



# KTS CENTRAL HOT WATER HEATING

Managing energy efficiency and hygiene

  
**KEMPER**  
DRIVING PROGRESS



# ThermoSystem KTS

Managing energy efficiency and hygiene

## Why choose instantaneous hot water heating?

Ensuring drinking water hygiene while maximising energy efficiency is currently one of the most significant challenges in building technology. It's essential to choose the right technology for the job. You need it to allow you to avoid risks that may affect drinking water hygiene while also enabling you to use energy as efficiently and sustainably as possible. Water heaters from the KEMPER ThermoSystem KTS offer innovative solutions for this. With outstanding performance data even at low flow temperatures, they're considerably more

effective at utilising the primary energy as storage systems. This ensures that energy is used much more efficiently and the use of regenerative energy sources is more cost-effective. These solutions also provide significant advantages in terms of drinking water hygiene. Even at least water usage, the water content of the instant heating system is completely exchanged. In contrast, hot water tanks in large properties often store volumes a thousand times larger, increasing the risk of stagnation.



### **Progress through KTS**

With the increasing focus on harmonising the use of regenerative energy sources, maintaining drinking water hygiene and digital control and optimisation functions, there are new and demanding requirements for drinking water heating systems. As a consequence, building technology components need to be better-performing and more flexible than ever. This also applies to their ability to communicate with a central building management system and mobile end devices. All the while, time is increasingly of the essence in planning and execution. This means future systems need to be highly favourable in terms of sizing, assembly and commissioning.



## **THE RESULTS OF CONSISTENT ONGOING DEVELOPMENT**

With the KTS Water Heaters PRO, our KTS has proved itself as a pioneer of water heaters. For almost any type of building or application, KTS can supply water with greater:

**speed**

**hygiene**

**efficiency**

**innovation**

**smart technology**

# Speed

## // Assembly

Included accessories such as safety equipment, additional sensors and a BMS interface allow you to save on additional assembly and cable costs. This cuts down on the usual assembly time by up to 50%.

## // Commissioning

A smart wizard enables you to carry out commissioning for all the basic functions yourself in less than 60 seconds.



## KTS WEB TOOL

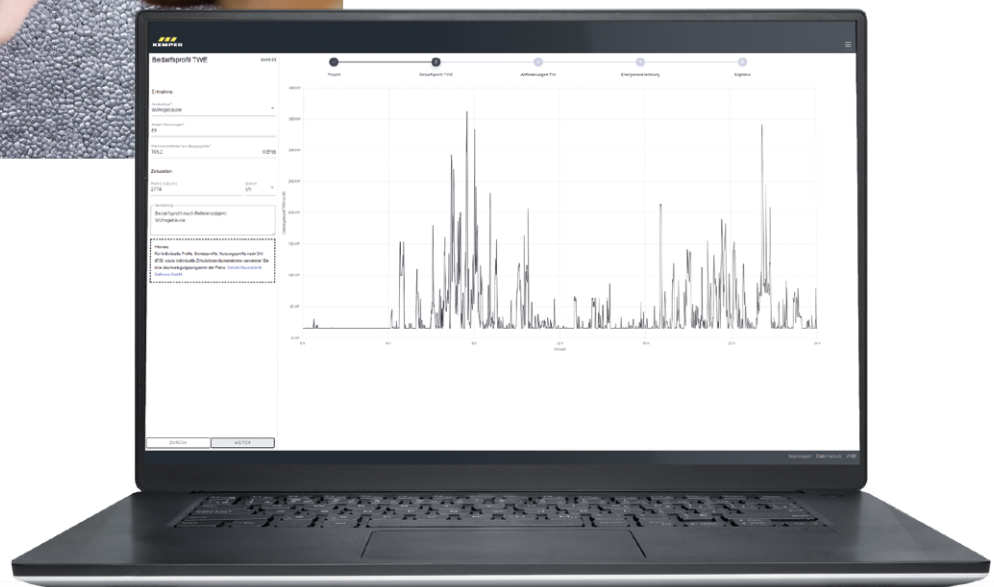
### Sizing in just a few steps

Implement the standard-compliant and time-saving sizing of KTS Water Heaters PRO in just a few steps – with our KTS web tool!

1. Select usage type
2. Adapt standard calculation parameters (e.g. heating flow temperature of the heat source)
3. Automatically create results documentation including tender texts, bill of material and schematic drawing for installation.
4. Receive customised solution for your hot water provision!



[kemper.pdod-tools.de/kts](https://kemper.pdod-tools.de/kts)





# Hygiene

NOTE

## What's important for maintaining drinking water hygiene?

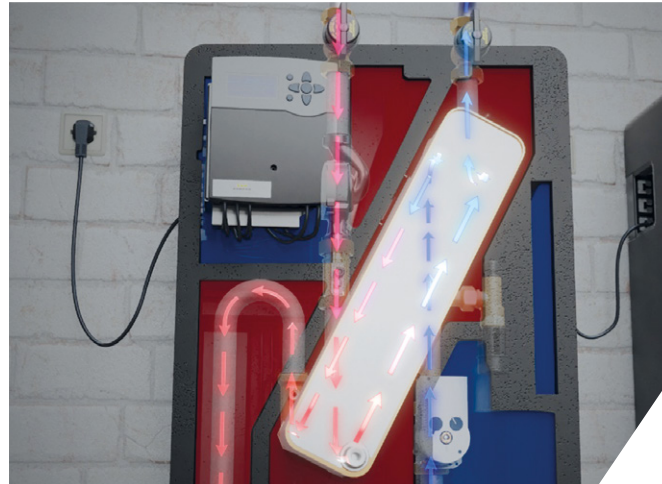
### Temperature Maintenance

Microorganisms such as legionella multiply exponentially in lukewarm drinking water. So temperature ranges between 25°C and 55°C should be avoided.

### Stagnation Prevention

Drinking water that has stagnated in a system will take on ambient temperatures which greatly impact hygiene. Additionally, metal substances from pipes and components will also accumulate. The water should therefore be exchanged frequently!

This is why DIN 1988-200 and guidelines from the Robert Koch Institute state that the volume of domestic hot water to be stored should be kept to a minimum.

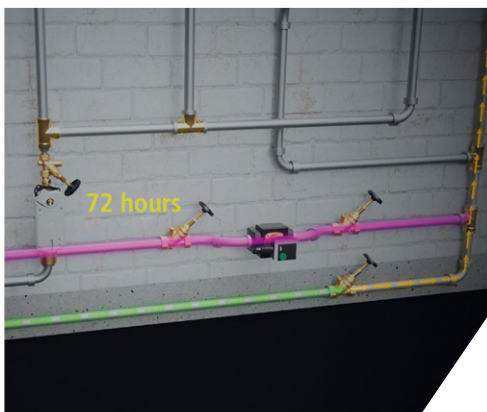


### // Strict separation of hot and cold areas

The insulation shell decouples the cold areas from the hot areas. This minimises the effects of the heat loads on the cold water that are detrimental to hygiene.

### // Cascade rotation

In phases with lower performance requirements, such as during circulation mode, often only one water heater is operated in cascade systems. Cascade rotation is engaged in order to prevent stagnation in the inactive water heaters. This causes all the heating units to automatically become active in alternating fashion so as to avoid hygiene risks.



### // Avoiding stagnation in the cold-water pipe

During periods of non-use (e.g. holidays or lockdown), the cold water in the pipes leading to the water heater often stagnates over several weeks, presenting a high potential risk to hygiene. This risk can be eliminated by the KTS Water Heater PRO's controller by triggering automated flushes thanks to a KHS Flush Point.

### // Hot water "on demand"

The KTS Water Heaters PRO only heat drinking water when needed and only heat the amount that's actually required. This does away with the need to store hot water and the risk of stagnation associated with this.

# Efficiency

## // Energy savings of up to 10%

Thanks to its powerful performance, the system only needs an over-temperature of 2K. So, hot water can be output at 60°C even if the heating flow temperature is reduced down to 62°C. The KTS Water Heater PRO's smart controller identifies unnecessarily high heating flow temperatures and indicates when it should be lowered.

## // More efficient heat pump usage

To make use of the heat pumps noticeably more efficient, the heating flow temperature can be reduced.

## // Power-to-Heat ready

The KTS Thermo-Tank Figure 965 is designed to be able to be retrofitted with heating elements. So any photovoltaic systems available can support the load of the heat buffer tank with solar energy.

## // More efficient storage of heat energy

Load and unload KTS ThermoTanks with low turbulence thanks to specially developed baffle plates. This increases the energy efficiency of the heat energy storage.



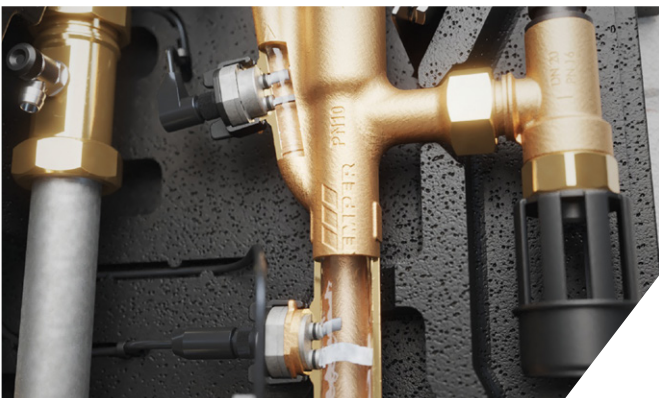


# Innovation



## // Getting the most out of a pump's lifespan

A patented chimney system ensures a constant airflow, whereby the performance-optimised pump is cooled effectively. The thermal load relief feature of the pump electronics allows you to get maximum efficiency throughout the pump's lifespan.



## // Huge performance spectrum

With a new, patented measuring section that responds 55% more effectively, it detects smallest hot water demands even in large installations. Starting from 1.6 l/min, the KTS Water Heater PRO boasts an outstanding performance range. Thanks to its powerful components, it reaches a maximum hot water supply flow rate of 960 l/min.



## // Integrated data logger

According to the German Drinking Water Ordinance (Trinkwasserverordnung) operators are required to record and analyse operating states. Therefore, the controller is equipped with a 32 GB data logger which records operating data over several years.

## // Standard BMS compatibility

The KTS Water Heater PRO is pre-equipped with an RS485 interface (modbus-RTU) at the factory, which allows it to communicate directly with an available building management system.





## Simply smart. And with more expertise.

The demands on your drinking water installation? High. Strict hygiene standards for drinking water must be met at all times. Reliable, resource-efficient, and effective—without compromise. Wouldn't it be great if there was a solution that made all this effortless? That's why we're making our expertise easily accessible—with our innovative spirit, smart ideas, and digital technology. We call it PRO.

### How PRO works:

Our connected products continuously collect all relevant operating data from your drinking water installation. We analyse and interpret this data, then turn it into actionable insights through our digital services. The result? Issues are resolved faster, and your installation becomes safer, more sustainable, and cost-effective.

### Intelligent solutions that create real value.



#### Enhanced operational reliability

Prevent malfunctions before they arise: the recording, visualisation and analysis of operating data allows a rapid reaction to irregularities



#### Improved control

Constant overview of the drinking water installation with the capability to react to automatic discrepancy notifications – at any time and from anywhere



#### Increased productivity

Relief of the operating staff and more efficiency in business operations due to simple implementability of recommendations for action and optimisation



#### Direct support

KEMPER becomes an active partner and problem solver with concrete recommendations for action in the event of a malfunction – or even a full-service provider



#### Lower operating costs

Energy savings from adaptation to analysed and evaluated actual requirements



#### More sustainable drinking water installations

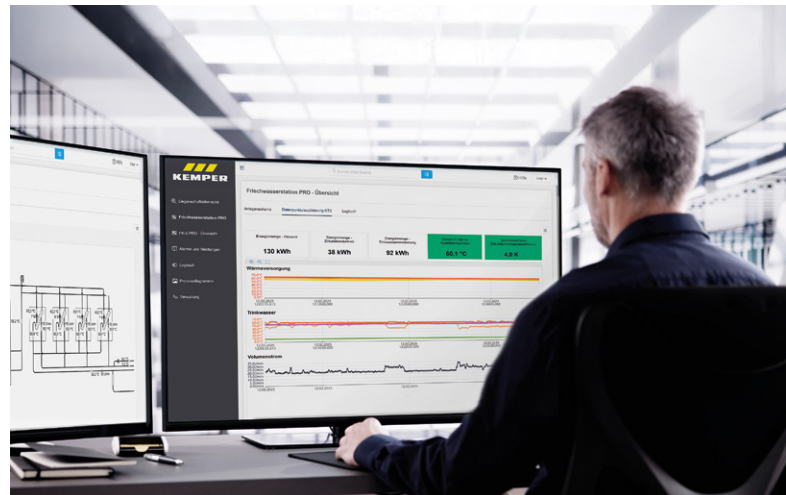
New potential for saving energy, water and CO<sub>2</sub> emissions make it easier to meet sustainability goals that have been set and to comply with drinking water hygiene



# Connected components that make your installation better.

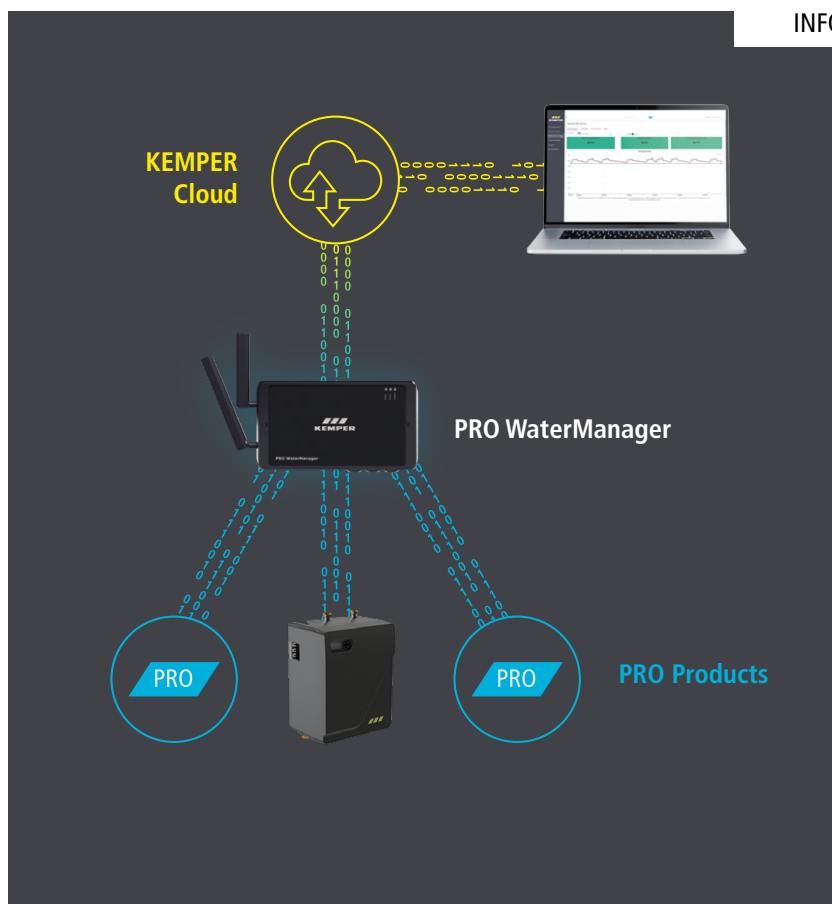
With PRO, you can make the most of your installation's potential: The KTS Water Heater PRO calculates relevant operating data and transmits it to the KEMPER Cloud via PRO WaterManager. Here, we use our expertise to evaluate, interpret and clearly visualise the data for you. As a result, you are in a position to operate your hot water heater with maximum efficiency, safely and sustainably.

Our digital service models can be matched individually to your requirements. By connecting to other PRO products, you can fully utilise all of the potential of your drinking water installation.



## KTS Water Heater PRO: digital product features

- // Live viewing of operating states via digital product twin
- // Potential analysis with automatic optimisation suggestions
  - to reduce the heating flow temperature
  - for elapsed time adjustment of connected heat sources
  - for the interaction of hot water provision and connectible MULTI-THERM PRO balancing technology
- // Analysis of the system parameters for early prediction of required maintenance measures, e.g. in the case of calcification of the heat exchanger (Predictive Maintenance)
- // Monitoring and automatic documentation of all important parameters, such as temperatures and consumption



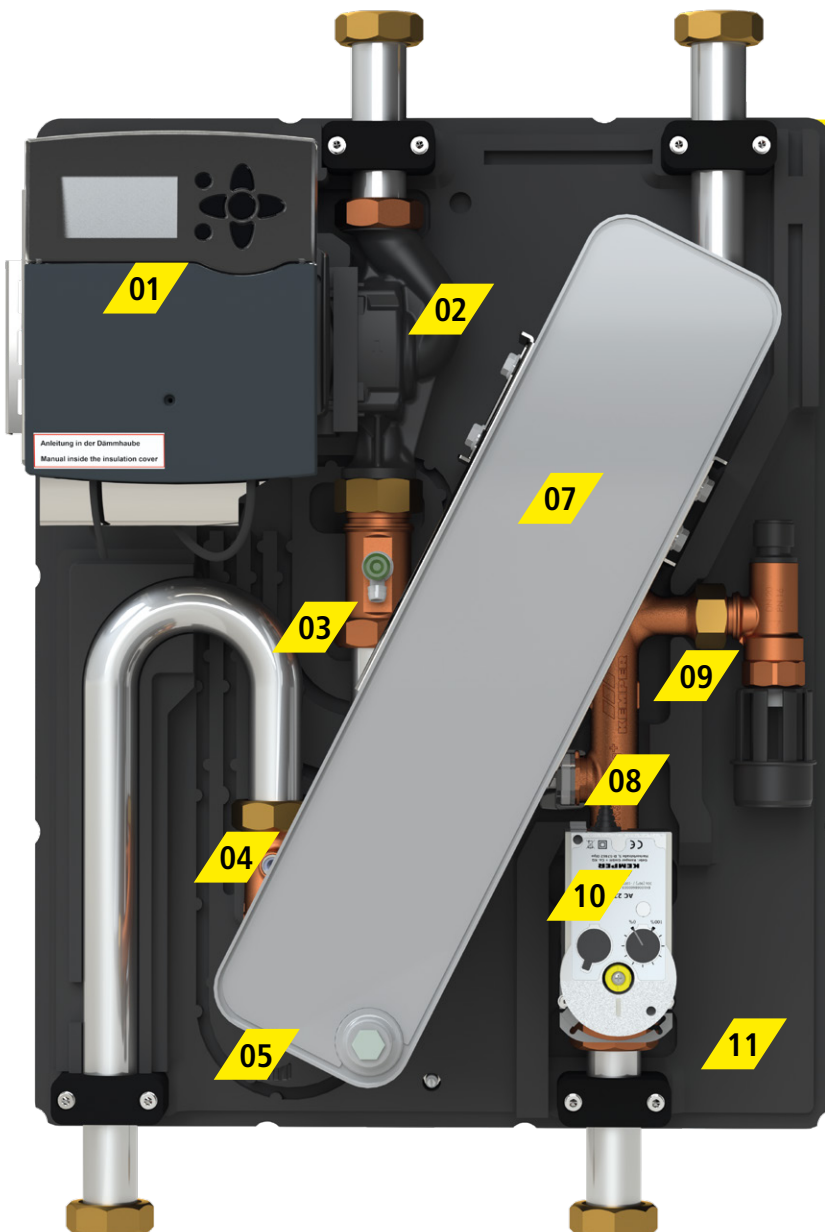
## INFO

The operating data of the KTS Water Heater PRO is initially transmitted to the PRO WaterManager via modbus-RTU. This then makes the data available to the KEMPER Cloud – classically using a LAN network or via the factory-fitted integrated LTE module using the IoT mobile network. Good to know: Your data is securely stored in Germany.



Find out more about our PRO Products & Digital Services

# Product illustration and technical components



## KTS water heater PRO

- // Improves performance by over 200 %
- // 50 % less pressure loss
- // 55 % better response

### 01 Controller

- // Adaptive controller with high control quality
- // Standard BMS compatibility
- // Integrated data logger
- // Commissioning wizard
- // Optimisation function for lowering the heating flow temperature
- // Pump capacity automatically adapted on property-specific basis

### 02 Pump

- // Pulse width modulation
- // Anti-locking function

### 03 Gravity break

- // With ventilation function and optimised response behaviour

### 04 PT1000 Temperature sensor

- // Quickly detect even the smallest of temperature changes directly in the medium





**05 Sampling point**

// Drain valve as standard,  
sampling valve can be retrofitted

**06 Pump chimney**

// Patented chimney system effectively cools  
the pump, achieving maximum efficiency  
throughout its lifespan  
// Pump electronics thermally separated from  
heated areas

**07 Plate heat exchanger in different designs  
(copper solder and stainless steel)**

// Stainless steel for all drinking water qualities  
according to Drinking Water Directive  
// Copper-soldered version for water with up  
to 500 µS/cm el. conductivity

**08 Measuring section using the vortex  
principle**

// Innovative, patented measuring method  
from 1.6 l/min

**09 Pressure relief valve**

// Integrated 10-bar membrane safety valve

**10 Quarter turn stop valve**

// Stop valve with actuator in cascade units for  
automatic cascade rotation, which ensures  
equal operating hours of each water heater  
// Single stations are switched on and off in  
dependence of the hot water demand

**11 Insulation shell**

// Hot and cold areas strictly separated,  
minimising effects of heat loads on cold  
water detrimental to hygiene



KTS product video



# KTS Water Heater PRO

## Technical data and accessories

	M station	L station
PWH <sup>1)</sup>	1.6 l/min - 75 l/min	1,6 l/min - 120 l/min
PWH temperature	20°C - 70°C	20°C - 70°C
Thermal disinfection	70°C - 90°C	70°C - 90°C
Max. heat capacity <sup>1)</sup>	262 kW	418 kW
Dimensions H1 x L1 x D1	749 mm x 550 mm x 388 mm	749 mm x 550 mm x 388 mm

<sup>1)</sup> Values are based on storage temperature of 80°C and hot water temperature of 60°C

	Copper solder M station	Copper solder L station	Stainless steel M station	Stainless steel L station
single unit	9152010100	9153010100	9252010100	9253010100
2-stage cascade	9152000200	9153000200	9252000200	9253000200
3-stage cascade	9152000300	9153000300	9252000300	9253000300
4-stage cascade	9152000400	9153000400	9252000400	9253000400
5-stage cascade	9152000500	9153000500	9252000500	9253000500



Water Heater temperature sensor set

Part No. 9160202100



KHS Flush Point 230V

Part No. 6840401500



Gunmetal sampling valve

Part No. 1870000600



3-way valve,  
DN 32 to DN 50

Part No.	DN 32	9160203200
	DN 40	9160204000
	DN 50	9160205000



3-way valve  
DN 65 to DN 80

Part No.	DN 65	9160206500
	DN 80	9160208000





**BACnet gateway for Water Heater**

Part No. 9160202200

**NEW**



**PRO WaterManager**

Figure number 111 01 001

# KTS ThermoTank

## Technical data and accessories

### KTS ThermoTank S buffer tank with baffle plate

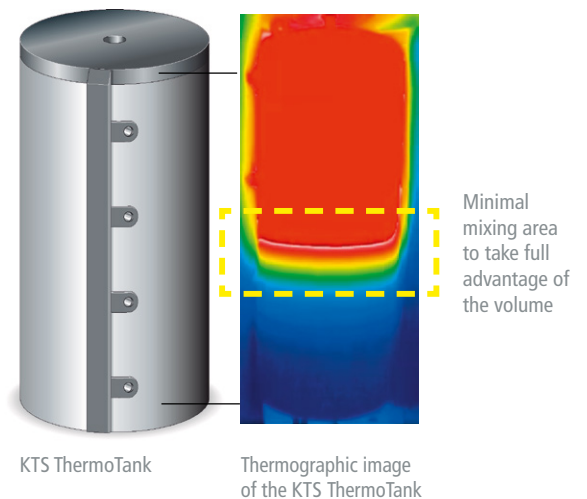
Type	Volume (l)	Tilted size (mm)	Ø without insulation (mm)	Ø with insulation (mm)	PN 6, Figure 960 (part no.)	PN 10, Figure 970 (part no.)	PN 6 <sup>2)</sup> , Figure 965 (part no.)	Standby heat losses (W)	EEC <sup>3)</sup>
T500 S	500	1670	650	850	9600050000	9700050000	9650050000	75	B
T850 S	850	2215	750	950	9600085000			101	C
T1000 S	1000	2215	790	990	9600100000	9700100000	9650100000	110	C
T1001 S <sup>1)</sup>	1000	2000	850	1050	9601100000			118	C
T1500 S	1500	2340	1000	1240	9600150000	9700150000		143	C
T2000 S	2000	2360	1100	1340	9600200000			160	C

<sup>1)</sup> Like T1000 S, but overall height reduced by 210 mm.

<sup>2)</sup> Buffer tank with three additional connections for Connections for electric heating elements.

<sup>3)</sup> EEC = energy efficiency class according to EU Regulation No. 814/2013

KTS connection sets for ThermoTank	When using a 3-way valve	When not using 3-directional reversing valve
500 l	9550501000	9550601000
850 l / 1000 l	9550502000	9550602000
1500 l / 2000 l	9550503000	9550603000



# Reference projects

KTS Water Heaters already in use



## Klinikum Lüdenscheid-Hellersen

Design	2023
Building type	Hospital
Product group	KTS

// 900 bed capacity // 30 treatment departments

Ward block: 5-stage cascade L stations  
Treatment: 3-stage cascade M stations



## VAMED Klinik Hagen-Ambrock

Design	2022
Building type	Hospital
Product group	KTS

// 250 rehab patients // 88 intensive care beds

Hospital and residential homes:  
4-stage cascade L stations



## Roche Real Estate Mannheim GmbH

Design	2022
Building type	Pharmaceutical industry
Product group	KTS

// Series-type shower systems for 60 employees

Industrial plant changing area:  
2-stage cascade M stations



## OTTO FUCHS KG

Design	2023
Building type	Industrial plant
Product group	KTS

// Series-type shower systems with 13 showers

Industrial plant changing area:  
M single station



# Service and consultation

To adjust water heating systems for optimal energy usage and costs, the building needs to be considered as a whole. Not only the domestic hot water system, but the heating system as a whole is important for this.



## Consultation and design support

Get in touch with our field sales team. We can support your design process to help you plan your KTS system in line with the relevant standards.

[www.kemper-group.com/kontakt](http://www.kemper-group.com/kontakt)



## Data Entry Sheet

For complex requirements and special builds you can send your project-specific requirements to our planning service using the KTS record sheet.

[www.kemper-group.com/kts-erfassungsbogen](http://www.kemper-group.com/kts-erfassungsbogen)

## Service Hotline

If you have any technical questions or need troubleshooting, on-site service or commissioning services please get in touch with our service hotline.

Tel: +49 2761 891-888 | [serviceGT@kemper-group.com](mailto:serviceGT@kemper-group.com)



