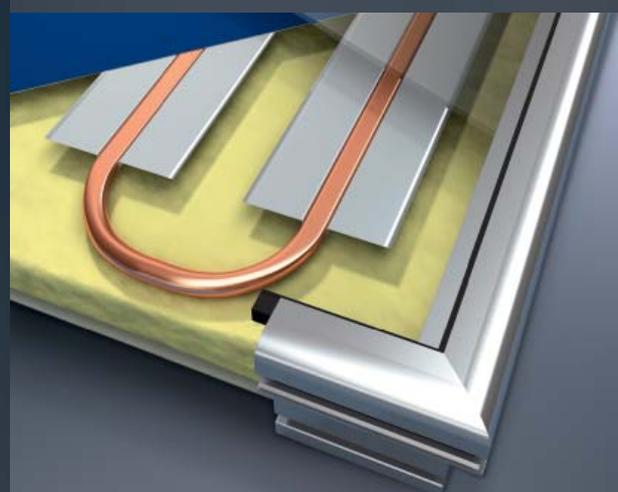


# Schüco Premium Collectors

Outstanding quality, performance and design



**SCHÜCO**

## Schüco Premium line 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 basement. 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 heat transfer 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

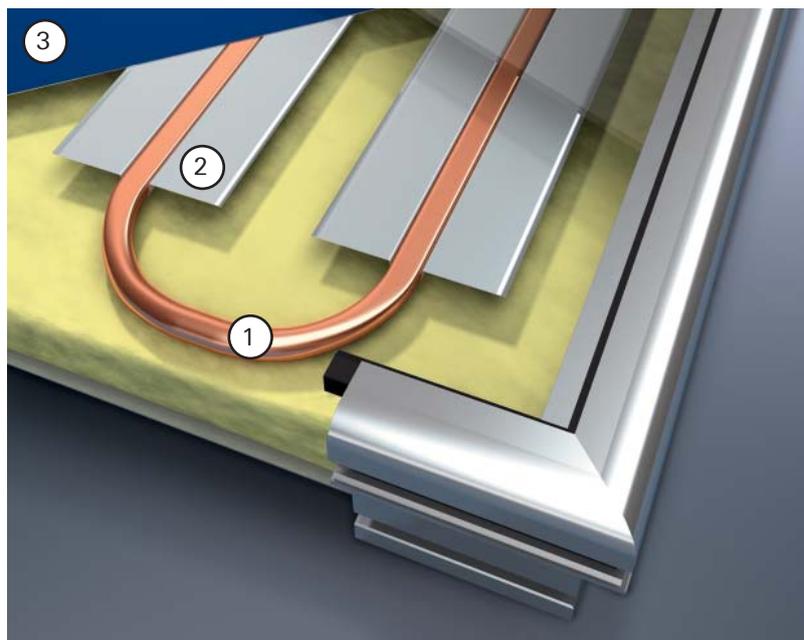
has exceptional dimensional stability, is extraordinarily smooth, and further enhances the attractive design of the Schüco collector.

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

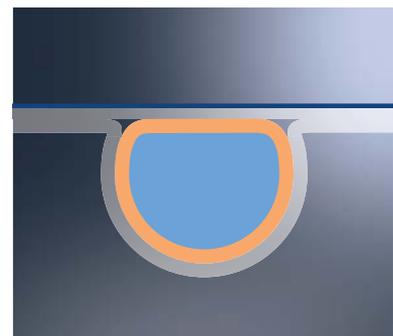
### Schüco heat transfer technology

#### Key benefits

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



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



Section detail of heat transfer 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

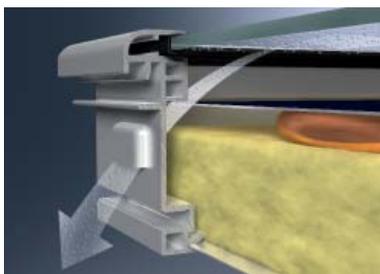
- Aluminium frame and rear panel provide optimum corrosion protection and stability
- The 4 mm solar glass, tested in accordance with DIN EN 12975-2, increases hail-resistance
- Long service life as absorbers are tested for temperature and corrosion resistance
- Continuous system screw channel for quick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

### Performance

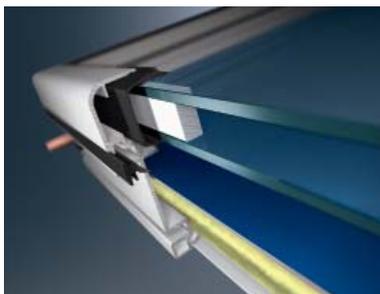
- Meander pipework guarantees operational reliability and high performance
- Outstanding rated thermal output of 2.0 kW
- Also available as non-reflective glass or double-glazed collector with non-reflective glass for increased solar output (output equivalent of 2.4 kW)
- Drainage groove and ventilation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

### Design

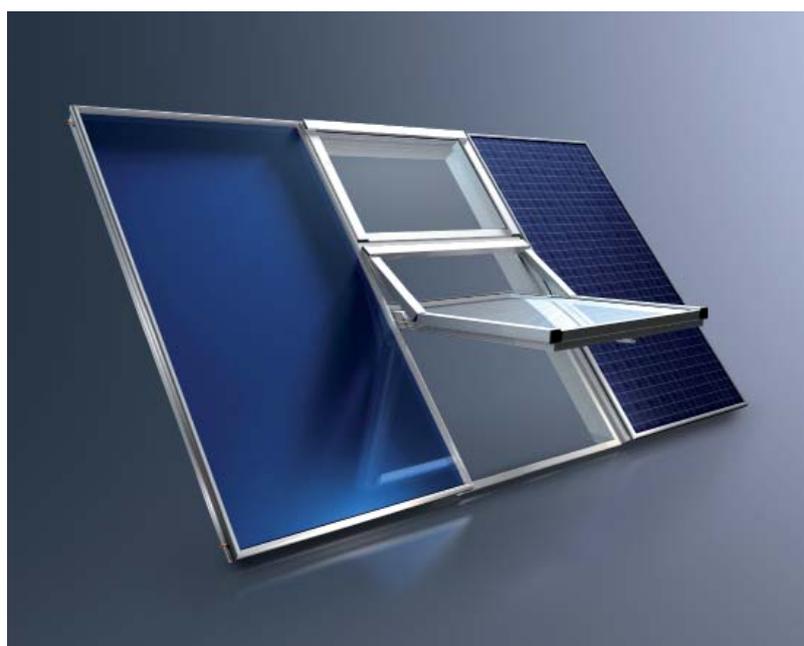
- A unique variety of integration possibilities with six mounting options
- An elegant look with the option of flush-fitted, in-roof mounting
- Perfectly matched with the colour of the roofing with the option of selecting from anodised silver and bronze and powder coatings in RAL colours (optional)
- 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 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

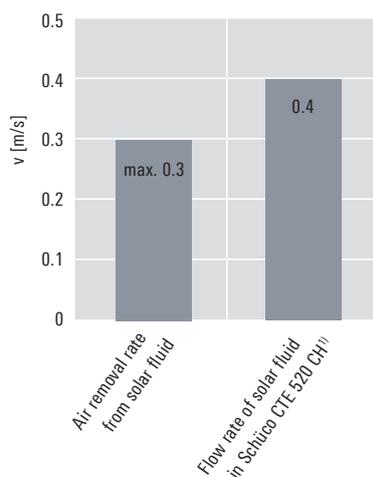
The Premium collectors with meander pipework are preferable for smaller and medium-sized installations to heat domestic hot water and for auxiliary heating in modernisation projects and newbuilds. For maximum flexibility of installation, this Schüco Premium collector is available with meander pipework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

#### Key benefits

- Meander pipework for maximum operation reliability with system ventilation and a high level of 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

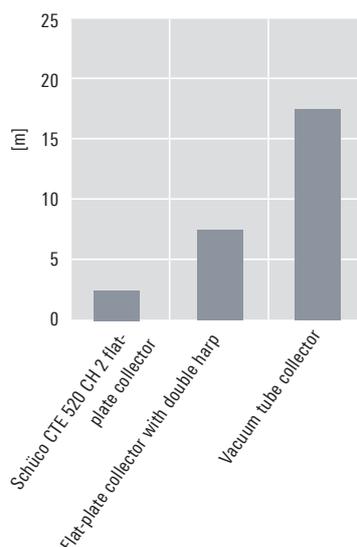
The Premium line CTE 520 CH 2 collector is suitable for portrait installation, especially for large collector arrays. The meander pipework has collector pipes and four connectors. The Schüco CTE 520 CH 2 collector combines minimal hydraulic resistance with optimised stagnation behaviour.

#### Key benefits

- Optimum suitability for large installations due to meander pipework with minimal hydraulic resistance for up to 16 collectors in series
- Very high level of operational reliability with good ventilation and outstanding stagnation behaviour
- Long-term weathertightness of the metallic sealing compensator connector

### 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 the event of stagnation = 27.6 W/m

### Schüco Collector CTE 524 DH

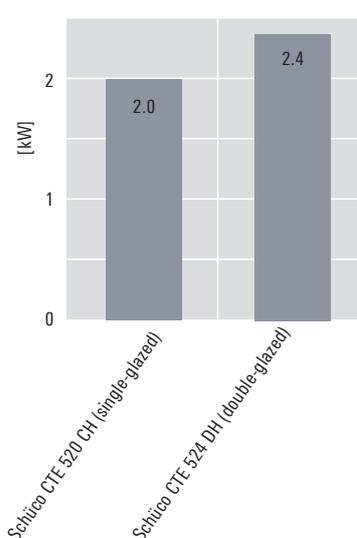
For the most highly efficient installations, Schüco supplies Premium double-glazed collectors, which reduce the roof area required by up to 20%. They are also particularly recommended for high temperature applications, such as process heating or solar cooling.

#### 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 CTE 524 DH double-glazed collector based on a T-Sol simulation of a typical auxiliary heating system with five collectors

## Unique versatility using the MSE 500 mounting system

### Premium line for individual design

The Schüco Premium line offers almost unlimited freedom for individual design with six different mounting options. Thermal collectors, photovoltaic modules and Schüco roof vents from the Premium line can be combined in any combination due to the uniform modular size.

### On-roof mounting

With the new Schüco MSE 500 on-roof mounting system, the mounting rails are attached to the roof anchors on the front or the side. This means that all the relevant sections and components are visible when mounting the system. Fixing the system is made particularly simple and easy using Schüco OneTurn technology. Just one tool is required for every installation step.

### Flat-roof mounting

The Schüco MSE 500 flat-roof mounting system has significantly fewer components for even simpler and quicker installation. The collectors and PV modules can be very quickly mounted using the new pre-assembled folding system.

### In-roof mounting

The in-roof design of Schüco MSE 500 replaces the roof covering and all its functions. Unlike other systems, it does not require a watertight roofing membrane. It is suitable for the modernisation of all existing roofs – irrespective of the existing roofing membrane.

The system can be extended horizontally and vertically and is therefore suitable for any in-roof application.

### Complete roof mounting

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.

### Canopy mounting

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

### Façade mounting

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.

### Key benefits

- Six mounting options for every building: on-roof, flat-roof, in-roof, complete roof, canopy and façade
- Profiles and collector frames in anodised silver or anodised dark bronze. All RAL colours are also available
- Corrosion protection using unmixed materials (such as aluminium and stainless steel)
- Collectors, PV modules and roof lights in the same module size can be used in any combination
- Schüco MSE 500 with OneTurn technology for very simple and quick installation
- Fewer components
- In-roof mounting replaces the roof covering and all its functions



Premium line, on-roof



Premium line, flat-roof



Premium line, in-roof

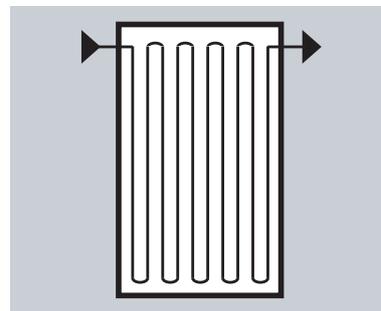


Premium line, canopy

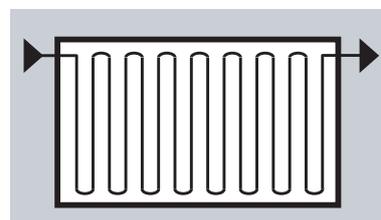
## Technical data – Schüco Collector CTE 520 CH, CTE 520 CH 1

Use	Schüco CTE 520 CH	Schüco CTE 520 CH 1
Heating domestic hot water	Yes	
Auxiliary heating solar installations (family home)	Yes	
<b>Mounting type</b>		
On-roof mounting	Yes	
Flat-roof mounting	Yes	
In-roof mounting	Yes	
Canopy/façade mounting	2009 model	
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	2.71 m <sup>2</sup>	
Absorber surface area	2.52 m <sup>2</sup>	
Aperture surface area	2.50 m <sup>2</sup>	
Outer dimensions	2156 × 1256 × 93 mm	
Weight (empty)	49 kg	
<b>Performance values</b>		
Rated thermal output	2.0 kW	1.9 kW
Efficiency	79.6 %	77.1 %
Coefficient of heat loss a1	4.021 W/m <sup>2</sup> K	3.589 W/m <sup>2</sup> K
Coefficient of heat loss a2	0.011 W/m <sup>2</sup> K <sup>2</sup>	0.014 W/m <sup>2</sup> K <sup>2</sup>
Angle of radiation correction factor k50	0.92	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	See hydraulics diagram	
<b>Absorber</b>		
Absorber coating	Highly selective	
Absorption	95 %	
Emission	5 %	
Absorber material	Aluminium*	
Absorber pipe	Copper	
Bonding technology for absorber plate/pipe	Heat transfer technology	
<b>Hydraulic values</b>		
Permitted heat transfer fluid (water-glycol mixture)	Schüco solar fluid	
Heat transfer fluid volume	1.75 l	1.79 l
Minimum volume flow	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	211°C	213°C
Stagnation temperature for climate class B	236°C	238°C
<b>Front cover</b>		
Solar glass	Clear glass, low-iron, high transparency	
Transmittance	> 91 %	
Thickness	4.0 mm	
<b>Thermal insulation</b>		
Insulating material	Mineral wool	
Insulation thickness	40 mm	
<b>Housing</b>		
Frame material / rear panel	Aluminium*	
Gaskets	EPDM	
<b>Art. No.</b>		
Anodised silver frame	Art. No. 271 620	Art. No. 271 623
Anodised bronze frame	Art. No. 271 360	Art. No. 271 624
Frame, light grey, RAL 7035 (Frame and rear panel powder-coated)	Art. No. 271 621	Art. No. 271 625

\* Aluminium with a recycling proportion of approx. 40 %



Hydraulics diagram for Schüco Collector CTE 520 CH



Hydraulics diagram for Schüco Collector CTE 520

Collector output table	
Average fluid temperature	Collector output Schüco CTE 520 CH (Schüco CTE 520 CH 1)
20°C	1990 W (1928) W
40°C	1778 W (1734) W
60°C	1544 W (1513) W
80°C	1288 W (1263) W
100°C	1010 W (986) W
120°C	710 W (680) W



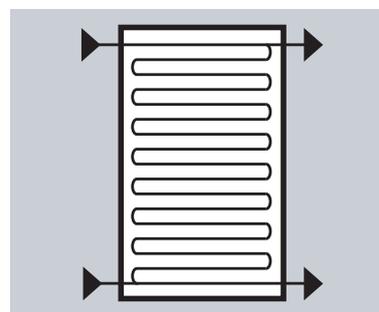
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# Technical data – Schüco Collector CTE 520 CH 2 and CTE 524 DH

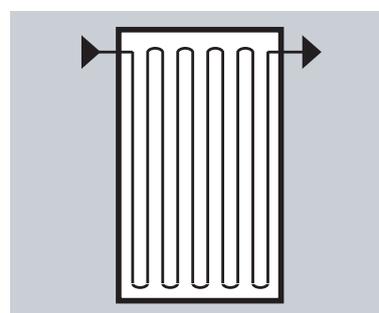
Use	Schüco CTE 520 CH 2	Schüco CTE 524 DH
Heating domestic hot water	Yes	
Auxiliary heating solar installations (family home)	Yes	
Large installations	Yes	No
Solar cooling, process heating	No	Yes
<b>Mounting type</b>		
On-roof mounting	Yes	
Flat-roof mounting	Yes	
In-roof mounting	Yes	2009 model
Canopy/façade mounting	2009 model	No
Installation type / alignment	Portrait, adjacent	
Max. number of collectors in series	16	5
<b>Dimensions and weights</b>		
Gross surface area	2.71 m <sup>2</sup>	2.69 m <sup>2</sup>
Absorber surface area	2.52 m <sup>2</sup>	2.52 m <sup>2</sup>
Aperture surface area	2.50 m <sup>2</sup>	2.48 m <sup>2</sup>
Outer dimensions	2156 × 1256 × 93 mm	2152 × 1252 × 108 mm
Weight (empty)	50 kg	74 kg
<b>Performance values</b>		
Rated thermal output	1.9 kW	2.4 kW <sup>1)</sup>
Efficiency	77.9 %	78.9 %
Coefficient of heat loss a1	3.718 W/m <sup>2</sup> K	2.880 W/m <sup>2</sup> K
Coefficient of heat loss a2	0.018 W/m <sup>2</sup> K <sup>2</sup>	0.013 W/m <sup>2</sup> K <sup>2</sup>
Angle of radiation correction factor k50	0.95	
<b>Hydraulics / pipework</b>		
Pipework	Meander with collector piping	Meander
Alignment	Portrait	Portrait
Hydraulic connections on copper pipe	18 mm	12 mm
Number of hydraulic connections	4	2
Type of connector	Clamping ring connector	Clamping ring connector
External compensation	With compensator connector	Not required
Position of hydraulic connection	See hydraulics diagram	
<b>Absorber</b>		
Absorber coating	Highly selective	
Absorption	95 %	
Emission	5 %	
Absorber material	Aluminium*	
Absorber pipe	Copper	
Bonding technology for absorber plate/pipe	Heat transfer technology	
<b>Hydraulic values</b>		
Permitted heat transfer fluid (water-glycol mixture)	Schüco solar fluid	Schüco solar fluid HT
Heat transfer fluid volume	2.20 l	1.75 l
Minimum volume flow	2.5 l/min	2.5 l/min
Pressure loss (2.5 l/min solar fluid)	See table	135 mbar
Permitted operating excess pressure	10 bar	10 bar
Stagnation temperature for climate class A	209°C	232°C
Stagnation temperature for climate class B	234°C	257°C
<b>Front cover</b>		
Solar glass	Clear glass, low-iron, high transparency	Double glazing with non-reflective coating, filled with inert gas
Transmittance	> 91 %	
Thickness	4.0 mm	4.0 mm inside and outside
<b>Thermal insulation</b>		
Insulating material	Mineral wool	
Insulation thickness	40 mm	
<b>Housing</b>		
Frame material / rear panel	Aluminium*	
Gaskets	EPDM	
<b>Art. No.</b>		
Anodised silver frame	Art. No. 271 627	Art. No. 271 631
Anodised bronze frame	Art. No. 272 628	Art. No. 271 356

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

\* Aluminium with a recycling proportion of approx. 40 %



Hydraulics diagram for Schüco Collector CTE 520 CH 2



Hydraulics diagram for Schüco Collector CTE 524 DH

Collector output table	
Average fluid temperature	Collector output Schüco CTE 520 CH 2 (Schüco CTE 524 DH)
20°C	1948 W (1953 W)
40°C	1744 W (1797 W)
60°C	1504 W (1615 W)
80°C	1228 W (1407 W)
100°C	916 W (1173 W)
120°C	568 W (913 W)

Collector pressure loss table (Water/glycol mixture (60/40), average temperature 25°C, volume flow 15 l/m <sup>2</sup> h)	
Number of collectors in series	Pressure loss [mbar] Schüco CTE 520 CH 2
4	71
6	75
8	81
10	89
12	99
14	117
16	145



Certified in accordance with Solar Keymark

## 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 line collectors with innovative heat transfer technology

### Heat transfer 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 heat transfer technology. The heat transfer between the absorber plate and the meander pipework has increased markedly. The collectors have an exceptionally smooth absorber surface for the best design.

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

A total of six mounting options 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.

Schüco International KG  
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