Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate		Licence Number	011-7S2473 F
		Issued	2015-01-26

Company holding the	GREENoneTEC Solarindustrie		Country	Österreich	
Brand (optional)			Website	www.greenonetec.com	
Street, street number	Industriepark St. Veit, Energieplatz 1		E-mail	info@greenonetec.com	
Postal Code / City, province	9300	St. Veit a.d. Glan	Tel/Fax	43	4241 28 136-0 / 4214 28 136-250

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

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
FK 8257 N4M MP SV	2.34	2 148	1 168	83	2.51	1 849	1 755	1 554	1 337	1 102
FK 8207 N4M MP SV*	1.88	1 728	1 168	83	2.02	1 485	1 410	1 249	1 074	886
FK 8257 L4M MP SV*	2.35	1 168	2 148	83	2.51	1 857	1 762	1 561	1 342	1 107
FK 8207 L4M MP SV	1.88	1 168	1 728	83	2.02	1 485	1 410	1 249	1 074	886

Performance test method	Glazed liquid heating collector - steady state - indoor		
Performance parameters related to aperture	η0	a1	a2
Units	-	W/(m²K)	W/(m²K²)
Test results - Flow rate and fluid see note 1	0.790	3.926	0.009

Bi-directional incidence angle modifiers?	No	*Kϑ values are obligatory for 50°.*									
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	0.91	0.85	0.70	0.27	0.00
Incidence angle modifier not bi-directional - leave fields blank										

Stagnation temperature - Weather conditions see note 2	Tstg	158	°C
Effective thermal capacity	ceff = C/Ag	9.176	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	-	°C
Max. operation pressure - see note 3	pmax,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	12COL1137, 12COL1138, 12COL1140Q
Date of test report	2013.05.15

During the test GDIF/GTOT was always between	0	and	1

Comments of testing laboratory:

* dimensions according to manufacturer

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: 4.06, 2014-01-15

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2473 F
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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
FK 8257 N4M MP SV	2 872	2 022	1 326	2 168	1 497	958	1 593	1 039	638	1 731	1 116	675
FK 8207 N4M MP SV*	2 307	1 624	1 065	1 742	1 203	770	1 280	835	513	1 391	897	542
FK 8257 L4M MP SV*	2 884	2 030	1 332	2 177	1 503	963	1 600	1 043	641	1 739	1 121	678
FK 8207 L4M MP SV	2 307	1 624	1 065	1 742	1 203	770	1 280	835	513	1 391	897	542

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.

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ScenoCalc version: Ver. 4.06 (Jan, 2014)