User manual KB-ECOLINE series English

KABOLA heating systems

CH

Calorifier

Combi

Ecoline series

Preface

This user-manual is written to enable the safe operation of the central heating boilers with integrated tap water supply ore boiler function. The user must read this manual before installation of the boiler and must follow the instructions within this manual.

Therefore, this manual must be kept with the boiler.

In chapter 2, the safety instructions are detailed, which have to be complied with, when installing and using the boiler. In other chapters you will find safety instructions, which can be identified in the following way.

Hint:	This gives the user suggestions and advises to facilitate the execution of certain tasks.
Attention:	Additional information is supplied to the user, and possible problems are indicated**.**
Warning:	Watch out for possible (life-threatening) injuries.

For any remarks, wishes or omissions you can contact Kabola Heating Systems. We also welcome any remarks to improve this manual. We wish you a lot of pleasure from your purchase.

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Vianen 2022

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1 Introduction

1.1 General

Congratulations with your purchase of this Kabola boiler. This user-manual covers all kind of boilers in the KB-series. The KB- boilers cover a wide range of boilers with a broad range of applications. By purchasing this boiler, you have acquired a product, which is of high quality through the application of the latest European standards and directives.

1.2 Range of application

The Kabola KB-Series are designed to generate heat for the heating of water and for a central heating system. The boilers can also be used for the generation of domestic hot water generated by a compact brazed heat exchanger. The dimensions of the rooms to be heated, have to be taken into consideration.

These boilers are not designed for direct heating of the rooms in which they are installed.

1.3 Product description

The boilers of the KB- series heats the boiler water by means of a pressure jet burner which is installed at the front of the boiler. The boilers are available in both 230 VAC version. For fuel, diesel oil has to be used.

1.4 Technical specifications

The most important technical specifications are listed on the plate at the back of the boiler. More technical details are listed in Appendix A.

1.5 Guarantee provisions

We refer you to the guarantee certificate for the guarantee provisions. It is very important that the boiler is brought into use after installation, and that the commissioning protocol (for bringing into use) is returned to Kabola Heating Systems BV in Vianen**.** You are then covered by the guarantee.

2 Safety

In this chapter we emphasis the safety-related points for operating the boiler.

2.1 General safety

Warning: Although Kabola Heating Systems designs and produces its products according to the current safety standards, it is possible that dangers may present themselves, which could lead to injuries or damage to the boiler, if the safety instructions in this manual are not complied with.

The user must:
- Have read and understood the chapter "safety";
- Avoid any actions which may lead to dangers to his health or others;
- Avoid any actions which may lead to damage to the boiler;
- Ensure that the boiler is only used when the boiler is in sound technical condition;
- Ensure that the safety regulations are observed whilst operating the boiler.

Attention: No alterations to the boilers may be done, without the explicit written consent of Kabola Heating Systems!

2.2 Safety instructions

In this chapter we emphasis the safety-related points for operating the boiler.

MEASURES FOR A SAFE INSTALLATION

- Don't store any flammable and/or gaseous products in the room where the boiler is installed to avoid explosions and fires.
- Install the boiler in a non-humid environment on a firm horizontal base.
- Ensure that there is sufficient ventilation in the room where the boiler is installed (See also § 4.1.1).
- Make sure, before you start connecting the boiler, that the system is disconnected from the power supply.
- Only use multi-stranded wire for electrical connections.

MEASURES FOR A SAFE OPERATION

- Never change the settings of the burner.
- Don't use any aggressive solvents which may affect the boiler (like petrol or turpentine).
- Insulate the chimney, when it can be touched by body parts.
- Make sure that the boiler and burner are checked annually by a skilled expert.
- Make sure that before you start any work on the boiler that the system is disconnected from the power supply.
- Make sure that any surplus oil is collected in case of oil spillage.
- We advise you to have any maintenance or repairs carried out by skilled experts.

3 Transport and storage

3.1 Transport

Take following precautions before transporting the boiler:

- Drain the water from the boiler;
- Uncouple the fuel system;

While transporting the boiler take following precautions:

- Don't damage the boiler, use a blanket to cover the boiler;
- Transport the boiler standing up.

3.2 Storage

Take the following precautions when the boiler is stored for a longer period of time:

- Store the boiler and accompanying parts in a dry place;
- Store the boiler standing up;
- Store the boiler on a firm horizontal base.

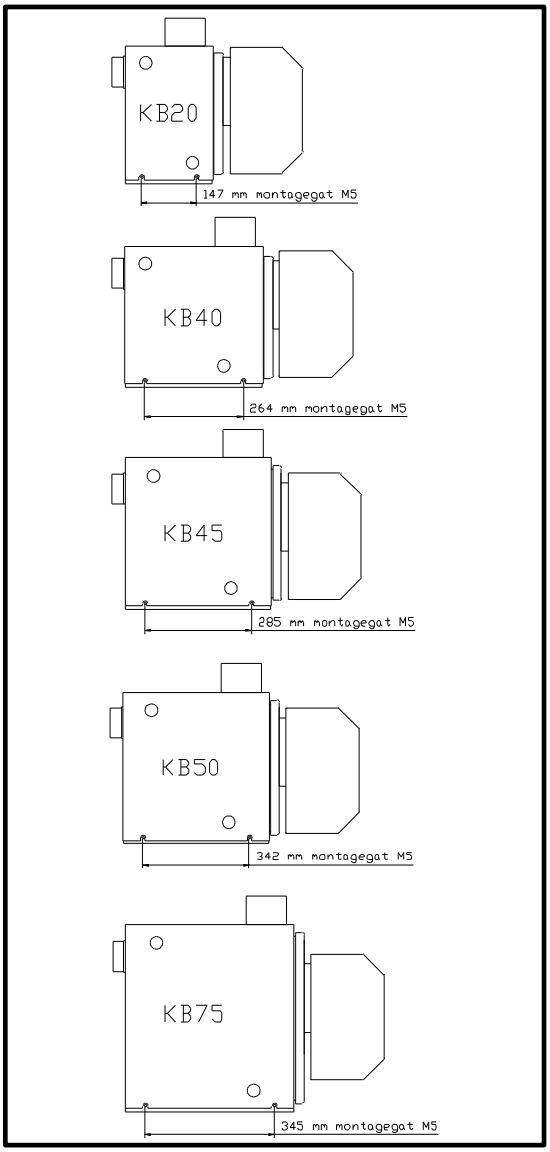


Figure 1

4 Installing and preparing for first use

In this chapter you will find directions and hints for a correct placement and fitting of the boiler and accompanying parts.

Warning: Do not store any flammable or gaseous substances in the room where the boiler installed. This is to ensure that no explosions or fires can occur.

4.1 Installation

4.1.1 Fitting the boiler

- **Install the boiler in a dry place.**
- Install the boiler on a firm horizontal base.
- Make sure there is sufficient supply of fresh air in the room where the boiler is installed (see hint below).
- To avoid movement secure the base of the boiler by using the holes with M5 threat in the feet from the boiler (figure 1)
- Keep a minimum distance of 250 mm behind the boiler for the flue-gas outlet
- Use an earthed plug socket for connecting the 230 Volt AC versions to the power supply.

Hint: As a rule of thumb for the ventilation openings, take 2 ½ times the diameter of the flue gas outlet.

4.1.2 Connection to the KB Central Heating system

PIPING

Take note of the following points, when installing the piping:

- Install the piping in such a way, that the boiler (cover and dashboard) remains accessible;
- Provide enough bleeding points in places where air may collect, especially near the boiler.

Attention: Install a bleeding point near the boiler, especially when the piping does not go up.

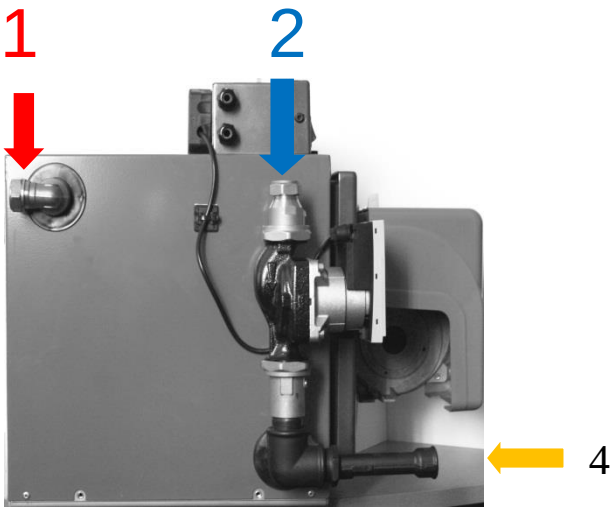
Installation KB - CH:

Connect the piping to the boiler as follows (see figure 2 –2.2):
1. Install the feed of the CH-system on nr 1
2. Install the return of the CH-system on nr 2
3. Install the fill and pressure gauge on nr 4

Hint: Because the water pressure in the domestic water system is not always stabile, we recommend to use thermostatic controlled water cranes.

It is possible to use the boiler when the domestic water side is not connected

KB-20 / 40 / 45 / 50 / 75



Installation KB boiler with Calorifier control:

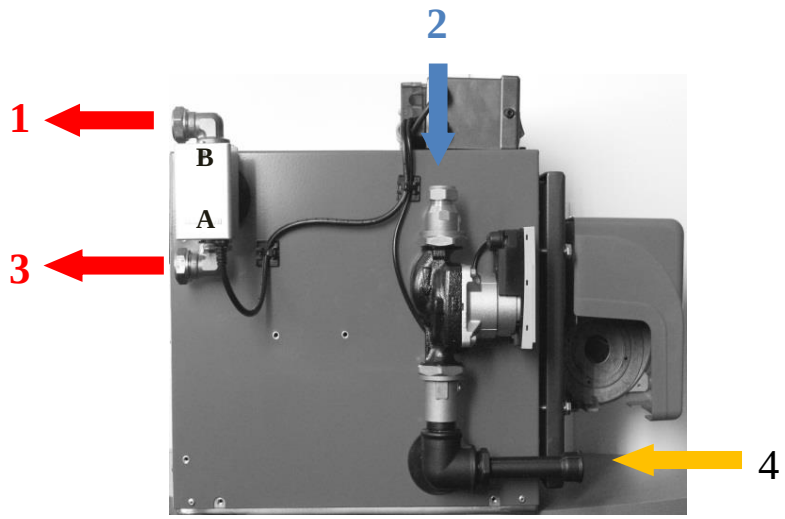


Figure 2.3

1. Install the feed of the Calorifier on nr **1** / B
2. Install the return of the CH-system and Calorifier on nr **2**
3. Install the feed of the CH-system on **3** / A
4. Install the fill and pressure gauge on nr 4
5. The numbers A and B you will find on the housing of the three-way valve

Note: There must always be a thermostat mounted on the Calorifier to communicate with the KB series (available at your Kabola supplier with number: 9-i025)

Installation KB –Combi:

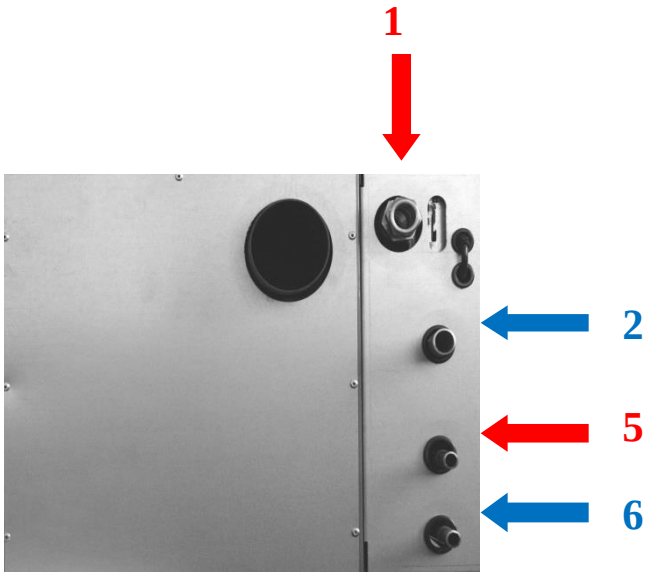


Figure 2.4

1. **Install the feed of the CH-system on nr 1**
2. **Install the return of the CH-system on nr 2**
3. **Install the fill and pressure gauge on nr 4 (see figure 2.3)**
4. **Install the output (hot water) of the combi on nr 5**
5. **Install the input (cold water) of the combi on nr 6**

4.1.3 Flue gas outlet

GENERAL

The flue gas outlet is an essential part of your heating installation. An incorrect flue gas outlet reduces the lifespan of your boiler considerably and has a negative impact on the efficiency. Remember when installing the flue, that even the best boiler won't work properly unless the flue is properly installed.

Warning: Because the flue gas temperature lies between 150-200°C, it is advisable to insulate the flue with heat-resistant material on those parts where contact with human body parts is possible.

For a correct flue gas outlet the following points need to be observed:

- Use the proper diameter, use a diameter equal to the diameter of the flue gas outlet on the boiler (see also technical specification).
- Use double-walled chimney pipe outside to prevent a rapid cooling of the exhaust gasses, which may result in condensation in the chimney.

Hint: When using an existing chimney of a larger diameter than the diameter on the boiler, you can install flexible piping of the correct diameter insides the existing chimney.

Warning It is necessary that condensation water always can flow back to the drain of the boiler, avoid water bags!! The boiler has got a high efficiency, and the burner will start even when there is no heat demand, this is done to avoid that there is a lot of condensation in the boiler. Condensation will short the life time of the boiler

HORIZONTAL FLUE GAS OUTLET

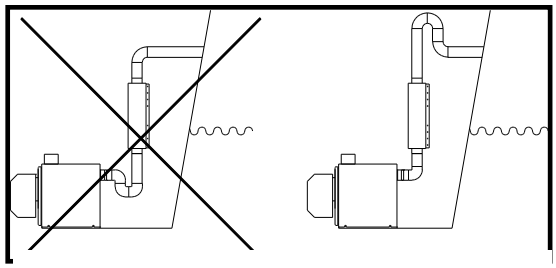


Figure 3

It is possible to fit a horizontal flue gas outlet to the boiler. The following points need to be observed:

- Make sure that the outlet is positioned at a sufficient height above the waterline. If this is not possible use a swan neck bend in the pipe as in figure 3.
- Use the correct hull fittings for installing the flue through a hull side
- The maximum allowed length, without curves is 10 meters. At more than 10 meters in length, always contact Kabola for advice.
- Don't use more than 4 elbows of 90°.
- Every elbow of 90° is equivalent to 1 meter straight pipe

VERTICAL FLUE GAS OUTLET

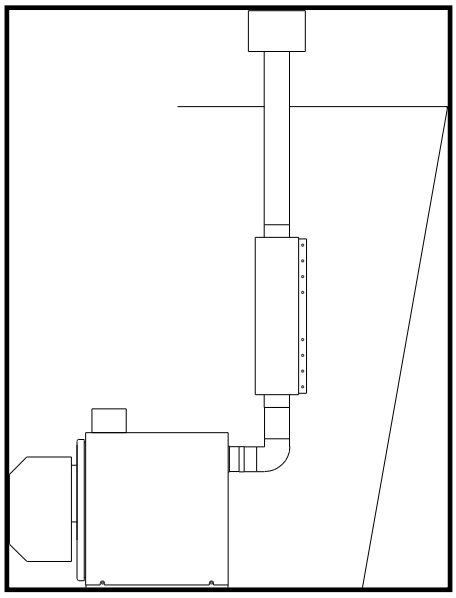


Figure 4

This way if installation is preferable for seagoing boats and sailing boats, because these boats encounter large angles of heel through waves and under sail. For this kind of flue gas outlet, the following points are important:

- Install a proper storm cowl on top of the chimney (this must stop rain from entering) (figure 4).
- Install deck fittings for installing the flue through a deck.
- Install a water trap, to drain possible water caused by condensation
- Keep the chimney as vertical as possible.
- Don't use more than 4 elbows 90°.
- The maximum allowed length is 10 meters. At more than 10 meters in length, always contact Kabola for advice.
- Every elbow of 90° is equivalent to 1 meter straight pipe.
- Use outside double walled chimney pipe

Hint: To reduce the noise from flames, it is wise to install a silencer in the exhaust.

Always install a drain with tap directly on the boiler
See Figure 4.a

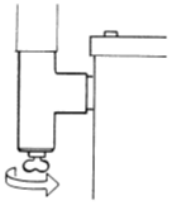


Figure 4.a

Your Kabola supplier can provide you with all components which may be required for installation such as:

- Cowls;
- Flexible piping;
- Single and double walled chimney pipes;
- Hull and deck fittings;
- Silencers;
- Water traps;
- Insulation.

Be aware that the 3-way valve only opens to the central heating system when the temperature in the boiler is above the 50° Celsius degrees, this is to avoid that there is condensation in the boiler.

4.1.4 Electrical connection

Warning: Disconnect the power supply from the boiler before you start the installation. **The quality of 230 VAC power supply to the boiler should be as good as the power supply from a land line.**

To connect the room thermostat on the KB CH version:

- Remove the cover of the thermostat
- Connect the two thermostat wires to point 2 and 3 (figure 6.2)
- Remove the cover from the connector that is located on the left backside of the dashboard (green arrow).
- Remove the bridge from T1 and T2 and connect the 2-core cable of the room thermostat to T1 and T2, as indicated on the sticker in the connector.

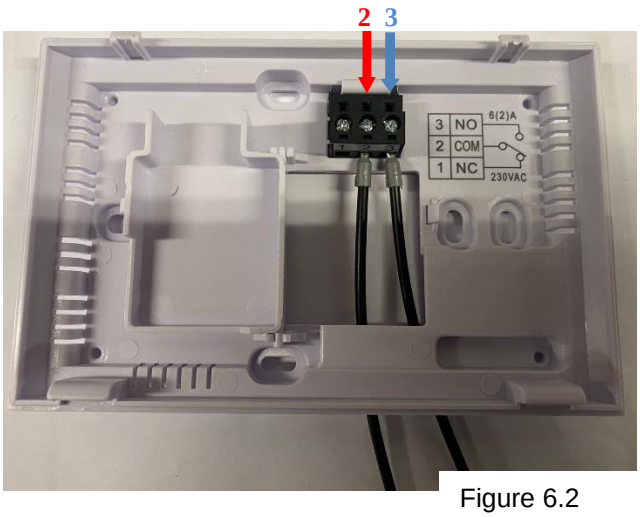


Figure 6.2

To connect the room thermostat for KB- Combi – Calorifier:

- Before you connect the room thermostat with hot water switch, use a 4-core insulated wire 0,75 mm2.
- Remove the right plug (green arrow) which you can find at the backside of the Kabola dashboard (figure 11).
- Connect the 4 wires of the room thermostat at T1 and T2 and S3 and B4 in connection A (figure 12) at the backside of the dashboard as shown on the sticker inside the connector.
- Connect the T1 and T2 wires inside the room thermostat (Fig. 6.1) to **2** and **3**
- The thermostat itself doesn't have a hot water switch. You can use a connect and disconnect switch to use this fuel saving function.
- Connect the hot water on / off function (S3 & B4) on a connect and disconnect switch. When the wires are not connected, the hot water function in on.

Figure 6.1

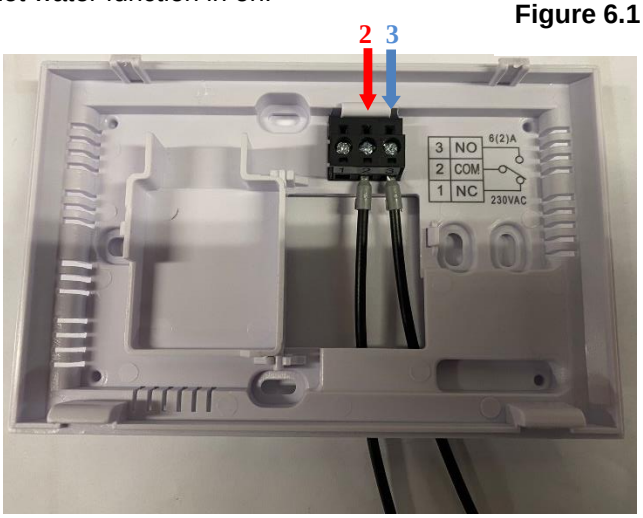
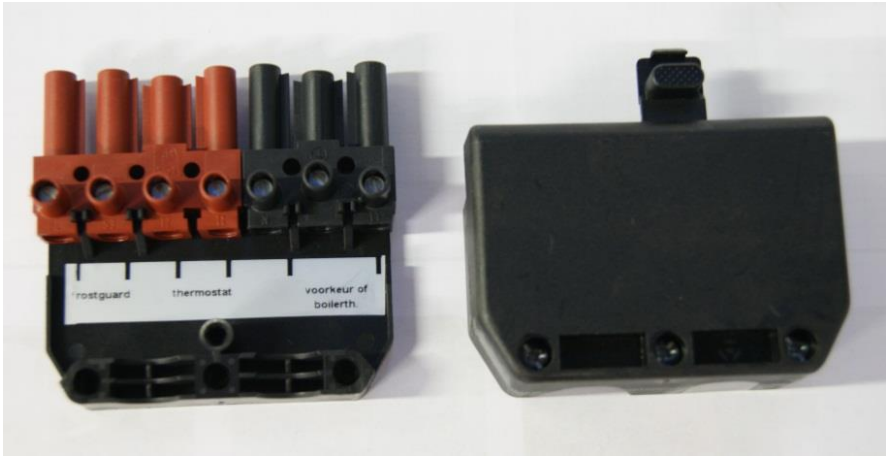


Figure 6

Figure 11



Right plug Fig. 12

4.1.5 Filling the central heating system

The loose fill and drain combination is mounted at point 4 (see figure 2, page 8). Connect your hose on to open the fill and drain combination black button. Open tap the left and put the kettle on 2 bar pressure (see pressure gauge). Vent the entire heating system and put the heating system is between 1.5 and 2 bar pressure.

Add 230 volt voltage to the system by inserting the plug into the earthed electrical socket.

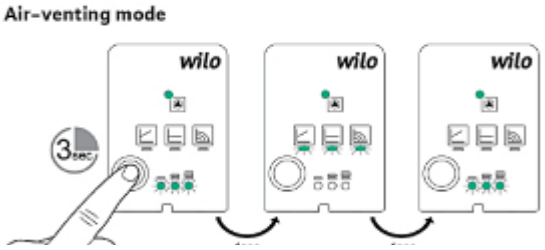
Tip:

If you do not live permanently on board we recommend to fill the heating system with coolant. The cooling liquid must be suitable for heating systems (pH value 8.5). For more information please contact your dealer or Kabola, Netherlands

Attention: When locking pump couplings are supplied with the boiler, the adjusting grooves must point towards the pump.

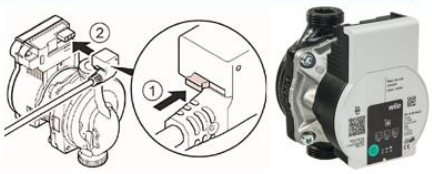
Bleeding the circulation pump

- Adjust the temperature of the room thermostat higher than the ambient temperature (for example, 5 degrees higher);
- Set the on / off switch (button lights);
- Put the circulation pump on automatic venting position. This will take 10 minutes.
- Check the entire system for air and check the working pressure (Top up if necessary.)



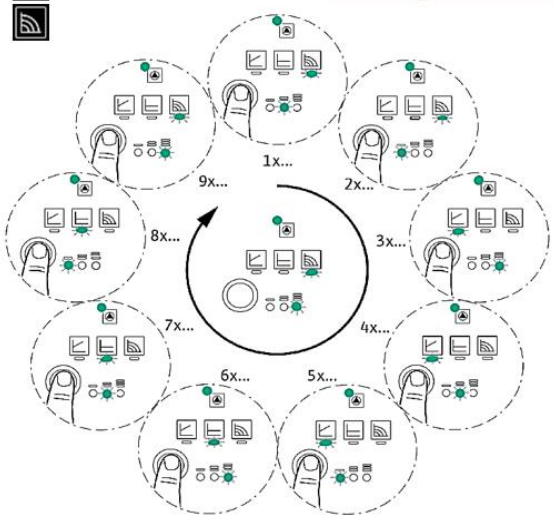
wilo

User manual Para SC/U (self-control)



- Press the green button 9 times for settings
- 3 times stand on ^p-c
- 3 times stand on ^p-v

- 3 times fixed speed 1, 2, 3, (RPM)



4.1.6 Connecting of the filter at the oil burner (oil pump)

At least 20 cm higher

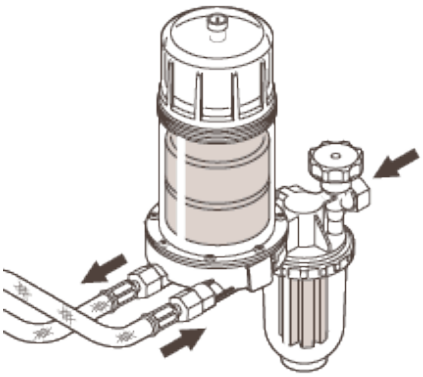


Figure 14

For the connection of the oil filter the following operations have to be carried out (see figures above).

- Connect the oil line directly from the fuel tank, to the filter (no branch from other users oil). **NOTE: The maximum suction depth of the oil line is 3.5 meters**
- Connect the two oil hoses from the burner to the oil filter. Pay attention to the arrow indications, make sure the arrow directions of the pump and the oil filter match, supply and return (see figure 14.)
- Use the oil line from the fuel oil pipe stainless steel with an inner diameter of 6-8 mm.

- Install the oil filter 20 cm higher than the oil pump. If this is not done, the filter will not work correctly!

4-D133 Oil filter TOC80 is supplied as standard	4-D218 Oil filter with a plastic cover can be ordered optionally

5 Operating the boiler

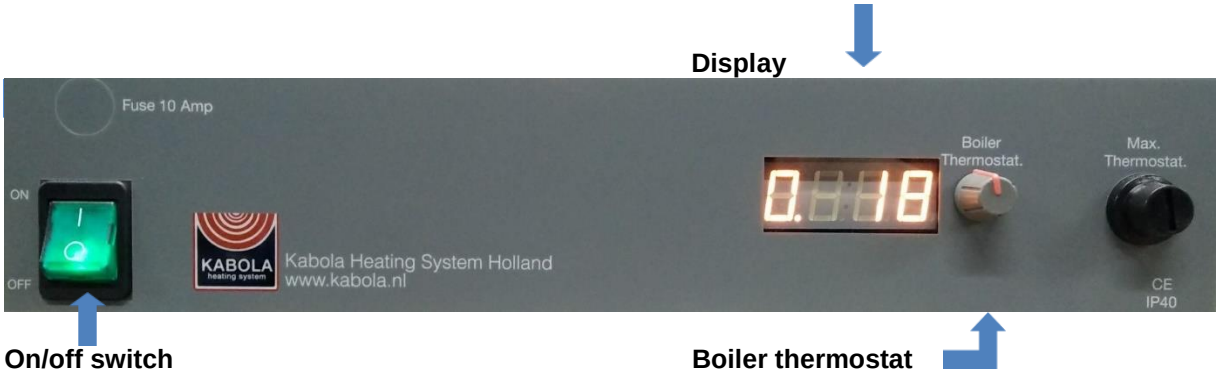
When the boiler has been started and adjusted according to 4.2, operation for the boiler is very simple.

The required temperature is set with the room thermostat, which controls the boiler. The boiler thermostat controls the 3-way valve on the boiler. The operation of the room thermostat is explained in the manual of the room thermostat.

If problems arise with the operation of the boiler, you will find a list of possible problems and solutions in Appendix C.

5.1 Explanation of the dashboard

KB-series Boiler



Explanation of the operating panel

Set the required boiler temperature at 80 °C (Boiler thermostat: press knob and turn).

Numbers	*Explanation*	*Photo*
0	Rest position (boiler is on stand-by) Circulation pump stopped	
1	Room thermostat demands heat. Circulation pump operating	
3	Circulation pump further running time. Circulation pump operates for ± 3 minutes	

KB-series Combi-Calorifier

Dashboard front of the KB-series

Display

On / Off switch **Figure 9** **Boiler thermostat**

Set the required boiler temperature at 80 °C (Boiler thermostat: press knob and turn).

0	Rest (boiler is stand-by) Circulationpump not active	
1	Room thermostat is demanding Circulation pump active	
2	Hot water is being tapped or external boiler requires heat. Circulation pump active	
3	Pumptimer active Circulation pump running ± 3 minutes	
4	Boiler is heating to keep domestic water on temperature.	
•	Blinking dot = Hot water out	
•	Burning dot = Hot water stand-by	
	The number (19) on the right side of the display shows the current boiler water temperature	

6 Cleaning and maintenance

6.1 Points for attention

Spare parts must be ordered through your Kabola supplier. For warranty purposes only original spare parts must be used. When ordering spare parts, state the type of boiler and its serial number. Your Kabola supplier will then be able to supply the correct parts. In Appendix B, the main spare parts are listed.

6.2 Cleaning and maintenance

Warning: Maintenance and repairs should only take place when the boiler is switched off, this is because the boiler may start unexpectedly. Take the plug form the wall socket for the 230 VAC versions.

Warning: Maintenance and repairs may only be performed by personnel, who have read and understood the information in this manual, preferably an expert installer or a service engineer from Kabola Heating Systems.

Every year

1. Clean the boiler
   1.1. Remove the burner with the door from the boiler;
   1.2. Remove the insulation.
   1.3. Clean the inside of the boiler, using a stiff brush;

   Attention: Don't use any aggressive solvents like thinner or gasoline.

   1.4. Clean the boiler with a vacuum cleaner;
   1.5. Replace the isolation;
   1.6. Replace the door with burner;
2. Clean the chimney;
3. Change the oil filter element;
4. Clean the burner (see manual of the burner)
5. Replace the nozzle
6. Replace the electrodes if required
7. Replace the photocell if older than 5 years

Attention: The old oil filter element has to be processed as chemical waste.

7 End of life of the boiler

When the boiler is scrapped, take note of the points listed below:

- Process the oil filter and the oil hose as chemical waste;
- Separate the metal from the plastic parts and dispose of them separately.
- Process any excess oil in an environmentally friendly way.
- Transport the boiler according to the instructions in chapter 3
- Recycle this manual.

KB ECOLINE

The Kabola KB Series Ecoline are a range of fully automatic, soot-free, oil-fired 8-100 kW heating systems. KB Ecoline system can be supplied as central heating as calorifier and as combi. The highly efficient blue flame technology ensures that there is no soot emission, less fuel consumption and a lower power consumption. The KB Series can be coupled to the central heating, hot air, floor heating and even an air conditioning system.
It is a low maintenance system, thanks to its soot-free operation.

Kabola KB-Series
Ecoline
CH

Kabola KB-Series
Ecoline
CALORIFIER

Kabola KB-Series
Ecoline
COMBI

SPECIFICATIONS	KB20	KB20	KB20	KB40	KB40	KB40	KB45	KB45	KB45	KB50	KB50	KB50	KB75	KB75	KB75	KB80	KB80	KB80	KB100
Type	ch	boiler	combi	ch	boiler	combi	ch	boiler	combi	ch	boiler	combi	ch	boiler	combi	ch	boiler	combi	ch
Capacity (in kW)	8	8	8	13	13	13	24	24	24	28	28	28	38	38	38	55-70	55-70	55-70	100
idth installation size (mm)*	455	485	490	470	500	515	505	505	515	470	505	520	570	570	580	603	603	603	741
Depth installation size (mm)*	520	520	520	655	655	655	675	675	675	735	735	735	740	740	740	1133	1133	1133	1300
Height installation size (mm)*	435	435	435	450	450	450	475	475	475	475	475	475	570	570	570	739	739	739	802
CH connection (mm)	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Drinking water connection (mm)	-	15	15	-	15	15	-	15	15	-	15	15	-	15	15	-	15	15	-
Oil connection (internal thread)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Flue gas (diameter in mm)	50	50	50	50	50	50	50	50	50	80	80	80	80	80	80	100/108	100/108	100/108	100/130
Dashboard	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital	digital
Energy efficient circulation pump	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pump timer	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Siemens room thermostat	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hot water on/off	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Oil filter Flocotop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil filter Toc 80	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Oil filter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External air intake	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fill and drain combination	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Voltage (A.C.)	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
Tap water 60° (p.m. in ltrs)	-	-	3	-	-	4,5	-	-	6,5	-	-	8,5	-	-	11	-	-	28	-
Weight (kg)	65	62	70	75	77	80	80	82	85	90	92	95	115	117	120	195	195	195	195
Efficiency %	92	92	92	93	93	93	93	93	93	94	94	94	94	94	94	95	95	95	95
Water content boiler (litres)	8,5	8,5	8,5	17,5	17,5	17,5	20	20	20	23	23	23	37	37	37	120	120	120	120
Fuel	diesel or GTL	diesel or GTL	diesel or GTL	diesel	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL	diesel or GTL
Fuel consumption L/h	0,69	0,69	0,69	1,27	1,27	1,27	2,35	2,35	2,35	2,75	2,75	2,75	3,73	3,73	3,73	6,87	6,87	6,87	9,81
Flue gas temperature °C	170-220	170-220	170-220	150-210	150-210	150-210	145-205	145-205	145-205	145-200	145-200	145-200	140-190	140-190	140-190	120-193	120-193	120-193	120-190
Sprayer/Nozzle mm/°	0,18/80	0,18/80	0,18/80	0,25/80	0,25/80	0,25/80	0,40/60	0,40/60	0,40/60	0,50/60	0,50/60	0,50/60	0,65/60	0,65/60	0,65/60	1,25/80	1,25/80	1,25/80	1,75/80S
Start capacity 230V (W)	262	262	262	307	307	307	340	340	340	350	350	350	352	352	352	352	352	352	352
Operational capacity 230V (W)	154	154	154	182	182	182	196	196	196	197	197	197	199	199	199	199	199	199	199

*dimensions include the assembly of central heating pump and oil burner.
**KB80 and KB100 don't have a TÜV certificate, due to low production amounts.

KABOLA KB ECOLINE:
HIGHLY EFFICIENT AND ENERGY EFFICIENT

Up to 30% less energy consumption.
Up to 15% fuel savings.
94% efficiency.
100% soot-free.
Environmentally friendly.
Less noise.
Large capacity, but small installation size!
TÜV certified **

Your investment will pay itself back in 3 years!

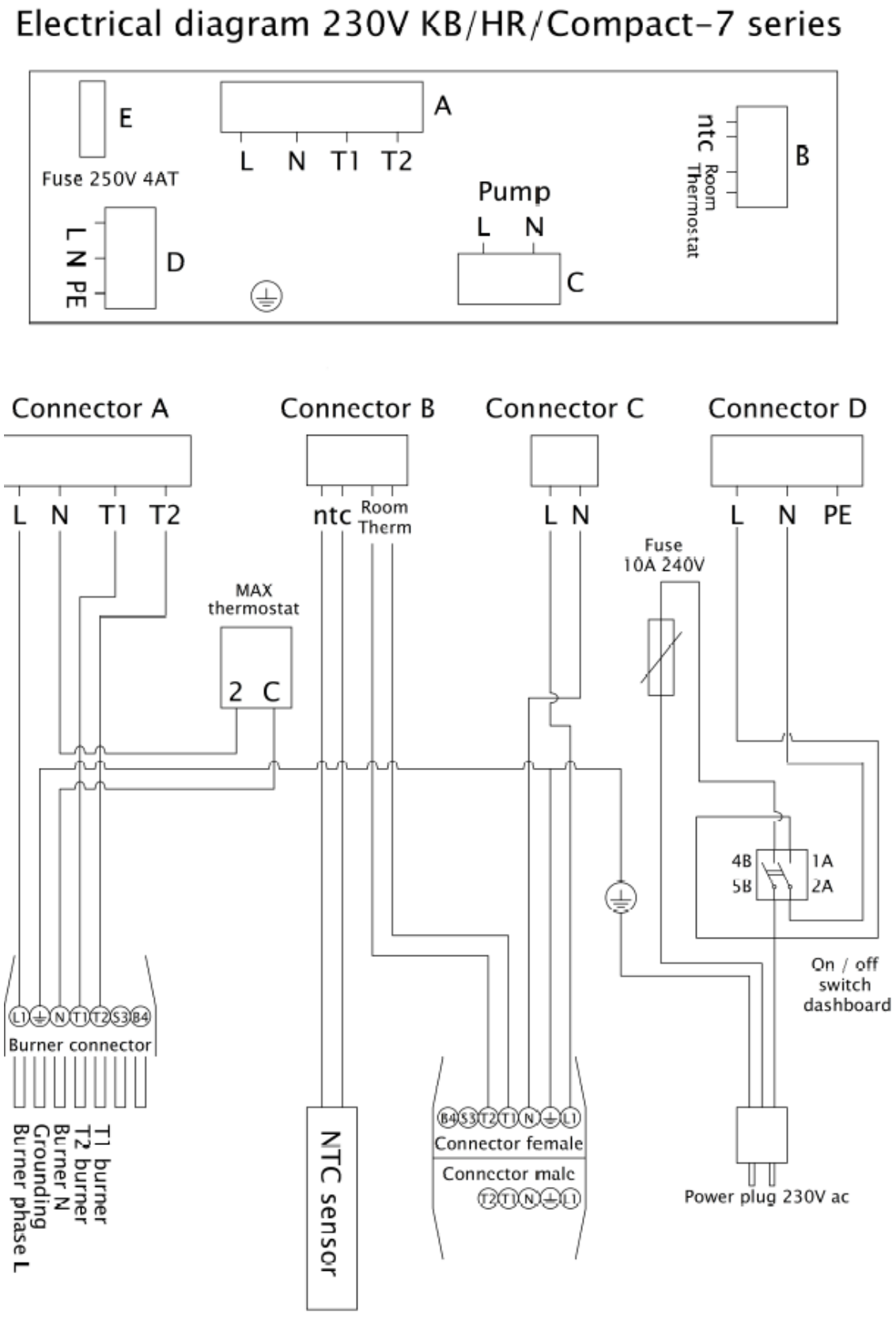
In order to compose an optimum heating system with accompanying central heating boiler, it is important to calculate the exact capacity. The capacity is determined by the volume of the rooms on board, the ship's insulation values and the user's requirements. The sailing season and the area where the ship will sail are also very important. Make sure you are properly advised by a Kabola specialist!

For more information:
Tel: +31(0)347 320 030
info@kabola.nl
www.kabola.nl

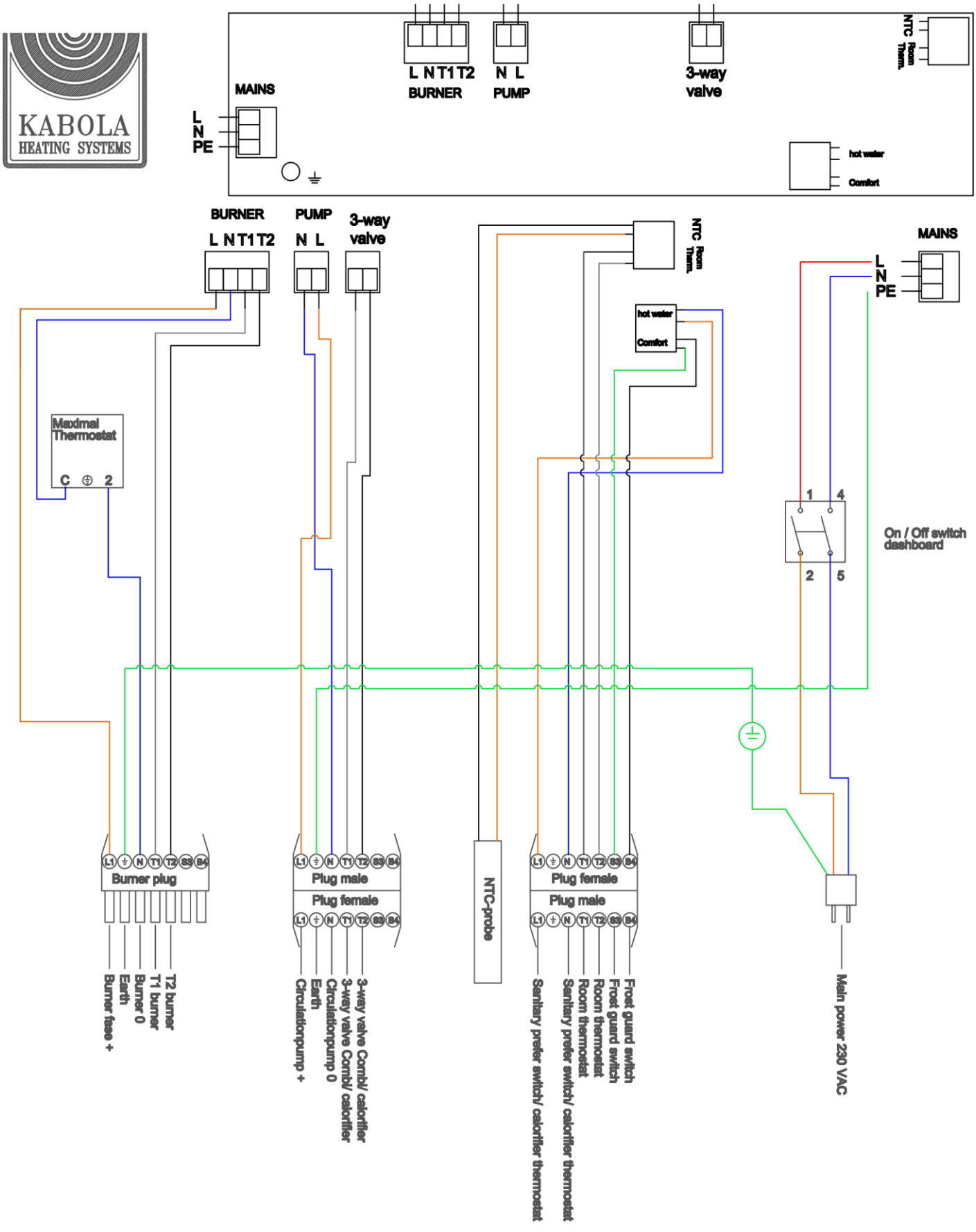
KABOLA heating systems

Appendix A: Technical specifications

Appendix B Electrical diagram 230 V



Appendix B Electrical diagram 230 V

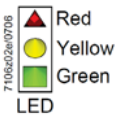


Appendix C Troubleshooting

How to reset the burner:

Listed below you will find a list with possible problems, their reasons and solutions. When you encounter problems not listed, you should contact your dealer. **Never try to solve problems on your own.**

Lockout reset button is the key operating element for resetting the burner control and for activating/deactivating the diagnostics functions.



The multicolour signal lamp in the lockout reset button is the key indicating element for visual diagnostics and interface diagnostics.

Both (lockout reset button/signal lamp) are located under the transparent cover of the lockout reset button. You can reach this button through the round hole in front of the white burner cover.

Operational status indication:

During start-up, operation indication takes place according to the following table:

Color code table for multicolor signal lamp (LED)		
Status	**Color code**	**Color**
Waiting time, other waiting states	.....	OFF
Waiting for release of prepurging / postpurging by oil pressure switch	.....	Yellow
Ignition phase, ignition controlled		Flashing yellow
Operation, flame o.k.	.....	Green
Operation, flame not o.k.		Flashing green
Extraneous light on burner startup		Green-red
Undervoltage		Yellow-red
Fault, alarm	.....	Red
Error code output (see Error code table)		Flashing red
Interface diagnostics		Red flicker light

Legend: ..... Steady on OFF Red Yellow Green

After a non-alterable lockout, the red signal lamp is steady on. In that condition, visual diagnostics of the cause of fault according to the error code table can be activated by pressing the lockout reset button for more than 3 seconds.

During the time the cause of fault is diagnosed, the control outputs are dead.
- Burner remains shut down
- External fault indication remains deactivated
- Fault status signal (alarm) at terminal 10, according to the error code table

The diagnostics of the cause of fault is quit and the burner switched on again by resetting the burner control. Press the lockout reset button for about 1 second (<3 seconds).

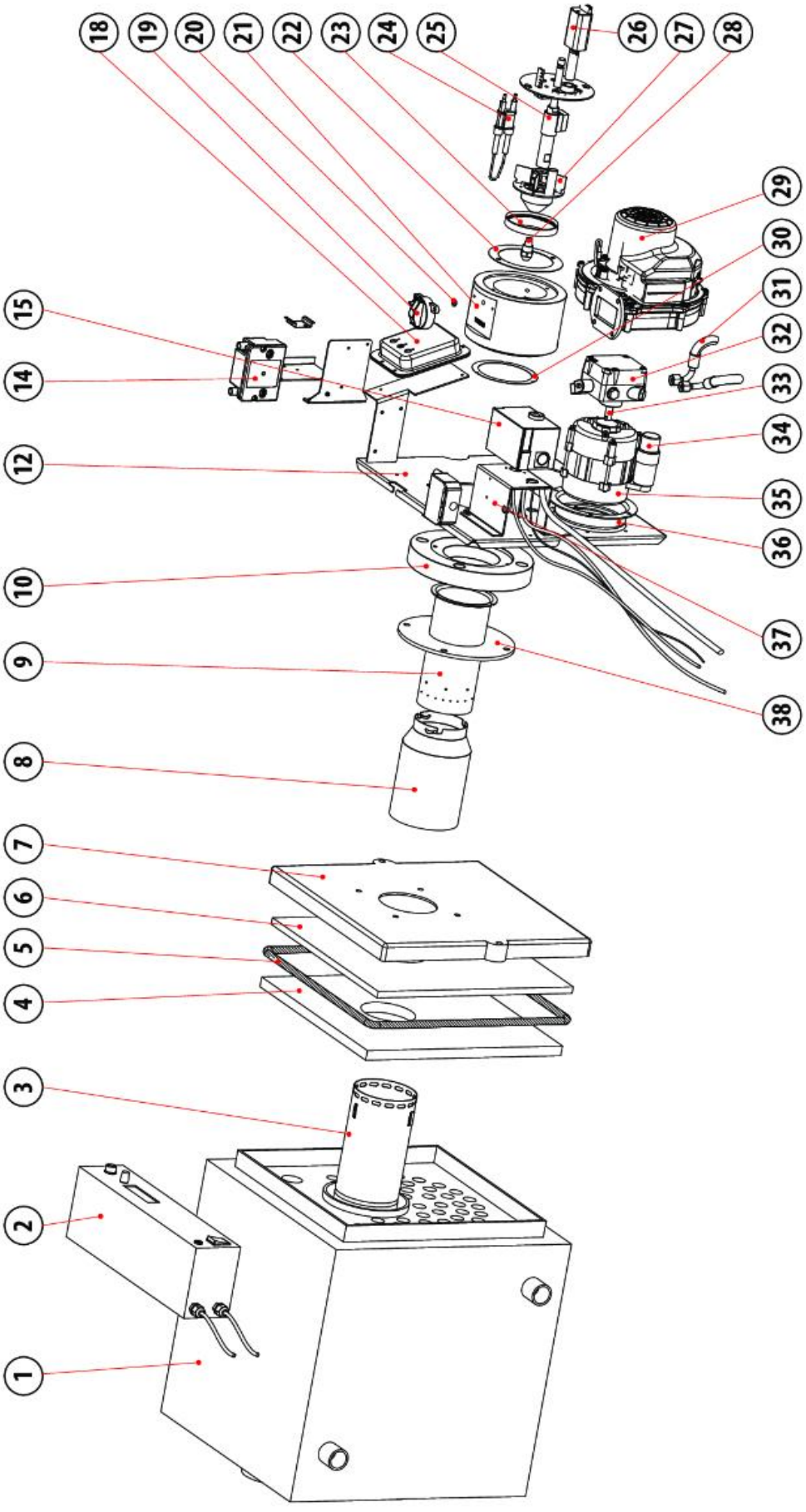
Problem	Possible reason	Possible solution
Burner will not start	Oil supply interrupted Maximal thermostat	Bleed the oil filter Change contaminated filter element Fill the oil tank Reset the maximal thermostat
	Power supply interrupted	Check the fuses (4-8A) Check the power supply Shut down power supply, and disconnect the photo cell, switch power on and when burner starts connect the photo cell.
Burner stops		Reset burner (once)
	Flame protection dirty (photo cell)	Clean glass of flame protection
	Flame protection defect (photo cell)	Replace flame protection
	Dirty marine diesel	Try normal road diesel (B7)
Burner starts pulsing	Flue gas flow interrupted	Clear chimney opening
	Boiler dirty	Clean boiler
	Oil supply interrupted	See above
	Nozzle defective	Replace nozzle
Burner shows error		Reset burner (once)
	Low voltage	Check voltage level
Press the reset button for more than 3 seconds		
2 blinks, alarm on terminal 10	No establishment of flame at the end of safety time	Faulty or soiled fuel valves Faulty or soiled flame detector Poor adjustment of burner, no fuel Faulty ignition equipment
3x blinks, alarm on terminal 10		Free
4 blinks, alarm on terminal 10	Extraneous light on burner start-up	
5 blinks, alarm on terminal 10		Free
6 blinks, alarm on terminal 10		Free
7 blinks, alarm on terminal 10	Too many losses of flame during operation (limitation of repetitions)	Faulty or soiled fuel valves Faulty or soiled flame detector Poor adjustment od burner
8 x blinks, alarm on terminal 10	Time supervision oil preheater	Oil preheater failed 5 times during pre purging
9 blinks, alarm on terminal 10		Free
10 blinks	Wiring error or internal error, output contacts, other fault	
Press the lockout reset button for about 1-3 sec to reset burner		
	Oil supply interrupted	See above
Boiler does not react to thermostat	Wire in main connector has not been removed (room thermostat)	Remove wire from main connector between T1 and T2
	Boiler thermostat incorrectly adjusted	Adjust boiler thermostat
	Battery of room thermostat flat	Replace battery
Water is not circulating	Pump couplings are closed	Open pump couplings
	Pump not connected to electricity supply	Connect pump
	Rotor of pump is stuck	Turn pump with your hand (see pump manual)

Maximum thermostat reset:

1. Remove the black cover anti clock wise
2. Push the little white pin until its flat with the lower part

When problems with the boiler will not disappear, call an engineer from Kabola.

Appendix D Boiler parts



Kabola Blue KB-Series spare parts

	Part	KB20	KB40	KB45	KB50	KB75	KB80	KB100
1	KB ketel compleet							
2a	Dashboard KB-CH				51-012			
2b	Dashboard KB-Combi				51-001			
2c	Dashboard KB-Calorifier				51-011			
3	Efficiency tube	44-005						
4	Insulation boiler	44-004	46-005	47-005	47-005	49-005	59-005	
5	Door gasket cord	13-M149	13-M150	13-M151	13-M151	13-M153	9-I083	---
6	Insulation door	44-007	46-004	47-008	47-008	49-008	59-004	52-136
7	Door	9-I149	9-I148	9-I150	9-I150	9-I151	9-I153	
8	Flame tube	52-044	52-044	52-044	52-004	52-004	52-123	
9	Adapter tube	52-103	52-095	52-097	52-097			
10	Ring adapter			52-002			52-121 + 52-126	
12	Burner base plate				52-119			
14	Ignition transformator				52-033			
15	Burner control LMO 39			52-073				
18	Control panel Air	52-082	52-087	52-084	52-086	52-088	52-129	
19	Air pressure sensor				52-116			
20	Air pressure sensor seal				52-008			
21	Burner blockmodul (incl 22)			52-120				
22	Seal for nozzle stem plate				52-017			
23	Mix unit (incl 24)	52-081	52-100	52-083	52-085	52-101	52-102	
24	Electrode		52-030		52-031		52-112	52-134
25	Nozzle holder complete		52-132			52-133	52-127	
26	Flame monitor				52-032			
27	Mix unit cartridge (incl 24 + 28)	52-106	52-107	52-108	52-109	52-110		
28	Nozzle	52-018	52-019	52-020	52-046	52-021	52-111	52-135
29	Blower fan motor			52-015			52-125	
30	Seal adapter tule			52-016				
31	Oil hose KB-series			52-014				
32	KB series oil pump			52-013				
33	Oil pump coupling				52-012			
34	Capacitor				52-069			
35	Oil pump motor				52-010			
36	Bearing plate oil pump motor				52-011			
37	Burner control mounting				52-007			
38	Seal for KB-series				52-005			

Appendix E EG-declaration

EG-declaration of conformity

We,

Kabola Heating Systems BV
Placotiweg 1 E
4131 **NL** Vianen
The Netherlands

declare under our own responsibility that the product:

Kabola KB20/KB40/ KB45/ KB50/ KB75 combi 230V

to which this declaration relates complies with the fol/owing standards

EN 303-1, EN 303-2, EN 304, EN 50081-1, EN 50082-1. EN 61010

following the provisions of the following EC-directives

73/23/EEG,
89/336/EEG,
92/42/EEG,
amended by 93/68/EEG.

Nederland, Vianen, 2022

A Avdic
Managing Director

Appendix F CE declaration

EG-Baumusterprüfbescheinigung
gemäß der Wirkungsgrad-Richtlinie von neuen Warmwasserheizkesseln 92/42/EWG

EC Type Examination Certificate
according to the EC directive 92/42/EC efficiences of new hot water boilers

TÜV NORD Systems

Produkt-ID-Nummer *Product-ID-number*
CE-0045CMKD 2350

Hersteller / Vertreiber *manufacturer / distributor*	:	**Kabola Heating Systems B.V. Placotiweg 1, NL - 4131 Vianen (Utr.)**
Produktart *product category*	:	**Heizkessel mit integriertem Ölgebläsebrenner in DUO-Bauweise (Unit)**
Handelsbezeichnung *trade mark*	:	**Heizkessel für flüssige Brennstoffe**
Bauart *construction type*	:	**Niedertemperaturkessel**
Typ, Ausführung *type, model*	:	**KB... (Typenliste s. Seite 2)**
Prüfgrundlagen *basis of type examination*	:	**Richtlinien 92/42/EWG, DIN EN 304:06/1998 und DIN EN 267:09/1999**
Prüflaboratorium *laboratory*	:	**TÜV NORD Systems GmbH & Co. KG Prüfstelle für Feuerungsanlagen**
Überwachung *surveillance procedure*	:	**Prüfung der Konformität mit der zugelassenen Bauart nach Modul B, Anhang III der Richtlinie 92/42/EWG**

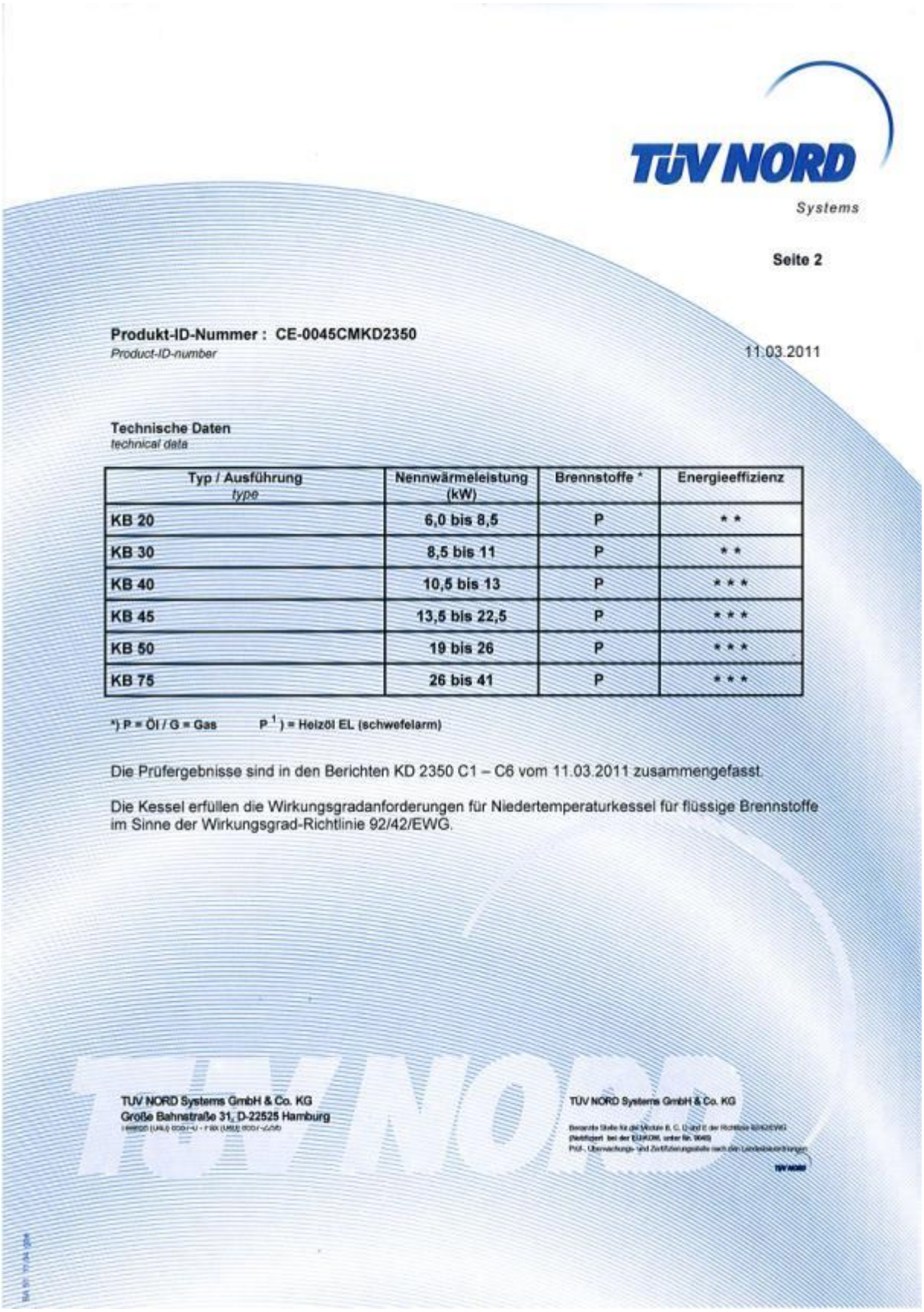
Hannover, den 11. März 2011

(Der Leiter)

CE

TÜV NORD Systems GmbH & Co. KG
Große Bahnstraße 31, D-22525 Hamburg

TÜV NORD Systems GmbH & Co. KG



TÜV NORD Systems

Seite 2

Produkt-ID-Nummer : CE-0045CMKD2350
Product-ID-number

11.03.2011

Technische Daten
technical data

Typ / Ausführung *type*	Nennwärmeleistung (kW)	Brennstoffe *	Energieeffizienz
KB 20	6,0 bis 8,5	P	* *
KB 30	8,5 bis 11	P	* *
KB 40	10,5 bis 13	P	* * *
KB 45	13,5 bis 22,5	P	* * *
KB 50	19 bis 26	P	* * *
KB 75	26 bis 41	P	* * *

*) P = Öl / G = Gas P[1]) = Heizöl EL (schwefelarm)

Die Prüfergebnisse sind in den Berichten KD 2350 C1 – C6 vom 11.03.2011 zusammengefasst.

Die Kessel erfüllen die Wirkungsgradanforderungen für Niedertemperaturkessel für flüssige Brennstoffe im Sinne der Wirkungsgrad-Richtlinie 92/42/EWG.

TÜV NORD Systems GmbH & Co. KG
Große Bahnstraße 31, D-22525 Hamburg

TÜV NORD Systems GmbH & Co. KG

Warranty Conditions

Appendix G Guarantee conditions

Certificate of Guarantee

Guarantee conditions:

1. The scope of this guarantee is restricted to the obligations of Kabola Heating Systems B.V. described on the front page of this document.Secondary damages are specifically excluded.
2. The guarantee period for materials and/or construction defects in the construction of the boiler body is five years. For materials and/or other goods supplied by Kabola Heating Systems B.V., a guarantee period of one year applies.
3. If, during the guarantee period it appears that a material or construction defect in a part cannot be repaired, then the relevant part will be replaced free of charge, and if after replacement, it appears that operation can no longer be guaranteed the entire appli ance will be replaced. The above is exclusively at the discretion of Kabola Heating Systems B.V.
4. In the event of the repair of defective parts within the guarantee period, a new guarantee period of 1 year applies.
5. Investigation and repair work will usually be carried out by Kabola Heating Systems B.V. at the location stated by the purchaser.
   Travel and accommodation costs are charged at all times, labour costs are to be borne by Kabola Heating Systems B.V.
   If the boiler must be returned to the factory the transport costs are to be borne by the purchaser. Repaired boilers are delivered on an ex-factory basis. The costs of removing the boiler form the heating system and the installation of the boiler are to be borne by the purchaser
6. A claim against the guarantee will not succeed in the event that:
   - the guarantee certificate has been incorrectly or insufficiently completed, or has been altered
   - No purchase receipt showing the date of purchase can be provided for this guarantee certificate;
   - The appliance has been inexpertly repaired, modified or installed;
   - The appliance has not been installed by a Kabola Heating Systems B.V. dealer or by a Kabola Heating Systems B.V. approved installation contractor,
7. In the event of faults please contact the supplier of your Kabola heating appliance. When doing so, please give your name, address, telephone number, type and serial number of your heating appliance.

KABOLA heating systems

Kabola Heating Systems B.V.

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