

NORSOK STANDARD

PIPING DESIGN, LAYOUT AND STRESS ANALYSIS

L-002
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Provided by Standard Online AS for rayan 2013-07-21

Please note that every effort has been made to ensure the accuracy of the NORSOK standards neither OLF nor TBL or any of their members will assume liability for any use thereof.

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FOREWORD

NORSOK (The competitive standing of the Norwegian offshore sector) is the industry initiative to add value, reduce cost and lead time and remove unnecessary activities in offshore field developments and operations.

The NORSOK standards are developed by the Norwegian petroleum industry as a part of the NORSOK initiative and are jointly issued by OLF (The Norwegian Oil Industry Association) and TBL (Federation of Norwegian Engineering Industries). NORSOK standards are administered by NTS (Norwegian Technology Standards Institution).

The purpose of this industry standard is to replace the individual oil company specifications for use in existing and future petroleum industry developments, subject to the individual company's review and application.

The NORSOK standards make extensive references to international standards. Where relevant, the contents of this standard will be used to provide input to the international standardisation process. Subject to implementation into international standards, this NORSOK standard will be withdrawn.

1 SCOPE

This standard covers the basis for design and layout of process, drilling and utility piping for offshore oil and/or gas production facilities. Relevant parts of this standard may also be used for control room, laboratory, helideck and other facilities around the platform.

The standard does not cover the following:

1. All instrument control piping downstream of the last piping block valve.
2. Risers and sub-sea pipework.
3. Sanitary piping systems.
4. GRP piping. (See NORSOK standard M-621)

2 NORMATIVE REFERENCES

The following standards include provisions which, through reference in this text, constitute provisions of this NORSOK standard. Latest issue of the references shall be used unless otherwise agreed. Other recognized standards may be used provided it can be shown that they meet or exceed the requirements of the standards referenced below.

NORSOK L-001	Piping and valves
NORSOK L-003	Piping detail (presently L-CR-003)
NORSOK P-001	Process design
NORSOK R-001	Mechanical equipment
NORSOK S-001	Technical safety
NORSOK S-002	Working environment
NORSOK Z-002	Coding system (presently Z-DP-002)

National and international codes and standards:

ASME B31.3	Process Piping.
DNV	Guidelines for flexible pipes
ISO 5167	Measurement of fluid flow
ISO 10420	Flexible pipe systems for subsea and marine riser applications (based on API RP 17B)

3 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

Can	Can requirements are conditional and indicates a possibility open to the user of the standard.
Isolation Valve	An insulation valve is defined as a valve that is used to shut off a piece of equipment or system for maintenance purpose only.

May	May indicates a course of action that is permissible within the limits of the standard (a permission).
Normative references	Shall mean normative in the application of NORSOK standards
Shall	Shall is an absolute requirement which shall be followed strictly in order to conform with the standard.
Should	Should is a recommendation. Alternative solutions having the same functionality and quality are acceptable.

3.2 Abbreviations

The following abbreviations are given for terms used in this standard:

API	American Petroleum Institute
ASME	The American Society of Mechanical Engineers
D	Diameter
DNV	Det Norske Veritas
EDS	Element Data Sheet
ISO	International Organization for Standardization
NPS	Nominal Pipe Size
NPSH	Net Positive Suction Head

4 DESIGN AND LAYOUT

4.1 General

The design of all systems shall be in accordance with latest edition of the codes and standards listed in clause 2 Normative references.

Design conditions shall be in accordance with the ASME B31.3. except where the requirements of this standard are more stringent.

4.2 Numbering systems

Numbering systems for piping, piping items and valves shall be in accordance with Z-002.

4.3 Safety and work environment

Ergonomic consideration shall be taken in design regarding:

- Tools, valves and control devices, including emergency controls devices shall be accessible.
- Provision for cleaning, maintenance and repair shall be taken into consideration.

Requirements related to safety and working environment shall conform with S-002.

Potential source of hazard (release of hydrocarbons), e.g. flange joints, shall be located inside hazardous areas as defined in the Area Classification drawings or specification. However, a reevaluation of the area classification is still necessary, in order to check for any consequences. (Even if all sources are located inside hazardous area, there might still be a need for extensions).

Where applicable, provision shall be made to protect piping and equipment from falling objects.