LEE IMH Chek™ Valve – 4.5 mm CCPI Series Press-In

The Lee Company's Industrial Micro-hydraulics Group (IMH) introduces the newest addition to our line of miniature cartridge-style check valves specifically designed for installation into plastics. The new 4.5 mm Press-In Chek™ Valve features all stainless steel construction, providing compatibility with a wide range of fluids and gases.

The valve's small size allows designers to optimize their systems, saving space and weight. Its unique barbed design provides easy "press-in" installation, ensures retention and prevents any by-pass leakage around the valve. A robust design and 100% performance testing ensures consistent long term performance.

- ■ Press-in Design
  – Simple Installation
- ■ Miniature Size
  – Allows Designers to Save Space and Weight
- ■ Bidirectional Installation Provides Forward or Reverse Flow Capabilities
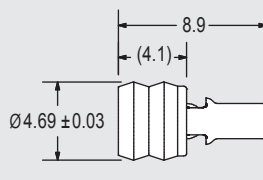 – Design Flexibility
- ■ 100% Tested
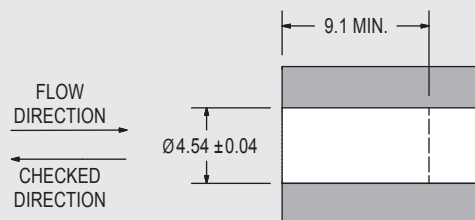 – Eliminates Rework

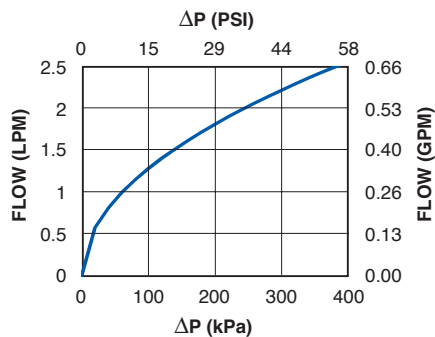**ACTUAL SIZE**

(As Installed)

CHEK VALVE

8.9
(4.1)
Ø4.69 ±0.03

FLOW DIRECTION

CHECKED DIRECTION

INSTALLATION HOLE

9.1 MIN.
Ø4.54 ±0.04

All dimensions in millimeters, except where noted.

∆P vs. Flow on Water @80°F (27°C)

∆P (PSI)

| | 0 | 15 | 29 | 44 | 58 |

FLOW (LPM): 2.5, 2, 1.5, 1, 0.5, 0
FLOW (GPM): 0.66, 0.53, 0.40, 0.26, 0.13, 0.00

∆P (kPa): 0, 100, 200, 300, 400

Flow Curve for 0 kPa Valve

PERFORMANCE

Lohm Rate: 250 Lohms*

Leakage: 20 sccm/min. (max.) @ 172 kPa (25 psid) on air
1 Drop/min. (max.) on water

Materials: Body, Cage, Ball and Spring are Stainless Steel.

* Lohm is a measure of flow resistance. See back page for more information.

LEE PART NUMBER	CRACKING PRESSURE
CCPI4510000S	0 kPa (No Spring)
CCPI4510004S	4 ± 3 kPa (0.6 ± 0.4 psid)
CCPI4510007S	7 ± 5 kPa (1 ± 0.7 psid)
CCPI4510014S	14 ± 5 kPa (2 ± 0.7 psid)
CCPI4510040S	40 ± 15 kPa (6 ± 2.2 psid)
CCPI4510069S	69 ± 17.3 kPa (10 ± 2.5 psid)
CCPI4510100S	100 ± 15 kPa (14.5 ± 2.2 psid)
CCPI4510150S	150 ± 22.5 kPa (21.8 ± 3.3 psid)

LEE PART NUMBER	CRACKING PRESSURE
CCPI4510200S	200 ± 30 kPa (29 ± 4.4 psid)
CCPI4510250S	250 ± 37.5 kPa (36.3 ± 5.4 psid)
CCPI4510300S	300 ± 45 kPa (43.5 ± 6.5 psid)
CCPI4510350S	350 ± 52.5 kPa (50.8 ± 7.6 psid)
CCPI4510400S	400 ± 60 kPa (58 ± 8.7 psid)
CCPI4510500S	500 ± 75 kPa (72.5 ± 10.9 psid)
CCPI4510550S	550 ± 82.5 kPa (79.8 ± 12 psid)
CCPI4510625S	625 ± 93.8 kPa (90.6 ± 13.6 psid)

Innovation in Miniature

LEE

LEE IMH Chek™ Valve – 4.5 mm CCPI Series Press-In

SIMPLE TO INSTALL

To install, simply press the valve into a plastic installation hole until the valve is flush minimum with the top of the installation hole.

The valve can be installed in either direction, providing forward or reverse flow capabilities. Lee installation tools for each flow orientation are available as follows: Installation Tool Part Number:

CCRT0055036S for reverse flow orientation installations, Tool Part Number: CCRT0055034S for forward flow orientation installations.

† These valves can be pressed directly into plastics that have sufficient elongation such as Nylon, Polyethylene, Polypropylene, Acetal and PEEK.

REVERSE FLOW INSTALLATION

Installation

Force
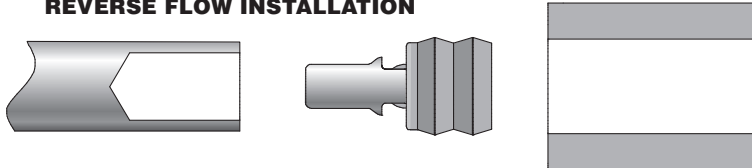
FORWARD FLOW INSTALLATION

Installation

Force
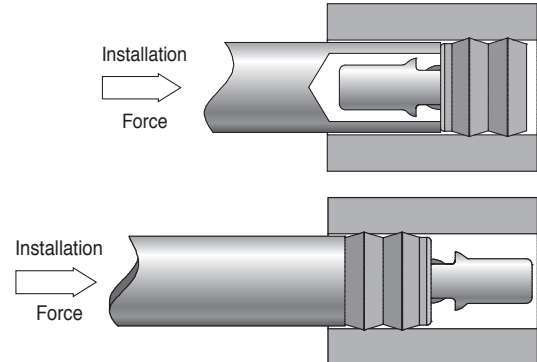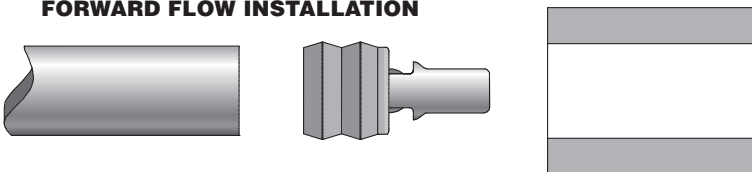
† For installation into other plastics contact your Lee Sales Engineer for more information.
   CCPI Series Check Valves are not designed to be pressed into metal.

LOHM LAWS

LOHMS LAWS (liquids)

Every engineer will be interested in our simple system of defining the fluid resistance of Lee hydraulic components.

Just as the OHM is used in the electrical industry, we find that we can use a liquid OHM or "Lohm" to good advantage on all hydraulic computations.

When using the Lohm system, you can forget about coefficients of discharge and dimensional tolerances on drilled holes. These factors are automatically compensated for in the Lohm calculations, and confirmed by testing each component to establish flow tolerances. The resistance to flow of any fluid control component can be expressed in Lohms.

The Lohm has been selected so that a 1 Lohm restriction will permit a flow of 100 gallons per minute of water with a pressure drop of 25 psi at a temperature of 80° F.

LIQUID FLOW FORMULA

The following formulas are presented to extend the use of the Lohm laws to many different liquids, operating over a wide range of pressure conditions.

These formulas introduce compensation factors for liquid density and viscosity. They are applicable to any liquid of known properties, with minimum restrictions on pressure levels or temperature.

The units constant (K) eliminates the need to convert pressure and flow parameters to special units.

Volumetric Flow Units $L = \dfrac{KV}{I} \sqrt{\dfrac{H}{S}}$

Gravimetric Flow Units $L = \dfrac{KV}{w} \sqrt{HS}$

NOMENCLATURE

 L = Lohms
 S = Specific gravity*
 H = Differential pressure
 V = Viscosity compensation factor**
 I = Liquid flow rate: Volumetric
 w = Liquid flow rate: Gravimetric
 K = Units Constant – Liquid (see chart below)
 *S = 1.0 for water at 80°F.
 **V = 1.0 for water at 80°F.

(For other fluids and temperatures, contact your Lee Sales Engineer or visit us at www.leeimh.com)

LIQUID FLOW – UNITS CONSTANT K

VOLUMETRIC FLOW UNITS			
	Pressure Units		
Flow Units	psi	bar	kPa
GPM	20	76.2	7.62
L/min	75.7	288	28.8
ml/min	75 700	288 000	28 800
in³/min	4 620	17 600	1 760

GRAVIMETRIC FLOW UNITS			
	Pressure Units		
Flow Units	psi	bar	kPa
PPH	10 000	38 100	3 810
gm/min	75 700	288 000	28 800

Innovation in Miniature

LEE