

SMV

Multifunction Valve



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overview



PN 10-PN 400
ANSI 150-2500



up to
 Δp 250 bar



SMV

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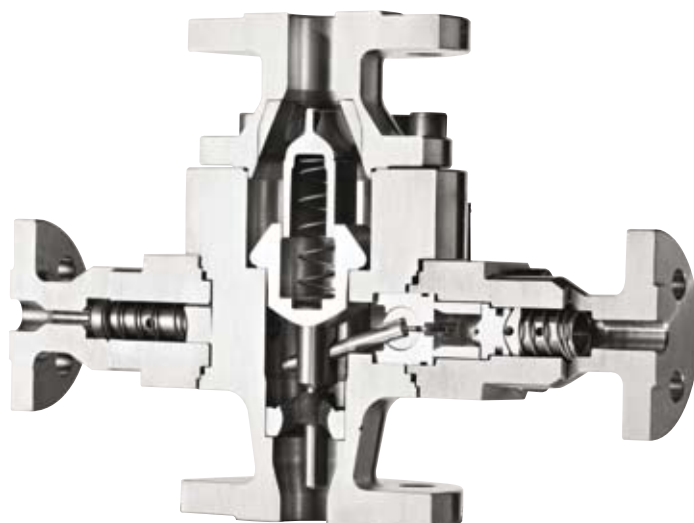


Illustration SMV 18

SMV 10-20 with degasification branch for liquid gas applications

SMV 10-12 with bypass throttle

SMV 18-20 with bypass non-return valve

Requirements in practice

Observations and case studies from practical applications prove the need for the Schroeder Multifunction Valve.

Operation breakdowns, damages and other problems, caused by dry pump operation have often been observed in fluid gas plants as well as in pump stations of fuel depots. These problems mostly occurred during times of start-up and re-starts of pumps.

In case of fluid gases in the boiling point, the transformation of fluid into gas occurs by a minor temperature increase in the stopped pump. This gas volume then presses the fluid out of the pump towards the suction pipe. This results in the pump filling up partly or totally with gas. This can be caused by the temperature influence from outside as well as from the after-heat of the pump immediately after disconnection. Depending on the pump type it will become completely dry or filled up with gas in a way, that the impellers cannot build up delivery pressure when the pump is re-started. Thus the pump operates dry and seconds later considerable damages occur, possibly leading to destruction of the pump and environment.

Function of the Automatic-Degasification

The Automatic-Degasification integrated in the Schroeder Multifunction Valve provides a continuous degasification of the stopped pump and the reserved pump, and secures a constant filling with the delivery fluid.

Mode of Operation

The Schroeder Multifunction Valve SMV is installed near the pressure connection. Due to the elevated position a geodetical high reference point is formed below the non-return cone on the pump pressure side in main stream direction. During the dwell period of the machine, the resulting gas is collected in the region of this high reference point. The Automatic-Degasification of the Multifunction Valve is automatically kept in open position, when the pump is not working. Thus a continuous degasification is provided and the pump is always filled completely with delivery fluid.

In the case of fluid gas pumps in low temperature service the machinery is constantly kept in a cold state and is prepared for a secure start or re-start. Immediately after start-up the pump produces the required differential pressure, and the automatic degasification of the SMV Valve shuts the degasification line tightly.

When the pump is stopped, the degasification device opens because of the dropping differential pressure, so that developed gas, e.g. by after-heat in the pump system, will be passed off immediately and effectively. The pump remains filled with fluid for the next start or automatic re-start.

Innovation as Challenge

The Multifunction Valve SMV is a product innovation, created with the purpose of eliminating problems, known from day-to-day practice. This valve improves plant security and availability through combining vital functions at competitive prices. The combined pump protection is achieved by assuring the minimum flow regulation and non-return function in the main delivery stream with the Automatic-Degasification.

Application

The main application area is in the process engineering of technical liquefied gases, especially low

temperature engineering, fuel depot engineering, and in the shipping of liquefied gases. The Multifunction Valve can be used in all pump plants delivering fluids near the boiling point, two-phase-mixtures, gaseous media and for pumps which are – because of modern sealing systems or similar devices – equipped with gas-injections.

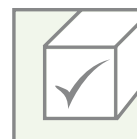
Also, the Multifunction Valve SMV will protect split cage motor pumps (non-seal pumps) and magnetic pumps from dry operation.

Design

The design is according to standard AD 2000 and particularly to EN 13445. As required by Pressure Equipment Directive (PED) 97/23 EG the products are supplied with CE Marking and Declaration of Conformity.

Certified to module H1 all dangerous classes of category 1 to 4 are covered. Otherwise installation, mode of operation and construction are as for Type SSV 10-20.

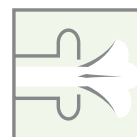
SMV
10-12
18-20



look at info overview

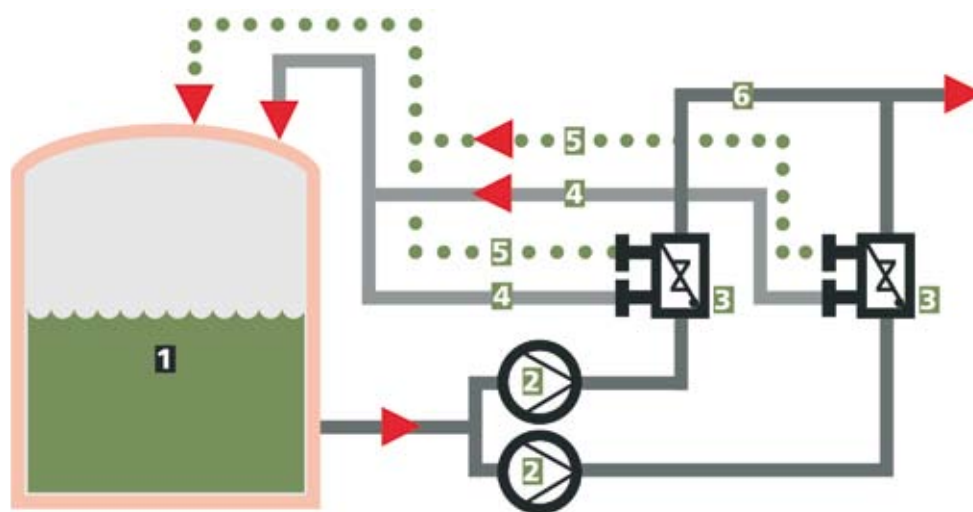


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Illustration 1: Delivery of easily boiling fluids



- 1** Vessel for e.g.: NH_3 , C_2H_4 , C_3H_8 etc.
- 2** Pump 1 and 2
- 3** Schroeder Multifunction Valve SMV

- 4** Minimum flow line
- 5** Degasification line to the vessel
- 6** Main delivery line to the user



SMV

Multifunction Valve

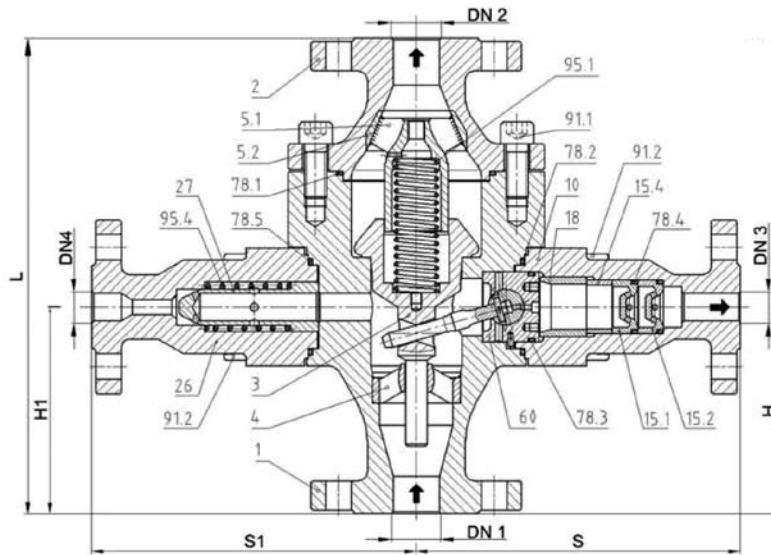


Illustration 2: SMV 10 cross sectional view

SMV 10-12 with throttles in the bypass and automatic degassing branch

Parts List SMV 10-12

Lower body	Part-No.	1
Upper body	Part-No.	2
Cone	Part-No.	3
Cone guide	Part-No.	4
Cone guide	Part-No.	5
Bypass branch	Part-No.	10
Casing	Part-No.	12
Rotary slide valve	Part-No.	13
Operating lever	Part-No.	14
Throttle	Part-No.	15
Degassing branch	Part-No.	26
Degassing valve	Part-No.	27
Bypass Valve Head, complete	Part-No.	60
O-Ring	Part-No.	78.1
O-Ring	Part-No.	78.2
O-Ring	Part-No.	78.3
O-Ring	Part-No.	78.4
O-Ring	Part-No.	78.5
Socket screw	Part-No.	91.1
Socket screw	Part-No.	91.2
Dowel pin	Part-No.	94.1
Dowel pin	Part-No.	94.2
Coil spring	Part-No.	95.1
Coil spring	Part-No.	95.4

Spare/Wear Parts SMV 10-12

<u>Bypass Valve Head, complete,</u>	Part-No.	60, consisting of:
Casing	Part-No.	12
Rotary slide valve	Part-No.	13
Operating lever	Part-No.	14
Dowel pin	Part-No.	94.1
Dowel pin	Part-No.	94.2

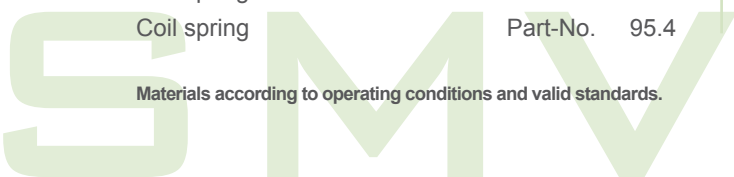
Throttle in the Bypass Branch, consisting of:

Throttle	Part-No.	15
O-Ring	Part-No.	78.4

Single Spare Parts

O-Ring	Part-No.	78.1
O-Ring	Part-No.	78.2
O-Ring	Part-No.	78.3
O-Ring	Part-No.	78.4
O-Ring	Part-No.	78.5
Coil spring	Part-No.	95.1
		(95.2)
Coil spring	Part-No.	95.3
Coil spring	Part-No.	95.4

For main dimensions H, S and L see type SSV 18, H₁ and S₁ on request.



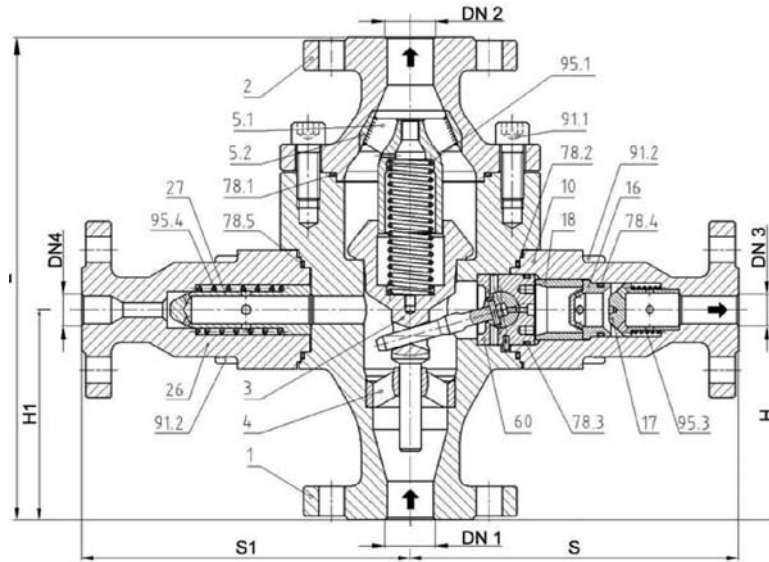


Illustration 3: SMV 18 cross sectional view

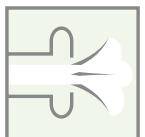
**SMV
18-20**



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**SMV 18-20 with non-return valve in the bypass and
automatic degassing branch**

Parts List SMV 18-20

Lower body	Part-No.	1
Upper body	Part-No.	2
Cone	Part-No.	3
Cone guide	Part-No.	4
Cone guide	Part-No.	5
Bypass branch	Part-No.	10
Casing	Part-No.	12
Rotary slide valve	Part-No.	13
Operating lever	Part-No.	14
Throttle	Part-No.	16
Non-Return Valve	Part-No.	17
Degassing branch	Part-No.	26
Degassing valve	Part-No.	27
Bypass Valve Head, complete	Part-No.	60
O-Ring	Part-No.	78.1
O-Ring	Part-No.	78.2
O-Ring	Part-No.	78.3
O-Ring	Part-No.	78.4
O-Ring	Part-No.	78.5
Socket screw	Part-No.	91.1
Socket screw	Part-No.	91.2
Dowel pin	Part-No.	94.1
Dowel pin	Part-No.	94.2
Coil spring	Part-No.	95.1
Coil spring	Part-No.	95.3
Coil spring	Part-No.	95.4

Materials according to operating conditions and valid standards.

Spare/Wear Parts SMV 18-20

<u>Bypass Valve Head, complete</u>	Part-No.	60, consisting of:
Casing	Part-No.	12
Rotary slide valve	Part-No.	13
Operating lever	Part-No.	14
Dowel pin	Part-No.	94.1
Dowel pin	Part-No.	94.2

Non-Return Valve in the Bypass Branch, complete, consisting of:

Throttle	Part-No.	16
Non-Return Valve	Part-No.	17
O-Ring	Part-No.	78.2
O-Ring	Part-No.	78.4
Coil spring	Part-No.	95.3

Single Spare Parts

O-Ring	Part-No.	78.1
O-Ring	Part-No.	78.2
O-Ring	Part-No.	78.3
O-Ring	Part-No.	78.4
O-Ring	Part-No.	78.5
Coil spring	Part-No.	95.1
		(95.2)
Coil spring	Part-No.	95.3
Coil spring	Part-No.	95.4

For main dimensions H, S and L see type SSV 18,
 H_1 and S_1 on request.

