Handling and Safety

Note: Failure to follow these safety precautions may result in injury, equipment damage, or system failure. Always consult the manufacturer’s documentation for additional details or specific requirements.

Handling Instructions

1. General Safety Precautions

- Always wear appropriate Personal Protective Equipment (PPE) such as safety goggles, gloves, and steel-toe boots when handling, installing, or maintaining hydraulic gear pumps.
- Only qualified and trained personnel should install, operate, or service hydraulic gear pumps.
- Never exceed the maximum operating pressure, flow, or temperature limits specified for the pump.
- Avoid working on hydraulic systems while they are pressurized to prevent injury from sudden fluid release.
- Keep the work area clean and free of debris, hydraulic spills, or tripping hazards.

2. Hydraulic System Safety

- Relieve all system pressure before disassembling or servicing the pump. Use pressure gauges to confirm pressure has been fully relieved.
- Regularly inspect hoses, seals, and fittings for wear, leaks, or damage. Replace faulty components immediately.
- Use only hydraulic fluids that are compatible with the pump’s materials. Refer to the manufacturer's recommendations for fluid specifications.
- Avoid high-pressure fluid leaks. Hydraulic fluid under pressure can penetrate the skin, causing serious injury or infection.
  - If a fluid injection injury occurs, seek immediate medical attention.

3. Installation Safety

- Ensure the pump is securely mounted on a flat, stable surface to minimize vibrations and misalignment.
- Confirm the inlet and outlet ports are correctly connected. Improper connections can cause pump failure or system malfunction.
- Avoid dry running: Always fill the pump with hydraulic fluid before initial operation. Dry running can cause severe internal damage.
- Use properly rated hoses, fittings, and couplings that meet the pump's pressure and flow requirements.
- Check that the drive shaft alignment is accurate. Misalignment can cause excessive wear, noise, and premature failure.

4. Operational Safety

- Monitor operating conditions regularly, including:
  - Pressure
  - Temperature
  - Noise and vibration levels
- Do not exceed the recommended fluid temperature range to prevent overheating or fluid degradation.
- Avoid touching the pump during or immediately after operation, as the surface may become hot and cause burns.
- If unusual noises, vibrations, or leaks are detected, shut down the system immediately and inspect for faults.
- Do not operate the pump if hydraulic fluid levels are too low, as this can cause cavitation and permanent damage.

5. Maintenance Safety

- Disconnect power sources and depressurize the system before performing any maintenance work.
- Drain the hydraulic system carefully and dispose of used fluids in accordance with local environmental regulations.
- Replace seals, bearings, and components periodically as part of a regular maintenance program to ensure pump reliability.
- Use clean tools and components during maintenance to prevent system contamination.
- After maintenance, recheck all hydraulic and mechanical connections for proper fit and tightness before restoring power.

6. Environmental Safety

- Avoid spills of hydraulic oil or contaminated fluids. Use drip trays or absorbent materials when working with the system.
- Dispose of hydraulic oil and filters responsibly, following local environmental regulations.
- Keep hydraulic fluids and equipment away from heat sources, open flames, or other ignition points.

7. Emergency Procedures

- Hydraulic Fluid Injection Injury:
  - Do not ignore. Seek immediate medical attention—treat as a medical emergency.
- Fire Hazard:
  - Use an appropriate fire extinguisher (CO_2 or dry chemical) for hydraulic oil fires. *Do not use water.*
- Fluid Leaks:
  - Immediately shut down the pump and system, clean up the spill with appropriate materials, and repair or replace faulty components.