



Summary of		EN12976-2		SOLAR SYSTEM test results		Licence Number		OEM 10115.3.2									
Annex to Solar KEYMARK Certificate						Issued		2023-02-20									
Company		RIELLO S.p.A				Country		Italy									
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti									
Street		Via Ing. Pilade Riello, 7				E-mail											
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901									
System classification																	
Application(s)					Hot water												
Solar loop, circulation principle					Thermosyphon												
Direct solar loop / heat exchanger					Heat exchanger												
Open, vented or closed solar loop					Closed												
Drain back/down					Always filled (no drain)												
Store location					Outdoor												
Store orientation (of main axis)					Horizontal												
Type of auxiliary heating (internal back-up heat)					Electric												
If other auxiliary/internal back-up heating, please specify:																	
Solar+supplementary OR Solar-only / Solar pre-heat					Solar only / Solar preheat												
Collector(s)					Heat store(s)												
Company		RIELLO S.p.A			Company		RIELLO S.p.A										
Keymark lic.no. if available		OEM 10093.2.2			Keymark lic.no. if available												
Collector name		Per module			Store name		Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power					
		Gross Area (Ag)	Gross length	Gross width													
		m ²	mm	mm			litres	mm	mm	mm	litres	kW					
SCF-20/4B A		2,00	1625	1235	TANK 160		151	1385	500		-	3,5					
SCF-25/4B A		2,50	2020	1235	TANK 200		192	1710	500		-	3,5					
					TANK 300		295	2310	500		-	3,5					
Solar loop controller					Solar loop fluid												
Keymark lic.no. if available		-			Recommended/required		Required										
Company		-			Company		-										
Name		-			Name		Calpak Fluid										
Solar loop pump - power range		- W to - W			Freezing point		-55 °C										
System family overview																	
Collector name		Number of collectors in each configuration for each store															
		Store name															
		TANK 160				TANK 200				TANK 300							
SCF-20/4B A		1				1	2			1	2						
SCF-25/4B A			1				1				1	2					
Testing Laboratory					NCSR "DEMOKRITOS" - SOLAR & ENERGY SYSTEMS LAB												
Website					www.solar.demokritos.gr												
Test report id. number					6122DE1, 6123DE1, 6123F1												
Date of test report					2021-06-22												
Comments of test lab										Stamp & signature of test lab							
Comments ...																	



Summary of		EN12976-2		test results				Certification No.				OEM 10115.3.2															
Annex to Solar KEYMARK Certificate								Issued				2023-02-20															
Company		RIELLO S.p.A						Country		Italy																	
Brand (optional)		BERETTA						Website		www.berettaclima.it/contatti																	
Street		Via Ing. Pilade Riello, 7						E-mail		0																	
Postal Code		37045		Legnago (VR)				Tel. / Fax		+39		0442 548901															
System family overview																											
Collector name		For each storage and collector size, give number of collectors																									
		TANK 160				TANK 200				TANK 300																	
SCF-20/4B A		1				1	2			1	2																
SCF-25/4B A			1				1				1	2															
Name of system configuration								NB-SOL-A 160/2 TP / NB-SOL-A 160/2 TI																			
Collector name		SCF-20/4B A				No. Collectors		1		Storage name		TANK 160															
Calculated annual results for "solar-only / preheat system"																											
Location		Qd,sh		Daily drawoff				110 l				Daily drawoff				140 l				Daily drawoff				170 l			
		Qd,hw		QL		Qpar		fsol		Qd,hw		QL		Qpar		fsol		Qd,hw		QL		Qpar		fsol			
		MJ/y		MJ/y		MJ/y		%		MJ/y		MJ/y		MJ/y		%		MJ/y		MJ/y		MJ/y		%			
Stockholm SE		-		6150		3280		-		53		7821		3690		-		47		9492		3974		-		42	
WürzburgDE		-		5897		3343		-		57		7506		3847		-		51		9114		4194		-		46	
Davos CH		-		6654		4888		-		73		8483		5487		-		65		10281		5834		-		57	
Athens GR		-		4573		3942		-		86		5834		4699		-		81		7064		5298		-		75	
Perf. indicators for the table above																											
Qd,sh		MJ/y		Not relevant for solar domestic hot water system																							
Qd		MJ/y		Annual heat demand for domestic hot water																							
QL		MJ/y		Annual heat energy delivered by the solar system																							
Qpar		MJ/y		Annual parasitic energy: (electricity for pumps/controllers)																							
f _{sol} =Q _L /Q _d		-		Solar fraction																							
Ref. conditions				Stockholm SE		Würzburg DE		Davos CH		Athens GR																	
		G		1.157		1.230		1.684		1.736																	
		Ta,ave		7,5		9,0		3,2		18,5																	
		Tc,ave		8,5		10,0		5,4		17,8																	
		± ΔTc		6,4		3,0		0,8		7,4																	
G		kWh/m²		Annual irradiation South, 45°																							
Ta,ave		°C		Annual average outdoor air temperature																							
Tc,ave		°C		Annual average mains cold water temp.																							
ΔTc		K		Seasonal variation of Tc																							
Th		45 °C		Desired hot water temperature (mixing valve temperature).																							
Max. operating press. - collector side						200		kPa		Max. operating press. - tank side						1000		kPa									
Testing Laboratory						NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB																					
Website						www.solar.demokritos.gr																					
Test report id. number						6122DE1, 6123DE1, 6123F1																					
Date of test report						2021-06-22																					
Test method						ISO 9459-5 (DST)																					
Comments of test lab																											
tested																											
						Stamp & signature of test lab																					

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexiou@dqs.gr



Summary of		EN12976-2		test results		Certification No.		OEM 10115.3.2						
Annex to Solar KEYMARK Certificate						Issued		2023-02-20						
Company		RIELLO S.p.A				Country		Italy						
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti						
Street		Via Ing. Pilade Riello, 7				E-mail		0						
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901						
System family overview														
For each storage and collector size, give number of collectors														
Collector name		TANK 160		TANK 200		TANK 300								
SCF-20/4B A		1		1	2	1	2							
SCF-25/4B A		1		1		1	2							
Name of system configuration														
NB-SOL-A 160/2,5 TP / NB-SOL-A 160/2,5 TI														
Collector name		SCF-25/4B A		No. Collectors		1		Storage name						
								TANK 160						
Calculated annual results for "solar-only / preheat system"														
Location		Qd,sh	Daily drawoff				110	I	Daily drawoff	140	I	Daily drawoff	170	I
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	
		MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	%
Stockholm SE		-	6150	3500	-	57	7821	4068	-	52	9492	4478	-	47
WürzburgDE		-	5897	3532	-	60	7506	4163	-	56	9114	4636	-	51
Davos CH		-	6654	5267	-	79	8483	6118	-	72	10281	6686	-	65
Athens GR		-	4573	4100	-	90	5834	4951	-	85	7064	5708	-	81
Perf. indicators for the table above														
Qd,sh	MJ/y	Not relevant for solar domestic hot water system												
Qd	MJ/y	Annual heat demand for domestic hot water												
QL	MJ/y	Annual heat energy delivered by the solar system												
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)												
f _{sol} =Q _L /Q _d	-	Solar fraction												
Ref. conditions			Stockholm SE	Würzburg DE	Davos CH	Athens GR								
		G	1.157	1.230	1.684	1.736								
		Ta,ave	7,5	9,0	3,2	18,5								
		Tc,ave	8,5	10,0	5,4	17,8								
		± ΔTc	6,4	3,0	0,8	7,4								
G	kWh/m²	Annual irradiation South, 45°												
Ta,ave	°C	Annual average outdoor air temperature												
Tc,ave	°C	Annual average mains cold water temp.												
ΔTc	K	Seasonal variation of Tc												
Th	45 °C	Desired hot water temperature (mixing valve temperature).												
Max. operating press. - collector side				200	kPa	Max. operating press. - tank side				1000	kPa			
Testing Laboratory				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB										
Website				www.solar.demokritos.gr										
Test report id. number				6122DE1, 6123DE1, 6123F1										
Date of test report				2021-06-22										
Test method				ISO 9459-5 (DST)										
Comments of test lab										Stamp & signature of test lab				
extrapolated														

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexiou@dqs.gr



Summary of		EN12976-2	test results		Certification No.		OEM 10115.3.2						
Annex to Solar KEYMARK Certificate					Issued		2023-02-20						
Company		RIELLO S.p.A			Country		Italy						
Brand (optional)		BERETTA			Website		www.berettaclima.it/contatti						
Street		Via Ing. Pilade Riello, 7			E-mail		0						
Postal Code		37045 Legnago (VR)			Tel. / Fax		+39 0442 548901						
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A		1		1		1	2						
Name of system configuration					NB-SOL-A 200/2 TP / NB-SOL-A 200/2 TI								
Collector name		SCF-20/4B A		No. Collectors		1		Storage name	TANK 200				
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 170 l				Daily drawoff 200 l				Daily drawoff 250 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	9492	4005	-	42	11164	4226	-	38	13939	4415	-	32
WürzburgDE	-	9114	4194	-	46	10691	4478	-	42	13371	4730	-	36
Davos CH	-	10281	5866	-	57	12110	6150	-	51	15137	6402	-	42
Athens GR	-	7064	5330	-	75	8326	5834	-	70	10407	6496	-	62
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
$f_{sol} = Q_L / Q_d$	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	Ta,ave	7,5	9,0	3,2	18,5								
	Tc,ave	8,5	10,0	5,4	17,8								
	± ΔTc	6,4	3,0	0,8	7,4								
G	kWh/m ²	Annual irradiation South, 45°											
Ta,ave	°C	Annual average outdoor air temperature											
Tc,ave	°C	Annual average mains cold water temp.											
ΔTc	K	Seasonal variation of Tc											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		200		kPa		Max. operating press. - tank side		1000		kPa			
Testing Laboratory		NCSR "DEMOKRITOS" - SOLAR & ENERGY SYSTEMS LAB											
Website		www.solar.demokritos.gr											
Test report id. number		6122DE1, 6123DE1, 6123F1											
Date of test report		2021-06-22											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
extrapolated													
Stamp & signature of test lab													

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

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexiou@dqs.gr

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexiou@dqs.gr



Summary of		EN12976-2		test results		Certification No.		OEM 10115.3.2					
Annex to Solar KEYMARK Certificate						Issued		2023-02-20					
Company		RIELLO S.p.A				Country		Italy					
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti					
Street		Via Ing. Pilade Riello, 7				E-mail		0					
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901					
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A	1		1		1	2							
Name of system configuration						NB-SOL-A 200/4 TP / NB-SOL-A 200/4 TI							
Collector name		SCF-20/4B A		No. Collectors		2		Storage name		TANK 200			
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff				Daily drawoff				Daily drawoff			
		170				200				250			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
		MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	9492	5487	-	58	11164	6086	-	54	13939	6780	-	49
WürzburgDE	-	9114	5550	-	61	10691	6181	-	58	13371	7033	-	53
Davos CH	-	10281	8294	-	81	12110	9177	-	76	15137	10218	-	68
Athens GR	-	7064	6370	-	90	8326	7253	-	87	10407	8546	-	82
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
$f_{sol}=Q_L/Q_d$	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	Ta,ave	7,5	9,0	3,2	18,5								
	Tc,ave	8,5	10,0	5,4	17,8								
	± ΔTc	6,4	3,0	0,8	7,4								
G	kWh/m ²	Annual irradiation South, 45°											
Ta,ave	°C	Annual average outdoor air temperature											
Tc,ave	°C	Annual average mains cold water temp.											
ΔTc	K	Seasonal variation of Tc											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		200		kPa		Max. operating press. - tank side		1000		kPa			
Testing Laboratory		NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB											
Website		www.solar.demokritos.gr											
Test report id. number		6122DE1, 6123DE1, 6123F1											
Date of test report		2021-06-22											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
extrapolated													
Stamp & signature of test lab													

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

Version 4.5, 2017-10-24



Summary of		EN12976-2	test results		Certification No.		OEM 10115.3.2						
Annex to Solar KEYMARK Certificate					Issued		2023-02-20						
Company		RIELLO S.p.A			Country		Italy						
Brand (optional)		BERETTA			Website		www.berettaclima.it/contatti						
Street		Via Ing. Pilade Riello, 7			E-mail		0						
Postal Code		37045	Legnago (VR)		Tel. / Fax		+39	0442 548901					
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A	1		1		1	2							
Name of system configuration					NB-SOL-A 300/2 TP / NB-SOL-A 300/2 TI								
Collector name		SCF-20/4B A		No. Collectors		1		Storage name	TANK 300				
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 250 l				Daily drawoff 300 l				Daily drawoff 400 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	13939	4604	-	33	16746	4762	-	28	22327	5014	-	22
WürzburgDE	-	13371	4857	-	36	16052	5077	-	32	21413	5330	-	25
Davos CH	-	15137	6528	-	43	18165	6780	-	37	24220	7064	-	29
Athens GR	-	10407	6623	-	64	12488	7159	-	57	16651	7569	-	46
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
$f_{sol} = Q_L / Q_d$	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	Ta,ave	7,5	9,0	3,2	18,5								
	Tc,ave	8,5	10,0	5,4	17,8								
	± ΔTc	6,4	3,0	0,8	7,4								
G	kWh/m ²	Annual irradiation South, 45°											
Ta,ave	°C	Annual average outdoor air temperature											
Tc,ave	°C	Annual average mains cold water temp.											
ΔTc	K	Seasonal variation of Tc											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		200	kPa	Max. operating press. - tank side		1000	kPa						
Testing Laboratory		NCSR "DEMOKRITOS" - SOLAR & ENERGY SYSTEMS LAB											
Website		www.solar.demokritos.gr											
Test report id. number		6122DE1, 6123DE1, 6123F1											
Date of test report		2021-06-22											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
extrapolated													
Stamp & signature of test lab													

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

Version 4.5, 2017-10-24



Summary of		EN12976-2		test results		Certification No.		OEM 10115.3.2					
Annex to Solar KEYMARK Certificate						Issued		2023-02-20					
Company		RIELLO S.p.A				Country		Italy					
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti					
Street		Via Ing. Pilade Riello, 7				E-mail		0					
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901					
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A	1		1		1	2							
Name of system configuration						NB-SOL-A 300/2,5 TP / NB-SOL-A 300/2,5 TI							
Collector name		SCF-25/4B A		No. Collectors		1		Storage name		TANK 300			
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 250 l				Daily drawoff 300 l				Daily drawoff 400 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	13939	5424	-	39	16746	5645	-	34	22327	5992	-	27
Würzburg DE	-	13371	5708	-	43	16052	6055	-	38	21413	6370	-	30
Davos CH	-	15137	7821	-	52	18165	8168	-	45	24220	8546	-	35
Athens GR	-	10407	7411	-	71	12488	8136	-	65	16651	8956	-	54
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
$f_{sol} = Q_L / Q_d$	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	Ta,ave	7,5	9,0	3,2	18,5								
	Tc,ave	8,5	10,0	5,4	17,8								
	± ΔTc	6,4	3,0	0,8	7,4								
G	kWh/m ²	Annual irradiation South, 45°											
Ta,ave	°C	Annual average outdoor air temperature											
Tc,ave	°C	Annual average mains cold water temp.											
ΔTc	K	Seasonal variation of Tc											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		200		kPa		Max. operating press. - tank side		1000		kPa			
Testing Laboratory		NCSR "DEMOKRITOS" - SOLAR & ENERGY SYSTEMS LAB											
Website		www.solar.demokritos.gr											
Test report id. number		6122DE1, 6123DE1, 6123F1											
Date of test report		2021-06-22											
Test method		ISO 9459-5 (DST)											
Comments of test lab										Stamp & signature of test lab			
extrapolated													

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

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4, Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexou@dqs.gr



Summary of		EN12976-2		test results		Certification No.		OEM 10115.3.2					
Annex to Solar KEYMARK Certificate						Issued		2023-02-20					
Company		RIELLO S.p.A				Country		Italy					
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti					
Street		Via Ing. Pilade Riello, 7				E-mail		0					
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901					
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A		1		1		1	2						
Name of system configuration						NB-SOL-A 300/4 TP / NB-SOL-A 300/4 TI							
Collector name		SCF-20/4B A		No. Collectors		2		Storage name		TANK 300			
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff				Daily drawoff				Daily drawoff			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	13939	7127	-	51	16746	7726	-	46	22327	8515	-	38
WürzburgDE	-	13371	7316	-	55	16052	8105	-	50	21413	8956	-	42
Davos CH	-	15137	10659	-	71	18165	11574	-	64	24220	12394	-	51
Athens GR	-	10407	8767	-	84	12488	9965	-	80	16651	11668	-	70
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
f _{sol} =Q _L /Q _d	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	T _{a,ave}	7,5	9,0	3,2	18,5								
	T _{c,ave}	8,5	10,0	5,4	17,8								
	± ΔT _c	6,4	3,0	0,8	7,4								
G	kWh/m²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side				200	kPa	Max. operating press. - tank side				1000	kPa		
Testing Laboratory				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB									
Website				www.solar.demokritos.gr									
Test report id. number				6122DE1, 6123DE1, 6123F1									
Date of test report				2021-06-22									
Test method				ISO 9459-5 (DST)									
Comments of test lab													
extrapolated													
Stamp & signature of test lab													

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4 , Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexiou@dqs.gr



Summary of		EN12976-2		test results		Certification No.		OEM 10115.3.2					
Annex to Solar KEYMARK Certificate						Issued		2023-02-20					
Company		RIELLO S.p.A				Country		Italy					
Brand (optional)		BERETTA				Website		www.berettaclima.it/contatti					
Street		Via Ing. Pilade Riello, 7				E-mail		0					
Postal Code		37045		Legnago (VR)		Tel. / Fax		+39 0442 548901					
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TANK 160		TANK 200		TANK 300								
SCF-20/4B A	1		1	2	1	2							
SCF-25/4B A		1		1		1	2						
Name of system configuration						NB-SOL-A 300/5 TP / NB-SOL-A 300/5 TI							
Collector name		SCF-25/4B A		No. Collectors		2		Storage name		TANK 300			
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff				Daily drawoff				Daily drawoff			
		250		300		400							
	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	
	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	
Stockholm SE	-	13939	7789	-	56	16746	8609	-	51	22327	9713	-	44
Würzburg DE	-	13371	7916	-	59	16052	8862	-	55	21413	10155	-	48
Davos CH	-	15137	11731	-	78	18165	12961	-	71	24220	14380	-	59
Athens GR	-	10407	9209	-	89	12488	10565	-	85	16651	12709	-	76
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
f _{sol} =Q _l /Q _d	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1.157	1.230	1.684	1.736								
	T _{a,ave}	7,5	9,0	3,2	18,5								
	T _{c,ave}	8,5	10,0	5,4	17,8								
	± ΔT _c	6,4	3,0	0,8	7,4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
T _h	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		200		kPa		Max. operating press. - tank side		1000		kPa			
Testing Laboratory		NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB											
Website		www.solar.demokritos.gr											
Test report id. number		6122DE1, 6123DE1, 6123F1											
Date of test report		2021-06-22											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
extrapolated													

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

Version 4.5, 2017-10-24

Central Offices: 2, Kalavriton, 145 64 kifisia, Athens, Tel: +30 210 6233493-4, Fax: +30 210 6233495, <http://www.dqs.gr>, e-mail: i.alexou@dqs.gr