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KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	<b>OFF SHORE PIPING DESIGN, LAYOUT AND STRESS ANALYSIS</b>  <b>(PROJECT STANDARDS AND SPECIFICATIONS)</b>	

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## 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 rooms, 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.

## NORMATIVE REFERENCES

The following standards include provisions which, through reference in this text, constitute provisions of this 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.

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)

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## DEFINITIONS AND ABBREVIATIONS

### 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 the 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.

### 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

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## DESIGN AND LAYOUT

### 1 General

The design of all systems shall be in accordance with latest edition of the codes and standards.

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

### 2 Numbering systems

Numbering systems for piping, piping items and valves shall be in accordance with the designated project standard.

### 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 project standards.

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 re-evaluation 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.