

# Installation Procedure IP CZFM 6.0

**REVISION HISTORY**

Revision	Date	Change
A	12/16/2022	Initial Release
B	9/20/2023	Update

*Installation Procedure, Lee Check Valve, 6 mm Zero Leak, Forward, Insert*

## FACTORY INSTALLATION PROCEDURE

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# 1. Overview

This procedure is intended to provide process guidelines for proper installation of Lee Check Valve, 6 mm Zero Leak, Forward, Insert product. Section 2 provides an overview of the installation hole requirements. Section 3 overviews the installation process and provides details on installation force and equipment. Section 4 is an appendix that contains relevant diagrams and drawings.

Compliance with this installation procedure will ensure optimal product performance. Please contact your local Lee Company Sales Representative for questions concerning installation of Lee Company products.

## 2. Installation Hole Requirements

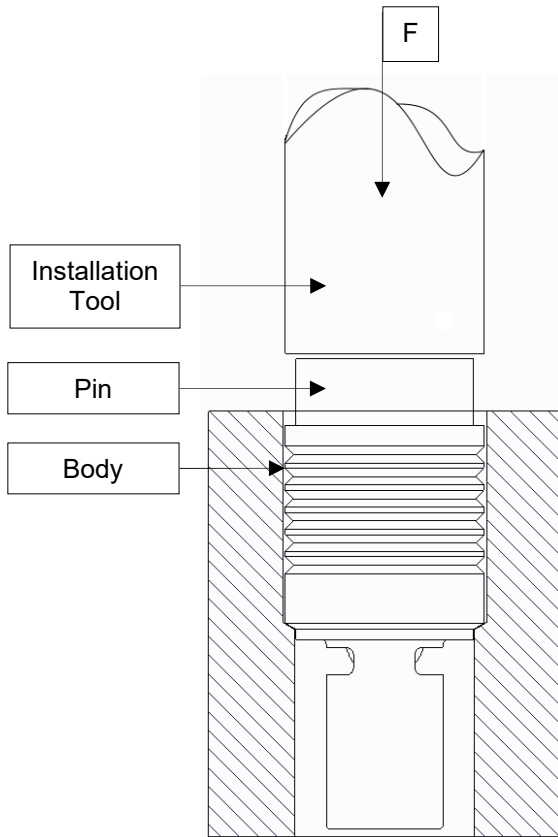
The Lee Check Valve, 6 mm Zero Leak, Forward, Insert product is designed to perform well under adverse conditions. Therefore, the installation hole specifications outlined in this section should be followed precisely to ensure proper function of the product's expansion sealing features.

Installation hole specifications as found on Lee Installation Drawing 1INST088574S (Appendix B). The hole should be clean, dry, and free of burrs. Surface finish requirements must be given special attention and should not exceed 1.6 $\mu$ m (Ra) with no longitudinal surface defects. A smooth machined surface where the product interacts with the hole is needed to seal and retain the product properly.

The Lee Company does not recommend the use of coatings or surface treatments in the installation hole where the product is to be installed. These may prevent proper installation and reduce product retention.

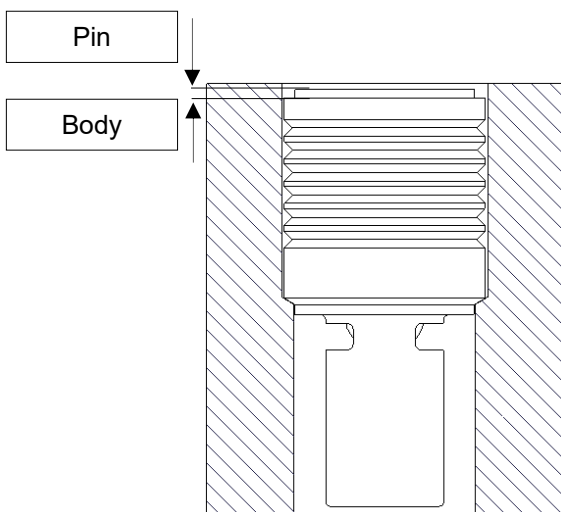
### 3. Installation

**Installation Overview** – All Lee Check Valve, 6 mm Zero Leak, Forward, Insert products use a pin to expand a grooved section of the valve's body into the housing wall to create a seal and retain the component. The pin, which has been pre-installed, is driven into the body. The valve is pre-lubricated for proper installation. Do not clean prior to installation.



1. The Lee Check Valve, 6 mm Zero Leak, Forward, Insert product is inserted into the installation hole with the pin end up as shown.

2. The installation tool (CCRT0051078S) is aligned with the installation hole, approaches the hole, and contacts the back of the pre-installed pin. The tool drives the pin into the valve body. Using friction and penetration, the lands bite into the housing material.



3. When the installation tool is retracted, the installed product can be inspected by measuring the depth of the top of the pin relative to the top of the body. The distance should be less than 0.25 mm. The pin should not be pushed below flush of the body.

### 3.1 Installation Force

The installation force required to drive the pin into the valve body is a function of boss material, installation hole dimensions and boss geometry. A boss made of a harder material or having a larger wall thickness will require a greater installation force than one made of a softer material or having thinner walls. It is important for each customer to establish the correct force to achieve the necessary pin flushness with their unique housing and installation press. The Lee Company can assist in this activity. Typical forces for common boss materials are listed below.

<b>Boss Material</b>	<b>Hardness</b>	<b>Typical Installation Force</b>
6061 Aluminum	40 HRa	5,800 N (1,300 lbf)
303 Stainless Steel	23 HRc	7,200 N (1,620 lbf)
4140 Steel	43 HRc	9,000 N (2,025 lbf)
A2 Steel	57 HRc	9,200 N (2,070 lbf)

### 3.2 Installation Equipment

The Lee Check Valve, 6 mm Zero Leak, Forward, Insert product has been designed to be installed using arbor, pneumatic, hydraulic or servo type press equipment. An electric servo-press system is recommended for high volume production as it provides detailed feedback for better in process controls of the installation process. See Appendix D for further information about a recommended electric servo-press system from Promess, Inc.

Insertion should be done using Lee Installation Tool p/n CCRT0051078S (see Appendix C). Special attention should be made to the installation tool material and hardness to ensure proper installation and maximum tool life. The housing in which the valve is to be installed should be held stationary on a solid surface. The tool and installation hole should be concentric as shown in Diagram of Factory Installation Appendix A. The tool can approach the product at a rate of 20-35 mm/sec. The maximum speed of the tool during installation should be limited to 3 mm/sec.

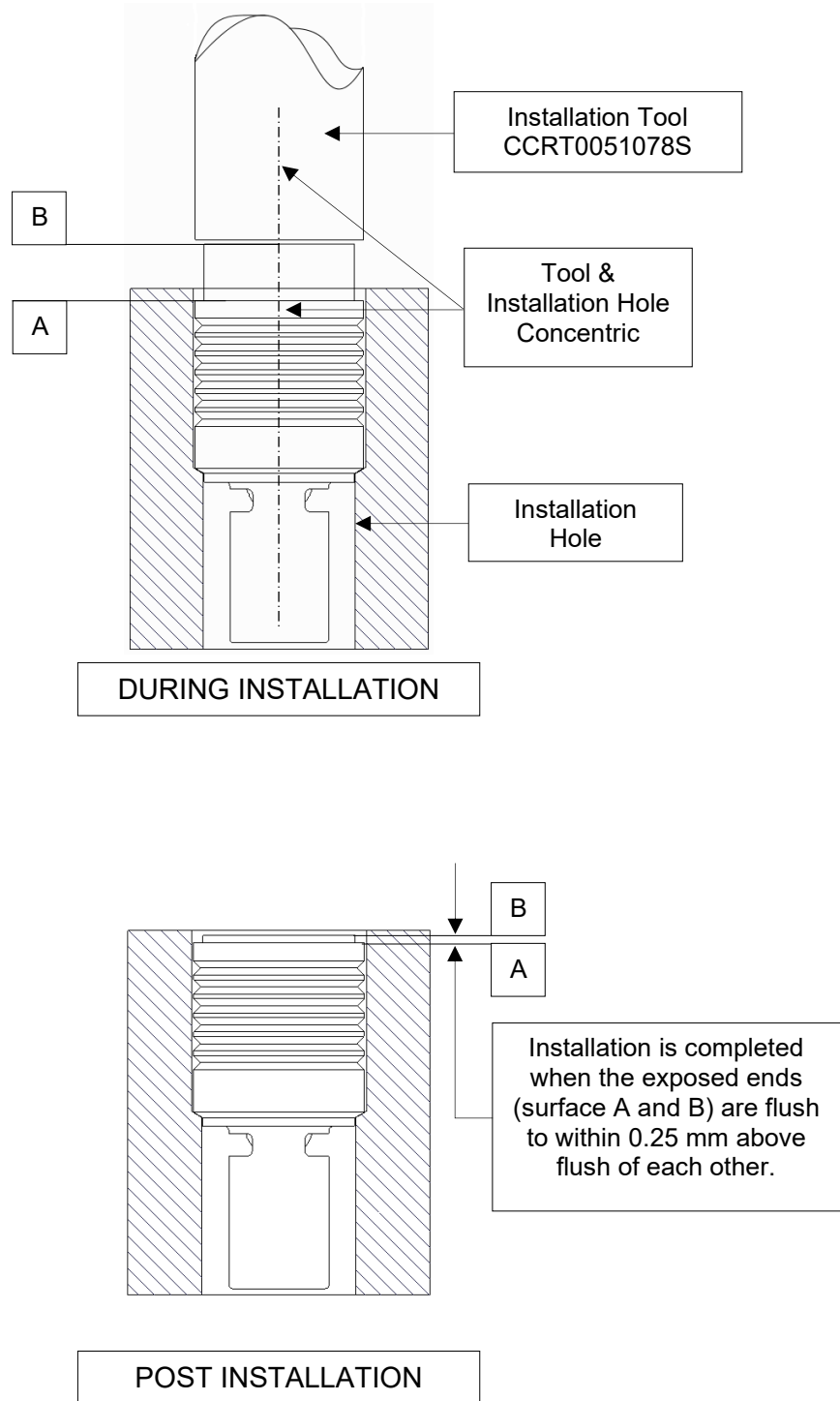
#### **Factory Best Practices:**

1. Examine the condition of the Installation Tool at appropriate intervals and replace if damaged or chipped.
2. Clean feed bowls once per day.
3. Turn off vibratory feed bowl when the assembly station is idle, or if the feed rail is full of parts.
4. Use the minimum vibration setting necessary to advance valves in the feed bowl.
5. If the check valve is blown into the assembly area from the feed rail, minimize the air pressure at which the check valve is blown into the assembly area to prevent possible damage.
6. Valves should be stored in a temperature and humidity-controlled environment such that ambient temperatures do not result in condensation on elastomer seal.

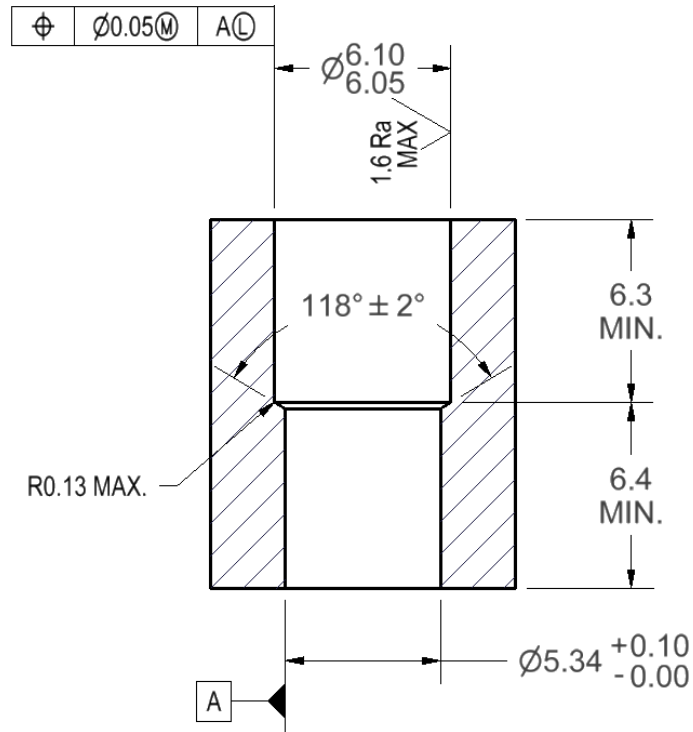
# 4 Appendices

## 4.1 Appendix A: Diagram of Factory Installation

(Section View of Hole, Valve, and Installation Tool)



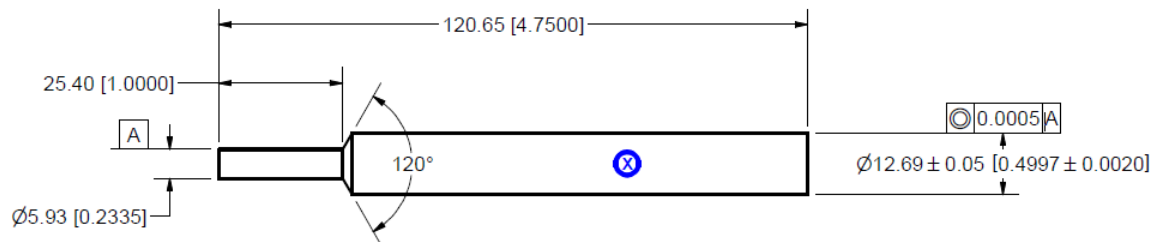
## 4.2 Appendix B Installation Hole Dimensions



Dimensions in millimeters

Refer to Lee Drawing 1INST088574S for complete specifications.

## 4.3 Appendix C Installation Tool Dimensions



Marked with Part Number and Revision

MATERIAL: A2 Tool Steel – Hardness 55-60 Rc

Dimensions in millimeters and inches

Refer to Lee Drawing CCRT0051078S for complete specifications.

## 4.4 Appendix D Promess, Inc. Press Information

### **Contact:**

Promess, Inc.  
11429 Grand River Road  
Brighton, MI 48116  
Phone: (810) 229-9334  
Web: [www.promessinc.com](http://www.promessinc.com)

### **Press Information:**

EMAP 12kN/200mm – FEMP8/200MP includes the following:

- Press w/ integrated load cell, motor mounting plate and Motor
- PreAmplifier (Connected to the Press Load Cell and Prox Switch)
- MotionPRO Servo Amplifier
- Motor Power Cable
- Motor Encoder Cable
- PreAmplifier Cable
- MotionPRO software

