

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 [A1] (informative) [A1] [A1] Requirements for 15-year periodic inspection interval for welded and brazed steel cylinders manufactured before 2015-01-01 [A1]	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 [A1] (normative) [A1] 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) [A1] Periodic inspection procedure for cylinder populations not covered by the ADR [A1]	41
Annex I (informative) [A1] Requirements to be fulfilled to extend period between two periodic inspections to 15 years for RID/ADR welded steel LPG cylinders [A1]	42
Annex J (informative) [A1] Alternative test applicable to commercial butane cylinders with less than 6,5 l water capacity [A1]	44
Bibliography.....	45