

CBT-F320

Gear Pump Hydraulic Oil Pump User Manual

Model: CBT-F320

Brand: Generic

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation, maintenance, and troubleshooting of your Generic Gear Pump Hydraulic Oil Pump, model CBT-F320. Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the equipment or injury to personnel.

The gear pump serves as a critical power element within hydraulic systems. This specific model features a pump body constructed from special high-strength cast aluminum and incorporates high-precision gears designed to minimize deformation even under high-pressure conditions. Its design emphasizes simplicity, light weight, high efficiency, low noise, and reliable operation. It is widely applicable in hydraulic systems across various sectors, including automotive, engineering machinery, lifting and transportation machinery, mining machinery, light industrial machinery, and agricultural machinery.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent personal injury or damage to the pump and hydraulic system.

- Ensure the hydraulic system is depressurized before performing any maintenance or installation.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Do not operate the pump if it is damaged or malfunctioning.
- Use only recommended hydraulic fluids.
- Keep the work area clean and free of debris.
- Refer to the system's overall manual for specific hydraulic circuit diagrams and safety procedures.

3. PRODUCT COMPONENTS AND OVERVIEW

The Generic CBT-F320 Gear Pump is designed for robust performance in various hydraulic applications. Below are images illustrating the pump from different angles, highlighting its key features and construction.



Figure 3.1: Front view of the Generic CBT-F320 Gear Pump. This image shows the main body of the pump, constructed from cast aluminum, with visible mounting points and the central shaft connection.



Figure 3.2: Side view of the gear pump, showing one of the hydraulic ports. Note the label indicating the direction of rotation, which is crucial for proper installation and operation.



Figure 3.3: Angled view of the gear pump, providing a clearer perspective of the drive shaft and the various hydraulic connection ports. The robust construction is evident.



4-hole spline shaft gear pump



4-hole flat key shaft gear pump



16 Single key shaft gear pump



18 Single key shaft gear pump

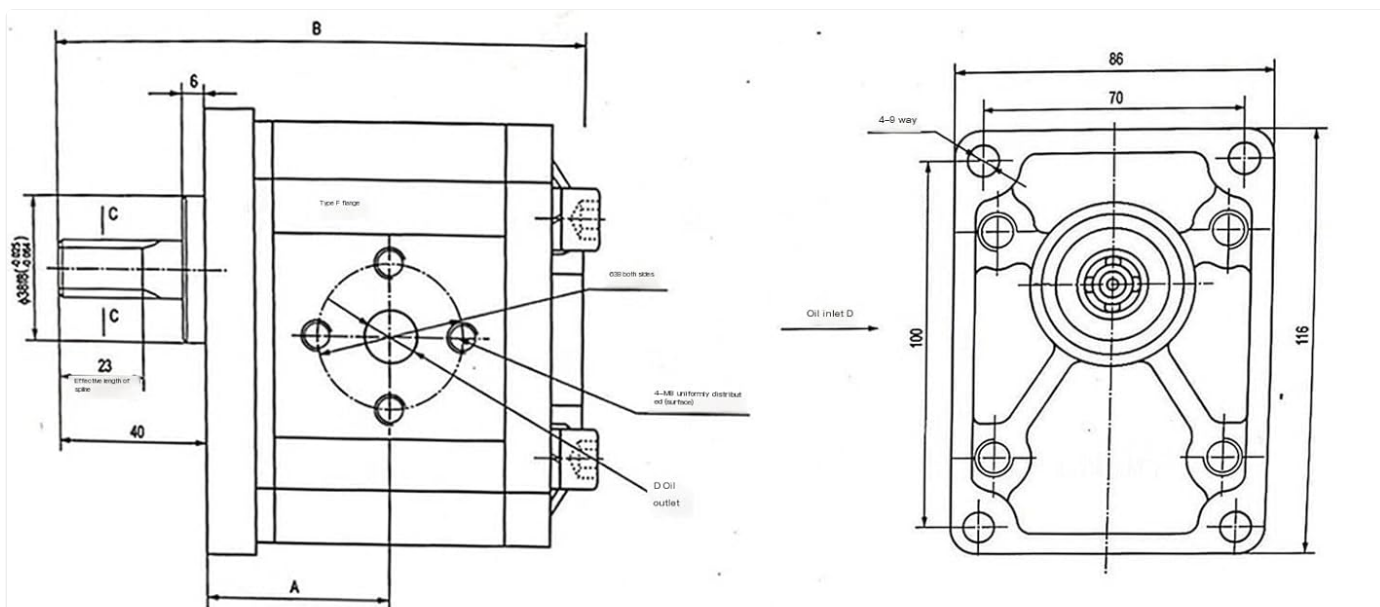
Figure 3.4: Illustration of different shaft configurations available for MINGPING gear pumps, including 4-hole spline shaft, 4-hole flat key shaft, 16 single key shaft, and 18 single key shaft gear pumps. This highlights the versatility of the pump series.

4. SETUP AND INSTALLATION

Proper installation is crucial for the optimal performance and longevity of your gear pump. Follow these steps carefully:

1. **Mounting:** Securely mount the pump to a stable and rigid surface using appropriate fasteners. Ensure the mounting surface is flat to prevent distortion of the pump housing.
2. **Shaft Alignment:** If connecting to a drive shaft, ensure precise alignment to prevent excessive wear on the pump shaft and bearings. Use flexible couplings where appropriate.
3. **Port Connections:** Connect the suction and pressure lines to the designated ports. Ensure all connections are clean and free of contaminants. Use appropriate thread sealants if necessary, but avoid introducing them into the hydraulic system.
4. **Fluid Filling:** Before initial operation, fill the pump casing with clean hydraulic fluid to prevent dry running and ensure immediate lubrication.
5. **System Bleeding:** After installation and filling, bleed air from the hydraulic system to prevent cavitation and ensure smooth operation.

Refer to the technical diagrams for precise dimensions and port configurations.



model	Nominal Displacement (ml/r)	Rated Pressure (Mpa)	Maximum pressure (Mpa)	Rated Speed (r/min)	highest Speed (r/min)	Volume Efficiency (%)	Total efficiency (%)
CBN-E304	4.0	16.0	20	2000	3000	≥ 92	≈ 82
CBN-E306	6.0	16.0	20	2000	3000	≥ 93	≈ 83
CBN-E310	10	16.0	20	2000	3000	≈ 95	≈ 85
CBN-E314	14	16.0	20	2000	3000	≈ 95	≈ 85
CBN-E316	16	16.0	20	2000	3000	≈ 95	≈ 85
CBN-E320	20	16.0	20	2000	2500	≈ 93	≈ 84
CBN-E325	25	16.0	20	2000	2500	≥ 93	≈ 84

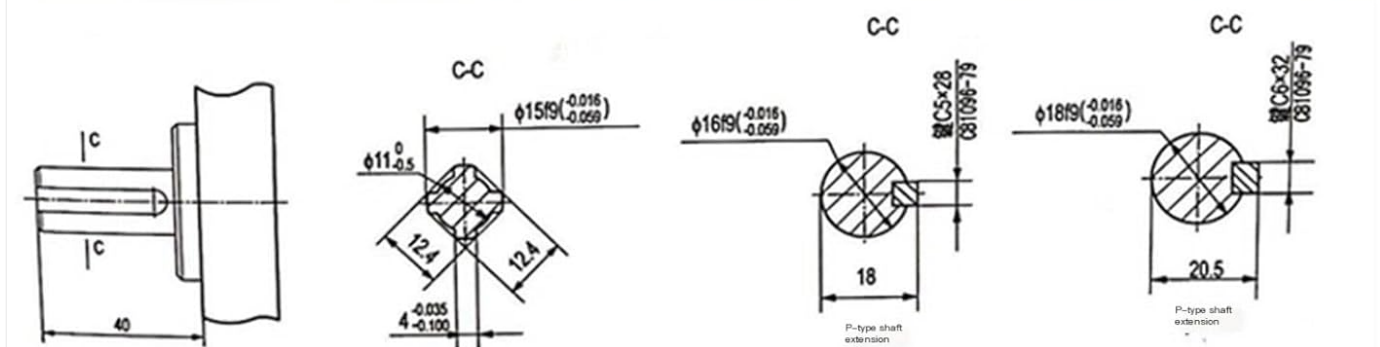


Figure 4.1: Detailed technical diagrams showing pump dimensions (A, B, C) and port configurations, along with a table of performance specifications for various models including CBT-F320. This diagram is essential for proper system integration and installation planning.

5. OPERATING INSTRUCTIONS

Once installed and the system is filled and bled, the pump is ready for operation. Adhere to the following guidelines:

- **Initial Start-up:** Start the prime mover (e.g., electric motor, engine) at a low speed. Gradually increase speed while monitoring system pressure and fluid levels.
- **Fluid Temperature:** Ensure the hydraulic fluid operates within the recommended temperature range. Excessive heat can degrade fluid and damage pump components.
- **Pressure Monitoring:** Regularly monitor system pressure to ensure it remains within the pump's rated and maximum permissible pressure limits.
- **Noise and Vibration:** Listen for unusual noises or vibrations, which may indicate air in the system, cavitation, or

mechanical issues.

- **Fluid Cleanliness:** Maintain high standards of hydraulic fluid cleanliness. Contaminants are a leading cause of pump wear and failure.

6. MAINTENANCE

Regular maintenance extends the life of your gear pump and ensures reliable operation.

- **Fluid Replacement:** Replace hydraulic fluid according to the manufacturer's recommendations or based on fluid analysis.
- **Filter Replacement:** Regularly inspect and replace hydraulic filters to maintain fluid cleanliness.
- **Seal Inspection:** Periodically check for leaks around seals and connections. Address any leaks promptly.
- **Mounting Bolt Torque:** Verify that mounting bolts remain properly torqued to prevent vibration and misalignment.
- **General Inspection:** Conduct visual inspections for any signs of wear, corrosion, or damage.

7. TROUBLESHOOTING

This section outlines common issues and their potential solutions.

Problem	Possible Cause	Solution
No pressure or low pressure	<ul style="list-style-type: none">◦ Air in system◦ Clogged suction filter◦ Insufficient fluid level◦ Incorrect pump rotation◦ Internal wear/damage	<ul style="list-style-type: none">◦ Bleed the system◦ Clean/replace filter◦ Add hydraulic fluid◦ Verify rotation direction◦ Inspect/replace pump
Excessive noise/vibration	<ul style="list-style-type: none">◦ Cavitation (air in fluid)◦ Misalignment◦ Loose mounting◦ Contaminated fluid	<ul style="list-style-type: none">◦ Bleed system, check suction line◦ Realign pump and drive◦ Tighten mounting bolts◦ Change fluid and filters
Overheating	<ul style="list-style-type: none">◦ High system pressure◦ Fluid viscosity too high/low◦ Insufficient cooling◦ Internal leakage	<ul style="list-style-type: none">◦ Check relief valve setting◦ Use correct fluid◦ Check cooler operation◦ Inspect pump for wear

8. SPECIFICATIONS

Key technical specifications for the Generic CBT-F320 Gear Pump and related models.

Characteristic	Value / Description
Model	CBT-F320 (Flat Key Shaft)

Characteristic	Value / Description
Structure	Gear Pump
Material	High-strength Cast Aluminum Body
Rated Pressure (Mpa)	16.0
Maximum Permissible Pressure (Mpa)	20
Rated Speed (r/min)	2000
Highest Speed (r/min)	2500
Volume Efficiency (%)	≥93
Total Efficiency (%)	≥84
Application	Hydraulic Oil
Item Weight	11.02 pounds (approx. 5 kg)
Manufacturer	MINGPING

Note: Nominal displacement for CBT-F320 is 20 ml/r. Refer to Figure 4.1 for detailed dimensional drawings.

9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact the seller or manufacturer directly. Keep your purchase receipt as proof of purchase.

The product is typically covered by a standard return policy, which allows for returns or replacements within 30 days of purchase, subject to the seller's terms and conditions.

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