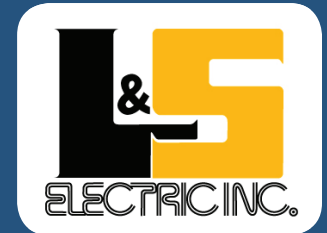


L&S Electric HPU N-Series



Dedicated People, Quality
Products, and Above All, Service.

The L&S Standard Hydraulic Pressure Unit (HPU) N-Series is a modular assembly designed for ease of maintenance, reduced operating costs, and long-term reliability.

Application:

- L&S modular HPU's are designed for the following applications:
 - Replacement of existing high-pressure HPU's
 - Replacement of existing low-pressure HPU's that are converted to higher pressures
 - New installations
 - Governor actuator(s), turbine inlet and bypass valves, brakes
- Relief Valve / Check Valve / Pump Isolation Valve for every pump module
- Pump/motor assembly replaceable as a "module"
 - Module is designed to be lifted straight up by simply removing 4 bolts and the pump outlet fitting for ease of maintenance/replacement
 - Each module includes integral lifting points
- Service factor capability is not used in normal operating range
- Individual pump outlet filter provides continuous oil filtering when pumps are running
- Pump outlet filter capacity is oversized for application to increase time between oil filter replacements

Sizing & Design

- Each hydraulic pressure system is designed to meet IEEE 125-2007 standard for high-pressure oil systems
 - The systems are designed to consider the difference in characteristics of nitrogen charged systems versus air charged systems
 - Cyclic pump operation provides energy efficient system

Pump/Motor Modules

- Designed for low operating cost and ease of maintenance
- High efficiency, inverter duty motors
 - Motor efficiency complies with NEMA Premium™ efficiency levels
 - Ball bearing and inverter duty designs provide long life
- All modules designed to maximize module life and minimize pump cavitation/noise
- C-Face motor/pump coupling design eliminates coupling alignment requirements



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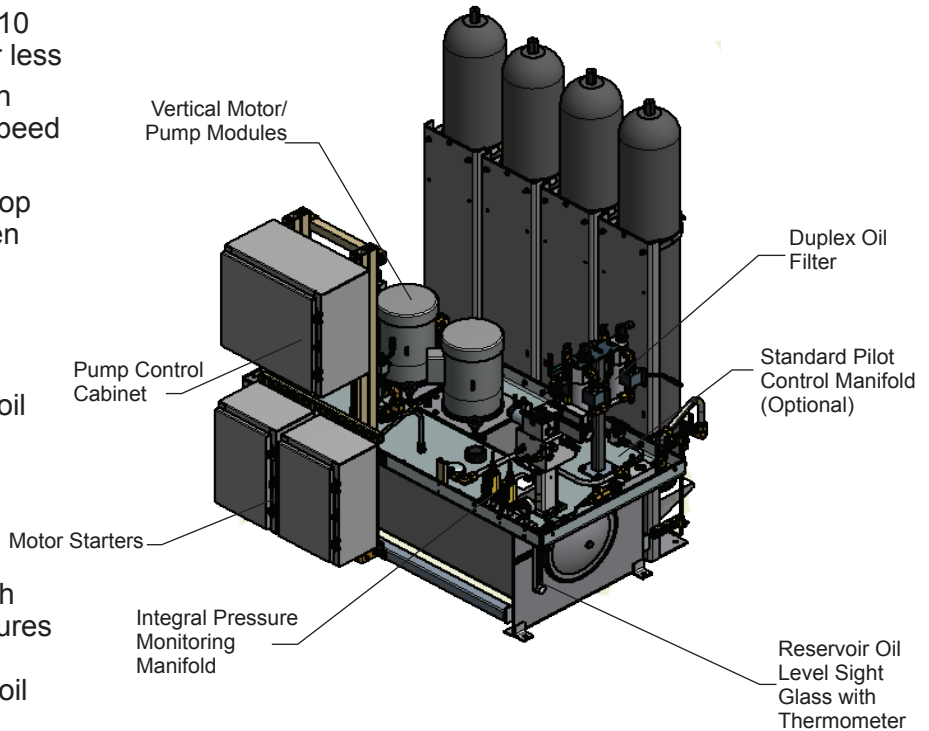
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Unloader Options

- Standard on pump modules larger than 10 HP, optional for pump modules 10 HP or less
- Motor can start with pump unloaded then load pump once motor is up to normal speed (minimizes current inrush)
- Each pump can be used as a Kidney Loop Filter by running pump unloaded between pump cycles

Oil Sump/Cover

- Dual end covers make cleaning easy
- Rolled edge for oil containment, retains oil spilled on top of sump until cleanup
- Sealed design, all holes and other entry points into sump are sealed
- Integral oil breather/filler
- Internal baffles to provide longest oil path between pump inlet and oil returns. Ensures that entrained air has time to disperse and oil debris particles will settle before oil reaches pump suction



Pump Control Enclosure

- All instrumentation on sump terminates to terminal blocks internal to control enclosure to simplify field wiring and troubleshooting
- Contains manual switches and indicators for manual/auto operation

HPU Instrumentation

- Solid-state pressure switches for pump control circuit and mechanical pressure switch for protective trip
- Standard sump temperature and level switches
- Additional options:
 - Analog level transducer
 - Analog temperature transducer
 - Analog pressure transducer

Typical L&S HPU Arrangement

| | |
|--------------------------|--|
| Reservoir Sizes | 35, 70, or 130 gallon |
| Pump Module Arrangements | 1 or 2 pump modules standard for all reservoirs 3 pump modules available on larger reservoirs |
| Pump Modules | 2, 3, 5, 7.5, or 10 HP |
| Motor Voltages | 208/230/460 VAC @ 60 Hz 575/600 VAC @ 60 Hz 220/380 VAC @ 50 Hz |
| Operating Pressure Range | Nominal = 0 – 2200 PSIG Maximum operating pressure is 3000 PSIG, includes pump relief valve set point. |
| Control Valves | All designs support mounting single control valve on reservoir cover Larger reservoirs support additional valve options |
| Accumulator Systems | 10/15 gallon bladder accumulators Sump mounted, free standing floor mount, or wall mount options |

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