AENOR

Keymark Certificate
Solar thermal energy

078/000285

AENOR certifies that the organization

SYSTOVI

registered office	14 AVENUE SYRMA 44470 CARQUEFOU *(Francia)*
supplies	Air heating solar collectors
in compliance with	Specific CEN KEYMARK Scheme Rules for Solar Thermal Products Version 28.00 – December 2015
Trade Mark	R- SUN ON TOP
Technical characteristics	Specified in Annex to the Certificate
Production site	14 AVENUE SYRMA 44470 CARQUEFOU *(Francia)*
Certification scheme	In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP 078.01. The tests have been performed according to the EN ISO 9806:2013 standard. The specific requirements for certifying solar air collectors are established in annex L of these Specific Rules. This certificate supersedes 078/000285, dated 2017-11-23
First issued on	2016-11-24
Modified on	2019-07-19
Validity date	2021-11-24

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

Product certification body accredited by ENAC, number 01/C-PR002.078

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results

Licence Number	**078/000285**
Date issued	**2019-07-19**
Issued by	

Licence holder	**SYSTOVI**	**Country**	FRANCE
Brand (optional)	--	**Web**	www.systovi.com
Street, Number	14 AVENUE SYRMA	**E-mail**	M.BENABDELKARIM@systovi.com
Postcode, City	44470 CARQUEFOU	**Tel**	+33 02 40 92 44 20

Collector Type	Flat plate collector, (air heating) glazed

Collector name	Gross area (A_G) m²	Gross length mm	Gross width mm	Gross height mm	Power output per collector module G = 1000 W/m²		
					Tm - Ta [K] =	5,95	8,3	10,2
					ṁ [kg/h] =	236,5	134,2	91,1
R- SUN ON TOP	1,56	1.521	1.023	70	Power output [W] =	929	736	613

Performance parameters test method	steady state - indoor Glazed air heating collector			
Mass flow rate depending performance parameters related to aperture area	η(236,5 kg/h)	η(134,2 kg/h)	η(90,1 kg/h)	
Units	--	--	--	
Test results	0,596	0,472	0,393	

Incidence angle modifier test method	steady state - outdoor Glazed air heating collector									
Bi-directional incidence angle modifiers	No									
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	$K_{\theta T,coll}$					0,91				0,00
Longitudinal	$K_{\theta L,coll}$					0,91				0,00

Heat transfer medium for testing	Air		
Flow rate for testing (per gross area, A_G)	dm/dt	0,016	kg/(sm²)
	dm/dt	0,024	kg/(sm²)
	dm/dt	0,042	kg/(sm²)
Maximum temperature difference for thermal performance calculations	$(\vartheta_m-\vartheta_a)_{max}$	10,2	K
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)	ϑ_{stg}	160,6	°C
Effective thermal capacity, incl. fluid (per gross area, A_G)	C/m^2	1,39	kJ/(Km²)
Maximum operating temperature	ϑ_{max_op}	120	°C
Maximum operating pressure	$p_{max,op}$	0,06	kPa

Testing laboratory	Fundación CENER-CIEMAT, LEST	www.cener.com	
Test report(s)	30.2926.0-1-1 30.2926.0-2-1	**Dated**	29/09/2016

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

For open to ambient solar air heaters, sucking in ambient air, it is just possible to determine the instantaneous efficiency at certainmass flow rates and ambient temperature.