State of the art

Unique PMO Mixproof Horizontal Tank Plus® CP Valve

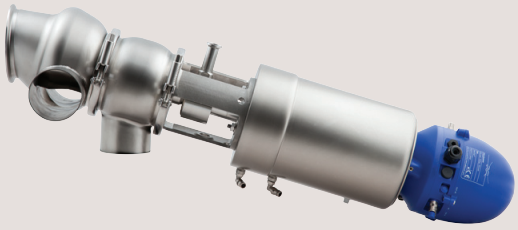
Concept

This Unique PMO Plus CP Mixproof HT Valve is specially designed for horizontal mounting on the side of a tank or as a space-saving alternative at the bottom of a cone-formed tank. Based on the well proven and exceptionally versatile principle of the Unique Mixproof valves, this horizontal mixproof tank valve features many of the same components, such as the actuator, yoke and seals, and therefore the same spare parts. This provides the benefits of easy serviceability and low total cost of ownership.

Standard design

The Unique PMO Mixproof HT valve, which can be fitted with any level of sensing and control, complies with the 3-A standard 8502 and the Pasteurized Milk Ordinance. It meets the FDA demands for seat lift compliance, which enables handling of two different products at the same time, or safe handling of one product while seat-lift cleaning operations are being conducted in the other portion of the valve – all without any risk of cross-contamination.

The double tangential design of the valve body ensures full drainability, especially when the valve is mounted at the bottom of a flat-bottomed tank.



TECHNICAL DATA

Max. product pressure in pipeline:	145 PSI (1000 kPa)
Min. product pressure:	Full vacuum.
Temperature range:	.23°F to +257°F (depending on rubber quality)
Air pressure:	Max. 116 PSI (800 kPa).

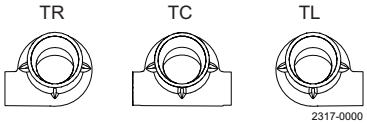
PHYSICAL DATA

Product wetted steel parts:	1.4404 (316L).
Other steel parts:	1.4301 (304).
External surface finish	Semi-bright (blasted)
Internal surface finish	Bright (polished), Ra < 32 µinch
Product wetted seals:	EPDM.

Other seals:

CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination



Note: to determine the valve body configuration (TR or TL) please face the top of the actuator.

Authorized to carry the 3A symbol

State of the art – Cleanability

The Unique Mixproof HT valve also provides a state of the art solution when there is no CIP pressure or flow from the tank side to clean the seat and plug. The valve is self-cleaning, thanks to two patented Cleaning-in-Place (CIP) nozzles. The first nozzle is designed specifically for plug cleaning. This double-acting nozzle projects cleaning solution through the tank connection, ensuring complete cleaning of the seat contact surfaces as well as the shadow area of the tank port. The second is a rotating CIP nozzle incorporated into the unit for optimum cleaning of the full-bore leakage chamber.

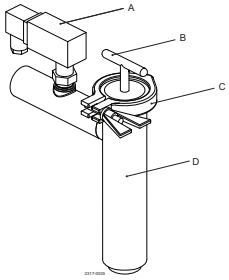
The design of the single valve body makes it suitable to weld directly on the tank or to connect it via a Tri-clamp

The 4" and 6" models feature a 45-mm opening, which enables the passage of very large particles or efficient handling of high viscosity fluids.

Options:

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: ThinkTop or ThinkTop Basic.
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM
- CIP validation kit that enables monotoring of CIP flow to internal CIP nozzles - See fig. 1

CIP validation kit



A. Flow switch
B. Filter element
C. Clamp ring
D. Filter house

fig. 1

Size inch	Max. size of particle (inch)	Max. tank pressure (PSI)	Actuator size 4-Basic (ø6.2"x10")	Actuator size 5-Basic (ø7.3"x11")	Opening pressure in pipe line at 87 PSI air pressure (kPa)
2½"	1.26	85	Standard		1000
3"	1.26	85	Standard		1000
4"	1.77	85		Long stroke	1000
6"	1.26	38/28*			1000
6"	1.77	28		Long stroke	1000

Notes:

Max. pressure in tank means that a higher pressure in tank will open the valve.

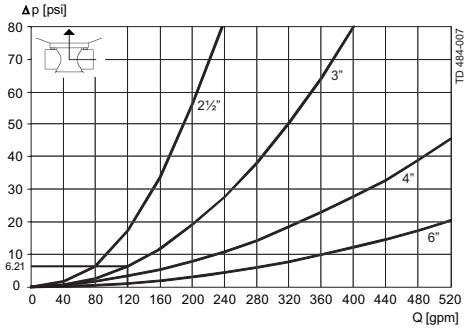
It is possible to open with 145 PSI (10 bar) (1000 kPa) in pipe line.

When closing the valve the pressure can not be higher than "Max. Tank pressure".

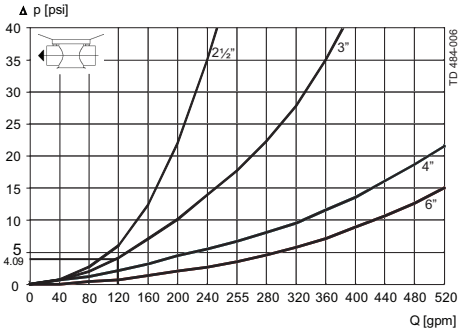
* Max. tank pressure seat push tank plug.

Pressure drop/capacity diagrams

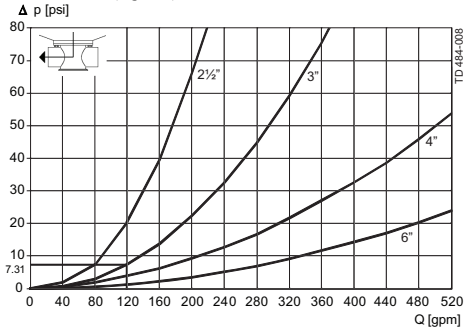
To tank (fig. 1)



Straight through (fig. 3)



From tank (fig. 2)



Air and CIP Consumption

Size	DN/OD				Longstroke DN/OD
ISO	2½"	3"	4"	6"	6"
Kv-value					
Upper Seat-lift [m^3/h]	2.5	2.5	3.1	7.1	7.1
Lower Seat-lift (tank seat lift) [m^3/h]	11.5	11.5	34.1	80.5	80.5
Air consumption					
Upper Seat-lift * [n litre]	0.4	0.4	0.62	0.62	0.62
Lower Seat-lift (tank seat lift) * [n litre]	0.13	0.13	0.21	0.21	0.21
Main Movement * [n litre]	1.62	1.62	3.54	3.54	3.54
Kv-value - SpiralClean					
External CIP in leakage chamber [m^3/h]	1.52	1.52	1.52	1.52	1.52

Note

* [n litre] = volume at atmospheric pressure

Recommended min. pressure for External CIP in leakage champer 43.5 psi.

Formula to estimate CIP flow during seat lift:

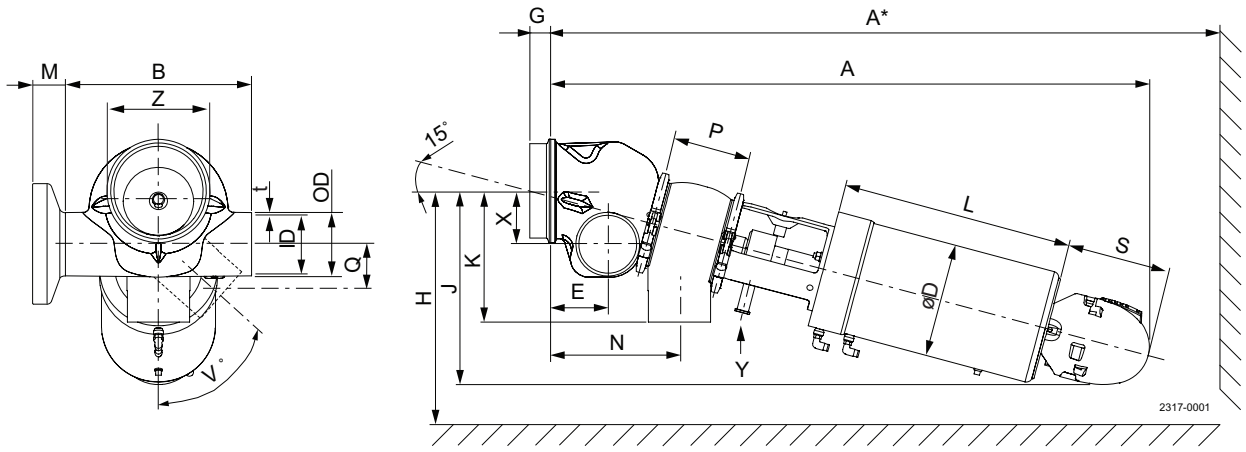
(for liquids with comparable viscosity and density to water):

$Q = Kv \cdot \sqrt{\Delta p}$

Q = CIP - flow (m^3/h).

Kv = Kv value from the above table.

Δ p = CIP pressure (bar).



Size	2.5"	3"	4"	6" (75 mm) stroke	6" (59 mm) stroke
A	28.937	29.882	38.465	42.835	42.835
A*	34.134	35.591	45.472	52.323	52.323
B	8.661	8.661	11.811	16.535	16.535
OD	2.500	2.996	4.000	6.071	6.071
ID	2.374	2.870	3.843	5.782	5.782
t	0.063	0.063	0.079	0.144	0.144
øD	7.323	7.323	7.323	7.323	7.323
E	2.791	3.039	3.630	5.098	5.098
F1	1.496	1.496	2.953	2.953	2.323
F2 (Tank plug)	0.394	0.394	0.394	0.394	0.394
G	0.626	0.626	1.500	1.752	1.752
H	11.063	11.457	14.331	16.654	16.654
J	9.685	9.921	12.480	14.134	14.134
K	6.024	6.220	8.465	12.087	12.087
L	9.921	9.921	14.921	14.921	14.921
N	5.984	6.693	8.268	11.142	11.142
P	3.516	4.012	4.984	7.087	7.087
Q	0.626	0.626	1.500	1.752	1.752
S	7.087	7.087	7.087	7.087	7.087
V°	0-67°	0-60°	0-53°	0-49°	0-53°
X	1.508	1.441	2.071	3.693	3.693
Y	3/4" clamp ferrule	3/4" clamp ferrule	3/4" clamp ferrule	3/4" clamp ferrule	3/4" clamp ferrule
Z	4"	4"	6"	10"	10"
M/Tri-clamp	0.827	0.827	0.827	1.518	1.518
Weight (lb)	28.660	31.306	95.019	193.125	193.125

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