

The Proven Mixproof Range

SMP-TO Sanitary Mixproof Tank Outlet Valve

Application

SMP-TO is a sanitary pneumatic seat valve. SMP-TO is designed for mixproof tankoutlet operation when cleaning of the line right up to the bottom of the tank is required.

Working principle

SMP-TO is remote-controlled by means of compressed air. The valve is normally closed (NC).

The valve has two independent plug seals, forming a leakage chamber under atmospheric pressure between them. Leaking product flows into the leakage chamber and is discharged through the leakage outlet.

When the valve is open the leakage chamber is closed (no product loss during operation). The product can then flow from the tank to the line.

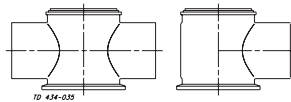
The independent seat lift of the lower plug provides easy cleaning without the need of external CIP (see fig. 2).

The lower plug of SMP-TO is seated so that it is insensitive to high pressure and water hammer in the line.

Standard design

The valve consists of one valve body, which is connected to the tank flange with screws and two flange halves. The body can be turned in any position if the screws are slightly loosened. The tank flange is welded directly into the tank.

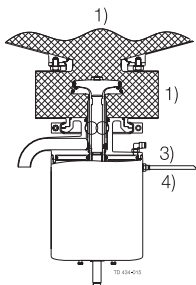
Valve body combinations



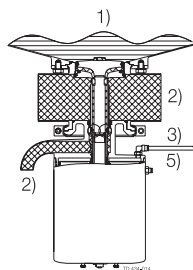
Type 30, Type 20



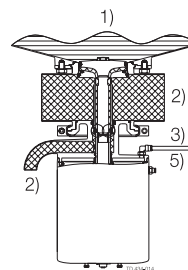
SMP-TO valve with body combination 30



a. Closed valve



b. Open valve

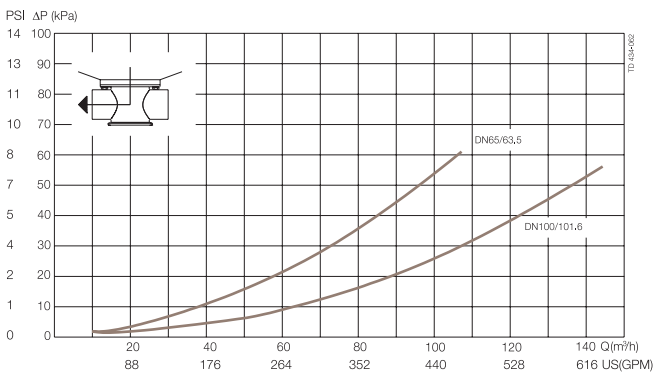
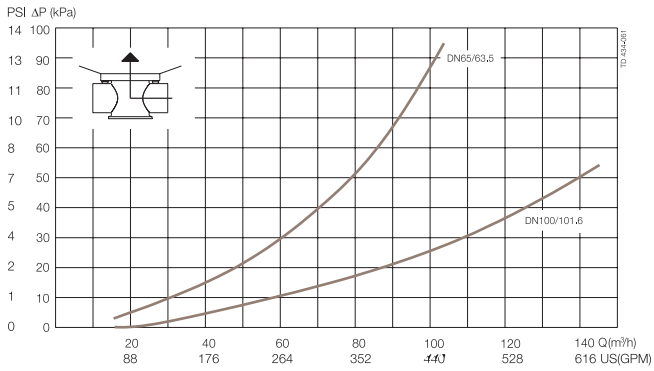
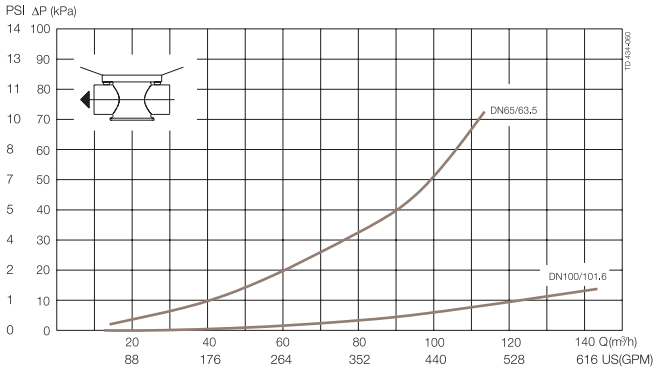


c. Cleaning by lifting lower plug

- 1. Product
- 2. CIP
- 3. Air
- 4. AC1
- 5. AC2

Fig.2. Operation/cleaning.

Pressure drop/capacity diagrams



NOTE! For the diagrams the following applies:
 Medium: Water (68°F).
 Measurement: In accordance with VDI 2173.

Size (inches)	CIP liquid Capacities Cv Valves (GPM)
2.5-inch, 4-inch	2.95

Formula to calculate CIP flow during seat lift: (for liquids with comparable viscosity and density to water).

- Q = Cv Δ p
- Q = CIP flow (GPM)
- K_v = Flow (GPM) through CIP outlet by a pressure drop at 1 PSI (see the table above)
- Δ p = CIP pressure (PSI)

Dimensions (inch)

Size Inches	2.5-inch	4-inch
A *	23.20	24.40
A1	16.60	18.80
A2	18.50	19.80
OD1	2.50	4.00
ID1	2.40	3.80
t1	0.06	0.08
OD2	1.10	1.10
ID2	1.00	1.00
t2	0.06	0.06
E	2.90	3.50
F	1.90	1.90
G	5.30	5.30
H	7.80	7.80
J	8.30	8.30
K ± 0.02	8.10	8.10
L ± 0.008	0.08	0.08
Tri-Clamp®	0.83	0.83
Weight (lbs.)	71.70	71.70

Connections

Compressed Air:

AC1 and AC2: R 1/8" (BSP), internal thread

AC1: Open valve.

AC2: Seat cleaning, lower plug.

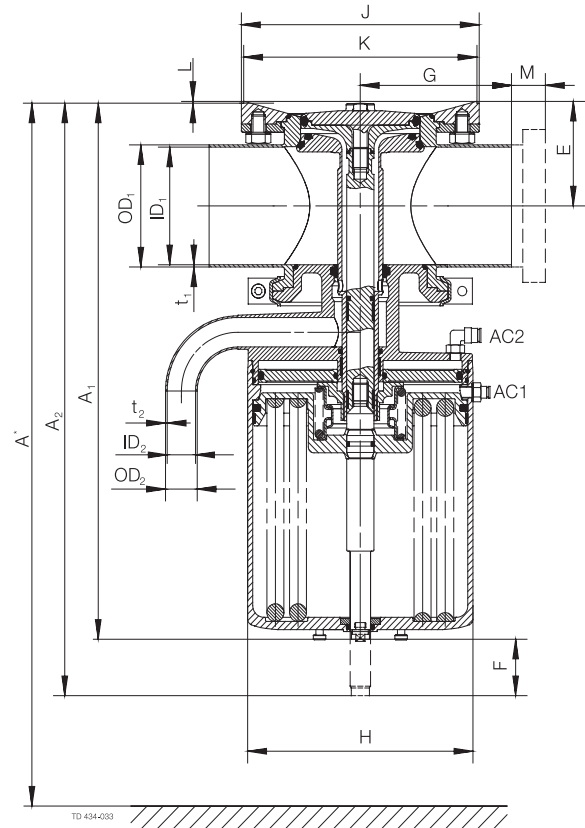
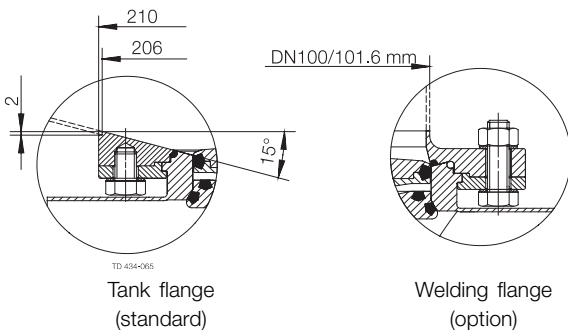


Fig. 3. Dimensions



Technical data

Maximum pressure in tank (higher pressure will open the valve)116 PSI
 Minimum pressureFull vacuum.
 Maximum pressure in line against which the valve can open when pressure in tank is 0116 PSI (when air pressure is 102 PSI)
 Temperature range:14° F to 284° F (EPDM)
 Air pressure:73 to 102 PSI

Air Consumption at 90 PSI	
Size	2.5-inch, 4-inch
Lift, lower plug	91.5 in ³
Opening	677.4 in ³

Materials

Product wetted steel parts:Acid-resistant steel AISI 316 L
 Other steel parts:Stainless steel AISI 304
 Product wetted seals:EPDM rubber.
 Other seals:Nitrile (NBR).
 Finish:Semi bright.

Options

Equipment

- Male parts or clamp liners in accordance with required standard.
- ThinkTop®
- Welding flange for stub tube welding at the bottom of the tank (4").

Material grades

- Product wetted seals in Nitrile (NBR) or Fluorinated rubber (FPM).

Tools

- Service tool for the actuator.
- Tool for plug seals.

Ordering

Please state the following when ordering:

- Valve type.
- Valve port combination: Type nos.
- Connections if not welding ends.
- Welding flange, if not standard tank flange.
- Other options.

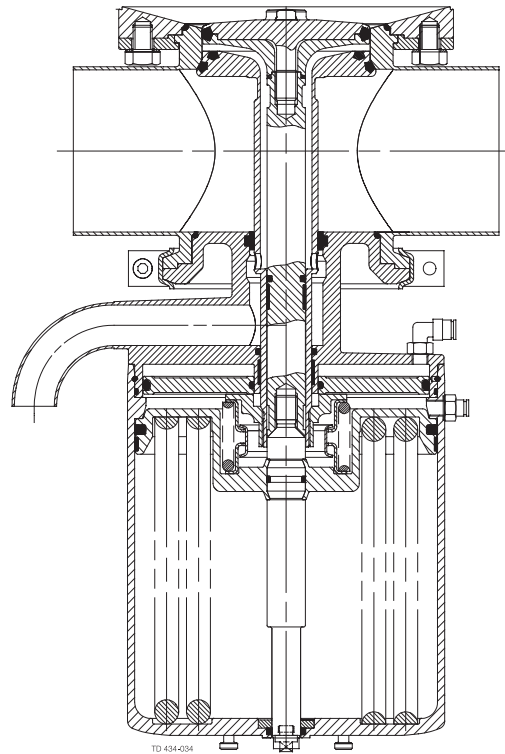


Fig. 4. Details of SMP-TO.