

DELTA MS4/MSP4

Aseptic Single Seat Valve



Aseptic single seat valve with diaphragm supporting system

APV is a leading innovator of solutions with more than 50 years of experience in valve design and manufacture. From the supply of engineered components to complete process engineering and design, we specialise in helping our customers improve their plant's performance and profitability. Years of intensive product development on a worldwide scale, has enabled APV to offer a complete range of hygienic valves in the brewery, dairy, food, beverage, chemical, health care and pharmaceutical industries.



Application

DELTA MS4 single seat valves are designed for aseptic processing systems, for example cold aseptic filling systems in the food & beverage industries, product handling downstream to UHT plants in the dairy industry or for pharmaceutical applications.

DELTA MSP4 single seat valves are designed especially for aseptic applications where elastomers are not accepted in the product wetted areas.

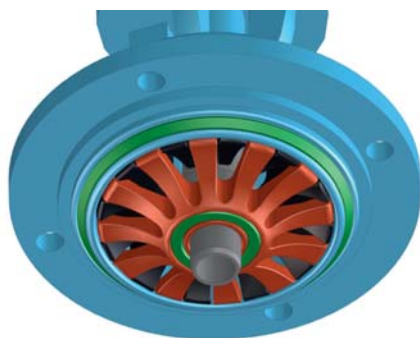
The DELTA MS4 as well as the DELTA MSP4 valves are available in shut-off and change over design.

Features and Benefits

- Suitable for all kind of media used in food and pharmaceutical industries
- Reliable design
- High pressure capability
- High temperature capability
- Long diaphragm lifetime
- A variety of valve body configurations enable compact and economic system integration with "minimum dead legs"
- Diaphragm defects detectable immediately
- Lower spare part costs compared to bellows
- Meeting strictest hygienic demands
- 3A and EHEDG approved
- Diaphragm and diaphragm shaft (DELTA MSP4) with USP Class VI approval
- Upgrading DELTA M3/M4 to DELTA MS4 and DELTA MP4 to DELTA MSP4 possible
- Optionally available with APV Control Unit technology including Direct Wired or Fieldbus control alternatives.

New Fan Support System

The DELTA MS4/MSP4 aseptic valve series features a new flexible PTFE diaphragm with fan support mechanism for greater durability and flexibility. Durability and flexibility are important features as valves can be one of the weak links in the aseptic production chain. In conventional aseptic valves, the movement of the flexible element under pressure can result in relatively quick wear and tear. This increases the risk of leakages that can spoil an entire production run.



*Fan in lower position
(valve closed)*



*Fan in middle position
(valve half open)*



*Fan in top position
(Valve fully open)*

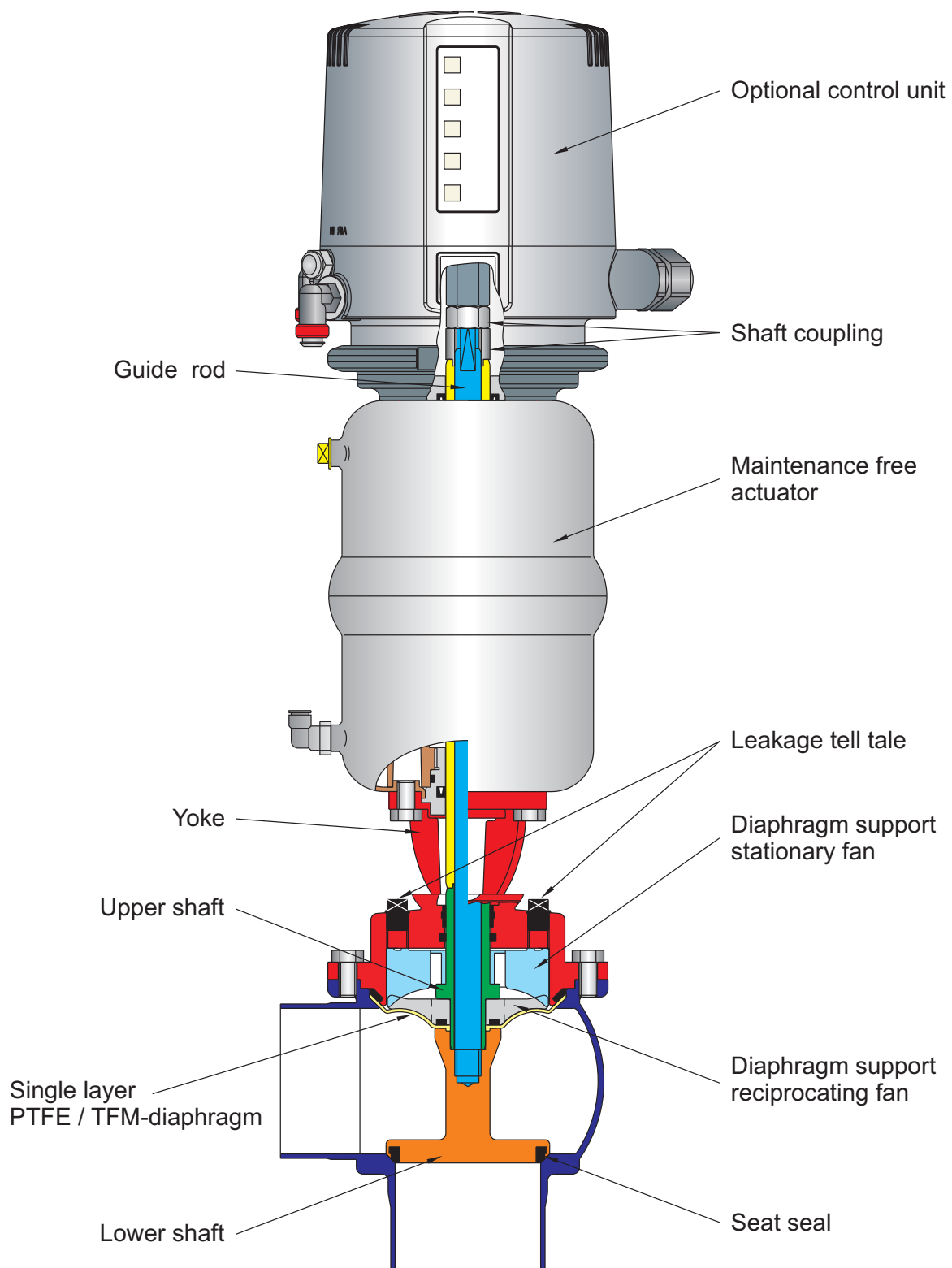
Diaphragm support by stationary fan cage (Black) and reciprocating fan (Red)

Technical Specification

Metallic parts:	The housing is made of high resistant stainless steel AISI 316L (1.4404) with a product wetted surface finish of Ra 0,8 µm. All other non-product wetted stainless steel parts are made of stainless steel AISI 304 (1.4301).
Seat seal:	EPDM, HNBR, FPM or VQM
Diaphragm:	PTFE-TFM 1705 FDA21CFR177.2600
Diaphragm shaft (MSP4):	PTFE-TFM 1705 FDA21CFR177.1550
Control air pressure:	Max. 8 bar, Min. 6 bar
Line pressure:	Max. 10 bar
Operating temperature:	Max. 135°C
Sterilisation temperature:	140°C EPDM, HNBR (short term)

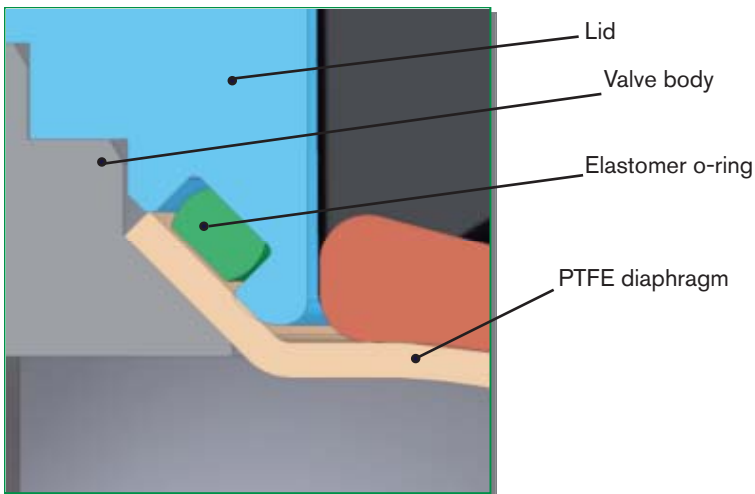
A pending patent related to the innovative diaphragm fan support mechanism stresses the fact that the DELTA MS4/MSP4 features unique technology. The new fan support mechanism relieves process pressure on the diaphragm, thus significantly extending its lifetime and the integrity of the production process. The fan support mechanism also enables reliable operation in the case of high operating pressure. Eventual diaphragm defects are immediately indicated to the outside, enabling instant remedial action to limit production loss.

Comming clean on clean in place (CIP) and ste

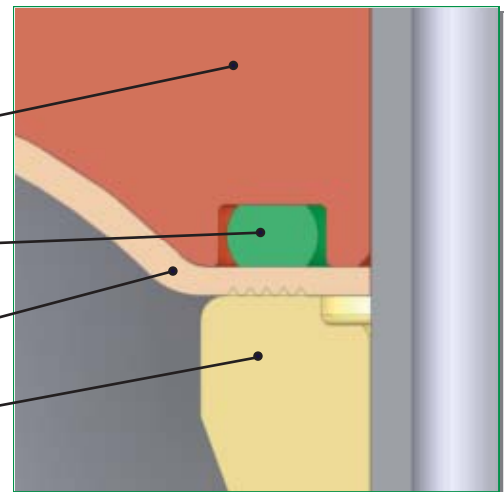


DELTA MS4

sterilization in place (SIP) with DELTA MS4/MSP4



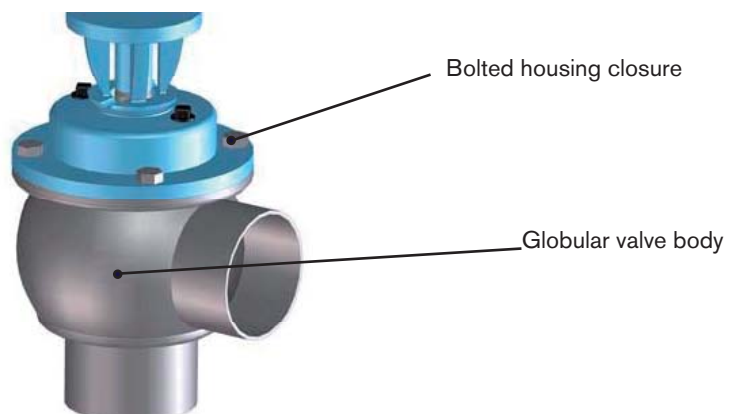
Outside sealing of valve body to diaphragm















Inside sealing of diaphragm to reciprocating shaft

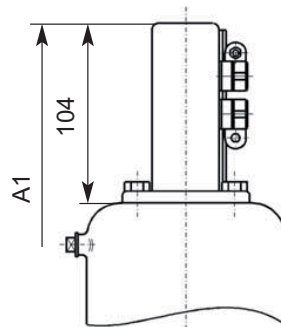
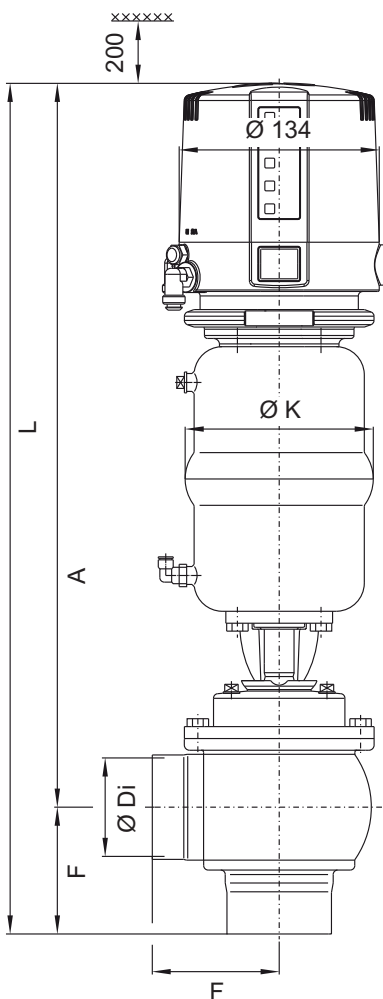
In contrast to standard elastomers, the PTFE diaphragm enables the use of a wide range of cleaning agents and products at higher temperatures than other diaphragm materials allow. This enables faster CIP by ensuring reliable cleaning and sterilisation of the diaphragm and other product wetted surfaces.

The bolted housing closure ensures tight sealing and requires no retightening, even after many SIP cycles. The open geometry of the globular valve body design eliminates dead ends and air pockets, making CIP and SIP more effective and reliable.



Body Configurations

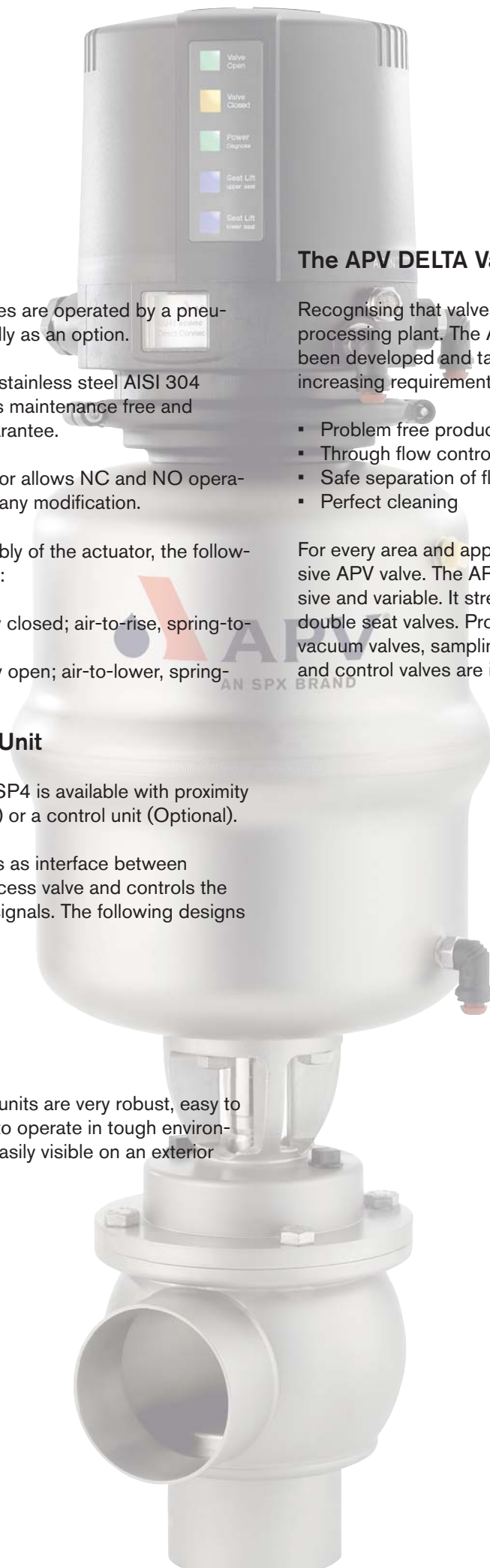
 MS41	 MS42	 MSE43	 MSES46
 MSE41	 MSE42	 MSE44	 MSES47
 MST41	 MST42	 MSES45	 MSES48



Dimensions

DN	A mm	A1 mm	øDi mm	F mm	øK mm	L mm	Weight in kg
25	419	347	26	50	86	469	4.2
40	466.5	394.5	38	67	126	533.5	7.1
50	472.5	400.5	50	72	126	544.5	7.1
65	529	457	66	85	189	614	7.9
80	538	466	81	98	189	636	14.2
100	555	483	100	111	189	666	15.2
Inch							
1"	417	345	22.2	50	86	467	4.2
½"	465	393	34.9	67	126	532	7.1
2"	471	399	47.6	72	126	543	7.1
2½"	526	454	60.3	85	189	611	7.9
3"	532	460	72.9	100	189	632	14.5
4"	554	482	97.6	111	189	665	15.2

DELTA MS41 & MS42 with CU4 Control Unit



Actuator

DELTA MS4/MSP4 valves are operated by a pneumatic actuator or manually as an option.

The actuator is made of stainless steel AISI 304 (1.4301). The actuator is maintenance free and supplied with 5 year guarantee.

The design of the actuator allows NC and NO operation without the need of any modification.

Through different assembly of the actuator, the following designs are possible:

- NC: actuator normally closed; air-to-rise, spring-to-lower
- NO: actuator normally open; air-to-lower, spring-to-rise

DELTA CU Control Unit

The DELTA MS4 and MSP4 is available with proximity switch holder (Standard) or a control unit (Optional).

The control unit operates as interface between process control and process valve and controls the electric and pneumatic signals. The following designs are available:

- Direct Connect
- AS-interface
- Profibus
- Device Net

APV DELTA CU control units are very robust, easy to maintain, and designed to operate in tough environments. Signal data are easily visible on an exterior LED (electronic lights).

The APV DELTA Valve Range

Recognising that valves are essential parts of every processing plant. The APV DELTA valve range has been developed and tailored to the continually increasing requirements for:

- Problem free product flow
- Through flow control
- Safe separation of fluids
- Perfect cleaning

For every area and application there is a comprehensive APV valve. The APV DELTA valve range is extensive and variable. It stretches from butterfly valves to double seat valves. Process valves like safety valves, vacuum valves, sampling valves, pressure relief valves and control valves are in our portfolio.



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