
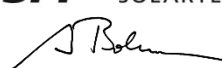


Annex to Solar Keymark Certificate					Licence Number		011-7S1016 F							
					Date issued		2019-12-20							
					Issued by		DIN CERTCO							
Licence holder		Daikin Europe N.V.			Country		Belgium							
Brand (optional)		-			Web		www.daikin.eu							
Street, Number		Zandvoordestraat 300			E-mail		-							
Postcode, City		BE-8400 Oostende			Tel		+32 59 55 81 11							
Collector Type					Flat plate collector									
Collector name					Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector					
									G_b = 850 W/m², G_d = 150 W/m² & u = 1.3 m/s					
					θ_m - θ_a									
					0 K	10 K	30 K	50 K	70 K	120 K				
					W	W	W	W	W	W	W			
V21P					2.01	2'000	1'006	85	1'426	1'338	1'156	963	762	215
V26P					2.60	2'000	1'300	85	1'844	1'731	1'495	1'246	985	278
H26P					2.60	1'300	2'000	85	1'844	1'731	1'495	1'246	985	278
Power output per m² gross area					709	666	575	479	379	107				
Performance parameters test method		Steady state - outdoor												
Performance parameters (related to A_G)		η_{0, b}	a₁	a₂	a₃	a₄	a₅	a₆	a₇	a₈	K_d			
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		0.719	4.30	0.006	0.000	0.00	5'051	0.000	0.00	0.0E+00	0.91			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K_{θT, coll}	1.00	0.99	0.99	0.98	0.95	0.89	0.69	0.37	0.00			
Longitudinal		K_{θL, coll}	1.00	1.00	1.00	0.99	0.97	0.93	0.82	0.57	0.00			
Heat transfer medium for testing		Water-Glycole												
Flow rate for testing (per gross area, A_G)		dm/dt		0.023		kg/(sm²)								
Maximum temperature difference during thermal performance test		(θ_m - θ_a)_{max}		90		K								
Standard stagnation temperature (G = 1000 W/m²; θ_a = 30 °C)		θ_{stg}		200		°C								
Maximum operating temperature		θ_{max op}		98		°C								
Maximum operating pressure		p_{max, op}		600		kPa								
Testing laboratory		SPF Testing, CH-8640 Rapperswil, Switzerland					www.spf.ch							
Test report(s)		C1796ISO					Dated		27.11.2019					
		C1797ISO							27.11.2019					
		C1798ISO							27.11.2019					
Comments of testing laboratory		Datasheet version: 6.1, 2019-09-26												
		 INSTITUT FÜR SOLARTECHNIK 												
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Annex to Solar Keymark Certificate		Licence Number											
Supplementary Information		011-7S1016 F											
		Issued											
		2019-12-20											
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
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
V21P		2'264	1'505	922	1'653	1'080	643	1'222	747	426	1'336	805	453
V26P		2'929	1'946	1'193	2'139	1'396	832	1'581	966	551	1'729	1'042	586
H26P		2'929	1'946	1'193	2'139	1'396	832	1'581	966	551	1'729	1'042	586
Annual output per m ² gross area		1'127	749	459	823	537	320	608	372	212	665	401	225
Annual efficiency, η_a		64%	42%	26%	50%	33%	20%	52%	32%	18%	53%	32%	18%
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. 6.1 (September 2019). 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										2400		Pa	
Maximum tested negative load										2400		Pa	
Hail resistance using ice balls (diameter)										35		mm	
Additional collector attribute(s)													
<input type="checkbox"/> Using external power source(s) for normal operation				<input type="checkbox"/> Active or passive measure(s) for self-protection									
<input type="checkbox"/> Co-generating thermal and electrical power				<input type="checkbox"/> Façade collector(s)									
Energy Labelling Information						Additional Informative Technical Data							
		Reference Area, A _{sol} (m ²)		Hydraulic Designation Code				Aperture Area, A _a (m ²)					
V21P		2.01		9-V-1234S-A:7.2,1840-C:20.4,990-D				1.80					
V26P		2.60		12-V-1234S-A:7.2,1840-C:20.4,1290-D				2.37					
H26P		2.60		19-V-1234S-A:7.2,1140-C:20.4,1990-D				2.36					
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})		53%				Zero-loss efficiency (η_0)		0.71		--			
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)		4.30		W/(m ² K)					
				Second-order coefficient (a ₂)		0.006		W/(m ² K ²)					
				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.													
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