

# DIN EN 624:2011-10 (E)

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

---

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

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