

GENERAL SPECIFICATION

INSTRUMENTATION

GS EP INS 146

Design of generation and distribution of hydraulic energy

09	11/2012	Revised as per marking
08	01/2012	Revised as per marking
07	01/2011	Revised as per marking
06	10/2008	Revised as per marking
00	10/2002	First issue
Rev.	Date	Purpose of the revision

Owning entity: DEV/TEC

Managing entity: DEV/TEC/INS

General Specification		GS EP INS 146
Design of generation and distribution of hydraulic energy		
Rev.: 09	Effective date: 11/2012	Page: 2 of 12

Contents

1. Scope	3
2. Reference documents.....	3
3. Details and deviations from reference documents	4
3.1 General.....	4
3.2 Hydraulic Power Unit.....	5
3.3 Hydraulic network	9
4. Additional specifications.....	10
4.1 General.....	10
4.2 Hydraulic fluid	10
4.3 Hydraulic system shutdown.....	10
4.4 Environmental protection	11
4.5 Piping class and connections	11
4.6 Hydraulic system control	11
5. Cleaning and Flushing.....	11
6. Testing	12

General Specification		GS EP INS 146
Design of generation and distribution of hydraulic energy		
Rev.: 09	Effective date: 11/2012	Page: 3 of 12

1. Scope

This specification defines the principles of design and construction of a hydraulic power generation system and its distribution network.

Hydraulic power units shall be supplied in compliance with this specification, and shall be complemented by project specifications and other general specifications referenced here-after.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of this document.

Reference	Title
ATEX European Directive 94/9/EC	European Directive on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres
IEC 60079	Parts related to the Electrical apparatus for explosive gas atmospheres
IEC 60529	Degrees of protection provided by enclosures (IP code)
IECEX	IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEX System)
ISO 4406-1999	Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published in the applicable yearly collection.

Reference	Title
GS EP ELE 079	Electrical apparatus for potentially explosive gas atmospheres
GS EP INS 101	Instrumentation engineering, supply and construction general requirements
GS EP INS 102	Instrumentation identification
GS EP INS 107	Design and installation of instrumentation links
GS EP INS 110	Instrumentation for package units
GS EP INS 147	Design and Supply of wellhead control panels

General Specification		GS EP INS 146
Design of generation and distribution of hydraulic energy		
Rev.: 09	Effective date: 11/2012	Page: 4 of 12

Reference	Title
GS EP INS 900	Instrument hook-up diagrams
GS EP PVV 112	Piping material classes
GS EP PVV 211	Design and fabrication of pressure vessels according to ASME VIII
GS EP PVV 212	Design and fabrication of pressure vessels according to BSI PD 5500
GS EP SAF 226	Completed wells safety systems and safety rules
GS EP SAF 261	Emergency shutdown and Emergency De-pressurisation (ESD & EDP)
GS EP SPS 019	Subsea production control system
GS EP SPS 023	Cleaning and Flushing of Hydraulic Systems

3. Details and deviations from reference documents

All services provided shall comply with the above listed documents.

However, regulations or directives applicable in the country of destination of the hydraulic system shall be taken into consideration when they are more constraining than the reference documents.

Hydraulic system detailed requirements shall be given in a project specification. This specification shall detail environmental data, sizing criteria, construction and operation requirements. It shall include the hydraulic power generation, the distribution network, and the wellhead safety valves control panel when required. The functional analysis shall also be part of this specification.

3.1 General

The statements and requirements of this specification shall be completed by those of Company's General Specifications [GS EP ELE 079](#), [GS EP INS 102](#), [GS EP INS 107](#), [GS EP INS 147](#), [GS EP INS 900](#), [GS EP PVV 211](#), [GS EP PVV 212](#), [GS EP SAF 226](#), [GS EP SAF 261](#) and [GS EP SPS 019](#).

Recommendations and prescriptions of [IEC 60079](#) shall also be followed.

The hydraulic system shall be designed to power valves actuators as per project requirements. These can be on/off and proportional valves.

It shall be considered as a packaged Hydraulic Power Unit in combination with a custom-designed distribution network.

The distribution network shall comprise supply and return lines.

For drilling platforms, the hydraulic system shall also integrate the wellhead safety valves control panel, including specific hydraulic energy generation. The Wellhead Control Panel shall be based on a modular design, thus allowing further extensions.