

# Instruction Manual


## Forged Type Check Valve

PCSS800TE / PC800TE / PCSS800SW / PC800SW /  
SCSS800TE / SC800TE / SCSS800SW / SC800SW /  
PC150FE / PC300FE / SC150FE / SC300FE

HIM-139 Version: A


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	<p>Forged Type Check Valve  PCSS800TE / PC800TE / PCSS800SW /  PC800SW / SCSS800TE / SC800TE /  SCSS800SW / SC800SW / PC150FE /  PC300FE / SC150FE / SC300FE</p>	<b>Version</b>	<b>A</b>
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## 1. INTRODUCTION AND SAFETY INFORMATION

### 1.1 INTRODUCTION

This manual has been prepared to serve as a guide to insure continuous satisfactory service and assist in restoring a valve to proper working condition.


It covers screwed ends, weld ends and flanged ends forged type check valves. The installation, storage, operation, disassembly / reassembly inspection and repair, service problems, maintenance and preventive maintenance covering these check valves are also included in this manual.

Prior to performing any work on these check valves, it would be useful to have a general understanding of their construction.

### 1.2 SAFETY INFORMATION

The following general safety notices supplement the specific warnings and cautions appearing elsewhere in this manual. They are recommended precautions that must be understood and applied during operation and maintenance of the equipment covered herein.

- a. Do not attempt to disassemble a check valve while there is pressure in the line. Make sure both upstream and downstream pressures are removed. Disassemble with caution in the event all pressures have not been relieved.
- b. To prevent check valve distortion, inefficient operation, or early maintenance problems, support piping on each side of the check valve.

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## 2. STORAGE AND PREPARATION

### 2.1 STORAGE

#### 2.1.1 Temporary Storage

If the check valve is to be stored before installation, the following should be observed.

- a. Keep the check valve wrapped and protected as shipped from the manufacturer.
- b. Do not remove the plastic bag or protective end covering until the check valve is ready for installation. This will reduce the possibility of foreign material damaging internal check valve components.
- c. Check valve stored outdoors should be positioned such that water dose not accumulate in the valve body.


#### 2.1.2 Long Term Storage

If the check valves are to be stored more than of one year, they should be prepared in the following manner.

- a. Store the check valve in a dry area or protect the cavity by applying a preservative coating.
- b. Do not remove the protective end covering. (If any)
- c. Check valve which will remain in storage for an excessive period of time should have a preservative applied to the external surface.
- d. Do not store the valves outdoors.

### 2.2 PREPARATION

- a. Remove the end protection. (If any)
- b. Prior to shipment from the manufacturer, a preservative may have been applied to the inner body of the check valve. This preservative maybe removed with a solvent.
- c. The inside of the check valve should be inspected and blown out with compressed air. As far as possible adjacent piping must be clean and free from debris to prevent early foulness of the check valve.
- d. To prevent check valve distortion, inefficient operation or early maintenance problems, support piping on each side of the check valve.
- e. Install the check valve according to the flow indicator on the body.

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### 3. INSTALLATION AND OPERATION

#### 3.1 INSTALLATION

Do not dismantle these check valves before fitting, treat as a unit. Taper thread fittings should not be over-tightened. In some applications screwed check valves are back welded on site and these check valves must be dismantled as per instruction for weld end valves.

#### 3.2 OPERATION

The check valves' operation is automatic and requires no assistance.

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## 4. MAINTENANCE AND REPAIR

### 4.1 INSPECTION AND MAINTENANCE

A periodic inspection and maintenance schedule should be established for each check valve. The time frames given for the implementation of these schedules are to be used as a guide only in establishing routine inspection and maintenance schedules. Exact time periods for performing these procedures cannot be provided due to the unknown nature of the service conditions each valve is in.

#### 4.1.1 Periodic Inspection

A periodic inspection should be performed on each unit. The time frame should be adjusted depending on usage and service conditions. An infrequently used unit may have more time between inspections than a check valve in constant service.

A periodic inspection should include the following:

- a. Examine the check valve for cleanliness.
- b. If check valve is in service and under pressure:
  - (1) Examine the body to flange or end cap connection for leakage through the gasket. If leakage is found, tighten the cap until the leakage stops. If the leakage persists, see section 4.2 "Troubleshooting".
  - (2) Inspect the exterior of the check valve for cleanliness. Remove any dirt, grime or oil from the body and flange or end cap.
- c. After the system is depressurized:
 


Inspect the check valve internally. Remove any dirt, grime or oil from the check valve.

#### 4.1.2 Post Inspection

After completion of a periodic inspection, check valves that are providing satisfactory service require no further disassembly or inspection. Should a check valve be found which is not performing satisfactorily, see section 4.2 "Trouble-Shooting".

#### 4.1.3 Maintenance

Other than periodic inspection, no routine maintenance is required. Routine replacement of parts, such as gasket is not usually performed until required. Once in service, it may become apparent that these and other parts require repair or replacement due to usage and service conditions. A maintenance schedule should be developed taking these conditions into consideration. Parts can be replaced during a routine overhaul.

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## 4.2 TROUBLE-SHOOTING

The following chart will cover the various problems which are common to most check valves.

The information provided will aid in isolating and correcting these problems.

PROBLEM	PROBABLE CAUSE	SOLUTION
Body-to-bonnet connection leaks.	The connecting bolt is unevenly tightened.	Screw up the bolt evenly.
	The intermediate flange gasket is broken or invalid.	Replace the gasket
Valve gives off extra loud vibration during operation.	The disc creates a greater water hammer when being opened and closed.	Select a device with built-out damper to minimize the effect of water hammer.
The seal face leaks.	There is dirt on the seal face.	Check the wear of seal face between seat and disc and dismantle the valve for repair.
	The seal face is damaged.	Re-machine and grind the seal face. If the seal face surfacing layer is insufficient after grinding, re-apply surfacing or replace the seat.
Connection of seat and body leaks.	The seat is screwed off.	Screw up the seat
PROBLEM	PROBABLE CAUSE	SOLUTION
Leakage	a. Cap are loose	a. Tighten the cap
	b. Gasket is damaged	b. Disassemble and install a new gasket
	c. Body or cap faces are damaged	c. Repair and install a new gasket
Disc Damaged	c. Internal components are damaged or worn	c. Inspect internal components and repair as required

Table 1 - Trouble-Shooting

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#### 4.3 DISASSEMBLY

##### **WARNING**


To prevent injury ensure that all pressure is removed from the valve both upstream and downstream before disassembly.

- a. Match or mark flange with a metal tool or paint to clearly show the original position for reassembly.
- b. Caution should be taken when loosening body-cover bolting as pressure may still be present.
- c. Once assured there is no more pressure in the line, remove the cover bolting and lift the cover off the body.
- d. Remove the gasket from the valve body flange.
- e. If so equipped remove tack welds and bolts (for internally hung disc.). Remove the side plug. This will allow the hinge pin to be removed.
- f. Remove the hinge pin while supporting the disc and arm to prevent damage to the seating surface.
- g. To remove the disc from swing arm, remove the cotter pin and unfasten the disc nut.

#### 4.4 REASSEMBLY

- a. Thoroughly clean the valve interior and all components. Remove all scale, oil, grease, or other foreign material. Wipe the seating surface of the disc and valve seat with a solvent soaked cloth. Clean the body and cover flange surfaces and all bolting.
- b. Install the disc and secure it to the arm with the disc nut. Insert and secure a new pin. Do not use the old pin unless a new one is unavailable.
- c. Place the disc arm assembly in the valve and insert the hinge pin.
- d. Replace and secure the side plug, bolts and tack welds as required.
- e. Open the valve by lifting the arm. The action should be smooth and regular through full hinge pin rotation.
- f. Position a new gasket on the body flange aligned with the bolt holes. The gasket should not extend over the open body cavity. Do not reuse a gasket. The gasket may be coated with a light oil.
- g. Line up the body and cover holes. Make sure the gasket does not extend into any of the bolt holes. Install the cover bolting and tighten in a star pattern to evenly load the gasket



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## 5. QUALITY ASSURANCE AND SERVICE

### 5.1 QUALITY ASSURANCE


OVC's warrants its products to be free from defects in material and workmanship for a period of eighteen (18) months from the date of shipment or twelve (12) months from the date of installation whichever comes first. This warranty is limited to the repair or replacement of the defective item providing that it was handled, installed, used and maintained in accordance with the manufacturer's recommendations and applicable standard industry practices. OVC will not be liable for any additional direct or indirect costs beyond the repair or replacement of the defective item.

This warranty is in lieu of any other warranty expressed or implied.

### 5.2 SERVICE

Manufacturer may provide field installation and debugging where contractually specified.

Manufacturer will follow up the quality of the valve provided and offer service in accordance with customer requirements.

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## 6. TECHNICAL PARAMETERS

### 6.1 SPECIFICATION LIST

Technical Parameters \ Type	PCSS800TE / PC800TE / PCSS800SW / PC800SW / SCSS800TE / SC800TE / SCSS800SW / SC800SW / PC150FE / PC300FE / SC150FE / SC300FE
Nominal pipe size	DN15 ~ DN50 (1/2"~2")
Nominal pressure	CLASS 150~2500
Working temperature	≤ 425°C, (≤796°F)
Medium	Water, Steam, Oxygen, Vacuum, Chemical, Oil, Food Processing
Pressure test	API 598

Table 2 - Specification List