**Subsea HPUs (Hydraulic Power Units)**

**Product Definition**

Frames Subsea or Production HPUs are ultra-reliable hydraulic power units that provide clean and stable hydraulic water-based fluids at various pressure levels to a subsea system. Our Subsea HPUs are designed to work with various low-viscosity and low-lubricity water-based subsea production fluids, such as HW525, HT2, HW443 etc.

**Product Description**

Frames HPUs can be implemented as fully enclosed units or in an open-skid configuration for deployment in areas with gaseous atmospheres. Depending on the final destination, we can supply all equipment in accordance with local regulations such as IECEx, ATEX, Inmetro, UL, CSA, NR13, ASME, CE and PED.

Our Hydraulic Power Units are complete units, equipped with instrumentation, pumps, motors, filters, valves and accumulators. The units are specifically designed according to client specifications and international standards. Upon request, Frames will integrate a control system such as MCC with PLC for use in hazardous areas. These control systems can be used to control and power both the motors and the complete HPU.

HPU components can be delivered in a variety of exotic materials, such as Incoloy 825, 6Mo, Super Duplex and Hastelloy C276. Hydraulic pressures generated by the units’ electrical, pneumatic or booster pumps range from 100 up to 1035 bar.

Optionally, the units can be provided with an automatic particle counter which is installed inside the HPU. This counter is certified according to ATEX and IECEx requirements for use in a zone 1, IIB T3 min hazardous area. The particle counter comes with a data connection and the necessary protocols, such as Modbus. This connection is used to remotely control the particle counter and monitor the cleanliness of the hydraulic fluid inside the system according to the international standard formats ISO 4406:1999, NAS 1638, AS 4059E and ISO 11218. Local read-out is also possible. Because the unit provides hydraulic fluid to subsea control modules, manifolds and subsea trees, it is of vital importance that the required cleanliness in the system is monitored and maintained.

If necessary, additional safety instrumented functions up to SIL 3 can be implemented in the design of the hydraulic power units.
Subsea HPUs (Hydraulic Power Units)

Project Management

At Frames, we understand that success depends on sharp project management. As our client, we are driven to support your business, with our dedicated project team always on hand for one-on-one contact, providing you with the best possible service.

From concept through to design, production, testing and delivery, our project team will know your operating environment, and will use the latest technology to precisely meet your needs.

We are solution-oriented, understand your industry and always use strict document control and professional planning to exercise tight process control and meet all delivery deadlines. Our global office network, international supply chain and partnerships with leading vendors mean we are always able to supply the best possible systems and meet all of the local requirements and regulations.
Subsea HPUs (Hydraulic Power Units)

Technical Details

- Robust, powerful HPUs delivering up to 1035 bar
- Custom built for low-viscosity and low-lubricity, water-based subsea production fluids
- Comprehensive range of pump types and flow rates
- Industry-leading design for safe operation in hazardous areas
- Range of specialist materials, including Incoloy 825, 6Mo, Super Duplex and Hastelloy C276
- Effective control from your operating system, or from a local control panel
- Integrated particle counter for remote monitoring of hydraulic fluid

Added Value Frames

- Designed for your unique business needs and operating conditions
- Experienced in-house engineering teams specialized in creating powerful hydraulic packages with added value for your operations
- 24/7 worldwide service and after-sales support

References

- Cidade de Paraty FPSO, Brasil – contractor SBM – enduser Petrobras
- Replicantes P-66 – P-71 FPSO, Brasil – contractor Consóncorio Tomé Ferrostaal – enduser Petrobras
- Cidade de Ilhabella FPSO, Brasil – contractor SBM – enduser Petrobras
- Golden Eagle Platform, United Kingdom – contractor GE Oil & Gas – enduser Nexen
- Iracema do Norte, Planos Alfa/Beta FPSO, Brasil – contractor SBM – enduser Petrobras

Contact

+31 172 461 600
flowcontrolsafeguarding@frames-group.com

Frames
Flow Control & Safeguarding
Eikenlaan 237
2404 BP Alphen aan den Rijn
The Netherlands

Frames
a family of oil & gas solutions
Frames Family Tree

Onshore

Oil & Water
- Production Separators (High & Low Pressure)
- Test Separator
- Degas & Knock-Out Drum
- Water Oil Separator (WODP)
- Compact Inline Separation

Gas
- Demisting
- Scrubbers
- Filters
- Shell & Tube Heat Exchangers

Gas Separation
- Gas Sweetening (H₂S & CO₂)
  - Amines
  - Thiopaq
  - Solid Bed Scavenger
  - Membrane
  - Molecular Sieve
- Glycol (TEG)
- Molecular Sieve

Air-Cooled Coolers
- Low Temperature Separation (LTS)
- Solid Desiccant

Heat Exchangers
- MEG/DEG Recovery
- Methanol Recovery
- MEG/DEG Desalination

Hydrate Inhibition
- Condensate Stabilization
- Fractionation

Dew Point Control
- Fuel Gas Treatment

Offshore

Flow Control & Safeguarding
- Wellhead Control
- Subsea Hydraulic Power Units
- Hydraulic Power Units
- IWOCs (Intervention Workover Control Systems)
- TUTU (Topside Umbilical Termination Unit)
- Cargo Ballasting Systems

Safety Instrumented Systems
- High Integrity Protection Systems (HIPS)

Chemical Injection Systems
- Chemical & Methanol Injection Systems
- Chemical Distribution Systems

Valve Automation Center
- Actuators and Actuated Valve Packages
- Control Systems

Automation
- Buoys
- Tank Farm Control & Safeguarding

Services

Asset Life Cycle Management
- Maintenance & Field Services
- Spare Parts
- Operator Training
- Engineering Studies
  - Conceptual
  - FEED and Basic

Total Plant Solutions
- Industrial CO₂ Modules
- Early Production Facilities
- Wellsite Packages
- Biogas

Integrated Solutions

Frames
Flow Control & Safeguarding
Eikenlaan 237
2404 BP Alphen aan den Rijn
The Netherlands

+31 172 461 600
flowcontrolssafeguarding@frames-group.com
frames-group.com