Permanent magnet driver for PG-MAPS®

The driver and control electronics have been developed for the PG-MAPS® in a joint industry project with PG Pump Solutions.

PG-MAPS®, in which these drivers are used, was awarded the OTC Spotlight on new Technology AWARD for 2011.

Techni is a part of the Techni group. Techni deliver services within product development and design.

TIP is a production company in the group.

TOP deliver products to the oil and gas industry, both as an agent and TOP’s own products.

Key features
- No dynamic seals against pumped medium
- Hermetically sealed against seawater (as used in PG-MAPS®) – Zero emission
- Dual acting
- Using any power source available
- No Topside VSD
- Ultra Deep water
- Scaleable design

Applications
- Used in the PG-MAPS®
- Precise driving of pumps for:
  - Subsea Mud & Drill cuttings handling, tophole drilling
  - High Pressure Injection,
  - Subsea Liquid Boosting
  - Heavy oil Boosting
  - Water and chemical Injection
  - Well Intervention & Fracking
- Custom tailored solutions based on the driver and control system

Description
Utilizing revolutionary software controlled, linear actuating system with permanent magnet motor, the PG-MAPS® is designed as a compact, light weight and cost effective pumping system for all liquids.

The universal, scaleable and space saving design – is considerably lighter than the normal mechanical designs with crankshafts. The reciprocating design used in the PG-MAPS® allows for precise control of pump speed and pressure.

The innovative motor control system enables seamless internal energy handling between the powerful, permanent magnet, linear pump drives.

The driver control combined with the clever way of achieving pulsation free pumping without external compensation, results in low and steady electrical power consumption by the pump.

The innovative PG-MAPS® comprises internal and external overload protection by a self-resetting mechanism, resulting in a superb fail-safe functionality.

PG-MAPS® design is based on the understanding of challenges with dynamic seals, and does not utilize external pressure compensating equipment, while still being completely liquid filled and pressure balanced.

PG-MAPS® is a registered trademark of Ing. Per Gjerdrum
Examples of flow regimes:
Flow vs. Pressure for a dual Permanent Magnet Motor Driver delivering 100kW power of pumping.

PG-MAPS®
Picture courtesy of PG Pump Solutions
The pump drives are shown in white colour