Screw Pumps & Systems

Power Generation
Leistritz Pumpen GmbH, with its headquarters in Nuremberg/Germany, has been producing Screw Pumps since 1924.
The first Leistritz Screw Pumps were developed by Paul Leistritz as Main Lube Oil Pumps for bearings of steam turbine generator sets.
With the widest product range of Screw Pumps, Leistritz offers complete pump packages, being a perfect partner in the Power Generation sector.
Latest technology in combination with strictly controlled quality is the basis for the world-wide known Leistritz Screw Pump reliability and efficiency.

Leistritz Screw Pumps and Systems

LEISTRITZ Screw Pumps of series L2, L3, L4 and L5 are covering a wide range of application for use in power plants:

- Unloading / Transfer of Fuel Oil
- Lubrication
- Injection of Fuel Oil
- Rotor Lifting
- Hydraulics
- Fuel Oil Separation
Power Generation

The importance of dependable generation, transmission and distribution of electricity was revealed when it became apparent that electricity was useful for powering human technologies from various sources of potential energy.

The first power plants were run on wood, while today most of them use petroleum, natural gas, coal, hydroelectric or nuclear power.

The forecast for the world electricity consumption is considerable, reaching almost 30 billion kWh in the year 2020.

Leistritz Screw Pumps and Systems are operating in:

- **Gas, Steam and Nuclear Power Plants**
- **Hydro Power Plants**
- **Engine Driven Power Plants**
Gas, Steam and Nuclear Power Plants

Combined Cycle Power Plant

Simple Cycle Power Plant

Steam Power Plant

Nuclear Power Plant

Fuel, Lube, and Seal Oil Supply System

- Leistritz FO Unloading Pump
- Leistritz FO Transfer Pump
- Leistritz FO Forwarding Pump
- Leistritz FO Injection Pump
- Leistritz SO Pump
- Leistritz Reduction Gear LO Pump
- Leistritz Jacking Pump
- Leistritz Control Oil Pump
- Leistritz Emergency LO Pump
- Leistritz Auxiliary LO Pump
- Leistritz Main LO Pump

- Truck / Railway Wagon
- Storage Tank
- FO Day Tank
- SO Tank
- LO Tank
- Reduction Gear with LO reservoir
- Burner/Boiler Section

Lube Oil (LO)
Fuel Oil (FO)
Seal Oil (SO)
Heat Exchanger
Flowmeter
Generator

oversimplified illustration
Leistritz Fuel Oil Unloading Pump

The unloading of various kinds of fuel oil from truck or railway wagons is handled by Leistritz Screw Pumps, all series. However, Leistritz Twin Screw Pumps, series L2 (mono flow type) and L4 (double flow type), are the preferred choice because of their ability to run dry (L2 with time limitation), to prime more effectively and to accept bigger sizes of solid product particles.

Leistritz Fuel Oil Transfer and Forwarding Pump

Leistritz Triple Screw Pumps, series L3, are used for fuel oil transfer through different storage facilities and cleaning filters. Furthermore, Leistritz Triple Screw Pumps, series L3, act also as Forwarding Pumps for feeding the following Injection Pumps.

Leistritz Fuel Oil Injection Pump

The injection of fuel oil into burners (steam power plant) or into gas turbines (simple/combined cycle power plant) is realized by Leistritz medium or high pressure Screw Pumps, series L3/M/H/V/U, which are designed to withstand high differential pressures even in combination with very light fuels.

Leistritz Reduction Gear Lube Oil Pump

Reduction gears are installed to adapt the speed between the gas/steam turbines and the generators. Leistritz Triple Screw Pumps, series L3N/M, and Leistritz Twin Screw Pumps, series L2, are used for lubrication of the reduction gears.

Leistritz Jacking-, Control Oil-, Main Lube Oil-, Auxiliary Lube Oil- and Emergency Lube Oil Pump

Gas/steam turbines need constantly proper lubrication. Leistritz Triple Screw Pumps, series L3N/M/H/V, and Leistritz Twin Screw Pumps, series L2, are used for turbine lubrication. Semi-submersible pump designs or dry mounted versions on common lube oil consoles are available.

Leistritz Seal Oil Pump Generator

Hydrogen cooled generators require seal oil for their rotating shafts. Leistritz Triple Screw Pumps, series L3N/M, are responsible for the seal oil supply.
To allow efficient water turbine operation for a wide range of water flow conditions, the water inlet into a Francis turbine has to be adjusted by wicket gates. These wicket gates are hydraulically adjustable via a hydraulic control block. The corresponding hydraulic system is properly fed by Leistritz Screw Pumps, series L3M, to maintain a system pressure of 40 to 70bar.

For rotor and generator shaft lifting during start up of a turbine, Leistritz Jacking Pumps, series L3H/V, are used. These Leistritz Screw Pumps are capable to a fast pressure rise up to 180bar. Dry mounted or semi-submersible pump designs are used alternatively.

The bearings of a turbine and a generator are lubricated by Leistritz Lube Oil Pumps (main/emergency), series L3N and series L2, which are usually operating below 16bar. For this application Leistritz Screw Pumps have standard design to accept a high percentage of dissolved air in the pumped lube oil.
Leistritz Hydraulic Pump
To allow efficient water turbine operation for a wide range of water flow conditions, the water inlet into a Francis turbine has to be adjusted by wicket gates. These wicket gates are hydraulically adjustable via a hydraulic control block. The corresponding hydraulic system is properly fed by Leistritz Screw Pumps, series L3M, to maintain a system pressure of 40 to 70 bar.

Leistritz Jacking Pump
For rotor and generator shaft lifting during start up of a turbine, Leistritz Jacking Pumps, series L3H/V, are used. These Leistritz Screw Pumps are capable to a fast pressure rise up to 180 bar. Dry mounted or semi-submersible pump designs are used alternatively.

Leistritz Lube Oil Pump for Generator/Water Turbine Bearings
The bearings of a turbine and a generator are lubricated by Leistritz Lube Oil Pumps (main/emergency), series L3N and series L2, which are usually operating below 16 bar. For this application Leistritz Screw Pumps have standard design to accept a high percentage of dissolved air in the pumped lube oil.
The unloading of various kinds of fuel oil from truck or railway wagons is handled by Leistritz Screw Pumps, all series. However, Leistritz Twin Screw Pumps, series L2 (mono flow type) and L4 (double flow type), are the preferred choice because of their ability to run dry (L2 with time limitation), to prime more effectively and to accept bigger sizes of solid product particles.

For transfer and separator supply of fuel and diesel oil Leistritz Screw Pumps, series L3N, in standard execution are operating against low pressure (up to 16 bar) and with low fuel oil temperature. The pumps are available in foot, flange and pedestal mounting design for adaption to the individual system.

Leistritz Feeder and Booster Pump for Fuel Oil Modules

Modules for engine fuel oil supply are operated by Leistritz Screw Pumps, series L3N, as Feeder and Booster Pumps. They are designed for product temperatures up to 180°C and available with mechanical shaft sealing or hermetically sealed by magnetic drives.
Leistritz Fuel Oil / Diesel Oil Unloading Pump
The unloading of various kinds of fuel oil from truck or railway wagons is handled by Leistritz Screw Pumps, all series. However, Leistritz Twin Screw Pumps, series L2 (mono flow type) and L4 (double flow type), are the preferred choice because of their ability to run dry (L2 with time limitation), to prime more effectively and to accept bigger sizes of solid product particles.

Leistritz Fuel Oil / Diesel Oil Transfer and Separator Supply Pump
For transfer and separator supply of fuel and diesel oil Leistritz Screw Pumps, series L3N, in standard execution are operating against low pressure (up to 16bar) and with low fuel oil temperature. The pumps are available in foot, flange and pedestal mounting design for adaption to the individual system.

Leistritz Feeder and Booster Pump for Fuel Oil Modules
Modules for engine fuel oil supply are operated by Leistritz Screw Pumps, series L3N, as Feeder and Booster Pumps. They are designed for product temperatures up to 180°C and available with mechanical shaft sealing or hermetically sealed by magnetic drives.
Engine Driven Power Plants

Leistritz offers a wide range of tailor made Screw Pump designs for lubricating purposes, e.g. Leistritz Main Engine Lube Oil Pumps, which are directly flanged and individually adapted to the engines.

Leistritz Lube Oil Transfer and Separator Supply Pump

Leistritz Triple Screw Pumps, series L3NG, are applicable for lube oil transfer and separator supply around the engine. This series is used in foot, flange and pedestal version for horizontal or vertical installation. With one pump design but different seals all kind of lube oils can be handled.

Leistritz Main/Pre Lube Oil Pump

Leistritz Screw Pumps series L2, L3 and L5 are used as Main Lube Oil and Pre Lube Oil Pumps, accepting high percentages of dissolved air in the lube oil. Besides semi-submersible versions for tank installation (series L2NT, L3NT, L3MF, L5NT) and dry mounted versions for horizontal/vertical installation (foot/pedestal mounting), also flanged versions are available. These pumps are directly driven by the engine.

Lube Oil Supply System

A: Lube Oil [LO]
B: Filter
C: Separator
D: Cooler
E: Generator
F: Leistritz LO Transfer Pump
G: Leistritz LO Separator Supply Pump
H: Leistritz Cylinder Oil Transfer Pump
I: Leistritz Main LO Pump
J: Leistritz Pre LO Pump
K: Leistritz Crosshead LO Pump
L: LO Circulation Tank
M: LO Storage Tank
N: Cylinder Oil Storage Tank
O: Cylinder Oil Day Tank

oversimplified illustration
Leistritz Lube Oil Transfer and Separator Supply Pump
Leistritz Triple Screw Pumps, series L3NG, are applicable for lube oil transfer and separator supply around the engine. This series is used in foot, flange and pedestal version for horizontal or vertical installation. With one pump design but different seals all kind of lube oils can be handled.

Leistritz Main/Pre Lube Oil Pump
Leistritz Screw Pumps series L2, L3 and L5 are used as Main Lube Oil and Pre Lube Oil Pumps, accepting high percentages of dissolved air in the lube oil. Besides semi-submersible versions for tank installation (series L2NT, L3NT, L3MF, L5NT) and dry mounted versions for horizontal/vertical installation (foot/pedestal mounting), also flanged versions are available. These pumps are directly driven by the engine.

Customized Lube Oil Screw Pump Solutions
Leistritz offers a wide range of tailor made Screw Pump designs for lubricating purposes, e. g. Leistritz Main Engine Lube Oil Pumps, which are directly flanged and individually adapted to the engines.
# Leistritz Screw Pumps and Systems

<table>
<thead>
<tr>
<th>Series</th>
<th>Use for</th>
<th>Leistritz Screw Pump</th>
<th>Maximal Performance Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2</td>
<td>Low pressure duty, suitable for transport of light abrasive and corrosive, high or low viscous fluids with poor or good lubricity.</td>
<td><img src="image" alt="Image" /></td>
<td>900 m³/h [3,960 gpm]</td>
</tr>
<tr>
<td>L3N</td>
<td>Low pressure duty, suitable for transport of non abrasive lubricating fluids.</td>
<td><img src="image" alt="Image" /></td>
<td>700 m³/h [3,100 gpm]</td>
</tr>
<tr>
<td>L3M</td>
<td>Medium pressure duty, suitable for transport of non abrasive lubricating fluids.</td>
<td><img src="image" alt="Image" /></td>
<td>300 m³/h [1,320 gpm]</td>
</tr>
<tr>
<td>L3H</td>
<td>High pressure duty, suitable for transport of non abrasive lubricating fluids.</td>
<td><img src="image" alt="Image" /></td>
<td>200 m³/h [880 gpm]</td>
</tr>
<tr>
<td>L3V/U</td>
<td>Ultra high pressure duty suitable for transport of light abrasive and corrosive, high or low viscous fluids with poor or good lubricity.</td>
<td><img src="image" alt="Image" /></td>
<td>180 m³/h [792 gpm]</td>
</tr>
<tr>
<td>L4</td>
<td>Low, medium and high pressure duty, suitable for transport of abrasive/ non abrasive, corrosive/ non corrosive, lubricating/non lubricating, high or low viscous fluids.</td>
<td><img src="image" alt="Image" /></td>
<td>5,000 m³/h [22,000 gpm]</td>
</tr>
<tr>
<td>L5</td>
<td>Low pressure duty, suitable for transport of light abrasive and corrosive, high or low viscous fluids with poor or good lubricity.</td>
<td><img src="image" alt="Image" /></td>
<td>1,700 m³/h [7,500 gpm]</td>
</tr>
</tbody>
</table>

Exceeding operating conditions upon request.

**Leistritz Pumps and Systems**

Your Leistritz Partner

---

**LEISTRITZ PUMPEN GMBH**
Markgrafenstrasse 29-39
D-90459 Nuernberg
Germany

Phone: +49 (0)911/4306 - 0
Fax: +49 (0)911/4306 - 490
E-Mail: pumpen@leistritz.com
www.leistritz.com

**LEISTRITZ ITALIA SRL**
Via dei Fontanili, 26
I-20141 Milan
Italy

Phone: +39 02 84477 451
Fax: +39 02 84477 505
E-Mail: pompeitalia@leistritz.com

www.leistritz.com