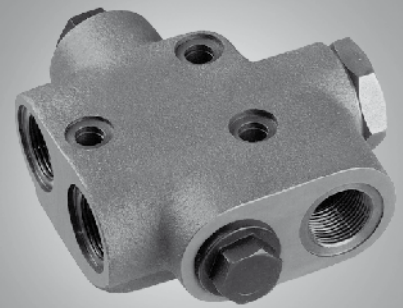


Flushing valve with pressure holding valve SV

RE 95512/05.10 1/8
Replaces: 12.98

Data sheet

Series 10
Nominal pressure 400 bar
Maximum pressure 450 bar
Closed circuit



Contents

Ordering code for standard program	2
Technical data	3
Functional description	4
Line valve dimensions	5
Flange valve dimensions, size 75	6
Flange valve dimensions, size 90	7
General instructions	8

Features

- The flushing valve is used to flush heated hydraulic fluid from the closed circuit, and, thus, dirt particles as well.
- The integrated pressure holding valve is used to prevent drops in the boost pressure.
- The flushing valve with pressure holding valve is available in two basic versions:
 - Line valve for universal use
 - Flange valve for reduced piping and installation costs and effort

Ordering code for standard program

SV				/	10	M	V							-	
01	02	03	04		05	06	07	08	09	10	11	12			13

Valve type

01	Flushing valve with pressure holding valve	SV
----	--------------------------------------------	-----------

Mounting variant

02	Flange valve for flange-mounting to the pump, e.g. A10VG	Standard	F
		Heightened (NG75G only)	H
	Line valve		L

Size

	Mounting variant	Flange valve		Line valve		
		F (standard)	H (heightened)			
03	Spacing, port A to B	40 mm	-	-	●	40
	75 mm (e.g. for A4VG/32 NG28; A10VG NG28, 45, 63)		●	●	-	75
	90 mm		●	-	-	90

Port versions

	Mounting variant	Flange valve		Line valve	
		F (standard)	H (heightened)		
04	Threaded port	●	●	●	G
	SAE flange port	●	-	-	S

Series

05	Series 1, index 0	10
----	-------------------	-----------

Version of port thread

06	Metric	M
----	--------	----------

Seals

07	FKM (fluor-caoutchouc)	V
----	------------------------	----------

Orifices

	Orifice dia.	Flange valve		Line valve	
08	Without				00
Flushing flow q_v (L/min) with $\Delta p = p_{ND} - p_G = 25$ bar and $v = 10$ mm ² /s p_{ND} = low pressure p_G = case pressure v = viscosity	2.2 L/min	1.0 mm	-	●	10
	3.2 L/min	1.2 mm	●	●	12
	4.3 L/min	1.4 mm	●	●	14
	5.5 L/min	1.6 mm	●	●	16
	7 L/min	1.8 mm	●	●	18
	8.8 L/min	2.0 mm	●	●	20
	11.5 L/min	2.3 mm	●	-	23
	12.5 L/min	2.4 mm	●	-	24
	13.7 L/min	2.5 mm	-	●	25
	17.2 L/min	2.8 mm	-	●	28
	20 L/min	3.0 mm	●	-	30
	27 L/min	3.5 mm	-	●	35
	35 L/min	4.0 mm	-	●	40
55 L/min	5.0 mm	-	●	50	

● = Available

○ = On request

- = Not available

Ordering code for standard program

SV				/	10	M	V						-	
01	02	03	04		05	06	07	08	09	10	11	12		13

Flushing side (low-pressure side)				Flange valve		Line valve	
09	A (one sided)			●	●	A	
	B (one sided)			●	●	B	
	A and B (alternating, standard)			●	●	C	

Switching pressure				Flange valve		Line valve	
10	Differential pressure $\Delta p = 3$ to 5 bar (standard)			●	●	3	
	Differential pressure $\Delta p = 8$ to 12 bar			-	●	8	

Flushing-piston damping				
11	Low			D2
	Medium			D4
	Medium-strong			D6
	Strong			D8

Minimum holding pressure				
12	16 bar (standard)			H16
	20 bar			H20
	25 bar			H25

Standard / special version				
13	Standard version			0
	Special version			S

Note

Short designation X on a feature refers to a special version not covered by the ordering code.

● = Available ○ = On request - = Not available

Technical data

Table of values

Distance between axes NG		Line valve	Flange valve	Flange valve	Flange valve
		40 (SVL40G...)	75, standard (SVF75G/S...)	75, heightened (SVH75G...)	90, standard (SVF90G/S...)
Holding pressure	bar	16, 20, 25	16, 20, 25	16, 20, 25	16, 20, 25
Switching pressure Δp of the flushing piston	bar	3 to 5 or 8 to 12	3 to 5	3 to 5	3 to 5
Temperature range	°C	-40 °C to +115 °C	-40 °C to +115 °C	-40 °C to +115 °C	-40 °C to +115 °C
Installation position		arbitrary	arbitrary	arbitrary	arbitrary
Mass	kg	1.5	1.9	3.0	2.1

Hydraulic fluid

For the choice of hydraulic fluid, the used axial piston unit is decisive. For further information, please refer to our data sheets during project planning.

Functional description

The flushing valve is used to flush heated hydraulic fluid from the closed circuit, and, thus, dirt particles as well.

Via the flushing piston, the respective low-pressure side of the closed circuit is detected and, at a pressure difference exceeding approx. 5 bar, flushed out of this line.

During this process, it is necessary that the flushed quantity and the case drain fluid of the axial piston unit be replaced via an infeed. The infeed with filtered and cooled hydraulic fluid decreases the circuit temperature. The flushed quantity is determined by an orifice in the tank canal. This is dependent on the orifice size, the pressure difference between low pressure and tank line as well as the current viscosity.

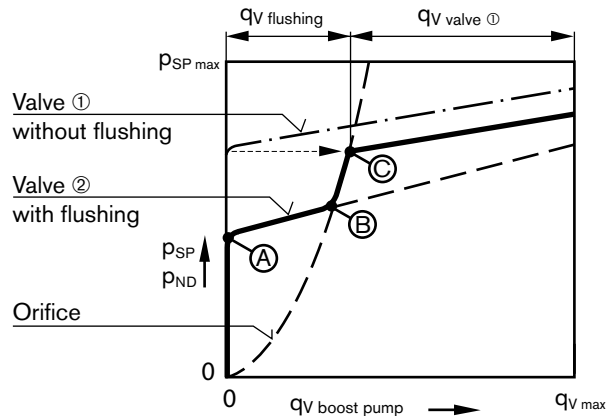
A pressure holding valve is also installed in the tank canal. As soon as the pressure level drops below the set holding pressure, e.g. due to an excessive flush quantity, the pressure holding valve reduces the flush quantity, thereby preventing an impermissible pressure drop.

The flushing valve with pressure holding valve is available in two basic versions:

- As a line valve which is connected to the two lines of the closed circuit via the piping. Fixing to the device frame is by means of three through-holes. The separate arrangement enables universal use.
- As a flange valve which is flanged onto the adjacent high-pressure ports of the variable pumps A10VG and A4VG series 32. Fixing is by means of the screws for the SAE flange port. This arrangement eliminates the piping and reduces installation costs and effort.

The tank ports of the flushing valves are directed to the tank via the cooler.

Characteristic



— · — Flushing valve in middle position, without flushing

— Flushing valve switched

Point A: Pressure holding valve ② opens (16 bar). Start of flushing.

Point B: Limiting of flushing quantity by orifice.

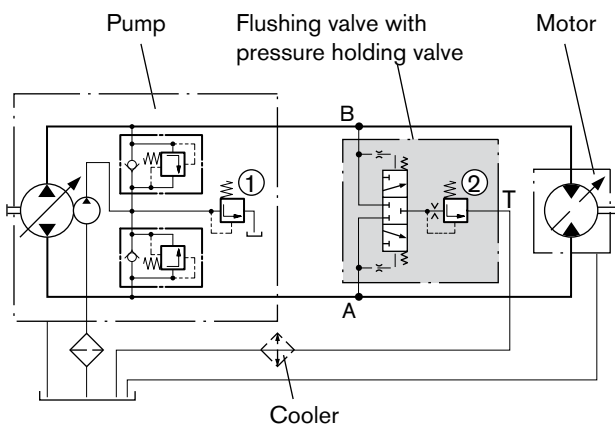
Point C: $qV_{max\ flushing}$ (boost pressure valve with adjustment > 16 bar of variable pump ① opens). Flushing flow increases only according to the pressure-relief valve characteristic.

$qV_{flushing}$: Flushing flow; flows to the tank via the pressure holding valve ②.

$qV_{valve\ 1}$: Residual quantity of the boost pump is flushed out via valve ① into the case of the variable pump.

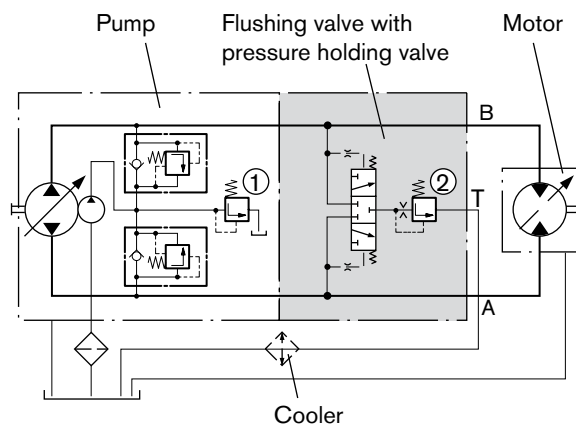
Circuit diagram examples

Line valve

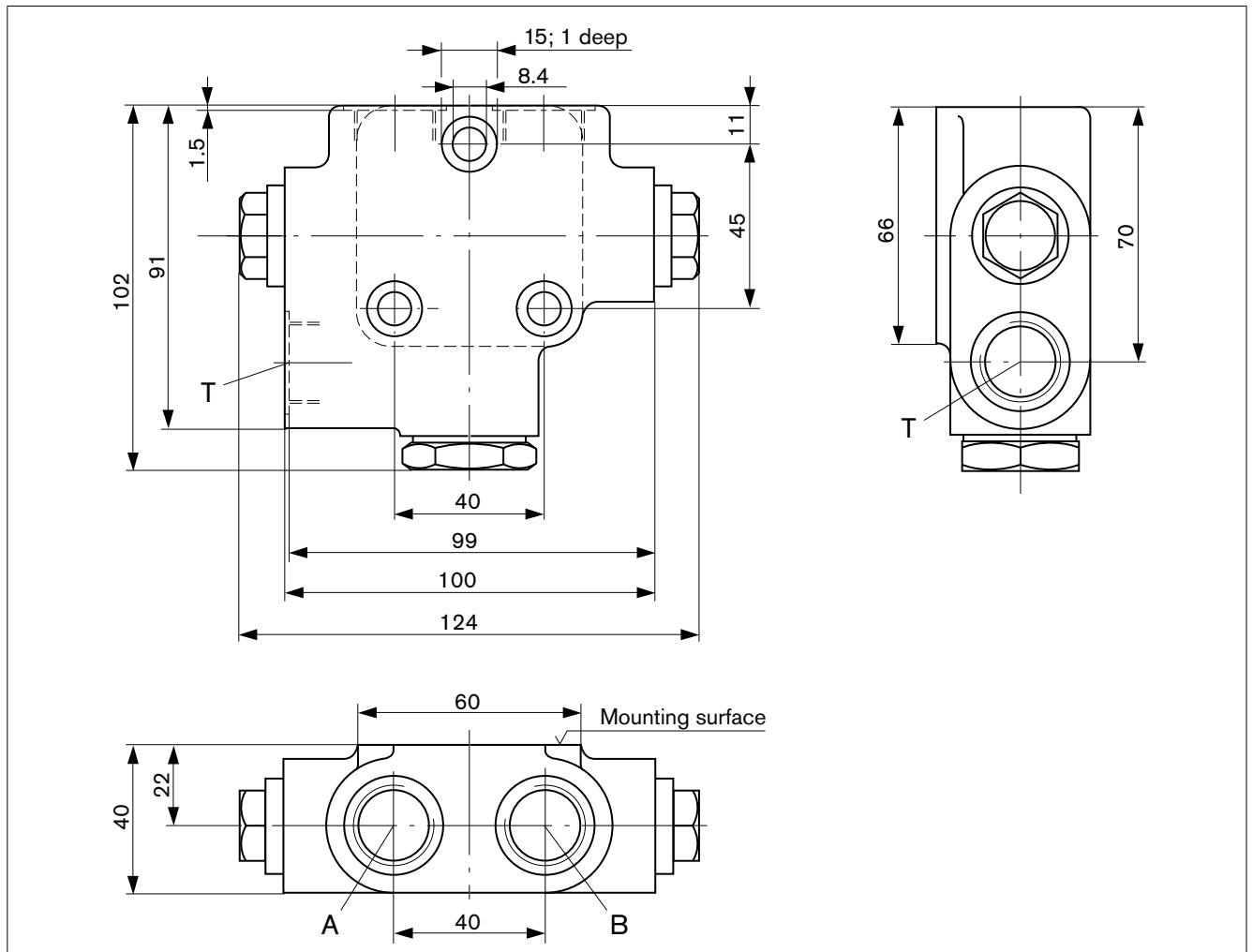


- ① Boost pressure-relief valve in the pump
- ② Pressure holding valve in the flushing valve

Flange valve



Line valve dimensions



Ports

Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State
A, B	Service line	DIN 3852	M22 x 1.5; 14 deep	450	O
T	Tank	DIN 3852	M22 x 1.5; 14 deep	30	O

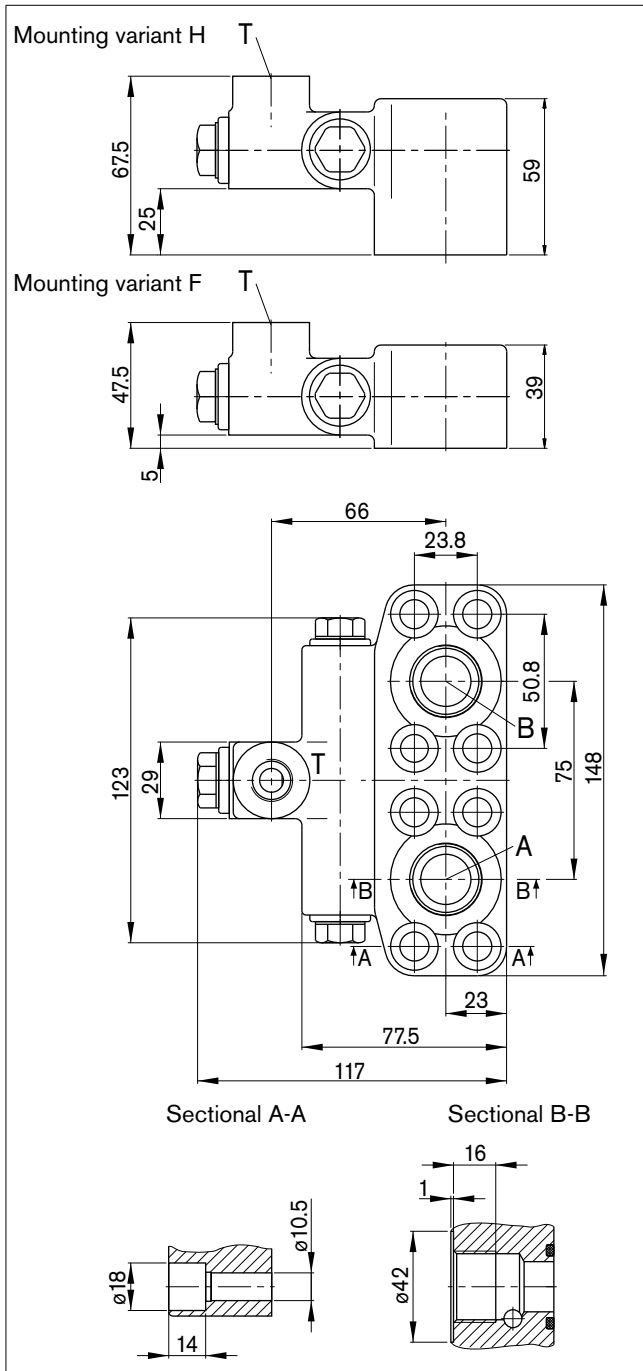
1) Observe the general instructions on page 8 for the maximum tightening torques.

2) Short-term pressure spikes may occur depending on the application. Keep this in mind when selecting measuring devices and fittings.
O = Must be connected (plugged on delivery)

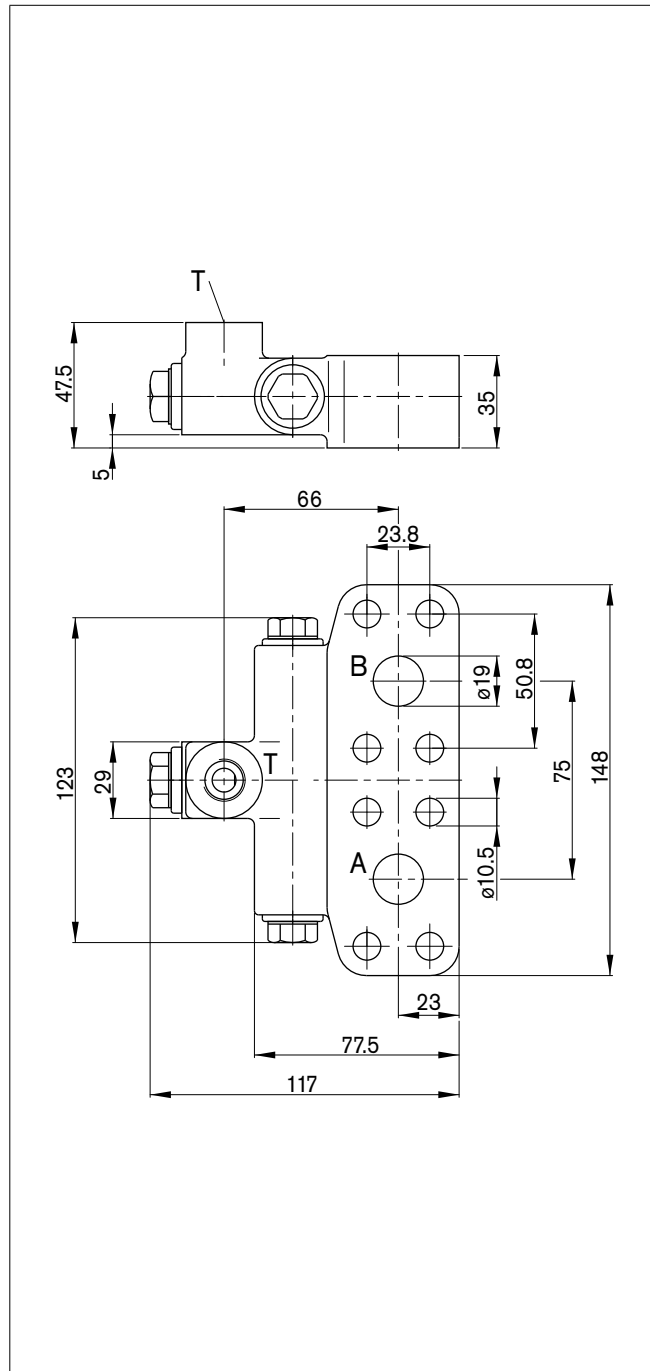
Flange valve dimensions, size 75

Before finalizing your design, request a binding installation drawing. Dimensions in mm.

Port version G



Port version S



Ports

Designation	Port for	Port version	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State
A, B	Service line (high-pressure series)	G	DIN 3852	M27 x 2; 16 deep	450	O
A, B	Service line (high-pressure series)	S	SAE J518	3/4 in	450	O
T	Tank		DIN 3852 ³⁾	M16 x 1.5; 12 deep	30	O

1) Observe the general instructions on page 8 for the maximum tightening torques.

2) Short-term pressure spikes may occur depending on the application. Keep this in mind when selecting measuring devices and fittings.

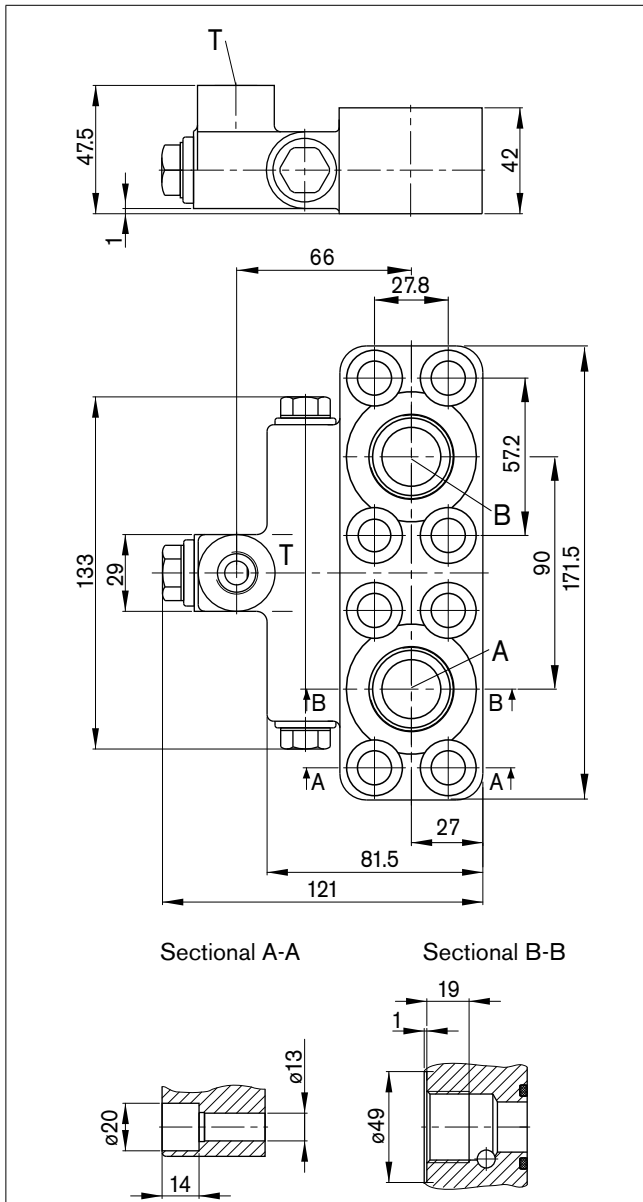
3) The spot face can be deeper than specified in the appropriate standard.

O = Must be connected (plugged on delivery)

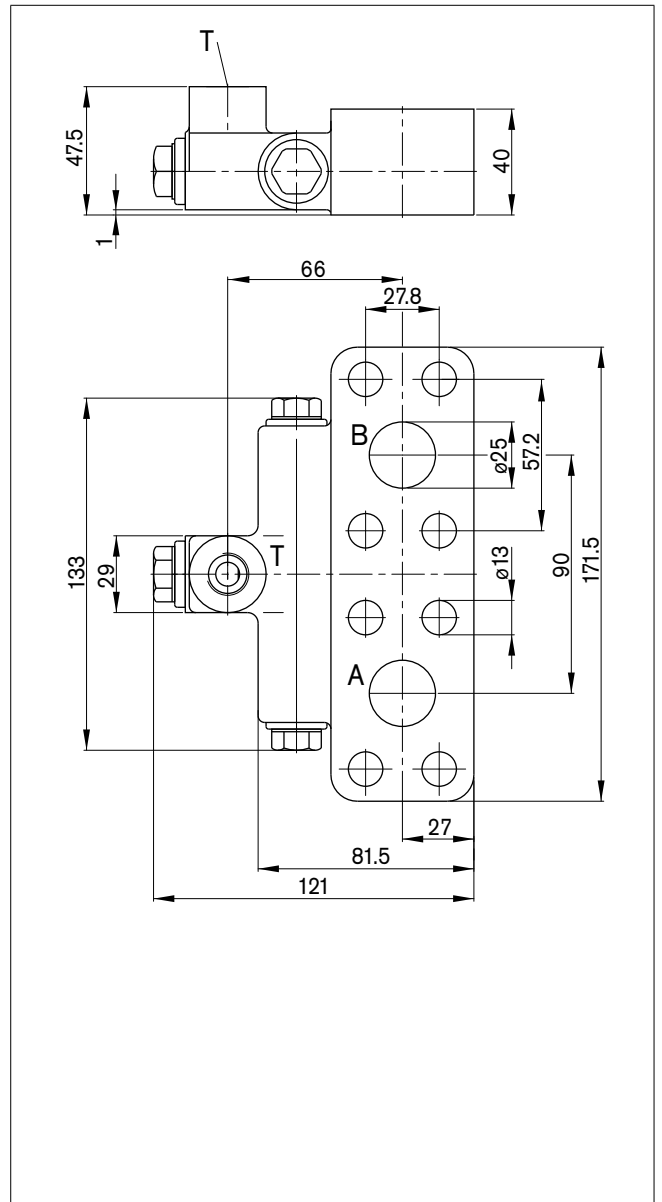
Flange valve dimensions, size 90

Before finalizing your design, request a binding installation drawing. Dimensions in mm.

Port version G



Port version S



Ports

Designation	Port for	Port version	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State
A, B	Service line (high-pressure series)	G	DIN 3852	M33 x 2; 19 deep	450	O
A, B	Service line (high-pressure series)	S	SAE J518	1 in	450	O
T	Tank		DIN 3852 ³⁾	M16 x 1.5; 12 deep	30	O

1) Observe the general instructions on page 8 for the maximum tightening torques.

2) Short-term pressure spikes may occur depending on the application. Keep this in mind when selecting measuring devices and fittings.

3) The spot face can be deeper than specified in the appropriate standard.

O = Must be connected (plugged on delivery)

General instructions

- The SV flushing valve with pressure holding valve is designed to be used in closed circuits.
- Project planning, assembly and commissioning of components for the axial piston unit require the involvement of qualified personnel.
- The service line ports and function ports are only designed to accommodate hydraulic lines.
- During and shortly after operation, there is a risk of burns on the flushing valve. Take appropriate safety measures (e. g. by wearing protective clothing).
- Depending on the operational state of the axial piston unit or flushing valve (operating pressure, fluid temperature), the characteristic may shift.
- Pressure ports:
The ports and fixing threads are designed for the specified maximum pressure. The machine or system manufacturer must ensure that the connecting elements and lines correspond to the specified operating conditions (pressure, flow, hydraulic fluid, temperature) with the necessary safety factors.
- The data and notes contained herein must be adhered to.
- The product is not approved as a component for the safety concept of a general machine according to DIN EN ISO 13849.
- The following tightening torques apply:
 - Fittings:
Observe the manufacturer's instruction regarding the tightening torques of the used fittings.
 - Threaded hole of the flushing valve:
The maximum permissible tightening torques $M_{G \max}$ are maximum values of the threaded holes and must not be exceeded. For values, see the following table.

Ports		Maximum permissible tightening torque of the threaded holes $M_{G \max}$	Required tightening torque of the locking screws M_V	WAF hexagon socket of the locking screws
Standard	Threaded size			
DIN 3852	M16 x 1.5	100 Nm	50 Nm	8 mm
	M22 x 1.5	210 Nm	80 Nm	10 mm
	M27 x 2	330 Nm	135 Nm	12 mm
	M33 x 2	540 Nm	225 Nm	17 mm