ISO 11513:2019 (E)

Gas cylinders — Refillable welded steel cylinders containing materials for sub-atmospheric gas packaging (excluding acetylene) — Design, construction, testing, use and periodic inspection

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms, definitions and symbols

3.1 Terms and definitions
3.2 Symbols

4 Inspection and testing

5 Materials and stress relieving

6 Design

6.1 General
6.2 Calculation of cylindrical wall thickness
6.3 Design of cylinder ends
6.3.1 General
6.3.2 Design of base concave to pressure
6.4 Minimum wall thickness
6.5 Pressure relief device

7 Construction and workmanship

7.1 General
7.2 Welding qualification
7.3 Welding seams of pressure containing parts
7.4 Valve protection
7.5 Boss threads
7.6 Visual examination
7.6.1 Imperfections
7.6.2 Welds
7.6.3 Out-of-roundness
7.6.4 Straightness
7.6.5 Verticality

8 Technical requirements for type approval testing (new design tests)

8.1 General
8.2 Verifications and tests
8.3 Description of verification tests
8.3.1 Hydraulic burst test
8.3.2 Pressure cycling test

9 Batch tests

9.1 General
9.2 Information
9.3 Checks and verifications
9.4 Tensile test
9.4.1 General
9.4.2 Tensile test samples required from parent material

9.4.3 Tensile test samples required from welds
9.5 Bend test
9.6 Macroscopic examination of weld cross-sections
9.7 Radiographic examination of welds

10 Tests on every cylinder

11 Failure to meet verification and test requirements

12 Marking

13 Certification

Annex A (normative) Inspection at time of fill

A.1 Inspection at time of fill
A.1.1 Identification of cylinder for suitability for filling
A.1.2 Visual inspection prior to fill
A.1.3 Check for correct fill pressure
A.1.4 Verification of tare mass
A.1.5 Check for proper fill mass
A.1.6 Cylinder filling records

Annex B (normative) Periodic inspection and test

Page count: 22