

SSP

Lift Check Valves



SSP

LC Series

- ✓ Working Pressures up to 6000 psig (413 bar)
- ✓ Temperature Range from -100 to 900°F (-73 to 482°C)
- ✓ Flow Coefficients up to 1.10
- ✓ Wide variety of end connection types and sizes
- ✓ End connection sizes from 1/8 to 3/4 in. (6 to 12 mm)

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At SSP, we are proud to be an American manufacturing success story.

100% of our products are made in America. All of our manufacturing is performed in our 165,000 sq. ft. facility located near Cleveland, Ohio. Our facility is the largest vertically integrated, single-site operation in the industry. In addition to manufacturing and assembly, we have closed die forging, tool & die design, product engineering and testing operations under the same roof with customer service and management.

Made in America is good business. Not only do we make everything in America, we use American suppliers too. Buying American allows us to have better quality control and a more reliable supply chain. We can work more closely within our walls and with our suppliers to improve quality, reduce costs, and shorten lead times, which means faster service and better products for you.

SSP Industry Standard Products.
Made Better.

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LC Series Lift Check Valves

LC Series lift check valve's all-metal design is suitable for extreme temperatures found in power, oil & gas, chemical, petrochemical, pulp & paper, and laboratory applications. LC Series valves use gravity and back pressure to prevent reverse flow to less than 0.1% of forward flow. Applications include:

- Grab samples
- Industrial engines
- Separators
- Nozzles
- Emissions analyzers

Temperature-Pressure

| MATERIAL | 316 SS |
|-------------------------|---------------------|
| TEMPERATURE °F (°C) | PRESSURE PSIG (BAR) |
| -100 to 100 (-73 TO 37) | 6000 (413) |
| 200 (93) | 5160 (355) |
| 250 (121) | 4910 (338) |
| 300 (148) | 4660 (321) |
| 350 (176) | 4470 (308) |
| 400 (204) | 4280 (295) |
| 450 (232) | 4130 (284) |
| 500 (260) | 3980 (274) |
| 550 (287) | 3870 (266) |
| 600 (315) | 3760 (259) |
| 650 (343) | 3700 (255) |
| 700 (371) | 3600 (248) |
| 750 (398) | 3520 (242) |
| 800 (426) | 3460 (238) |
| 850 (454) | 3380 (233) |
| 900 (482) | 3280 (226) |

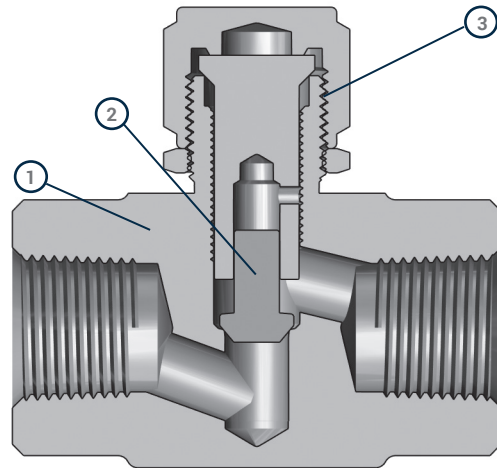


Important Installation Note

The operation of LC Series lift check valves is assisted by gravity. Valves must be mounted horizontally with the bonnet on top.

Product Design

- 1 All Stainless Steel Construction**
 - Metal to metal seal
 - No O-rings or springs
 - Forged body
 - Temperatures up to 900°F (482°C)
- 2 Simple Poppet Design**
 - Forward flow opens the valve
 - Reverse flow/gravity closes the valve
 - Reverse flow coefficient is less than 0.1% of forward flow coefficient
- 3 Compact Design**
 - Suitable for tight spaces
 - One piece body - fewer potential leak points

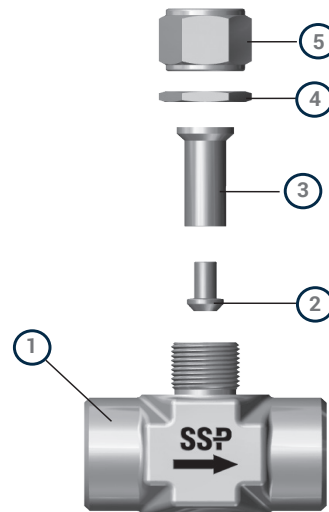


Meets ASME B31.1 and B31.3 design pressure calculations

Materials of Construction

| ID | COMPONENT | MATERIAL/SPECIFICATION |
|----|------------|------------------------|
| 1 | *Body | 316 SS/A182 |
| 2 | *Poppet | 17-4 PH/A564 |
| 3 | *Bonnet | 316 SS/A276 |
| 4 | Lock Nut | 316 SS/A276 |
| 5 | Bonnet Nut | 316 SS/A276 |

*Wetted components



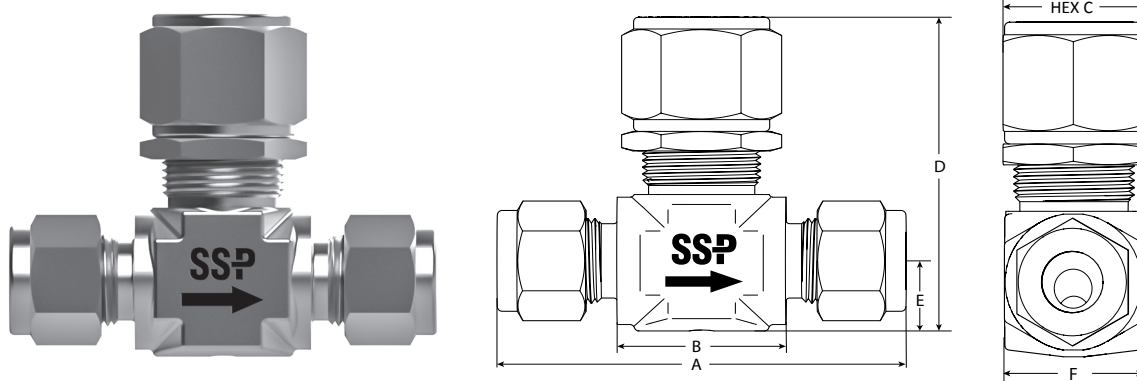
Ordering Information

To order LC Series valves, follow the steps below.

- 1** Locate the basic ordering number that corresponds to the inlet and outlet sizes and types and the Cv required for your application. *Example LC6-D6*
Note: SSP offers three tube fitting designs. Duolok 2-ferrule tube ends are standard. To specify Unilok single-ferrule end connections or Griplok dual-ferrule end connections see page 6.
- 2** Add "-316" for 316 Stainless Steel. Other material are available on request.
Example LC6-D6-316
- 3** Select options from the options on page 6. Add them in alphabetical order after the body material designator.
Example: LC6-D6-316-XP98

Note: To order product configurations that are not shown in the table use the special order chart on page 6.

Part Numbers and Dimensions



| END CONNECTION | | | BASIC PART NUMBER | VALVE SIZE | CV | ORIFICE IN. (MM) | DIMENSIONS | | | | | |
|-------------------------|------------|-------------|-------------------|------------|------|------------------|-------------|-------------|--------------|------------|-------------|-------------|
| TYPE | INLET SIZE | OUTLET SIZE | | | | | A | B | C | D | E | F |
| Fractional Tube Fitting | 1/4 in. | 1/4 in. | LC4-D4 | LC4 | 0.34 | 0.172 (4.36) | 2.40 (60.9) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 3/8 in. | 3/8 in. | LC4-D6 | LC4 | 0.34 | 0.172 (4.36) | 2.40 (60.9) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 3/8 in. | 3/8 in. | LC6-D6 | LC6 | 0.73 | 0.250 (6.35) | 2.58 (65.5) | 1.12 (28.4) | 0.875 (22.2) | 2.1 (53.3) | 0.44 (11.1) | 0.87 (22.1) |
| | 1/2 in. | 1/2 in. | LC6-D8 | LC6 | 0.73 | 0.250 (6.35) | 2.80 (71.1) | 1.12 (28.4) | 0.875 (22.2) | 2.1 (53.3) | 0.44 (11.1) | 0.87 (22.1) |
| | 1/2 in. | 1/2 in. | LC8-D8 | LC8 | 1.10 | 0.343 (8.71) | 2.80 (71.1) | 1.12 (28.4) | 0.875 (22.2) | 2.5 (63.5) | 0.44 (11.1) | 1.49 (37.8) |
| | 3/4 in. | 3/4 in. | LC8-D12 | LC8 | 1.10 | 0.343 (8.71) | 3.43 (87.1) | 1.69 (42.9) | 0.875 (22.2) | 2.5 (63.5) | 0.75 (19.0) | 1.49 (37.8) |
| Metric Tube Fitting | 6 mm | 6 mm | LC4-DM6 | LC4 | 0.34 | 0.172 (4.36) | 2.40 (60.9) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| Female NPT | 1/8 in. | 1/8 in. | LC4-2PF | LC4 | 0.34 | 0.172 (4.36) | 1.82 (46.2) | - | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 1/4 in. | 1/4 in. | LC4-4PF | LC4 | 0.34 | 0.172 (4.36) | 2.0 (50.8) | - | 0.625 (15.8) | 1.7 (43.1) | 0.40 (10.1) | 0.68 (17.2) |
| | 1/4 in. | 1/4 in. | LC6-4PF | LC6 | 0.73 | 0.250 (6.35) | 2.30 (58.4) | - | 0.875 (22.2) | 2.1 (53.3) | 0.44 (11.1) | 0.87 (22.1) |
| | 3/8 in. | 3/8 in. | LC6-6PF | LC6 | 0.73 | 0.250 (6.35) | 2.50 (63.5) | - | 0.875 (22.2) | 2.1 (53.3) | 0.75 (19.0) | 0.87 (22.1) |
| | 3/8 in. | 3/8 in. | LC8-6PF | LC8 | 1.10 | 0.343 (8.71) | 2.50 (63.5) | - | 0.875 (22.2) | 2.5 (63.5) | 0.75 (19.0) | 1.49 (37.8) |
| | 1/2 in. | 1/2 in. | LC6-8PF | LC6 | 0.73 | 0.250 (6.35) | 2.50 (63.5) | - | 0.875 (22.2) | 2.5 (63.5) | 0.75 (19.0) | 1.49 (37.8) |
| | 1/2 in. | 1/2 in. | LC8-8PF | LC8 | 1.10 | 0.343 (8.71) | 2.50 (63.5) | - | 0.875 (22.2) | 2.5 (63.5) | 0.75 (19.0) | 1.49 (37.8) |
| MNPT | 1/8 in. | 1/8 in. | LC4-2PM | LC4 | 0.32 | 0.172 (4.36) | 1.82 (46.2) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 1/4 in. | 1/4 in. | LC4-4PM | LC4 | 0.34 | 0.172 (4.36) | 1.82 (46.2) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 3/8 in. | 3/8 in. | LC6-6PM | LC6 | 0.73 | 0.250 (6.35) | 1.82 (46.2) | 1.12 (28.4) | 0.875 (22.2) | 2.1 (53.3) | 0.44 (11.1) | 0.87 (22.1) |
| Male to Female NPT | 1/4 in. | 1/4 in. | LC4-4PM-4PF | LC4 | 0.34 | 0.172 (4.36) | 2.00 (50.4) | - | 0.625 (15.8) | 1.7 (43.1) | 0.44 (11.1) | 0.68 (17.2) |
| Male NPT to Tube | 1/4 in. | 1/4 in. | LC4-4PM-D4 | LC4 | 0.34 | 0.172 (4.36) | 2.11 (53.5) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| | 1/4 in. | 3/8 in. | LC4-4PM-D6 | LC4 | 0.34 | 0.172 (4.36) | 2.11 (53.5) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| Tube to Male NPT | 3/8 in. | 1/4 in. | LC4-D6-4PM | LC4 | 0.34 | 0.172 (4.36) | 2.11 (53.5) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |
| Tube Socket Weld | 1/4 in. | 1/4 in. | LC4-4SW | LC4 | 0.34 | 0.172 (4.36) | 2.40 (60.9) | 1.03 (26.1) | 0.625 (15.8) | 1.6 (40.6) | 0.40 (10.1) | 0.68 (17.2) |

Options & Accessories

Tube Fitting End Connections

SSP offers three tube fitting designs. Duolok two-ferrule tube fittings are standard. To select a different design, select the designator from the table below, then substitute it for the "D" in the part number.

Example LC6-U6-316

| DESIGN | DESCRIPTION | DESIGNATOR |
|---------|-------------|------------|
| Duolok | 2-Ferrule | D |
| Unilok | 1-Ferrule | U |
| Griplok | 2-Ferrule | G |

Body Material

316 stainless steel is standard for LC Series valves. To specify other body materials, select the designator from the table below the add to the part number after the end connections. Example: LC6-D6-316

| MATERIAL | DESIGNATOR |
|----------|------------|
| 316 SS | -316 |

Special Cleaning

LC Series valves are available with ASTM G93 Level C and CGA G-4.1 compliant cleaning. To specify special cleaning, add -XP98 to the part number.

Example: LC6-6PF-316-XP98

Sour Gas Service

LC Series check valves constructed with materials selected in accordance with NACE MR01-75/ ISO 15156 are available for sour gas service. To order, add -SG to the part number. Example: LC6-6PF-316-SG

Specifications

- Body, Bonnet Nut and Panel Nut: 316 SS
- Poppet and Bonnet Material: Alloy 400/R405
- Pressure Rating: 6000 psig (413 bar)
- Temperature Rating: -65 to 500°F (-53 to 260°C)

Testing

All LC Series lift check valves are tested for proper operation.

Special Orders

Basic Part Number Options

A **B** **C**³ **D** **E**
LC4 -4PM -D6 -316 -SG

The Part Numbers and Dimensions table (page 5) contains only the most popular valve configurations; many more are available. If the required valve is not in the Part Numbers and Dimensions table, uses the chart below to build part numbers for quotation purposes.

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-------------------|----------------------|-------------------|---------------|----------|----------------------|-----------|----------------|----------|-----------------------|-----------|----------------|-----------|------------|-----------|------------------|-----------|----------|-----------|------------------|-----------|------------------|------------|--|---|
| <p>A SERIES / SIZE</p> <p>LC4 0.172 Orifice. LC6 0.250 Orifice LC8 0.343 Orifice</p> <p>D BODY MATERIAL</p> <p>-316 316 SS</p> | <p>B + C INLET TYPE² + OUTLET TYPE²</p> <table border="0"> <tr> <td><i>D</i></td> <td>Duolok® Tube Fitting</td> <td>Fractional Sizes:</td> <td>Metric Sizes:</td> </tr> <tr> <td><i>U</i></td> <td>Unilok® Tube Fitting</td> <td>2 1/8 in.</td> <td>M6 6 mm</td> </tr> <tr> <td><i>G</i></td> <td>Griplok® Tube Fitting</td> <td>4 1/4 in.</td> <td>M8 8 mm</td> </tr> <tr> <td><i>PF</i></td> <td>Female NPT</td> <td>6 3/8 in.</td> <td>M10 10 mm</td> </tr> <tr> <td><i>PM</i></td> <td>Male NPT</td> <td>8 1/2 in.</td> <td>M12 12 mm</td> </tr> <tr> <td><i>SW</i></td> <td>Tube Socket Weld</td> <td>12 3/4 in.</td> <td></td> </tr> </table> | <i>D</i> | Duolok® Tube Fitting | Fractional Sizes: | Metric Sizes: | <i>U</i> | Unilok® Tube Fitting | 2 1/8 in. | M6 6 mm | <i>G</i> | Griplok® Tube Fitting | 4 1/4 in. | M8 8 mm | <i>PF</i> | Female NPT | 6 3/8 in. | M10 10 mm | <i>PM</i> | Male NPT | 8 1/2 in. | M12 12 mm | <i>SW</i> | Tube Socket Weld | 12 3/4 in. | | <p>E OPTIONS¹</p> <p>SPECIAL CLEANING</p> <p>-XP98 Oxygen compatible lubricant, per ASTM G93, Level C and CGA G-4.1</p> <p>SOUR GAS</p> <p>-SG ISO 15156 (NACE MR01-75)</p> |
| <i>D</i> | Duolok® Tube Fitting | Fractional Sizes: | Metric Sizes: | | | | | | | | | | | | | | | | | | | | | | | |
| <i>U</i> | Unilok® Tube Fitting | 2 1/8 in. | M6 6 mm | | | | | | | | | | | | | | | | | | | | | | | |
| <i>G</i> | Griplok® Tube Fitting | 4 1/4 in. | M8 8 mm | | | | | | | | | | | | | | | | | | | | | | | |
| <i>PF</i> | Female NPT | 6 3/8 in. | M10 10 mm | | | | | | | | | | | | | | | | | | | | | | | |
| <i>PM</i> | Male NPT | 8 1/2 in. | M12 12 mm | | | | | | | | | | | | | | | | | | | | | | | |
| <i>SW</i> | Tube Socket Weld | 12 3/4 in. | | | | | | | | | | | | | | | | | | | | | | | | |

¹ Add options designators to the end of the Base Part Number in alphabetical order.

² Tube fitting end connection part numbers are formatted Type followed by Size. Example: D6

Pipe ends are formatted Size followed by Type. Example: 6PF

³ If both ends are the same, use only one end connection designator. Example: LC6-D6-316 for 3/8 in. Duolok end connections.

If the end connections are different types or sizes, the inlet and outlet designators are separated by a dash. Example LC6-6PF-4PM-316

Warranty

SSP valves are backed by the SSP Limited Life Time Warranty. This warranty is available from your local distributor or at www.mySSP.com.

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Product Selection

IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE. It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been provided to users with technical expertise as a reference for further investigation to determine specific product needs relative to their design requirements.

More SSP Products



Tube Fittings

Duolok® and Griplok® (two-ferrule) and Unilok® (single-ferrule) tube fittings ensure leak-tight installation when intermixed with Swagelok®, Hoke® Gyrolok®, and Parker® CPI™ fittings, provided they are used in accordance with SSP Fittings' published installation and service recommendations.



Valves

The SSP valve offering includes ball, check, metering, needle, toggle, plug, bleed, and purge valves for pressures up to 10,000 psig.



Quick Connects

SSP offers single-end shutoff, double-end shutoff, and full-flow quick connects for instrumentation and process applications.



Pipe Fittings

TruFit and TruFit 10K pipe fittings are available in a wide range of weld, threaded and flared connections.



Filters

SSP in-line and tee-type filters trap particles to clean sample fluids and protect sensitive process and analytical instrumentation components and equipment.



Tools & Accessories

SSP TurnPro professional hand tools, power tools and installation training make quality tube system installation faster and easier.



SSP

Founded 1926 • Privately owned, third generation family business • Modern manufacturing facility –
165,000 square feet • Captive closed die forging operation • Integrated tool & die production
Nearly 200 machining centers • ISO 17025 testing laboratory • Automated warehouse retrieval system
ISO 9001 quality management system • DFARS-compliant raw material • EN 10204 3.1 certification •
Limited Lifetime Warranty • ASME B31.3 design • Canadian Registration •

Third Party Approvals from CSA, TÜV, DNV, and ABS



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