



Simply Unique

Unique 7000 Series Tangential body/Tank valve

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. The Tangential body version offers complete drainability of the valve body on horizontally mounted valves. 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. The tangential body change-over valve would provide full drainability when this valve is horizontally mounted and ported. 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 tangential valve sizes range from 2" to 4".

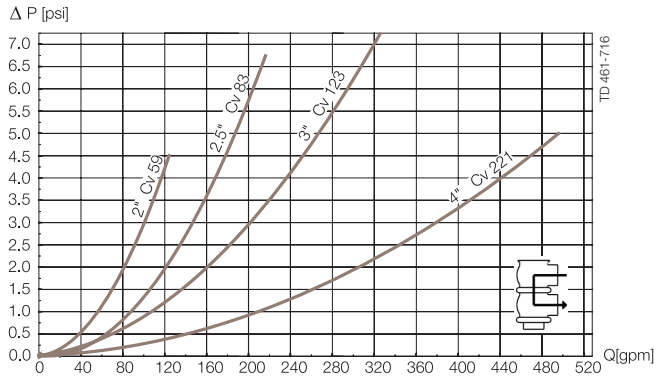
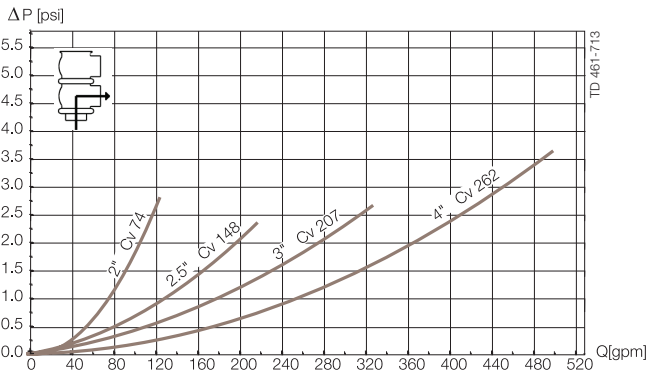
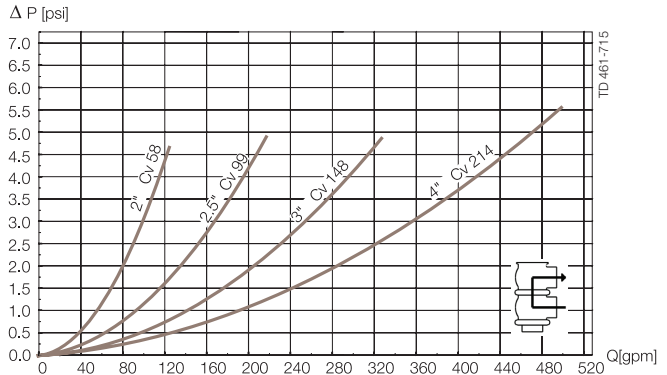
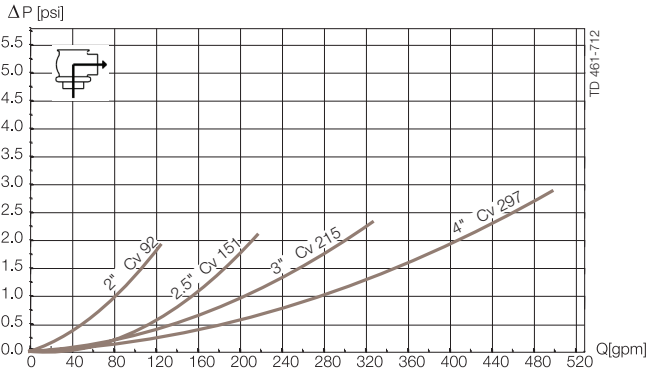
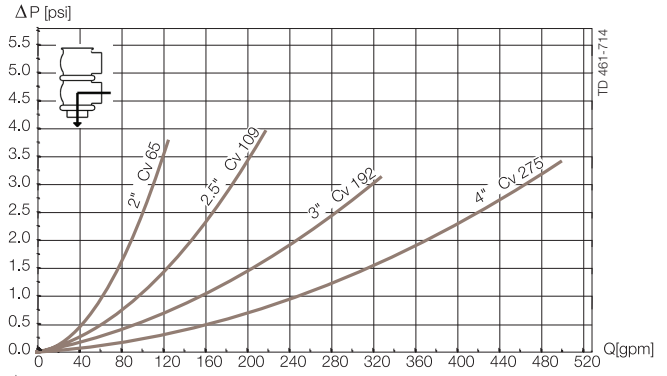
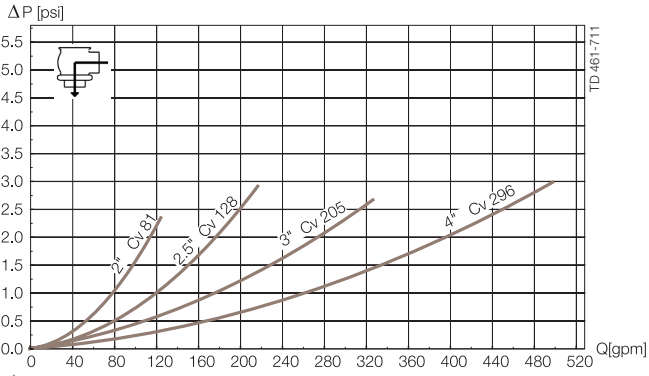
Other valves in the same basic design

- Single seat valve
- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.
- Aseptic valve



Unique 7000 Series - Tangential body/Tank valve.

Pressure drop/capacity diagrams



Note!

For the diagrams the following applies:

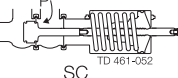
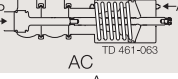
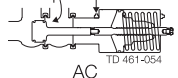
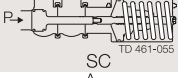
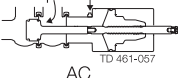
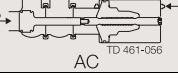
Medium: Water (68° F/20° C)

Measurement: In accordance with VDI2173

Pressure data for Unique 7000 Tangential body/Tank valve

Table 1 - Shut-off and change-over valves

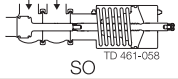
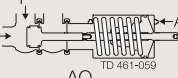
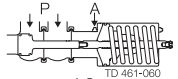
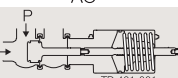
Max. pressure in psi without leakage at the valve seat

| Actuator / Valve body combination and direction of pressure | Air pressure [psi] | Plug position | Valve size | | | |
|---|--------------------|---------------|------------|-----|-----|-----|
| | | | 2" | 2½" | 3" | 4" |
|  SC TD 461-052 | | NO | 122 | 65 | 99 | 64 |
|  AC TD 461-063 | 87 | NO | 139 | 81 | 104 | 70 |
|  AC TD 461-054 | 87 | NC | 145 | 88 | 112 | 73 |
|  SC TD 461-055 | | NC | 104 | 61 | 93 | 61 |
|  AC TD 461-057 | 87 | A/A | 145 | 145 | 145 | 145 |
|  AC TD 461-056 | 87 | A/A | 145 | 145 | 145 | 145 |

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

Table 2 - Shut-off and change-over valves

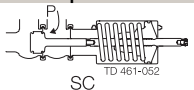
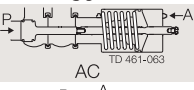
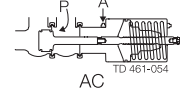
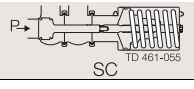
Max. pressure in psi against which the valve can open.

| Actuator / Valve body combination and direction of pressure | Air pressure [psi] | Plug position | Valve size | | | |
|---|--------------------|---------------|------------|-----|-----|-----|
| | | | 2" | 2½" | 3" | 4" |
|  SO TD 461-058 | | NO | 145 | 107 | 141 | 91 |
|  AO TD 461-059 | 87 | NO | 145 | 120 | 144 | 95 |
|  AO TD 461-060 | 87 | NC | 145 | 131 | 145 | 100 |
|  SO TD 461-061 | | NC | 145 | 99 | 132 | 88 |

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

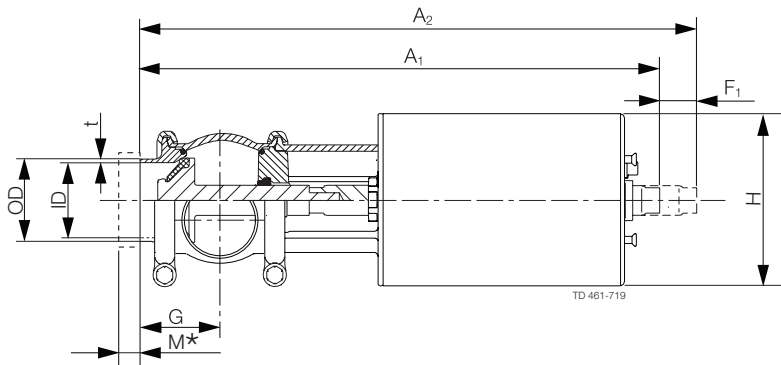
| Actuator / Valve body combination and direction of pressure | Air pressure [psi] | Plug position | Valve size | | | |
|---|--------------------|---------------|------------|-----|-----|-----|
| | | | 2" | 2½" | 3" | 4" |
|  TD 461-052 SC | | NO | 145 | 145 | - | - |
|  TD 461-063 AC | 87 | NO | 145 | 145 | - | - |
|  TD 461-054 AC | 87 | NC | 145 | 145 | 73 | 44 |
|  TD 461-055 SC | | NC | 145 | 139 | 145 | 102 |

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

Dimensions

| | Nominal Size | | | |
|--------------------|--------------|-------|-------|-------|
| | 2" | 2.5" | 3" | 4" |
| A ₁ | 14.31 | 15.34 | 16.66 | 18.44 |
| A ₂ | 15.3 | 16.33 | 17.8 | 19.62 |
| A ₃ | 17.22 | 18.74 | 20.55 | 23.31 |
| A ₄ | 18.08 | 19.61 | 21.61 | 24.37 |
| C | 2.91 | 3.4 | 3.89 | 4.87 |
| OD | 2 | 2.5 | 3 | 4 |
| ID | 1.88 | 2.37 | 2.87 | 3.84 |
| t | 0.06 | 0.06 | 0.06 | 0.08 |
| E | 2.44 | 3.23 | 3.43 | 4.72 |
| G | 2.44 | 3.23 | 3.43 | 4.72 |
| F ₁ | 0.98 | 0.98 | 1.18 | 1.18 |
| F ₂ | 0.87 | 0.87 | 1.06 | 1.06 |
| H | 4.52 | 4.52 | 6.07 | 6.07 |
| N | 0.56 | 0.7 | 0.85 | 0.98 |
| M/Tri Clamp | 0.5 | 0.5 | 0.5 | 0.63 |
| M/SMS male | 0.8 | 0.9 | 0.9 | 1.4 |
| Weight (lb) | | | | |
| Shut-off valve | 12.7 | 15 | 25.9 | 31.1 |
| Change-over valve | 16.3 | 19.8 | 32 | 41.4 |

M*: When Tri-Clamp "M" is included in "G"



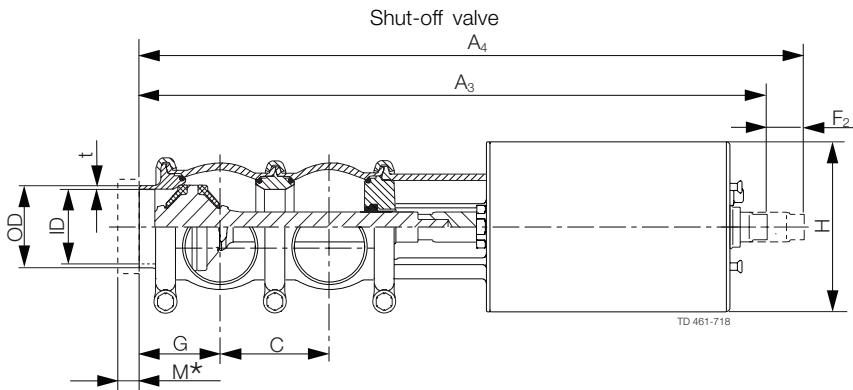
Caution, opening/closing time:

Opening/closing time will be effected by the following:

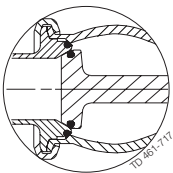
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

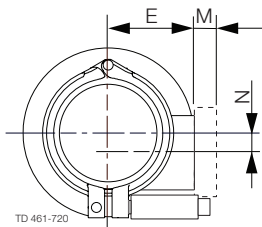
R 1/8" (BSP). Internal thread.



Change-over valve



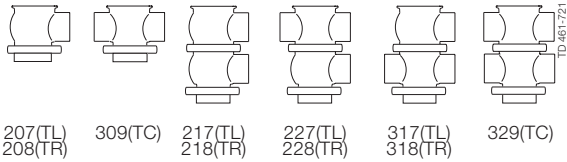
Replaceable elastomer plug seal



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)).

Valve Body Combinations



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)

| Air Consumption (In ³ free air) for one stroke | | |
|---|---------------------------|----------------------------|
| Size | 2"-2½" | 3"-4" |
| NO and NC | 2.17 x air pressure [psi] | 5.51 x air pressure [psi] |
| A/A | 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. Aseptic version.
- d. Product wetted seals in HNBR or FPM.
- e. Replaceable elastomer plug seals.
- f. High pressure actuator.
- g. Manually operated.
- h. NO or A/A actuator.
- i. Long stroke actuator.
- j. Maintainable actuator.
- k. External surface finish blasted.

Ordering

Please state the following when ordering:

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

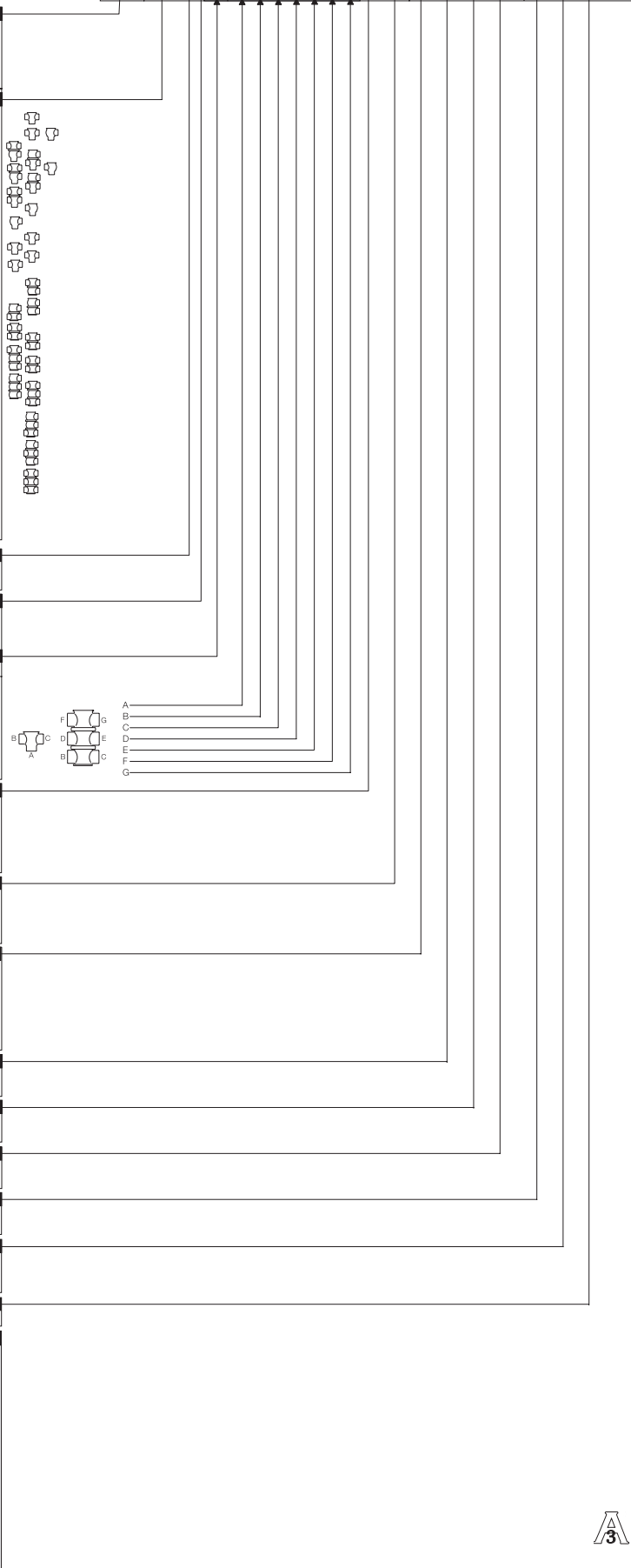
Note!

For further details, see instruction ESE00586.

Description Code Unique 7000

| 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 | 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 TR (2 port) | 208 |
| -- | Shut-off TL (2 port) | 207 |
| -- | Shut-off TC (3 port) | 309 |
| -- | Change Over TR (3 port) | 218 |
| -- | Change Over TL (3 port) | 217 |
| -- | Change Over TR (4 port) | 228 |
| -- | Change Over TL (4 port) | 227 |
| -- | Change Over TR (4 port) | 318 |
| -- | Change Over TL (4 port) | 317 |
| -- | Change Over TC (5 port) | 329 |
| -- | Shut-off RA TR (2 port) | 811 |
| -- | Shut-off RA TL (2 port) | 711 |
| -- | Shut-off RA TR (3 port) | 821 |
| -- | Shut-off RA TL (3 port) | 721 |
| -- | Shut-off RA TR (3 port) | 812 |
| -- | Shut-off RA TL (3 port) | 712 |
| -- | Shut-off RA TC (4 port) | 922 |
| -- | Change Over RA TR (3 port) | 181 |
| -- | Change Over RA TL (3 port) | 171 |
| -- | Change Over RA TR (4 port) | 281 |
| -- | Change Over RA TL (4 port) | 271 |
| -- | Change Over RA TR (4 port) | 151 |
| -- | Change Over RA TL (4 port) | 141 |
| -- | Change Over RA TR (4 port) | 152 |
| -- | Change Over RA TL (4 port) | 142 |
| -- | Change Over RA TR (5 port) | 282 |
| -- | Change Over RA TL (5 port) | 272 |
| -- | Change Over RA TR (5 port) | 162 |
| -- | Change Over RA TL (5 port) | 152 |
| -- | Change Over RA TR (5 port) | 281 |
| -- | Change Over RA TL (5 port) | 231 |
| -- | Change Over RA TC (6 port) | 292 |
| -- | Tankoutlet TR (1 port) | 008 |
| -- | Tankoutlet TL (1 port) | 007 |
| -- | Tankoutlet TC (2 port) | 009 |
| -- | Tankoutlet RA TR (1 port) | 018 |
| -- | Tankoutlet RA TL (1 port) | 017 |
| -- | Tankoutlet RA TC (2 port) | 029 |
| 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 |
| -- | 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 |
| -- | TR/PTFE Plug Seal | T |
| 12 | Wetted Seal Materials | Code |
| -- | EPDM | E |
| -- | HNBR | U |
| -- | FPDM (Fluoroelastomer) | Y |
| 13 | Assembled Valve | Code |
| -- | Assembled valve | S |
| 14 | Top Unit Type | Code |
| -- | ThinkTop digital 0 Solenoid | TA |
| -- | 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 |
| -- | ThinkTop Basic Digital 0 Solenoid | BA |
| -- | ThinkTop Basic Digital 1 Solenoid | BB |
| -- | ThinkTop Basic Digital 2 Solenoid | BC |
| -- | IndiTop digital 0 Solenoid | IT |
| -- | 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 |




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The information contained herein is correct at the time of issue,
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