

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number	011-7S2374 F				
						Issued	2014-07-30				
Company holding the	Viessmann Werke GmbH & Co. KG					Country	Germany				
Brand (optional)	Viessmann					Website	www.viessmann.com				
Street, street number	Viessmannstrasse 1					E-mail	-				
Postal Code / City, province	35107 Allendorf					Tel/Fax	49 06452-70-0				
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					
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					
						G = 1000 W/m ² Tm-Ta					
						0 K	10 K	30 K	50 K	70 K	
						W	W	W	W	W	
Vitosol 200-F SV2C	2.33	2 380	1 056	90	2.51	1 918	1 824	1 608	1 353	1 059	
Vitosol 200-F SH2C	2.33	1 056	2 380	90	2.51	1 918	1 824	1 608	1 353	1 059	
Vitosol 200-F SV2E	2.33	2 380	1 056	90	2.51	1 918	1 824	1 608	1 353	1 059	
Vitosol 200-F SH2E	2.33	1 056	2 380	90	2.51	1 918	1 824	1 608	1 353	1 059	
Performance test method						Glazed liquid heating collector - steady state - indoor					
Performance parameters related to aperture		η_0	a1	a2							
Units		-	W/(m ² K)	W/(m ² K ²)							
Test results - Flow rate and fluid see note 1		0.823	3.792	0.021							
Bi-directional incidence angle		No <i>Kθ values are obligatory for 50°.</i>									
Incidence angle modifiers Kθ(θ)		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
		K θ (θ)	1.00	0.99	0.98	0.95	0.91	0.85	0.70	0.35	0.00
Incidence angle modifier not bi-directional - leave fields blank											
Stagnation temperature - Weather conditions see note 2						Tstg	205 °C				
Effective thermal capacity						ceff = C/Ag	5.96 kJ/(m ² K)				
Max. intended operation temperature - see note 3						Tmax,op	210 °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 m² aperture area											
Flow rate	kg/(s m ²)										
Pressure drop, ΔP	Pa										
Optional weather data	Location					Link					
Testing Laboratory		TÜV Rheinland Energie und Umwelt GmbH									
Website		www.tuv.com/solarthermal									
Test report id. number		21223739.001a_SV2C;				Date of test report		2014.07.30			
		21223739.002a_SH2C									
During the test GDIF/GTOT was always between		0.1	and		0.2						
Comments of testing laboratory:											
Version SV2E/SH2E is technical identical with SV2C/SH2C. The slightly differing gross area because of an additional drain channel at the glass covering profile for in-roof mounting was not taken into consideration for this data sheet.											
Note 1	Flow rate	0.020 kg/(s m ²)	Fluid	Water							
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature, Ta=30 °C										
Note 3	Given by manufacturer										
 D - 51105 Köln Datasheet version: 4.05, 2013-11-07											
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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2374 F
	Issued	30.07.2014

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	
Vitosol 200-F SV2C	2 986	2 094	1 297	2 259	1 513	882	1 665	1 061	602	1 808	1 142	637	
Vitosol 200-F SH2C	2 986	2 094	1 297	2 259	1 513	882	1 665	1 061	602	1 808	1 142	637	
Vitosol 200-F SV2E	2 986	2 094	1 297	2 259	1 513	882	1 665	1 061	602	1 808	1 142	637	
Vitosol 200-F SH2E	2 986	2 094	1 297	2 259	1 513	882	1 665	1 061	602	1 808	1 142	637	

Collector mounting: Fixed or tracking Fixed; slope = latitude - 15° (rounded to nearest 5°)

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. 4.05 (Nov, 2013)