

Annex to Solar Keymark Certificate		Licence Number		011-7S405 F									
Supplementary Information		Issued		2020-12-04									
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations	Athens			Davos			Stockholm			Würzburg		
	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
Bulex SRV 2.3/2		2 996	2 118	1 350	2 271	1 544	936	1 665	1 072	628	1 822	1 166	672
Saunier Duval SRV 2.33/2		2 996	2 118	1 350	2 271	1 544	936	1 665	1 072	628	1 822	1 166	672
Hermann Saunier Duval SRV 2.3/2		2 996	2 118	1 350	2 271	1 544	936	1 665	1 072	628	1 822	1 166	672
Bulex SRH 2.3/2		2 996	2 118	1 350	2 271	1 544	936	1 665	1 072	628	1 822	1 166	672
Saunier Duval SRH 2.33/2		2 996	2 118	1 350	2 271	1 544	936	1 665	1 072	628	1 822	1 166	672
Annual output per m ² gross area		1 194	844	538	905	615	373	663	427	250	726	465	268
Annual efficiency, η_a		68%	48%	30%	56%	38%	23%	57%	37%	21%	58%	37%	22%
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		3000										Pa	
Maximum tested negative load		2500										Pa	
Hail resistance using steel ball (maximum drop height)		2										m	
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)					
Bulex SRV 2.3/2	2.51	1-H-1234S-A:9,20630-C16,1178-D						2.35					
Saunier Duval SRV 2.33/2	2.51	1-H-1234S-A:9,20630-C16,1178-D						2.35					
Hermann Saunier Duval SRV 2.3/2	2.51	1-H-1234S-A:9,20630-C16,1178-D						2.35					
Bulex SRH 2.3/2	2.51	1-H-1234S-A:9,18004-C16,1978-D						2.35					
Saunier Duval SRH 2.33/2	2.51	1-H-1234S-A:9,18004-C16,1978-D						2.35					
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})	57%					Zero-loss efficiency (η_0)	0.73						--
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)	3.54						W/(m ² K)
						Second-order coefficient (a_2)	0.015						W/(m ² K ²)
						Incidence angle modifier IAM (50°)	0.98						--
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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