



# 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".

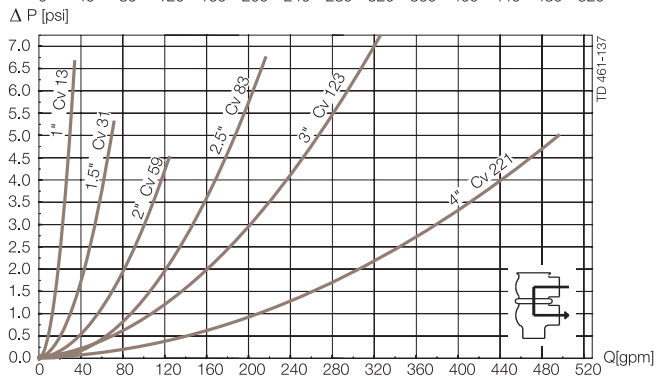
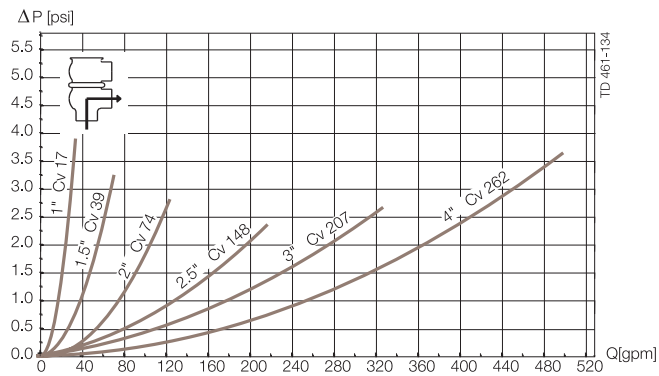
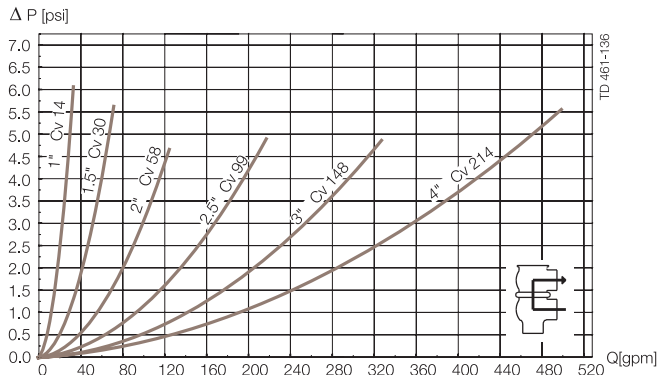
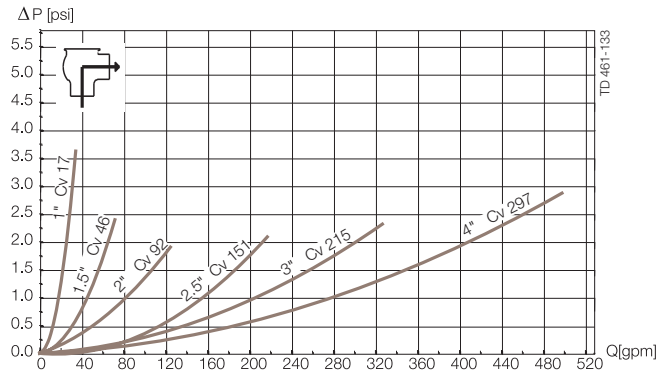
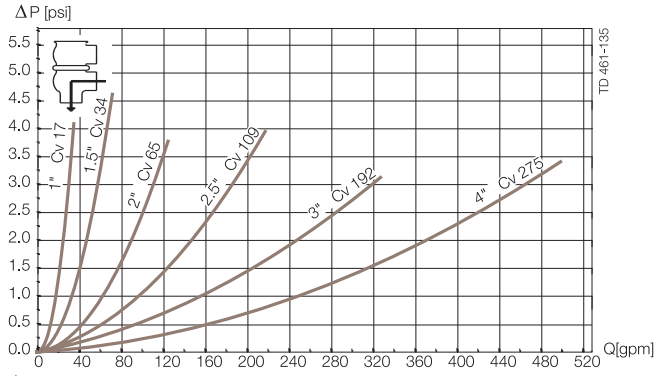
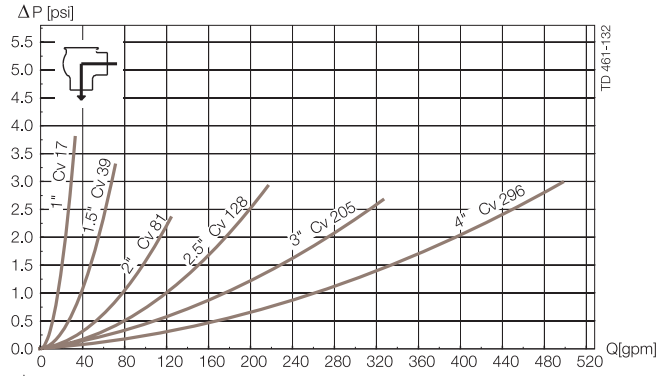
### Other valves in the same basic design

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



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

# Pressure drop/capacity diagrams



**Note!**

For the diagrams the following applies:

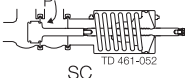
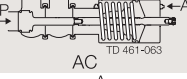
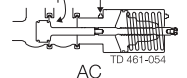
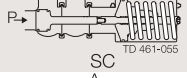
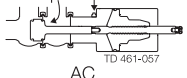
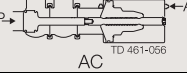
Medium: Water (68° F/20° C)

Measurement: In accordance with VDI2173

## Pressure data for Unique 7000 Series valves

Table 1 - Shut-off and change-over valves

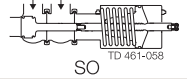
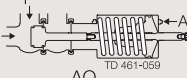
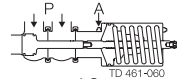
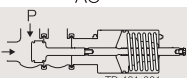
Max. pressure in psi without leakage at the valve seat

| Actuator / Valve body combination and direction of pressure   | Air pressure [psi] | Plug position | Valve size |       |       |       |       |       |
|---|--------------------|---------------|------------|-------|-------|-------|-------|-------|
|   |                    |               | 1"         | 1½"   | 2"    | 2½"   | 3"    | 4"    |
| <br>SC<br>TD 461-052 |                    | NO            | 145.0      | 118.9 | 121.8 | 65.2  | 98.6  | 63.8  |
| <br>AC<br>TD 461-063 | 87.6               | NO            | 145.0      | 110.2 | 139.2 | 81.2  | 104.4 | 69.6  |
| <br>AC<br>TD 461-054 | 87.6               | NC            | 145.0      | 142.1 | 145.0 | 88.4  | 111.6 | 72.5  |
| <br>SC<br>TD 461-055 |                    | NC            | 145.0      | 91.3  | 104.4 | 60.9  | 92.8  | 60.9  |
| <br>AC<br>TD 461-057 | 87.6               | A/A           | 145.0      | 145.0 | 145.0 | 145.0 | 145.0 | 145.0 |
| <br>AC<br>TD 461-056 | 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

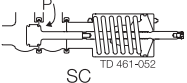
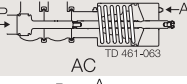
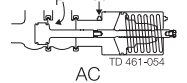
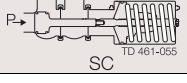
Max. pressure in psi against which the valve can open.

| Actuator / Valve body combination and direction of pressure   | Air pressure [psi] | Plug position | Valve size |       |       |       |       |       |
|---|--------------------|---------------|------------|-------|-------|-------|-------|-------|
|   |                    |               | 1"         | 1½"   | 2"    | 2½"   | 3"    | 4"    |
| <br>SO<br>TD 461-058 |                    | NO            | 145.0      | 145.0 | 145.0 | 107.3 | 140.6 | 91.4  |
| <br>AO<br>TD 461-059 | 87.6               | NO            | 145.0      | 145.0 | 145.0 | 120.4 | 143.6 | 95.7  |
| <br>AO<br>TD 461-060 | 87.6               | NC            | 145.0      | 145.0 | 145.0 | 130.5 | 145.0 | 100.1 |
| <br>SO<br>TD 461-061 |                    | NC            | 145.0      | 140.6 | 145.0 | 98.6  | 132.0 | 88.4  |

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

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

Max. pressure in psi without leakage at the valve seat

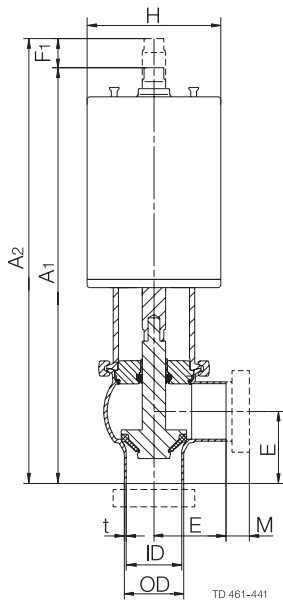
| Actuator / Valve body combination and direction of pressure   | Air pressure [psi] | Plug position | Valve size |       |       |       |       |       |
|---|--------------------|---------------|------------|-------|-------|-------|-------|-------|
|   |                    |               | 1"         | 1½"   | 2"    | 2½"   | 3"    | 4"    |
| <br>SC<br>TD 461-052 |                    | NO            | 145.0      | 145.0 | 145.0 | 145.0 | -     | -     |
| <br>AC<br>TD 461-063 | 87.6               | NO            | 145.0      | 145.0 | 145.0 | 145.0 | -     | -     |
| <br>AC<br>TD 461-054 | 87.6               | NC            | 145.0      | 145.0 | 145.0 | 145.0 | 72.5  | 43.5  |
| <br>SC<br>TD 461-055 |                    | NC            | 145.0      | 145.0 | 145.0 | 139.2 | 145.0 | 101.5 |

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

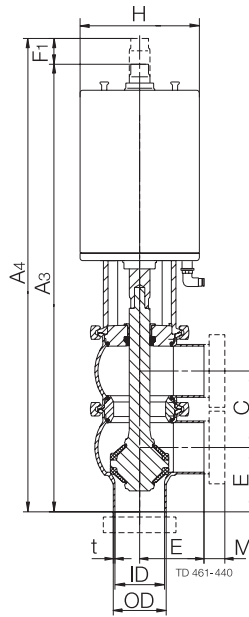
## Dimensions

|                    | Nominal Size |       |       |       |       |       |
|--------------------|--------------|-------|-------|-------|-------|-------|
|                    | 1"           | 1.5"  | 2"    | 2.5"  | 3"    | 4"    |
| A <sub>1</sub>     | 12.30        | 12.34 | 14.31 | 15.34 | 16.66 | 18.44 |
| A <sub>2</sub>     | 12.89        | 13.13 | 15.30 | 16.33 | 17.8  | 19.62 |
| A <sub>3</sub>     | 14.19*       | 14.7  | 17.22 | 18.74 | 20.55 | 23.31 |
| A <sub>4</sub>     | 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 <sub>1</sub>     | 0.59         | 0.79  | 0.98  | 0.98  | 1.18  | 1.18  |
| F <sub>2</sub>     | 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  |
| <b>Weight (lb)</b> |              |       |       |       |       |       |
| 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  |

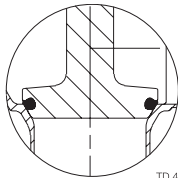
\* = only available with replaceable elastomer plug seal.



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.

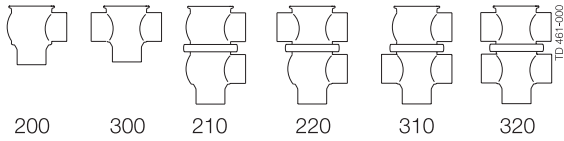
**Technical data**

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**



| Size      | Air Consumption (In <sup>3</sup> free air) for one stroke |                           |                            |
|-----------|---|---------------------------|----------------------------|
|           | 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.

# Description Code Unique 7000

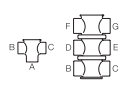
Examples:

7610-012M1H40-1SSS-TY-S041 (All Ports Tri-Clamp)

7610-012SNNNWMM1H40-1SSS-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    |   |   |   |   |    |
| 7610           | 012  | S | M |   |   |   |           |   | 1  | H40 | 1              | S  | S     | S | T | Y | S | 04 |

|   |             |
|---|-------------|
| <b>1 Model</b>  | <b>Code</b> |
| -- 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        |
| <b>2 Body style</b>   | <b>Code</b> |
| -- 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         |
| <b>3 Build in dimension</b>                                 | <b>Code</b> |
| -- Standard   | S           |
| -- 700 Series Build Dimensions (Center-Face; shut-off only) | C           |
| <b>4 Connection Ports - all identical</b>                   | <b>Code</b> |
| -- Weld ends - all ports                                    | W           |
| -- Tri-Clamp - all ports                                    | M           |
| -- Threaded Bevel Seat - all ports                          | T           |
| <b>Connection Ports - mixed</b>                             | <b>Code</b> |
| -- 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           |
| <b>5 Surface Finish</b>                                     | <b>Code</b> |
| -- 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           |
| <b>6 Size (Port)</b>  | <b>Code</b> |
| -- 1-Inch   | H10         |
| -- 1½-Inch  | H15         |
| -- 2-Inch   | H20         |
| -- 2½-Inch  | H25         |
| -- 3-Inch   | H30         |
| -- 4-Inch   | H40         |
| <b>7 Actuation Mode</b>                                     | <b>Code</b> |
| -- 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           |
| <b>8 Actuator Stroke</b>                                    | <b>Code</b> |
| -- Standard   | S           |
| -- Long Stroke  | L           |
| <b>9 Actuator Type</b>                                      | <b>Code</b> |
| -- Maintainable   | R           |
| -- Semi maintainable  | S           |
| <b>10 Holding Pressure Capability</b>                       | <b>Code</b> |
| -- Standard   | S           |
| -- High pressure  | H           |
| <b>11 Stem Type</b>   | <b>Code</b> |
| -- Elastomer Plug Seal                                      | S           |
| -- TRZ/PTFE Plug Seal                                       | T           |
| <b>12 Wetted Seal Materials</b>                             | <b>Code</b> |
| -- EPDM   | E           |
| -- HNBR   | U           |
| -- FPM (Fluoroelastomer)                                    | Y           |
| <b>13 Assembled Valve</b>                                   | <b>Code</b> |
| -- Assembled valve  | S           |
| <b>14 Top Unit Type</b>                                     | <b>Code</b> |
| 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


ESE00173ENUS 0705

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

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access the information direct.

 Authorized to carry  
the 3A symbol