



ICIM S.p.A. a socio unico

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 Capitale Soc EUR. 260.000,00 int. versato ed esistente
 C.F./P. IVA e Iscriz. Reg. Imprese di Milano n. 12908230159 - R.E.A. n. 1596292

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results						Licence Number		063BN/0						
						Date issued		2013-08-02						
						Issued by		ICIM S.p.A.						
Licence holder		Riello S.p.A.				Country		Italy						
Brand (optional)						Web		http://www.riello.it						
Street, Number		Via Ing. Pilade Riello, 7				E-mail		info@riello.it						
Postcode, City		37045 Legnago (VR)				Tel								
Collector Type						Evacuated tubular collector								
Collector name					Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	Power output per collector G _b = 850 W/m ² ; G _d = 150 W/m ² ϑ _m - ϑ _a					
									0 K W	10 K W	30 K W	50 K W	70 K W	70 K W
Riello CSV 25 R					2,77	145	1.600	145	1.939	1.904	1.816	1.704	1.567	1.567
Riello CSV 35 R					3,91	145	2.260	145	2.737	2.688	2.563	2.405	2.211	2.211
Beretta SCV-25					2,77	145	1.600	145	1.939	1.904	1.816	1.704	1.567	1.567
Beretta SCV-35					3,91	145	2.260	145	2.737	2.688	2.563	2.405	2.211	2.211
Sylber CFV-25					2,77	145	1.600	145	1.939	1.904	1.816	1.704	1.567	1.567
Sylber CFV-35					3,91	145	2.260	145	2.737	2.688	2.563	2.405	2.211	2.211
Thermital TSOL 25 SOTTOVUOTO					2,77	145	1.600	145	1.939	1.904	1.816	1.704	1.567	1.567
Thermital TSOL 35 SOTTOVUOTO					3,91	145	2.260	145	2.737	2.688	2.563	2.405	2.211	2.211
Vokera ETV 1025					2,77	145	1.600	145	1.939	1.904	1.816	1.704	1.567	1.567
Vokera ETV 1035					3,91	145	2.260	145	2.737	2.688	2.563	2.405	2.211	2.211
Power output per m ² gross area									700	687	656	615	566	566
Performance parameters test method		Steady state - outdoor												
Performance parameters (related to AG)		η _{0,hem}	a ₁	a ₂										
Units		-	W/(m ² K)	W/(m ² K ²)										
Test results		0,700	1,150	0,011										
Incidence angle modifier test method		Steady state - outdoor												
Bi-directional incidence angle modifiers		Yes												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{θT, coll}			0,99		1,07	1,14			0,00			
Longitudinal		K _{θL, coll}			0,99		0,95	0,86			0,00			
Heat transfer medium for testing		Water-Glycole												
Flow rate for testing (per gross area, A _G)		dm/dt	0,020		kg/(sm ²)									
Maximum temperature difference for thermal performance calculations		(ϑ _m -ϑ _a) _{max}	70		K									
Standard stagnation temperature (G = 1000 W/m ² ; ϑ _a = 30 °C)		ϑ _{stg}	268		°C									
Effective thermal capacity, incl. fluid (per gross area, A _G)		C/m ²	9,9639		kJ/(Km ²)									
Maximum operating temperature		ϑ _{max, op}	260		°C									
Maximum operating pressure		p _{max, op}	1000		kPa									
Testing laboratory		Eurofins Modulo Uno S.p.A.				http://www.eurofins.it								
Test report(s)		M1.10.SOLT.0285/35694-4; M1.10.SOLT.0323/35694-5; M1.11.NRG.0437/43917-REV1; M1.12.NRG.074/43917				Dated		29/06/2010 - 28/05/2010 02/12/2011 - 22/02/2012						
Comments of testing laboratory		Performance test according to EN 12975-2:2006												
														
		Datasheet version: 5.01, 2016-03-01												


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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	063BN/0
	Issued	2013-08-02

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results

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
Riello CSV 25 R		3.273	2.863	2.379	2.796	2.364	1.910	2.010	1.663	1.308	2.163	1.794	1.408
Riello CSV 35 R		4.619	4.041	3.358	3.946	3.337	2.696	2.837	2.347	1.846	3.053	2.532	1.987
Beretta SCV-25		3.273	2.863	2.379	2.796	2.364	1.910	2.010	1.663	1.308	2.163	1.794	1.408
Beretta SCV-35		4.619	4.041	3.358	3.946	3.337	2.696	2.837	2.347	1.846	3.053	2.532	1.987
Sylber CFV-25		3.273	2.863	2.379	2.796	2.364	1.910	2.010	1.663	1.308	2.163	1.794	1.408
Sylber CFV-35		4.619	4.041	3.358	3.946	3.337	2.696	2.837	2.347	1.846	3.053	2.532	1.987
Thermital TSOL 25 SOTTOVUOTO		3.273	2.863	2.379	2.796	2.364	1.910	2.010	1.663	1.308	2.163	1.794	1.408
Thermital TSOL 35 SOTTOVUOTO		4.619	4.041	3.358	3.946	3.337	2.696	2.837	2.347	1.846	3.053	2.532	1.987
Vokera ETV 1025		3.273	2.863	2.379	2.796	2.364	1.910	2.010	1.663	1.308	2.163	1.794	1.408
Vokera ETV 1035		4.619	4.041	3.358	3.946	3.337	2.696	2.837	2.347	1.846	3.053	2.532	1.987
Annual output per m ² gross area		1.181	1.033	859	1.009	854	690	726	600	472	781	648	508
Fixed or tracking collector	Fixed (slope = latitude - 15°; rounded to nearest 5°)												
Annual irradiation on collector plane		1765 kWh/m ²			1714 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. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information

Collector heat transfer medium	Water-Glycole	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	No	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	--	--
Maximum tested positive load	--	Pa
Maximum tested negative load	--	Pa
Hail resistance using steel ball (maximum drop height)	--	m

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
Riello CSV 25 R	2,77	Collector efficiency (η_{col})	64 %
Riello CSV 35 R	3,91	<i>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/m², 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 9806:2013.</i>	
Beretta SCV-25	2,77		
Beretta SCV-35	3,91		
Sylber CFV-25	2,77		
Sylber CFV-35	3,91		
Thermital TSOL 25 SOTTOVUOTO	2,77		
Thermital TSOL 35 SOTTOVUOTO	3,91	Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
Vokera ETV 1025	2,77	Zero-loss efficiency (η_0)	0,700 --
Vokera ETV 1035	3,91	First-order coefficient (a_1)	1,15 W/(m ² K)
		Second-order coefficient (a_2)	0,011 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,00 --
<i>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.</i>			