Flow Control Valve

Series SRCA..

- plug-in coil for easy coil change
- flow rates are unaffected by changes in temperature or load.
- compact
- reduced Δp
- ZnNi coating (>720h SSNT)

1 Description

1.1 General

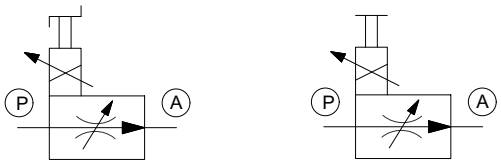
Flow control valves SRCA are used to set the working speed of hydraulic actuators, and the setting is load independent and pressure compensated. When used as a 3-way valve, the higher pressure can be at either the constant flow or surplus flow port. When used as a two-way flow control, omit the surplus-flow drilling, or plug it. The special orifice design ensures that the flow setting is largely independent of the viscosity of the fluid. The valve's cartridge construction allows to design a hydraulic system that meets the client's precise requirements.

1.2 Application examples

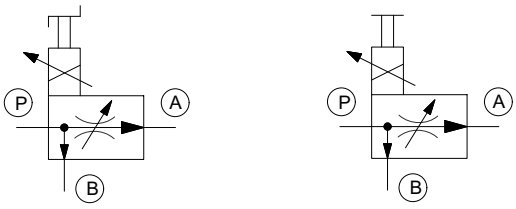
- Belt drives
- Spinner-plate drives
- Auger drives
- Brush drives
- Reel drives
- Pump drives for other liquids
- Fans, blowers
- ...

2 Symbols

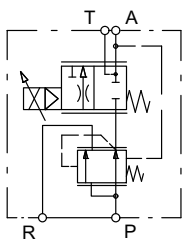
2.1 2-way flow control



2.2 3-way flow control



2.3 Schematic representation



3 Technical data

General characteristics	Unit	Description, value
Design		screw-in cartridge
Flow direction		P → A controlled P → B surplus flow discharge (can be pressurised)
Seals		NBR
De-energised position		orifice closed
Mounting attitude		unrestricted; preferably with coil at bottom end (automatic air bleed)
Commissioning		bleed all air from the system (if possible, operate valve several times without load)
Electrical characteristics	**Unit**	**Description, value**
Design		high pressure; wet armature
Supply voltage	V DC	12 or 24 from an electronic controller
Power consumption	Watt	16 with 12 V and I(Q_{nom}) 16 with 24 V and I(Q_{nom})
Dither frequency required	Hz	100
Relative duty cycle		100 %
Protection class (with a properly-fitted plug)		DIN plug - IP65 AMP Junior Timer - IP65 Deutsch plug - IP67
Electrical connection		plug-base with pins to DIN EN 175301-803 AMP Junior Timer plug connector (2-pole) Deutsch plug DT04-2P-EP04
Hydraulic characteristics	**Unit**	**Description, value**
Constant flow range	l/min	6, 10, 16, 25, 32, 40, 50 [1)]
Inlet flow	l/min	max. 60 [1)]
Operating pressure	bar	max. 250
Leakage	cm^3/min	max. 60 at 100 bar [1)] (or virtually zero if the priority flow discharges to tank)
Min. pressure difference (pressure compensator)	bar	4 … 7
Control accuracy (as a % of the nominal flow): Load-dependency when under pressure Hysteresis when operated		 max ± 2,5 % [2)] max ± 3,5 % [2)]
Fluids		mineral oil to DIN 51524 and DIN 51525 [4)]
Fluid temperature range	°C	-20 ... +80
Viscosity range	mm^2/s	10 ... 300
Filtration		NAS 1638 class 9, ISO 4406 class 20/18/15; achievable with a filter rating of $ß_{10} \geqq 75$

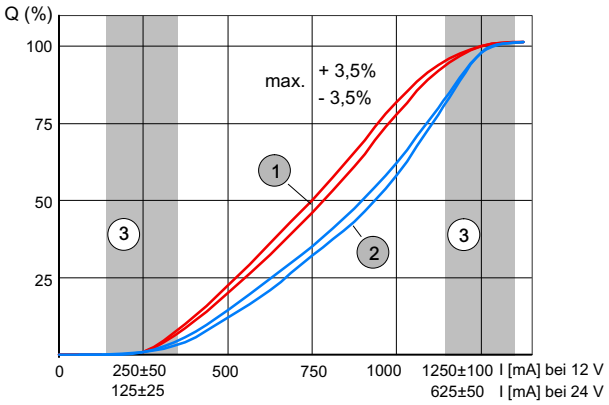
1) Values refer to an oil viscosity of 35 mm^2/s (cSt).

2) For higher pressures, consult Bucher Hydraulics

3) Values refer to the selected flow range.

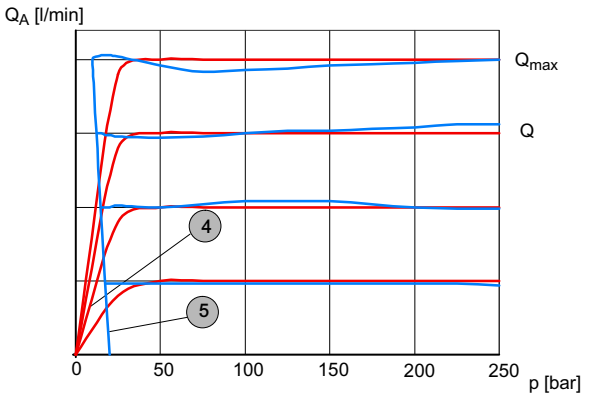
4 Performance graphs

4.1 Q - I characteristics



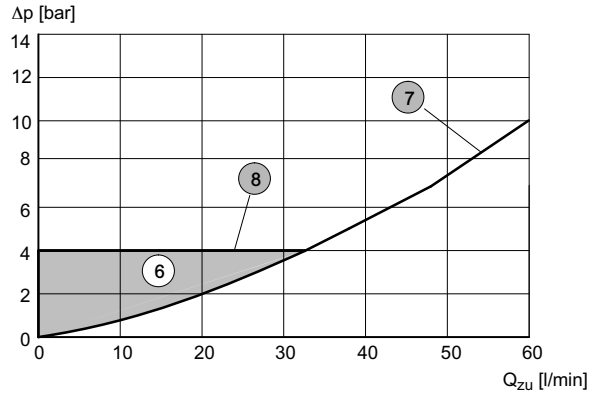
1	Q - I characteristic at 50 L
2	Q - I characteristic at 25 L
3	Fine control range

4.2 Variation in flow



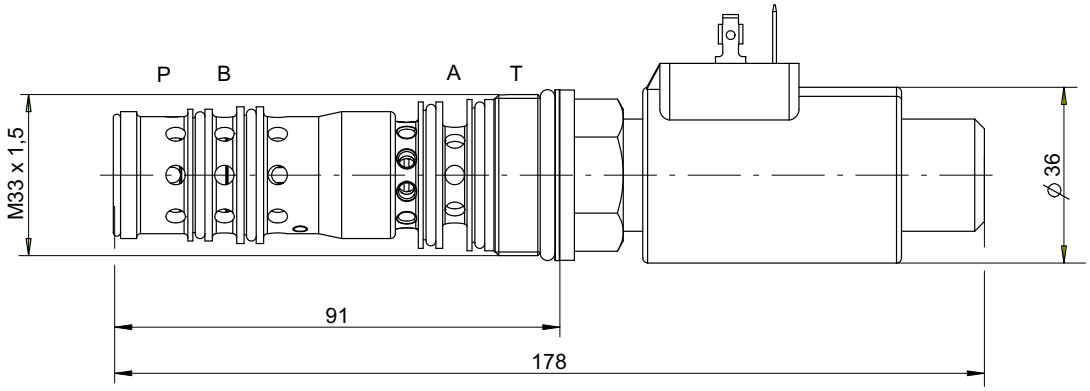
4	Q_A - constant flow pressurised
5	Q_A - surplus flow pressurised

4.3 Pressure drop during vented bypass P → B



6	Pressure loss area (The actual pressure-loss characteristic is dependent on the tank pressure at port B)
7	Control valve throttling curve (Dependent on body used)
8	Control - Δp - characteristic 4 bar

5 Dimensions

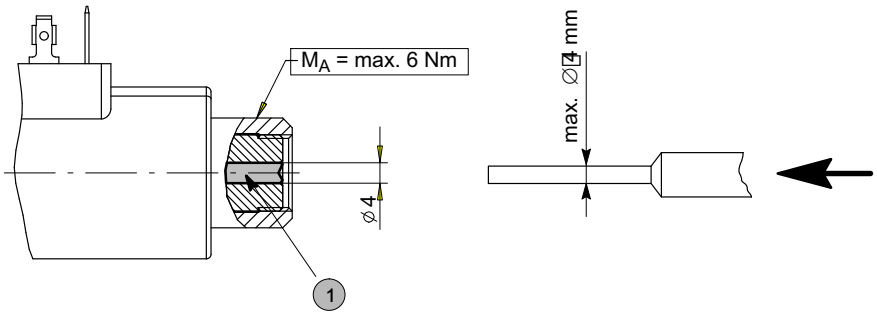


A = Priority flow (controlled)
B = Surplus flow (3-way)
P = Inlet
T = Priority flow discharge with closed orifice

6 Models

6.1 Manual override

6.1.1 Emergency pin, SRC….S..

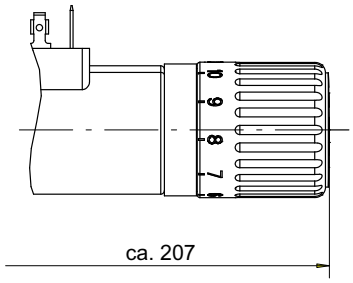


1	Emergency pin

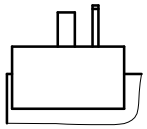
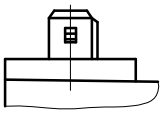
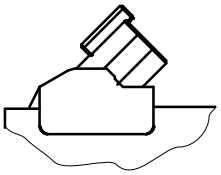
IMPORTANT : By pressing the solenoid pin (1), you operate the valve ON/OFF

6.1.2 Basic manual override, SRC….T..

Q_0 to $Q_{max.}$ = about one turn of the handle



6.2 Sockets

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

7 Ordering code

S	R	C	A	0	5	0	S	3	-	0	G	1	2	/	

Flow control valve SR

Cartridge

Size

Constant flow rate (10, 16, 25, 32, 40, 50 l/min)
z.B. 0...50 l/min = 050

Type of operator solenoid + emergency pin = S
solenoid + deluxe manual override = T

3-way (can also be used as a 2-way flow control) = 3

Design stage (to be inserted by the factory)

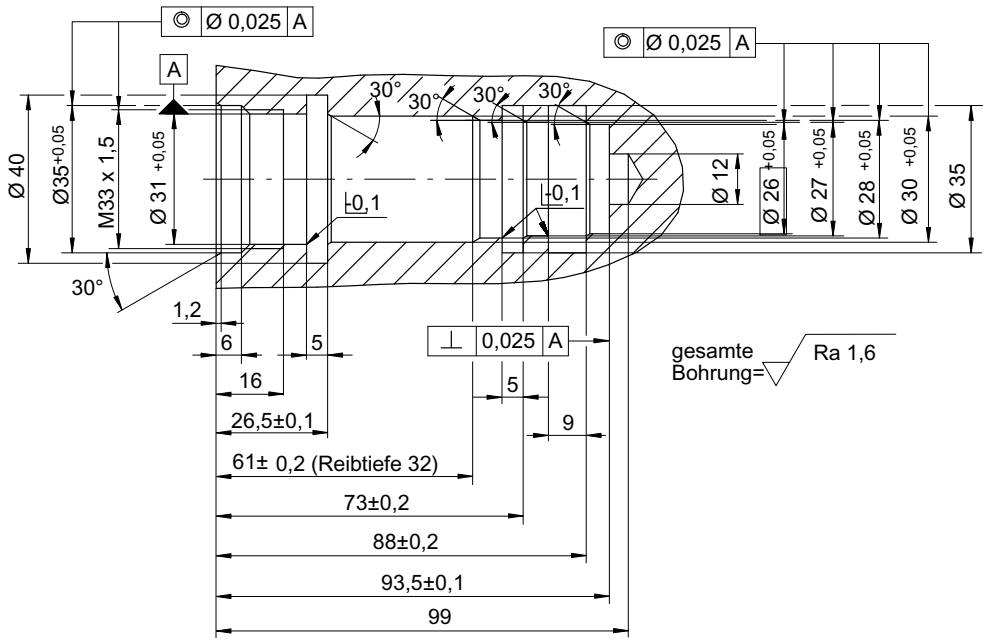
Plug connector GDM-plug (DIN) = G
AMP-Junior Timer = J
Deutsch-plug = T

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

Options (to be inserted by the factory)

8 Cavity body

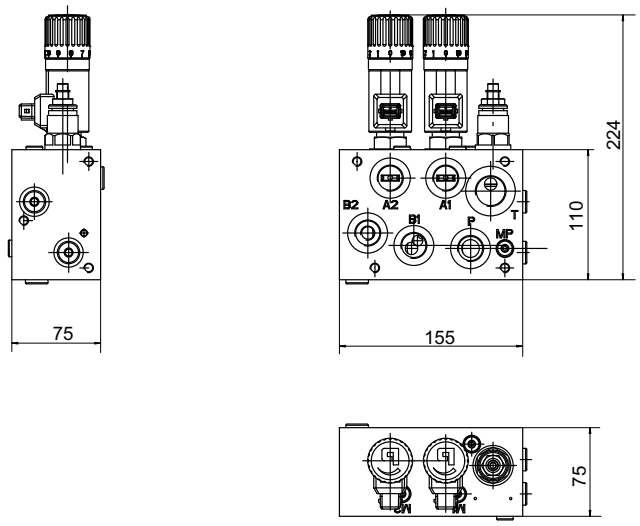
8.1 Cavity type GB3WM33 for 3-way flow control valves



Form tools for customers who wish to machine their own cartridge cavities can be hired on request.

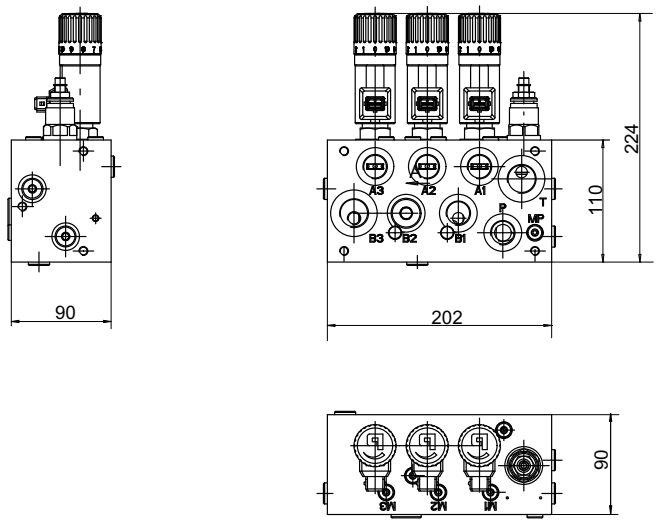
8.1.1 Example of a complete valve block SRCAVM2-.***2-0M22

Flow-control valve
with solenoid + manual override



8.1.2 Example of a complete valve block SRCAVM3-.***2-0M22

Flow-control valve
with solenoid + manual override



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!

10 Fluid

Flow control valves require fluid with a minimum cleanliness level of NAS 1638, Class 9 or ISO 4406, code 20/18/15.
We recommend the use of fluids that contain anti-wear additives for mixed-friction operating conditions. Fluids without appropriate additives can reduce the service life of pumps and motors.
The user is responsible for maintaining, and regularly checking the fluid quality. Bucher Hydraulics recommends a load capacity of > 30 N/mm2 to Brugger DIN 51347-2.

11 Fluid cleanliness class

Cleanliness class (RK) onto ISO 4406 and NAS 1638

Code ISO 4406	Number of particles / 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

12 Electronics

For controlling SR... flow-control valves, we recommend the ELSK 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 that are custom-made for the application. The following table contains a small selection of the extensive range of accessories and electronics from Bucher Hydraulics.

Picture	Type	Description	Order-No.
	ELSK106-01***/11 Data sheet: 100-P-700008	Makrolon ® enclosure with magnetic clamp, rotary potentiometer, indicator knob, LED	100026578
	ELSK106-02***/11 Data sheet: 100-P-700008	Makrolon ® enclosure with magnetic clamp, rotary potentiometer, indicator knob, ON / OFF switch, LED	100026579
	ELSK106-09*** Data sheet: 100-P-700008	Robust aluminium enclosure with 2 setpoint potentiometers, 3 toggle switches, an LED and socket insert STAF 14	100032782
	ELSK106-10*** Data sheet: 100-P-700008	Robust aluminium enclosure with 2 setpoint potentiometers, 3 toggle switches, an LED and socket insert STAF 14	100032531
	ELSK106-14*** Data sheet: 100-P-700008	Robust aluminium enclosure with 2 setpoint potentiometers, 3 toggle switches, an LED, key switch (starter) and socket insert STAF 14	100032159

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Classification: 430.310.330.305.