

**kiwa**

Partner for progress

**Certificate**

Con la presente Kiwa Italia S.p.A. attesta che l'apparecchio di riscaldamento a combustibile solido del tipo:

*Kiwa Italia S.p.A. hereby declares that the heating appliance fired by solid fuel of type:*

**Generatore di calore a tronchetti di legno / Air heater fired by solid fuel**

Marchio commerciale / Trade mark: **FABBRI TERMOMECCANICA**

Modelli / Models: **F 350**

Costruito da / Manufactured by: **FABBRI TERMOMECCANICA S.R.L.**

Via Cangiotti, 10

61122 Pesaro (Villa Fastiggi) (PU) - Italy

Ha sostenuto le prove indicate nel rapporto di conformità tecnica **130400912**  
*Comply with the tests indicated in the test report num.:*

Come linea guida sono state utilizzate le seguenti norme:  
*Has been examined to the following standard as guideline:*

**EN 13240:2001 + EN 13240:2001/A2:2004/AC:2006**  
**UNI EN 13284-1:2003**

Segue una sintesi dei risultati / *A summary of results is as follows:*

| Modello<br>Model | Prova<br>Test                           | Rendimento<br>Efficiency<br>% | Potenza termica / Heat output kW |                          |                       | CO, ppm<br>(at 13%O <sub>2</sub> ) | DUST<br>mg/Nm <sup>3</sup> |
|------------------|---|-------------------------------|----------------------------------|--------------------------|-----------------------|------------------------------------|----------------------------|
|                  |   |                               | Totale<br>Total                  | All'ambiente<br>To space | All'acqua<br>To water |                                    |                            |
| F 350            | Potenza nominale<br>Nominal heat output | 73,37                         | 392,30                           | 392,30                   | -                     | 729                                | 5                          |

Kiwa Italia S.p.a.

Sede Legale:

Via C. Goldoni, 1

20129 Milano (MI) - Italy

Sede Amministrativa:

Via Treviso, 32/34

31020 San Vendemiano (TV) - Italy

San Vendemiano, 27.1.2014

Ing. E. Ferrari

Director Product Certification

**FASCICOLO TECNICO INERENTE LE PROVE DI TIPO**  
*TECHNICAL DOCUMENTATION CONCERNING TYPE TESTING*

|  |   |
|--|---|
| <b>Costruttore:</b><br><i>Manufacturer:</i>                                | <b>Fabbri Termomeccanica s.r.l.</b>   |
| <b>Marchio commerciale:</b><br><i>Trade mark</i>                           | <b>Fabbri Termomeccanica</b>  |
| <b>Modello:</b><br><i>Model:</i>   | <b>F 350</b>  |
| <b>Apparecchio sotto analisi:</b><br><i>Appliance under test:</i>          | <b>Generatore di calore ad aria, a combustibile solido</b><br><i>Air heater fired by solid fuel</i> |
| <b>Norma di prodotto:</b><br><i>Standard product reference:</i>            | <b>EN 13240:2001 + EN 13240:2001/A2:2004/AC:2006 used as guideline</b>                              |
| <b>Numero fascicolo tecnico:</b><br><i>Technical documentation number:</i> | <b>130400912</b>  |

130400912

**Intestazione**  
Heading Sheets**Laboratorio notificato / Notified laboratory**

Kiwa Italia Spa

**Numero / Number**

NB 0694

**Sede legale / Address registered office**Via C. Goldoni, 1  
20129 Milano (MI) - Italy**Sede amministrativa / Administrative office**Via Treviso, 32/34  
31020 San Vendemiano (TV) - Italy**Telefono / Telephone**

+39 0438 411 755

**Fax**

+39 0438 224 28

**E-mail**

info@kiwa.it

**Laboratorio di prova / Testing location**

Kiwa Italia Spa

**Indirizzo / Address**Viale Italia, 313/B  
31015 Conegliano (TV) - Italy**Rapporto di prova allegato / Annexed test report**

130400912/C-51

**Costruttore / Manufacturer**

Fabbri Termomeccanica s.r.l.

**Marchio commerciale / Trade mark**

Fabbri Termomeccanica

**Indirizzo / Address**Via Cangiotti, 10  
61122 Pesaro (Villa Fastiggi) (PU) - Italy**Telefono / Telephone**

+39 0721 282 537

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130400912

**Dati riassuntivi**  
 Summary of data



|  |   |
|--|---|
| <b>Apparecchio</b><br><i>Appliance</i>   | <b>F 350</b>  |
| <b>Configurazione scarico fumi</b><br><i>Flue configuration</i>  | <b>Superiore</b><br><i>Vertical</i>                               |
| <b>Tipo di apparecchio</b><br><i>Appliance kind</i>  | <b>A combustione intermittente</b><br><i>Intermittent burning</i> |
| <b>Tipo di combustibile</b><br><i>Combustible typology</i>   | <b>Cicco di legna</b><br><i>Wood logs</i>                         |
| <b>L'apparecchio può operare a combustione ridotta</b><br><i>It is possible to maintain reduced combustion</i> | <b>No</b><br><i>No</i>  |

| <b>Potenza termica</b><br><i>Heat output</i> |    | <b>Nominale</b><br><i>Nominal</i> |
|--|----|-----------------------------------|
| <b>Totale</b><br><i>Total</i>                | kW | 392,30                            |
| <b>All'aria</b><br><i>To air</i>             | kW | 392,30                            |
| <b>All'acqua</b><br><i>To water</i>          | kW | -                                 |
| <b>Redimento</b><br><i>Efficiency</i>        | %  | 73,37                             |

| <b>Combustioni</b><br><i>Combustion</i>  |                    | <b>Nominale</b><br><i>Nominal</i>      |
|--|--------------------|--|
| <b>CO al 13% O<sub>2</sub></b><br><i>CO to 13% O<sub>2</sub></i>                         | ppm                | 729,43 <i>mg/Nm<sup>3</sup> 394,79</i> |
| <b>NO<sub>x</sub> al 13% O<sub>2</sub></b><br><i>NO<sub>x</sub> to 13% O<sub>2</sub></i> | ppm                | 64,44                                  |
| <b>OGC al 13% O<sub>2</sub></b><br><i>OGC to 13% O<sub>2</sub></i>                       | mg/Nm <sup>3</sup> | -                                      |
| <b>Polveri al 13% O<sub>2</sub></b><br><i>Dust emission to 13% O<sub>2</sub></i>         | mg/Nm <sup>3</sup> | 4,69                                   |
| <b>Temperatura media dei fumi</b><br><i>Flue gas temperature</i>                         | °C                 | 351,56                                 |
| <b>Tiraggio del camino</b><br><i>Chimney draught</i>                                     | Pa                 | 37,17                                  |

|  |      |       |
|--|------|-------|
| <b>Consumo orario</b><br><i>Hourly consumption</i>         | kg/h | 120,0 |
| <b>Durata del test</b><br><i>Test period</i>               | min  | 60    |
| <b>Pressione di esercizio</b><br><i>Operative pressure</i> | bar  | -     |

| <b>Minime distanze da materiali combustibili</b><br><i>Minimum combustible materials distance</i> | <b>lato</b><br><i>side</i> | <b>retro</b><br><i>back</i> | <b>fondo</b><br><i>ground</i> |
|---|----------------------------|-----------------------------|-------------------------------|
| mm  | 600                        | 1200                        | -                             |

|           |  |  |
|-----------|--|--|
| 130400912 | <b>Storico del fascicolo tecnico</b><br><i>Technical documentation history</i> | <br><small>Partner for progress</small> |
|-----------|--|--|

**Storico**

*History*

| <b>Data</b><br><i>Date</i> | <b>Num. di progetto</b><br><i>Project number</i> | <b>Rev</b><br><i>Rev</i> | <b>Tecnico di prova</b><br><i>Test engineer</i> | <b>Descrizione</b><br><i>Description</i> |
|----------------------------|--|--------------------------|---|--|
| 27.1.2014                  | 130400912  | 00                       | Dalto Damiano                                   | New                                      |

**Osservazioni da parte del laboratorio in merito all'apparecchio***Special remarks by the laboratory on the appliance*

a) I dati riportati nel presente fascicolo tecnico si riferiscono esclusivamente agli esemplari provati, incluse le eventuali integrazioni richieste dal costruttore.

*a) The test results in this technical documentation are exclusively referred to the test samples, included possible integrations requested by the manufacturer.*

b) Non esistendo una norma tecnica specifica per questa tipologia di apparecchio, su richiesta del costruttore si è proceduto ad effettuare le prove in accordo con le seguenti norme usate come linea guida:

*b) due doesn't exist a technical standard for this kind of appliance, so as required by the manufacturer the appliance has been tested in accordance with the following standard used as guideline:*

|   |     |                     |     |       |
|---|-----|---------------------|-----|-------|
| • Test di potenza termica nominale<br><i>Nominal heat output test</i>   | std | EN 13240:2001       | par | A.4.7 |
| • Analisi e campionamento polveri<br><i>Dust sampling and analysis</i>  | std | EN 13284-1:2003     | par | -     |
| • Simulazione di non funzionamento del ventilatore ambiente partendo da condizione di regime<br><i>Simulation of switching off cross flow fan (start test from NHO)</i>   | std | EN 60335-2-102:2006 | par | -     |
| • Simulazione di blackout elettrico (inizio test da NHO)<br><i>Simulation of blackout (start test from NHO)</i>   | std | EN 60335-2-102:2006 | par | -     |
| • Simulazione di mal funzionamento del ventilatore estrattore fumi che si ferma durante il funzionamento normale<br><i>Simulation of malfunctioning flue gas fan motor that stops during normal operation (start test from NHO)</i> | std | EN 60335-2-102:2006 | par | -     |

c) La documentazione inerente le istruzioni d'uso, manutenzione ed installazione del prodotto, è stata allegata al fascicolo tecnico con il solo scopo di dare ulteriori informazioni circa le caratteristiche del prodotto e non per la validazione del contenuto della documentazione stessa.

*c) The documentation relating to the operating instructions, maintenance and installation of products, was annexed to the technical documentation for the sole purpose of giving more information about the characteristics of the product and not to validate the contents of this documentation.*

d) Come richiesto dal costruttore Fabbri Termomeccanica Srl, si integra il report, con i risultati delle prove di analisi, delle emissioni di polveri eseguite dal seguente laboratorio:

*d) As required by the manufacturer Fabbri Srl Thermomechanics, integrates the report, with the results of analytical tests, about dust emission performed by the following laboratory:*

**L.A.V. s.r.l.**


Via Nuova Circonvallazione, 57/D

47923 Rimini (RN)

Accredia Lab n. 0447

si allega al presente i rapporti di prova emessi.

*are annexed to this test reports issued*

|           |   |   |
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| 130400912 | <b>Requisiti normativi</b><br>Standard requirements | <br>Partner for progress |
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### Fogli di prova per requisiti essenziali in base alla normativa EN 13240:2001/A2:2004/AC:2006

Essential requirements test sheets on standard EN 13240:2001/A2:2004/AC:2006

#### 4.1 Documentazione di produzione / Production documentation


|   |      |
|---|------|
| The manufacturer shall state the type of appliance which he submits for type testing and the test laboratory shall test the appliance using the provisions appropriate to that claim.   | Yes  |
| The parameters and characteristics considered in making the decisions in relation to either the family or range of appliances to be submitted for initial type testing (see 9.2.1) or further type testing where changes are made to an appliance (see 9.2.2) shall be recorded. A copy of the parameters and characteristics considered in making the decisions shall be included in the production documentation for each appliance.  | 2)   |
| To identify the appliance the manufacturer shall have available documents and/or scaled assembly drawings showing the basic design and construction of the appliance. The documentation and/or the drawings shall include at least the following information:<br>The documentation and/or the drawings shall include at least the following information:<br>- the specification of the materials used in the construction of the appliance;<br>- the nominal heat output in kW using fuels recommended by the manufacturer; | 2)   |
| If the appliance is fitted with a boiler then the following additional details shall also be specified:<br>- the welding process used in the manufacture of the boiler shell;<br>- the permissible maximum operating water temperature in °C;<br>- the permissible maximum operating pressure in bar;<br>- the type test pressure in bar;<br>- the water heating output in kW   | N.A. |

#### 4.2 Requisiti di struttura generale / General Construction requirement

|   |      |
|---|------|
| The shape and dimensions of the components and equipment and the method of design and manufacture, and if assembled on site the method of assembly and installation, shall ensure that, when operated in accordance with the provisions of appropriate test(s) and exposed to the associated mechanical, chemical and thermal stresses, the appliance shall operate reliably and safely such that during normal operation no combustion gases posing a hazard can escape into the room in which the appliance is installed nor can embers fall out. | Yes  |
| Non-combustible materials shall be used, except that it shall be permissible to use combustible materials for the following applications:<br>- components or accessories fitted outside the appliance;<br>- internal components of controls and safety equipment;<br>- operating handles;<br>- electrical equipment.  | Yes  |
| No part of the appliance shall comprise any material known to be harmful.   | Yes  |
| Hard solder, containing cadmium in its formulation, shall not be used.  | Yes  |
| When fired with solid mineral fuels, the appliance shall have a bottomgrate and an ashpan.  | N.A. |
| Component parts which require periodic replacement and/or removal shall be either so designed or identified so as to ensure correct fitting.  | Yes  |
| NOTE 1 Because the entire heat dissipating surfaces of the appliance including the flue spigot/socket and the flue gas connector are working surfaces, there is no requirement for limiting the surface temperature of the appliance.<br>NOTE 2 All operations which the user carries out, including loading and emptying the appliance, adjusting controls and de-ashing should be easy, safe and effective.   | Yes  |

#### 4.2.2 Caldaie integrata / Integral boiler

|  |      |
|--|------|
| The boiler shell shall be constructed from cast iron and/or steel and shall be capable of operating at the maximum operating pressure declared by the manufacturer. The integral boiler shall meet the requirements of A.4.7.  | N.A. |
| The materials and dimensions for the integral boiler construction shall be in accordance with the specifications given in Tables 2 to 7. If alternative materials are used, a certificate giving evidence of similar performance is required.  | N.A. |
| Provision shall be made for parts which form a seal to be located securely by means of bolts, gaskets or welding; to prevent the leakage of air, water or combustion products. Adjacent surfaces between metal components in the firebox or the flueways shall be gastight. Where a seal is made with fire cement, the cement shall be supported by adjacent metal | N.A. |

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#### 4.2.2.1 Caldaie in acciaio / Boilers constructed of steel

|  |      |
|--|------|
| <p><b>4.2.2.1.1 Welding and welding materials</b><br/>The materials used shall be suitable for welding.<br/><i>Note The materials listed in Table 3 of EN 13240, are suitable and do not require any additional heat treatment after heat treatment after welding.</i></p>   | N.A. |
| <p><b>4.2.2.1.2 Nominal minimum wall thicknesses (steel)</b><br/>Boilers constructed of mild steel shall have the appropriate wall thickness set out in Table 2 of EN 13240.<br/><i>NOTE 1 The nominal minimum wall thicknesses of Table 2 apply to pressure loaded sheets and tubes other than other than immersion coils, safety heat exchangers.</i><br/><i>NOTE 2 Thinner wall thicknesses are only permissible with proof of equivalent corrosion resistance, heat resistance and strength.</i><br/><i>NOTE 3 The nominal minimum wall thicknesses listed in Table 2 have been specified taking into consideration the following parameters:</i><br/>- the permissible maximum water operating pressure (4 bar);<br/>- the material properties;<br/>- the heat transfer location.</p> | N.A. |
| <p>The tolerances on the nominal minimum wall thicknesses for steels shall be as specified in EN10029:1991.</p>  | N.A. |

#### 4.2.2.2 Caldaie in ghisa / Boilers constructed of cast iron

|  |      |
|--|------|
| <p><b>4.2.2.2.1 Cast iron parts subject to water pressure</b><br/>The mechanical properties of cast iron used for parts subject to water pressure shall, as a minimum, correspond to the values listed in Table 4 of EN 13240.</p> | N.A. |
| <p><b>4.2.2.2.2 Minimum wall thicknesses (cast iron)</b><br/>The wall thicknesses of the casting section shall be not less than the minimum thicknesses listed in Table 5 of EN 13240.</p>   | N.A. |

#### 4.2.2.3 Collegamenti al corpo della caldaia / Boiler shell tapings

|  |      |
|--|------|
| <p>The threads of boiler shell tapings, for flow and return pipes, shall be not less than the minimum thread size designation given in Table 6 of EN 13240.</p>  | N.A. |
| <p>Where tapered threads are used, they shall be in accordance with the requirements of ISO 7-1:1994 and ISO 7-2:2000. Where parallel threads are used, they shall be in accordance with ISO 228-1:2000 and ISO 228-2:1987. The design and position of flow tapings shall be such that air will not be retained within the boiler shell.</p> | N.A. |
| <p>The minimum depth of tapping or length of thread shall be not less than the minimum values given in Table 7 of EN 13240.</p>  | N.A. |
| <p>If boilers are supplied with reducing bushes in horizontal flow tapings, these shall be eccentric and fixed so that the reduced outlet is uppermost.</p>  | N.A. |
| <p>Where a drain socket is provided in the boiler shell, it shall have a minimum thread size designation of ½ and shall be in accordance with either ISO 7-1:2000 and ISO 7-2:1982 if tapered threads are used or ISO 228-1:2000 and ISO 228-2:1987 if parallel threads are used.</p>  | N.A. |

#### 4.2.2.4 Circuiti idraulici della caldaia / Boiler waterways

|  |      |
|--|------|
| <p><b>4.2.2.4.1 Design of all boiler waterways</b><br/>The design of the boiler shall ensure a free flow of water through all parts. To minimise the build up of sediment, designed sharp or wedge-shaped waterways with a taper towards the bottom shall be avoided.</p>  | N.A. |
| <p>Where inspection holes are provided in the boiler to give access for inspection and cleaning of the waterways, they shall be a minimum of 70 mm x 40 mm or have a minimum diameter of 70 mm and be sealed with a gasket and cap.</p>  | N.A. |
| <p><b>4.2.2.4.2 Boilers waterways used with indirect water systems</b><br/>The minimum internal dimension of waterways throughout the main body in appliances designed for indirect water systems shall be not less than 20 mm, except where waterways have to be reduced locally to facilitate manufacture or are in areas not in direct contact with burning fuel, in these cases the width of the waterways shall be not less than 15 mm.</p> | N.A. |
| <p>The design of the boiler shell shall ensure a free flow of water through all parts such that under normal operation in accordance with the manufacturer's instructions, no undue boiling noises occur.</p>  | N.A. |



|   |      |
|---|------|
| <b>4.2.2.4.3 Boilers waterways used with direct water systems</b><br>The minimum internal dimension of waterways in boilers designed for direct water systems shall be not less than 25 mm.   | N.A. |
| <b>4.2.2.4.4 Venting of the water sections</b><br>The boiler shell and its component waterways shall be designed in such a way that their respective water sections are well vented.  | N.A. |
| The boiler shall be so designed that under normal operation in accordance with the manufacturer's installation instructions, no undue boiling noises occur.   | N.A. |
| <b>4.2.2.4.5 Water tightness</b><br>Holes, for screws and similar components, which are used for the attachment or removal of parts shall not open into waterways or spaces through which water flows.<br><i>NOTE This does not apply to pockets for measuring, control and safety equipment.</i> | N.A. |


|   |      |
|---|------|
| <b>4.2.3 Pulizia delle superfici di riscaldamento / Cleaning of heating surfaces</b><br>All heating surfaces shall be accessible from the flue gas side for inspection and cleaning with brushes, scrapers or chemical agents by means of sufficient cleaning openings. | Yes  |
| Where cleaning and servicing of the boiler and its components require the use of special tools (e.g. special brushes), these shall be supplied by the appliance manufacturer.   | N.A. |

|   |     |
|---|-----|
| <b>4.2.4 Collare dei fumi o sezione di scarico / Flue spigot or socket</b><br>For horizontal flue connection, the flue spigot/socket shall be designed to allow fitting, internal or external, over a length of at least 40 mm, of a flue gas connector.  | Yes |
| For vertical flue connection, the fitting shall overlap by at least 25 mm.  | Yes |
| <i>NOTE For inset appliances (made for fireplace recesses) with a vertical chimney flue connection and where the manufacturer's installation instructions specify, in addition to the flue gas connector, that an insulating mortar infill should be added around the connector to seal the appliance to the chimney flue, then in this case it is permissible for the flue spigot/socket overlap to be reduced to a minimum of 6 mm.</i> | Yes |

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|---|-----|
| <b>4.2.5 Condotti dei fumi / Flueways</b><br>The size of the flueway in its minimum dimension shall be not less than 30 mm except it shall be permissible to reduce it to not less than 15 mm for appliances designed only to burn fuels other than bituminous coals and peat briquettes, and where an access door(s) is provided for cleaning the flueway. | Yes |
| It shall be possible to clean the flueways of the appliance completely using commercially available tools or brushes, unless special tools or brushes are provided by the appliance manufacturer.   | Yes |

|  |      |
|--|------|
| <b>4.2.6 Cenerario e rimozione cenere / Ashpan and ash removal</b><br>A means for the removal of the ash residue from the appliance shall be provided.   | Yes  |
| When an ashpan is provided, it shall be capable of containing the combustion residue from two full charges of fuel whilst retaining sufficient space above to allow adequate primary air flow through the bottomgrate or firebed.  | N.A. |
| If the ashpan resides in the appliance it shall locate in the ashpit in such a way that it allows the free passage of primary air and in such a position that it does not obstruct any primary air inlet control.  | Yes  |
| <i>NOTE 1 The ashpan should be designed and constructed to ensure that:</i><br>a) it effectively collects the residue from beneath the bottomgrate;<br>b) it can be easily and safely withdrawn, carried and emptied when hot, using the tool(s) provided, without undue spillage of residue material.<br><i>NOTE 2 The ashpan can be shovel shaped.</i> | Yes  |

|   |      |
|---|------|
| <b>4.2.7 Griglia portafuoco / Bottomgrate</b><br>Where the bottomgrate is removable it shall be so designed or marked as to ensure correct fitting.   | Yes  |
| If a de-ashing mechanism is fitted it shall be capable of effectively de-ashing the fuelbed.  | N.A. |
| <i>NOTE 1 The preferred design with the firedoor(s) and ashpit door(s) closed should allow de-ashing to be carried out. The de-ashing should be possible without undue effort.</i><br><i>NOTE 2 If it is necessary to remove the ashpit door to de-ash the fire, the appliance should be designed to minimise ash or fuel spillage during the de-ashing operation</i> | Yes  |

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#### 4.2.8 Alimentazione aria di combustione / *Combustion air supply*

|   |      |
|---|------|
| <b>4.2.8.1 Primary air inlet control</b><br>The appliance shall be fitted with either a thermostatically controlled primary air inlet control or a manual primary air inlet control. For appliances with boiler, a manual primary air inlet control shall only be allowed for boiler outputs up to 7,5 kW. The adjusting control shall be clearly visible or shall be permanently marked so that its operation is readily understandable by the user. | Yes  |
| The design shall be such that during operation of the appliance, neither ash nor unburnt fuel can prevent the movement or closure of the air inlet control.   | Yes  |
| The 'cold' setting of the primary air inlet control shall be clearly marked and the method of adjustment shall be described in the user instructions.   | Yes  |
| The thermostat shall have a variable temperature range and be of the immersion or dry pocket type. The pocket shall be positioned so that the thermostat senses the temperature of the flow water from the appliance.   | N.A. |
| <b>4.2.8.2 Secondary air inlet control</b><br>Where a secondary air inlet control is provided the position of air entry shall be so designed that the passage of air is not restricted when the firebox is filled to the manufacturer's recommended capacity.   | Yes  |

#### 4.2.9 Controllo del gas di combustione / *Control of flue gas*

|  |      |
|--|------|
| If a flue damper is fitted, it shall be of a type that does not block the flue totally. The damper shall be easy to operate and incorporate an aperture within the blade which, in a continuous area, occupies at least 20 cm <sup>2</sup> or 3 % of the cross-sectional area of the blade if this is greater. | N.A. |
| The position of the damper shall be recognisable to the user from the setting of the device.   | N.A. |
| If a draught regulator is fitted the minimum cross sectional area requirement shall not be applicable but the device shall be easily accessible for cleaning.  | N.A. |

#### 4.2.10 Portelli e porte di carico / *Firedoors and charging doors*

|   |     |
|---|-----|
| Firedoors and charging doors shall be designed to prevent accidental opening and to facilitate positive closure. Door seals shall be either metal to metal or of flexible non-combustible material. | Yes |
| Means shall be provided to maintain the fit of any door sealed with flexible non-combustible material.  | Yes |
| When open, firedoors shall not obstruct the firebox opening and shall be capable of opening to an angle greater than 90°.   | Yes |

#### 4.2.11 Dispositivo di bypass gas / *Flue bypass device*

|   |      |
|---|------|
| Any flue bypass device shall be easily operable. The extreme positions corresponding to full opening and closing shall be stable and easily identifiable. | N.A. |
|---|------|


#### 4.2.12 Barre frontali e/o piastra di abbassamento / *Front firebars and/or deepening plate*

|   |      |
|---|------|
| Front firebars shall be designed to retain the fuel or ash such that there is no undue spillage of ash or burning fuel from the roomheater during normal operations, particularly during refuelling or de-ashing. | N.A. |
| If the appliance is fitted with removable front firebars and/or deepening plate, they shall be of a design such that they can neither be incorrectly fitted nor accidentally dislodged.                           | N.A. |

#### 4.2.13 Apparecchi alimentati a combustibile minerale solido e torba

*Solid mineral fuel and peat briquettes burning appliances*

|   |      |
|---|------|
| When the recommended fuels are solid mineral fuel and peat briquettes, the appliances shall have a bottomgrate and an ashpan. | N.A. |
|---|------|

|           |  |   |
|-----------|--|---|
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## 5 Sicurezza / Safety requirements

### 5.1 Tiraggio naturale / Natural draught

|  |      |
|--|------|
| Where the appliance manufacturer claims that a continuous burning appliance can be connected to a chimney serving more than one appliance, and can be operated with solid mineral fuel and peat briquettes as suitable fuels, then when tested in accordance with A.4.9.3 either the flue draught throughout the test period shall be not less than 3 Pa or where the flue draught falls below 3 Pa then over a further 10 h period from when the draught falls below 3 Pa the total quantity of carbon monoxide in the flue gas, calculated to NTP as detailed in A.6.2.8 shall not be greater than 250 dm <sup>3</sup> . | N.A. |
|--|------|

### 5.2 Funzionamento con porte del focolaio aperto / Operation with open firedoors

|   |      |
|---|------|
| The operation of an appliance with an open firebox shall only be permitted when:<br>- any escape of harmful combustion gases<br>- any loss of the firebed from the appliance,<br>does not occur under the test conditions described in section A.4.9.1. | N.A. |
|---|------|

### 5.3 Resistenza a tenuta dei corpi caldaia / Strength and leaktightness of boiler shells

|  |      |
|--|------|
| The boiler shell and its water carrying components shall not leak or become permanently deformed when subjected to the type pressure test described in A.4.9.4 and during the nominal heat output test described in A.4.7. | N.A. |
|--|------|

### 5.4 Innalzamento di temperatura nel contenitore integrato di accumulo del combustibile (oltre all'alimentatore del combustibile)

*Temperature rise in the fuel storage container (other than the fuel hopper)*

|  |      |
|--|------|
| When tested in accordance with A.4.7 and A.4.9, the temperatures measured in the fuel storage container shall not exceed the ambient room temperature by more than 65 K. | N.A. |
|--|------|

### 5.5 Innalzamento di temperature degli attrezzi di funzionamento

*Temperature rise of the operating components*

|  |     |
|--|-----|
| If the manipulation of the operating components does not require the assistance of tools, the surface temperatures, measured only in the areas to be touched, shall not exceed the ambient room temperature by more than the following when tested in accordance with A.4.7:<br>- 35 K for metal;<br>- 45 K for porcelain, vitreous enamel or similar materials;<br>- 60 K for plastics, rubber or wood<br>If these temperatures are exceeded, the manufacturer shall indicate in the instructions the need to use an operating tool. This tool shall be supplied with the appliance.<br><i>NOTE A suitable glove is regarded as a tool.</i> | Yes |
|--|-----|

### 5.6 Temperatura dei materiali combustibili adiacenti

*Temperatures of adjacent combustible materials*

|   |      |
|---|------|
| When tested during the performance test at nominal heat output in accordance with A.4.7, and the temperature safety test in accordance with A.4.9, and when the appliance is installed in accordance with the clearance distances specified in the manufacturer's installation instructions, the temperature of the test hearth and walls and/or ceiling or any other structure surrounding the appliance comprising combustible material shall not exceed the ambient temperature by more than 65 K. | N.A. |
| If the temperature of the surrounding walls and/or of the floor exceeds the ambient temperature by more than 65 K, the manufacturer shall provide the necessary information for insulating the walls and/or floor or indicate the clearance distance required.  | N.A. |

### 5.7 Valvola di scarico termico / Thermal discharge control

|   |      |
|---|------|
| The appliance shall comply with the electrical safety requirements of EN 50165 if mains operated electrical equipment is fitted as part of the appliance. | N.A. |
|---|------|

## 6 Requisiti di prestazione / Performance requirements

### 6.1 Temperatura fumi / Flue gas temperature

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|---|-----|
| When tested in accordance with A.4.7, the flue gas temperature shall be measured and the mean calculated and recorded in the installation instructions. | Yes |
|---|-----|

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| Sez | RN | Pag | 5/9 |
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**6.2 Emissione di monossido di carbonio / Carbon monoxide emission**

|  |     |
|--|-----|
| When measured in accordance with A.4.7, the mean carbon monoxide concentration calculated to 13% oxygen (O <sub>2</sub> ) content in the flue gas shall be less than or equal to the manufacturer's declared value and shall not exceed 1,0%.  | Yes |
| Some countries have existing national legislation which set limits for maximum carbon monoxide concentration levels under nominal heat output and/or under slow or reduced combustion, in these cases the carbon monoxide level shall be measured during the nominal heat output test in accordance with A.4.7 and the slow or reduced combustion test in accordance with A.4.8 for appliances sold in that country. | Yes |

**6.3 Rendimento alla potenza termica nominale / Efficiency at nominal heat output**

|  |     |
|--|-----|
| When tested in accordance with A.4.7, the measured total efficiency from the mean of at least two test results at nominal heat output shall be greater than or equal to the manufacturer's declared value and shall equal or exceed 50%.                                       | Yes |
| Some countries have existing national legislation which set limits for minimum efficiency under nominal heat output and/or slow or reduced combustion, in these cases the minimum efficiency shall be determined during the nominal heat output test in accordance with A.4.7. | Yes |

**6.4 Tiraggio / Flue draught**


|  |      |
|--|------|
| The flue draught values, related to the appliance's nominal heat output, given in Figure 1 shall be taken as the values for the static pressure to be applied in the measurement section when undertaking the nominal heat output test in accordance with A.4.7, the slow combustion and reduced combustion test in accordance with A.4.8, and the safety test in accordance with A.4.9. | N.A. |
| Where the flue draught values given in Figure 1 need to be exceeded in order to obtain the manufacturer's declared nominal output, the required flue draught shall be clearly stated in the appliance's installation instructions.   | Yes  |
| When undertaking the nominal heat output test in accordance with A.4.7 the flue static pressure shall be kept within $\pm 2$ Pa of the specified value.  | Yes  |
| For the slow combustion or reduced combustion test in accordance with A.4.8 the static pressure shall be kept within $\pm 1$ Pa of the specified value.  | N.A. |
| For the temperature safety test in accordance with A.4.9 the appliance shall be tested at a flue draught 3 Pa greater than that used during the nominal heat output test and the static pressure shall be kept within $\pm 2$ Pa of this specified value.  | N.A. |

**6.5 Riaccensione / Recovery**

|   |      |
|---|------|
| At the conclusion of the slow combustion or reduced combustion test periods described in A.4.8, it shall be possible to satisfactorily revive the fire.         | N.A. |
| Recovery shall be deemed to be satisfactory if the refuel charge is visibly ignited under the test conditions described in A.4.8.4 within a time of 20 minutes. | N.A. |

**6.6 Intervalli di ricarica / Refuelling intervals**

|  |      |
|--|------|
| When tested in accordance with A.4, and when the appliances is operated with closed doors, the minimum times for maintenance of combustion with one added test load of fuel shall be not less than the values given in Table 10 as appropriate to the appliance type and/or the test fuel used.  | Yes  |
| Where the refuelling interval declared by the manufacturer is greater than the minimum refuelling interval given in Table 10, or where the manufacturer states a refuelling interval for appliances under reduced combustion conditions, then the manufacturer's declared value shall be verified when tested during the tests in accordance with A.4.7 and A.4.8. | N.A. |
| The nominal, slow and reduced test loads shall be the same. The nominal load shall be calculated using the refuelling intervals, the manufacturer's declared efficiencies and the calorific values of the fuels as detailed in A.4.2.  | N.A. |
| The slope formed by the test load shall not obstruct, even partially, any flue.  | Yes  |

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**6.7 Potenza termica utile resa all'ambiente / Space heating output**

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|--|-----|
| The space heating output declared by the manufacturer shall not exceed the space heating output measured in accordance with A.4.7. | Yes |
|--|-----|

**6.8 Potenza termica utile resa all'acqua / Water heating output**

|   |     |
|---|-----|
| The water heating output declared by the manufacturer shall not exceed that measured under the conditions described in A.4.7. | Yes |
|---|-----|

**7.1 Generale / General**

|   |    |
|---|----|
| Instructions written in the language of the country of intended destination shall accompany the appliance and shall describe the installation, operation, maintenance and, if assembled on site, the assembly of the appliance. The instructions shall not be in contradiction to the requirements or test results in accordance with this standard | 1) |
|---|----|

**7.2 Istruzioni per l'installazione / Installation instructions**

|   |    |
|---|----|
| <p>The installation instructions shall contain at least the following information:</p> <ul style="list-style-type: none"> <li>- a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance";</li> <li>- the type (model or number) of the appliance;</li> <li>- the nominal heat output(s) in kW or W;</li> <li>- the space heating output in kW or W;</li> <li>- the water heating output in kW or W;</li> <li>- the maximum operating water pressure in bar, where applicable;</li> <li>- the safety clearances against combustible materials, and the other protective measures that shall be taken to protect the building construction;</li> <li>- the requirements for the supply of combustion air, for the simultaneous operation with other appliances and for the operation of exhaust air devices;</li> </ul> <p><i>NOTE Extractor fans when operating in the same room or space as the appliance, may cause problems.</i></p> <ul style="list-style-type: none"> <li>- the need of any air inlet grilles to be so positioned that they are not liable to blockage;</li> <li>- the mass of the appliance in kg;</li> <li>- the minimum flue draught for nominal heat output, (where applicable, with open and closed firedoors);</li> <li>- the flue gas mass flow in g/s (where applicable, with open and closed firedoors);</li> <li>- whether the appliance is suitable for installation in a shared flue system;</li> <li>- the flue gas temperature directly downstream of the flue spigot/socket in °C, (with closed firedoors), under nominal heat output conditions</li> <li>- the inset of roomheaters: in all cases the minimum dimensions of the required builder's opening and/or firefront opening in the surround;</li> <li>- the floors: the appliance shall be installed on floors with an adequate load bearing capacity. If an existing construction doesn't meet this prerequisite, suitable measures (e.g. load distributing plate) shall be taken to achieve it;</li> <li>- the assembly of the appliance on-site, if applicable;</li> <li>- advice on the need to provide access for cleaning the appliance, the flue gas connector and the chimney flue;</li> <li>- the installation of the damper device, if applicable;</li> <li>- the water content and instructions for fitting a drain-cock in the lowest part of the system (where applicable);</li> <li>- the setting of temperature controller and method of adjusting the "cold" setting distance;</li> <li>- advice on a means of dissipating excess heat from the boiler, such as using a "heat leak" radiator.</li> </ul> | 1) |
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**7.3 Istruzioni di funzionamento per l'utente / User operating instructions**


**7.3 Istruzioni di funzionamento per l'utente / User operating instructions**

Each appliance shall be accompanied by instructions in the language of the country in which it is to be operated, containing all important details regarding the operation for the concerned appliance.

The operating instructions shall contain at least the following information:

- a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance";
- a list of the recommended fuels including type and size in accordance with this standard;
- details of the method of refuelling and de-ashing the appliance and the maximum filling height in the firebox and typical refuelling intervals at nominal heat output for various recommended fuels;
- a description of the correct instructions for safe and efficient operation of the appliance including the ignition procedure;
- advice against the use of the appliance as an incinerator and the use of unsuitable and non recommended fuels, including advice against the use of liquid fuels;
- the operation of all adjusting devices, dampers and controls;
- ventilation requirements for simultaneous operation with other heating appliances (where applicable);
- the correct operations for seasonal use and under adverse flue draught or adverse weather conditions;
- advice on the need for regular maintenance by a competent engineer;
- instructions on how to achieve slow combustion;
- a warning that the firebox and ashpit cover shall be kept closed except during ignition, refuelling and removal of residue material to prevent fume spillage, unless the appliance is intended to be operated with open firebox;
- operation with open firebox, where applicable;
- operation of the thermal discharge control, where applicable;
- the need for regular cleaning of the appliance, of the flue gas connector and the chimney flue and highlighting the need to check for blockage prior to re-lighting after a prolonged shut down period;
- advice on the adequate provision of combustion and ventilation air and on keeping air intake grilles supplying combustion air, free from blockage;
- instructions on simple fault finding and the procedure for the safe shut down of the appliance in event of malfunction e.g. overheating, interruption of water supply;
- warning that parts of the appliance, especially the external surfaces, will be hot to touch when in operation and due care will need to be taken;
- the means of protection against risk of fire in and outside the heat radiation area;
- warning against any unauthorised modification of the appliance;
- use of only replacement parts recommended by the manufacturer;
- advice about the actions to be taken in the event of a chimney fire;
- whether the appliance is suitable for installation in a shared flue system;
- advice on whether the appliance is capable of continuous or intermittent operation and instructions on how this is achieved.

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### 8 Marcatura / Marking

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| <p>Each appliance shall be permanently and legibly marked, with the minimum following information, in a place where it is accessible so that the information can be read when the appliance is in its final location:</p> <ul style="list-style-type: none"> <li>- the manufacturer's name or registered trade mark;</li> <li>- the type or the model;</li> <li>- the nominal output in kW or W, or range (if more than one fuel) of heat outputs listed in the form: 'from ... (lowest) kW to ... (highest) kW';</li> <li>- the space heating output in kW or W;</li> <li>- the water heating output in kW or W;</li> <li>- the standard number: EN 13240;</li> <li>- the mean carbon monoxide concentration calculated to 13% oxygen;</li> <li>- the determined appliance efficiency at nominal heat output, as defined in Sections 6.3 and 6.4 of the Standard</li> <li>- the maximum water operating pressure (if applicable), in bar;</li> <li>- the instruction "follow the user's instructions";</li> <li>- the minimum clearance distances from combustible materials, in mm, as appropriate;</li> <li>- whether or not the appliance can be used in a shared flue;</li> <li>- the words "use only recommended fuels";</li> <li>- whether the appliance is capable of continuous or intermittent operation.</li> </ul> | 1) |
| <p>If a label is used it shall be durable and abrasion proof. Under normal operating conditions, the label shall not discolour, thus making the information difficult to read. Self-adhesive labels shall not become detached as a result of moisture or temperature.</p>  | 1) |

#### Legenda: / Caption:

- Yes**      **Conforme** / In accordance with  
**No**        **Non conforme** / Not in accordance with  
**N.A.**      **Non applicabile** / Not applicable  
**N.T.**      **Non testato** / Not tested  
**1)**        **In accordo all'auto dichiarazione costruttore** / According to the manufacturers's declaration.  
**2)**        **A carico del costruttore** / Task by manufacturer

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| 130400912 | <b>Rapporto di prova</b><br><i>Test report</i> | <br>Partner for progress |
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**Rapporto di prova**  
*Test report*

Il rapporto di prova n. 130400912/C-51 del 27.1.2014 emesso da Kiwa Italia Spa, è parte integrante e sostanziale del presente fascicolo tecnico. Una sintesi dei risultati desunti da tale rapporto di prova è riportata nella Sez SD.

*The test report issued by Kiwa Italian Spa n. 130400912/C-51 del 27.1.2014, is an integral and essential part of the technical documentation. A summary of the results derived from this test report is reported in the Sez SD.*