

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		011-7S2619 F				
						Issued		2015-12-02				
Company holding the licence		Ariston Thermo S.p.A.				Country	Italy					
Brand (optional)		Chaffoteaux				Website	www.aristonthermo.com					
Street, street number		Via A. Merloni 45				E-mail	public.relations@aristonthermo.com					
Postal Code / City, province		60044		Fabriano		Tel/Fax	39 02763209 -1 / -40					
Collector Type (flat plate glazed/un-glazed; evacuate tubular)						Flat plate collector - glazed						
Thermal / photo voltaic hybrid collector? (PVT collector)						No						
Integration in the roof possible ? (manufacturers declaration)						No						
Collector name	Aperture area (Aa) m ²	Gross length mm	Gross width mm	Gross height mm	Gross area (AG) m ²	Power output per collector module						
						G = 1000 W/m ²						
	Tm-Ta					0 K	10 K	30 K	50 K	70 K		
						W	W	W	W	W		
Zelios CF 2.0-1 RF	1.83	2 004	1 004	78	2.01	1 448	1 372	1 201	1 007	790		
Performance test method		Glazed liquid heating collector - steady state - indoor										
Performance parameters related to aperture		η ₀	a1	a2								
Units		-	W/(m ² K)	W/(m ² K ²)								
Test results - Flow rate and fluid see note 1		0.790	4.010	0.016								
Bi-directional incidence angle modifiers?		No <i>Kθ values are obligatory for 50°.</i>										
Incidence angle modifiers Kθ(θ)	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°		
	Kθ(θ)	1.00	0.99	0.98	0.96	0.93	0.87	0.75	0.38	0.00		
Incidence angle modifier not bi-directional - leave fields blank												
Stagnation temperature - Weather conditions see note 2						Tstg	190		°C			
Effective thermal capacity						ceff = C/Ag	5.14		kJ/(m ² K)			
Max. intended operation temperature - see note 3						Tmax,op	190		°C			
Max. operation pressure - see note 3						pmax,op	600		kPa			
Pressure drop table - for a collector family, the values shall be for the module with highest ΔP per m ² aperture area												
Flow rate	kg/(s m ²)	0.005	0.010	0.015	0.020	0.025	0.030	0.035	0.040	0.045	0.050	
Pressure drop, ΔP	Pa	54	120	200	293	399	519	651	797	956	1127	
Optional weather data	Location					Link						
Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH											
Website	www.tuc.com/st											
Test report id. number	21229451.003				Date of test report	2015.12.02						
During the test GDIF/GTOT was always between		0.13	and		0.71							
Comments of testing laboratory:												
Note 1	Flow rate	0.022	kg/(s m ²)	Fluid	Water							
Note 2	Irradiance, G = 1000 W/m ² ; Ambient temperature , Ta=30 °C											
Note 3	Given by manufacturer											





Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2619 F
	Issued	02.12.2015

Annual collector output kWh/module														
Collector name	Location and collector temperature (Tm)													
	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		
Zelios CF 2.0-1 RF	2 271	1 563	963	1 696	1 124	657	1 253	786	445	1 364	847	472		

Collector mounting: Fixed or tracking Fixed; slope = latitude - 15° (rounded to nearest 5°)

Overview of locations				
Location	Latitude °	Gtot kWh/m²	Ta °C	Collector orientation or tracking mode
Athens	38	1 765	18.5	South, 25°
Davos	47	1 714	3.2	South, 30°
Stockholm	59	1 166	7.5	South, 45°
Würzburg	50	1 244	9.0	South, 35°

Gtot	Annual total irradiation on collector plane	kWh/m²
Ta	Mean annual ambient air temperature	°C
Tm	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool ScenoCalc. The collector output is calculated hour by hour according to the efficiency parameters from the Keymark test using constant collector operating temperature (Tm). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

<p>DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de</p>	Datasheet version: 4.05, 2013-11-07
	ScenoCalc version: Ver. 4.05 (Nov, 2013)