


Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		011-7S2265 R				
						Issued		09 Desember 2013				
Company holding the			Jiangsu Micoe Solar Energy Co., Ltd.			Country		China				
Brand (optional)			Micoe			Website		en.micoe.com				
Street, street number			No.199 Yingzhou Rd.			E-mail		certification@micoe.com				
Postal Code / City, province			222000 Lianyungang, Jiangsu Province			Tel/Fax		+86 (0)518 8503360/(0)518 85959565				
Collector Type (flat plate glazed/un-glazed; evacuate tubular)						Evacuated tubular collector						
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						
						Gb = 850 W/m ² ; Gd = 150 W/m ²						
						Tm-Ta						
						0 K	10 K	30 K	50 K	70 K		
						W	W	W	W	W		
SZ58/1800-10HA	0.92	2 000	870	150	1.74	682	658	609	561	512		
SZ58/1800-15HA	1.38	2 000	1 260	150	2.52	1 024	987	914	841	768		
SZ58/1800-20HA	1.84	2 000	1 650	150	3.30	1 365	1 316	1 219	1 121	1 024		
SZ58/1800-25HA	2.31	2 000	2 040	150	4.08	1 706	1 645	1 523	1 401	1 280		
SZ58/1800-30HA	2.77	2 000	2 430	150	4.86	2 047	1 974	1 828	1 682	1 536		
Performance test method			Liquid heating collector - quasi-dynamic - outdoor									
Performance parameters related to aperture			η_{0b}	c1	c2	c3	c4	c6	K θ_d			
Units			-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	s/m	-			
Test results - Flow rate and fluid see note 1			0.733	2.643	0.000	0.000	0.000	0.000	1.065			
Bi-directional incidence angle			Yes <i>Kθ values are obligatory for 50°.</i>									
Incidence angle modifiers K θ (θ L) longitudinal direction			Angle 10°	20°	30°	40°	50°	60°	70°	80°	90°	
			K θ (θ L)	1.00	1.00	0.99	0.98	0.96	0.94	0.88	0.00	0.00
Incidence angle modifiers K θ (θ T) transversal direction			Angle 10°	20°	30°	40°	50°	60°	70°	80°	90°	
			K θ (θ T)	1.02	1.08	1.19	1.37	1.52	1.58	1.50	1.20	0.00
Stagnation temperature - Weather conditions see note 2						Tstg	227		°C			
Effective thermal capacity						ceff = C/Ag	63.57		kJ/(m ² K)			
Max. intended operation temperature - see note 3						Tmax,op	120		°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)	0.003	0.007	0.010	0.013	0.017	0.020	0.023	0.027	0.030	0.033	
Pressure drop, ΔP	Pa	39	109	176	254	376	482	599	774	918	1075	
Optional weather data			Location	Link								
Testing Laboratory			TUV Rheinland (Shanghai) Co., Ltd.									
Website			www.tuv.com									
Test report id. number			154019941_EN_Sunrain_30_Repor			Date of test report		04 Desember 2013				
During the test GDIF/GTOT was always between			0.065	and	0.892							
Comments of testing laboratory: Example comment.												
Note 1	Flow rate	0.028 kg/(s m ²)	Fluid	Water								
Note 2	Irradiance, G = 1000 W/m ² ; Ambient temperature, Ta=30 °C											
Note 3	Given by manufacturer											
												
						Datensheetversion: 4.04, 2013-04-22						

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2265 R
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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		
SZ58/1800-10HA	1 230	999	803	1 015	823	663	707	544	418	780	603	461		
SZ58/1800-15HA	1 845	1 498	1 205	1 522	1 234	995	1 060	817	627	1 170	904	692		
SZ58/1800-20HA	2 459	1 998	1 606	2 030	1 646	1 327	1 414	1 089	836	1 560	1 205	923		
SZ58/1800-25HA	3 074	2 497	2 008	2 537	2 057	1 658	1 767	1 361	1 045	1 949	1 507	1 153		
SZ58/1800-30HA	3 689	2 997	2 409	3 045	2 468	1 990	2 121	1 633	1 253	2 339	1 808	1 384		

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. 4.04 (Jun, 2013)