

DIN EN 1440:2012-06 (E)

LPG equipment and accessories - Periodic inspection of transportable refillable LPG cylinders (includes Amendment A1:2012)

Contents		Page
Foreword.....		4
Introduction		5
1 Scope		6
2 Normative references		6
3 Terms and definitions		7
4 Written scheme of inspection.....		8
5 Procedures for periodic inspection		8
5.1 General.....		8
5.2 A1 Protected cylinders A1		11
6 A1 Inspections and tests A1		11
6.1 External visual inspection		11
6.1.1 Preparation for external visual inspection		11
6.1.2 Inspection procedure		11
6.1.3 Rejection criteria		12
6.2 Proof pressure test.....		12
6.2.1 General.....		12
6.2.2 Hydraulic proof pressure test		12
6.2.3 Pneumatic proof test and leak test		13
6.3 Check of the internal condition of the cylinder		14
6.3.1 Check of the internal condition for welded steel LPG cylinders and LPG cylinders of alternative design and construction		14
6.3.2 Check of the internal condition of aluminium and composite cylinders		15
6.4 Inspection of cylinder threads.....		15
6.4.1 General		15
6.4.2 Internal threads.....		15
6.4.3 External threads		16
6.4.4 Damaged threads		16
6.5 Inspection of valves		16
7 Final operations		16
7.1 Drying.....		16
7.2 Valving		16
7.3 Tare A1 mass A1		16
7.4 Marking		16
7.5 Purging		16
8 A1 Repair of LPG welded steel cylinders A1		17
8.1 Major repairs		17
8.2 Minor repairs		17
8.3 Requirements for repair		17
9 Records.....		17
Annex A (normative) Specific requirements for welded and brazed steel LPG cylinders		18
Annex B (normative) Specific requirements for welded steel LPG cylinders in accordance with EN 14140:2003+A1 or the equivalent standard.....		20
B.1 General.....		20
B.2 Procedure for establishing rejection criteria carbon steel cylinders.....		20
B.3 Rejection criteria for stainless steel cylinders		22

Annex C (normative)	Specific requirements for welded aluminium LPG cylinders	25
Annex D (normative)	Specific requirements for composite LPG cylinders	27
D.1	Establishment of rejection criteria	27
D.1.1	General	27
D.1.2	Procedure	27
D.2	Examples of rejection criteria	28
Annex E	Ⓐ₁ (informative) Ⓐ₁ Ⓐ₁ Requirements for 15-year periodic inspection interval for welded and brazed steel cylinders manufactured before 2015-01-01 Ⓐ₁	34
E.1	General	34
E.2	Concept of control	34
E.3	Conditions	35
Annex F (informative)	Guidance on requirements for 10-year periodic inspection interval on composite cylinders	36
Annex G	Ⓐ₁ (normative) Ⓐ₁ Periodic inspection procedure for a particular design of protected cylinder	37
G.1	Scope and cylinder description	37
G.2	Cylinders design and manufacturing requirements	38
G.2.1	Steel cylinder	38
G.2.2	External protection	38
G.2.3	Marking and recording requirements	38
G.3	Inspection at filling	38
G.4	Periodic destructive tests on batch sampling	38
G.4.1	Testing procedure	38
G.4.2	Destructive tests	39
G.4.3	Rejection criteria and batch sampling	39
G.4.4	Periodic inspection tests reports and records	40
Annex H (normative)	Ⓐ₁ Periodic inspection procedure for cylinder populations not covered by the ADR Ⓐ₁	41
Annex I (informative)	Ⓐ₁ Requirements to be fulfilled to extend period between two periodic inspections to 15 years for RID/ADR welded steel LPG cylinders Ⓐ₁	42
Annex J (informative)	Ⓐ₁ Alternative test applicable to commercial butane cylinders with less than 6,5 l water capacity Ⓐ₁	44
Bibliography		45