



Exploration & Production

GENERAL SPECIFICATION

SUBSEA SYSTEMS

GS EP SPS 016

Subsea insert chokes and associated running and retrieval tools

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Contents

1. Scope	3
2. Reference documents.....	3
3. Introduction	4
3.1 Responsibility.....	4
4. System description	5
5. Insert choke assembly.....	5
5.1 Design requirements.....	5
5.2 Sealing requirements.....	6
5.3 External connections/Body penetrations	6
6. Actuator	6
7. Choke Valve Running and Retrieval Tool (CVRT)	7
7.1 Design requirements - Choke Valve Running Tool (CVRT)	7
7.2 Design requirements for ROV Based Choke Insert Running and Retrieval Tool	8
7.3 Choke Valve Installation - Insert Type Choke Valve.....	9
8. Material requirements	9
9. Testing	10
9.1 FAT Program	10
10. Qualification testing.....	10
10.1 General.....	10
11. Inspection, test and transportation equipment	11
11.1 Inspection and cleaning tool	11
11.2 Test & Transportation equipment	11
12. Choke Data	12



1. Scope

The purpose of this specification is to define the functional and design requirements for the hydraulic operated insert choke valves to be installed on the subsea station with associated running tools. Minimum design and material requirements have been addressed.

The specific field data will be provided for each field application.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

This technical specification is complementary to document **GS EP SPS 001** and shall therefore be read in conjunction with said document and the other Company specifications and standards identified therein.

The Subsea Insert Choke and associated Running/Retrieval Tool shall comply with all relevant statutory requirements and specifications as well as all relevant, ISO, API, and other referenced standards, unless otherwise stated by Project Group.

Standards

Reference	Title
ASME B16.5	Pipe flanges and flanged fittings
ASME B16.34	Valves - Flanged, Threaded, and Welding End
ASME	Boiler and Pressure Vessel Code Section V - Non Destructive Examination
ISO 10423	Petroleum and Natural Gas Industries - Drilling and Production Equipment - Wellhead and Christmas Tree Equipment
ISO 13628	Petroleum and Natural Gas Industries - Design and Operation of Subsea Production Systems
ISO 13628-1	Petroleum and Natural Gas Industries - Design and Operation of Subsea Production Systems - Part 1: General Requirements and Recommendations
ISO 13628-4	Petroleum and Natural Gas Industries - Design and Operation of Subsea Production Systems - Part 4: Subsea Wellhead and Tree Equipment
ISO 13628-8	Petroleum and Natural Gas Industries - Design and Operation of Subsea Production Systems - Part 8: Remotely Operated Vehicle (ROV) Interfaces on Subsea Production Systems
ISO 14313	Petroleum and Natural Gas Industries - Pipeline Transportation Systems - Pipeline Valves-First Edition /Cobranded with API Spec 6D

**Professional Documents**

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP PVV 142	Valves
GS EP SPS 001	Design philosophy and requirements for Subsea Stations
GS EP SPS 019	Subsea production control system
GS EP SPS 029	Metallic Materials for Subsea Production Facilities

3. Introduction**3.1 Responsibility**

It is the responsibility of anyone who supplies equipment to this specification to ensure compliance with the requirements defined by this specification, other referenced standards and statutory requirements. Any deviation from any of the requirements defined herein shall be clearly indicated and treated as a non-conformance.



4. System description

This document specifies the requirements for the complete choke system, consisting of the following main elements:

1. Body/bonnet sealing system
2. Choke insert with guide arrangement
3. Mechanical connector
4. Valve body
5. Actuator with ROV override
6. Choke running and retrieval tool.

Retrieval of the choke insert shall be possible with a running tool deployed by liftwire, or by a conventional ROV equipped with dedicated tool systems.

The insert choke valve shall be designed to allow retrieval/re-install and test of all wear parts without removing the choke valve body from the flowline system.

The remote control system will provide hydraulic power for the choke actuator and electrical service for the remote position indicator.

5. Insert choke assembly

The insert choke valve assembly shall be designed for the field specific conditions defined for each individual project. The design shall be identified by design life, external and internal design pressures and temperatures, material compatibility with produced medium, injected chemicals such as methanol, inhibitors, and other chemical substances relevant for each specific project.

5.1 Design requirements

The following design requirements are applicable to the choke assembly:

1. The design of the valves shall be in accordance with the requirements defined in this specification, the referred design code [ISO 13628](#) and [ISO 10423](#), minimum PSL 3.
2. The actuator and choke internals shall be vertically retrievable as a single unit.
3. Choke control characteristics shall be designed to allow adjustments to within 1% of full travel.
4. The choke trim will be specified for each specific project. Either External Sleeve type or Plug and Cage type shall be available.
5. The choke trim and body shall be designed to provide specified pressure reduction capabilities for flow in both directions. CV curves for both flow directions shall be provided upon Company request.
6. The choke insert shall include a proven guidance system providing accurate alignment of the insert during installation and retrieval, and shall include a mechanical connector with capability to sustain the full range of operational loads and pressures it will be exposed to.
7. The choke valve stem and end stops shall be capable of accommodating the full actuator thrust and ROV input torque over the entire opening and closing cycle.
8. The weakest point of the valve actuation system shall be outside the stem seal area.