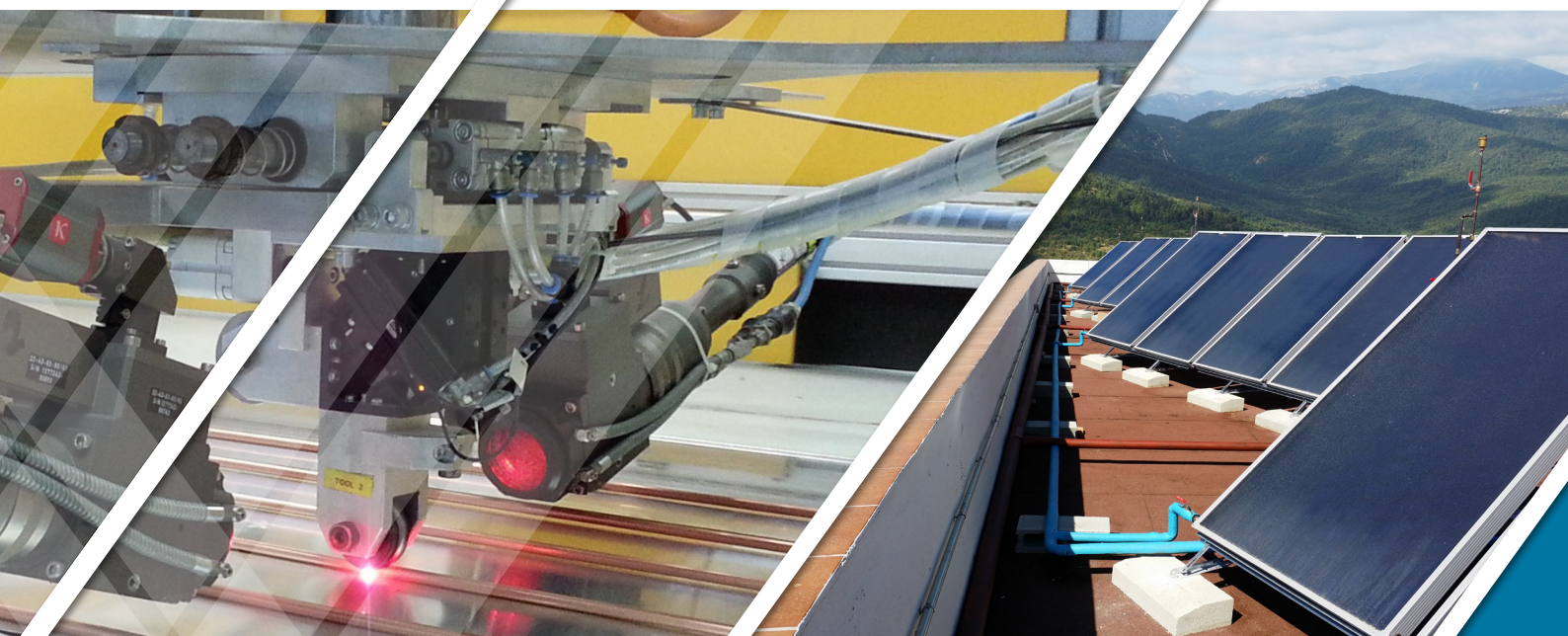


We start where the rest aim

# solar flame

solar collectors

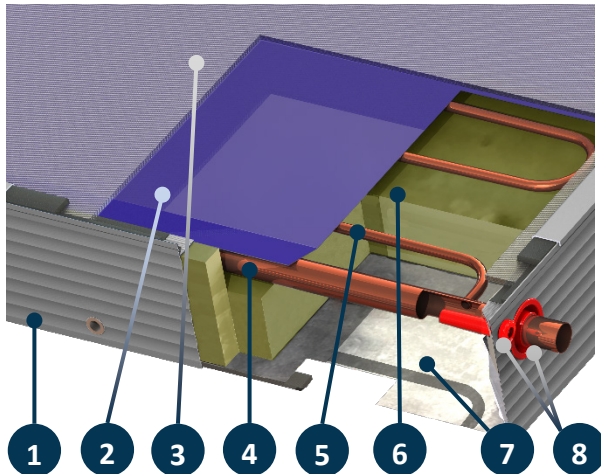
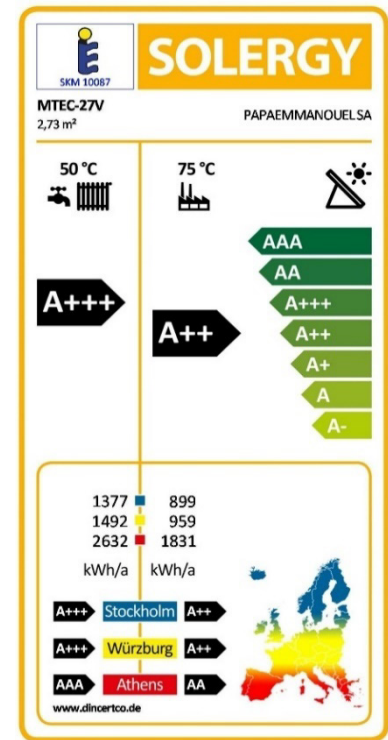


## MTEC series



BMTC26092022EN-v.1.1

- Meander type
- AR glass
- Ø8mm double serpentine – closed loop
- Annual collector output:  
2.72→1492 kWh (Würzburg, 50°C)



Model MTEC-27 is a superior flat plate collector encasing double meander absorber with very high efficiency level. It is best suited for closed loop / forced circulation systems, small or large scale, great choice for colder climates, where its great insulation properties are desired for minimizing thermal losses and maximizing efficiency. Overall MTEC-27 lies in the top 3 most powerful certified collectors produced in Greece, in terms of annual output (the other 2 are our FMAX and our FMAX-TOP) and one among the best meander type collectors worldwide. This collector has been tested in NSCR DEMOKRITOS laboratory in Greece and is certified with SOLAR KEYMARK.

#### Description:

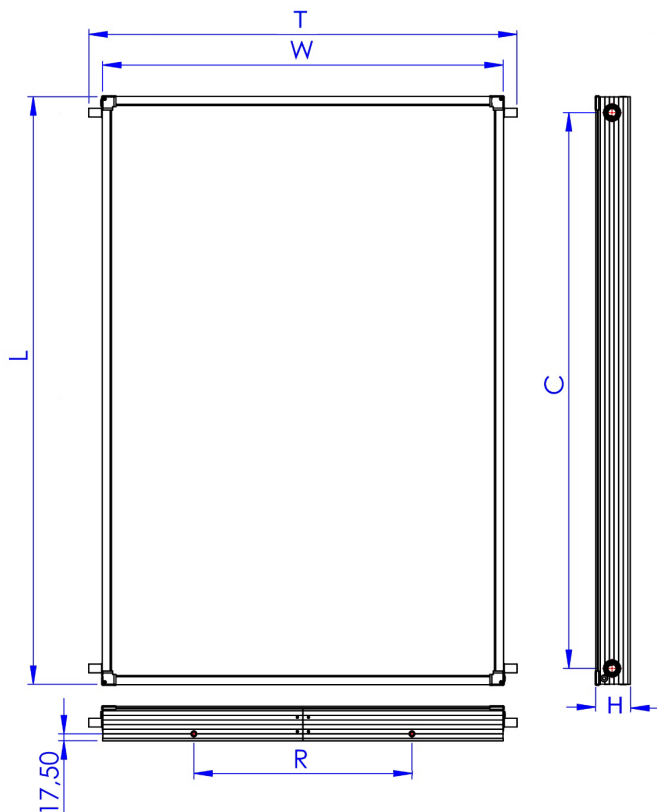
1. **Frame of the collector:** Aluminium profile powder coated for maximum protection in seaside areas.
2. **Absorbing surface:** Aluminium surface with blue titanium high selective treatment with high absorption and low emission ( $\alpha=95\%$ ,  $\epsilon=4\%$ ), laser welded on the copper water frame.
3. **Transparent cover:** Security-Tempered solar glass with Antireflective coating, for maximum protection against extreme weather conditions and temperature changes, maximum solar transmittance and minimum solar reflection.
4. **Header of water frame:** Copper tubes Ø22, which is welded to the serpentes with hard silver solder. Each water frame is tested at the pressure of 15 bars. Headers are punched with upper expansion for perfect fitting with the serpentes and minimum pressure drop in the collector.
5. **Meander:** Double serpentine, Copper tube in diameter Ø8mm.
6. **Thermal insulation:** 50mm thick layer of prepressed mineral wool special for solar panels for minimum thermal loss. Thermal conductivity:  $0=0.035$  W/m<sup>2</sup>K (EN 13162) and heat capacity 0.84 kJ/kgK.
7. **Back cover:** Aluzinc 0,4mm thick. Aluzinc stands for aluminium and zinc, fused in almost equal proportions, as a coating for the steel sheet that is coated with a silvery spangle composed of Aluminium (55%), Zinc (43,4%) and a touch of Silicon (1,6%). Great mechanical strength and 7 times more resistant to corrosion than common galvanized steel.
8. **Sealing materials:** For perfect waterproof finish and proper ventilation of collectors casing, all materials used (EPDM, polyurethane sealant, silicon air vents and silicon header flanges) resist to extreme weather conditions and temperature changes.

The collector can be installed on a flat roof, tiled roof and in-roof.

## MTEC-27 COLLECTORS TECHNICAL DATA / SPECIFICATIONS

Model	MTEC-27V	MTEC-27H
Gross area [m <sup>2</sup> ]	2.72	2.72
Total Dimensions [mm]	L:2160	L:1260
	W:1260	W:2160
	H:100	H:100
Weight empty [kg]	55	55.70
Max. operating Pressure [bar]	10	
Thermal Liquid Capacity [lt]	2.44	3.03
Collector front Cover-Thickness	LOW IRON -AR- TEMPERED GLASS 3.2mm	
Insulation	50mm MINERAL WOOL, $\lambda=0.035$ [W/(mK)]	
Casing Material	ALUMINUM POWDER COATED	
Sealing Materials	POLYURETHANE - SILICON - EPDM	
Absorber Area [m <sup>2</sup> ]	2.57	2.57
Water frame type material/ diameter	Double meander / copper / $\varnothing 8$	
N. of passes	2x16	2x18
Absorber Material-Treatment	ALUMINUM / PVD COATING / HIGH SELECTIVE – A=0.95±0.02 / e=0.05±0.02	
Absorber construction Type	LASER	
Heat transfer Medium	PROPYLENE/TRIETHYLENE GLYCOL + WATER MIXTURE	
Tests and Certifications	SOLAR KEYMARK	
SKM10087	EFFICIENCY VALUES BASED ON EN12975 STANDARD (BASED ON APERTURE AREA)	EFFICIENCY VALUES BASED ON EN ISO 9806:2013 STANDARD (BASED ON GROSS AREA)
Efficiency $\eta_0$	0.87	0.82
Thermal loss $a_1$ [w/(m <sup>2</sup> K) ]	3.89	3.61
IAM ( $K_{\theta}$ at 50°)	0.93	0.93
Thermal loss $a_2$ (w/(m <sup>2</sup> K <sup>2</sup> )	0.008	0.008
Stagnation temp. [°C]	200	200
$\eta_{col}$	-	66%

## Layout



Critical dimensions						
model	L	W	H	C	T	R
1.50V	1480	1010	100	1400	1080	550
1.82V	1480	1230	100	1400	1300	550
2.00V	1980	1010	100	1900	1080	550
2.37V	1930	1230	100	1850	1300	550
2.72V	2160	1260	100	2080	1340	550

\*R: M8 blind rivets position and spacing for mounting on a support structure. Located on both top and bottom side of the collector (2+2 rivets)



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