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**Rubber hoses and hose assemblies for  
rotary drilling and vibration  
applications — Specification**

*Tuyaux et flexibles en caoutchouc pour forage rotatif et amortissement  
des vibrations — Spécifications*

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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 6807 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

This second edition cancels and replaces the first edition (ISO 6807:1984), which has been technically revised.

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## Introduction

In rotary drilling for oil, fluid muds are pumped at high pressure in large volumes to drill heads. High-pressure hoses are used as flexible connectors in the mud supply circuit.

Rotary drilling hoses are used between the top of the standpipe and the swivel that allows vertical travel. They are also used between barges and offshore drilling rigs, usually in lengths greater than 13,5 m.

Rotary vibrator hoses are shorter (9 m or less) and used between the pump and the derrick or standpipe manifolds to accommodate misalignment and to isolate vibration.

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# Rubber hoses and hose assemblies for rotary drilling and vibration applications — Specification

**WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.**

## 1 Scope

This International Standard specifies the requirements for textile- and steel-reinforced rubber hoses and hose assemblies for use with water-based and/or oil-based muds, up to a maximum temperature of 82 °C, which are pumped at high pressure in large volumes in rotary drilling service and which, when tested in accordance with ISO 2977, have a minimum aniline point of 66 °C.

This International Standard applies to hoses which are suitable for use at ambient temperatures between – 20 °C and + 52 °C, unless changed by a supplementary requirement on request of the purchaser, and are resistant to ageing and tropical conditions.

This International Standard does not apply to hoses which are intended for use with gases.

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## 2 Normative references

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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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1402:1994, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static strain test*

ISO 1746:1998, *Rubber or plastics hoses and tubing — Bending tests*

ISO 1817, *Rubber, vulcanized — Determination of the effects of liquids*

ISO 2977, *Petroleum products and hydrocarbon solvents — Determination of aniline point and mixed aniline point*

ISO 4649:2002, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of dimensions*

ISO 7233:1991, *Rubber and plastics hoses and hose assemblies — Determination of suction resistance*

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

ISO 8331, *Rubber and plastics hoses and hose assemblies — Guide to selection, storage, use and maintenance*

ISO 10422, *Petroleum and natural gas industries — Threading, gauging, and thread inspection of casing, tubing and line pipe threads — Specification*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.

### 4 Classification

Hoses and hose assemblies are classified into five grades according to the maximum working pressure at which they are intended to be used (see Table 1).

**Table 1 — Grades according to maximum working pressure**

Grade	Maximum working pressure bar <sup>a</sup>	Proof pressure bar <sup>a</sup>
A	103	206
B	138	276
C	276	552
D	345	690
E	517	1 034

<sup>a</sup> 1 bar = 0,1 MPa

### 5 Materials and construction

#### 5.1 Hoses

The hose lining shall consist of an oil- and water-resistant rubber.

The hose reinforcement shall consist of layers of textile and/or steel material.

The hose cover shall consist of an oil-, abrasion- and weather-resistant rubber and have a coloured line along its length to aid laying in a straight line.

#### 5.2 Hose assemblies

Hoses shall be connected to external couplings (built in during manufacture or swaged). These couplings shall be manufactured out of carbon steel or stainless steel traceable to the steel manufacturer. Rotary hose assemblies may be furnished with external connections threaded with line-pipe threads as specified in ISO 10422.

The marking “ISO 6807” may be retained on hose assemblies when other connections are attached, upon agreement between the manufacturer and purchaser, and provided the assembly is pressure tested in accordance with Table 1 with the connections in place.

NOTE It is the responsibility of both manufacturer and purchaser to ensure that the couplings are suitable for the intended pressures and that the connecting elements are compatible with any fixed or mobile fastenings to which the assembly will be attached.



## 6 Dimensions and tolerances

### 6.1 Internal diameters and bend radius

When measured in accordance with the method described in ISO 4671, the internal diameter of the hose shall conform to the values given in Table 2. The tolerance on the internal diameter shall also conform to the values given in Table 2.

When measured in accordance with the method described in 8.1, the bend radius shall conform to the values given in Table 2.

**Table 2 — Internal diameters and minimum bend radius**

Internal diameter mm	Grade	Tolerance on I.D. mm	Minimum bend radius m
51	A, B, C	± 1,20	1,0
63	A, B, C, D, E	± 1,20	1,2
76	C, D, E	± 1,40	1,2
89	C, D, E	± 1,50	1,4
102	C, D, E	± 1,60	1,5

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The dimensions of the end connections for the various grades shall be in accordance with Table 3.

**Table 3 — Dimensions of end connections**

Internal diameter of hose <i>D</i>	Nominal thread or flange size <i>T</i>	Grade
51 mm (2 in)	63,5 mm (2½ in)	A, B, C
63 mm (2½ in)	76,2 mm (3 in)	A, B, C, D, E
76 mm (3 in)	101,6 mm (4 in)	C, D, E
89 mm (3½ in)	101,6 mm (4 in)	C, D, E
102 mm (4 in)	127 mm (5 in)	C, D, E
127 mm (5 in)	127 mm (6 in)	C, D, E

### 6.2 Length

The length of hose assemblies shall be the measured length from nipple end or coupling end to coupling end as appropriate (see Figure 1) and shall be determined after hydrostatic pressure testing (see 8.2).

The tolerance on the finished length shall be as follows:

assemblies up to 6 m ± 64 mm;

assemblies over 6 m ± 1 %.