

OCV Model 66TS



High Level Shut-Off/Special Application Valves



General representation



Fueling



Aviation
Fueling

Tank Safety Valve

Description

The tank safety valve shall operate by means of hydraulic pressure from the transfer pump discharge. The valve shall open on positive pressure and close on loss of pressure. It shall be equipped to relieve downstream to upstream in the event of thermal buildup. It shall be equipped with a manual opening feature and valve position indicator.

The OCV 66TS is designed to automatically isolate a fuel storage tank from its loading terminal or product transfer point. Hydraulically linked to the delivery pump, the valve is open only when the pump runs and is effectively producing pressure. The valve will automatically close when the pump is off, fails to produce pressure, or in the event of a line rupture.

Features & Benefits

- Totally hydraulic operation; no electrical connections
- Dual chamber, full open, low pressure drop design
- Thermal relief of excess downstream pressure
- Provides anti-siphon protection
- Capable of manual operation
- Can be maintained without removal from the line
- Valve position indicator standard
- Factory tested

Typical Applications

Commercial Airports



Military Bases



Bulk Fuel Storage Tanks



Truck On/Off Loading



Certification & Compliance

NSF-ISO Quality System (9001)



ABS Type Approval



Joint Certification Program



UFGS-33 52 43.14 Guide Specifications



CE (Conformité Européenne) Compliance



Operation

The OCV 66TS is built on a dual diaphragm chamber valve design. It is opened and closed by pressure applied to either side of the diaphragm. The lower chamber receives pressure from pump discharge and acts to open the valve, while loss of this pressure allows the valve spring to close the valve.

Opening Cycle: When the pump discharge pressure reaches 5 psi over tank head, the valve begins to open. It is fully open when pump discharge is 15 psi over tank head.

Closing Cycle: Valve closing will start when pump discharge pressure drops for any reason to tank head. This may be due to normal pump shut down, pump failure, or line rupture.

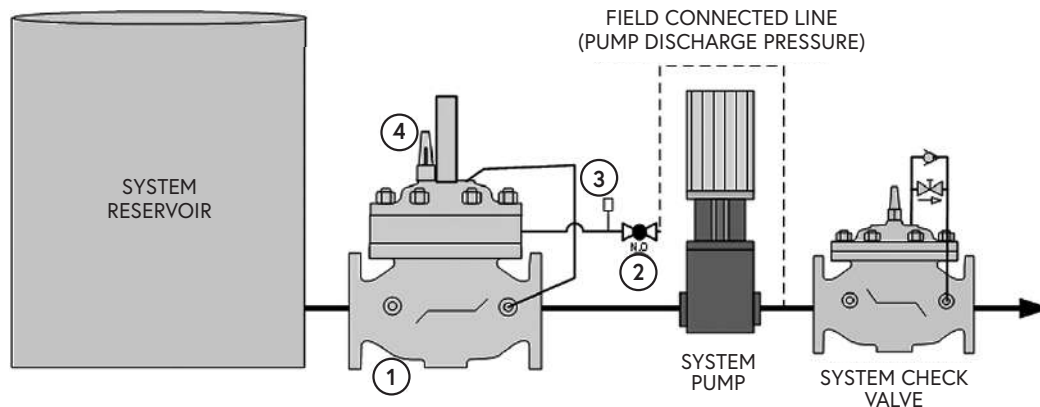
Manual Opening: The valve is equipped with a Schrader air valve to enable connection of a pressure source (hand pump, low pressure air bottle, etc.) to open the valve.

Thermal Relief: Pressure buildup of 6-10 psi (above tank head) in the downstream piping will automatically be relieved back through the valve to the tank.

Components

The OCV 66TS consists of the following components, arranged as shown on the schematic diagram:

- 1 66TS Main Valve
- 2 Ball Valve
- 3 Schrader Valve
- 4 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 Max. Flow (GPM) | 2" | 3" | 4" | 6" | 8" | 10" | 12" | 16" |
|---|------|------|-------|-------|-------|-------|-------|-------|
| 20 FT/SEC (Max. Continuous) | 200 | 460 | 800 | 1800 | 3100 | 4900 | 7000 | 11000 |
| Valve Cv | 47 | 120 | 200 | 450 | 750 | 1250 | 1960 | 2850 |
| Metric Size Max. Flow (m ³ /hr) | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN400 |
| 6.10 M/SEC (Max. Continuous) | 45 | 105 | 182 | 409 | 681 | 954 | 1363 | 2180 |
| Valve Cv | 41 | 104 | 173 | 389 | 649 | 1080 | 1695 | 2465 |

The size of the OCV 66TS is typically the same as the pump suction line; 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 |
| 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 |

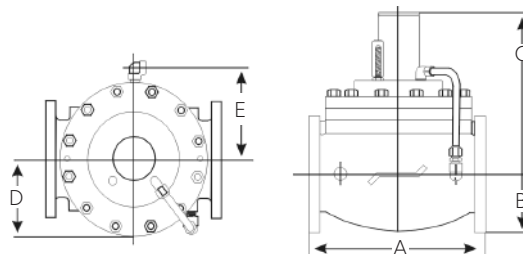
General Arrangement & Dimensions

| Standard Sizes | | | | | | | | | |
|----------------|-------------|----|-------|-------|--------|-------|-------|-------|-------|
| DIM | ANSI FLANGE | 2" | 3" | 4" | 6" | 8" | 10" | 12" | 16" |
| A | 150# | -- | 12 | 15 | 17.75* | 25.38 | 29.75 | 34 | 40.38 |
| | 300# | -- | 12.75 | 15.62 | 18.62* | 26.38 | 31.12 | 35.50 | 42 |
| B | 150# | -- | 3.75 | 4.50 | 5.50 | 6.75 | 8 | 9.50 | 11.75 |
| | 300# | -- | 4.12 | 5 | 6.25 | 7.50 | 8.75 | 10.25 | 12.75 |
| C | ALL | -- | 10.75 | 13.50 | 17.50 | 20 | 23 | 25 | 32 |
| D | ALL | -- | 4.38 | 5.88 | 7 | 10.5 | 12.25 | 14 | 17.25 |
| E | ALL | -- | 5.12 | 6.38 | 8.62 | 12 | 14 | 16 | 19.25 |

*Note: for military fueling valves, 6" 150# flanges have 20" face to face dimensions and 6" 300# flanges have 21" face to face dimensions.

| Metric Sizes | | | | | | | | | |
|--------------|-------------|------|------|-------|-------|-------|-------|-------|-------|
| DIM | ANSI FLANGE | DN50 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN400 |
| A | 150# | 238 | 305 | 381 | 451* | 645 | 756 | 864 | 1026 |
| | 300# | 251 | 324 | 397 | 473* | 670 | 791 | 902 | 1067 |
| B | 150# | 76 | 95 | 114 | 140 | 171 | 203 | 241 | 298 |
| | 300# | 83 | 105 | 127 | 159 | 191 | 222 | 260 | 324 |
| C | ALL | 250 | 273 | 343 | 445 | 508 | 584 | 635 | 813 |
| D | ALL | 86 | 111 | 149 | 178 | 267 | 311 | 356 | 438 |
| E | ALL | 105 | 130 | 162 | 219 | 305 | 356 | 406 | 489 |

*Note: for military fueling valves, 6" (DN150) 150# flanges have 20" (508 mm) face to face dimensions and 6" (DN150) 300# flanges have 21" (533.4 mm) face to face dimensions.



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 | 2" - 3" |
| Grooved Ends | 2" - 6" (globe); 2" - 4" (angle) |
| Flanged Ends | 2" - 16" (globe & 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 tank safety valve shall be a single-seated, dual chamber, diaphragm actuated, 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, lower chamber 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 tank safety 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 tank safety valve shall be suitable for operation on <voltage> (see Technical Data section). The tank safety 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 tank safety valve shall be an OCV 66TS, as manufactured by OCV, Tulsa, OK, USA.