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Installation Procedure IP POCR 5.5

REVISION HISTORY

Revision	Date	Change
A	5/15/2025	Initial Release
B	10/24/2025	Added section 3.2
C	1/8/2026	Minor Updates
D	1/15/2026	Updates to 3.2 and 4.1

Installation Procedure, Lee Pilot Operated Check, 558 Series, Reverse, Insert

FACTORY INSTALLATION PROCEDURE

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1. Overview

This procedure is intended to provide process guidelines for proper installation of Lee Pilot Operated Check, 558 Series, Reverse, 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

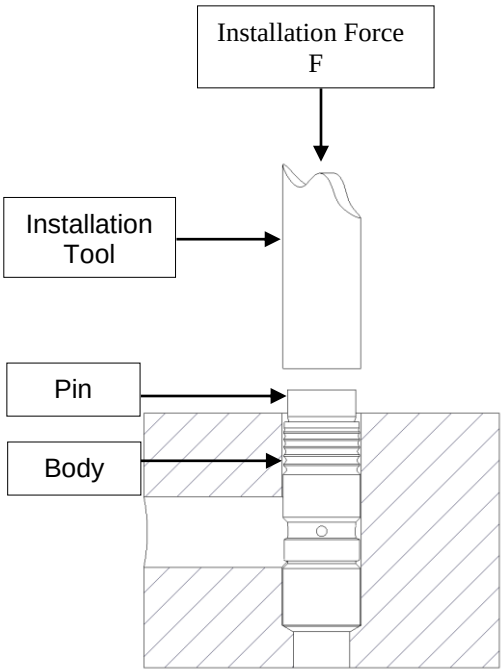
The Lee Pilot Operated Check, 558 Series, Reverse, Insert product is designed to perform well under adverse conditions. Therefore, the installation hole specifications outlined in this section should be followed precisely to ensure proper function of the product's expansion sealing features.

Installation hole specifications as found on Lee Installation Drawing 1INST083749S (Appendix B) will ensure proper performance of the Lee Pilot Operated Check Valve. The hole should be clean, dry, and free of burrs. Surface finish requirements must be given special attention and should not exceed 1.6µm (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.

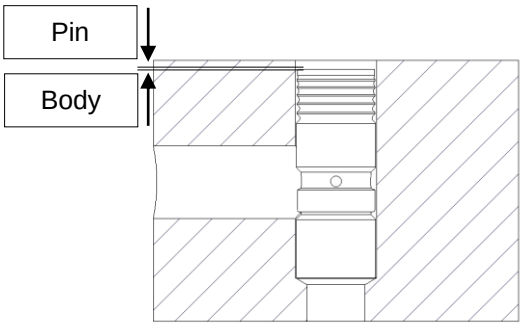
3. Installation

Installation Overview – All Lee Pilot Operated Check, 558 Series, Reverse products use a pin to expand a grooved section of the insert's body into the housing wall to affect a seal and retain the component. The pin, which has been preinstalled, is driven into the body. The insert is pre-lubricated for proper installation. Do not clean prior to installation.



1. The Lee Pilot Operated Check, 558 Series, Reverse, Insert product is inserted into the installation hole with the pin end up as shown.

2. The installation tool (CCRT0900120S) 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 Equipment

The Lee Pilot Operated Check, 558 Series, Reverse, 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 CCRT0900120S (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. Adjust the press stroke to eliminate over travel as this may damage the Pilot Operated Check Valve.

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.

3.2 Installation Force

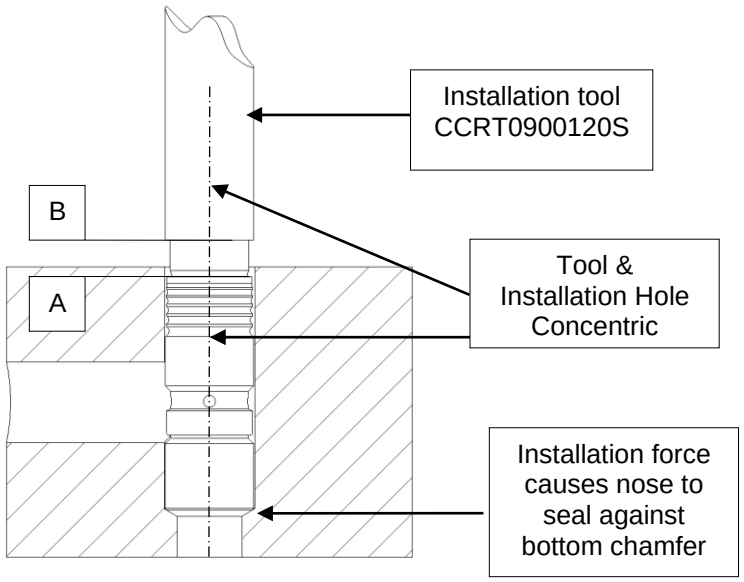
After placing the valve into the installation hole, use the installation tool to apply 5338 – 6227 N installation force to the expansion pin to seal the nose of the valve and achieve proper installation pin flushness. The expansion pin should be pressed to within 0.25 mm above flush of the valve body. Installation force and tool travel should be monitored for proper valve installation.

The installation force required is a function of boss material, installation hole dimensions and boss geometry. A boss made of a harder material will require a greater installation force than one made of a softer material. It is important for each customer to establish the correct force with their unique housing and installation press. The Lee Company can assist in this process.

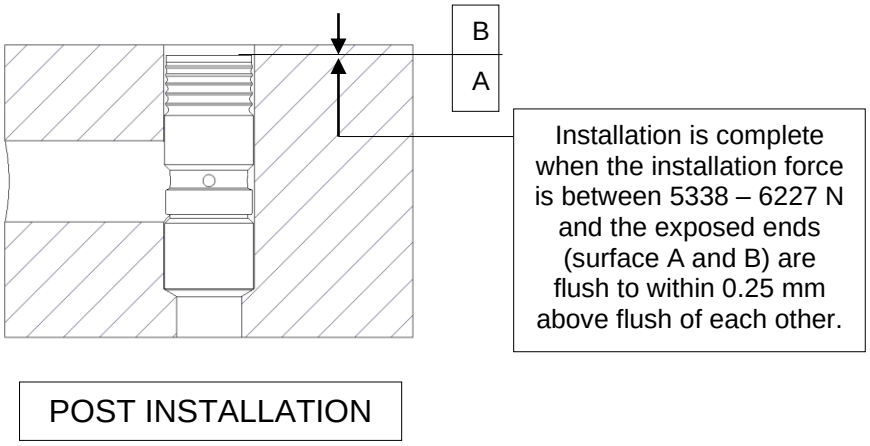
4. Appendices

4.1 Appendix A: Diagram of Factory Installation

(Section View of Hole, Valve and Installation Tool)

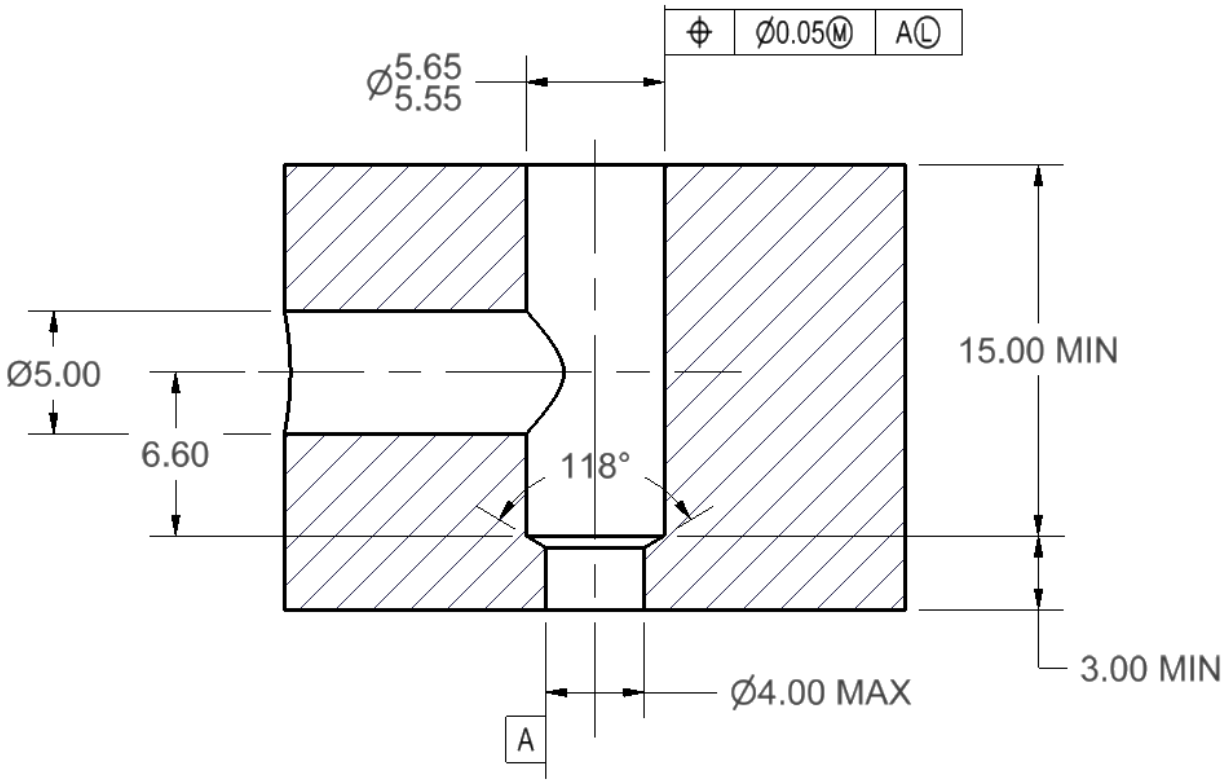


DURING INSTALLATION



POST INSTALLATION

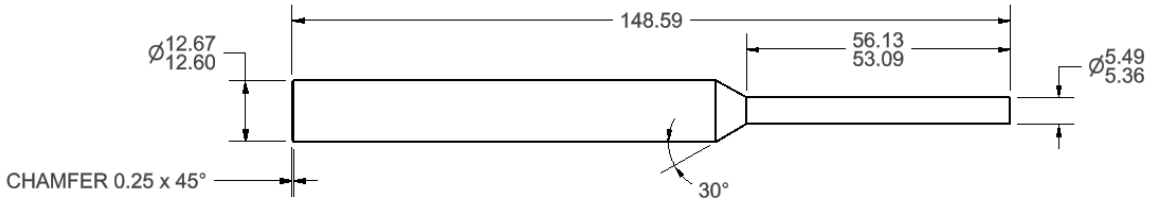
4.2 Appendix B Installation Hole Dimensions



Dimensions in millimeters.

Refer to Lee Drawing 1INST083749S for complete specifications.

4.3 Appendix C Installation Tool Dimensions



Ⓧ Marked with part number and revision.

MATERIAL: A2 Tool Steel – Hardness 60-62 Rc

Dimensions in millimeters.

Refer to Lee Part No. CCRT0900120S 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

Press Information:

EMAP 8kN/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