


Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		011-7S 1587 F				
						Issued		2015-11-09				
Company holding the		Bosch Thermotechnik GmbH				Country		Germany				
Brand (optional)		Buderus				Website		www.bosch-thermotechnik.de				
Street, street number		Sophienstraße 30-32				E-mail		solarthermie@de.bosch.com				
Postal Code / City, province		35576 Wetzlar				Tel/Fax		+49 (0)2557 9399-0 / - - -				
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		
Buderus Logasol SKN4.0 s	2.25	2 017	1 175	87	2.37	1 725	1 650	1 478	1 279	1 053		
Performance test method		Glazed liquid heating collector - steady state - indoor										
Performance parameters related to aperture		η ₀	a ₁	a ₂								
Units		-	W/(m ² K)	W/(m ² K ²)								
Test results - Flow rate and fluid see note 1		0.766	3.216	0.015								
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°	
		Kθ(θ)	1.00	0.99	0.98	0.96	0.92	0.86	0.73	0.37	0.00	
Incidence angle modifier not bi-directional - leave fields blank												
Stagnation temperature - Weather conditions see note 2						Tstg		200 °C				
Effective thermal capacity						ceff = C/Ag		3.56 kJ/(m ² K)				
Max. intended operation temperature - see note 3						Tmax,op		- - - °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/st										
Test report id. number						21216476_EN_Bosch		Date of test report		2011.05.31		
During the test GDIF/GTOT was always between		0.088		and		0.273						
Comments of testing laboratory:												
Note 1	Flow rate	0.023 kg/(s m ²)		Fluid	Water							
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C											
Note 3	Given by manufacturer											
						 Genau. Richtig. TÜV Rheinland Energie und Umwelt GmbH Am Grauen Stein 51105 Köln Stamp						
						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	011-7S 1587 F
	Issued	09.11.2015

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		
Buderus Logasol SKN4.0 s	2 717	1 984	1 322	2 097	1 479	947	1 537	1 031	636	1 667	1 111	675		

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	Gtot kWh/m ²	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/m ²
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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	4.05, 2013-11-07
	ScenoCalc version:
	Ver. 4.05 (Nov, 2013)