

SUBSEA HPU 21.3 KW PRODUCT SHEETS

Compact and rugged subsea HPU that can be applied to a wide range of subsea applications



UNDERWATER SPECIALISTS

GENERAL

Our standardized subsea power units are field proven, highly reliable subsea power packs that can be applied to a wide range of subsea applications. Our designs are based on numerous years of field experience gained from installing SHPUs on our ROVs and subsea tools – which operate under harsh conditions – and our plug-and-play power packs come in a wide variety of possible configurations and options.

As a result of the integrated subsea pressure compensator, the 21.3 kW subsea HPU is a truly plug-and-play solution. The compensator, integrated into the rugged stainless steel housing, compensates for external hydrostatic pressure, oil temperature variations and can, to a certain extent, accommodate oil volume variations caused by external actuators such as hydraulic cylinders. This means no additional pressure compensator is required and as a result a highly compact solution can be implemented.

In its basic configuration the unit contains the following:

- Housing / fixed volume oil reservoir (1)
- Suction filter (2)
- Electric motor (3)
- Hydraulic pump (4)
- Pressure compensator (10)
- Overpressure relief valve (5)
- Check valve (7)
- Piping
- Sensors:
 - Water ingress
 - E-motor temperature
- Hydraulic and electric connectors

 Image: component included in basic unit

 Image: component included in basic unit

The illustrated hydraulic diagram is for explanatory purposes and does not represent the actual hydraulic diagram of the 21.3 kW SHPU.



SELECTION & OPTION LIST

For each SHPU the following configuration items can be determined:

- **Hydraulic pump.** Seatools can deliver the SHPU with a range of hydraulic pumps which allows for matching the desired hydraulic pressure and flow characteristics. Please refer to table A to review the options.
- **Hydraulic connections.** Instead of the standard hydraulic and electric connections as listed in the specifications table, the HPU can be delivered with a range of alternative hydraulic and electric connections. Please contact our sales department to discuss the possibilities.

The basic configuration of the subsea HPU can be further extended with the following components and auxiliary systems:

- External box cooler (11) (image A). Depending on the applied duty cycle and environmental conditions, an external box cooler might be required. Our sales engineers can provide advice on a case-by-case basis.
- Subsea pressure compensator / reservoir (10) (image B). Although the 21.3 kW unit features an integrated pressure compensator, additional compensation volume might be required in case of a large hydraulic system. Seatools offers a wide range of field proven subsea pressure compensators and reservoirs with compensation volumes ranging from 0.6 to 1100 liters.
- Pressure filter (6). For maximum protection of components located immediately downstream, the SHPU can be delivered including a pressure filter.
- Hydraulic consumers (9) (image C) such as accumulators, cylinders, and hydro motors.
- Control components (8). The SHPU can be delivered with built-in control components such as directional valves, proportional vales, pressure valves etc..
- Instrumentation. Similarly to control components, additional instrumentation such as pressure sensors can be integrated into the subsea hydraulic power unit.
- Hydraulic filling valves, fittings and appendages.

BLE A - OVERVIEW OF PUMP OPTIONS PUMP

PUMP PERFORMANCE

C

| Pump capacity | Motor running at 50 HZ – 1468 rpm | | Motor running at 60 HZ – 1768 rpm | |
|---------------|-----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|
| [cc/rev] | Maximum flow capacity [l/min] | Maximum operating pressure [bar] | Pump capacity [l/min] | Maximum operating pressure [bar] |
| 15.2 | 21.2 | 300 | 25.5 | 300 |
| 19.1 | 26.6 | 300 | 32.1 | 300 |
| 23.0 | 32.1 | 260 | 38.6 | 250 |
| 26.4 | 36.8 | 225 | 44.3 | 210 |
| 29.3 | 40.9 | 205 | 49.2 | 195 |
| 33.2 | 46.3 | 180 | 55.7 | 170 |
| 36.1 | 50.3 | 165 | 60.6 | 160 |









SUBSEA HPU 21.3 KW SPECIFICATIONS

GENERAL

Material housing Dimensions Weight (unsubmerged, excl. oil) Maximum operating depth Operating temperature range (submerged) Storage temperature range

METRIC

AISI 316 L See detailed drawings (approx.) 450 kg 150 msw -4 to 30°C -18 to 50°C IMPERIAL

(approx.) 992 lbs 592 ft 25 to 86 °F -<u>0.4 to 122</u> °F

HYDRAULIC

Volume flow capacity range¹ Maximum continuous pressure range¹ Fluid compatibility Recommended viscosity range Permitted (not continuous) viscosity Permitted cold start viscosity Filtration size suction Hydraulic connection P Hydraulic connection T Air bleed Fill / drain connection

2 x G½" (plugged)

Shaft power E-motor Power supply (50 Hz) Power supply (60 Hz) Motor power connector Motor and sensor data connector Actuator data connector

50 Hz: 18.5 kW @ 1468 rpm, 60 Hz: 21.3 kW @ 1768 rpm 3 phase, 400 V, 35 A 3 phase, 460 V, 34.5 A Subconn high power, 4 pole, type HPBH4M Subconn metal shell, 12 pole, type BCR2012M Subconn metal shell, 4 pole, type BCR2004F

¹ Value is dependent on selected hydraulic pump and motor frequency, please refer to Table A for more details.
² Contact our sales department in case of bio-degradable fluids.

DIMENSIONS



BOTTOM VIEW



SIDE VIEW Ø б 0 Sensor data Hydraulic connection P connector Actuator data \odot Hydraulic connection T connector \odot \odot Motor power connector 00 Q Ø640 3D VIEW



3D CAD files in STEP format are available on www.seatools.com

RELATED SERVICES

Client advisory

To ensure that the right size and type of SHPU is selected, we advise our clients during the selection process. We do so, required flow and pressure outputs, depth rating, allowable weight and size, applied hydraulic fluids, cooling, required redundancy, and quality standards into account. In addition, we provide advice regarding the installation and use of a SHPU in a subsea hydraulic system.

Custom-made versions

Next to our standardized series, Seatools offers custom-made SHPUs that are tailored to your specifications. Please contact our sales department to request a customized subsea hydraulic power unit.

Subsea hydraulic systems

Because of our subsea hydraulic engineering capabilities we are able to fully unburden our customers by delivering complete tailor-engineered subsea hydraulic systems. This includes all related systems such as mechanics, software, electronics, and controls.



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