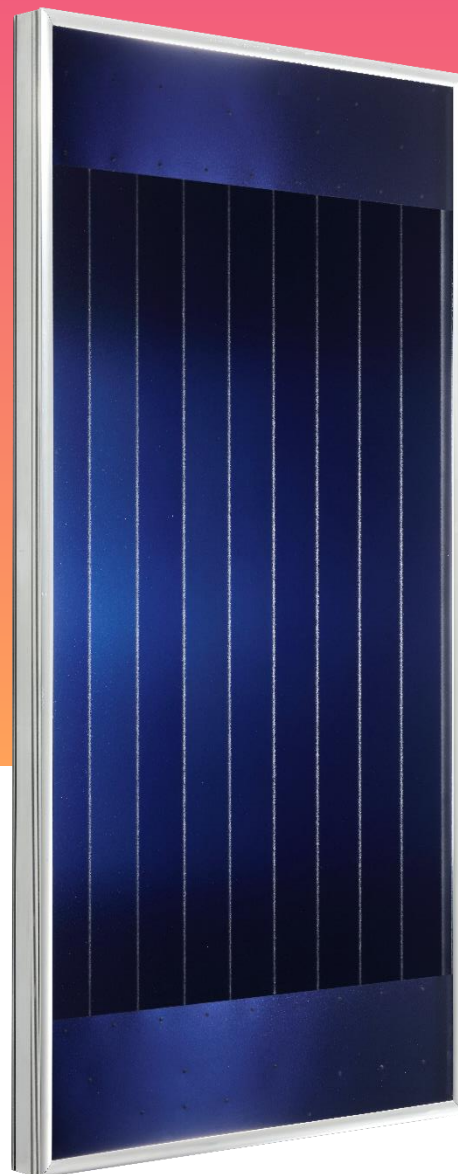


SOLHOTAIR SHA 2.0

Air solar heating collector

Technical card

Manufacturer: SOLHOTAIR Sp. z o. o.
Planty 21, 05-080 Izabelin, Poland
Energetyka Solarna ENSOL Sp. z o.o.
Piaskowa 11, 47-400 Racibórz, Poland



KEY FEATURES OF THE COLLECTOR



One of the world's highest efficiencies achieved in an air solar heating collector



Possibility to install collectors on roofs and walls of buildings



Due to the high efficiency, the possibility of producing usable and process heat e.g. in drying



AIR HEATING SOLAR COLLECTOR SHA 2.0 FOR VERTICAL MOUNTING

SHA 2.0 - flat solar collector with meander absorber, made entirely of aluminum, designed for vertical mounting.

Air solar collector SHA 2.0 is designed for changing energy of solar radiation into useful thermal energy used for providing warm air, heating buildings, biomass drying or supporting a heat source in a HVAC heating system.

Collector's housing construction is based on a rigid frame bent from a special aluminum profile. At the bottom the housing is closed with an aluminum sheet, whereas the cover is made of special, high-transmission solar glass. The manner of fixing the glass ensures tightness of housing and minimizes thermal tensions.

The main part of the collector is an absorber, the plate of which is made of aluminum sheet covered with a high selective coat in order to ensure a high level of solar radiation absorption, which results in obtaining high efficiency of the energy conversion process. The meander construction of the absorber and SOLHOTAIR's patented vortex generator ensure turbulent air flow and maximum absorption of solar energy by the flowing air. A module consisting of three fans ensures adequate flow of the air pumped into the collector.

Straty ciepła zostały zminimalizowane poprzez zastosowanie dolnej i izolacji bocznej o niskim współczynniku przewodzenia ciepła.

Specially designed assembly sets made of stainless steel are used for trouble-free and secure mounting of collectors to roof constructions with different angles inclination.



COLLECTOR DIMENSIONS

Total collector dimension: 2007 x 1006 x 85 mm

a. aperture dimensions: 1955 x 953 mm

b. fan module dimension: 112 x 1006 x 85 mm

Frame material: aluminum PA 38/PA 11

Rear material: galvanized steel /HPL

Protective glass: prismatic glass, hardened

Weight: 38kg

TECHNICAL SPECIFICATIONS

Collector type: flat

Airflow type: meander, forced

Heat transfer medium: air

Nominal heating output: 1600 Wp
(at solar irradiance $G=1000\text{W/m}^2$)

Nominal airflow: 180 kg/h = 150 m³/h

Nominal efficiency: 83 %

Gross collector surface area: 2,019 m²

Aperture area: 1.86 m²

Absorber surface area: 1.86 m²

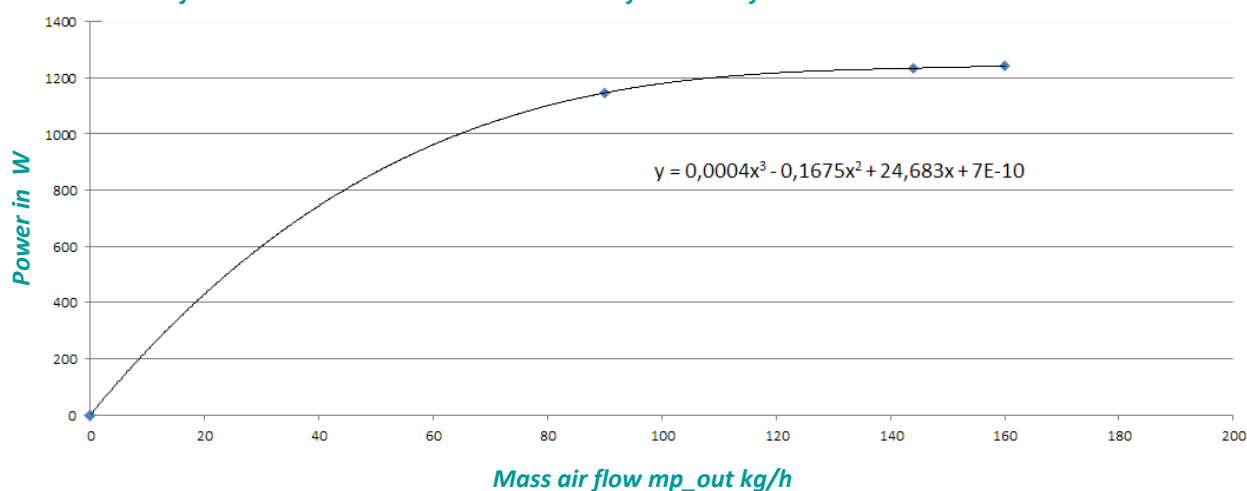
Fans (power): 30W

Fan power supply: 12 VDC

Flat plate solar collector	Symbol	Unit	Value
Width	A	mm	1006
Height	B	mm	2007
Depth	C	mm	85
Collector weight	m	kg	35
Surface	S	m ²	2,019
Efficiency	η	%	83
Housing	alu - profile		
Cover	Hardened solar glass, 4mm thickness		
Absorber			
Type of absorber	Al sheet 0,5mm		
Absorber sheet coating	High selective layer		
Absorption coefficient	α	%	95
Emission coefficient	ϵ	%	5
Width	a	mm	
Height	b	mm	
Absorber's surface	s	m ²	1,86
Active surface	s	m ²	1,86
Balance temperature		C°	185
Flow			
Minimum airflow		kg/h	90
Maximum airflow:		kg/h	160
Insulation			
Bottom insulation	3M Glass Microspheres		
Side insulation	Melamine foam		
Fans			
Fans power		VDC	12
Fan power supply		W	30W

COLLECTOR EFFICIENCY

*Collector power in W above the mass flow at the collector output, at a radiation of 1000 W/m².
Data for Solhotair SHA 1.0 collector with a surface area of 1.53m².*



INSTALLATION

Acceptable mounting methods: roof, building facade
Collector angle range from 30° to 90°C

TESTING AND CERTIFICATION

Fraunhofer ISE Report: KTB 2017-07

Marks: CE

Patent protection:

European patent no: 3411637: Solar Air System

Polish patent no: 230038 Title: vortex generator in air solar heating collector

Patent validated in 15 countries of the European Union

DECLARATION OF CONFORMITY

Date and Place: 01 of June 2022, Izabelin

Manufacturer: Solhotair Sp. z o. o., Planty 21, 05-080 Izabelin, Poland

Declares that the product which is:

Name: Solhotair solar air collector

Model: Solhotair SHA 2.0

Serial Numbers: SHA 2.0 No.:01...../year of manufacture

Application of product: buildings solar heating, solar dryers

This product fulfils all the requirements of the UE Community directive
2006/42/WE

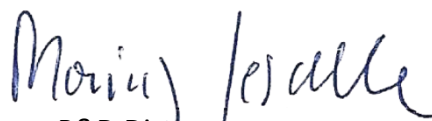
Generalized standards and other technical specifications:

EN 12975-1:2006+A 1:2010

EN ISO 9806:2013

This declaration of conformity is issued under the sole responsibility of the
manufacturer.

Official position and signature of
authorized person:



R&D Director

Dipl. Ing. Marius Jeschke

Izabelin, 01 June 2019