



Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence number		011 - 7S504 R				
						Date of issue						
Company holding the licence			China Hitek Solar Co., Ltd.			Country		China				
Brand (optional)						Website		www.hitek-solar.com				
Street, number			No. 25 Zhujiang Road			E-mail		info@hitek-solar.com				
Postal Code			214028			Tel.		+86		51 085 229 209		
City			New District, Wuxi			Fax						
Collector Type (flat plate / evacuate tubular / un-glazed)						Evacuated tubular collector						
Integration in the roof possible ?						No						
Collector name	Aperture area (A_a) [m ²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (A_g) [m ²]	Power output per collector unit G = 1000 W/m ² T _m -T _a :						
						0 K	10 K	30 K	50 K	70 K		
						[W]	[W]	[W]	[W]	[W]		
NSC-58-10	0.950	1990	887	180	1.765	587	572	532	478	409		
NSC-58-12	1.120	1990	1047	180	2.084	692	675	627	563	483		
NSC-58-15	1.400	1990	1287	180	2.561	865	843	784	704	604		
NSC-58-16	1.493	1990	1367	180	2.720	922	899	836	751	644		
NSC-58-18	1.680	1990	1527	180	3.039	1038	1012	941	845	724		
NSC-58-20	1.866	1990	1687	180	3.357	1153	1124	1045	938	804		
NSC-58-22	2.053	1990	1847	180	3.676	1268	1236	1150	1032	885		
NSC-58-24	2.240	1990	2007	180	3.994	1384	1349	1254	1127	966		
NSC-58-25	2.333	1990	2087	180	4.153	1441	1405	1306	1173	1006		
NSC-58-30	2.800	1990	2487	180	4.949	1730	1686	1568	1408	1207		
Collector efficiency parameters related to aperture area (A_a)						η_{0a}		0.618		-		
Type of fluid and flow rate see note 1						a_{1a}		1.3767		W/(m ² K)		
						a_{2a}		0.0184		W/(m ² K ²)		
Stagnation temperature - Weather conditions see note 2						t_{stg}		187		°C		
Effective thermal capacity						$C_{eff} = C/A_a$		5.684		kJ/(m ² K)		
Max. operation pressure - see note 3						p_{max}		600		kPa		
Incidence angle modifiers $K_0(\theta)$	G_{DIF}/G_{TOT}		θ_T / θ_i	50°	10°	20°	30°	40°	60°	70°		
	min	max	$K_0(\theta_T)$	1.452	1.010	1.019	1.056	1.151	1.462	1.261		
	0.08	0.14	$K_0(\theta_i)$	0.952	0.999	0.994	1.018	0.974	0.913	0.833		
G_{DIF}/G_{TOT} : min&max - while measuring						Optional values						
Testing Laboratory						IZES gGmbH, TZSB an der HTW						
Website						www.izes.de/tzsb/						
Date report id. number						KT08_15_5, C917LPEN-A1, C917QPEN-A1						
Date of test report						18-06-2013, 08-04-2013, 08-04-2013						
Perf. test method						EN 12975-2 6.1.4 (outdoor)						
Comments of testing laboratory :												
1) Kollektoren/collectors NSC-58-12, 15, 16, 18, 20, 22, 24, 25: Maße aus den technischen Zeichnungen/measure out of drawings 2) Kollektoren/collectors NSC-58-12, 15, 16, 18, 20, 22, 24, 25, 30: Leistung je Kollektormodul (0 K - 70 K) mit Kollektorleistungsparametern des Kollektors NSC-58-10 berechnet/ the power output per collector unit (0 K - 70 K) is calculated based on the performance parameters of collector NSC-58-10 3) Sämtliche Prüfungen am Kollektor NSC-58-30 wurden am SPF Institut für Solartechnik in Rapperswil, Schweiz durchgeführt/All tests of the collector NSC-58-30 were performed at the SPF Institut für Solartechnik in Rapperswil, Switzerland												
Note 1	Fluid	Water	Flow rate	0.0190	kg/s per m ²							
Note 2	Irradiance, G_s=1000 W/m²; Ambient temperature, T_a=30 °C											
Note 3	Given by manufacturer											



Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	011 - 7S504 R
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Annual collector output kWh														
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		
NSC-58-10	1105	925	705	989	792	569	669	519	364	723	563	393		
NSC-58-12	1303	1091	831	1166	934	671	789	611	429	853	663	463		
NSC-58-15	1628	1363	1039	1457	1167	839	987	764	536	1066	829	578		
NSC-58-16	1737	1454	1108	1554	1245	894	1052	815	572	1137	884	617		
NSC-58-18	1954	1636	1247	1748	1401	1006	1184	917	644	1279	995	694		
NSC-58-20	2170	1817	1385	1942	1556	1118	1315	1018	715	1421	1105	771		
NSC-58-22	2388	1999	1523	2136	1712	1230	1447	1121	787	1563	1216	848		
NSC-58-24	2605	2181	1662	2331	1868	1342	1578	1223	858	1705	1327	925		
NSC-58-25	2714	2272	1731	2428	1945	1398	1644	1273	894	1776	1382	964		
NSC-58-30	3257	2726	2078	2914	2335	1677	1973	1528	1073	2132	1658	1157		

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	G _{tot} kWh/m²	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/m²
T _a	Mean annual ambient air temperature	°C
T _m	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 (T_m). 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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	VERSION 3.6, 2012.01.20
	Calculation program version: 3.07, October 2011 (SP)