
**Rubber hoses and hose assemblies —
Textile-reinforced hydraulic types —
Specification —**

**Part 2:
Water-based fluid applications**

*Tuyaux et flexibles en caoutchouc — Types hydrauliques avec
armature de textile — Spécifications —
Partie 2: Applications pour fluide à base d'eau*

ISO 4079-2:2005

<https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa1be74eb5/iso-4079-2-2005>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 4079-2:2005](https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa1be74eb5/iso-4079-2-2005)

<https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa1be74eb5/iso-4079-2-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Classification.....	2
4 Materials and construction	2
4.1 Hoses	2
4.2 Hose assemblies.....	2
5 Dimensions.....	2
5.1 Hose diameters and hose concentricity.....	2
5.2 Length	2
6 Performance requirements	4
6.1 General.....	4
6.2 Hydrostatic requirements	4
6.3 Minimum bend radius.....	4
6.4 Impulse test requirements.....	6
6.5 Leakage of hose assemblies.....	6
6.6 Cold flexibility	6
6.7 Adhesion between components.....	6
6.8 Vacuum resistance	7
6.9 Abrasion resistance.....	7
6.10 Fluid resistance.....	7
6.11 Ozone resistance	8
7 Marking	8
7.1 Hoses	8
7.2 Hose assemblies.....	8
Annex A (normative) Type and routine testing of production hoses	9
Annex B (informative) Production acceptance testing.....	10
Annex C (informative) Recommendations for lengths of supplied hoses and length tolerances on lengths of hose assemblies.....	11
Bibliography	12

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 4079-2 was prepared by Technical Committee ISO/TC 45, *Ruber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

Together with Part 1 (see below), it cancels and replaces ISO 4079:1991, which has been technically revised.

ISO 4079 consists of the following parts, under the general title *Rubber hoses and hose assemblies — Textile-reinforced hydraulic types — Specification*:

— *Part 1: Oil-based fluid applications*

— *Part 2: Water-based fluid applications*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 4079-2:2005

<https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa1be74eb5/iso-4079-2-2005>

Rubber hoses and hose assemblies — Textile-reinforced hydraulic types — Specification —

Part 2: Water-based fluid applications

1 Scope

This part of ISO 4079 specifies requirements for five types of textile-reinforced hydraulic hoses and hose assemblies of nominal size from 5 to 100. They are suitable for use with hydraulic fluids HFC, HFAE, HFAS and HFB as defined in ISO 6743-4 at temperatures ranging from – 40 °C to + 60 °C.

This part of ISO 4079 does not include requirements for end fittings. It is limited to requirements for hoses and hose assemblies.

NOTE It is the responsibility of the user, in consultation with the hose manufacturer, to establish compatibility of the hose with the fluid to be used.

ITIH STANDARD PREVIEW
(standards.iteh.ai)

2 Normative references

ISO 4079-2:2005

<https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78d16e74c837/iso-4079-2-2005>

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

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

ISO 4079-1, *Rubber hoses and hose assemblies — Textile-reinforced hydraulic types — Specification — Part 1: Oil-based fluid applications*

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

ISO 4672:1997, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests*

ISO 6605, *Hydraulic fluid power — Hoses and hose assemblies — Test methods*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic pressure impulse test without flexing*

ISO 6945, *Rubber hoses — Determination of abrasion resistance of the outer cover*

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

ISO 7326:1991, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8033:1991, *Rubber and plastics hose — Determination of adhesion between components*

3 Classification

Five types of hose are specified, distinguished by their construction, working pressure and minimum bend radius:

- Type 1TE: hoses with a single braid of textile reinforcement
- Type 2TE: hoses with one or more braid(s) of textile reinforcement
- Type 3TE: hoses with one or more braid(s) of textile reinforcement (higher working pressure)
- Type R3: hoses with two braids of textile reinforcement
- Type R6: hoses with a single braid of textile reinforcement

NOTE Type 1TE is not subjected to the impulse or vacuum resistance tests. Type R3 is not subjected to the vacuum resistance or abrasion resistance tests. Type R6 is not subjected to the impulse, vacuum resistance or abrasion resistance tests.

4 Materials and construction

4.1 Hoses

Hoses shall consist of a rubber lining resistant to water-based hydraulic fluids, one or more layers of suitable textile yarn, and an oil- and weather-resistant rubber cover.

Hoses shall be designed to enable end fittings to be assembled without removal of the cover.

4.2 Hose assemblies <https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa1be74eb5/iso-4079-2-2005>

Hose assemblies shall be manufactured with only those hose fittings whose functionality has been verified in accordance with Subclauses 6.2, 6.4, 6.5 and 6.6 of this part of ISO 4079.

The manufacturer's instructions for proper preparation and fabrication of hose assemblies shall be followed.

5 Dimensions

5.1 Hose diameters and hose concentricity

When measured in accordance with ISO 4671, the inside and outside diameters of the hoses shall conform to the values given in Table 1.

When measured in accordance with ISO 4671, the concentricity of the hoses shall conform to the values given in Table 2.

5.2 Length

The length of supplied hoses and hose assemblies shall be the subject of agreement between the manufacturer and the purchaser.

NOTE Recommendations for supplied lengths of hoses and hose assemblies are given in Annex C.

Table 1 — Dimensions of hoses

Nominal size	Inside diameter mm				Outside diameter mm											
	Types 1TE, 2TE, 3TE ^a		Types R6, R3		Type 1TE		Type 2TE		Type 3TE		Type R6		Type R3			
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.		
5	4,4	5,2	4,5	5,4	10,0	11,6	11,0	12,6	12,0	13,6	10,3	11,9	11,9	13,5		
6,3	5,9	6,9	6,1	7,0	11,6	13,2	12,6	14,2	13,6	15,2	11,9	13,5	13,5	15,1		
8	7,4	8,4	7,6	8,5	13,7	14,7	14,1	15,7	16,1	17,7	13,5	15,1	16,7	18,3		
10	9,0	10,0	9,2	10,1	14,7	16,3	15,7	17,3	17,7	19,3	15,1	16,7	18,3	19,8		
12,5	12,1	13,3	12,4	13,5	17,7	19,7	18,7	20,7	20,7	22,7	19,0	20,6	23,0	24,6		
16	15,3	16,5	15,6	16,7	21,9	23,9	22,9	24,9	24,9	26,9	22,2	23,8	26,2	27,8		
19	18,2	19,8	18,7	19,8	—	—	26,0	28,0	28,0	30,0	25,4	27,8	31,0	32,5		
25	24,6	26,2	25,1	26,2	—	—	32,9	35,9	34,4	37,4	—	—	36,9	39,3		
31,5	30,8	32,8	31,4	32,9	—	—	—	—	40,8	43,8	—	—	42,9	46,0		
38	37,1	39,1	—	—	—	—	—	—	47,6	51,6	—	—	—	—		
51	49,8	51,8	—	—	—	—	—	—	60,3	64,3	—	—	—	—		
60	58,8	61,2	—	—	—	—	—	—	70,0	74,0	—	—	—	—		
80	78,8	81,2	—	—	—	—	—	—	91,5	96,5	—	—	—	—		
100	98,6	101,4	—	—	—	—	—	—	113,5	118,5	—	—	—	—		

NOTE Nominal sizes in this table and in Tables 2 to 6 correspond to the inside diameters given in ISO 4397.

^a Inside dimensions apply to type 3TE only for nominal sizes larger than 25.

Table 2 — Concentricity of hoses

Nominal size	Maximum variation in wall thickness between internal diameter and outside diameter
	mm
Up to and including 6,3	0,8
Over 6,3 but less than or equal to 19	1,0
Over 19	1,3

6 Performance requirements

6.1 General

The requirements for type and routine testing are given in Annex A and recommendations for production acceptance testing in Annex B.

6.2 Hydrostatic requirements

When determined in accordance with ISO 1402 or ISO 6605, the maximum working pressure, the proof pressure and the minimum burst pressure of hoses and hose assemblies shall conform to the values given in Table 3.

When determined in accordance with ISO 1402 or ISO 6605, the change in length of hoses at the maximum working pressure shall be no greater than + 2 % and no less than - 4 % for hoses up to and including nominal size 31,5, and no greater than + 5 % and no less than 0 % for hoses above nominal size 31,5.

6.3 Minimum bend radius

<https://standards.iteh.ai/catalog/standards/sist/92a90d4c-f589-4758-a452-78fa7e74eb5/iso-4079-2-2005>

Use a test piece having a length at least four times the minimum bend radius. Measure the hose outside diameter with a pair of callipers in the straight-lay position before bending the hose. Bend the hose through 180° to the minimum bend radius and measure the flatness with the callipers.

When bent to the minimum bend radius given in Table 4, measured on the inside of the bend, the flatness shall not exceed 10 % of the original outside diameter.

Table 3 — Maximum working pressure, proof pressure and minimum burst pressure

Nominal size	Maximum working pressure					Proof pressure					Minimum burst pressure				
	bar					bar					bar				
	Type 1TE	Type 2TE	Type 3TE	Type R6	Type R3	Type 1TE	Type 2TE	Type 3TE	Type R6	Type R3	Type 1TE	Type 2TE	Type 3TE	Type R6	Type R3
5	25	80	160	35	105	50	160	320	70	210	100	320	640	140	420
6,3	25	75	145	28	87	50	150	290	56	174	100	300	580	112	348
8	20	68	130	28	83	40	136	260	56	166	80	272	520	112	332
10	20	63	110	28	78	40	126	220	56	156	80	252	440	112	312
12,5	16	58	93	28	70	32	116	186	56	140	64	232	372	112	280
16	16	50	80	24	61	32	100	160	48	122	64	200	320	96	245
19	—	45	70	21	52	—	90	140	42	104	—	180	280	84	208
25	—	40	55	—	39	—	80	110	—	78	—	160	220	—	156
31,5	—	—	45	—	26	—	—	90	—	52	—	—	180	—	104
38	—	—	40	—	—	—	—	80	—	—	—	—	160	—	—
51	—	—	33	—	—	—	—	66	—	—	—	—	132	—	—
60	—	—	25	—	—	—	—	50	—	—	—	—	100	—	—
80	—	—	18	—	—	—	—	36	—	—	—	—	72	—	—
100	—	—	10	—	—	—	—	20	—	—	—	—	40	—	—

NOTE 1 bar = 0,1 MPa

ISO 4079-2:2005
<https://standards.iteh.ai/catalog/standards/sist/758-a452-78fab74cb5/iso-4079-2-2005>
 Table 4 — Minimum bend radius

Nominal size	Minimum bend radius				
	mm				
	Type 1TE	Type 2TE	Type 3TE	Type R6	Type R3
5	35	25	40	50	75
6,3	45	40	45	65	75
8	65	50	55	75	100
10	75	60	70	75	100
12,5	90	70	85	100	125
16	115	90	105	125	140
19	—	110	130	150	150
25	—	150	150	—	205
31,5	—	—	190	—	250
38	—	—	240	—	—
51	—	—	300	—	—
60	—	—	400	—	—
80	—	—	500	—	—
100	—	—	600	—	—