

REGISTRATION OF A PRESSURE FITTING DESIGN

10-Nov-20

TSSA
345 Carlingview Drive
Toronto, Ontario
M9W 6N9**Attention: Tanya Francis****File Number: 11755 [0 F]****Re: Manufacturer: Parker Hannifin Corporation**
Item: LC Series Check Valves
Catalog or Drawing: Per Scope of Registration and Catalog 4135-CV

TSASK Codes and Standards Compliance has registered the design listed above in accordance with The Boiler and Pressure Vessel Act and Regulations and CSA B51. The Canadian Registration Number (CRN) is:

OC22701.53 Expiry Date: September 23, 2030

Please note that every fitting shall be constructed in strict accordance with the registered design.

Fitting registrations are required to be resubmitted for validation after ten (10) years from the registration date in accordance with CSA B51, Clause 4.2.1.

Should you require anything further, please do not hesitate to contact the Codes and Standards Compliance Office at your convenience.

Yours truly,

Athan Syrgiannis, P.Eng.
Codes and Standards Compliance**Remarks:**

A valid quality control program must be maintained at the production facility for the fitting registration to remain valid until the expiry date.



Technical Standards and Safety Authority
345 Carlingview Drive
Toronto, Ontario M9W 6N9
www.tssa.org

Show facsimile of manufacturer's logo or trademark, as it will appear on the fitting, in the space below

P

STATUTORY DECLARATION Registration of Fittings

I, Craig Beckwith, Division General Manager

(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Parker Hannifin Corporation, Instrumentation Products Division

(Name of Manufacturer)

Located at 1005 A Cleaner Way, Huntsville, Alabama, USA 35805

(Plant Address)

256-881-2040

(Telephone No.)

(Fax No.)

☐ do solemnly declare that the fittings listed hereunder, which are subject to the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, comply with all of the requirements of

(Title of recognized North American Standard)

which specifies the dimensions, materials of construction, pressure/temperature ratings, identification marking the fittings and service;

☒ or are not covered by the provisions of a recognized North American standard and are therefore manufactured to comply with MSS SP-99 as supported by the attached data which identifies the dimensions, material of construction, pressure/temperature ratings and the basis for such ratings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001:2015 which has been verified by the following authority, DNV-GL.

The items covered by this declaration, for which I seek registration, are category C type fittings. In support of this application, the following information and/or test data are attached as follows:

Scope of Registration with Attachments for LC Series Check Valves

(drawings, calculations, test reports, etc.)

Declared before me at Huntsville in the State of Alabama

the 6th day of May AD 2020.

Commissioner for Oaths:

Sheri Coggan
(Printed name)

Sheri Coggan
(Signature)

[Signature]
(Signature of Declarer)

FOR OFFICE USE ONLY

To the best of my knowledge and belief, the application meets the requirements of the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, and CSA Standard B51 and is accepted for registration in Category _____.

CRN: _____

Registered by: _____

Dated: _____

NOTE: This registration expires on: _____

 **Technical
Safety Authority**
of Saskatchewan

Registration No. OC22701.53

File No. 11755

Registered

Date: November 10, 2020

Expiry Date: September 23, 2030

Codes & Standards Compliance Office

*Information provided in this application is releasable under the Freedom of Information and Privacy Protection Act and may be disclosed upon request.

Registration Scope

Parker Hannifin
Instrumentation Products Division

Catalog 4135-CV, April 2019, Page 14
LC Series Check Valves

Based on the following summary, we seek registration for the attached scope .

Series/Model	Size	CWP	Body Material
4Z-LC6L-SS	1/4"	6000 PSI	ASTM A182, Type F316
4A-LC6L-SS	1/4"	6000 PSI	ASTM A182, Type F316
4F-LC6L-SS	1/4"	6000 PSI	ASTM A182, Type F316
4L-LC12L-SS	1/4"	6000 PSI	ASTM A182, Type F316
6Z- LC12L-SS	3/8"	6000 PSI	ASTM A182, Type F316
6A- LC12L-SS	3/8"	6000 PSI	ASTM A182, Type F316
8F-LC16L-SS	1/2"	6000 PSI	ASTM A182, Type F316
8Z-LC16L-SS	1/2"	6000 PSI	ASTM A182, Type F316
8A-LC16L-SS	1/2"	6000 PSI	ASTM A182, Type F316

Summary

Table 1: Summary Table for the LC Series Check Valves

Main Pressure Bearing Component	Main Pressure Bearing Material (Standard)	Port Connections and Sizes	Pressure Rating	Design Code of Construction
Body (Refer to Table 2 for Sizes)	ASTM A276, Type 316 <i>A 182 F316</i>	Refer to End Connection in Table 2 below	6,000 psi CWP	MSS-SP-99

Table 2 below shows the valve part number description from the catalog for the LC Series Check valves. For this valve the valve bodies are available only in one material (ASTM 182 Type F316). The valve is available three sizes (1/4", 1/2", and 1.0") designated as 6, 12, and 16 in the part number. The minimum wall thickness for all valves in this line is at the undercut of the thread on the valve body.



**Technical
Safety Authority
of Saskatchewan**

Registration No. OC22701.53

File No. 11755

Registered

Date: November 10, 2020

Expiry Date: September 23, 2030

Codes & Standards Compliance Office

*Added pg #
to doc in file*

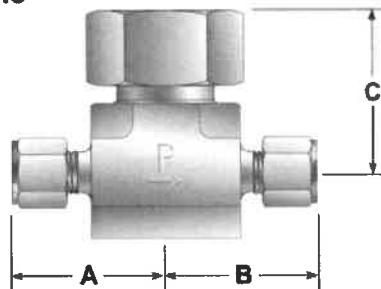
Table 2: Dimensions and End Connections

Dimensions in inches (millimeters) are for reference only, subject to change.

Part #	Size/Connection	A	B	C	Bonnet Hex
2F-LC6L-SS	1/8" Female NPT	1.00 (25.4)	1.00 (25.4)	1.34 (34.0)	15/16 (23.8)
4Z-LC6L-SS	1/4" CPI™	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4A-LC6L-SS	1/4" A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC6L-SS	1/4" Female NPT	1.03 (26.2)	1.03 (26.2)	1.34 (34.0)	15/16 (23.8)
M6A-LC6L-SS	6mm A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC12L-SS	1/4" Female NPT	1.13 (28.7)	1.13 (28.7)	1.50 (38.1)	1-1/4 (31.8)
6Z-LC12L-SS	3/8" CPI™	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
6A-LC12L-SS	3/8" A-LOK®	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
8F-LC16L-SS	1/2" Female NPT	1.56 (39.6)	1.56 (39.6)	1.86 (47.2)	1-1/2 (38.1)
8Z-LC16L-SS	1/2" CPI™	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)
8A-LC16L-SS	1/2" A-LOK®	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)

For CPI™ A-LOK®, dimensions are measured with nuts in the finger-tight position.
Metric dimensions are noted by ().

Dimensions



The Pressure and Temperature information is shown below.

Specifications

Pressure Rating

.....6000 psig (414 bar) CWP

Temperature Rating

..... -100°F to 900°F (-148°C to 482°C)

Flow Data:

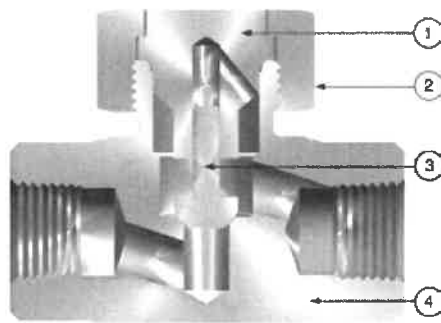
LC6 Series..... $C_V = .63$ $X_T = .47$
 LC12 Series..... $C_V = 1.20$ $X_T = .63$
 LC16 Series..... $C_V = 2.29$ $X_T = .65$

The Cold Working Pressure (CWP) is established by burst testing in accordance with MSS SP-105.

A diagram of the components and the materials of constructions are provided below.

Exhibit 1: Diagram of the Components and the Materials of Construction

Materials



Item #	Part	Stainless Valve
1	Poppet Guide	ASTM A479, Type 316
2	Bonnet Nut	ASTM A479, Type 316
3	Poppet	ASTM A564, Type 630
4	Valve Body	ASTM A182, Type F316

LC16 Series utilizes a nickel-chromium-iron alloy bonnet seal.

Quality System

Parker Hannifin Instrumentation Products Division's quality management system complies with the requirements of ISO 9001:2015. A copy of the current DNV-GL certificate is included in this submission.

Introduction

Parker's LC-Series Lift Check Valve has been designed for a wide variety of temperature extremes found in power, chemical, petrochemical, oil & gas, and laboratory applications. The LC-Series, ideal for liquid service, has been designed to prevent flow in the reverse direction to within 99.9% of forward flow. The gravity assisted poppet uses back pressure to achieve a seal.

Features

- ▶ Wide temperature range
- ▶ Variety of end connections available
- ▶ Compact design
- ▶ Rugged, forged body construction
- ▶ Stainless steel construction

Specifications

Pressure Rating

.....6000 psig (414 bar) CWP

Temperature Rating

.....-100°F to 900°F (-148°C to 482°C)

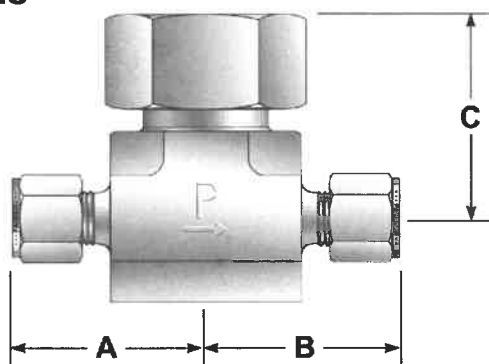
Flow Data:

LC6 Series..... $C_V = .63$ $X_T = .47$

LC12 Series..... $C_V = 1.20$ $X_T = .63$

LC16 Series..... $C_V = 2.29$ $X_T = .65$

Dimensions

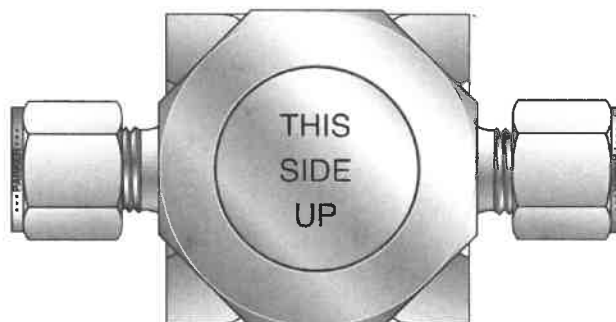


Dimensions in inches (millimeters) are for reference only, subject to change.

Part #	Size/Connection	A	B	C	Bonnet Hex
2F-LC6L-SS	1/8" Female NPT	1.00 (25.4)	1.00 (25.4)	1.34 (34.0)	15/16 (23.8)
4Z-LC6L-SS	1/4" CPI™	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4A-LC6L-SS	1/4" A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC6L-SS	1/4" Female NPT	1.03 (26.2)	1.03 (26.2)	1.34 (34.0)	15/16 (23.8)
M6A-LC6L-SS	6mm A-LOK®	1.38 (35.1)	1.38 (35.1)	1.34 (34.0)	15/16 (23.8)
4F-LC12L-SS	1/4" Female NPT	1.13 (28.7)	1.13 (28.7)	1.50 (38.1)	1-1/4 (31.8)
6Z-LC12L-SS	3/8" CPI™	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
6A-LC12L-SS	3/8" A-LOK®	1.60 (40.6)	1.60 (40.6)	1.50 (38.1)	1-1/4 (31.8)
8F-LC16L-SS	1/2" Female NPT	1.56 (39.6)	1.56 (39.6)	1.86 (47.2)	1-1/2 (38.1)
8Z-LC16L-SS	1/2" CPI™	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)
8A-LC16L-SS	1/2" A-LOK®	1.97 (50.0)	1.97 (50.0)	1.86 (47.2)	1-1/2 (38.1)

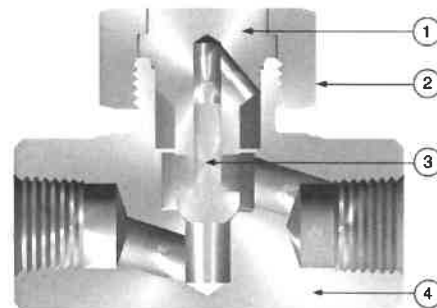
For CPI™ A-LOK®, dimensions are measured with nuts in the finger-tight position.

Metric dimensions are noted by ().



Note: Valve must be mounted in proper orientation.

Materials



Item #	Part	Stainless Valve
1	Poppet Guide	ASTM A479, Type 316
2	Bonnet Nut	ASTM A479, Type 316
3	Poppet	ASTM A564, Type 630
4	Valve Body	ASTM A182, Type F316

LC16 Series utilizes a nickel-chromium-iron alloy bonnet seal.

