



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

<b>Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate</b>				<b>Licence Number</b> 111BN/0							
				<b>Issued</b> 2013-02-01							
<b>Company</b> Riello S.p.A.		<b>Country</b> IT									
<b>Street</b> Via Ing. Pilade Riello, 7		<b>Website</b> <a href="http://www.riellogroup.com">www.riellogroup.com</a>									
<b>Postal Code</b> 37045      Legnago (VR)		<b>E-mail</b> <a href="http://www.riellogroup.com">www.riellogroup.com</a>									
		<b>Tel. / Fax</b> --      --									
<b>System classification / Systemeigenschaften / Caractéristiques du système</b>											
<b>Flow principle</b>				Thermosyphon							
<b>Direct/indirect</b>				Indirect							
<b>Press. principle</b>				Closed							
<b>Drain back/down</b>				Always filled (no drain)							
<b>Storage location</b>				Outdoor							
<b>Storage position</b>				Horizontal							
<b>Internal back-up</b>				None							
<b>If other internal back-up, please specify:</b>											
<b>EN12976 type</b>				Solar only							
<b>Collector(s)</b>				<b>Storage(s)</b>							
<b>Company</b> Riello S.p.A.		<b>Company</b> Riello S.p.A.									
<b>Keymark reg, no (if available)</b> 099BN/0		<b>Keymark reg, no. (if available)</b>									
<b>Model</b>	<b>Per module/</b>			<b>Model</b>	<b>Total volume</b>	<b>Gross diameter/width</b>	<b>Gross length</b>	<b>Back-up heated volume</b>	<b>El. back-up power</b>		
	<b>Aperture area (Aa)</b>	<b>Gross length</b>	<b>Gross width</b>							<b>Number of modules</b>	<b>litres</b>
	m <sup>2</sup>	m	m	min - max							
CP20TNA	1,50	1,50	1,10	1 - 2	200 Lt.	200	534	1510	--	--	
					300 Lt.	300	534	1965	--	--	
<b>Controller</b>				<b>Fluid</b>							
<b>Company</b> -		<b>Company</b> -		<b>Company</b> Wather+Glycol 30%							
<b>Model</b> -		<b>Model</b> -		<b>Model</b> -20    °C							
<b>System family overview</b>											
<b>Collector name</b>	<b>Number of collectors in each configuration for each storage</b>										
	<b>Storage model</b>										
	200 Lt.		300 Lt.								
CP20TNA	1		2								
<b>Testing Laboratory</b> Eurofins - Modulo Uno S.p.A.											
<b>Website</b> <a href="http://www.eurofins.com">www.eurofins.com</a>											
<b>Test report id. number</b> M1.12.NRG.0547/48061; M1.12.NRG.0546/41051											
<b>Date of test report</b> 2012-11-23											
<b>Comments of test lab</b> None											

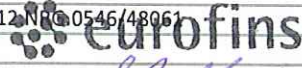

**Modulo Uno**  
Eurofins - Modulo Uno SpA  
Laboratorio di prova c/o Parco Scientifico Tecnologico  
Strada Savonesa 9 - 15050 Rivalta Scrivia (AL)  
Tel. 0131.850 100 - Fax 0131.860.185  
Sede Legale: Via Cuornè, 21 - 10156 TORINO (ITALY)  
Codice Fiscale e Partita IVA 01449620010

All values are subject to some uncertainty: e.g. the uncertainty on system output is typically in the range of ± 5% to ± 15%

Version 2.3, 2013-03-04





Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate				Certification No.		111BN/0						
Company				Country		IT						
Street				Website		www.riellogroup.com						
Postal Code		Legnago (VR)		E-mail		www.riellogroup.com						
				Tel. / Fax		-- --						
System family overview												
Collector name	For each storage and collector size, give number of collectors											
	200 Lt.	300 Lt.										
CP20TNA	1	2										
Name of system konfiguration				TSSA BLACK 200/1								
Collector name	CP20TNA	No. Collectors	1	Storage name	200 Lt.							
Calculated annual results												
Location	Daily draw-off (litres/day)											
	110	200	250	110	200	250	110	200	250			
	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d			
	Qd kWh/y			QL kWh/y			f <sub>sol</sub> % (= QL/Qd)			Q <sub>par</sub> kWh/y		
Stockholm, SE	6.100	11.100	13.850	3.552	4.865	5.214	58	44	38	0	0	0
Würzburg, DE	5.850	10.650	13.300	3.798	4.994	5.329	65	47	40	0	0	0
Davos, CH	6.650	12.050	15.050	4.328	5.053	5.243	65	42	35	0	0	0
Athens, GR	4.550	8.250	10.350	2.599	3.094	3.239	57	38	31	0	0	0
Perf. indicators for the table above												
Q <sub>d</sub>	kWh/y	Heat demand										
Q <sub>L</sub>	kWh/y	Heat delivered by the solar heating system										
Q <sub>par</sub>	kWh/y	Electricity for pumps/controllers										
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR							
	G	1.200	1.270	1.740	1.753							
	T <sub>a</sub>	6,9	9,5	3,2	17,7							
	T <sub>c</sub>	8,5	12,0	5,4	17,8							
	± ΔT <sub>c</sub>	6,4	3,0	0,8	7,4							
G	kWh/m <sup>2</sup>	Annual irradiation South, 45°										
T <sub>a</sub>	°C	Annual mean air temperature										
T <sub>c</sub>	°C	Annual mean cold water temp.										
ΔT <sub>c</sub>	°C	Seasonal variation of T <sub>c</sub>										
T <sub>h</sub>	45 °C	Desired hot water temperature (mixing valve temperature).										
Max. operating press. - collector side		800	kPa	Max. operating press. - tank side		1.000	kPa					
Testing Laboratory		Eurofins - Modulo Uno S.p.A.										
Website		www.eurofins.com										
Test report id. number		M1.12.NRG.0547/48061; M1.12.NRG.0546/48061										
Date of test report		2012-11-23										
Test method		ISO 9459-5 (DST)										
Comments of test lab laboratorio		  <b>Modulo Uno</b> Eurofins - Modulo Uno SpA Laboratorio di prova c/o Parco Scientifico Tecnologico Strada Savonesa 9 - 15050 Rivalta Scrivia (AL) Tel. 0131.850.100 - Fax 0131.860.185 Sede Legale: Via Cuornè, 21 - 10156 TORINO (ITALY) Codice Fiscale e Partita IVA 01449620010 Version 2.3, 2013-03-04										
No comments												

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For each storage and collector size, give number of collectors																									
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CP20TNA		1		2																					
<b>Name of system configuration</b>																									
						TSSA BLACK 300/2																			
<b>Collector name</b>		CP20TNA		<b>No. Collectors</b>		2		<b>Storage name</b>		300 Lt.															
<b>Calculated annual results</b>																									
<b>Daily draw-off (litres/day)</b>																									
<b>Location</b>	200		300		400		200		300		400														
	l/d		l/d		l/d		l/d		l/d		l/d														
Qd kWh/y			Ql kWh/y			f <sub>sol</sub> % (= Ql/Qd)			Q <sub>par</sub> kWh/y																
Stockholm, SE		11.100		16.650		22.200		4.865		5.472		5.792		44		33		26		0		0		0	
Würzburg, DE		10.650		15.950		21.300		4.994		5.567		5.878		47		35		28		0		0		0	
Davos, CH		12.050		18.050		24.100		7.988		8.968		9.522		66		50		40		0		0		0	
Athens, GR		8.250		12.400		16.500		4.821		5.515		5.881		58		44		36		0		0		0	
<b>Perf. indicators for the table above</b>																									
Q <sub>d</sub>		kWh/y		<b>Heat demand</b>																					
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± ΔT <sub>c</sub>		°C		6,4		3,0		0,8		7,4															
G		kWh/m <sup>2</sup>		<b>Annual irradiation South, 45°</b>																					
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<b>Test method</b>				ISO 9459-5 (DST)																					
<b>Comments of test lab laboratoire</b>				No comments																					

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