2- and 3-Way Flow Control Valves
Series SR3C

1 General

1.1 Product description

SR3C... flow control valves are used to control the operating speed of motors and cylinders, the speed being load-independent i.e. pressure compensated. The flow rate is varied by means of a slit-type orifice that is actuated by a proportional solenoid.

The valve can be used as either a 2-way or 3-way flow control. When used as a 3-way valve, either the controlled flow (priority) port or the surplus flow port can be at the higher pressure.

The special orifice layout ensures that the flow setting is largely independent of the viscosity of the operating fluid. Thanks to the cartridge design, a complete valve can be replaced very quickly when necessary.

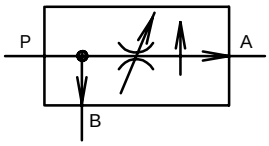
1.2 Advantages

- compact design
- flow rates are unaffected by temperature changes
- flow rates are unaffected by reversal of the pressure differential between the outlet ports
- where customers manufacture their own manifold blocks, the flow control valves can be ordered separately
- easy to service
- several types of manual overrides
- reliable

2 Symbols

2.1 2-way flow controller

2.2 3-way flow controller



3 Technical data

3.1 General

Type	cartridge valve with slit-type orifice and parallel/series connected pressure compensator (hydrostat)
Flow direction	P -> A controlled flow P -> B surplus flow
Seals	Viton (FPM)
Mounting method	screw-in valve (M_A = 50 Nm)
De-energised condition	orifice closed
Mounting attitude	unrestricted but preferably with solenoid underneath (automatic air bleed)
Commissioning	bleed all air from the system (if possible, operate valve several times under 'no load')

Classification: 430.30.30.10
Reference: 100-P-000044-E-05 / 12.04

3.2 Electrical

(proportional solenoid)

Type		pressure tight, oil immersed
Operating voltage	Volt DC	12 or 24, from electronic controller
Power consumption	Watt	27 with 12V coil 22.2 with 24V coil
Dither frequency required	Hz	50 - 150
Duty cycle	%	100
Enclosure protection		IP54 when connector plug is correctly fitted
Electrical connector		pins to suit DIN 43650 plug
Response time (pressure dependent)	ms	100 (at 100 bar)

3.3 Hydraulic

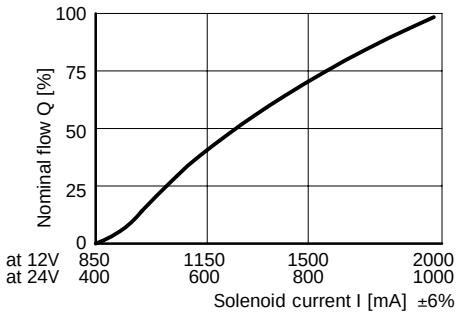
Controlled flow ranges	l/min	06, 10, 16, 25, 32, 40, 50, 63, 80 [1]
Inlet flow	l/min	max. 100 [1]
Operating pressure	bar	max. 315
Leakage Pressure at B 10 bar 100 bar 200 bar 300 bar	cm^3/min	 22 [1] 100 200 400
Minimum pressur drop (compensator / hydrostat)	bar	5 to 8
Control accuracy at constant temperature and constant inlet flow rate	%	± 3,5 [2]
Fluids		mineral oils to DIN 51524 and 51525 (other fluids - contact Bucher Hydraulics)
Fluid temperature	°C	-20 ... +80
Viscosity range	mm^2/s	10 ... 300
Filtration	NAS 1638 class 9, ISO / DIN 4406 class 18/14 achievable with filter rating of $ß_{10} \geqq 75$	

1) values refer to an oil viscosity of 35 mm^2/s (cSt)

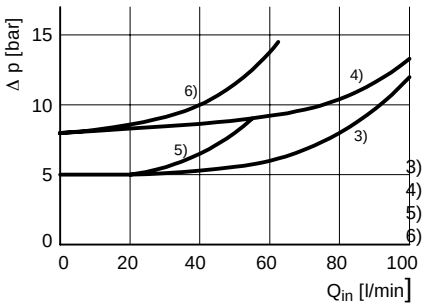
2) values refer to the flow range chosen

4 Characteristic curves

4.1 Q - I characteristic

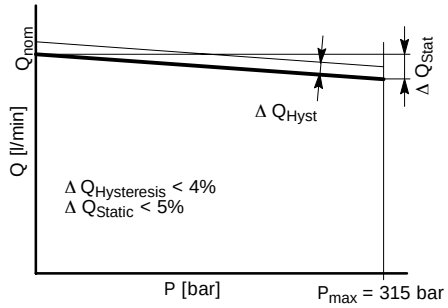


4.2 Pressure drops

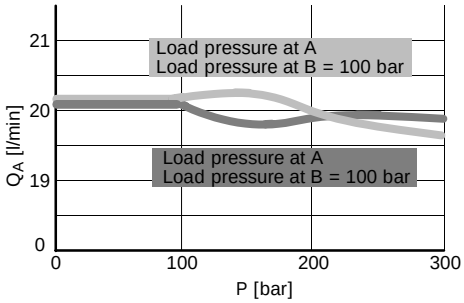


3)	P→B	6 - 50	l/min
4)	63, 80	l/min	
5)	P→A	6 - 50	l/min
6)	63, 80	l/min	

4.3 Control accuracy



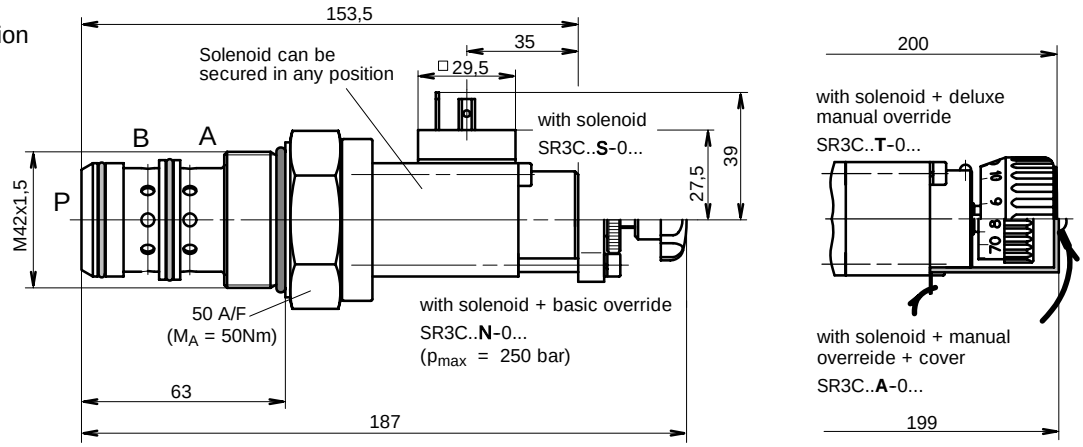
4.4 Flow variation with load change-over



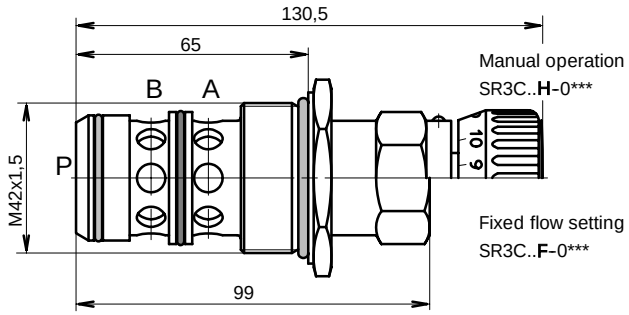
5 Dimensions

5.1 Flow control valve

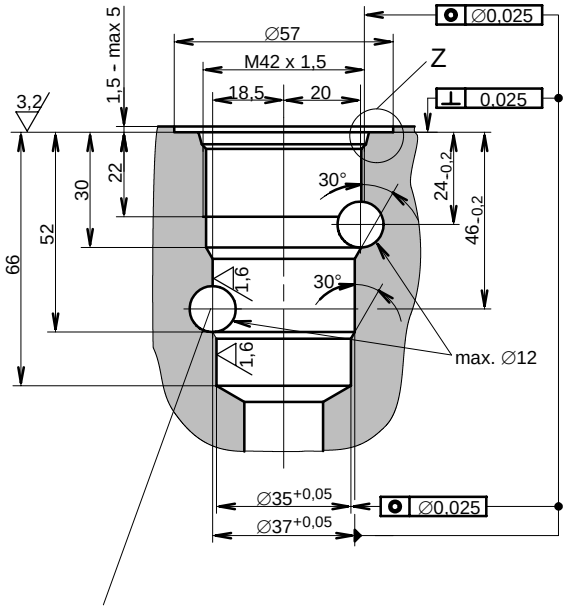
Solenoid operation

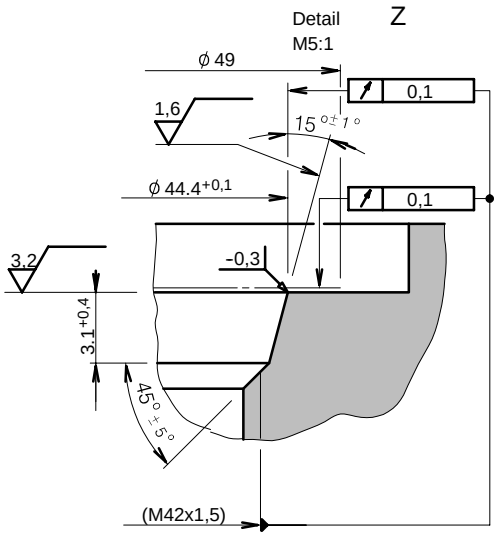


Manual operation



5.2 Valve cavity





Port B is not required for 2-way flow controllers.

6 Ordering code

S	R	3	C	5	0	S	-	0	G	1	2	/		Q=...7)

Flow control cartridge valve SR3C

Controlled (priority) flow ranges
- adjustable flow models (operator types S, T, N and A)
  - 0-06 / -10 / -16 / -25 / -32 / -40 / -50 / -63 / -80 l/min = e.g. 50
- adjustable flow model (operator type H)
  - VA (0-12 l/min), VB (0-25 l/min), VC (0-50 l/min) = e.g. VB
  - VD (0-63 l/min)
- adjustable fixed flow setting (operator type F) = **

Operator type

Solenoid	= S
Solenoid + manual override	= T
Solenoid + override	= N
Solenoid + man. override + cover	= A
Manual	= H
Fixed flow setting	= F

-

Design number (inserted by the factory)

Nominal voltage of proportional solenoid

12 V DC	= G12
24 V DC	= G24
not required for operator types F + H	= ***

/

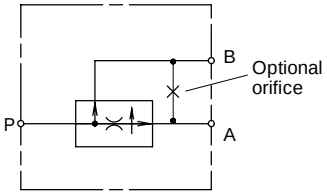
Variants / special features (to be inserted by the factory)

7) for fixed flow rate versions, the constant flow rate required must be specified in plain text

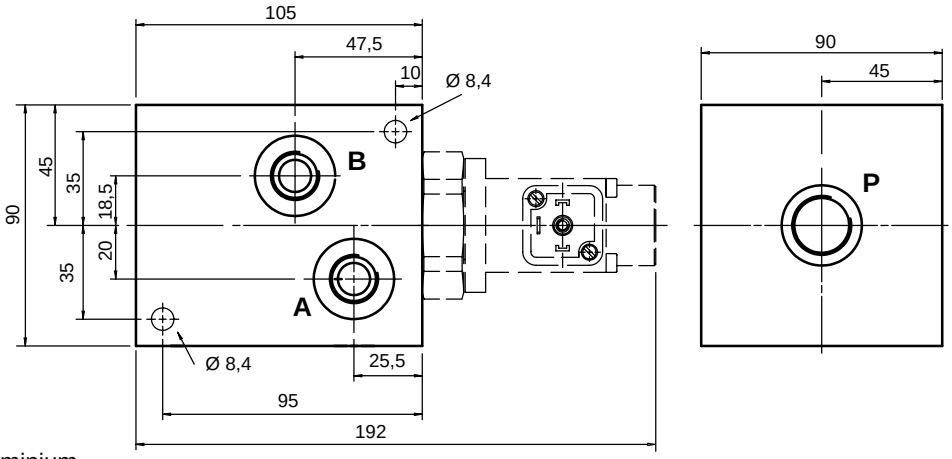
7 Mounting bodies

For aluminium bodies p_{max} = 250 bar

SR3CVM1-**-0M22*****
Ordering no.: 100020947



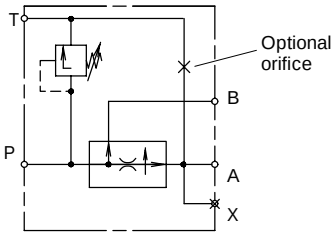
Port threads:
P, A and B= M22 x 1,5



Material: aluminium

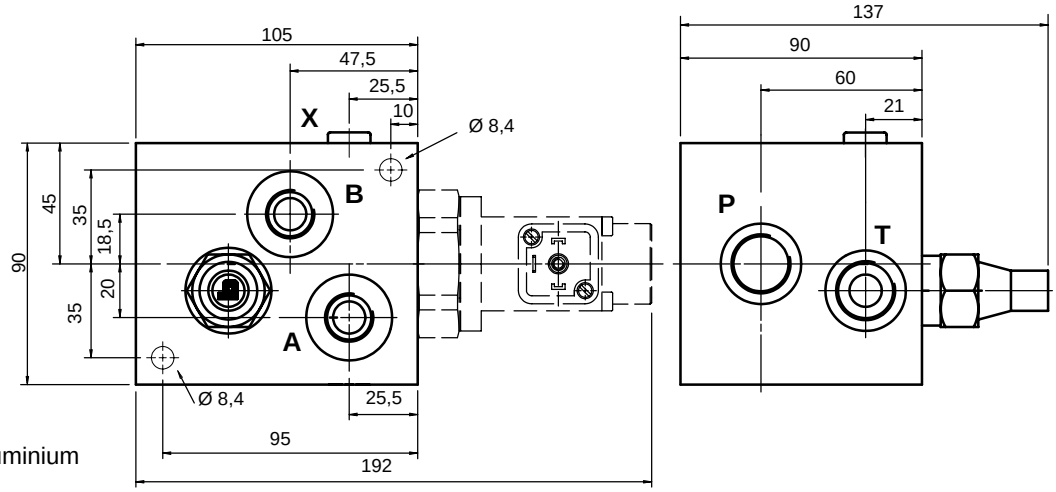
SR3CVM1-2*-0M22*** with pressure relief
Ordering no.: 100020948 (with X port)

SR3CVM1-2*-0M18*** with pressure relief
Ordering no.: 100022081 (with X port)



020948 Port threads:
P, T, A and B = M22 x 1,5
X = M12 x 1,5

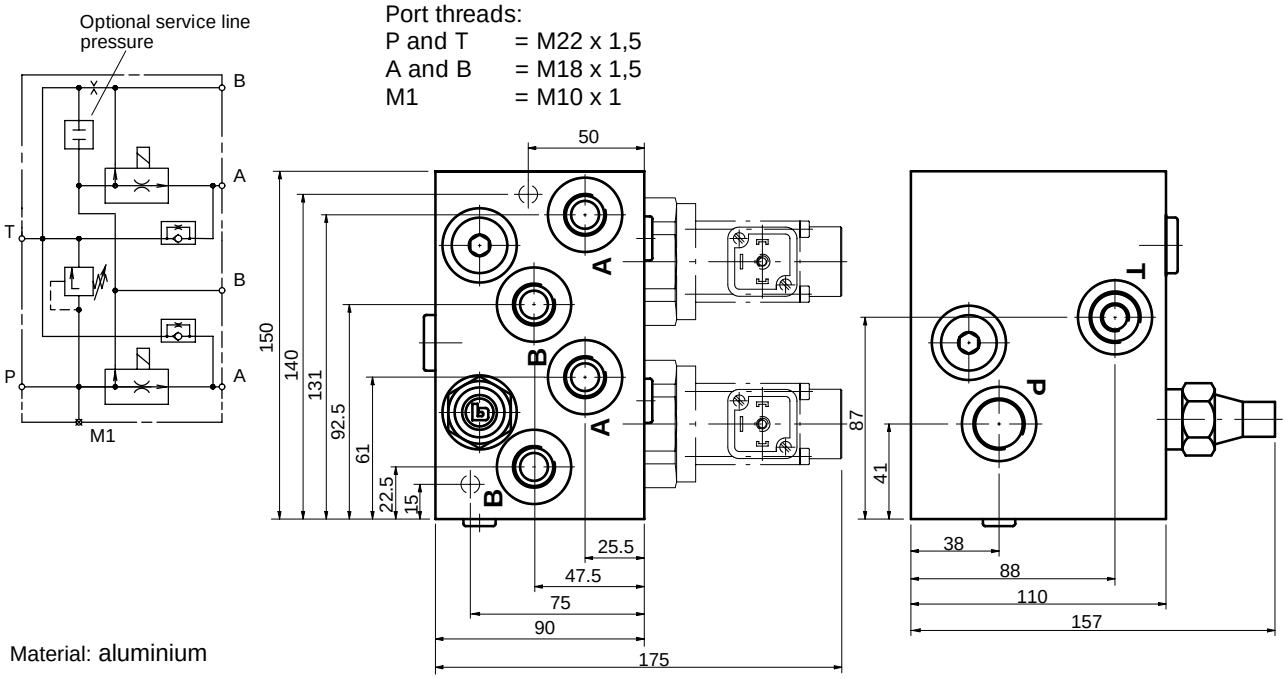
022081 Port threads:
P and T = M22 x 1,5
A and B = M18 x 1,5



Material: aluminium

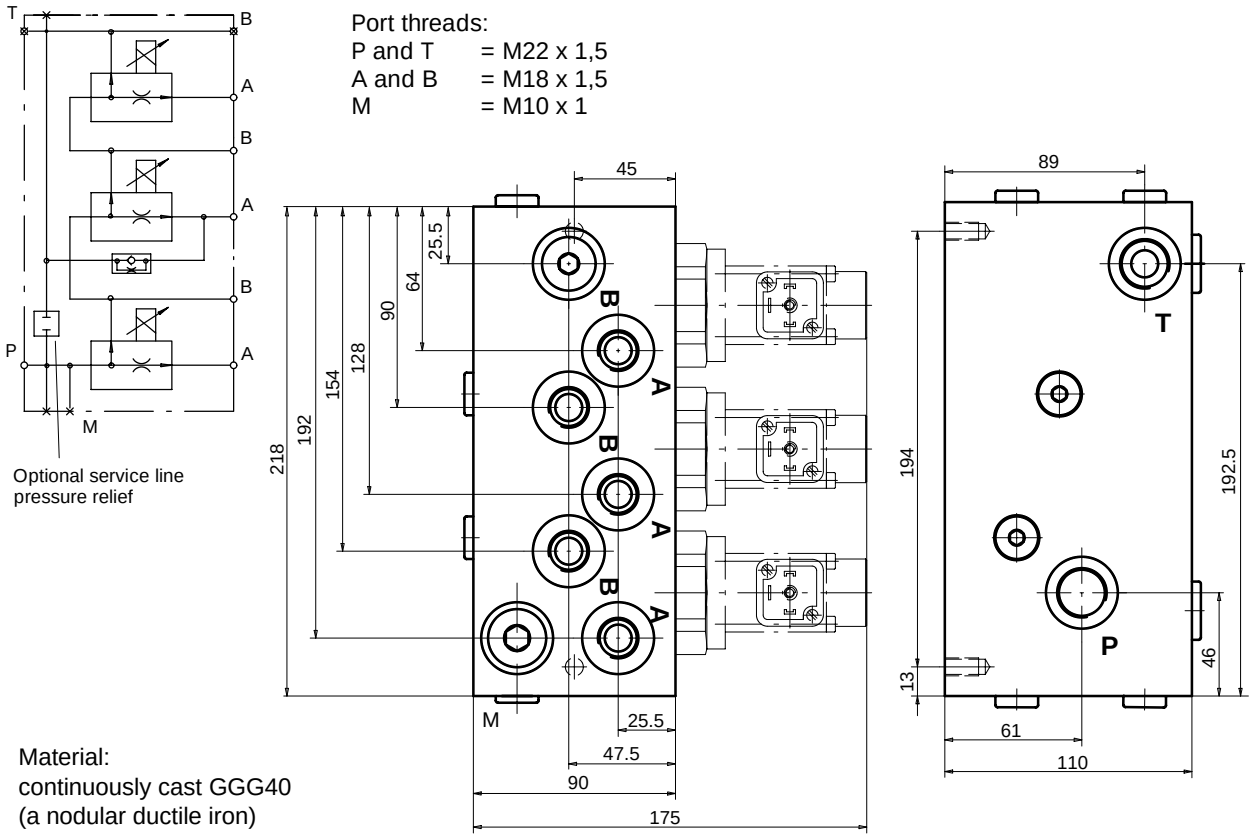
SR3CVM2-24-0M22*** with service line pressure relief and anti-cavitation make-up [8)]
Ordering no.: 100021036

SR3CVM2-2*-0M22*** with service line pressure relief, without anti-cavitation make-up [8)]
Ordering no.: 100 021873



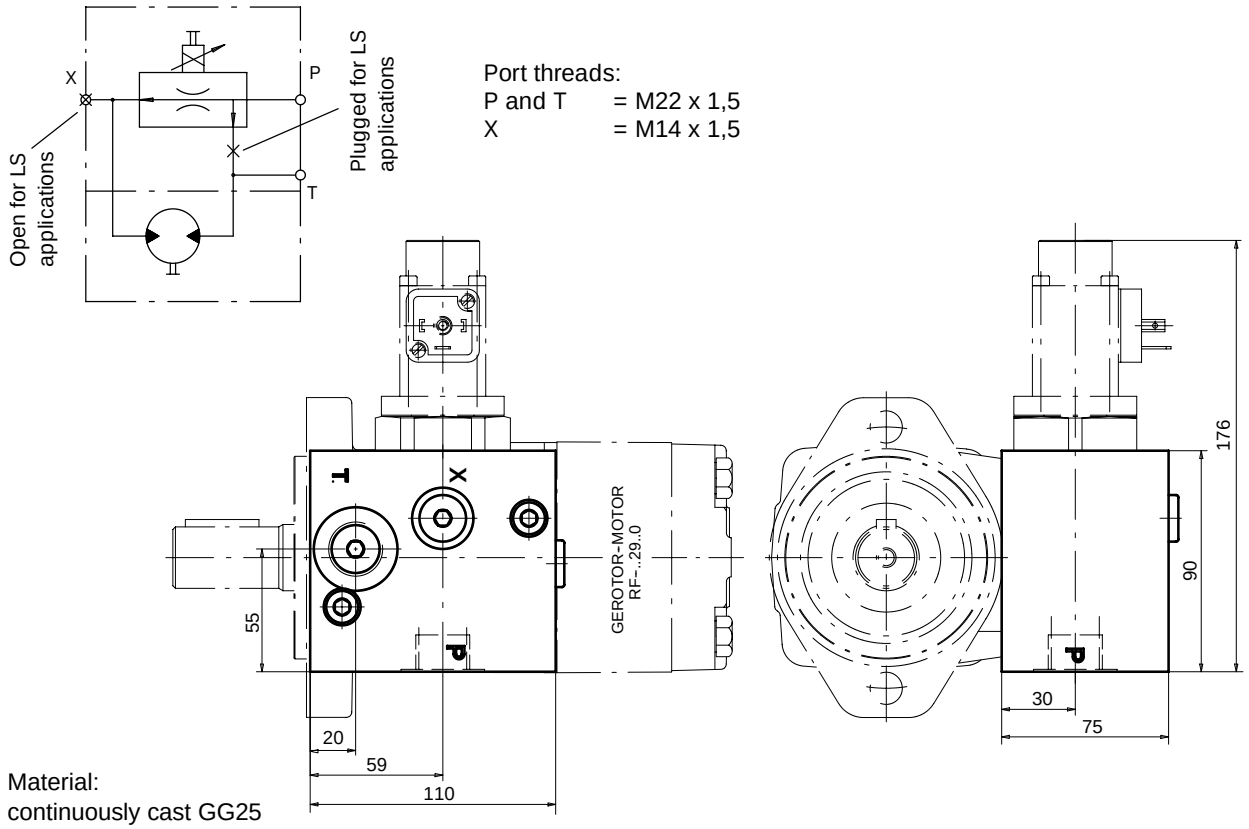
Material: aluminium

SR3CVM3-*2-0M22*** with anti-cavitation make-up [8)]
Ordering no.: 100020809



Material:
continuously cast GGG40
(a nodular ductile iron)

SR3CVR1-*L-0M22****
Ordering no.: 100020494



Material:
continuously cast GG25
(a grey cast iron)

8) service line pressure relief and anti-cavitation make-up can be optionally plugged off.

8 Ordering code

SR3CV	M2	-	2	*	*	2	-	0	M22	*	*	*	/	

Mounting body for SR3C cartridge valve

Type	Separate unit	single = M1, double = M2
	Motor mtg. (RS29)	single = R1, double = R2
	Inlet section	= E*
	Intermediate section	= Z*
	End section	= A*
	Bolt-on section	= AP

Service line relief for 1st controller	in P	in A
None	= *	= *
Pressure range 3 - 30 bar [9]	= 0	= 4
Pressure range 30 - 70 bar [10]	= 1	= 5
Pressure range 70 - 200 bar	= 2	= 6
Pressure range 200 - 300 bar	= 3	= 7

Service line relief for 2nd controller	in P	in A
None	= *	= *
Pressure range 3 - 30 bar [9]	= 0	= 4
Pressure range 30 - 70 bar [10]	= 1	= 5
Pressure range 70 - 200 bar	= 2	= 6
Pressure range 200 - 300 bar	= 3	= 7

Service line relief for 3rd controller	in P	in A
None	= *	= *
Pressure range 3 - 30 bar [9]	= 0	= 4
Pressure range 30 - 70 bar [10]	= 1	= 5
Pressure range 70 - 200 bar	= 2	= 6
Pressure range 200 - 300 bar	= 3	= 7

Additional functions		
None		= *
For use with LS pump		= L
With bypass check valve		= R
With anti-cavitation for	1st controller	= 1
	2nd controller	= 2
	3rd controller	= 3
	1st and 2nd controller	= 4
	1st and 3rd controller	= 5
	2nd and 3rd controller	= 6
	1st, 2nd and 3rd controller	= 7

Design no. (to be inserted by the factory)

Port threads DIN 3852 - M22 x 1,5 = M22
(other threads - contact Bucher Hydraulics)

Nominal voltage of proportional solenoid (for bodies with solenoid operated valves)

12 V DC	= G12
24 V DC	= G24
none	= ***

Variants / special features (to be inserted by the factory)

9) only to Q_{max} = 25 l/min 10) only to Q_{max} = 40 l/min

The flow control valves must be ordered separately as detailed in section 6

BUCHER HYDRAULICS **www.bucherhydraulics.com**

Germany
Phone +49 7742 85 20
Fax +49 7742 71 16
info.de@bucherhydraulics.com

France
Phone +33 389 64 22 44
Fax +33 389 65 28 78
info.fr@bucherhydraulics.com

Netherlands
Phone +31 79 34 26 24 4
Fax +31 79 34 26 28 8
info.nl@bucherhydraulics.com

UK
Phone +44 24 76 35 35 61
Fax +44 24 76 35 35 72
info.uk@bucherhydraulics.com

USA
Phone +1 262 605 82 80
Fax +1 262 605 82 78
info.wi@bucherhydraulics.com

Switzerland
Phone +41 33 67 26 11 1
Fax +41 33 67 26 10 3
info.ch@bucherhydraulics.com

Italy
Phone +39 0522 92 84 11
Fax +39 0522 51 32 11
info.it@bucherhydraulics.com

Austria
Phone +43 6216 44 97
Fax +43 6216 44 97 4
info.at@bucherhydraulics.com

China
Phone +86 512 6 322 12 99
Fax +86 512 6 322 10 33
info.sh@bucherhydraulics.com

Product Center (Elevator)
Phone +41 41 757 03 33
Fax +41 41 755 16 49
info.nh@bucherhydraulics.com