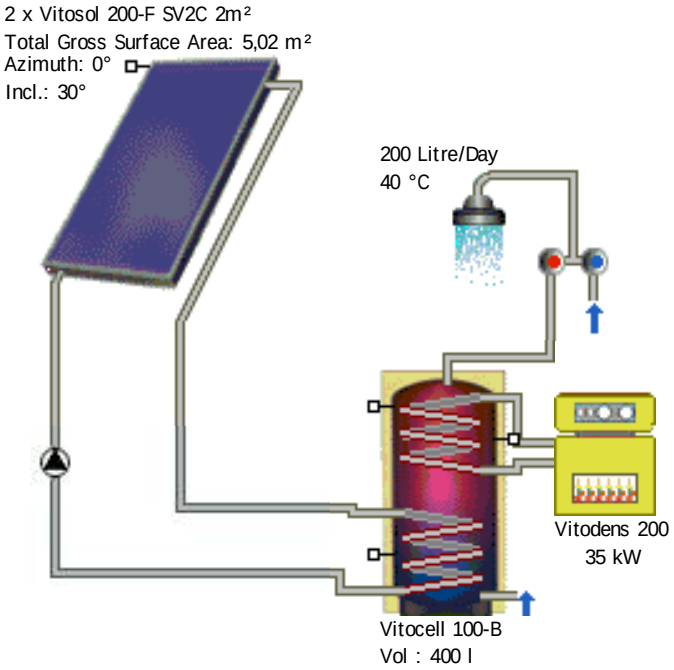


Results of Annual Simulation

Installed Collector Power:	3,51 kW	
Installed Gross Solar Surface Area:	5,02 m²	
Collector Surface Area Irradiation (Active Surface):	4,97 MWh	1.066,95 kWh/m²
Energy Produced by Collectors:	2.026,78 kWh	434,93 kWh/m²
Energy Produced by Collector Loop:	1.825,31 kWh	391,70 kWh/m²
DHW Heating Energy Supply:	2541,1 kWh	
Solar Contribution to DHW:	1825,31 kWh	
Energy from Auxiliary Heating:	1110,37 kWh	
Natural Gas (H) Savings:		**263,4 m³**
CO2 Emissions Avoided:		**557,08 kg**
DHW Solar Fraction:		**62,2 %**
Fractional Energy Saving (EN 12976):		**63,7 %**
System Efficiency:		**36,7 %**

Basic Data

Climate File

Location:	Uccle
Climate Data Record:	"Uccle"
Total Annual Global Radiation:	958,8 kWh
Latitude:	50,8 °
Longitude:	-4,35 °

Domestic Hot Water

Average Daily Consumption:	200 l
Desired Temperature:	40 °C
Load Profile:	Detached House (evening max)
Cold Water Temperature:	February:8 °C / August:12 °C
Circulation:	No

System Components

Collector Loop

Manufacturer:	Viessmann Werke GmbH & Co
Type:	Vitosol 200-F SV2C 2m²
Number:	2,00
Total Gross Surface Area:	5,02 m²
Total Active Solar Surface Area:	4,66 m²
Tilt Angle:	30 °
Azimuth:	0 °

Bivalent (Twin Coil) DHW Tank

Manufacturer:	T*SOL Database
Type:	Vitocell 100-B
Volume:	400 l

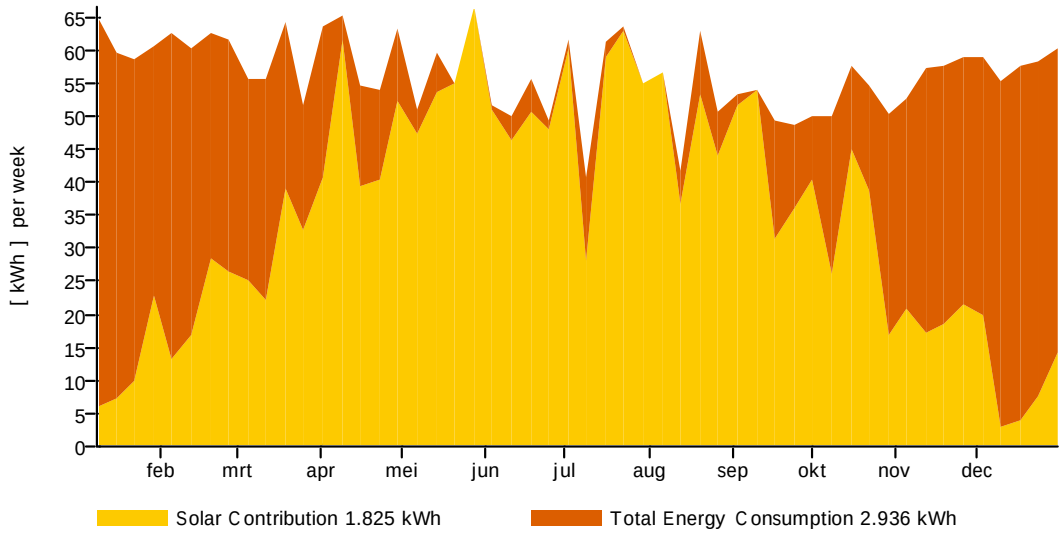
Auxiliary Heating

Manufacturer:	T*SOL Database
Type:	Vitodens 200
Nominal Output:	35 kW

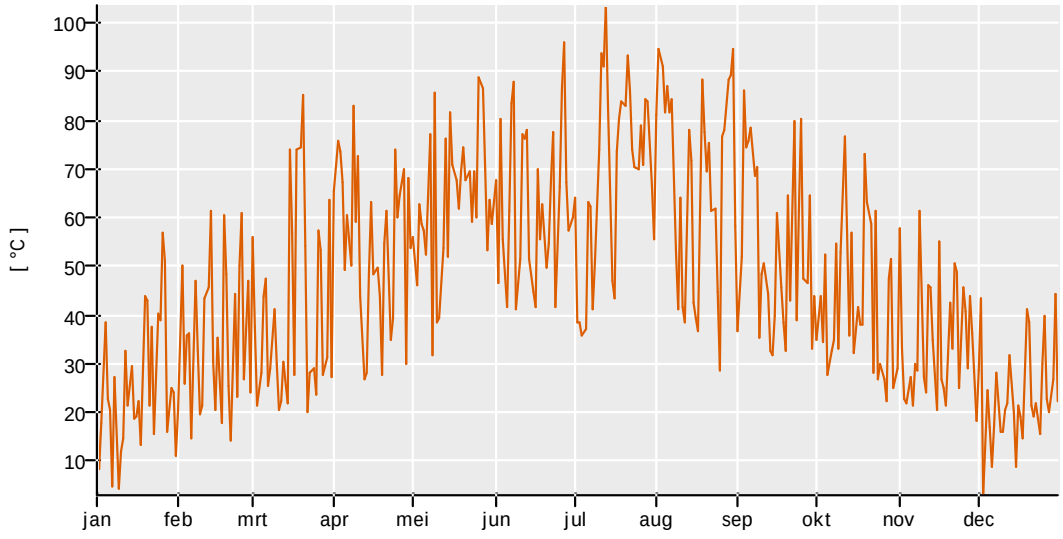
Legend

Original T*SOL Database
With Test Report
Solar Keymark

Solar Energy Consumption as Percentage of Total Consumption

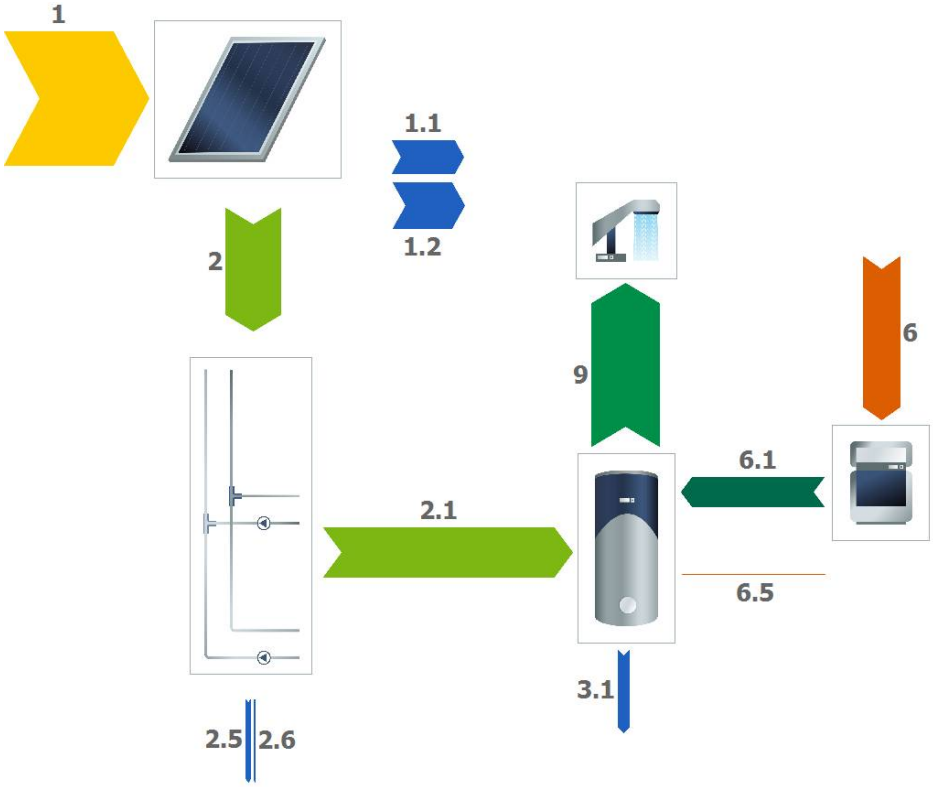


Daily Maximum Collector Temperature



These calculations were carried out by T*SOL Expert 4.5 - the Simulation Programme for Solar Thermal Heating Systems. The results are determined by a mathematical model calculation with variable time steps of up to 6 minutes. Actual yields can deviate from these values due to fluctuations in climate, consumption and other factors.The system schematic diagram above does not represent and cannot replace a full technical drawing of the solar system.

Energy Balance Schematic



Legend

1	Collector Surface Area Irradiation (Active Surface)	4.972 kWh
1.1	Optical Collector Losses	1.232 kWh
1.2	Thermal Collector Losses	1.713 kWh
2	Energy from Collector Array	2.027 kWh
2.1	Solar Energy to Storage Tank	1.825 kWh
2.5	Internal Piping Losses	166 kWh
2.6	External Piping Losses	35 kWh
3.1	Tank Losses	395 kWh
6	Final Energy	1.354 kWh
6.1	Supplementary Energy to Tank	1.110 kWh
6.5	Heating Element	0 kWh
9	DHW Energy from Tank	2.541 kWh

Glossary

1 Collector Surface Area Irradiation (Active Surface)
Energy Irradiated onto Tilted Collector Area (Active Solar Surface)

1.1 Optical Collector Losses
Reflection and Other Losses

1.2 Thermal Collector Losses
Heat Conduction and Other Losses

2 Energy from Collector Array
Energy Output at Collector Array Outlet (i.e. Before the Piping)

2.1 Solar Energy to Storage Tank
Energy from Collector Loop to Storage Tank (Minus Piping Losses)

2.5 Internal Piping Losses
Internal Piping Losses

2.6 External Piping Losses
External Piping Losses

3.1 Tank Losses
Heat Losses via Surface Area

6 Final Energy
Final Energy Current into System. This can flow in as natural gas, oil or electricity (not including solar energy) taking efficiency levels into account

6.1 Supplementary Energy to Tank
Supplementary Energy (e.g. Boiler) to Tank

6.5 Heating Element
Energy from Heating Element

9 DHW Energy from Tank
Heat for DHW Appliances from Tank (Exluding Circulation)