Flow Control Valve

Series SRR..

- robust, simple and reliable
- easy coil change without opening the hydraulic envelope
- flow rates are unaffected by temperature change or when the higher load pressure alternates be-tween the outlet ports
- easy to service
- dependable

1 Descriptions

1.1 Generals

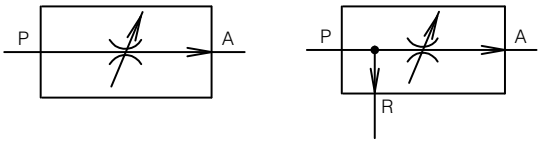
The flow control valves of the SRR series are used to set the working speed of hydraulics actuators, the setting being load-independent, and pressure compensated. The flow rate is set by an adjustable slit-type orifice. When used as a 3-way valve, the higher pressure can be either at the A or the B port. The special orifice design ensures that the flow setting is largely independent of the viscosity of the operating fluid. For a 2-way flow control function please ask Bucher Hydraulics.

1.2 Application examples

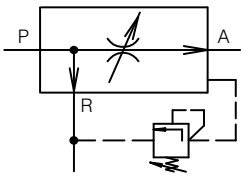
- Harvesters
- Sweepers
- Refuse collection vehicles
- Fertiliser spreaders
- Trailered machines
- Mowers
- Road rollers
- Municipal vehicles
- Forestry machines
- Wood chippers

2 Symbols

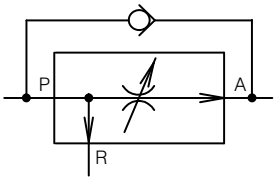
2.1 2 and 3-way flow control valves



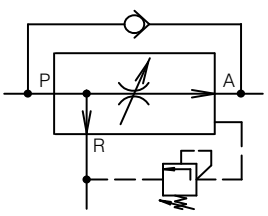
2.2 3-way flow control with pressure relief



2.3 3-way flow control with bypass check valve



2.4 3-way flow control with pressure relief and bypass CV



3 Technical datas

General characteristics	Unit	Description, value
Design		line mounting
Flow direction		P → A controlled P → R surplus flow discharge (models shown in 2.1 a. 2.3, surplus flow can be press.)
Seals		Viton (FPM)
De-energized position		orifice closed
Mounting attitude		unrestricted; preferably with coil at bottom (auto. air bleed)

Electrical characteristics	Unit	Description, value
Design		high pressure; wet armature
Supply voltage	V DC	12 or 24 from an electronic controller
Power consumption	Watt	27.6 at 12 V coil and Imax. = 2,3 A 27,6 at 24 V coil et Imax. = 1,15 A
Dither frequency required	Hz	100 (pay attention to Imax.)
Relative duty cycle		100% at Imax.
Protection class (with a properly-fitted plug)		DIN plug - IP54; AMP Junior Timer - IP65; Deutsch plug - IP67
Electrical connection		plug-base with pins to DIN 43650; AMP Junior Timer plug connector (2-pole); Deutsch plug DT04-2P-EP04

Hydraulical characteristics	Unit	Description, value
Constant flow range	l/min	10, 16, 25, 32, 40, 50, 63, 80 [1)]
Inlet flow	l/min	max. 100 [1)]
Operating pressure	bar	max. 315 [2)]
Leakage	cm^3/min	max. 100 cm^3/min at 100 bar [1)]
Min. pressure difference (pressure compensator)	bar	7
Control accuracy (as a % of the nominal flow): Load-dependency when under pressure Hysteresis when operated		 max ± 2,5% [3)] max ± 3,5% [3)]
Fluids		mineral oil to DIN 51524 and DIN 51525 [4)]
Fluid temperature range	°C	-20 ... +80
Viscosity range	mm^2/s	10 ... 300
Max. admissible level of contamination of the hydraulic fluid		NAS 1638 class 9, ISO 4406 class 20/18/15; (see section 11)

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

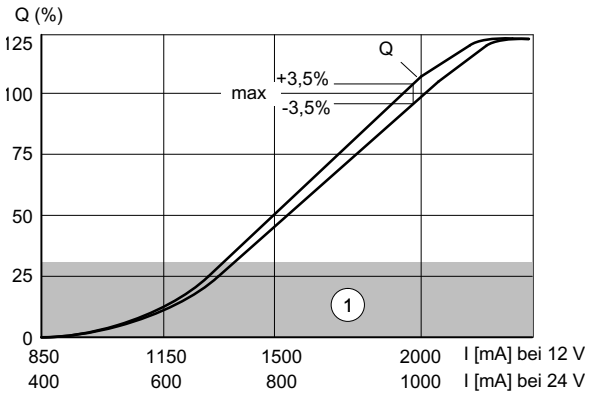
2) For higher pressures, consult Bucher Hydraulics

3) Values refer to the selected flow range.

4) for other fluids, consult Bucher Hydraulics.

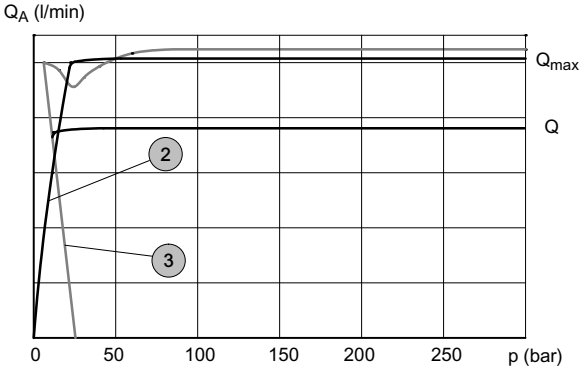
4 Performance graphs

4.1 Q / I characteristics



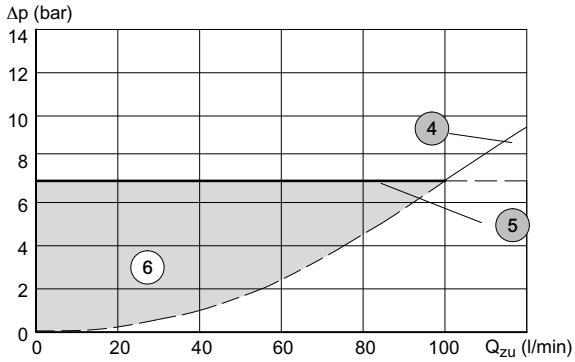
1	fine control range
2	Q_A - constant flow pressurised

4.2 Variation in flow



3	Q_A - surplus flow pressurised

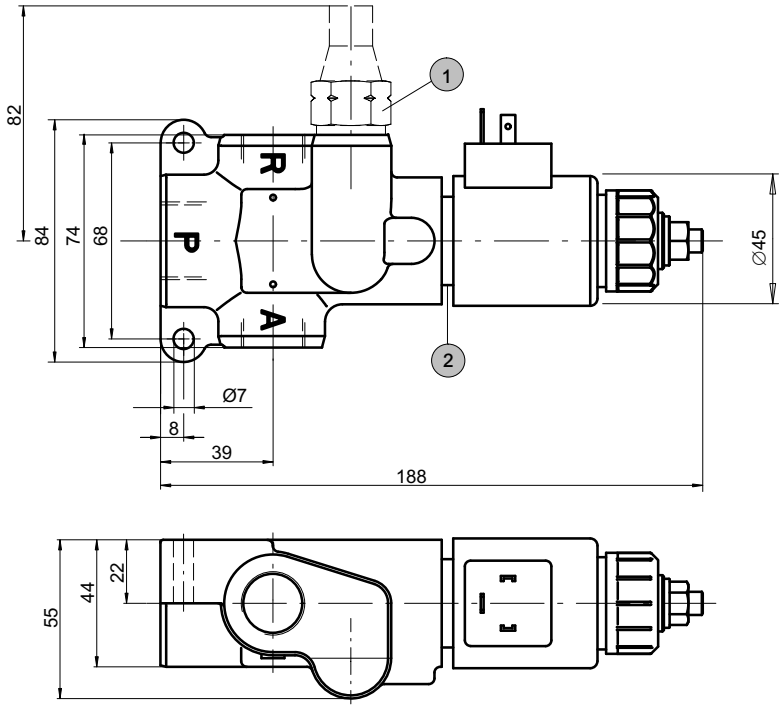
4.3 Pressure drop during vented bypass P → R



4	Control valve throtting curve
5	Control - Δp - characteristic 7 bar

6	Pressure loss area (the actual pressure-loss characteristic is dependent on the tank pressure at port R)

5 Dimensions



Port threads P = M27x2 or G3/4”

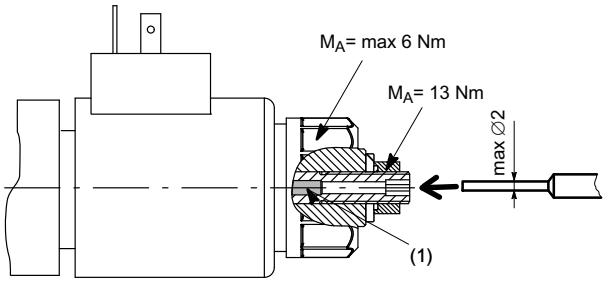
A and R = M22x1.5 or G1/2”

1	Model with pressure relief	2	M_A = 40 $^{+5}$ Nm

6 Models

6.1 Manual overrides

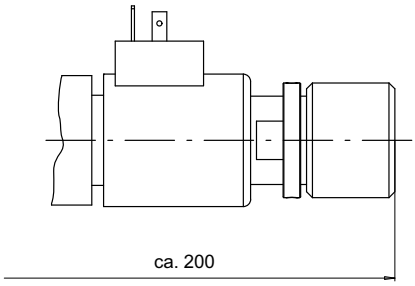
Emergency pin, SRC....S..



IMPORTANT : By pressing the emergency pin (1) you operate the valve ON/OFF

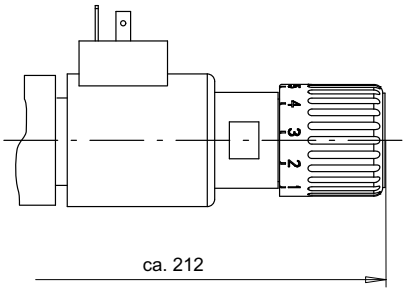
Basic manual override, SRC....N..

Q_0 to $Q_{max.}$ = approx. 3,5 turns at the rotary knob

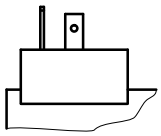
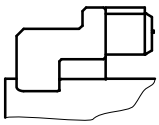
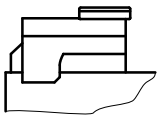


Basic manual override, SRC....T..

Q_0 to $Q_{max.}$ = approx. one turn at the rotary knob



6.2 Plug bases

GDM plug to DIN 43650 -G..-	AMP-Junior Timer -J..-	Deutsch plug DT04-2P-EP04 -T..-
		

7 Ordering code

S R R B 0 5 0 S 3 M - 0 G 1 2 - R P / P=

Flow control valve

Pipe mounting

Size

Constant flow range (10, 16, 25, 32, 40, 50, 63, 80 l/min)
e.g. 0...50 l/min = 050

Type of operation
solenoid + emergency pin = S
solenoid + basic manual override = N
solenoid + deluxe manual override = T

3-way = 3
2-way (for this function please ask Bucher Hydraulics) = 2

Port threads
P: M27x2 / A+R: M22x1.5 = M
P: G3/4" / A+R: G1/2" = G
(Adapters for pressure port P can be ordered separately, see section 8)

Design number (to be inserted by the factory)

Plug connector
GDM plug (DIN) = G
AMP Junior Timer = J
Deutsch plug = T

Proportional solenoid supply voltage
DC 12 Volt = 12
DC 24 Volt = 24

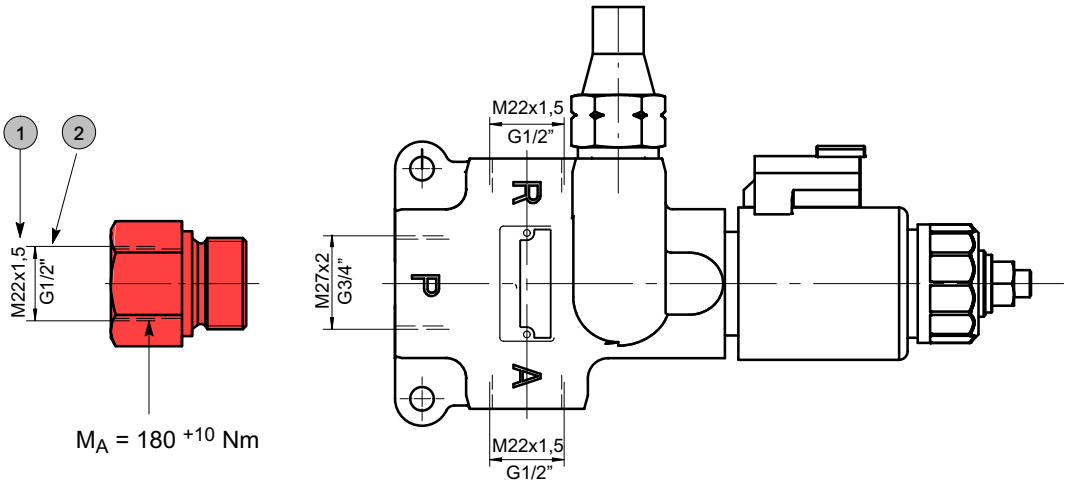
Bypass check valve A → P = R
without = *

Pressure relief function (surplus flow cannot be pressurised) = P (Specify the pressure setting in plain text)
without = *

Options (to be inserted by the factory)

8 Accessories

8.1 Adapter



1	adapter M27x2 → M22x1,5
2	adapter G ¾" -> G ½"

Model	Description	Part number
Adapter M27x2 → M22x1,5	Adapter with cutting edge,	100000183
Adapter G ¾" -> G ½"	Adapter with sealing ring profiled sealing ring to DIN 3869 is included with delivery	100235660

8.2 Electronics

For controlling SR... flow control valves, we recommend the E.SK 103 and E.SK 106 series of control units and plug-in cards. These are used to control 1 or 2 proportional solenoids and can also operate on/off solenoids and other auxiliary functions. Plug-in cards are available, and control units can be supplied. The folowing table contains a small selection of the extensive range of accessories and electronics from Bucher Hydraulics.

Model	Description	Part number
ELSK106-91***	with screw terminals	100018790
ELSK106-81***	with screw terminals, encapsulated	100018791
ELSK106-81***/02	with screw terminals, encapsulated, with ramp 2s	100013454
ELSK106-81***/04	with screw terminals, encapsulated, with ramp 4s	100026079
Junior Timer 2Pol	plug, AMP J, with 2 m cable	100152575

9 Installation information

IMPORTANT!
When mounting the valve, ensure that the body is not subjected to any distorting forces. If necessary use shims to equalise the level of the mounting points. Do not use any pipe fittings with tapered-threads!

To ensure reliable operation, M27x2 or G3/4" fittings with threaded stud ends (length of stud end 16 mm) must be used.
If required, adapters for M27x2 to M22x1,5 or G ¾" to G ½" can be supplied (see section 8).

Bleed all air from the system (if possible, operate the flow control valve several times at no-load)

10 Fluid

The oil for SRR.. products must have a minimum cleanliness level of 20/18/15 to ISO 4406 or class 9 to NAS 1638.

11 Fluid cleanliness

Cleanliness class (RK) onto ISO 4406 and NAS 1638

Code ISO 4406	Dirt particle number / 100 ml			
	≤ 4 µm	≤ 6 µm	≤ 14 µm	NAS 1638
23/21/18	8000000	2000000	250000	12
22/20/18	4000000	1000000	250000	-
22/20/17	4000000	1000000	130000	11
22/20/16	4000000	1000000	64000	-
21/19/16	2000000	500000	64000	10
20/18/15	1000000	250000	32000	9
19/17/14	500000	130000	16000	8
18/16/13	250000	64000	8000	7
17/15/12	130000	32000	4000	6
16/14/12	64000	16000	4000	-
16/14/11	64000	16000	2000	5
15/13/10	32000	8000	1000	4
14/12/9	16000	4000	500	3
13/11/8	8000	2000	250	2

BUCHER
hydraulics

12 Specification sheet Flow-control valve, series SRR

☐ Order ☐ Enquiry

Company:		Customer No.	
Address:		Phone number:	
Code/Location:		Fax number:	
Country:		E-mail address	

Ordering code (see Sect. 7)

		Pressure setting	Quantity
SRRB	- 0 -	bar	
SRRB	- 0 -	bar	
SRRB	- 0 -	bar	
SRRB	- 0 -	bar	

12.1 Details of the application

Operating pressure [bar]: Max. intermittent pressure [bar]:

Inlet flow [l/min]: Controlled flow rate [l/min]:

Fluids: ☐ Mineral oil ☐ Biodegradable oil ☐ Other

☐ HFA ☐ HFC ☐ HFD

Fluid temperature range [°C]: Viscosity range [mm^2/s] [cSt]:

Supply system: ☐ Fixed-disp. pump ☐ Constant-pressure pump

☐ Var.-disp. pump, LS ☐ Variable-displacement pump, power-limited

Name Date Signature

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