Flow Control Valves

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 between the outlet ports
- easy to service
- dependable
- ZnNi coating (≥480h NSST)

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.

Developed specifically for use in load-sensing systems, the valve options /01, /07, /15 and /16 extend the capabilities of series SRR flow-control valves. Internal connections allow the actual surplus-flow port (R) to be used for picking up the LS signal or for unloading the LS system. These variants enable system designers to create simple, compact and flexible LS applications. As standard, the flow control valves are supplied with proportional solenoids. Options /07 and /16 are controlled by an ON/OFF solenoid.

The pressure relief valve acts on the spring chamber for the pressure compensator. It is set by the manufacturer at the factory according to the customer's requirements and fitted with a safety cap.

With this version, surplus-flow must be routed to the tank.

1.2 Application examples

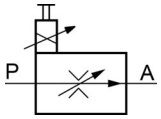
- Harvesters
- Sweepers
- Refuse collection vehicles
- Fertiliser spreaders
- Trailered machines
- Mowers
- Road rollers
- Municipal vehicles
- Forestry machines
- Wood chippers

2 Symbols

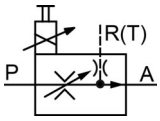
2.1 2-way flow control valves

2.1.1 Type of operation: Solenoid and emergency pin (S)

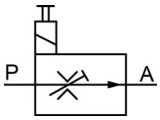
SRRB…S2…



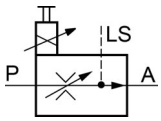
SRRB…S2…/01



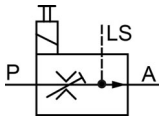
SRRB…S2…/07



SRRB…S2…/15

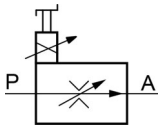


SRRB…S2…/16

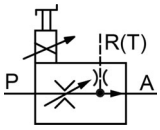


2.1.2 Type of operation: Solenoid and basic manual override (N)/ solenoid and deluxe manual override (T)

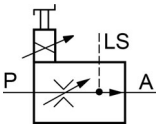
SRRB…$^{N}/_{T}$2…



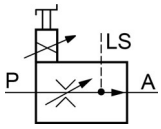
SRRB…$^{N}/_{T}$2…/01



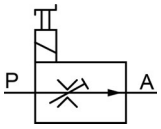
SRRB…$^{N}/_{T}$2…/15



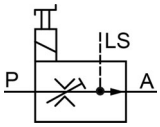
SRRB…$^{N}/_{T}$2…/16



SRRB…T2…/07

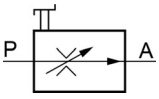


SRRB…T2…/16

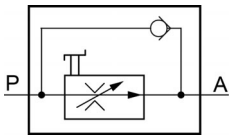


2.1.3 Type of operation: Manual override (H)

SRRB…H2…



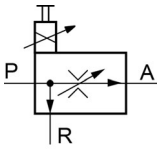
SRRB…H2…-R [1)]



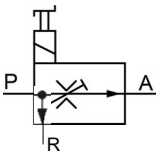
2.2 3-way flow control valves

2.2.1 Type of operation: Solenoid and emergency pin (S)

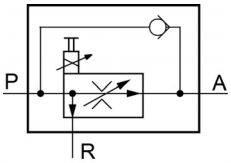
SRRB…S3…



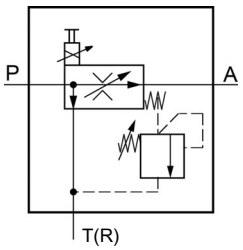
SRRB…S3…/07



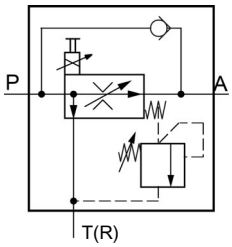
SRRB…S3…-R [1)]



SRRB…S3…-P

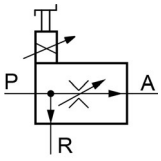


SRRB…S3…-RP [1)]

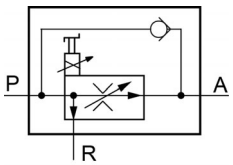


2.2.2 Type of operation: Solenoid and basic manual override (N)/ solenoid and deluxe manual override (T)

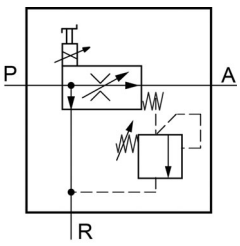
SRRB…$^{N}/_{T}$3…



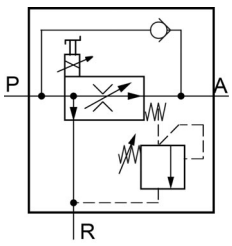
SRRB…$^{N}/_{T}$3…-R



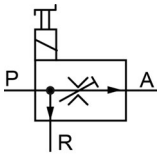
SRRB…$^{N}/_{T}$3…-P



SRRB…$^{N}/_{T}$3…-RP [1)]

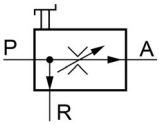


SRRB…T3…/07

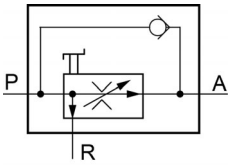


2.2.3 Type of operation: Manual override (H)

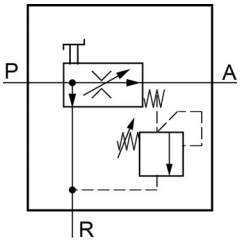
SRRB…H3…



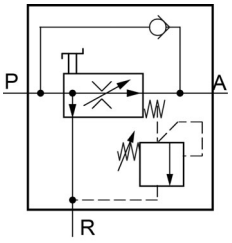
SRRB…H3…-R [1)]



SRRB…H3…-P



SRRB…H3…-RP [1)]



1) Can only be used as a anti - cavitation check valve after consultation with Bucher Hydraulics.

3 Technical data

General characteristics	Unit	Description, value
Design		line mounting
Flow direction		P → A controlled P → R surplus flow discharge
Seals		Viton (FKM)
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	W	21 at 12 V coil and Imax. = 2.3 A 21 at 24 V coil and Imax. = 1.15 A
Dither frequency required	Hz	100 (observe Imax.)
Relative duty cycle		100% at Imax.
Protection class (with a properly-fitted plug)		AMP Junior Timer IP65 Deutsch plug IP67
Electrical connection		AMP Junior Timer plug connector (2-pole) Deutsch plug DT04-2P-EP04
Hydraulical characteristics	**Unit**	**Description, value**
Constant flow range	GPM	2.6 / 4.2 / 6.6 / 8.5 / 10.6 / 13.2 / 16.6 / 21.1 [1)]
Constant flow range	l/min	10, 16, 25, 32, 40, 50, 63, 80 [1)]
Inlet flow	GPM	max. 26.42 (100 l/min) [1)]
Operating pressure	PSI	max. 4500 (315 bar) [2)]
Leakage	in^3/min	max. 6.1 at 1450 PSI (100 cm^3/min at 100 bar) [1)]
Min. pressure difference (presure 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 and DIN 51525 [4)]
Fluid temperature range	°F	-5 … +175
Viscosity range		50 … 1500 S.U.S (10 to 300 mm^2/sec.)
Max. admissible level of contamination of the hydraulic fluid		ISO 4406 class 20/18/15

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

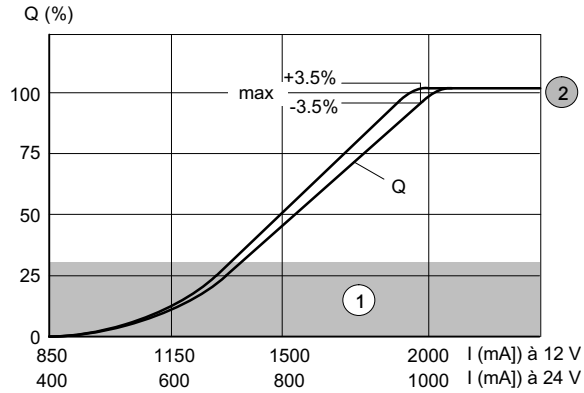
2) For higher pressures, consult Bucher Hydraulics.

3) Values refer to the selected flow range.

4) For other fluids, consult Bucher Hydraulics.

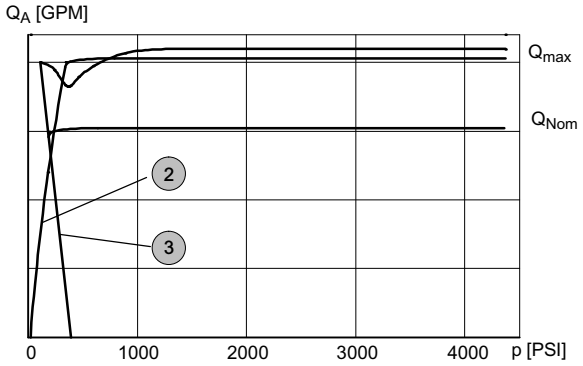
4 Performance graphs

4.1 Q - I characteristics



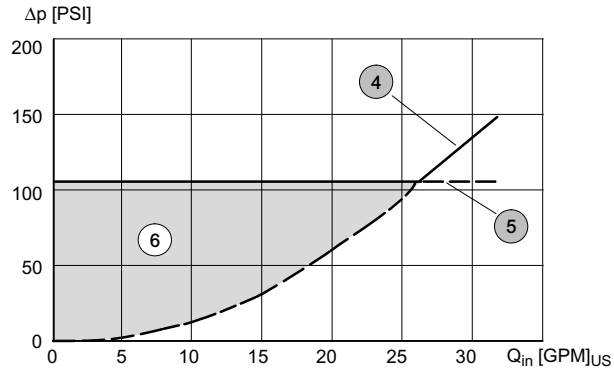
1	fine control range
2	Q_A - constant flow pressurised

4.2 Variation in flow



3	Q_A - surplus flow pressurised

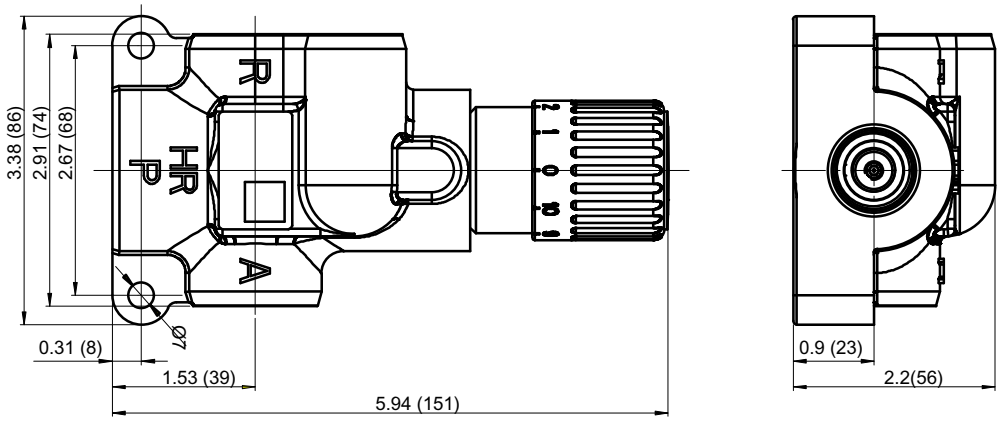
4.3 Pressure drop during vented bypass P → R



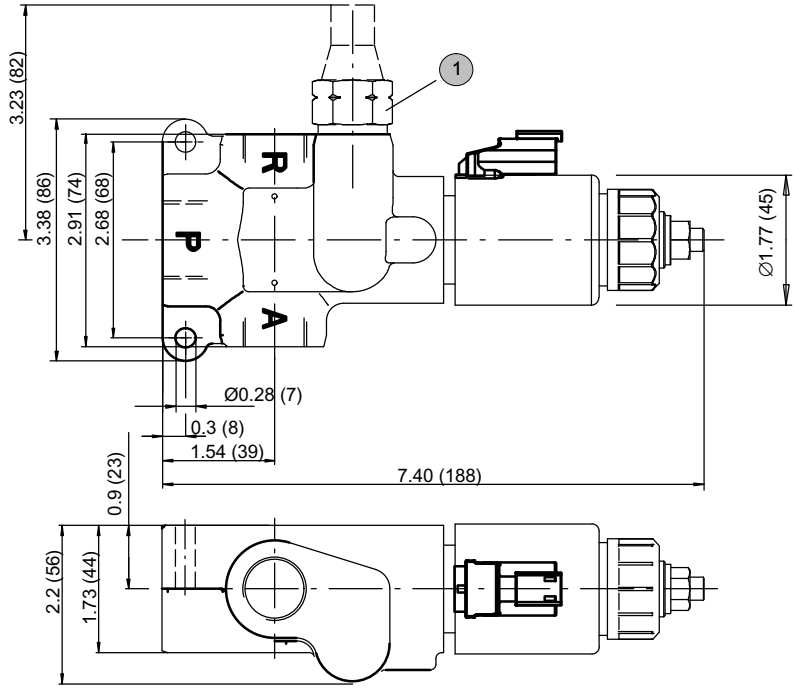
4	Control valve throtting curve
5	Control - Δp - characteristic 100 PSI (7 bar)
6	Pressure loss area (the actual pressure-loss characteristic is dependent on the tank pressure at port R)

5 Dimensions in inches [mm]

5.1 Flow control valve with manual override



5.2 Flow control valve with proportional solenoid



1	Model with pressure relief

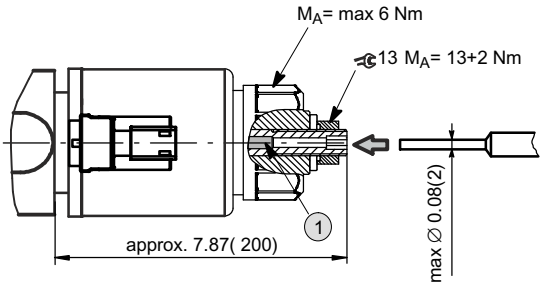
5.3 Port threads

Port	SRRB…H.G-…
P	G¾“
A	G½“
R	G½“

6 Models

6.1 Manual overrides

6.1.1 Emergency pin, SRR....S..

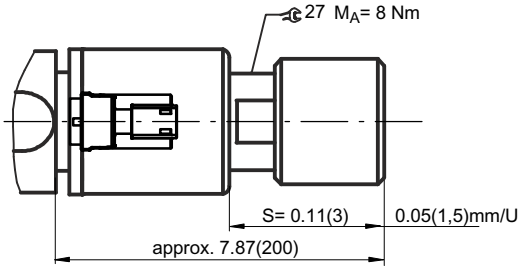


1	emergency pin

IMPORTANT : By pressing the emergency pin you operate the valve ON/OFF.

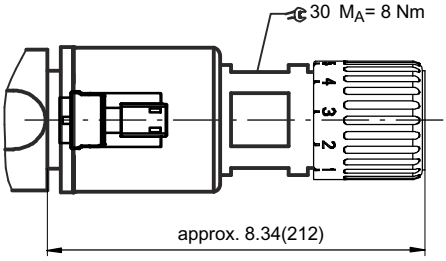
6.1.2 Basic manual override, SRR....N..

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

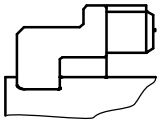
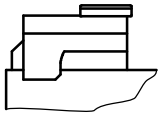


6.1.3 Basic manual override, SRR....T..

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



6.2 Plug bases

AMP Junior Timer -J..-	Deutsch plug DT04-2P-EP04 -T..-
	

7 Ordering code

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

Flow control valve

Pipe mounting

Size

Constant flow range
(2.6, 4.2, 6.6, 8.5, 10.6, 13.2, 16.6, 21.1 GPM)
e.g. 0...13.2 $GPM_{[US]}$ (0...50 l/min) = 050 3)

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

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

Port threads
Standard: P: G3/4" / A+R = G1/2" = G
(Adapters for pressure port P can be ordered separately, see section 9)

Design number (to be inserted by the factory)

Plug connector		
	AMP Junior Timer	= J
	Deutsch plug	= T

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

Bypass check valve A to P	= R 1)
without	= *

Pressure relief function (surplus flow cannot be pressurised)	= P 2) 4)
without	= *

Options (see section 7.1)

1) Can only be used as a anti - cavitation check valve after consultation with Bucher Hydraulics
2) Not for use with the 2-way flow control valve.
3) Constant flow range e.g. 2.6 GPM = 010, 4.2 GPM = 016, 6.6 GPM = 025, 8.5 GPM = 032, 10.6 GPM = 040, 13.2 GPM = 050, 16.6 GPM = 063, 21.1 GPM = 080 (for other flow ranges, contact Bucher Hydraulics)
4) Specify the pressure setting in plain text. Pressure settings by steps of 10 bar, between 50 and 310 bar.

7.1 Options

01 = Control flow relief when orifice closed (bypass nozzle, diameter 0.5, between A -> R (B)).

07 = 2 and 3-way flow control valve with solenoid ON/OFF.

15 = LS-port and proportional solenoid.

16 = LS-port and ON/OFF solenoid.

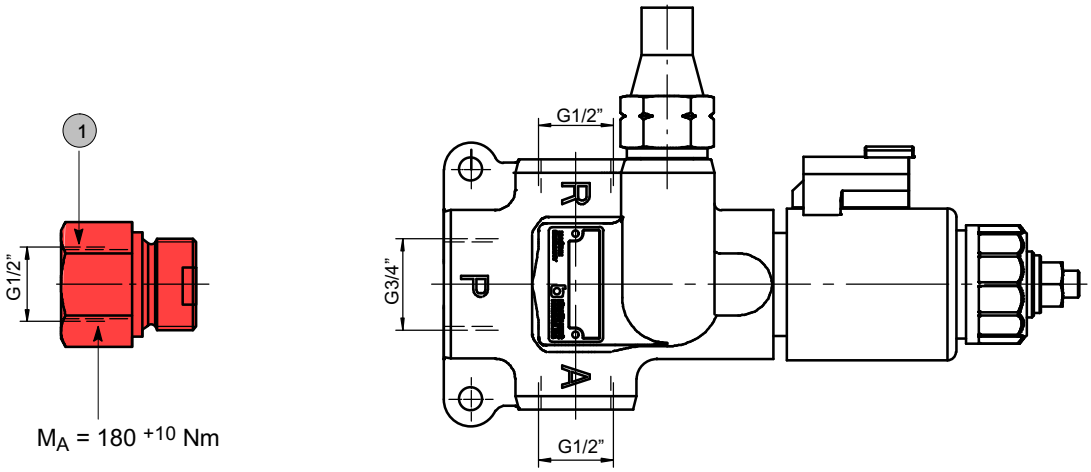
8 Installation information

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, G¾" fittings with threaded stud ends, length of stud end 16 mm must be used. If required, adapters for G¾" to G½" can be supplied (see section 9).
Bleed all air from the system (if possible, operate the flow control valve several times at no-load)

9 Accessories

9.1 Adapter



1	adapter G¾" -> G½"

Model	Description	Part number
Adapter G¾" -> G½"	Adapter with sealing ring, profiled sealing ring to DIN 3869 is included with delivery.	100235660

info.kl@bucherhydraulics.com www.bucherhydraulics.com

Classification: 430.310.310.330.310