

February 04, 2021

Attention: Tanya Francis
TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO, ON M9W 6N9

The design submission, tracking number 2020-05141, originally received on October 23, 2020 was surveyed and accepted for registration as follows:

CRN : 0C21230.2 **Accepted on:** February 04, 2021
Reg Type: NEW DESIGN **Expiry Date:** February 04, 2031
Drawing No. : REGSITRATION SCOPE
Fitting type: LC SERIES CHECK VALVES
Design registered in the name of : PARKER HANNIFIN

The registration is conditional on your compliance with the following notes:

*** The end connectors for the LC series check valves are covered under CRN's for Parker's A-Lok and CPI compression ends (0A6793.52), and for Parker's pipe ends (0A2205.52)*

As indicated on AB-41 Statutory Declaration form and submitted documentation, the code of construction is other engineering analysis.

- It is our understanding that the fitting(s), included as the scope of this submission, that is(are) subject to the Safety Codes Act shall comply with the requirements of the indicated Standard or Code of Construction on the AB-41 Statutory Declaration as supported by the attached data which identifies the dimensions, materials of construction, press./temp. ratings and the basis for such ratings, and the identification marking of the fittings.*
- This registration is valid only for fittings fabricated at the location(s) covered by the QC certificate attached to the accepted AB-41 Statutory Declaration form.*
- This registration is valid only until the indicated expiry date and only if the Manufacturer maintains a valid quality management system approved by an acceptable third-party agency until that date.*
- Should the approval of the quality management system lapse before the expiry date indicated above, this registration shall become void.*

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 3337 or fax (780) 437-7787 or e-mail Dick@absa.ca.

Sincerely,



DICK, ASHLING, P. Eng.
DOP Cert. No. D00007936

STATUTORY DECLARATION
Registration of Fittings
Single or Multiple Fitting Designs within one Fitting Category

I, Craig Beckwith, Division General Manager
(name of applicant) (position title) (must be in a position of authority)
of Parker Hannifin Corporation - Instrumentation Products Division
(name of manufacturer)
located at 1005 A Cleaner Way, Huntsville, AL, 35805, USA
(plant address)

In this space, show facsimile of manufacturer's logo or trademark as it will appear on the fitting.
P

do solemnly declare that the fittings listed hereunder, which are subject to the Safety Codes Act (select only one)

- comply with the requirements of _____ which specifies the dimensions, (title of recognized North American Standard) materials of construction, pressure/temperature ratings and identification marking of the fittings, or
- are not covered by the provisions of a recognized North American standard and are therefore manufactured to comply with MSS-SP-105 as supported by the (title of code of construction or other applicable document) attached data which identifies the dimensions, materials of construction, pressure/temperature ratings and the basis for such ratings, and the identification marking of the fittings.

I further declare that the manufacture of these fittings is controlled by a quality control program which has been verified as described in the below Table as being suitable for the manufacturing of these fittings to the stated standard, regulation, code, guideline or other applicable document. The fittings covered by the declaration for which I seek registration are as provided in the Supplementary Sheet(s) attached.

Quality Program Verification and Manufacturing Sites

A copy of the Quality Certificate from each manufacturing site must be included

Item #	Product Description, Model or Series	Quality Program	Scope of Certification	Expiry Date	Verifying Organization	Location(s) Plant Name and address
1.	LC Series Check Valves	ISO 9001:2015	Design, Manufacture, and Service of Instrumentation Products, Pressure and Temperature Systems, Pneumatic Pumps, Power Supplies, and Anhydrous Ammonia/Propane	April 7, 2021	DNV-GL	2625 AL Hwy 21 N, Jacksonville, AL 36265, USA

			Valves.			
2.						

In support of this application, the following information, calculations and/or test data are attached:

Scope of Registration and Catalog 4135-CV April 2019

[Signature]
(Signature of the Declarer)

11/7/20
(Date)

DECLARED before me at Huntsville in the Madison County of Alabama
(city) (province, territory, or state)

this _____ day of _____, 2020
(Month) (Year)

(print) _____
(a Commissioner of Oaths or Notary Public)

(sign) _____
(a Commissioner of Oaths or Notary Public)

(expiry date (mm/dd/yy))

Commissioner of Oaths / Notary Public in and for: _____
(province, territory, or state)

For ABSA Office Use Only:

NOTES: **** LC Series Check Valves**

To the best of my knowledge and belief, the application meets the requirements of the Safety Codes Act and CSA Standard B51, Part 1, Clause 4.2, and is accepted for registration in Category _____.

CRN: _____

Registered Date: _____

Expiry Date: _____

Signature: _____
(Signature of the Administrator/SCO)

The information you provide is necessary only for the administration of the programs as required by the Alberta Safety Codes Act and Regulations in the Pressure Equipment Discipline

2020-05141

ABSA

SAFETY CODES ACT - PROVINCE OF ALBERTA

ACCEPTED: 0C21230.2

See acceptance letter for conditions of registration.

Date: 2021-02-04 By: *[Signature]*
ASHLING DICK, P. Eng.

This stamp and signature have been affixed electronically to this registered design as required by Section 20(1) of the Pressure Equipment Safety Regulation, in accordance with the Electronic Transactions Act.

Table 1 Scope of Fitting Designs**

Item #	Primary Pressure Bearing / Retaining Component	Material of Construction	Port Connections and Size Range	MDMT	Rated Pressure		Pressure Class(es) / Schedule(s)	Design Code(s) of Construction	Reference Catalogue (pages) or Drawing(s)
					At Ambient Temperature	At Maximum Temperature			
LC Series	Body	ASTM A182, Type F316	Refer to Catalogue	N/A	Refer to Scope of Registration	Refer to Scope of Registration	Refer to Scope of Registration	MSS-SP-105	4135-CV (pg 14)

Table 2 Additional Scope Information

List/Attach Additional Detail and References (Product Configurations, Options, Illustrations, etc.)
Example: Series X Options
See attached scope of registration and catalog pages

** For additional alternatives of Table 1, refer to Form AB-41a, Guide for Completing Form AB-41



Registration Scope

Parker Hannifin
Instrumentation Products Division

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

This stamp and signature have been affixed electronically to this registered design as required by Section 20(1) of the Pressure Equipment Safety Regulation, in accordance with the Electronic Transactions Act.

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 A182, Type F316	Refer to End Connection in Table 2 below	6,000 psi CWP	MSS-SP-105

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.

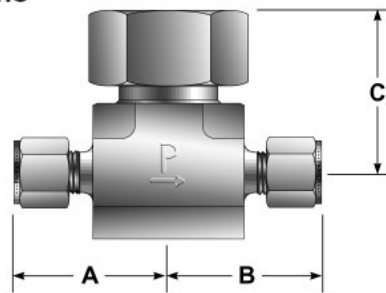
Table 2: Dimensions and End Connections

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

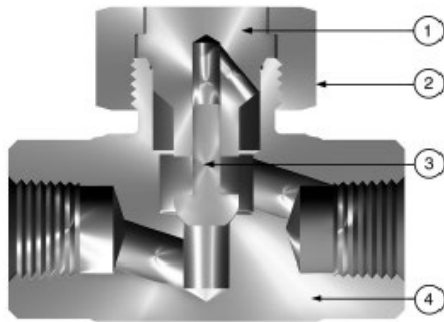
LC16 Series..... **C_V** = 2.29 **X_T** = .65

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.

The maximum working pressure at a temperature other than the CWP was calculated using the formula provided in section 5.8.1 of MSS SP-105. Where the CWP is multiplied by the ratio of allowable stress at the new temperature divided by the CWP's allowable stress.

B31.1-2020 Table A-3 Stainless Steels
 Maximum Allowable Stress Values in Tension, ksi, for Metal
 Temperature

Temp °F	Material F316	Temp Rating Factor	Max Product Rating CWP
100	20.0	1	6000
200	20.0	1	6000
300	20.0	1	6000
400	19.3	0.965	5790
500	18.0	0.900	5400
600	17.0	0.850	5100
650	16.6	0.830	4980
700	16.3	0.815	4890
750	16.1	0.805	4830
800	15.9	0.795	4770
850	15.7	0.785	4710
900	15.6	0.780	4680
950	15.4	0.770	4620
1000	15.3	0.765	4590
1050	15.1	0.755	4530
1100	12.4	0.620	3720
1150	9.8	0.490	2940
1200	7.4	0.370	2220

For product information on maximum pressures and temperatures see Catalogs 4135-CV for LC Series and 4110-NV for U Series pressure vs. temperature curve data.