Hydraulic Power Unit (HPU)

Supplies pressurised oil for hydraulic actuation systems
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The Hydraulic Power Unit (HPU) provides pressurised oil to the hydraulic actuation system. A redundant pump system charges the bladder accumulator(s) automatically at a high pressure to utilize the ability of the actuators to store energy. A pressure reducing valve system provides the system with a constant stable system pressure. To ensure the oil cleanliness, supervised filters are installed on the pump and return side. Filtration takes place whenever the pump(s) are running. The HPU is provided with analogue transmitters for oil tank level, temperature and pressure.

Key features

> Redundant hydraulic pumps
  - Two electrically driven high pressure gear pumps, one operational and one standby. Both may run simultaneously if needed.
  - Each pump is connected to a supervised pressure filter. Changing filter elements can be done during full operation.

> Constant output pressure
  - A logical element together with a pilot pressure reducing valve controls the outlet pressure.
  - A pressure relief valve is installed to limit the output system pressure.
  - Output pressure is monitored via a pressure transmitter.

> Surface protection
  - As standard, carbon steel parts such as frame, roof and oil tray are painted with corrosion protection for coastal environments with optional coating suitable for seawater areas with high salinity.

> Accumulator system
  - The HPU can be equipped with 1-3 accumulators, each having a volume of 20-50 litres.
  - The accumulator pressure is monitored via a pressure transmitter, and regulated by the Intelligent Pump Control (IPC).
  - By using a proportional valve to create a smooth transition between charging mode and idling mode, pressure peaks in the system are reduced.
  - A sealed pressure relief valve limits the maximum accumulator pressure. Accumulators are also equipped with burst discs to prevent overpressure in case of fire.

> Return filter and oil filling/drainning
  - A supervised low pressure oil filter is mounted on top of the tank, filtering oil from the idling valve and/or return oil from the system.

Key benefits

> Constant supervised system pressure
> Redundant high pressure pump system
> Oil cooler as option for ambient temperature above +40-45°C
> Up to 300 litres per minute output oil flow
> Intelligent pump control logic with safety processor
> Integrated accumulator system (20 - 150 litres each)
> Supervised filtering system
> Oil tray as standard
> LCD display for HPU operation and status
> Integrated flushing function as standard (requires start-up kit)
> Pressure / level / temperature analog transmitters with LCD readout as standard
> Instrumentation protection class: IP67
> Oil tank in stainless steel material as standard
**Product Specification**

### Accumulators

**Type**  
Bladder with burst disc

**Number**  
1-3 pcs

**Capacity**  
20-150 litres

**Working pressure (typical)**  
220-240 bar

**Pre-charge gas**  
Nitrogen

**Certificates**  
CE, ASME (optional)

**Pressure safety**  
Relief valve (280 bar)

**Cooling / heating (optional)**

**Cooler type**  
Air/oil cooler unit

**Heat transfer**  
1,8 kW at +40°C ambient temp

**Heater power**  
1 kW

### Fluids

**Standard, 46sCt**  
Mineral oil HLP DIN 51524 part 2

**Optional, 46sCt**  
Synthetic Polyolester Quintilubric 888-46

### Filtration

**Inline filtration**  
High pressure / 20 micron absolute

**Inline pressure drop**  
< 0.2 bar

**Return/flushing filter**  
Low pressure / 5 micron absolute

**Return pressure drop**  
1.5 bar  
(during flushing, 500 lpm without bypass valve)

**Electrical filter indicator**  
1 bar

### Installation

**Heavy industrial environments / outdoor**

**Area classification**  
Safe area

**Ambient temperature**  
-20°C to +55°C

**Relative humidity**  
100%

**Noise**

**Noise level**  
<79 dBA at 1 meter

### Oil storage

**Tank capacity**  
300 liters

**Tank dimensions**  
L: 1400 mm  
W: 1200 mm  
H: 2200 mm

**Tank equipped with drain valve**

**Oil tray capacity**  
Standard: 60 liters  
Optional: 330 liters (110%)

### Output pressure

**Typically**  
130 bar

**Pressure safety**  
Relief valve at 150 bar

### Pumps and motors

**Pump type**  
External gear pump

**Number of pumps**  
2 pcs

**Pump capacity**  
~9 lpm (per pump)

**Motor power**  
4 kW / 1450 rpm at 50 Hz

**Efficiency**  
IE2

**Protection class**  
IP55 (IP 56 as option)

### Size and weight

**Max height**  
2150mm (Typical)

**Width**  
1200mm

**Length**  
1340mm

**Weight (empty tank)**  
Approx. 600kg (Typical)

### Visual indicators

**General**

Transmitters  
4-digit luminescent LCS

**Pressure**

1 x accumulator pressure display  
1 x output pressure display (PSI, bar MPa)

**Oil temperature**

1 x temperature display (°C/°F)

**Tank oil level**

1 x tank level display (mm/inches)

**Colour**

NCS 6005-G80Y

### Supply voltage

**1-phase**  
Two wires  
230 VAC, 50Hz

**3-phase**  
Five wires (phase 1,2,3 + neutral + ground)  
400 VAC, 50Hz / 460 VAC, 60Hz

Other supply voltages can be made on request

### Surface protection

**Paint system**

ISO 12944 C4 and/or  
ISO 12944 C5M

**Colour**  
NCS 6005-G80Y

**Tank, fittings, valve manifolds**  
Stainless steel or galvanised carbon steel

**Colour**  
NCS 6005-G80Y

Accumulators are provided with suitable treatment

### Options

- Large oil tray capable of housing the entire tank capacity
- Oil/air cooler, recommended for ambient temperatures over -40°C - 45°C
- Oil heater, recommended for ambient temperatures lower than 10 to 15°C
- Roof (covering mainly IPC and cooler unit)
- Hand pump for emergency operation
- Filter kit
- Startup kit
- Oil filling pump unit
- Optional pump controller (PLC)
- Fully redundant pump controller
- Redundant temperature / level / pressure transmitters

Can be equipped with up to 3 accumulators