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
PM Peint	1,62	1.929	930	90	1,79	1.153	1.027	763	481	183
MM Peint	1,92	1.988	1.218	90	2,07	1.367	1.218	904	570	216
GM Peint	2,23	1.988	1.218	92	2,42	1.588	1.414	1.050	662	251

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	0,712	7,652	0,013	

Bi-directional incidence angle	No	*Kϑ values are obligatory for 50°.*									
Incidence angle modifiers Kθ(θ)	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°	
	Kθ(θ)					0,92				0,00	
Incidence angle modifier not bi-directional - leave fields blank											

Stagnation temperature - Weather conditions see note 2	Tstg	153,6	°C
Effective thermal capacity	ceff = C/Ag	5,818	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	135	°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)	0,000	0,005	0,012	0,019	0,026	0,033				
Pressure drop, ΔP	Pa	0	20	60	100	150	190				

Optional weather data	Location		Link	
Testing Laboratory	Fundación CENER-CIEMAT, LEST			
Website	www.cener.com			
Test report id. number	30.2452.0-1-1 30.2452.0-2-1 30.2452.0-3-1 30.2452.0	Date of test report	2014/09/15	
During the test GDIF/GTOT was always between	0,15	and	0,15	

Comments of testing laboratory:

Note 1	Flow rate	0,022	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

CENER
Datasheet version: 4.06, 2014-01-15

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2313 F
	Issued	19/09/2014

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
PM PEINT	1.734	807	268	1.061	451	116	826	335	87	913	360	99
MM PEINT	2.055	957	318	1.257	534	138	979	397	103	1.082	426	118
GM PEINT	2.386	1.111	369	1.460	620	160	1.137	461	120	1.257	495	137

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.