User Instructions

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P55 Lubricators

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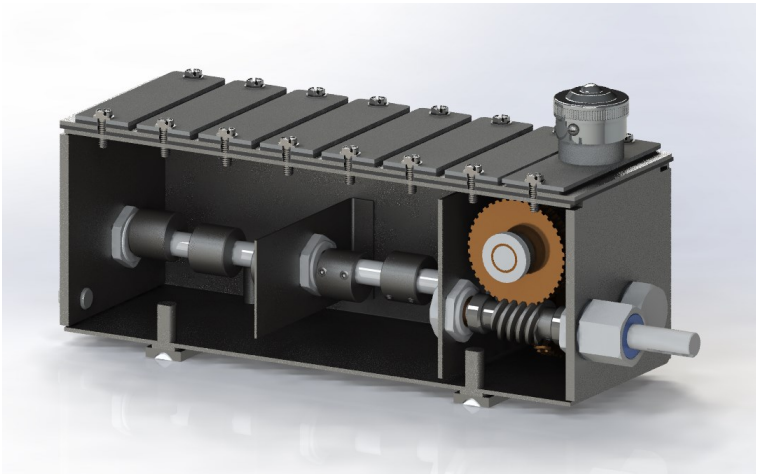
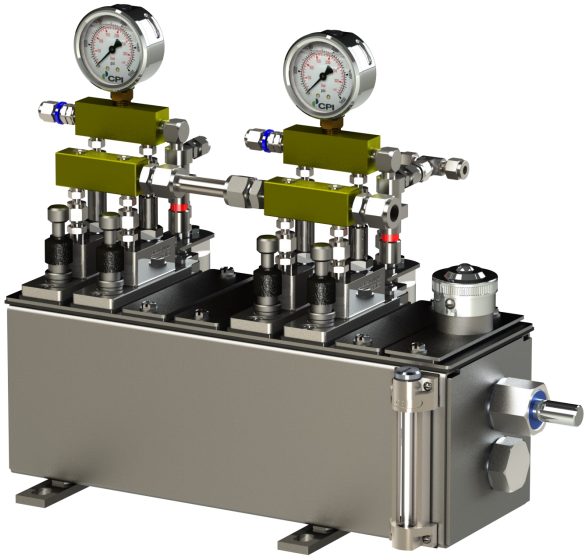




Proven Solutions for the Global Compression Industry™

Contents

1. P55 Lubricator Overview

CPI lubrication systems deliver the perfect amount of oil, under pressure and at regular intervals, to moving parts on all types of industrial machinery. The lubricator assembly consists of a reservoir and drive mechanism, which is used to convert the rotary motion of a drive assembly to linear motion by way of a rotating cam shaft and opposing pumps. The drive mechanism can either feature electric motor drive shafts or shafts driven from the machinery, which can be direct drive, pulley/sheave, or oscillating drive motion.

For Professional use only.

2. Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

Warning

SKIN INJECTION HAZARD

High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispensing device at anyone or at any part of the body.
- Do not put your hand over the fluid outlet.
- Do not stop or deflect leaks with your hands, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cord or turn lights on or off when flammable fumes are present.
- Ground all equipment in the work area.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

Warning

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

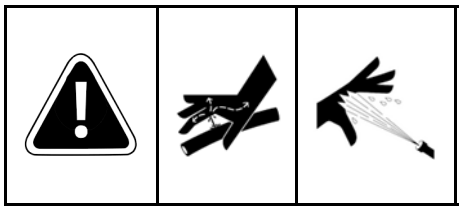
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedures** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hose and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

- Protective eye wear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

3. Pressure Relief Procedure for Pumps



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid, and moving parts, follow the **Pressure Relief Procedure for Pumps** when you stop pumping and before cleaning, checking, or servicing the equipment.

Note: The pump is a positive displacement pump with no internal pressure relief device. A pressure relief device (i.e. POPR™, rupture disc, etc.) must be installed downstream from the pump to prevent an over pressure condition and damage to the lubrication system.

1. Shut off motor and ensure lubrication pump has ceased.
2. If installed, close oil supply valve located upstream from pump.
3. If installed, open drain valve located downstream from pump.
4. Slowly crack open fluid line fittings to relieve pressure.
5. Safely remove pump from lubricator box.

4. Lubricator Installation

This equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.

Grounding

- Ensure the reservoir is properly grounded, as the pump is grounded through the mounting screws.

Mounting the Box

- When installing the P55 Lubricator box always mount it to a rigid support or frame.
- Take care to accurately align the lubricator to the drive shaft. Misalignment will cause undue stress to the drive shaft and may damage the lubricator oil seals and bearings.
- The lubricator may be driven by the rotating source of an engine, compressor, or electric motor.

5. Operating the P55 Lubricator

1. Before running the lubricator system ensure that the input drive, lubricator box, pumping elements and any ancillary components are correctly specified for the chosen application.
2. Check that the lubricator assembly is mounted securely and that the drive shaft is properly aligned and connected to the motor, engine, or compressor.
3. Fill the box to the halfway mark of a bullseye sight glass or to the top of a vertical sight glass with the specified lubricating oil for the operating conditions.
    - If vacuum pumps are used, the oil shall be the same oil used to lubricate the compressor
    - If pressure or gravity pumps are used, gear oil is recommended for the lubricator box
    - See **Technical Information** in **6501400094573EN** (P55 Pumps Instruction & Operation Manual) for additional oil specifications
4. All pumps should be mounted per **Pump Installation** in **6501400094573EN**. Blank plates and filler assemblies should be mounted with screws torqued to the same values as the pump mounting bolts as indicated in **Torque Specification** in **6501400094573EN**.
5. Fully prime the pumping units as described in **Pump Priming** in **6501400094573EN** before operating the lubrication system.
6. The lubricator camshaft should operate between rotational speeds of 4 - 30 RPM. Ensure that an appropriate speed will be achieved based on the gear ratio of the box and the drive shaft input. Use **Calculating Pump Output Capacity** in **6501400094573EN** to calculate the appropriate camshaft speed for the application if it is not known.
7. Once running, observe the complete system to ensure proper operation of all components. When troubleshooting individual components, refer to the specific part operations manual. Additional troubleshooting techniques are found in **Troubleshooting**.

NOTE:

*For all technical information regarding pumps and their output capacity, and for specific installation and operating instructions for each pump, refer to document **6501400094573EN**. This document also has additional troubleshooting techniques for pump issues.*

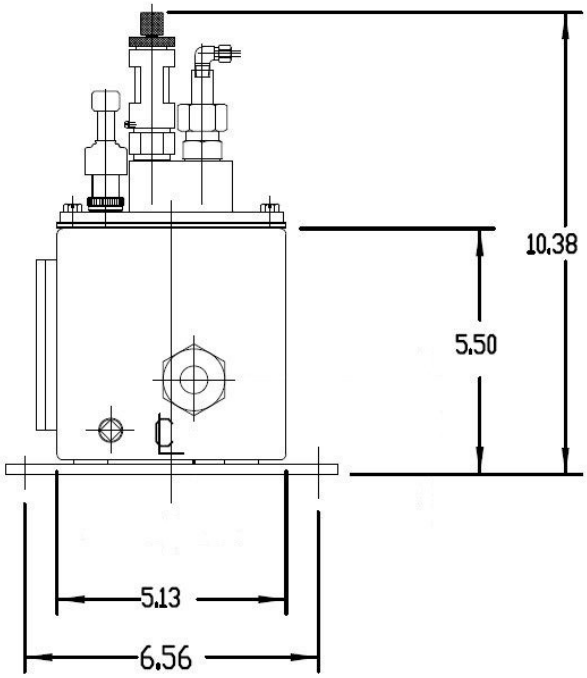
6. Specifications

System Operating Speed: 4 to 30 RPM

Lubrication Oil Type: Mineral Based or Synthetic

Lubrication Oil Viscosity: 90 SUS to 8,000 SUS

General Overall Dimensions for Standard Lubricators:



Pint Size	Overall Length	Typical Number of
2	5.875	3
3	7.625	4
4	11.125	6
8	14.625	8
12	21.625	12
16	26.875	15
20	32.125	18
24	40.875	23
32	45.375	26
40	54.875	31
44	60.125	34

7. Troubleshooting

Problem	Cause	Solution
Input shaft turns, but camshaft does not	Poor connection between drive shaft and lubricator	Check that the motor to lubricator coupling is correctly sized and properly installed
	Keys on input shaft are worn	Replace keys
	Internal coupling or gear is broken or loose	Replace parts, if possible, or the entire lubricator box
Pump does not flow or has low flow	Low oil level in reservoir	Add oil to reservoir until it reaches halfway up a bullseye sight glass or to the top of a vertical sight glass
	Camshaft not rotating because rotatory power source is defective	Replace rotary power source
	Camshaft not rotating because rotatory power source connection is defective	Fix rotary power source connection to lubricator box
	Cam is worn or key is broken	Check the condition of the cam. Any problem with the cam that affects the travel of the pump rocker arm and piston will impact pump output
	Broken camshaft	Replace lubricator box or shaft
Pump cannot reach max required flow rate	Camshaft speed too slow	In document 6501500094573EN, see **Pump Specification** for the recommended camshaft speeds. Contact CPI if the gear configuration is reducing the speed of the camshaft too much, or if the application is outside the recommended speed range
Sight glass remains constant and no lubricant drips from tube		
Sight glass pumps dry	Low oil level in reservoir	Add oil to reservoir until it reaches halfway up a bullseye sight glass or to the top of a vertical sight glass
Leaking from under pump	Defective gasket	Replace gasket
Leaking from reservoir accessory plug	Insufficient or defective thread sealant	Clean and replace thread sealant
Leaking from reservoir drain plug		

NOTE:

*See **Troubleshooting** section in document **6501500094573EN** for additional pump specific troubleshooting options.*

8. Maintenance

1. Lubricator operation can be monitored by regular observation of the pumping unit drip tubes and tubing connections
    - If the required flow rate in drops per minute is being achieved, no immediate maintenance is required.
    - If the sight glass runs dry, the drops per minute rate has slowed, or the drip has ceased entirely, maintenance may be required. Please see the **Troubleshooting** section of this manual and the pumps manual (**6501500094573EN)** to rectify the issue.
    - Ensure tubing connections are leak free for optimal operation.
2. Oil in the reservoir should be drained and replaced every 6 months. Additionally, every year the box should be emptied and cleaned out per the following process:
    - Drain the reservoir by removing the drain plug.
    - Remove all of the pumping units (for step by step guide see pump user instructions **6501500094573EN**)
    - Visually inspect internal lubricator components and pumps. Any worn or damaged parts shall be replaced, if possible, before being returned to use (contact CPI representative with any questions).
    - Clean the pumps and reservoir, making sure to remove any debris. The box can be dipped in a light solvent for cleaning and dried appropriately.
    - Replace the pumping units (for step by step guide see pump user instructions **6501500094573EN**).
    - Apply thread sealant to the drain plug and thread into the reservoir.
    - Fill the reservoir with the applicable oil to halfway up a bullseye sight glass or to the top of a vertical sight glass.
    - Check for leaks before resuming use of the lubricator.

Please contact a CPI representative for details on a comprehensive P55 Lubricator Box Preventative Maintenance (PM) service.

For further technical support please contact:

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