

REMKO HTL 400

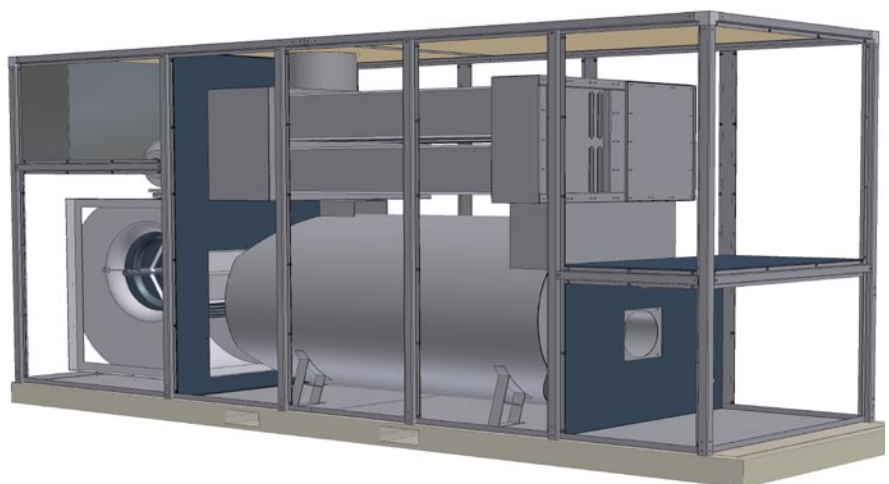
Oil-fired Heating Centers

Operation · Technology



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Before commissioning / use of the device, these operating instructions must be read carefully!

These instructions are a part of the device and must thus always be kept in the direct vicinity of the assembly site or on the device itself.

Subject to change; we do not accept liability for errors and typographical errors!

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Safety Notices

When using the device, always observe the respective local construction and fire protection ordinances as well as the regulations of the employers' liability insurance association

- The device must only be operated by persons who have been trained in their correct use.
- The device must be set up and operated in such a way that nobody is in any danger from exhaust gases, hot air or radiant heat and the danger of fire is prevented.
- The device must only be operated in rooms where there is an adequate supply of air to support combustion.
- Without chimney ducting, the device must only be operated within well-ventilated rooms. The permanent presence of persons at the set-up site is not permitted under such circumstances. Corresponding prohibition signs must be posted at the entry ways.
- A safety zone of 1.5 m around the device must be observed, also for non-flammable objects.
- The device must only be set up on a level and non-flammable surface
- The device must not be set up or operated in an environment where there is a hazard of fire or explosion
- All electrical lines of the device must be protected from damage (e.g. due to animals)
- The device may not be exposed to a direct water spray **e.g. high pressure hoses etc.**
- Mobile fuel-tanks may only be used in compliance with the "TRBF 210 und 280" technical regulations for combustible fluids
- Possible requirements of respective local state building regulations must also be observed
- The intake guard grille must always be free of dirt and loose objects.
- Never insert foreign objects into the device
- Before all work on the device, the mains plug must be removed from the mains socket
- Safety devices must never be short-circuited or disabled



NOTE

For optimal operation, the device should not be used within an environment where the surrounding temperature is in excess of 25 °C.



IMPORTANT

Never interrupt the mains connection before the entire cool-down phase comes to an end (except in emergency situations).

Description of Device

The device is directly fuelled with EL heating oil or diesel fuel and designed for fully automatic, universal and trouble-free operation.

The device is fitted at the works with a large volume fuel preheater and fuel filter. All components are mounted behind a locking door to protect them from the elements. The device is operated with a separate forced air oil burner and is suitable for outside operation.

The device is fitted with a low maintenance high performance fan as well as mounted switching and controlling device.

The device is designed for two-stage operation and has an optical indicator for the individual operating functions.

The device consists of a stable frame structure supported on robust transport runners. As a guarantee for many years of operation, particularly in the open air, the frame structure and cover panels are constructed from rust free stainless steel. All internal construction parts are also assembled from corrosion-resistant material.

The device corresponds with the basic safety and health requirements of the pertinent EU regulations and is easy to operate.



IMPORTANT

Only approved forced air oil burners as LE models in compliance with DIN EN 230 und DIN EN 267 may be used.

Suitable locations for operating the device

As a directly fuelled warm air generator, the device provides immediate heat. It is exclusively used for commercial heating and ventilating purposes.

The devices are used to heat or control the temperature of sites such as e.g.

- Warehouses
- Exhibition rooms
- Fair halls
- Lightweight construction buildings
- Marquees
- Large building sites

Sequence of functions

When the device is switched on, the forced air oil burner starts automatically. This is confirmed by the green operation lamp "Heating" on the switch cabinet lighting up.

When in operation using a room thermostat, the forced air oil burner only starts up when heat is required.

The combustion chamber with heat exchanger is heated up to the target temperature of the temperature monitor (80 to 85 °C).

The thermostat (target temperature 35 to 40 °C) automatically switches on the inlet air fan prior to this.

This is confirmed by the green operation lamp "Fan" on the switch cabinet lighting up.

Hot air is blown out.

Dependent upon the heating requirement, the operation described is repeated automatically.

After the device is switched off by the operating switch or a room thermostat, the inlet air fan continues to run for a while to cool the combustion chamber and heat exchanger and then turns off automatically. This process may repeat itself several times.

Monitoring operation of the device

All functions of the device are monitored safely and fully automatically by the thermostat of the three fold combination controller and the automatic burner unit (component of the forced air oil burner).

In the event of irregularities or extinguishing of the flame, the device is switched off by the automatic burner unit.

The warning light of the automatic unit and the red warning lamp "Burner" light up on the switch cabinet.

Restarting can only be performed by means of manually resetting the automatic burner unit using the reset button "Burner" on the switch cabinet.

CAUTION

Prior to resetting the safety temperature cut-out before resuming operation, it is vital to identify the possible causes for it having been triggered.

The thermostat (TR) controls operation of the fan.

The temperature monitor (TW) limits the heating output during operation via the forced air oil burner.

The safety temperature cut-out (STB) interrupts the heating function in the case of extreme overheating or failure or defect of the TW.

The red warning lamp "Overheating" on the switch cabinet lights up.

Resetting the STB is performed using the "Overheating" reset button on the switch cabinet and is only possible after the device has cooled down.

The fan motor is controlled by a thermal overload relay. In the case of overload of the motor, operation is interrupted by the relay and the red warning lamp "Fan" lights up on the switch cabinet.

Resetting is performed using the "fan" reset button on the switch cabinet.

All electrical components are additionally protected by circuit breakers.

Resetting can only be performed after opening the switch cabinet. Prior to opening the switch cabinet, it is vital that the device is disconnected from the mains power supply.

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Setting up the device

When setting up the device, the requirements of local building regulations and heating device ordinances of the respective state must be observed.

When deciding upon an operation location at indoor and outdoor sites, requirements must be checked in respect of:

- Fire protection and company safety
- The provision of adequate safety clearance.
- The function
Room heating, open blown or ducted, low pressure or high pressure in the set-up room!
- General aspects
Heat requirement, room temperature, nominal air flow volume, air diffusion, requirements in terms of recycled or fresh air and spatial requirements.
- Chimney extraction
- Assembly, repair and maintenance facilities
- Internal set-up
Relationship between room volume and nominal heat output, particularly in the case of naturally ventilated rooms!

Setting up

- Both internally and externally, the device must be set up stably on a level, natural and non-flammable surface and outside of busy areas e.g. away from cranes.

- In the case of a soft surface, appropriate substructures must be used such as e.g. squared timber beneath the transport runners.
- The device must be set up and operated in such a way that nobody is in any danger from exhaust fumes and radiant heat and the danger of fire is prevented.
- The device must be set up in such a way that it does not constitute a source of danger or unreasonable nuisance.
Vibrations, oscillations or noises

CAUTION

When performing all tasks it must be ensured that the device is in a stress-free and horizontal position.

- The device must be set up and assembled so that it is easily accessible for repair and maintenance work.
- Operating controls, the incorrect use of which could lead to dangerous situations, are to be kept safe from possible unauthorized access.
- The device must not be set up or operated in an environment where there is a hazard of fire or explosion
- The device must only be operated in rooms where there is an adequate supply of air to support combustion and the chimneys are expelled to the outside

- An adequate supply of air for combustion is provided when e.g.
 - the contents of the room in m³ corresponds to at least the nominal thermal load in kW of all heating devices present in the room and a natural change of air through windows and doors is assured.
- Good natural ventilation is provided when e. g.
 - the room volume in m³ corresponds to at least 30 times the nominal heat output in kW of all devices being operated in the room and a natural exchange of air is guaranteed by windows and doors.

Chimney extraction

In free or open halls, the device may be used without special exhaust extraction.

For the secure expulsion of exhaust gases however, an chimney pipe of at least 1 m with integrated canopy should be used (accessories), in order to avoid causing nuisance to persons and preventing condensation in the combustion chamber.

When set up internally (closed rooms) appropriate chimney extraction is required in compliance with the regulations in force.



NOTE

To prevent damage to the combustion chamber from the precipitation of dampness (condensate) during longer exhaust operation, make sure that the chimney pipe is fitted correctly with a condensate trap.

Fuel supply

An adequate fuel supply must be maintained on site using appropriately approved safety tanks.

Free flow heating oil must be available in sufficient supply, also in the case of low external temperatures. Paraffin formation can already take place at temperatures below 5°C.

To avoid this, preventive measures must be taken such e.g. **winter proof heating oil, a heated oil tank, insulated oil pipes etc.**

Care should also be taken that the pipe diameter is suitable for the total resistance, the suction height and increased viscosity in the case of lower oil temperatures.

If required, an oil pump should be used.

It is essential that the suction pipe at the base of the tank is fitted with a foot-operated valve.

It should be noted that perfect functioning of preheated oil is only effective when the device has been supplied with power for a long period prior to starting up.

It is not possible to remove paraffin that has already separated prior to preheating of the oil. Should paraffin have already formed, thorough cleaning of the total fuel system is required.

Electrical connection

- The electrical connection of the device must be performed at a dedicated supply point with an earth-leakage circuit breaker in compliance with VDE 0100 section 55.
- The power cable required should be in concordance with the connected load of the device and the cable length as well as the local conditions.
- Cable extensions must be suitable and may only be used if they are completely unrolled or rolled up.

Hot air diffusion

The device is fitted with a special high performance radial fan. This fan is designed to selectively and effectively transport the heated air depending upon the appropriate requirements.

Diffusion of the air is best performed using pipes or special hot air or film hoses. The lengths possible are dependent upon resistance provided by the air ducting in use.

When using hot air hoses, the following points must be taken into consideration:

- Only use the hot air tubes approved by us (accessories).
- The internal overlaps on the seams of the hot air hoses must point in the direction of the air flow.

- Secure fastening of the tubes and pipes at the connection points must be observed
- To prevent heat accumulation, sharp kinks or bends should be avoided in the tubes
- Folded spiral-seam tubes should preferably be used
- Hot air or plastic tubes should only be used for straight air ducting where possible.
- Plastic tubes must not be twisted
- When heating closed rooms using hot air ducting, back pressure must not be allowed to build up.
- With increased induction temperature or resistance at the device air outlet, it is possible that the forced air oil burner is switched off briefly by the temperature monitor (TW). **After reduction of the temperature the burner will fire up again automatically!**
- In the case of cycle intervals that are too short, the length of the hot air ducting should be checked.

CAUTION

Cycle operation (running times of less than 5 mins.) of the forced air oil burner should be avoided.

CAUTION

In the event of accumulated heat, heating operation will be continuously interrupted by the STB!

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Prior to Operation

Before commissioning, the device should be checked for noticeable defects of the operating and safety devices, as well as for proper set-up and correct electrical connection.

The following points must be taken into consideration:

- It must be assured that the chimneys can be properly expelled
- The device must be set up stably
- An adequate supply of inlet air for combustion must be assured
- Check that there is no physical restriction on air intake and air emission
- Avoid excessively high or low pressure in the operation location
- Assure and adequate supply of fuel which also complies to local requirements
- Only use clean EL heating oil or diesel fuel
Do not use biodiesel!
- It is essential that the suction pipe at the base of the tank is fitted with a foot-operated valve
- A safety zone of 1.5 m around the device must be observed, also for non-flammable objects

NOTE

After being checked for fulfilment of the local regulations as well as a check by authorised, expert personnel, the forced air burner must be checked and where appropriate reset in terms of its exhaust pollution standards.

Air Diffusion

The device is fitted with a special high performance radial fan which is designed to selectively and effectively transport the heated air across long distances. The diffusion of the air is best performed using pipes or special hot air or film tubes

- Use exclusively the hot air tubes approved by us (accessories)
- Attention should be paid to the flow direction of the tubes! The internal overlaps on the seams of the hot air tubes must point in the direction of the air flow
- Secure fastening of the tubes and pipes at the exhaust and any connection points used must be observed
- Only suitable air diffusers or those approved by us may be used

IMPORTANT

The hot air tubes may only be used fully extended and without kinks.

- When heating closed rooms using hoses, back pressure must not be allowed to build up

- With increased induction temperature or resistance at the device outlet, it is possible that the forced air oil burner is switched off briefly by the temperature monitor (TW).
After reduction of the temperature the burner will fire up again automatically!

- In the case of cycle intervals that are too short, the length of the hot air ducting should be checked.



NOTE

Cycle operation of the forced air burner of less than 5 mins. should be avoided at all costs.

- To prevent heat accumulation, sharp edged bends should be avoided in the hose guidance. Film hoses must not be twisted



CAUTION

In the event of accumulated heat, heating operation will be continuously interrupted by the STB!

Air Induction

Using appropriate accessories and/or connections, the device can be operated in fresh air, blended air or recycled air mode.

Induction may only be performed using stable pipes or similar suitable air ducting.



NOTE

The maximum air intake temperature may not exceed 30 °C

Measuring nominal current and current consumption

Following installation of the air ducting on induction and air outlet sides, the following checks should always be carried out by expert personnel only, to ensure perfect functioning of the fan.

1. For purposes of precise measurement, all air ducting on induction and air outlet sides (areas of resistance) must be fitted to the device and any exhaust guard grille opened.
2. The mains voltage available must be checked for correctness. **Drops in voltage** must not be allowed during operation.
3. Note that the nominal current (Ampere) stated on the type plate of the motor must not be exceeded in any mode of operation.
4. The fan stages 1 and 2 each have a separate thermal overload relay and must be set accordingly.

Setting the thermal overload relay

1. In order to preclude errors in measurement each phase conductor and fan stage must be tested separately.
2. The setting of the thermal overload relay should be performed as follows:
Stage 1 = 6.7 A
Stage 2 = 17.0 A
3. The function of the thermal overload relay and its setting values must be tested by the simulation of a missing phase conductor.
e.g. by switching off a circuit breaker
4. With correct function and setting of the thermal overload relay, it should switch off after approx. 30 seconds.

CAUTION

The thermal overload relay may only be operated in the „Manual reset“ setting. The relay must not switch itself on again after the cooling down process.

5. All measurements and tests must be performed separately for each fan stage

Excessive current consumption

If the motor is using too much current, despite correct electrical connection and adequate voltage supply, the thermal overcurrent trip may not under any circumstances be set higher or short-circuited.

- Appropriate measures must be taken such as checking or adjusting the outside induction and air outlet diameters and lengths.

NOTE

Intake air ducting must always be of sound construction (no unstable tubes).

CAUTION

Never interrupt the mains connection before the entire cool-down phase comes to an end. Damage caused to the device by overheating renders the guarantee null and void.

NOTE

*If the thermal overload relay is operated in the „Automatic reset“ setting, damage to the motor cannot be excluded. **This renders any guarantee null and void!***

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Commissioning

Starting the device

Operation and monitoring of the machine must be assigned to a person who has been adequate training.

Open the locking door at the rear of the device.

Check that the operating switch on the switch cabinet is set to the "0" position (off).

Connecting the devices to the power supply

The 400V/3~N electrical connection is made using a supplied 32 A CEE appliance coupler.



NOTE

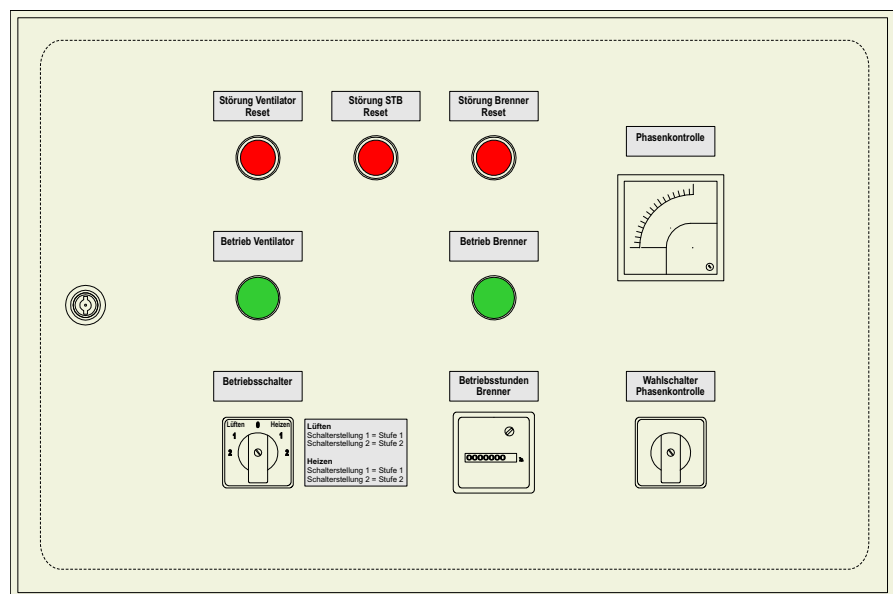
As standard, the devices are equipped with a an automatic rotation direction monitor for the fan motor.

2. Each phase can be checked for correctness using the phase test selector switch.

3. Open all closures in the fuel supply. **During initial commissioning, air in the supply lines can lead to a fault shutdown of the burner.**

Control panel / switch cabinet

All components are protected from the elements and unauthorized operation behind the locking door above the fan.



1. The device must be connected to a correctly installed power socket via a suitable extension cable. **400V/3~N/50Hz**



NOTE

The electrical connection of the device must be performed at a dedicated supply point with an earth-leakage circuit breaker in compliance with VDE 0100 section 55.



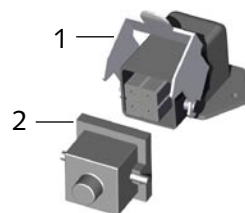
CAUTION

Cable extensions must be suitable and may only be used if they are completely unrolled or rolled up..

Heating without room thermostat

The device works in continuous operation.

1. Connect the jumper plug 2 supplied to the thermostat socket 1 on the device / switch cabinet.



2. Turn the operating switch to the required operation position "1" (low heating stage) or "2" (high heating stage) .

Ventilation

The equipment can be used for air circulation or ventilation purposes.

1. Turn the operating switch to the required operation position "1" (low ventilation stage) or "2" (high ventilation stage).

In these switch positions, the inlet fan will run in continuous mode.

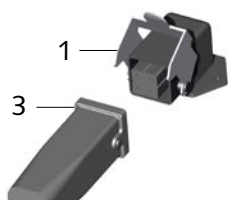
In these operational modes, neither thermostatic nor heating operation are possible.

Shutting Down the Unit

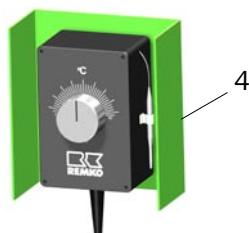
Heating with a room thermostat (accessories)

The devices operate fully automatically depending on the room temperature.

1. Remove jumper plug 2.
2. Connect plug 3 of the room thermostat 4 to the thermostat socket 1 at the switch cabinet.



3. Place the room thermostat 4 at a suitable location in the room. The thermostat sensor must not be within the hot air stream and should also not be placed on a cold floor.
4. Set the required temperature on the room thermostat 4.



5. Turn the operating switch to the required operation position "1" (low heating stage) or "2" (high heating stage).

If heat is required and after a brief initial ventilation of the burner the device switches on and continues to run completely automatically.

1. Turn the operating switch to the „0“ position (off).

2. Close off the fuel supply at the device and oil tank.



3. In case of longer downtimes, disconnect the device from the power supply.



NOTE

The inlet fan continues to run to cool the combustion chamber and the heat exchanger and does not switch off until later. The fan may restart several times until finally switching off.

Never interrupt the mains connection before the entire cool-down phase comes to an end (except in emergency situations).

Damage caused to the device by overheating renders the guarantee null and void.

4. In the case of longer down times, lock the closing lid of the exhaust connection.



NOTE

After all adjustment tasks the doors must be closed. In order to prevent unauthorized operation, the doors should also be locked.

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Maintenance and Care

The regular care and observance of some basic prerequisites guarantee malfunction-free operation and a long service life of the device.

IMPORTANT

Before all work on the device, the mains plug must be removed from the mains socket.

NOTE

Adjustment and maintenance tasks may be performed only by authorised expert personnel!

- Keep the device free of dust and any deposits of dirt
- Only clean the device with a dry or damp cloth
- Do not apply any direct water spray
e.g. high pressure hoses etc.
- Do not use abrasive or cleaning solutions containing solvents
- Only use appropriate cleaning materials even in the case of heavy soiling
- Only use clean EL heating oil or diesel fuel.
Pay attention to possible paraffin formation!
- Check the fuel filter(s) at regular intervals for dirt. Soiled filters must be replaced
- Check the device for mechanical damage and have defective parts replaced professionally.
- Check the fan blades and combustion chamber for dirt regularly and clean them where necessary
- Examine on site fuel containers regularly for contamination or foreign bodies and clean them where necessary
- Check the fan belt tension and condition regularly. The depth of indentation of the fan belt should be approx. 10 mm (thumb's width)
- Check the safety devices regularly for correct function
- Keep the sensors of the safety devices free from dust and dirt
- Have the forced air burner checked regularly by authorised expert personnel in terms of its exhaust pollution standards. For reasons of safety we recommend a maintenance contract
- Maintenance and cleaning intervals must be maintained for reasons of operational safety

Cleaning tasks

After every heating period or independent of the previous operating conditions, the complete equipment including the heat exchanger, combustion chamber and burner must be cleaned of dust and dirt. Check parts subject to wear such as e.g. chimney suppressors, oil filter inserts and oil nozzles are to be checked and replaced if necessary.

Cleaning the heat exchanger

1. Set the operating switch to the „0“ position (off) and unplug the power supply.
2. Disassemble the air outlet gas connection.
3. Remove the inspection cover and extract the chimney suppressors.
4. Clean the chimney passages.
5. Clean the chimney gas suppressors and replace damaged chimney suppressors where necessary.
6. Check the seals of the inspection plate and replace damaged seals where necessary.
7. After maintenance, reassemble all parts carefully in reverse order.

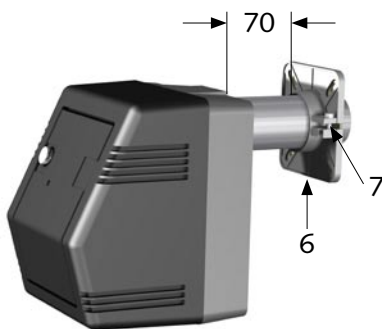
Inspection cover

Make sure that the seals of the inspection cover are positioned correctly.

When reassembling the inspection cover, ensure that all fixing screws are uniformly tightened. Fixing screws that are not tightened uniformly can cause result in leaks.

Cleaning the combustion chamber

1. Set the operating switch to the „0“ position (off) and unplug the power supply.
2. Open the locking door at the front of the device.
3. Unscrew the fuel filter including the fuel lines and pull the rosette from the burner.
4. Release the lower 2 fastening screws on the burner flange 6.
5. Release the clamping screw 7 on the burner flange 6 and pull the burner out forwards.



6. Place the burner and the fuel filter carefully beside the device.
7. Disassemble the burner flange 6.
8. Take care not to damage the flange seal.
Damaged flange seals can result in incorrect air induction.
9. Clean the combustion chamber with a vacuum cleaner through the burner opening. A special chamber cleaning set is available as an accessory to the REMKO industrial vacuum cleaner.

Assembling the burner flange and the burner

1. Check the flange seal and replace it if necessary.
2. Attach the burner flange with the four fastening screws to the unit housing.
Pay attention to the „OBEN“ (UP, HAUT) label!
3. Tighten the 2 upper fastening screws.
4. Tighten the 2 lower fastening screws only lightly so that the burner flange can be pulled together.
5. Slide the flame tube of the burner into the burner flange.
Observe the measurement X in the figure!
6. Attach the flame tube firmly to the flange with clamping screw 7 while lifting the burner slightly (3° incline).
7. Finally, tighten the lower 2 fastening screws.
8. Reassemble the fuel filter and lines and check for tightness.

Additional maintenance hints

- All tasks should only be performed by authorised, expert personnel with the appropriate tools and parts.
A log must be produced and kept by the operator.
- It is vital that the forced air heater is serviced and adjusted by authorised, expert personnel.

CAUTION

Following all work on the device, an electrical safety test in accordance with VDE 0701 must be carried out.

NOTE

Flue gas loss must be restricted in accordance with section 11 of the small heating device ordinance (1.BImSchV).

NOTE

*After all adjustment tasks the doors must be closed.
In order to prevent unauthorized operation, the doors should also be locked.*

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Troubleshooting

IMPORTANT

Before all work on the device, the mains plug must be removed from the mains socket.

CAUTION

Repair work on the electrical installation and on the burner may be carried out only by authorised, expert personnel for safety-technical reasons.

The device does not start

1. Check the power supply connection. 400 V/3~N/50Hz.
2. Turn the operating switch to the „Heating“ position(off).
3. The „Operation“ pilot lamp on the control panel must be lit up.
4. Check the jumper plug or the plug of the room thermostat for correct fit and contact.
5. Check the setting of the room thermostat. The temperature set must be higher than the room temperature.
6. Check whether the safety temperature cut-out (STB) has been triggered.
For this, check the indicator on the control panel.

7. Prior to resetting the STB, make sure to analyse the causes and eradicate them.

The following causes can be possible:

- The equipment was unable to cool down, as the power supply was interrupted.
- Too high air outlet temperature because of incorrect air diffusion in hose mode.
- Air cannot flow freely in or out.

8. Check whether the „Burner fault“ pilot lamp has lit up on the control panel. If so, reset the automatic burner.

9. Turn the operating switch to the „Ventilation“ setting.
If the inlet fan runs, it may be necessary to seek the fault in the burner area..

Important information about resetting the burner

- If the burner switches off again because of a fault during starting, it may only be reset after waiting 5 mins. approx.
- Resetting again should be strictly avoided. There is a danger of explosion.

Forced air burner and energy supply

1. Check the oil filter(s) for dirt.
Exchange soiled filters.
2. Check that the closing tap on the oil filter is open.
3. Check that there is an adequate supply of fuel.
4. Check the heating oil for paraffin formation.
This can occur at temperatures as low as 5 °C !
5. Check the oil lines for damage.
6. Check the sensors and capillary tubes of the safety devices for damage or dirt.
7. Check that the temperature monitor (TW) for correct function using appropriate means.
8. Check the forced air burner for possible soiling of the nozzle, blockage, filters etc.

The inlet air fan does not actuate.

1. Check the fan for smooth running.
2. Check the circuit breaker in the switch cabinet.
3. Check whether the motor protection relay has in the switch cabinet has been triggered.
4. Check the thermostat (TR) for correct function using appropriate means.

Proper use

Because of their means of design and construction, the devices are solely suitable for heating and ventilation purposes in industrial or commercial premises (not room heating on private premises). The devices must be exclusively serviced by appropriately trained staff.

In the case of non-observance of the manufacturer's instructions, the local legal specifications in respect of set-up the device or independently performed modifications to the equipment the manufacturer assumes no liability for possible damage caused.



NOTE

Any other operation other than that described in these operating instructions is not permitted.

Non observance renders all claims for liability and guarantees null and void.

Customer Service and Guarantee

A prerequisite for possible claims under guarantee is that the customer/his supplier have returned the „**guarantee certificate**“ enclosed with the device promptly after purchasing the unit and putting it into operation to REMKO GmbH & Co KG.

The device was tested several times at the factory for perfect function.

If any malfunctions should occur, however, which cannot be eliminated by trouble shooting measures performed by the operator, please consult your dealer or contract partner.



NOTE

Adjustment and maintenance tasks may be performed only by authorised expert personnel.

Environment Protection and Recycling

Disposal of packaging

When disposing of packaging material, please consider the environment. Our equipment is packed carefully for transport and supplied in stable cardboard packaging on a wooden palette if required. The packaging materials are environmentally friendly and can be reused. With the reuse of packaging material, you make a valuable contribution to the reduction of waste and the preservation of raw materials.

You should thus dispose of the packaging material at the corresponding disposal sites.

Disposal of the old device

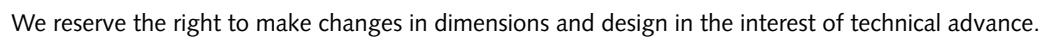
Manufacture of our equipment is subject to constant quality control.

Only high-quality materials that are recyclable to a great extent are used.

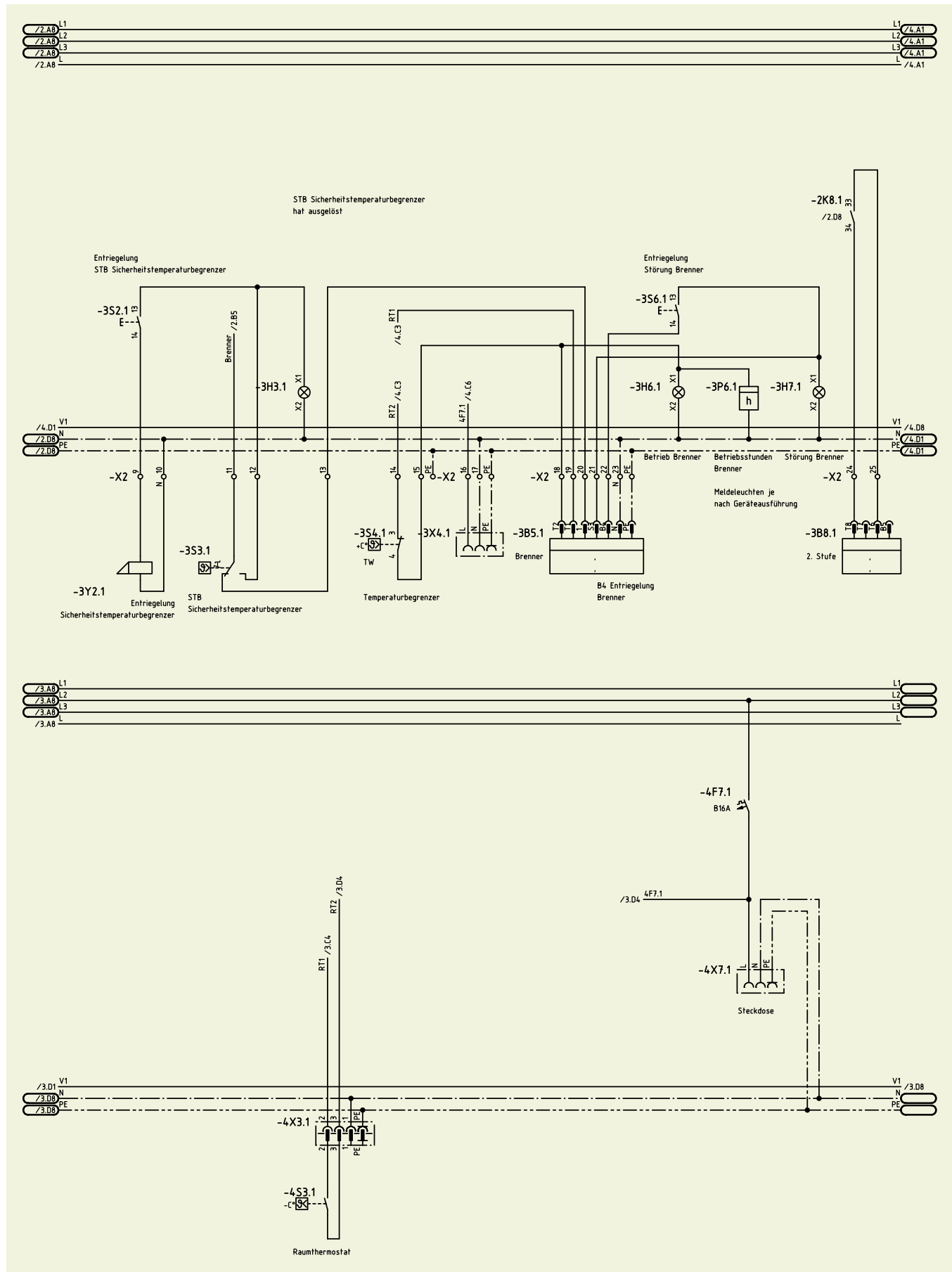
You also contribute to environmental protection by guaranteeing that your old device is disposed of in an environmentally friendly manner.

For this reason, bring the old device only to an authorised recycling company or to a corresponding disposal site.

Wiring diagram



Wiring diagram



When ordering spare parts, always list the EDP no. as well as the device no. and device type (see the type plate)!

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Maintenance Log



Device type:	Device number:																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Clean unit – surface –																					
Clean unit – inside –																					
Clean fan																					
Clean combustion chamber																					
Clean heat exchanger																					
Replace chimney suppressor																					
Replace inspection cover seals																					
Replace fuel filter																					
Check safety devices																					
Check protection devices																					
Check device for damage																					
Electric safety inspections																					
Burner maintenance *)																					
Test run																					

Remarks:

.....

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1. Date: Signature	2. Date: Signature	3. Date: Signature	4. Date: Signature	5. Date: Signature
6. Date: Signature	7. Date: Signature	8. Date: Signature	9. Date: Signature	10. Date: Signature
11. Date: Signature	12. Date: Signature	13. Date: Signature	14. Date: Signature	15. Date: Signature
16. Date: Signature	17. Date: Signature	18. Date: Signature	19. Date: Signature	20. Date: Signature

*) The forced air burner must only be maintained and set by authorised expert personnel in accordance with legal specifications (1. BImSchV.). An appropriate test log must be kept.

Maintenance work may only be performed on the forced air burner by authorised expert personnel in accordance with legal specifications.

Technical data

Series			HTL 400
Nom. heat load max.	2. Stage	kW	385
Nom. heat load max.	1. Stage	kW	270
Nom. heat output max.	2. Stage	kW	350
Nom. heat output max.	1. Stage	kW	245
Ventilating performance max. ¹⁾	2. Stage	m ³ /h	25000
Ventilating performance max. ¹⁾	1. Stage	m ³ /h	16600
Pressure (max. total.)	2. Stage	Pa	1000
Pressure (max. total.)	1. Stage	Pa	500
Fuel			EL heating oil or diesel
Fuel consumption max.	2. Stage	l/h	39.0
Fuel consumption max.	1. Stage	l/h	28.0
Nozzle (Danfoss) 80° H ²⁾		USG	6.0
Pump pressure, approx. ²⁾	2. Stage	bar	22
Pump pressure, approx. ²⁾	1. Stage	bar	11
Voltage supply		V	400 3~N
Frequency		Hz	50
Elect. current consumption max.	2. Stage	A	20.5
Elect. current consumption max.	1. Stage	A	10.5
Elect. power consumption max.	2. Stage	kW	9.1
Elect. power consumption max.	1. Stage	kW	3.9
Noise output LpA 1m ³⁾	2. Stage	dB (A)	83
Noise output LpA 1m ³⁾	1. Stage	dB (A)	78
Fuse protection (on site)		A	32
chimney connection ø		mm	300
Dimensions: Length		mm	3850
Width		mm	1200
Height		mm	1900
Weight		kg	1600

1) at Δt 45K / 1.2 kg/m³ (free flowing)

2) The nozzle sizes and pump pressures stated are based on test bed results.

The oil throughput was stated in litres.

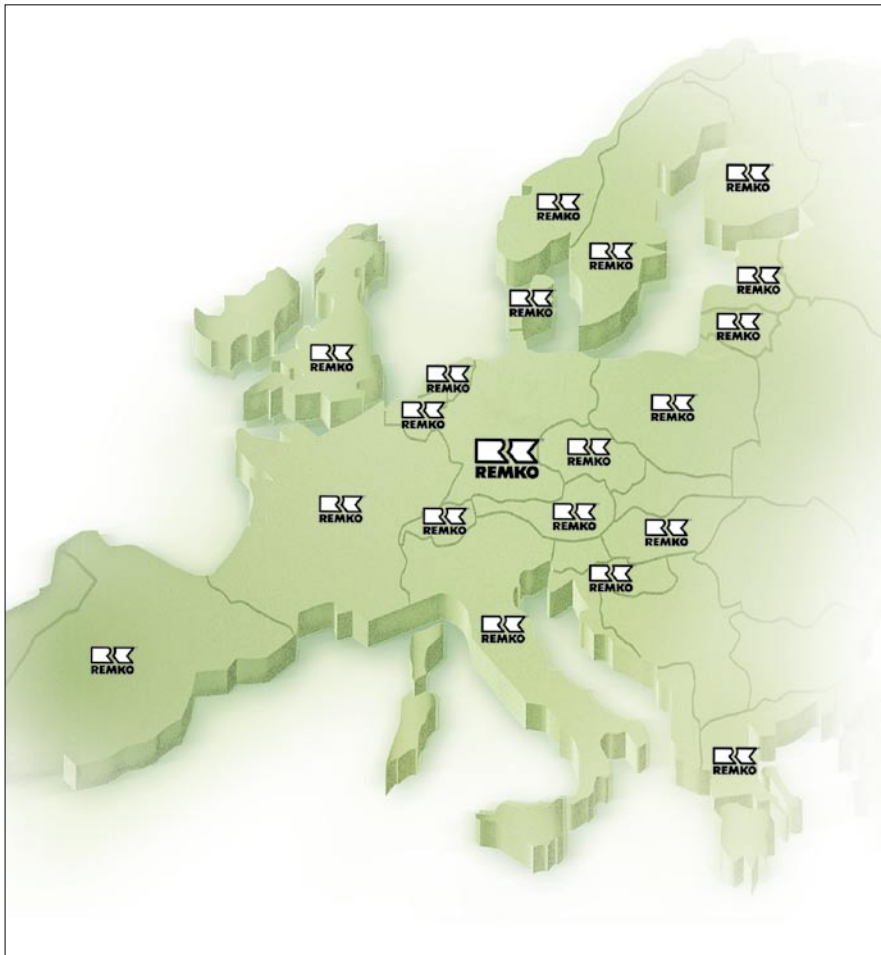
Because of product-specific nozzle and pressure tolerances as well as oil temperature, the figures stated should only be viewed as guidelines.

3) Noise emission measurement (without wl-schlauch-/and burner) DIN 45635-01-KL33

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