BRITISH STANDARD

BS ISO
13880:1999

Petroleum and natural gas industries — Content and drafting of a technical specification

ICS 01.110; 75.020

National foreword

This British Standard reproduces verbatim ISO 13880:1999 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee PSE/17, Petroleum and natural gas industries, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to iv, pages 1 to 11 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 January 2000

ISBN 0 580 35868 2

Amendments issued since publication

Amd. No.	Date	Comments

INTERNATIONAL STANDARD

ISO 13880

First edition
1999-10-15

Petroleum and natural gas industries — Content and drafting of a technical specification

Industries du pétrole et du gaz naturel — Rédaction et contenu d'une spécification technique

Reference number
ISO 13880:1999(E)

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 13880 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum and natural gas industries*.

Annex A of this International Standard is for information only.

Introduction

When a user/purchaser wishes to procure a product, process or service, the user/purchaser may produce a functional specification. If so, the manufacturer/supplier provides a technical specification as the basis for manufacturing or execution. The user/purchaser decides on the extent to which it is necessary to determine, directly or indirectly, that relevant requirements are fulfilled and states this in the contract with the manufacturer/supplier. A technical specification may not be necessary for a known standard product, process or service to a recognized standard.

Petroleum and natural gas industries — Content and drafting of a technical specification

1 Scope

This International Standard provides guidance for the content and drafting of a technical specification in order to ensure that all technical requirements of a product, process or service are included and can be verified as complying with specified performance requirements, such as may be specified in a functional specification (see ISO 13879).

A technical specification may not be necessary for a known standard product, process or service manufactured/ supplied to a recognized standard.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For this dated reference, subsequent amendments to, or revisions of, this publication do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 13879:—[1)], *Petroleum and natural gas industries — Content and drafting of a functional specification.*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1
functional specification
document that describes the features, characteristics, process conditions, boundaries and exclusions defining the performance and use requirements of the product, process or service

3.2
technical specification
document that defines technical requirements to be fulfilled by the product, process or service in order to comply with the functional specification

NOTE 1 A technical specification should indicate, whenever appropriate, the procedure(s) by means of which it may be determined whether the requirements given are fulfilled.

NOTE 2 A technical specification may be a standard, be included in a standard(s) or be independent of a standard.

---

1) To be published.

NOTE 3 A technical specification expresses the technical requirements expressed by characteristics, features, properties and all information that is required to produce a product, execute a process or provide a service, including objective evidence that the product, process or service will comply with the functional requirements.

3.3
design process
process of converting the requirements of the functional specification into the technical specification

3.4
technical drawings
drawings showing the required dimensions, surface finishes, deviations of form and position, tolerances and all other details required to provide the product, process or service

3.5
material requirements
document listing the materials required and providing, when relevant, chemical composition, mechanical and physical properties, and any other data necessary to define materials required to provide the product, process or service to the functional specification

NOTE 1 The document may also list the applicable treatments, welding procedures and machining processes.

NOTE 2 The document should contain all available information regarding toxicity and any other health, safety and environment related aspects.

3.6
manufacturing plan
document setting out the specific manufacturing practices, technical resources and sequences of activities relevant to the production of a particular product including any specified acceptance criteria at each stage

NOTE 1 This plan should make reference to the applicable methods, procedures and work instructions.

NOTE 2 In case of services, the manufacturing plan is often called a Service Plan.

3.7
inspection plan
document providing an overview of the sequence of inspections and tests, including appropriate resources and procedures to be referenced by the manufacturing plan

3.8
routine test
test performed to provide evidence that the product, process or service or part thereof is in compliance with the relevant requirements of the technical specification

3.9
type test
test performed to provide evidence that the design meets the requirements of the functional specification

3.10
design review
documented, comprehensive and systematic examination of a design to evaluate its capability to fulfill requirements for quality, identify problems and propose the development of solutions

NOTE 1 In the context of this International Standard, the basis for the design review is the functional specification.

NOTE 2 A service is also designed, and can be reviewed in the same manner.

4 Guidelines for drafting

4.1 Objectives of a technical specification

Any product, process or service should function as specified by the functional specification when exposed to the anticipated operating conditions and environmental factors. The technical specification should provide sufficiently detailed information:

- to demonstrate compliance with the functional specification; and thereafter
- to enable the manufacturer/supplier to deliver the product, process or service in compliance with the functional specification and the technical specification.

The technical specification should describe the technical requirements of the product, process or service in clear and unambiguous terms. In order to achieve this, the technical specification should:

- be as complete as necessary within the limits specified by the scope;
- be consistent and accurate;
- take account of the state of the art.

4.2 Format of a technical specification

The technical specification should only contain requirements that can be verified. Uniformity of structure, style and terminology should be maintained within each technical specification, and within any series of associated technical specifications. The same terminology should be used throughout, and synonyms should be avoided.

The text of the technical specification should follow the relevant guidelines of existing basic International Standards. See 4.3 of ISO/IEC Directives Part 3, 1997. This relates particularly to:

- standardized terminology;
- principles and methods of terminology;
- quantities, units and their symbols;
- abbreviated terms;
- bibliographic references;
- technical drawings and/or service procedures;
- graphical symbols.

In addition, for technical aspects, the relevant provisions of general International, regional, or national standards dealing with the following subjects should be respected:

- environmental conditions and associated tests;
- type tests or service procedures trials;
- routine tests;
- safety;
- regulatory requirements;
- statistical methods.

5 Framework, structure and content

5.1 General arrangement

The following elements should be present in a technical specification:

¾ preliminary elements identifying the technical specification;

¾ normative elements specifying the requirements for compliance with the technical specification;

¾ supplementary elements that provide additional information to assist the understanding of the technical specification.

The arrangement which should be used is indicated in Table 1.

Table 1 — Arrangement of elements

Type of element		Element	Subclause of this International Standard (ISO 13880)
Preliminary		Title page Contents Foreword Introduction	5.2.1, 5.3.1 5.2.2 5.2.3 5.2.4
Normative	General	Title Scope Normative References	5.3.1 5.3.2 5.3.3
	Technical	Terms and definitions Symbols and abbreviated terms Technical requirements Sampling Test methods Classification and designation Marking, labelling, packaging Operating environment, boundaries, limits and exclusions Ergonomics Safety and environment Normative annexes	5.4.1 5.4.2 5.4.3 5.4.4 5.4.5 5.4.6 5.4.7 5.4.8 5.4.9 5.4.10 5.4.11
Supplementary		Informative annexes	5.5

5.2 Preliminary elements

5.2.1 Title page

The title page should contain the title (see 5.3.1), an identification of the initiating organization, a unique identifier, issue date and authorization.

5.2.2 Contents

The contents should comprise a list of the clauses and the annexes. All the elements should be given with their full titles.

5.2.3 Foreword

This is an optional element and may contain the following:

¾ an indication of the organization which prepared the technical specification;

¾ information regarding the approval level of the technical specification;

¾ a statement that the technical specification cancels or replaces other documents in whole or in part;

¾ a statement or an indication of significant changes from any previously supplied specifications;

¾ a statement clarifying which annexes are normative and which are informative.

5.2.4 Introduction

This is an optional preliminary element used to give specific information or commentary about the contents of the technical specification. It shall not contain requirements.

5.3 General normative elements

5.3.1 Title

The wording of the title should be as concise as possible and should indicate the subject matter of the technical specification, without going into unnecessary detail.

The title should be composed of separate elements, each as short as possible, proceeding from the general to the particular. Not more than the following three elements should be used:

a) an introductory element indicating the general field to which the technical specification belongs;

b) a main element indicating the principal subject treated within that general field;

c) a complementary element indicating the particular aspect of the principal subject or giving details which distinguish the document from other technical specifications or other parts of the same technical specification.

5.3.2 Scope

This element should define the subject matter of the aspect(s) covered and indicate any limits of applicability.

5.3.3 Normative references

This optional element shall give a list of the normative documents to which reference is made in the standard in such a way as to make them indispensable for the application of the standard. For dated references, each shall be given with its year of publication, or in the case of enquiry or final drafts, with a dash together with a footnote “To be published” and full title. The year of publication or dash shall not be given for undated references. When an undated reference is to all parts of a standard, the publication number shall be followed by the indication “(all parts)” and the general title of the series of parts (i.e. the introductory and main elements).

These documents should include:

¾ the applicable functional specification;

¾ relevant drawings;

¾ material requirements;

¾ operating procedures;

¾ training requirements;

- manufacturing plan;
- quality plan;
- inspection plan;
- performance sheet(s), detailing the performance of the product, process or service as related to the functional specification;
- design review report, giving details of the extent of the review and including its findings together with any proposed solutions;
- type test reports;
- maintenance manual, including associated instructions;
- routine test procedure(s).

The list should not include the following:

- documents to which only informative reference is made;
- documents which have merely served as references in the preparation of the technical specification.

5.4 Technical normative elements

5.4.1 Terms and definitions

This is an optional element giving definitions necessary for the understanding of certain terms used in the technical specification. The definitions should be introduced by the following wording:

"For the purposes of this technical specification, the following terms and definitions apply".

5.4.2 Symbols and abbreviated terms

This is an optional element giving a list of symbols and abbreviated terms necessary for the understanding of the technical specification.

5.4.3 Technical requirements

This element should define the technical requirements of the product, process or service.

These requirements should include:

- all technical and physical characteristics of the product, process or service with their associated properties and limiting values necessary to comply with the functional specification, either explicitly or by reference;
- the required limiting values of quantifiable characteristics;
- the process in or for which the product, process or service is used;
- reference to the test method(s) to be used to verify quantifiable characteristics;
- the product, process or service acceptance criteria.

A clear distinction should be made between normative requirements, and statements included only for information or guidance (informative).

Contractual requirements concerning claims, covering of expenses, etc. should not be included.

5.4.4 Sampling

This is an optional element specifying the conditions and methods of sampling, as well as the method for the preservation of the sample(s). This element may appear at the beginning of element 5.4.5.

5.4.5 Test methods

This element should give all the instructions concerning the procedures for determining the values of characteristics, or checking compliance with stated requirements, and for ensuring the reproducibility of the results. Where appropriate, tests shall be identified to indicate whether they are type tests, routine tests, sampling tests and so on, and should include acceptance criteria.

Instructions relating to the test methods may be subdivided in the following order (where appropriate):

a) principle;

b) reagents or materials;

c) apparatus;

d) preparation and preservation of test samples and test pieces;

e) procedure;

f) expression of results, including method of calculation and precision of the test method;

g) test report.

For the drafting of methods of chemical analysis, ISO 78-2 should be followed. Much of ISO 78-2 is applicable to test methods for products other than chemical products.

Test methods may be presented as separate clauses, or be incorporated in element 5.4.3, or be presented as annexes (see 5.4.11).

5.4.6 Classification and designation

This is an optional element which may establish a system of classification, designation and/or coding of products, processes or services that conform to stated requirements. For convenience, this element may be combined with element 5.4.3.

5.4.7 Marking, labelling and packaging

This element should specify the marking of the product (e.g. trademark; model or type number). It may include requirements for the labelling and/or packaging of the product (e.g. handling instructions, hazard warnings, date of manufacture).

Symbols specified for marking should be in conformity with relevant International Standards.

Elements 5.4.6 and 5.4.7 may be supplemented by an informative annex giving an example of ordering information.

5.4.8 Boundaries, limits and exclusions

This element should provide all information known to the specifier about the environment in which the product, process or service operates, including boundaries, limits and exclusions.

5.4.9 Ergonomics

This element should define the ergonomic requirements relevant to the product, process or service and should contain the elements stated in ISO 6385.

5.4.10 Safety and environment

This element should define the safety and environmental requirements relating to the product, process or service in order to eliminate or minimize the identified hazards.

The safety aspects in the technical specification should be specified in accordance with ISO/IEC Guide 51.

5.4.11 Normative annexes

Normative annexes are integral parts of the technical specification. Their presence is optional. An annex's normative status (as opposed to informative) shall be made clear by the way in which it is referred to in the text, by a statement to this effect in the foreword and by an indication in the table of contents and under the heading of the annex.

5.5 Supplementary elements

Informative annexes give additional information and should not contain any requirements.

Annex A
(informative)

Frequently asked questions

A.1 Who writes a technical specification?

A technical specification as described in this International Standard is usually written by a manufacturer/supplier.

A.2 When to write a technical specification?

A technical specification as described in this International Standard is written to demonstrate compliance with the functional specification. The functional specification will have been written by the user/purchaser. Some examples of when a functional specification may have been written are as follows:

- when a user/purchaser knows his performance requirements but has no preconceived ideas as to how they will be met;
- where there is innovative engineering for which no standard components are available;
- when standard components are engineered into a package in which the components may be supplied to recognized standards. In this case, the functional specification may include references to component standards in order to indicate the expectations of the user/purchaser;
- when a user/purchaser wishes to widen his choice of standard products, processes or services;
- when the available standards do not specify the performance requirements.

A.3 How to write a technical specification?

The best way to write a technical specification is by using a team approach. Design engineers, manufacturing, process, service and marketing staff should all be involved. Performance requirements should not be stated in the technical specification, if already stated in the functional specification used to define the technical specification.

A.4 Where does the technical specification apply and where not?

A technical specification applies where trade is involved and where the requirements need to be defined to enable fitness for purpose assessment (ISO/IEC Directives Part 2:1992, 5.1.1). This applies to products, processes and services.

A technical specification does not apply when requirements cannot be verified by a known test method or other defined means of verification, demonstrating that the product, process or service will conform to the stated requirements and/or rules.

A technical specification may not be necessary for a known standard product, process or service (e.g. a commodity product) manufactured/supplied to a recognized standard.

A.5 Does a technical specification need a functional specification?

Yes, if the technical specification described in this International Standard is written to demonstrate compliance with the functional specification described in ISO 13879.

However, a technical specification for a product, process or service described by ISO/IEC Guide 2:1996 (General terms and their definitions concerning standardization and related activities) and written as an International Standard in accordance with the ISO/IEC Directives Parts 2 and 3 does not require a functional specification. This is because the performance requirements are not segregated from the other properties. Instead, the complete specification of the product, process or service is integrated into one International Standard (albeit sometimes in parts) based on the stated performance requirements in the International Standard.

Bibliography

Below is a non-exhaustive list of the most generally applicable basic International Standards containing standardized terminology. For specific subjects, the provisions of other, less generally applicable, standards will be relevant.

[1] ISO 78-2:1999, *Layouts for standards — Part 2: Methods of chemical analysis.*

[2] ISO 6385:1981, *Ergonomic principles of the design of work systems.*

[3] ISO/IEC Directives Part 2:1992, *Methodology for the development of International Standards.*

[4] ISO/IEC Directives Part 3:1997, *Rules for the structure and drafting of International Standards.*

[5] ISO/IEC Guide 2:1996, *Standardization and related activities — General vocabulary.*

[6] ISO/IEC Guide 51: 1990, *Guidelines for the inclusion of safety aspects in standards.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL