Operating and installation instructions

REMKO ELT series

Electric heaters

ELT 3-2 (E), ELT 10-6 (E), ELT 18-9 (E)

This product is suitable only for well-insulated rooms or for occasional use.

Edition EN - Z08

Read the instructions prior to performing any task!

Contents

CE

Carefully read this operating manual prior to commissioning / using the units!
This operating manual is a translation of the German original.

These instructions are an integral part of the unit and must always be kept in the vicinity of the installation location or on the unit itself.

Subject to modifications; no liability accepted for errors or misprints!

REMKO ELT series

Safety notes

Always observe the respective local building code and fire prevention guidelines as well as the guidelines of the accident prevention and insurance associations when using the units.

The units have been subjected to extensive material, functional and quality inspections prior to delivery. However, dangers can arise from the units if they are used improperly or not as intended by untrained personnel!

Please observe the following notes:

- Only qualified personnel may set up and install the units.
- Repairs and maintenance of the equipment and components may only be used by qualified personnel follow.
- The personnel tasked with operating the units must check the units for visible defects on the operating and safety devices as well as the presence and function of the protective devices prior to starting work
  Inform the supervisor if defects are discovered!
- In the event of defects that endanger the operational safety of the unit, operation must be discontinued immediately
- Observe the respective local regulations and the relevant electrical safety measures when using the units
- Maintain safety distances to combustible materials
- An unobstructed air inlet and air outlet must be guaranteed at all times
- The air outlet must not be constricted or equipped with pipe or hose lines
- Never insert foreign objects into the units
- The units must not be covered during operation
- Safety devices must not be bypassed or disabled
- The units must not be operated in the vicinity of bathtubs, showers, swimming pools etc.
- The units must not be operated directly below a wall socket
- The units must not be exposed to direct jets of water e.g. **pressure washers etc.**
- Never allow water to enter the units
- The units must not be installed or operated in potentially flammable or explosive environments
- The units must not be installed or operated in atmospheres containing oil, sulphur or salt
- All electrical cables for the units must be protected against damage, even damage caused by animals
- The units must be set up in a stable, horizontal position

⚠ CAUTION

Safety devices must not be bypassed or disabled.

Unit description

The units are portable electric heating units for industrial applications.
The units are operated exclusively with electric power and have been designed in such a way that they can be used fully automatically, universally and in a straightforward manner.

The units are equipped with specially enclosed electric heating resistors, low noise and low-maintenance axial fans, safety and aftercooler thermostats, a room thermostat socket and power cable with protective contact plug.

The units conform to the fundamental health and safety requirements of the appropriate EU stipulations.

The units are dependable and offer ease of operation.

The units may be used among other things for the following:

- Drying newly completed buildings
- Spot heating outdoor workspaces or fire-proof manufacturing facilities and halls
- Continuous or temporary room heating
- De-icing machines, vehicles and non-combustible warehoused goods while adhering to the relevant safety distances

Commissioning

Operating sequence

The units can be used in the respective operating modes for air heating and air circulation purposes (not ELT 3-2).

The units **ELT 3-2** can be operated exclusively in 2 heating stages (2.2 or 3.2 kW).
They have a 3-stage operating switch with the functions: Heat (I) / Off (0) / Heat (II).

The units **ELT 10-6** and **ELT 18-9** can be operated with *three* heating settings and *one* fan setting.
They have a 5-stage operating switch with the functions:
Off (0) / Fan (1) / Heat (2-4).

All units can be equipped with a plug-in ready room thermostat (accessory) to ensure that the room temperature is constant. Once the desired temperature has been reached, the thermostat switches the heating operation off. If the room temperature falls below the set temperature, the thermostat starts up the heating operation again.

⚠ CAUTION

After switching off the units via the operating switch or the room thermostats, the supply air fan runs to cool the heating resistors for a certain time and then switches off automatically.

NOTE

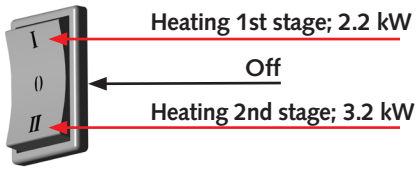
For optimum operation the units should not be operated above an ambient temperature of 25 °C.

One person, who has been adequately trained in the handling of the units, should be tasked with the operation and monitoring of the units.

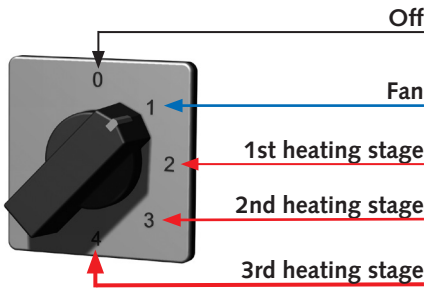
The units must be in the intended horizontal position on their supports at all times during operation.

The units are equipped with the following operating switches:

Operating switch ELT 3-2



Operating switch ELT 10-6 and ELT 18-9



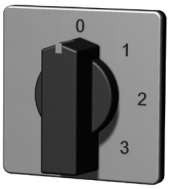
1. Check the customer's mains voltage and ensure sufficient fuse protection for the unit type in use.

Power supplies:

ELT 3-2	**230V/1~/50 Hz**
ELT 10-6	**400/3~N/50 Hz**
ELT 18-9	**400/3~N/50 Hz**

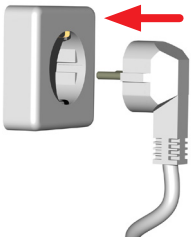
2. Move the operating switch to the "0" (Off) position.

ELT 3-2

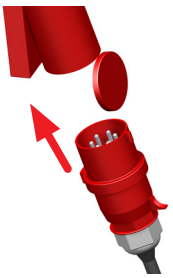


ELT 10-6 / 18-9

3. Connect the unit's power plug to a properly installed mains socket.



ELT 3-2



ELT 10-6
ELT 18-9

NOTE

The electrical connection for the units must be made at a separate feed point with a residual current device in accordance with VDE 0100, Section 55.

⚠ CAUTION

Extensions to the connection cable must only be conducted by authorised specialist electricians, taking into consideration the unit capacity, cable length and local use.

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Operating settings
The operating settings can be selected via a switch or a cam switch.

However, a room thermostat is always required for operation.

ELT 3-2

ELT 10-6 and ELT 18-9

Fan

Only the supply air fan operates in this setting.
Thermostatic regulation and heating operation are not possible in this operating mode.

Move the operating switch to the desired position 1.

ELT 10-6 / 18-9

⚠ CAUTION

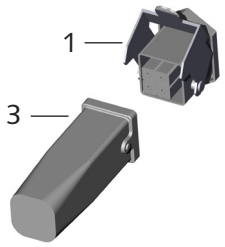
There is no separate ventilation function for this ELT 3-2.

Heating with room thermostat (Accessories)

The units operate fully automatically and according to the respective room temperature.

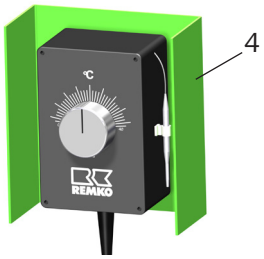
1. Pull out the strapping plug [2].

2. Connect the plug [3] of the room thermostat [4] with the thermostat socket [1] on the unit.



3. Place the room thermostat [4] at a suitable location in the room.
   The thermostat sensor must not be located directly in the warm air flow and must not be placed directly on the cold floor.

4. Set the desired room temperature on the room thermostat [4].

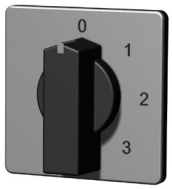


5. Select the desired power position on the respective operating switch.

Shutdown

1. Move the operating switch to the “0” position.

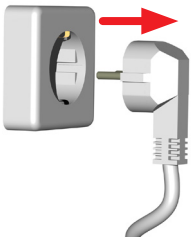
ELT 3-2



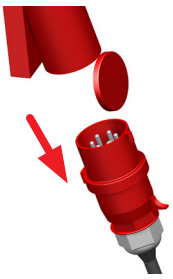
ELT 10-6 / 18-9

The supply air fan runs on to cool the units and only switches off after the cooling down phase is complete.
The fan can switch on and run several times before the final shutdown.

2. If the units are inactive for long periods, disconnect them from the mains power supply.



ELT 3-2



ELT 10-6
ELT 18-9

⚠ CAUTION

Never interrupt the power supply prior to the completion of the follow-up cooling phase. There is no warranty claim for damage to the units from overheating.

Care and maintenance

NOTE

Regular care and maintenance, at the latest after every heating period, is the basic requirement for a long service life and malfunction-free operation of the units.

- Observe the regular care and maintenance intervals

CAUTION

Before undertaking any work on the units, the power plug must be removed from the mains socket.

- In accordance with the operating conditions, the units must, if necessary, be checked at least yearly by a specialist to ensure that they are in a condition that is safe to use
- Keep the units free of dust and other debris
- Only clean the units with a dry or lightly moistened cloth
- Never subject to direct jets of water.
  e.g. pressure washers etc.
- Never use abrasive or solvent-based cleaners
- Use only suitable cleaners, even for heavy contamination
- Check the inlet and outlet grille for contamination on a regular basis
- Check the safety equipment and protective devices on a regular basis
- Be careful not to damage the probe or capillary tube of the temperature limiter when removing or mounting the protective outlet grille

NOTE

Setting and maintenance work may only be carried out by authorised and qualified technicians.

CAUTION

An electrical safety check must be carried out in accordance with VDE 0701 after any work on the units.

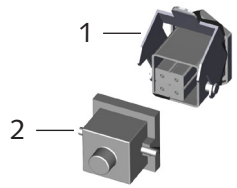
NOTE

Replace defective or damaged parts immediately and exclusively with original spare parts.

Checking

The strapping plug supplied with the device is used for maintenance or testing according to VDE 0701. Follow the steps below to check.

1. Connect the supplied strapping plug [2] to the thermostat socket [1] on the unit.



2. Check the device.
3. Remove the strapping plug

Troubleshooting

The unit (fan) does not start.

1. Check the mains fuses on site.
2. Check the power plug.
3. Check the operating switch.
4. Check that the fan can move freely.

The unit does not heat up.

1. Check the operating switch.
2. Check that the contactor is functioning correctly.
3. Check that the temperature limiter or capillary tube are functioning correctly and check for damage.
4. Check whether the thermostat or strapping plug are plugged in.
5. In case of unit operation with a room thermostat, set the thermostat to a value that is higher than the room temperature.

If all of the functional checks have been carried out without any findings, please contact an authorised service station.

Intended use

The units are designed exclusively for heating and ventilation purposes on the basis of their structural design and equipment. The units must not be used for any other purpose.

The units are only permitted to be operated by people with the relevant training and understanding of how to handle them.

With non-observance of the manufacturer's specifications, the respective local legal requirements or after arbitrary alterations to the units, the manufacturer shall not be liable for resulting damages.

NOTE

Operation other than the types listed in this operating manual is prohibited.
With non-observance, any manufacturer liability or guarantee claims are voided.

CAUTION

Customer service and Guarantee

As a prerequisite for any guarantee claims to be considered, it is essential that the ordering party or its representative complete and return the **"certificate of guarantee"** to REMKO GmbH & Co. KG at the time when the units are purchased and commissioned.

The units are tested several times to verify their correct function. However, if malfunctions should arise that cannot be remedied by the operator with the assistance of the troubleshooting section, please contact your specialist dealer or contractual partner.

NOTE

Setting and maintenance work may only be carried out by authorised and qualified technicians.

Environmental protection and recycling

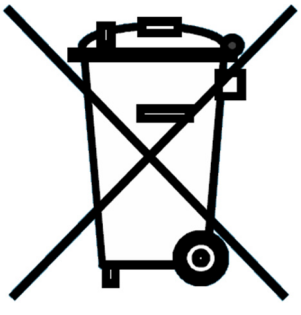
Disposing of packaging

When disposing of packaging material, please consider our environment.
Our units are carefully packed and delivered in sturdy transport packaging made from cardboard and polystyrene.
The packaging materials are environmentally-friendly and can be recycled.
By recycling packaging materials, you make a valuable contribution to the reduction of waste and conservation of raw materials.
Therefore, only dispose of packaging material at appropriate collection points.

Disposal of the old unit

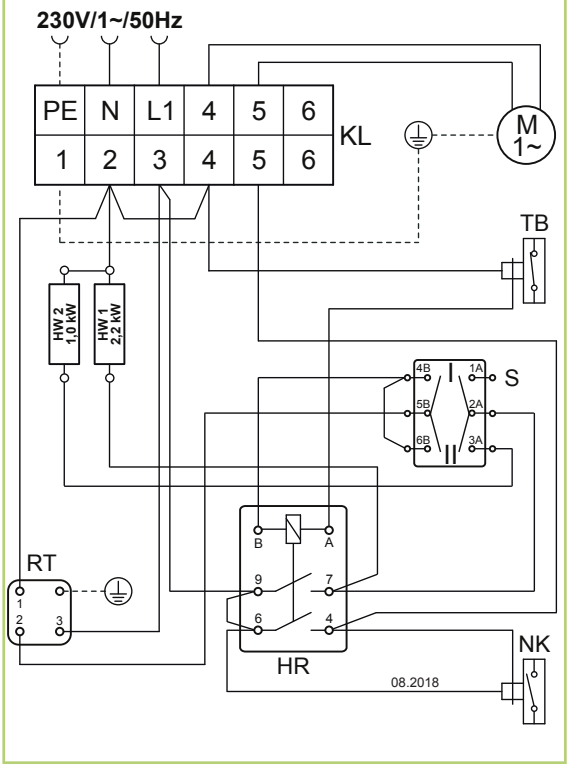
The manufacturing process for the units is subject to continuous quality control.
Only high-grade materials are processed, the majority of which are recyclable. You also contribute to environmental protection by ensuring that your used equipment is only disposed of in an environment friendly manner.

Therefore, only bring the old unit to an authorised recycling business or to an appropriate collection point.

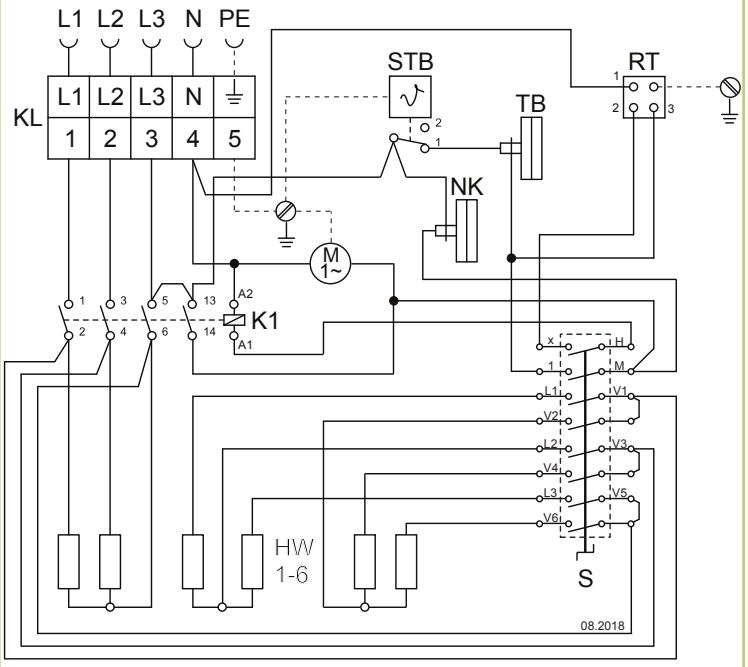


Electrical wiring diagram

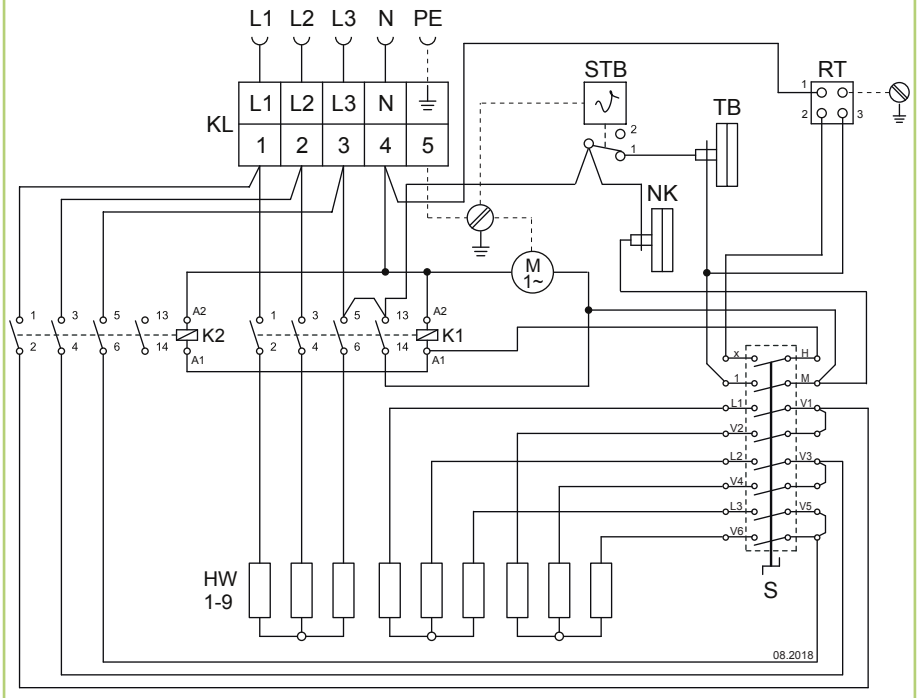
ELT 3-2; 2-stage



ELT 10-6



ELT 18-9



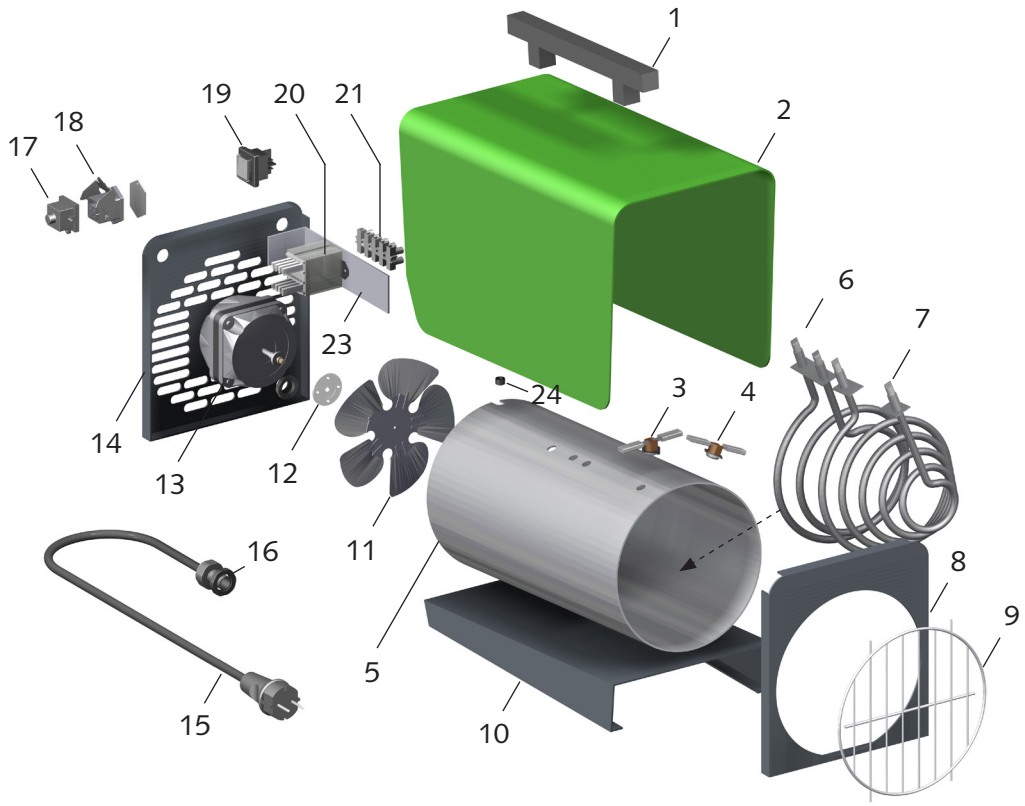
Legend:

HR = Auxiliary relay
HW = Heating resistor
K1 = Contactor 1
K2 = Contactor 2
KL = Connection terminal strip
M = Fan motor
NK = Aftercooler thermostat
RT = Thermostat socket
S = Operating switch
STB = Temperature limiter with probe
TB = Temperature limiter

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

REMKO ELT series

Exploded view of ELT 3-2 (E)



Spare parts list

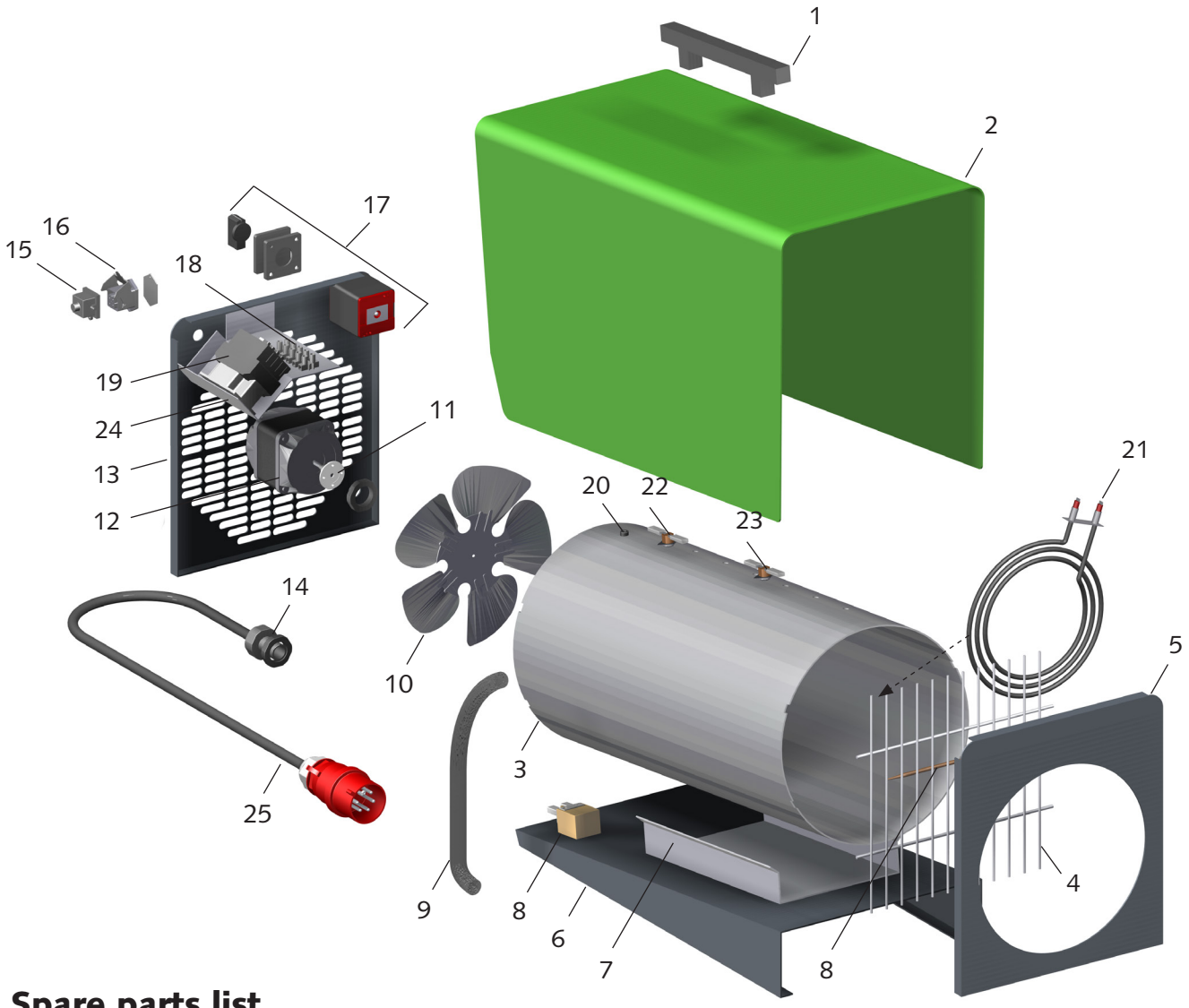
No.	Designation	EDP no.
1	Transport handle	1101142
2	Exterior cladding ELT 3-2	1103905
2a	Exterior cladding ELT 3-2 E	1103940
3	Aftercooler thermostat	1104065
4	Temperature limiter	1101161
5	Inner casing	1103907
6	Heating resistor 1.0 kW	1103908
7	Heating resistor 2.2 kW	1103909
8	Front wall	1103910
9	Protective outlet grille	1103803
10	Floor panel	1103911
11	Fan blade	1103902
12	Drive clutch	1108455

No.	Designation	EDP no.
13	Fan motor	1103820
14	Back wall	1103913
15	Mains cable with plug	1103901
16	Strain relief	1101267
17	Strapping plug	1101019
18	Thermostat socket, cpl.	1101018
19	Operating switch cpl.	1101188
20	Contactor	1108038
21	Terminal block	1101366
23	Mounting plate	1101067
24	Grommet, small	1101304
Not shown	Thermostat plug	1101020

When ordering spare parts, in addition to the EDP no. please always also quote the unit number and unit type (see name plate)!

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

Exploded view of ELT 10-6 (E)



Spare parts list

No.	Designation	EDP no.
1	Transport handle	1101142
2	Exterior cladding ELT 10-6	1107910
2a	Exterior cladding ELT 10-6 E	1107909
3	Inner casing	1103951
4	Protective outlet grille	1103952
5	Front wall	1103953
6	Floor panel	1107913
7	Support	1107914
8	Temperature limiter with probe	1107960
9	Protective hose	1107915
10	Fan blade	1103950
11	Drive clutch	1103956
12	Fan motor 230 V	1101254

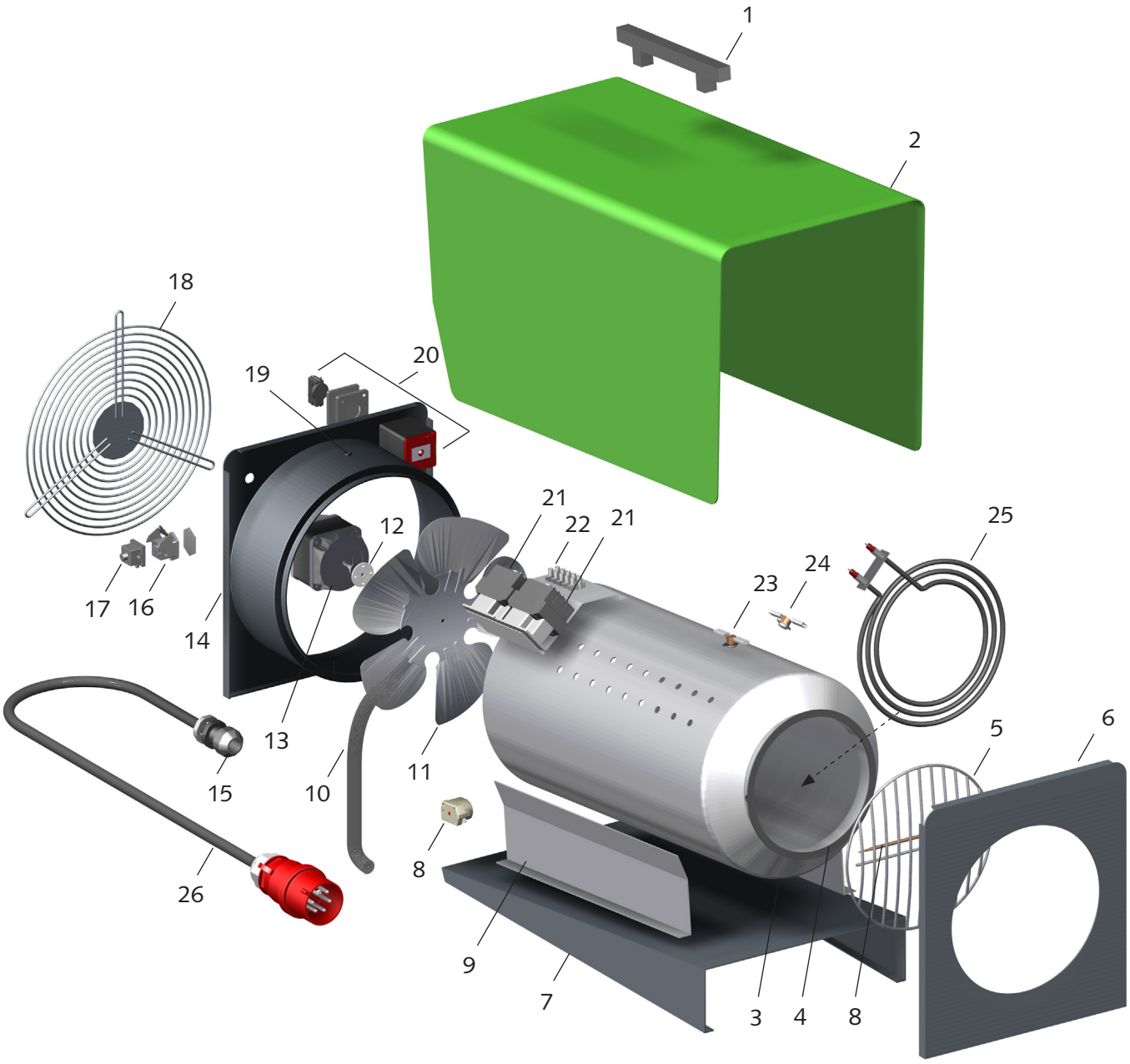
No.	Designation	EDP no.
13	Back wall	1103954
14	Strain relief	1107944
15	Strapping plug	1101019
16	Thermostat socket, cpl.	1101018
17	Operating switch cpl.	1107993
18	Terminal block 5er	1107952
19	Contactor	1101096
20	Grommet	1101304
21	Heating resistor	1103955
22	Temperature limiter	1101161
23	Aftercooler thermostat	1104065
24	Mounting angle	1101031
25	Mains cable with plug	1101026

When ordering spare parts, in addition to the EDP no. please always also quote the unit number and unit type (see name plate)!

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

REMKO ELT series

Exploded view of ELT 18-9 (E)



We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

Spare parts list

No.	Designation	EDP no.
1	Transport handle	1101142
2	Exterior cladding ELT 18-9	1107920
2a	Exterior cladding ELT 18-9 E	1107919
3	Interior cladding with blow-out cone	1107953
4	Seal for blow-out cone	1107954
5	Protective outlet grille	1101353
6	Front wall	1107921
7	Floor panel	1107950
8	Temperature limiter with probe	1107960
9	Support	1107922
10	Protective hose	1107915
11	Fan blade	1101153
12	Drive clutch	1103956
13	Fan motor 230 V	1101254
14	Back wall	1107923
15	Strain relief	1107961
16	Thermostat socket, cpl.	1101018
17	Strapping plug	1101019
18	Protective intake grille	1107947
19	Grommet	1101304
20	Operating switch cpl.	1107993
21	Contactor	1101096
22	Terminal block 5er	1107952
23	Aftercooler thermostat	1104065
24	Temperature limiter	1101161
25	Heating resistor	1107998
26	Mains cable with plug	1107962
Not shown	Thermostat plug	1101020

When ordering spare parts, in addition to the EDP no. please always also quote the unit number and unit type (see name plate)!

REMKO ELT series

Maintenance protocol

Unit type: ..... **Unit number: .....**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Unit cleaned - outside -																				
Unit cleaned - inside -																				
Fan blade cleaned																				
Protection grid cleaned																				
Safety equipment checked																				
Safety devices checked																				
Unit checked for damage																				
All fastening screws checked																				
Electrical safety check																				
Test run																				

Comments:.....

.....

.....

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

Unit to be maintained only by authorised specialists in accordance with the statutory regulations.

Technical data

Series	Symbol	Unit	ELT 3-2 (E)	ELT 10-6 (E)	ELT 18-9 (E)
Nominal heating capacity	P_{nom}	kW	3.2	10.5	18
Minimum heating power	P_{min}	kW	2.2	3.5	6
Maximum continuous heating power	$P_{max,c}$	kW	3.2	10.5	18
Switchable heating capacity		kW	2.2 or 3.2	3 x 3.5	3 x 6
Air volume		m^3/h	350	750	1,000
Power supply		V/Hz	230/1~/50	400/3~N / 50	400/3~N / 50
Max. rated current		A	13.9	14.9	27.5
Max. power consumption		kW	2.25 / 3.25	10.65	18.2
Auxiliary current consumption at nominal heating power	el_{max}	kW	3.250	10.650	18.150
Auxiliary current consumption at minimum heating power	el_{min}	kW	2.250	3.650	6.150
Auxiliary current consumption in standby condition	el_{SB}	kW	0.000	0.000	0.000
Electrical protection (provided by the customer - slow)		A	16	16	32
Sound pressure level L_{pA} 1m [1)]		dB (A)	46	53	57
Dimensions: L/W/H		mm	400/200/335	675/300/455	740/335/500
Type of room temperature control			with elecrical room temperature control (external)		
Weight		kg	6.8	20.0	27.4
EDP no.:			114155 (114165)	114255 (114265)	114305 (114315)

1) Noise level measurement DIN 45635 - 01 - KL 3
( ) INOX design

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

REMKO QUALITY WITH SYSTEMS

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