

User manual KB-**ECOLINE** series English



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 or 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, that 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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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 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.



2 Safety

In this chapter we emphasize 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 emphasize 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.

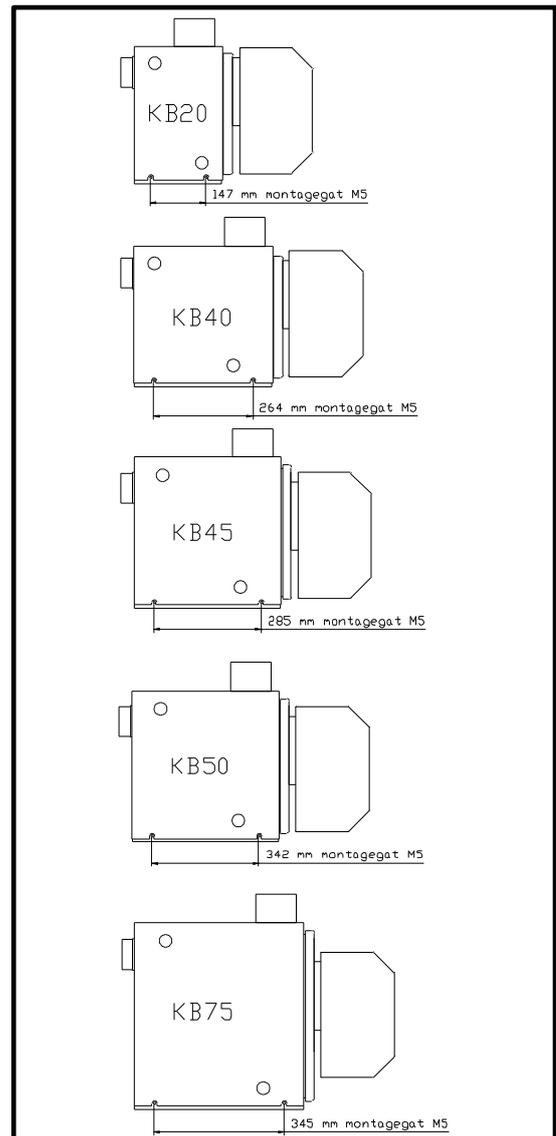


Figure 1

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.

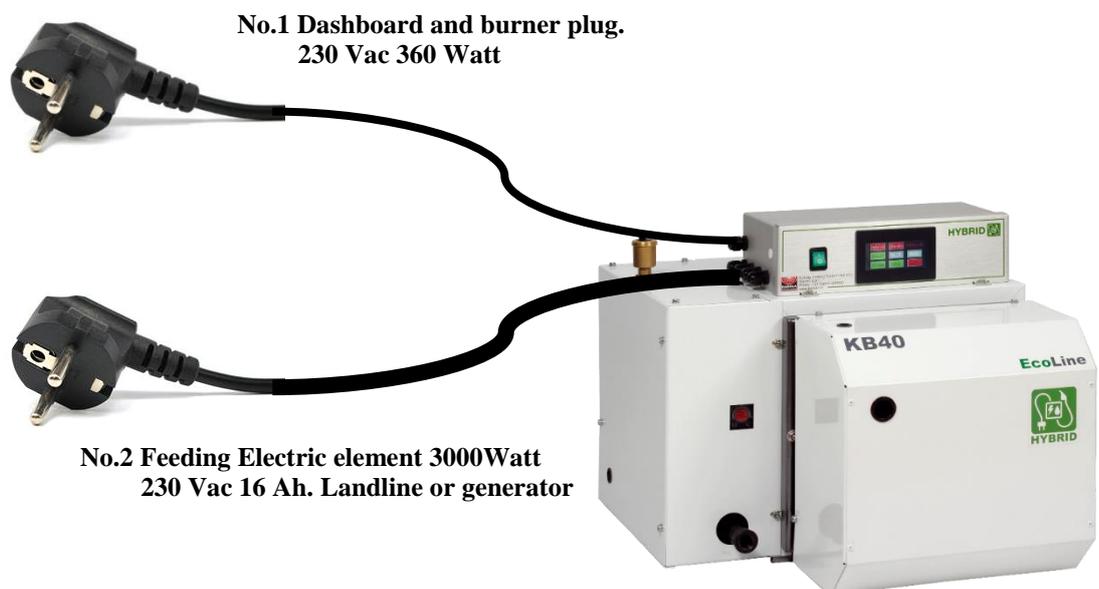
Warning: Do not store any flammable or gaseous substances in the room where the boiler installed. This is to ensure that no explosions or fires can occur.

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 thread 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.
- For a 230 Volt version, ensure a grounded wall socket to connect the boiler. The normal thin plug feeds the burner and the dashboard (360Watt).
- The second thick plug feeds the 230Volt electric element and must be secured at 16Ah and should only get its power directly from the generator or shore power. This is to ensure that the batteries of the means of transport cannot be taxed too heavily.

Hint: As a rule of thumb for the ventilation openings, take 2,5 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:

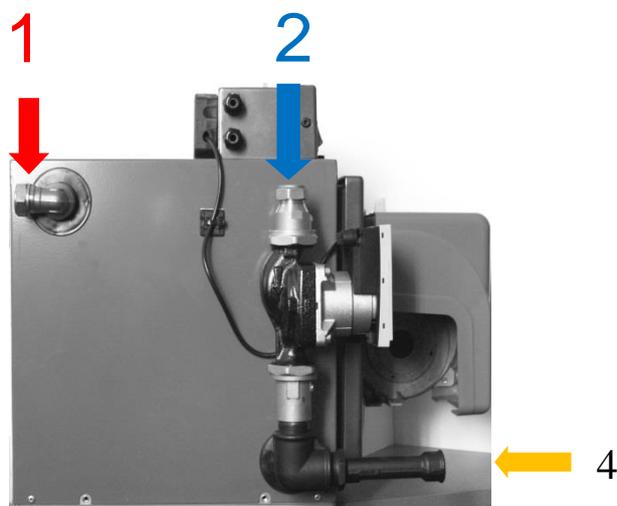
Connect the piping to the boiler as follows (see figure 2 –2.2):

1. Install the feed of the boiler on nr 1
2. Install the return of the boiler 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:

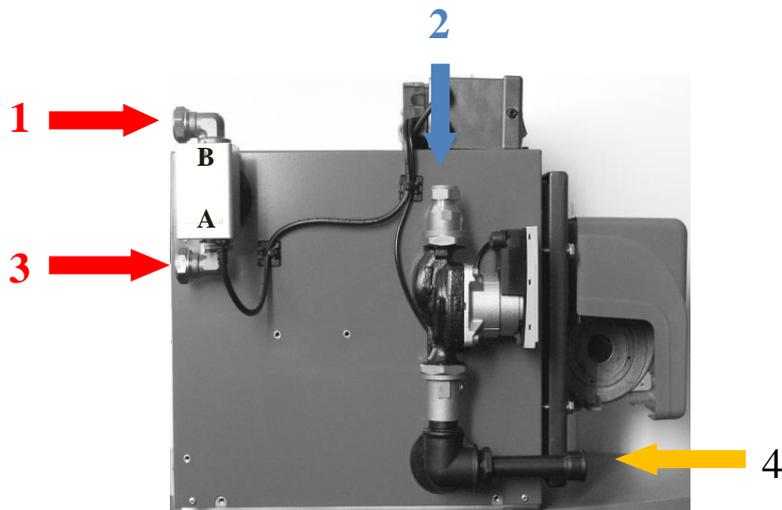


Figure 2.3

1. Install the feed of the calorifier on nr **1** / B
2. Install the return of the boiler and calorifier on nr **2**
3. Install the feed of the boiler 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:

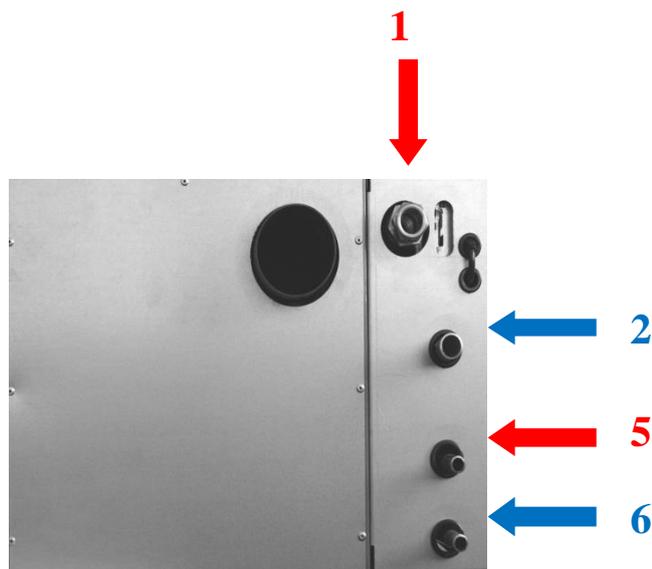


Figure 2.4

1. Install the feed of the boiler on nr **1**
2. Install the return of the boiler 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 inside 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

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

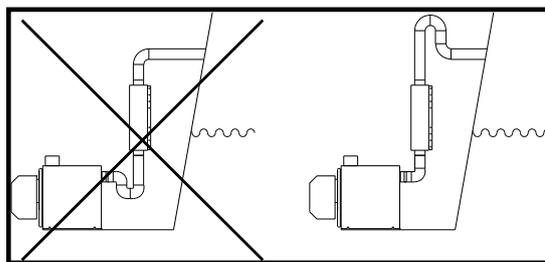


Figure 3

VERTICAL FLUE GAS OUTLET

This way of 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

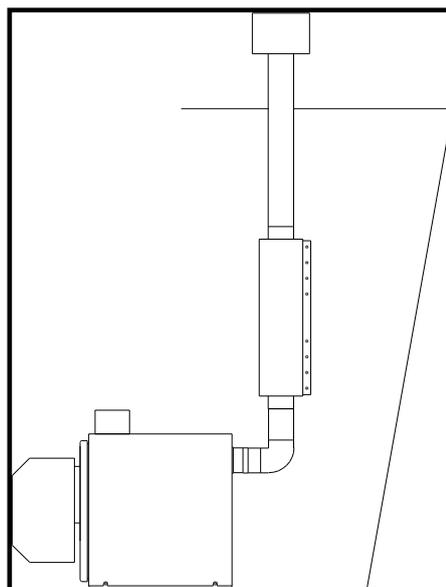


Figure 4

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

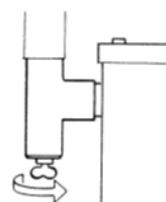


Figure 4.a

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.

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 for KB-Standard:

- Remove the cover of the thermostat
- Connect the two thermostat wires to point Lx and L1 (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.

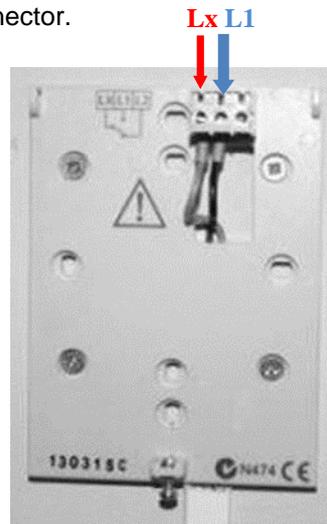


Figure 6.2



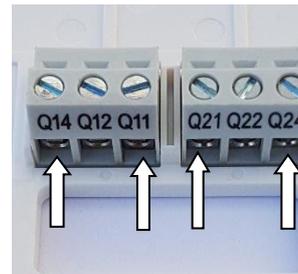
Figure 5

To connect the room thermostat for KB Combi – Calorifier:

- Before you connect the room thermostat with Frost Guard, use a 4-core insulated wire 0,75 mm².
- Remove the cover of connection **A** (figure 5) which you can find at the backside of the Kabola dashboard.
- Connect the 4 wires of the room thermostat at T1 and T2 and S3 and B4 in connection A at the backside of the dashboard as shown on the sticker inside the connector.
- Connect the wires inside the room thermostat (Fig. 6.1) to Q14 (T1) and Q11 (T2)
- Connect the Frost Guard connections (Fig 6.1) of the room thermostat to connections Q21 (S3) and Q24 (B4) and in connector **A** on S3 and B4 (figure 11) at the back of the dashboard.
- If the room thermostat shows a tap on its display the tap water is switched on, if there's no tap visible on the display, than tap water is switched off.



Figure 6



Q14	Q11	Q21	Q24
↓	↓	↓	↓
T1	T2	S3	B4

Figure 6.1

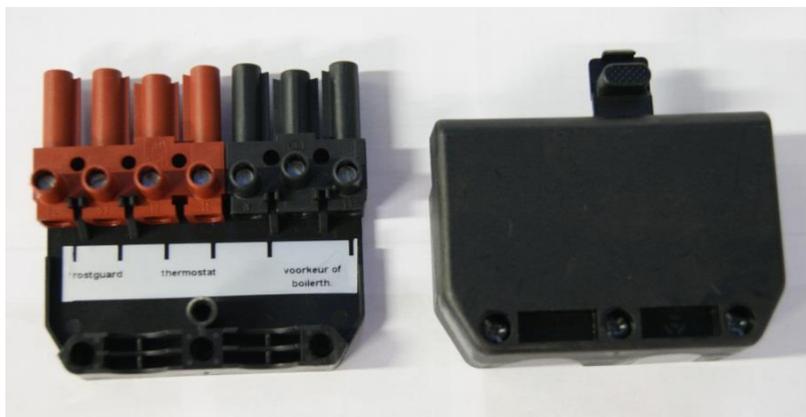


Figure 12

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.

4.1.5 Filling the central heating system

The pressure in the system should:

- Never be lower than 0,5 bar cold;
- Never be higher than 2,5 bar hot.

Follow the procedure below for filling the CH-system (see figure 7):

- Switch off the boiler;
- Remove nob 4
- Screw the adaptor 3 at the thread,
- Connect the filling tube at 3 and open 5 by turning it;
- Fill the system slowly with water, until the pressure indicator indicates a pressure of 2 bar;
- Close the valve (2);
- Bleed the CH-system;
- If necessary, fill with water again up to 2 bar of pressure;
- Switch on the boiler and let the pump run for about 5 minutes;
- Switch off the boiler;
- Check the water pressure, if it is too low, repeat steps 5 through 10;
- Remove the hose.

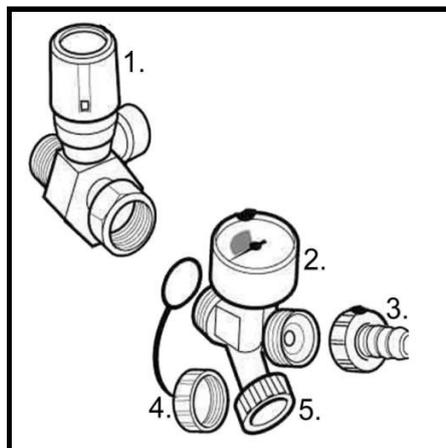


Figure 7

Hint: The CH-system can be filled with cooling fluid, suited for CH-systems (pH-value 8.5)

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 heating pump in automatic venting position. Control knob to 12 hours (see Figure 9);
- Turn a quarter of a turn the red button after about 5 minutes, to position 3 (see Figure 10);
- Check the entire system for air and check the pressure (fill if necessary).

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

- See manual from the circulation pump.

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

Venting mode: Turn switch on 12 o'clock
(light flashes)



Operating mode: Turn switch at +/--position 3
(the light will burn continuous)



Figure 8

4.1.6 Mounting the oil filter and oil burner.

The KB-series will be standard supplied with a self-bleeding oil filter, what is SI approved, this oil filter should always be hung above the burner, if this filter is not above the level from the oil pump it will not work correctly!

The oil burner is already mounted on the boiler, the flexible oil hoses, what are fitted on the burner, needs to be connected to the oil filter, those two flexible oil tubes, an inlet, and a return line. Place these lines on the filter. On the filter are arrows!

Use the oil line from the fuel oil pipe stainless steel with an inner diameter of 6-8 mm.

For further instructions from the oil burner, refer to the instructions of the burner.

4.2 Starting your system

After the room thermostat is connected, the following steps:

1. Insert the two plugs into the grounded socket for 230 volt version.
 - Number 1 normal power (360Watt)
 - Number 2 power feed for the electric element (3000Watt). Direct to generator or shore power!
2. Switch the boiler on, at the on / off switch on the control panel. The lamp in the switch indicate that the system is on.
3. Set the room thermostat. (see manual of the room thermostat)
4. Open the valve on the fuel tank;
5. Open the valve on the oil filter;
6. Disconnect the power from the motor to the oil burner (only Kabola engineer)
7. Use the startup cable, and connect with this cable the power to the motor from the oil pump
8. Assemble the pump pressure gauge at plug P from the oil pump
9. Check if the system is bled and check the right oil pressure
10. Start the burner;
11. After ± 2 minutes, the burner will start
12. Check all oil connections for leaks;
13. If the burner does not start, the fault light is on;
14. Wait about 3 minutes;
15. Reset the burner and go to 5.4 (repeat if necessary).

Attention:

The oil burner is tested by the manufacturer, not adjusted. The adjustment of the burner has to be done by an experienced installer, because this requires expert knowledge. To be eligible for warranty, the boiler has to be adjusted by an approved installer. Contact your Kabola supplier to make an appointment.

Never adjust the burner using your own initiative!!

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

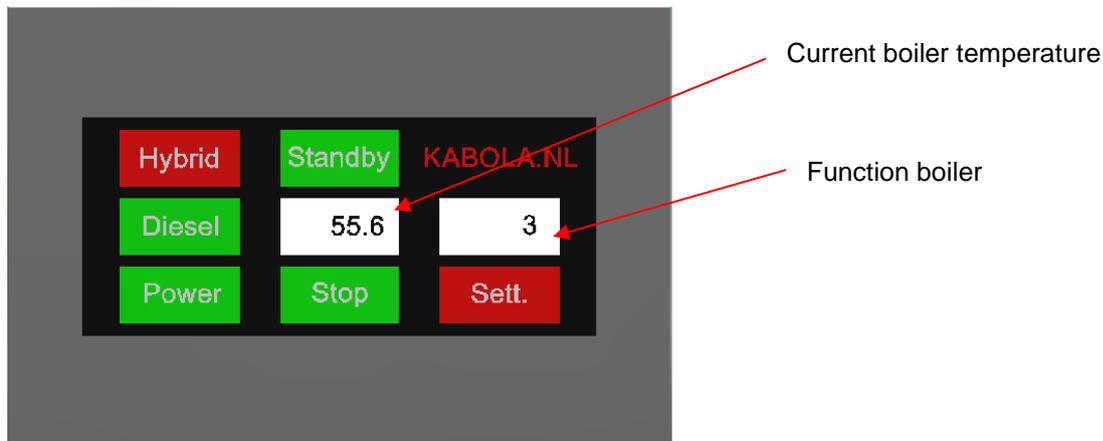
KB-series Boiler

The hybrid function means: The boiler operates on diesel as well on the electronic element. This is how it runs:

- 0°C - 50°C = Diesel burner as well the electronic element on max. power
- 50°C - 60°C = Diesel burner off and the element on max. power
- 60°C - 70°C = Diesel burner off and the element on 2/3 power
- 70°C - 80°C = Diesel burner off and the element on 1/3 power

Note: The 80°C can be changed by the installer.

The red colour is showing the active mode: in this example the Hybrid mode



Explanation of the operating panel

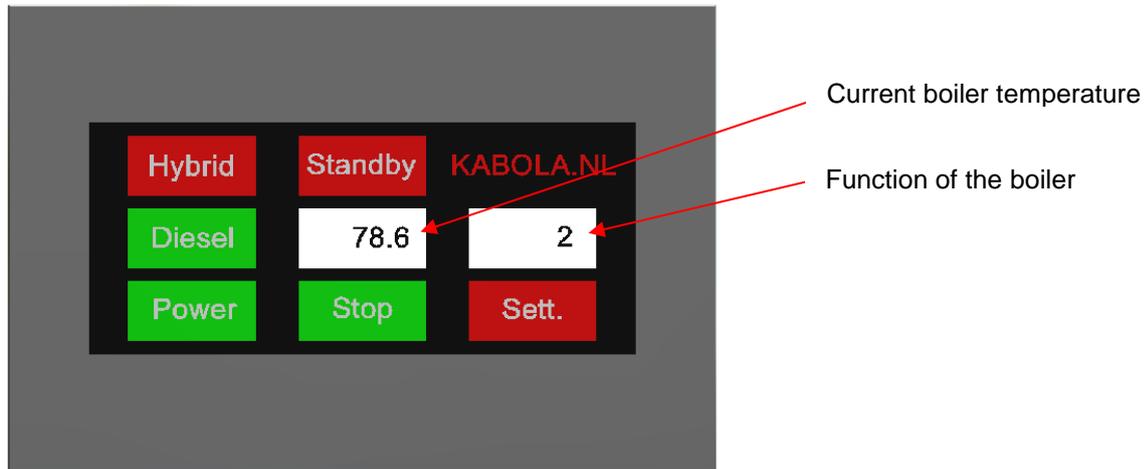
Numbers	Explanation	Phot
0	Rest position (boiler is on stand-by) Circulation pump stopped	
1	Room thermostat demands heat. Circulation pump operating above 40°C	
3	Circulation pump further running time. Circulation pump operates for ± 3 minutes	

KB-series Combi-Calorifier

Dashboard front of the KB Hybrid series.

The red colour is showing the active mode: in this example Standby & Hybrid mode.

Standby: only activated on the Calorifier & Combi boilers.
The boiler remains at 80°C, to provide hot water very fast.



Explanation of the operating panel

0	Rest (boiler is stand-by) Circulationpump not active	0
1	Room thermostat is demanding Circulation pump active above 40°C	1
2	Hot water is being tapped or external boiler requires heat. Circulation pump active Oil burner starts for maximum capacity	2
3	Pump timer active Circulation pump running \pm 3 minutes	3
4	Boiler is heating to keep domestic water on temperature.	4
	Hot water stand-by	Standby
	The number (78.6) in the middle of the display shows the current boiler water temperature	78.6

Switching between Hybrid, Diesel, Power always through Stop!

5.1.1 Electric element maximum power use

This function will only work when direct power in on the element plug

The Hybrid system has got the possibility to bring down the **maximum** use of electricity.

The element can work on 3000Watt, 2000Watt or 1000Watt. Here is how to set that:

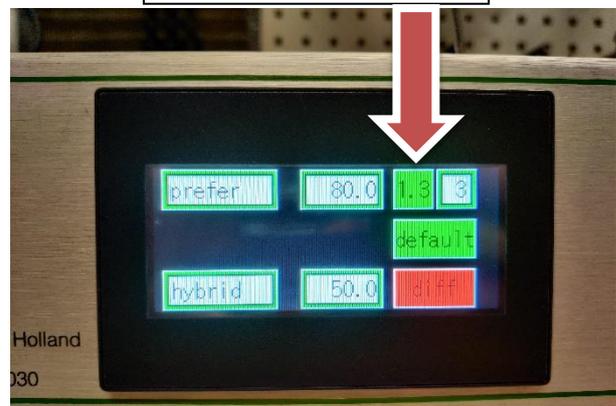
Be aware of the power consumption from landlines!

3000Watt=16Ah 2000Watt = 11 Ah 1000Watt= 6Ah

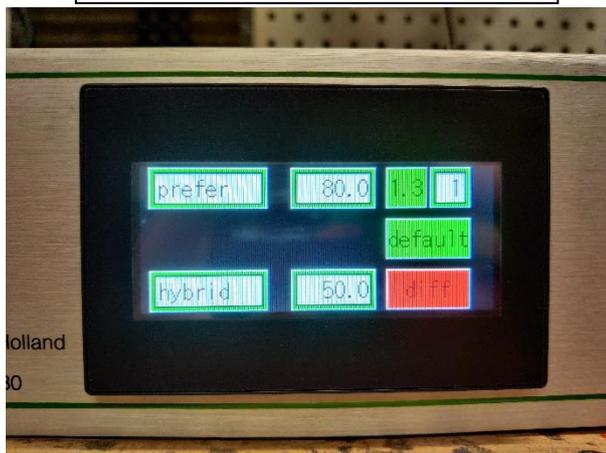
Push "setting"



Push the green 1.3 button to switch from 3 => 2 => 1
 1= 1000Watt
 2= 2000Watt
 3= 3000Watt

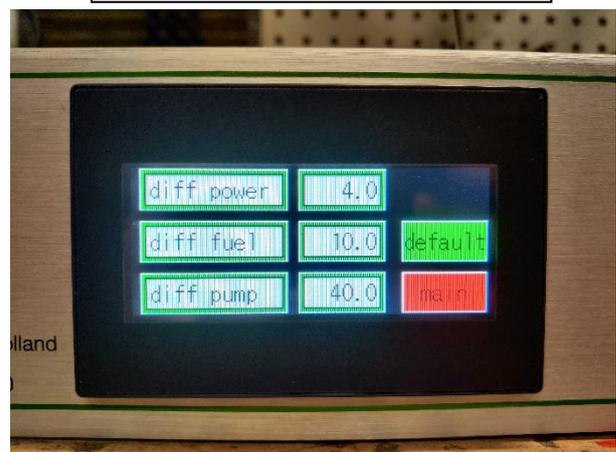


You see this. When ready push "diff".

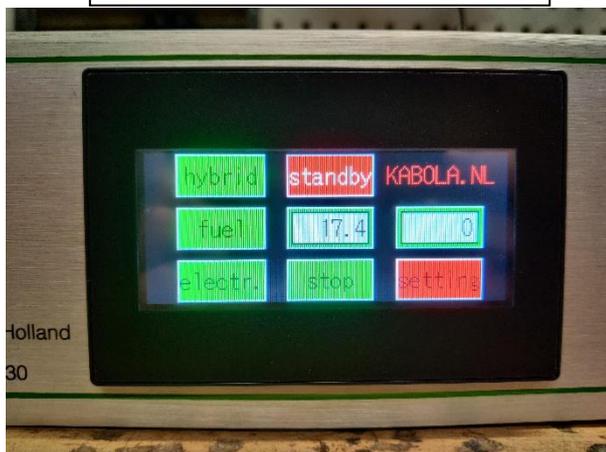


When changing the 50 behind **hybrid** to 60, the burner will stop at 60°C instead of 50°C. The fuel consumption will rise of course.

Now you see this screen. Push "main".



Electric element is set and you are back at the base screen.



5.2 Operating the tap water on/off button



By pushing the tap-button on the room thermostat tap water can be switched on and off. If the display shows the tap, than tap water is switched on. If the display doesn't show a tap, than the tap water is switched off.

To switch on the Frost Guard, you have to proceed the following steps:

1. Switch off the tap water. There shouldn't be a tap visible on the display of the room thermostat.
2. At the Kabola dashboard the standby function is green.

If you just want to use tap water and no heating, you'll have to proceed the following steps:

1. If the tap is visible at the display of the room thermostat, the tap water is switched on. If not, it's switched off. Please switch on.
2. The standby function on the dashboard is red colored (active).
3. Set the room thermostat on a low temperature.

If you want to use both tap water and central heating, please follow the next steps:

1. If the tap is visible on the display of the room thermostat, the tap water is switched on
2. The standby function on the dashboard in red colored (active).
3. Make sure the temperature on the room thermostat is set for demand (if you want to test: put it higher than the current temperature).

The hot water function can be switch on and off also on the display from the boiler. On this display it's called "standby".

First push the button "stop". Now you can push the functions you want.

- Push "standby" (colour is red now)
- Push the mode you want. This mode will change in colour from green to red.



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 from 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)

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.

Appendix A: Technical specifications



KABOLA KB ECOLINE: ZEER EFFICIËNT EN ENERGIEZUINIG



- Tot 50% minder energie verbruik.
- Tot 15% brandstof besparing.
- 94% rendement.
- 100% roetvrij.
- Milieuvriendelijk.
- Minder geluid.
- Grote capaciteit, maar kleine inbouwmaat!
- TÜV certificering

**Uw investering is met
3 jaar terugverdiend!**

Om een optimaal verwarmingssysteem met bijpassende CV-ketel samen te stellen, is het belangrijk om de **exacte capaciteit** te berekenen. De capaciteit wordt bepaald door de inhoud van de vertrekken aan boord, de isolatiewaarden van het schip en de wensen van de gebruiker. Het vaarseizoen en het gebied waarin het schip vaart zijn eveneens van groot belang. Laat u goed adviseren door een Kabola specialist!

Voor meer informatie:
Tel: +31(0)347 320 030
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en lager stroomverbruik. De KB-Serie kan gekoppeld worden aan de centrale verwarming, nets lucht, vloer- verwarming en zelfs een aircosysteem. Dankzij de roetvrije werking is het systeem onderhoudsvriendelijk.

De Kabola KB-Serie EcoLine is een serie volautomatische, roetvrije allgasboilers met warmtepompfunctie van 8-38 kW. De KB EcoLine ketels zijn zowel als cv-ketel, met boilerregeling en als combi-ketel leverbaar. Dankzij de zeer efficiënte blauwe vlam technologie is er geen roetuitstoot, minder brandstofverbruik



Kabola KB-Serie
EcoLine
**combi-
ketel**



Kabola KB-Serie
EcoLine
CV-boiler



Kabola KB-Serie
EcoLine
CV-ketel

SPECIFICATIES	KB20	KB20	KB40	KB40	KB45	KB45	KB50	KB50	KB75	KB75	KB75	KB80	KB80
Type	CV	combi	combi										
capaciteit in kW	8	8	15	15	24	24	28	28	38	38	38	38	55-70
breedte installatie (mm)*	455	485	490	500	515	505	515	470	505	520	570	570	580
diepte installatie (mm)*	520	520	655	655	675	675	735	735	755	755	740	740	1135
hoogte installatie (mm)*	485	485	450	450	475	475	475	475	475	475	570	570	739
CH-verbinding (mm)	22	22	22	22	22	22	22	22	22	22	22	22	22
drinkwater verbinding (mm)	15	15	15	15	15	15	15	15	15	15	15	15	15
olie verbinding (interal 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
olie verbinding (interal thread)	50	50	50	50	50	50	80	80	80	80	80	80	100/108
gas aansluiting (in mm)	digital												
energie efficiënt circulatie pomp	+	+	+	+	+	+	+	+	+	+	+	+	+
pompster	+	+	+	+	+	+	+	+	+	+	+	+	+
siemens ruimte thermostat	+	+	+	+	+	+	+	+	+	+	+	+	+
warm water aan/uit	+	+	+	+	+	+	+	+	+	+	+	+	+
oliefilter fotocrop	-	-	-	-	-	-	-	-	-	-	-	-	-
oliefilter 100-80	+	+	+	+	+	+	+	+	+	+	+	+	+
oliefilter	-	-	-	-	-	-	-	-	-	-	-	-	-
externe lucht aanzuig	+	+	+	+	+	+	+	+	+	+	+	+	+
vul en aftap combinatie	+	+	+	+	+	+	+	+	+	+	+	+	+
voltage (A.C.)	230	230	230	230	230	230	230	230	230	230	230	230	230
tapwater 60° (q.m. in lt.)	65	62	75	77	80	80	82	85	90	82	95	115	120
rendement %	92	92	95	95	95	95	94	94	94	94	94	94	95
waterinhoud ketel (liters)	8,5	8,5	17,5	17,5	20	20	23	23	23	23	37	37	120
brandstof	diesel												
brandstofverbruik L/h	0,69	0,69	1,27	1,27	2,35	2,35	2,75	2,75	2,75	2,75	3,75	3,75	6,87
rookgas temperatuur °C	170-220	170-220	150-210	150-210	145-205	145-205	145-200	145-200	145-200	145-200	140-190	140-190	120-183
sproeier/roetkle mm ²	0,18/80	0,18/80	0,25/80	0,25/80	0,40/60	0,40/60	0,50/60	0,50/60	0,50/60	0,50/60	0,65/60	0,65/60	1,25/80
startvermogen 230V (W)	262	262	307	307	340	340	350	350	352	352	352	352	522
bedrijfsvermogen 230V (W)	154	154	182	182	196	196	197	197	199	199	199	199	199

*maatvoering is inclusief montage CV-pomp en oliebrander.

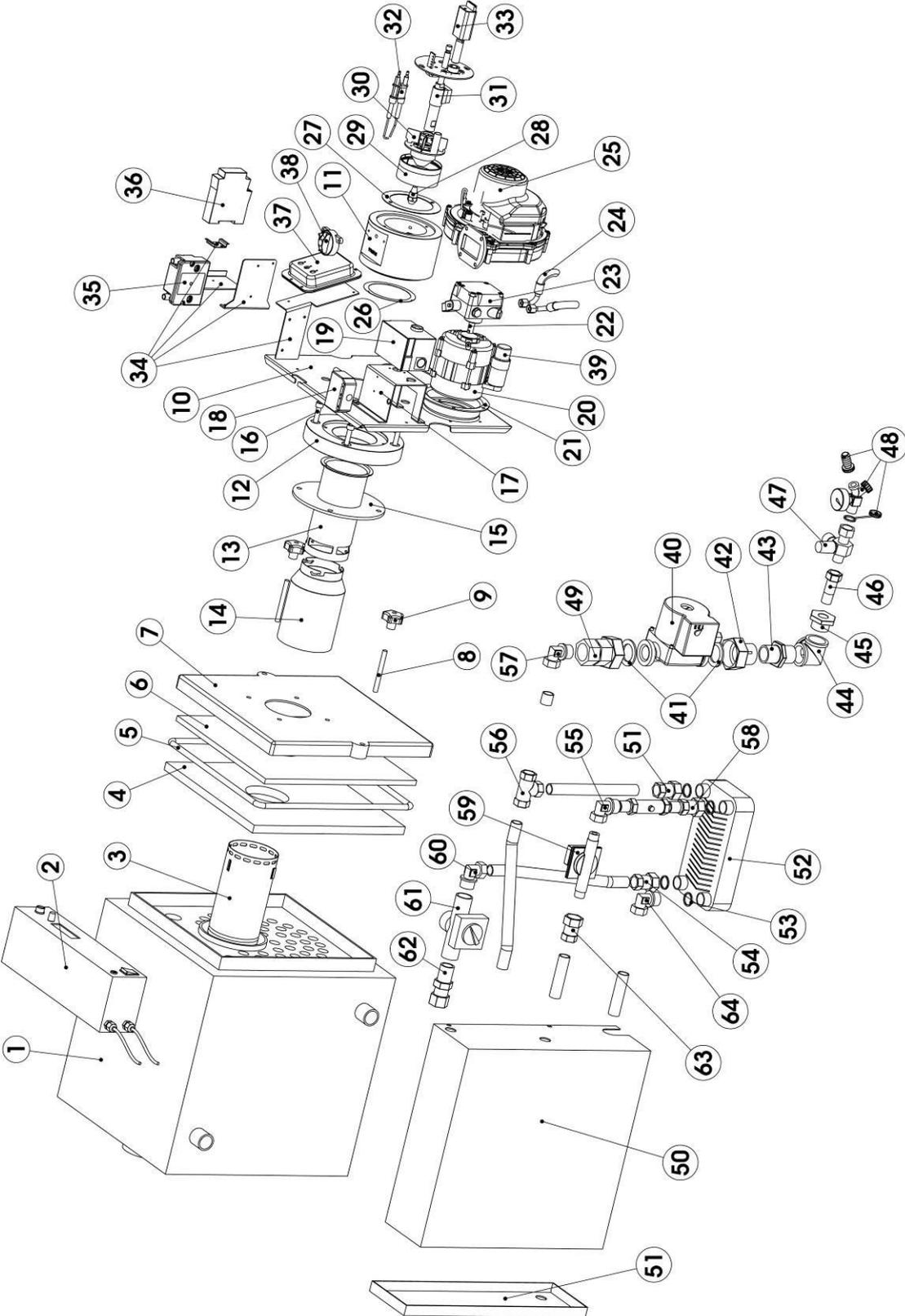
Appendix B Troubleshooting

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.**

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
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 of burner
8 x blinks, alarm on terminal 10	Time supervision oil preheater	Oil preheater failed 5 times during prepurging
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) Boiler thermostat incorrectly adjusted	Remove wire from main connector between T1 and T2 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)

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

Appendix C Boiler parts



Pos	Description	Article number
1	Boiler housing	
2	Frontpanel KB combi Hybrid	69-013
3	Stainless steel efficiency tube only KB20	44-005
4	Insulation boiler KB40 300 x 300 x 20 mm	46-005
4	Insulation boiler KB45/KB50 327 x 299 x 20 mm	47-005
4	Insulation boiler KB75 420 x 360 x 20 mm	49-005
5	Door gasket	9-1083
6	Insulation door KB40 282 x 282 x 15 mm	46-004
6	Insulation door KB45-KB50 310 x 282 x 15 mm	47-004
6	Insulation door KB75 404 x 342 x 15 mm	49-004
7	Door	-
8	Bolt M10	-
9	On request	-
10	Burner plate	-
11	Burner Block Module	52-001
12	Ring adapter for burner module	52-002
13	Adapter tube 80 x 1.5 x 109 mm	52-003
14	Burner tube KB-serie	52-004
15	Seal for KB-burner	52-005
16	Door bolt with shim	52-006
17	Feed burner control LOA24	52-007
18	Burner connector 7 pole KB-series	52-008
19	Burner control LOA24	52-009
20	Motor 70 watt	52-010
21	Bearing plate for oil pump motor	52-011
22	Oilpump coupling KB-series	52-012
23	Scheer oil pump KB-series	52-013
24	Oilhose KB-series	52-014
25	Blower fan RG148 KB-series	52-015
26	Seal adapter tule	52-016
27	Seal for nozzle stem retaining plate	52-017
28	Nozzle KB40	52-019
28	Nozzle KB50	52-046
28	Nozzle KB45	52-020
28	Nozzle KB75	52-021
29	Dosage ring KB-series	52-022
30	Mixing cartridge complete KB40	52-024
30	Mixing cartridge complete KB45	52-025
30	Mixing cartridge complete KB50	52-025
30	Mixing cartridge complete KB75	52-026
31	Nozzle holder complete KB40	52-027
31	Nozzle holder complete KB45-KB50	52-028
31	Nozzle holder complete KB75	52-029
32	Electrode KB40-KB45	52-030
32	Electrode KB50-KB75	52-031
33	Flame detector KLC2002	52-032
34	Mounting plates for number. 35, 36 en 37	-
35	Ignition transformator	52-033

Pos	Description	Article number
36	After purge relais	52-034
37	Control board for fan speed KB40	52-036
37	Control board for fan speed KB45	52-037
37	Control board for fan speed KB75	52-038
38	Pressure sensor KB-series	52-039
39	Condensator KB-series	-
40	Circulation pump 230V 130 high	9-I053
41/42/43/49	Locking pump coupling set Kabola	24-x063
44	Knee type221 1"	18-S482
45	Conversion ring 1" bui x ½" bin	18-S297
46	Pipe nipple ½" x 120 mm	18-S483
47-48	Fill and pressure gauge	9-I015
50	Tap casing	-
51	Back of tap casing	-
52	Heat exchanger	24-x091
53	Viber ring	-
54	¾"Flexible hose 22 mm	51-003
55	Bras Knee ½"ins. X ½" out.	51-004
56	T-connection 22 x 22 x 22 mm	17-R080
57	Knee coupling 1"out x 22 mm	17-R125
58	Ball valve ½"out x ½"out	51-005
59	Prefer switch	9-I018
60	Knee coupling 1" out x 22 mm	17-R125
61	3-way valve Hybrid 230V	69-011
62	Coupling 1 "out x 22 mm	17-R149
63	Coupling ½" ins. x 15 mm	17-R157
64	Knee coupling ½" x 15 mm	17-R068

Spareparts list model 2016- 2018

7.1 Spare parts

Nr.	Description	KB 20	KB 40	KB 45	KB 50	KB 75
1	Boiler KB complete	44-001	46-001	47-001	48-001	49-001
2	Dashboard KB-series	9-1080	9-1080	9-1080	9-1080	9-1080
3	Stainless steel efficiency tube					
4	Insulation boiler	44-004	46-005	47-005	48-005	49-005
5	Door gasket cord	13-M084	13-M084	13-M084	13-M084	13-M084
6	Insulation door	44-003	46-004	47-004	48-004	49-004
7	Door	-	-	-	-	-
8	Bolt	-	-	-	-	-
9	Door mounting nod KB-series	9-1089	9-1089	9-1089	9-1089	9-1089
10	Bearing Plate for Burner	015958	015958	015958	015958	015958
11	Burner Block module (26+27 incl.)	015966	015966	015966	015966	015966
12	Ring adapter	015967	015967	015967	015967	015967
13	Adapter tube Ø 80 x 1,5 x 109 mm	016119	01611901	01611902	0161102	01611903
14	Burner tube	015110	015110	015110	015111	015111
15	Seal for burner	031430	031430	031430	031430	031430
16	Door bolt with shim	015365	015365	015365	015365	015365
17	Distribution board	015968	015968	015968	015968	015968
18	Seal air pressure controller	015181	015181	015181	015181	015181
19	Oil burner controller LOA 24.171.827	020100	020100	020100	020100	020100
20	Oil pump motor 70 Watt	015138	015138	015138	015138	015138
21	Bearing plate for oil pump motor	015366	015366	015366	015366	015366
22	Oil pump clutch	010292	010292	010292	010292	010292
23	SCHEER oil pump AL - 35 - C	011236	011236	011236	011236	011236
24	Oil line	041411	041411	041411	041411	041411
25	Fan RG 148	015112	015112	015112	015112	015112
26	Seal for adapter tube	015170	015170	015170	015170	015170
27	Seal for nozzle stem retaining plate	015172	015172	015172	015172	015172
28	Nozzles	022276	022277	022368	022370	022373
30	Mixing cartridge complete (29, 32 incl.)	0153800	0155504	0153830	0153840	0153850
31	Nozzle holder complete (nozzle holder with oil heater FPHB 5, KLC holder, cable for preheating, ignition cable)	015471	015471	015472	015473	015474
32	Electrodes	015332	015332	015332	015333	015333
33	Flame detector KLC 2002	020064	020064	020064	020064	020064
34	Bearing plates for 36, 35, 37 (screw incl.)	015367	015367	015367	015367	015367
35	Ignition unit EBI4	010276	010276	010276	010276	010276
37	Control board for fan speed	015374	015376	015377	015378	015379
38	Air pressure controller	015180	015180	015180	015180	015180
39	capacitor 3 µF /100°C	010294	010294	010294	010294	010294

Appendix D 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

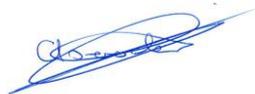
to which this declaration relates complies with the following standards

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, 18th February 2015



Arie van Soolingen
Managing Director

Appendix E 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
efficiencies of new hot water boilers

**Produkt-ID-Nummer**

Product-ID-number

CE-0045CMKD 2350

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

Hannover, den 11. März 2011

(Der Leiter)

TÜV NORD Systems GmbH & Co. KG
Große Bahnstraße 31, D-22525 Hamburg
Leitender (LNA) 0507/41 - FBR (DNL) 0507/4050

TÜV NORD Systems GmbH & Co. KG

Einzelprüfstelle für die Module B, C, D und E der Richtlinie 92/42/EWG
qualifiziert seit der EIA/03/04, unter Nr. 0840
Für Übersichts- und Zertifikatsanträge siehe die Leitfadenanforderungen

tuv.nord

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 P¹) = 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.



TUV NORD Systems GmbH & Co. KG
Große Bahnstraße 31, D-22525 Hamburg
+49 (0) (410) 0001-0 - F (0) (410) 0001-6500

TUV NORD Systems GmbH & Co. KG

Besondere Stelle für die Module B, C, D und E der Richtlinie 92/42/EWG
(bestimmen bei der EUROCE, unter Nr. 940)
Prof. Überwachungs- und Zertifizierungsstelle nach den Landesbestimmungen

TUV NORD

Warranty Conditions

Appendix F 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 appliance 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 from 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 B.V.

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