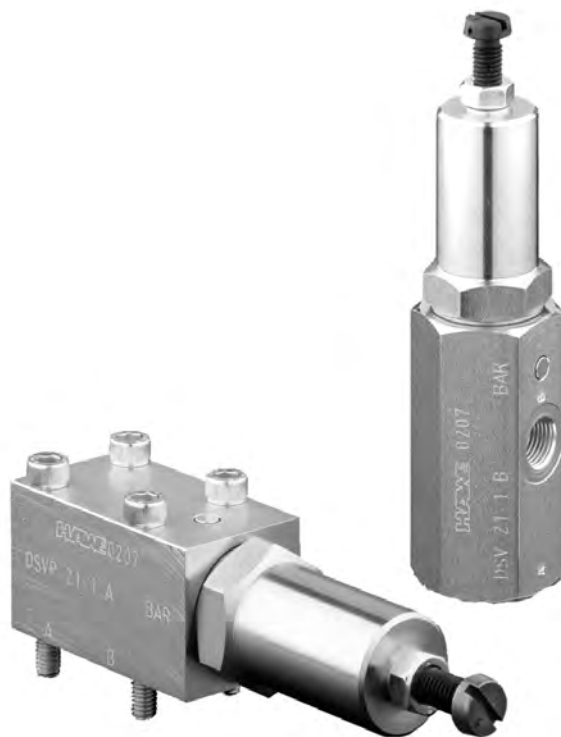


Pressure-controlled shut-off valve type DSV

Product documentation



Operating pressure p_{\max} :	600 bar
Flow rate Q_{\max} :	60 lpm



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Overview pressure-controlled shut-off valve type DSV

Pressure-dependent shut-off valves are a type of pressure control valve. When a set pressure value is reached and exceeded, they block the flow to consumer line B with zero leakage. The valves will open again if the pressure on inflow side A falls below the set value defined by the spring tension.

The valve type DSV is available for pipe connection or manifold mounting.

Features and benefits:

- Various adjustment options
- Various additional functions

Intended applications:

- General hydraulic systems
- Test benches
- (Pressure gauge) protection valve



Pressure-controlled shut-off valve type DSV and DSVp

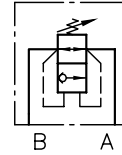
2 Available versions, main data

Circuit symbol:

DSV



DSVP



Order coding example:

DSV	21-1	C	- 80
DSV	2-3	BR	

Pressure setting (also see note section for Table 3)

Pressure range and adjustment Table 3 Pressure range and adjustment

Size Table 2 Size

Basic type Table 1 Basic type

Table 1 Basic type

Marking	Connection type
DSV	Pipe connection
DSVP	Manifold mounting

Table 2 Size

Marking	Ports (BSPP)		Flow rate Q_{\max} (lpm)
	A	B	
DSV 21-1	G 3/8	G 1/4	20
DSV 2-2	G 3/8	G 3/8	40
DSV 2-3	G 1/2	G 1/2	60
DSVP 21-1	--	--	20

Table 3 Pressure range and adjustment

Fixed	Manually adjustable	Adjustable (turn knob)	Pressure range (bar) (Shut-off pressure at port B)	
			DSV 2-1 DSVP 2-1	DSV 2-2 DSV 2-3
A	AR	AV	200 to 600	(0) to 400
B	BR	BV	60 to 220	(0) to 120
C	CR	CV	30 to 100	(0) to 60
D	DR	DV	(0) to 40	(0) to 20

 **Note**
Regarding the pressure setting

- With no pressure specification, however, the factory setting to the respective pressure p_{\max} is no higher than 400 bar
- The pre-load force of the springs may be set to 0. As the ball and tappet valve parts go back a certain distance up to the shut-off point, the counterforce of the spring also rises, meaning that the shut-off point (0) is only theoretical. The lowest shut-off pressure selected should not be below 25 to 30% of p_{\max} factoring in spring length L_0 , seal friction etc.
- Fixed, type DSV 2-2 and DSV 2-3: Adjustable following removal of the tapped plug and loosening of the clamping screw using a screwdriver.
- Adjustable, turn knob: Only available for type DSV 21-1 and DSVP 21-1

3 Parameters

3.1 General

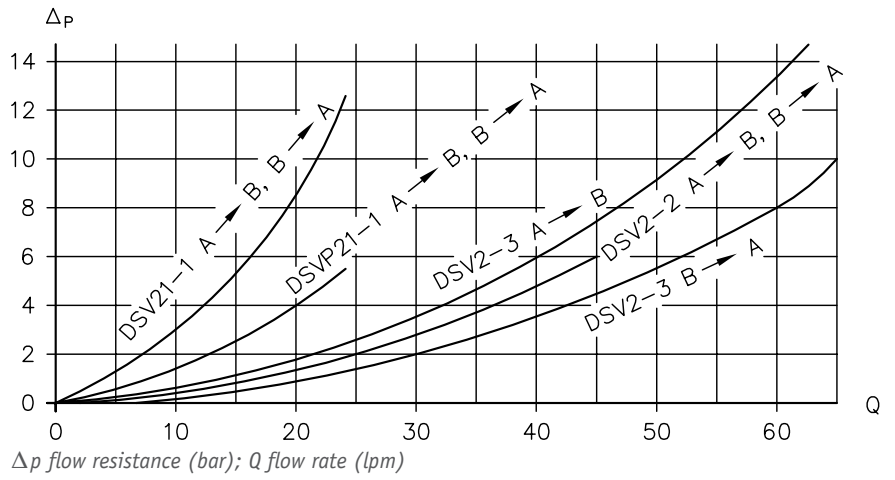
General information

Description	Pressure-controlled shut-off valve
Design	Ball seated valve
Model	Pipe connection, manifold mounting
Material	Steel; nitrided valve housing, electrogalvanised sealing nuts and connection block, hardened and ground functional inner parts Steel; valve housing galvanized zinc plated; hardened and ground functional inner parts
Installation position	As desired
Ports	Pipe thread DIN EN ISO 228-1 or manifold mounting A = input B = output
Flow direction	Operating direction A → B Return flow B → A
Hydraulic fluid	Hydraulic oil: according to Part 1 to 3; ISO VG 10 to 68 according to DIN ISO 3448 Viscosity limits: min. approx. 4, max. approx. 1500 mm ² /s opt. operation approx. 10... 500 mm ² /s. Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.
Cleanliness level	ISO 4406 <hr/> 21/18/15...19/17/13
Temperatures	Ambient: approx. -40 ... +80°C, Fluid: -25 ... +80°C, Note the viscosity range! Permissible temperature during start: -40°C (observe start-viscosity!), as long as the service temperature is at least 20K higher for the following operation. Biologically degradable pressure fluids: Observe manufacturer's specifications. By consideration of the compatibility with seal material not over +70°C.

Characteristic curves

Oil viscosity approx. 60 mm²/s

Δp -Q characteristics



Weight

Type

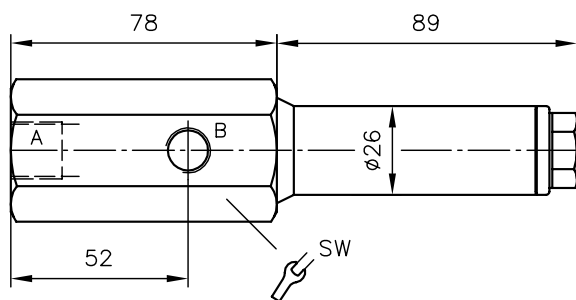
DSV 21-1	= 0.7 kg
DSV 2-2	= 0.9 kg
DSV 2-3	= 1.1 kg
DSVP 21-1	= 1.1 kg

4 Dimensions

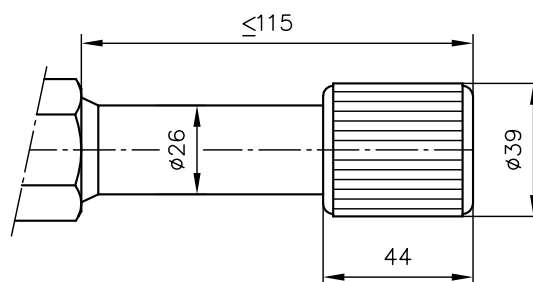
All dimensions in mm, subject to change.

4.1 Pipe connection

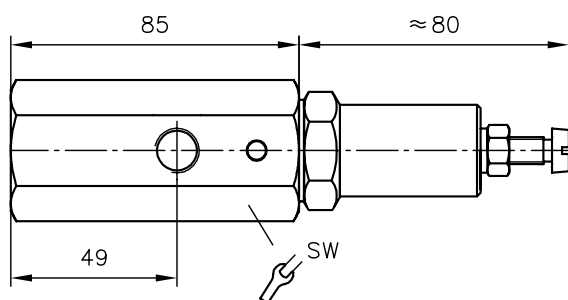
DSV 2-2(3)
fixed



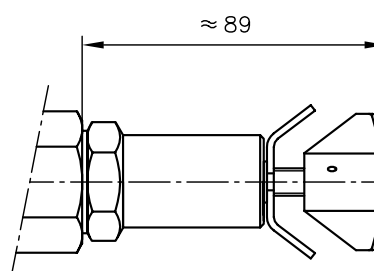
DSV 2-2(3)
manually adjustable



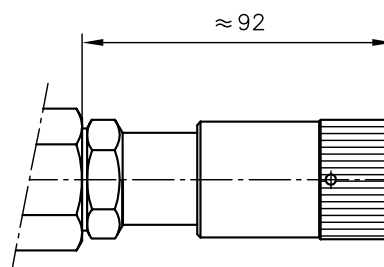
DSV 21-1
fixed



DSV 21-1
manually adjustable



DSV 21-1
adjustable, turn knob

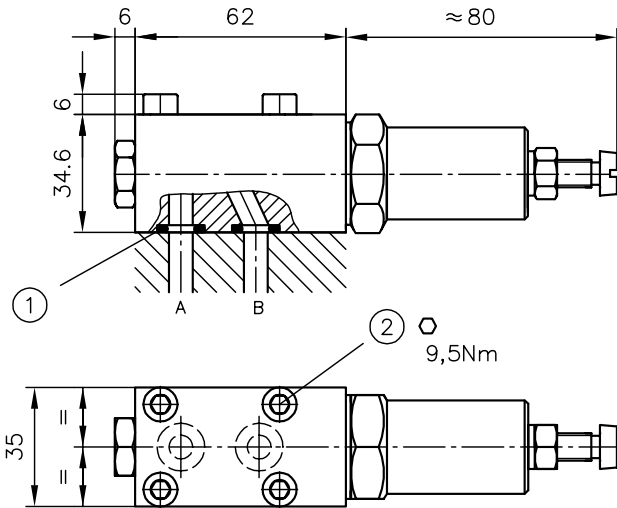


Type	SW	Ports (BSPP)	
		A	B
DSV 21-1	36	G 3/8	G 1/4
DSV 2-2	36	G 3/8	G 3/8
DSV 2-3	46	G 1/2	G 1/2

SW = a/f

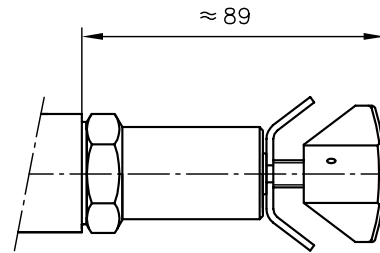
4.2 Manifold mounting

DSVP 21-1
fixed

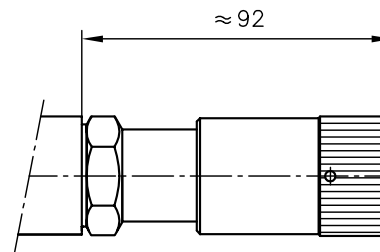


- 1 O-ring 9.20x2.62 NBR 70 Sh
- 2 4x cylinder screw DIN EN ISO 4762 M6x45 8.8-A2K

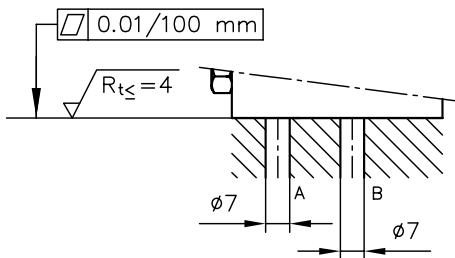
Manually adjustable



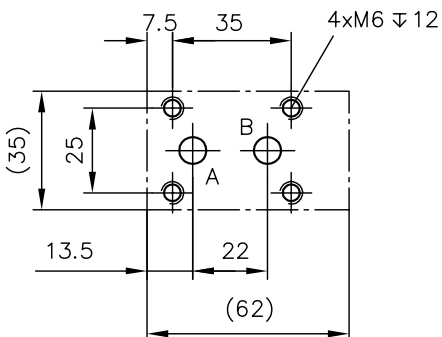
Adjustable, turn knob



Base plate



Hole pattern



5 Assembly, operation and maintenance recommendations

5.1 Intended application

This valve is intended exclusively for hydraulic applications (fluid engineering). The valve meets high technical safety standards and regulations for fluid and electrical engineering.

The user must observe the safety measures and warnings in this documentation.

Essential requirements for the product to function correctly and safely:

- All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- The product must only be assembled and put into operation by qualified personnel.
- The product must only be operated within the specified technical parameters. The technical parameters are described in detail in this documentation.
- The operating and maintenance manual of the specific complete system must also always be observed.

If the product can no longer be operated safely:

Remove the product from operation and mark it accordingly. It is then not permitted to continue using or operating the product.

5.2 Assembly information

The product must only be installed in the complete system with standard connection components that comply with market requirements (screw fittings, hoses, pipes, etc.).

The hydraulic system must be shut down correctly prior to dismantling; this applies in particular to hydraulic systems with hydraulic accumulators.



Danger

Risk to life caused by sudden movement of the hydraulic drives when dismantled incorrectly!

Risk of serious injury or death.

- Depressurise the hydraulic system.
- Perform safety measures in preparation for maintenance.

5.2.1 Creating the base plate

See description in [Chapter 4.2, "Manifold mounting"](#)

5.3 Operating instructions

Product configuration and setting the pressure and flow rate

The statements and technical parameters in this documentation must be strictly observed.
The instructions for the complete technical system must also always be followed.

**Note**

- Read the documentation carefully before usage.
- The documentation must be accessible to the operating and maintenance staff at all times.
- Keep documentation up to date after every addition or update.

**Caution****Risk of injury on overloading components due to incorrect pressure settings!**

Risk of minor injury.

- Always monitor the pressure gauge when setting and changing the pressure.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of a hydraulic power pack. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Metal chips
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

**Note**

Fresh hydraulic fluid from the drum does not always have the highest degree of purity. Under some circumstances the fresh hydraulic fluid must be filtered before use.

Pay attention to the cleanliness level of the hydraulic fluid in order to maintain faultless operation.
(Also see cleanliness level in [Chapter 3, "Parameters"](#).)

5.4 Maintenance information

This product is largely maintenance-free.

Conduct a visual inspection at regular intervals, but at least once per year, to check if the hydraulic connections are damaged. If external leakages are found, shut down and repair the system.

Clean the device surface of dust deposits and dirt at regular intervals, but at least once per year.

6 Other information

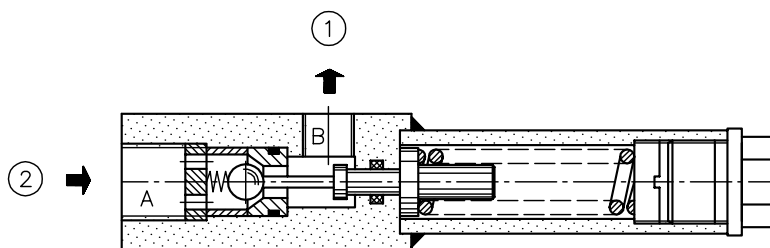
6.1 Seal kit

DS 3990-1

6.2 Functional description

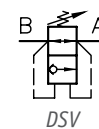
A spring-loaded piston, pressurised by the system pressure on the consumer side, holds a ball valve open against the oil flowing through from the inlet (port A) to the outlet (consumer port B). If the counterforce of the system pressure reaches the set spring force, the piston retreats such that the ball valve closes and, as the pressure continues to rise at the inlet side, hermetically seals off the passage. The valve opens again when the pressure on the inlet side falls below the set value at the spring. All components are made of steel. The valve seat, tappet and spring pin are hardened. The valve is zero-leakage.

Section view:



- 1 Outlet
- 2 Inlet

Circuit symbol



Further information

Additional versions

- Pressure-dependent shut-off valve type CDSV: D 7876