

# CARTEN®

High Performance Valves & Flow Solutions

## HFC Series

Ultra-High Purity, Cast Stainless Steel  
Bellows Valves



For High Purity Gas and Chemical Distribution Systems

# High Purity Cast Stainless Steel High Flow Bellows Valves

## Product Applications



The HFC series is designed for cost efficient delivery of high purity gases and distribution systems where high flows are demanded with high containment and safe delivery in critical process systems. The HFC's high Cv capacity provides the best flow value and operational costs and makes this range an excellent consideration for:

- High purity process gas distribution system
- Purifier systems
- Filter skid systems
- High purity chemical distribution systems

## Product Features

- High Cv and maximum flow capacity
- Carten UHP bellows valve design for clean and safe media delivery and high life cycle
- Leak rate of  $<1 \times 10^{-9}$  scc/s He
- Available with Purge Connections and Integral Purge Valves

## Material of Construction



| Item | Part                             |
|------|----------------------------------|
| A    | Manual Handle (ABS or Aluminium) |
| B    | Bonnet Stainless Steel           |
| C    | Bellows Inconel® 625 or 316Ti    |
| D    | PCTFE Seat (Optional Polymide)   |
| E    | Seat Holder 316L St. St. EP      |
| F    | Body CF3M 316L St. St. EP        |
| G    | Tube Ends 316L St. St. EP        |

\* Inconel is a registered trademark of Special Metals Corporation.

## HFC Series Technical Specifications

|                               |                            |  |
|-------------------------------|----------------------------|--|
| Maximum Operating Pressure    | HFC Series                 | Vacuum-375 psig (0-25.8 bar)                   |
| Maximum Operating Temperature | PCTFE Seat<br>VespeI® Seat | -22°F (-30°C) to 180°F (82°C)<br>302°F (150°C) |

| Inch Model  |                       | JIS Model   |                       | Cv   |
|-------------|-----------------------|-------------|-----------------------|------|
| Description | Line Size (Body Size) | Description | Line Size (Body Size) |      |
| HFC 500     | .500 (.500)           | HFC 10A     | 10A (.500)            | 5    |
| HFC 750     | .750 (.750)           | HFC 15A     | 15A (.750)            | 14.5 |
| HFC 1000    | 1.000 (.750)          | HFC 20A     | 20A (.750)            | 21   |
| HFC 1015    | 1.000(1.500)          | HFC 25A     | 25A (.750)            | 16   |
| HFC 1500    | 1.500 (1.500)         |             |                       | 28   |
|             |                       | HFC 32A     | 32A (1.000)           | 46   |
|             |                       | HFC 40A     | 40A (1.000)           | 50   |
| HFC 2000    | 2.000 (1.500)         |             |                       | 48   |
|             |                       | HFC 50A     | 50A (1.000)           | 52   |
| HFC 2003    | 2.000 (3.000)         |             |                       | 46   |
| HFC 3000    | 3.000 (3.000)         | HFC 65A     | 65A (2.000)           | 157  |
| HFC 4000    | 4.000 (3.000)         | HFC 80A     | 80A (2.000)           | 210  |
|             |                       | HFC 100A    | 100A (2.000)          | 185  |
| HFC 6000    | 6.000 (4.000)         |             |                       | 175  |
|             |                       | HFC 125A    |                       | 854  |
| HFCP8625    | 8.000 (8.000)         |             |                       | 900  |
|             |                       |             |                       | 2350 |

|                           |   |   |
|---------------------------|---|---|
| Helium Leak Test          | Inboard<br>Across the Seat<br>Outboard Pressure Test  | $<1 \times 10^{-9}$ scc/s He ( $1 \times 10^{-10}$ Pa-M <sup>3</sup> /s)<br>$<1 \times 10^{-9}$ scc/s He ( $1 \times 10^{-10}$ Pa-M <sup>3</sup> /s)<br>$<1 \times 10^{-6}$ scc/s He ( $1 \times 10^{-7}$ Pa-M <sup>3</sup> /s) |
| Cleanliness and Packaging | Assembled and tested in Class 10 Cleanroom. Purged and Final Packaged in Class 10 Cleanroom. Double-bag packaging with Ultra-High Purity N <sub>2</sub> gas environment.  |   |
| Standard Finish           | Electropolished to 10 Ra µin Max (0.25 µm) on all wetted surfaces   |   |
| Options                   | Optional surface finishes available.<br>Purge connections and Purge valves are available as requested.<br>Face seal, twin ferrule compression fittings available up to 1" lines.<br>Higher temperature operation possible up to 150°C (302°F) upon request. |   |

\* VespeI is a registered trademark of DuPont Company.

# Order Information

**HFC - 750 - 065 - 065\* - PV15 - 10 - BL**

| 1      | 2                       | 3                | 4                 | 5                                   | 6              | 7                                  |
|--------|-------------------------|------------------|-------------------|-------------------------------------|----------------|------------------------------------|
| Series | Description (Line Size) | Inlet Connection | Outlet Connection | Purge Type                          | Surface Finish | Handwheel Colour                   |
| HFC    | 500 (1/2")              | 1/2" TE = 049    | 1/2" TE = 049     | PC1 - 1/4" Downstream Purge         | 15Ra EP        | Manual Handle - Blue Colour - BL   |
|        | 750 (3/4")              | 3/4" TE = 065    | 3/4" TE = 065     | PC3 - 1/4" Upstream Purge           | 20Ra           | Manual Handle - Black Colour - BR  |
|        | 1000 (3/4")             | 1" TE = 065      | 1" TE = 065       | PV1 - 1/4" Downstream Valve         | 30Ra           | Manual Handle - Gold Colour - GL   |
|        | 1015 (1")               | 1 1/2" TE = 065  | 1 1/2" TE = 065   | PV2 - 1/4" Up and Downstream Valve  |                | Manual Handle - Green Colour - GR  |
|        | 1500 (1")               | 2" TE = 065      | 2" TE = 065       | PV3 - 1/4" Upstream Valve           |                | Manual Handle - Grey Colour - GY   |
|        | 2000 (1")               | 2 1/2" TE = 065  | 2 1/2" TE = 065   | PC15 - 1/2" Downstream Purge        |                | Manual Handle - Purple Colour - PR |
|        | 2003 (2")               | 3" TE = 065      | 3" TE = 065       | PC25 1/2" - Up and Downstream Purge |                | Manual Handle - Red Colour - RD    |
|        | 3000 (2")               | 4" TE = 065      | 4" TE = 065       | PC35 - 1/2" Upstream Purge          |                | Manual Handle - Silver Colour - SL |
|        | 4000 (2")               | 6" TE = 109      | 6" TE = 109       | PV15 - 1/2" Downstream Valve        |                | Manual Handle - White Colour - WT  |
|        | 3006 (4")               | 3/4" FSM M       | 3/4" FSM M        | PV25 - 1/2" Up and Downstream Valve |                | Manual Handle - Yellow Colour - YL |
|        | 4006 (4")               | 3/4" FSM FM      | 3/4" FSM FM       | PV35 - 1/2" Upstream Valve          |                | Vespel Seat -V                     |
|        | 6000 (4")               | 3/4" FSM M(S)    | 3/4" FSM M(S)     |                                     |                |                                    |
|        | P8625 (8")              | JIS15A           | JIS15A            |                                     |                |                                    |
|        |                         | JIS20A           | JIS20A            |                                     |                |                                    |
|        | JIS25A                  | JIS25A           |                   |                                     |                |                                    |
|        | JIS32A                  | JIS32A           |                   |                                     |                |                                    |
|        | JIS40A                  | JIS40A           |                   |                                     |                |                                    |
|        | JIS50A                  | JIS50A           |                   |                                     |                |                                    |
|        | JIS65A                  | JIS65A           |                   |                                     |                |                                    |
|        | JIS80A                  | JIS80A           |                   |                                     |                |                                    |
|        | JIS100A                 | JIS100A          |                   |                                     |                |                                    |
|        | JIS125A                 | JIS125A          |                   |                                     |                |                                    |

\*Leave blank if the outlet connection is the same as the inlet connection

\*\* Unless otherwise specified, a standard black handwheel is provided with the HFC Series

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