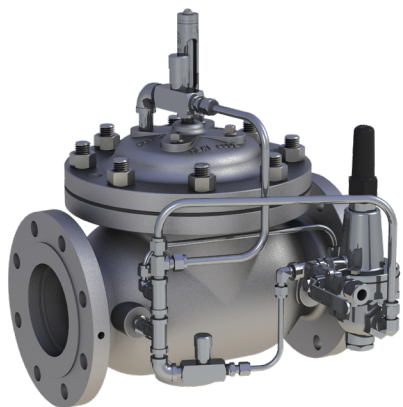


# OCV Model 8104



High Level Shut-Off Valves



General representation



Fueling



Aviation  
Fueling

## High Level Shut-Off Valve

### Description

The high level shut-off valve shall be installed on the inlet line to the tank and shall close when the high level is reached. It shall include a simple, two-way, non-adjustable float pilot to be installed in the tank at the desired tank level and be connected to the main valve by two customer-installed sense lines. The OCV 8104 is applicable anywhere it is necessary to automatically control the high level in storage tanks where the float pilot can be mounted inside the tank.

### Features & Benefits

- Allows tank filling and shuts off on high level
- Remote-mounted float pilot (inside tank)
- Two field-installed lines between valve and float pilot
- Manual tester available on float pilot
- Can be maintained without removal from the line
- Adjustable response speed
- Factory tested and can be preset to your requirements

### Typical Applications

Commercial Airports



Military Bases



Bulk Fuel Storage Tanks



Truck On/Off Loading



### Certification & Compliance

NSF-ISO Quality System (9001)



FM Approved



Joint Certification Program



UFGS-33 52 43.14 Guide Specifications



CE (Conformité Européenne) Compliance



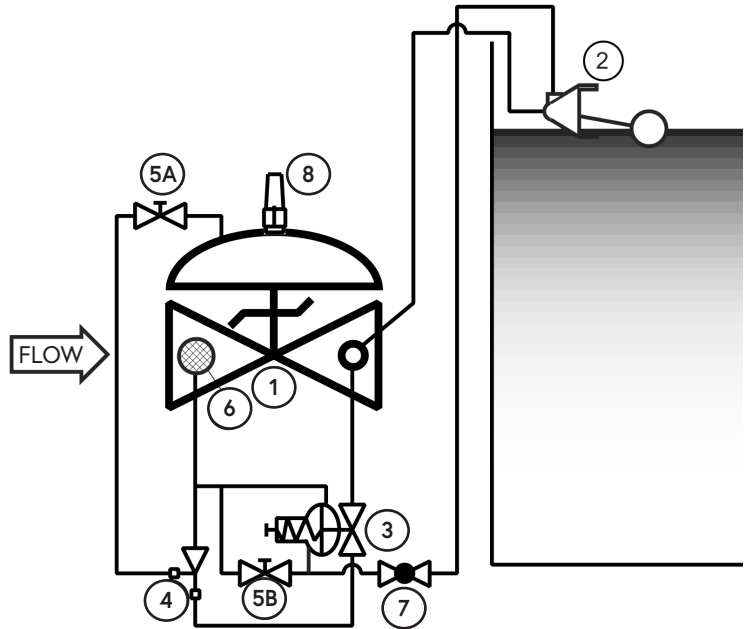
### Operation

The OCV 8104 is designed for tank fill only. A rotary, float-activated pilot controls the position of the normally closed relay pilot, which in turn controls the position of the main valve. With the float in the full down position, the relay pilot is wide open, along with the main valve. When fluid level raises the float to the high level position, flow is blocked, closing the relay pilot and the main valve.

### Components

The OCV 8104 consists of the following components, arranged as shown on the schematic diagram:

- 1 Model 65 Basic Valve (fail closed)
- 2 Two-Way Float Pilot
- 3 Differential Control Pilot
- 4 Ejector
- 5 Needle Valve
- 6 Inline Strainer
- 7 Ball Valve
- 8 Visual Indicator



### Pressure Table

| End Connections                               | Ductile Iron | STEEL/SST | STEEL LCB | STEEL WCB | Aluminum |
|---|--------------|-----------|-----------|-----------|----------|
| Standard (Maximum Working Pressures at 100°F) |              |           |           |           |          |
| Screwed                                       | 640 psi      | 640 psi   | --        | --        | 285 psi  |
| Grooved                                       | 300 psi      | 300 psi   | --        | --        | 200 psi  |
| 150# Flanged                                  | 250 psi      | 285 psi   | --        | --        | 285 psi  |
| 300# Flanged                                  | 640 psi      | 740 psi   | --        | --        | --       |
| Metric (Maximum Working Pressures at 37.78°C) |              |           |           |           |          |
| Screwed                                       | 44.1 bar     | 44.1 bar  | 44.1 bar  | 44.1 bar  | 19.7 bar |
| Grooved                                       | 20.7 bar     | 20.7 bar  | 20.7 bar  | 20.7 bar  | 13.8 bar |
| 150# Flanged                                  | 17.2 bar     | 19.0 bar  | 18.4 bar  | 19.7 bar  | 19.7 bar |
| 300# Flanged                                  | 44.1 bar     | 49.6 bar  | 48.0 bar  | 51.0 bar  | --       |

Based on ANSI flange ratings.

## Flow Chart

| Standard Size<br>Max. Flow (GPM)              | 1 1/4" | 1 1/2" | 2"   | 2 1/2" | 3"   | 4"    | 6"    | 8"    | 10"   | 12"   | 14"   | 16"   | 18"   | 20"   | 24"   |
|---|--------|--------|------|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 7.5 FT/SEC<br>(Military)                      | 40     | 50     | 80   | 120    | 180  | 300   | 680   | 1200  | 1850  | 2650  | 3200  | 4150  | 5250  | 6550  | 9400  |
| 15 FT/SEC<br>(Max.<br>Recommended)            | 70     | 100    | 160  | 230    | 350  | 600   | 1350  | 2350  | 3700  | 5250  | 6350  | 8300  | 10500 | 13100 | 18800 |
| 20 FT/SEC<br>(Max.<br>Continuous)             | 100    | 130    | 210  | 300    | 470  | 800   | 1800  | 3150  | 4950  | 7000  | 8450  | 11100 | 14000 | 17400 | 25100 |
| Metric Size<br>Max. Flow (m <sup>3</sup> /hr) | DN32   | DN40   | DN50 | DN65   | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN350 | DN400 | DN450 | DN500 | DN600 |
| 2.29 M/SEC<br>(Military)                      | 9      | 11     | 18   | 27     | 41   | 68    | 154   | 272   | 420   | 602   | 726   | 942   | 1192  | 1487  | 2134  |
| 4.57 M/SEC<br>(Max.<br>Recommended)           | 16     | 23     | 36   | 52     | 79   | 136   | 306   | 533   | 840   | 1192  | 1441  | 1884  | 2384  | 2974  | 4268  |
| 6.10 M/SEC<br>(Max.<br>Continuous)            | 23     | 30     | 48   | 68     | 107  | 182   | 409   | 715   | 1124  | 1589  | 1918  | 2520  | 3178  | 3950  | 5698  |

The OCV 8104 is normally sized to match the meter size; however, in no case should the maximum velocity exceed 20 ft/sec (metric: 6.10 meters/sec).

Resetting, maintenance and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

## Typical Materials

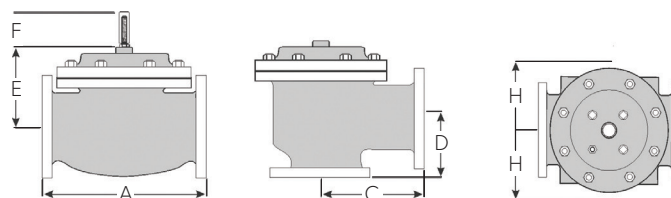
| Part                          | Standard Material   |
|-------------------------------|---|
| Body/Bonnet                   | Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, Aluminum |
| Seat Ring                     | Stainless Steel, Bronze   |
| Stem                          | Stainless Steel, Monel  |
| Spring                        | Stainless Steel   |
| Diaphragm                     | Buna-N, Viton (Nylon reinforced)  |
| Seat Disc                     | Buna-N, Viton   |
| Pilot                         | Stainless Steel, Bronze   |
| Other Pilot System Components | Stainless Steel, Bronze/Brass   |
| Tubing & Fittings             | Stainless Steel, Copper/Brass   |

## General Arrangement & Dimensions

| Standard Sizes |           |                 |       |        |        |         |        |          |         |        |        |          |        |
|----------------|-----------|-----------------|-------|--------|--------|---------|--------|----------|---------|--------|--------|----------|--------|
| DIM            | END CONN. | 1 1/4" - 1 1/2" | 2"    | 2 1/2" | 3"     | 4"      | 6"     | 8"       | 10"     | 12"    | 14"    | 16"      | 24"    |
| A              | SCREWED   | 8 3/4           | 9 7/8 | 10 1/2 | 13     | ---     | ---    | ---      | ---     | ---    | ---    | ---      | ---    |
|                | GROOVED   | 8 3/4           | 9 7/8 | 10 1/2 | 13     | 15 1/4  | 20     | ---      | ---     | ---    | ---    | ---      | ---    |
|                | 150# FLGD | 8 1/2           | 9 3/8 | 10 1/2 | 12     | 15      | 17 3/4 | 25 3/8   | 29 3/4  | 34     | 39     | 40 3/8   | 62     |
|                | 300# FLGD | 8 3/4           | 9 7/8 | 11 1/8 | 12 3/4 | 15 5/8  | 18 5/8 | 26 3/8   | 31 1/8  | 35 1/2 | 40 1/2 | 42       | 63 3/4 |
| C<br>ANGLE     | SCREWED   | 4 3/8           | 4 3/4 | 6      | 6 1/2  | ---     | ---    | ---      | ---     | ---    | ---    | ---      | ---    |
|                | GROOVED   | 4 3/8*          | 4 3/4 | 6      | 6 1/2  | 7 5/8   | ---    | ---      | ---     | ---    | ---    | ---      | ---    |
|                | 150# FLGD | 4 1/4           | 4 3/4 | 6      | 6      | 7 1/2   | 10     | 12 11/16 | 14 7/8  | 17     | ---    | 20 13/16 | ---    |
|                | 300# FLGD | 4 3/8           | 5     | 6 3/8  | 6 3/8  | 7 13/16 | 10 1/2 | 13 3/16  | 15 9/16 | 17 3/4 | ---    | 21 5/8   | ---    |
| D<br>ANGLE     | SCREWED   | 3 1/8           | 3 7/8 | 4      | 4 1/2  | ---     | ---    | ---      | ---     | ---    | ---    | ---      | ---    |
|                | GROOVED   | 3 1/8*          | 3 7/8 | 4      | 4 1/2  | 5 5/8   | ---    | ---      | ---     | ---    | ---    | ---      | ---    |
|                | 150# FLGD | 3               | 3 7/8 | 4      | 4      | 5 1/2   | 6      | 8        | 11 3/8  | 11     | ---    | 15 11/16 | ---    |
|                | 300# FLGD | 3 1/8           | 4 1/8 | 4 3/8  | 4 3/8  | 5 13/16 | 6 1/2  | 8 1/2    | 12 1/16 | 11 3/4 | ---    | 16 1/2   | ---    |
| E              | ALL       | 6               | 6     | 7      | 6 1/2  | 8       | 10     | 11 7/8   | 15 3/8  | 17     | 18     | 19       | 27     |
| F (OPT)        | ALL       | 3 7/8           | 3 7/8 | 3 7/8  | 3 7/8  | 3 7/8   | 3 7/8  | 6 3/8    | 6 3/8   | 6 3/8  | 6 3/8  | 6 3/8    | 8      |
| H              | ALL       | 10              | 11    | 11     | 11     | 12      | 13     | 14       | 17      | 18     | 20     | 20       | 28 1/2 |

| Metric Sizes |           |         |      |      |      |       |       |       |       |       |       |       |       |
|--------------|-----------|---------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| DIM          | END CONN. | DN32-40 | DN50 | DN65 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN350 | DN400 | DN600 |
| A            | SCREWED   | 222     | 251  | 267  | 330  | ---   | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | GROOVED   | 222     | 251  | 267  | 330  | 387   | 508   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | 150# FLGD | 216     | 238  | 267  | 305  | 381   | 451   | 645   | 756   | 863   | 991   | 1026  | 1575  |
|              | 300# FLGD | 222     | 251  | 283  | 324  | 397   | 473   | 670   | 791   | 902   | 1029  | 1067  | 1619  |
| C<br>ANGLE   | SCREWED   | 111     | 121  | 152  | 165  | ---   | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | GROOVED   | 111*    | 121  | 152  | 165  | 194   | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | 150# FLGD | 108     | 121  | 152  | 152  | 191   | 254   | 322   | 378   | 432   | ---   | 529   | ---   |
|              | 300# FLGD | 111     | 127  | 162  | 162  | 198   | 267   | 335   | 395   | 451   | ---   | 549   | ---   |
| D<br>ANGLE   | SCREWED   | 79      | 98   | 102  | 114  | ---   | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | GROOVED   | 79*     | 98   | 102  | 114  | 143   | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|              | 150# FLGD | 76      | 98   | 102  | 102  | 140   | 152   | 203   | 289   | 279   | ---   | 398   | ---   |
|              | 300# FLGD | 79      | 105  | 111  | 111  | 148   | 165   | 216   | 306   | 298   | ---   | 419   | ---   |
| E            | ALL       | 152     | 152  | 178  | 165  | 203   | 254   | 302   | 391   | 432   | 457   | 483   | 686   |
| F (OPT)      | ALL       | 98      | 98   | 98   | 98   | 98    | 98    | 162   | 162   | 162   | 162   | 162   | 203   |
| H            | ALL       | 254     | 279  | 279  | 279  | 305   | 330   | 356   | 432   | 457   | 508   | 508   | 724   |

\*Grooved End not available in 1 1/4" (DN32).



### Technical Data

| Temperature (Elastomers)                        |  |
|---|--|
| Buna-N  | -40°F to 180°F                             |
| Viton   | 20°F to 230°F                              |
| Fluorosilicone                                  | -40°F to 150°F                             |
| EPDM  | 0°F to 230°F                               |
| Sizes   |  |
| Screwed Ends                                    | 1-1/4" - 3"                                |
| Grooved Ends                                    | 1-1/2" - 6" (globe & angle)                |
| Flanged Ends                                    | 1-1/4" - 24" (globe); 1-1/4" - 16" (angle) |
| Pressure Rating (ANSI at 100°F)                 |  |
| 250psi for Class 150# ANSI Flanged Ductile Iron |  |
| 285psi for Steel/Stainless Steel & Aluminum     |  |
| 300# ANSI Flanges are available                 |  |
| Solenoid Voltage                                |  |
| Enclosure                                       | Explosion Proof NEMA 4X, 6P, 7, 9          |
| Body  | Brass, Stainless Steel                     |
| Voltages  | 24, 120, 240, 480 VAC; 12, 24 VDC          |

| Body & Cover Material             |
|-----------------------------------|
| Ductile Iron                      |
| Carbon Steel                      |
| Stainless Steel                   |
| Aluminum                          |
| Trim Material                     |
| Bronze/Brass                      |
| Stainless Steel                   |
| Copper                            |
| Optional Components               |
| Two-Stage Opening                 |
| Visual Indicator                  |
| Pre-Wired Junction Box            |
| Items to Specify                  |
| Fluid Type                        |
| Model Number                      |
| Size                              |
| Body & Trim Material              |
| Solenoid Voltage                  |
| Globe or Angle                    |
| Special Installation Requirements |

### Engineering Specifications

The high level shut-off valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. These, and other parts, shall be replaceable without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet, and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall the pistons be used as an operating means. The pilot system shall include a relay pilot, a speed control, an inline strainer, and an isolation ball valve. The float pilot shall be furnished separately for remote mounting in the tank. The high level shut-off valve shall be

operationally and hydrostatically tested prior to shipment. The main valve body and bonnet shall be ductile iron. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be stainless steel. Elastomers (diaphragms, resilient seats and o-rings) shall be Buna-N. The float pilot shall be stainless steel, as shall the 5" spherical float, relay pilot, pilot system accessories, and control line tubing. The high level shut-off valve shall be suitable for operation on <voltage> (see Technical Data section). The high level shut-off valve shall be suitable for pressures of <X to X> psi (see Pressure Table) at flow rates up to <X> gpm (see Flow Chart). The high level shut-off valve shall be an OCV 8104, as manufactured by OCV, Tulsa, OK, USA.