

# ■ Assembly instructions

## **REMKO storage tank systems Buffer tanks for hot/cold water**

KPS 131, KPS 301



**Instructions for users and specialists**

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**Read these operating instructions carefully before commissioning / using this device!**

**These instructions are an integral part of the system and must always be kept near or on the device.**

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

**Translation of the original assembly instructions**

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# REMKO storage tank systems

## 1 Safety and usage instructions

### 1.1 General safety notes

Carefully read the operating manual before commissioning the units for the first time. It contains useful tips and notes such as hazard warnings to prevent personal injury and material damage. Failure to follow the directions in this manual not only presents a danger to people, the environment and the system itself, but will void any claims for liability.

Keep this operating manual and the refrigerant data sheet near to the units.

### 1.2 Identification of notes

This section provides an overview of all important safety aspects for proper protection of people and safe and fault-free operation. The instructions and safety notes contained within this manual must be observed in order to prevent accidents, personal injury and material damage.

Notes attached directly to the units must be observed in their entirety and be kept in a fully legible condition.

Safety notes in this manual are indicated by symbols. Safety notes are introduced with signal words which help to highlight the magnitude of the danger in question.

#### **DANGER!**

Contact with live parts poses an immediate danger of death due to electric shock. Damage to the insulation or individual components may pose a danger of death.

#### **DANGER!**

This combination of symbol and signal word warns of a situation in which there is immediate danger, which if not avoided may be fatal or cause serious injury.

#### **WARNING!**

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may be fatal or cause serious injury.

#### **CAUTION!**

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may cause injury or material and environmental damage.

#### **NOTICE!**

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may cause material and environmental damage.



*This symbol highlights useful tips and recommendations as well as information for efficient and fault-free operation.*

### 1.3 Personnel qualifications

Personnel responsible for commissioning, operation, maintenance, inspection and installation must be able to demonstrate that they hold a qualification which proves their ability to undertake the work.

### 1.4 Dangers of failure to observe the safety notes

Failure to observe the safety notes may pose a risk to people, the environment and the units. Failure to observe the safety notes may void any claims for damages.

In particular, failure to observe the safety notes may pose the following risks:

- The failure of important unit functions.
- The failure of prescribed methods of maintenance and repair.
- Danger to people on account of electrical and mechanical effects.

### 1.5 Safety-conscious working

The safety notes contained in this manual, the existing national regulations concerning accident prevention as well as any internal company working, operating and safety regulations must be observed.

## 1.6 Safety instructions for the operator

The operational safety of the units and components is only assured providing they are used as intended and in a fully assembled state.

- The units and components may only be set up, installed and maintained by qualified personnel.
- The existing regulations concerning accident prevention must be adhered to.
- Do not operate units or components with obvious defects or signs of damage.
- Contact with equipment parts or components can lead to burns or injury.
- Ensure that electrical energy does not pose a risk.
- Regulations of the VDE and the local energy supply company must be adhered to.

## 1.7 Safety notes for installation and inspection tasks

- The operator must ensure that all inspection and installation work is carried out by authorised and qualified personnel who have thoroughly read the operating manual.
- Work on the system may only ever be carried out when it is stationary.
- Appropriate hazard prevention measures must be taken to prevent risks to people when performing installation, repair, maintenance or cleaning work on the units.
- The setup, connection and operation of the units and its components must be undertaken in accordance with the usage and operating conditions stipulated in this manual and comply with all applicable regional regulations.
- Regional regulations and laws as well as the Water Ecology Act must be observed.
- The power supply should be adapted to the requirements of the units.
- The units and components must be kept at an adequate distance from flammable, explosive, combustible, abrasive and dirty areas or atmospheres.
- Safety devices may not be modified or bypassed.

## 1.8 Unauthorised modification and changes

The operational safety of the supplied units/components is guaranteed when used in line with intended use in accordance with section 1.9 of the operating instructions. Under no circumstances should the threshold values specified in the data-sheet be exceeded.

Modifications or changes to units and components are not permitted and may cause malfunctions. Safety devices may not be modified or bypassed. Original replacement parts and accessories authorised by the manufacturer ensure safety. The use of other parts may invalidate liability for resulting consequences.

## 1.9 Intended use

The buffer tanks are employed for the storage of hot water in all types of hot water central heating systems (solid fuel/oil-fired boilers, heat pumps, solar plant, gas/electric instantaneous water heaters) within enclosed spaces and for the storage of cold water for cooling processes or heat recovery purposes.

Any other 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. Intended use also includes working in accordance with the operating and installation instructions and complying with the maintenance requirements.

The threshold values specified in the technical data must not be exceeded.

## 1.10 Warranty

For warranty claims to be considered, it is essential that the ordering party or its representative complete and return the "certificate of warranty" to REMKO GmbH & Co. KG at the time when the units are purchased and commissioned.

The warranty conditions are detailed in the "General business and delivery conditions". Furthermore, only the parties to a contract can conclude special agreements beyond these conditions. In this case, contact your contractual partner in the first instance.

# REMKO storage tank systems

## 1.11 Transportation and packaging

The units are shipped in sturdy transport packaging or within the heat pump housing. Immediately check the units on delivery and make a note of any damage or missing parts on the delivery note. Inform the forwarding agent and contractual partner. Claims under guarantee made at a later date will not be accepted.



### **WARNING!**

**Plastic films and bags etc. are dangerous toys for children!**

Why:

- Leave packaging material are not around.
- Packaging material may not be accessible to children!

## 1.12 Environmental protection and recycling

### **Disposal of packaging**

All products are packed for transport in environmentally friendly materials. Make a valuable contribution to reducing waste and sustaining raw materials. Only dispose of packaging at approved collection points.



### **Disposal of equipment and components**

Only recyclable materials are used in the manufacture of the devices and components. Help protect the environment by ensuring that the devices or components (for example batteries) are not disposed in household waste, but only in accordance with local regulations and in an environmentally safe manner, e.g. using certified firms and recycling specialists or at collection points.



## 2 Technical data

### 2.1 Unit data

Series		KPS 131	KPS 301
<b>Operating data</b>			
Rated contents	l	130	306
Operating temperature min/max	°C	10/95	
Operating pressure	bar	3	
Energy efficiency ratio		A	B
Heat losses	W	37	67
Stand-by energy consumption value (radiation value as per DIN 44532)	kWh/d	0.89	1.61
Height with insulation	mm	635	1295
Diameter	mm	700	
Tilt height	mm	909	1441
Weight	kg	35	72

We reserve the right to make technical changes for the purpose of technical advancement.

# REMKO storage tank systems

## 2.2 Unit dimensions

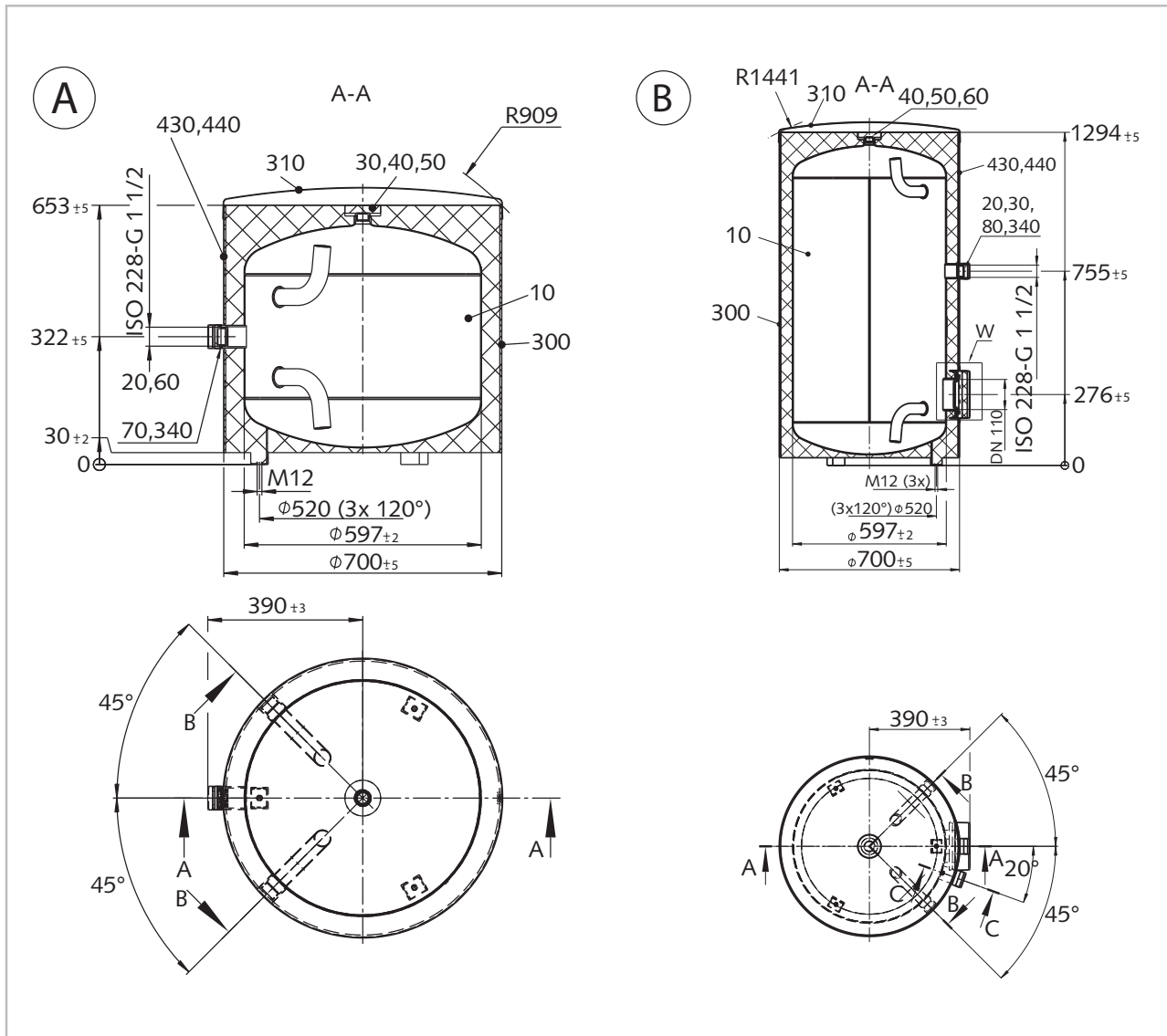


Fig. 1: Unit dimensions (all measurements in mm)

A: KPS 131

B: KPS 301

The tilt dimension [R] is without the storage tank cover

We reserve the right to make technical changes for the purpose of technical advancement.



### 3 Unit description

The buffer tanks are employed for the storage of hot water in all types of warm water central heating systems (solid fuel/oil-fired boilers, heat pumps, solar plant, gas/electric instantaneous water heaters) within enclosed spaces and for the storage of cold water for cooling processes or heat recovery purposes.

The storage tank volume can be adapted to your particular needs by connecting several buffer tanks to form batteries. The buffer tanks may be used universally, either as parallel buffer tanks (hydraulic compensators) or series buffers.

The insulation of the buffer tanks is comprised of 50 mm directly applied, CFC-free, fine-pore PU foam. The external cladding applied ex works is comprised of a powder-coated steel sheet cladding in the colour: silver grey, the insulation is water vapour diffusion proof.

All buffer tanks are manufactured from quality steel in accordance with DIN EN 10025/10111. An electric auxiliary heater (immersion heater) can be screwed into each buffer tank via a 6/4" socket. For retrofitting a fin-tube heat exchanger, a D180 (f=180mm) KPS 301 blank flange cover is fitted to the storage tank. The buffer tanks are equipped with 4 ports. A sensor channel enables the KPS 301 variable installation of a heat sensor in the storage tank.

### 4 Installation instructions for qualified personnel

#### General instructions prior to installation

- Ensure that the area in which the unit is to be operated is free of frost and easily accessible for required maintenance, repairs and even for the possible replacement of the unit (e.g. avoid narrow passageways and doorways).
- When installing the buffer tanks in non-standard locations, such as in lofts, residential units with floors that are sensitive to water, storerooms, etc. take account of the possibility of leaking water, and ensure that a facility is in place to collect the water, including appropriate drainage methods.
- The unit may only be installed and operated on level surfaces.
- When planning the unit's installation surface and selecting the installation location, note the total weight of the buffer tanks, including the weight of the water (the nominal capacity), in order to ensure that the load-bearing capacity of the support surface is not exceeded.
- Ensure proper clearance from furnace systems.
- Make sure that the connection block (water and electric connections and heater installation) of units with enclosures, which are installed in small, confined spaces or in suspended ceilings are still freely accessible and that there is no build-up of heat.
- Leave at least 500mm of space free for the removal of the cleaning/heating flange.

#### ! NOTICE!

The buffer tank is not suitable for preparation for domestic water!

#### Central heating connection

Before being placed into service, the heat distribution must be rinsed out in order to remove any soiling (e.g. scale) from the heating circuit.

#### Assembly

- Check the contents of the packaging for completeness and check the unit for visible transport damage. Immediately notify your contract partner of any deficiencies.
- The unit must be assembled on site.
- For all connection ports, ensure that the threading is fully engaged.

# REMKO storage tank systems

## 5 Installation

### General notes

#### ! NOTICE!

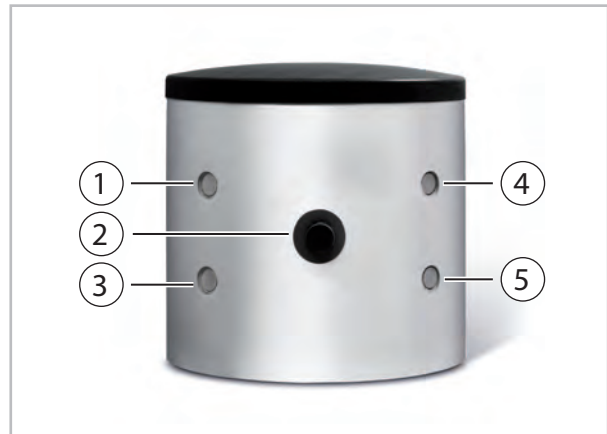
Preparation of the hot water must be in compliance with the applicable standards.

- Do not continually top up the water level in the buffer tank. This will prevent corrosion damage to the storage tank.
- If corrosive water is a problem, please note that special models of the storage tanks can be tested. (Address all queries to your contractual partner).
- The storage tank must be filled in accordance with the applicable DIN 2035 standard! Damage that results from non-compliance are not covered by the guarantee.

### Electric auxiliary heater

- Use the 6/4" socket to install an auxiliary heater (immersion heater).
- Please note that the electric auxiliary heater must not be used as a permanent heating system.

### Assignment of the connection ports KPS 131



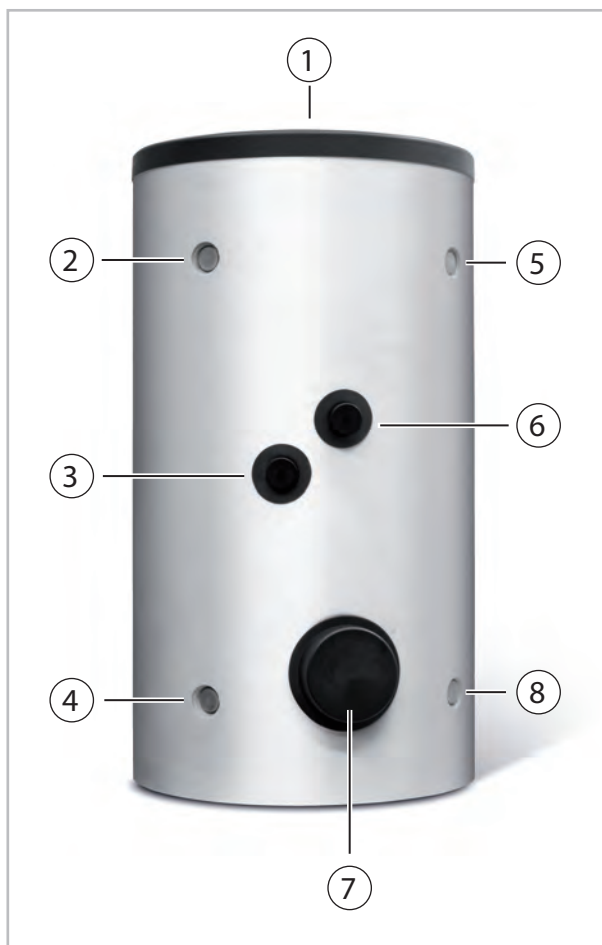
*Fig. 2: Assignment of the connection ports KPS 131*

- 1: Inlet heat pump/heating cycle 1" AG
- 2: Optional: Auxiliary heater (immersion heating) 6/4" IG
- 3: Return flow heat pump/heating cycle 1" AG
- 4: Inlet heat pump/heating cycle 1" AG
- 5: Return flow heat pump/heating cycle 1" AG

## Assignment of the connection ports KPS 301

### Variant 1:

Heat pump is located to right of buffer tank



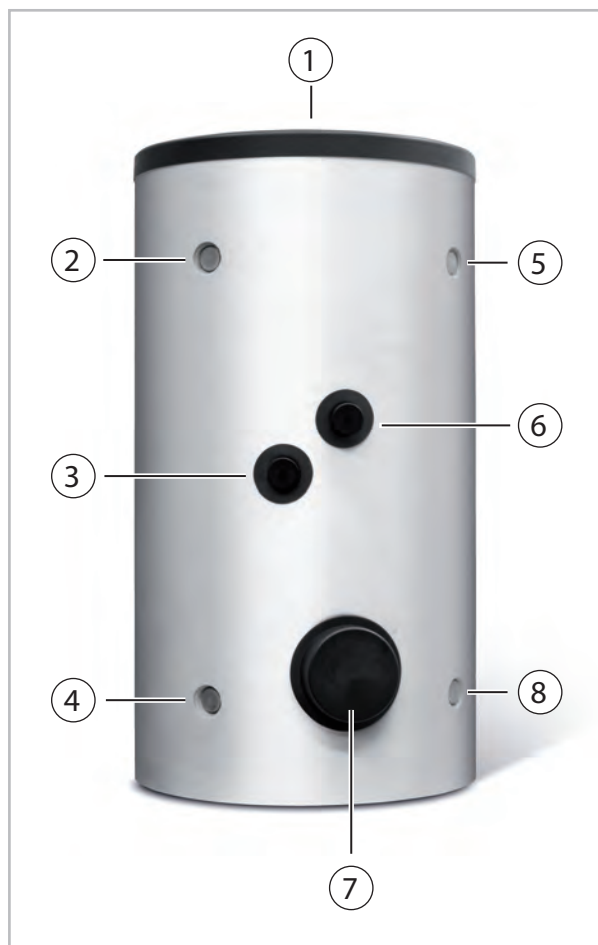
*Fig. 3: Assignment of the connection ports KPS 301*

- 1: Connection top 1" AG, for: bleeding valve, safety assembly
- 2: inlet heating cycle 5/4" AG
- 3: immersion tube for temperature sensors
- 4: Heating cycle return flow and drainage through customer-provided T-section 5/4" AG
- 5: inlet heat pump 5/4" AG
- 6: Optional: Auxiliary heater (immersion heating) 6/4" IG
- 7: Cleaning flange or opening for fin-tube heat exchanger D180 (special accessory)
- 8: return flow heat pump 5/4" AG

## Assignment of the connection ports KPS 301

### Variant 2:

Heat pump is located to left of buffer tank



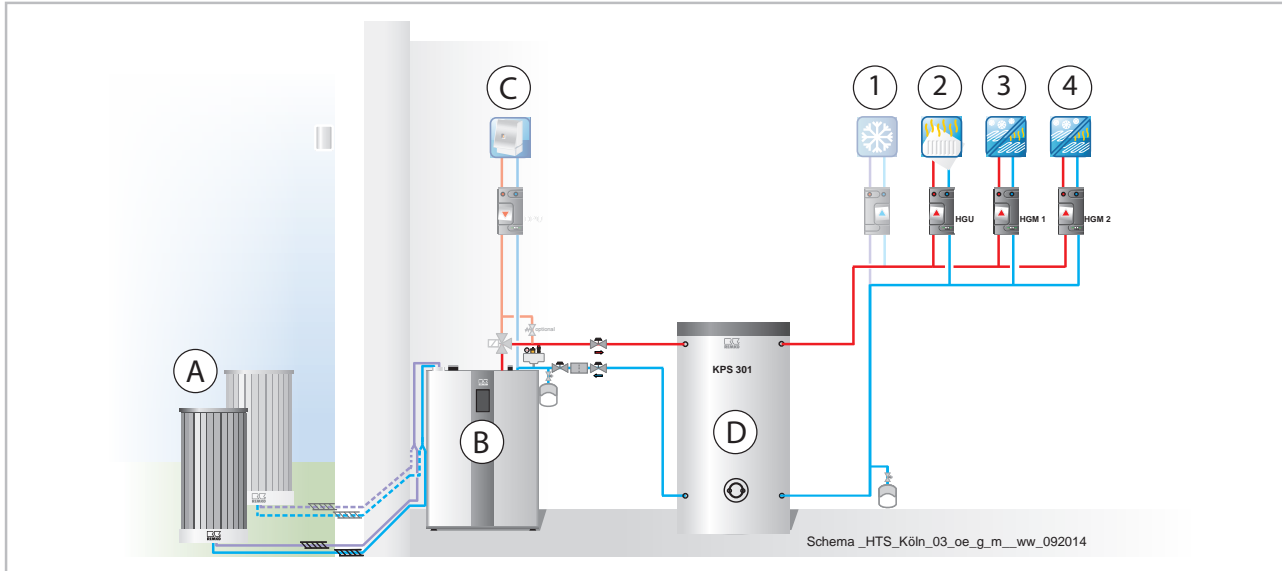
*Fig. 4: Assignment of the connection ports KPS 301*

- 1: Connection top 1" AG, for: bleeding valve, safety assembly
- 2: inlet heat pump 5/4" AG
- 3: immersion tube for temperature sensors
- 4: return flow heat pump 5/4" AG
- 5: inlet heating cycle 5/4" AG
- 6: Optional: Auxiliary heater (immersion heating) 6/4" IG
- 7: Cleaning flange or opening for fin-tube heat exchanger D180 (special accessory)
- 8: Heating cycle return flow and drainage through customer-provided T-section 5/4" AG

# REMKO storage tank systems

## Installation example - hydraulic circuit diagram heat pump package HTS Cologne

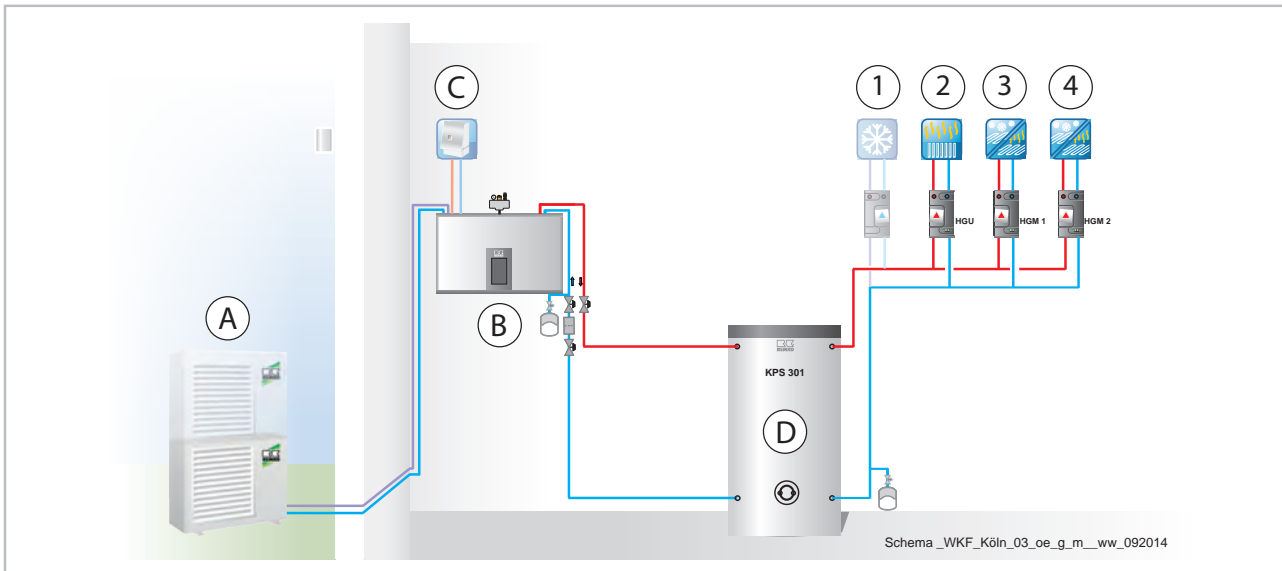
The following hydraulic circuit diagrams are only to be used as a planning aid, and do not replace an installation drawing! The design and planning of customer-provided hydraulic systems must be performed by a specialist installer!



- A: Outdoor unit(s)
- B: Indoor unit
- C: Boiler/wall heating device
- D: Storage tank

- 1: Cooling cycle
- 2: Unmixed heating cycle
- 3: Mixed heating cycle 1
- 4: Mixed heating cycle 2

## Installation example - hydraulic circuit diagram heat pump package WKF Cologne



- A: Outdoor unit
- B: Indoor unit
- C: Boiler/wall heating unit (max. 22 kW)
- D: Storage tank

- 1: Cooling cycle
- 2: Unmixed heating cycle
- 3: Mixed heating cycle 1
- 4: Mixed heating cycle 2

## 6 Commissioning

### ! NOTICE!

Commissioning should only be performed by specially trained personnel and documented after the certificate has been issued.

1. ➤ Check all connections, even those which were sealed ex works (flange) for leak-tightness.
2. ➤ Then check all pipes for any leaks and, if necessary, eliminate these.
3. ➤ Test the safety assembly and valves for function.
4. ➤ During the heating process, all expansion water generated in the storage tank must be captured by an appropriate expansion vessel.

### Flange installation port

Depending on the design of your system, fin-tube heat exchangers may be attached to the boiler flanges.

- First tighten the nuts by hand.
- Then tighten the nuts, in the sequence specified below, to a torque of 20 Nm to max. 25 Nm.

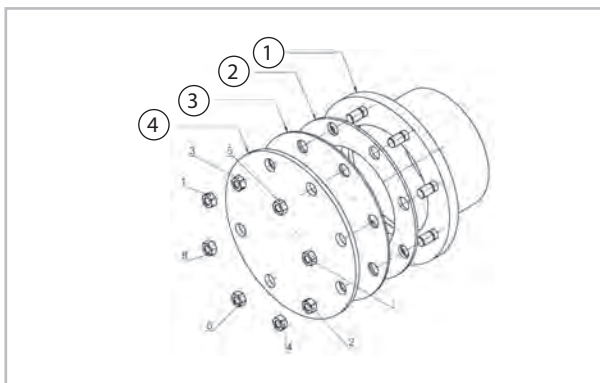


Fig. 5: Fitting the flange installation port

- 1: Flange ring
- 2: Seal
- 3: Supporting disc
- 4: Flange plate

## 7 Care and maintenance

### Care

- Clean the units with a damp cloth. (by adding, for instance, a liquid household cleaner). Do not use any caustic, abrasive or solvent-based cleaning products.

### Maintenance

- It is recommended that you take out a maintenance contract with an annual service from an appropriate specialist firm.



*This enables you to ensure the operational reliability of the plant at all times!*

- Regularly check the function of the safety valve.

The expansion water amount at maximum heat (approx. 80°C) represents approx. 3.5% of the storage 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.



### CAUTION!

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

If the storage tank is not heated, no water should drip from the safety valve. If this does occur, either the system pressure is greater than the permitted value or the safety valve is defective. In both cases, the system must be tested by qualified personnel.

# REMKO storage tank systems

## 8 Shutdown

### Temporary shutdown

Temporarily shutdown the plant as follows:

1. Completely switch off the electrical connection.
2. Drain the storage tank in areas where it is at risk from frost and before the onset of winter.
3. In this case also drain the cool and hot water pipes leading to the heating unit and to the heat/cold generators as well as water carrying fittings and pipes (also heating cycle = radiator) to the frost-proof part of the domestic water system (domestic water connection).

### Permanent shutdown

Ensure that units and components are disposed of in accordance with local regulations, e.g. through authorised disposal and recycling specialists or at collection points. REMKO GmbH & Co. KG or your contractual partner will be pleased to provide a list of certified firms in your area.

#### CAUTION!

During drainage of the storage tank, hot water may escape!

#### NOTICE!

When putting the storage tank back into service, ensure that it is filled with water and that water which is free of bubbles is escaping from the valves!

## 9 Spare parts list

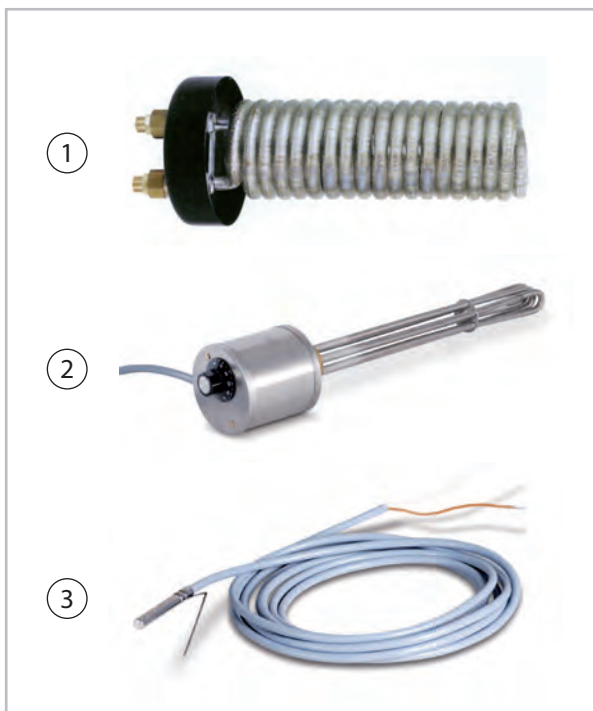


Fig. 6: Spare parts

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

### Spare parts list

No	Designation	KPS 131	KPS 301
		EDP no.	EDP no.
1	Finned heat exchanger	---	260200
2	Auxiliary heater (heating element 6 kW)	260063	260063
3	Immersion probe	---	259062
	Cover	1110794	1110794
	Foil lining	1110792	1110793

When ordering spare parts, please always state the EDP number, unit number and unit type (see name plate)!

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# REMKO QUALITY WITH SYSTEMS

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