



Simply Unique Single Seat

Unique 7000 - Reverse Acting

Concept

The reverse acting version of the Unique 7000 is a sanitary air-operated seat valve with a flexible design. It can be configured as a shut-off valve with two or four ports or as a change-over valve with three to six ports. It's ideal applications include the dairy, beverage, brewery, food, pharmaceutical, biotechnology and personal care industries.

Working principle

The valve is a pneumatic seat valve in a hygienic and modular design for a wide field of duties, e.g. as a shut-off valve with two (2) or four (4) ports or as a change-over valve with three (3) to six (6) ports. The valve is remote-controlled by means of compressed air.

Standard Design

The Unique 7000 valve is designed to deliver years of reliability and performance you've come to expect with all Tri-Clover products. It's flexible design consists of two to three bodies that are clamped together. The TR2 seat ring with enhanced CIP capabilities and hygiene comes standard with all Unique 7000 valves. For added confidence, the valve can be supplied with a controlled compression elastomer seal ring. The actuator comes with a five year warranty. The Unique 7000 valve sizes range from 1" to 4".



TECHNICAL DATA

Temperature

Temperature range: -14°F to +284°F (EPDM)

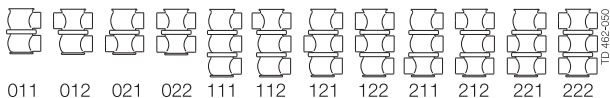
Pressure

Max. product pressure: 145 PSI (1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure: 72.5 to 101.5 PSI (5 - 7 bar)

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.
- Pneumatic upward and downward movement (A/A).

PHYSICAL DATA

Materials

Product wetted steel parts: AISI 316L (internal Ra < 32 µ inch)

Other steel parts: AISI 304

External surface finish Semi-bright (blasted)

Internal surface finish Bright (polished), Ra < 32 µm

Plug seal: PTFE (TR2) (standard)

Optional elastomer plug seal: . EPDM, HNBR or FPM

Other product wetted seals: . . EPDM (standard)

Optional product wetted seals: HNBR or FPM

Other seal NBR

Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Product wetted seals in HNBR or FPM
- D. Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- E. High pressure actuator
- F. Maintainable actuator
- G. External surface finish bright

Note!

For further details, see instruction ESE00213.

Other valves in the same basic design

- Long stroke valve.
- Manually operated valve.
- Extended stroke available for 4"

The actuator comes with a 5 years warranty

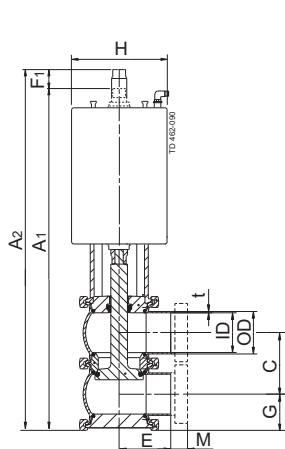
Dimensions

	Nominal size						Shut-off
	1"	1½"	2"	2½"	3"	4"	4" XL stroke
A ₁	13.3	13.96	16.21	17.19	19.05	21.00	32.9*
A ₂	13.77	14.79	17.23	18.22	20.3	22.22	32.9*
A ₃	15.18	16.5	19.27	20.75	23.10	26.02	N/A
A ₄	15.61	17.15	20.14	21.61	24.17	27.08	N/A
C	1.88	2.39	2.91	3.40	3.89	4.87	4.87
OD	0.98	1.50	2.01	2.50	3.00	4.00	4.00
ID	0.86	1.37	1.88	2.37	2.87	3.84	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08	0.08
E	1.97	1.95	2.44	3.23	3.43	4.72	4.72
F ₁	0.47	0.83	1.02	1.02	1.22	1.22	2.95
F ₂	0.43	0.63	0.87	0.87	1.06	1.06	N/A
G	0.94	1.95	2.44	3.23	3.43	4.72	4.72
H	Ø3.34	Ø3.34	Ø4.53	Ø4.53	Ø6.18	Ø6.18	6.00
H (high pressure)	Ø3.34	Ø4.53	Ø6.18	Ø6.18	Ø6.18	Ø6.18	N/A
M (Tri-Clamp)	0.50	0.50	0.50	0.50	0.50	0.63	0.63
Weight (lb)							
Shut-off valve	10.14	10.58	17.20	9.5	34.84	43.65	48.50
Change-over valve	12.13	12.79	20.28	20.94	41.01	54.01	N/A

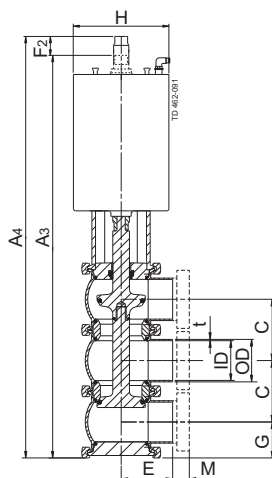
For exact high pressure actuator dimension (A and F) - please refer to information in CAS

* To top of stem protector

** Internal stem stroke



Shut-off valve



Change-over valve

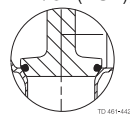
Please note!

Opening/closing time will be effected by the following:

- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

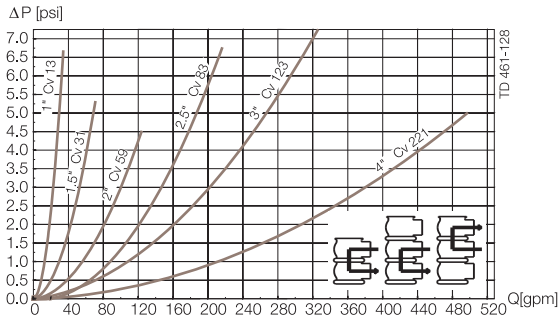
R 1/8" (BSP), internal thread.



Replaceable elastomer plug seal

Air Consumption (in ³ free air) for one stroke			
Size	1"-1½"	2"-2½"	3"-4"
NO and NC	0.96 x air pressure [psi]	2.17 x air pressure [psi]	5.51 x air pressure [psi]
A/A	1.94 x air pressure [psi]	4.82 x air pressure [psi]	11.15 x air pressure [psi]

Pressure Drop/Capacity Diagrams



Note!

For the diagrams the following applies:

Medium: Water (20°C)

Measurement: In accordance with VDI2173

Pressure drop can also be calculated in CAS.

Pressure drop can also be calculated with the following formula:

$$Q = K_v \times \sqrt{\Delta p}$$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δp = Pressure drop in psi over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 160 gallon/minute.

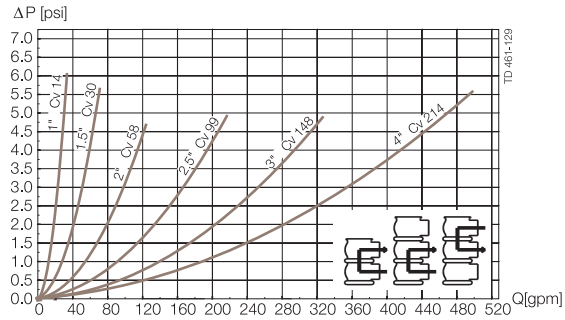
2.5" shut-off valve, where Cv = 128 (See table above).

$$Q = K_v \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128} \right)^2 = 1,6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)



Pressure data for Unique Single Seat Valve Reverse Acting

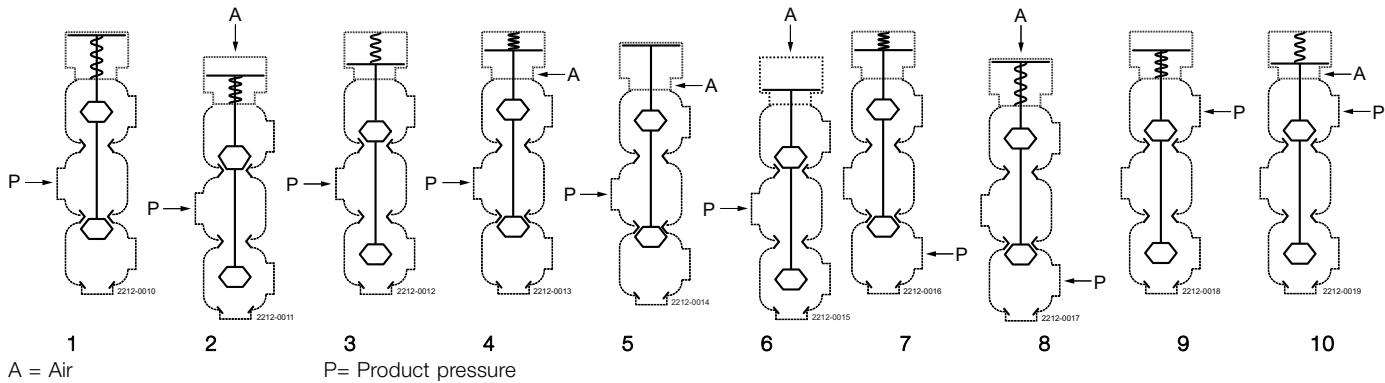


Table 1 - Shut-off and Change-over valves. Max. pressure in bar without leakage at the valve seat

Actuator/valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 DN/OD
Change-over valve			1"	1½"	2"	2½"	3"	4"
1		NC	145	119	122	65	99	64
2	87	NC	145	110	139	81	104	70
3		NO	145	91	104	61	93	61
4	87	NO	145	145	145	88	112	5.0
5	87	A/A	145	145	145	145	131	84
6	87	A/A	145	145	145	145	123	81

Table 2 - Shut-off and Change-over valves. Max. pressure in bar against which the valve can open

Actuator/valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 DN/OD
Change-over valve			1"	1½"	2"	2½"	3"	4"
7		NO	145	141	145	99	67	45
8	87	NC	145	145	145	120	144	96
9		NC	145	145	145	107	71	46
10	87	NO	145	145	145	131	145	100

Alfa Laval reserves the right to change specifications without prior notification. ALFA LAVAL is a trademark registered and owned by Alfa Laval Corporate AB.

How to contact Alfa Laval
Contact details for all countries are continually updated on our website. Please visit www.alfalaval.us to access the information direct.