

Project data

Project

Project number:	1
Project name:	Demoprojekt
Zip code / City:	57462 Olpe
Country:	Deutschland

Real estate

Designation:	
Street:	
Zip code / City:	57462 Olpe
Country:	Deutschland

Designer

Designation:	Dendrit GmbH
Street:	Harkortstraße 5
Zip code / City:	57462
Country:	Deutschland

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Project overview - Demoprojekt

Designed products

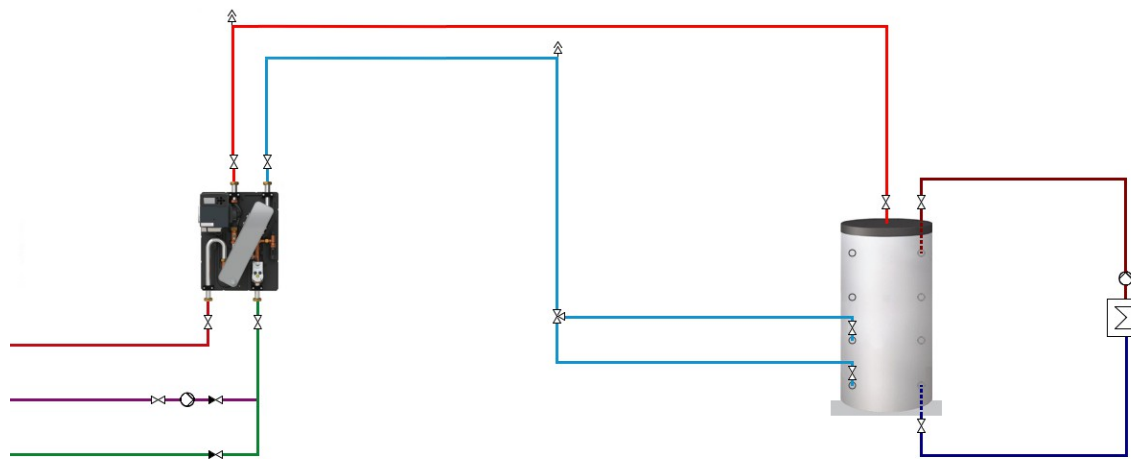
Drinking water heaters: KTS water weater (M/L) PRO, stainless steel, single unit M, 75 l/min



Energy storage: 1 x KTS ThermoTank S, buffer tank PN 6, 500 l



Principle sketch



Calculation bases

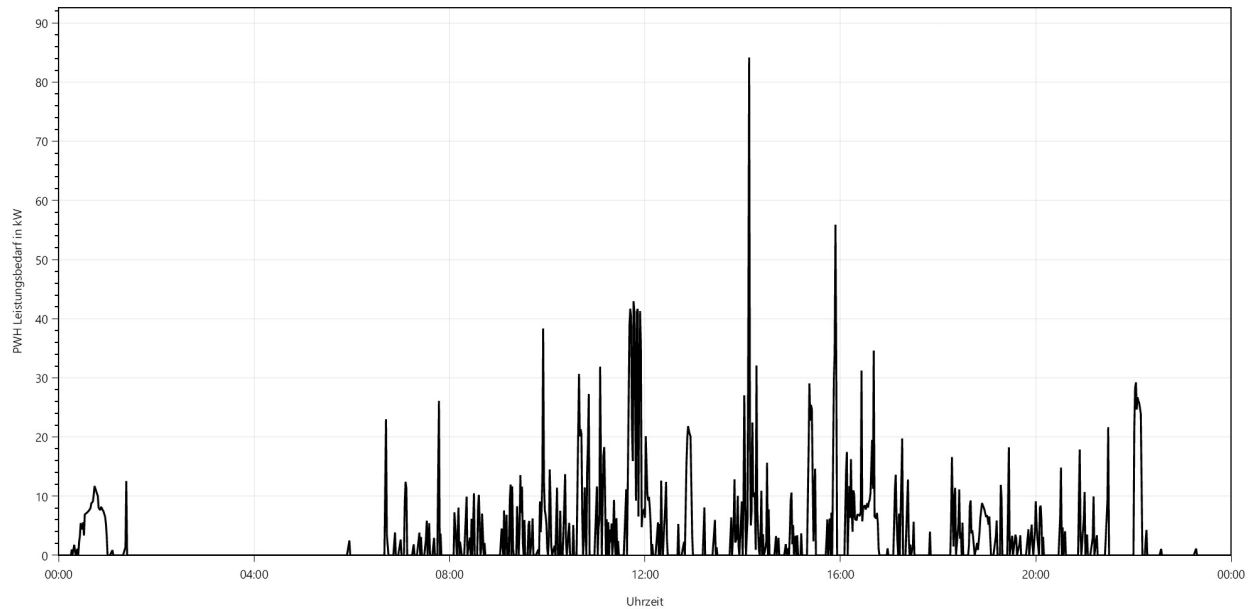
Peak volume flow:	0.40 l/s
Circulation volume flow:	1342 l/h
Heat generator output:	13 kW
Flow temperature:	70 °C

Energy storage

Pressure stage	PN6
Consider inflow velocity	✓

Requirement profiles according to reference object

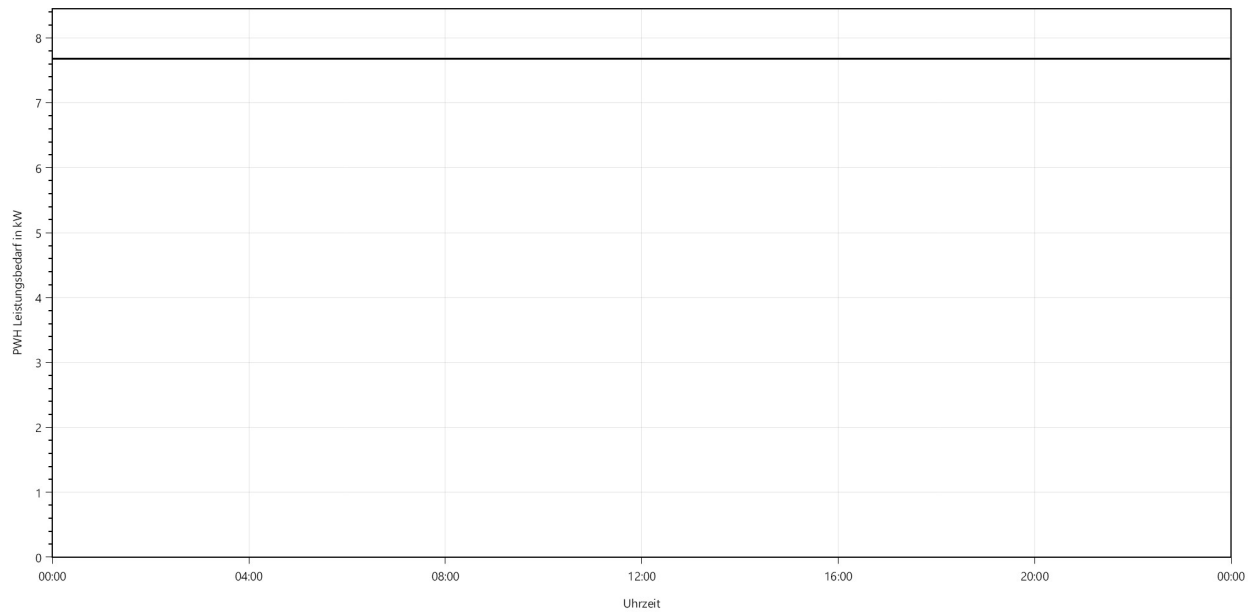
Bedarfsprofil nach Referenzobjekt: Wohngebäude



Reference value	Wohnungen
Quantity	8 Wohnungen
Specific requirements	144.7 l/(Wohnungen * d)

Circulation profiles

Circulation profile (1342 l/h)



Calculation specifications

Drinking water

PWC Temperature:	10 °C
PWH Temperature:	60 °C
PWH-C temperature:	55 °C
Spreading (PWH / PWH-C):	5 K
PWH-C volume flow:	1342 l/h
PWH peak volume flow:	0.40 l/s

Heating circuit

Material of the pipework:	DIN EN 1057 - Copper
Total pipe length in flow and return:	10 m
Total angle in flow and return:	8
Three-way valve for temperature-dependent feed:	✓

Heat generator

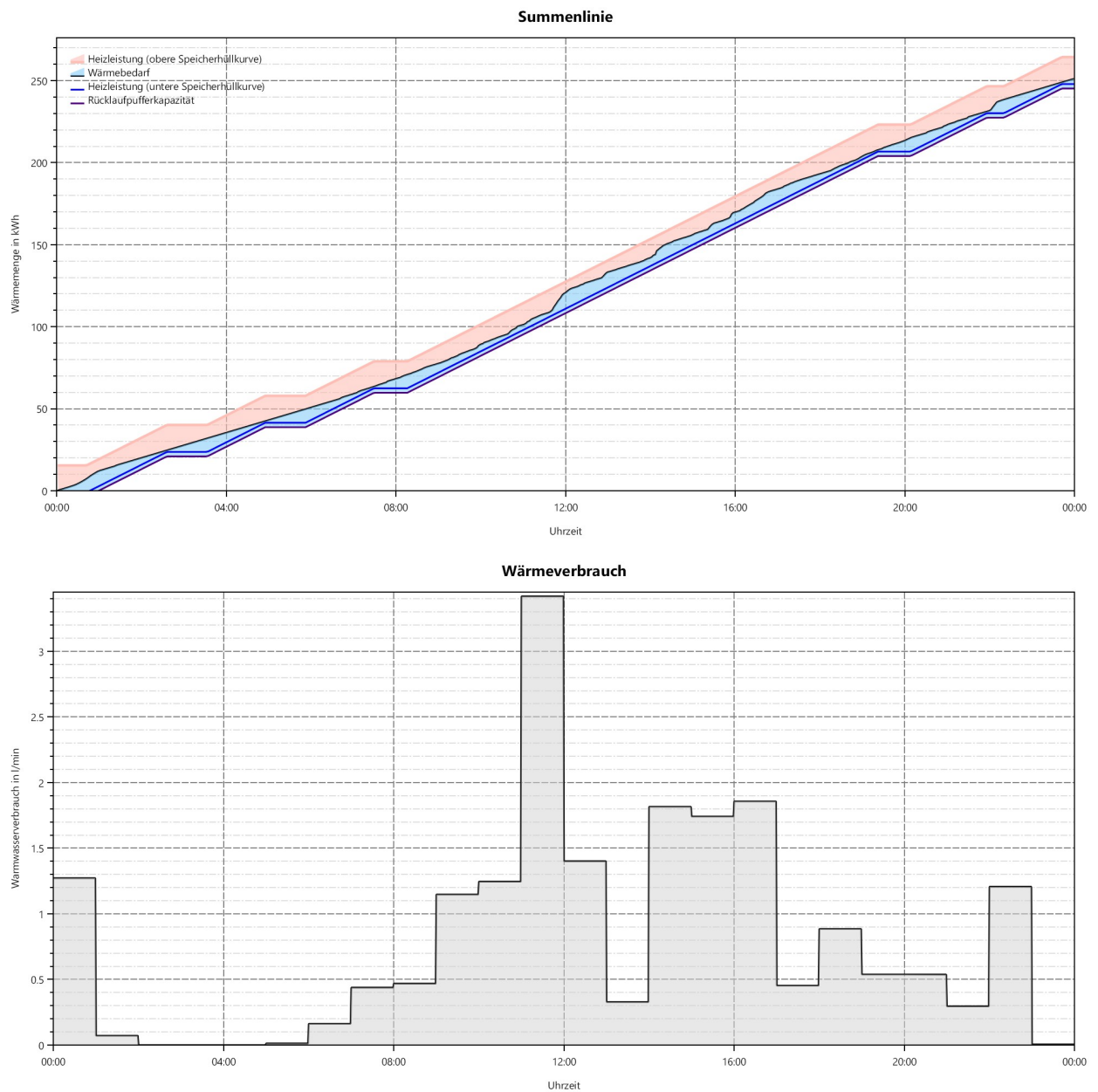
Available output for water heating:	13 kW
Flow temperature:	70 °C
Flow temperature in case of disinfection:	90 °C

Totalling line

Output / volume flows

Max. Capacity of the fresh water station(s):	158 kW
Peak demand from totalling line:	92 kW
Top performance time:	14:08 Uhr
Volume flow (PWH / PWH-C):	45 l/min

Diagrams



Pump design

Designed products

Pump type: 1 x Pump for KTS Water Heater
M

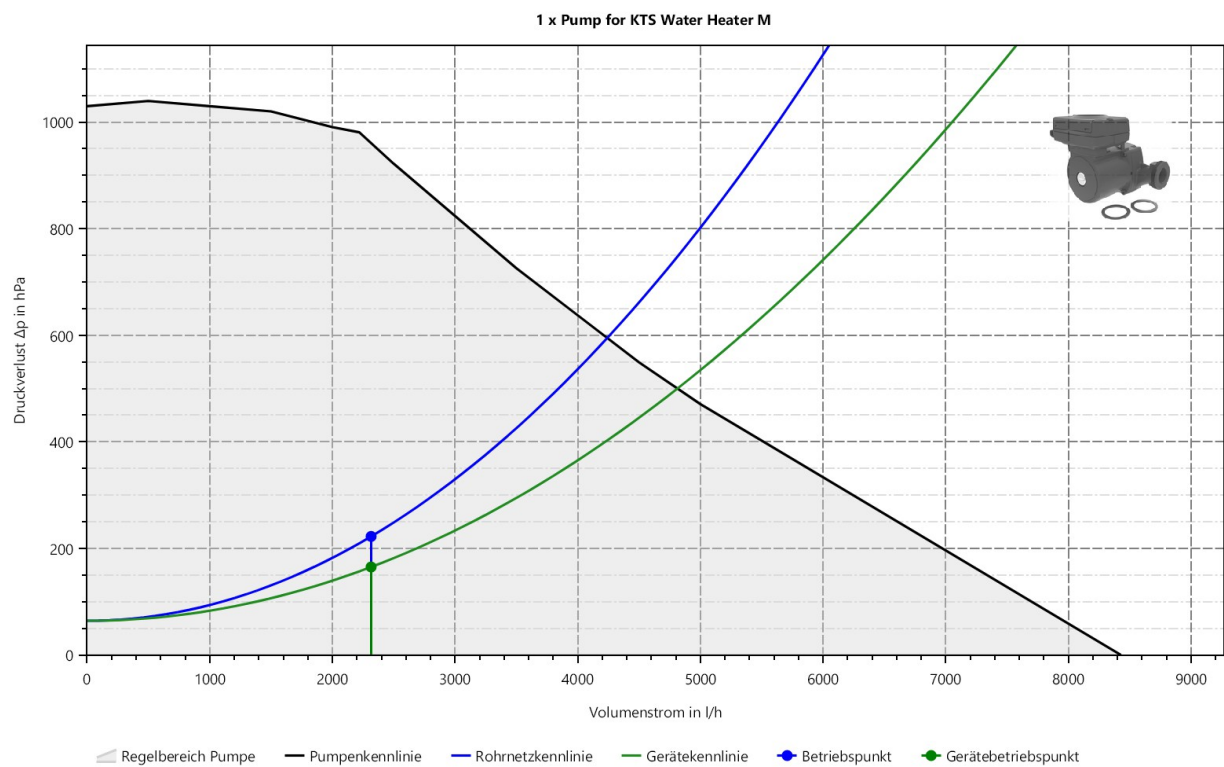
Maximum possible output

Volume flow: 4241 l/h
Pressure loss pipe network: 192 hPa
Pressure loss device: 402 hPa
Total pressure loss: 595 hPa

Operating point

Volume flow: 2316 l/h
Pressure loss pipe network: 57 hPa
Pressure loss device: 165 hPa
Total pressure loss: 222 hPa

Diagram



Energy storage

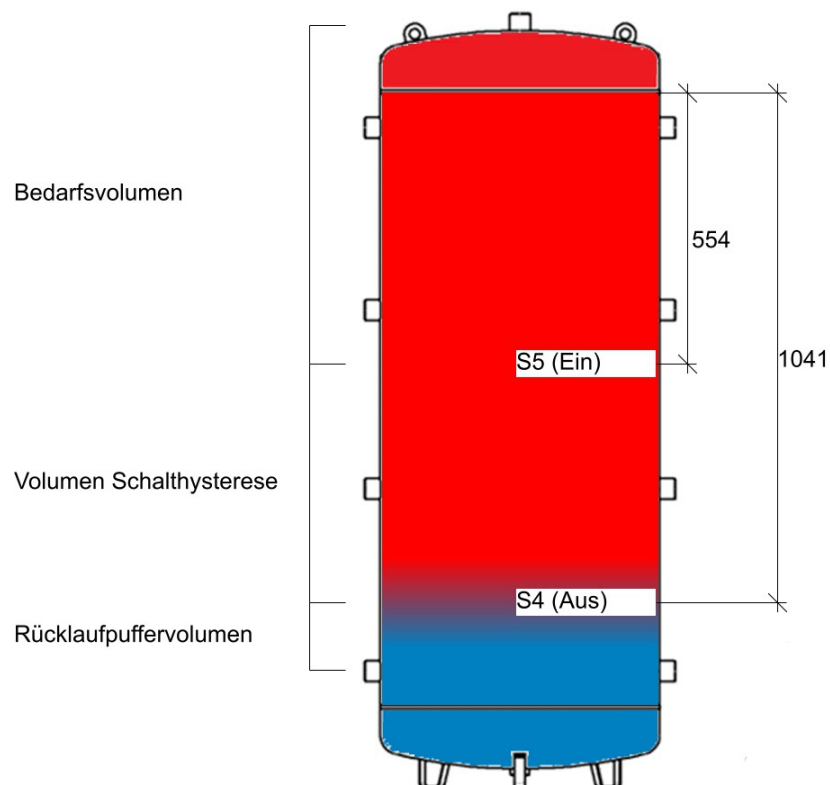
Designed products

Energy storage: 1 x KTS ThermoTank S, buffer tank PN 6, 500 l

Thermotank features

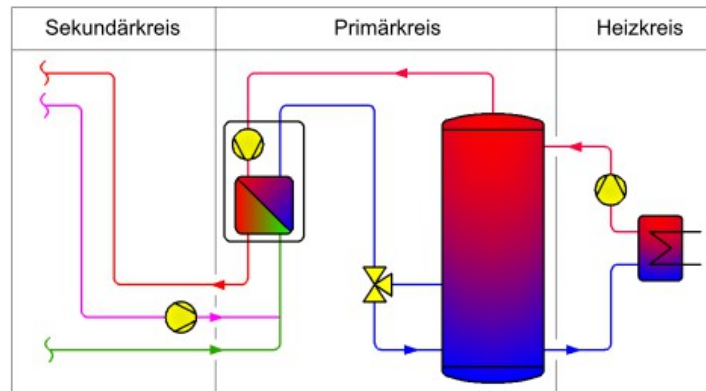
Total volume:	500 l
Required volume:	227 l
Volume switching hysteresis:	159 l
Return buffer volume:	68 l (14 %)
Volume of dished floors:	46 l
Sensor spacing S4:	1041 mm
Sensor spacing S5:	554 mm
Construction height:	1670 mm
Tipping dimension:	1700 mm
Diameter:	650 mm

Arrangement of the temperature sensors



Calculation results

Diagram



Secondary circuit

Daily water requirement:	251 kWh/d	
Peak demand from totalling line:	92 kW	
Vs according to DIN 1988-300:	24 l/min	(0.40 l/s)
Flow rate (PWH + PWH-C):	45 l/min	
Maximum extraction:	84 l/min	
Mixing temperature PWC / PWH-C:	30 °C	
PWH temperature at peak flow rate DIN 1988-300:	60 °C	
Pressure loss at peak flow rate DIN 1988-300:	126 hPa	
Pressure loss in case of circulation:	121 hPa	
Accumulated withdrawal time:	406 min	

Primary circuit

Performance of the fresh water station(s):	92 kW	(max. 158 kW)
Volume flow:	2316 l/h	(max. 4241 l/h)
Pressure loss:	222 hPa	(max. 595 hPa)
Temperature spread:	35 K (Calculated)	
Return temperature during operation:	35 °C	
Return temperature at peak load (DIN 1988-300):	46 °C	
Return temperature as a daily average:	49 °C	
Return temperature in case of circulation:	55 °C	
Nominal diameter:	DN 32	
Storage capacity:	15 kWh	
Power reserve:	42 %	

Heating circuit

Flow temperature of the heat generator:	70 °C
Output of the heat generator:	13 kW
Cycling of the heat generator:	6 times per day
Reloading time of the heat generator:	1149 min
Longest single load:	666 min
Spreading in the peak case:	35 K
Volume flow:	321 l/h
Energy consumption for domestic hot water heating:	67 kWh/d
Energy consumption for circulation reheating:	184 kWh/d