

### SEPDIS™ Subsea Frequency Converter

*Subsea FC under water in Framo test-dock*

*~ 6,000 hours test passed*

The complex block contains three main elements: a logo for SEPDIS™ Subsea Frequency Converter, a photograph of the subsea FC unit on land, and a photograph of the subsea FC unit submerged in water in a test-dock. The text '~ 6,000 hours test passed' is positioned below the land photograph.

## Subsea Electrical Power Distribution System

Transmission system – 110 kV

HV Distribution system – 22 kV

Variable speed system – 3 to 6 kV

## The Future Subsea Power Solution: SEPDIS - Subsea Electric Power DIStribution

Topside

Topside Step-up Transformer

Subsea Power Cable

HV wet mateable connector

Subsea step-down transformer

Subsea Distribution Level Connectors

Subsea frequency converter

Pump motor wet mateable connector

AC Electrical Pump Motor

**REFERENCE PROJECTS:**

- None

**STEP-OUT DISTANCE:**

- Economical step-out distance up to 100 km, independent of load and pump characteristics

**CAPABILITY:**

- Up to 10 MW
- Operating transmission voltage up to 36 kV

**OFFERING:**

- Increased step-out
- Substantially reduced cable cost due to high transmission voltage
- Building block modules
- Step-wise extension possible

**TECHNOLOGY STATUS:**

- SEPDIS will be qualified through SEPDIS JIP



### System description - Subsea

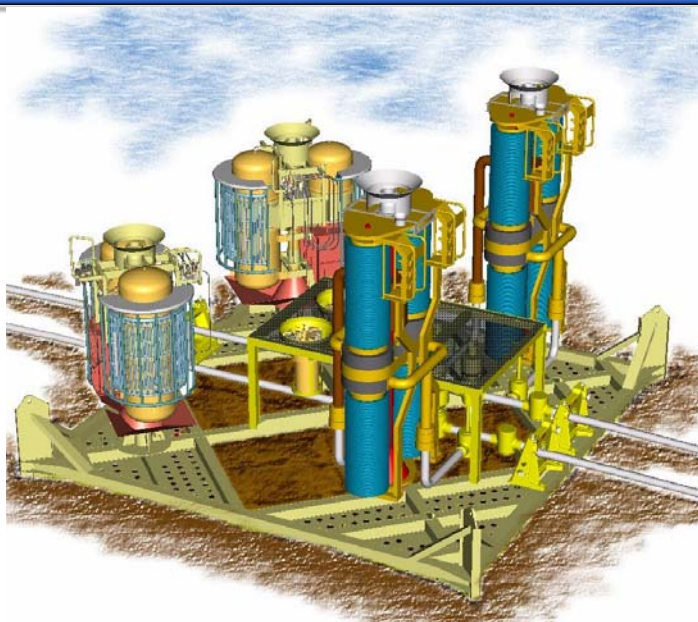


#### Subsea system design features:

- Subsea pump/compressor and VSD in one integrated module
- Modular design – expandability and flexibility
- All subsea system functions – well know from subsea field installations
- Long experience in subsea rotating machinery station applicable



### Subsea Raw Seawater Injection System



### Framo Fiber Optic Control System for Long Tie-backs, SMC and SPCS

*Light intervention vessel* *FPSO*

**Subsea Data Highways**

- Real Time Monitoring and Control
- Interface to SCADA/DCS Systems
- 36 process Sensors per Station
- 20 Process Valves per Station
- 12 Serial Comm. Interface per Station
- 50-100km Step Out
- 100/10Mbps Comm. Rates
- Electro Magnetic Noise Immunity
- Redundant communication
- 600W Power Supply
- Easy Retrieveable Electronics

### Framo Subsea Control Module (SCM)

The image shows a detailed view of the Framo Subsea Control Module (SCM). On the left is a 3D rendering of the external cylindrical housing, which is white with a grey base and has several red and white connectors on top. On the right is a detailed view of the internal control rack, which is yellow and contains various electronic components, including a power supply, control boards, and connectors. The rack is mounted on a yellow frame structure.

