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SPF INSTITUT FÜR SOLARTECHNIK

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results		Licence Number	011-7S2877 F
		Date issued	2018-08-16
		Issued by	

Licence holder	**DOMA Solartechnik GmbH**	**Country**	Austria
Brand (optional)		**Web**	www.domasolar.com
Street, Number	Sonnenstrasse 1	**E-mail**	office@domasolar.com
Postcode, City	6822 Satteins	**Tel**	+43 5524 / 53530

Collector Type	Flat plate collector, glazed

Collector name	Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector Gb = 850 W/m²; Gd = 150 W/m² ϑm - ϑa: 0 K	10 K	30 K	50 K	70 K	90 K
	m²	mm	mm	mm	W	W	W	W	W	W
DOMA FLEX Kromatix™	4.24	2'052	2'065	105	2'209	2'073	1'764	1'409	1'006	555
Power output per m² gross area					521	489	416	332	237	131

Performance parameters test method	Steady state - indoor		
Performance parameters (related to AG)	η0,hem	a1	a2
Units	-	W/(m²K)	W/(m²K²)
Test results	0.521	3.075	0.014

Incidence angle modifier test method		Quasi dynamic - outdoor								
Bi-directional incidence angle modifiers	No									
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	$K_{\theta T,coll}$					0.95				0.00
Longitudinal	$K_{\theta L,coll}$					0.95				0.00

Heat transfer medium for testing	Water-Glycole		
Flow rate for testing (per gross area, A_G)	dm/dt	0.020	kg/(sm²)
Maximum temperature difference for thermal performance calculations	$(\vartheta_m-\vartheta_a)_{max}$	90	K
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)	ϑ_{stg}	170	°C
Effective thermal capacity, incl. fluid (per gross area, A_G)	C/m²	4.11	kJ/(Km²)
Maximum operating temperature	$\vartheta_{max\ op}$	--	°C
Maximum operating pressure	$p_{max,op}$	600	kPa

Testing laboratory	SPF, CH-8640 Rapperswil	www.spf.ch	
Test report(s)	2.04.00752.1.0-LT	**Dated**	05.05.2010
	2.04.00752.1.0-QT		19.07.2010
	C1749ISO		16.06.2018

Comments of testing laboratory — Datasheet version: 5.01, 2016-03-01

The test reports 2.04.00752.1.0-LT and 2.04.00752.1.0-QT according to EN12975-2:2006 were issued by the AIT Austrian Institute of Technology. The collector is offered in customer specific dimension. This collector is offered with coloured glasses (grey, bronze, gold, terracotta, blue and green). See report C1749ISO for testing and performance calculations according to Annex L of the Solar Keymark Scheme Rules.

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Annex to Solar Keymark Certificate	Licence Number	011-7S2877 F
Supplementary Information	Issued	2018-08-16

Annual collector output in kWh/collector at mean fluid temperature ϑ_m, based on EN ISO 9806:2013 test results

Standard Locations	Athens			Davos			Stockholm			Würzburg		
Collector name / 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
DOMA FLEX KromatixTM	3'522	2'282	1'256	2'542	1'554	778	1'903	1'101	540	2'077	1'187	576
Annual output per m² gross area	831	538	296	600	367	183	449	260	127	490	280	136
Fixed or tracking collector	Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane	1765 kWh/m²			1714 kWh/m²			1166 kWh/m²			1244 kWh/m²		
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 ϑm (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information

Collector heat transfer medium	Water-Glycole	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	No	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	C	--
Maximum tested positive load	1000	Pa
Maximum tested negative load	1000	Pa
Hail resistance using ice balls (diameter)	0	mm

Energy Labelling Information

	Reference Area, A_{sol} (m^2)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}		
DOMA FLEX KromatixTM	4.24	Collector efficiency (η_{col})	38	%
		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 9806:2013.		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}		
		Zero-loss efficiency (η_0)	0.521	--
		First-order coefficient (a_1)	3.08	W/(m²K)
		Second-order coefficient (a_2)	0.014	W/(m²K²)
		Incidence angle modifier IAM (50°)	0.95	--
		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.		