

DIN EN 624:2011-10 (E)

Specification for dedicated LPG appliances - Room sealed LPG space heating equipment for installation in vehicles and boats

| Contents | | Page |
|-----------------|--|-------------|
| Foreword | | 5 |
| 1 | Scope | 6 |
| 2 | Normative references | 6 |
| 3 | Terms, definitions and symbols | 7 |
| 3.1 | Terms and definitions | 7 |
| 3.2 | Symbols | 13 |
| 4 | Requirements | 14 |
| 4.1 | Classification of gases | 14 |
| 4.2 | Classification of heaters | 14 |
| 5 | Safety, constructional and performance characteristics | 15 |
| 5.1 | Conversion to different gases | 15 |
| 5.2 | Materials | 15 |
| 5.3 | Accessibility of components | 15 |
| 5.4 | Strength of assembly | 16 |
| 5.5 | Tightness | 16 |
| 5.5.1 | Tightness of the gas carrying parts | 16 |
| 5.5.2 | Tightness of combustion circuit | 16 |
| 5.6 | Gas inlet connection | 16 |
| 5.7 | Heater stability and fixing | 16 |
| 5.8 | Taps and controls | 17 |
| 5.8.1 | General | 17 |
| 5.8.2 | Automatic shut-off valves | 17 |
| 5.9 | Control handles | 18 |
| 5.10 | Injectors | 18 |
| 5.11 | Ignition devices | 18 |
| 5.12 | Safety devices | 18 |
| 5.12.1 | General | 18 |
| 5.12.2 | Thermoelectric flame supervision devices | 19 |
| 5.12.3 | Automatic burner control system | 19 |
| 5.13 | Ducts for the products of combustion and cowls | 21 |
| 5.13.1 | Combustion air supply inlet, flue outlet and wind protection device (cowl) | 21 |
| 5.13.2 | Evacuation ducts for the products of combustion | 21 |
| 5.14 | Verification of the heat input | 21 |
| 5.15 | Temperature of various parts of the heater | 21 |
| 5.16 | Temperature of the floor, walls or adjacent surfaces | 22 |
| 5.17 | Temperature of taps and components | 22 |
| 5.18 | Temperature of the products of combustion | 22 |
| 5.19 | Ignition | 22 |
| 5.19.1 | General | 22 |
| 5.19.2 | Ignition performance | 23 |
| 5.20 | Crosslighting | 23 |
| 5.20.1 | General | 23 |
| 5.20.2 | Cold condition | 23 |
| 5.20.3 | Hot condition | 23 |
| 5.20.4 | Crosslighting at low temperature | 23 |
| 5.20.5 | Conditions of ignition burner flame shortening | 23 |

| | | |
|--------|--|----|
| 5.21 | Flame stability | 24 |
| 5.21.1 | Flame lift | 24 |
| 5.21.2 | Light-back | 24 |
| 5.21.3 | Sooting | 24 |
| 5.22 | Combustion in still air | 24 |
| 5.23 | Resistance to wind | 24 |
| 5.23.1 | General | 24 |
| 5.23.2 | Flame stability | 24 |
| 5.23.3 | Ignition and crosslighting | 24 |
| 5.23.4 | Combustion | 24 |
| 5.24 | Efficiency | 24 |
| 5.25 | Ignition and combustion in motion | 24 |
| 5.26 | Prolonged performance test | 25 |
| 5.27 | Electromagnetic compatibility | 25 |
| 6 | Test methods | 25 |
| 6.1 | General | 25 |
| 6.1.1 | Reference and limit gases | 25 |
| 6.1.2 | Test pressures | 26 |
| 6.1.3 | Special national conditions | 26 |
| 6.1.4 | Test installation | 26 |
| 6.2 | Materials | 26 |
| 6.3 | Accessibility of components | 26 |
| 6.4 | Strength of assembly | 26 |
| 6.5 | Tightness | 27 |
| 6.5.1 | Tightness of the gas carrying parts | 27 |
| 6.5.2 | Tightness of combustion circuit | 28 |
| 6.6 | Connections | 29 |
| 6.7 | Heater stability and fixing | 29 |
| 6.8 | Taps and controls | 29 |
| 6.8.1 | General | 29 |
| 6.8.2 | Automatic shut-off valves | 29 |
| 6.9 | Control handles | 29 |
| 6.10 | Injectors | 29 |
| 6.11 | Ignition devices | 29 |
| 6.12 | Safety devices | 29 |
| 6.12.1 | General | 29 |
| 6.12.2 | Thermoelectric flame supervision devices | 30 |
| 6.12.3 | Automatic burner control systems | 30 |
| 6.13 | Ducts for the products of combustion and cowls | 32 |
| 6.13.1 | Combustion air supply inlets, products of combustion outlets and wind protection devices | 32 |
| 6.13.2 | Ducts for the products of combustion | 32 |
| 6.14 | Verification of the nominal heat input | 32 |
| 6.15 | Temperatures of various parts of the heater | 33 |
| 6.15.1 | Test conditions | 33 |
| 6.15.2 | Test method | 33 |
| 6.15.3 | Measurement of temperature | 34 |
| 6.16 | Temperatures of the support, walls and adjacent surfaces | 34 |
| 6.16.1 | Test conditions | 34 |
| 6.16.2 | Test methods | 34 |
| 6.16.3 | Measurement of temperature | 34 |
| 6.17 | Temperature of taps and components | 34 |
| 6.17.1 | Test conditions | 34 |
| 6.17.2 | Test methods | 34 |
| 6.17.3 | Measurement of temperature | 34 |
| 6.18 | Temperatures of the products of combustion | 35 |
| 6.19 | Ignition | 35 |
| 6.19.1 | General | 35 |
| 6.19.2 | Ignition performance | 35 |
| 6.19.3 | Maximum energy delayed ignition test | 35 |
| 6.20 | Crosslighting | 35 |

| | | |
|--|--|----|
| 6.20.1 | General | 35 |
| 6.20.2 | Cold condition | 36 |
| 6.20.3 | Hot condition | 36 |
| 6.20.4 | Crosslighting at low temperature | 36 |
| 6.20.5 | Conditions of ignition burner flame shortening | 36 |
| 6.21 | Flame stability | 36 |
| 6.21.1 | Flame lift | 36 |
| 6.21.2 | Light-back | 36 |
| 6.21.3 | Sooting | 37 |
| 6.22 | Combustion in still air | 37 |
| 6.23 | Resistance to wind | 38 |
| 6.23.1 | Wind generator and test installation | 38 |
| 6.23.2 | Test conditions | 41 |
| 6.24 | Efficiency | 43 |
| 6.25 | Ignition and combustion in motion | 44 |
| 6.26 | Prolonged performance test | 45 |
| 7 | Marking and instruction literature | 45 |
| 7.1 | Appliance | 45 |
| 7.1.1 | Data plate | 45 |
| 7.1.2 | Appliance warning labels | 46 |
| 7.2 | Packaging | 46 |
| 7.3 | Instructions for use and user maintenance | 47 |
| 7.4 | Instructions for installation | 47 |
| 7.5 | Servicing instructions | 48 |
| Annex A (normative) Supply situation in various countries | | 49 |
| Annex B (normative) Appliances using water as a heat transfer medium | | 52 |
| B.1 | General | 52 |
| B.2 | Requirements | 52 |
| Mechanical strength | | 52 |
| B.2.1 | 52 B.2.2 Electrical safety | 52 |
| B.2.3 | Mechanical safety elements | 52 |
| B.2.4 | Materials | 53 |
| B.2.5 | Bleed valve | 53 |
| B.3 | Test methods | 53 |
| B.3.1 | Mechanical strength | 53 |
| B.3.2 | Electrical safety | 53 |
| B.3.3 | Mechanical safety elements | 54 |
| B.3.4 | Materials | 54 |
| B.3.5 | Circulation pump | 54 |
| B.3.6 | Compensator reservoir | 54 |
| B.3.7 | Bleed valve | 54 |
| Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/142/EC "Gas appliances" | | 55 |
| Bibliography | | 58 |