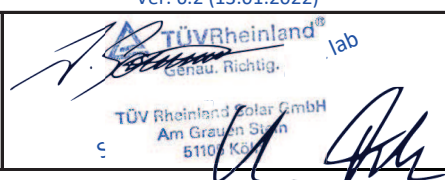


Annex to Solar Keymark Certificate					Licence Number		011-7S2079 F							
					Date issued		2023-08-08							
					Issued by		DINCERTCO							
Licence holder		Bosch Thermotechnik GmbH			Country		Germany							
Brand (optional)		Bosch			Web		www.bosch-thermotechnik.de							
Street, Number		Junkersstrasse 20-24			E-mail		solarthermie@de.bosch.com							
Postcode, City		73249 Wernau			Tel		49 (0)2557 9399-0 / -							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s θ _m - θ _a									
					0 K	10 K	30 K	50 K	70 K	115 K				
					m ²	mm	mm	mm	mm	mm				
FT 226-2V					2.55	2 170	1 175	87	1 884	1 789	1 578	1 338	1 070	362
					0	0	0	0	0	0	0	0		
Power output per m ² gross area					739	702	619	525	420	142				
Performance parameters test method		Steady state - indoor												
Performance parameters (related to A _G)		η _{0, b}	a1	a2	a3	a4	a5	a6	a7	a8	Kd			
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-			
Test results		0.744	3.58	0.014	0.000	0.00	3 947	0.000	0.00	0.0E+00	0.95			
Incidence angle modifier test method		Quasi dynamic - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{GT, coll}	1.00	0.99	0.98	0.96	0.93	0.88	0.76	0.38	0.00			
Longitudinal		K _{GL, coll}	1.00	0.99	0.98	0.96	0.93	0.88	0.76	0.38	0.00			
Heat transfer medium for testing		Water-Glycole												
Flow rate for testing (per gross area, A _G)		dm/dt	0.020	kg/(sm ²)										
Maximum temperature difference during thermal performance test		(θ _m -θ _a) _{max}	85	K										
Standard stagnation temperature (G = 1000 W/m ² ; θ _a = 30 °C)		θ _{stg}	200	°C										
Maximum operating temperature		θ _{max, op}	n.n.	°C										
Maximum operating pressure		p _{max, op}	1000	kPa										
Testing laboratory		TÜV Rheinland Energy GmbH					www.tuv.com/solarthermal							
Test report(s)		21249762.001					Dated		24.08.2020					
Comments of testing laboratory		Ver. 6.2 (13.01.2022)												
		 <p>TÜVRheinland® Genau. Richtig. lab TÜV Rheinland Solar GmbH Am Grauen Stein 51109 Köln</p>												
<p style="text-align: center;">DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de</p>														



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S2079 F
	Issued	2023-08-08

Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations	Athens			Davos			Stockholm			Würzburg		
	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
FT 226-2V		3 031	2 137	1 361	2 284	1 547	936	1 686	1 083	633	1 841	1 175	676
Gross Thermal Yield per m ² gross area		1 189	838	534	895	607	367	661	425	248	722	461	265
Annual efficiency, η_a		67%	47%	30%	55%	37%	23%	57%	36%	21%	58%	37%	21%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 6.2 (13.01.2022). A detailed description of the calculations is available at <http://www.estif.org/solarkeymarknew/>

Additional Information			
Collector heat transfer medium	Water-Glycole		
The collector is deemed to be suitable for roof integration	Yes		
The collector was tested successfully under the following conditions:			
Climate class (A+, A, B or C)	A		--
G (W/m ²) >	1000	ϑ_a (°C) >	20
		H_x (MJ/m ²) >	600
Maximum tested positive load	4000		Pa
Maximum tested negative load	3000		Pa
Hail resistance using ice balls (diameter)	35		mm
Additional collector attribute(s)			
Using external power source(s) for normal operation	No	Active or passive measure(s) for self-protection	No
Co-generating thermal and electrical power	No	Façade collector(s)	No

Energy Labelling Information		Additional Informative Technical Data	
Reference Area, A _{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A _a (m ²)	
FT 226-2V	2.55	2-V-1234S-A:7.1.14592-C:16.8.1129	

Data required for CDR (EU) No 811/2013 - Reference Area A _{sol}	Data required for CDR (EU) No 812/2013 - Reference Area A _{sol}
Collector efficiency (η_{col})	57%
Zero-loss efficiency (η_0)	0.74
First-order coefficient (a_1)	3.58
Second-order coefficient (a_2)	0.014
Incidence angle modifier IAM (50°)	0.93

Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m², expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.

Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.