


Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		011-7S2391 F							
						Issued		2014-11-20							
Company holding the		BAYMAK MAK. SAN. TIC. A.Ş				Country		Türkei							
Brand (optional)						Website		www.baymak.com.tr							
Street, street number		Akendiz Cad. No: 8 Orhanli Beldesi				E-mail		info@baymak.com.tr							
Postal Code / City, province		34959 Tuzia - Istanbul		Tel/Fax		90 2165816500 / 2163042042									
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)						Yes									
						Power output per collector module									
						G_b = 850 W/m²; G_d = 150 W/m²									
						T_m-T_a									
						0 K	10 K	30 K	50 K	70 K					
Collector name						W	W	W	W	W					
Apollo E X						1 380	1 303	1 135	945	735					
Apollo E XL						1 712	1 617	1 408	1 173	912					
Performance test method						Liquid heating collector - quasi-dynamic - outdoor									
Performance parameters related to aperture area						η_{0b}	c₁	c₂	c₃	c₄	c₆	Kθ_d			
Units						-	W/(m²K)	W/(m²K²)	J/(m³K)	-	s/m	-			
Test results - Flow rate and fluid see note 1						0.744	3.945	0.014	0.000	0.000	0.000	0.944			
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	0.95	0.92	0.85	0.71	0.29	0.00
Incidence angle modifier not bi-directional - leave fields blank															
Stagnation temperature - Weather conditions see note 2						T_{stg}		179		°C					
Effective thermal capacity						ceff = C/Ag		10163		kJ/(m²K)					
Max. intende operation temperature - see note 3						T_{max,op}		200		°C					
Max. operation pressure - see note 3						p_{max,op}		1000		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)	-	-	-	-	-	-	-	-	-	-	-	-		
Pressure drop, ΔP	Pa	-	-	-	-	-	-	-	-	-	-	-	-		
Optional weather data		Location					Link								
Testing Laboratory						TZS, ITW University Stuttgart									
Website						http://www.itw.uni-stuttgart.de									
Test report id. number						14COL1220/1, 14COL1221/1, 14COL1221Q/1				Date of test report		2014.10.02			
During the test GDIF/GTOT was always between						0		and		1					
Comments of testing laboratory:															
Note 1	Flow rate	0.020	kg/(s m²)	Fluid	Water										
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature, T_a = 30 °C														
Note 3	Given by manufacturer														
															
						Datasheet version: 4.06, 2014-01-15									
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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2391 F
	Issued	20.11.2014

Annual collector output kWh/module														
Collector name	Location and collector temperature (T _m)													
	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		
Apollo E X	2 190	1 490	906	1 620	1 058	607	1 200	742	413	1 312	803	440		
Apollo E XL	2 717	1 848	1 124	2 009	1 313	753	1 489	921	513	1 628	996	545		

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	G _{tot} kWh/m ²	T _a °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°

G _{tot}	Annual total irradiation on collector plane	kWh/m ²
T _a	Mean annual ambient air temperature	°C
T _m	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 (T_m). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

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	ScenoCalc version: Ver. 4.06 (Jan, 2014)