

# DIN EN 1:2007-12 (E)

## Flued oil stoves with vaporizing burners (includes Amendment A1:2007)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		5
Introduction .....		6
<b>1</b>	<b>Scope .....</b>	<b>6</b>
<b>2</b>	<b>Normative references .....</b>	<b>6</b>
<b>3</b>	<b>Definitions .....</b>	<b>6</b>
<b>4</b>	<b>Constructional requirements .....</b>	<b>8</b>
4.1	Heating capacity .....	8
4.2	Materials .....	8
4.3	Combustion chamber .....	9
4.4	Filter .....	9
4.5	Oil regulator .....	9
4.6	Marking of operating settings .....	9
4.7	Safety device .....	10
4.8	Fan for the supply of combustion air .....	10
4.9	Fuel lines .....	10
4.11	Oil-level indicator .....	10
4.12	Drip tray .....	11
4.13	Flue outlet .....	11
4.14	Damper .....	11
4.15	Draught regulators and combustion air limiters .....	11
4.16	Assembly .....	11
4.17	Maintenance .....	11
4.18	!Additional requirements for appliances with automatic burners .....	11
<b>5</b>	<b>! Performance and operating requirements "</b> .....	<b>12</b>
5.1	Maximum oil flow .....	12
5.2	Minimum oil flow .....	12
5.3	Ignition .....	12
5.4	! Appliance classes for efficiency and emissions .....	12
5.5	Smoke number .....	13
5.6	Flue gas temperature .....	13
5.7	Carbon monoxide content of the flue gas .....	13
5.8	Oil temperature .....	14
5.9	Floor temperature .....	14
5.10	Wall temperature .....	14
5.11	Temperature of the control knobs .....	14
5.12	Electrical safety .....	14
5.13	NOX and unburnt hydrocarbons (CnHm) in the flue gases .....	15
<b>6</b>	<b>Tests .....</b>	<b>15</b>
6.1	Test apparatus .....	15
6.1.1	General .....	15
6.1.2	Testing of stoves having several possible outlet connections .....	16
6.2	Test fuel .....	16
6.3	Verification of construction .....	16
6.4	Testing of leak-tightness of the fuel circuit .....	17
6.5	Operational tests .....	17

6.5.1	Short-term tests .....	17
6.5.2	Long-term tests .....	19
6.5.3	Additional tests .....	20
6.5.4	Measurement methods .....	21
4.10	Built-in storage tank .....	10
6.6	Calculations from the measurements .....	22
6.6.1	Efficiency .....	22
6.6.2	Heating capacities .....	22
6.6.3	Carbon monoxide content of the flue gases .....	22
6.6.4	NO <sub>x</sub> in the flue gas .....	23
6.6.5	Unburnt hydrocarbons in the flue gas .....	24
6.6.6	! Flue gas mass flow rate .....	24
6.6.7	! Symbols and units .....	25
6.7	Test report .....	25
7	Instructions and marking of the appliance .....	26
7.1	General .....	26
7.2	Installation instructions .....	26
7.3	User operating instructions .....	27
7.4	Marking .....	28
7.5	Documentation for the production .....	29
8	Evaluation of conformity .....	29
8.1	General .....	29
8.2	Type testing .....	29
8.2.1	Initial type testing .....	29
8.2.2	Further type testing .....	30
8.3	Factory production control (FPC) .....	30
8.3.1	General .....	30
8.3.2	Raw materials and components .....	31
8.3.3	Control of inspection, measuring and test equipment .....	31
8.3.4	Process control .....	31
8.3.5	Product inspection, testing and evaluation .....	31
8.3.6	Manufacturing checks .....	32
8.3.7	Non conforming products .....	32
8.3.8	Corrective and preventive action .....	33
8.3.9	Handling, storage, packaging, preservation and delivery .....	33
Annex A (normative) Measuring method for determining the smoke number .....		34
A.1	Equipment required for the determination of the smoke number .....	34
A.1.1	Pump .....	34
A.1.2	Sampling tube .....	34
A.1.3	Filter paper .....	34
A.1.4	Grey scale .....	34
A.2	Determination of the smoke number .....	35
Annex B (normative) Fluid method for detecting oil derivatives .....		36
B.1	Equipment required for the detection of oil derivatives .....	36
B.1.1	Pump .....	36
B.1.2	Sampling tube .....	36
B.1.3	Filter paper .....	36
B.1.4	Fluid .....	36
B.1.5	Sampling .....	36
B.1.6	Procedure and evaluation .....	36
! Annex C (normative) Measurement of nitrogen oxides .....		47
C.1	General objective and applicability .....	47

<b>C.2</b>	<b>General procedure .....</b>	<b>47</b>
<b>C.3</b>	<b>Measuring principles of analysers .....</b>	<b>48</b>
<b>Annex D (normative) Measurement of total hydrocarbons (THC) .....</b>		<b>50</b>
<b>D.1</b>	<b>General objective and applicability .....</b>	<b>50</b>
<b>D.2</b>	<b>General procedure .....</b>	<b>50</b>
<b>D.3</b>	<b>Equipment .....</b>	<b>50</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirement of EU Directive 89/106/EEC, EU Construction Products Directive .....</b>		<b>51</b>
<b>ZA.1 Scope and relevant characteristics .....</b>		<b>51</b>
<b>ZA.2 Procedure for the attestation of conformity of oil stoves .....</b>		<b>52</b>
<b>ZA.2.1 System of attestation of conformity .....</b>		<b>52</b>
<b>ZA.2.2 Declaration of conformity .....</b>		<b>53</b>
<b>ZA.3 CE Marking and labelling .....</b>		<b>54</b>
<b>Bibliography .....</b>		<b>56</b>