Simply Unique

Unique 7000 Series

General Information

The Unique 7000 Series is an innovative new generation of Tri-Clover® single seat valves that are designed to meet the highest process demands of hygiene and safety. They're built on a well-proven, platform from an installed base of more than one million valves.

Application

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 three ports or as a change-over valve with three to five ports. It's ideal applications include the dairy, beverage, brewery, food, pharmaceutical, biotechnology and personal care industries.

Working principle

The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve with low maintenance cost.

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. Its flexible design consists of either one or two bodies that are clamped together. The TR2 seat ring with enhanced CIP capabilities and hygiene comes standard with all Unique 7000 series valves. For added confidence, the valve can be supplied with a controlled compression elastomer seal ring. The standard actuator comes with a five year warranty. The Unique 7000 valve sizes range from 1" to 4".

Other valves in the same basic design

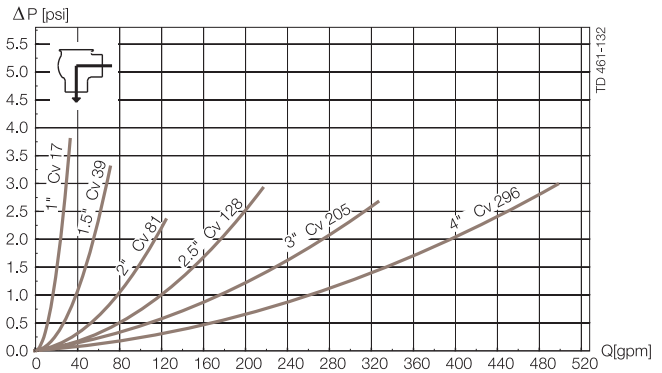
- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.

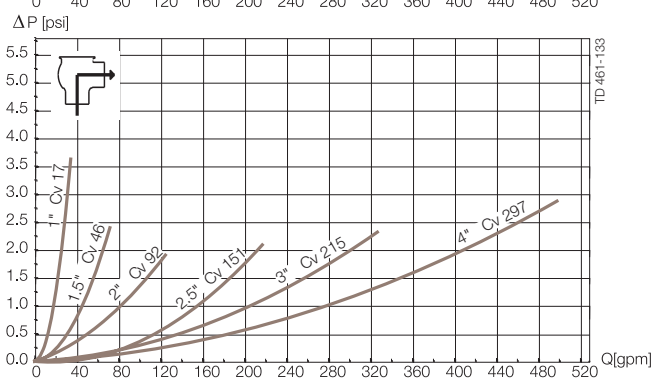
Unique 7000 Series change-over and shut-off valve.

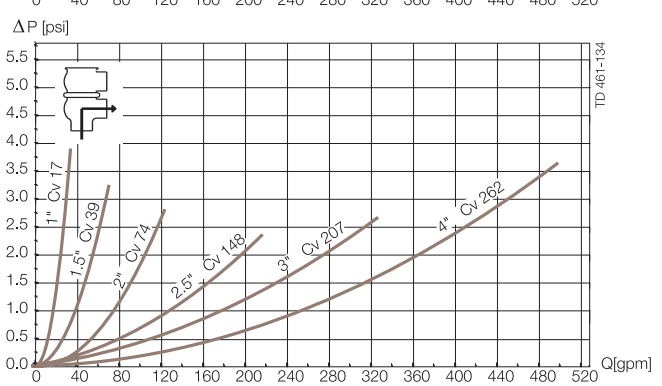
Tri-Clover®

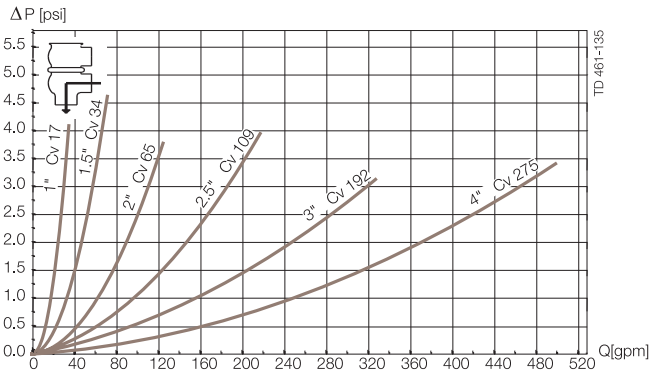
Authorized to carry the 3A symbol

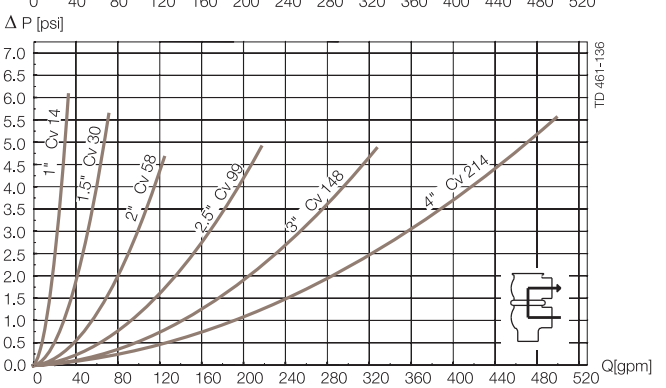
Pressure drop/capacity diagrams

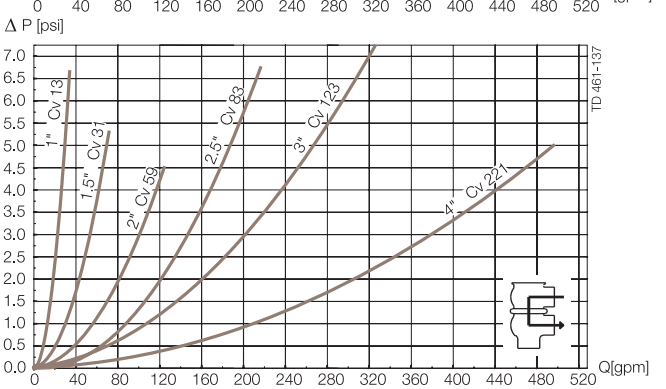












Note!
For the diagrams the following applies:

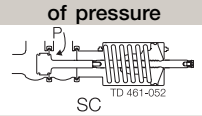
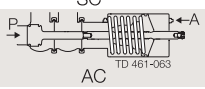
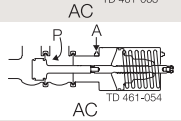
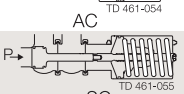
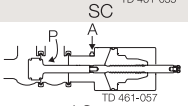
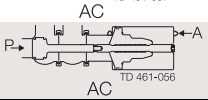
Medium: Water (68° F/20° C)

Measurement: In accordance with VDI2173

Pressure data for Unique 7000 Series valves

Table 1 - Shut-off and change-over valves

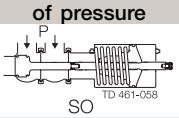
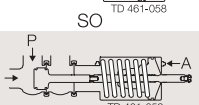
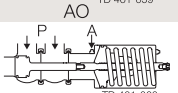
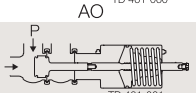
Max. pressure in psi without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure [psi]	Plug position	Valve size					
			1"	1½"	2"	2½"	3"	4"
 SC		NO	145.0	118.9	121.8	65.2	98.6	63.8
 AC	87.6	NO	145.0	110.2	139.2	81.2	104.4	69.6
 AC	87.6	NC	145.0	142.1	145.0	88.4	111.6	72.5
 SC		NC	145.0	91.3	104.4	60.9	92.8	60.9
 AC	87.6	A/A	145.0	145.0	145.0	145.0	145.0	145.0
 AC	87.6	A/A	145.0	145.0	145.0	145.0	145.0	145.0

A = Air
P = Product pressure
AC = Air closes
SC = Spring closes

Table 2 - Shut-off and change-over valves

Max. pressure in psi against which the valve can open.

Actuator / Valve body combination and direction of pressure	Air pressure [psi]	Plug position	Valve size					
			1"	1½"	2"	2½"	3"	4"
 SO		NO	145.0	145.0	145.0	107.3	140.6	91.4
 AO	87.6	NO	145.0	145.0	145.0	120.4	143.6	95.7
 AO	87.6	NC	145.0	145.0	145.0	130.5	145.0	100.1
 SO		NC	145.0	140.6	145.0	98.6	132.0	88.4

A = Air
P = Product pressure
AO = Air opens
SO = Spring opens

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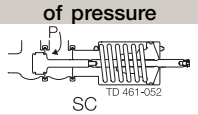
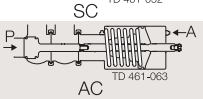
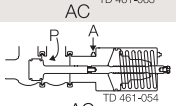
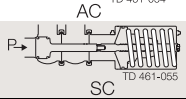
Table 3 - Shut-off and change-over valves with high pressure actuator option

Max. pressure in psi without leakage at the valve seat

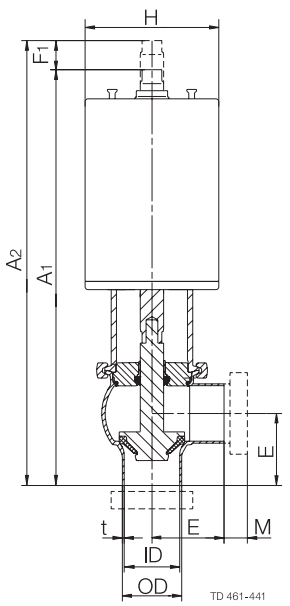
Actuator / Valve body combination and direction of pressure	Air pressure [psi]	Plug position	Valve size					
			1"	1½"	2"	2½"	3"	4"
 SC		NO	145.0	145.0	145.0	145.0	-	-
 AC	87.6	NO	145.0	145.0	145.0	145.0	-	-
 AC	87.6	NC	145.0	145.0	145.0	145.0	72.5	43.5
 SC		NC	145.0	145.0	145.0	139.2	145.0	101.5

A = Air
P = Product pressure
AC = Air closes
SC = Spring closes

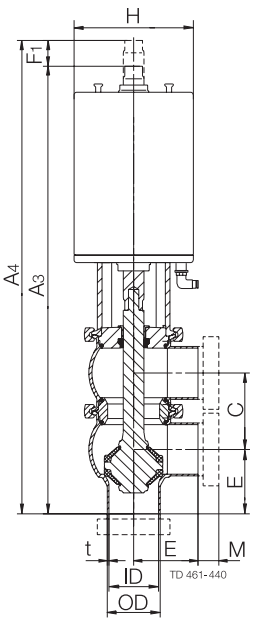
Dimensions

	Nominal Size					
	1"	**1.5"**	**2"**	**2.5"**	**3"**	**4"**
A_1	12.30	12.34	14.31	15.34	16.66	18.44
A_2	12.89	13.13	15.30	16.33	17.8	19.62
A_3	14.19*	14.7	17.22	18.74	20.55	23.31
A_4	14.66*	15.41	18.08	19.61	21.61	24.37
C	1.88	2.39	2.91	3.4	3.89	4.87
OD	1.00	1.50	2.00	2.50	3.00	4.00
ID	0.86	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.06	0.08
E	1.97	1.95	2.44	3.23	3.43	4.72
F_1	0.59	0.79	0.98	0.98	1.18	1.18
F_2	0.47*	0.67	0.87	0.87	1.06	1.06
H	3.35	3.35	4.52	4.52	6.07	6.07
H (high pressure)	3.35	4.52	6.07	6.07	6.07	6.07
M (Tri-Clamp)	0.50	0.50	0.50	0.50	0.50	0.63
Weight (lb)						
Shut-off valve	7.5	7.9	13.2	15.7	28.0	33.5
Change-over valve	4.2’	9.9	16.5	20.5	34.2	43.7

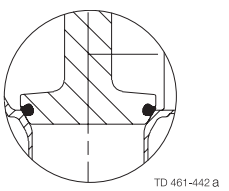
* = only available with replaceable elastomer plug seal.



Shut-off valve



Change-over valve



Replaceable elastomer plug seal

Caution, opening/closing time:

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.

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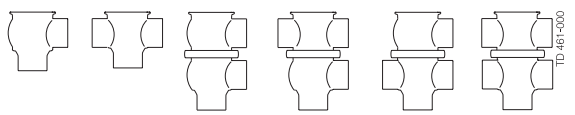
Technical data

Max. product pressure (depending on valve specifications): . . . . . .145 psi (1000 kPa (10 bar)).
Min. product pressure: . . . . . .Full vacuum.
Temperature range: . . . . . .14°F to +284°F (EPDM).
Air pressure: . . . . . .72.5 to 101.5 psi (500 to 700 kPa (5 - 7 bar)).

Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.
- Pneumatic upward and downward movement (A/A).
- Actuator for intermediate position of the valve plug (optional)

Valve Body Combinations



200 300 210 220 310 320

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]

Materials

Product wetted steel parts: . . . . . .AISI 316L (internal Ra < 32 µ inch)
Other steel parts: . . . . . .AISI 304
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 seals: . . . . . .NBR

Options

a. Weld ends or connection types other than Tri-Clamp.
b. Control and Indication: IndiTop, ThinkTop, ThinkTop Basic and GreenTop.
c. Product wetted seals in HNBR or FPM.
d. Replaceable elastomer plug seals.
e. High pressure actuator.
f. Maintainable actuator.
g. External surface finish blasted.

Ordering

Please state the following when ordering:

- Size.
- Connections
- Valve body combination.
- Actuator function: NC, NO or A/A.
- Options.

Note!

For further details, see instruction ESE00213.

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Description Code Unique 7000

Examples:

7610-012M1H40-1SSS-TY-S041 (All Ports Tri-Clamp)
7610-012SNNNNWMM1H40-1SSS-TY-S041
(Combination Ports Weld & Tri-Clamp)

Valve function	Body					Actuation				Stem/ elastomer		Misc.	
1	2	3	4		5	6	7	8	9	10	11	12	13	14
			M											
7610	012	S	S	N N N N W M M	1	H40	1	S	S	S	T	Y	S	04

1 Model

	Code
-- Unique 7000	7610
-- Unique 7000 Aseptic	8610
-- Unique 7000 Tangential Outlet (Horizontal Mounting)	7620
-- Unique 7000 Tank Outlet (Vertical Mounting)	7630
-- Unique 7000 Regulating	7710

2 Body style

	Code
-- Shut-off (2 port)	200
-- Shut-off (3 port)	300
-- Shut-off Tangential Right (2 port)	208
-- Shut-off Tangential Left (2 port)	207
-- Shut-off Tangential Cross (3 port)	309
-- Change Over (3 port)	210
-- Change Over (4 port)	220
-- Change Over (4 port)	310
-- Change Over (5 port)	320
-- Shut-off RA (Reverse Acting) (2 port)	011
-- Shut-off RA (3 port)	021
-- Shut-off RA (3 port)	012
-- Shut-off RA (4 port)	022
-- Change Over RA (3 port)	111
-- Change Over RA (4 port)	211
-- Change Over RA (4 port)	121
-- Change Over RA (4 port)	112
-- Change Over RA (5 port)	212
-- Change Over RA (6 port)	222
-- Y-body	900

3 Build in dimension

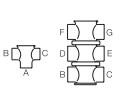
	Code
-- Standard	S
-- 700 Series Build Dimensions (Center-Face; shut-off only)	C

4 Connection Ports - all identical

	Code
-- Weld ends - all ports	W
Tri-Clamp - all ports	M
Threaded Bevel Seat - all ports	T

Connection Ports - mixed

	Code
Mixed connection types	S
-- Weld end	W
-- Tri-Clamp	M
-- Iso Clamp	I
-- Union SMS	S
-- Union DIN	C
-- Din Clamp	D
-- Threaded Bevel Seat	T
-- No port	N



5 Surface Finish

		Code
-- 3A	(OD = Dust blast; ID = 32Ra)	1
-- 3A Bright	(OD = Bright; ID = 32Ra)	2
-- PC (3A)	(OD = Dust blast; ID = 20Ra)	3
-- PL (3A)	(OD = Bright; ID = 20Ra)	4
-- PP (3A)	(OD = Bright; ID = 15Ra)	5
-- PM (3A)	(OD = Bright; ID = 15Ra w/EP)	6

6 Size (Port)

	Code
-- 1-Inch	H10
-- 1½-Inch	H15
-- 2-Inch	H20
-- 2½-Inch	H25
-- 3-Inch	H30
-- 4-Inch	H40

7 Actuation Mode

	Code
-- Norm. Open/Spring to open	1
-- Norm. Open/Spring to open (RA)	2
-- Norm. Closed/Spring to close	2
-- Norm. Closed/Spring to close (RA)	1
-- Air to air	3
-- Two-step/Three Position	4
-- Manual	5

8 Actuator Stroke

	Code
-- Standard	S
-- Long Stroke	L

9 Actuator Type

	Code
-- Maintainable	R
-- Semi maintainable	S

10 Holding Pressure Capability

	Code
-- Standard	S
-- High pressure	H

11 Stem Type

	Code
-- Elastomer Plug Seal	S
-- TR2/PTFE Plug Seal	T

12 Wetted Seal Materials

	Code
-- EPDM	E
-- HNBR	U
-- FPM (Fluoroelastomer)	Y

13 Assembled Valve

	Code
Assembled valve	S

14 Top Unit Type

	Code
IndiTop digital 0 solenoid	IT
ThinkTop digital 1 solenoid	TB
ThinkTop digital 2 solenoid	TC
ThinkTop ASI 0 solenoid	TE
ThinkTop ASI 1 solenoid	TF
ThinkTop ASI 2 solenoid	TG
ThinkTop DeviceNet 0 solenoid	TI
ThinkTop DeviceNet 1 solenoid	TJ
ThinkTop DeviceNet 2 solenoid	TK
ThinkTop Digital 110V 0 solenoid	TM
ThinkTop Digital 110V 1 solenoid	TN
ThinkTop Digital 110V 2 solenoid	TO
GreenTop 2 Mech Switches 0 Solenoid	04
GreenTop 2 Prox Switches 0 Solenoid	12
GreenTop 24 VDC 2 Mech Switches 1 Solenoid	18
GreenTop 110 VAC 2 Mech Switches 0 Solenoid	20
GreenTop 24 VDC 2 Prox Switches 1 Solenoid	34
GreenTop 110 VAC 2 Prox Switches 1 Solenoid	36

TD 461-451

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ESE00173ENUS 0705

The information contained herein is correct at the time of issue, but may be subject to change without prior notice.

How to contact Alfa Laval
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are continually updated on our website.
Please visit www.alfalaval.com to
access the information direct.

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