

Operating Manual

Oil Fired Heater B 380



Perfection on principle



EC - Declaration of Conformity

according to machine directive (2006 / 42 / EC), appendix III B

We herewith declare that the below described machine is designed, constructed and manufactured in accordance with the above mentioned EC directive. In case of an none authorized change of the machine this declaration loses its validity.

Distributor	Hans Wilms GmbH & Co. KG Erftstr. 34 D - 41238 Mönchengladbach
Structure of the machine	Portable oil fired heater without heat exchanger
Description	Portable heater
Product name	B 380
Relevant EC-Directives	Machine directive 2006 / 42 / EC EMC directive 2014 / 30 / EU Low voltage directive 2014/ 35 / EU

Following harmonized standards have been used:

DIN EN 62233:2008	Electromagnetic compatibility (EMC)
DIN EN 61000-3-2:2014	Electromagnetic compatibility (EMC)
DIN EN 61000-3-3:201	Electromagnetic compatability (EMC)
DIN EN 55014-1:2006/A2:2011	Electromagnetic compatability (EMC)
DIN EN 55014-2 :2015	Electromagnetic compatability (EMC)
DIN EN 60335-1:2012/A11:2014	Safety of electrical appliances for use at home or similar purposes
DIN EN 60335-2-102:2016	Safety of electrical appliances for use at home or similar purposes



Mönchengladbach, 20.05.2022

Jochen Wilms, Managing Director

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1. Important Notice !

Use only clean (if possible filtered) Heizöl EL (Diesel).

Clean fuel filter regularly.

ATTENTION !

Notice: Heizöl EL changes viscosity in low temperature.

This heater is **standard** equipped with a fuel preheating device. This requires also during the heating interruptions (during the night, on weekends) tension, so it remains effective. Therefore, leave the plug into the socket.

When ordering spare parts please give the type, serial number of the heater and the part number, otherwise a correct delivery is not possible.

The admissible ambient temperature for securing the function of the control is – 15°C and max. + 50°C. This is to be especially taken into consideration whilst drying grain or using the heater outdoors.

The heater resp. the flame control has to be protected against direct influence from the bright sun light.

Technical specifications are subject to changes without any notice!

2. Information in this Operating Manual

This manual contains information and procedures for the safe operation and maintenance of Hans Wilms GmbH & Co. KG hot air turbines series B 380. For your own safety and to protect yourself from injury, you must read the safety instructions in this manual carefully to familiarize yourself with them and to observe them at all times.

The manufacturer expressly reserves the right to make unannounced technical changes if they serve to improve the performance or the safety standards of the device.

The information contained in this manual is based on devices that were manufactured up to the time of printing. The manufacturer reserves the right to make unannounced changes to this information.

A spare parts list is included for ordering spare parts. If these operating instructions are missing, a replacement can be requested from Hans Wilms GmbH & Co. KG.

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This manual refers to approved spare parts, additional devices and changes. The use or implementation of non-approved components, accessories or modifications can have the following consequences:

- Risk of serious injuries to the operator and other people in the work area
- Permanent damage to the device that is not covered by the guarantee

3. Safety Information



Important! Please read these operating instructions carefully before putting the device into operation.

Keep these instructions for future reference and spare parts orders.



Important! This air heater was developed for mobile and temporary professional applications. It is not intended for domestic use or for the thermal comfort of humans!



Important! The device is not intended for use by persons (including children) with limited physical, sensory or mental abilities, lack of experience or knowledge unless they are supervised by a person responsible for their safety. Children must be supervised to make sure they are not playing with the device.



Danger! Poisoning by carbon monoxide can be fatal. The first symptoms of carbon monoxide poisoning is similar to flu with headache, dizziness and/or nausea.

These symptoms could have been caused by incorrect functioning of the heater.

In this case, you should immediately turn off the device, go outside and have the heater checked by a customer service as soon as possible.

- When using the heater, comply with all local requirements and the applicable legislation.

- Only use in well-ventilated areas. In accordance with the applicable regulations, to ensure appropriate opening, through which fresh air can be supplied from the outside.

- Use only grounded and sufficiently sized extension cables.
- Recommended minimum safety distances between the heater and flammable substances:
front exit = 2.5 m; side, top and back = 1.5 m.
- Place the hot or operating heater on a stable and flat surface to avoid danger of fire.
- Keep animals at a safe distance from the heater.
- Disconnect the heater from the mains socket when not in use.
- Attention! If the heater is controlled by a thermostat, it can start in any turn on the moment.
- Never block the air inlet opening (at the back) and the air outlet opening (at the front) of the heater or change it with pipes or ducts.
- Keep an appropriate distance between flammable or heat-sensitive objects (including the supply line) and the hot parts of the heater.
- If the supply line is damaged, it must be replaced by technical support.



NOTE: The packaging material is not a toy for children. Keep the plastic bag out of the reach of children, there is a risk of choking!

- Remove all packaging materials using for packaging and shipping of the heater. Dispose of them in accordance with the applicable regulations.
- If the heater was delivered on a pallet, lift it carefully down from it.
- Check the device for any transport damage. If the heater appears damaged, immediately notify the dealer from whom it was purchased.

4. Important Notice – Read carefully before operating

The B 380 warm air heater (WLE) is an oil-fired hot air turbine without heat exchanger in a mobile version.

The hot air turbine must not be placed near explosive or highly flammable materials and must not be used in explosive and fire-hazardous rooms. It is also prohibited to install it in rooms with a large amount of dust. A sufficient safety distance from combustible material, such as wood, etc., must be ensured. Good ventilation of the rooms is a condition. Any handling or transport of the running device must be omitted.

When using the hot air turbine for grain drying, the installation in front of the dry blower must be carried out at right angles or at a sufficient distance so that the function of the heater is not impaired by the large suction power of the drying blower.

When using the hot air turbine, the manufacturer's operating and maintenance regulations, the local building police, fire protection and professional association regulations must be observed.

When operating the hot air turbine, the accident prevention regulation "**Heating, flaming and melting equipment for construction and assembly work**" must be observed, according to which the devices may only be installed in rooms if

- the appliances are used for combustion sufficient amount of air is supplied and
- the exhaust gases are guided via exhaust trains into the open air.

A sufficient natural air supply for combustion is given if, for example:

- the volume in m^3 corresponds to at least 10 times the nominal heat output in kW of all devices in operation in the room, and
- a natural air exchange is ensured by windows and doors. A good, natural ventilation is given, if e.g.
- the volume in m^3 corresponds to at least 30 times the nominal heat output in kW of all devices in operation in the room and a natural air exchange is ensured by windows and doors, or
- there are non-closable openings for supply and exhaust air near the ceiling and floor, the size of which in m^2 corresponds to at least 0.003 times the nominal heat load in kW of all devices in operation in the room

An unfavorable concentration of harmful substances in the breathing air is not to be expected as long as the MAK values are below and the oxygen content of the air is more than 17 vol. %.

Note: If the two above possibilities for good, natural ventilation are given, it can be assumed that the limit values for oxygen content and concentration of harmful substances (MAK values) are complied with.

The hot air turbine may only be operated by persons who are instructed in the operation and maintenance of the equipment.

Persons instructed are those persons who, if necessary, have been trained and informed of the tasks assigned to them and of any possible dangers.

On construction sites, the device may only be connected via special supply points, generally construction power distributors with RCDs (VDE 0100, Part 704).

Repair and maintenance work on the electrical equipment may only be carried out by an electrician.

The devices must be tested for their safe working condition according to the conditions of use as required, but at least once a year by an expert. The results of the examination must be recorded in writing and kept until the next examination.

5. Functional Description

The unit is equipped with an attached fuel tank, low-maintenance axial fan, a high-pressure atomization burner with automatic flame monitoring, connection cable with plug, room thermostat socket and quadruple filter system.

Functioning:

After switching on the device or when heat is required (room thermostat), the fan switches on. After the pre-ventilation time of about 10 seconds (the control lamp of the control unit flashes red), the solenoid valve opens the fuel supply to the nozzle. The fuel is atomized via the nozzle and ignited with a fixed amount of oxygen mixed by an electrical spark.

If the flame burns properly, the control unit takes over the flame and switches off the ignition. The control lamp (simultaneously reset button) of the controller lights up green.

In case of possible malfunctions or unstable combustion, the device is switched off by flame monitoring. The interference lamp of the control unit lights up permanently red. A restart can only take place after manual unlocking (about 2 seconds pressing the reset button) of the controller.

If the device overheats, the safety thermostat (STB) interrupts the current supply to the solenoid valve and triggers a fault in the control unit due to the absence of a flame.

After switching off, the device runs time-controlled for about 1 minute.

6. Assembly

The device is delivered assembled, and can thus be put into operation. For better drivability with a full tank, it is recommended to move the chassis (before refueling) as shown in figure 1.

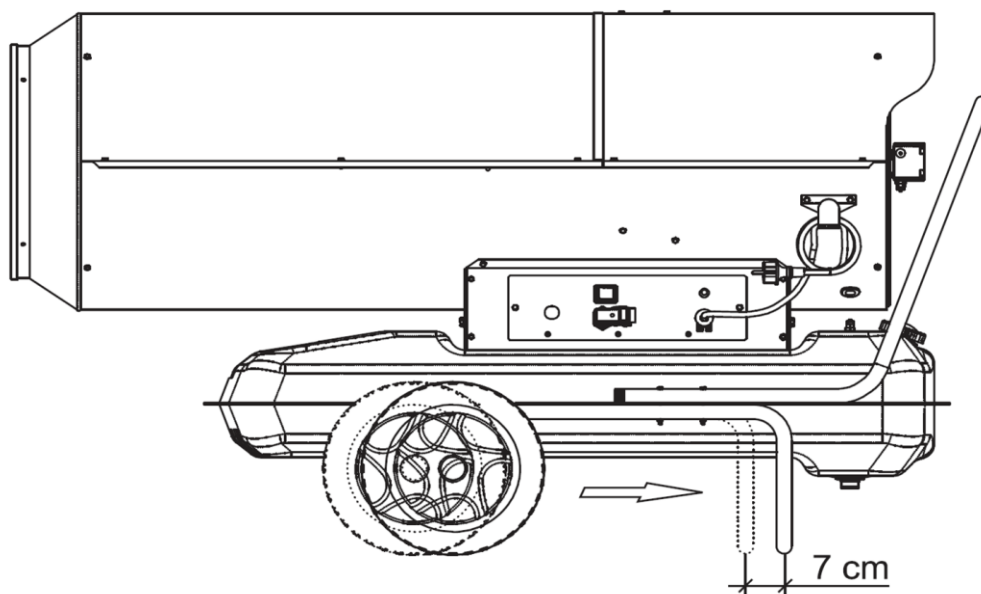


Fig. 1

Operation with room thermostat:

For temperature-dependent control, room or damp room thermostats with plug and approx. 10 m cable are optionally available. If a thermostat is to be connected, the bridge plug must be removed from the thermostat socket, and the thermostat plug must be plugged in there, and fixed with the bracket (Fig. 2). If the thermostat is not in use, the bridge plug must be plugged back in, as the device will not work without it.

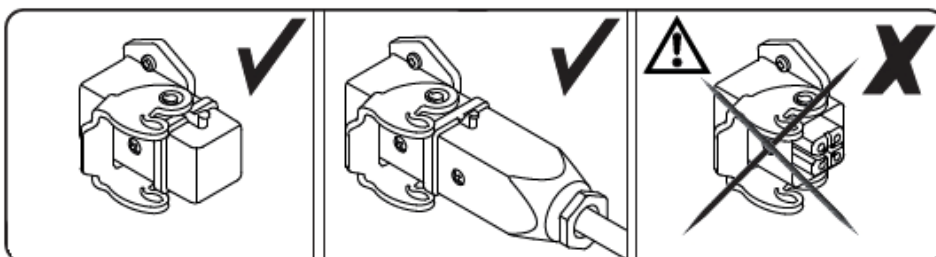


Fig. 2

7. Fuel System

- The personnel responsible for refuelling must be qualified and fully familiar with the manufacturer's instructions and the applicable regulations regarding the safe refuelling of the heaters.
- Use only the type of fuel indicated on the type plate of the heater. Use the tank filling screen and do not remove it, for example, to speed up the refueling process!
- Before refuelling, turn off the heater and wait for it to cool down.
- The storage tanks for the fuel must be located in a separate room.
- All fuel tanks must maintain a sufficient safety distance from the heater in accordance with the applicable regulations.
- The storage of the fuel must be carried out in accordance with the applicable legal regulations.

8. Set Up

The B 380 heater is installed at the place of use. Fill the fuel tank with clean, light heating oil EL or comparable fuel. Do not overfill, maximum 95 liters.

The electrical connection is made via an attached power cable with safety plug to a 230V/50 Hz power supply. On construction sites, the device is only connected via special supply points, generally construction power distributors with FI-protection switches (DIN VDE 0100-704).

When using a room thermostat, place it in a suitable place (preferably not in direct hot air flow) and connect it to the thermostat socket after the bridge plug has been removed. The thermostat is equipped with a cable length of about 10 m, and should be hung within the room to be heated. If the set temperature is above the actual room temperature, the heater (when the power button is switched on) starts automatically and switches off again automatically when this temperature is reached.

9. Operation

Starting:

Switch the power button to position "1", if a room thermostat is used, set it to a temperature above the actually existing room temperature.

The blower motor starts, and after a pre-aeration phase of about 10 seconds, the flame is formed.

Stopping:

Switch the power button to position "0", if a room thermostat is used, set it to a temperature below the actual room temperature. The device runs time-controlled for about 60 seconds to cool down. Only when the follow-up is finished, the device may be disconnected from the mains!

Malfunction:

In case of an empty tank, abnormal combustion, dirty photocell, overheating or other defects, the control unit detects a problem, interrupts the operating process, and indicates a fault caused by permanent red light of the indicator light. This also serves as a reset button for acknowledging the fault, which is retained even after the mains voltage has been switched off.

First determine and eliminate the cause of the fault before you disturb the control (by pressing the remaining button for about 2 seconds).

10. Maintenance

Depending on the conditions of use and frequency of use, the maintenance intervals can be very different. However, the device should be cleaned at least once a year and tested for function and safety. Maintenance and repair work should only be carried out by persons with the necessary expertise.

Clean the fan wheel, the burner, the storage disc, the electrodes and the fuel filters in the tank filler neck, filter housing, fuel pump and nozzle.

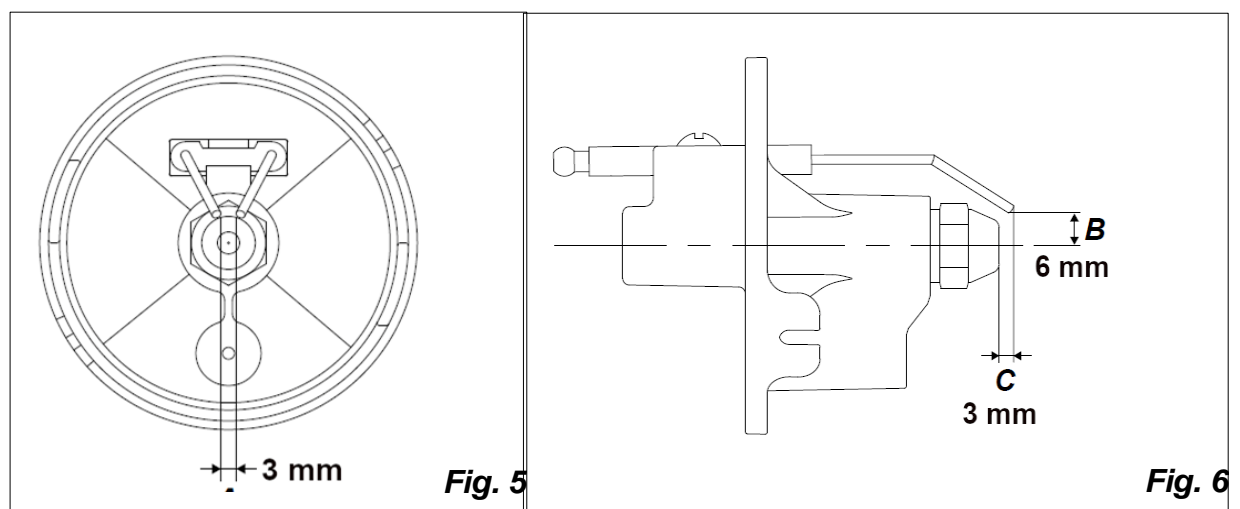
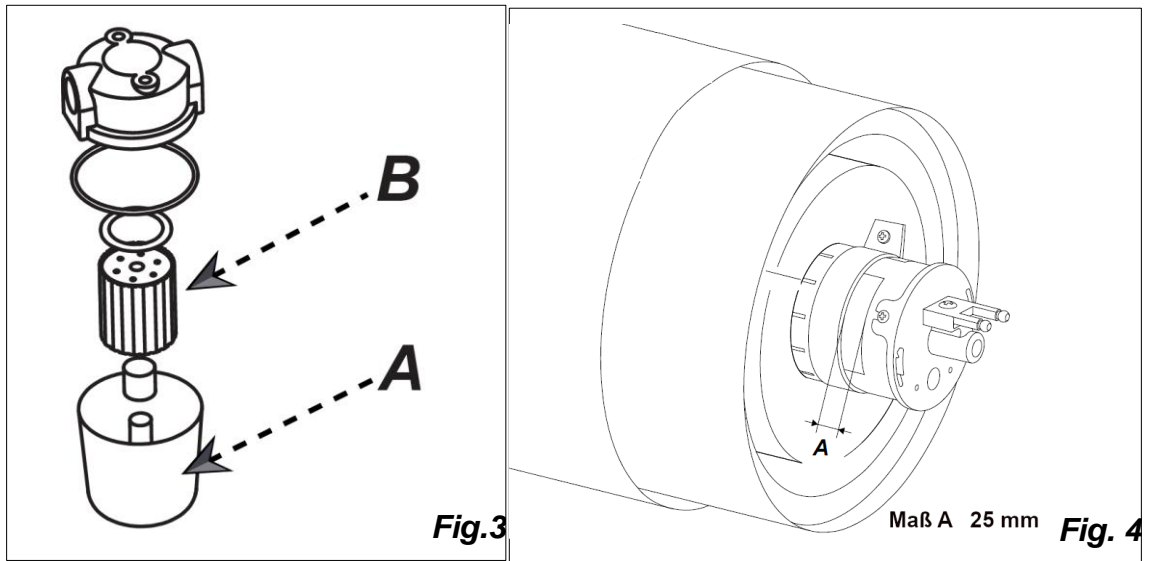
Replace defective or worn parts with original spare parts immediately. When ordering spare parts, always specify the device type and serial number.

During cleaning work, always disconnect the device from the mains and work only on the cooled device.

Note that the device does not burn correctly when the burner cover is open because of the lower amount of air.

Check the fuel tank and the filter housing A (Fig. 3) for contamination and condensation, and empty and clean if necessary. Clean the filter insert B with appropriate means or replace it. Check the condition and correct fit of the seals and replace them if necessary. A repair kit is available for this purpose (spare parts list).

Check - and correct, if necessary - the adjustment of the air volume (Fig. 4), the oil pressure and the electrodes (Fig. 5 + 6), and pay attention to the installation of a burner nozzle of the correct type, size and spray angle. The correct values can be found in the drawings, spare parts lists and technical data.



11. Storage and Transport

Note: Before any change of location, the device must be switched off and cool down sufficiently. Unplug it from the outlet, make sure that the fuel cap and drain plug are tightly closed, and transport the device straight.

When unloading, loading and transporting with forklifts, use forks that completely drive under the pallet.

Severe personal injury or property damage caused by crashing loads. Observe the safety regulations of the conveyor vehicles and means of transport. Do not stop under floating loads!

If possible, store the device with an emptied and cleaned tank, and dustproof, but not airtight (condensation moisture) packed in a dry and safe place.

12. Environmental Protection and Recycling

The heater is made exclusively from high-quality materials, most of which are recyclable.



Dispose of packaging material

Dispose of the packaging material in accordance with the locally applicable environmental regulations.

Disposal of waste electrical and electronic equipment (WEEE) For customers in EU countries

This device is subject to the European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and the corresponding national laws. The WEEE directive provides the framework for an EU-wide treatment of waste electrical equipment.



The device is marked with the symbol of a crossed-out waste bin. This means that you must not dispose of it with normal household waste, but rather dispose of it in an environmentally friendly manner in a separate collection.

This device is intended as a professional electrical tool for exclusively commercial use (so-called B2B device according to the WEEE Directive). In contrast to devices predominantly used in private households (so-called B2C devices), this device may therefore not be handed over to the collection points of the public waste disposal providers (e.g. municipal recycling centres) in some EU countries, e.g. in Germany. In case of doubt, please inform yourself at your point of sale about the prescribed disposal route for B2B electrical appliances in your country and ensure disposal in accordance with the applicable legal regulations. Please also note any information on this in the purchase contract or in the general terms and conditions of your point of sale.

Proper disposal of this device avoids negative effects on people and the environment, serves the targeted treatment of pollutants and enables the reuse of valuable raw materials.

Note: The electronic components are subject to special regulations for disposal.

Help protect the environment by ensuring that your old device is only disposed off in an environmental-acceptable way!

13. Possible Faults and Solving

Fault	Cause	Remedy
Device plugged-in, power button on "I", device does not start	No mains voltage available	Check socket/extension/cable drum
	When using a room thermostat, the temperature in the room is higher than the set temperature	Setting room thermostat to higher temperature
	Power supply or power button defective	Check by customer service
	Bridge plug of the thermostat socket not plugged in	Attaching the bridge plug
	Control indicates fault	Determine and eliminate the cause, suppress control

Fault	Cause	Remedy
Device starts, flame is formed, control goes to fault after a few seconds	Flame too dark, irregular or poor combustion	Check the setting, check the filter and nozzle for dirt
	Photocell dirty, flame is not detected	Clean photocell
Device starts, no flame formation, control goes after a few seconds on fault	Tank empty	Check tank level, refuel
Unclean, restless combustion, smoke formation	Filter/nozzle dirty	Clean or replace the filter and nozzle
	Unsuitable or polluted fuel	Check the tank, empty and clean, fill with clean heating oil EL
Device goes on fault after a long runtime	Filters, oil pipes or tank ventilation clogged	Check and clean
	Lack of oxygen due to lack of ventilation	Ensure sufficient ventilation, check room size
	Overheating of the device	Keep supply and exhaust air paths clear, check fan and grille for contamination, as well as setting oil pressure / air volume and nozzle size

Please note that maintenance and repair work may only be carried out by experts with appropriate expertise. If in doubt, contact your dealer, your customer service center or the manufacturer! Technical specifications are subject to changes without prior notice!

14. Technical Data

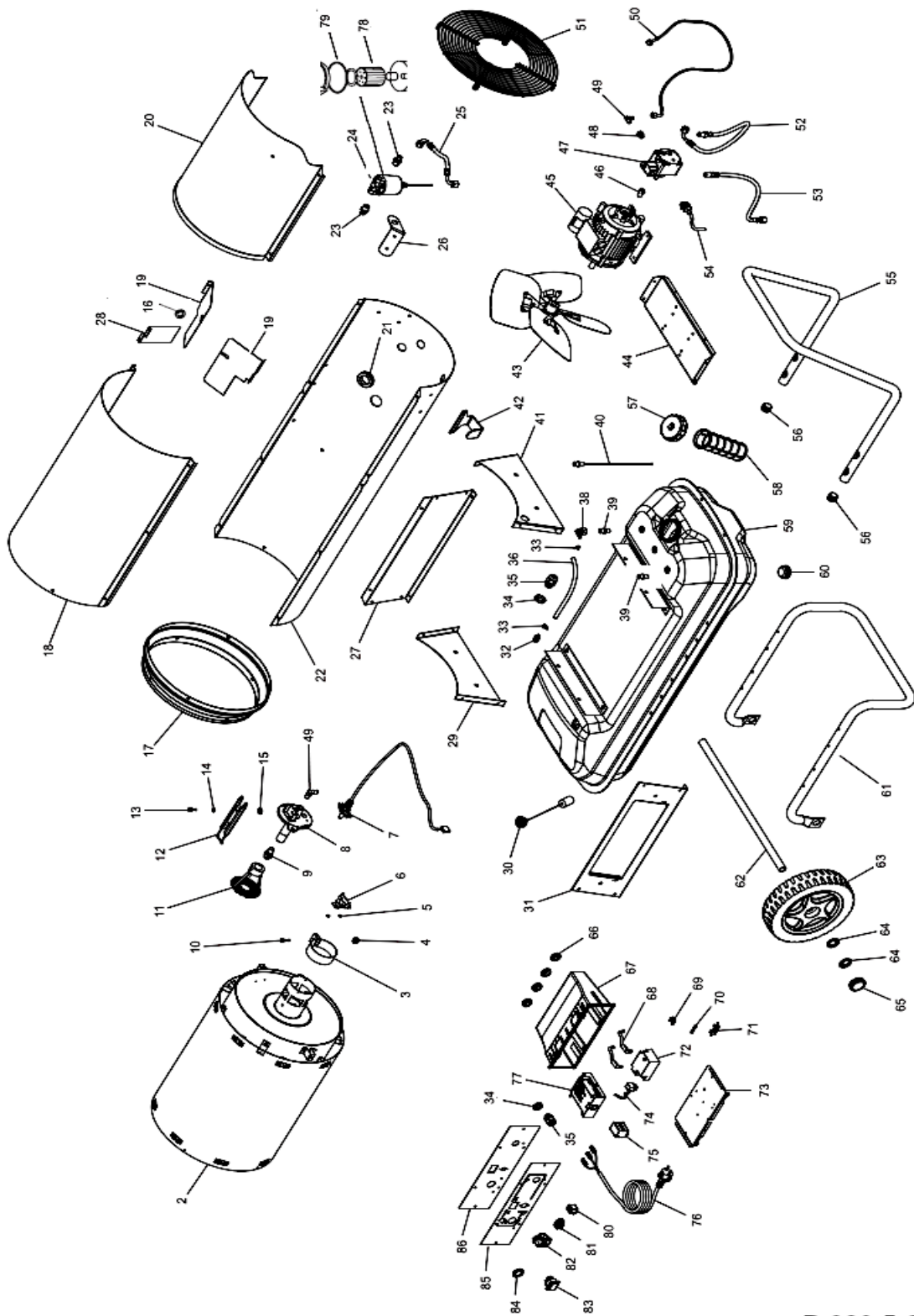
Type:	B 380
Order number:	1081380
Capacity:	111,0 kW / 95460 kcal/h / 379.000 BTU/h
Air volume:	3300 m ³ /h
Fuel consumption:	8,83 kg/h
Burner nozzle:	2,0 GpH 80°H Danfoss
Pump pressure:	13 bar
Voltage:	230 V / 50 Hz
Power consumption:	4,6 A
Rated current:	1,06 kW
Weight:	82 kg
Tank capacity:	105 l
Dimensions:	1605 x 685 x 930 mm
Diameter air outlet:	400 mm
Protection class:	IP 44

15. Spare Parts List B 380

<u>Pos.</u>	<u>Order-No.</u>	<u>DESCRIPTION</u>	<u>Qty.</u>
2	6163601	Combustion chamber	1
3	6163602	Air regulation	1
4	6163603	Cage nut	1
5	6163604	Spacer	1
6	6163605	Safety thermostat	1
7	6163606	Photocell	1
8	6163607	Burner head	1
9	6163608	Nozzle	1
10	1138060	Screw M6x18	1
11	6163610	Burner head diffuser	1
12	6163615	Twin electrode	1
13	5940331	Screw M5x16	1
14	6163617	Spring ring 5 mm	1
15	6163618	Disk	1
16	6163619	Cable gland	1
17	6163620	Outlet cone	1
18	6163625	Cover	1
19	6163626	Air deflector	2
20	6163628	Upper shell	1
21	6163629	Grommet	2
22	6163630	Lower shell	1
23	6163631	Double nipple	2
24	6163632	Filter with oil preheater	1
25	6163636	Fuel pipe tank filter	1
26	6163637	Holder filter	1
27	6163638	Lateral panel – right	1
28	6163639	Air deflector	1
29	6163640	Front panel	1
30	6163641	Fuel gauge	1
31	6163642	Lateral control panel – left	1
32	6163643	Breath valve	1
33	6163644	Clip	2
34	1139254	Nut	2
35	6160593	Strain relief bushing	2
36	6163645	Rubber pipe	1
38	6163646	90° Air connection	1
39	6163647	Straight connection	1
40	6163648	Suction pipe	1
41	6163649	Rear panel	1
42	6163650	Power cord bracket	1
43	6163655	Fan wheel	1
44	6163656	Motor support	1
45	6163657	Motor	1

Use only original parts from the manufacturer for repair!

Exploded View B 380



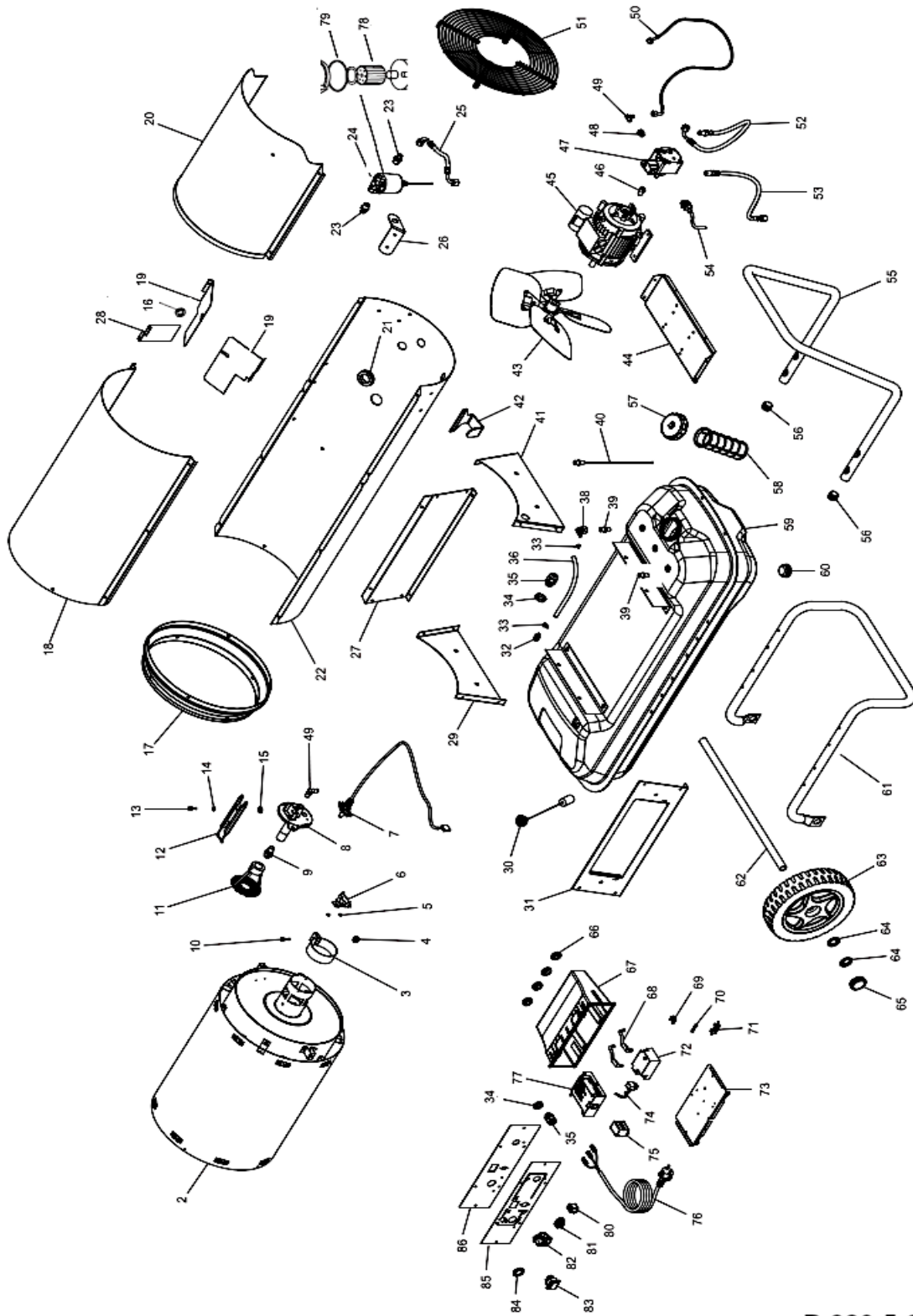
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15. Spare Parts List B 380 Page 2

<u>Pos.</u>	<u>Order-No.</u>	<u>DESCRIPTION</u>	<u>Qty.</u>
46	3308072	Coupling	1
47	6163658	Fuel pump	1
48	6160591	Reduction sleeve	1
49	6163659	90° Fuel connection	2
50	6163660	Fuel flexible pipe	1
51	6163661	Grille	1
52	6163662	Fuel pipe pump filter	1
53	6163663	Fuel pipe pump tank	1
54	6163664	Pump valve power cord	1
55	6163655	Handle	1
56	6163666	Handle cap	2
57	6163667	Tank cap	1
58	6163668	Tank filter	1
59	6163669	Tank	1
60	6163670	Tank drain cap	1
61	6163675	Chassis	1
62	6163676	Axle	1
63	6163677	Wheel	2
64	6163678	Block washer	4
65	6163679	Wheel cap	2
66	6160452	Cable bushing	4
67	6163680	Housing	1
68	6163681	Ignition cable	2
69	6160464	Plug distributor earth	1
70	6163682	Fuse F10A	2
71	6163683	Fuse holder	1
72	6163684	Transformer	1
73	6163685	Control panel base	1
74	6163686	Cord	1
75	6163687	Relay	1
76	6163688	Power cord	1
77	6163689	Control box	1
78	6163635	Filter insert	1
79	6163633	Gasket kit filter	1
80	6160160	Jumper	1
81	6160532	Plug insert	1
82	6160533	Jack housing	1
83	6163690	Switch	1
84	6163691	Cap	1
85	6163692	Sticker	1
86	6163693	Control panel	1
not illustrated	6163694	Screw (Housing)	30

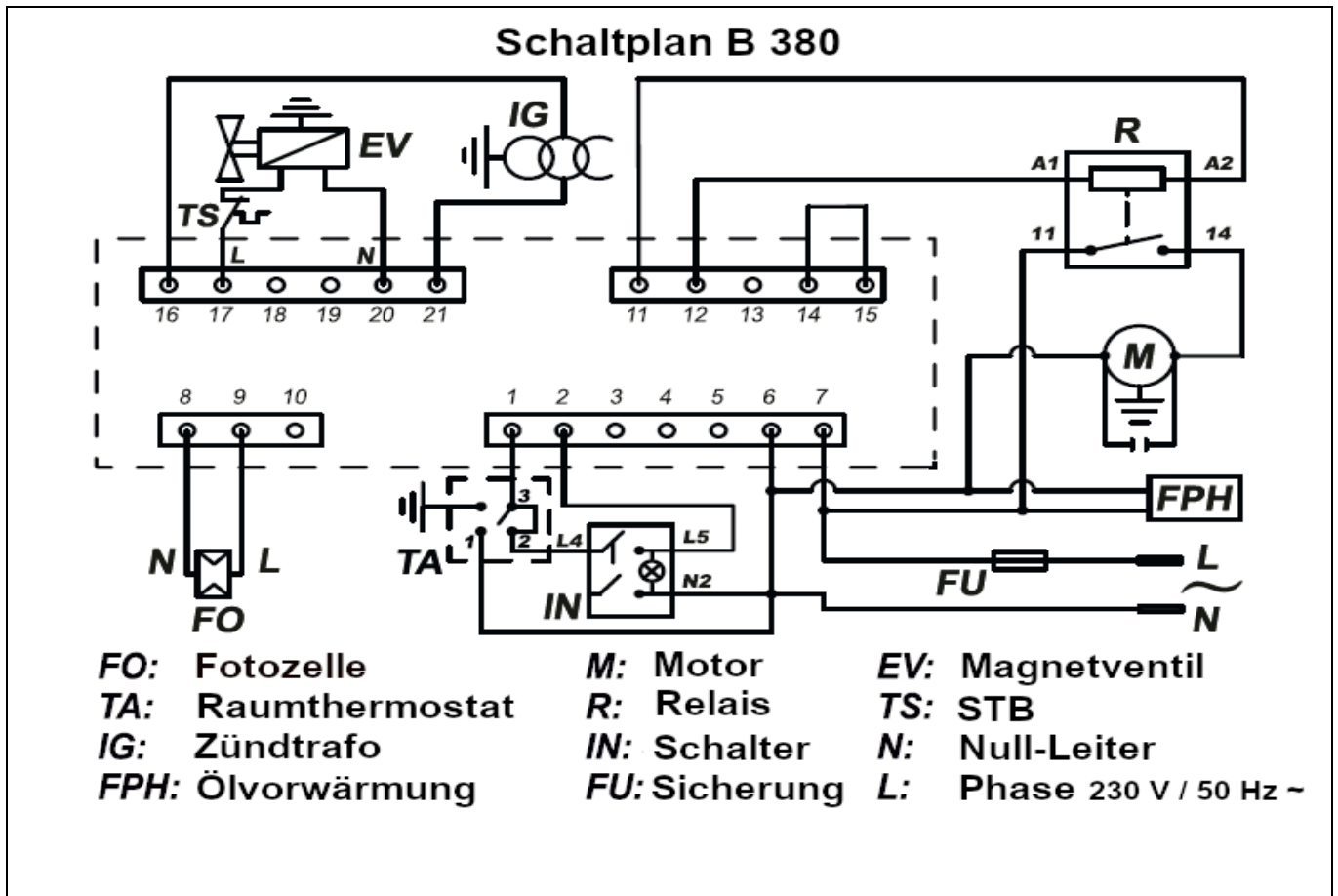
Use only original parts from the manufacturer for repair!

Exploded View B 380



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17. Wiring Diagram



Pos.	Order-No.	Description	Qty.
FO	6163606	Photocell	1
TA	6160160	Jumper (or room thermostat - optional, see accessories list)	1
IG	6163684	Ignition transformer	1
FPH	6163632	Filter with oil preheater	1
M	6163657	Motor	1
R	6163687	Relay	1
IN	6163690	Switch	1
FU	6163682	Fuse F10A	1
EV	6162701	Solenoid valve complete	1
TS	6163605	Safety thermostat	1