



Keymark Certificate



078/000219

AENOR certifies that the organization

DELPASO SOLAR, S.L.

registered office PTA - AVDA. JUAN LÓPEZ DE PEÑALVER, 3 CAMPANILLAS 29590
MÁLAGA (Malaga - España)

supplies **Solar collectors**

in compliance with UNE-EN 12975-1:2006+A1:2011 (EN 12975-1:2006+A1:2010)

Trade Mark DPS VSH2200, DPS HSH2200, DPS VSHJ2200, DPS HSHJ2200, DPS
VSH2600, DPS HSH2600, DPS VSHJ2600, DPS HSHJ2600

Technical information Specified in Annexes to the Certificate

Production site PARQUE TECNOLÓGICO DE ANDALUCÍA, AVENIDA JUAN LÓPEZ DE
PEÑALVER, 3 CAMPANILLAS 29590 MÁLAGA (Malaga - España)

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.

This certificate supersedes 078/000219, dated 2024-12-04

First issued on 2014-12-04


Modified on 2025-02-10

Validity 2029-12-04

Rafael GARCÍA MEIRO
CEO





Annex to Solar Keymark Certificate					Licence Number		078/000219							
					Date issued		2025-02-10							
					Issued by		AENOR							
Licence holder		DELPASO SOLAR S.L.			Country		SPAIN							
Brand (optional)		--			Web		http://www.dpsm.es							
Street, Number		PARQUE TECNOLÓGICO DE ANDALUCÍA, AVENIDA JUAN LÓPEZ DE PEÑALVER, 3 CAMPANILLAS			E-mail		calidad@dpsm.es							
Postcode, City		29590 - MÁLAGA			Tel		+34 952111524							
Collector Type					Flat plate collector									
Collector name					Power output per collector Gb = 850 W/m ² , Gd = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	81 K				
					W	W	W	W	W	W				
DPS VSH2200					2,23	2.089	1.069	98	1.487	1.408	1.226	1.012	766	617
DPS HSH2200					2,23	1.069	2.089	98	1.487	1.408	1.226	1.012	766	617
DPS VSHJ2200					2,22	2.074	1.074	98	1.481	1.402	1.221	1.008	763	614
DPS HSHJ2200					2,22	1.074	2.074	98	1.481	1.402	1.221	1.008	763	614
DPS VSH2600					2,58	2.089	1.234	98	1.721	1.629	1.419	1.171	886	714
DPS HSH2600					2,58	1.234	2.089	98	1.721	1.629	1.419	1.171	886	714
DPS HSHJ2600					2,57	1.239	2.074	98	1.714	1.623	1.413	1.167	883	711
DPS VSHJ2600					2,57	2.074	1.239	98	1.714	1.623	1.413	1.167	883	711
Power output per m ² gross area					667	632	550	454	344	277				
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		0,673	3,36	0,018	0,000	0,00	3.994	0,000	0,00	0,0E+00	0,94			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{ET, coll}	1,00	1,00	0,99	0,98	0,96	0,93	0,86	0,66	0,00			
Longitudinal		K _{EL, coll}	1,00	1,00	0,99	0,98	0,96	0,93	0,86	0,66	0,00			
Heat transfer medium for testing		Water												
Flow rate for testing (per gross area, A _G)		dm/dt	0,032		kg/(sm ²)									
Maximum temperature difference during thermal performance test		($\vartheta_m - \vartheta_a$) _{max}	51		K									
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)		ϑ_{stg}	190,4		°C									
Maximum operating temperature		$\vartheta_{max, op}$	200		°C									
Maximum operating pressure		p _{max, op}	1000		kPa									
Testing laboratory		Fundación CENER, LEST				http://www.cener.com								
Test report(s)		30.4444.0-001 30.4444.0-002 / 30.4444.0-003 30.4444.0				Dated		13/12/2024						
Comments of testing laboratory		Ver. 6.2 (13.01.2022)												
<ul style="list-style-type: none"> - The only difference between the SH and SHJ collectors is the collector box profile. - The collectors models VSH2200 and VSHJ2600 were tested according to ISO 9806:2017 According to SKM rules, the results of the collector model VSHJ2600 are representative for the whole SH-SHJ family.														
AENOR CONFÍA, S.A.U. - Génova, 6. - 28004 - Madrid, España - Tel. 91 432 60 00 - www.aenor.com														
Product certification body accredited by ENAC, number 1/C-PR271														



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000219
	Issued	2025-02-10

Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations ϑ_m	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
DPS VSH2200		2.415	1.662	995	1.799	1.172	649	1.337	826	445	1.457	895	475
DPS HSH2200		2.415	1.662	995	1.799	1.172	649	1.337	826	445	1.457	895	475
DPS VSHJ2200		2.405	1.654	991	1.791	1.167	646	1.331	822	443	1.451	891	473
DPS HSHJ2200		2.405	1.654	991	1.791	1.167	646	1.331	822	443	1.451	891	473
DPS VSH2600		2.794	1.923	1.152	2.082	1.356	751	1.547	955	515	1.686	1.036	550
DPS HSH2600		2.794	1.923	1.152	2.082	1.356	751	1.547	955	515	1.686	1.036	550
DPS HSHJ2600		2.784	1.915	1.147	2.074	1.351	748	1.541	951	513	1.679	1.032	547
DPS VSHJ2600		2.784	1.915	1.147	2.074	1.351	748	1.541	951	513	1.679	1.032	547
Gross Thermal Yield per m ² gross area		1.083	745	446	807	526	291	600	370	200	653	401	213
Annual efficiency, η_a		61%	42%	25%	50%	32%	18%	51%	32%	17%	53%	32%	17%
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				1000	Pa
Maximum tested negative load				1000	Pa
Hail resistance using ice balls (diameter)				25	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)
DPS VSH2200	2,23	9-V-1234S-A:7,2,1905-C:16,8,1108-D	2,00
DPS HSH2200	2,23	18-V-1234S-A:7,2,905-C:16,8,2108-D	2,00
DPS VSHJ2200	2,22	9-V-1234S-A:7,2,1905-C:16,8,1108-D	2,00
DPS HSHJ2200	2,22	18-V-1234S-A:7,2,905-C:16,8,2108-D	2,00
DPS VSH2600	2,58	10-V-1234S-A:7,2,1905-C:16,8,1223-D	2,33
DPS HSH2600	2,58	18-V-1234S-A:7,2,1070-C:16,8,2108-D	2,33
DPS HSHJ2600	2,57	18-V-1234S-A:7,2,1070-C:16,8,2108-D	2,33
DPS VSHJ2600	2,57	10-V-1234S-A:7,2,1905-C:16,8,1273-D	2,33

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})	50%	Zero-loss efficiency (η_0)	0,67
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/m ² , 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.		First-order coefficient (a_1)	3,36
		Second-order coefficient (a_2)	0,018
		Incidence angle modifier IAM (50°)	0,96
		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.	