


<b>Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate</b>						<b>Licence Number</b>		<b>011-7S321 R</b>			
						<b>Issued</b>		<b>2015-07-20</b>			
<b>Company holding the</b>		<b>Wolf GmbH</b>				<b>Country</b>		<b>Deutschland</b>			
<b>Brand (optional)</b>						<b>Website</b>		<b>www.wolf-heiztechnik.de</b>			
<b>Street, street number</b>		<b>Industriestrasse 1</b>				<b>E-mail</b>		<b>michael.klepmeir@wolf-heiztechnik.de</b>			
<b>Postal Code / City, province</b>		<b>84048</b>	<b>Mainburg</b>			<b>Tel/Fax</b>		<b>+49 8751 74-1797 / 8751 74-1736</b>			
<b>Collector Type (flat plate glazed/un-glazed; evacuate tubular)</b>						<b>Evacuated tubular collector</b>					
Thermal / photo voltaic hybrid collector? (PVT collector)						<b>No</b>					
Integration in the roof possible ? (manufacturers declaration)						<b>No</b>					
	<b>Collector name</b>	<b>Aperture area (Aa)</b> m <sup>2</sup>	<b>Gross length</b> mm	<b>Gross width</b> mm	<b>Gross height</b> mm	<b>Gross area (AG)</b> m <sup>2</sup>	<b>Power output per collector module</b>				
							G = 1000 W/m <sup>2</sup>				
							Tm-Ta				
							0 K	10 K	30 K	50 K	70 K
							W	W	W	W	W
	<b>CRK - 6 *</b>	<b>1.00</b>	<b>1 640</b>	<b>707</b>	<b>103</b>	<b>1.16</b>	642	633	615	595	575
	<b>CRK - 12 *</b>	<b>2.00</b>	<b>1 640</b>	<b>1 397</b>	<b>103</b>	<b>2.29</b>	1 284	1 266	1 229	1 191	1 150
	<b>CRK - 18 *</b>	<b>3.00</b>	<b>1 640</b>	<b>2 087</b>	<b>103</b>	<b>3.42</b>	1 926	1 899	1 844	1 786	1 725
<b>Performance test method</b>						<b>Glazed liquid heating collector - steady state - outdoor</b>					
<b>Performance parameters related to aperture</b>						$\eta_0$	a1	a2			
<b>Units</b>						-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )			
<b>Test results - Flow rate and fluid see note 1</b>						<b>0.642</b>	<b>0.885</b>	<b>0.001</b>			
<b>Bi-directional incidence angle modifiers? Yes</b>						<i>K<math>\theta</math> values are obligatory for 50°.</i>					
<b>Incidence angle modifiers K<math>\theta</math>(<math>\theta</math>T) transversal direction</b>		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
		K $\theta$ ( $\theta$ T)	1.01	1.01	1.02	1.03	0.99	1.05	1.10	0.55	0.00
<b>Incidence angle modifiers K<math>\theta</math>(<math>\theta</math>L) longitudinal direction</b>		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
		K $\theta$ ( $\theta$ L)	1.00	0.99	0.97	0.95	0.89	0.80	0.65	0.33	0.00
<b>Stagnation temperature - Weather conditions see note 2</b>						<b>T<sub>stg</sub></b>		<b>272 °C</b>			
<b>Effective thermal capacity</b>						<b>c<sub>eff</sub> = C/Ag</b>		<b>8.416 kJ/(m<sup>2</sup>K)</b>			
<b>Max. intende operation temperature - see note 3</b>						<b>T<sub>max,op</sub></b>		<b>- °C</b>			
<b>Max. operation pressure - see note 3</b>						<b>p<sub>max,op</sub></b>		<b>1000 kPa</b>			
<b>Pressure drop table - for a collector family, the values shall be for the module with highest <math>\Delta P</math> per m<sup>2</sup> aperture area</b>											
<b>Flow rate</b>	kg/(s m <sup>2</sup> )	-	-	-	-	-	-	-	-	-	-
<b>Pressure drop, <math>\Delta P</math></b>	Pa	-	-	-	-	-	-	-	-	-	-
<b>Optional weather data</b>		<b>Location</b>				<b>Link</b>					
<b>Testing Laboratory</b>		<b>TZS, ITW University Stuttgart</b>									
<b>Website</b>		<b>http://www.itw.uni-stuttgart.de</b>									
<b>Test report id. number</b>		<b>06COL513/SOEM06/2</b>				<b>Date of test report</b>		<b>2015.07.20</b>			
During the test GDIF/GTOT was always between		<b>0</b>	and	<b>1</b>							
<b>Comments of testing laboratory:</b>											
* dimensions according to manufacturer											
<b>Note 1</b>	<b>Flow rate</b>	<b>0.017</b>	kg/(s m <sup>2</sup> )	<b>Fluid</b>	<b>Water</b>						
<b>Note 2</b>	<b>Irradiance, G = 1000 W/m<sup>2</sup>; Ambient temperature, Ta=30 °C</b>										
<b>Note 3</b>	<b>Given by manufacturer</b>										
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