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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		ICIM-CLS-000149							
					Date issued		2010-07-20							
					Issued by		ICIM S.p.A.							
Licence holder	Riello S.p.A.				Country	Italy								
Brand (optional)	Vokera				Web	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 ∅ _m - ∅ _a									
					0 K W	10 K W	30 K W	50 K W	70 K W	100 K W				
ETV 1025	2,77	1730	1600	145	1.679	1.648	1.571	1.471	1.350	1.126				
ETV 1035	3,91	1730	2260	145	2.369	2.327	2.217	2.077	1.905	1.589				
Power output per m ² gross area					606	595	567	531	487	406				
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					0,606	0,996	0,010							
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					(∅ _m -∅ _a) _{max}	100	K							
Standard stagnation temperature (G = 1000 W/m ² ; ∅ _a = 30 °C)					∅ _{stg}	268	°C							
Effective thermal capacity, incl. fluid (per gross area, A _G)					C/m ²	9,96	kJ/(Km ²)							
Maximum operating temperature					∅ _{max, op}	260	°C							
Maximum operating pressure					p _{max, op}	1000	kPa							
Testing laboratory					Eurofins - Modulo Uno									
Test report(s)					www.product-testing.eurofins.com									
					Dated	28/05/2010								
						29/06/2010								
						02/12/2011								
Comments of testing laboratory					Datasheet version: 5.01, 2016-03-01									
Test results according to EN 12975-2. Datasheet current issue date: 17/11/2017 The datasheet is signed by the certification body since at the date of the current issue, the testing laboratory is not operating anymore in Solar Keymark Network														

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Supplementary Information				Issued			2010-07-20						
Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
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
ETV 1025		2.832	2.473	2.047	2.417	2.038	1.638	1.738	1.434	1.122	1.871	1.547	1.207
ETV 1035		3.997	3.491	2.889	3.412	2.877	2.311	2.454	2.024	1.583	2.641	2.184	1.704
Annual output per m ² gross area		1.022	893	739	873	736	591	628	518	405	675	559	436
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		1000			Pa			300			Pa		
Maximum tested negative load		300			Pa			300			Pa		
Hail resistance using steel ball (maximum drop height)		--			m			--			m		
Energy Labeling Information													
		Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}										
ETV 1025		2,77	Collector efficiency (η_{col})		55		%						
ETV 1035		3,91	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 9806:2013.										
			Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}										
			Zero-loss efficiency (η_0)		0,606		--						
			First-order coefficient (a_1)		1,00		W/(m ² K)						
			Second-order coefficient (a_2)		0,010		W/(m ² K ²)						
			Incidence angle modifier IAM (50°)		0,00		--						
			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.										