INTERNATIONAL STANDARD

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Ships and marine technology — Fittings for use with gasketed mechanical couplings used in piping applications — Performance specification

Navires et technologie maritime — Raccords pour utilisation avec les accouplements mécaniques avec joints utilisés en tuyauterie — Spécification des performances

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15838 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

Ships and marine technology — Fittings for use with gasketed mechanical couplings used in piping applications — Performance specification

1 Scope

This International Standard defines classification, materials, test requirements, inspection requirements, marking and packaging of fittings for use with gasketed mechanical couplings (GMCs) conforming to ISO 15837.

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 15837, *Ships and marine technology — Gasketed mechanical couplings for use in piping systems — Performance specification*

ASTM F 1548, *Standard Specification for the Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications*

3 Terms and definitions

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

3.1
fitting
a device used to change pipe direction, size or adapt to other joining methods

NOTE This device is used with pipe or other fittings to create a working system. Shapes such as elbows, tees, crosses, reducers and special shapes are used as needed to fulfil system design specifications.

3.2
fabricated fitting
a fitting constructed by welding together sections of pipe or tube

3.3
grooved end fitting
type of fitting or pipe having a groove for use with grooved mechanical couplings (Type I) as defined in ISO 15837

3.4
plain-end fitting
type of fitting or pipe end for use with gasketed mechanical couplings (Type II) that are plain end as defined in ISO 15837

3.5
tangent
a section of straight pipe or tube integral to, or welded to, the end(s) of the fitting

3.6
wrought fitting
a fitting made by shaping, or shaping and welding

3.7
size
dimensions of the piping system or component, primarily nominal diameter (D_n) and wall thickness

4 Classification

Fittings are classified by the following design types:

— Type I, Grooved end;

— Type II, Plain end.

5 Ordering information

Orders for fittings in accordance with this International Standard shall include the following characteristics:

— quantity;

— size;

— description (90° elbow, tee, cross, etc.);

— type (I or II);

— groove style (consult manufacturer);

— minimum pressure rating;

— material (ductile iron, steel, aluminium, copper nickel, copper, etc.);

— finish (painted, galvanized, bare, plated, etc.);

— other requirements agreed to between purchaser and fitting manufacturer.

6 Materials

The materials used for construction of fittings governed by this International Standard shall be as agreed upon by the manufacturer and purchaser, provided that such materials have been used to qualify the joint's performance in accordance with this International Standard. See also ASTM F 1548 for a list of applicable ISO, BSI and ASTM material specifications.

7 Design and qualification requirements

7.1 Design requirements

The design of fittings may be qualified by mathematical analysis in accordance with piping codes agreed to by the manufacturer and purchaser, or by testing. Fittings shall be tested, where required, with gasketed mechanical couplings in accordance with the test requirements of ISO 15837.

7.2 Qualification requirements

7.2.1 Mathematical analysis

A mathematical analysis, where appropriate, shall be performed as required by the governing piping code. Records of the analysis shall be available at the manufacturer's facility for inspection by the purchaser.

7.2.2 Test

The fittings shall be tested, where appropriate, with gasketed mechanical couplings in accordance with the requirements of ISO 15837. Unless otherwise noted herein, all of the requirements of ISO 15837 apply. Records of successful tests shall be available at the manufacturer's facility for inspection by the purchaser.

7.2.3 Qualification

Each type, pressure class, and material of fitting offered for sale shall be qualified. Interpolation between qualified sizes is allowed as defined in ISO 15837. Qualification of the fitting requires successful completion of the analysis or required testing. Each fitting design is only qualified for use with the GMC design on which it was tested or analysed.

8 Dimensions

Fitting dimensions and tolerance shall be as specified by the manufacturer.

9 Workmanship, finish and appearance

All fitting surfaces shall be free from scale, blisters, fins, seams, laps, burrs and cracks which would affect the suitability for the intended service.

10 Inspection

10.1 Terms of inspection

Inspection of the fittings shall be in accordance with the manufacturer's standard inspection procedure or as agreed upon between the purchaser and the manufacturer or supplier as part of the purchase contract.

10.2 Raw material inspection

Raw material shall be inspected for compliance with requirements. If necessary, a certificate of compliance from the material supplier shall be obtained.

10.3 Quality conformance inspection

Fitting samples shall be visually and dimensionally examined to verify conformance to the manufacturer's drawings.

10.4 Process control inspection

Fittings shall be inspected throughout the entire manufacturing and processing cycle. Methods of inspection shall be in compliance with the manufacturer's quality assurance procedures.

10.5 Inspection records

The manufacturer shall maintain inspection records. The length of time on file shall be in accordance with the manufacturer's quality assurance procedures.

11 Product markings

Each fitting shall be marked with the manufacturer's name or trademark, size, and markings traceable to the material and pressure rating. Additional markings, other than those specified, which are part of the manufacturer's standard practice, may also be applied to the fittings.

12 Packaging

The fitting shall be wrapped, boxed, crated and otherwise protected during shipment and stored in accordance with the manufacturer's standard practice. Care shall be taken to protect the fitting from damage during shipment and storage.