Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate		Licence Number	011-7S2323 R
		Issued	2015-06-15

Company holding the	Apricus Solar Co., Ltd.	Country	P.R. China	
Brand (optional)	Apricus	Website	www.apricus.com	
Street, street number	No.19 Pusi Road, Pukou New&High Tech Development Zone,	E-mail	jasmine@apricus.com	
Postal Code / City, province	210061 Nanjing City, Jiangsu Province	Tel/Fax	0086	25 58649129 /58648103

Collector Type (flat plate glazed/un-glazed; evacuate tubular)	Evacuated tubular collector
Thermal / photo voltaic hybid collector? (PVT collector)	No
Integration in the roof possible ? (manufacturers declaration)	No

Collector name	Aperture area (Aa)	Gross length	Gross width	Gross height	Gross area (AG)	Power output per collector module G = 1000 W/m², Tm-Ta 0 K	10 K	30 K	50 K	70 K
	m²	mm	mm	mm	m²	W	W	W	W	W
ETC-30	2.84	2 006	2 195	155	**4.40**	2 016	1 965	1 848	1 713	1 560
ETC-22	2.08	2 006	1 635	155	**3.28**	1 477	1 439	1 353	1 255	1 142
ETC-20	1.89	2 006	1 495	155	**3.00**	1 342	1 308	1 230	1 140	1 038
ETC-18	1.70	2 006	1 355	155	**2.72**	1 207	1 176	1 106	1 025	934
ETC-10	0.95	2 006	795	155	**1.59**	667	650	612	567	516

Performance test method	Glazed liquid heating collector - steady state - outdoor								
Performance parameters related to aperture area	η0	a1	a2						
Units	-	W/(m²K)	W/(m²K²)						
Test results - Flow rate and fluid see note 1	0.710	1.737	0.008						

Bi-directional incidence angle modifiers? Yes	*Kϑ values are obligatory for 50°.*									
Incidence angle modifiers Kθ(θL) longitudinal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θL)	1.00	1.00	0.99	0.98	0.97	0.94	0.88	0.00	0.00
Incidence angle modifiers Kθ(θT) transversal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θT)	1.00	1.02	1.08	1.33	1.44	1.51	1.51	0.77	0.00

Stagnation temperature - Weather conditions see note 2	Tstg	228	°C
Effective thermal capacity	ceff = C/Ag	94.3	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	100	°C
Max. operation pressure - see note 3	pmax,op	800	kPa

Pressure drop table - for a collector family, the values shall be for the module with highest ΔP per m² aperture area

Flow rate	kg/(s m²)	0.003	0.007	0.010	0.013	0.017	0.020	0.023	0.027	0.030	0.033
Pressure drop, ΔP	Pa	15.22	30.46	45.72	61.00	76.30	91.63	106.97	122.34	137.73	153.14

Optional weather data	Location		Link	
Testing Laboratory	TÜV Rheinland(Shanghai)Co., Ltd.			
Website	www.tuv.com			
Test report id. number	154035663a_EN_P_ETC-10 154035663a_EN_ETC-30 154055885a_EN_Apricus_ETC-10_Ice ball impact	Date of test report		5/12/2015 5/12/2015 7/23/2014

During the test GDIF/GTOT was always between	0.072	and	0.306	

Comments of testing laboratory:

Note 1	**Flow rate**	0.020	kg/(s m²)	**Fluid**	Water
Note 2	**Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C**				
Note 3	**Given by manufacturer**				

Datasheet version: 4.04, 2013-04-22

TÜVRheinland®
DIN CERTCO

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2323 R
	Issued	6/15/2015

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
ETC-30	3 623	3 071	2 499	3 069	2 539	2 028	2 143	1 710	1 311	2 363	1 898	1 457
ETC-22	2 653	2 249	1 830	2 247	1 860	1 485	1 570	1 253	960	1 731	1 390	1 067
ETC-20	2 411	2 044	1 663	2 042	1 690	1 350	1 426	1 138	873	1 573	1 263	970
ETC-18	2 168	1 839	1 496	1 837	1 520	1 214	1 283	1 024	785	1 415	1 136	872
ETC-10	1 199	1 017	827	1 016	840	671	709	566	434	782	628	482

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.

DIN CERTCO • Alboinstraße 56 • 12103 Berlin
Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de

Datasheet version: 4.04, 2013-04-22
ScenoCalc version: Ver. 4.04 (Jun, 2013)