en

Fuel oil/gas boilers

PK 550

D000913

Installation and Service Manual

300020192-02

ŒRTLI

Declaration of conformity CE

The appliance complies with the standard model described in declaration of compliance CE. It is manufactured and distributed pursuant to the requirements of european directives. The original declaration of conformity is available from the manufacturer.

DÉCLARATION DE CONFORMITÉ CE
EG - VERKLARING VAN OVEREENSTEMMING
EC - DECLARATION OF CONFORMITY
EG - KONFORMITÄTSERKLÄRUNG

Fabricant/Manufacturer/Hersteller/Fabrikant	**: OERTLI THERMIQUE**
Adresse/Addres/Adress	**: Z.I Vieux-Thann - 2 avenue Josué Heilmann**
Ville, pays Stad,Land/City,Country/Land,Ort	**: F-68801 THANN Cedex**
déclare ici que les produit(s) suivant(s) **verklaart hiermede dat de toestel(len)** **this is to declare that the following product(s)** **erklärt hiermit das die Produk(te)**	**: PK. 550 -** **9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19,** **20, 21, 22, 23, 24, 25 éléments**
Mise en circulation par	**: voir fin de notice**

répond/répondent aux directives CEE suivantes:
voldoet/voldoen aan de bepalingen van de onderstaande EEG-richtlijnen:
is/are in conformity with the following EEC-directives:
den Bestimmungen der nachfolgenden EG-Richtlinien entspricht/entsprechen:

CEE-Directive: **EEG-Richtlijn:** **EEC-Directive:** **EG-Richtlinie:**	**92/42/CEE** **92/42/EEG** **92/42/EEC** **92/42/EWG**	**normes appliquées, toegepaste normen:** **tested and examined to the following norms:** **verwendete Normen:** **EN 303.2(1999), EN 304(1993)**
	90/396/CEE **90/396/EEG** **90/396/EEC** **90/396/EWG**	**EN 303.3 (1999)**
	73/23/CEE **73/23/EEG** **73/23/EEC** **73/23/EWG**	**DIN EN 50165(2001) EN 50165 (1997+A1:2001)** **DIN EN 60335-1(2003), EN 60335-1(2002)**
	89/336/CEE **89/336/EEG** **89/336/EEC** **89/336/EWG**	**EN 55014-1(2000+A1:2001)** **EN 55014-2(1997+A1:2001)** **EN 61000-3-2(2000),** **EN 61000-3-3(1995+A1:2001)** **EN55022 classe B (1998+A1 :2000)**
	97/23/CEE **97/23/EEG** **97/23/EEC** **97/23/EWG**	**(art.3 section 3)** **(art. 3, lid 3)** **(article 3, sub 3)** **(Art. 3, Absatz 3)**

CE
1312

Mertzwiller, 25 février 2009

Wim HARBERS
Directeur des Opérations et de la Recherche et du Développement

D000911

Contents

1 Introduction

1.1 Symbols and abbreviations

In these instructions, various markings and pictograms are used to draw your attention to particular information. In so doing, OERTLI THERMIQUE S.A.S. wishes to safeguard the user's safety, obviate hazards and guarantee correct operation of the boiler.

Danger
Risk of a dangerous situation causing serious physical injury.

Warning
Risk of a dangerous situation causing slight physical injury.

Caution
Risk of material damage.

Specific information.

Reference
Refer to another manual or other pages in this instruction manual.

- **DHW**: Domestic hot water.

1.2 General

1.2.1 Manufacturer's liability

OERTLI THERMIQUE S.A.S. manufactures products in compliance with the standard CE. Products are delivered with CE marking and all documents required.

In the interest of customers, **OERTLI THERMIQUE S.A.S.** are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

The liability of **OERTLI THERMIQUE S.A.S.** as the manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.
- Failure to abide by the instructions on installing the appliance.

1.2.2 Installer's liability

The installer is responsible for the installation and commissioning of the appliance. The installer must respect the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Carry out installation in compliance with the prevailing legislation and standards.
- Perform the initial start up and carry out any checks necessary.
- Explain the installation to the user.
- If a maintenance is necessary, warn the user of the obligation to check the appliance and maintain it in good working order.
- Give all the instruction manuals to the user.

1.2.3 User's liability

To guarantee optimum operation of the appliance, the user must respect the following instructions:

- Read and abide by the instructions given in the user manual.
- Call on qualified professionals to carry out installation and initial start up.
- Get your installer to explain your installation to you.
- Ensure the Appliance is serviced in accordance with the manufacturer's instructions by a suitable qualified person.
- Keep the instruction manuals in good condition close to the appliance.

2 Safety instructions and recommendations

2.1 Safety instructions

For a proper operating of the boiler, follow carefully the instructions.

Only qualified professionals are authorised to work on the appliance and the installation.

Incorrect use or unauthorised modifications to the installation or the equipment itself invalidate any right to claim.

Before any work, switch off the mains supply to the appliance.

Keep to the polarity shown on the terminals: phase (L), neutral (N) and earth ⏚.

Keep children away from the boiler.

■ Fire hazard

It is forbidden to store inflammable products and materials in the boiler room or close to the boiler, even temporarily.

■ Risk of intoxication

Do not obstruct the air inlets in the room (even partially).

If you smell flue gases

1.Switch the appliance off
2.Open the windows
3.Evacuate the premises
4.Contact a qualified professional

■ Risk of being burnt

Depending on the settings of the appliance:

- The temperature of the flue gas conduits may exceed 180°C
- The temperature of the radiators may reach 95°C
- The temperature of the domestic hot water may reach 65°C

■ Risk of damage

Do not stock chloride or fluoride compounds close to the appliance.

Install the appliance in premises sheltered from rain, snow and frost.

Do not neglect to service the appliance: Contact a qualified professional or take out a maintenance contract for the annual servicing of the appliance.

2.2 Recommendations

- Check regularly that the installation contains water and is pressurised.
- Keep the appliance accessible at all times.
- Avoid draining the installation.
- Use only original spare parts.
- Never remove or cover labels and rating plates affixed to the appliance.

3 Technical description

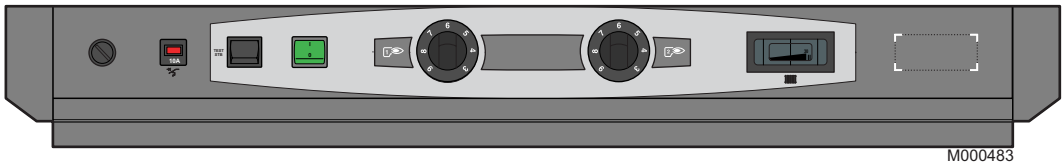
3.1 General description

PK 550 boilers are intended for central heating using radiators or underfloor heating. These boilers have the following characteristics:

- Hot-water boiler
- Heating body in cast iron,
- Pressurised boiler,
- Boiler to be fitted with a gas or oil pressure jet burner
- **X** or **R** control panel (See below)
- Production of domestic hot water can be ensured by a separate hot water calorifier.
- Connecting to a chimney

3.2 Control panels

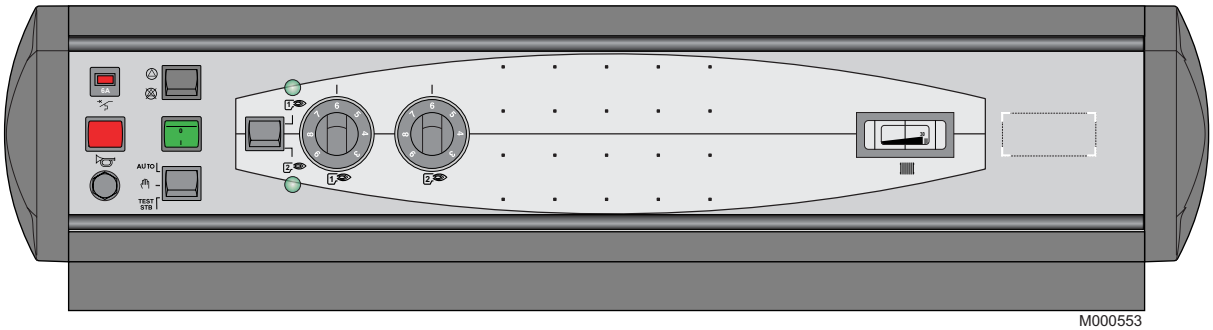
■ PKX 550: Boiler with standard X control panel



Panel comprising the settings, control and safety devices allowing the boiler to operate autonomously, without regulation.

The standard panel is used to connect the boiler to the boiler room control cabinet.
This cabinet can be fitted with control units.

■ PKR 550: Boiler with R control panel.



The control panel enables the operation of a boiler fitted with a 1 stage, 2 stage or modulating burner.

Control system based on outside temperature if a regulator has been installed (see options).

3.3 Operating principle

Boiler with X control panel:

The operation is controlled by the boiler thermostat or by the control system located in a cabinet, according to the heating request.

Boiler with R control panel:

If the boiler is fitted with a REA control unit, the boiler temperature is modulated by the regulator, which controls the burner and the motorised mixing valves depending upon the outside temperature.
For boilers which are not equipped with a REA regulator, either a room thermostat: The operation is controlled by the boiler thermostat, according to the heating request.

3.4 Technical specifications

3.4.1 Boilers for following countries: France - Belgium - Spain - Luxemburg - Portugal - Bulgaria - Greece - Romania - Tunisia - Algeria - Cyprus - Czech Republic

Maximum operating pressure: 6 bar

Maximum operating temperature: 100 °C

Boiler thermostat setting: 30 to 90°C

Safety thermostat setting: 110 °C

Boiler			PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
Useful output		kW	464 to 522	522 to 580	580 to 638	638 to 696	696 to 754	754 to 812	812 to 870	870 to 928	928 to 986	986 to 1044	1044 to 1102	1102 to 1160	1160 to 1218	1218 to 1276	1276 to 1334	1334 to 1400	1400 to 1450
Power input		kW	505 to 571	566 to 632	635 to 703	701 to 769	763 to 831	821 to 890	897 to 967	954 to 1024	1022 to 1093	1077to 1147	1146 to 1216	1198 to 1268	1265 to 1336	1333 to 1404	1393 to 1464	1463to 1544	1532 to 1595
Number of sections			9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Water content		l	465	503	541	579	617	655	693	731	769	807	845	905	943	981	1019	1057	1095
Water resistance (1)	Δ T = 10K	mbar	28.4	34.8	42	50	57.6	67.2	77.6	26.2	30.2	35.8	41.4	48.0	53.6	59.2	64.8	71.6	78.4
	Δ T = 15K	mbar	12.6	15.5	18.7	22.4	25.8	30	34.7	11.7	13.5	14.0	18.5	21.5	24	26.5	29	32	35
	Δ T = 20K	mbar	7.1	8.7	10.5	12.5	14.4	16.8	19.4	6.5	7.6	9.0	10.4	12.0	13.4	14.8	16.2	17.9	19.6
Pressure in the furnace for nozzle pressure = 0 (4)		mbar	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.85	3	3.1	3.2	3.3	3.4	3.5
Flue gas temperature - Ambient temperature (1) (3)		K	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190
Mass flue gas flow rate (1) (2)	Fuel oil	Kg/h	790	980	1080	1180	1380	1380	1480	1580	1670	1770	1870	1970	2070	2170	2260	2360	2460
	Gas		930	1030	1140	1240	1340	1450	1550	1650	1760	1860	1960	2070	2170	2270	2380	2480	2580
Combustion chamber	Inscribed diameter	mm	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614
	Equivalent diameter	mm	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694
	Depth	mm	928	1039	1150	1261	1372	1483	1594	1705	1816	1927	2038	2189	2300	2411	2522	2633	2744
	Volume	m^3	0.36	0.40	0.45	0.49	0.53	0.57	0.61	0.65	0.70	0.74	0.78	0.84	0.88	0.92	0.96	1.00	1.05
Maintenance consumption*	Δ T = 30K	%	0.09	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Weight (empty)		kg	2237	2412	2601	2810	3000	3171	3364	3561	3756	3955	4124	4343	4538	4734	4930	5107	5297

*Maintenance consumption: total heat emission when the burner is off as a percentage of the nominal input power when the difference between the mean boiler temperature and the room temperature is 30 K - in accordance with DIN 4702 - EN 303.

(1)Nominal operation (top boiler power)

(2)CO_2 = 13.1 to 13.5% with fuel oil and 9.5% with natural gas.

(3)Boiler temperature: 80 °C

Ambient temperature: 20 °C

(4) In order for the boiler to operate correctly, it is imperative to respect the draught at the nozzle.

3.4.2 Boilers for following countries: Germany - Austria - Poland - Slovenia - Serbia

Maximum operating pressure: 6 bar
Maximum operating temperature: 100 °C
Maximum operating temperature: 120 °C
(in accordance with TRD 702)

Boiler thermostat setting: 30 to 90°C
Safety thermostat setting: 110 °C

Boiler			PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
Useful output		kW	415 to 460	460 to 505	505 to 550	550 to 595	595 to 640	640 to 685	685 to 730	730 to 775	730 to 820	820 to 865	865 to 910	910 to 955	955 to 1000	1000 to 1045	1045 to 1090	1090 to 1135	1135 to 1180
Power input		kW	448 to 500	494 to 546	547 to 599	597 to 649	643 to 696	689 to 741	743 to 797	790 to 842	790 to 892	886 to 938	935 to 987	982 to 1034	1034 to 1085	1082 to 1133	1131 to 1182	1180to 1231	1227 to 1278
Number of sections			9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Water content		l	465	503	541	579	617	655	693	731	769	807	845	905	943	981	1019	1057	1095
Water resistance (1)	Δ T = 10K	mbar	22	25.9	30.5	37	43.5	50	55.8	21.8	24.2	26.8	30	33	35.6	38.9	42.9	45.6	48.9
	Δ T = 15K		9.8	11.5	13.6	16.4	19.3	22.2	24.8	9.7	10.8	11.9	13.3	14.7	15.8	17.3	19.1	20.3	21.9
	Δ T = 20K		5.5	6.9	8.1	9.2	10.6	12	13.9	4.5	5.8	6.5	7.2	7.9	8.6	9.4	1.6	11.8	12.4
Pressure in the furnace for nozzle pressure = 0 (4)		mbar	1.4	1.45	1.5	1.55	1.6	1.65	1.7	1.75	1.8	1.85	1.95	2.05	2.1	2.15	2.2	2.25	2.3
Flue gas temperature - Ambient temperature (1) (3)		K	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190	<190
Mass flue gas flow rate (1) (2)	Fuel oil	Kg/h	770	850	920	1000	1070	1150	1220	1300	1370	1450	1520	1600	1670	1750	1820	1900	1970
	Gas		810	890	970	1040	1120	1200	1280	1360	1440	1520	1590	1670	1750	1830	1910	1990	2070
Combustion chamber	Inscribed diameter	mm	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614	614
	Equivalent diameter	mm	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694
	Depth	mm	928	1039	1150	1261	1372	1483	1594	1705	1816	1927	2038	2189	2300	2411	2522	2633	2744
	Volume	m^3	0.36	0.40	0.45	0.49	0.53	0.57	0.61	0.65	0.70	0.74	0.78	0.84	0.88	0.92	0.96	1.00	1.05
Maintenance consumption*	Δ T = 30K	%	0.16	0.15	0.14	0.13	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10
Weight (empty)		kg	2205	2391	2567	2771	2945	3120	3314	3494	3684	3872	4040	4266	4444	4639	4817	4994	5168

*Maintenance consumption: total heat emission when the burner is off as a percentage of the nominal input power when the difference between the mean boiler temperature and the room temperature is 30 K - in accordance with DIN 4702 - EN303.

(1)Nominal operation (top boiler power)

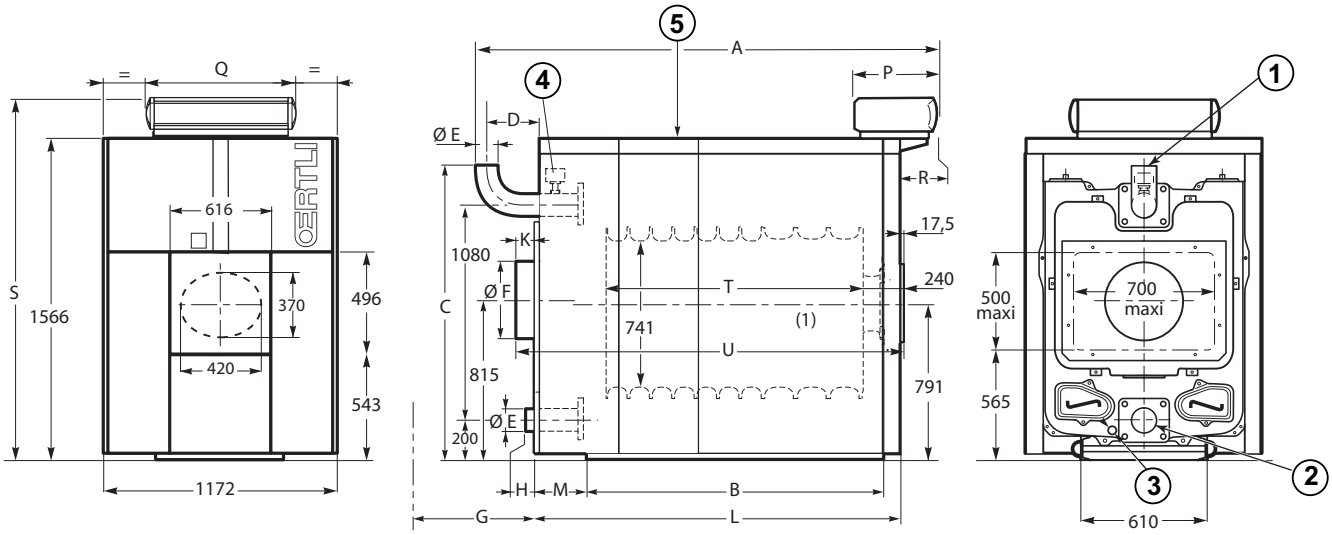
(2)CO_2 = 13.1 to 13.5% with fuel oil and 9.5% with natural gas.

(3)Boiler temperature: 80 °C

Ambient temperature: 20 °C

(4) In order for the boiler to operate correctly, it is imperative to respect the draught at the nozzle.

3.5 Main dimensions



(1) Burner centre line.

(2) The lateral control panel can be mounted to the right or left of the boiler. Exact height positioning defined by the fitter during assembly.

(3) max.

① **Heating flow - Ø E (weld)**

② **Heating return - Ø E (weld)**

③ **Draining - Mk3/4**

④ **Flow sensor.**

⑤ **Minimum height for sweeping = 850.**

Boiler		PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
A (mm)		1119	1230	1341	1452	1563	1674	1785	1896	2007	2118	2229	2380	2491	2602	2713	2824	2935
B (mm)		1078	1300	1300	1522	1522	1744	1744	1966	1966	2188	2188	2450	2450	2672	2672	2894	2894
C (mm)		1488	1488	1488	1488	1488	1488	1488	1488	1488	1504	1504	1504	1504	1504	1504	1504	1504
D (mm)		212	233	234	255	256	217	188	189	210	236	257	208	209	230	231	252	253
Ø E (weld) (mm)		139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	139.7	159	159	159	159	159	159	159	159
Ø F (mm)		300	350	350	350	350	400	400	400	400	400	400	400	*	*	*	*	*
G** (mm)		-	-	-	-	-	-	150	150	370	370	370	650	650	650	980	980	980
H (mm)		-7	14	15	36	37	-2	-31	-30	-9	-8	13	-36	-35	-14	-13	8	9
K*** (mm)		5	26	27	48	49	10	-19	-18	3	4	25	-24	-23	-2	-1	20	21
L (mm)		1555	1645	1755	1845	1955	2105	2245	2355	2445	2555	2645	2845	2955	3045	3155	3245	3355
M (mm)		319	243	297	221	275	259	324	269	321	265	299	269	324	269	324	249	303
P (mm)	**R**	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355
	Standard - X	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
R (mm)	**R**	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175
	Standard - X	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
S (mm)	**R**	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760	1760
	Standard - X	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670
T (mm)		928	1039	1150	1261	1372	1483	1594	1705	1816	1927	2038	2189	2300	2411	2522	2633	2744
U (mm)		1577.5	1688.5	1799.5	1910.5	2021.5	2132.5	2243.5	2354.5	2465.5	2576.5	2687.5	2838.5	2949.5	3060.5	3171.5	3282.5	3393.5
V (mm)	**R**	755	755	755	755	755	755	755	755	755	755	755	755	755	755	755	755	755
	Standard - X	738	738	738	738	738	738	738	738	738	738	738	738	738	738	738	738	738

* Plain plate, requires cutting. Maximum cut-out 500 x 700.

**G = Length required for clearing the water distributing tube.

*** Dimension representing the end of the 100 mm long chimney connection.

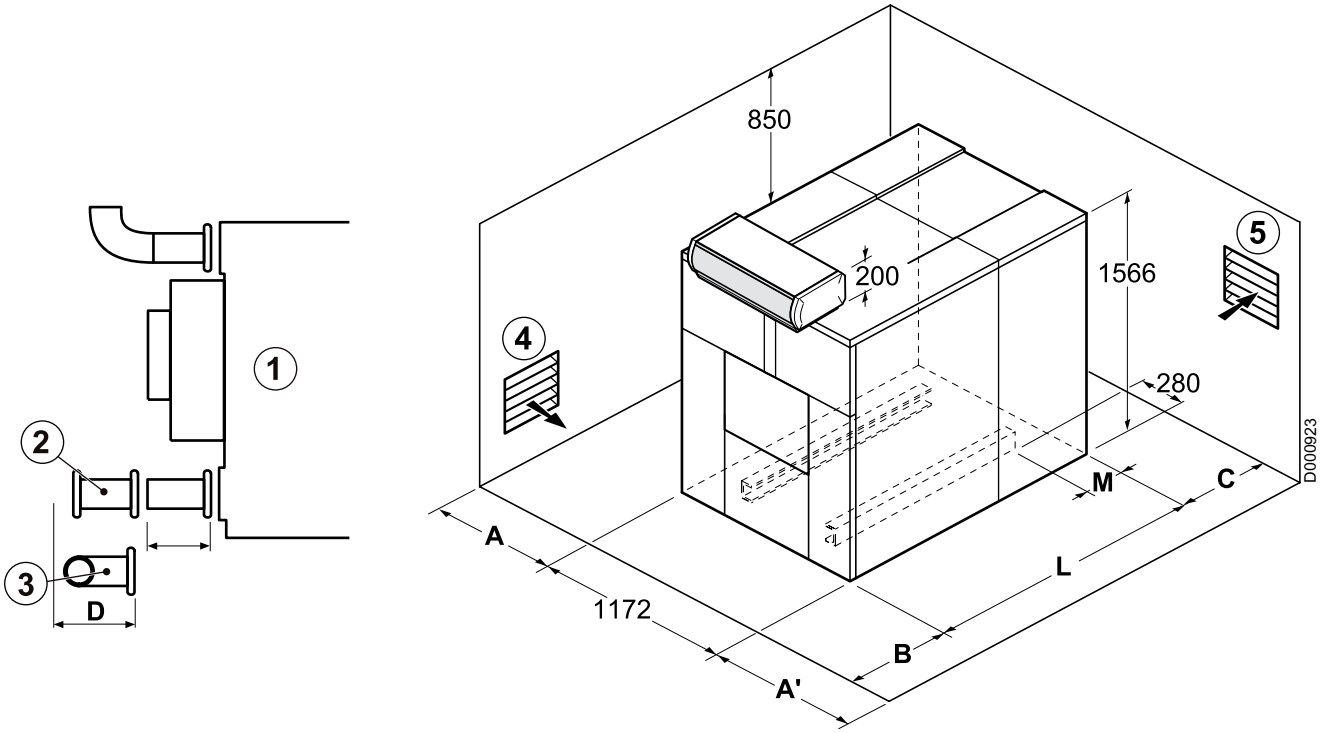
i with models PK 550-21, PK 550-22, PK 550-23,, PK 550-24 and PK 550-25, a plain plate which must be cut out is supplied without the 100 mm chimney connection.

4 Installation

4.1 Choice of the location

4.1.1 Positioning of the appliance

For the assembly and because of their design, PK 550 boilers require no special base. Their closed furnace system means that the floor need not have refractory properties. All you have to ensure is that the floor can support the weight of the boiler when it is fitted for operation. If the boiler location is not determined precisely, leave enough space around the boiler to facilitate monitoring and maintenance operations.



① Boiler body *

② Straight connection (not supplied) *

* 1) In order to facilitate subsequent work on the boiler(replacing the water distributing tube etc.) use a flanged connection from the boiler to the system, making sure you comply with minimum clearance dimension **D**.

③ Angled connection (not supplied)

④ Air inlet

⑤ Air outlet

If **A = 1.2 m** (door opening side), **A' = 0.5 m**

If **A = 0.5 m, A' = 1.2 m** (door opening side): adapt the dimensions on the basis of the dimensions of the burner when the door is open.

B = 1.5 m: adapt the dimensions on the basis of the dimensions of the burner.

Boiler	PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
L	1555	1645	1755	1845	1955	2105	2245	2355	2445	2555	2645	2845	2955	3045	3155	3245	3355
M	319	243	297	221	275	259	324	269	321	265	299	269	324	269	324	249	303
C min.	300	300	300	300	300	300	436	436	656	656	656	936	936	936	1266	1266	1266
D min.	-	-	-	-	-	-	136	136	356	356	356	636	636	636	966	966	966

4.1.2 Ventilation

The location of air inlets in relation to the high ventilation openings shall ensure that the air is renewed in the entire volume of the boiler room.

It is in any case imperative to conform to the local regulations in force.

Upper and lower air vents compulsory:

Top ventilation:

- Cross section equal to half the total cross section of the flue gas pipes with a minimum of 2.5 dm^2.

Bottom ventilation:

- Direct air inlet: S (dm2) $\frac{\geq 0,86P}{20}$

  P = Installed power in kW

Caution:

In order to avoid damage to the boiler, it is necessary to prevent the contamination of combustion air by chlorine and/or fluoride compounds, which are particularly corrosive.

These compounds are present, for example, in aerosol sprays, paints, solvents, cleaning products, washing products, detergents, glues, snow clearing salts, etc.

Therefore:

- Do not pull in air evacuated from premises using such products: hairdressing salons, dry cleaners, industrial premises (solvents), premises containing refrigeration systems (risk of refrigerant leakage), etc.
- Do not stock such products close to the boilers.

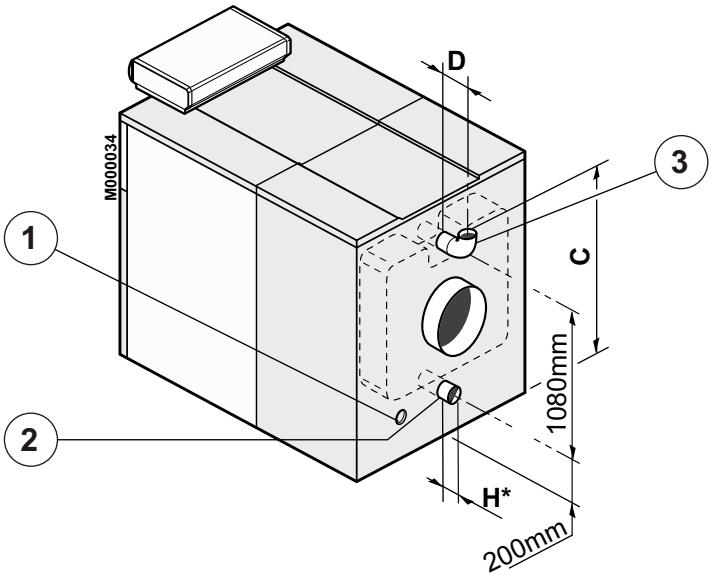
If the boiler and/or peripheral equipment are corroded by such chloride or fluoride compounds, the contractual guarantee cannot be applied.

4.2 Mounting

For mounting instructions, see installation instructions.

4.3 Hydraulic connections

4.3.1 Dimensional information required



① Draining outlet 3/4''

② Heating return:

- 9 to 17 sections: 139.7 - 5"
- 18 to 25 sections: 159 - 6"

weld.

③ Heating flow:

- 9 to 17 sections: 139.7 - 5"
- 18 to 25 sections: 159 - 6"

weld.

* dimension without connection (see figure on chapter Boiler location, straight or angled connection).

Boiler	PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
C (mm)	1488	1488	1488	1488	1488	1488	1488	1488	1488	1504	1504	1504	1504	1504	1504	1504	1504
D (mm)	212	233	234	255	256	217	188	189	210	236	257	208	209	230	231	252	253
H (mm)	-7	14	15	36	37	-2	-31	-30	-9	-8	13	-36	-35	-14	-13	8	9

4.3.2 Important recommendations for connecting the boiler to the heating circuit

Installation must be carried out in accordance with the prevailing regulations, the codes of practice and the recommendations in these instructions.

France:

Heating installations must be designed and constructed in such a way as to prevent the return of water in the heating circuit and the products put into it into the drinking water network located upstream; The installation must not be connected directly to the drinking water network (article 16-7 of the local health directive). When these installations are fitted with a filling system connected to the drinking water network, they comprise a CB disconnector (disconnector for zones with non-controllable pressure differences) which satisfy the functional requirements of the NF P 43-011 standard.

▸Minimum safety valve flowrate as a function of maximum boiler nominal output:

① Minimum relieving capacity

② Maximum gross boiler output

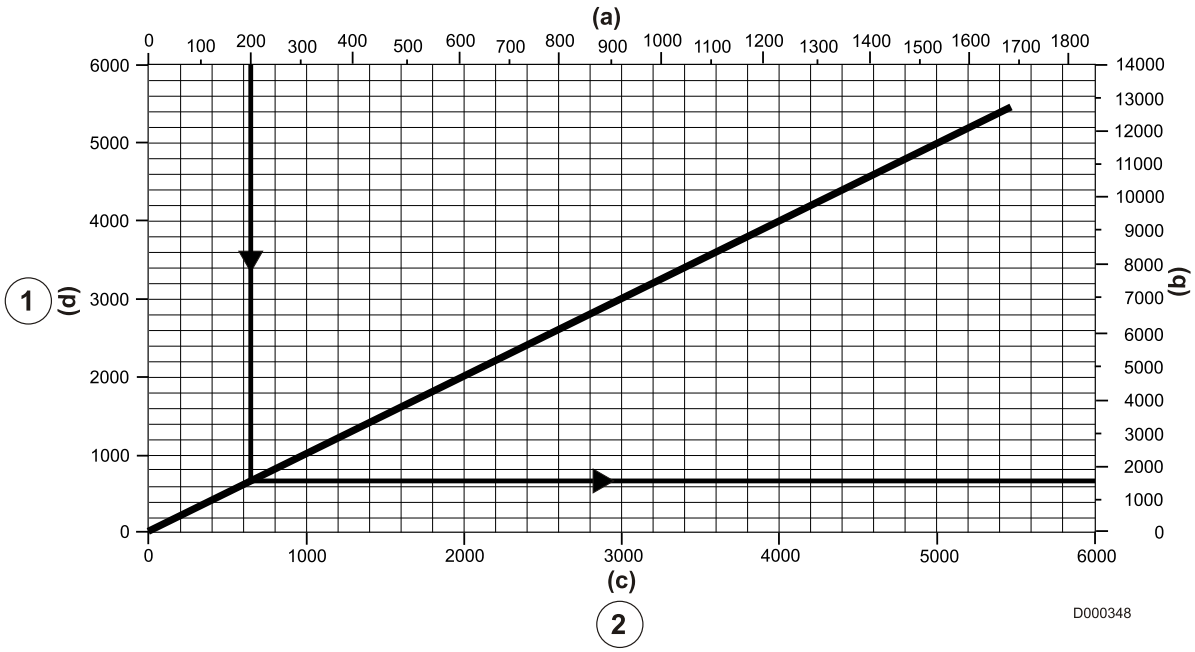
(a) = kW, (b) = lb/h, (c) = MBtu/h, (d) = Kg/h

Example

Maximum boiler nominal output is 800 kW.

Minimum safety valve flowrate must be 2600 Kg/h.

There must be no total or partial closing mechanism between the boiler and the safety valves (France: DTU - 65.11, § 4.22 - NF P 52-203).



▸Water flow in the boiler :

The water flow in the boiler when the burner is operating must correspond with the following formulae:

- Nominal water flow Qn = 0.86 Pn/20
- Minimum flow Qmin = 0.86 Pn/45 (this flow also corresponds with the minimum recycle flow in the boiler)
- Maximum water flow Qmax = 0.86 Pn/5

Qn = flow in m^3/h

Pn = Nominal output (full boiler output) in kW.

▸Operation in cascade

After stopping the burner:

- Timeout required before the order to close a 2 way valve: 3 min
- Switch a possible shunt pump (located between the boiler and a butterfly valve) off via the end of run contact of the butterfly valve.

▸Operation with 2-stage burner

- The water temperature in the boiler is maintained at 50°C or more; The first stage must be set to a minimum of 30% of the nominal stage
- Operation at modulated low temperature (minimum outlet temperature: 40°C); The first stage must be set to a minimum of 50% of the nominal stage.

▸Operation with modulating burner

- The water temperature in the boiler is maintained at 50°C or more: The burner can modulate down to 30% of the nominal stage
- Operation at modulated low temperature (minimum outlet temperature: 40°C); The burner can modulate down to 50% of the nominal stage

4.3.3 Filling the system

Filling shall be performed with a low flow rate from a low point in the boiler room in order to ensure that all the air in the boiler is bled from the high point of the system.
All the pumps must be stopped before filling (included shunt pump(s)).

VERY IMPORTANT: Instructions for starting up the boiler for the first time after the system is fully or partly drained: If all the air is not bled naturally to an expansion vessel which opens out onto the air, the system must include manual bleeder valves, in addition to automatic bleeder valves with the capability to bleed the system by themselves when it is operating, the manual bleeder valves are used to bleed all the high points of the system and to make sure that the filled system is free of air before the burner is turned on.

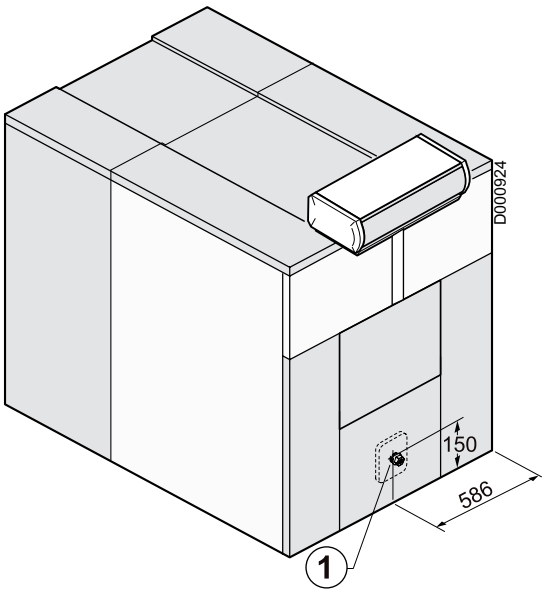
Do not add cold water suddenly into the boiler when it is hot.

4.3.4 Sludge removal

A tapped Ø 2'' hole with a plug has been provided on the bottom of the front of the boiler.. Fit a 1/4 turn valve (not supplied) on the opening to remove the sludge.

Sludge removal leads to the draining of large quantities of water, so remember to refill the system after the operation.

Note:
never replace a boiler in an existing system without carefully rinsing the system first. Install a sludge decanting pot on the return pipe, very close to the boiler.



① 2'' tapped sludge removal hole

4.4 Chimney connection

The high-performance features of modern boilers and their use in specific conditions as a result of the advance in burner technology (e.g. first-stage or low modulation range operation) lead to very low flue gas temperatures (<160°C).

For this reason:

- Use flue gas pipes designed to enable the flow of condensates which may result from such operating modes in order to prevent damage to the chimney.
- Install a draining tee at the bottom of the chimney.

The use of a draught moderator is recommended as well.

4.4.1 Flue size

Refer to applicable regulations while determining the size of the flue. Please note that PK 550 boilers have pressurised and tight furnaces and that the pressure at the connection to the chimney must not exceed 0 mbar, unless special sealing precautions have been taken, for instance in order to connect a static condenser/regenerator.

4.4.2 Chimney connection

The connection shall be removable, and offer minimum load losses, i.e. it must be as short as possible with no sudden change in section.

Its diameter shall always be at least equal to that of the boiler outlet, i.e.:

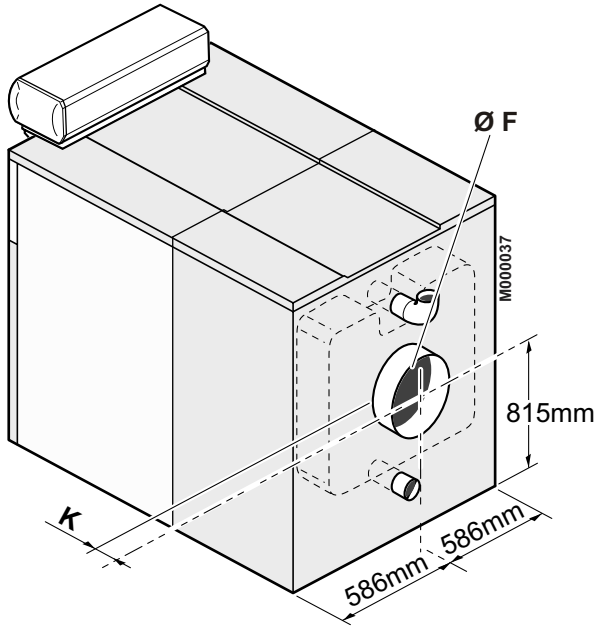
Ø 300 mm for 9 sections

Ø 350 mm for 10 to 13 sections

Ø 400 mm for 14 to 20 sections

Boilers with 21 to 25 sections are supplied with a plain plate. The maximum cut-out dimensions are 500 x 700 mm.

Fit a measuring point (Ø 10 mm hole) on the flue, in order to adjust the burner (combustion check).



Boiler	PK 550-9	PK 550-10	PK 550-11	PK 550-12	PK 550-13	PK 550-14	PK 550-15	PK 550-16	PK 550-17	PK 550-18	PK 550-19	PK 550-20	PK 550-21	PK 550-22	PK 550-23	PK 550-24	PK 550-25
Ø F	300	350	350	350	350	400	400	400	400	400	400	400	Plain plate				
K	5	26	27	48	49	10	-19	-18	3	4	25	-24	-23*	-2*	-1*	20*	21*

*Dimension representing the end of the 100 mm long chimney connection.

Note: with models PK 550-21, PK 550-22, PK 550-23,, PK 550-24 and PK 550-25, a plain plate which must be cut out is supplied without the 100 mm chimney connection.

4.5 Fuel-oil or gas connections

Refer to the instructions supplied with the burner.

4.6 Electrical connections

Refer to the connection instructions supplied with the control panel..

5 Commissioning

See:

- Control panel instructions
- Burner instructions
- Domestic hot water calorifier instructions

6 Switching off the boiler

- Set the On/Off switch to **O**.

See: Control panel instructions

- Cut the gas supply to the boiler (if present)

■ DIEMATIC-m3 control panel

The panel must always be supplied with 230V voltage:

- to ensure the anti-grip of the heating pump,
- to ensure Titan Active System® operation when a titanium anode is protecting the DHW tank.

Use the mode:

- summer to shut down the heating.
- antifreeze to shut down the boiler if you are to be absent.

6.1 Precautions required in the case of long boiler stops

- The boiler and the chimney must be swept carefully.
- Close all the doors of the boiler to prevent air from circulating inside the boiler.
- We advise removing the pipe which connects the boiler to the chimney and to close off the nozzle with a cover.

6.2 Precautions required if the heating is stopped when there is a risk of freezing

We recommend the use of a correctly dosed antifreeze agent to prevent to the heating circuit from freezing.

If this cannot be done, drain the system completely.

7 Checking and maintenance

7.1 Maintenance of the boiler

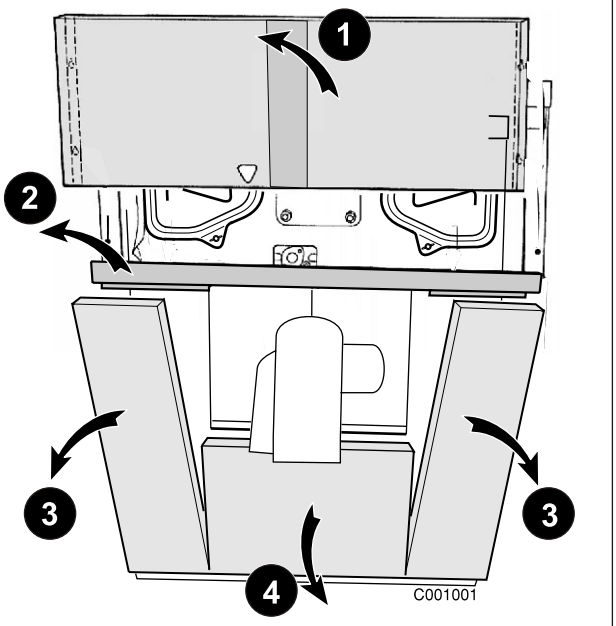
The operations described below shall only be performed with the boiler and power supply off.

7.1.1 Sweeping

The boiler will only operate efficiently if the exchange surfaces are kept clean.

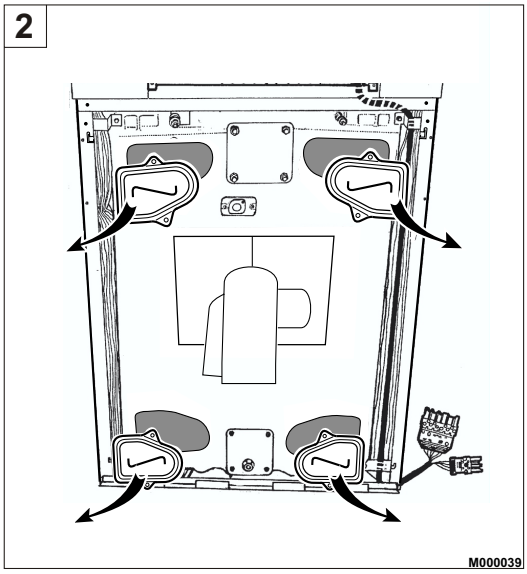
The boiler should be cleaned as soon as required and as the chimney, **at least once a year or more**, depending upon applicable regulations and specific needs.

1

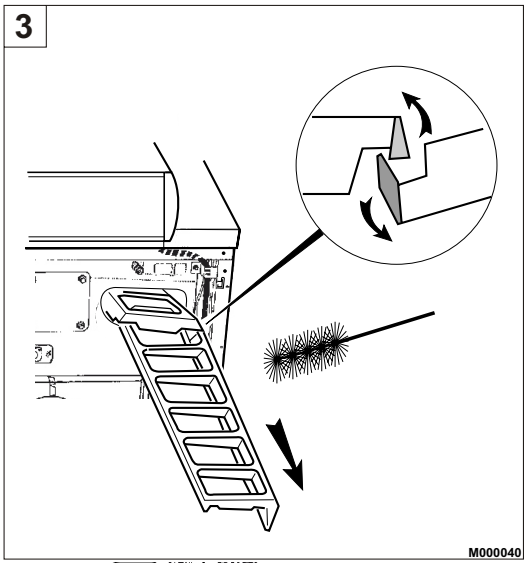


- Cut the power supply to the boiler.
- Remove the upper front panel.
- Remove the retaining upper front crosspiece and then the lower left and right-hand front panels.
- Remove the lower front panel.

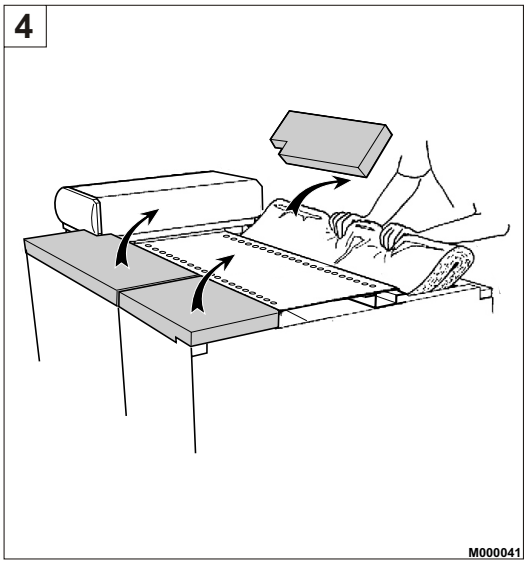
2



- Unfasten the wing nuts and remove the 4 sweeping doors.

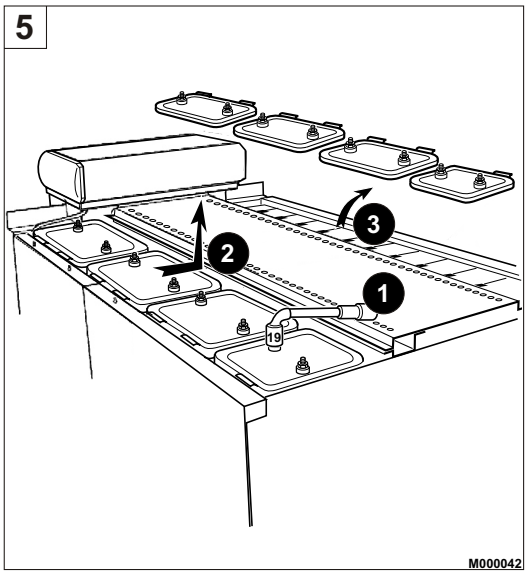


- Remove the baffle plates from the upper flue ways.
- Carefully sweep the flue ways with the brush supplied for that purpose.
- Brush the baffle plates as well.
- If possible, use a vacuum cleaner.



- Remove the left and right-hand casing covers.

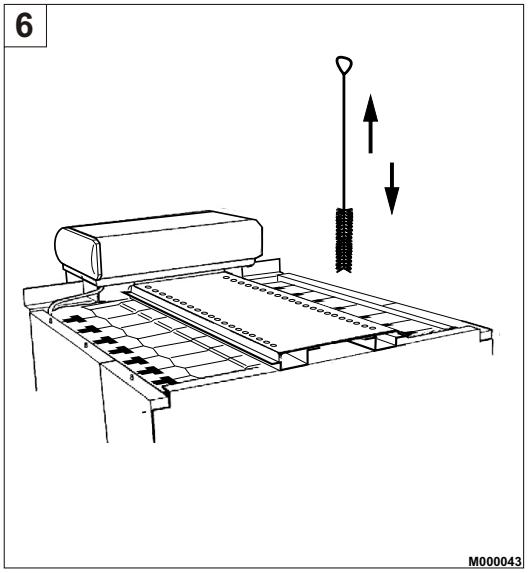
Remove the top insulating material.



1 Unfasten the nuts up to the stop.

2 Push in the handles of the sweeping covers.

3 Remove the sweeping covers.

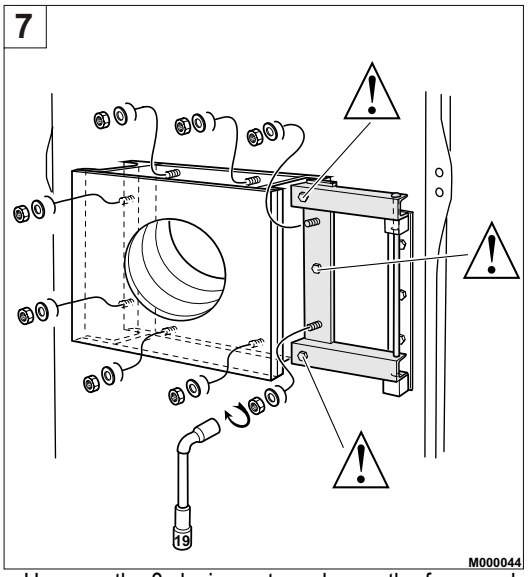


- Brush the vertical plates.
- Put back the sweeping covers, insulating material and casing covers by reversing the procedure above.

Chemical sweeping is recommended for such boilers
See chapter "Chemical sweeping" - See page 22.

- Put the baffle plates back in place. Interlock them with each other while fitting them into the flue ways.
- Close the upper sweeping doors.

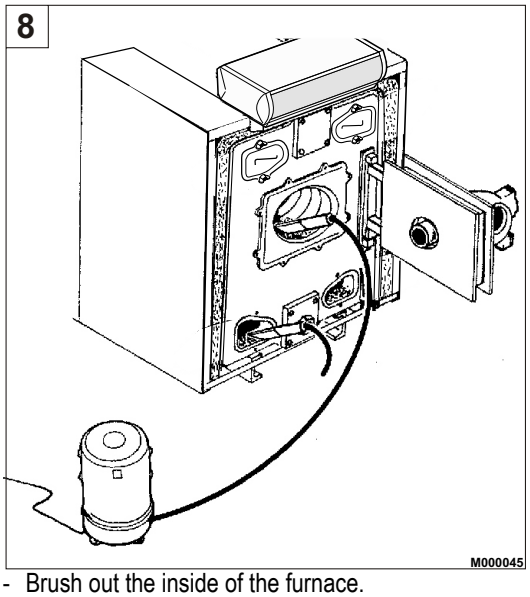
7



- Unscrew the 8 closing nuts and open the furnace door.

These 3 screws must not be unfastened in any event.

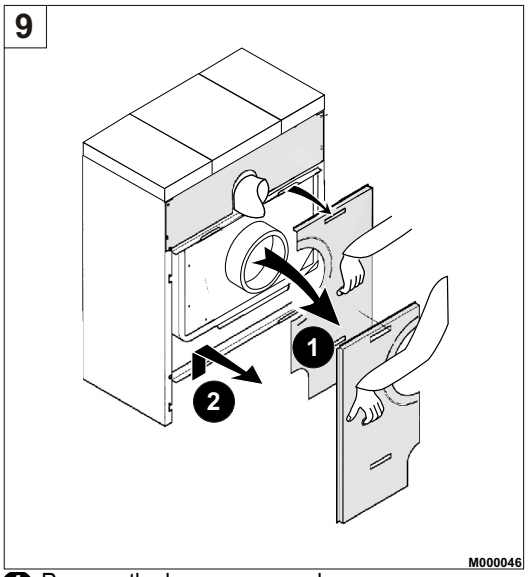
8



- Brush out the inside of the furnace.
- Clean the soot accumulated in the furnace and lower flue ways with a vacuum cleaner.
- Close the lower sweeping doors.
- Put back the front casing panels by reversing the removal procedure.

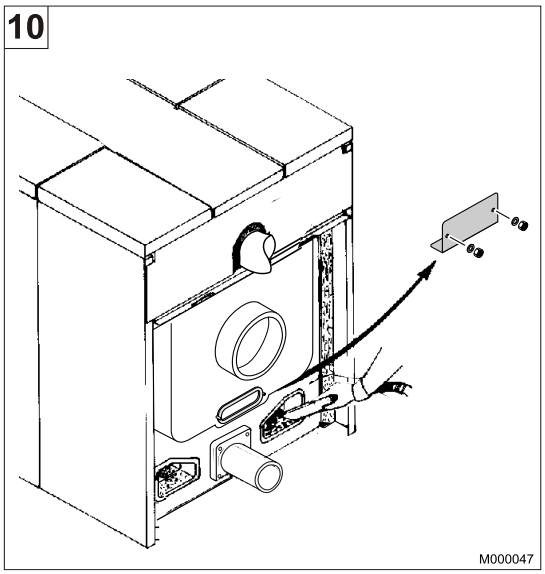
See chapter "Chemical sweeping" - See page 22.

9



1. Remove the lower rear panels.
2. Remove the lower rear crosspiece.
   Remove the lower insulating material on the rear.

10



- Unfasten the wing nuts and remove the lower left and right-hand sweeping doors.
- Remove any soot deposit with a scraper or a vacuum cleaner.
- Open the lower sweeping cover of the flue gas box (2 H 10 nuts + Ø 10 washers).
- Remove the soot.
- Put back the sweeping cover and doors.
- Put back the lower insulating material, the crosspiece and panels by reversing the removal procedure.

7.1.2 Chemical sweeping

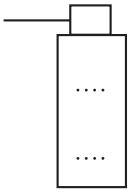
A. General principle

Boilers are traidtionally swept mechanically. There are now chemical sweeping methods which facilitate this maintenance work.

A chemical reagent is applied to the boiler's heating surfaces.

After application, the reaction is completed by igniting the burner.

The initial deposits are neutralised and pyrolised. The remaining pulverent residues are easy to remove by sweeping or vacuum cleaning.



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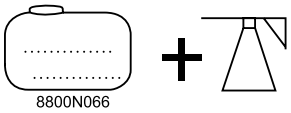

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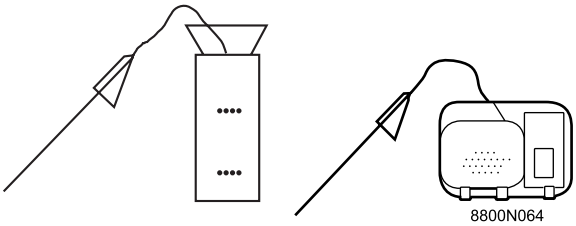


8800N063 8800N064

B. The products

The product must be suitable for boilers with a cast iron body. Various manufacturers offer products in the form of a concentrated liquid or aerosol.

The aerosols are packaged in 0.5 to 1 l spray cans for treating domestic boilers. Refer to the instructions supplied with the product.

The liquid products are available in 1 to 50 l containers. These concentrated liquids are diluted before application with a spray.

Sprays exist in various forms suitable for their intended use:

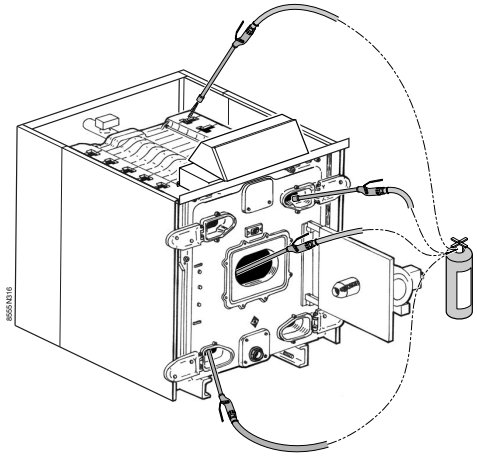
- Low capacity (2 or 3 l) spray with built-in reservoir for small boilers and moderate frequency. Manual pressurisation of the reservoir.
- 5 l spray with separate reservoir, nozzle and connecting tube. The nozzles enable easy application at the back of the combustion chamber. Manual pressurisation of the reservoir.
- Motor-assisted pressurisation spray with reservoir, nozzle and connecting tube. These sprays are intended for intensive use.

C. Operational mode

The operating mode mentioned corresponds to standard user situations. Refer to the manufacturer's instructions for specific advice on the product used.

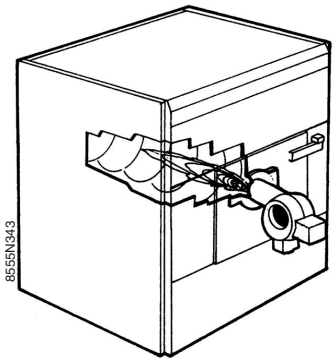
Application

- Depending on the product, the boiler must be cold or heated. Refer to the instructions supplied with the product.
- Direct application to the heating surfaces with aerosol sprays.
- The concentrates are diluted in the proportions 1/5 to 1/20 (depending on the product and the condition of the boiler).
- Application with the spray is done in the upper part of the boiler and on the walls of the combustion chamber. Surfaces are dampened but not washed. It is not necesaary to use the spray to get between the heating surfaces.
- A volume of one litre of solution is generally used for 1 m^2 of heating surface (domestic boiler), i.e. 0.05 to 0.2 l of concentrate.



D. Ignition

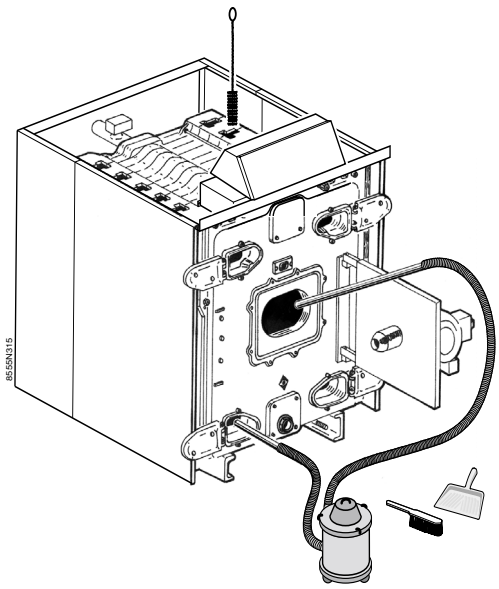
The burner is ignited after allowing the product time to penetrate for 2 to 5 min. Refer to the instructions supplied with the product.



E. Cleaning

- Remove the baffle plates.
- Light sweeping will remove the pulverent residues remaining after combustion.

- The remaining pulverent residues are easy to remove by sweeping or vacuum cleaning.
  For certain products, brief application after cleaning has a preventive effect, limiting deposits on the heating surfaces.
  - Replace the baffle plates.
  - Close the door of the combustion chamber.
  - Service the burner.
  - Replace the front panel.



7.1.3 Cleaning the casing material

Use a soapy solution and a sponge only. Rinse with clean water and dry with chamois leather or a soft cloth.

7.2 Burner maintenance

Refer to the instructions supplied with the burner.

7.3 System maintenance

7.3.1 Water level

Regularly check the level of water in the system and top up if required, taking care that cold water is not added suddenly into the boiler when it is hot.

This operation should be required only a few times in each heating season, with very low quantities of water; otherwise, look for the leak and repair it.

7.3.2 Draining

We advise you against draining the system unless it is absolutely necessary.

7.3.3 Type plate

The rating plate fixed on the side of the boiler during installation is used to identify the boiler correctly and also provides the main specifications of the boiler.

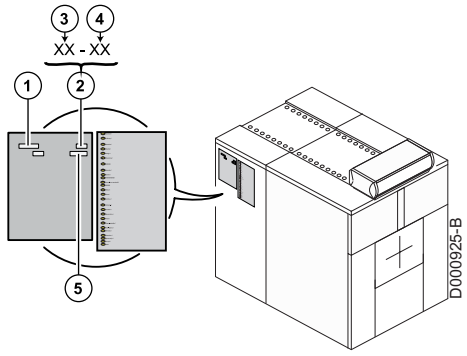
① Boiler type

② Manufacturing date

③ Year of manufacture

④ Week of manufacture

⑤ Serial no. of the appliance



8 Spare parts - PK 550

To order a spare part, quote the reference number next to the part required.

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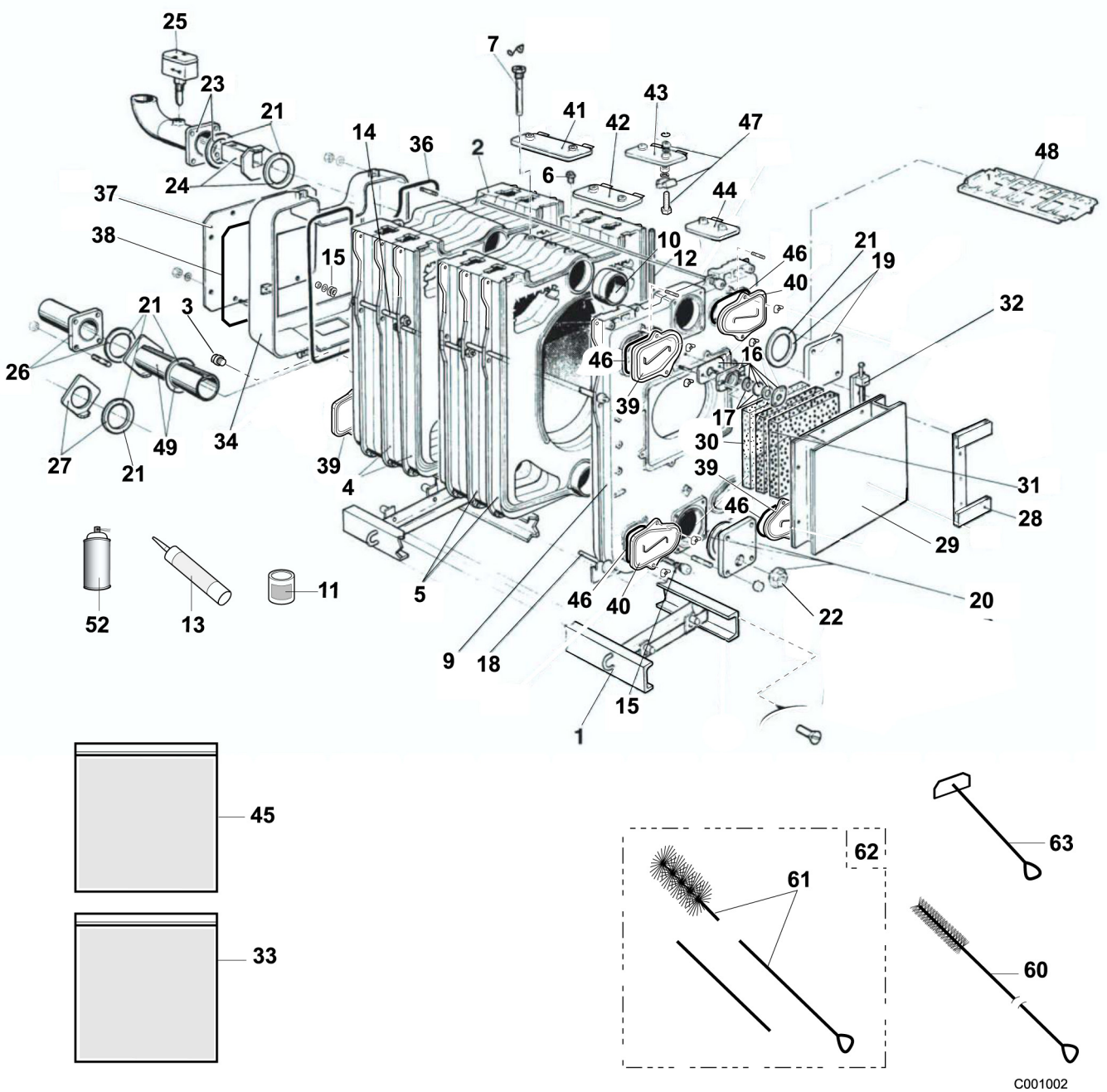
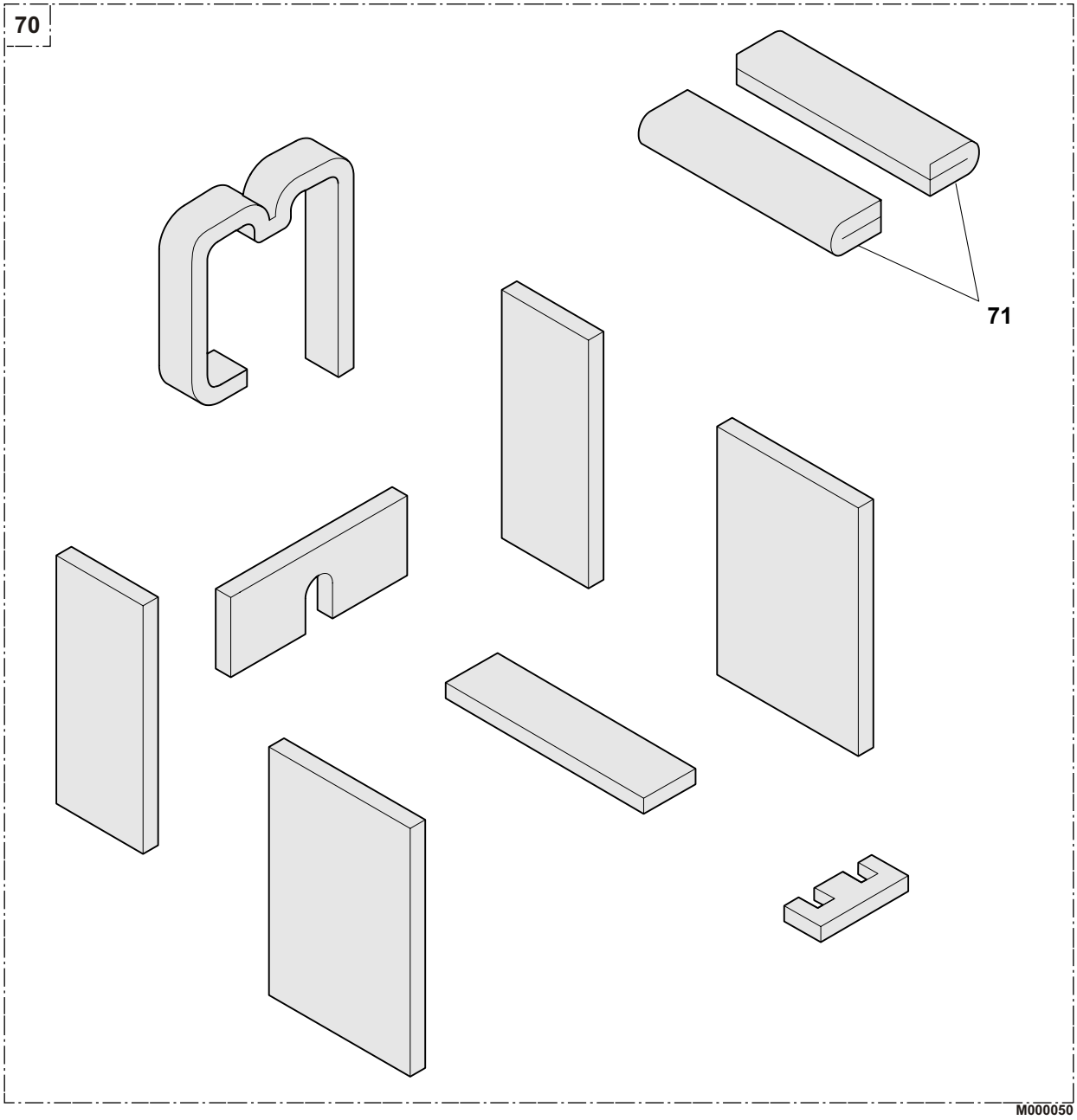
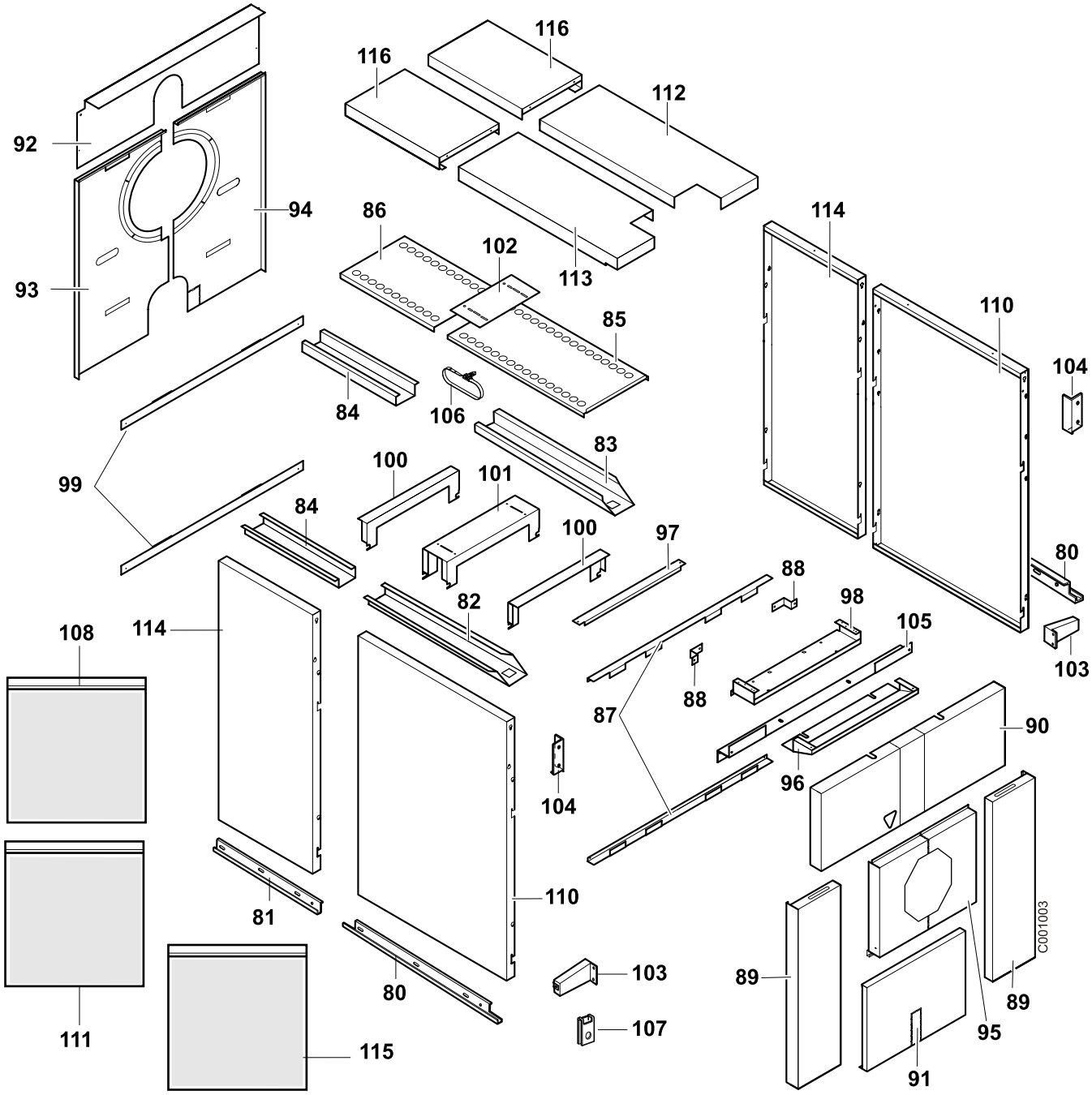
Boiler body +Miscellaneous



Insulation



Casing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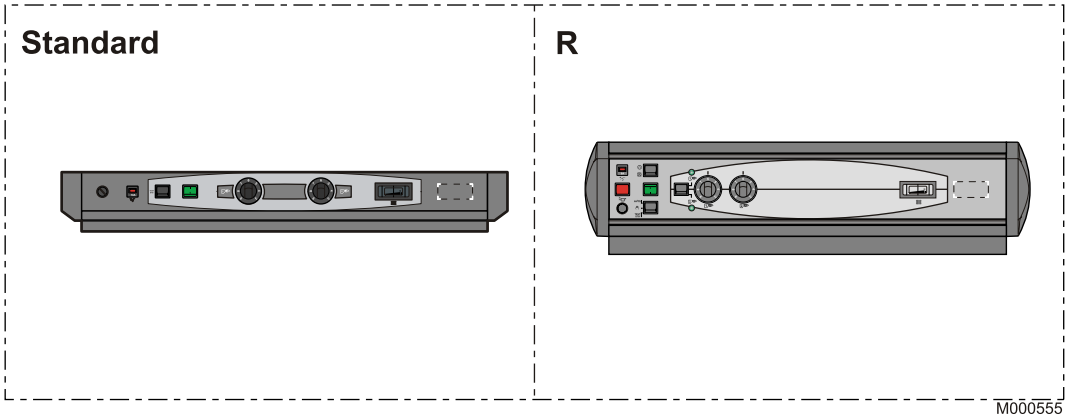
Control panels

Refer to the Spare Parts list in the panel instructions



Ref.	Code no.	Description
		Boiler body + Accessories
		Base frame
1	300006594	Complete frame 9 sections
1	300006595	Complete frame 10,11 sections
1	300006596	Complete frame 12,13 sections
1	300006597	Complete frame 14,15 sections
1	300006598	Complete frame 16,17 sections
1	300006599	Complete frame 18,19 sections
1	300006610	Complete frame 20,21 sections
1	300006611	Complete frame 22,23 sections
1	300006612	Complete frame 24,25 sections
		Boiler body + Accessories
2	126162	Complete rear section
3	126163	plug no. 290 3/4"
4	126164	Normal intermediate section
5	126165	Special intermediate section
6	600684	plug no. 290 1/2"
7	601024	1/2" sensor tube
9	126166	Complete front section
10	601316	Painted nipple Ø 148.62
11	122666	Putty for nipple 300 gr
12	121870	Silicone-coated fibreglass seal - (Metre)
13	603151	Silicone filler tube 310 ml
14	601317	Assembly rod Ø 12 - 300 mm
14	601018	Assembly rod Ø 12 - 385 mm
14	601318	Assembly rod Ø 12 - 420 mm
14	601020	Assembly rod Ø 12 - 520 mm
15	601021	Spring for assembly rod
16	601056	Complete indicator with frame
17	121128	Sight glass + Gaskets
18	601321	Assembly rod Ø 14 - 1117 mm 9 sections
18	601322	Assembly rod Ø 14 - 1228 mm 10 sections
18	601323	Assembly rod Ø 14 - 1339 mm 11 sections
18	601324	Assembly rod Ø 14 - 1450 mm 12 sections
18	601325	Assembly rod Ø 14 - 1571 mm 13 sections
18	601326	Assembly rod Ø 14 - 1683 mm 14 sections
18	601327	Assembly rod Ø 14 - 1796 mm 15 sections
18	601328	Assembly rod Ø 14 - 1908 mm 16 sections
18	601329	Assembly rod Ø 14 - 2021 mm 17 sections
18	601330	Assembly rod Ø 14 - 2133 mm 18 sections
18	601331	Assembly rod Ø 14 - 2246 mm 19 sections
18	601332	Assembly rod Ø 14 - 2398 mm 20 sections
18	601333	Assembly rod Ø 14 - 2511 mm 21 sections
18	601334	Assembly rod Ø 14 - 2623 mm 22 sections
18	601335	Assembly rod Ø 14 - 2736 mm 23 sections
18	601336	Assembly rod Ø 14 - 2848 mm 24 sections
18	601337	Assembly rod Ø 14 - 2960 mm 25 sections
19	601342	Plain square flange + Gasket
20	126167	Square flange with tapped hole + Gasket
21	601343	Gasket 222 x 170 x 4
22	601118	Plug 2"
23	601344	Flange with outlet piece + Gasket 9 to 17 sections
23	601345	Flange with outlet piece + Gasket 18 to 25 sections
24	601346	Nozzle + Gasket
		Flow controller - France
25	700394	Flow controller
25	700978	Flow controller
25	700979	Flow controller
25	700925	Flow controller
25	700337	Flow controller
25	700982	Flow controller
25	700983	Flow controller
25	700984	Flow controller
25	700432	Flow controller
25	700979	Flow controller
25	700925	Flow controller
25	700986	Flow controller
25	700988	Flow controller
25	700989	Flow controller
25	700990	Flow controller
25	700991	Flow controller
25	700993	Flow controller
		Flow controller - Germany
25	700978	Flow controller
25	700979	Flow controller
25	700925	Flow controller
25	126579	Flow controller
25	700337	Flow controller
25	700982	Flow controller
25	700984	Flow controller
25	700983	Flow controller
25	700978	Flow controller
25	126583	Flow controller
25	700986	Flow controller
25	700987	Flow controller
25	700988	Flow controller
25	700989	Flow controller
25	700990	Flow controller

Ref.	Code no.	Description
26	601361	Flange with return piece + Gasket 9 to 17 sections
26	601362	Flange with return piece + Gasket 18 to 25 sections
27	601363	Diaphragm + Gasket
28	126168	Complete articulation of furnace plate
29	126169	Plain furnace door
30	126171	Furnace door guard
31	126170	Furnace door insulation
		On demand
29	9757-0425	Furnace door Ø 165
29	9757-0426	Furnace door Ø 186
29	9757-0427	Furnace door Ø 210
29	9757-0428	Furnace door Ø 295
29	9757-0429	Furnace plate Ø 240
29	9757-0433	Furnace plate Ø 290
29	9757-0434	Furnace plate Ø 350
32	601366	Furnace plate hinge
33	126172	Bag of screws for furnace door
34	126173	Flue gas outlet
36	121162	Thermocord gasket Ø 15 - (Metre)
37	126176	connection plate Ø 400 + Gasket
37	126174	connection plate Ø 300 + Gasket
37	126175	connection plate Ø 350 + Gasket
37	126177	Plain connection plate + Gasket
38	126178	adhesive gasket 15 x 9
39	126179	Left-hand sweeping door + Thermocord
40	126180	Right-hand sweeping door + Thermocord
41	126181	sweeping cover N1 + Thermocord
42	126182	sweeping cover N2 + Thermocord
43	126183	sweeping cover N3 + Thermocord
44	126184	sweeping cover N4 + Thermocord
45	126185	Bag of screws for sweeping door
46	121870	Silicone-coated fibreglass seal
47	126186	Complete lock
48	126187	Upper baffle
49	601393	Distributing tube + Gasket 15 and 16 sections
49	601394	Distributing tube + Gasket 17 to 19 sections
49	601395	Distributing tube + Gasket 20 to 22 sections
49	601396	Distributing tube + Gasket 23 and 24 sections
49	601397	Distributing tube + Gasket 25 sections
52	9434-5103	Retouching spray paint - White
52	9434-5102	Retouching spray paint - anthracite grey
		Cleaning tools
60	126188	Brush for plate
61	601386	Metal brush + rod 1300 mm 10 sections

Ref.	Code no.	Description
61	601387	Metal brush + rod 1800 mm 11 to 15 sections
62	601388	Metal brush +rod 1300 mm + extensions for 16 to 22 sections
62	601389	Metal brush + rod 1800 mm + extensions for 23 to 25 sections
63	601390	scraper 1200 mm
63	601391	scraper 1500 mm
63	601392	scraper 1800 mm
		Insulation
		Insulating material for body
70	126555	Complete insulating material for body 9 sections
70	126556	Complete insulating material for body 10 sections
70	126557	Complete insulating material for body 11 and 12 sections
70	126558	Complete insulating material for body 13 and 14 sections
70	126559	Complete insulating material for body 15 sections
70	126560	Complete insulating material for body 16 and 17 sections
70	126561	Complete insulating material for body 18 and 19 sections
70	126562	Complete insulating material for body 20 sections
70	126563	Complete insulating material for body 21 and 22 sections
70	126564	Complete insulating material for body 23 and 24 sections
70	126565	Complete insulating material for body 25 sections
		Insulating material for sweeping covers
71	126566	Complete insulating material for sweeping covers 9 sections
71	126567	Complete insulating material for sweeping covers 10 sections
71	126568	Complete insulating material for sweeping covers 11 and 12 sections
71	126569	Complete insulating material for sweeping covers 13 and 14 sections
71	126570	Complete insulating material for sweeping covers 15 sections
71	126571	Complete insulating material for sweeping covers 16 and 17 sections
71	126572	Complete insulating material for sweeping covers 18 and 19 sections
71	126573	Complete insulating material for sweeping covers 20 sections
71	126574	Complete insulating material for sweeping covers 21 and 22 sections
71	126575	Complete insulating material for sweeping covers 23 and 24 sections
71	126576	Complete insulating material for sweeping covers 25 sections
		Casing
80	126189	rail 1225 mm
80	126190	rail 1365 mm
80	126191	rail 1475 mm

Ref.	Code no.	Description
80	126192	rail 1565 mm
80	126193	rail 1675 mm
80	126194	rail 1765 mm
80	126195	rail 1875 mm
80	126196	rail 2025 mm
80	126197	rail 2165 mm
80	126198	rail 2275 mm
80	126199	rail 2365 mm
81	126200	supplementary rail 1246 mm
82	126201	left-hand cable channel 1260 mm
82	126202	left-hand cable channel 1400 mm
82	126203	left-hand cable channel 1510 mm
82	126204	left-hand cable channel 1600 mm
82	126205	left-hand cable channel 1710 mm
82	126206	left-hand cable channel 1800 mm
82	126207	left-hand cable channel 1910 mm
82	126208	left-hand cable channel 2060 mm
82	126209	left-hand cable channel 2200 mm
82	126210	left-hand cable channel 2310 mm
82	126211	left-hand cable channel 2400 mm
83	126212	right-hand cable channel 1260 mm
83	126213	right-hand cable channel 1400 mm
83	126214	right-hand cable channel 1510 mm
83	126215	right-hand cable channel 1600 mm
83	126216	right-hand cable channel 1710 mm
83	126217	right-hand cable channel 1800 mm
83	126218	right-hand cable channel 1910 mm
83	126219	right-hand cable channel 2060 mm
83	126220	right-hand cable channel 2200 mm
83	126221	right-hand cable channel 2310 mm
83	126505	right-hand cable channel 2400 mm
84	126506	additional cable channel 1196 mm
85	126507	central upper plate 1131 mm
85	126508	central upper plate 1271 mm
85	126509	central upper plate 1381 mm
85	126510	central upper plate 1471 mm
85	126511	central upper plate 1581 mm
85	126512	central upper plate 1671 mm
85	126513	central upper plate 1781 mm
85	126514	central upper plate 1931 mm
85	126515	central upper plate 2071 mm
85	126516	central upper plate 2181 mm
85	126517	central upper plate 2271 mm
86	126518	additional central plate 1196 mm
		Common parts

Ref.	Code no.	Description
87	126519	Lower front crosspiece
88	126520	Fastening bracket for front side pane
89	126521	Complete lower front side panel
90	200015820	Complete upper front panel
91	126523	Complete lower front panel
92	126524	Upper rear panel
93	126525	Lower left-hand rear panel
94	126526	Lower right-hand rear panel
95	126527	Panel for furnace door
96	8555-8519	Control panel trim
97	126529	Rear cover for standard control panel
98	126530	Control panel bracket
99	126531	Lower rear crosspiece
100	126532	Upper crosspiece
101	126533	Intermediate upper crosspiece
102	126534	Joining central plate
103	126535	Lower tab of rail
104	126536	Upper bracket
105	126537	Upper front crosspiece
106	126584	Clamp
107	126538	Rapid nut
108	126539	Fasteners for common parts
		Front side casing
110	200007426	Front side panel - 800 mm
110	200007427	Front side panel - 940 mm
110	200007428	Front side panel - 1050 mm
111	126543	Fasteners for front side panel
112	126544	right-hand upper front plate for sweeping 800 mm
112	126545	right-hand upper front plate for sweeping 940 mm
112	126546	right-hand upper front plate for sweeping 1050 mm
112	126547	left-hand upper front plate for sweeping 800 mm
113	126548	left-hand upper front plate for sweeping 940 mm
113	126549	left-hand upper front plate for sweeping 1050 mm
		Rear side casing
114	126550	rear side panel 400 mm
114	126551	rear side panel 600 mm
115	126552	Fasteners for rear side panel
116	126553	upper rear plate for sweeping 400 mm
116	126554	upper rear plate for sweeping 600 mm
		Control panel
112	100004380	Standard panel - S3
112	100004381	R control panel

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18/03/2016

300020192-001-02

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