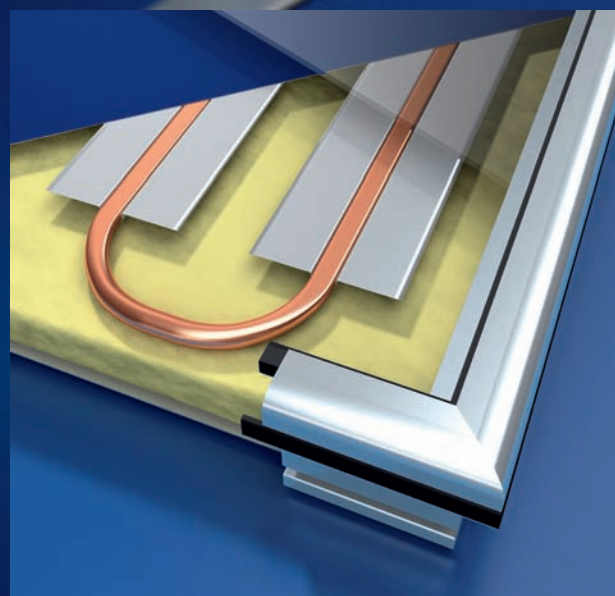


# Schüco Premium collectors

Outstanding quality, performance and design



SCHÜCO

## Schüco Premium collectors - The next generation

Since its entry into the solar thermal sector, Schüco has been driving technical progress forwards. For example, Schüco was the first to offer system ventilation in the cellar. Schüco has established a great many new features for thermal collectors on the market. These include meander pipework, solar clear glass and the patented soldering process.

Schüco sets new standards with the latest generation of Schüco Premium collectors. With this thermal conduction technology, an innovative process and extremely high pressure are used to completely enclose the pipework at the back with heat conductor sheets and permanently join it to the absorber. The heat conductor sheets and the greater surface area of the pipework increase heat transfer and achieve high

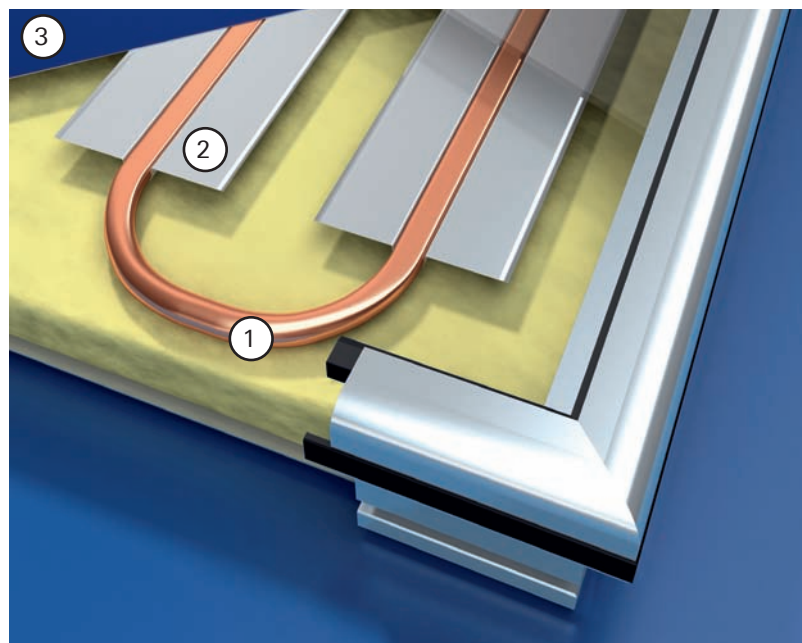
performance values. The absorber has exceptional dimensional stability, is completely smooth, and further enhances the attractive design of the Schüco collector.

The new Schüco Premium collector – a collector that is unrivalled in terms of quality and performance.

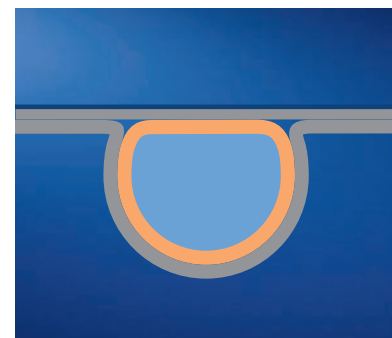
### Schüco thermal conduction technology

#### Key benefits

- Thermal conduction technology with a 360° enclosed absorber pipe for highly efficient heat transfer
- Greater absorber pipe surface area
- Absorber with exceptional dimensional stability for a completely smooth look and for the best design



① Meander pipework, ② Heat conductor sheet, ③ Highly selective absorber coating



Section detail of thermal conduction technology with a 360° enclosed absorber pipe

## Quality, performance and design

Renewable energy is gaining ever more importance in newbuild and renovation projects. The aim is to gain independence from fossil fuels to relieve the burden on the environment and to effectively counteract energy

price increases. The quality and performance of the systems are of key importance to the sustainability of appropriate investments, as only systems that function reliably and efficiently are capable of producing high

outputs in the long-term. In terms of design, increasing demands for harmonious building integration must be satisfied.

### Quality

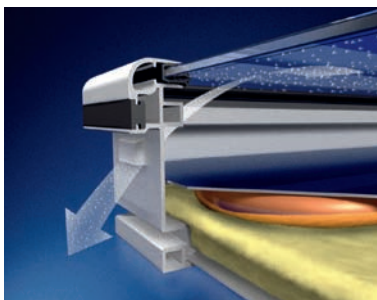
- Aluminium frame and rear panel provide optimum corrosion protection and stability
- The 4 mm solar glass, tested in accordance with DIN EN 12975-2, increases hail-resistance
- Long service life as absorbers are tested for temperature and corrosion resistance
- Continuous system screw channel for quick installation

### Performance

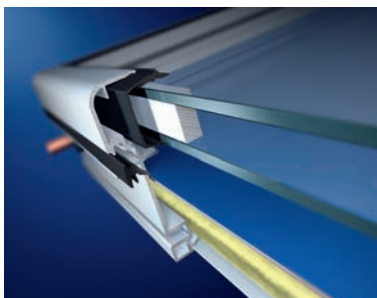
- Meander pipework guarantees operational reliability and high performance
- Outstanding rated thermal output of 2.0 kW
- Also available as double-glazed collector with quadruple non-reflective glass for increased solar output (output equivalent of 2.4 kW)
- Drainage groove and ventilation slots to prevent condensation forming and therefore ensure high output

### Design

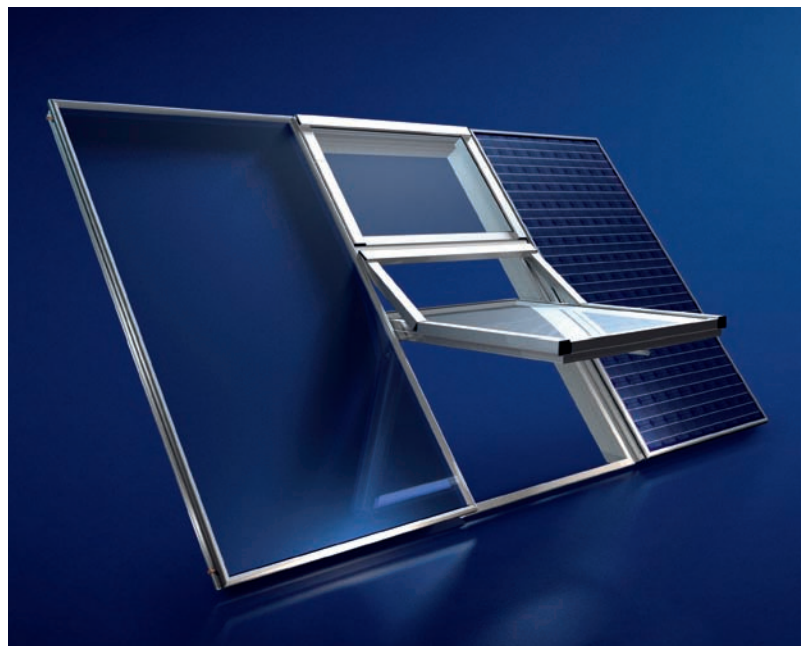
- A unique variety of integration options with a total of six installation options
- An elegant look with the option of flush-fitted in-roof installation
- Perfectly matched with the colour of the roofing with the option of selecting from anodised silver and bronze and powder coatings in RAL colours (optional)
- Thermal collectors, roof windows and photovoltaic modules in the same module size can be combined



Ventilation slots to prevent condensation forming



Schüco Double-Glazed Collector CTE 524 DH 2 for up to 20% greater solar output



Premium collector, roof window and a Premium photovoltaic module in the same module size

## Options for every application

### Schüco Collector CTE 520 CH and CTE 520 CH 1

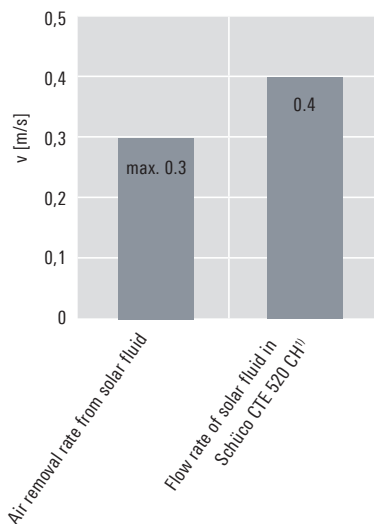
The Premium collectors with meander pipework are preferable for smaller and medium-sized installations to heat domestic hot water and for auxiliary heating in modernisation and newbuild projects. For maximum flexibility of installation, this Schüco Premium collector is available with meander pipework for portrait and landscape installation. Six installation options permit a unique level of design freedom.

#### Key benefits

- Meander pipework for maximum operation reliability with system ventilation and a high level system efficiency
- High solar outputs with excellent rated thermal output of 2.0 kW
- 

### Perfect ventilation with meander pipework

Transfer of air to the solar station air separator with resulting speed of min. 0.1 m/s



<sup>1)</sup> Typical flow rate for 5 Schüco CTE 520 CH collectors and a volume flow of 150 l/min

### Schüco Collector CTE 520 CH 2

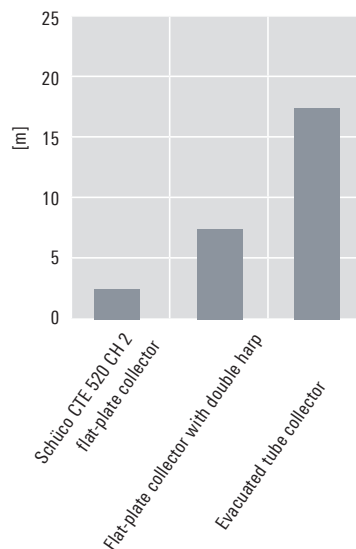
The Premium collector CTE 520 CH 2 is suitable for portrait installation, especially for large collector arrays. The meander pipework has collector pipes and four connectors. The Schüco collector CTE 520 CH 2 combines a minimum hydraulic resistance with optimised stagnation behaviour.

#### Key benefits

- Optimum suitability for large installations due to meander pipework with minimum hydraulic resistance for up to 16 collectors in series
- Very high level of operational reliability with good ventilation and outstanding stagnation behaviour

### Minimum system loading in the event of stagnation

Steam build-up in pipework<sup>2)</sup>



<sup>2)</sup> Calculation basis: 5 m<sup>2</sup> aperture area, losses from pipework in event of stagnation = 27.6 W/m

### Schüco Collector CTE 524 DH 2

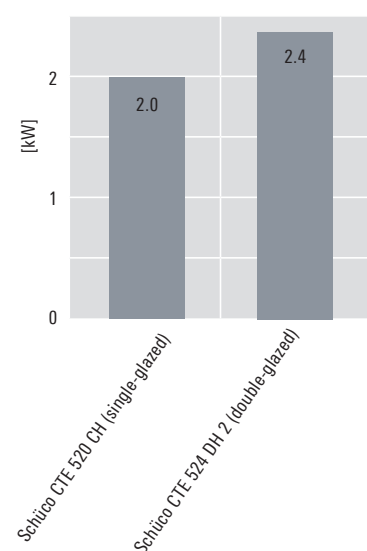
For the most highly efficient installations, Schüco supplies Premium double-glazed collectors, which reduce the roof area required by up to 20%. They are also particularly recommended for high temperature applications, such as process heating or solar cooling.

#### Key benefits

- Non-reflective double glazing reduces heat loss - for even higher solar outputs
- Reduces the roof area required by up to 20%
- Significantly increased resistance to hail stones compared with vacuum tube collectors

### Maximum solar outputs

Comparison of collector output<sup>3)</sup>



<sup>3)</sup> Rated thermal output in kW or output equivalent for Schüco Double-Glazed Collector CTE 524 DH 2 based on a T-Sol simulation of a typical auxiliary heating system with five collectors

## Unique versatility using the Premium mounting system

### Adapts perfectly to the architecture

Schüco Premium Line collectors can be adapted particularly well to existing architecture. Canopy and façade installation allow solar heating to be integrated in projects where it would otherwise be unsuitable due to unfavourable roof conditions. The unique combination of solar collectors, photovoltaic modules and Schüco roof windows in the same module size as an in-roof or complete roof solution is another distinctive feature which sets it apart from more simple collector systems.

### On-roof installation

A proven, reliable solution for all types of roof. For slate, plain tile or corrugated roofs. Optimum matching of solar units to roof types.

### In-roof installation

Integration of solar technology into the roof to maintain slimline appearance. No need for conventional tiling underneath the collectors and modules.

### Flat-roof installation

Stable Schüco profile construction at an angle of 45° for optimum output. Maximum flexibility in terms of position and composition due to modular construction. Simple and quick assembly.

### Façade integration

Peripheral collector installation as partial or complete façade. Also possible as a small façade, C4 façade for large collector arrays or a non-ventilated façade for simultaneous thermal insulation.

### Canopy installation

Interesting alternative for awkward roof configurations. Provides protection against weathering and solar radiation.

### Complete roof installation

The Schüco Premium Line allows the combination of thermal collectors, Premium modules and Schüco roof windows in the same module size. This makes it possible to create a synergy roof without any conventional roof covering.

### Key benefits

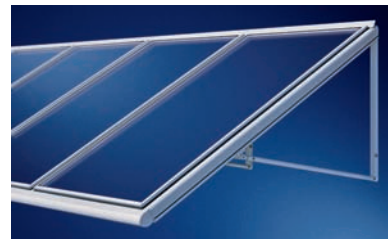
- Six installation options for every building: on-roof, in-roof, flat-roof, façade, canopy and complete roof
- Mounting profiles and collector frames in anodised bronze or colour-coated in light grey. All RAL colours are also available (powder-coated)
- Corrosion protection using unmixed materials (such as aluminium and stainless steel)
- Thermal collectors, Premium modules and Schüco roof windows in the same module size can be combined



Premium Line in-roof



Premium Line façade installation

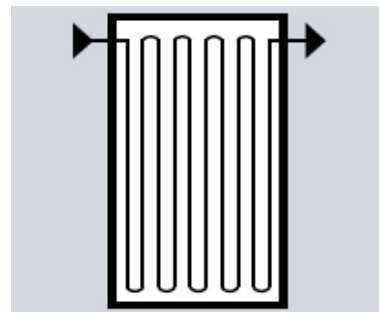


Premium Line canopy installation

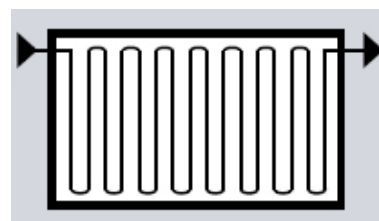
# Technical data

## Schüco Collector CTE 520 CH and CTE 520 CH 1

Use	Schüco CTE 520 CH	Schüco CTE 520 CH 1
Heating domestic hot water		Yes
Auxiliary heating solar installations (detached or semi-detached house)		Yes
<b>Installation type</b>		
On-roof installation		Yes
Flat-roof installation		Yes
In-roof installation		Yes
Canopy/façade installation		Yes
Installation type/alignment	Portrait, adjacent Landscape, one above the other	Landscape, adjacent Portrait, one above the other
Max. number of collectors in series		5
<b>Dimensions and weights</b>		
Gross surface area		2.69 m <sup>2</sup>
Absorber surface area		2.52 m <sup>2</sup>
Aperture surface area		2.51 m <sup>2</sup>
External dimensions (L × W × D)		2152 × 1252 × 93 mm
Weight (empty)		55 kg
<b>Performance values</b>		
Rated thermal output		2.0 kW
Angle of radiation correction factor k50		0.96
<b>Hydraulics / pipework</b>		
Pipework	Meander	
Alignment	Portrait	Landscape
Hydraulic connections on copper pipe	12 mm	
Type of connector	Clamping ring fitting	
External compensation	Not required	
Position of hydraulic connection	On the long side, at the top	On the short side, at the top
<b>Absorber</b>		
Absorber coating	Highly selective	
Absorption	95 %	
Emission	5 %	
Absorber material	Aluminium	
Absorber pipe	Copper	
Bonding technology for absorber plate/pipe	Thermal conduction technology	
<b>Hydraulic values</b>		
Permitted heat transfer fluid	Schüco solar fluid (water-glycol mixture)	
Heat transfer fluid volume	1.75 l	1.79 l
Heat transfer fluid volume	2.5 l/min	2.5 l/min
Pressure loss (2.5 l/min solar fluid)	135 mbar	152 mbar
Permitted operating excess pressure	10 bar	10 bar
Stagnation temperature for climate class A (1000 W/m <sup>2</sup> ; 30°C)	210°C	209°C
Permitted flow temperature	120°C	120°C
<b>Front cover</b>		
Solar glass	Clear glass, low-iron, high transparency	
Transmittance	> 91 %	
Thickness	4.0 mm	
<b>Thermal insulation</b>		
Mineral wool	40 mm	
<b>Frame</b>		
Material	Aluminium	
Gaskets	EPDM	
Back panel	Aluminium	
Anodised silver frame	Art. No. 257 632	Art. No. 257 633
Anodised bronze frame	Art. No. 257 920	Art. No. 257 923
Frame in RAL 7035 (powder-coated)	Art. No. 257 921	Art. No. 257 924

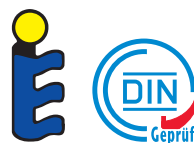


Schüco Collector CTE 520 CH hydraulics diagram



Hydraulik-Schema Schüco Kollektor CTE 520 CH 1

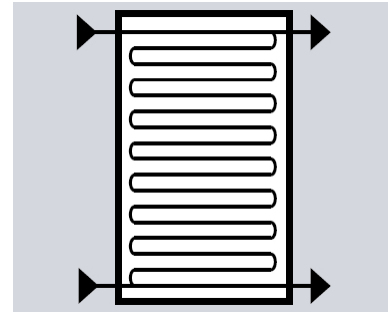
Collector output table	
Average fluid temperature [°C]	Collector output [W] Schüco CTE 520 CH (Schüco CTE 520 CH 1)
20	1995 (1988)
40	1807 (1787)
60	1594 (1561)
80	1357 (1312)
100	1096 (1038)
120	811 (740)



Certified in accordance with Solar Keymark

# Technical data Schüco Collector CTE 520 CH 2 and CTE 524 DH 2

Use	Schüco CTE 520 CH 2	Schüco CTE 524 DH 2
Heating domestic hot water	Yes	
Auxiliary heating solar installations (detached or semi-detached house)	Yes	
Large installations	Yes	
Solar cooling, process heating (high temperature applications)	No	Yes
<b>Installation type</b>		
On-roof installation	Yes	
Flat-roof installation	Yes	
In-roof installation	Yes	
Canopy/façade installation	Yes	
Installation type/alignment	Portrait, adjacent	
Max. number of collectors in series	16	
<b>Dimensions and weights</b>		
Gross surface area	2.69 m <sup>2</sup>	
Absorber surface area	2.52 m <sup>2</sup>	
Aperture surface area	2.51 m <sup>2</sup>	
External dimensions (L × W × D)	2152 × 1252 × 93 mm	
Weight (empty)	58 kg	74 kg
<b>Performance values</b>		
Rated thermal output	2.0 kW	2.4 kW <sup>1)</sup>
Angle of radiation correction factor k50	0.90	
<b>Hydraulics / pipework</b>		
Pipework	Meander pipework	
Alignment	Portrait	
Hydraulic connections on copper pipe	18 mm	
Number of hydraulic connections	4	
Type of connector	Gripper clamp connector	
Compensation	External with compensator connector	
Position of hydraulic connection	On the long sides (x 2)	
<b>Absorber</b>		
Absorber coating	Highly selective	
Absorption	95 %	
Emission	5 %	
Absorber material	Aluminium	
Absorber pipe	Copper	
Bonding technology for absorber plate/pipe	Thermal conduction technology	
<b>Hydraulic values</b>		
Permitted heat transfer fluid	Schüco solar fluid (water-glycol mixture)	Schüco solar fluid HT (water-glycol mixture)
Heat transfer fluid volume	2,2 l	
Heat transfer fluid volume	2.5 l/min	
Pressure loss (2.5 l/min solar fluid)	331 mbar	
Permitted operating excess pressure	10 bar	
Stagnation temperature for climate class A (1000 W/m <sup>2</sup> ; 30°C)	210°C	
Permitted flow temperature	120°C	
<b>Front cover</b>		
Solar glass	Clear glass, low-iron, high transparency	Double glazing with quadruple non-reflective coating, filled with inert gas
Transmittance	> 91 %	
Thickness	4.0 mm	Outside 4.0 mm Inside 3.0 mm
<b>Thermal insulation</b>		
Mineral wool	40 mm	
<b>Frame</b>		
Material	Aluminium	
Gaskets	EPDM	
Back panel	Aluminium	
Anodised silver frame	Art. No. 257 634	Art. No. 257 636
Anodised bronze frame	Art. No. 257 926	Art. No. 257 927



Schüco Collector CTE 520 CH 2 and CTE 524 DH 2 hydraulics diagram

Collector output table	
Average fluid temperature [°C]	Collector output [W] Schüco CTE 520 CH 2 (Schüco CTE 524 DH 2)
20	1983 (1970)
40	1783 (1833)
60	1559 (1651)
80	1311 (1425)
100	1039 (1155)
120	743 (841)

Collector pressure loss table (Water/glycol mixture (60/40), average temperature 25°C)	
Mass flow [kg/h]	Pressure loss [mbar] Schüco CTE 520 CH 2 Schüco CTE 524 DH 2
50	94
100	203
150	331
200	469
250	975
300	1346



Certified in accordance with Solar Keymark

<sup>1)</sup> Output equivalent compared with single-glazed Schüco CTE 520 CH

## Schüco – Your partner for windows and solar products

As leading innovator in system-based construction, Schüco supplies components for the entire building envelope, including specialised software solutions for design, construction, calculation and fabrication.

■ Aluminium systems

■ Steel systems

■ PVC-U systems

■ Solar products

■ Schüco Design



## Schüco Premium collectors with innovative thermal conduction

### Thermal conduction technology for improved heat transfer

In the past, Schüco solar products have made headlines time and again with their technical innovations. Schüco is now presenting another outstanding development with the unique thermal conduction technology. The heat transfer between the absorber and the meander pipework has increased markedly. The collectors have a completely smooth absorber surface for the best design.

### A unique variety of designs for attractive building integration

A total of six installation variations and the option of an individual frame colour offer a unique variety of designs. The Schüco Premium system presents a unique combination of thermal collectors, residential roof windows and photovoltaic modules.

