size (G)	3/8"	Operating Temp.	-40 to 120°C
Nom. Flow (lpm)	60	Pilot Ratio	4:1
Max. Pressure (bar)	210	Body Material	Aluminium
Hydraulic Oil	General purpose hydraulic fluid	Valve Characteristics	See data sheet D-DECVA
Viscosity Range	3 to 640 cSt	Weight	0.7 kg

Typical Schematic



Dimensions



Ordering Example

RF LC673	*	**
Valve Type		Sealed Pilot Piston
S = Single		Omit if not required
D = Double		SP = Sealed Piston

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC673D	DOUBLE PILOT OPERATED CHECK VALVE G3/8"	210	60

RF LC673-01



240 bar - 20 lpm

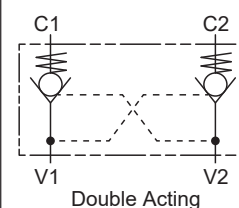
Description

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.

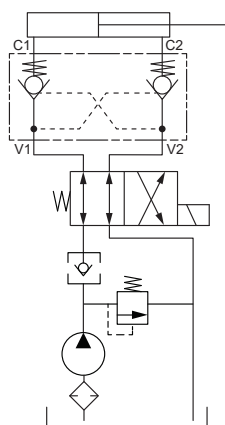
Symbol



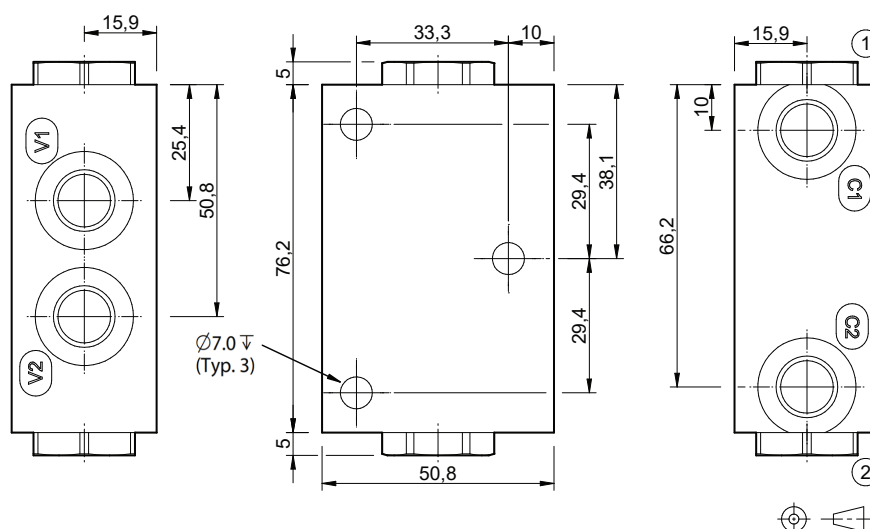
Specifications

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
Weight	0.9 kg		

Typical Schematic



Dimensions



Ordering Example

RF LC1090 **

Piston Configuration

Omit = Unsealed, Buna

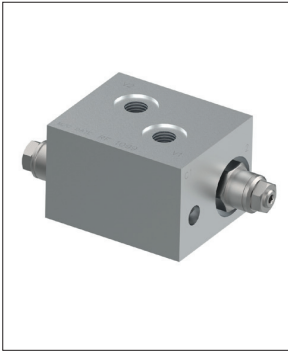
SP = Sealed piston, Buna*

* Sealed pilot piston version available. Used in low flow systems where leakage across pilot piston is important.

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1090SP	DOUBLE PILOT CHECK VALVE G1/4"	240	20

RF LC1090-01



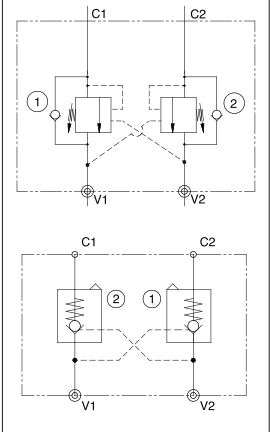
Up to 350 bar - Up to 60 lpm

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.

Circuit



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 LC4138 for G1/2" version

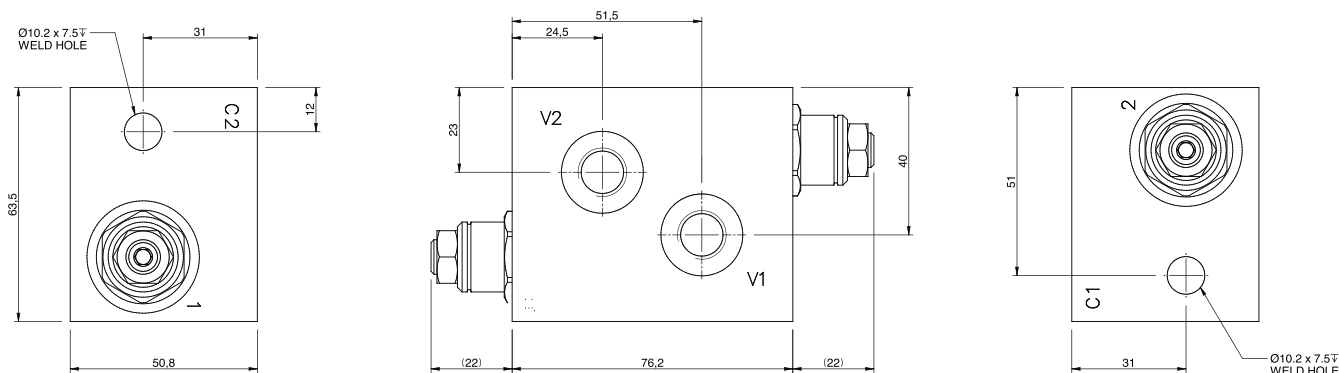
Features

- Compact, efficient design
- Easy access porting
- Other body configurations including line mount are also available
- Standard porting is G1/4" but other port sizes are available on request
- Standard weld prep port size is dia. 10mm but other port sizes are available on request

Features

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-RFLC1099
Weight	1.9 kg (steel)

Dimensions



Ordering Example

RF LC1099

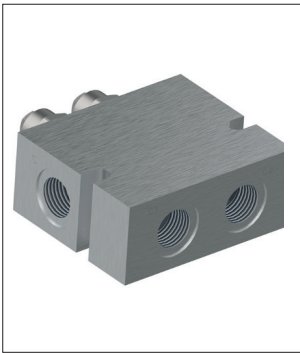
RF LC1099

	*	*	*	**		*	*	*	**		*
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	1 = 10 lpm	0 = Std	21 = 210 bar**	A = 3:1 overcentre	1 = 10 lpm	0 = Std	21 = 210 bar**	S = Steel, unplated			
B = 4.5:1 overcentre	2 = 20 lpm	Consult factory for other seal types	**10 bar increments	B = 4.5:1 overcentre	2 = 20 lpm	Consult factory for other seal types	**10 bar increments				
C = 3:1 P.O. Check, (60 lpm only)	4 = 40 lpm		**21 = std. setting	C = 3:1 P.O. Check, (60 lpm only)	4 = 40 lpm		**21 = std. setting				
D = 3:1 overcentre (atmos. vent, 60 lpm only)	6 = 60 lpm			D = 3:1 overcentre (atmos. vent, 60 lpm only)	6 = 60 lpm						
E = 4:5:1 overcentre (atmos. vent, 60 lpm only)				E = 4:5:1 overcentre (atmos. vent, 60 lpm only)							
F = 3:1 P.O. Check (atmos. vent, 60 lpm only)				F = 3:1 P.O. Check (atmos. vent, 60 lpm only)							

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1099A6021A6021S	DUAL LOAD HOLD/LOAD CONTROL ASSEMBLY	350	60

RF LC1099-01



Up to 350 bar - Up to 120 lpm

Description

A line mounted dual pilot operated check valve / dual overcentre valve or mix. Using two separate cartridges from a selection of pilot operated checks or overcentres. This valve assembly is a compact and economical solution for applications that require minimal use of connections, elbows & pipes.

Operation: In neutral, the valves are closed with each of the poppets held against 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 PO 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 will be seen in reverse. Atmospheric vented cartridge option (insensitive to back pressure) is available for systems using meter out flow control up stream of the valve assembly.

These valve assemblies can be applied to a wide range of motors and cylinder applications where load holding or metering of a load is required. Such applications include but are not limited to 1. Conveyor position and drives 2. Various outrigger / stabiliser applications 3. Articulated booms.

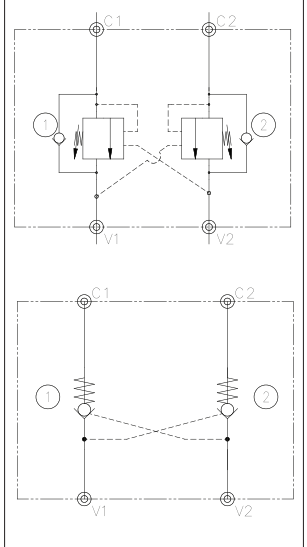
Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting
- Other body configurations are available
- For lower flows see RF LC5050

Notes:

- Please keep cylinder ratios in mind as a multiplier for return flow rates
- Consult factory for other possible valve / build options

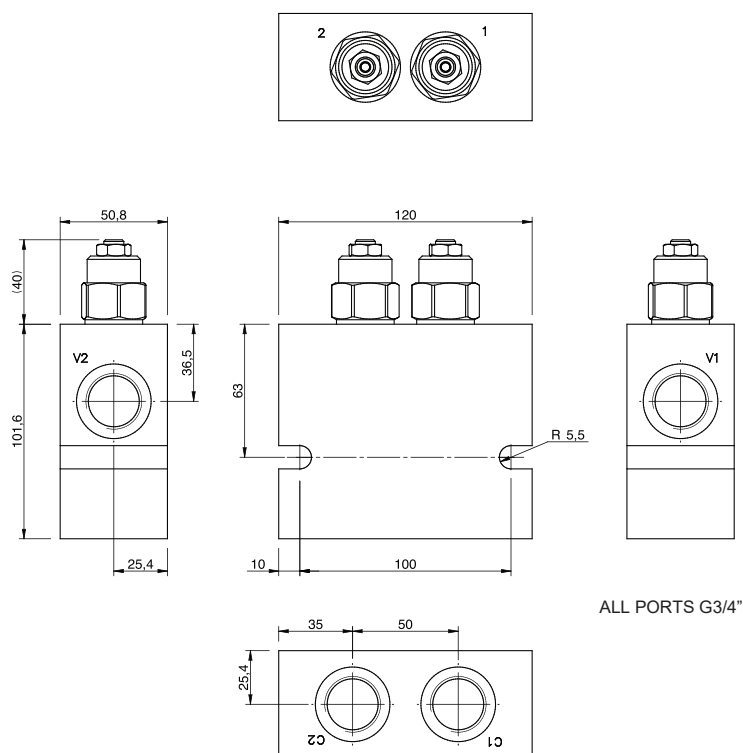
Circuit



Features

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)

RF LC1896-01

Dimensions

Ordering Example
RF LC1896

RF LC1896

	*	*	*	**	*	*	*	**	*
Valve 1 Type	Valve 1 Capacity	Valve 1 Seals	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 Seals	Valve 2 setting	Manifold Material	
A = 3:1 overcentre (std.)	1 = 20 lpm	A = Std	21 = 210 bar**	A = 3:1 overcentre (std.)	1 = 20 lpm	A = Std	21 = 210 bar**	A = Aluminium (clear anodised)	
B = 4.5:1 overcentre (std.)	4 = 80 lpm	Consult factory for other valve types	**10 bar increments	B = 4.5:1 overcentre (std.)	4 = 80 lpm	Consult factory for other valve types	**10 bar increments	S = Steel, clear (zinc passivate)	
C = 3:1 P.O. Check (std.)	6 = 120 lpm		**21 = std. setting	C = 3:1 P.O. Check (std.)	6 = 120 lpm		**21 = std. setting		
D = 3:1 overcentre (atmos. vent.)			**Settings only apply to overcentre valves	D = 3:1 overcentre (atmos. vent.)			**Settings only apply to overcentre valves		
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.)					

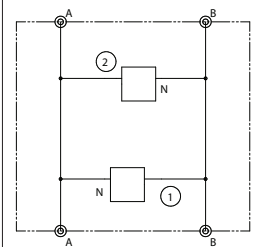


Variable bar - Variable lpm

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



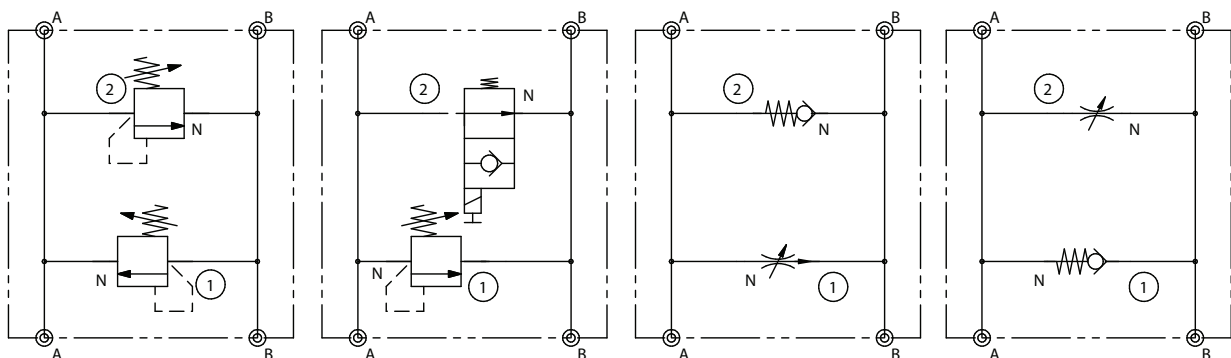
Features

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

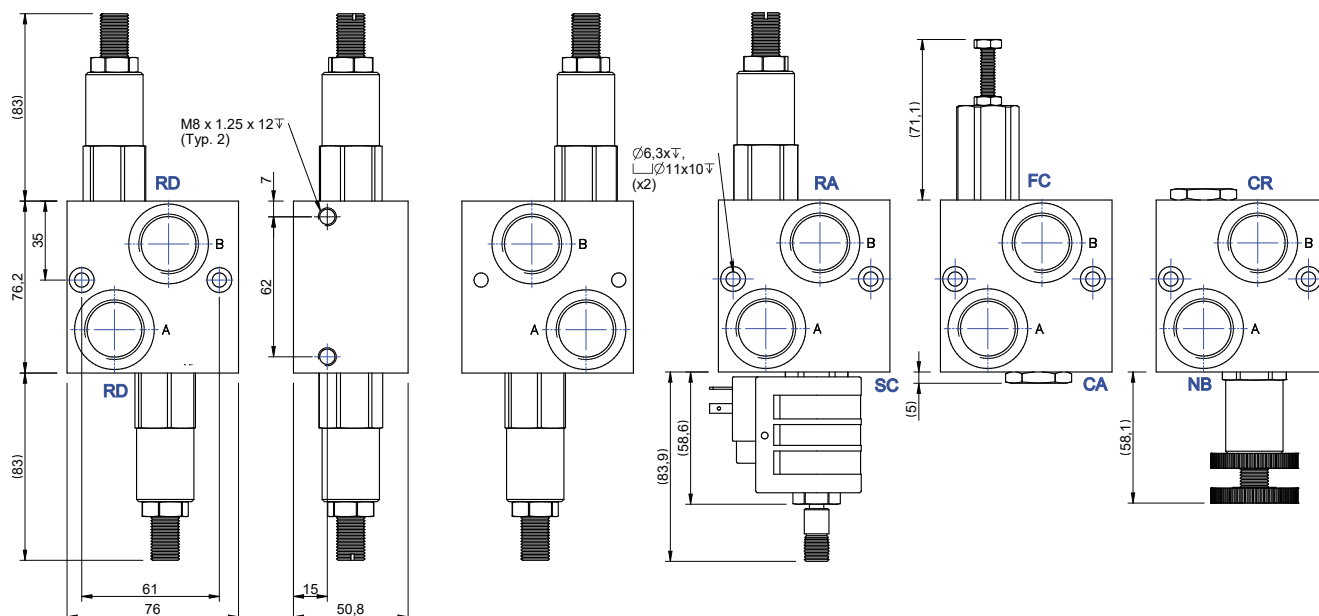
Specifications

Flow Range (lpm)	Contact factory for valve performance
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* (* Spec. Build)
Weight	VARIABLE DEPENDING ON BUILD 1.3 kg (alum) 2.4 kg (steel) (RD version)

Typical Circuits



RF LC4519-01

Dimensions

Ordering Code
RF LC4519

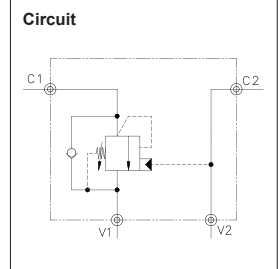
	**	*	**	**	*	**	*
Valve 1 type	Valve 1 options	Valve 1 Voltage / Pressure Range	Valve 2 type	Valve 2 options	Valve 2 Voltage / Pressure Range	Manifold Material	
RA - Direct acting relief (**RVA)	A - Nitrile	H1 - 12 Vdc (Din)	RA - Direct acting relief (**RVA)	A - Nitrile	H1 - 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)	
RD - Differential area relief (**RVD)	C - Nitrile & Knob	H2 - 24 Vdc (Din)	RD - Differential area relief (**RVD)	C - Nitrile & Knob	H2 - 24 Vdc (Din)	S = Steel (zinc, clear passivate)	
CA - Direct acting check (**CVA)	E - Nitrile, o/ride, detent	D1 - 12 Vdc (Deutsch)	CA - Direct acting check (**CVA)	E - Nitrile, o/ride, detent	D1 - 12 Vdc (Deutsch)		
CC - Direct acting check, ball (**CVC)	For further options see specific valve data sheet	D2 - 24 Vdc (Deutsch)	CC - Direct acting check, ball (**CVC)	For further options see specific valve data sheet	D2 - 24 Vdc (Deutsch)		
CR - Reverse flow check (**CVR)	Consult factory for other seal types	05 - 7 to 34 bar	CR - Reverse flow check (**CVR)	Consult factory for other seal types	05 - 7 to 34 bar		
SA - 2 way N.C. poppet (**S2A)		15 - 34 to 103 bar	SA - 2 way N.C. poppet (**S2A)		15 - 34 to 103 bar		
SB - 2 way N.C. poppet (**S2B)		30 - 103 to 207 bar	SB - 2 way N.C. poppet (**S2B)		30 - 103 to 207 bar		
SC - 2 way N.O. poppet (**S2C)		For further options see specific valve data sheet	SC - 2 way N.O. poppet (**S2C)		For further options see specific valve data sheet		
SD - 2 way N.O. poppet (**S2D)		Other terminations available on request. Does not include connector.	SD - 2 way N.O. poppet (**S2D)		Other terminations available on request. Does not include connector.		
NA - Adj. flow con-trol, fine adj. (**NVA)			NA - Adj. flow con-trol, fine adj. (**NVA)				
NB - Adj. flow control, std. adj. (**NVB)			NB - Adj. flow control, std. adj. (**NVB)				
FA - Adj. flow con-trol, pres. comp. (**FCA)			FA - Adj. flow con-trol, pres. comp. (**FCA)				
FC - Adj. flow con-trol, pres. comp. (**FCC)			FC - Adj. flow con-trol, pres. comp. (**FCC)				
For valve performance see data sheet.			For valve performance see data sheet.				



Up to 350 bar max - Up to 60 lpm max

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

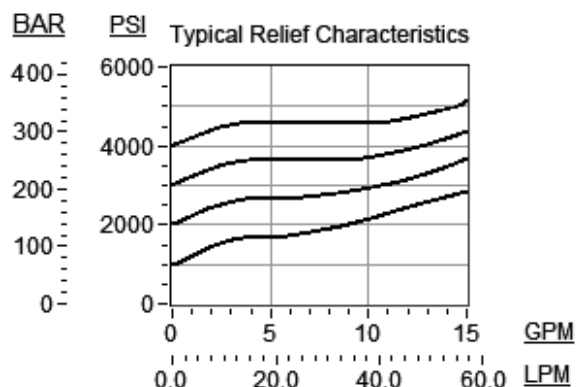
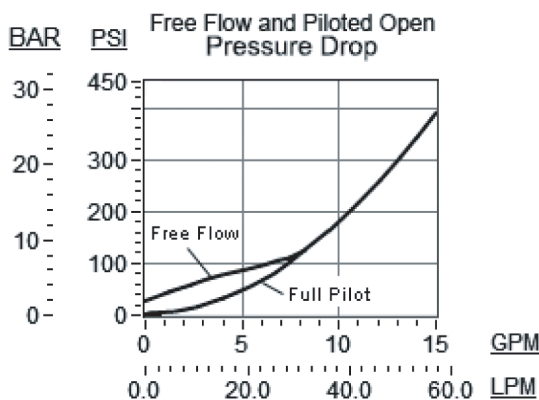
Features

- Multi-configuration capability
- G3/8" Ports but other sizes available on request
- Ideal for multiple applications

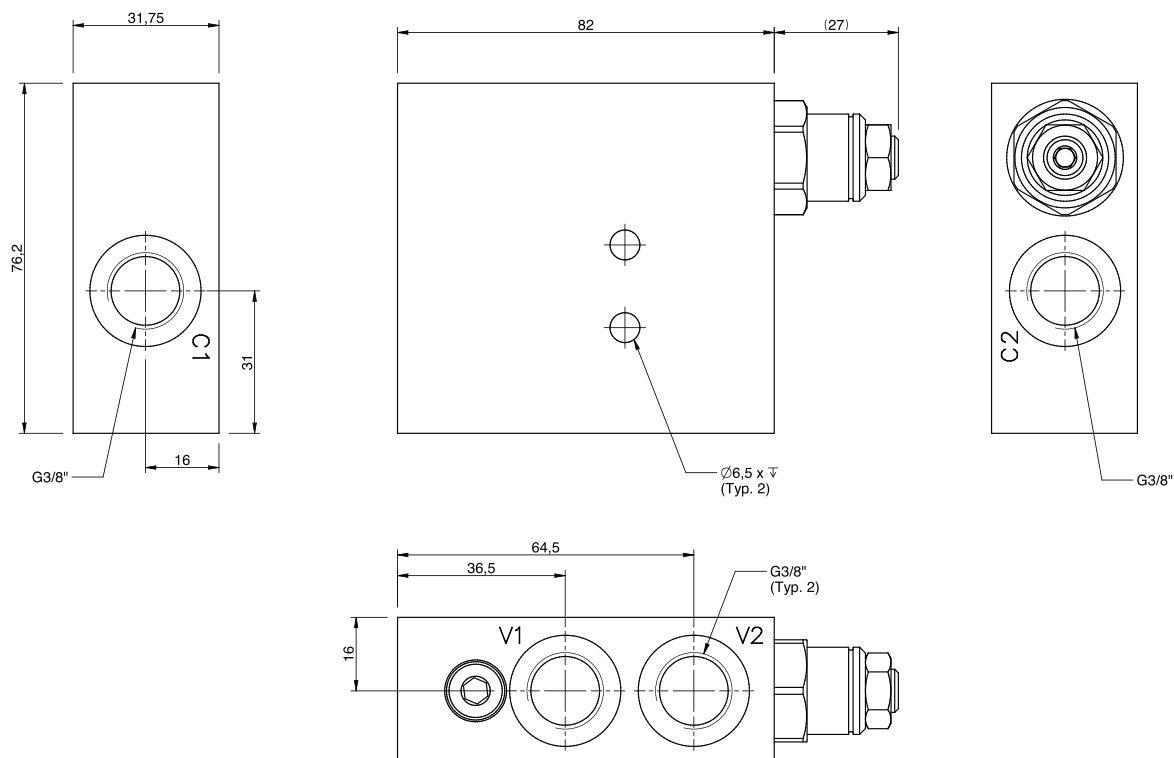
Specifications

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-RFLC4872
Weight	0.62 kg (alum) 1.41 kg (steel)

Typical Performance curves Overcentres (3:1 & 4.5:1 ratio)



RF-LC4872-01

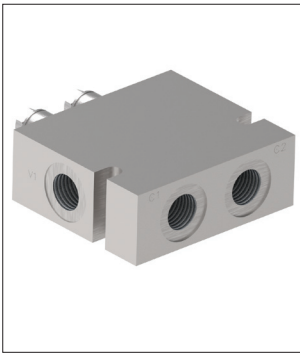
Dimensions

Ordering Example
RF LC4872

Valve 1 Type	Valve 1 Capacity	Valve 1 setting	Manifold Material
A = 3:1 overcentre	1 = 10 lpm	21 = 210 bar**	S = Steel (Zinc plated)
B = 4.5:1 overcentre	2 = 20 lpm	**10 bar increments	
C = 3:1 P.O. Check (60 lpm only)	4 = 40 lpm	** 21 = std. setting	
D = 3:1 overcentre (atmos. vent, 60 lpm only)	6 = 60 lpm		
E = 4.5:1 overcentre (atmos. vent, 60 lpm only)			
F = 3:1 P.O. Check (atmos. vent, 60 lpm only)			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC4872A421S	SINGLE OVERCENTRE ASSEMBLY 3:1 G1/4	350	40

RF-LC4872-01



Up to 350 bar - Up to 60 lpm

Description

A line mounted dual pilot operated check valve / dual overcentre valve or mix. Using two separate cartridges from a selection of pilot operated checks or overcentres. This valve assembly is a compact and economical solution for applications that require minimal use of connections, elbows & pipes.

Operation: In neutral, the valves are closed with each of the poppets held against 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 PO 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 will be seen in reverse. Atmospheric vented cartridge option (insensitive to back pressure) is available for systems using meter out flow control up stream of the valve assembly.

These valve assemblies can be applied to a wide range of motors and cylinder applications where load holding or metering of a load is required. Such applications include but are not limited to 1. Conveyor position and drives 2. Various outrigger / stabiliser applications 3. Articulated booms.

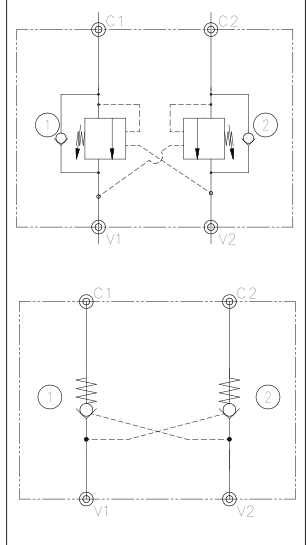
Features

- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, efficient design
- Easy access, in-line porting
- Uses standard T-11A cartridge valves
- For Higher flows see RF LC1896

Notes:

- Please keep cylinder ratios in mind as a multiplier for return flow rates
- Consult factory for other possible valve / build options

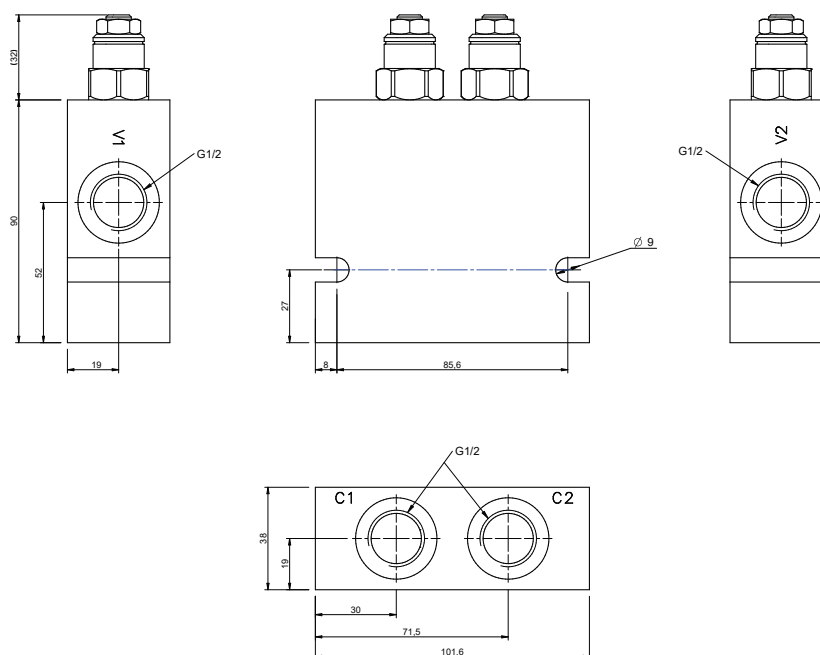
Circuit



Features

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-RFLC5050
Weight	1.1 kg (alum) 2.5 kg (steel)

RF LC5050-01

Dimensions

Ordering Example
RF LC5050

RF LC5050

		*	*	*	**	*	*	*	**	*
Valve 1 Type	Valve 1 Capacity	Valve 1 Seals	Valve 1 setting	Valve 2 Type	Valve 2 Capacity	Valve 2 Seals	Valve 2 setting	Manifold Material		
A = 3:1 overcentre	1 = 10 lpm	A = Std	21 = 210 bar**	A = 3:1 overcentre	1 = 10 lpm	A = Std	21 = 210 bar**	A = Aluminium (clear anodised)		
B = 4.5:1 overcentre	2 = 20 lpm	Consult factory for other seal types	**10 bar increments	B = 4.5:1 overcentre	2 = 20 lpm	Consult factory for other seal types	**10 bar increments	S = Steel, clear (zinc passivate)		
C = 3:1 P.O. Check	4 = 40 lpm		**21 = std. setting	C = 3:1 P.O. Check	4 = 40 lpm		**21 = std. setting			
D = 3:1 overcentre (atmos. vent.)	6 = 60 lpm		**Settings only apply to overcentre valves	D = 3:1 overcentre (atmos. vent.)	6 = 60 lpm		**Settings only apply to overcentre valves			
E = 5:1 overcentre (atmos. vent.)				E = 5:1 overcentre (atmos. vent.)						
F = 3:1 P.O. Check (atmos. vent. 60lpm)				F = 3:1 P.O. Check (atmos. vent. 60lpm)						

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC5050A6A21A6A21A	DUAL OVERCENTRE ASSEMBLY, 3:1 G1/2"	210	60
RF LC5050B6A21B6A21A	DUAL OVERCENTRE ASSEMBLY, 4.5:1 G1/2"	210	60
RF LC5050C6A21C6A21A	DUAL PO CHECK ASSEMBLY, 3:1 G1/2"	210	60

RF LC5050-01



Up to 350 bar max - Variable up to 60 lpm

Description

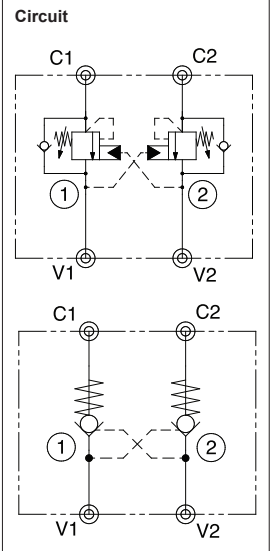
A versatile manifold control system that gives the options of dual pilot operated check valves, dual overcentre valves or a mixture of both. Versatility is further extended with a wide range of interchangeable valves with options including but not limited to flow capacity, pressure setting, pilot ratio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



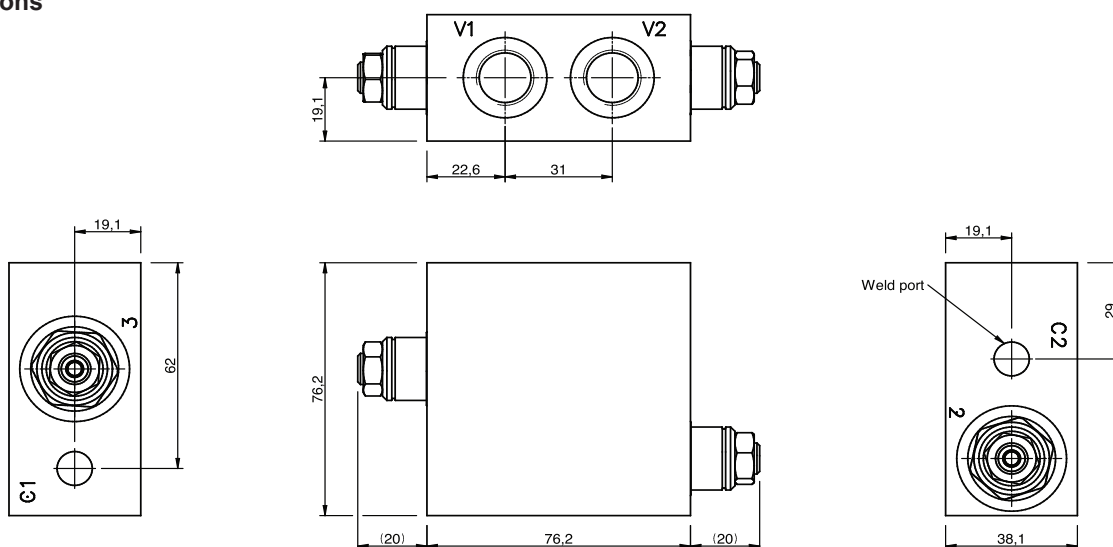
Features

- Steel (unplated)
- 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

Specifications

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)

RF LC412-01

Dimensions

Ordering Example
RF LC412

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 overcentre	1 = 15 lpm	A = Std	21 = 210 bar**	A = 3:1 overcentre	1 = 15 lpm	A = Std	21 = 210 bar**	S = Steel, unplated	
W = 8mm	B = 4.5:1 overcentre	4 = 40 lpm	Consult Factory for other valve types	**10 bar increments **21 = std. setting **Settings only apply to overcentre valves	B = 4.5:1 overcentre	4 = 40 lpm	Consult Factory for other valve types	**10 bar increments **21 = std. setting		
X = 10mm (Std)	C = 3:1 P.O. Check	6 = 60 lpm			C = 3:1 P.O. Check	6 = 60 lpm		**21 = std. setting		
Y = 12mm	D = 3:1 overcentre (atmos. vent.)				D = 3:1 overcentre (atmos. vent.)			**Settings only apply to overcentre valves		
Z = 16mm	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.)				F = 3:1 P.O. Check (atmos. vent.)					

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC412XA6A21A6A21S	DUAL OVERCENTRE ASSEMBLY CYLINDER MOUNT. WELD ON	350	60 (Variable)

RF-LC412-01

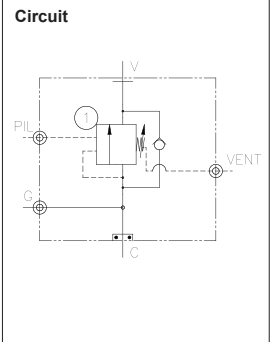


Up to 350 bar - Up to 60 lpm

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

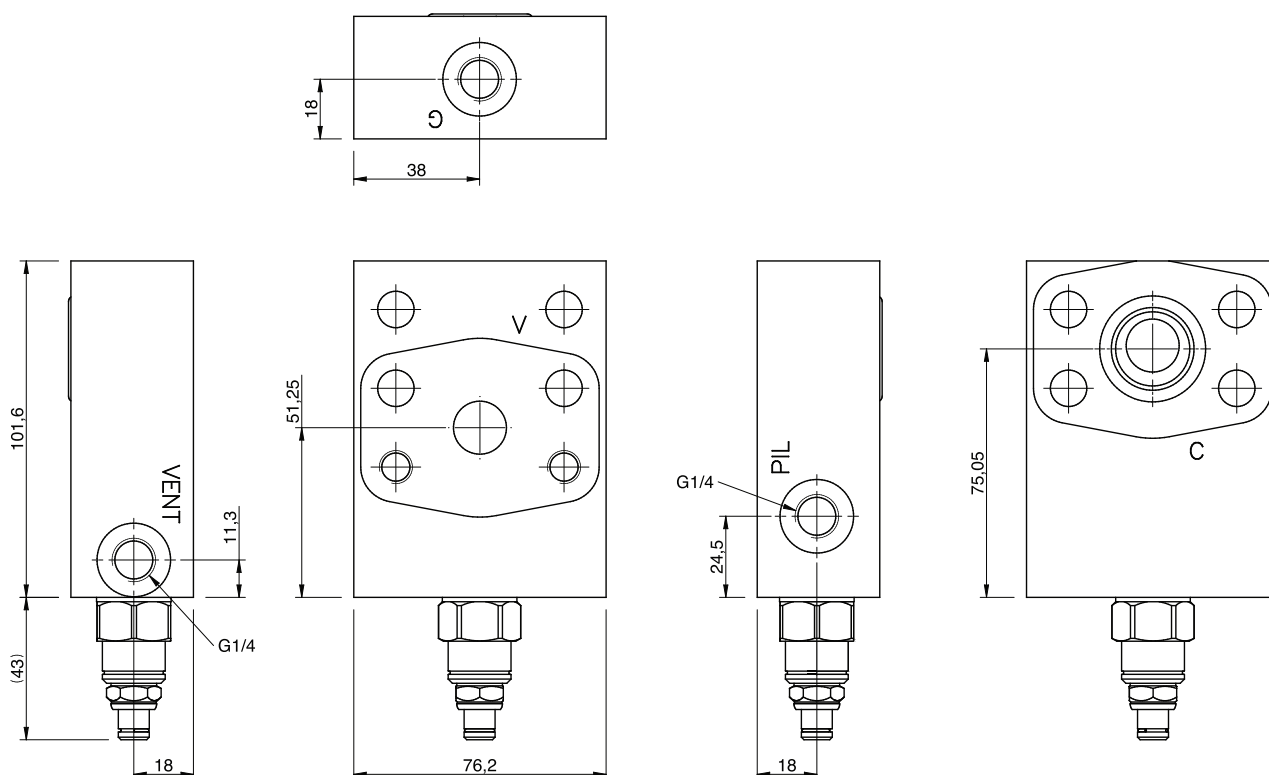
Features

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

Specifications

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-RFLC1271
Weight	2.1 kg (steel)

Dimensions



Ordering Example

RF LC1271

	*	*	*	**	*
Valve Type	Valve Capacity	Valve Options	Valve Setting	Coil Termination	
A = 3:1 overcentre B = 5:1 overcentre C = 3:1 P.O. Check	6 = 60 lpm	0 = Std Consult factory for other seal types	21 = 210 bar** **10 bar increments **21 = std. setting	S = Steel, clear (zinc passivate)	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1271A6021S	SINGLE OVERCENTRE SAE 6000	350	60

RF LC1271-01

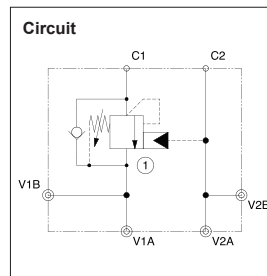


Up to 350 bar max - Variable Up to 40 lpm

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

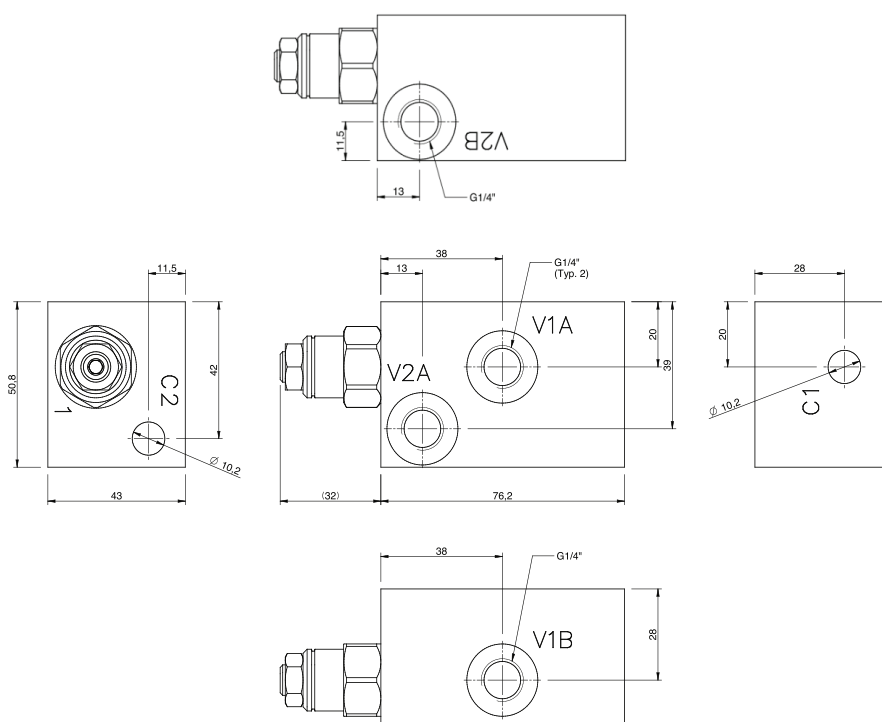
- Steel (unplated)
- Compact, efficient design
- Easy access porting
- Dia. 10mm weld prep.ports
- Other body configurations are available on request
- G1/4" ports

Specifications

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)

RF LC1510-01

Dimensions



Ordering Example

RF LC1510

The diagram illustrates the components of a valve specification, centered around a valve symbol. The symbol consists of a circle with a vertical line through it, and a horizontal line across the middle. The top of the circle is divided into four segments, each containing a symbol: *, *, **, and **. The bottom of the circle is divided into two segments, each containing a symbol: * and *.

The specifications are organized into five categories, each represented by a box connected to the central symbol:

- Valve Type**:
 - A** = 3:1 overcentre (std.)
 - B** = 4.5:1 overcentre (std.)
 - C** = 3:1 P.O. Check (std.) *
 - D** = 4.5:1 overcentre (atmos. vent.) **
 - E** = 7:1 overcentre (atmos. vent.) **
 - F** = 3:1 P.O. Check (atmos. vent.) *
- Valve Capacity**:
 - 1** = 10 lpm
 - 2** = 20 lpm
 - 3** = 30 lpm **
 - 4** = 40 lpm *
 - ** Only Valve flow avail. for type D & E.
 - * Valve capacity
- Valve options**:
 - 00** = Std Seals
 - Consult factory for other seal types
- Valve settings**:
 - 21** = 210 bar **
 - **** 10 bar incremental
 - *** **21** = std. setting
 - Min. setting 70 bar.
 - ** Settings only apply to overcentre valves
- Manifold Material**:
 - S** = Steel, unplated

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1510A40021S	SINGLE LOAD HOLD/LOAD CONTROL ASSEMBLY	350	40



Up to 240 bar

Description

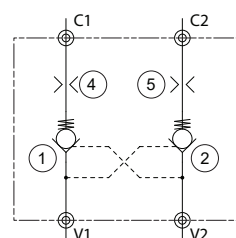
These valves are used mainly in circuits where a double acting hydraulic cylinder is required to be locked in a load holding position when the pump flow is off.

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.

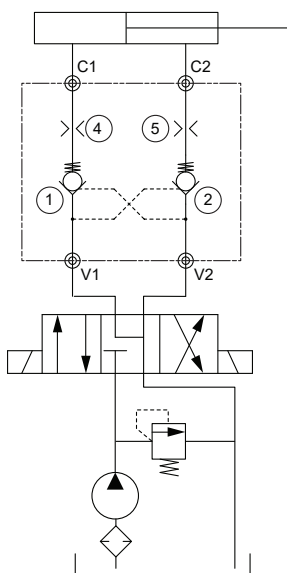
Schematic



Features

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

Typical Schematic

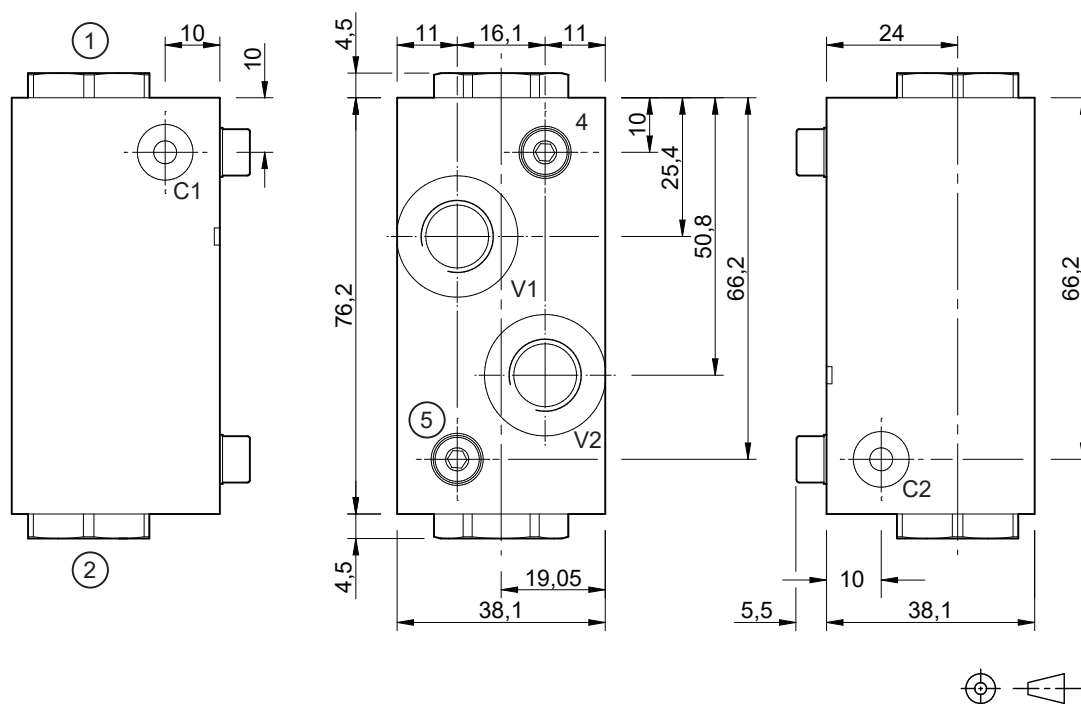


Specifications

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	
Weight	0.8 kg	

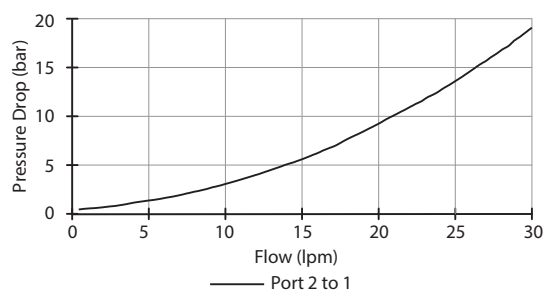
RF LC2557-01

Dimensions



Valve Performance (D-MACVA)

32 cSc / 38°C.



Ordering Example

RF LC2557 ***

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC2557	DUAL PO CHECK WELD ON 6.7:1	240	19

RFLC2557-01

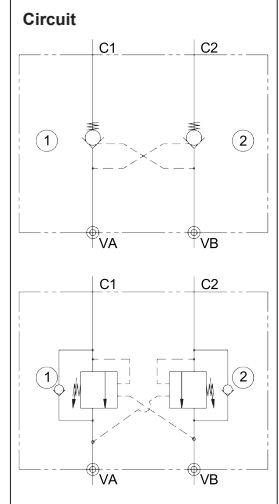


Up to 350 bar - Up to 60 lpm

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 LC1099 for G1/4" version

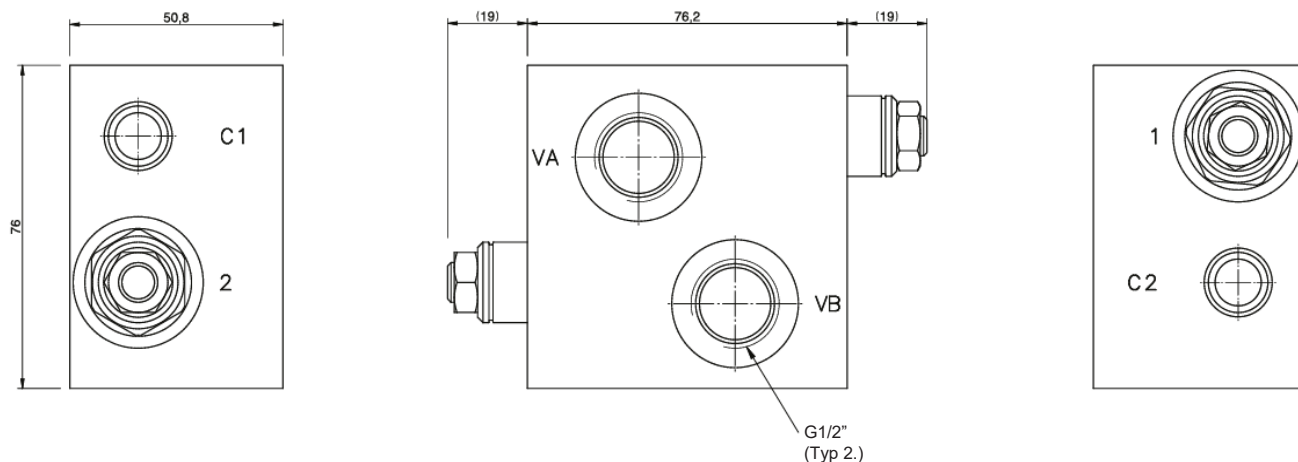
Features

- 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

Specifications

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

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	Consult factory for other seal types	**10 bar increments	B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**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.)					

Standard Options

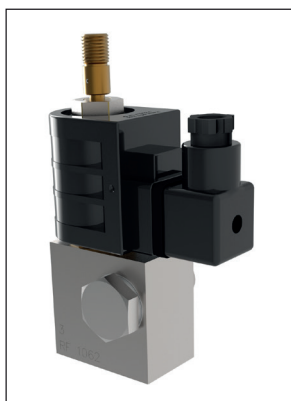
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC4138C6000C60004	DUAL PO CHECK, WELD ON 3:1	350	60
RF LC4138A6021A60214	DUAL OVERCENTRE WELD ON 3:1	350	60

RF LC4138-01

G3/8" Cylinder Lock Valve

Banjo Mounted, Solenoid Operated Normally Closed Poppet Valve

RF LC1062

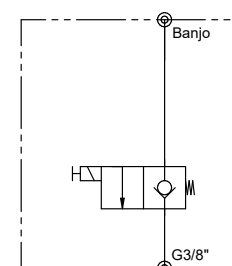


Up to 240 bar - Up to 55 lpm

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 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.

Typical Symbol



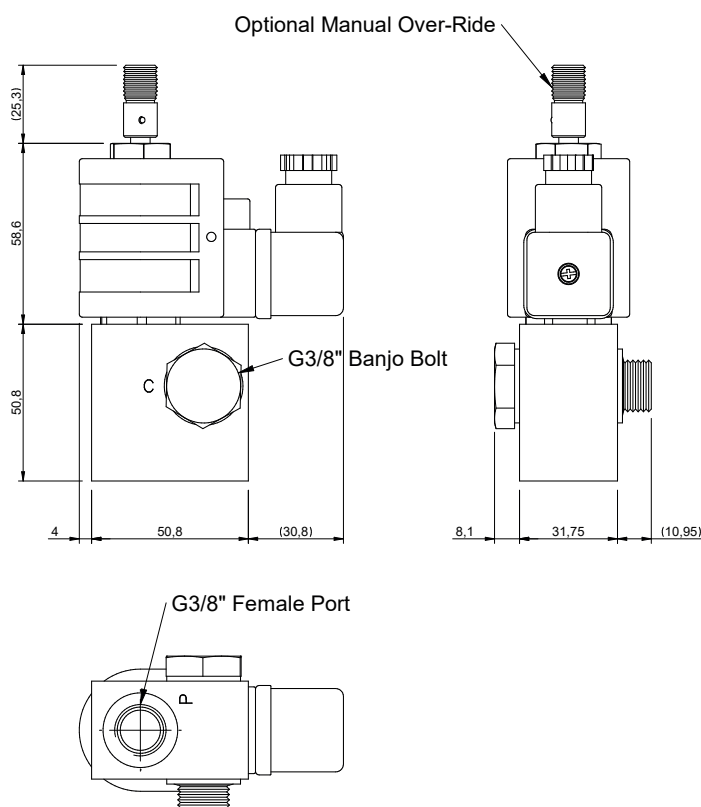
Features

- 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)	55
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)

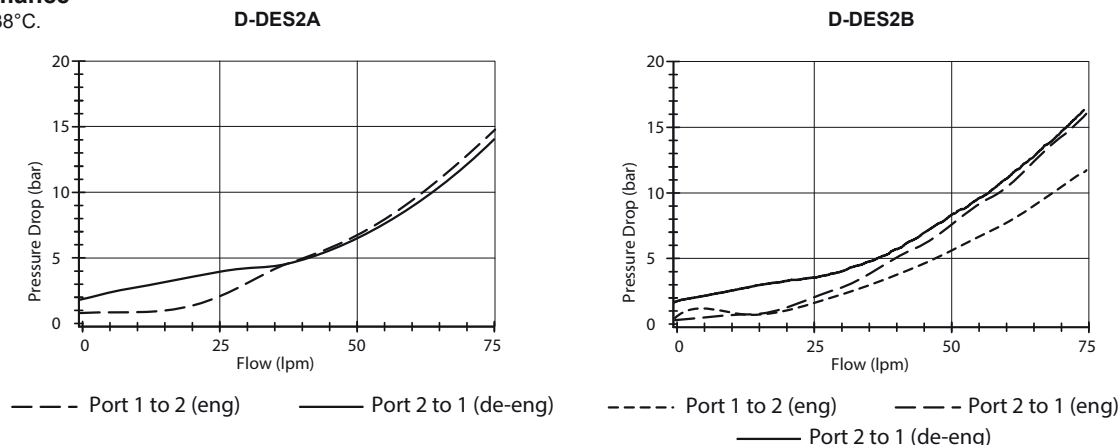
Dimensions



RF LC1062-01

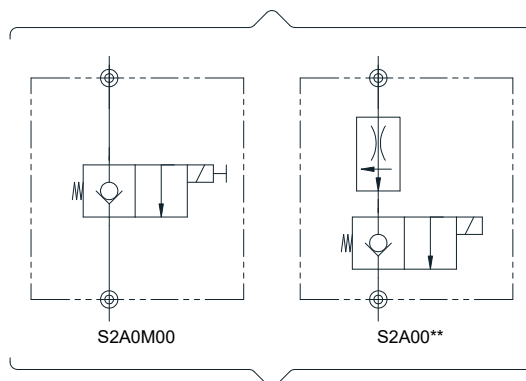
Performance

32 cSt / 38°C.



Circuit Examples

G3/8" Banjo



G3/8" Banjo Female

Ordering Example

RF LC1062

* ** ** ** *

Valve Type	Override	Flow Rate M1-V1	Voltage	Manifold Material
A = S2A (restrictive flow de-energised)	00 = No override	00 = Standard Banjo, No pressure compensated flow control	H1 = 12 Vdc (Din)	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**	H2 = 24 Vdc (Din)	S = Steel (zinc plated, available on request)
Other valves available on request. See individual data sheets	Other overrides available on request. Override availability dependant on valve selection.	FC = Adj. banjo bolt flow control	D1 = 12 Vdc (Deutsch)	
		XX = No banjo bolt & seals	D2 = 24 Vdc (Deutsch)	
		**1 lpm increments. Up to 10 lpm max.	*Other voltages available on request. Does not include connector.	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF LC1062A0000H1A	BANJO MTD CYLINDER LOCK VALVE	210	55	12 VDC
RF LC1062A0000H2A	BANJO MTD CYLINDER LOCK VALVE	210	55	24 VDC
RF LC1062A0M00H1A	BANJO MTD CYLINDER LOCK VALVE WITH MANUAL OVERRIDE	210	55	12 VDC
RF LC1062A0M00H2A	BANJO MTD CYLINDER LOCK VALVE WITH MANUAL OVERRIDE	210	55	24 VDC

RF LC1062-01

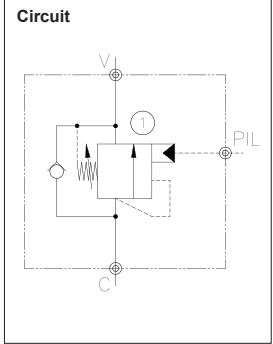


Up to 350 bar - Up to 60 lpm

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:

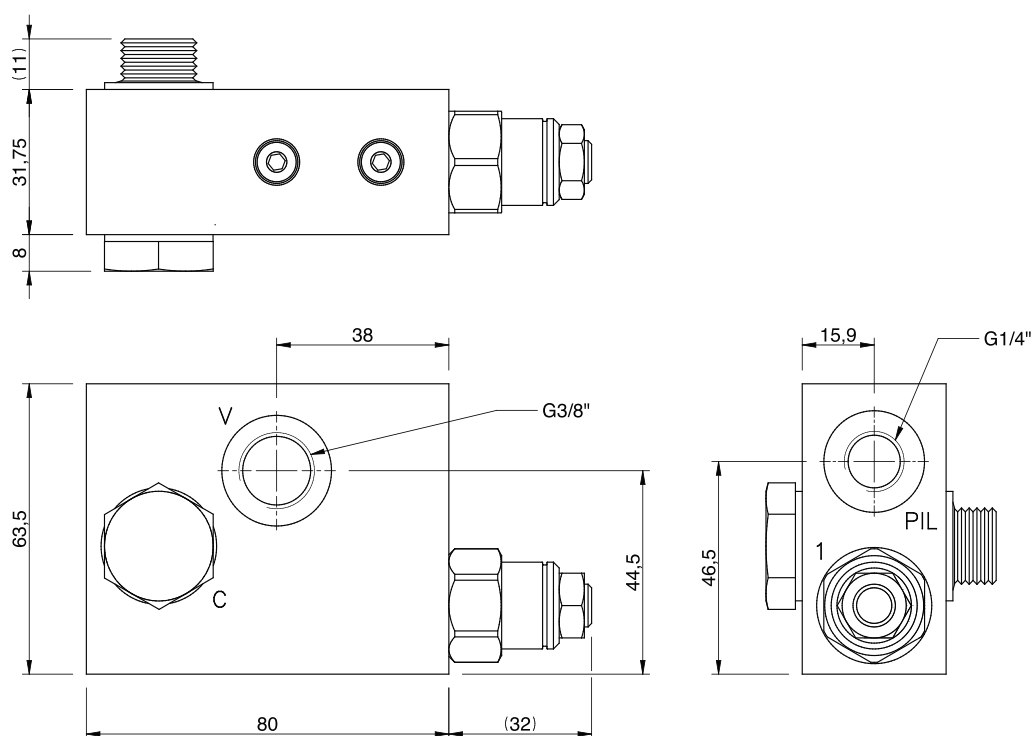
- (i) Please keep cylinder ratios in mind as a multiplier for return flow rates
- (ii) Consult factory for other possible valve / build options

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.

Specifications

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**	A = Aluminium (210 bar max, clear anodised)
B = 4.5:1 overcentre (std.)	4 = 40 lpm	Consult factory for other seal types	**10 bar increments	S = Steel, clear (350 bar max, zinc passivate)
C = 3:1 P.O. Check (std.)	6 = 60 lpm		**21 = std. setting	
D = 3:1 overcentre (atmos. vent.)				
E = 5:1 overcentre (atmos. vent.)				
F = 3:1 P.O. Check (atmos. vent.)				

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1217A6021A	BANJO MOUNT SINGLE OVERCENTRE	210	60

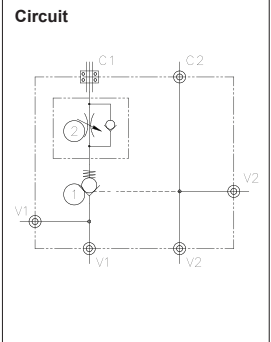


Up to 240 bar - Up to 23 lpm

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

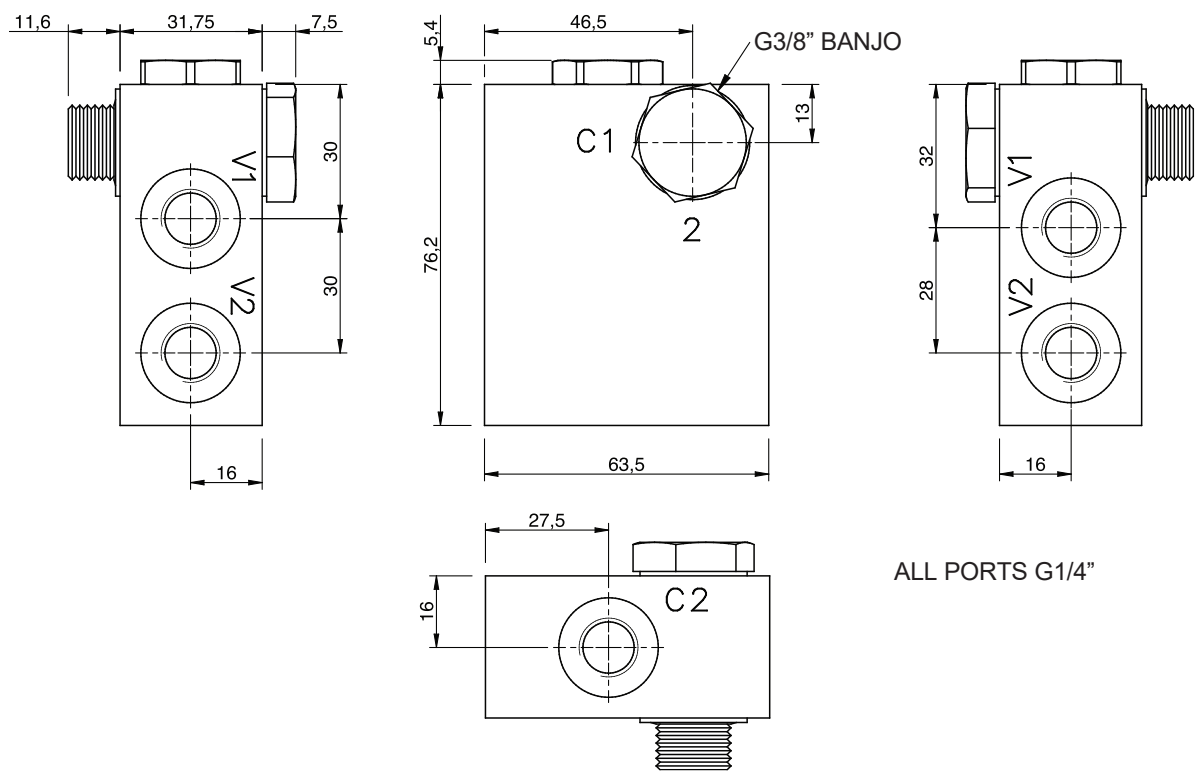
- Aluminium (anodised) or Steel (zinc plated) material options
- Compact, lightweight, efficient design
- Easy access porting, with multiple options
- Supplied with banjo bolt and bonded seal washers for banjo bolt.

Specifications

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)

RF LC1242-01

Dimensions



Ordering Example

RF LC1242	-	**	*
		Valve 1 options	Manifold Material
		00 = Std nitrile seals + standard banjo bolt	A = Aluminium (clear anodised)
		0F = Std nitrile seals + banjo bolt flow control	S = Steel, clear (zinc passivate)
		Consult factory for other seal types	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC124200A	BANJO MOUNT SINGLE PILOT OPERATED CHECK	210	23



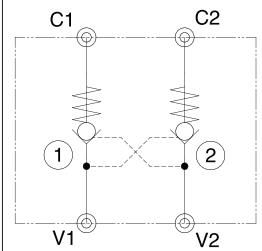
Variable, 240 bar max - 57 lpm max

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.

Circuit



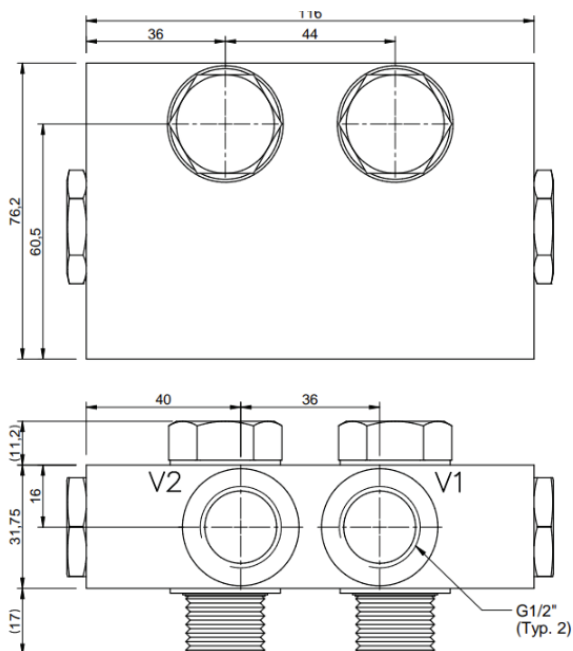
Notes:

- (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 banjos & seal washers.

Dimensions



Specifications

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)

Ordering Example

RF LC1563

**

*

Valve 1 options

00 = Std nitrile seals + standard banjo bolt
Consult factory for other seal types

Manifold Material

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC156300A	BANJO MOUNTED DUAL PO CHECK G1/2"	210	60

RF LC1563-01



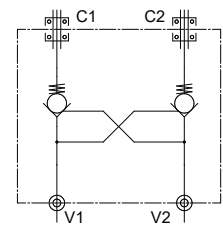
Up to 350 bar - Up to 40 lpm

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.

Circuit



Notes:

- (i) Please keep cylinder ratios in mind as a multiplier for return flow rates
- (ii) Consult factory for other possible valve / build options

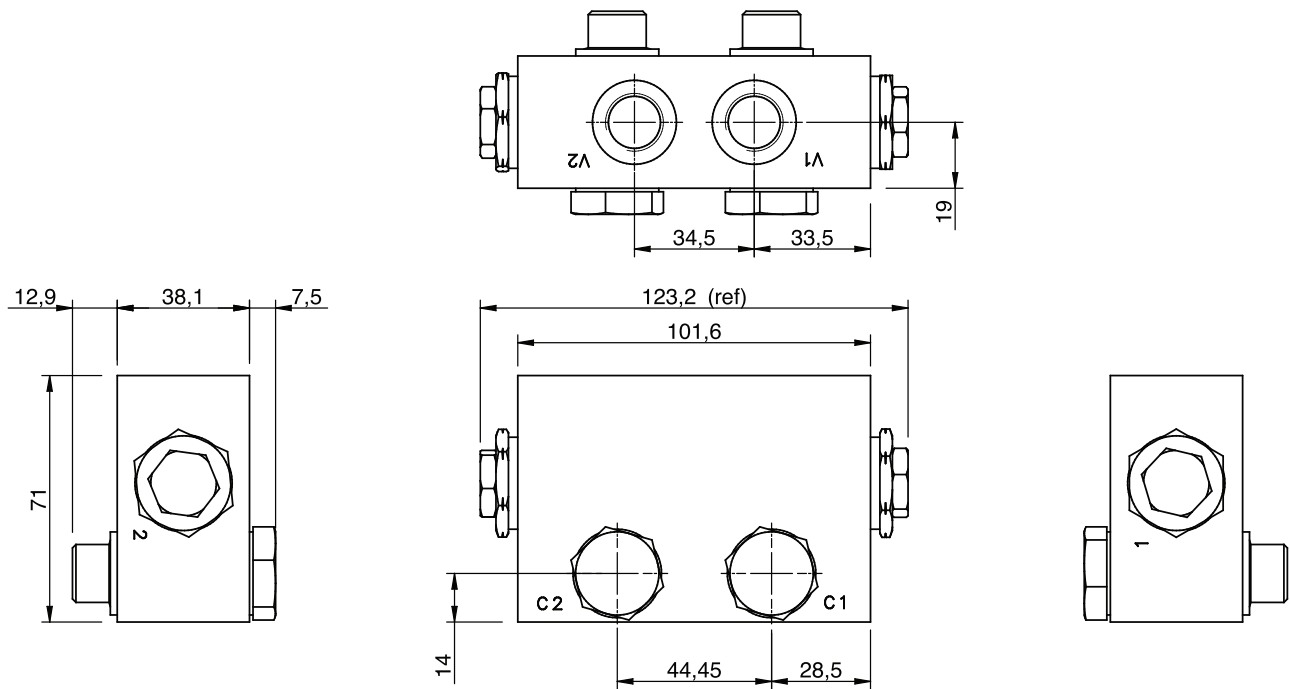
Features

- 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.

Specifications

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-RFLC1952
Weight	1.1 kg (alum) 2.1 kg (steel)

Dimensions



Ordering Example

RF LC1952

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*

Valve 1 options

00 = Std nitrile seals + standard banjo bolt

0F = Std nitrile seals + banjo bolt flow controls

Consult factory for other seal types

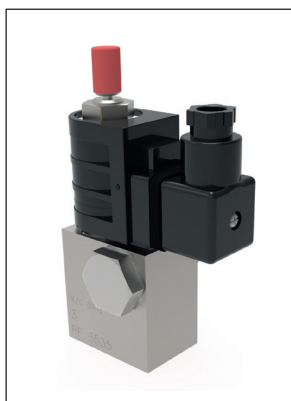
Manifold Material

A = Aluminium (210 bar max, clear anodised)

S = Steel, clear (350 bar max, zinc passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC195200A	BANJO MOUNT DUAL PO CHECK G3/8"	210	40



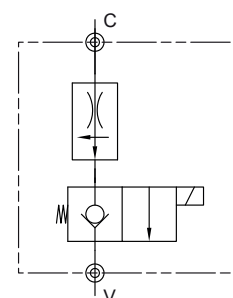
Up to 210 bar - Up to 30 lpm

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 and preventing the cylinder from being able to move back. The final part of the cycle sees the solenoid valve energised allowing the cylinder to return 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.

Typical Symbol



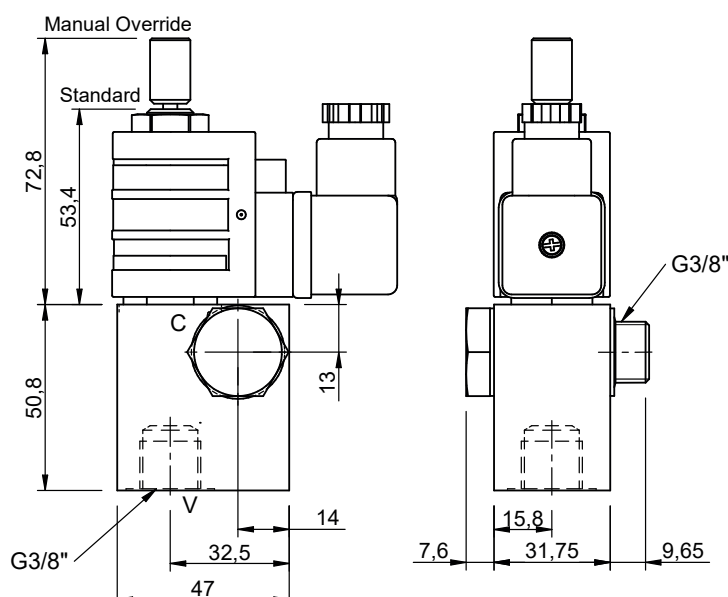
Features

- 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)	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-RFLC3535
Weight	0.9 kg (alum)

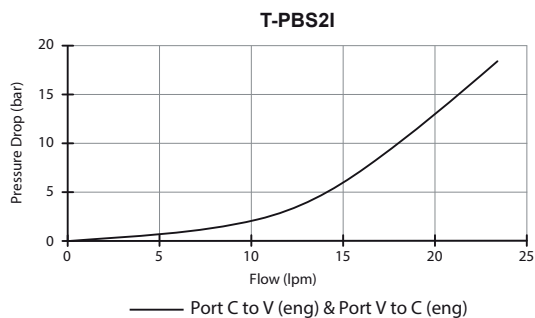
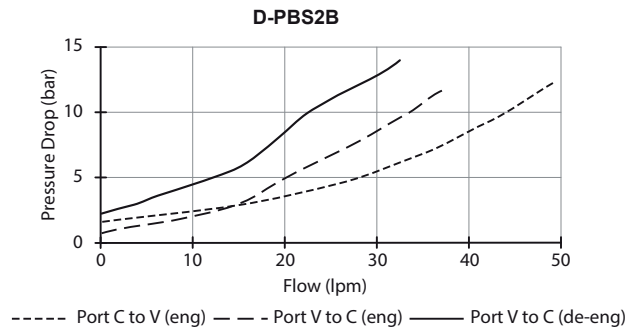
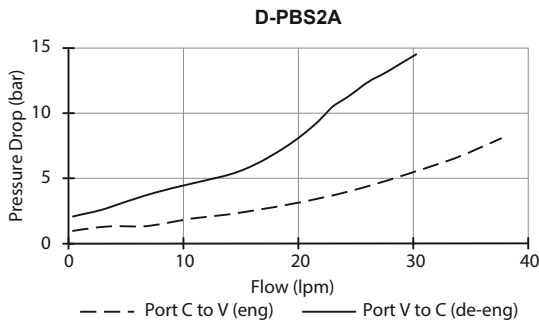
Dimensions



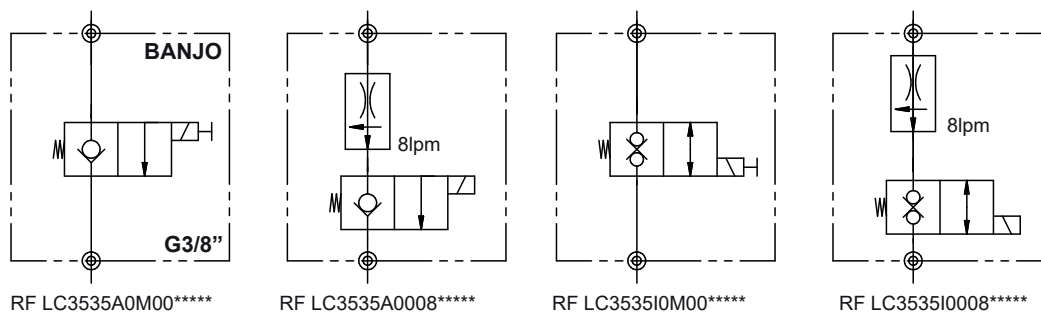
RF LC3535-01

Performance

32 cSt / 38°C.



Circuit Examples

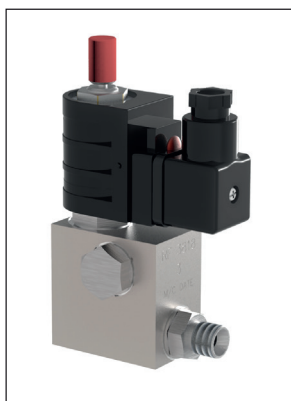


Ordering Example

RF LC3535 * ** ** ** *

Valve Type	Override	Flow Rate M1-V1	Voltage	Manifold Material
A = S2A (restrictive flow de-energised)	00 = No override	00 = Standard Banjo, No pressure compensated flow control	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
B = S2B (Rev. free flow de-energised)	0M = Pull override		H2 = 24 Vdc (Din)	S = Steel - (available on request)
I = S2I (bi-directional N.C.)	0K = Push override -S2I valves	08 = Pressure compensated flow control set at 8 lpm**	D1 = 12 Vdc (Deutsch)	
Other valves available on request. See individual data sheets	Other overrides available on request. Override availability dependant on valve selection.	XX = No banjo bolt & seals	D2 = 24 Vdc (Deutsch)	
		**1 lpm increments. Up to 10 lpm max.	*Other voltages available on request Does not include connector	

RF LC3535-01



Up to 210 bar - Up to 20 lpm

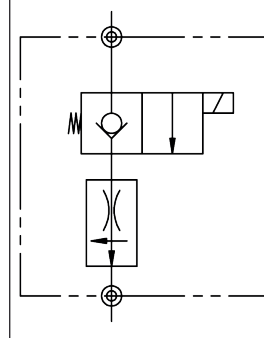
Description

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 and preventing the cylinder from being able to move back. The final part of the cycle sees the solenoid valve energised allowing the cylinder to return 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.

Typical Symbol



Features

- Aluminium body, clear anodised.
- G1/4" ports
- Optional fixed setting pressure compensated flow control
- Large selection of interchangeable solenoid valves for varied application requirements
- Poppet valve used for good load holding characteristics.
- Optional overrides.
- Large selection of coil terminations available.
- Compact, efficient and economical design.
- For higher flow capacity see RF LC3535 & RF LC1062

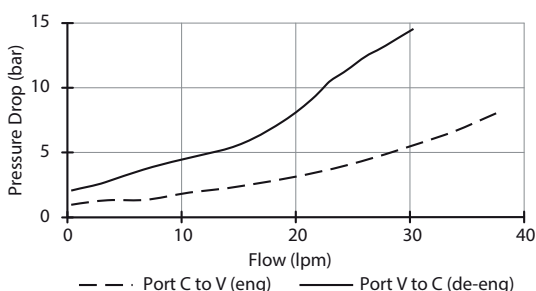
Specifications

Flow Range (lpm)	20
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-RFLC3818*
Weight	0.8 kg (alum) Approx.*

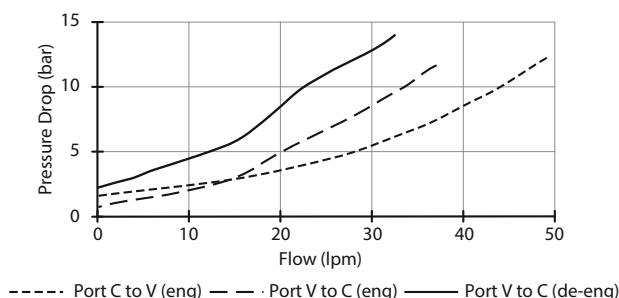
Performance

32 cSt / 38°C.

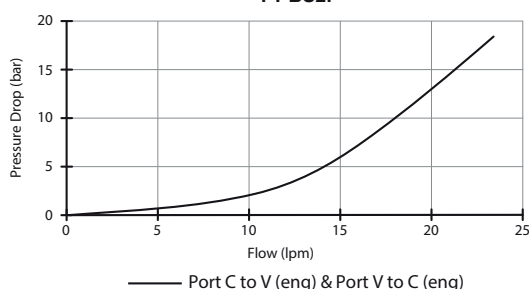
D-PBS2A



D-PBS2B

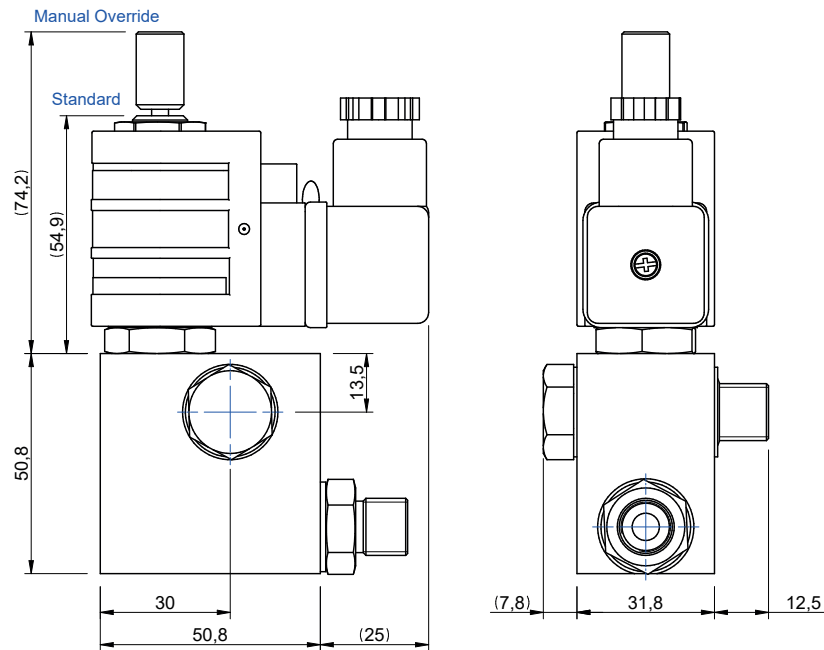


T-PBS2I



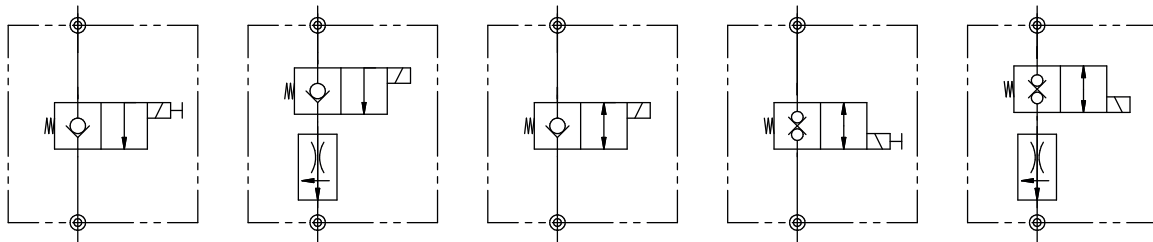
RF LC3818-01

Dimensions



Circuit Examples

BANJO



G1/4"

Ordering Example

RF LC3818

* * * *** ** * *

Supplier Code
D = Delta
T = Tecnord
V = Vis

Valve Type
A = S2A (NC, restrictive flow energised)
B = S2B (NC, free rev flow energised)
C = S2C (No, restrictive flow energised)
I = S2I (NC, bi-directional)
Other valves available on request.

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.

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**)
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)

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

Voltage
H1 = 12 Vdc (Din)
H2 = 24 Vdc (Din)
D1 = 12 Vdc (Deutsch)
D2 = 24 Vdc (Deutsch)
XX = No voltage (no coil)
*Other voltages available on request
Does not include connector

RF LC3818-01

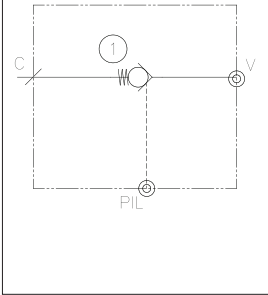


Variable, 350 bar - 15-23 lpm

Description

The RF LC4529 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.

Circuit

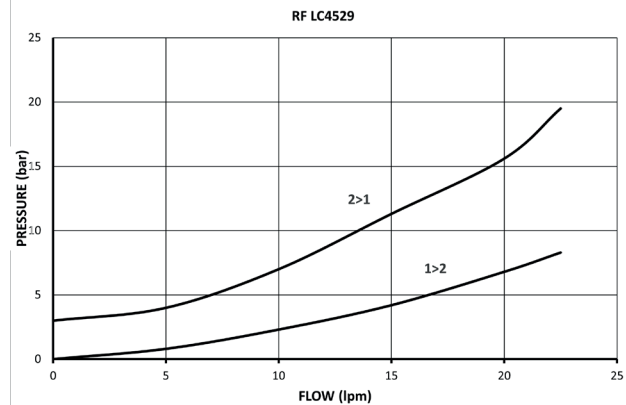


Features

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

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

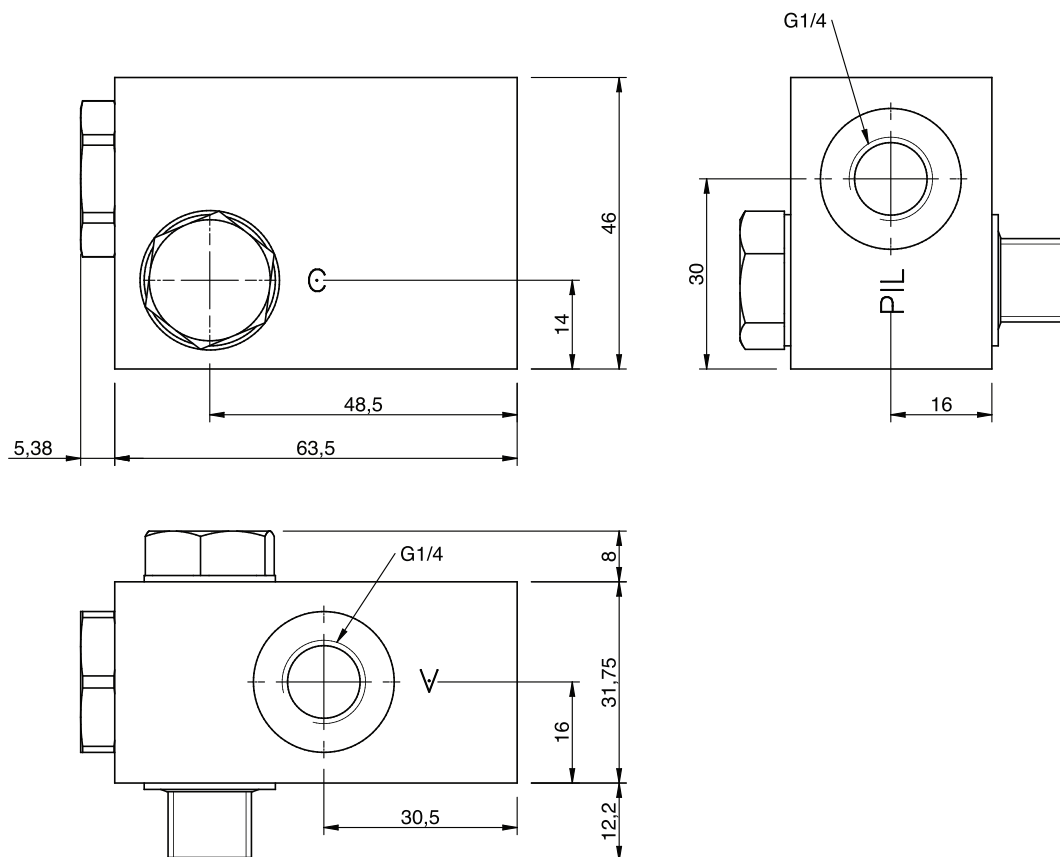
Valve Performance



Specifications

Flow Range (lpm)	23 (C > V) 15 (V > C)
Max. Pressure (bar)	350 (Steel only)
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-RFLC4529
Weight	0.35 kg (alum) 0.75 kg (steel)

Dimensions



Ordering Example

RF LC4529

*

Manifold Material

A = Aluminium
(210 bar max,
clear anodised)

S = Steel (350
bar max, zinc
plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC4529A	BANJO MOUNTED SINGLE P.O. CHECK G1/4	210	15 - 23

RF-LC4529-01



350 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 against 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 consult our factory for more information and guidance on higher pressure options that are available.

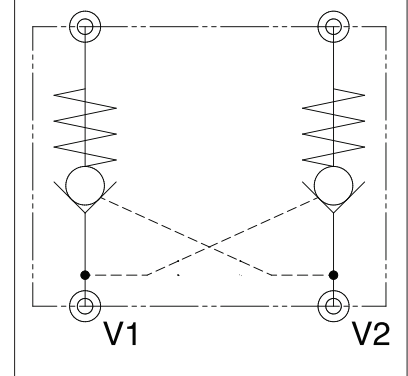
Notes:

- (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 O8 cartridge valves
- Includes G 1/2" Banjo bolts

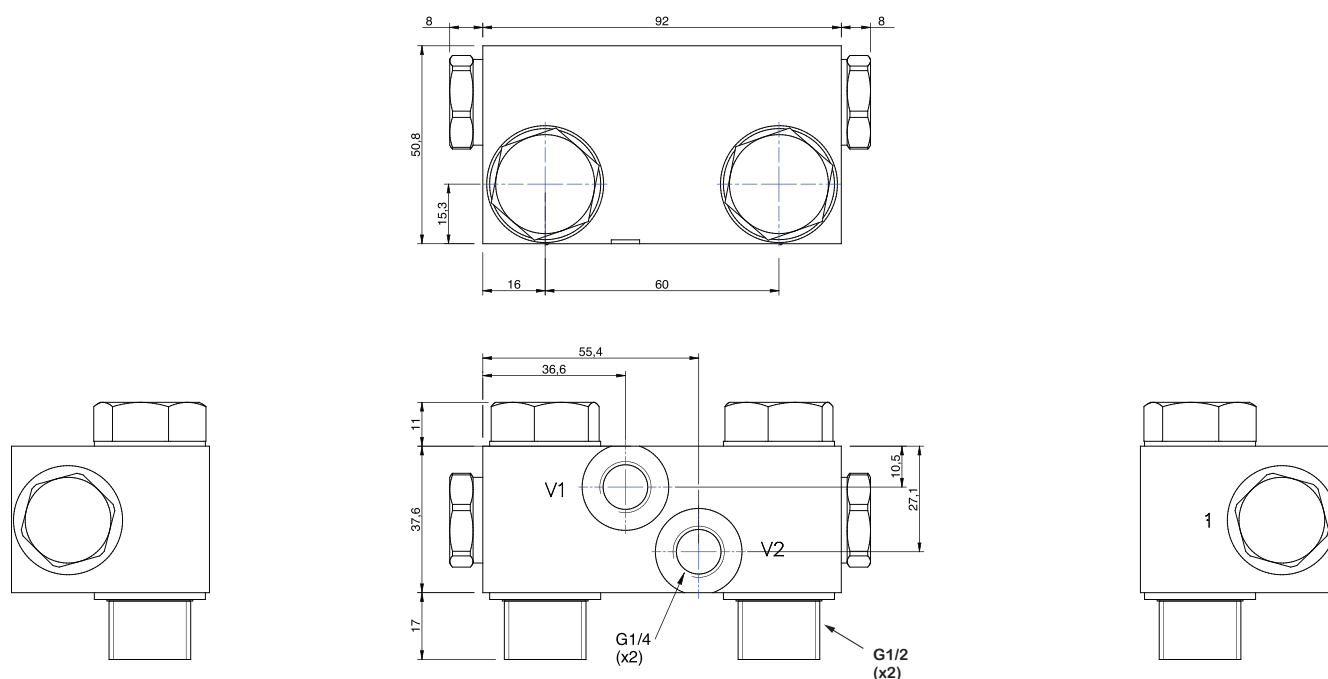
Circuit



Specifications

Flow Range (lpm)	20
Max. Pressure (bar)	350
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

Note: Consult factory for other seal types

Manifold Material

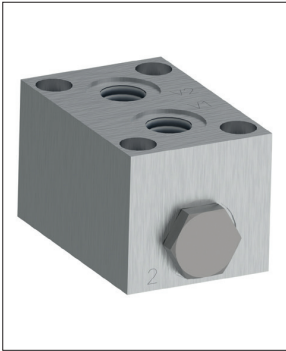
A = Aluminium
(210 bar max, clear anodised)

S = Steel (350 bar max zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC469500A	BANJO MOUNTED DUAL PO CHECK G1/2"	210	20

RF LC4695-01



Up to 240 bar - Up to 19 lpm

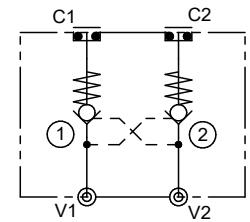
Description

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

Circuit



Notes:

- (i) Please keep cylinder ratios in mind as a multiplier for return flow rates
- (ii) Consult factory for other possible valve / build options

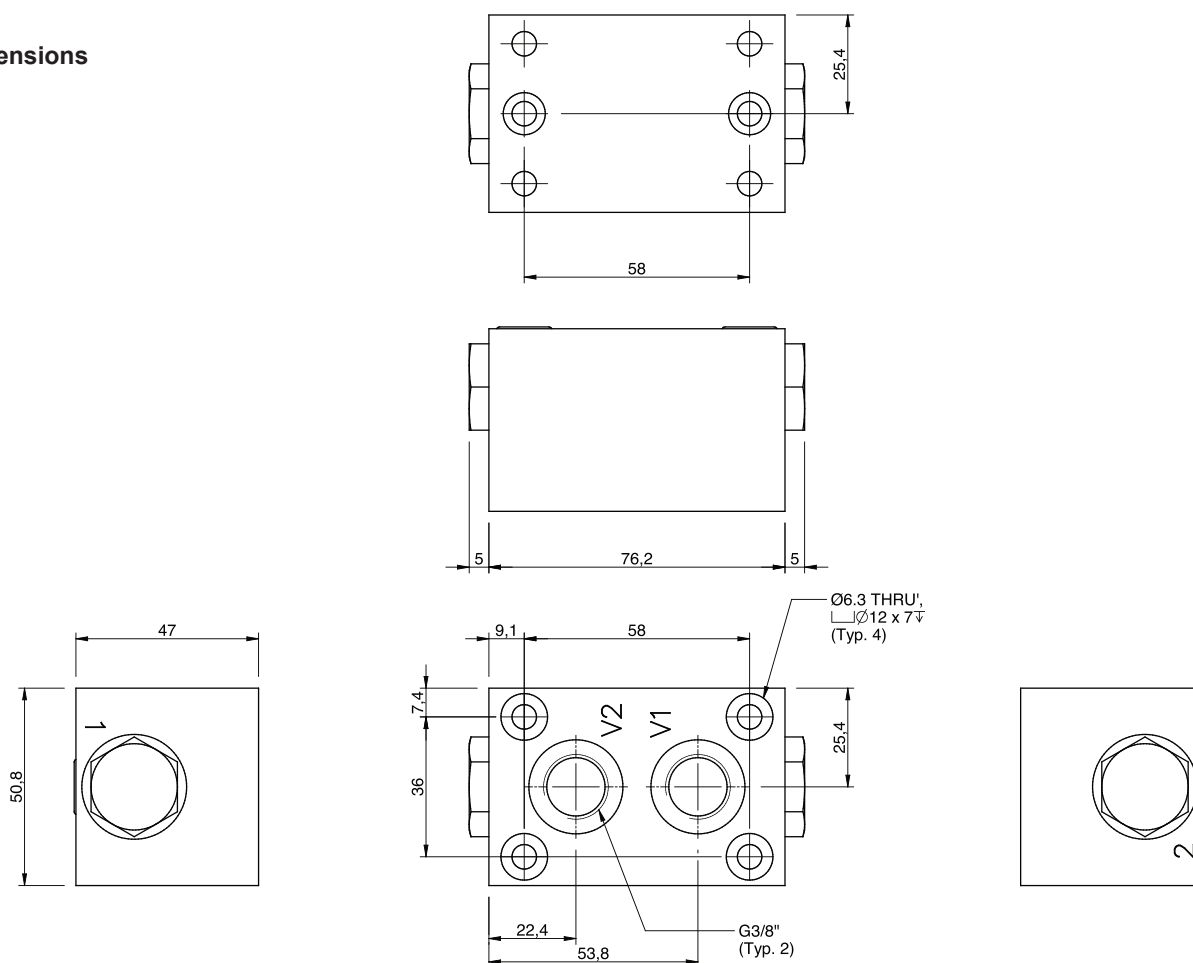
Features

- 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

Specifications

Flow Range (lpm)	19
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-RFLC1065
Weight	0.52 kg (alum) 1.32 kg (steel)

Dimensions



Ordering Example

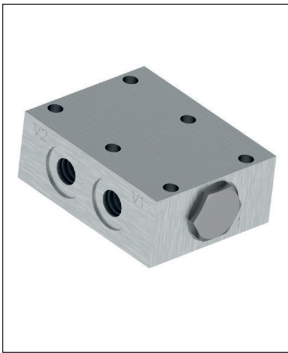
RF LC1065

**	*
Valve 1 options	Manifold Material
00 = Std	A = Aluminium (clear anodised)
Consult factory for other seal types	S = Steel (zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC106500A	FLANGE MOUNT DUAL PO CHECK VALVE ASSEMBLY, 6.7:1	210	19

RF LC1065-01

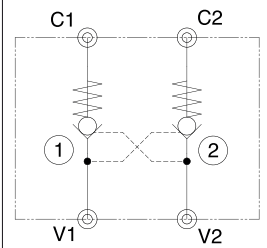


Up to 240 bar - Up to 20 lpm

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.

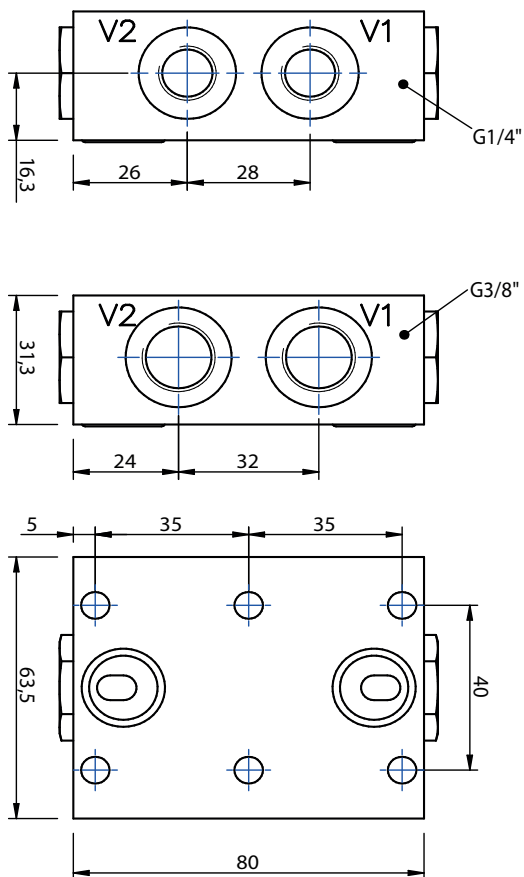
Circuit



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.

Dimensions



Specifications

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)

Ordering Example

RF LC1127

** ** *

Piston Configuration	Port Size	Manifold Material
Omit = Unsealed, Buna	14 = G1/4"	A = Aluminium (clear Anodised)
SP = Sealed piston, Buna	38 = G3/8"	S = Steel (Zinc plate, clear passivate)
* Sealed pilot piston Used in low flow systems where low leakage is Important		

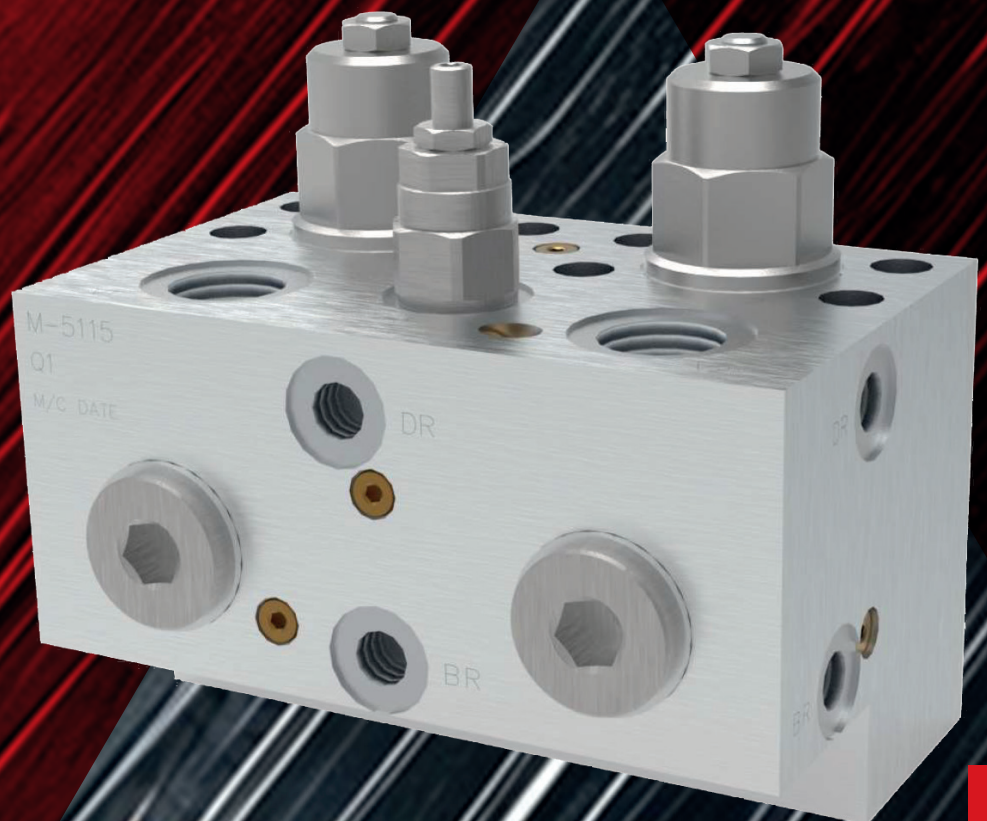
Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF LC1127SP14A	FLANGE MOUNT DOUBLE PILOT CHECK VALVE ASSEMBLY	210	20

RF LC1127-01

SECTION 9

MOTOR CONTROLS



SECTION 9
MOTOR
CONTROLS

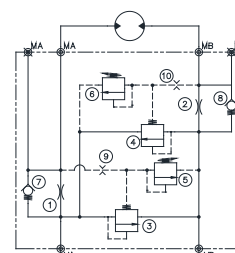


Up to 350 bar - Up to 170 lpm

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.

Symbol



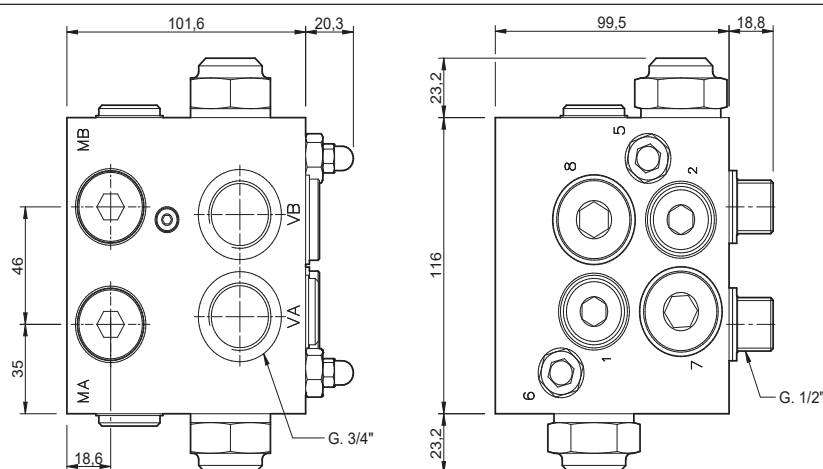
Features

- 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).
- G1/2" Banjos included

Specifications

Flow Range (lpm)	170lpm inlet, 120lpm max. bypass
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-RFMC3909
Weight	4.1 kg (alum) 8.5 kg (steel)

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 = std. setting

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC390940401717S	G1/2" BANJO MOUNT DUAL PCFC + RELIEF, G3/4	350	170

RF MC3909-01

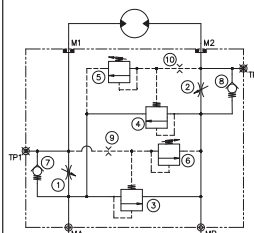


Up to 250 bar - Up to 170 lpm

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.

Symbol



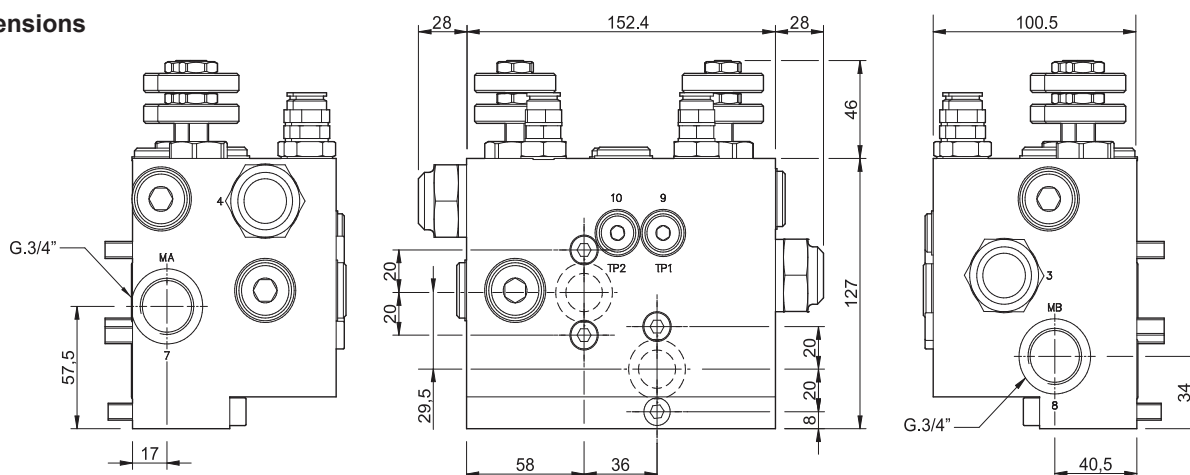
Features

- 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

Specifications

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-RFMC3993
Weight	6.2 kg (alum) 13.3 kg (steel)

Dimensions



Ordering Example

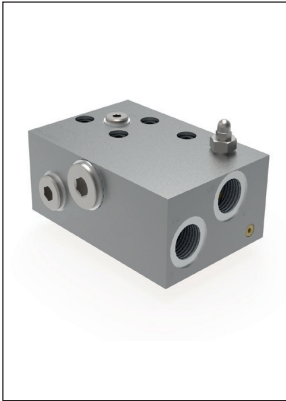
RF MC3993 - ** - ** / *

Pressure Setting V1-M1	Pressure Setting V2-M2	Manifold Material
21 = 210 bar**	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)
**10 bar increments	**10 bar increments	S = Steel (350 bar max, zinc plated)
**17 = std. setting	**17 = std. setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC39931717S	DUAL PCFC + RELIEF FOR OMP/OMR MOTORS, G3/4"	250	170

RF MC3993-01

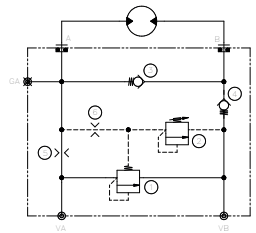


250 bar max - 200 lpm max (80 lpm max priority)

Description

Ideal for various applications where uni-directional speed control of a motor 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 prevents reverse flow and over speeding of the motor

Circuit



Features

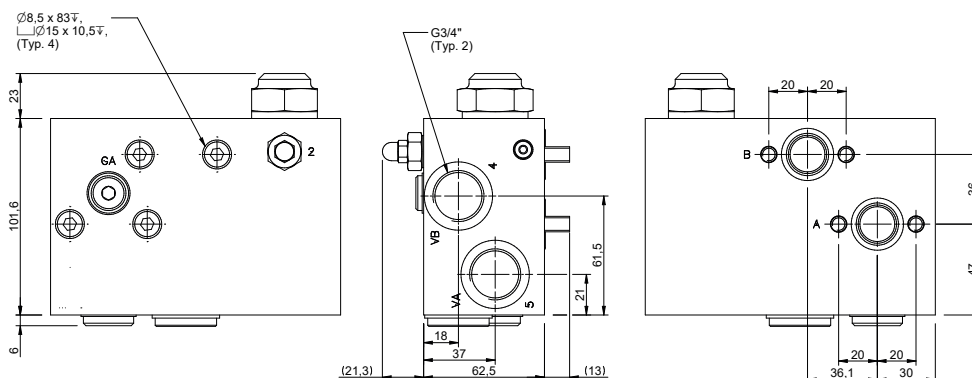
- Steel (zinc plated) or Aluminium (anodised) material options
- Fixed setting, no externally adjustable valves
- Large range of priority flow ranges available
- Wide pressure range
- Up to 200 lpm inlet (120 lpm max. bypass).

Note: Relief protection is not provided in reverse. External relief protection would be required.

Specifications

Flow Range (lpm)	Priority = 80 max, bypass = 120 max
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-RFMC4955
Weight	2.9 kg (alum) 6.9 kg (steel)

Dimensions



Ordering Example

RF MC4955

**** ** ***

Priority Flow Rate (VA-A)
30 = 30 lpm
80 = 80 lpm
**5 lpm increments
40 = std. setting
80 = max. setting

Pressure Setting
21 = 210 bar**
**10 bar increments
**21 = std. setting
Range = 20-250 bar

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC49554021S	SINGLE PCFC + RELIEF FOR OMP/OMR MOTORS G3/4"	250	200

RF MC4955-01



Variable, 350 bar max. - Up to 60 lpm

Description

This is a dual overcentre valve assembly which flanges direct onto a Danfoss OMP/OMR type or equivalent.

The functions of this assembly are: 1. to prevent unwanted motor movement when the system is not actively pressurised, 2. provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor load.

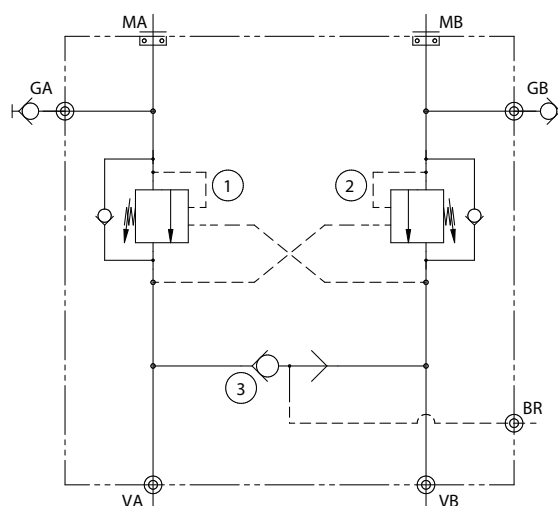
Operation of this assembly is as follows: 1. The check section of the overcentres allow free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises. 2. a pressure signal is communicated over the shuttle to release the brake & 3. a pilot signal is affected on the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

The relief valve section is normally set to 1.3 times the expected load induced pressure. Pressure required to open the overcentre and start the 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 ratios 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.

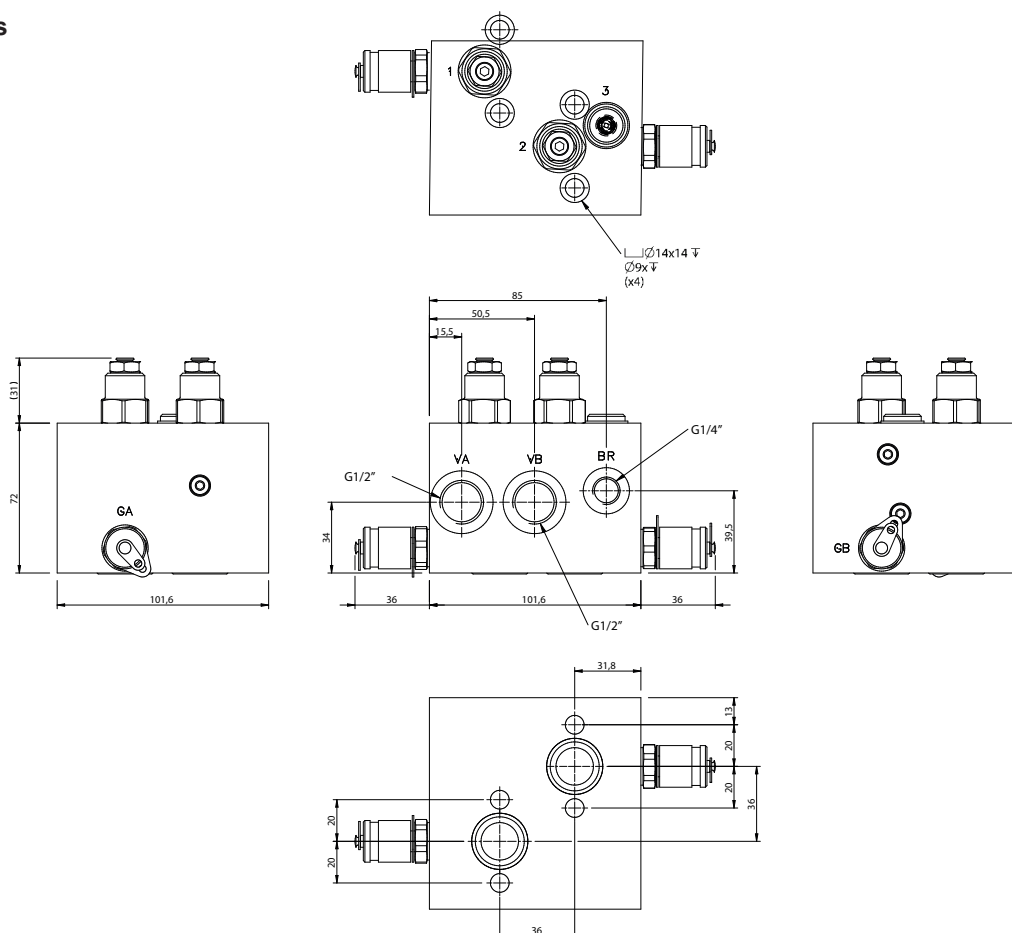
Circuit



Specifications

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

	*	*	**	**	**	*
Valve Capacity						
1 = 10 lpm						
2 = 20 lpm						
3 = 40 lpm **						
4 = 60 lpm *						
Pilot Ratio						
A = 3:1 Overcentre (Std.)						
B = 4.5:1 Overcentre (Std.)						
Valve settings						
21 = 210 bar**						
**10 bar incremental						
**21 = std. setting						
Min. setting 70 bar.						
Valve options						
00 = Std						
Consult factory for other seal types						
Special Options						
00 = includes bolts, seals and pressure test points						
01 = includes bolts & seals only						
Manifold Material						
A = Aluminium (210 bar max, clear anodised)						
S = Steel (350 bar max, zinc plated)						

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC5029C3210000A	MOTOR CONTROL, DUAL OCV + BRAKE SHUTTLE OMP/OMR	210	60

RF MC5029-01



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:

1. to prevent unwanted motor movement when the system is not actively pressurised.
2. to provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor.

Operation of the assembly is as follows:

The check section of the overcentre allows free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises, a pressure signal is communicated over the shuttle and through the reducing valve to release the brake. A pilot signal is then affected the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

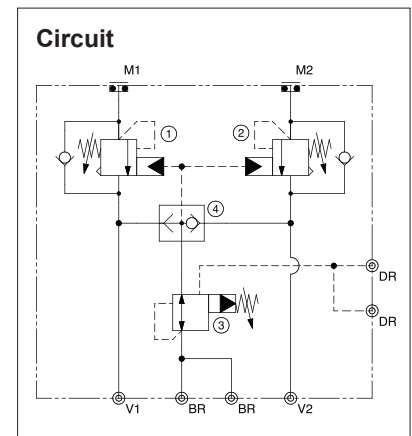
The relief valve section is normally set at 1.3 times the expected load induced pressure.

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

Pressure to start the motion in the motor circuit = (Valve relief setting) - (Load pressure) / (Pilot ratio) + 1.

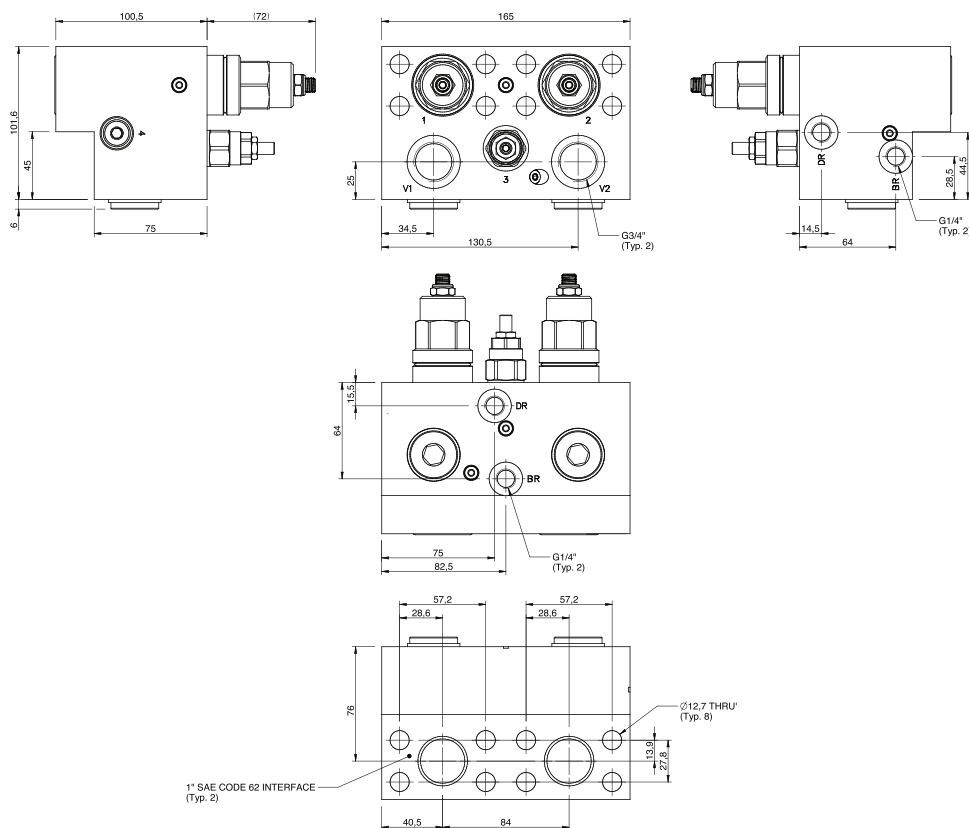
Features

- 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



Specifications

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)



MC5115

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

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC5115255280000S	DUAL OCV + BRAKE SHUTTLE + PRV, REXROTH A2FE90	350	240



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:

1. to prevent unwanted motor movement when the system is not actively pressurised.
2. to provide metered flow out of the motor ports removing the potential for any runaway which may be induced by the motor.

Operation of the assembly is as follows:

The check section of the overcentre allows free flow into the actuator as well as locking the actuator. Simultaneously as pressure rises, a pressure signal is communicated over the shuttle and through the reducing valve to release the brake. A pilot signal is then affected the opposing overcentre giving controlled progressive opening / closing of the relief section depending on load pressure.

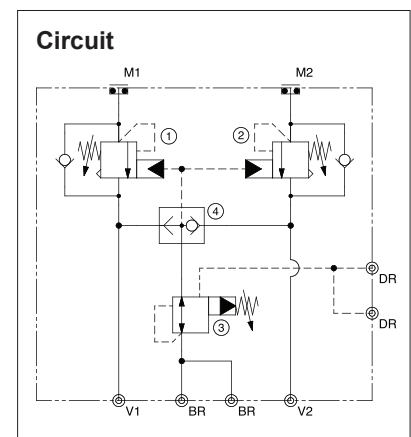
The relief valve section is normally set at 1.3 times the expected load induced pressure.

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

Pressure to start the motion in the motor circuit = (valve relief setting) - (load pressure) / (pilot ratio) + 1.

Features

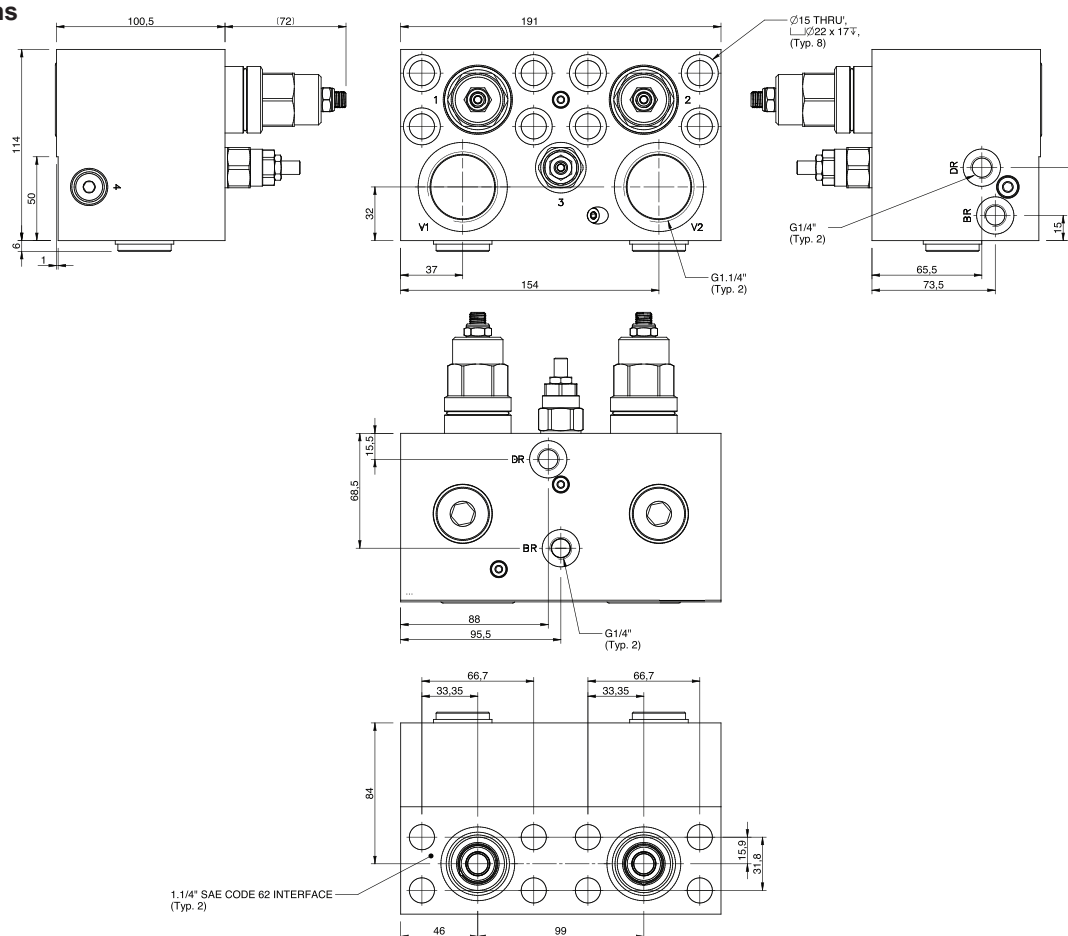
- Aluminium (anodised) or Steel (zinc plated) material options
- Pilot Ratio = 5:1 (standard), other pilot ratios available on request
- Compact, efficient design with direct flange mounting to motor for reduced pipe work and potential leak points
- Easy access porting
 - o Optional input port positions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



Specifications

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-RFMC5116
Weight	6.6 kg (alum) 14.7 kg (steel)

Dimensions



Ordering Example

RF MC5116

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 Consult factory for other seal types	00 = includes bolts, seals and pressure test points 01 = includes bolts & seals only	A = Aluminium (clear anodised) S = Steel (zinc, clear passivate)	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MC5116255280000A	DUAL OCV + BRAKE SHUTTLE + PRV, REXROTH A2FE125	210	240

SECTION 10

MULTI FUNCTION



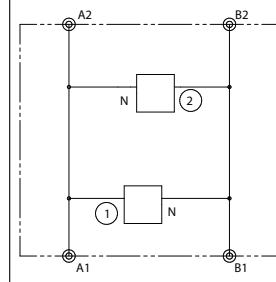


Up to 350 bar

Description

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



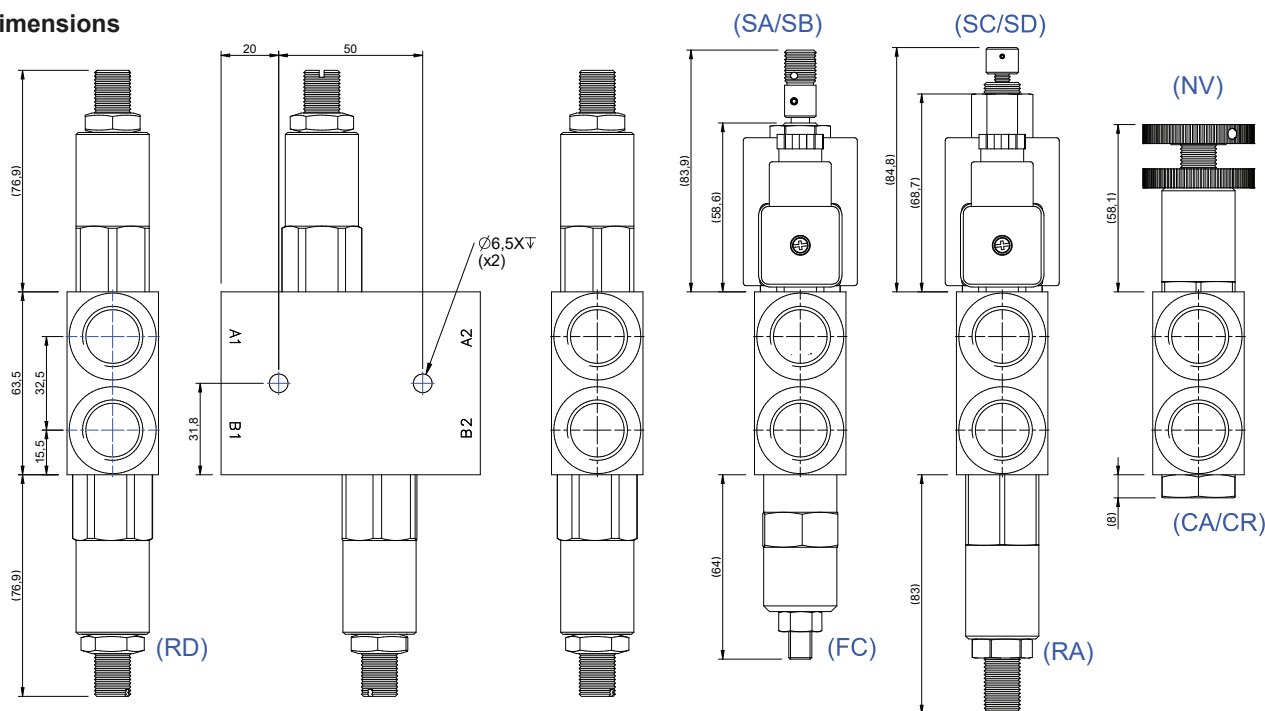
Features

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

Specifications

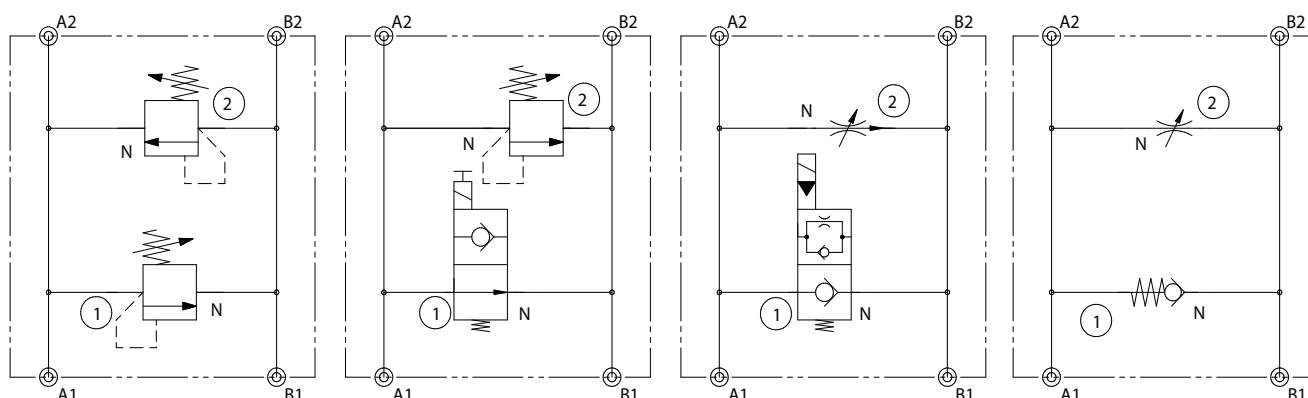
Flow Range (lpm)	50 (Nominal)
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RFMF232* (Valve Dependant)
Weight	1.0 kg (alum) 1.6 kg (steel) Approx.

Dimensions



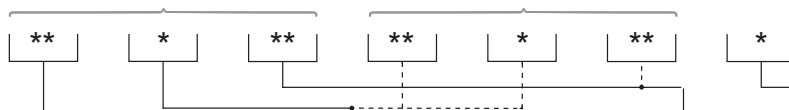
RF MF232-01

Typical Circuits



Ordering Example

RF MF232



Valve Type
RA - Direct acting relief (80lpm)
RD - Differential relief (113lpm)
CA - Direct acting check, g.ball (38lpm)
CR - Reverse flow check (45lpm)
SA - 2 way N.C. poppet (57lpm)
SB - 2 way N.C. poppet (57lpm)
SC - 2 way N.O. poppet (57lpm)
SD - 2 way N.O. poppet (57lpm)
NV - Adj. flow control (57lpm @ 10bar)
FC - Adj. flow control, pres. comp (0.8-28lpm)
Note: Alternative valves may be available. Not all suitable for 350bar. Consult factory for options.

Valve Options
A - Nitrile
C - Nitrile & Knob
E - Nitrile, o/ride, detent (Sol only)
For further options see specific valve data sheet. Consult factory for other seal types.

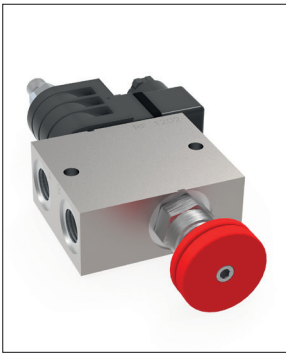
Voltage / Pressure & Flow range
H1 - 12 Vdc Din
H2 - 24 Vdc Din
D1 - 12 Vdc Deutsch
D2 - 24 Vdc Deutsch
O1 - 5 to 110 bar (RA)
O2 - 10 to 180 bar (RA)
O3 - 10 to 240 bar (RA)
O4 - 85 to 350 bar (RA)
O5 - 10.5 to 89 bar (RD)
O6 - 17 to 240 bar (RD)
O7 - 0.3 bar (CA / CR)
O8 - 0.7 bar (CA / CR)
O9 - 2 bar (CA / CR)
O10 - 3 bar (CR)
XX - Closed (NV)
0.8>28 - 2>28 lpm, increments of 1lpm (FC)
Does not include connector

Body Material
A - Aluminium (210 bar max, clear anodised)
S - Steel (350 bar max, zinc plated)
For pressures over 210 bar use steel.

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF MF232RAA03RAA03A	G1/2" MULTI FUNCTION CROSS PORT CONTROL	210	50	-	10-210
RF MF232RAA03SCAH1A	G1/2" MULTI FUNCTION CROSS PORT CONTROL 12VDC	210	50	12 VDC (Din)	10-210
RF MF232RDA06RDA06A	G1/2" MULTI FUNCTION CROSS PORT CONTROL	210	50	-	17-210
RF MF232RAA03SCAH2A	G1/2" MULTI FUNCTION CROSS PORT CONTROL 24VDC	210	50	24 VDC (Din)	10-210

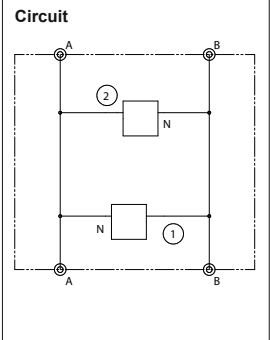
RF MF232-01



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.



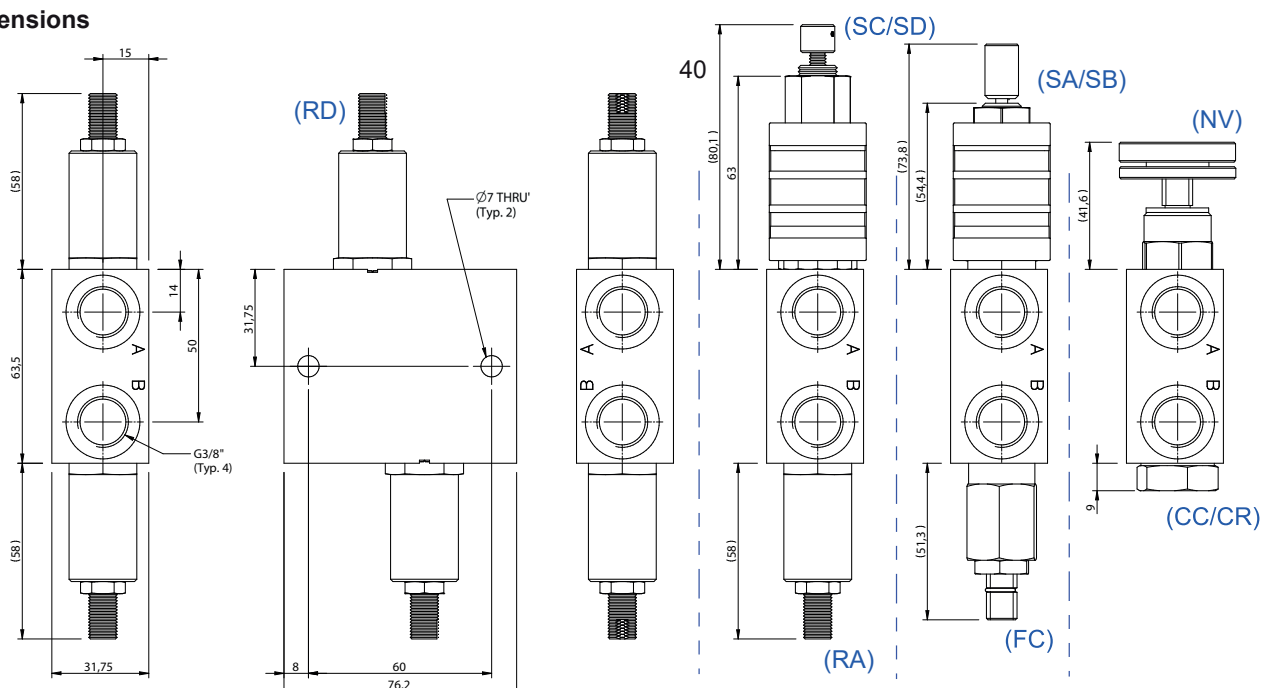
Features

- 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.

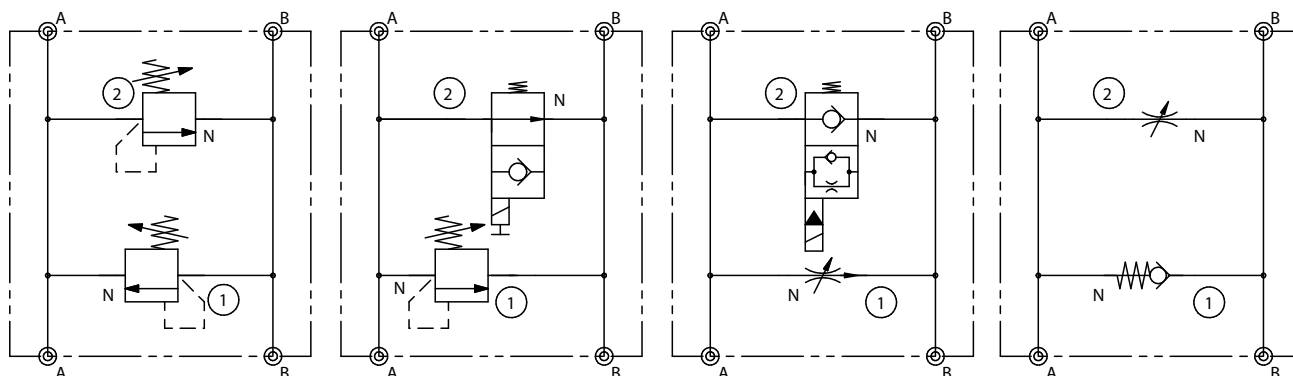
Specifications

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



RF MF1202-01

Typical Circuits

Ordering Example
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 may be available. Not all suitable for 350bar. Consult factory for options.

Valve Options
A - Nitrile
C - Nitrile & Knob
E - Nitrile, o/ride, detent (Sol only)
For further options see specific valve data sheet. Consult factory for other seal types.

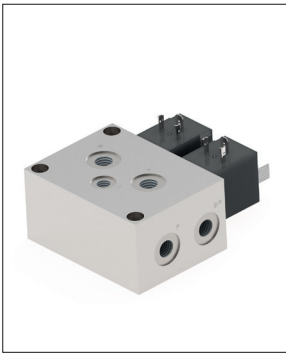
Voltage / Pressure & Flow range
H1 - 12 Vdc Din
H2 - 24 Vdc Din
D1 - 12 Vdc Deutsch
D2 - 24 Vdc Deutsch
01 - 15 to 60 bar (RA)
02 - 25 to 135 bar (RA)
03 - 50 to 220 bar (RA)
04 - 120 to 350 bar (RA)
05 - 10.5 to 48 bar (RD)
06 - 17 to 230 bar (RD)
07 - 0.3 bar (CC)
08 - 0.7 bar (CC / CR)
09 - 1.4 bar (CR)
10 - 2.1 bar (CC)
XX - Closed (NV)
02>20 - 2>20 lpm, increments of 1lpm (FC)
Does not include connector

Body Material
A - Aluminium, clear anodised
S - Steel, zinc plated
For pressures over 210 bar use steel.

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF MF1202RAA03RAA03A	DUAL DIR. ACT. CROSS LINE RELIEF VALVE G3/8"	210	40	-	50-210
RF MF1202RAA03SCAH1A	RELIEF & UNLOAD CONTROL ASSEMBLY G3/8" 12VDC	210	40	12 VDC	50-210
RF MF1202RDA06RDA06A	DUAL DIFF. AREA. CROSS LINE RELIEF VALVE G3/8"	210	40	-	17-210
RF MF1202RAA03SCAH2A	RELIEF & UNLOAD CONTROL ASSEMBLY G3/8" 24VDC	210	40	24 VDC	50-210

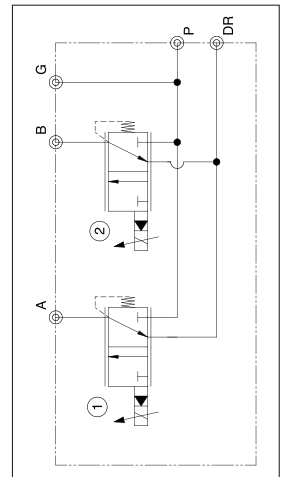
RF MF1202-01



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.



Features

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

Notes:

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

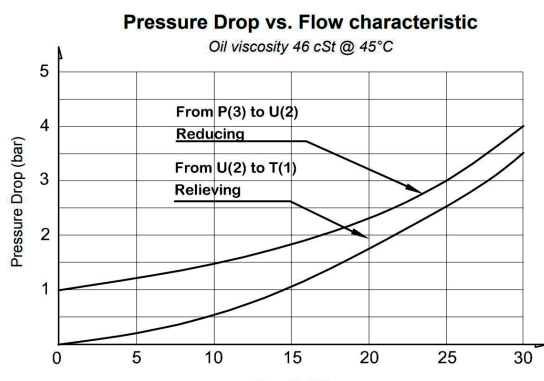
Valve Specifications:

Flow Range (lpm)	30
Max. Pressure (bar)	05 = 50 bar 14 & 21 = 240 bar
Hydraulic Oil	General Purpose
Control Pressure Ranges	See Graphs
Max. pressure @ T port	20 bar
Viscosity Range	3 to 420 cSt
Max. internal leakage	700 ml/min @ 50 bar. 1500 ml/min @ 200 bar.
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)

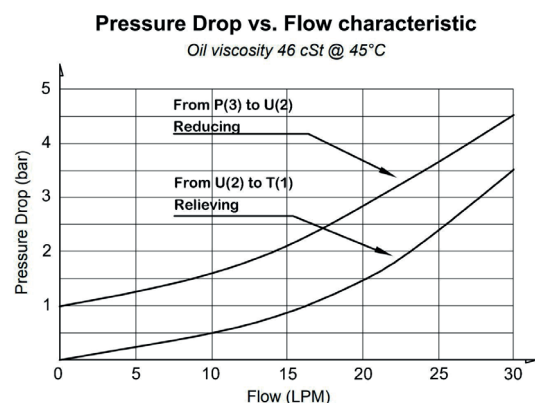
Coil Specifications:

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

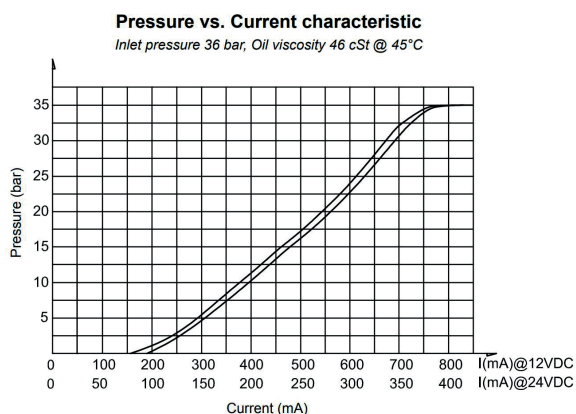


GRAPH PRESSURE DROP HIGH

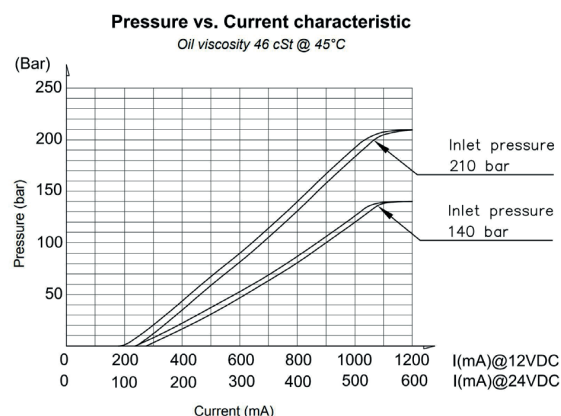


RF MF1363-01

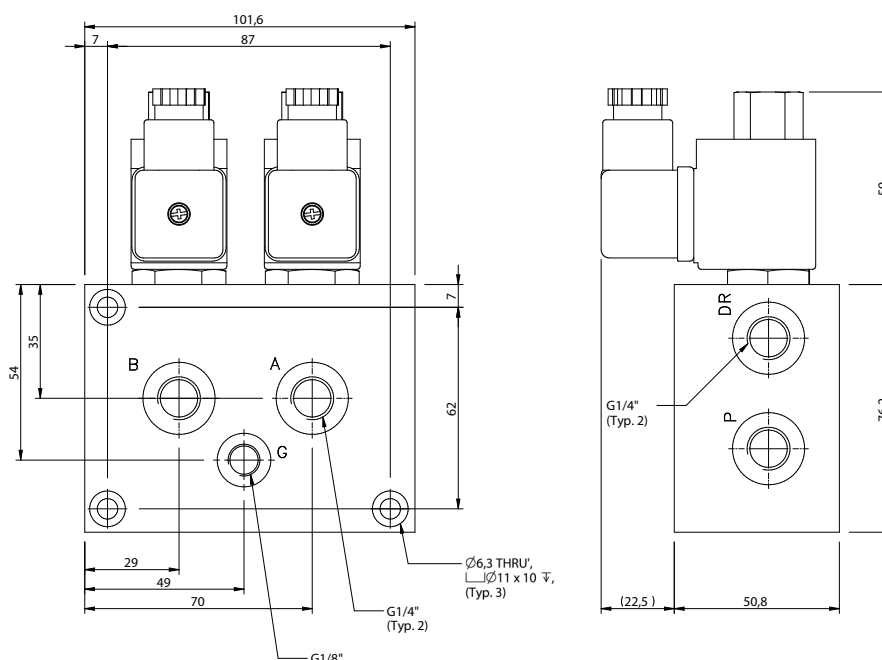
GRAPH PRESSURE-CURRENT LOW



GRAPH PRESSURE-CURRENT HIGH



Dimensions



Ordering Example

RF MF1363

	**	**	**	*
Pressure range	Valve options	Voltage	Manifold Material	
05 = 50 bar max inlet. 0-35 bar reduced pressure	00 = Std seals Consult factory for other seal types	H1 = 12 Vdc (DIN) H2 = 24 Vdc (DIN) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector **Other voltages and coil terminations available on request	A = Aluminium (clear anodised) S = Steel, clear (zinc passivate)	
14 = 240 bar max inlet 0-140 bar reduced press.				
21 = 240 bar max inlet 0-210 bar reduced press.				

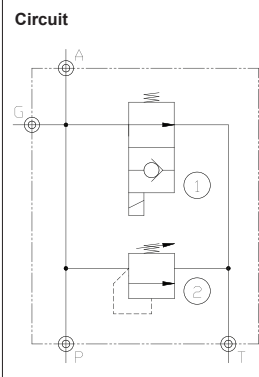
RF MF1363-01



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.



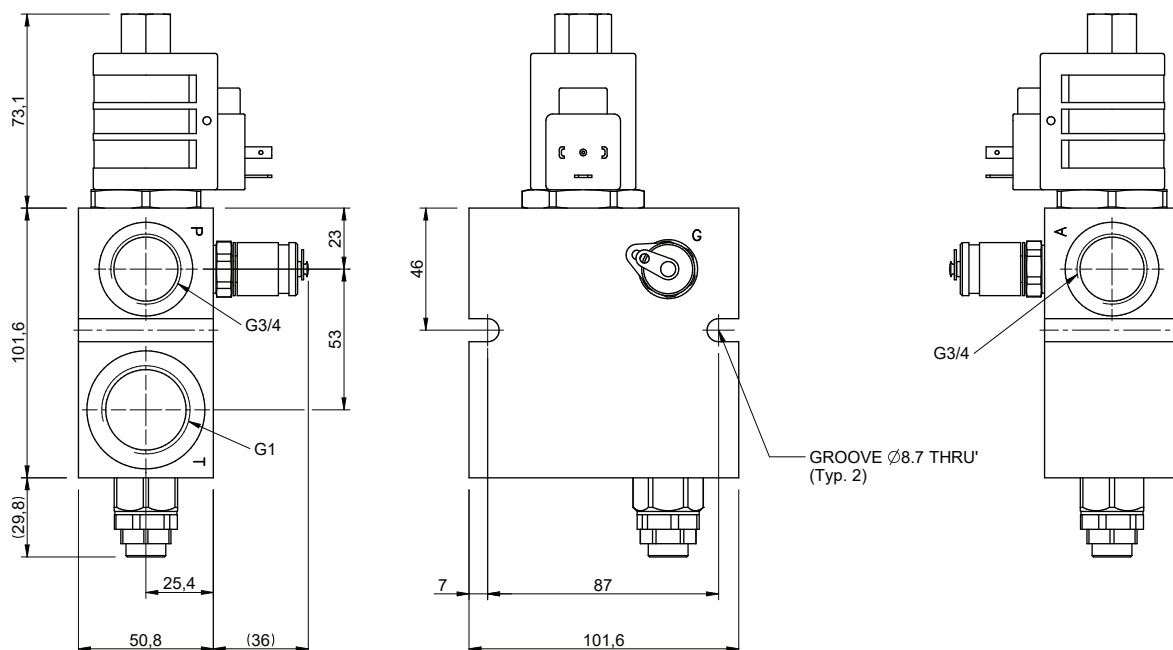
Features

- Aluminium (anodised) or steel (zinc plated) material options
- Multi-function capability
- Compact and efficient design
- Wide adjustment range on relief valve
- Pressure test point fitted as standard
- Consult factory for other possible options

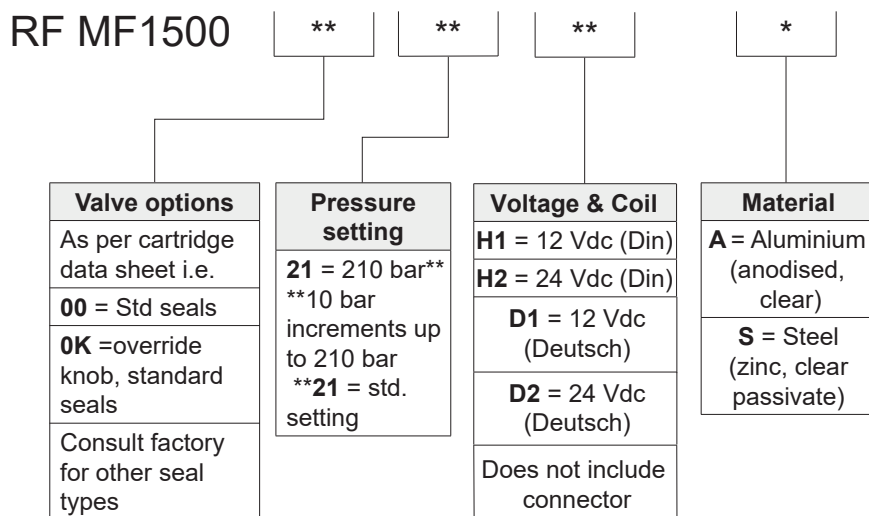
Specifications

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



RF MF1500-01

Ordering Example

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF MF150000H1A	LINE MOUNTED RELIEF UNLOADER ASSEMBLY 12VDC	210	80	12 VDC
RF MF150000H2A	LINE MOUNTED RELIEF UNLOADER ASSEMBLY 24VDC	210	80	24 VDC

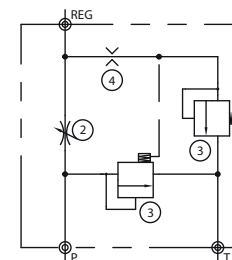


240 bar - 100 lpm

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



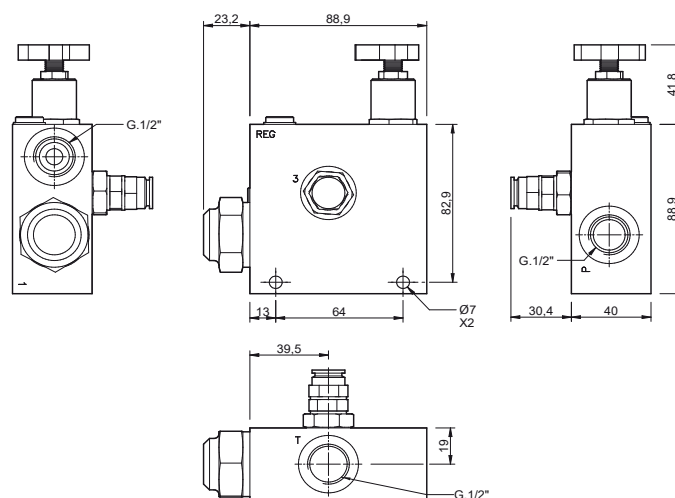
Features

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

Specifications

Flow Range (lpm)	100
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-RFMF2397
Weight	1.3 kg (alum) 2.5 kg (steel)

Dimensions



Ordering Example

RF MF2397			
Options		Adjuster Type	Pressure Setting
NVA = 26 lpm		00 = Standard	21 = 210 bar**
NVB = 15 lpm		0K = Knob	**10 bar increments
			**21 = std. setting
			00 = No relief
Manifold Material			
A = Aluminium (210 bar max, clear anodised)			
S = Steel (240 bar max, zinc plated)			

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Nom. Flow Range (lpm)
RF MF2397NVA0K21A	PRIORITY PRESS. COMP. FLOW CTRL + RELIEF G1/2"	210	100	0-26

RF MF2397-01



350 bar - 17 lpm on inlet

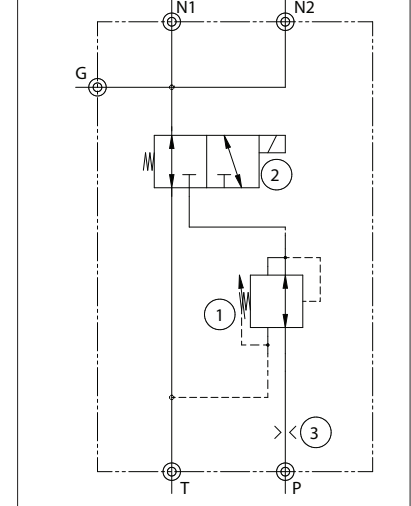
Description

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 consult our factory for more information and guidance on higher pressure options that are available.

Features

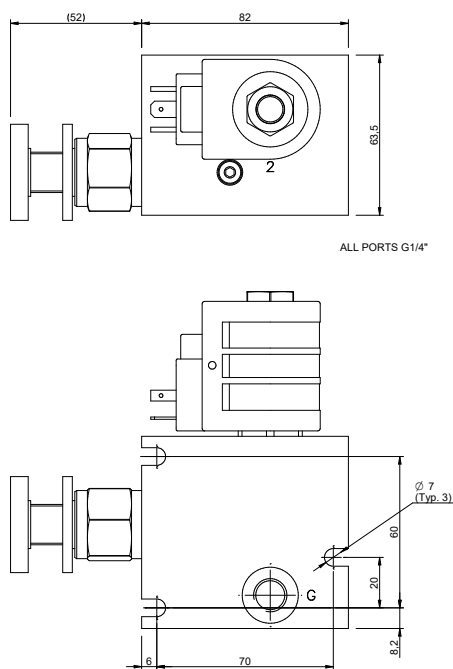
- Aluminium (anodised) or steel (zinc plated) material options
- Dual service ports
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation of solenoid valve
- Multiple voltage and coil termination options

Circuit



Specifications

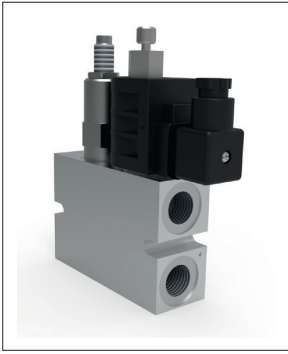
Flow Range (lpm)	17
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110°C
Spare Seal Kit Weight	SK-RFMF3023
Weight	1.7 kg (alum) 3.4 kg (steel)



RF MF3023

	*	**	**		**	*
Pressure Reducer	Pressure setting		Valve options	Voltage & Coil	Manifold Material	
A = 3.5-103 bar	Reducer Option A: 50 = 52 bar** **5 bar increments **52 bar = std. setting		00 = Std	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised) S = Steel (350 (bar max, zinc plated)	
B = 3.5-207 bar			0M = standard seals + override knob on solenoid valve	H2 = 24 Vdc (Din)		
	Reducer Option B: 21 = 207 bar** **10 bar increments **207 bar = std. setting		0K = standard seals + handwheel knob on pressure reducing valve	D1 = 12 Vdc (Deutsch)		
			Consult factory for other seal types	D2 = 24 Vdc (Deutsch)		
			Does not include connector			

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF MF3023A5000D1A	PRESSURE REDUCER + SELECTOR G1/4" 12VDC	210	17	12 VDC (Deutsch)	3.5-103
RF MF3023A5000D2A	PRESSURE REDUCER + SELECTOR G1/4" 24VDC	210	17	24 VDC (Deutsch)	3.5-103
RF MF3023A5000H1A	PRESSURE REDUCER + SELECTOR G1/4" 12VDC	210	17	12 VDC (Din)	3.5-103
RF MF3023A5000H2A	PRESSURE REDUCER + SELECTOR G1/4" 24VDC	210	17	24 VDC (Din)	3.5-103



Variable up to 240 bar max - 55 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 versatile and economic controls can easily be produced. The through ports and compact size also allow for easy inline piping in the installation.

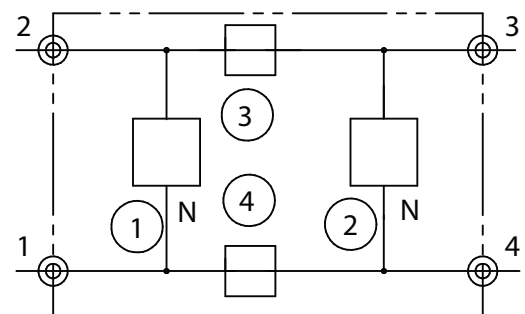
Features

- 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

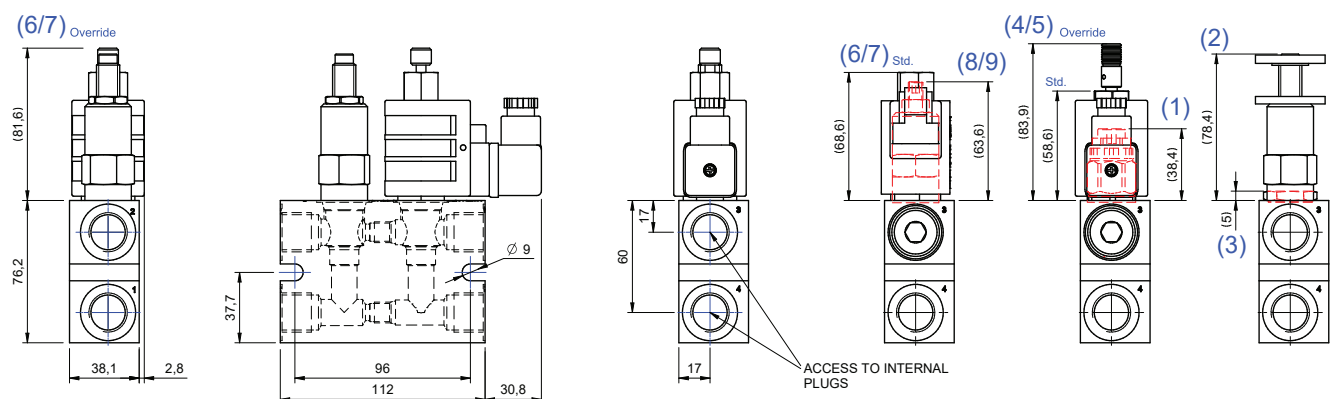
Specifications

Flow Range (lpm)	Consult factory for valve performance
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



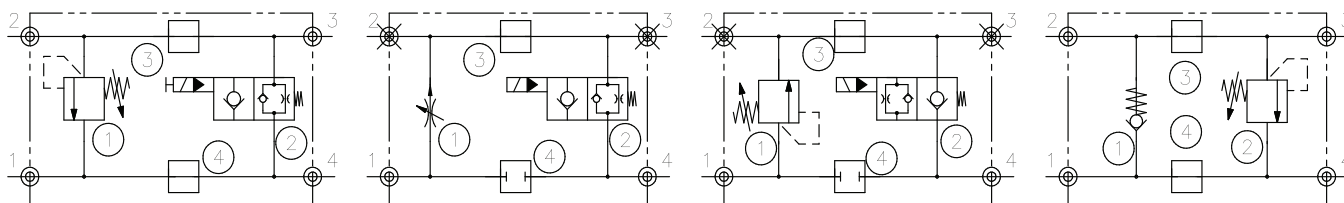
Dimensions



(*) = Valve type

RF MF3378-01

Circuit Examples



RF MF337820350621HA

RF MF3378901X2601DA

RF MF337810352402HA

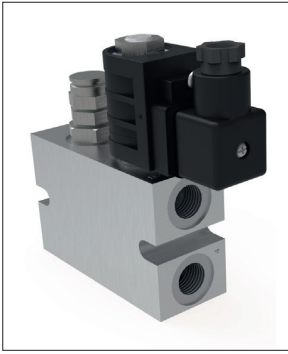
RF MF3378300502035A

Ordering Code

RF MF3378

RF MF3378

	*	*	**	*	*		*	**	*
Valve Type 1 = RVSO Direct Acting relief	Valve options As per cartridge data sheet i.e. 0 = 00 Std 2 = 0K override knob Consult factory for other seal types	Voltage / Pressure / Flow Range H1 = 12 Vdc Din H2 = 24 Vdc Din D1 = 12 Vdc Deutsch D2 = 24 Vdc Deutsch Does not include connector 35 = 17 - 240 bar RV1DI . 10 – 240 bar RVSO . 1X = 0.8 – 28 lpm XX – NVA (38 lpm) / NVB (57 lpm) 05 = 5 psi (Check only)	Plug requirement 0 = No plugs 1 = Top plug 2 = Bottom plug 3 = Top & Bottom Plugs	Valve Type 1 = RVSO Direct Acting relief	Valve options As per cartridge data sheet i.e. 0 = 00 Std 2 = 0K override knob Consult factory for other seal types	Voltage / Pressure Range H1 = 12 Vdc Din H2 = 24 Vdc Din D1 = 12 Vdc Deutsch D2 = 24 Vdc Deutsch Does not include connector 35 = 17 - 240 bar RV1DI . 10 – 240 bar RVSO . 1X = 0.8 – 28 lpm XX – NVA (38lpm) / NVB (57 lpm) 05 = 5 psi (Check only)	Manifold Material A = Alum (anodised, clear) S = Steel (zinc, clear passivate)		
2 = RV1DI Diff. Area relief				2 = RV1DI Diff. Area re-relief					
3 = CVA Check Valve				3 = CVA Check, Valve					
4 = S2A 2 way N.C. poppet				4 = S2A 2 way N.C. poppet					
5 = S2B 2 way N.C. poppet				5 = S2B 2 way N.C. poppet					
6 = S2C 2 way N.O. poppet		6 = S2C 2 way N.O. poppet		6 = S2C 2 way N.O. poppet					
7 = NVA Adj. flow control				7 = NVA Adj. flow control,					
8 = NVB Adj. flow control, fine adj.				8 = NVB Adj. flow control, fine adj.					
9 = FCCS Adj. flow control, pres. comp.				9 = FCCS Adj. flow control, pres. comp.					



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 versatile and economic controls can easily be produced. The through ports and compact size also allow for easy inline piping in the installation.

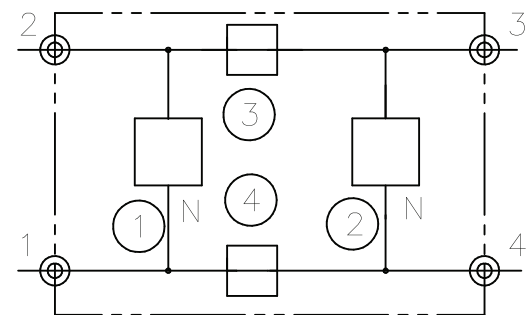
Features

- 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

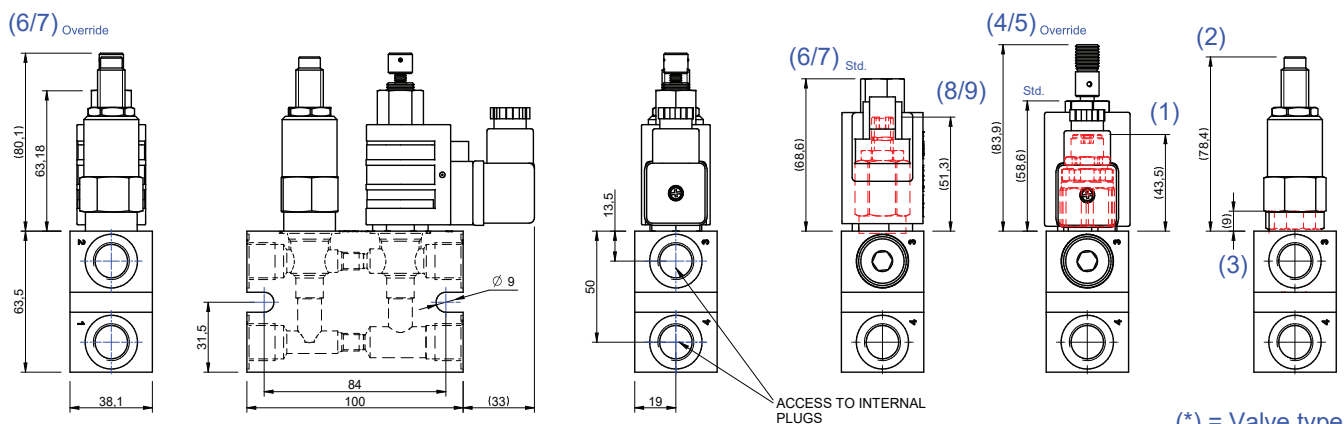
Specifications

Flow Range (lpm)	Consult factory for valve performance
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

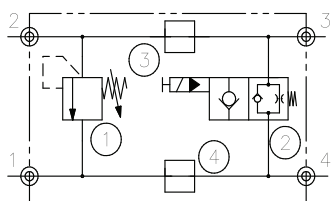


Dimensions

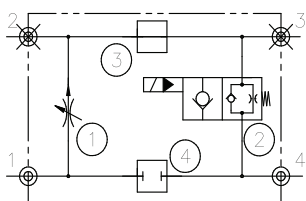


RF MF3682-01

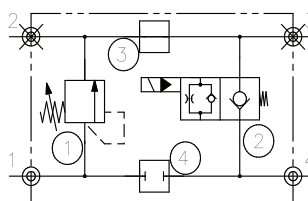
Circuit Examples



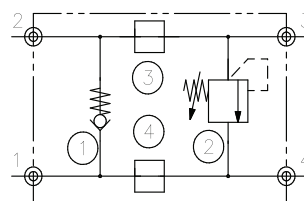
RF MF368220220621HA



RF MF3682901X2601DA



RF MF368210222402HA



RF MF3682300502022A

Ordering Example

RF MF3682

RF MF3682

	*	*	**	*	*	*	**	*
Valve Type 1 = RVCO Direct Acting relief	Valve options As per cartridge data sheet i.e. 0 = 00 Std 2 = 0K override knob Consult factory for other seal types	Voltage / Pressure / Flow Range H1 = 12 Vdc Din H2 = 24 Vdc Din D1 = 12 Vdc Deutsch D2 = 24 Vdc Deutsch Does not include connector 13 = 25 – 135 bar RVCO ONLY 22 = 50-220 bar RVCO. 17-228 bar RV1DI 1X = 2- 20 lpm (FCCS) XX – NVA (23 lpm) / NVB (12 lpm) 05 = 5 psi (Check only)	Plug requirement 0 = No plugs 1 = Top plug 2 = Bottom plug 3 = Top & Bottom Plugs	Valve Type 1 = RVCO Direct Acting relief	Valve options As per cartridge data sheet i.e. 0 = 00 Std 2 = 0K override knob Consult factory for other seal types	Voltage / Pressure Range H1 = 12 Vdc Din H2 = 24 Vdc Din D1 = 12 Vdc Deutsch D2 = 24 Vdc Deutsch Does not include connector 13 = 25 – 135 bar RVCO ONLY 22 = 50-220 bar RVCO . 17-228 bar RV1DI 1X = 2- 20 lpm (FCCS) XX – NVA (23lpm) / NVB (12lpm) 05 = 5 psi (Check only)	Manifold Material A = Alum (anodised, clear) S = Steel (zinc, clear passivate)	
2 = RV1DI Diff. Area relief								
3 = CVC Check valve								
4 = S2A 2 way N.C. poppet								
5 = S2B 2 way N.C. poppet								
6 = S2C 2 way N.O. poppet				6 = S2C 2 way N.O. poppet				
7 = NVA Adj. flow control				7 = NVA Adj. flow control				
8 = NVB Adj. flow control, fine adj.				8 = NVB Adj. flow control, fine adj.				
9 = FCCS Adj. flow control, pres. comp.				9 = FCCS Adj. flow control, pres. comp.				

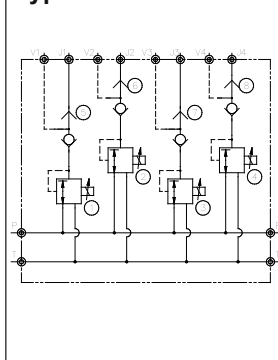


Up to 350 bar - Up to 4 lpm

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.

Typical Circuit



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

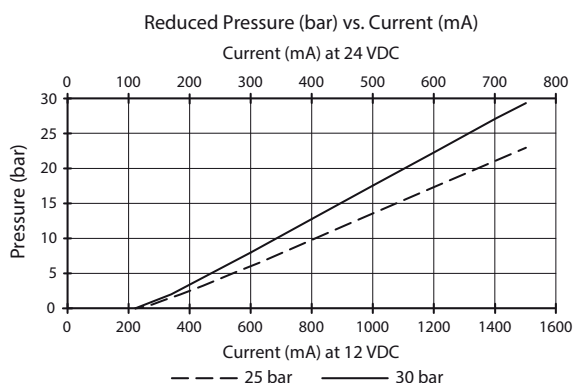
Coil Specifications

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

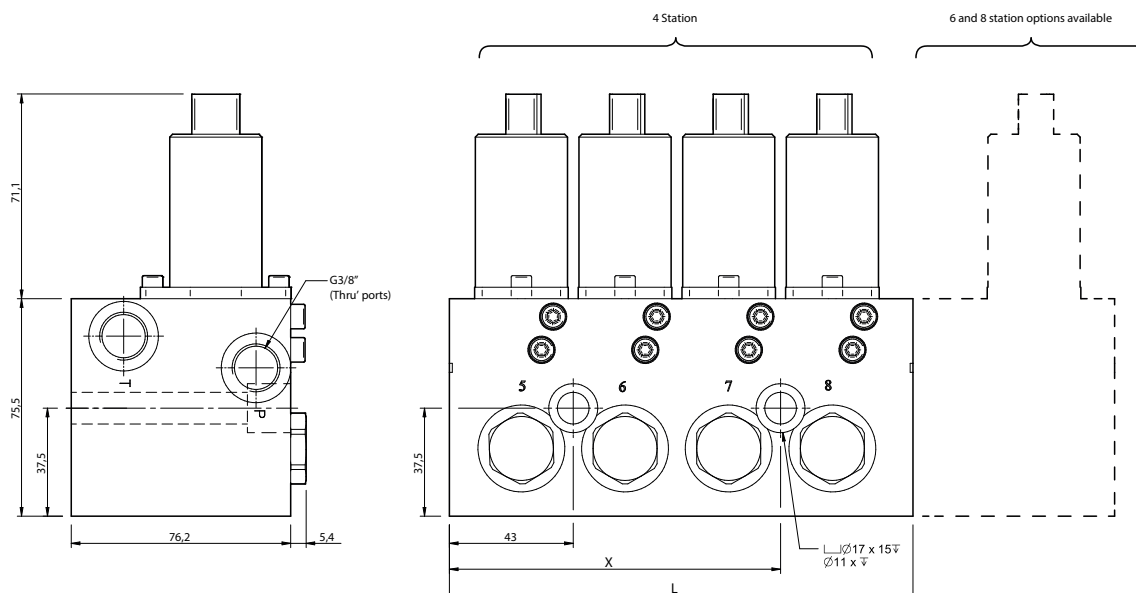
Flow Range (lpm)	4 lpm @ 8 bar Delta P
Max. Pressure (bar)	350
Controlled Pressure Range	0-25 bar / 0-30 bar (see graph)
Reduced Pressure Tolerance	+/- 5%
Max. Back-pressure at T port	20 bar
Internal Leakage	up to 35 cc/min @ 350 bar
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 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

Performance

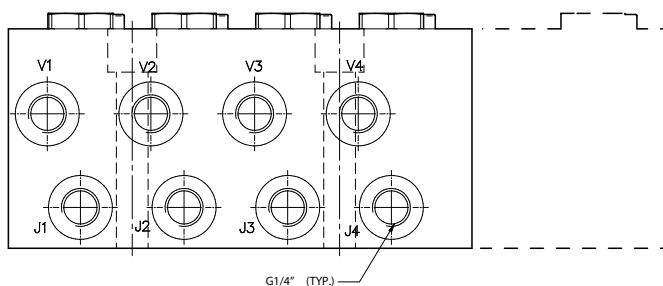


RF MF3800-01

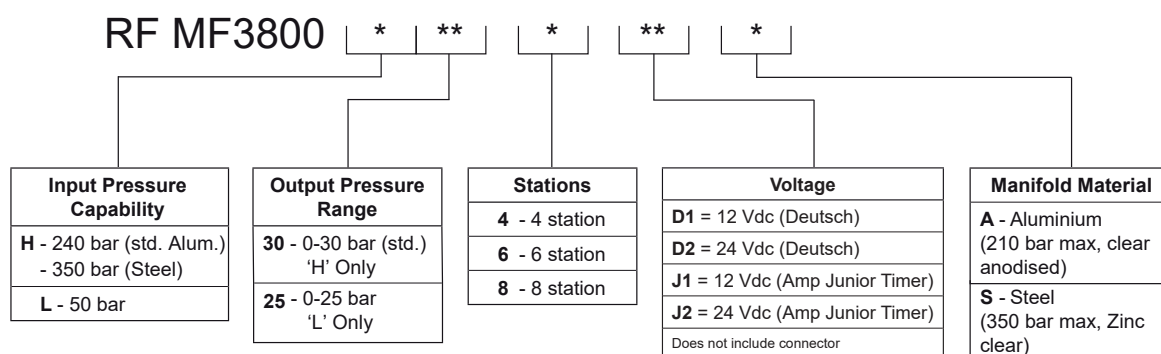
Dimensions



Station Dimensions	X	L	Kg (Alum)	Kg (Steel)
RF3800***4***A	115	161	4.2	8.3
RF3800***6***A	187	233	6.2	12.1
RF3800***8***A	259	305	8.2	15.9



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF MF3800H304J1A	4 STATION PROPORTIONAL PILOT CONTROL 12VDC	210	4	12 Vdc (Amp)	0-30
RF MF3800H304J2A	4 STATION PROPORTIONAL PILOT CONTROL 24VDC	210	4	24 Vdc (Amp)	0-30

RF MF3800-01

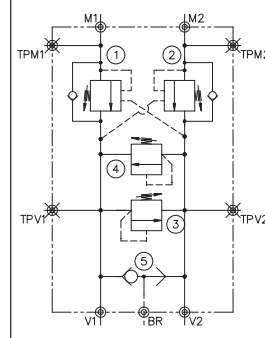


350 bar - 40 lpm

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



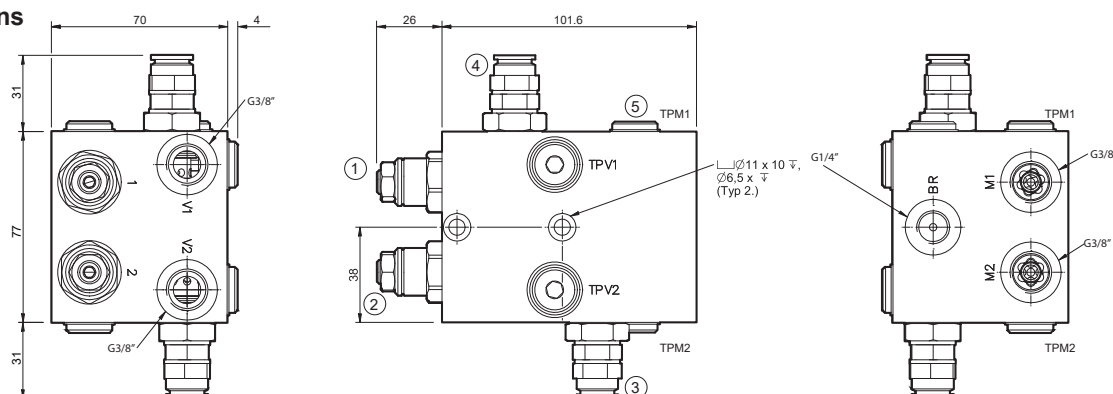
Features

- 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.

Specifications

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



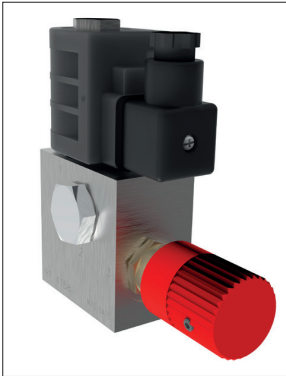
Ordering Example

RF MF4113						
	*	*	**	**	**	*
Overcentre	Pilot Ratio	Overcentre Settings	Relief (V1) Settings	Relief (V2) Settings	Manifold Material	
2 = 40 lpm	3 = 3 : 1	28 = 280 bar**	21 = 210 bar**	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)	
3 = 15 lpm	5 = 4.5 : 1	**10 bar increments	**10 bar increments	**10 bar increments	S = Steel (350 bar max, zinc plated)	
4 = 10 lpm		**28 = standard setting	**21 = standard setting	**21 = standard setting		
5 = Vented (60 lpm)**						
**Atmospheric vent.						

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MF411323282121A	DUAL OVERCENTRE + RV CONTROL WITH BRAKE SHUTTLE	210	40

RF MF4113-01



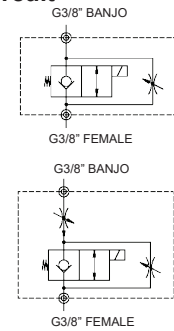
Variable, 240 bar max. - Up to 55 lpm

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

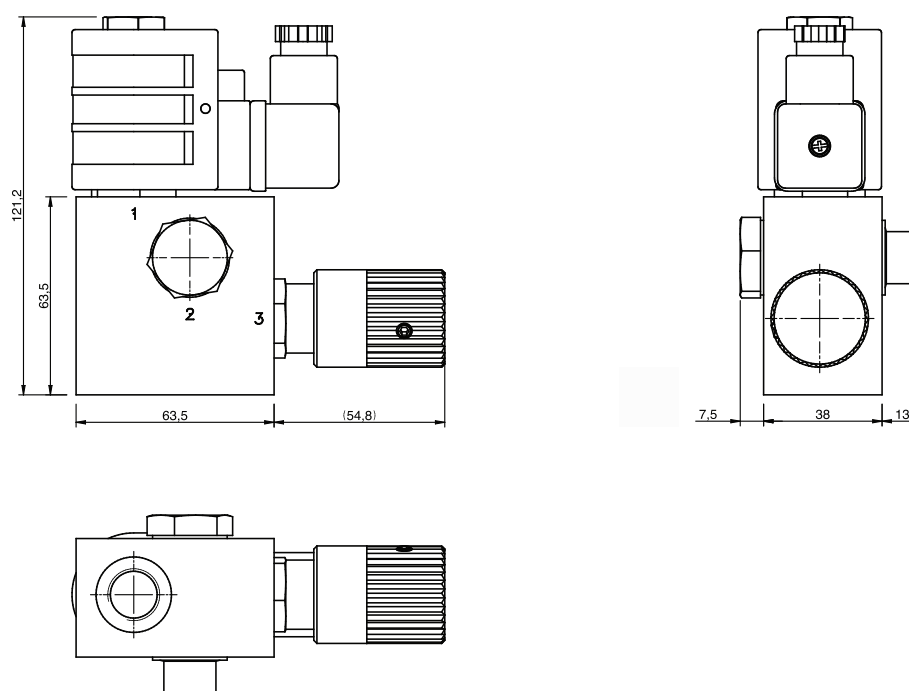
- Aluminium body, clear anodised.
- G3/8" ports
- Optional fixed setting pressure compensated flow control for controlled lowering (not field adjustable).
- Large selection of interchangeable solenoid valves for varied application requirements.
- Poppet valve used for good load holding characteristics.
- 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 Example

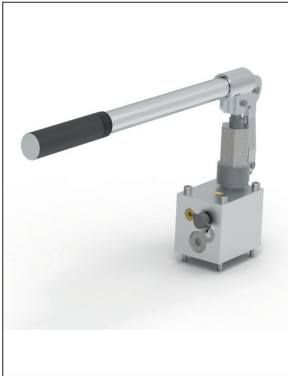
RF MF4158

Valve Type	Valve Options	Flow rate C → V	Voltage & Coil	Manifold Material
A = S2A (NC, restrictive flow energised)	00 = standard seals	000 = Standard banjo bolt (no PCFC)	H1 = 12 Vdc (Din)	A = Aluminium (clear anodised)
B = S2B (NC, reverse free flow energised)	A0 = standard seals + screen	045 = PCFC banjo bolt (set to 4.5 Lpm ^{**})	H2 = 24 Vdc (Din)	Standard
C = S2C (NO, reverse free flow energised)	Consult factory for other seal types.	080 = PCFC banjo bolt (set to 8.0 Lpm ^{**})	D1 = 12 Vdc (Deutsch)	S = Steel, clear (zinc passivate)
I = S2I (NC, bi-directional)		100 = PCFC banjo bolt (set to 10.0 Lpm ^{**})	D2 = 24 Vdc (Deutsch)	
Other valves available on request. See individual data sheets.		FCX = Adjustable flow control banjo bolt (non-compensated)	Does not include connector	
		XXX = No banjo bolt or seals		
		^{**} 0.5 lpm increments. Up to 10 lpm max.		

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF MF4158B00000D1A	BANJO MOUNT CYLINDER LOCK VALVE + OVERRIDE 12VDC	210	55	12 VDC (Deutsch)
RF MF4158B00000D2A	BANJO MOUNT CYLINDER LOCK VALVE + OVERRIDE 24VDC	210	55	24 VDC (Deutsch)

RF MF4158-01

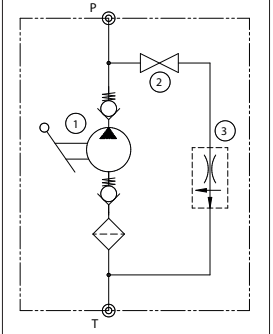


Variable, 240 bar max. - Up to Variable lpm

Description

This assembly is designed for emergency operation of hydraulic circuits in the event of 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.

Circuit



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

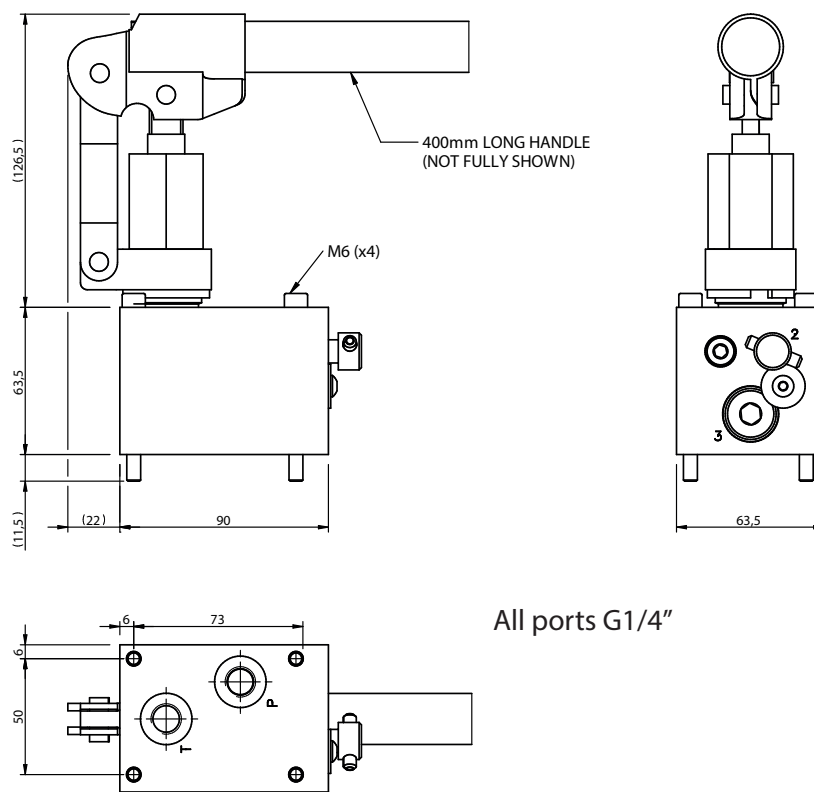
Features

- 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 (cc/stroke)	4 or 8
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



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 (210 bar max, clear anodised) S = Steel (240 bar max zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF MF4161A015A	HANDPUMP WITH OVERRIDE + PRESS COMP LOWERING VALVE	210	Variable

RF MF4161-01



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.

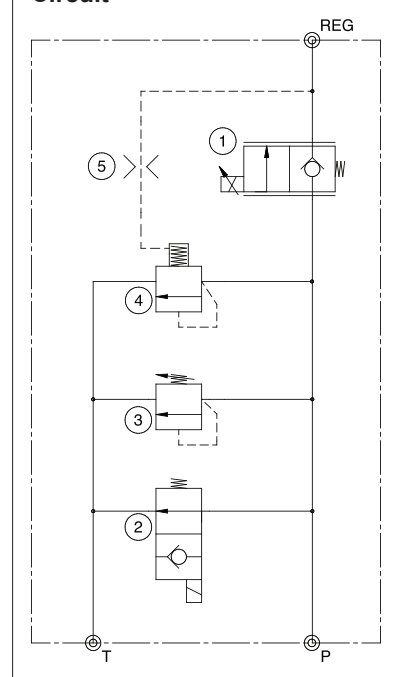
These valve systems are used in a wide variety of applications where remote variable supply to actuators is required. Please consult our factory for more information and guidance on options and what control that can be achieved. PWM Drivers can also be offered to compliment this assembly.

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

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

Circuit

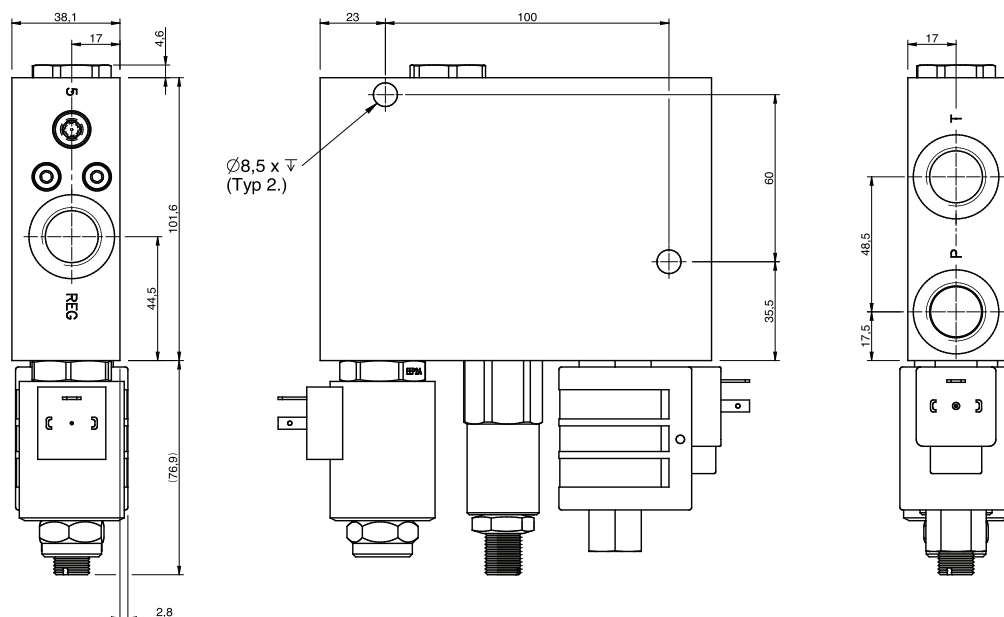


Specifications

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)

RF MF4623-01

Dimensions



Ordering Example

RF MF4623

Nom. Flow Range	Pressure setting	Valve options	Voltage & Coil	Manifold Material
A = 0-15 lpm B = 0-30 lpm C = 0-45 lpm	21 = 210 bar** **10 bar increments ** 21 = std. setting	As per cartridge data sheet i.e. 00 = Std 0M = standard seals + override knob on solenoid valves Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector	A = Aluminium (210 bar max, clear anodised) S = Steel (240 bar max, zinc, clear passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF MF4623C2100D1A	PROPORTIONAL PCFC PRIORITY WITH RELIEF + DUMP	210	55	12 VDC (Deutsch)	0-45
RF MF4623C2100D2A	PROPORTIONAL PCFC PRIORITY WITH RELIEF + DUMP	210	55	24 VDC (Deutsch)	0-45



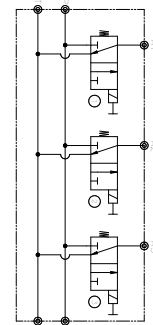
Up to 210 bar - Up to 11 lpm

Description

The RF 4925 is a circuit saver, multi section valve assembly that is typically used as a pilot control for valve or servo operating systems. Each section uses a direct acting 3 way 2 position spool valve.

When de-energised the valve vents pressure from the service port to the tank port, pressure is blocked. When energised the valve connects the pressure and service line ports with the tank port being blocked. There are common pressure and tank through galleries. This assembly offers flexible specification with options on: (i) amount of stations (ii) port sizes (iii) override options, (iv) seal types (v) solenoid voltage and terminations. (vi) manifold material

Circuit



Features

- Multi-configuration capability
- G1/4" or G3/8" Ports
- Ideal for multiple applications

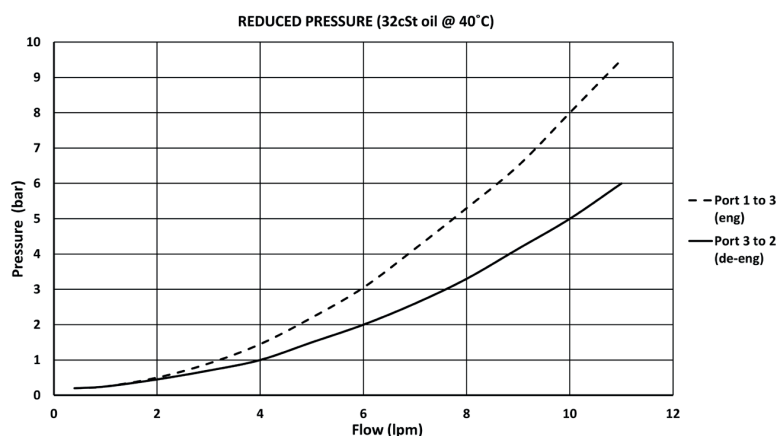
Notes:

- (i) Other configurations available on request.
- (ii) 12 & 24 Vdc are standard coil voltage options, other voltages available on request

Specifications

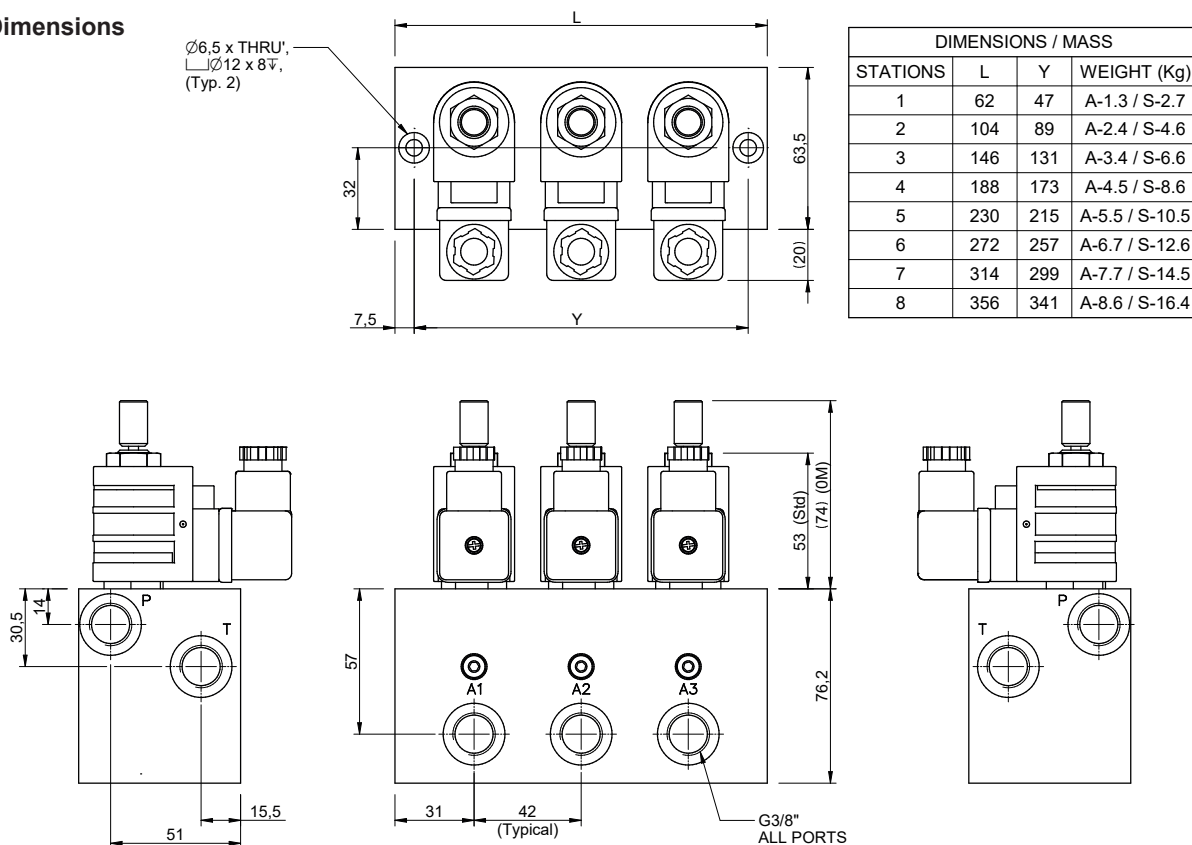
Flow Range (lpm)	11
Max. Pressure (bar)	210
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	3 to 640 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Spare Seal Kit	SK-RF4925
Weight	See Table

Performance

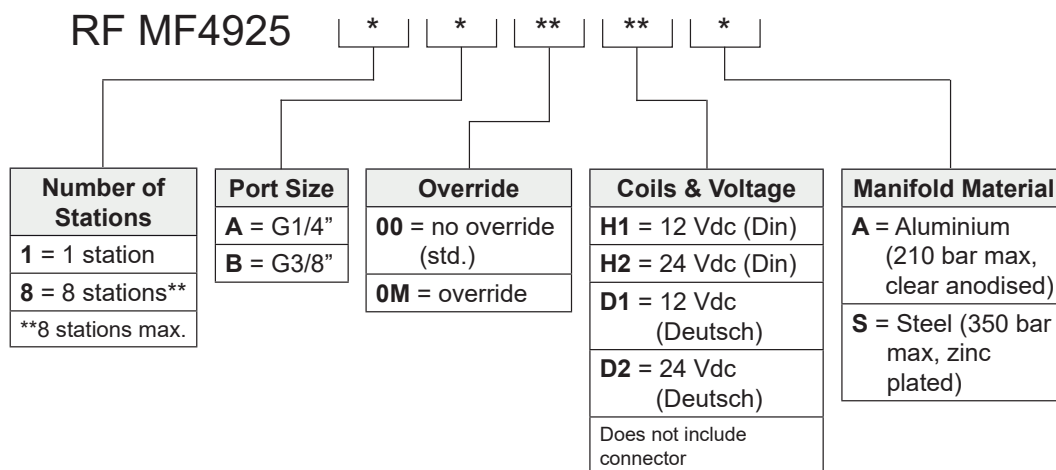


RF MF4925-01

Dimensions



Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF MF49252B00H1A	2 STATION PILOT SELECTOR 12VDC G3/8"	210	11	12 VDC (Din)
RF MF49252B00H2A	2 STATION PILOT SELECTOR 24VDC G3/8"	210	11	24 VDC (Din)
RF MF49254B00H1A	4 STATION PILOT SELECTOR 12VDC G3/8"	210	11	12 VDC (Din)
RF MF49254B00H2A	4 STATION PILOT SELECTOR 24VDC G3/8"	210	11	24 VDC (Din)
RF MF49256B00H1A	6 STATION PILOT SELECTOR 12VDC G3/8"	210	11	12 VDC (Din)
RF MF49256B00H2A	6 STATION PILOT SELECTOR 24VDC G3/8"	210	11	24 VDC (Din)

RF MF4925-01



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, relief 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 assembly is operated, the unloader valve is energised and a current 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 consult factory for more information and guidance on options and what control can be achieved. PWM drivers can also be offered to compliment this assembly.

Features

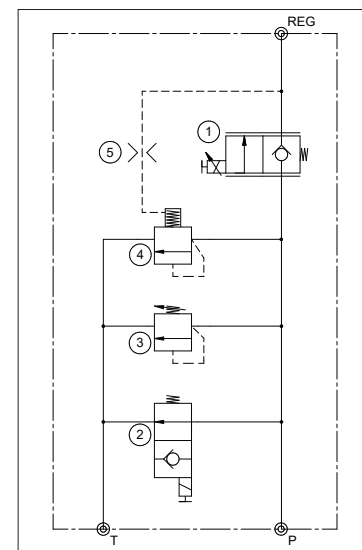
- Aluminium (anodised) or steel (zinc plated) material options
- Multiple metering, and compensator bias pressure setting options
- Compact, efficient design
- Easy access, in-line porting
- Manual override option available for emergency operation
- Multiple voltage and coil termination options
- G3/4" ports

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

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)

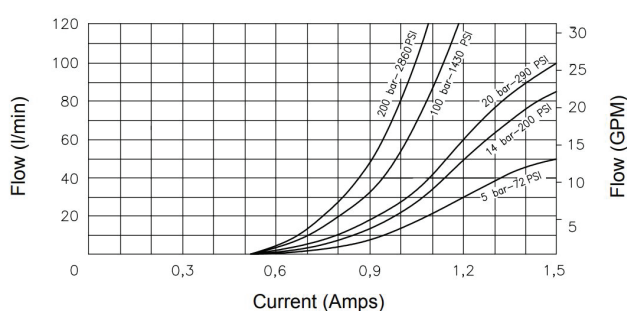
Circuit



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

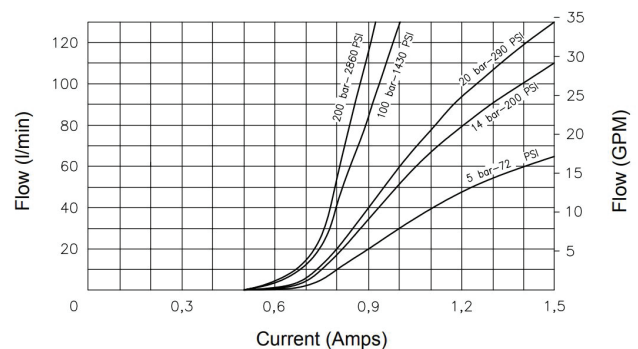
Flow vs. Current at different Pressure Drop

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



Flow vs. Current at different Pressure Drop

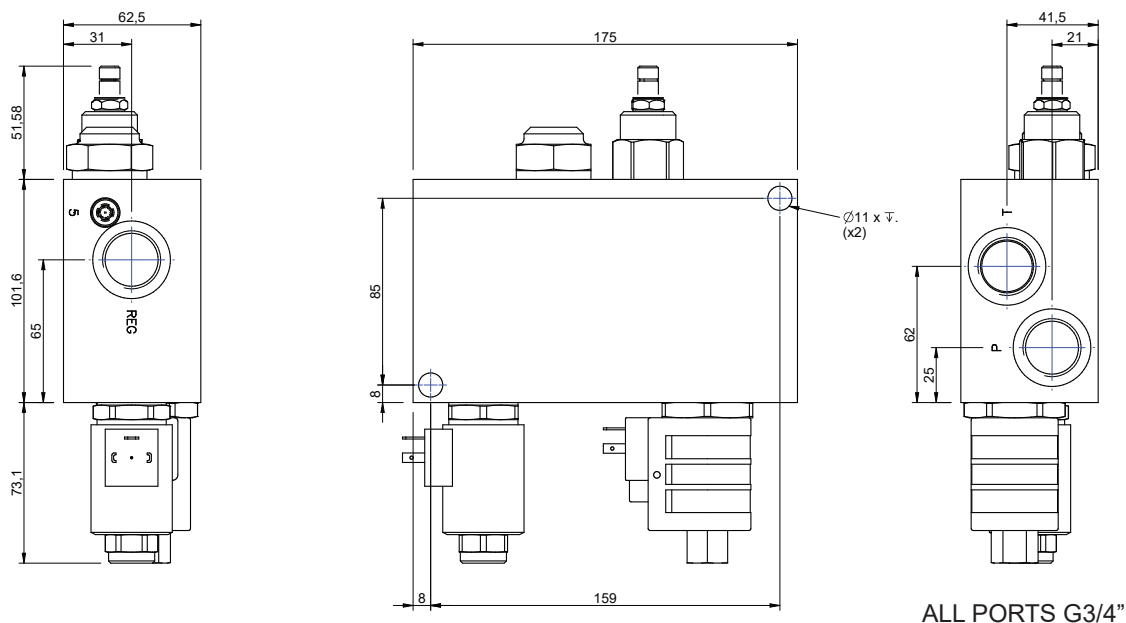
Poppet type C - Coil 12 VDC - hyd. oil 26 cSt (121 SSU) @ 40°C (104°F)



RF MF5098-01

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 Example
RF MF5098

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Nom. Flow Range	Compensator Setting	Pressure setting	Valve options	Voltage	Manifold Material
B = 0-85 lpm	0 = 14 bar	21 = 210 bar**	As per cartridge datasheet i.e.	H1 = 12 Vdc (Din)	A = Aluminium (210 bar max, clear anodised)
C = 0-110 lpm	1 = 16 bar	**10 bar increments	00 = Std	H2 = 24 Vdc (Din)	S = Steel (zinc, clear passivate)
	2 = 18 bar	**21 = std. setting	0M = standard seals + override knob on solenoid valves	D1 = 12 Vdc (Deutsch)	
	3 = 20 bar		Consult factory for other seal types	D2 = 24 Vdc (Deutsch)	
				Does not include connector.	
				**Other voltages & coil terminations available on request.	

Standard Options

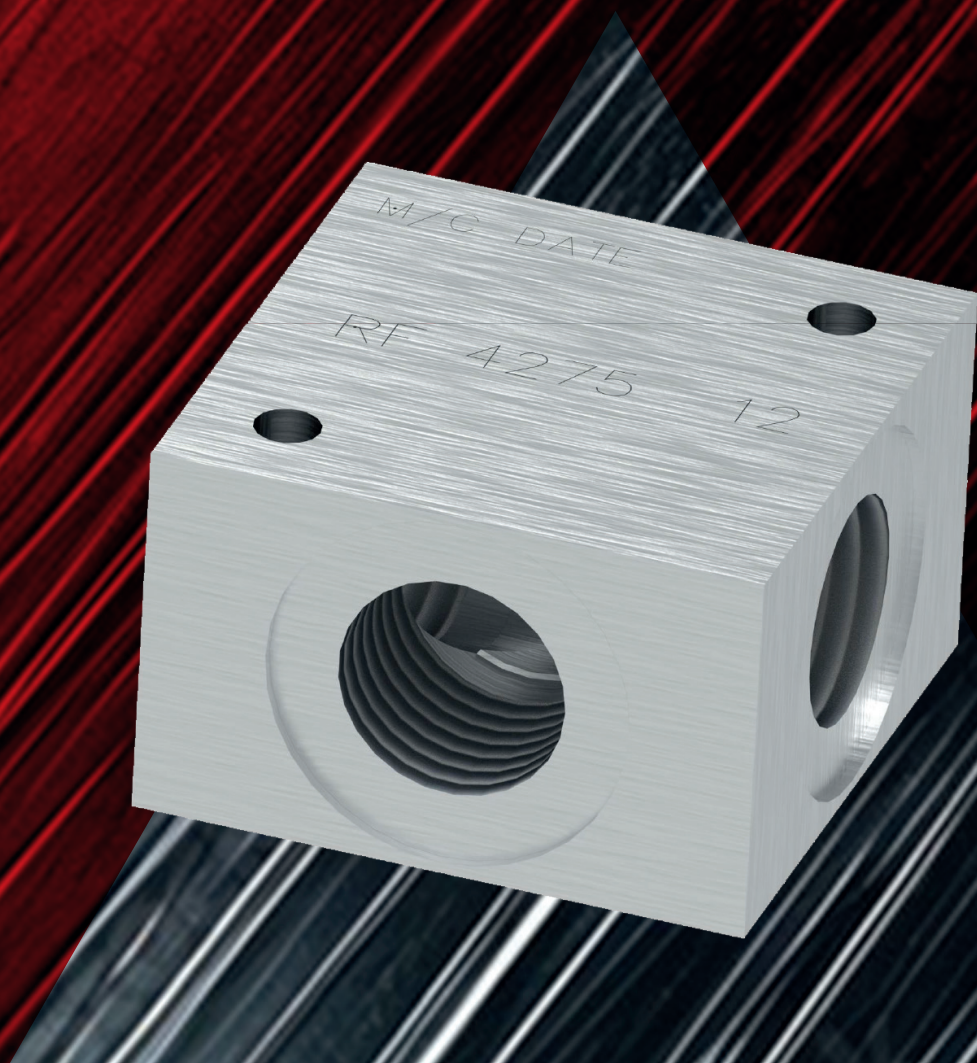
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Nom. Flow Range (lpm)
RF MF5098C02100H1A	PROPORTIONAL PCFC PRIORITY WITH RELIEF + DUMP	210	150	12 VDC (Din)	0-110
RF MF5098C02100H2A	PROPORTIONAL PCFC PRIORITY WITH RELIEF + DUMP	210	150	24 VDC (Din)	0-110

RF MF5098-01



SECTION 11

PIPE MANIFOLDS




350 bar - Variable lpm
Description

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

Ports: G1" (x2) & G3/4" (x4)

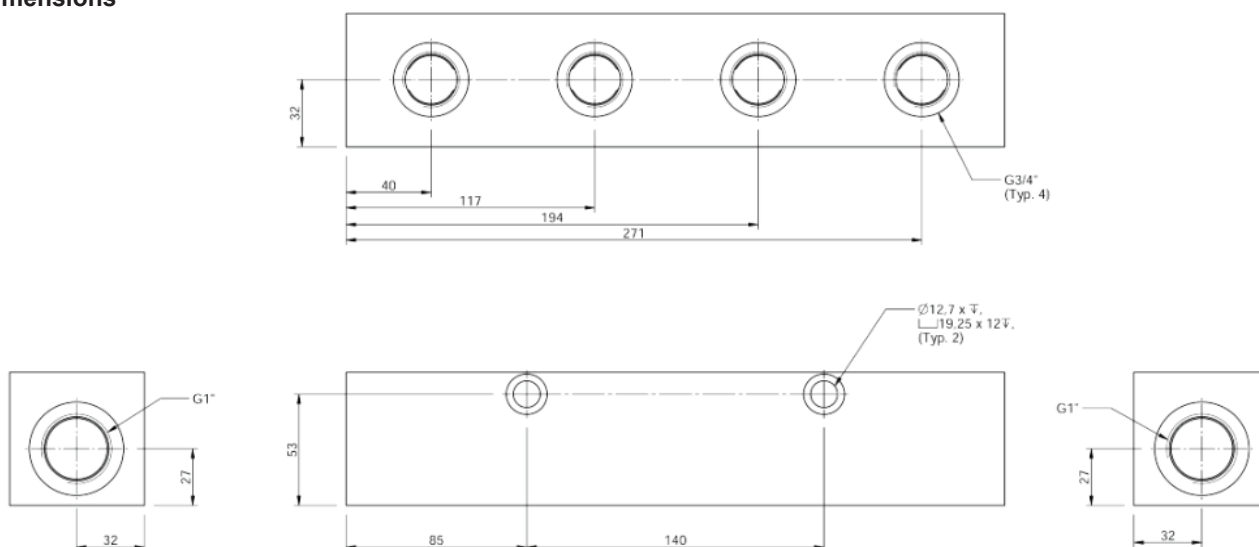
Circuit

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

Specifications

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 (210 bar max, clear anodised) **standard**

S = Steel (350 bar max, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF PM4108A	6 PORT PIPE MANIFOLD G1" (X2) & G3/4" (X4)	210	Variable

RF-PM4108-01

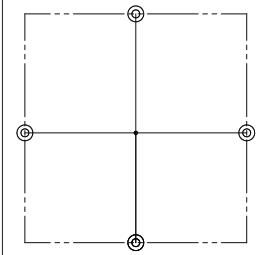


350 bar - Up to Variable lpm

Description

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

Circuit



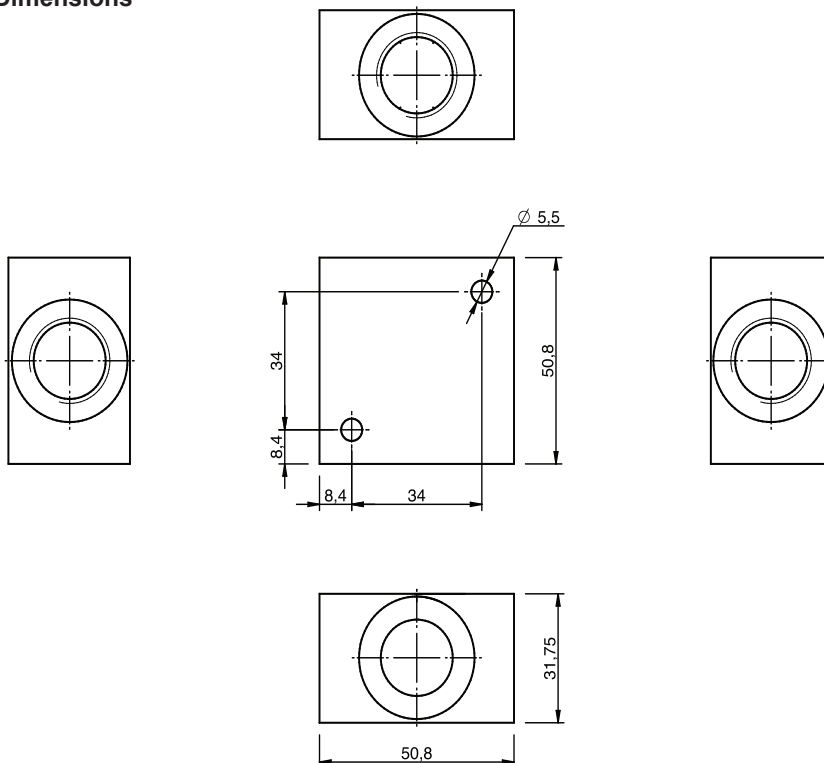
Features

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

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	N/A
Weight	0.15 kg (aluminium), 0.44 kg (steel)

Dimensions



Ordering Example

RF PM4275

*

Manifold Material

A = Aluminium
(210 bar, clear anodised)
standard

S = Steel (350 bar, zinc plated)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF PM4275A	4 PORT PIPE MANIFOLD G1/2"	210	Variable

RF-PM4275-01

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

RF PM4319

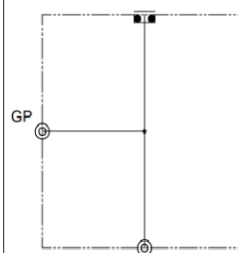


210 bar max. - Variable lpm

Description

The RF PM4319 is single port adaptor block converting from G2" 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.

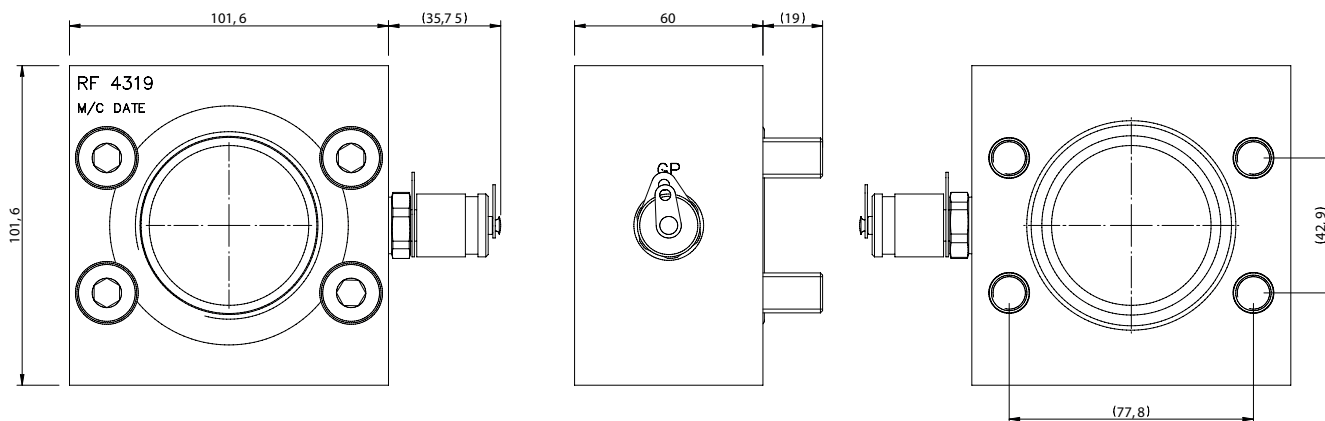
Consult factory for other unlisted options and alternative designs.

Circuit**Features**

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

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)

Dimensions**Standard Options**

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF PM4319A	FLANGE MOUNTED SINGLE PORT ADAPTER G2"	210	Variable

Ordering Example

RF PM4319

*

Manifold Material

A = Aluminium
(210 bar max,
clear anodised)

S = Steel
(350 bar max,
zinc plated)

RF PM4319-01

SECTION 12

SECTION 12
PRESSURE
REDUCERS

PRESSURE REDUCERS

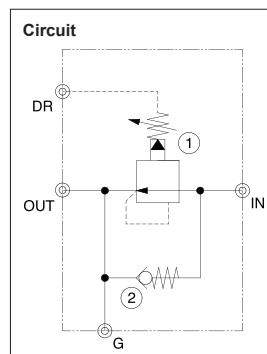




Up to 350 bar - Up to 160 lpm

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.



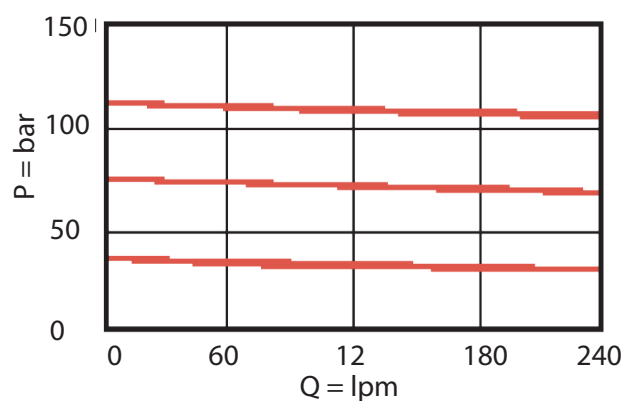
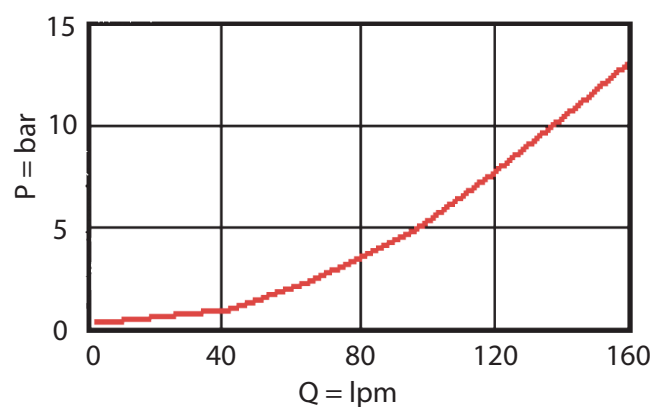
Features

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

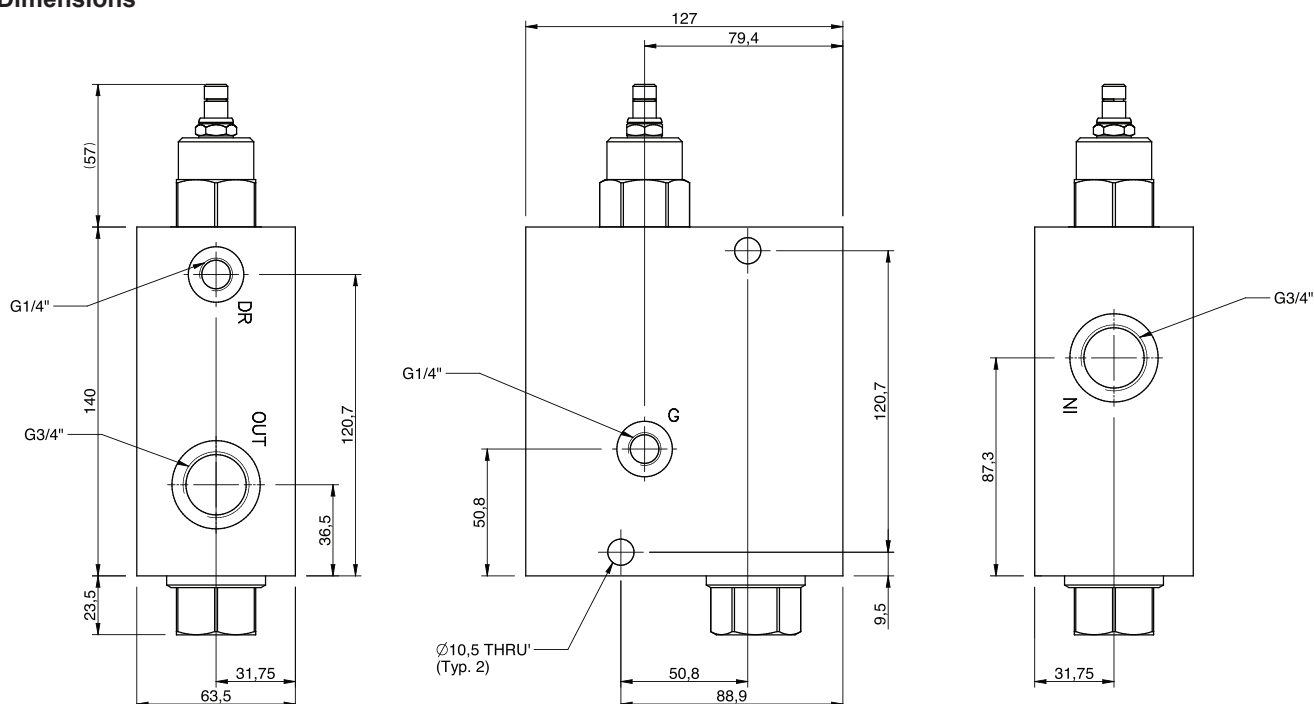
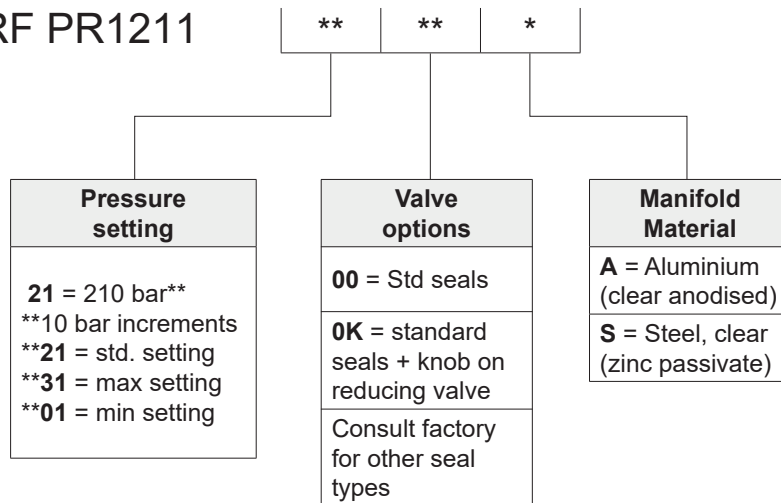
Specifications

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-RFPR1211
Weight	3.2 kg (alum) 7.8 kg (steel)

Pressure reducer Performance



RF PR1211-01

Dimensions

Ordering Example
RF PR1211

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF PR12112100A	PRESSURE REDUCER ASSEMBLY + REVERSE FLOW CHECK	210	160	7-210

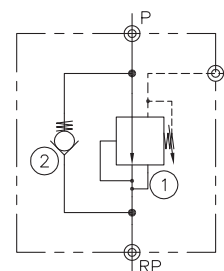


Up to 275 bar - 40 lpm

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.

Schematic



Note: Any back pressure applied to port 'T' will be additive to the setting on the valve ①.

Features

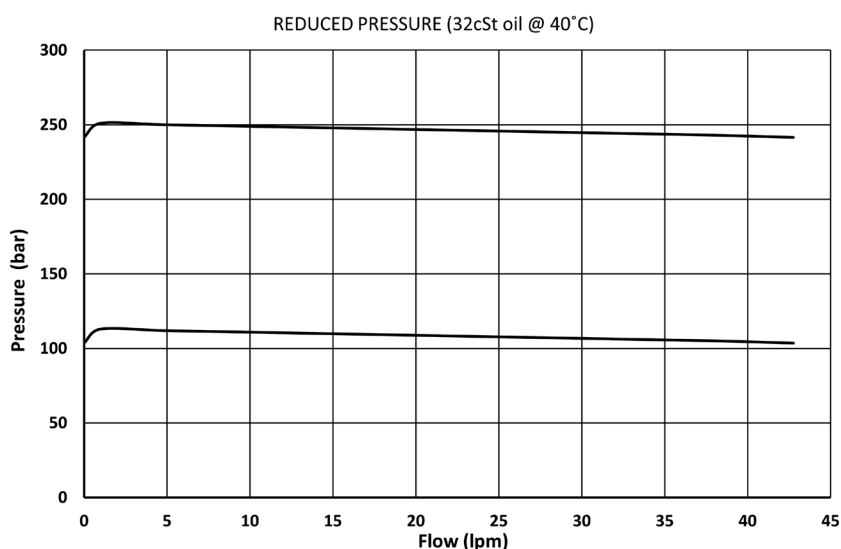
- Low profile, compact and efficient design.
- Multiple pressure ranges.
- Multiple adjustment types.

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

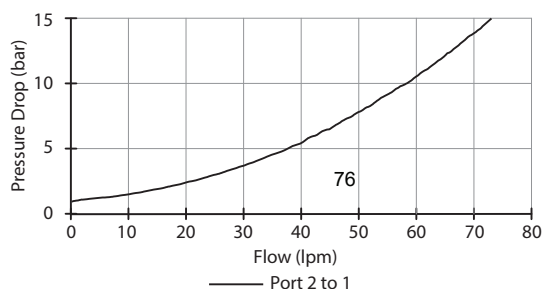
32 cSt / 38°C.



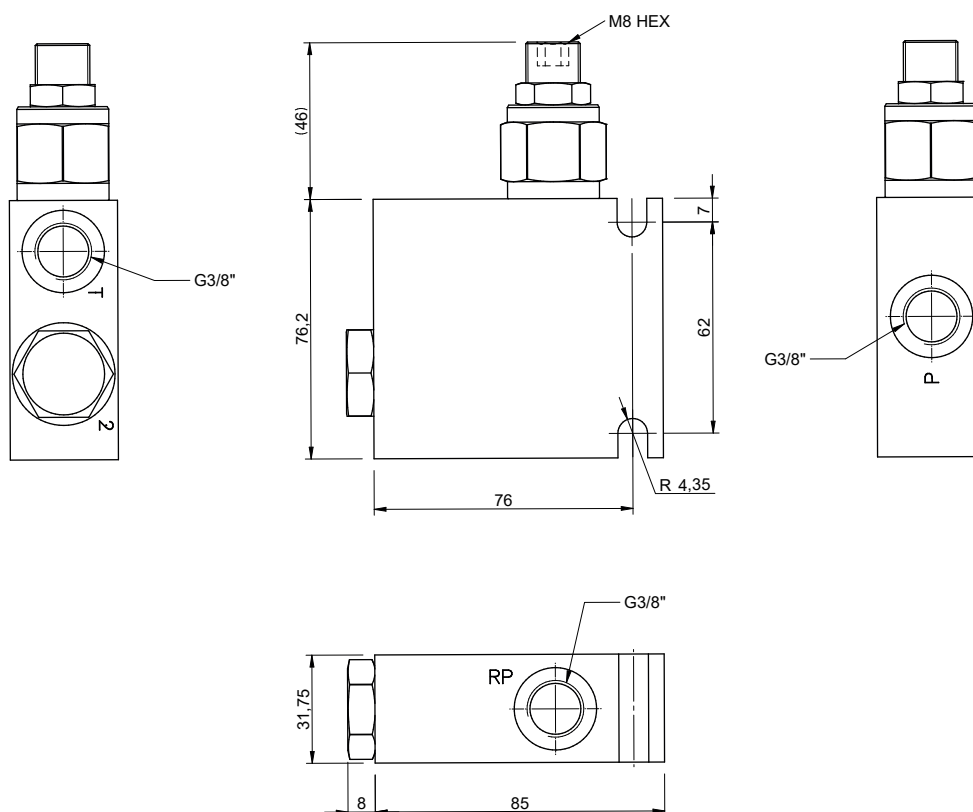
RF PR1490-01

Performance

D-DECVA Return flow ΔP



Dimensions



Ordering Example

RF PR1490 * * *

Pressure Reducing Valve
H - 28-350 bar
M - 4-207 bar (standard)
L - 4-103 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)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF PR1490LSA	PRESSURE REDUCER VALVE + BYPASS CHECK	210	40	4-103
RF PR1490MSA	PRESSURE REDUCER VALVE + BYPASS CHECK	210	40	4-207

RF PR1490-01

SECTION 13

RELIEF VALVES

SECTION 13
RELIEF
VALVES



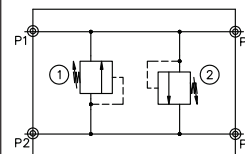


Up to 345 bar - Up to 150 lpm

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 locknut. Through porting and compact design make this valve assembly an ideal solution on installations where space is at a premium.

Symbol



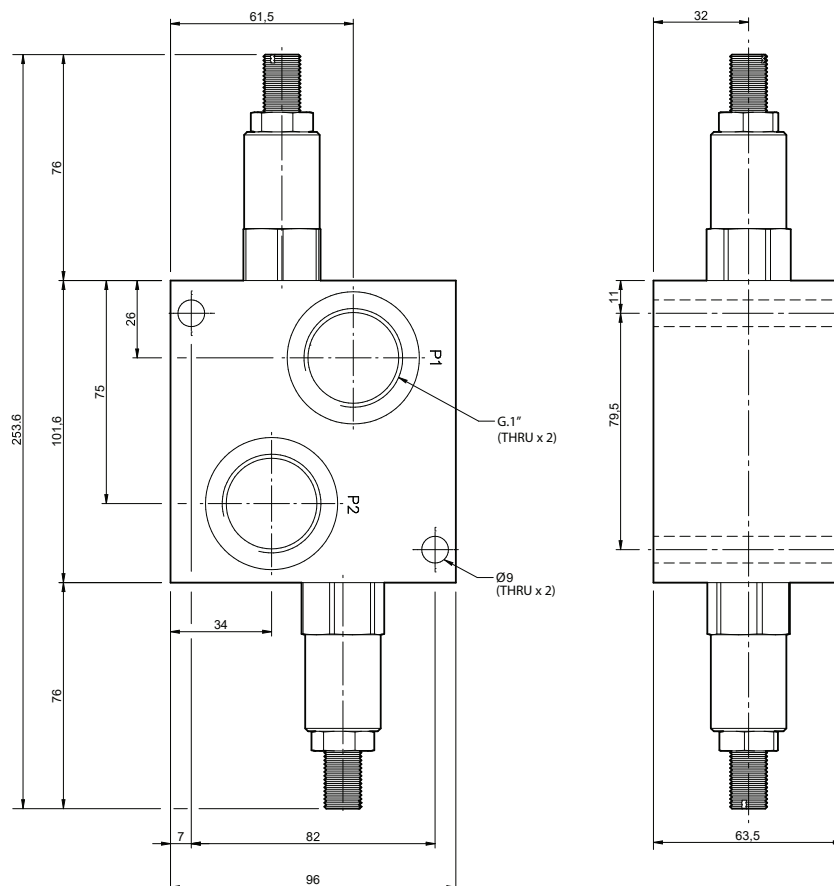
Features

- 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.

Specifications

Flow Range (lpm)	150
Max. Pressure (bar)	345
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



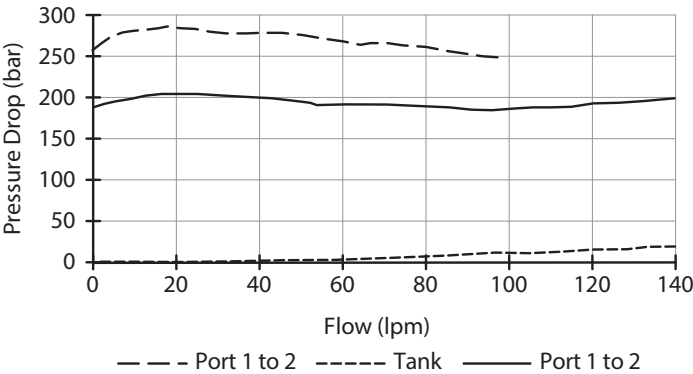
RF RV3883-01

Up to 345 bar - Up to 150 Lpm

Relief Valve Performance

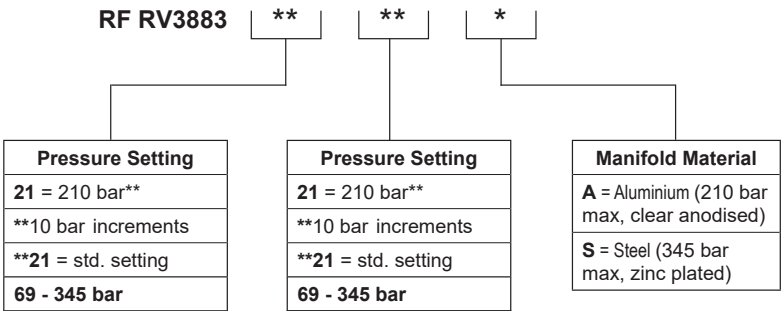
Oil viscosity 32 cSt

Temperature 38 °C



Recommended return line pressure as shown on Performance graph.

Ordering Example



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF RV38832121S	DUAL CROSS LINE RELIEF ASSEMBLY G1"	345	150	69-345



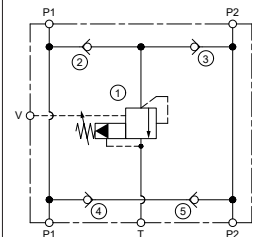
Variable, 350 bar max. - Variable up to 240 lpm

Description

The RF RV4215 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.

Circuit



Notes:

- The relief valve is a spool type and not suitable for load holding applications
- Pilot control valves not included. Consult our factory for further information and support.

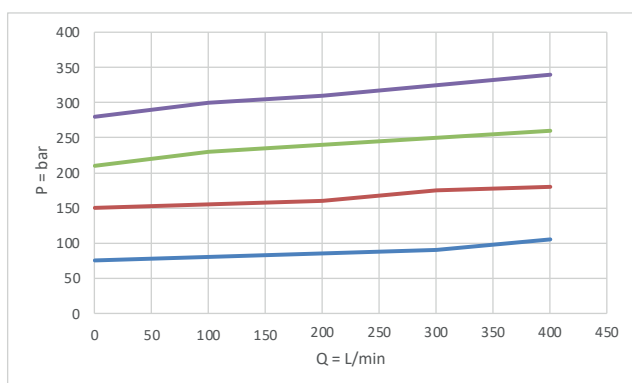
Features

- 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.

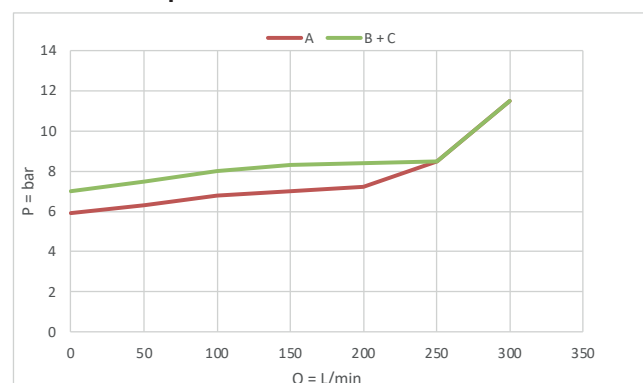
Specifications

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)

Pressure Rise:

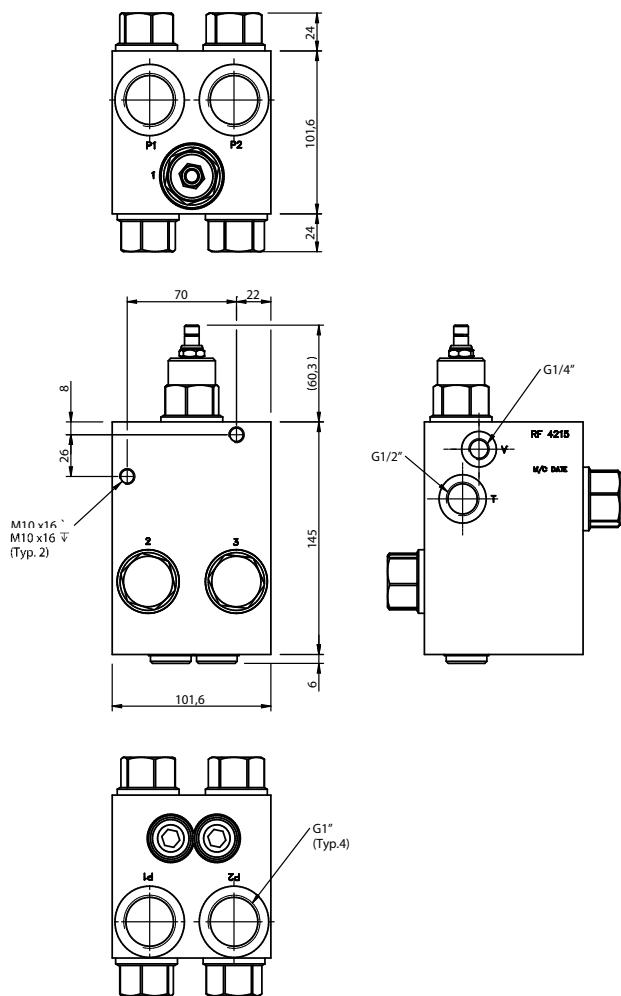


Pressure Drop:



RF RV4215-01

Dimensions



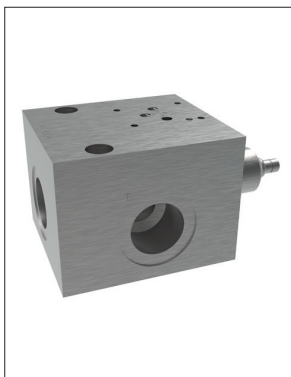
Ordering Example

RF RV4215

*	**	*
Relief valve Pressure range	Pressure setting	Manifold Material
A = 10-210 bar	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)
B = 10-310 bar	**10 bar increments	S = Steel (350 bar max, zinc plated)
C = 10-420 bar (350 bar max.)	**21 = std. setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF RV4215C21S	VENTABLE CROSS LINE RELIEF VALVE + ANTI CAV	350	240	10-350

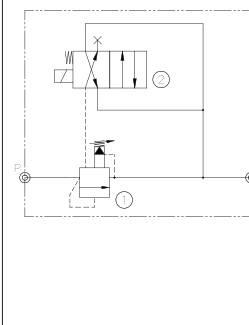


350 bar max. - Up to 240 lpm max

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.

Circuit



Cetop valve not included

Notes:

- (i) Cetop pilot control(s) not supplied. Consult our factory for further assistance here
- (ii) Other configurations including but not limited to, port size, logic setup and position monitoring available on request

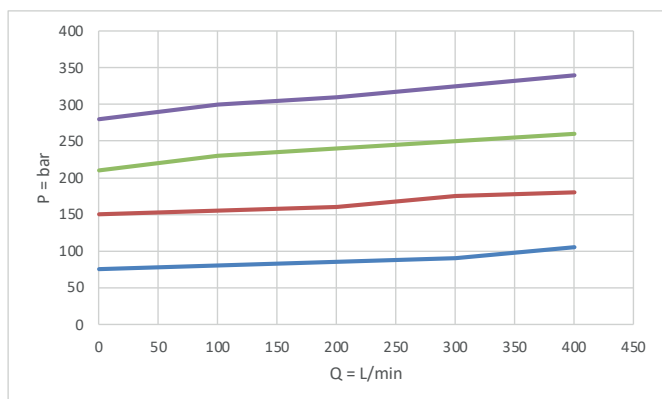
Features

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

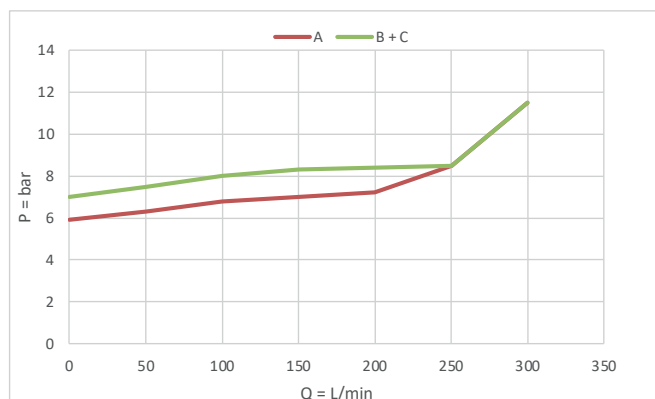
Specifications

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:

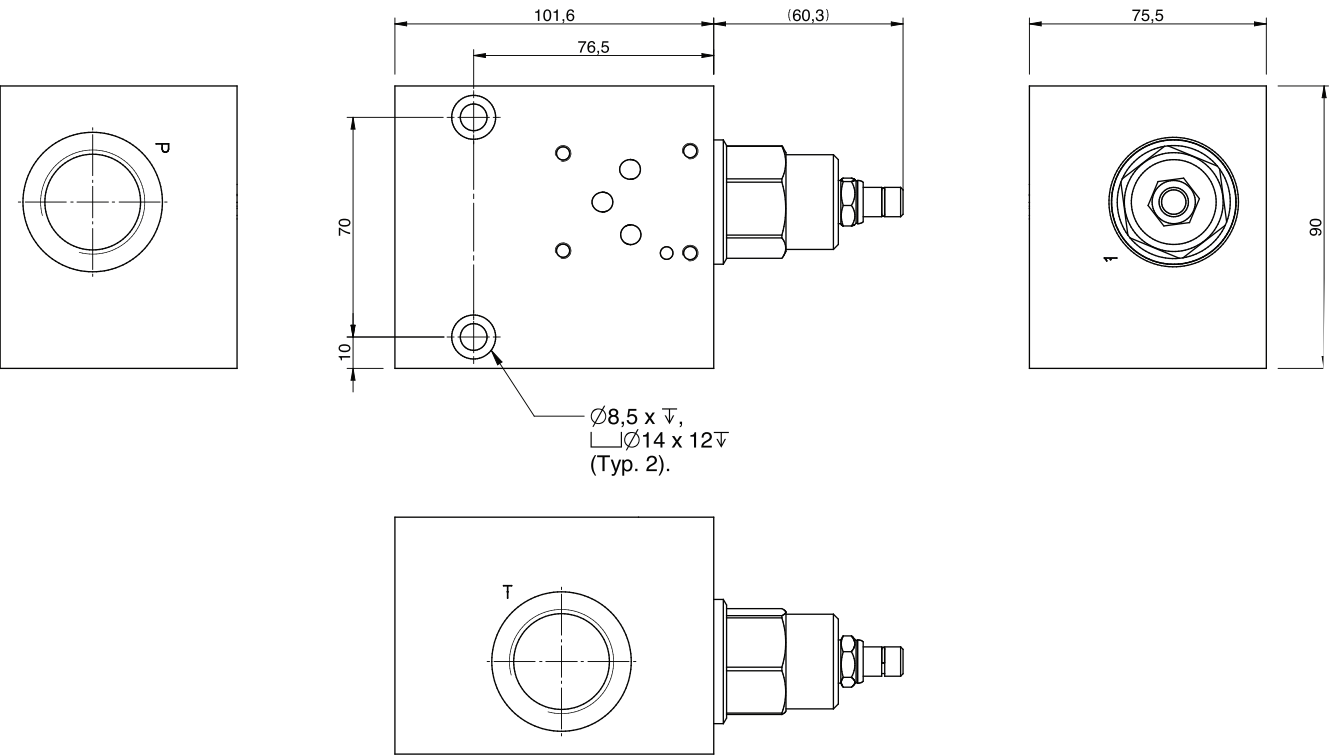


Pressure Drop:



RF RV4304-01

Dimensions



Ordering Example

RF RV4304

*	**	*
Relief valve Pressure range	Pressure setting	Manifold Material
A = 10-210 bar	21 = 210 bar**	A = Aluminium (210 bar max, clear anodised)
B = 10-310 bar	**10 bar increments	S = Steel (350 bar max, zinc plated)
C = 10-420 bar (350 bar max.)	**21 = std. setting	

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Pressure Range (bar)
RF RV4304C21S	VENTED RELIEF VALVE + CETOP INTERFACE G1"	350	240	10-350

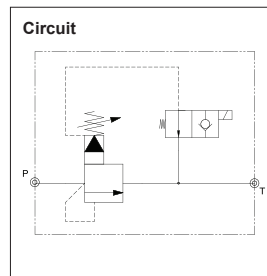


Up to 350 bar max - Up to 120 lpm

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 consult factory for more information and guidance on options and what control that can be achieved.



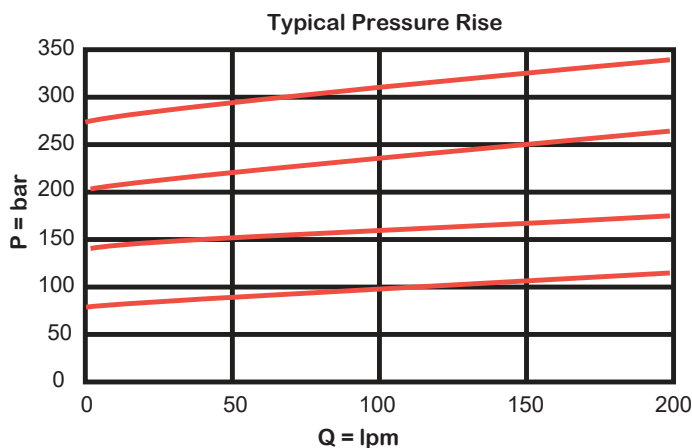
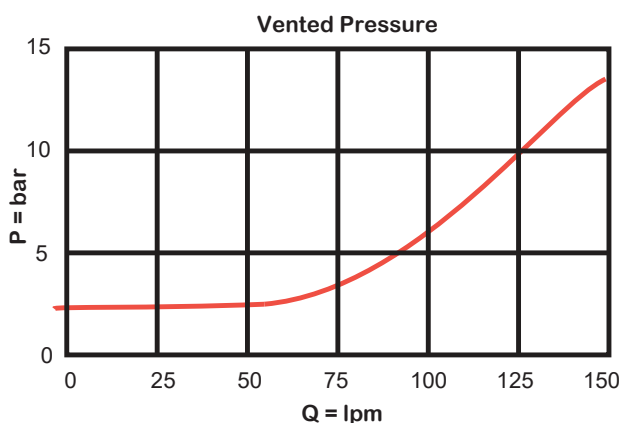
Features

- 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

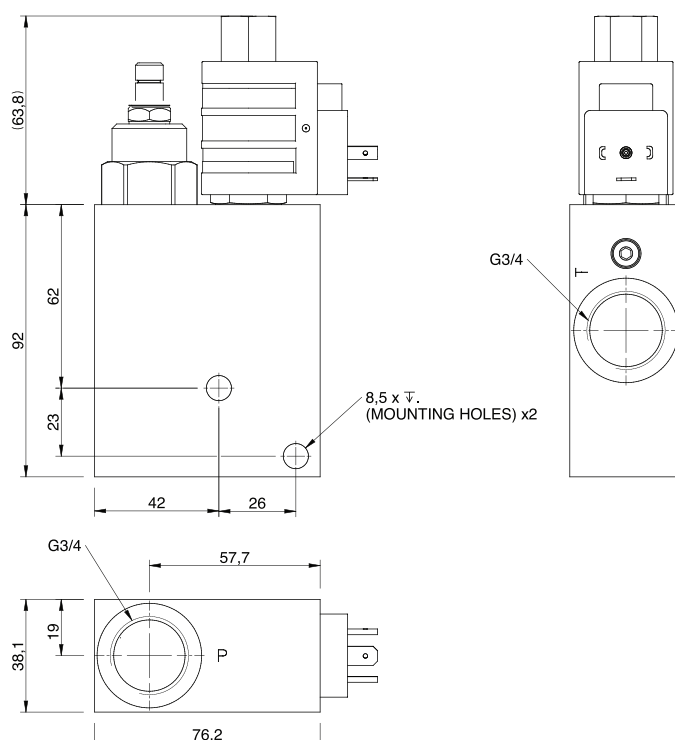
Specifications

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



RF RV5117-01

Dimensions

Ordering Example
RF RV5117

Pressure setting	Valve options	Voltage	Manifold Material
21 = 210 bar** **10 bar increments ** 21 = std. setting	As per cartridge data sheet i.e. 00 = Std 0K = standard seals + override knob on solenoid valves Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector **Other voltages and coil terminations available on request.	A = Aluminium (clear anodised) S = Steel, clear (zinc passivate)

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage	Pressure Range (bar)
RF RV51172100H1A	VENTED RELIEF VALVE 210 BAR SETTING G3/4" 12VDC	210	120	12VDC	10.5 - 210
RF RV51172100H2A	VENTED RELIEF VALVE 210 BAR SETTING G3/4" 24VDC	210	120	24VDC	10.5 - 210

RF RV5117-01

SECTION 14

SEQUENCE VALVES

SECTION 14
SEQUENCE
VALVES





Up to 350 bar - Up to 40 lpm

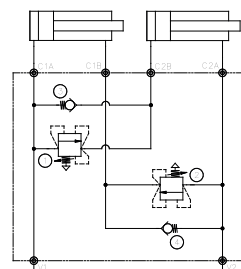
Description

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.

Symbol



Features

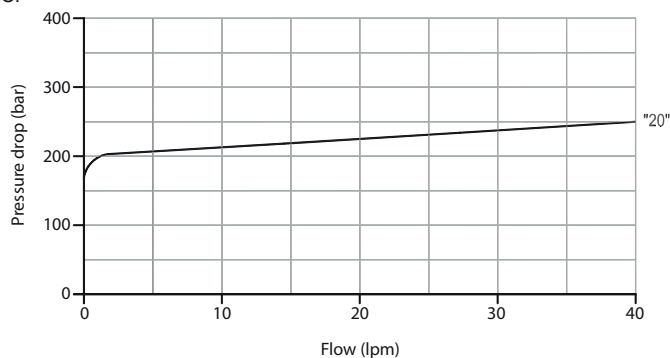
- Aluminium body (clear anodised) or steel body (zinc plate clear passivate)
- Optional sequence valve pre-setting 50 - 220 bar (other ranges available upon request)
- Atmospherically vented sequence valves are used and are immune to system back pressures
- Also available in G1/4" ported version in another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

Specifications

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.

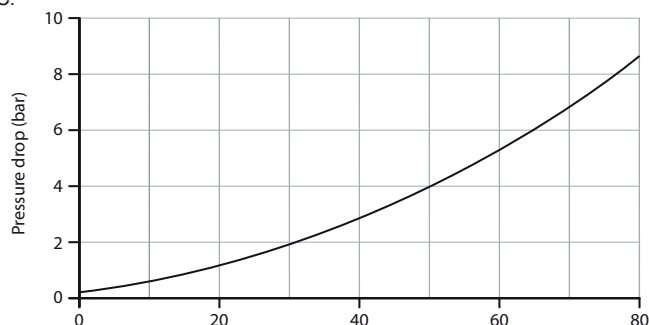


Sequence Valve Specifications

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.

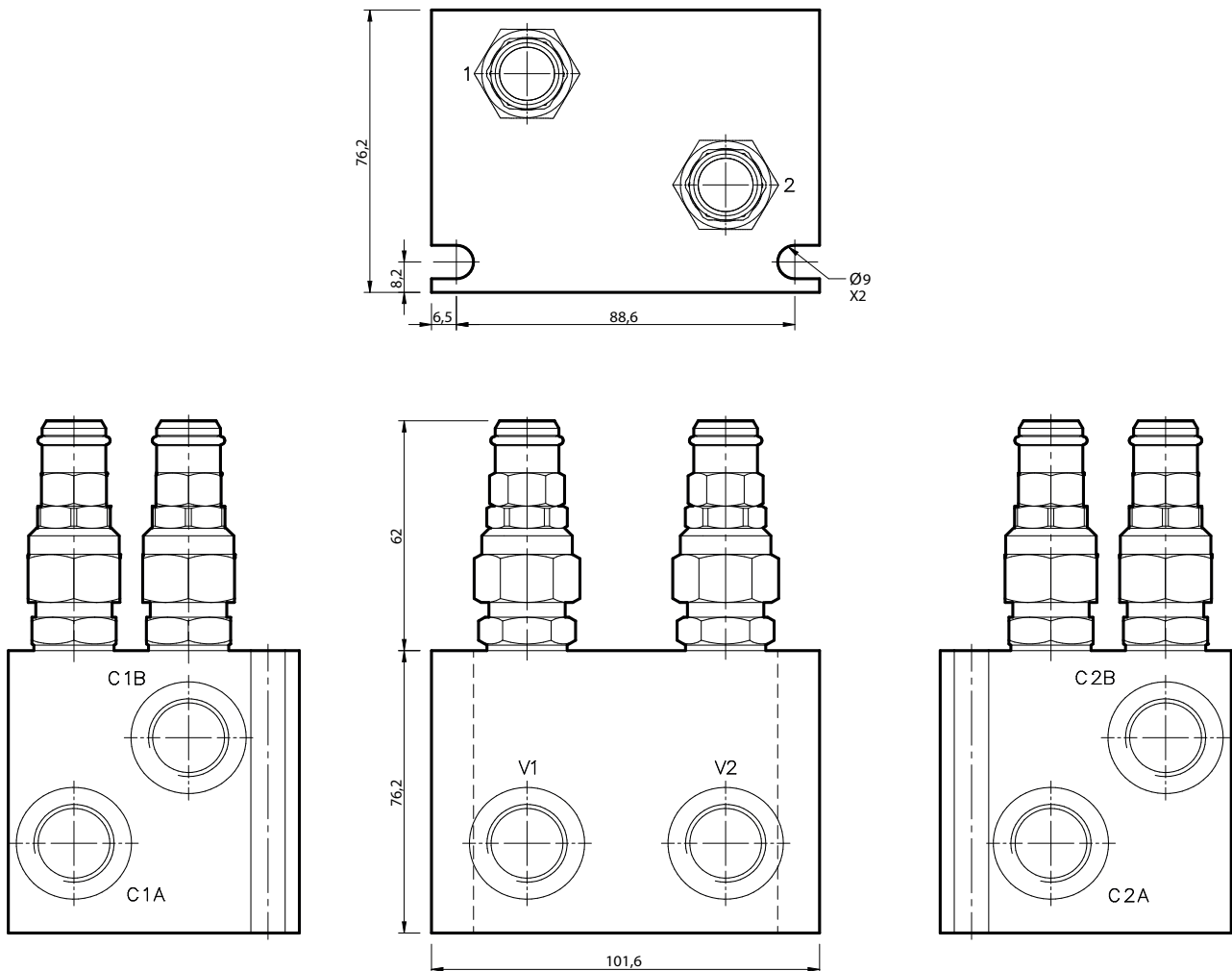


Check Valve Specifications

Rated flow	40 lpm
Max. pressure	350 bar
Installation torque	6 Nm
Valve weight	0.019 kg

RF SQ3896-01

Dimensions



Ordering Example

RF SQ3896

Sequence Valve 1 Pressure Setting (50-220 bar)
05 = 50 bar**
12 = 120 bar**
**10 bar increments
10 = std. setting 100 bar

Sequence Valve 2 Pressure Setting (50-220 bar)
05 = 50 bar**
12 = 120 bar**
**10 bar increments
10 = std. setting 100 bar

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF SQ38961010A	DUAL SEQUENCE CONTROL ASSEMBLY- G1/2"	210	40



Up to 350 bar - Up to 20 lpm

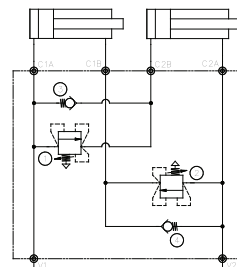
Description

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.

Circuit



Features

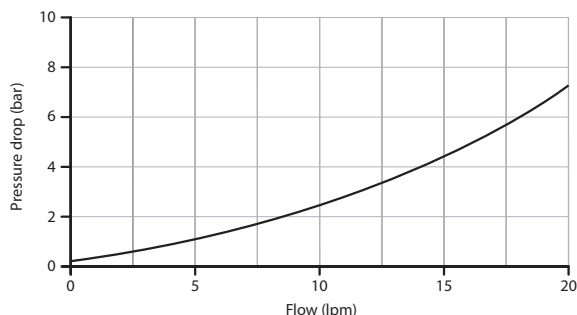
- Aluminium body (clear anodised) or steel body (zinc plate clear passivate)
- Optional sequence valve pre-setting 50 - 220 bar (other ranges available upon request)
- Atmospherically vented sequence valves are used and are immune to system back pressures
- Also available in G1/2" ported version in another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

Specifications

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)

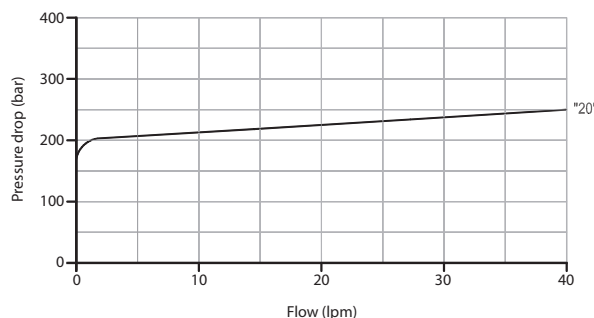
Performance - Check Valve

24 cSt / 50°C.



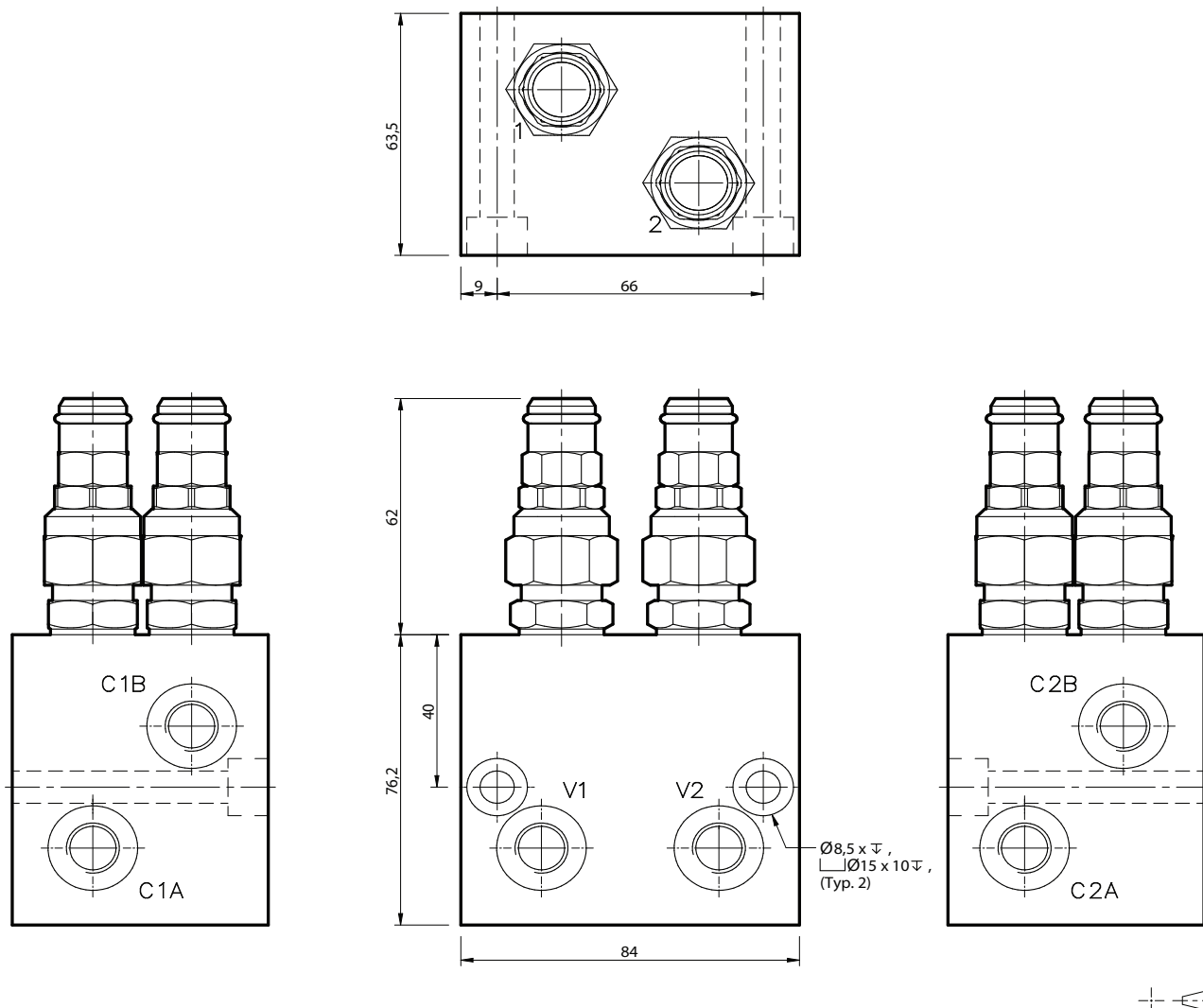
Performance - Sequence Valve

24 cSt / 50°C.



RF SQ4897-01

Dimensions



Ordering Example

RF SQ4897

**

**

**

Sequence Valve 1 Pressure Setting (50-220 bar)
05 = 50 bar**
12 = 120 bar**
**10 bar increments
10 = std. setting 100 bar

Sequence Valve 2 Pressure Setting (50-220 bar)
05 = 50 bar**
12 = 120 bar**
**10 bar increments
10 = std. setting 100 bar

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF SQ48971010A	DUAL SEQUENCE CONTROL ASSEMBLY - G1/4"	210	20

RF SQ4897-01

SECTION 15

HOT OIL SHUTTLES



SECTION 15
HOT OIL
SHUTTLES



Up to 350 bar - Variable purge up to 60 lpm

Description

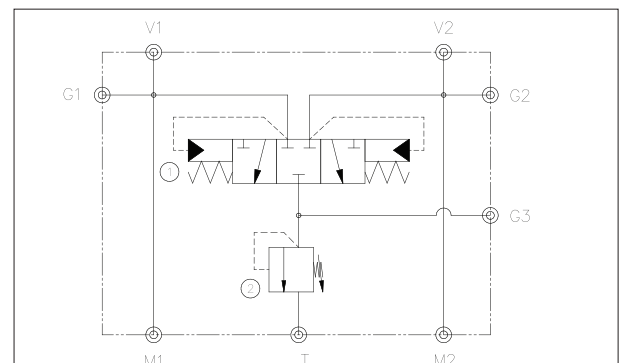
The RF HS4677 is a circuit saver valve assembly for hydrostatic transmissions with the purpose of removing heat and any potential contamination, as a result a higher degree of reliability can be achieved in closed loop applications when these valves are used. The valves are tee'd off the line allowing 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 determined 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

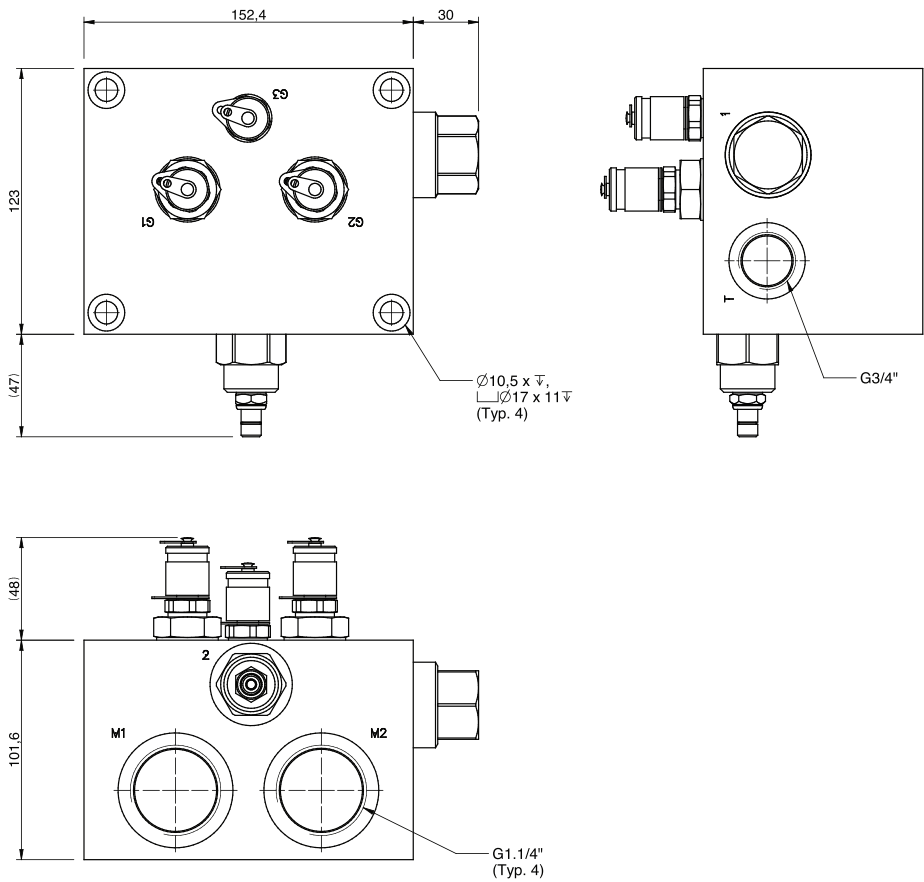


Specifications

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-RFHS4677
Weight	5.3 kg (alum) 12.4 kg (steel)

RF HS4677-01

Dimensions



Ordering Example

RF HS4677

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF HS46771020S	HOT OIL SHUTTLE VALVE + PURGE RELIEF LINE MOUNTED	350	300



Up to 350 bar - Variable purge up to 40 lpm

Description

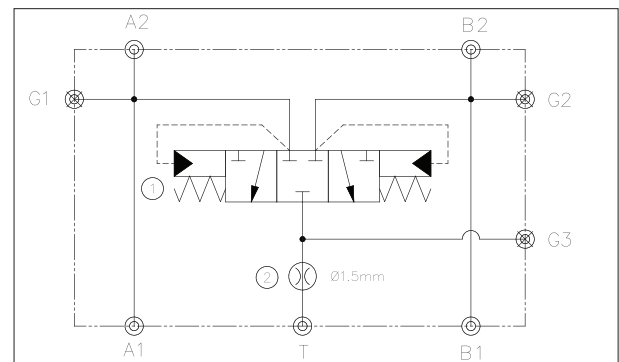
The RF HS4885 is a circuit saver valve assembly for hydrostatic transmissions with the purpose of removing heat and any potential contamination, as a result a higher degree of reliability can be achieved in closed loop applications when these valves are used. The valves are tee'd off the line allowing 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 determined 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

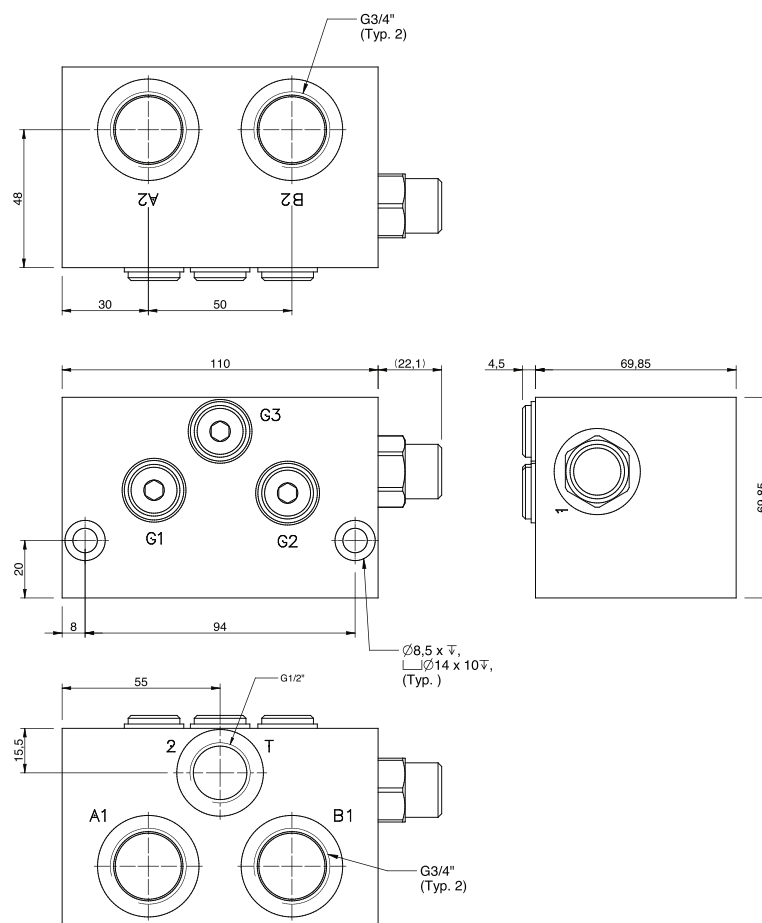
Circuit



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-RFHS4885
Weight	1.4 kg (alum) 3.6 kg (steel)

RF HS4885-01

Dimensions

Ordering Example
RF HS4885

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

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
RF HS48851420S	HOT OIL SHUTTLE VALVE WITH PURGE ORIFICE	350	130

RF HS4885-01

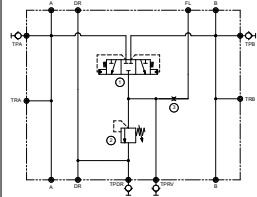


Up to 350 bar - Variable with 80 lpm max purge flow

Description

The RF HS4887 is a valve assembly for hydrostatic transmissions to remove heat and contamination, resulting in a higher degree of reliability in closed loop applications when these valves are used. The valves are tee'd off the line allowing low pressure drop performance. During operation the hot oil flushing circuit allows oil discharge from the low-pressure side of the cooling loop, generated by the charge pump. The cooling loop oil flow combines with the main power loop for continual introduction of cooler, cleaner oil into the system. The discharged hot oil often passes through the pump

Circuit



and motor cases, providing cooling to each element. In some circuit designs a heat exchanger is fitted before final return to the reservoir. The assembly also includes a separate motor flushing line for additional motor cooling. All main lines and purge lines have pressure test points.

When the main power loop is in neutral, charge pressure is managed by the charge pump relief. When the hot oil shuttle opens, the charge pump flow is redirected through the hydrostatic shuttle and the purge orifice. The charge pump relief must be set high enough to ensure sufficient flow over the purge relief, with higher settings increasing potential hot oil flow. The hot oil flow amount depends on the differential pressure setting between the charge and purge reliefs. For flushing flow the amount of motor cooling flow is determined by charge relief + orifice. Pipe lengths and pressure drop must also be considered. Consult factory for further guidance.

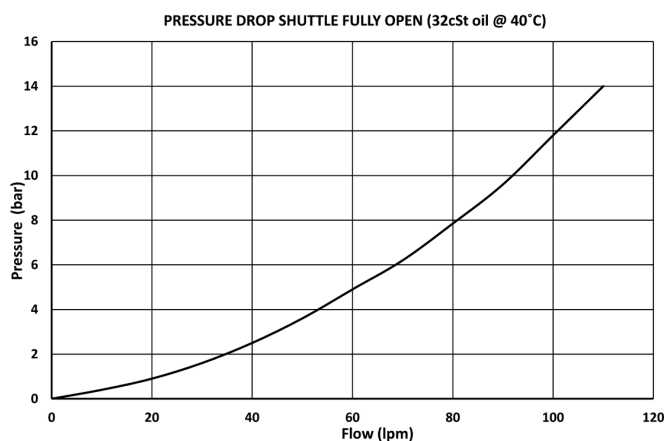
Features

- Compact line mount design
- 1.1/2" SAE 6000 Flanged & G3/4" Ports
- Charge relief pressure to be advised at point of order

Specifications

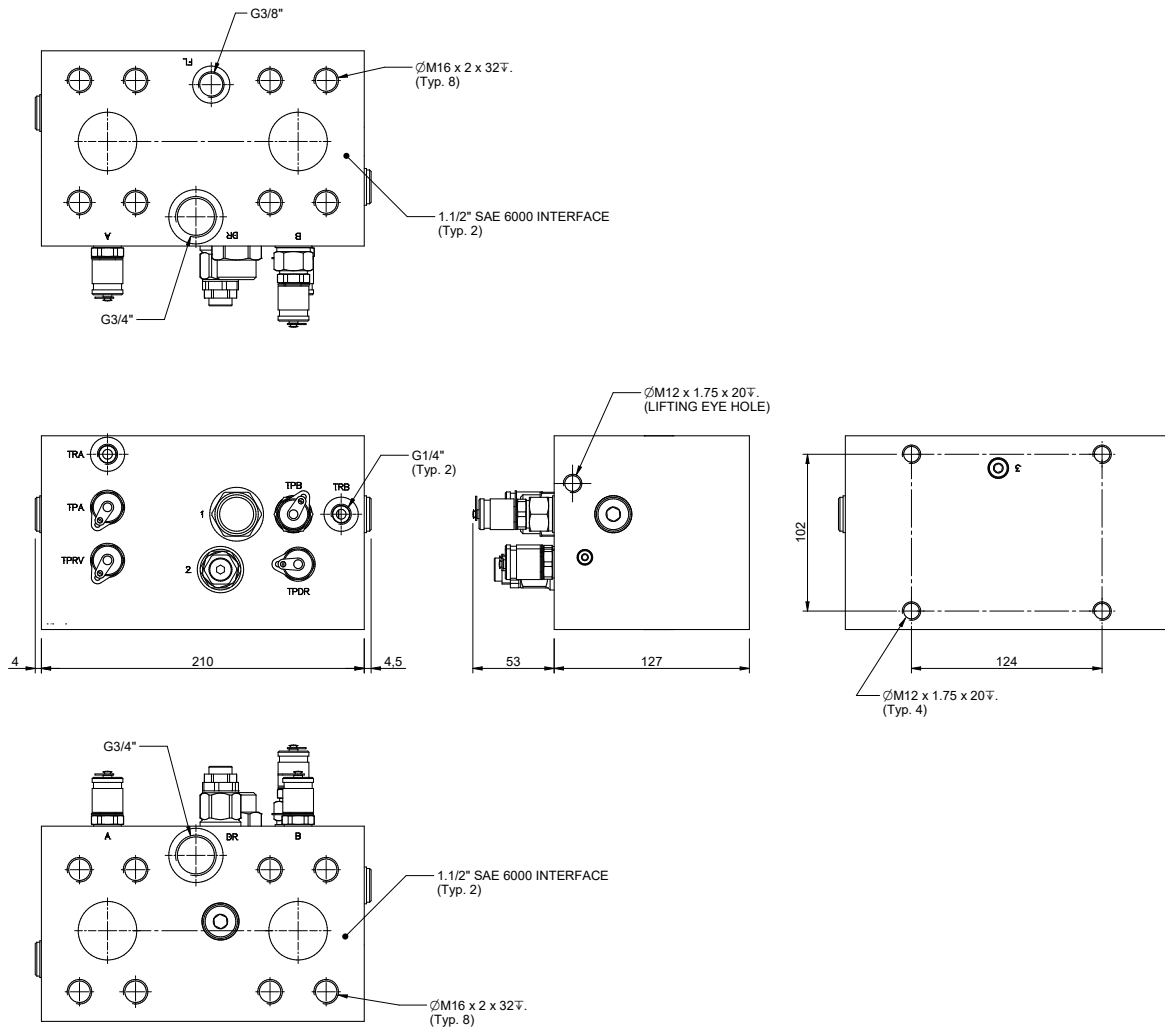
Flow Range (lpm)	Variable + 80 lpm max. on purge
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 110°C
Spare Seal Kit	SK-RFHS4887
Weight	23 kg (steel)

Performance



RF HS4887-01

Dimensions



Ordering Example

RF HS4887

** ** *

HOS - Shift Pressure	Purge Relief Pressure	Flushing Flow	Manifold Material
05 = 5 bar	20 = 20 bar	05 = 5 lpm	S = Steel (350 bar max, zinc plated)
10 = 10.5 bar (std setting)	To 30 = 30 bar	To 40 = 40 lpm	
14 = 14 bar	**1 bar increments	**1 lpm increments	
	Min. setting = 20 bar. Max. setting = 30 bar	Min. setting = 05 lpm. Max. setting = 40 lpm	
		**20 = std. setting	

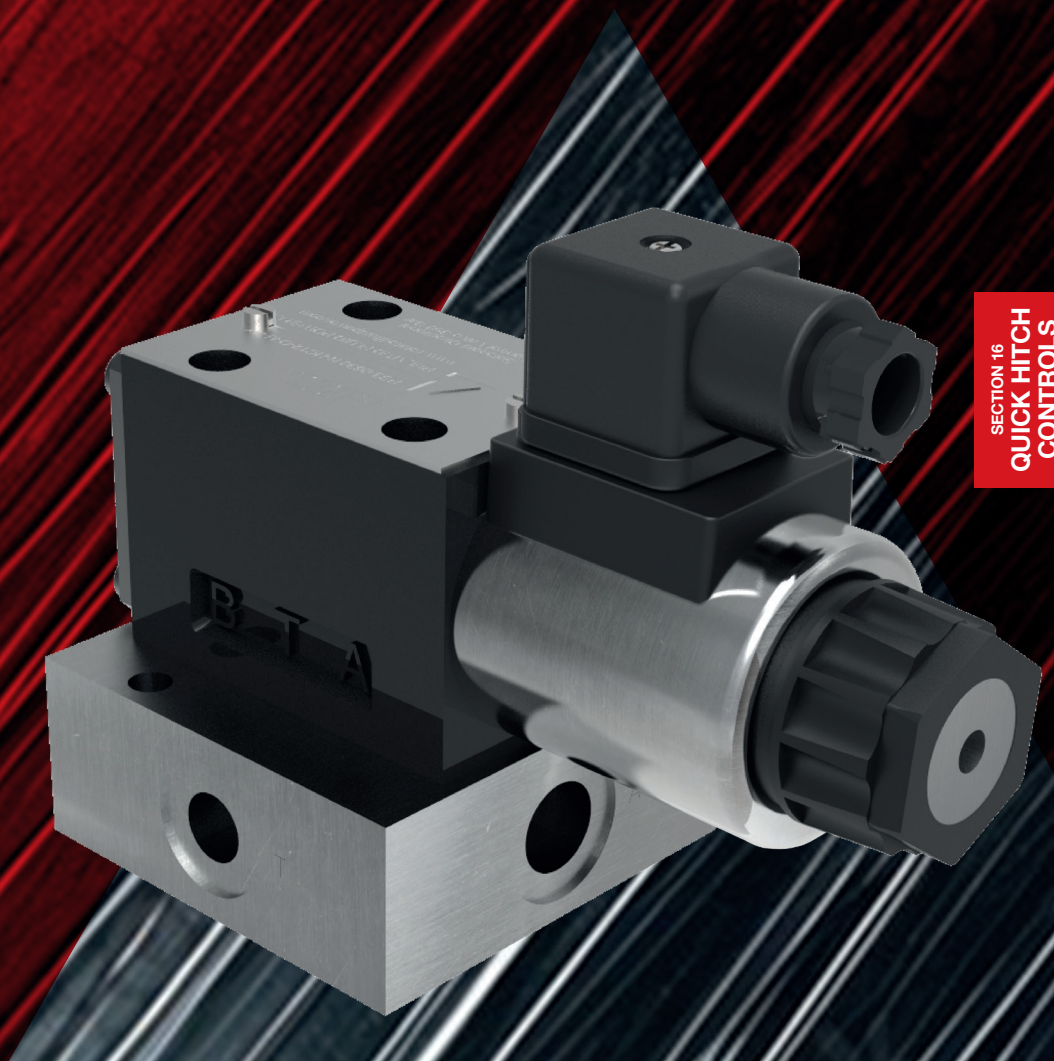
Standard Options

Part No.	Description	Max. pressure (bar)	Max. Flow (lpm)
RF HS4887102520S	HOT OIL SHUTTLE VALVE + PURGE RELIEF THRU' PORTED	350	300

RF HS4887-01

SECTION 16

QUICK HITCH CONTROLS



SECTION 16
QUICK HITCH
CONTROLS

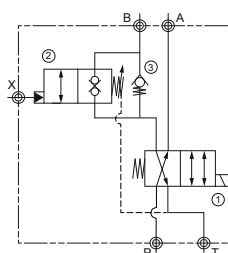


Up to 350 bar

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.

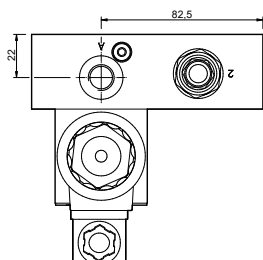
Schematic



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	Weight	5.4 kg

Dimensions



Ordering Example

RF QH3629

**

Pilot valve setting

180 = 180 bar

280 = 280 bar

Other settings available on request

Voltage

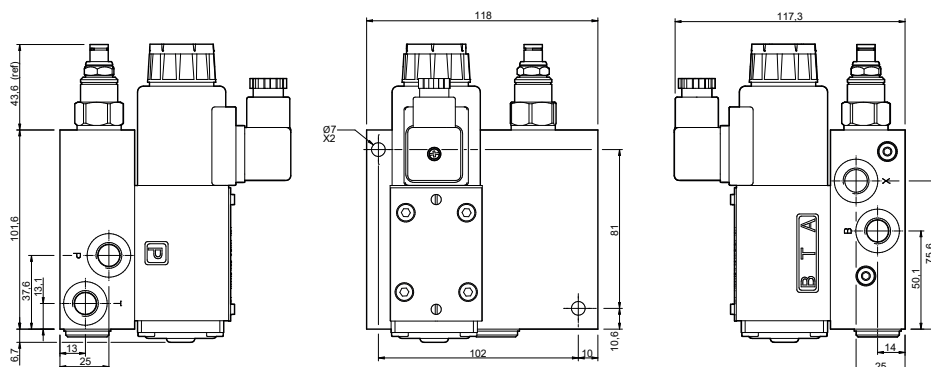
H1 = 12 Vdc (Din)

H2 = 24 Vdc (Din)

D1 = 12 Vdc (Deutsch)

D2 = 24 Vdc (Deutsch)

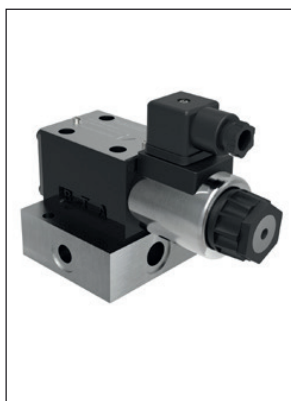
Does not include connector



Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF QH3629180H1	QUICK HITCH CONTROL 5 PORT 180 BAR PILOT	350	25	12 VDC (Din)
RF QH3629180H2	QUICK HITCH CONTROL 5 PORT 180 BAR PILOT	350	25	24 VDC (Din)
RF QH3629280H1	QUICK HITCH CONTROL 5 PORT 280 BAR PILOT	350	25	12 VDC (Deutsch)
RF QH3629280D2	QUICK HITCH CONTROL 5 PORT 280 BAR PILOT	350	25	24 VDC (Deutsch)

RF QH3629-01



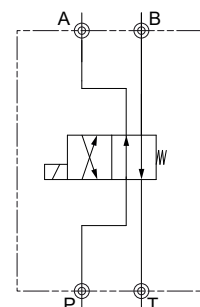
Up to 350 bar

Description

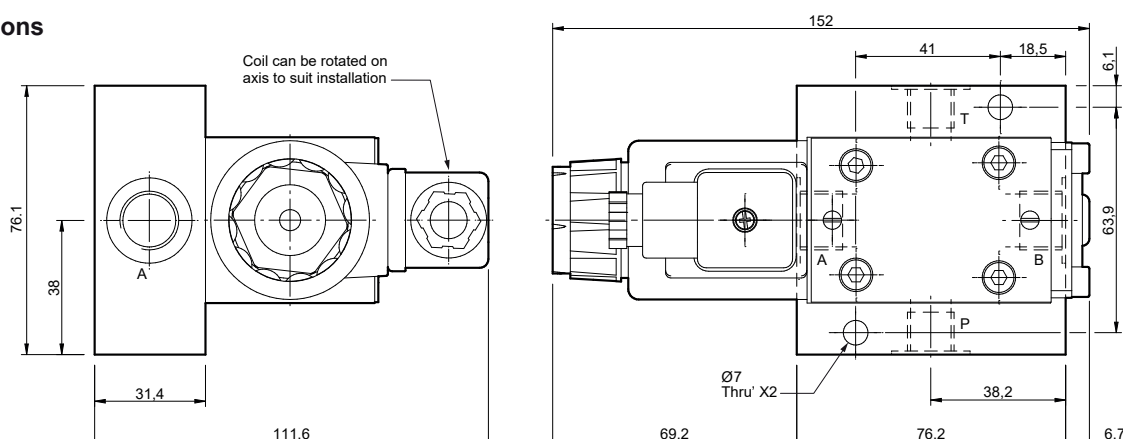
The Quick Hitch Valve is used to control the close / open function by electrical selection from within the cab. This valve has a remote pilot feature creating a hydraulic safety interlock.

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 (G)	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 Example
RF QH3937
0630

Spool code

0630 - As diagram with open centre transient.

Voltage

H1 = 12 Vdc (Din)
H2 = 24 Vdc (Din)
D1 = 12 Vdc (Deutsch)
D2 = 24 Vdc (Deutsch)
 Does not include connector

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF QH39370630H1	QUICK HITCH CONTROL - 4PORT 12VDC	350	25	12VDC (DIN)
RF QH39370630H2	QUICK HITCH CONTROL - 4PORT 24VDC	350	25	12VDC (DIN)

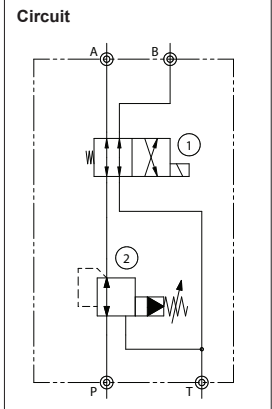
RF QH3937-01



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.



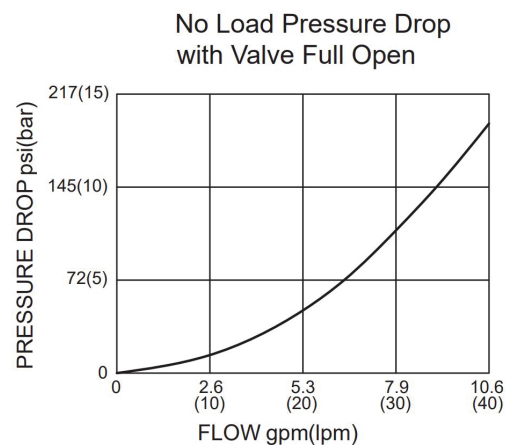
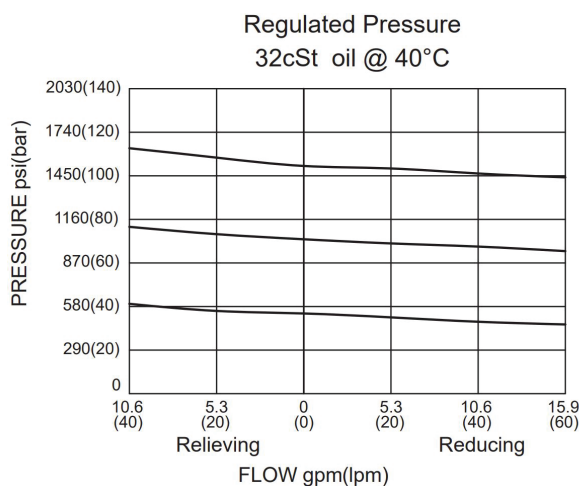
Features

- 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

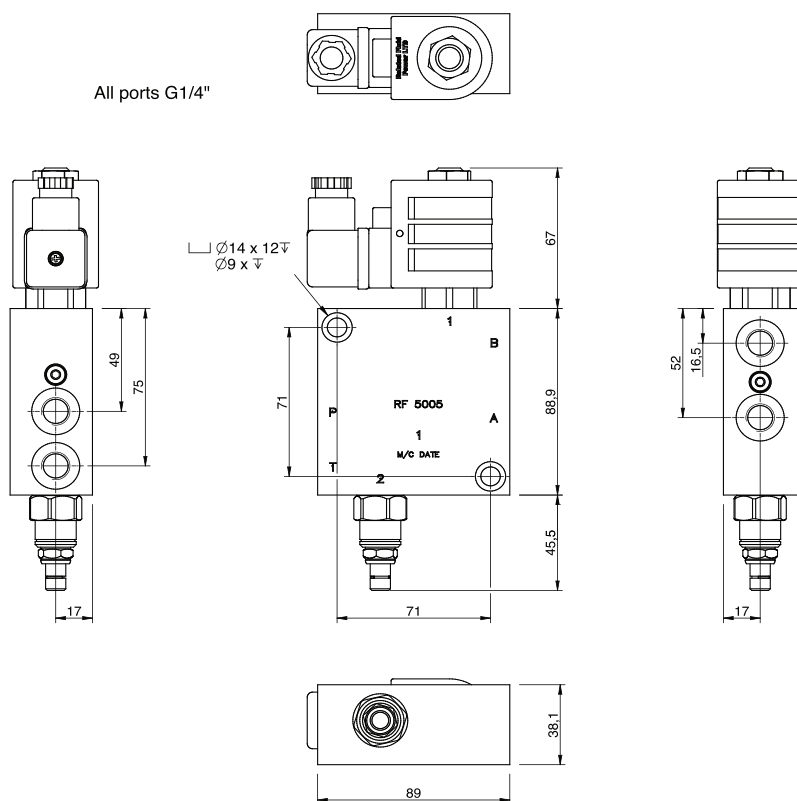
Specifications

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-RFQH5005
Weight	2.6 kg (steel)

Reducer Performance Graphs



RF QH5005-01

Dimensions

Ordering Example
RF QH5005

**	**	**	*
Pressure setting	Valve options	Voltage & Coil	Material
21 = 210 bar** **10 bar increments 10-210 bar ** 21 = std. setting	00 = Std 0M = standard seals + override knob on solenoid valve Consult factory for other seal types	H1 = 12 Vdc (Din) H2 = 24 Vdc (Din) D1 = 12 Vdc (Deutsch) D2 = 24 Vdc (Deutsch) Does not include connector	S = Steel (zinc, clear passivate)

Standard Options

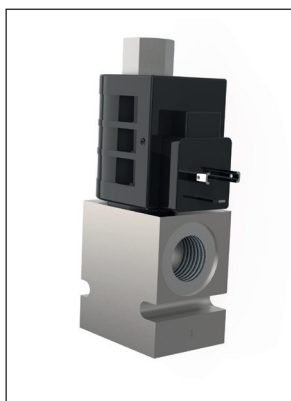
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
RF QH50052100H1S	4 PORT QUICK HITCH VALVE + P LINE PRESSURE REDUCER	350	38	12 VDC (Din)
RF QH50052100H2S	4 PORT QUICK HITCH VALVE + P LINE PRESSURE REDUCER	350	38	24 VDC (Din)

SECTION 17

LINE MOUNTED VALVES



SECTION 17
LINE MOUNTED
VALVES



Up to 240 bar - 55 lpm

Operation

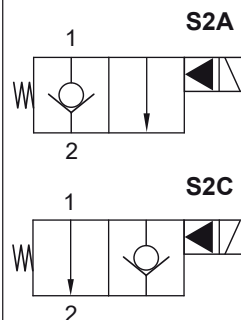
These are solenoid operated 2 way normally closed or open poppet valves.

The S2A, typically used to lock a load in position 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

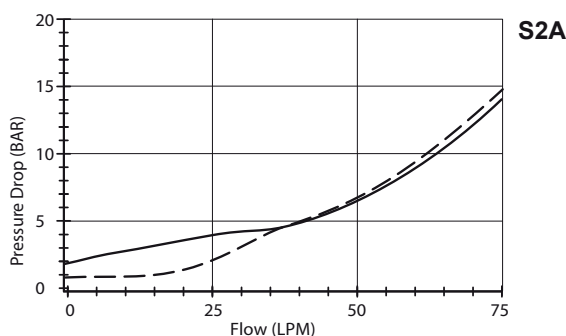
- Hardened parts for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Manual override options.
- Industry common cavity.
- Unitised, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.
- Optional "I" Coil: Weatherproof,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

Specifications

Cartridge Torque	41 Nm	Nom. Flow (lpm)	55
Coil Nut Torque	5 to 8 Nm	Max. pressure (bar)	240
Cavity	DE10-2 (see cavity data page CAV-DE10-2)	Internal Leakage (32 cSt)	0 to 0.25 cc/min at 240 bar
Spare Seal Kit	SK-DDE00	Hydraulic oil	General purpose hydraulic fluid
Weight - Cartridge only	0.13 kg	Viscosity Range	3 to 640 cSt
Weight - Cartridge + Coil	0.46 kg	Filtration	ISO 18/16/13
Weight - Cartridge + Coil + Body	0.69 kg (alum) 1.11 kg (steel)	Operating temp.	-40 to 120°C
		Voltage	DC / AC (see coil data page Coil-D)
		Cartridge Torque	41 Nm

Performance

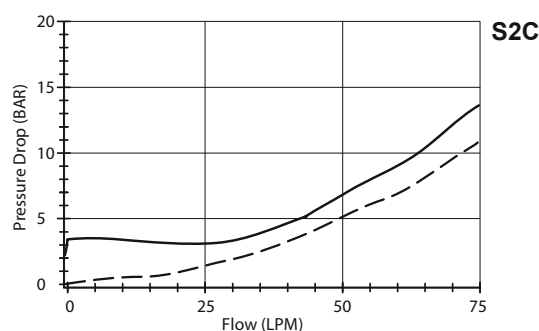
32 cSt / 38°C.



--- 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

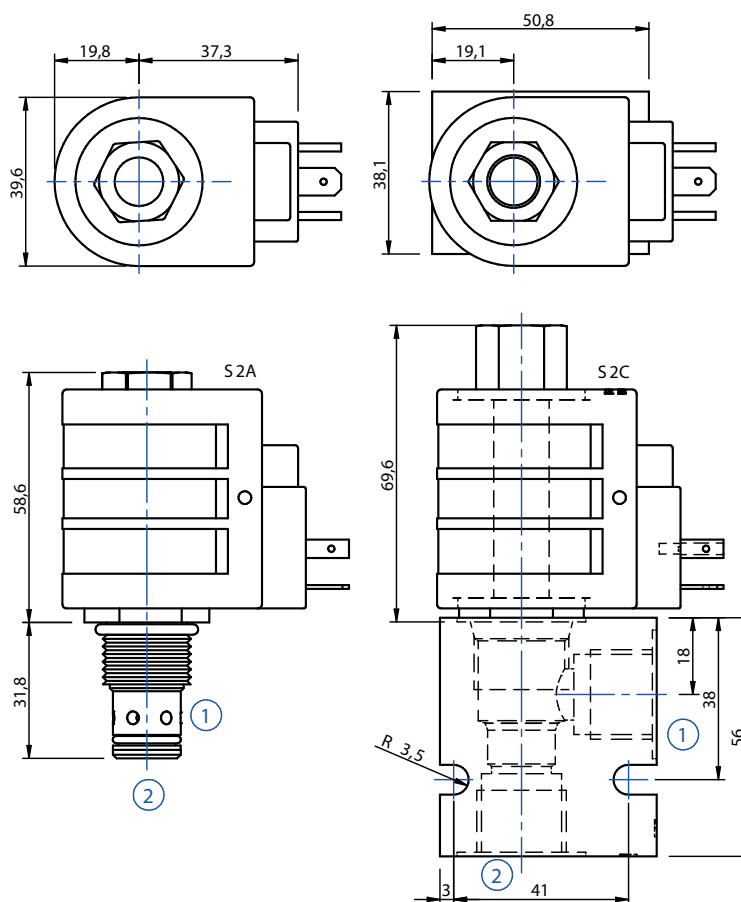


--- Port 1 to 2 (de-eng) — Port 2 to 1 (eng)

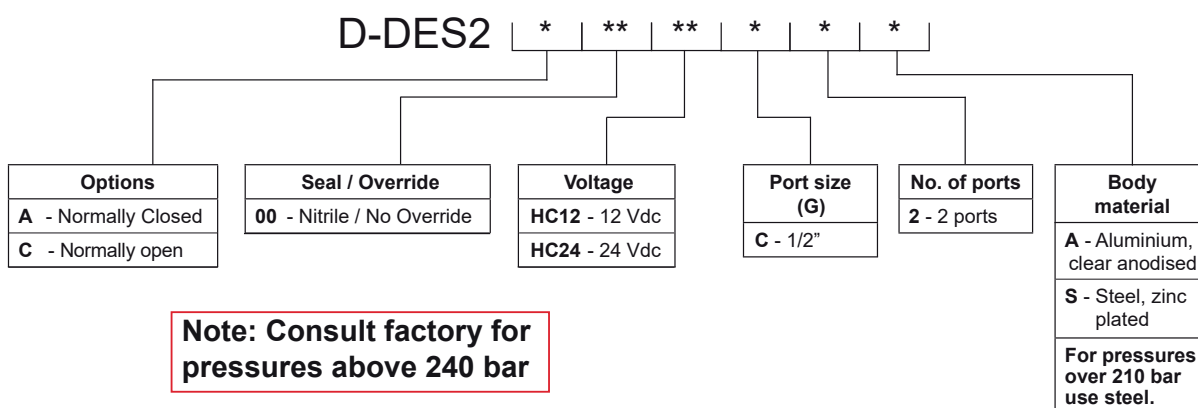
Energisation Chart

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

D-DES2AC-01

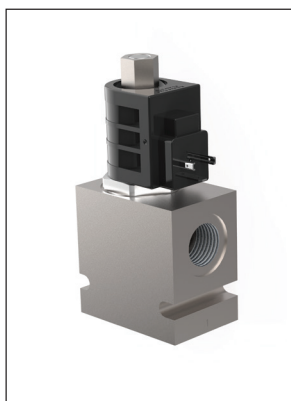
Dimensions
[mm]


Coils can be fitted in any orientation.

Ordering Code

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
D-DES2A00HC12C2A	2 POS. 2 WAY SOLENOID VALVE, N.C, 12VDC, SIZE 10	210	55	12 VDC
D-DES2A00HC24C2A	2 POS. 2 WAY SOLENOID VALVE, N.C, 24VDC, SIZE 10	210	55	24 VDC
D-DES2C00HC12C2A	2 POS. 2 WAY SOLENOID VALVE, N.O, 12VDC, SIZE 10	210	55	12 VDC
D-DES2C00HC24C2A	2 POS. 2 WAY SOLENOID VALVE, N.O, 24VDC, SIZE 10	210	55	24 VDC

D-DES2AC-01



Up to 240 bar - 115 lpm

Operation

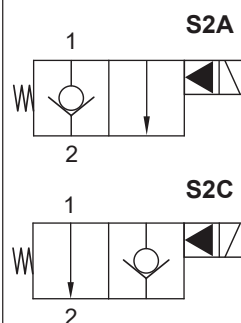
These are solenoid operated 2 way normally closed or open poppet valves.

The S2A, typically used to lock a load in position 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

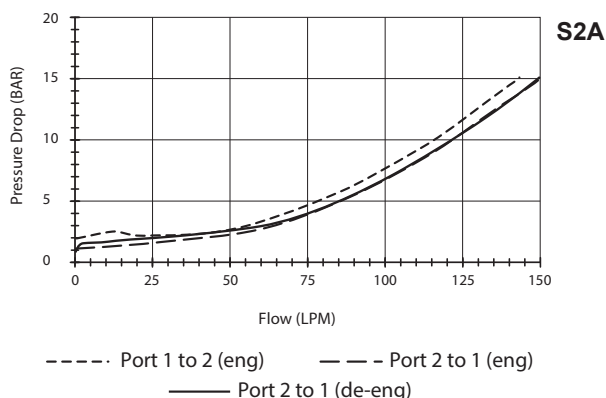
- Hardened parts for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Manual override options.
- Industry common cavity.
- Unitised, molded coil design.
- Continuous duty rated solenoid.
- Optional coil voltages and terminations.
- Optional "I" Coil: Weatherproof,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

Specifications

Cartridge Torque	122 Nm	Nom. Flow (lpm)	115
Coil Nut Torque	5 to 8 Nm	Max. pressure (bar)	240
Cavity	SJ16-2 (see cavity data page CAV-SJ16-2)	Internal Leakage (32 cSt)	0 to 0.25 cc/min at 240 bar
Spare Seal Kit	SK-DSJ00	Hydraulic oil	General purpose hydraulic fluid
Weight - Cartridge only	0.32 kg	Viscosity Range	3 to 640 cSt
Weight - Cartridge + Coil	0.65 kg	Filtration	ISO 18/16/13
Weight - Cartridge + Coil + Body	1.23 kg (alum) 3.57 kg (steel)	Operating temp.	-40 to 120°C
		Voltage	DC / AC (see coil data page Coil-D)
		Cartridge Torque	122 Nm

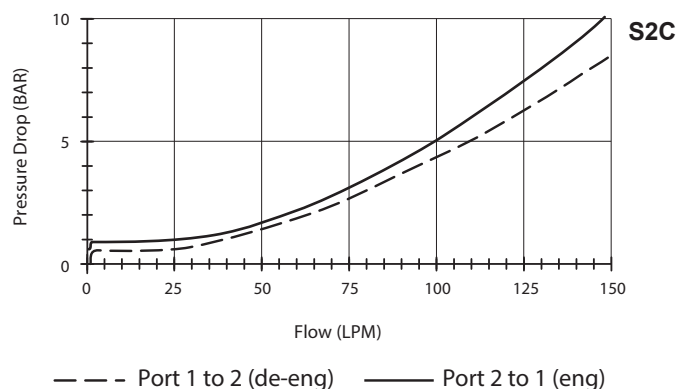
Performance

32 cSt / 38°C.



Energisation Chart

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



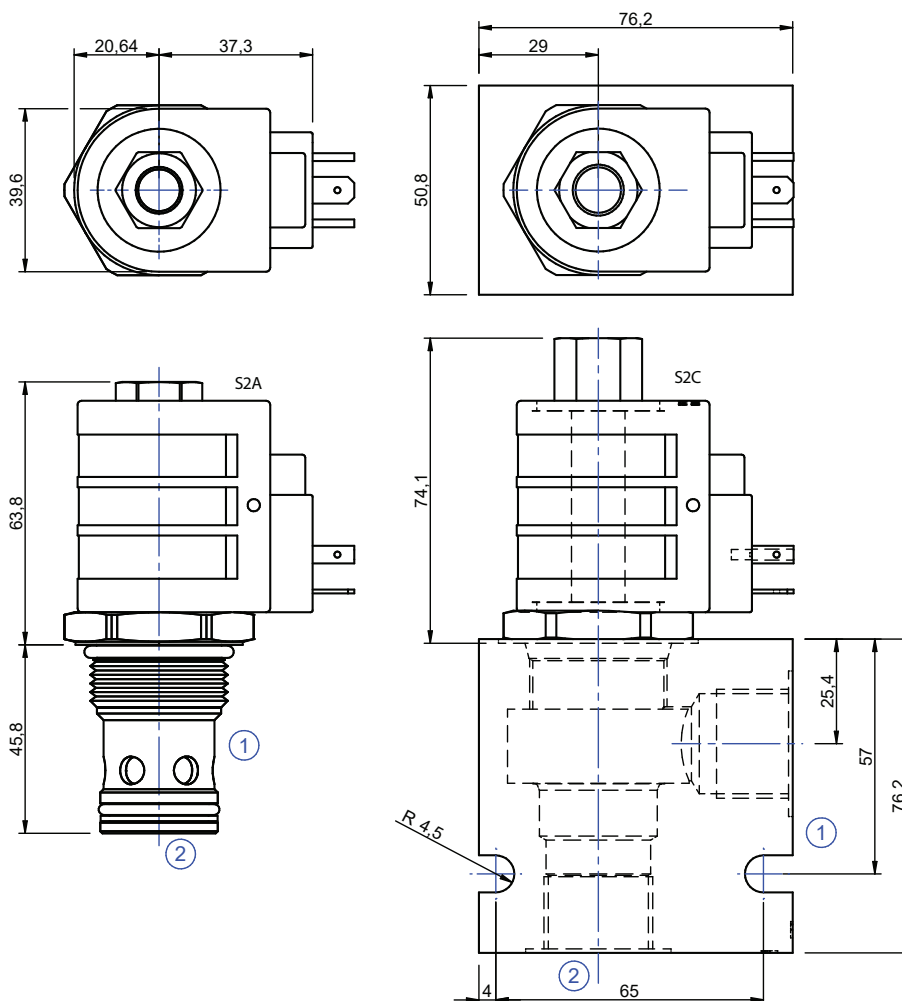
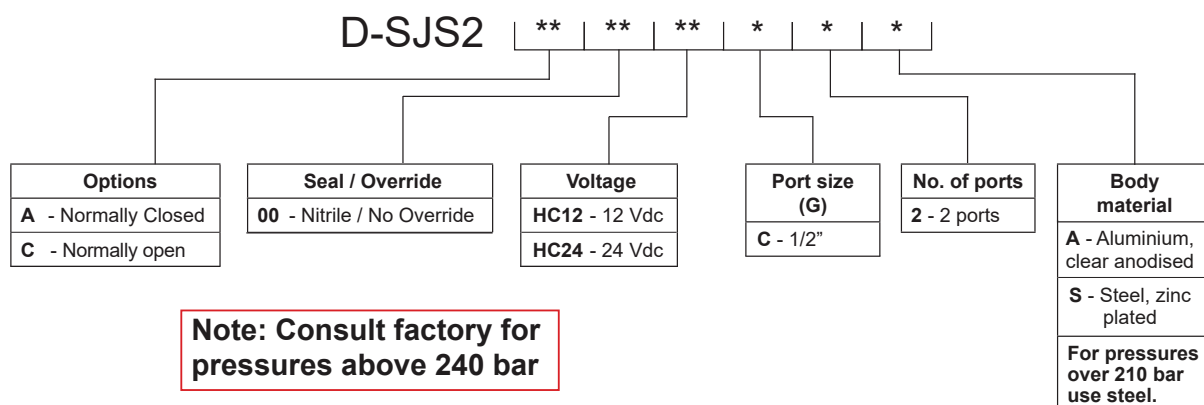
Energisation Chart

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

D-SJS2AC-01

Dimensions
[mm]

Coils can be fitted in
any orientation.


Ordering Example

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)	Voltage
D-SJS2A00HC12C2A	2 POS. 2 WAY SOLENOID VALVE, N.C, 12VDC, SIZE 16	210	115	12 VDC
D-SJS2A00HC24C2A	2 POS. 2 WAY SOLENOID VALVE, N.C, 24VDC, SIZE 16	210	115	24 VDC
D-SJS2C00HC12C2A	2 POS. 2 WAY SOLENOID VALVE, N.O, 12VDC, SIZE 16	210	115	12 VDC
D-SJS2C00HC24C2A	2 POS. 2 WAY SOLENOID VALVE, N.O, 24VDC, SIZE 16	210	115	24 VDC

D-SJS2AC-01

Pressure Control.

Direct Acting - Poppet Type Relief Valve - Size 10.

V-RVSOS10



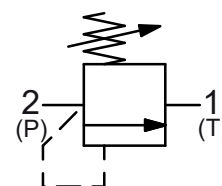
Up to 350 bar - 80 lpm

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.

The V-RVSOS10 blocks flow from (2) to (1) until 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

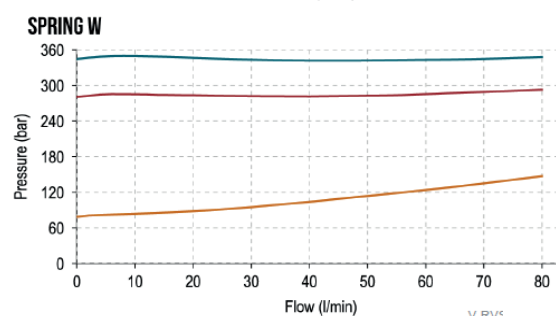
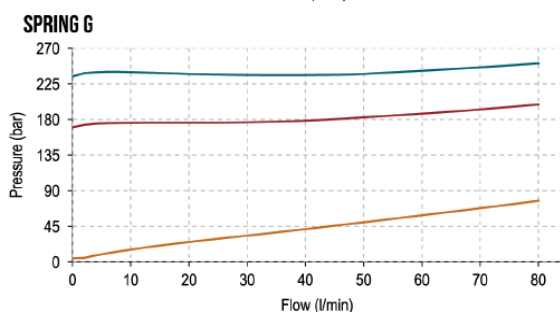
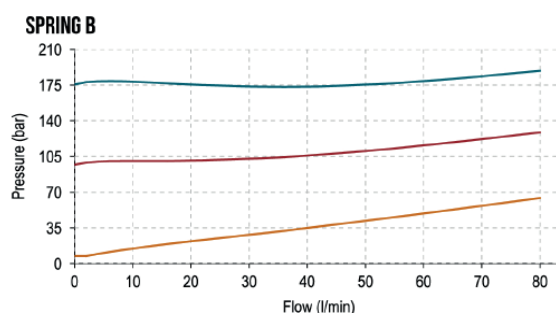
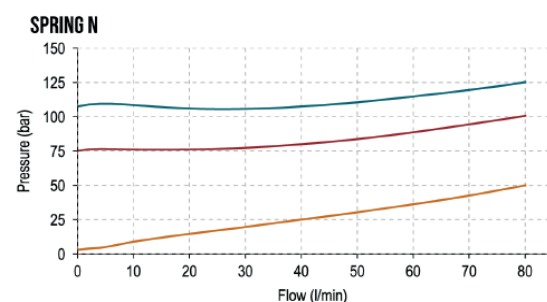
- Hardened parts for long life.
- Industry common cavity.

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

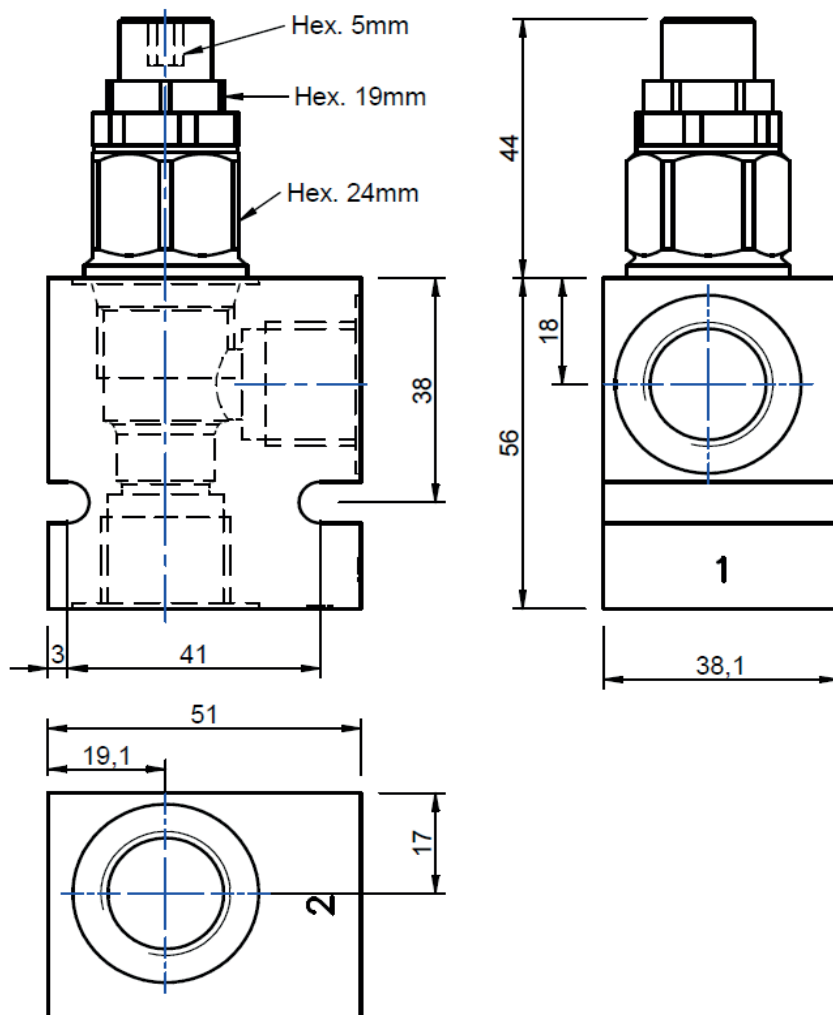
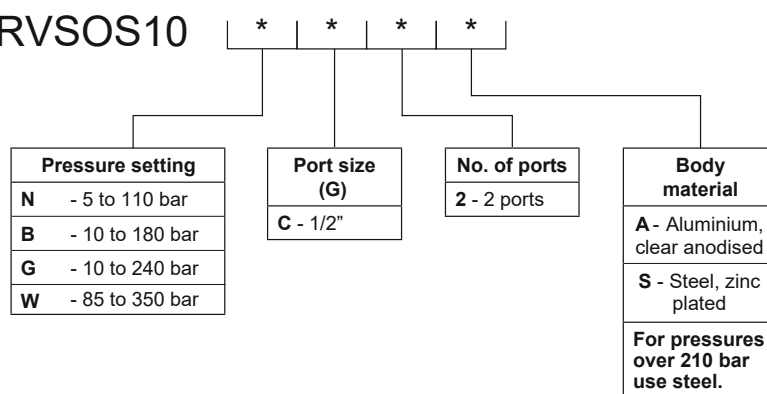
46 cSc / 40°C.



V-RVSOS10-01

Dimensions

[mm]


Ordering Example
V-RVSOS10

Standard Options

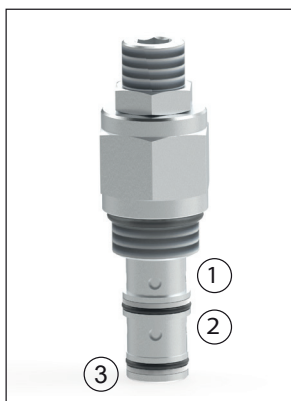
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
V-RVSOS10BC2A	DIRECT ACTING POPPET TYPE RELIEF VALVE 10-180 BAR	210	80
V-RVSOS10GC2A	DIRECT ACTING POPPET TYPE RELIEF VALVE 10-240 BAR	210	80

R-RVSOS10-01

Pressure Reducer

Pilot Operated Pressure Reducing, Relieving Valve - Size 10.

R-PRR1PO10



350 bar - 43 lpm

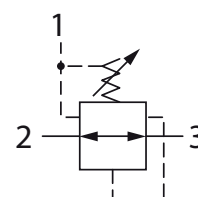
Description

The R-PRR1PO10 in its steady state allows flow to pass from (2) to (3), with the spring chamber constantly drained at (1). When a pre-determined 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.

Symbol



Features

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

Adjustment

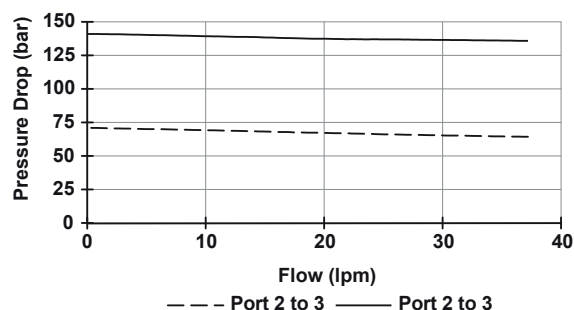
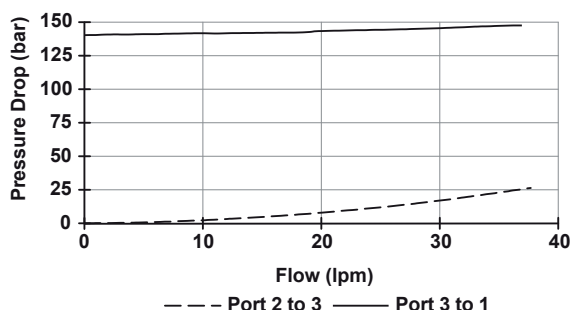
Turn  to increase pressure.

Specifications

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)

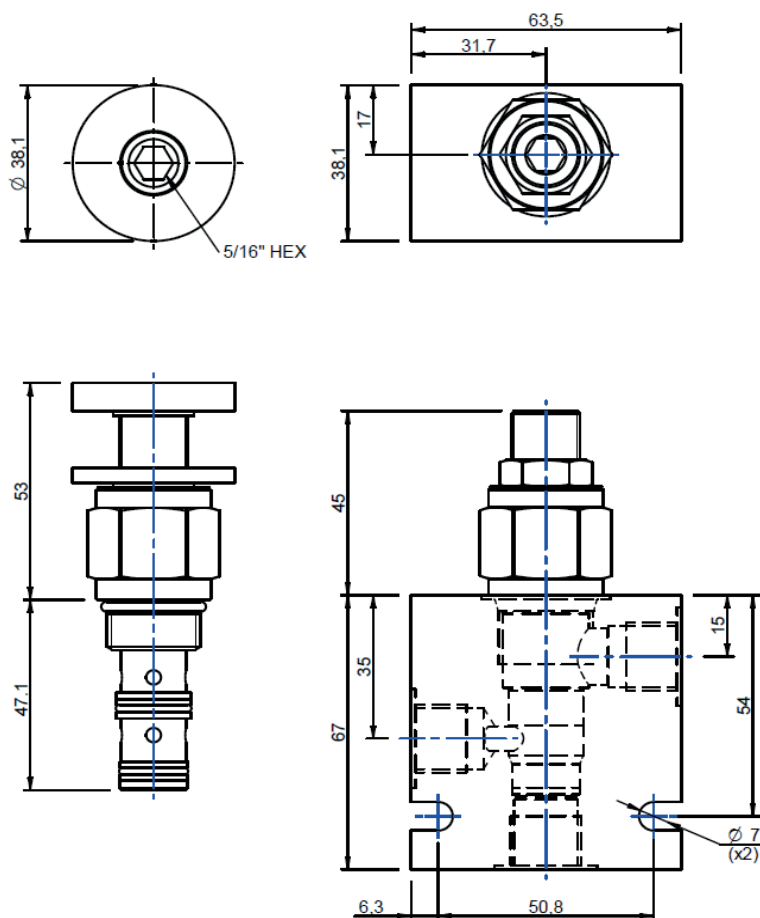
Performance

32 cSc / 38°C.



R-PRR1PO10-01

Dimensions



Ordering Example

R-PRR1PO10

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

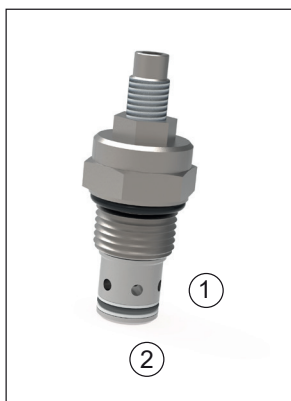
Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
R-PRR1PO1015XXB3A	PILOT OP. PRESSURE RED./REL. VALVE 3.5-103 BAR	210	43
R-PRR1PO1030XXB3A	PILOT OP. PRESSURE RED./REL. VALVE 3.5-207 BAR	210	43

Flow Control.

Adjustable Flow Control Valve, Pressure Compensated - Size 10.

R-FCCS10S30N



Up to 350 bar - 30 lpm

Symbol



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.

Features

- Hardened parts for long life.
- Industry common cavity.
- Fine low-torque adjustment.

Adjustment

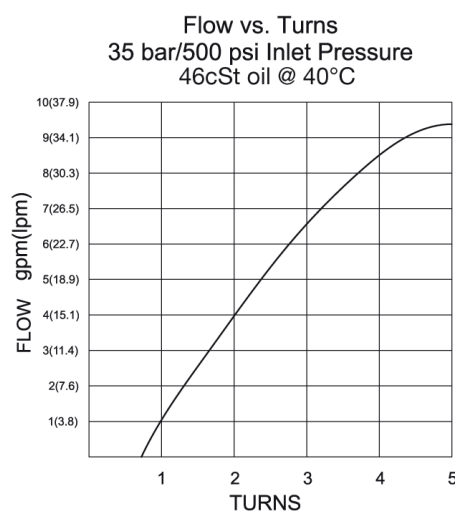
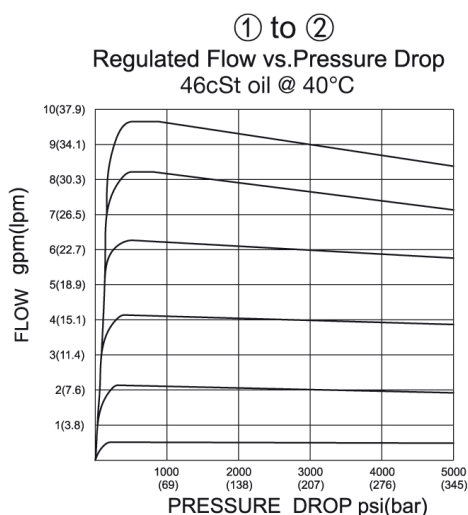
Turn  to increase flow.

Specifications

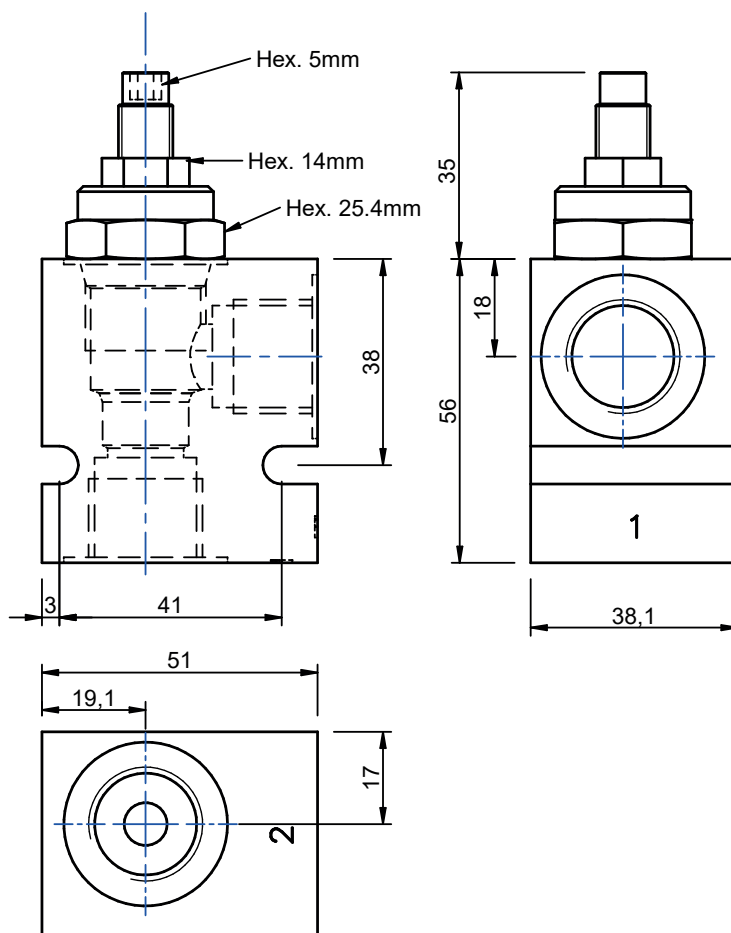
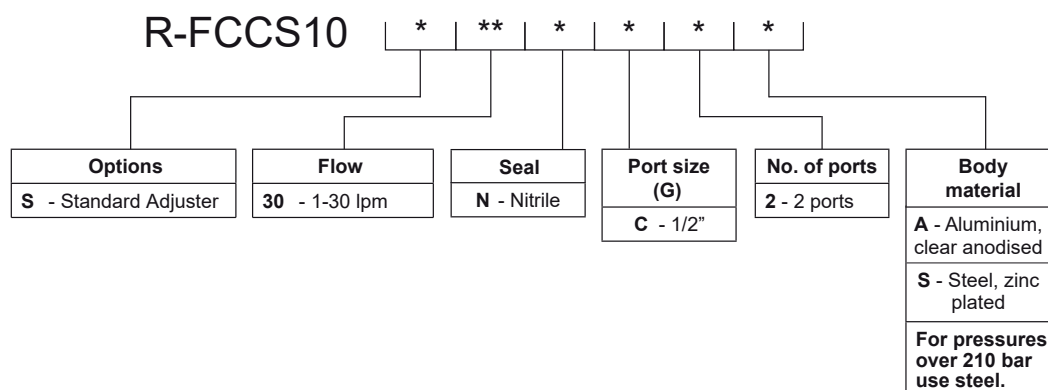
Nom. Flow (lpm)	30
Max. Pressure (bar)	350
Hydraulic Oil	General purpose hydraulic fluid
Viscosity Range	7.4 to 420 cSt
Filtration	ISO 18/16/13
Operating Temp.	-40 to 120°C
Cartridge Torque	41 Nm
Cavity	DE10-2 (see cavity data page CAV-DE10-2)
Spare Seal Kit (Viton)	SK-RFCCS10N
Weight - Valve only	0.22 kg
Weight - Valve + Body	0.45 kg (alum) 0.87 kg (steel)

Performance

46 cSt / 40°C.



R-FCCS10-01

Dimensions
[mm]

Ordering Example

Standard Options

Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
R-FCCS10S30NC2A	ADJ. PRESSURE COMPENSATED FLOW CONTROL - SIZE 10	210	30



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.

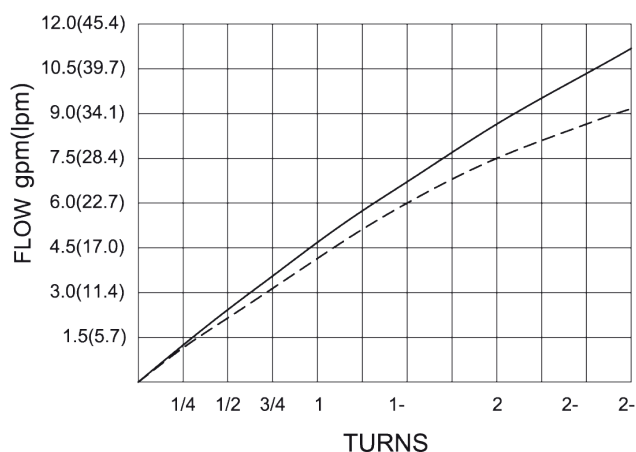
Specifications

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

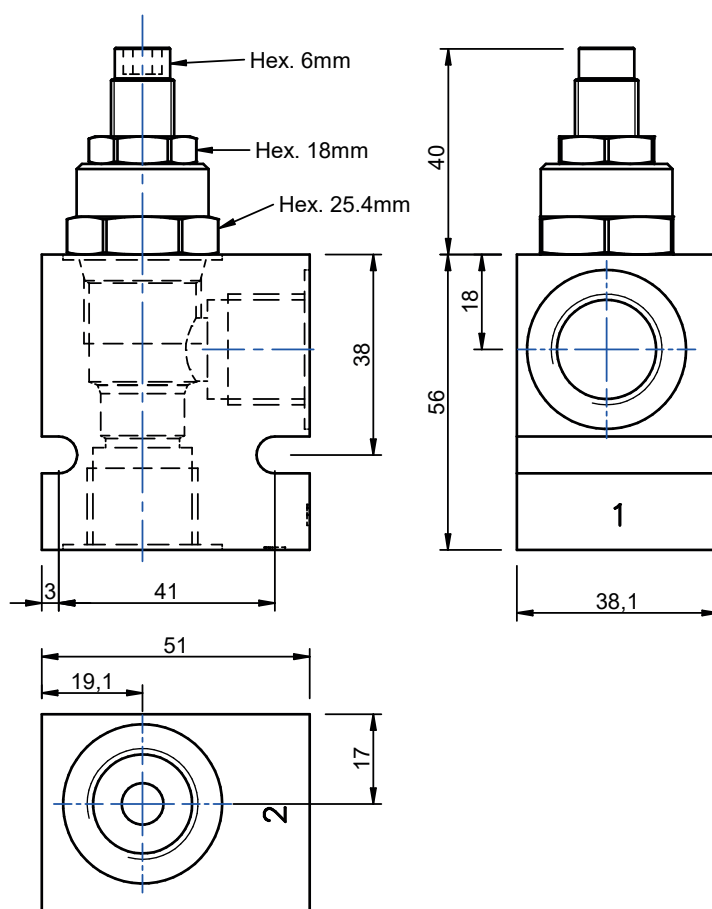
32 cSt / 38°C.

$\Delta P = 6.9 \text{ bar}/100 \text{ psi}$ —
 $\Delta P = 5.5 \text{ bar}/80 \text{ psi}$ - - - -



R-FCNS10-01

Dimensions
[mm]



Ordering Example

R-FCNS10

Options	Flow	Seal	Port size (G)	No. of ports	Body material
S - Standard Adjuster	45 - 45 lpm	N - Nitrile	C - 1/2"	2 - 2 ports	A - Aluminium, clear anodised S - Steel, zinc plated For pressures over 210 bar use steel.

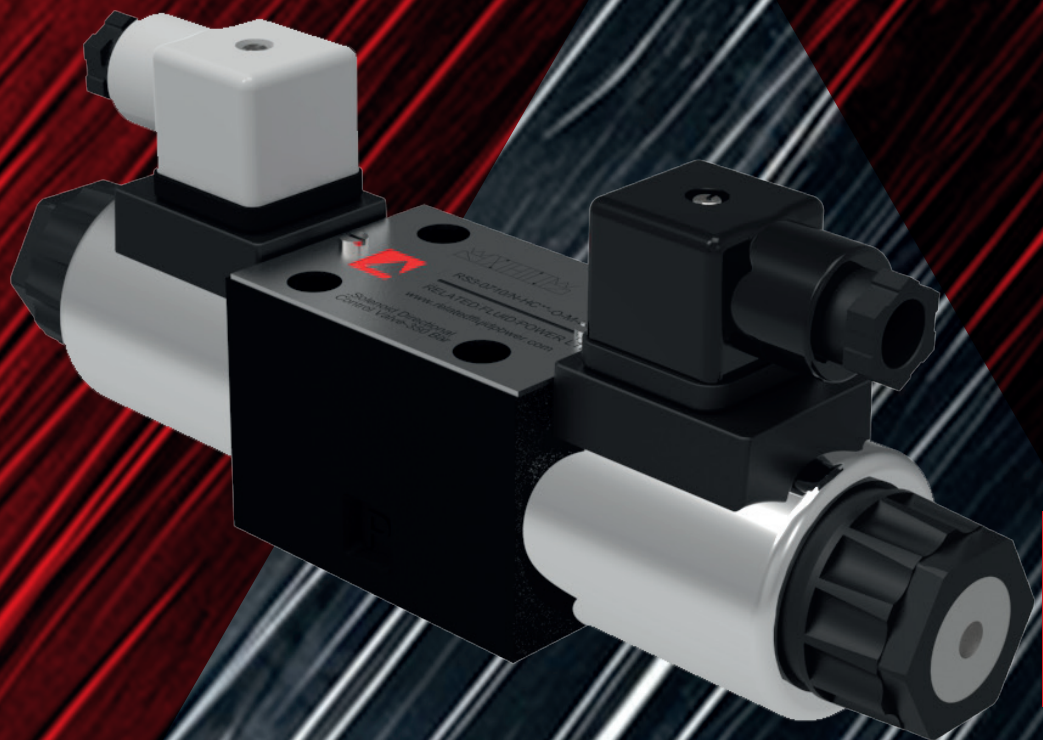
SECTION 17
LINE MOUNTED
VALVES

Standard Options

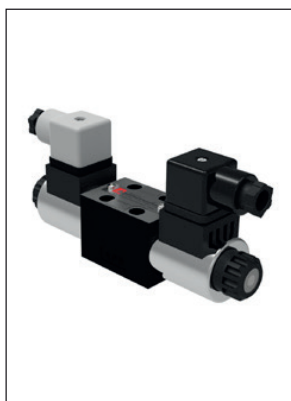
Part No.	Description	Max. pressure (bar)	Max. flow (lpm)
R-FCNS10S45NC2A	NEEDLE TYPE STANDARD ADJ FLOW CONTROL- SIZE 10	210	30

SECTION 18

CETOP VALVE INFORMATION



SECTION 18
CETOP VALVE
INFORMATION



Size: 04, ISO 4401

Up to 350 bar - Up to 25 lpm

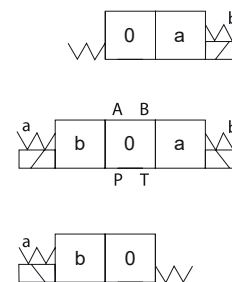
Description

These directional control valves are solenoid operated spool type. They control the start, stop and direction of an oil flow. The robust construction provides for high pressure operation, and has a wide range of spool, operating voltage and over-ride options.

Features

- Wide range of spool options
- Low internal leakage
- Detent and non-detent override option

Symbol

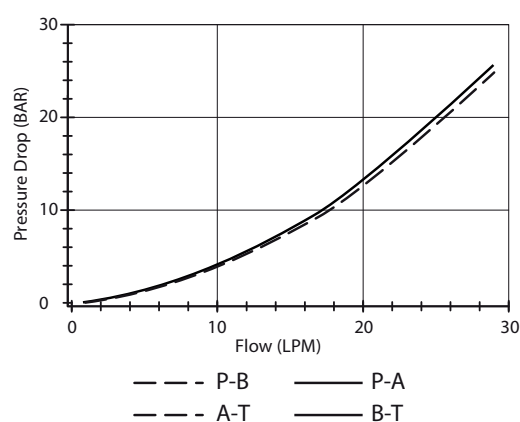


Specifications

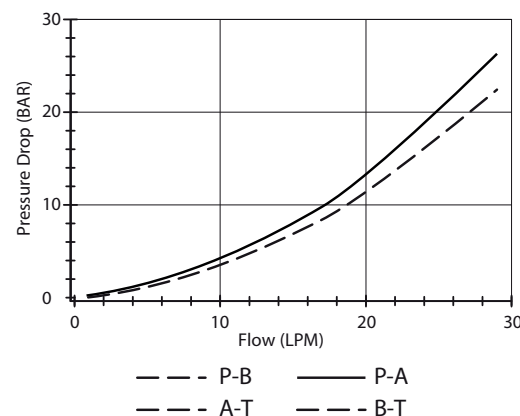
Working Pressure (bar)	P, A & B Ports	315 (350 intermittent)	
	T Port	100	
Max. Working Flow (lpm)	25		
Working Fluids	General purpose hydraulic fluid		
Fluid Temp. (°C)	-20 to 70		
Viscosity Range, Centistokes (Cst)	2.8 to 380		
Weights (kg)	Single Solenoid	0.78	
	Double Solenoid	1.03	
Working Voltage	Direct Current	12	24
Coil Power (Watts)	25 (12 Volts = 2.1 Amps, 24 Volts = 1.0 Amps)		
Response Time (ms)	Open	50-60	
	Closed	50-70	
Switching Frequency - Cycles / Hour	15000		
Insulation Grade	IP65		

* = Consult RFP Ltd.

Pressure Drop Curves - 0711



Pressure Drop Curves - 0713

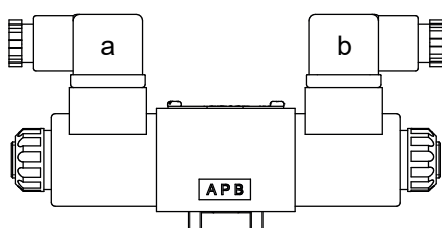


Spool Type Chart

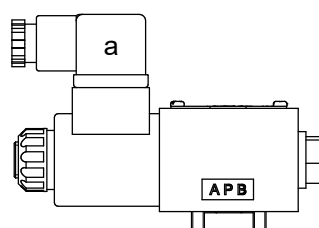
0711		0714	
0710		0630	
0713		0630A	

*Please consult factory for other configurations

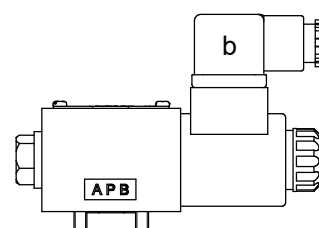
Coil Identification



Type: 07**



Type: 06**

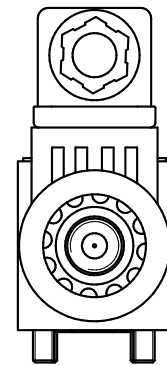
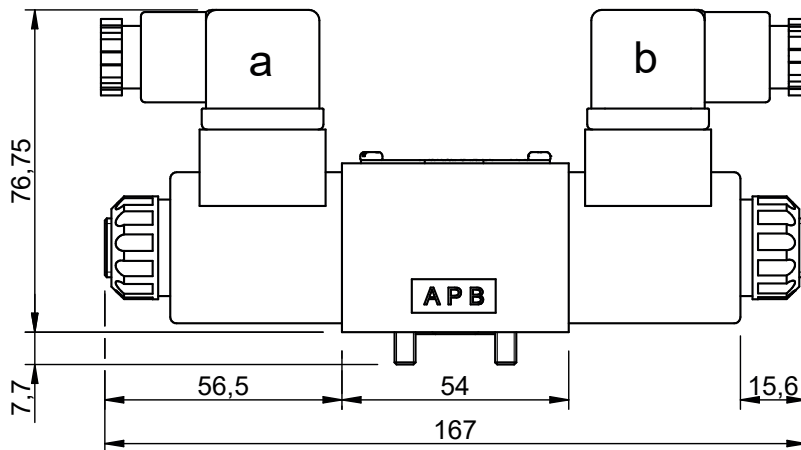
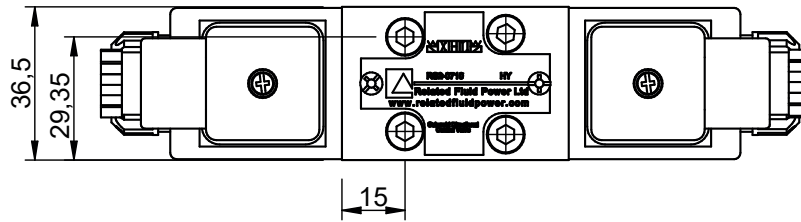


Type: 06**/A

RS2-01

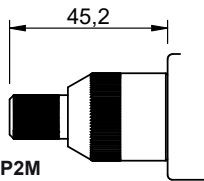
Dimensions

[mm]



Screw Type (S)
Override
To Override
⌚ to override.
⌚ unscrew fully for neutral de-energised position.

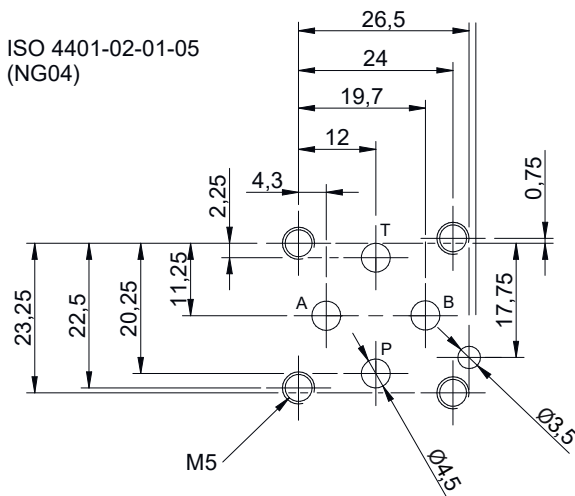
Part Number: RS2-SP2M



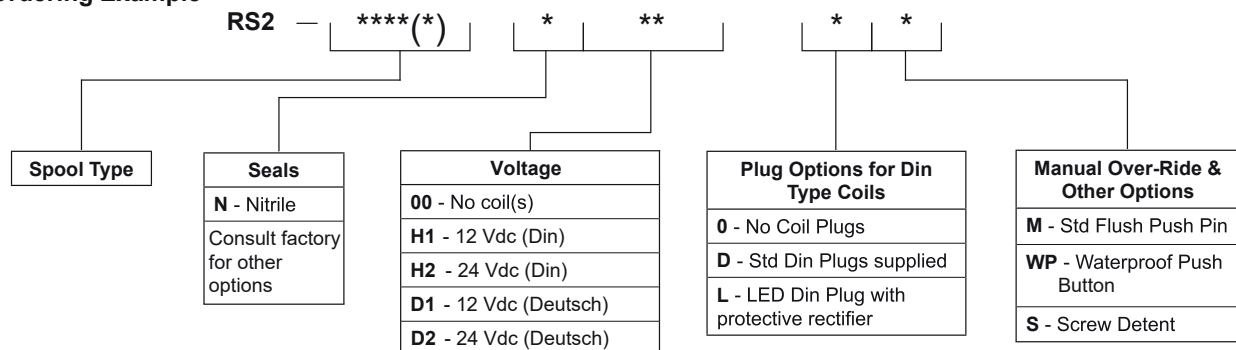
Installation Advice

Mounting Orientation: Any, horizontal preferred.
Bolt: M5X35. Grade 12.9. Allow a minimum thread engagement of 1.5x D.
Tightening Torque: 5-6Nm.
Mounting Surface: Ra 0.8 roughness.

ISO 4401-02-01-05
(NG04)



Ordering Example



RS2-01



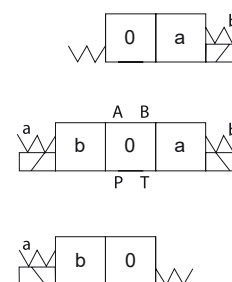
Size: 06, ISO 4401

Up to 350 bar - Up to 80 lpm

Description

These solenoid operated directional spool valves are designed to control the start, stop and direction of oil flow for both single and double acting hydraulic circuits. The robust construction for high pressure operation, together with optimised large flow paths for low pressure drop, make these valves ideal for providing the accurate and energy efficient control required by modern hydraulically controlled machines.

Symbol



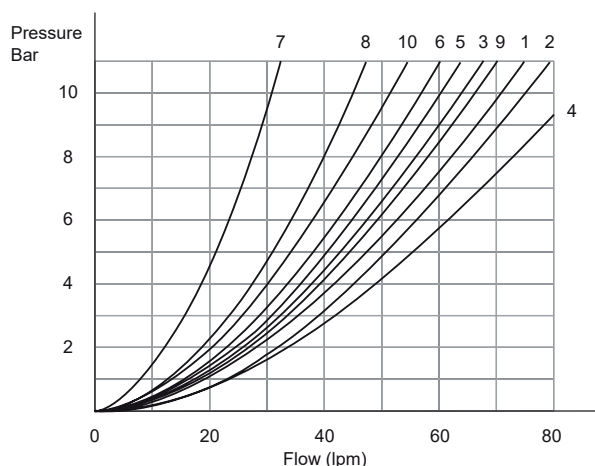
Features

- Wide range of spool options
- Low internal leakage
- Low pressure drop design
- Detent and non-detent override option

Specifications

Working Pressure (bar)	P, A & B Ports	315 (350 intermittent)
	T Port	100
Max. Working Flow (lpm)	Up to 80 (see flow pressure performance graph)	
Working Fluids	General purpose hydraulic fluid	
Fluid Temp. (°C)	-20 to 70	
Viscosity Range, Centistokes (Cst)	2.8 to 380	
Weights (kg)	Single Solenoid	1.45
	Double Solenoid	1.95
Response Time (ms)	Open	50-60
	Closed	50-70
Switching Frequency - Cycles / Hour	15000	
Insulation Grade	IP65	
Duty Rating	Continuous	
Working Voltage (V)	DC	
	12	24
Resistance @ 20°C (Ohms)	4.80	19.20
Current (A)	2.50	1.25
Watts	30	30

Pressure Drop Curves



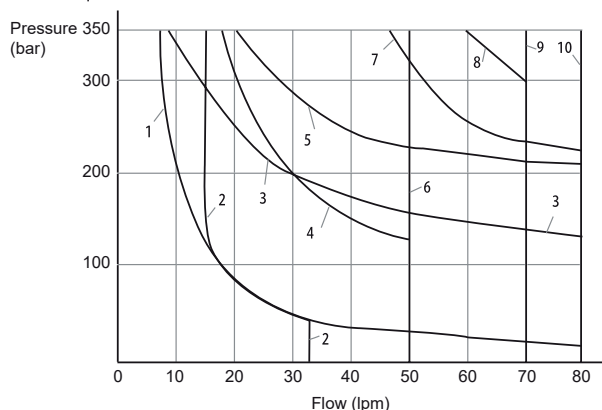
Tested with solenoid at working temperature with -10% rated voltage.
Mineral Oil: 41Cst @ 50°C

Spool Code	Direction			
	P → A	P → B	A → T	B → T
0632, 0632/A	3	3	-	-
0630	1	1	3	1
0631, 0631/A	5	5	3	3
0711	3	3	1	1
0715	1	3	1	1
0714	10	10	9	9
0710	2	4	2	2
0713	1	1	2	1
0717/3C12	3	3	4	9
0718	2	3	3	3
0758	3	1	1	1
0719	5	5	4	-
3C7	1	2	1	1

RS3-01

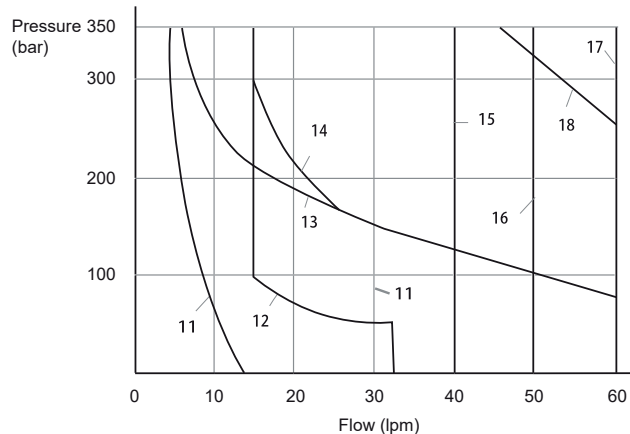
Flow Pressure Performance

DC Solenoid Operation



DC Solenoid Operation 12v, 24v	
Curve	Symbol
1	0632, 0632/A
2	3C7
3	0632, 0632/A
4	0715, 0758
5	0713
6	0714, 0710
7	0772, 0752, 0717, 3C12
8	0630, 0631, 0631/A
9	0718
10	0711, 0719, 0770, 0750, 0771, 0751

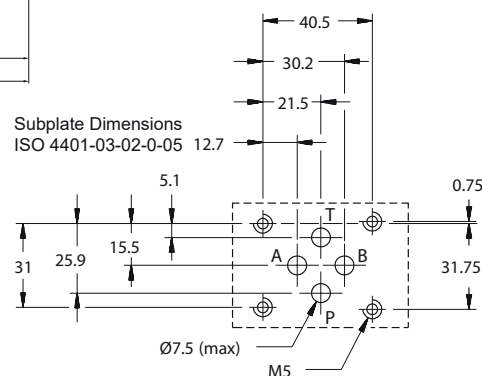
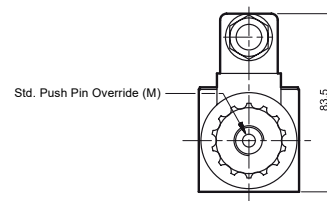
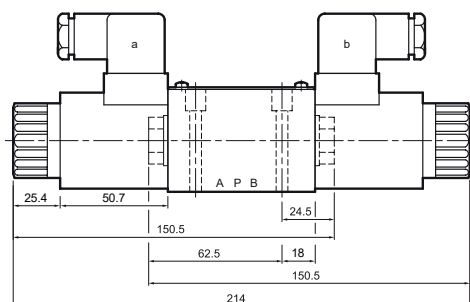
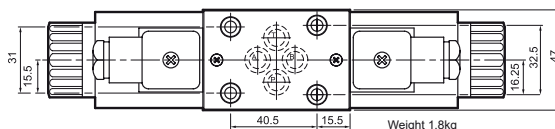
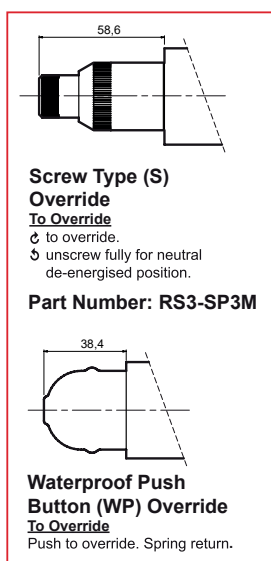
AC Solenoid Operation



AC Solenoid Operation 110v, 220v, 50 Hz	
Curve	Symbol
11	0632, 0632/A
12	3C7
13	0632, 0632/A
14	0715, 0758
15	0714
16	0630
17	0772, 0752, 0770, 0750, 0771, 0751, 0711, 0717, 0718, 0719, 3C12
18	0630, 0631, 0631/A

Dimensions

[mm]



Installation Advice

Mounting Orientation: Any, horizontal preferred.
Bolt: M5X45. Grade 12.9. Allow a minimum thread engagement of 1.5x D.
Tightening Torque: 7 Nm.
Mounting Surface: 4401 - 03 - 02 - 0 - 05 Ra 0.8 roughness.
Spare Seal Kit: SK-RS3-00(Nitrile)
SK-RS3-0V(Viton)

RS3-01

Spool Type Chart

0711		0611		0611/A		0631	
0710		0610		0610/A		0630	
0713		0613		0613/A		0632	
0715		0615		0615/A		0631/A	
0714		0614		0614/A		0630/A	
3C7		2B7B		2B7BL		0632/A	
0718		0618		0618/A			
0717		0617		0617/A			
0716		0616		0616/A			
3C12		2B12B		2B12BL			
0758		0658		0658/A			
0719		0619		0619/A			

* Must be horizontally mounted

 = Non Standard.

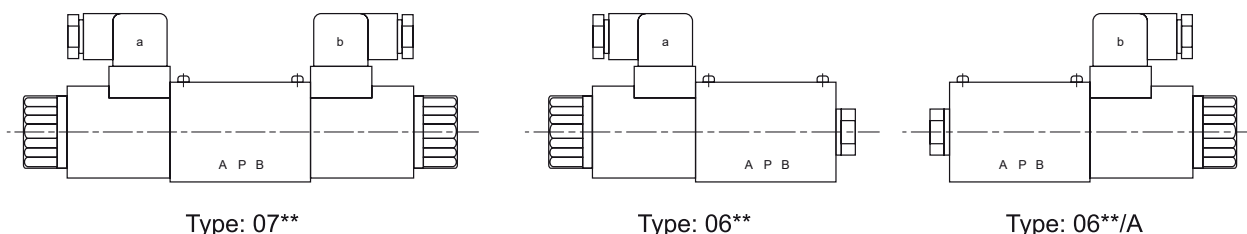
Mechanical position *

0751	
0750	
0752	

No return spring and no mechanical positioning *

0771	
0770	
0772	

Coil Identification



Ordering Example

RS3 — ****(*) * ** * *

Spool Type	Seals	Voltage	Manual Override	Other Options
As chart overleaf	N - Nitrile Consult factory for other options	00 - No coil(s) H1 - 12 Vdc (Din) H2 - 24 Vdc (Din) D1 - 12 Vdc (Deutsch) D2 - 24 Vdc (Deutsch)	M - Flush push pin spring return (std.) W - Waterproof push button. Spring return S - Screw type	H - High pressure coil tube for tank pressures up to 210 bar Omit if not required

RS3-01



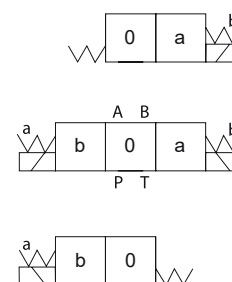
Size: 10, ISO 4401

Up to 350 bar - Up to 120 lpm

Description

These solenoid operated directional spool valves are designed to control the start, stop and direction of oil flow for both single and double acting hydraulic circuits. The robust construction for high pressure operation, together with optimised large flow paths for low pressure drop, make these valves ideal for providing the accurate and energy efficient control required by modern hydraulically controlled machines.

Symbol



Features

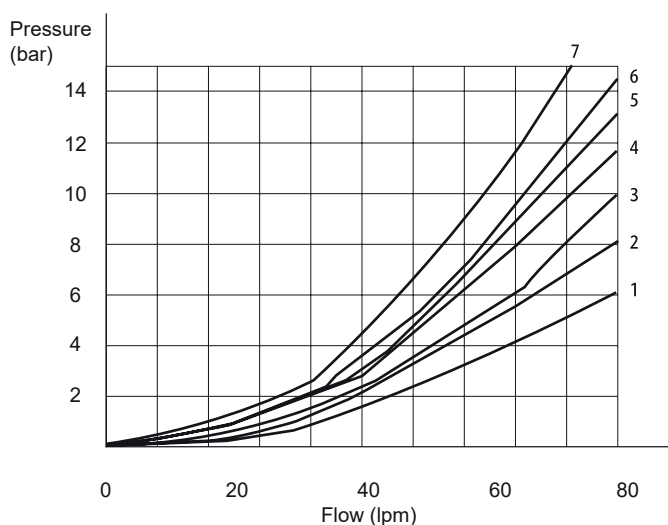
- DC & AC coil options
- Wide range of spool options
- Low internal leakage
- Low pressure drop design
- Detent and non-detent override option

Specifications

Working Pressure (bar)	P, A & B Ports	315	
	T Port	100 (210 if 'H' option coil tube selected)	
Max. Working Flow (lpm)	Up to 120 (see flow pressure performance graph)		
Working Fluids	General purpose hydraulic fluid		
Fluid Temp. (°C)	-20 to 70		
Viscosity Range, Centistokes (Cst)	2.8 to 380		
Weights (kg)	Single Solenoid	5.1 (DC)	4.3 (AC)
	Double Solenoid	6.7 (DC)	5.1 (AC)
Working Voltage	Direct Current	12	24
	Alternating Current	110/50Hz 220/50Hz	
Coil Power (Watts)	36 (12 Volts = 3 Amps, 24 Volts = 1.5 Amps)		
Response Time (DC Voltage)	Open	15-25	
	Closed	40-60	
Switching Frequency - Cycles / Hour	72000 (DC)		
Insulation Grade	IP65		

* = Consult RFP Ltd.

Pressure Drop Curves

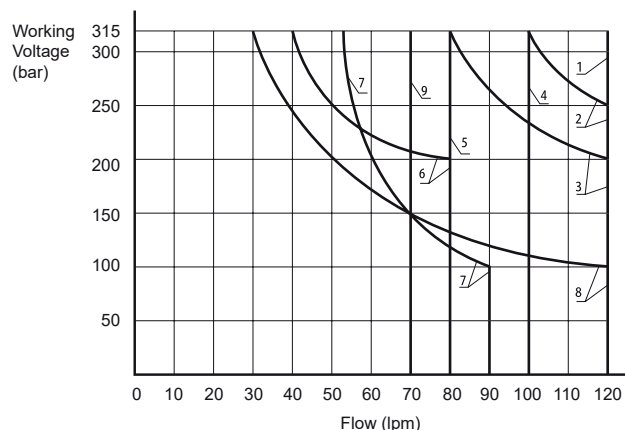


Tested with solenoid at working temperature with -10% rated voltage. Mineral Oil: 41Cst @ 50°C

Spool Code	Direction			
	P → A	P → B	A → T	B → T
1632, 1632/A	2	2	-	-
1630, 1631, 1631/A	2	2	3	3
1711, 3C7	2	2	4	4
1715	2	3	3	5
1714	3	3	4	6
1713	1	1	2	1
1710	1	1	4	5
1717/3C12	2	2	3	5
1718	1	1	5	1
1758	3	2	5	3
1719	2	4	3	-

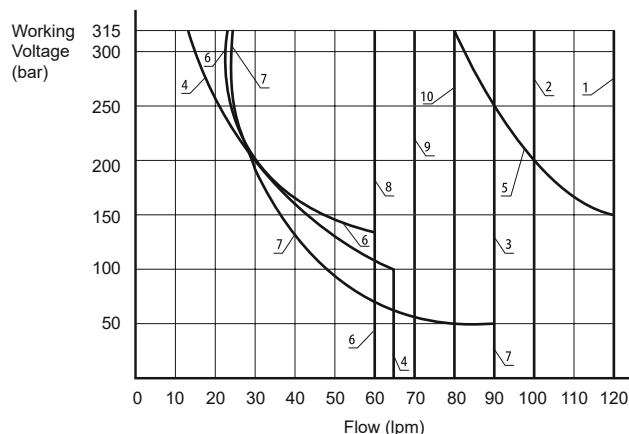
Flow Pressure Performance

DC Solenoid Operation



DC Solenoid Operation D12, D24, B110, B220	
Curve	Symbol
1	1630, 1770, 1750, 1631, 1771, 1751, 1631/A, 1718
2	1711
3	1772, 1752, 1717, 3C12, 1713
4	1710
5	1719
6	1714
7	1715, 1758
8	1632, 1632/A
9	3C7
10	1711, 1719, 1770, 1750, 1771, 1751

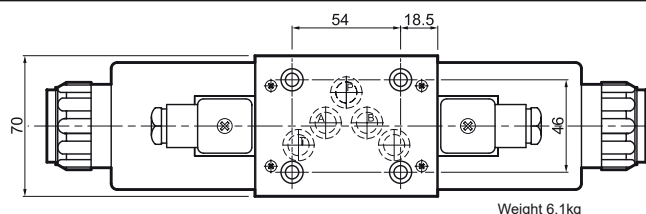
AC Solenoid Operation



AC Solenoid Operation A110, A220, 50Hz A120, A240, 60Hz	
Curve	Symbol
1	1630, 1770, 1750, 1631, 1771, 1751, 1631/A
2	1711, 1717, 3C12
3	1718
4	1632, 1632/A
5	1772, 1752, 1713
6	1714
7	1715, 1758
8	3C7
9	1710
10	1719

Dimensions

[mm]



To Override

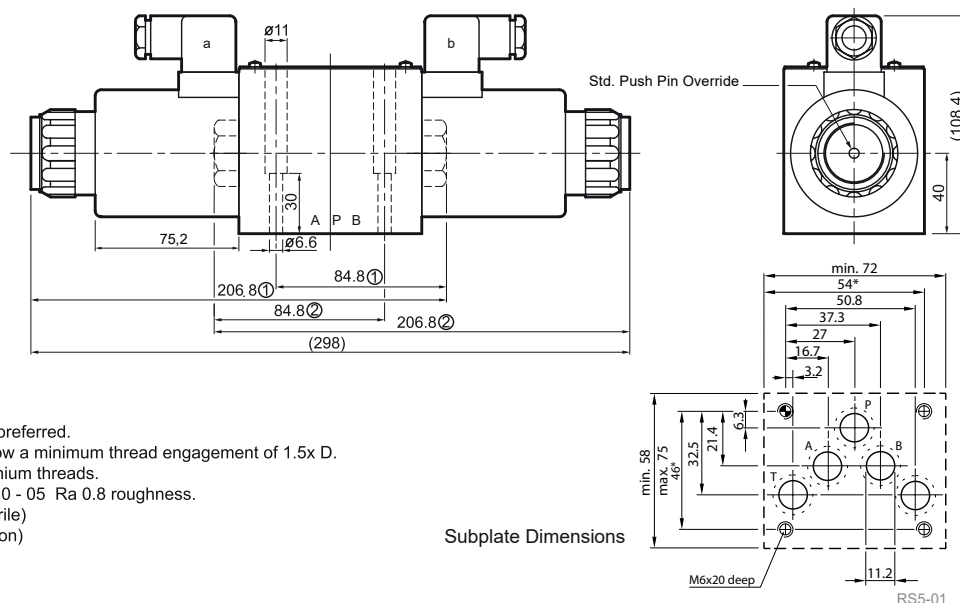
Screw Type Override

☞ to override.
☞ unscrew fully for neutral de-energised position.

Part Number: RS5-SP5M

Waterproof Push Button Override

Push to override.
Spring return



Installation Advice

Mounting Orientation: Any, horizontal preferred.
Bolt: Grade 12.9. Allow a minimum thread engagement of 1.5x D.
Tightening Torque: 8-9Nm in aluminium threads.
Mounting Surface: 4401 - 05 - 05 - 0 - 05 Ra 0.8 roughness.
Spare Seal Kit: SK-RS5-00 (Nitrile)
SK-RS5-0V (Viton)

Spool Type Chart

1711		1611		1611/A	
1710		1610		1610/A	
1713		1613		1613/A	
1715		1615		1615/A	
1714		1614		1614/A	
3C7		2B7B		2B7BL	
1718		1618		1618/A	
1717		1617		1617/A	
1716		1616		1616/A	
3C12		2B12B		2B12BL	
1758		1658		1658/A	
1719		1619		1619/A	

* Must be horizontally mounted

= Non Standard.

1631	
1630	
1632	
1631/A	
1630/A	
1632/A	

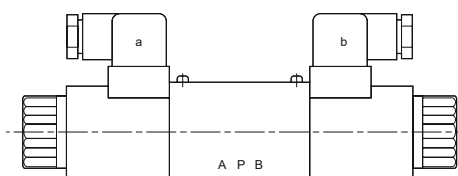
Mechanical position *

1751	
1750	
1752	

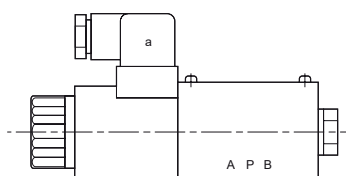
No return spring and no mechanical positioning *

1771	
1770	
1772	

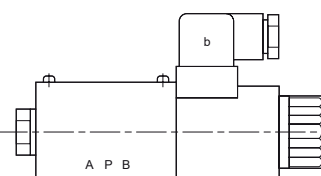
Coil Identification



Type: 17**



Type: 16**



Type: 16**/A

When Solenoid 'A' is energised flow = P → A, B → T

When Solenoid 'B' is energised flow = P → B, A → T

Ordering Example

RS5

****(*)

*

**

*

*

Spool Type
As chart overleaf

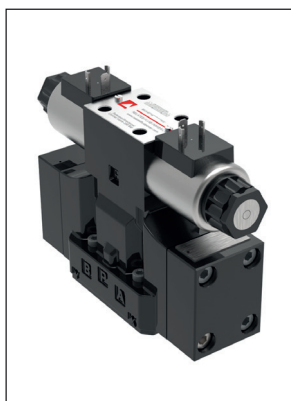
Seals
N - Nitrile
Consult factory for other options

Voltage
00 - No coil(s)
H1 - 12 Vdc (Din)
H2 - 24 Vdc (Din)
D1 - 12 Vdc (Deutsch)
D2 - 24 Vdc (Deutsch)

Manual Override
M - Std Flush Push Pin Spring return

Other Options
H - High pressure coil Tube for tank pressures up to 210 bar
Omit if not required

RS5-01



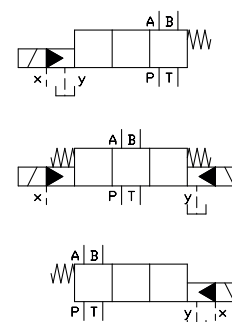
Size: 10, ISO 4401

Up to 350 bar - Up to 160 lpm

Description

These solenoid pilot operated directional spool valves are designed to control the start, stop and direction of oil flow for both single and double acting hydraulic circuits. The robust construction for high pressure operation, together with optimised large flow paths for low pressure drop, make these valves ideal for providing the accurate and energy efficient control required by modern hydraulically controlled machines.

Symbol



Features

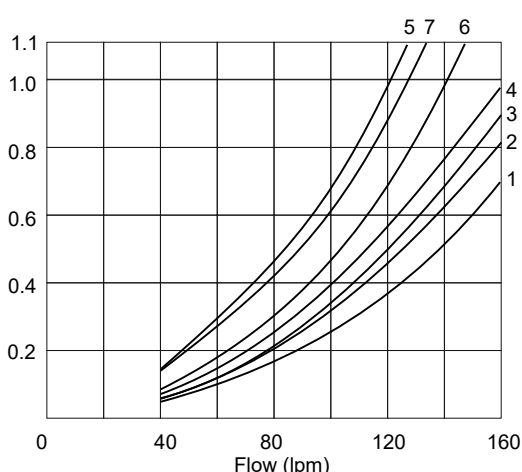
- Wide range of spool options
- Low internal leakage
- Low pressure drop design

Specifications

Working Pressure (bar)	P, A & B Ports	350	
	T Port	100 (internal drains)	
Max. Working Flow (lpm)	Up to 160 (see flow pressure performance graph)		
Working Fluids	General purpose hydraulic fluid		
Fluid Temp. (°C)	-20 to 70		
Viscosity Range, Centistokes (Cst)	2.8 to 380		
Weights (kg)	Single Solenoid	7.0 (DC)	
	Double Solenoid	7.5 (DC)	
Working Voltage	Direct Current	12	24
Coil Power (Watts)	30 (12 Volts = 2.5 Amps, 24 Volts = 1.25 Amps)		
Response Time (DC Voltage)	Open	15-25	
	Closed	40-60	
Switching Frequency - Cycles / Hour	72000 (DC)		
Insulation Grade	IP65		

* = Consult RFP Ltd.

Pressure Drop Curves



Spool Code	Neutral		
	A → T	B → T	P → T
3C12	3	-	-
1717	-	4	-

Spool Code	Switching Position			
	P → A	P → B	A → T	B → T
1711	1	2	4	5
1715	1	4	1	1
1714	4	2	2	6
1710	4	4	1	4
1713	1	2	1	3
3C12	2	3	1	4
1718	4	4	3	4
1758	4	1	3	4
1719	2	3	3	5
1717	3	3	3	4
3C7	2	2	3	5

Spool Code	Neutral		
	A → T	B → T	P → T
1715	3	-	6
1714	-	-	7
1710	1	3	5
1758	-	7	5

RH5-01

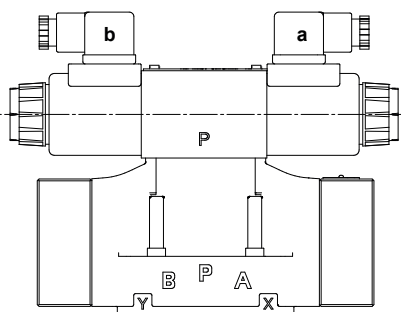
Spool Type Chart

1711		1611		1611/A		1631	
1710		1610		1610/A		1630	
1713		1613		1613/A		1632	
1715		1615		1615/A		1631/A	
1714		1614		1614/A		1630/A	
3C7		2B7B		2B7BL		1632/A	
1718		1618		1618/A			
1717		1617		1617/A			
1716		1616		1616/A			
3C12		2B12B		2B12BL			
1758		1658		1658/A			
1719		1619		1619/A			

 = Non Standard.

X	
Y	
XY	

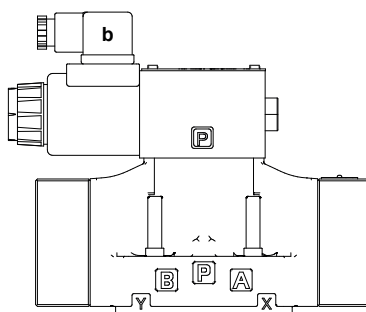
Coil Identification



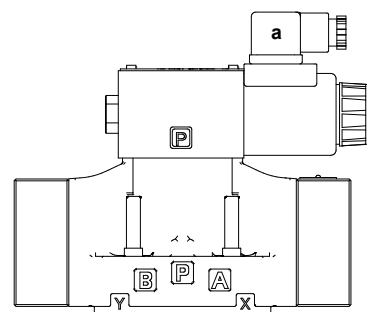
Type: 17**

When Solenoid 'A' is energised flow = P → A, B → T

When Solenoid 'B' is energised flow = P → B, A → T



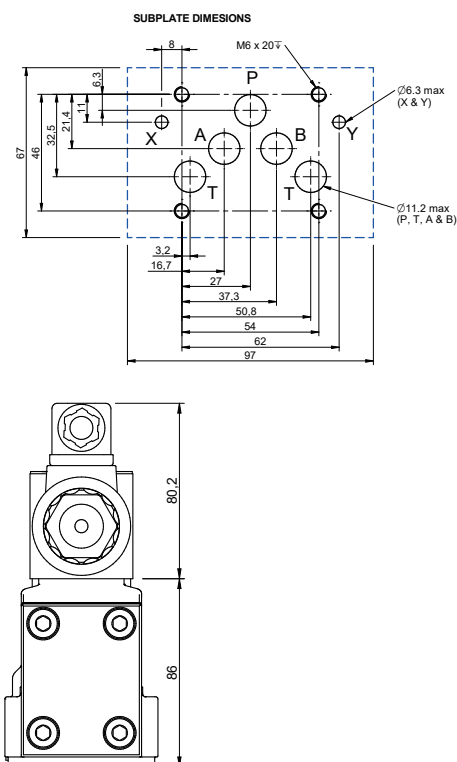
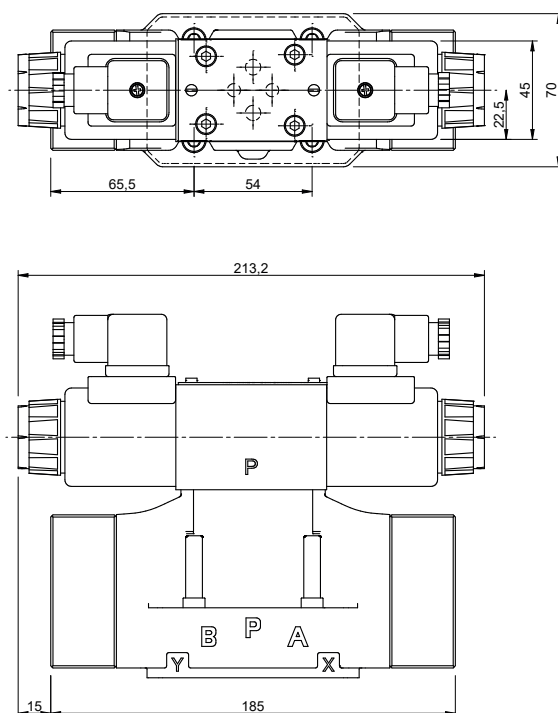
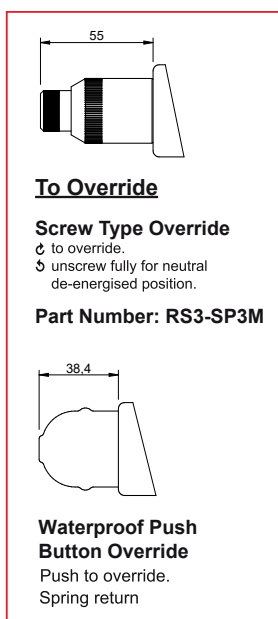
Type: 16**



Type: 16**/A

Dimensions

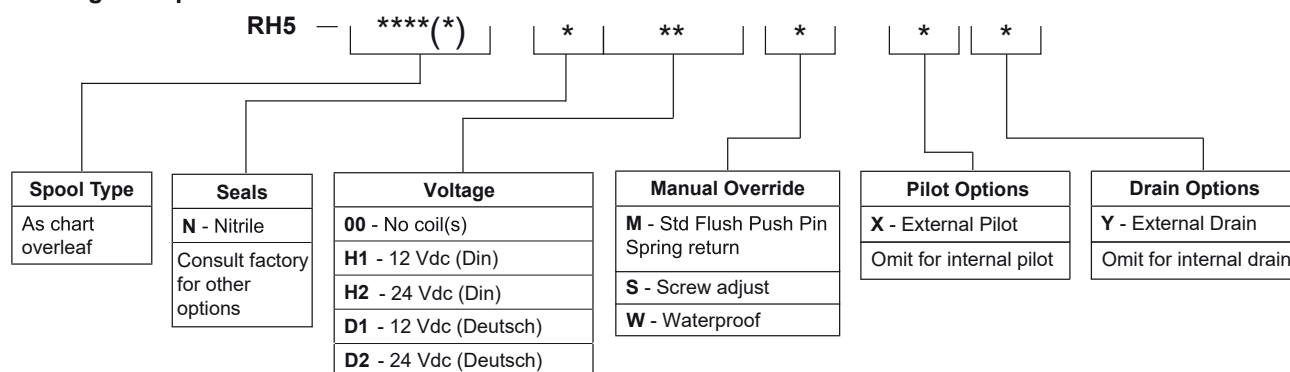
[mm]



Installation Advice

Mounting Orientation: Any, horizontal preferred.
 Bolt: M6 x 45, Grade 12.9. Allow a minimum thread engagement of 1.5x D.
 Tightening Torque: 8-9Nm in aluminium threads.
 Mounting Surface: 4401 - 05 - 05 - 0 - 05 Ra 0.8 roughness.
 Spare Seal Kit: SK-RH5-00 (Nitrile)

Ordering Example



RH5-01

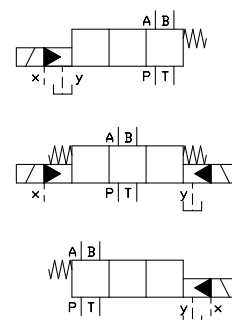


Size: 16, ISO 4401

Up to 350 bar - Up to 300 lpm

Description

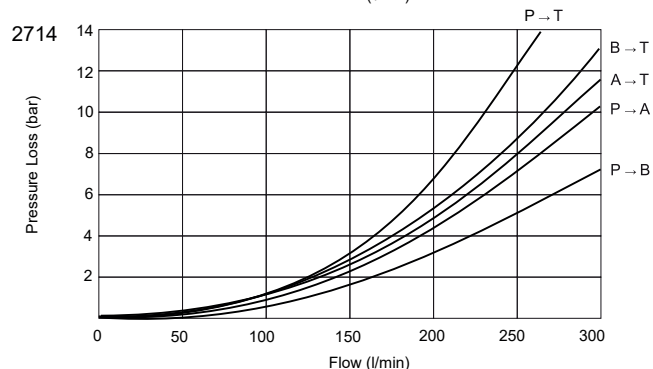
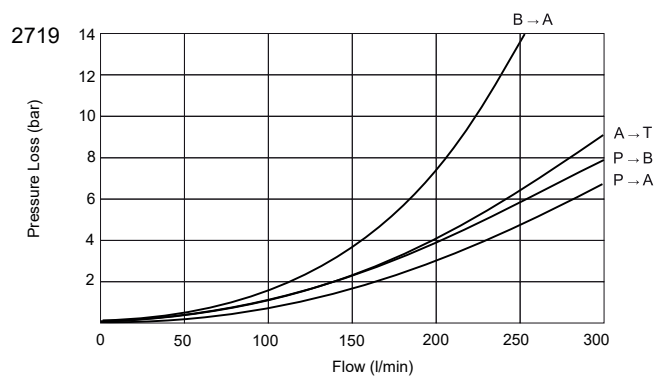
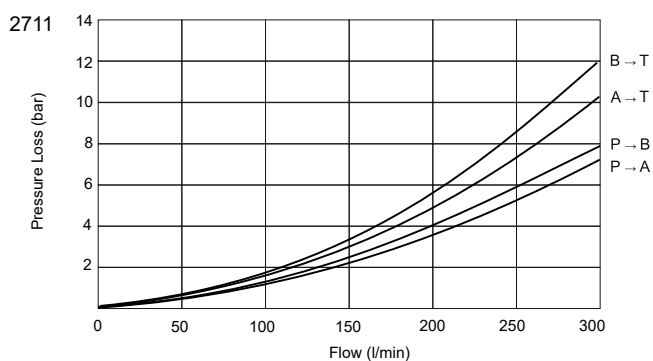
These solenoid pilot operated directional spool valves are designed to control the start, stop and direction of oil flow for both single and double acting hydraulic circuits. The robust construction for high pressure operation, together with optimised large flow paths for low pressure drop, make these valves ideal for providing the accurate and energy efficient control required by modern hydraulically controlled machines.

Symbol

Features

- Wide range of spool options
- Low internal leakage
- Low pressure drop design

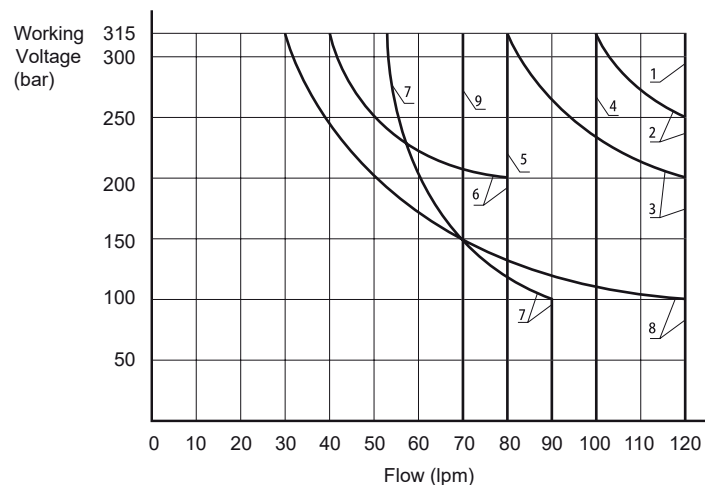
Specifications

Working Pressure (bar)	P, A & B Ports	350	
	T Port	100 internal drain / 210 external drain	
Max. Working Flow (lpm)	Up to 300 (see flow pressure performance graph)		
Working Fluids	General purpose hydraulic fluid		
Fluid Temp. (°C)	-20 to 70		
Viscosity Range, Centistokes (Cst)	2.8 to 380		
Weights (kg)	Single Solenoid	10.1 (DC)	
	Double Solenoid	10.6 (DC)	
Working Voltage	Direct Current	12	24
Coil Power (Watts)	30 (12 Volts = 2.5 Amps, 24 Volts = 1.25 Amps)		
Response Time (DC Voltage)	Open	15-25	
	Closed	40-60	
Switching Frequency - Cycles / Hour	72000 (DC)		
Insulation Grade	IP65		

Pressure Drop Curves


Flow Pressure Performance

DC Solenoid Operation



DC Solenoid Operation	
Curve	Symbol
1	2630, 2770, 2750, 2631, 2771, 2751, 2631/A, 2718
2	2711
3	2772, 2752, 2717, 3C12, 2713
4	2710
5	2719
6	2714
7	2715, 2758
8	2632, 2632/A
9	3C7
10	2711, 2719, 2770, 2750, 2771, 2751

Spool Type Chart

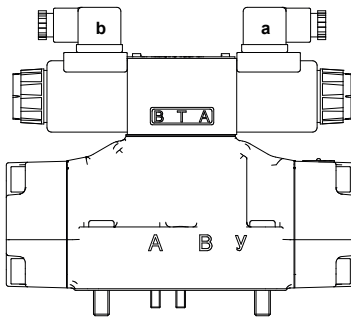
2711		2611		2611/A		2631	
2710		2610		2610/A		2630	
2713		2613		2613/A		2632	
2715		2615		2615/A		2631/A	
2714		2614		2614/A		2630/A	
3C7		2B7B		2B7BL		2632/A	
2718		2618		2618/A			
2717		2617		2617/A			
2716		2616		2616/A			
3C12		2B12B		2B12BL			
2758		2658		2658/A			
2719		2619		2619/A			

 = Non Standard.

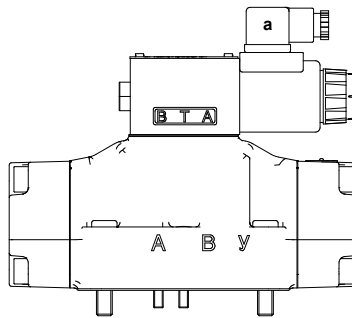
X	
Y	
XY	

RH7-01

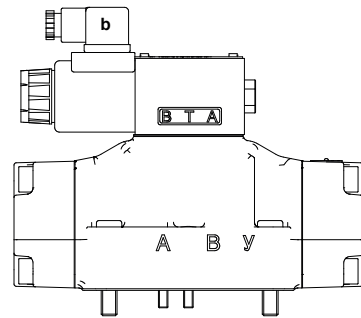
Coil Identification



Type: 27**



Type: 26**



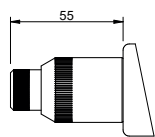
Type: 26**/A

When Solenoid 'A' is energised flow = P → A, B → T

When Solenoid 'B' is energised flow = P → B, A → T

Dimensions

[mm]

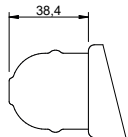


To Override

Screw Type Override

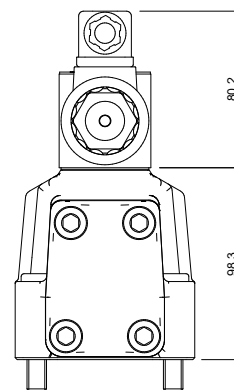
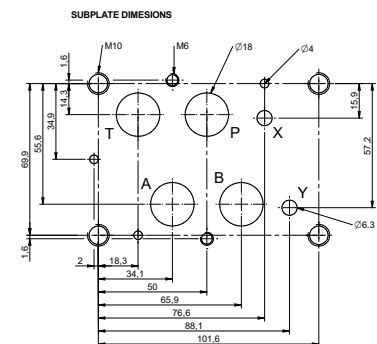
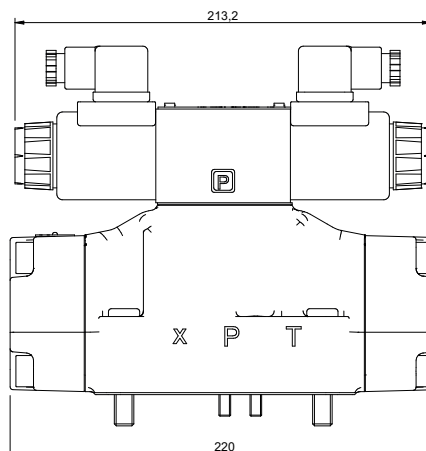
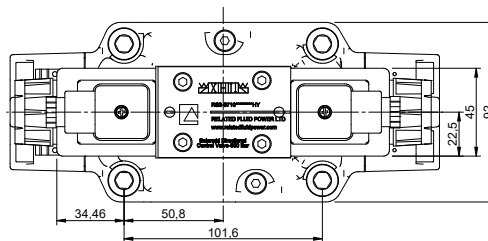
⌚ to override.
⌚ unscrew fully for neutral de-energised position.

Part Number: RS3-SP3M



Waterproof Push Button Override

Push to override.
Spring return



Installation Advice

Mounting Orientation: Any, horizontal preferred.

Bolts: x2 M6 x 55 (15 Nm), x4 M10 x 60 (75 Nm). Grade 12.9. Allow a minimum thread engagement of 1.5x D.

Tightening Torque: 15, 75 Nm in aluminium threads.

Mounting Surface: 4401 - 07 - 07 - 0 - 05 Ra 0.8 roughness

Spare Seal Kit: SK-RH7-00 (Nitrile)

Ordering Example

RH7 — ****(*) * ** *

Spool Type	Seals	Voltage	Manual Override	Pilot Options	Drain Options
As chart overleaf	N - Nitrile	00 - No coil(s)	M - Std Flush Push Pin Spring return	X - External Pilot	Y - External Drain
	Consult factory for other options	H1 - 12 Vdc (Din)	S - Screw adjust	Omit for internal pilot	Omit for internal drain
		H2 - 24 Vdc (Din)	W - Waterproof		
		D1 - 12 Vdc (Deutsch)			
		D2 - 24 Vdc (Deutsch)			

RH7-01

Section 19 - TECHNICAL INFORMATION

Fast track hydraulic formulae

Pumps and Motors

$$\text{Flow Rate (l/min)} \quad Q = \frac{D \times n}{1000}$$

$$\text{Shaft Torque (Nm)} \quad T = \frac{D \times \Delta p}{20\pi}$$

$$\text{Shaft Power (kW)} \quad P = \frac{T \times n}{9550}$$

$$\text{Hydraulic Power (kW)} \quad P = \frac{Q \times p}{600}$$

Cylinders

$$\text{Force (N)} \quad F = p \times A \times 10$$

$$\text{Velocity (m/s)} \quad v = \frac{Q \times 0.167}{A}$$

$$\text{Area (cm}^2\text{)} \quad A = \frac{\pi d^2}{400}$$

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 [cm³/rev]

F = Force [N]

v = Velocity [m/s]

T = Torque [Nm]

A = Area [cm²]

d = Pipe Diameter [mm]

Δp = Pressure Drop (bar)

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:

$$\text{Reynolds Number} \quad Re = \frac{21,200 \times Q}{v \times d}$$

$$\text{Or, to achieve } Re > 4,000 \quad Q > 0.189 \times v \times d$$

Where:

Q = Flow Rate (l/min)

v = Viscosity (cSt)

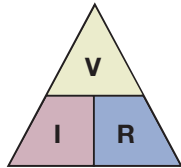
d = Pipe Diameter (mm)

Re = Reynolds Number

- A 'fine' filter to capture transported particles quickly and effectively.

Electronics formulae

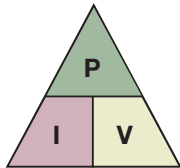
Ohms law:



$$V = I \times R \quad I = \frac{V}{R} \quad R = \frac{V}{I}$$

V=Voltage (volts) I=Current (amps)

Power:



$$P = I \times V \quad I = \frac{P}{V} \quad V = \frac{P}{I}$$

P=Power (watts)

Hydraulic pipes and hoses formulae

$$\text{Velocity of fluid in pipe (m/s)} \quad v = \frac{Q \times 21.22}{d^2}$$

Where:

d = Pipe Diameter (mm)

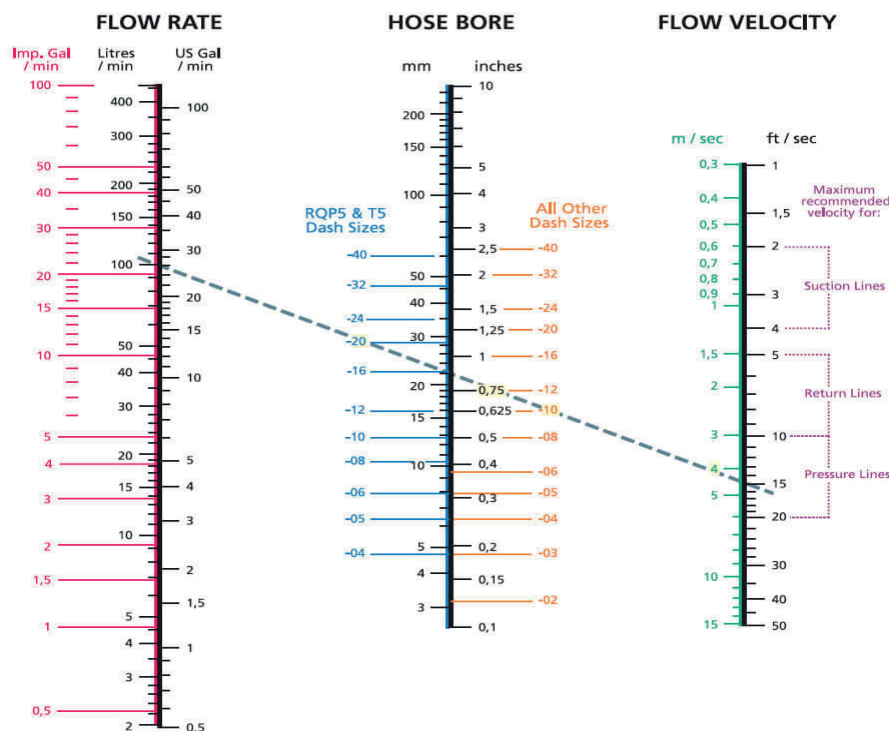
Recommended fluid velocity ranges:

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.



[illegible]

Section 20 - CONTACTS

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07843 471409

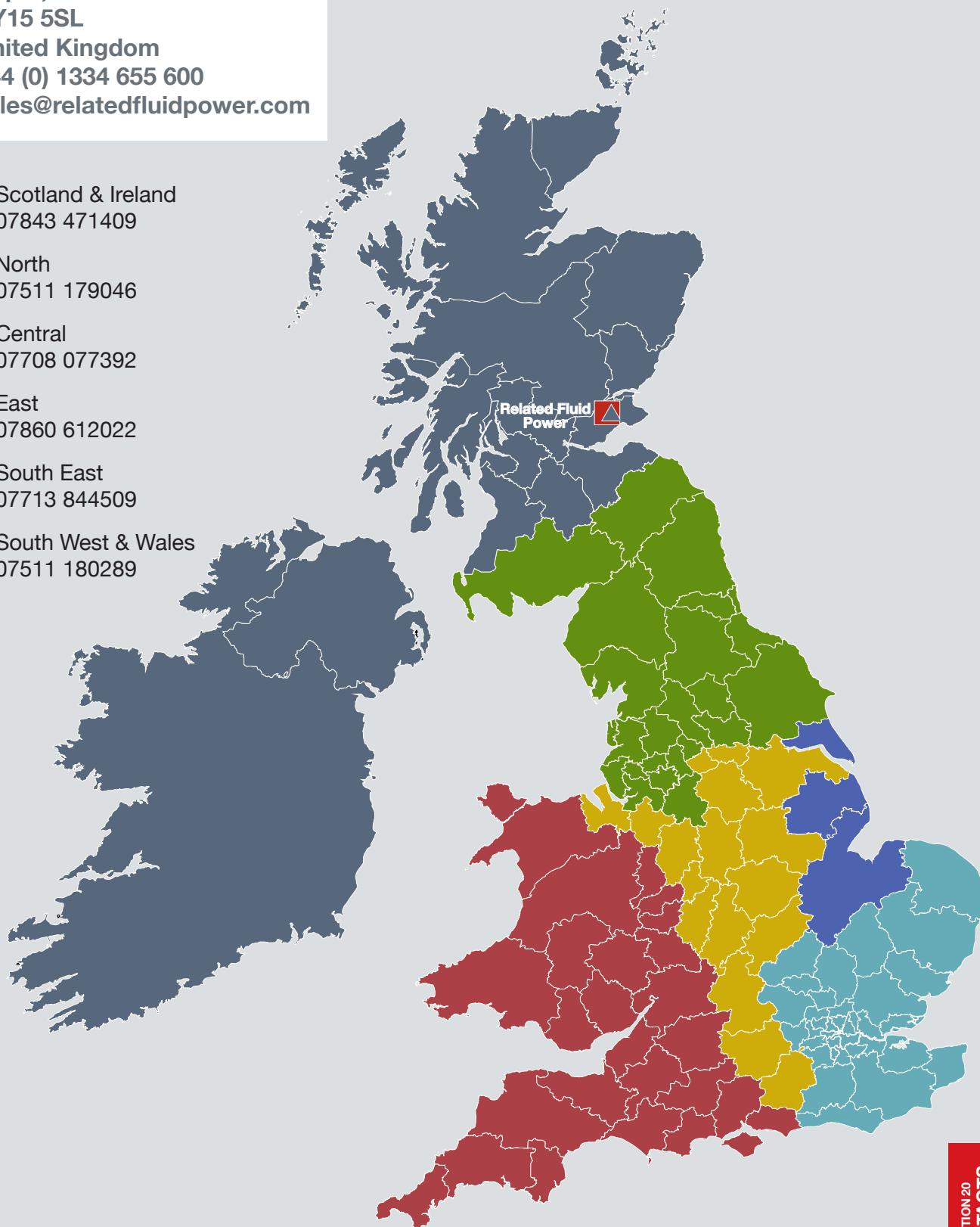
North
07511 179046

Central
07708 077392

East
07860 612022

South East
07713 844509

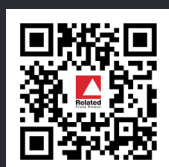
South West & Wales
07511 180289



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