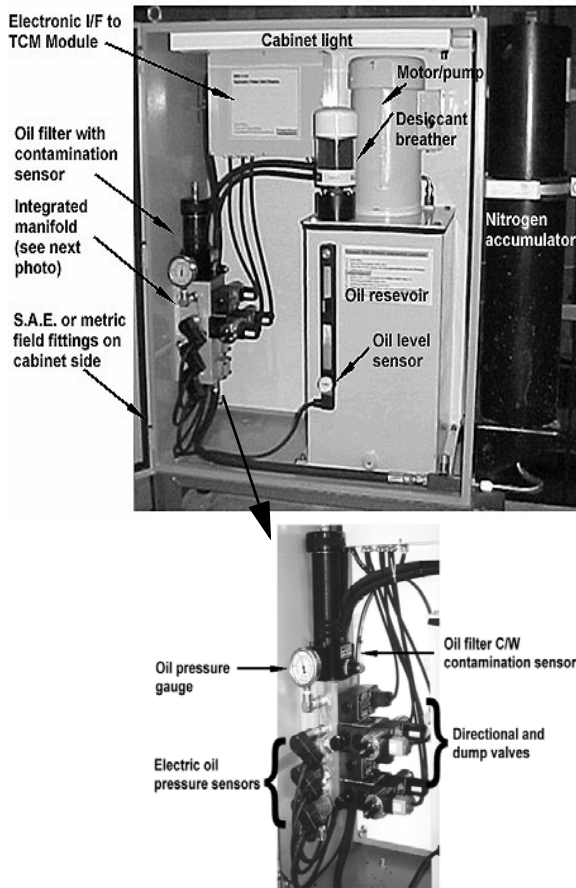


## HPU-10/11/12 - Hydraulic Power Unit



Powerbase offers three self-contained, reliable, HPUs for non governing turbine systems. Each unit is designed to balance cost with product reliability.

A unique high pressure manifold system replaces many of the hydraulic hose connections, which reduces the likelihood of leaky seals.

The HPU is easily installed. It uses a multiconductor cable that connects the HPU to the TCM-30/40. A three phase station service power may be wired directly or through a quick service connection.

Wicket gate/blade hydraulic hose connections are made directly to the high pressure manifold ports which are accessible from outside the chassis.

The HPU-10 is a low cost configuration. It uses an integrated, submersible pump and manifold assembly. It is designed for small, single-regulated turbines, which require low pressure and flow.

The HPU-11 and HPU-12 are single and double regulated units. These units are used for high pressure and flow capabilities. Each unit includes a large 6L or 12L nitrogen accumulator for emergency pressure backup.

HPU-10/11/12 Common Features	
<ul style="list-style-type: none"> <li>•fail-safe gate closure accumulators</li> <li>•flow-control, fault pressure sensing</li> <li>•hydraulic oil contamination sensing</li> <li>•servo control with soft-shift, PWM control valves</li> <li>•self-contained for easy installation</li> </ul>	<ul style="list-style-type: none"> <li>•fail-safe emergency closure of gates</li> <li>•nitrogen accumulator for backup power</li> <li>•single or 3 phase station service input</li> <li>•contamination filter with visual status display</li> <li>•emergency low pressure detection</li> <li>•plug-in compatible with Powerbase TCM-30/40 Modules</li> </ul>
HPU-10	HPU-11/12
<ul style="list-style-type: none"> <li>•lower pressure, single regulated turbine applications</li> <li>•lowest cost, self-contained HPU</li> <li>•integrated pump, valves and pressure relief circuits</li> <li>•ideal choice for smaller Francis or propeller machines</li> <li>•6L nitrogen accumulator</li> <li>•50L oil reservoir</li> </ul>	<ul style="list-style-type: none"> <li>•HPU-11 for single regulation turbine control</li> <li>•HPU-12 for double regulation turbine control</li> <li>•optional disk brakes feature</li> <li>•high flow and pressure for any turbine gate configuration</li> <li>•6L or 12L nitrogen accumulator</li> <li>•50L oil reservoir</li> </ul>

## HPU-10/11/12 Technical Specifications

General	
power supply voltage	•208/480/600 VAC, 1 or 3 phase 50/60Hz
hydraulic pump rating	•2 horsepower, 0.7gpm (3L/minute) @ 1725 RPM (standard pump)
electrical systems	•self-pressuring, 120V soft-shift valves (AC or DC control)
operating temperature	• -10°C to 50°C, ambient air
storage temperature	• -20°C to 75°C
humidity	•0 to 95%, non condensing (air breather desiccant equipped)
shipping weight	•HPU-10, 62 kgs, HPU-11/12, 115kgs (dry weight)
Hydraulic Specifications	
reservoir size	•HPU-10 = 50L, HPU-11/12 = 50L
hydraulic oil	•pre-filtered, Shell Tellus-32 or equivalent
minimum nitrogen pressure	•400 psi (28 bar)
emergency low pressure alarm	•adjustable preset at 450 psi (32 bar)
cut-in pressure	•factor set to 500 psi (35 bar)
cut-out pressure	•factory set to 900 psi (63 bar)
pressure relief	•factory set to 1000 psi (70 bar)
maximum flow	•0.7 gpm (3L/minute) maximum
Safety and Protection	
<ul style="list-style-type: none"> <li>•low oil level</li> <li>•low oil pressure</li> <li>•oil contamination filter</li> <li>•over pressure relief</li> <li>•nitrogen accumulator, power backup</li> <li>•field adjustable gate closure speed</li> <li>•visual oil temperature/pressure/contamination indicators</li> </ul>	