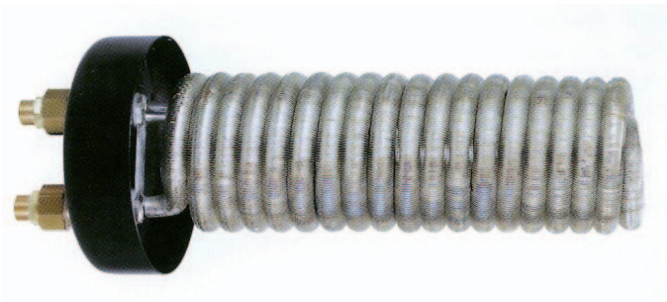


REMKO

FIN-TUBE HEAT EXCHANGER

RWT 18/RWT 31

Operation · Technology



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Read these operating instructions carefully before commissioning / using the device!

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.

This operating manual is a translation of the German original.



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



Made by REMKO

REMKO FIN-TUBE HEAT EXCHANGER

Safety notes

Carefully read the operating manual before placing the unit in service for the first time. It provides useful tips  and notes  such as hazard warnings to prevent injury and material damage. Failure to follow the directions in this manual can endanger persons, the environment and the equipment itself and will void any claims for liability.

- Keep this manual in the vicinity of the units.
- Only qualified personnel may set up and install the units and components.
- Set-up, connection, and operation of the units and their components must be done in accordance with the operating conditions as specified in this manual and comply with all applicable local regulations.
- Modification of the units and components supplied by REMKO is not permitted and can cause malfunctions.
- Units and components may not be operated in areas where there is an increased risk of damage. Observe the minimum clearances.
- The operational safety of units and components is only assured if they are fully assembled and used as intended. Safety devices may not be modified or bypassed.
- Do not operate units or components if there are obvious defects or signs of damage.
- The units and components must be kept at a safe distance from flammable, explosive, combustible, aggressive and dirty areas or atmospheres.
- Installation, repair and maintenance work may only be carried out by authorised specialists. Visual inspections and cleaning can be performed by the operator as long as the equipment is disconnected from the power.
- Take appropriate precautions when performing installation, repair or maintenance work or cleaning the unit to make sure the unit does not pose a danger to persons.

Environmental protection and recycling

Disposing of packaging

All products are packed for transport in environmentally friendly materials. You can make a valuable contribution to reducing waste and to sustaining raw materials by only disposing of packaging at approved collection points.



Disposal of components

The manufacturing process for the units is subject to continuous quality control. Only high-grade materials are used, the majority of which can be recycled. You can also contribute to environmental protection by only disposing of components in accordance with local regulations and in an environmentally safe manner, e.g. through authorised disposal and recycling specialists or at collection points.

Warranty

The warranty conditions are listed in the "General terms and conditions". Please contact your direct contract partner first.

Intended use

Fin-tube heat exchangers are designed to provide hot water or process hot water tanks with additional, indirect heat.

Any different or additional use is a non-intended use.

The manufacturer/supplier assumes no liability for damages arising from a non-intended use. The user bears the sole risk in such cases.

Using the equipment as intended also includes working in accordance with the operating manual and installation instructions and complying with the maintenance requirements.

REMKO FIN-TUBE HEAT EXCHANGER

Description

Fin-tube heat exchangers are designed especially to provide hot water or process hot water tanks with additional, indirect heat, e.g. with a solar thermal system.

The following heating media can be used:

hot water, district hot water and district steam, heat carriers such as Antifrogen L, Antifrogen N, PKL 100 and PKL 300.

New tanks, whether these are galvanised or clad with plastic, can be equipped and existing systems can of course be retrofitted with the built-in fin-tube heat exchanger.

The SF-CU fin-tubes are made from seamless tubing, and all connecting points are hard-soldered with silver solder. Once soldered, the heating coils are galvanised, wrapped helically and equipped with complete insulating screw connections then mounted on an enamelled flange plate in such a way that they are electrically insulated.

A coated steel sheet cap lined with a flexible foam insert covers the flange. This reduces the heat emission.

The compact design of the fin-tube heat exchanger makes it possible to use high-performance heating coils in the lowest part of the tank.

This provides for the optimum use of the tank's entire volume for heat absorption. This also provides for layering of the water in the tank that facilitates heat exchange. The heating coils also show little pressure loss inside the tube.

Operation

To operate the fin-tube heat exchange economically and to conserve energy, the water temperature in the tank should be set as low as possible.

A circulation pump that circulates the heating medium between the heating appliance and the heat coil is generally needed to heat the tank.

Care and maintenance

Care

- Only clean the units with a damp cloth.
(adding, for instance, a liquid household cleaner.)
Do not use harsh, scouring or solvent-based cleaners .

Maintenance

- We recommend concluding a maintenance contract with a specialist firm, which includes annual maintenance services.



NOTE

This will ensure that your equipment always operates reliably!

- Regularly check the function of the safety valve.

The expansion water amount at maximum heat (approx. 80°C) represents approx. 3.5% of the tank capacity. When the safety valve test knob is lifted or in the "Test" position, the water must flow unhindered out of the safety valve body into the drainage funnel.



ATTENTION

This can cause the cold water supply and parts of the storage tank connection fitting to become hot!

Water should not drip from the safety valve if the tank is not hot or if hot water has been removed. If this does occur, either the pressure in the water pipe is greater than the permitted value or the safety valve is defective. If the pressure in the water pipe is higher than permitted, a pressure relief valve must be used.

If the water is hard and when operating the tank at more than 60°C, install a standard descaling device upstream from the tank or regularly clean the fin-tube heat exchanger. The cleaning must be done by a qualified specialist. To do so, proceed as follows:

1. Remove the fin-tube heat exchanger.
2. Carefully knock the limescale off or clean the fin-tube heat exchanger in a container filled with limescale solvent.
3. Flush the fin-tube heat exchanger thoroughly.
4. Replace the fin tube heat exchanger.

REMKO FIN-TUBE HEAT EXCHANGER

Installation instructions for qualified personnel

General installation notes

- When in operation, the fin-tube heat exchanger's heating coils must be covered sufficiently with water on all sides.
- The thermally induced water flow may not be obstructed.
- As a rule, fin-tube heat exchangers are installed horizontally in the tank.
- Please take into account that changes in the length of the connecting lines caused by temperature fluctuations must be compensated for by expansion elements or by suitable piping.

Installation of the fin-tube heat exchanger

- Check the contents of the packaging for completeness and check the unit for visible transport damage. Immediately notify your contract partner of any deficiencies.

For the proper installation of the the heating cartridge, proceed as follows:

1. Unscrew and remove the insert 14, together with the complete electrically insulated pipe fitting (4, 15 to 18), from the connecting fitting 6.
2. Remove the cover plate 3.
3. Carefully install the flange plate 19. Do not bend the heat exchanger's fins when inserting it in the tank!
4. Place the flange seal in the supporting disc and seal this with the flange using 8 M12 x 35 screws or 8 M12 nuts for a Ø 180 flange (RWT 18) or with 12 M12 x 35 screws or 12 M12 nuts for a Ø 240 flange (RWT 31).
Tighten screws and nuts diagonally. The max. torque is 35 Nm.

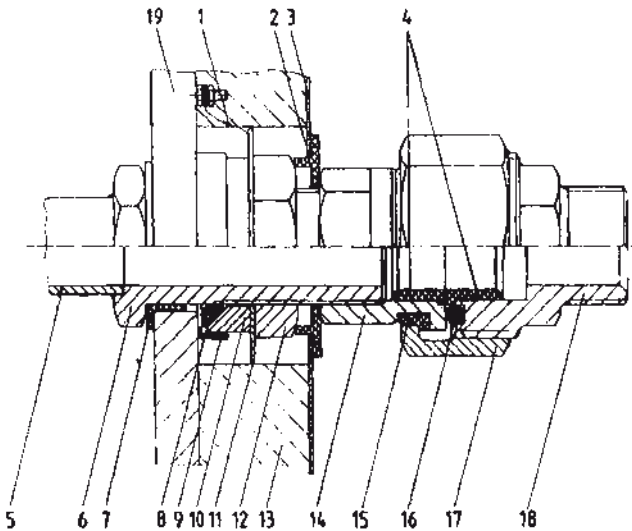


ATTENTION

Make sure not to damage the protective current bleeder resistor 1 on the brass strap 11 when securing the screws or nuts!

5. Insert the flexible foam disc 13 (heat insulation) and the coated cover plate. Both insulating plastic bushings 2 must be installed in the cover plate 3 to provide insulation).

6. Using the union nut 17, seal the insert 14 and insert the insulation clip 15.
7. Screw the insert 14 flat onto the connecting fitting 6 until it rests against the insulating plastic bushing 2.
8. Insert the insulating sleeves 4 into the insert 14 and into the adapter nipple 18.
9. Establish the supply line to the heating circuit and connect it to the adapter nipple 18.
10. Screw the union nut 17 to the adapter nipple 18; counter pressure is provided by the the hex plate. The max. torque is 15 Nm.



- | | | |
|------------------------------|-----------------------|--------------------|
| 1 620 resistor | 7 Insulating sleeve | 14 Insert |
| 2 Insulating plastic bushing | 8 O-ring | 15 Insulation clip |
| 3 Cover plate | 9 Plastic angle | 16 O-ring |
| 4 Insulating sleeve | 10 Swash plate | 17 Union nut |
| 5 Heat exchanger | 11 Brass strap | 18 Adapter nipple |
| 6 Connecting fitting | 12 Hex nut | 19 Flange plate |
| | 13 Flexible foam disc | |

REMKO FIN-TUBE HEAT EXCHANGER

Installation

General Information

- Do not continually top up the water level in the storage tank. This will prevent corrosion damage to the tank.
- In hard water areas, connect a standard descaling device upstream of the tank.

Electrically insulated installation electrically insulated connecting fittings

To protect inadequately coated areas against corrosion, magnesium anodes or external current anodes are generally installed in enamelled or in plastic clad steel hot water tanks.

This protection against corrosion provided by the use of cathodes becomes problematic if heating coils that are not insulated are also installed. Heating coils that are not insulated quickly consume the anodes. The defective areas form a galvanic element together with the valuable heating coil materials that can cause the defective area's substrate to decompose. Insulating connecting fittings prevent this galvanic element from forming and in this way provide significant protection against corrosion in coated steel hot water tanks.

A protective current bleeder resistor is installed to protect the fin-tube heat exchanger against current-induced corrosion.

The insulated connections use insulate the heating coils both against the tank wall and against the metal connecting lines and comply with DVGW data sheet specifications. W 511.

Protection against corrosion when using different metals in the installation

The resistance of copper to corrosion caused by contact with drinking water is long proven. Copper has proven itself as a working material especially given the fact that chlorine is often present in drinking water.

The heat transmitters also comply with the requirements specified by DIN 1988 and DIN 4753.

When copper comes into contact with water, copper ions are released to the water.

Copper pipes do not pose a problem because a dense, strongly adhering top layer quickly forms.

In galvanised steel pipes installed downstream however, the released copper ions can quickly cause corrosion.

To prevent corrosion when different metals are used in the installation, the outside of the heating coils is galvanically tin-plated.



NOTE

Installation may only be performed by authorised specialists.

Before commissioning

The warm water tank must be filled with water before it is put into service for the first time.

While heating up, the expansion water generated in the internal boiler should drip out of the safety valve if there is a pressure-tight connection and out of the overflow mixer tap if there is a connection that is not under pressure.



ATTENTION

The warm water drain pipe as well as parts of the safety equipment may become hot.

Commissioning



NOTE

Commissioning should only be performed and documented by specially trained personnel.

During initial filling, the discharge valve must be open. The warm water tank is completely full when water, bubble free, runs out of the valve's discharge pipe.

Once the water has been heated successfully, the set temperature, the actual temperature of the water produced and that shown on any temperature indicator should be approximately the same. Heating the water in the tank causes its volume to increase. While heating up, the expansion water generated in the internal boiler should drip out of the safety valve. This dripping is necessary to the function of the unit, and must not be prevented by retightening the valves.



ATTENTION

The warm water drain pipe as well as parts of the safety equipment may become hot.

REMKO FIN-TUBE HEAT EXCHANGER

Technical data

| Series | | RWT 18 | RWT 31 |
|---------------------------------|----------------|---------------------------|---------------|
| Operating mode | | Additional, indirect heat | |
| max. operating temperature | °C | 95 | |
| max. operating pressure | bar | 10 | |
| Heat exchanger surface | m ² | 1.40 | 3.10 |
| Installation length | mm | 440 | 530 |
| Connection | Inches | 3/4 AG | 1 AG |
| Contents | l | 1.50 | 2.50 |
| Flange | ∅ | 180 / 8-hole | 240 / 12-hole |
| Immersion sleeve for the sensor | | no | yes |
| EDP no. | | 260200 | 260210 |

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

Type RWT 18 cycle outputs

| VL/BW | 560 l/h | | | 680 l/h | | | 780 l/h | | |
|------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|
| °C ¹⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ |
| 90/45 | 27.2 | 670 | 100 | 30.4 | 748 | 150 | 34.2 | 842 | 200 |
| 80/45 | 20.7 | 510 | 100 | 23.7 | 583 | 150 | 27.2 | 670 | 200 |
| 70/45 | 14.8 | 364 | 100 | 16.8 | 414 | 150 | 18.7 | 460 | 200 |
| 60/45 | 9.2 | 226 | 100 | 10.7 | 263 | 150 | 11.8 | 290 | 200 |
| 50/45 | 4.4 | 108 | 100 | 5.3 | 130 | 150 | 5.7 | 140 | 200 |
| 90/60 | 20.9 | 360 | 100 | 24.1 | 415 | 150 | 27.9 | 481 | 200 |
| 80/60 | 14.2 | 245 | 100 | 16.5 | 284 | 150 | 18.4 | 317 | 200 |
| 70/60 | 7.8 | 134 | 100 | 9.2 | 159 | 150 | 10.4 | 179 | 200 |

1) Supply temperature/domestic water temperature

2) Cycle output

3) Hot water output

4) Pressure loss

Type RWT 31 cycle outputs

| VL/BW | 860 l/h | | | 1040 l/h | | | 1200 l/h | | |
|------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|
| °C ¹⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ | kW ²⁾ | l/h ³⁾ | mbar ⁴⁾ |
| 90/45 | 37 | 909 | 100 | 42.5 | 1044 | 150 | 47.5 | 1167 | 200 |
| 80/45 | 28 | 688 | 100 | 33 | 811 | 150 | 37 | 909 | 200 |
| 70/45 | 21 | 516 | 100 | 24 | 590 | 150 | 27 | 663 | 200 |
| 60/45 | 12.5 | 307 | 100 | 15 | 369 | 150 | 16.5 | 405 | 200 |
| 50/45 | 6 | 147 | 100 | 7 | 172 | 150 | 8 | 197 | 200 |
| 90/60 | 27 | 464 | 100 | 32 | 550 | 150 | 36.5 | 628 | 200 |
| 80/60 | 19 | 327 | 100 | 22.5 | 387 | 150 | 26 | 447 | 200 |
| 70/60 | 9.7 | 167 | 100 | 11.2 | 198 | 150 | 13.3 | 229 | 200 |

1) Supply temperature/domestic water temperature

2) Cycle output

3) Hot water output

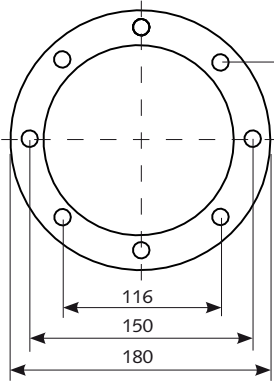
4) Pressure loss

REMKO FIN-TUBE HEAT EXCHANGER

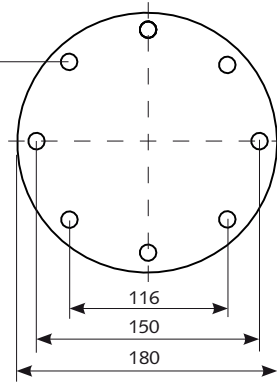
Dimensions: flange seal and flange lid

RWT 18

D180 flange seal



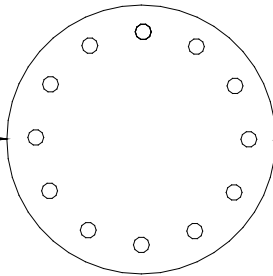
D180 flange lid



each 8 x \varnothing M12

RWT 31

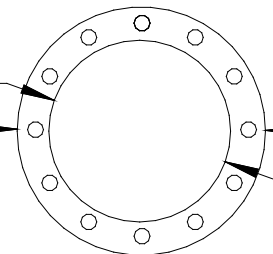
\varnothing 240



D240 flange lid

\varnothing 172

\varnothing 235



D240 flange seal

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



REMKO INTERNATIONAL

*... and also right in your neighbourhood!
Take advantage of our experience and advice*



REMKO GmbH & Co. KG
Klima- und Wärmetechnik

Im Seelenkamp 12
Postfach 1827
Telephone
Fax
e-mail
Website

D-32791 Lage
D-32777 Lage
+49 5232 606-0
+49 5232 606-260
info@remko.de
www.remko.de

