


Hydraulic Power Unit (HPU)




Engineering
GREAT Solutions

**Supplies pressurised oil for
hydraulic actuation systems**

Hydraulic Power Unit (HPU)

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.

> Intelligent Power Control (IPC)

- IPC is mounted and fully installed on the HPU.
- The IPC controls all the functions of the HPU and communicates with the local Distributed Control System DCS.
- The IPC is also equipped with a display allowing configuration of minor operating parameters, accessing functions on the HPU and showing its status.

> Return filter and oil filling/draining

- 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 litres	20-150
Working pressure (typical)	220-240 bar
Pre-charge gas	Nitrogen
Certificates:	CE, ASME (optional)
Pressure safety	Relief valve (280 bar) CE certified

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 (during flushing, 500 lpm without bypass valve)	1.5 bar
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
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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 Rotatable Protection: IP67 Configurable display units
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 (Frame, oil tray)	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



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Can be equipped with up to 3 accumulators

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