

# 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.

### Features and benefits:

- Various adjustment options
- Various additional functions

### Intended applications:

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

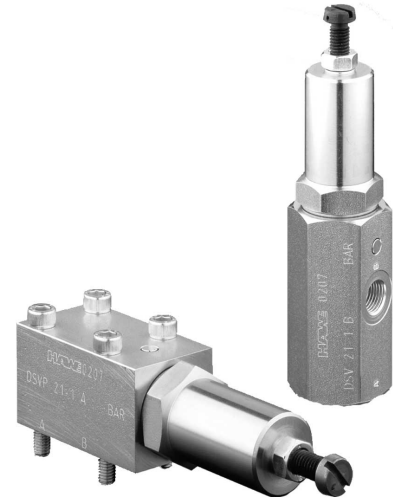


Figure 1: Pressure-controlled shut-off valve type DSV and DSVP

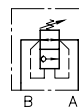
## 2 Available versions, main data

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)		
A	AR	AV	200 to 600	(0) to 400	200 to 600
B	BR	BV	60 to 220	(0) to 120	60 to 220
C	CR	CV	30 to 100	(0) to 60	30 to 100
D	DR	DV	(0) to 40	(0) to 20	(0) to 40


**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

<b>Description</b>	Pressure-controlled shut-off valve
<b>Design</b>	Ball seated valve
<b>Model</b>	Pipe connection, manifold mounting
<b>Material</b>	Steel; valve housing galvanized zinc plated; hardened and ground functional inner parts
<b>Installation position</b>	As desired
<b>Ports</b>	ISO 228/1 (BSPP) pipe thread or manifold mounting A = input B = output
<b>Flow direction</b>	Operating direction    A → B Return flow                B → A
<b>Hydraulic fluid</b>	Hydraulic oil conforming DIN 51 524 part 1 to 3; ISO VG 10 to 68 conforming DIN 51 519 Viscosity limits: min. approx. 4, max. approx. 1500 mm <sup>2</sup> /s opt. operation approx. 10... 500 mm <sup>2</sup> /s. Also suitable are biologically degradable pressure fluids types HEPG (Poly-alkylenglycol) and HEES (Synth. Ester) at service temperatures up to approx. +70°C.
<b>Cleanliness level</b>	<b>ISO 4406</b> <hr/> 21/18/15...19/17/13
<b>Temperatures</b>	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.

**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

**Characteristic curves**

Viscosity during measurements  
approx. 60 mm<sup>2</sup>/s

$\Delta p$ -Q characteristics

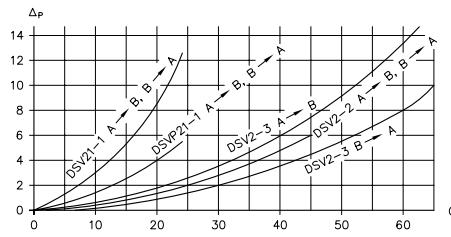


Figure 2:  $\Delta p$  flow resistance (bar); Q flow rate (lpm)



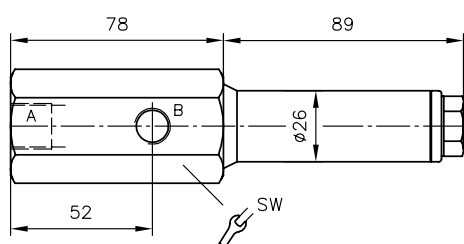
## 4 Dimensions

All dimensions in mm, subject to change!

### 4.1 Pipe connection

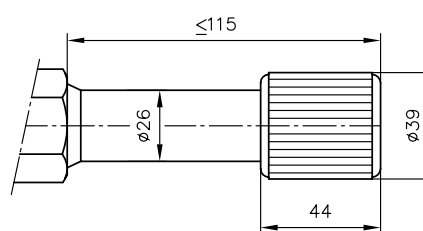
#### Type DSV 2-2(3)

Fixed



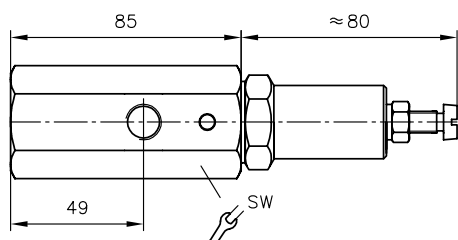
#### Type DSV 2-2(3)

Manually adjustable



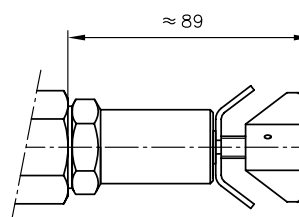
#### Type DSV 21-1

Fixed



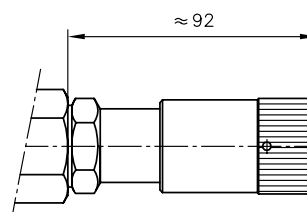
#### Type DSV 21-1

Manually adjustable



#### Type DSV 21-1

Adjustable, turn knob

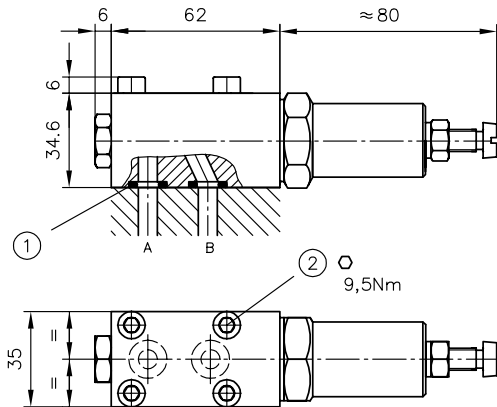


Type	SW	Ports (BSPP)	
		A	B
DSV 21-1	36	G 3/8	G 1/4
DSV 2-2	36	G 3/8	G 3/8
DSV 2-3	46	G 1/2	G 1/2

## 4.2 Manifold mounting

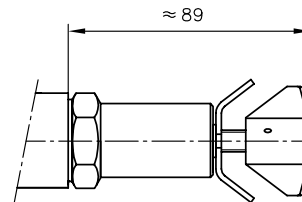
### Type DSVP 21-1

Fixed

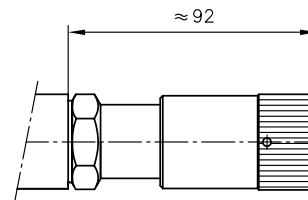


- 1 O-ring 9.20x2.62 NBR 70 Sh
- 2 4x cylinder screw ISO 4762 M6x45 8.8-A2K

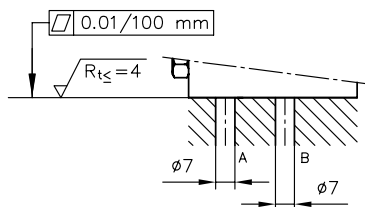
Manually adjustable



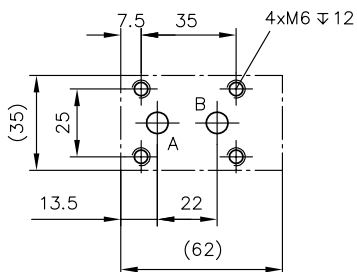
Adjustable, turn knob



### Base plate



### Hole pattern



**5****Installation, operation and maintenance information****5.1 Designated use**

This fluid-power product has been designed, manufactured and tested acc. to standards and regulations generally applicable in the European Union and left the plant in a safe and fault-free condition.

To maintain this condition and ensure safe operation, operators must observe the information and warnings in this documentation.

This fluid-power product must be installed and integrated in a hydraulic system by a qualified staff who is familiar with and observes the general engineering principles and relevant applicable regulations and standards.

In addition, application-specific features of the system or installation location must be taken into account if relevant.

This product may only be used within oil-hydraulic systems.

The product must be operated within the specified data. This documentation contains the technical parameters for various product versions.

**Note**

Non-compliance will void any warranty claims made against HAWE Hydraulik.

**5.2 Assembly information**

The hydraulic accumulator must be integrated in the system via state of the art connection components (screw fittings, hoses, pipes, etc.). The hydraulic system must be shut down as a precautionary measure prior to dismantling; this applies in particular to systems with hydraulic accumulators.

**5.2.1 Creating the base plate**

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

## 5.3 Operating instructions

### Product, pressure and/or flow settings

All statements in this documentation must be observed for all product, pressure and/or flow settings on or in the hydraulic system.



#### Caution

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

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

### Filtering and purity of the hydraulic fluid

Soiling in the fine range, e.g. abraded material and dust, or in the macro range, e.g. chips, rubber particles from hoses and seals, can cause significant malfunctions in a hydraulic system. It is also to be noted that new hydraulic fluid "from the drum" does not necessarily meet the highest purity requirements.

Pay attention to the purity 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 to check the hydraulic connections for damage at regular intervals, but at least once per year. If external leaks are found, shut down and remedy.

Check the device surfaces for dust deposits at regular intervals (but at least annually) and clean the device if required.

## 6 Other information

### 6.1 Seal kit

DS 3990-1

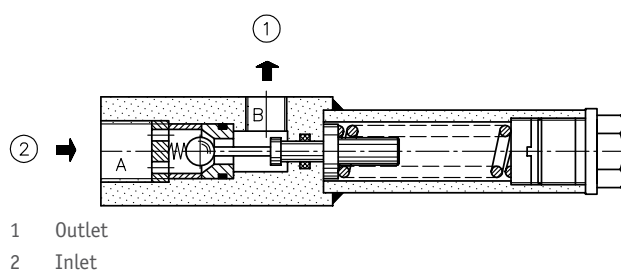
### 6.2 Functional description

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.

#### Circuit symbol



#### Section view:



## Additional versions

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