EURO Solar Collector Type C20/C22

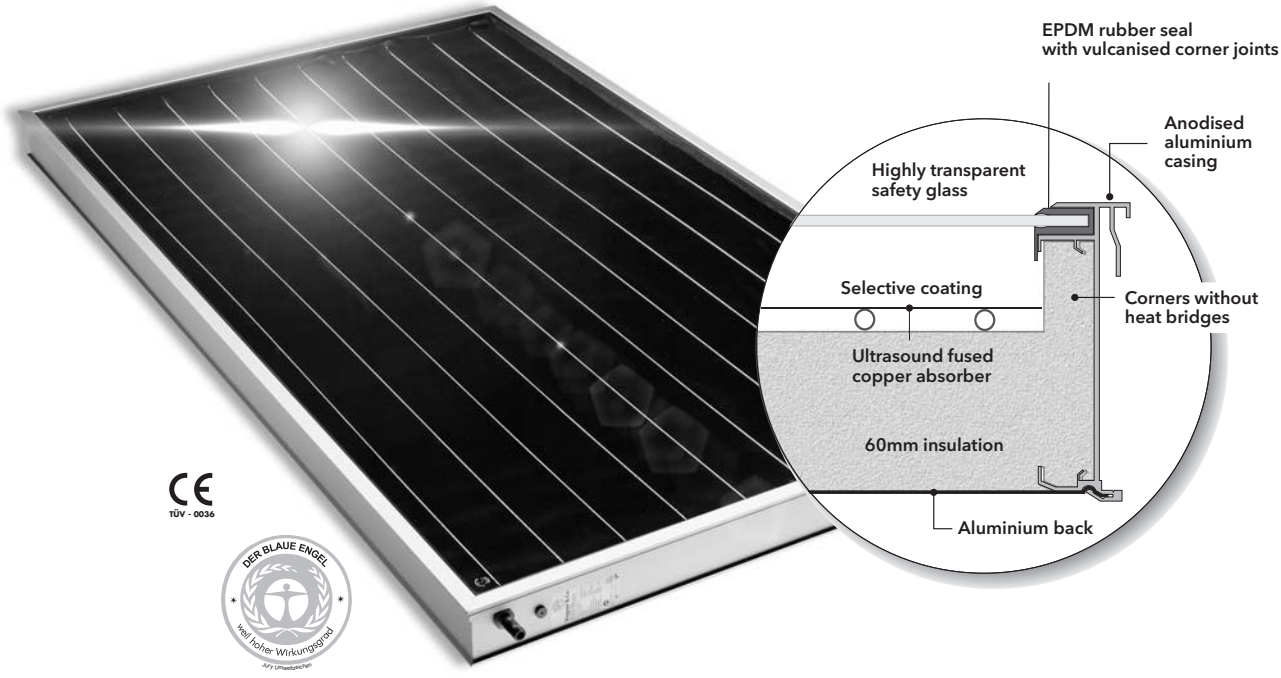

Figure 1 The EURO C20/C22 – powerful, versatile and rapidly installed

Advantages

High Efficiency through Perfect Details
Thanks to its highly selective vaccuum coated flat plate absorber, a 60 mm back insulation and the seamless side insulation, the EURO solar collector is characterized by very low heat losses. In addition it is equipped with highly transparent solar glass. The EURO C20 AR variation additionally features sunarc® anti reflection glass increasing the solar yield by an additional 6-10% thanks to intelligent nano-technology based upon the moth-eye effect.

High-Quality Materials
Anodised aluminium profiles, aluminium back, high-transparency safety glass cover, weather resistant EPDM rubber seals with vulcanised corner joints and ultrasound-fused, heat-resistant copper absorber ensure safe operation for decades.

Excellent Price/Performance Ratio
Tested quality according to European norm EN 12975 and the CE label. Repeated awards from the Independent Institute for Consumer's Goods Testing "Stiftung Warentest".

Simple and Fast Installation
Tried and tested installation kits, photo-instructions and weldless connections to the solar circuit.

Adaptable Arrangements and Installations

- *On-Roof Installation*
  The collectors can be installed above the roof surface with rafter brackets or mounting rails, either horizontally or vertically (horizontal preferred). Even during the installation, the roofing remains almost completely unharmed. We offer roof-anchors and rafter brackets for almost every roofing type. Up to 4 EURO collectors can be connected in series. The connection hoses with pre-assembled insulation also significantly simplify the on-roof pipeworks. Distribution pipes on the roof are not required.
- *In-Roof Installation*
  The attractive in-roof installation is possible for roofs with a minimum pitch of 27% and any tile cover. In this case the collectors are installed vertically, with the connections pointing upwards. The aluminium and corrugated lead flashing can be joint without solder.
- *Free Standing Installation*
  The free standing set up allows horizontal or vertical installation with adjustable inclination. Concrete slabs or gravel covered aluminium trays can be used as foundation.

1. Technical Data

Feature	EURO C20 AR	EURO C20 HTF	EURO C22 AR	EURO C22 HTF
Total area / aperture area	2.61 / 2.39 m²		2.24 / 2.02 m²	
Size W x H x D	2151 x 1215 x 110 mm		1930 x 1160 x 110 mm	
Efficiency (DIN 4757- 4)	η_o = 85.4 % k_1 = 3.37 W/m²K k_2 = 0.0104 W/m²K²	η_o = 81.8 % k_1 = 3.47 W/m²K k_2 = 0.0101 W/m²K²	η_o = 85.4 % k_1 = 3.37 W/m²K k_2 = 0.0104 W/m²K²	η_o = 81.8 % k_1 = 3.47 W/m²K k_2 = 0.0101 W/m²K²
Incident angle modifier	k_{dir} = 97 % k_{diff} = 94 %	k_{dir} = 94 % k_{diff} = 88 %	k_{dir} = 97 % k_{diff} = 94 %	k_{dir} = 94 % k_{diff} = 88 %
Annual collector yield (ITW 5 m² *)	546 kWh/m²a	509 kWh/m²a	546 kWh/m²a	509 kWh/m²a
Collector housing	60mm back insulated and frame insulated aluminium casing; specific heat capacity 4.7 kJ/(m²K)			
Glass cover	4 mm solar safety glass with sunarc®-antireflex-coating	4 mm solar safety glass	4 mm solar safety glass with sunarc®-antireflex-coating	4 mm solar safety glass
Transmission	τ = 96%	τ = 91 %	τ = 96%	τ = 91 %
Absorber	Heat conducting sheet and pipes made out of copper, max. pressure 10 bar			
Absorber coating	Highly selective vacuum coating, α = 95 %, ε = 5 %			
Absorber capacity	1.3 litre		1.1 litre	
Conductor fluid	DC20 (Propylenglycol with inhibitors), mixing ratio according to requirements			
Working pressure	Max. 10 bar			
Idle temperature (according to DIN 4757-3)	232°C	227°C	232°C	227°C
Sensor tube	6 mm internal diameter			
Connections	½" male			
CE lable	TÜV certificate 0036, EC type test (Module B) in accordance with EU direction 97/23/EC			
Max. allowed pressure/suction forces	2.25 kN/m² (take wind and snow loads into account! Consider static capacity of roof!)			
Inclination range	10 - 85° for on-roof and free standing setup, 27 - 85° for roof integration			
Weight	48 kg		43 kg	
* Calculated for 4 person household at Würzburg/Germany with 300 l solar cylinder and 5 m² collector area.				

Table 1 Technical Data EURO C20 / C22

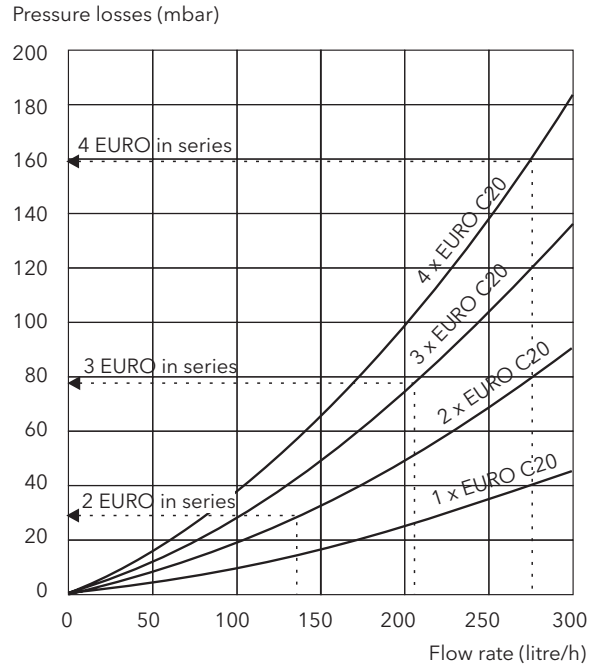

Figure 2 Pressure loss EURO C20 in relation to the volume flow and and the number of collectors connected in-row;
Volume flow v=30 l/m²h; heat transfer medium: 40% glycol, 60% Water at 30 °C; examples with v=30l/m²h; pressure losses do not account for connections and connection pipes

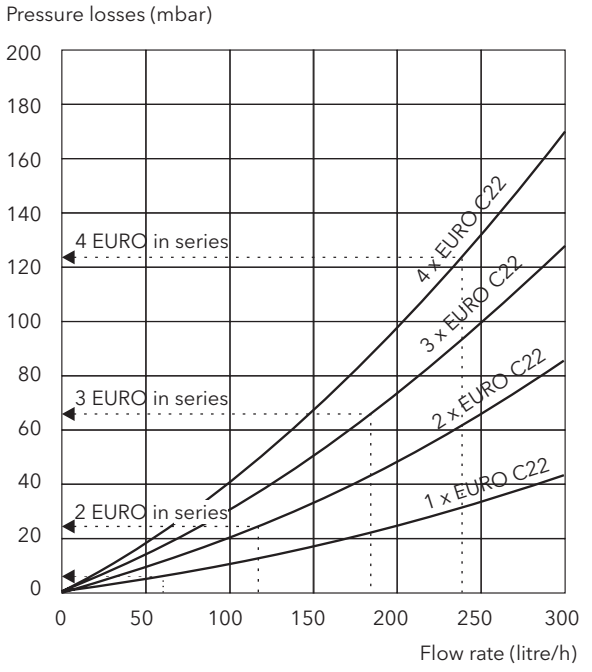

Figure 3 Pressure loss EURO C22 in relation to the volume flow and and the number of collectors connected in-row;
Volume flow v=30 l/m²h; heat transfer medium: 40% glycol, 60% Water at 30 °C; examples with v=30l/m²h; pressure losses do not account for connections and connection pipes

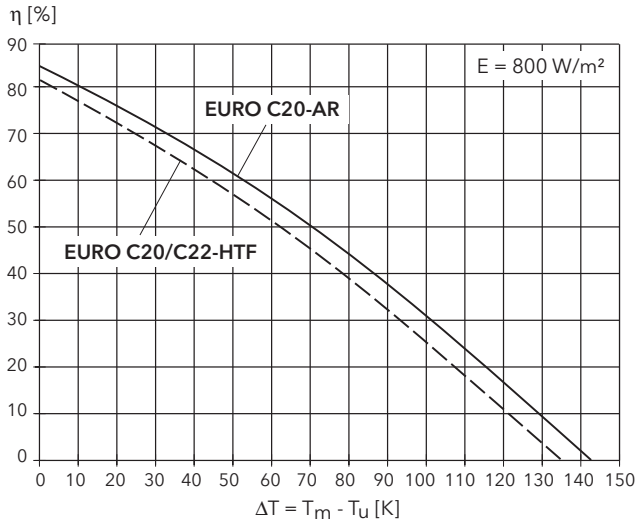

Figure 4 Characteristics curves of EURO C20 / C22 HTF and EURO C20 AR depending on Tm – TU (E = 800 W/m²) as measured at the ISFH Hameln according to DIN EN 12975.

2. Planning notes

2.1 Snow and Wind loads

Snow and wind loads are a significant factor for structural planning. European norms were established, albeit without specifically taking solar installations into account.
Wind and snow loads affect the collectors and the installation system.Depending on the conditions and height of the installation site as well as the collector inclination, the mechanical loads on the system can vary considerably. Also see guidelines for the planning of structural frameworks and standards EUROCODE 1, (European guidelines for structural planning). With combined snow and wind loads the maximum strain for the EURO solar collector is 2,250 N/m². Note that wind suction spikes may occur on roof edges! Please read the information in the appliccable guidelines for the planning of structural frameworks.
It is mandatory to follow best practice rules for static planning, especially related to snow and wind loads. Different codes and regulations apply in different countries and regions. For more information refer to our technical information "EURO Solar Collector" C20/C22 and the leaflet "Notes on Snow and Wind safe Installation of Solar Collectors".
In case of doubt and/or in absence of exact static calculations (not recommended!) always allow for additional fixtures, weight, anchors, and screws, especially in regions with known weather extremes.

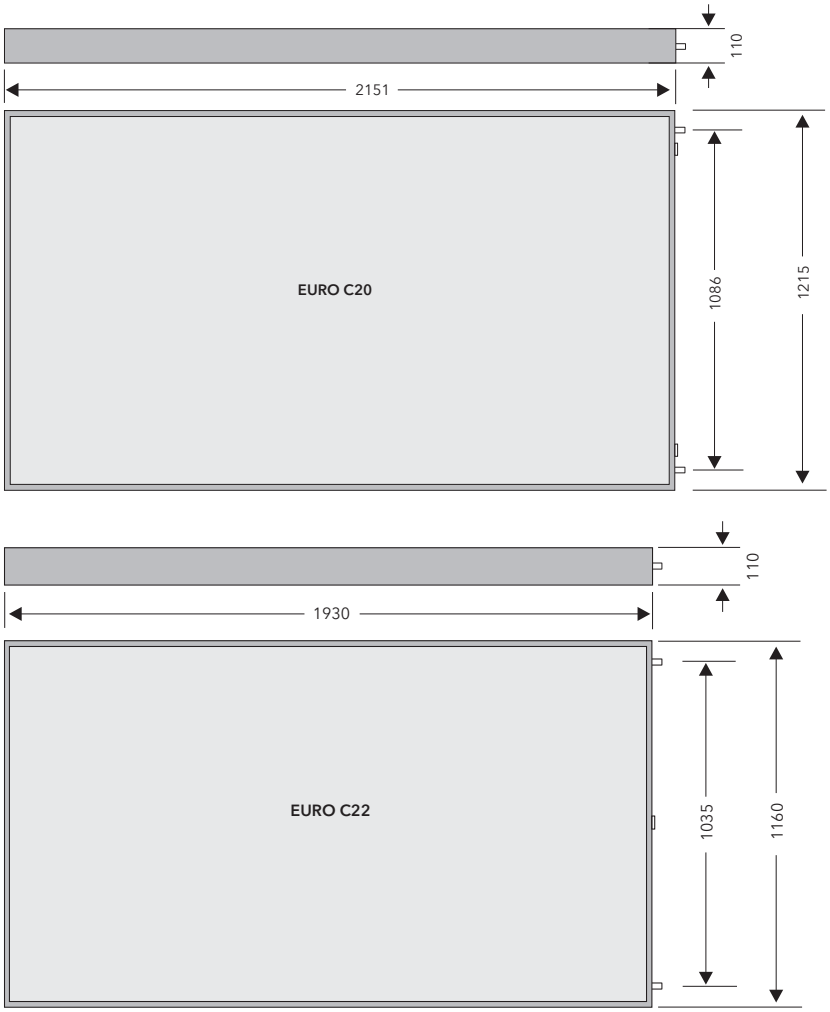

Figure 5 Dimensions EURO C20/EURO C22

2.2 Collector Field Layout with On-Roof Installation

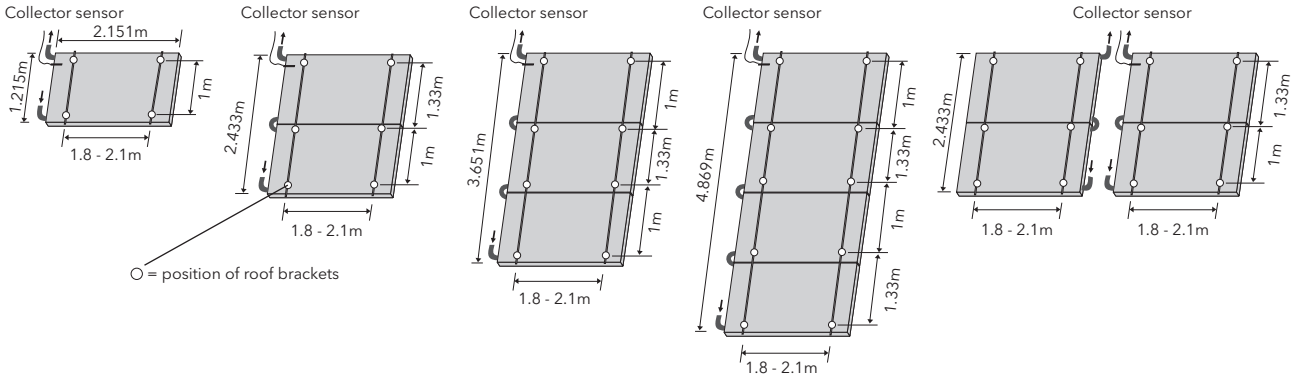

Figure 6 ***Horizontal collector arrangement:*** *Up to 4 EURO C20 connected in series. The mounting rails run vertically. Combination of parallel and serial connections (see right) is possible as well.*

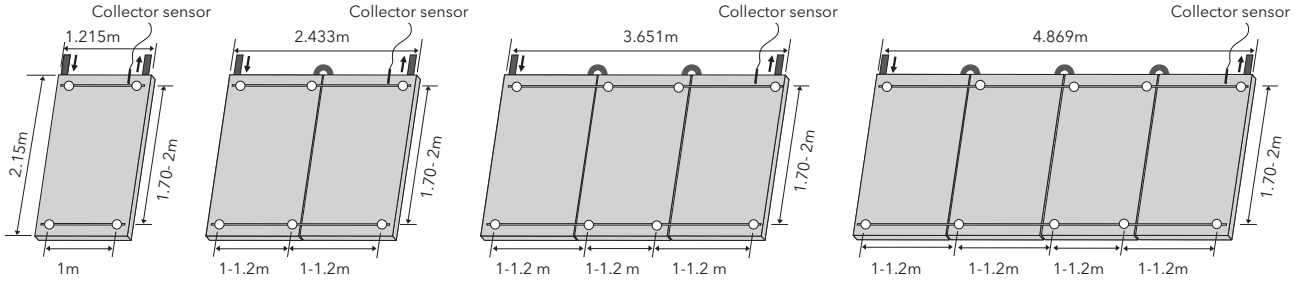

Figure 7 ***Vertical collector arrangement:*** *Up to 4 EURO C20 in serial connection. The mounting rails run horizontally. More than 4 EUROs are combined from serial and parallel connections.*

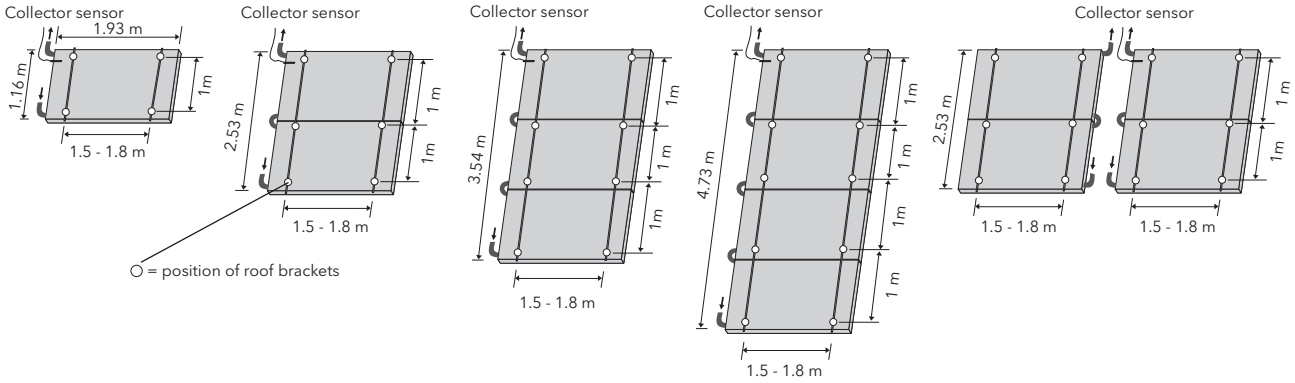

Figure 8 ***Horizontal collector arrangement:*** *Up to 4 EURO C22 in serial connection. The mounting rails run vertically. Combination of parallel and serial connection (see right) is possible as well.*

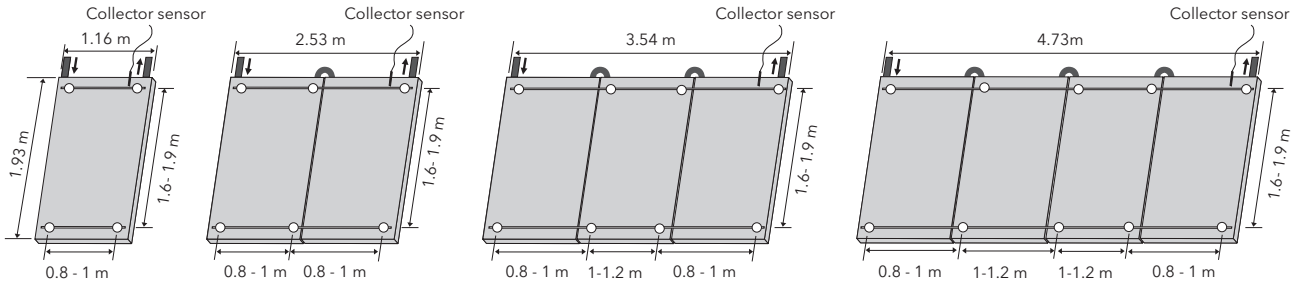

Figure 9 ***Vertical collector arrangement:*** *Up to 4 EURO C22 in serial connection. The mounting rails run vertically. More than 4 EUROs are combined from serial and parallel connections.*

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