

# DIN EN ISO 18119:2021-09 (E)

**Gas cylinders - Seamless steel and seamless aluminium-alloy gas cylinders and tubes - Periodic inspection and testing (ISO 18119:2018 + Amd.1:2021) (includes Amendment :2021)**

---

<b>Contents</b>	<b>Page</b>
European foreword .....	4
<b>Ⓐ</b> European foreword to Amendment <b>Ⓐ</b> 1 .....	5
Foreword .....	6
Introduction .....	7
<b>1 Scope</b> .....	<b>8</b>
<b>2 Normative references</b> .....	<b>8</b>
<b>3 Terms and definitions</b> .....	<b>8</b>
<b>4 Abbreviated terms and symbols</b> .....	<b>9</b>
<b>5 Intervals between periodic inspections and tests</b> .....	<b>10</b>
<b>6 List of procedures for periodic inspections and tests</b> .....	<b>10</b>
<b>7 Identification of cylinder and preparation for inspection and tests</b> .....	<b>11</b>
<b>8 Depressurization and de-valving procedures</b> .....	<b>11</b>
8.1 General .....	11
8.2 Cylinders requiring de-valving .....	12
8.3 Cylinders not requiring de-valving .....	12
8.4 Cylinders requiring shot blasting .....	12
<b>9 External visual inspection</b> .....	<b>12</b>
9.1 Preparation .....	12
9.2 Inspection procedure .....	13
<b>10 Inspection of cylinder neck</b> .....	<b>13</b>
10.1 Cylinder-to-valve threads .....	13
10.2 Other neck surfaces .....	16
10.3 Damaged internal neck threads .....	16
10.4 Neckring and collar attachment .....	16
<b>11 Check of internal condition</b> .....	<b>16</b>
11.1 General .....	16
11.2 Internal visual inspection .....	17
11.2.1 Preparation .....	17
11.2.2 Inspection requirements .....	17
11.2.3 Cylinders with footrings .....	18
11.2.4 Cylinders with internal coatings .....	18
<b>12 Supplementary tests</b> .....	<b>18</b>
12.1 General .....	18
12.2 Additional test for seamless aluminium-alloy cylinders possibly subjected to heat damage .....	18
12.3 Hammer test on cylinders with footrings .....	19
<b>13 Cylinder repairs</b> .....	<b>19</b>
<b>14 Pressure test or UT</b> .....	<b>19</b>
14.1 General .....	19
14.2 Proof pressure test .....	20
14.2.1 General .....	20

14.2.2	Test equipment.....	20
14.2.3	Test criteria.....	20
14.2.4	Acceptance criteria.....	21
14.3	Hydraulic volumetric expansion test.....	21
14.4	UT.....	21
14.4.1	General.....	21
14.4.2	Requirements.....	21
14.4.3	Calibration.....	26
14.4.4	Performing the examination.....	30
14.4.5	Interpretation of results.....	31
14.4.6	Records.....	32
<b>15</b>	<b>Inspection of valve and other accessories.....</b>	<b>32</b>
<b>16</b>	<b>Replacement of cylinder parts.....</b>	<b>33</b>
<b>17</b>	<b>Final operations.....</b>	<b>33</b>
17.1	Drying, cleaning and painting.....	33
17.1.1	Drying and cleaning.....	33
17.1.2	Painting and coating.....	33
17.2	Re-valving of the cylinder.....	34
17.3	Check of cylinder tare.....	34
17.4	Retest marking.....	35
17.4.1	General.....	35
17.4.2	Stamping.....	35
17.5	Reference to next periodic inspection and test date.....	35
17.6	Identification of contents.....	35
17.7	Records.....	35
<b>18</b>	<b>Rejection and rendering cylinder unserviceable.....</b>	<b>36</b>
18.1	General.....	36
18.2	Cylinders with a valve attached.....	36
18.3	Cylinders with no valves attached.....	36
<b>Annex A (informative) Periodic inspection and test periods.....</b>		<b>37</b>
<b>Annex B (normative) Description, evaluation of defects and conditions for rejection of seamless steel and seamless aluminium-alloy cylinders at the time of periodic inspection.....</b>		<b>38</b>
<b>Annex C (informative) [A1] List of gases corrosive to steel cylinder material [A1].....</b>		<b>50</b>
<b>Annex D (informative) Volumetric expansion testing of cylinders.....</b>		<b>51</b>
<b>Annex E (informative) Test date rings for cylinders.....</b>		<b>59</b>
<b>Annex F (informative) Cleaning of seamless aluminium-alloy cylinders.....</b>		<b>60</b>
<b>Bibliography.....</b>		<b>61</b>