

DIN EN 17339:2020-09 (E)

Transportable gas cylinders - Fully wrapped carbon composite cylinders and tubes for hydrogen

| Contents | | Page |
|---|--|-------------|
| European foreword | | 4 |
| Introduction | | 5 |
| 1 | Scope | 6 |
| 2 | Normative references | 6 |
| 3 | Terms and definitions | 8 |
| 4 | Symbols | 10 |
| 5 | Design and manufacture | 10 |
| 5.1 | General requirements | 10 |
| 5.2 | Liner | 11 |
| 5.3 | Composite overwrap | 12 |
| 5.4 | Finished cylinder | 13 |
| 6 | Cylinder and material tests | 14 |
| 6.1 | General | 14 |
| 6.2 | Requirements and test methods | 14 |
| 6.3 | Failure to meet test requirements | 27 |
| 7 | Conformity evaluation | 27 |
| 8 | Marking | 28 |
| Annex A(normative) Prototype, design variant and production testing | | 29 |
| A.1 | General | 29 |
| A.2 | Prototype testing | 29 |
| A.2.1 | General | 29 |
| A.2.2 | Definition of new design | 29 |
| A.2.3 | Prototype testing requirements | 30 |
| A.2.4 | Prototype testing certificate | 31 |
| A.3 | Design variant testing | 34 |
| A.3.1 | General | 34 |
| A.3.2 | Definition of a design variant | 34 |
| A.3.2.1 | Conditions to be satisfied | 34 |
| A.3.2.2 | Equivalent fibre | 34 |
| A.3.2.3 | Equivalent matrix | 34 |
| A.3.2.4 | Equivalent liner | 35 |
| A.3.2.5 | Cylinder variant | 35 |
| A.3.3 | Design variant test requirements | 36 |
| A.3.4 | Design variant testing certificate | 36 |
| A.4 | Production testing | 40 |
| A.4.1 | General | 40 |
| A.4.2 | Production test requirements | 40 |
| A.4.3 | Liner batch tests and inspections | 40 |
| A.4.3.1 | Metallic liner | 40 |
| A.4.3.2 | Non-metallic liner | 41 |

| | | |
|--|---|-----------|
| A.4.4 | Composite materials batch tests and inspections | 41 |
| A.4.5 | Tests and inspections of the finished cylinder | 41 |
| A.4.5.1 | Tests | 41 |
| A.4.5.2 | Inspections | 42 |
| A.4.6 | Batch acceptance certificate | 42 |
| Annex B(informative) Examples of prototype approval and production testing certificates | | 43 |
| B.1 | Type approval certificate - composite cylinders with metallic liners | 43 |
| B.2 | Type approval certificate - composite cylinders with non-metallic liners | 44 |
| B.3 | Design variant approval certificate - composite cylinders with metallic liners | 45 |
| B.4 | Production test certificate | 46 |
| Annex C(informative) Example of High velocity impact (bullet) test | | 48 |
| C.1 | Procedure | 48 |
| C.2 | Criteria | 48 |
| C.3 | Parameters to monitor and record | 48 |
| Bibliography | | 49 |