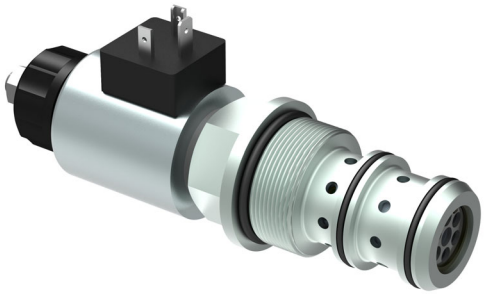
3-Way Flow Control Valves

Series SRCB..



- plug-in solenoid for easy coil change
- flow rates are unaffected by temperature change or when the higher load pressure alternates between the outlet ports
- energy - optimised in open center
- robust, durable and reliable
- ZnNi coating (>720h DIN EN ISO 9227 NSS)

1 Descriptions

1.1 Generals

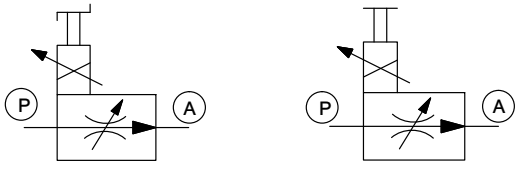
Flow control valves SRCB are used to set the working speed of hydraulic actuators, the setting is load independent and pressure compensated. The flow rate is set by an adjustable slit-type orifice. When used as a 3-way valve, the higher pressure can be either at the A or B port. For a 2-way flow control function please ask Bucher Hydraulics. 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

- Harvesters
- Sweepers
- Refuse collection vehicles
- Fertiliser spreaders
- Snow and ice clearing equipment
- Mowers
- Road rollers
- Municipal vehicles
- Forestry machines
- Wood chippers

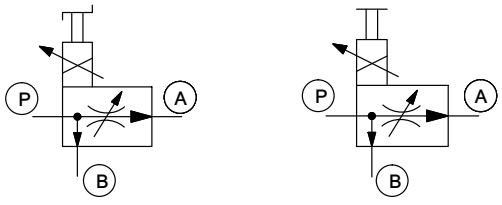
2 Symbols

2.1 2-way flow control



For 2-way flow control functions please contact Bucher Hydraulics.

2.2 3-way flow control



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		Viton (FPM)
De-energised position		normally 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)
Coating		ZnNi coating >720h DIN EN ISO 9227 NSS

Electrical characteristics	Unit	Description, value
Design		high pressure; wet armature
Supply voltage	V DC	12 or 24 Volt DC from an electronic controller
Power consumption	Watt	21 with 12 V coil and Imax. = 2,3 A 21 with 24 V coil and Imax. = 1,15 A
Dither frequency required	Hz	100 (observe $I_{max.}$)
Relative duty cycle		100 % at $I_{max.}$
Protection class (with a properly-fitted plug)		DIN plug - IP65 AMP Junior Timer - IP65 Deutsch plug - IP67 (DIN EN 60529)
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	GPM (US)	2.64, 4.23, 6.60, 8.45, 10.57, 13.21, 16.64, 21.13 [1)]
Constant flow range	l/min	10, 16, 25, 32, 40, 50, 63, 80 [1)]
Inlet flow	GPM	max. 26.42 (US) (100 l/min) [1)]
Operating pressure	PSI	max. 4500 (315 bar) [2)]
Leakage	in^3/rev	max. 6.1 (100 cm^3/min) at 100 bar [1)]
Min. pressure difference (pressure compensator)	PSI	100 (7 bar)
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 [4)]
Fluid temperature range	°F	-5 ... +175 (-20°C ... +80°C)
Viscosity range	ft^2/s	1 … 32.4 (10 mm^2/s ... 300 mm^2/s)
Max. admissible level of contamination of the hydraulic fluid		ISO 4406 code 20/18/15

1) Values refer to an oil viscosity of 175 S.U.S.

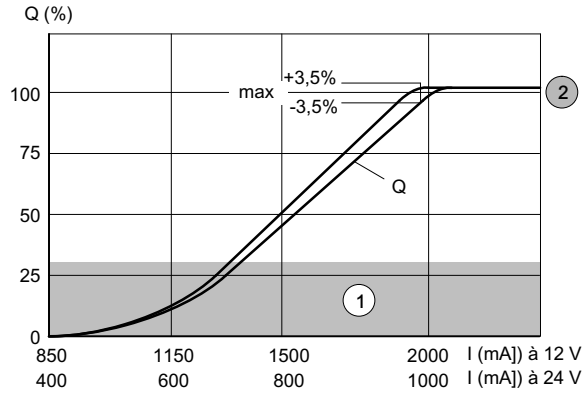
2) For higher pressures, consult Bucher Hydraulics

3) Values refer to the selected flow range.

4) for other fluids, consult Bucher Hydraulics.

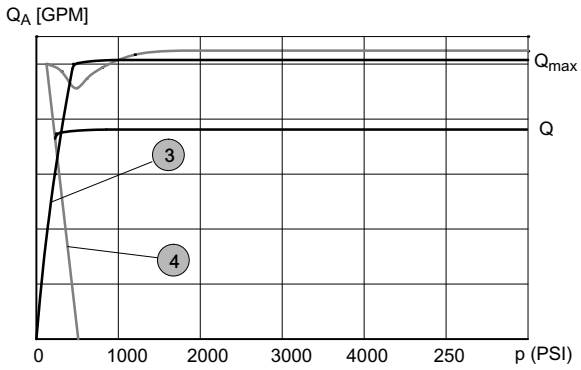
4 Performance graphs

4.1 Q / I characteristics



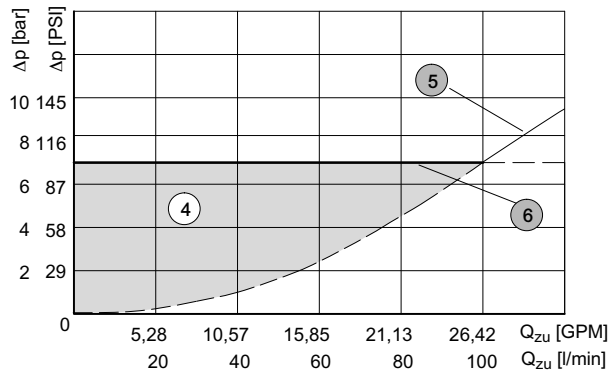
1	Fine control range
2	100% = 2000 ± 200 mA at 12 V = 1000 ± 100 mA at 24 V (100%- values vary with nominal flow rate)

4.2 Variation in flow



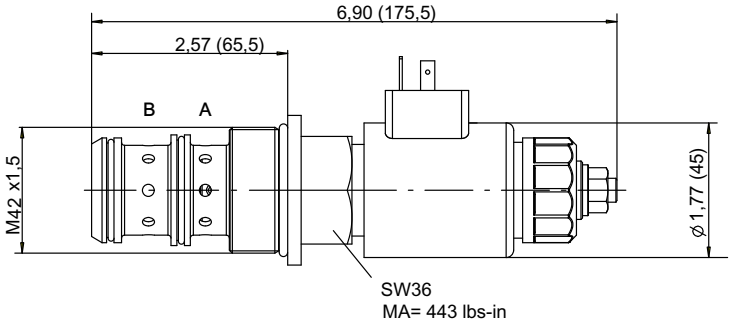
3	Q_A - constant flow pressurised
4	Q_A - surplus flow pressurised

4.3 Pressure drop during vented bypass P → B



5	Pressure loss area (The actual pressure-loss characteristic is dependent on the tank pressure at port B)
6	Control valve throtting curve (Dependent on applied body)
7	Control - Δp - characteristic 102 PSI

5 Dimensions

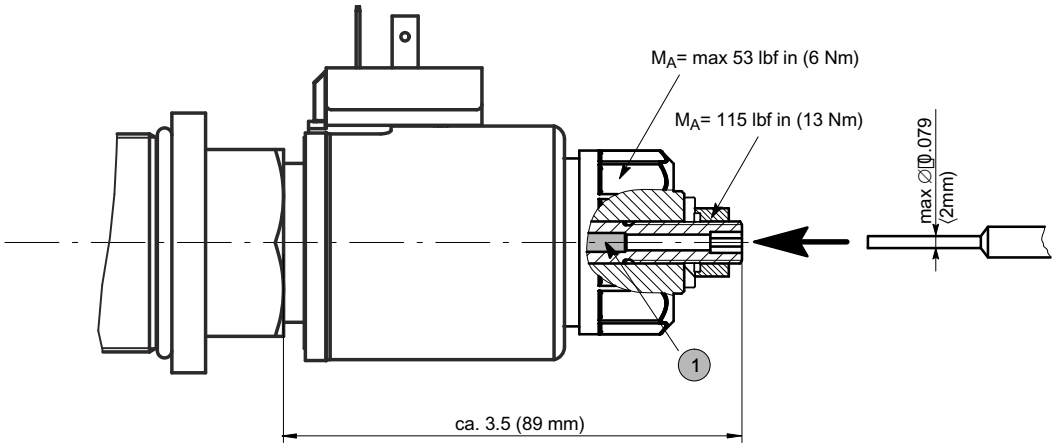


A	priority flow	B	surplus flow

6 Models

6.1 Manual override

6.1.1 Emergency pin, SRC….S..

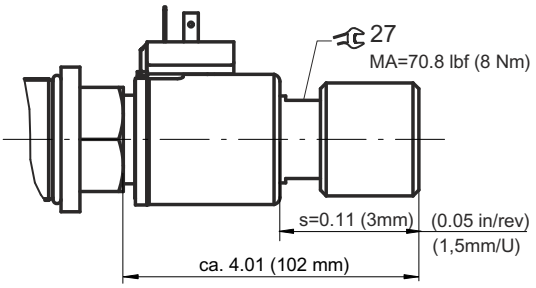


1	solenoid pin

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

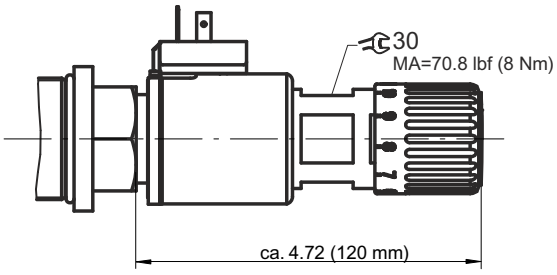
6.1.2 Basic manual override, SRC….N..

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

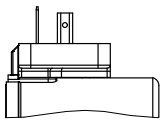
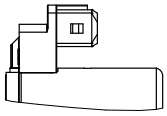
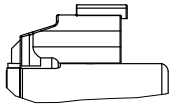


6.1.3 Basic manual override, SRC….T..

Q_0 to $Q_{max.}$ = of about one turn at 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	B	0	5	0	S	3	-	1	G	1	2	/	

Flow control valve SR

Cartridge

Size

Constant flow range [GPM]
2.64, 4.23, 6.6, 8.45, 10.57, 13.21, 16.64, 21.13
e.g. 0...13.21 GPM (US) (0 ... 50 l/min) = 050

Type of operator
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

Design number (to be inserted by the factory) = 1

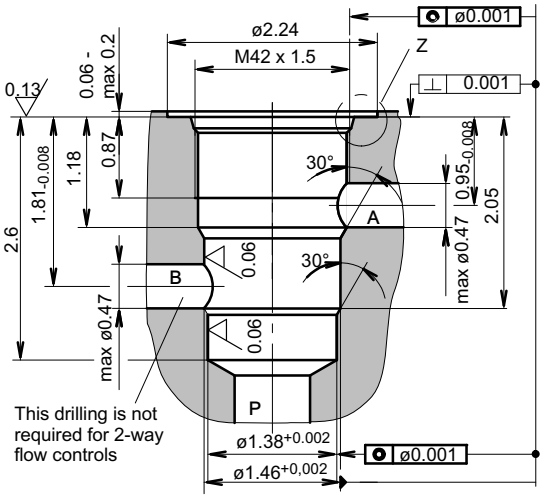
Plug connector
GDM plug (DIN) = G
AMP Junior Timer = J
Deutsch plug = T

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

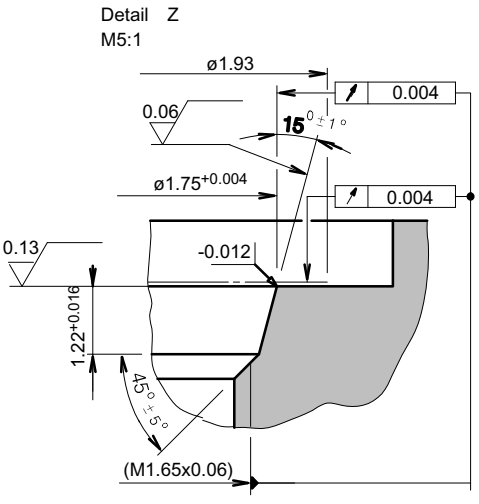
Options (to be inserted by the factory)

8 Hub housing

8.1 Shape of bore CSRCB3 for 3-way flow control valves



8.2 Processing for detail “Z”



1	The drilling is not required for 2-way flow controls

Form tools for customers who wish to machine their own cartridge cavities are available (Artikel Nr.: 100603875).

IMPORTANT : The fixing holes are identical with the hub housing SR3CVM.

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!

Classification: 430.310.310.330.305