INTERNATIONAL STANDARD 1823

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Rubber hoses for oil suction and discharge

Tuyaus en élastomère pour aspiration et refoulement des produits pétroliers

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 45 has reviewed ISO Recommendation R 1823 and found it technically suitable for transformation. International Standard ISO 1823 therefore replaces ISO Recommendation R 1823-1970 to which it is technically identical.

ISO Recommendation R 1823 was approved by the Member Bodies of the following countries :

Austria	India	South Africa, Rep. of
Belgium	Iran	Spain
Brazil	Israel	Switzerland
Czechoslovakia	Italy	Thailand
Chile	Netherlands	Turkey
Egypt, Arab Rep. of	New Zealand	United Kingdom
France	Peru	U.S.A.
Greece	Poland	
Hungary	Portugal	

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 1823 into an International Standard.

Printed in Switzerland

Rubber hoses for oil suction and discharge

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the minimum acceptable requirements for satisfactory performance of rubber hoses for oil suction and discharge.

It also specifies requirements for various types of oil suction and discharge hoses, all having smooth and abrasion-resisting outer covers, for use with all grades of petroleum and blended products having an aromatic hydrocarbon content not greater than 25 %.

NOTE – For intermittent service these hoses are normally satisfactory for use with petroleum products having an aromatic hydrocarbon content up to approximately 50 %.

The hoses should be suitable for use with products at temperatures up to 80 °C and should be resistant to ageing due to exposure to tropical conditions and to ambient temperatures down to − 30 °C.

Type I

These hoses are intended for use where a relatively stiff, heavy and robust hose can be employed.

The inner lining is supported and reinforced by an internal helix.

Attention is drawn to the drop in flow volume caused by the helix.

Type II

These hoses are intended for use where greater flexibility is required and handling of weight is also of importance.

2 REFERENCES

ISO 1402, *Rubber hose – Hydrostatic testing.*

ISO 1431, *Vulcanized rubbers – Determination of resistance to ozone cracking under static conditions.*

ISO/R 1817, *Vulcanized rubbers – Methods of test for resistance to liquids.*

3 SPECIFICATIONS

3.1 Test pressure

Class A	Class B	Class C
0,7 MN/m²	1,0 MN/m²	1,5 MN/m²

It will be noted that no reference is made in this International Standard to the hose working pressure; instead, the hoses have been classified by test pressure and it is left to the user to determine the appropriate working pressure. This will depend on the severity of the user's operating conditions and on the service life that is expected of the hoses. However, a normal rule is that hoses should not be subjected to working pressures higher than the test pressures specified.

3.2 Dimensions and tolerances

3.2.1 *Diameters*

Hoses shall have bores substantially conforming to those given in table 1.

TABLE 1

Dimensions in millimetres

Nominal bore		
Class A	Class B	Class C
50	75	160
63,5	100	180
75	160	200
100	180	250
160	200	300
180	250	390
200	300	490
	390	
	490	

3.2.2 *Length*

Hose lengths shall be measured from outside face to outside face of flanges or, when supplied without flanges, from end to end of the nipples outside the hose.

TOLERANCE ON LENGTH. The actual length of a finished hose, as defined above, shall not differ from the nominal length by more than + 2,5 % or − 1,5 %. For this purpose the hose shall be measured before being subjected to the specified tests.

PROJECTION OF END CONNECTIONS. The length of each nipple or flanged end connection outside the hose shall be in accordance with table 2.

TABLE 2

Dimensions in millimetres

Nominal bore	Length to end of screwed nipple (flanges not fitted), all types		Length to back of factory-fitted flanges, all types	
	min.	max.	min.	max.
50	127	152	102	127
63,5	127	152	102	127
75	127	152	102	127
100	152	178	103	133
160	152	178	103	133
180	165	190	127	152
200	165	190	127	152
250	178	203	127	152
300	178	203	140	165
390	203	229	152	178
490	–	–	–	–

3.3 End connections

All hoses shall have built-in nipples. Nipples when screwed shall have threads as agreed between the interested parties. Nipples when not screwed may have flanges of either slip-on or welding neck type, attached by welding, or may be designed for other forms of end connections. Unless otherwise specified, the material of the nipples and the flanges shall be steel. The purchaser should specify in full the type of connection required on the nipples.

3.4 Electrical bonding of nipples

Unless otherwise specified, the hose shall show electrical continuity.

This characteristic shall be specified and checked both in the free state and under pressure. Certain hoses can be non-conducting.

When an electrically discontinuous hose is specified, this characteristic shall be checked both in the free state and under pressure.

4 TESTING

4.1 Hydrostatic tests

Each hose shall be tested with water to the appropriate test pressure specified. The procedure shall be as follows :

a) lay out the hose as straight as possible;

b) fill with water, venting to remove all air, and apply a pressure of 0,07 MN/m²;

c) mark off a test length not exceeding 1 m clear of the end reinforcement, for later measurement of elongation;

d) increase the pressure, over a period of 5 min, from 0,07 MN/m² to half the test pressure specified, hold this pressure for 10 min, then reduce the pressure, over a period of 5 min, to zero;

e) increase the pressure, over a period of 5 min, to the full test pressure specified and hold for 10 min.

4.2 Elongation

Before releasing the full test pressure, measure the distance between the test marks to ascertain the temporary elongation and record the increase as a percentage of the original length measured at a pressure of 0,07 MN/m².

Reduce the pressure, over a period of 5 min, to zero.

After an interval of at least 15 min, increase the pressure again to 0,07 MN/m².

Measure the distance between the test marks to ascertain the permanent elongation and record the increase as a percentage of the original length measured at a pressure of 0,07 MN/m².

4.3 Physical tests

See table 3.

5 MARKING

Each length of hose shall be marked at both ends with an impressed label in contrasting colours, giving the following information in embossed characters :

a) the manufacturer's name or trade-mark;

b) the type designation of the hose and the nominal bore;

c) the test pressure class;

d) the quarter and year of manufacture (last two digits);

e) the manufacturer's serial number.

Example : DURAND I 250 B 1/70 and No. ...

The marking shall be embossed in the cover approximately 0,60 m from each end.

The letters shall be at least 10 mm high.

TABLE 3

Test	Reference to test method	Information on test procedure and results
Flexibility	To be added later	To be added later
Hydrostatic test	ISO 1402, but replace sub-clause 3.3 and clause 4 by sub-clauses 4.1 and 4.2 above	Variation of length under test pressure : 10 % unless otherwise specified Permanent elongation 2,5 % max.
Conductivity	ISO . . .[1] Method A under bending	To be added later
Resistance to liquids (lining)	ISO/R 1817	Swelling of lining : 100 % max. (measured by mass) after immersion for 48 h at room temperature in a 70 %/30 % (*V*/*V*) mixture of *iso*-octane/toluol
Ozone resistance (cover)	ISO 1431	No cracking of the cover shall be visible at a magnification of × 2 after exposure for 72 h at 40 ± 2 °C to an ozone concentration of 0,5 ± 0,05 ppm, the test piece being under an elongation of 20 %.

1) In preparation.