

PETRONAS TECHNICAL STANDARDS

DESIGN AND ENGINEERING PRACTICE

MANUAL

PIPING CLASSES – BASIC OF DESIGN

PTS 31.38.01.10

AUGUST 2011



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PTS Circular 2011 – PTS 31.38.01.10



PTS No:	31.38.01.10
PTS Title:	Piping Classes – Basis of Design

<Applicable for New PTS>

This new PTS 31.38.01.10- Piping Classes – Basis of Design (**July 2011, Revision 0**) has been developed to **update the latest revision**

This PTS also includes PETRONAS Lessons Learnt and PETRONAS Best Practice for the subject matter Piping Classes – Basis of Design.

<Applicable for PTS Updates/Review>

This revision of PTS 31.38.01.10- Piping Classes – Basis of Design (**July 2011, Revision 0**) has been updated to incorporate PETRONAS Lessons Learnt, Best Practice and new information issued by relevant industry code and standards. All updates in the document are highlighted in *italic font*.

The previous version of this PTS 31.38.01.10 (**February 2007**) will be removed from PTS binder / e-repository from herein onwards.

<Applicable for PTS Deletion >

This PTS 31.38.01.10- Piping Classes – Basis of Design (**July 2011, Revision 0**) has become obsolete **due to additional information updated**.

The custodian of this PTS is:

Name: Muzzahhir b M Hadzir

Tel. No:

Please direct any questions regarding this PTS to the above-named.

Document Approval

	Name	Designation	Date	Signature
Prepared/ Reviewed	Badrunnizam b Sairi	Engineer, Piping	20/7/11	
Approved	Muzzahhir b M Hadzir	Staff Engineer, Piping	04/08/11	
Verified	Zuraimi B M Idris	Senior Manager, Mechanical Engineering, GTS	04/08/11	
Verified	Saifol Muallim B Ahmad Yahaya	General Manager, Engineering, GTS	9/8/11	
Endorsed	Pau Kiew Huai	Senior General Manager, GTS	12.8.11	

Revision History

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Documents

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PREFACE

PETRONAS Technical Standards (PTS) publications reflect the views, at the time of publication, of PETRONAS OPU/Divisions.

They are based on the experience acquired during the involvement with the design, construction, operation and maintenance of processing units and facilities. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice.

The objective is to set the recommended standard for good technical practice to be applied by PETRONAS' OPU in oil and gas production facilities, refineries, gas processing plants, chemical plants, marketing facilities or any other such facility, and thereby to achieve maximum technical and economic benefit from standardisation.

The information set forth in these publications is provided to users for their consideration and decision to implement. This is of particular importance where PTS may not cover every requirement or diversity of condition at each locality. The system of PTS is expected to be sufficiently flexible to allow individual operating units to adapt the information set forth in PTS to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use PTS they shall be solely responsible for the quality of work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, it is expected of them to follow those design and engineering practices which will achieve the same level of integrity as reflected in the PTS. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the owner.

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1. INTRODUCTION

1.1 SCOPE

This PTS explains the design basis of the piping classes contained in PTS 31.38.01.12 and PTS 31.38.01.15. Guidance on the application of piping classes for projects is given in PTS 31.38.01.21.

This PTS is a revision of the PTS of the same number dated February 2007; a summary of the main, non-editorial, changes is given in (1.5).

Line pipe and fittings for oil and gas transmission pipeline systems are outside the scope of this PTS.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by PETRONAS, the distribution of this PTS is confined to companies forming part of or managed by PETRONAS, and to Contractors nominated by them.

This PTS is intended for use in oil refineries, chemical plants, gas plants, exploration and production facilities and supply/marketing installations.

When PTS are applied, a Management of Change (MOC) process should be implemented. This is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements may be more stringent than in this PTS, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable as regards safety, economic and legal aspects. In all cases the Contractor shall inform the Principal of any deviation from the requirements of this document which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned with the object of obtaining agreement to follow this document as closely as possible.

1.3 DEFINITIONS

1.3.1 General Definitions

The **Contractor** is the party which carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may sometimes undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party which manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party which initiates the project and ultimately pays for its design and construction. The Principal will generally specify the technical requirements. The Principal may also include an agent or consultant, authorised to act for, and on behalf of, the Principal.

The word **Shall** indicates a requirement.

The word **Should** indicates a recommendation.

1.3.2 Specific definitions terms of slug catcher parts

Piping class

Collection of piping components, suitable for a defined service and design limits, in a piping system. The piping classes are contained in the following PTSs:

PTS 31.38.01.12- "Piping classes - refining and chemicals".
This binder contains piping classes developed for oil refineries, chemical plants and gas plants; also suitable for onshore exploration and production facilities.

PTS 31.38.01.15- "Piping classes - exploration and production". This binder contains piping classes developed for offshore facilities (platform piping).

NOTE: For standardization and interchangeability reasons, the Principal may decide to use these piping classes also for onshore facilities.

Assembly

Pre-designed standard configuration for vents, drains, orifice meter runs, thermowells and pressure points within a piping class

1.4 CROSS-REFERENCES

Where cross-references to other parts of this PTS are made, the referenced section number is shown in brackets. Other documents referenced in this PTS are listed in (6).

1.5 SUMMARY OF MAIN CHANGES

This is a revision of the PTS of the same number dated February 2007. The main non-editorial changes are:

2.4 Addition of identification of piping class indicates a process service related selection of selection of impact tested and non-impact tested material in carbon steel piping classes.

3.2 Addition of design requirements for pipe and fittings larger than DN 600 on manufacturing tolerances, full vacuum and wall thickness requirements.

3.4 Addition for Butt welding fittings larger than DN 600 design requirements in accordance to ASME B31.3

3.9 Add new paragraph on selected materials for impact tested carbon steel requirements to align with ASME B31.3

3.10 Add of new paragraph on health and environmental hazard-Based fugitive emission tightness classification for piping components selected materials for impact tested carbon steel requirements to align with ASME B31.3