Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	011-7S2119 F
	Date of issue	15.03.2013

Company holding the licence	ACV International	**Country**		Belgium
Brand (optional)	-	**Website**		www.acv.com
Street, number	Kerkplein, 39	**E-mail**		international.info@acv.com
Postal Code	B-1601	**Tel.**	+32	(0)64 23 26 -03
City	Ruisbroek	**Fax**	+32	(0)64 23 26 -39

Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
Integration in the roof possible ?	No

Collector name	Aperture area (Aa) [m²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (AG) [m²]	Power output per collector unit G = 1000 W/m², Tm-Ta : 0 K [W]	10 K [W]	30 K [W]	50 K [W]	70 K [W]
Capteur Helio Plan N / L20 HTF	2.36	2 151	1 215	110	2.61	1 907	1 820	1 623	1 398	1 145

Collector efficiency parameters related to aperture area (Aa) Type of fluid and flow rate see note 1	η_{0a}	0.808	-
	a_{1a}	3.55	W/(m²K)
	a_{2a}	0.0152	W/(m²K²)
Stagnation temperature - Weather conditions see note 2	tstg	203	°C
Effective thermal capacity	ceff = C/Aa	5.5	kJ/(m²K)
Max. operation pressure - see note 3	pmax	1000	kPa

Incidence angle modifiers $K_\theta(\theta)$			θ_T / θ_L	50°						
	$K_{\theta d}$	0.83	$K_\theta(\theta)$	0.90	at G_{DIF}/G_{TOT}	0.15				
	b_0	0.20								

Testing Laboratory	Institut für Solarenergieforschung Hameln
Website	www.isfh.de
Test report id. number	12-13/KD, 13-13/KQ
Date of test report	14.03.2013, 14.03.2013
Perf. test method	EN 12975-2 6.1.5 (indoor)

Comments of testing laboratory :

Note 1	**Fluid**	Water	**Flow rate**	0.039	kg/s per m²
Note 2	**Irradiance, Gs=1000 W/m²; Ambient temperature , Ta=30 °C**					
Note 3	**Given by manufacturer**					

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Am Ohrberg 1
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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	011-7S2119 F
	Issued	15.03.2013

Annual collector output kWh

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			
Capteur Helio Plan N / L20 HTF	2 909	2 084	1 363	2 380	1 644	1 026	1 631	1 079	657	1 768	1 156	693			

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

Calculation of the annual collector performance is done by the official Solar Keymark spreadsheet tool. Hour by hour the collector output is calculated according to the efficiency parameters from the Keymark test using constant collector operating temperature (Tm). Detailed description with all equations used is available from the Solar Keymark web site (direct link: http://www.estif.org/solarkeymark/annexb1.php)

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Datasheet version:
VERSION 3.6, 2012.01.20
Calculation program version:
3.07, October 2011 (SP)