INTERNATIONAL STANDARD

ISO 8277

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Ships and marine technology — Pipework and machinery — Information transfer

Navires et technologie maritime — Tuyauteries et machines — Transmission d'informations

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

This second edition cancels and replaces the first edition (ISO 8277:1988), which has been technically revised.

Introduction

The revision to this International Standard takes into account the recent globalization of the shipbuilding industry and manufacturers of installed equipment, and the transformation of specifications, which introduce the following points into piping machinery at shipyards:

— A growing number of installed equipment and piping equipment manufacturers, and their models;

— A diversification of standards specifying piping installations and piping fittings used by shipyards and/or ship equipment manufacturers.

With this background there is a lack of information necessary to carry out pipe fittings and machinery in shipyards, and an absence of consistency in the descriptions of these points.

This International Standard is revised taking into consideration the current situation of piping machinery in shipyards. In order to enable manufacturers of equipment and/or piping equipment to comply with this International Standard which specifies procedures of drawings and manufacturing, the revision covers the following points:

— The implementation of this International Standard for operation when applying other international standards and/or each national standard;

— The description of as many references as possible in a requirements and comments table as applicable requirements to the latest circumstances of pipe fitting in shipyards.

Ships and marine technology — Pipework and machinery — Information transfer

1 Scope

This International Standard specifies the minimum data needed for the prefabrication and assembly of pipework and for its transfer from engineering departments to workshops in the shipbuilding industry.

It is applicable to written information needed for construction of piping installations that marine piping equipment manufacturers submit through specifications and instructions to shipyards on shipbuilding.

It is not applicable to the generation, type presentation and filing organization of this data.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14726:2008, *Ships and marine technology — Identification colours for the content of piping systems*

ISO 15583:2005, *Ships and marine technology — Maritime standards list*

3 Pipework information

The type of pipework information shall be divided into three parts as follows:

— Information on standard parts (see 3.1);

— Information on non-standard parts (see 3.2);

— Administrative information (see 3.3).

3.1 Information on standard parts

Table 1 — Information on standard parts

Item of pipework information	Requirements and comments
3.1.1 Identification	A special sequence of characters that could be part of, or include, one of the numbers given in 3.3.
3.1.2 Name, standard	Each part shall be given a name and reference shall be made to international, national or industry standards. Example of national standards: DIN, ANSI, JIS, BS, NF, KS, GB, etc. (see Table 4). These national standards are listed in ISO 15583:2005.
3.1.3 Pressure **3.1.3.1** Nominal pressure (PN)	Table 4 shows the nominal pressures in national standards.

Table 1 *(continued)*

Item of pipework information	Requirements and comments
3.1.3.2 Test pressure	Strength, tightness, procedure of pressure testing, where not defined by the relevant standard.
3.1.4 Nominal diameter (DN)	Table 5 shows a comparison of the national standards nominal diameters.
3.1.5 Material	Indication of material and thickness, and propriety of classification material.
3.1.6 Dimensions	Of the finished product, relevant for assembly. Description for bolt circle position of flange, lining thickness, gasket thickness and presence of lining.
3.1.7 Mass (net)	
3.1.8 Location	Global and local; the position of the part should be given in the ship or plant coordinate system, and in relative measures (optional).
3.1.8 Attachments included	Description of parts necessary for the assembly, e.g. gaskets, bolts, supports, etc.
3.1.9 Identification colours	Pipework identification colours in accordance with ISO 14726:2008 shall be used. Identification colour should be at the same time ensured to be in compliance with statutory requirements, rules and regulations.
3.1.10 Attachments included	Description of parts necessary for the assembly, e.g. gaskets, bolts, supports, etc.
3.1.11 Certification or information on certification required	Result of non-destructive inspection, manufacturer's pressure test or onboard pressure test.
3.1.12 Other (General)	Subclause 3.2 may be used as in 3.1 if necessary for information on standard parts.

3.2 Information on non-standard parts

Table 2 — Information on non-standard parts

Item of pipework information	Recommendations and comments
3.2.1 Identification	See 3.1.
3.2.2 Name, drawing number	Each part shall be given a name and reference shall be made to the drawing which contains the manufacturing information.
3.2.3 Pressure	
3.2.3.1 Nominal pressure (PN)	

Table 2 *(continued)*

Item of pipework information	Recommendations and comments
3.2.3.2 Test pressure	Strength, tightness, and pressure testing procedure which should follow an international, national or industry standard.
3.2.4 Nominal diameter (DN)	See 3.1.4.
3.2.5 Material	See 3.1.5.
3.2.6 Semi-manufactured articles	Name and dimensions prior to production.
3.2.7 Dimensions	See 3.1.6. Description for the pipe end dimensions, e.g. outside diameter and thickness.
3.2.8 Manufacturing information	
3.2.8.1 For cutting	Example: metal saw, press, thermal cutting such as gas, plasma, laser.
3.2.8.2 For flanging and hole orientation	Example: flanges provided by regional standards such as ANSI, JIS, KS, DIN, gasket material needed, etc.
3.2.8.3 For bending, including sequence of bending and heat treatment	
3.2.8.4 For welding, including joint preparation and heat treatment	
3.2.8.5 For finishing	Galvanizing, Phosphating, Pickling and oil coated, Synthetic rubber lining, Polyethylene lining, Pickling and V.P.I., Non-tar epoxy painting.
3.2.8.6 For testing	
3.2.8.7 For preservation	Treatment of outside surface.
3.2.8.8 For labelling	

3.3 Administrative information

Table 3 — Administrative information

Item of pipework information	Recommendations and comments
3.3.1 System number	A sequence of alpha, numeric or alphanumeric characters.
3.3.2 Drawing number	See 3.3.1.
3.3.3 Stock number	See 3.3.1.
3.3.4 Ordering number	See 3.3.1.
3.3.5 Part number	See 3.3.1.
3.3.6 Number of pieces	
3.3.7 Delivery date	

Table 4 — Numeric nominal pressure of designation and marking listing

PN-Nominal pressure series (DIN, NF, BS, GB)	**Class-Nominal pressure series** (ANSI)	**K-Nominal pressure series** (JIS, KS)
PN 2,5	Class 75	2 K
PN 6	Class 125	5 K
PN 10	Class 150	10 K
PN 16	Class 250	16 K
PN 25	Class 300	20 K
PN 40	Class 400	30 K
PN 64	Class 600	40 K
PN 100	Class 900	63 K
	Class 1500	
	Class 2500	
	Class 4500	
NOTE This table is not a comparison table. Nominal pressures shown in this table do not correspond to each other.		

Table 5 — Numeric nominal diameter of designation and marking listing

Nominal diameter for Designation and Marking		
DN (DIN, NF, BS,GB)	**NPS** (ANSI)	**A** (JIS,KS)
10	*	10
15	1/2	15
20	3/4	20
25	1	25
32	11/4	32
40	11/2	40
50	2	50
65	21/2	65
80	3	80
*	31/2	90
100	4	100
125	5	125
150	6	150
*	*	175
200	8	200
*	*	225
250	10	250
300	12	300
350	14	350
400	16	400
450	18	450
500	20	500
*	*	550
600	24	600
*	26	650
700	28	700
*	30	750
800	32	800
*	34	850
900	36	900
*	38	950
1000	40	1000
*	42	1050
NOTE This is a comparison table showing nominal diameters of the national standards.		

Table 5 *(continued)*

Nominal diameter for Designation and Marking		
DN (DIN, NF, BS,GB)	**NPS** (ANSI)	**A** (JIS,KS)
*	44	1100
*	46	1150
1200	48	1200
*	50	1250
*	52	1300
*	54	1350
1400	56	1400
*	58	1450
*	60	1500
1600	*	*
1800	*	*
2000	*	*
2400	*	*
2600	*	*
2800	*	*
3000	*	*
3200	*	*
3400	*	*
3600	*	*
3800	*	*
4000	*	*
NOTE This is a comparison table showing nominal diameters of the national standards.		

4 Flow chart

The data and material flow for pipe production and installation and the interface are shown in the flow chart (Figure 1).