

# DIN EN ISO 21012:2019-04 (E)

## Cryogenic vessels - Hoses (ISO 21012:2018)

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
<b>Annex ZA (informative) Relationship between this European Standard and the Essential requirements of EU Directive 2014/68/EU (Pressure equipment Directive) aimed to be covered .....</b>		<b>5</b>
Foreword .....		6
<b>1</b>	<b>Scope .....</b>	<b>7</b>
<b>2</b>	<b>Normative references .....</b>	<b>7</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>7</b>
<b>4</b>	<b>General requirements .....</b>	<b>8</b>
4.1	Design and construction .....	8
4.2	Materials .....	9
4.3	Cleanliness .....	9
4.4	Mechanical properties .....	10
4.4.1	Burst pressure .....	10
4.4.2	Pressure cycles .....	10
4.4.3	Bending test (optional, upon request of purchaser) .....	10
4.4.4	Resistance to abuse .....	10
4.4.5	Low temperature resistance .....	10
4.4.6	Leak tightness .....	10
4.4.7	Electrical properties .....	10
<b>5</b>	<b>Hose sample tests .....</b>	<b>10</b>
5.1	General .....	10
5.2	Non-destructive tests and inspection .....	12
5.2.1	Documentation of materials .....	12
5.2.2	Dimensional check .....	12
5.2.3	Cleanliness check .....	12
5.2.4	Pressure test .....	12
5.2.5	Leak test .....	12
5.2.6	Crushing test .....	12
5.3	Destructive tests .....	13
5.3.1	Hydraulic pressure cycling .....	13
5.3.2	Rolling bend cycling test .....	13
5.3.3	Hydraulic bursting test .....	13
5.3.4	Examination of sectional cut .....	13
<b>6</b>	<b>Production testing .....</b>	<b>14</b>
6.1	General .....	14
6.2	Pressure test .....	14
6.3	Leak test .....	14
<b>7</b>	<b>Marking .....</b>	<b>14</b>
<b>8</b>	<b>Cleaning .....</b>	<b>14</b>
<b>9</b>	<b>Periodic examination .....</b>	<b>14</b>

<b>10</b>	<b>Test certificate .....</b>	<b>15</b>
	<b>Annex A (informative) Typical hose assembly .....</b>	<b>16</b>
	<b>Annex B (informative) Rolling bend cycling test for metallic hose assemblies and hose assemblies made of materials with a record of satisfactory use in cryogenic service .....</b>	<b>17</b>
	<b>Annex C (informative) Rolling bend cycling test for hose assemblies constructed from materials or composites not commonly used in cryogenic service .....</b>	<b>19</b>
	<b>Annex D (informative) Guidelines for periodic examination of transfilling hoses .....</b>	<b>21</b>