

The Hytech Main Drilling Power System is a closed loop hydraulic power system (HPU). The flow and pressure control on the main pumps is very quick and accurate, which allows efficient and precise operation of the equipment. An extensive monitoring system ensures safety and gives the operator an overview of the system status. Typical applications are moving or rotary systems like hydraulic hoisting systems or Top Drive systems for the oil and gas industry.



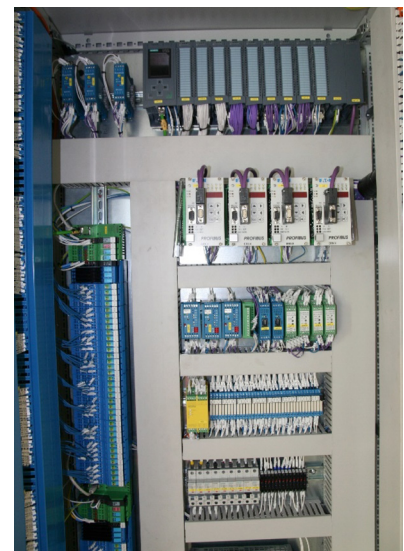
Features & Benefits

The power system, which consists of several main pumps, can be designed to support an assignment design where any of the pumps can individually be assigned to a specific machine. In this way, the power can be distributed where needed and according to the consumption requirement at the given time.

An automatic start-up procedure simplifies the operation process; first the feeder and servo pumps are started and pressure build-up is verified before the main pumps are activated. When all conditions are ready, the driller is notified and may commence operation.

The system can be integrated as part of the rig drilling system on the driller's operating chair. This also includes a schematic visual representation of the HPU where the driller will have an overview of all the critical conditions, as well as an interface for assignment of each pump to a machine and the alarm system.

The HPU is built with specially designed hydraulic blocks, to reduce the number of fittings, pipe and tubing within the unit. This will give the unit a compact and service friendly design.



Specifications

Model: HMDPS

HPU specifications are based on the actual power, flow and pressure requirements of the consumer equipment. Power configurations from a few kW up to over 1MW are available.

The unit will be delivered with manifold blocks for process interface, which is beneficial for installation and the operation life cycle.

The software is programmed for the Siemens PLC S7-1500 series, using the languages STL and SCL. It can also be adapted to the S7-300/400 series.

Software features

Function	Description
Automatic Start-up	The start-up process is automated to ensure that all pumps are activated in the correct order and under the right conditions.
Multi-Assignment	Each main pump can be individually assigned for a specific machine, according to operation demands.
Soft Stop	In case of abnormal conditions which require a quick stop, the control system will ensure that system is shut down in a safe manner, i.e. reverse order of start-up to prevent pump cavitation.
Emergency Stop	Stops all pumps and resets all valves to safe position.
	15050 x 2500 x 11 860 mm
Alarm System	The alarm system will keep the operator oriented about the system status and conditions, as well as informing about any abnormal behaviour. This can be integrated into the rig's control system.
Manual Start	Allows manual start of individual servo and feeder pumps, for maintenance or troubleshooting purposes.

Applicable standards

Standard	Standard no/	Standard title
EU Directive	2006/42/EC	Machinery Directive
EU Directive	94/9/EC	ATEX Directive
EU Directive	89/966/EEC	Use of Work Equipment Directive
EVS-EN ISO	1993-1-1:2005	Eurocode 3 – Design of steel structures, part 1
EVS-EN	13463-1:2009	Non-electrical equipment for use in potentially explosive atmospheres – Part1: Basic Methods and requirements.
EVS-EN	11271:2011	Explosive atmospheres – Explosion prevention and protection – Part 1: basic concepts and methodology
EVS-EN	15198:2007	Methodology for the risk assessment of non-electrical equipment and components for intended use in potentially explosive atmospheres
ISO/TR	14121-2	Risk Assessment – Practical guidance and examples of methods
Low Voltage Directive	2006195IEC, IEC 60364 Series	IEC 6L892-1. IEC 61892-2. IEC 61892-3. IEC 61892-4. IEC 6L892-5. IEC 6L892-6