


<b>Annex to Solar Keymark Certificate</b>					<b>Licence Number</b>		<b>011-7S1683 F</b>							
					<b>Date issued</b>		<b>2022-07-13</b>							
					<b>Issued by</b>		<b>DIN CERTCO</b>							
<b>Licence holder</b>		<b>KOLLECTOR BIOME BEJA - K.B.B. SA</b>			<b>Country</b>		<b>Tunesia</b>							
<b>Brand (optional)</b>					<b>Web</b>		<b>www.biome-solar.com</b>							
<b>Street, Number</b>		<b>Zone Industrielle - Beja Nord</b>			<b>E-mail</b>		<b>mohamed.zarrouk@solar-kbb.com</b>							
<b>Postcode, City</b>		<b>9000 Béja</b>			<b>Tel</b>		<b>+216 78 440 440</b>							
<b>Collector Type</b>					<b>Flat plate collector</b>									
<b>Collector name</b>					<b>Power output per collector</b>									
					$G_b = 850 \text{ W/m}^2$ , $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	106 K				
					m <sup>2</sup>	mm	mm	mm	mm	mm	mm			
					W	W	W	W	W	W				
<b>K420-MS-AL</b>					2.17	1878	1158	95	1598	1522	1351	1154	931	464
<b>K423-MS-AL</b>					2.51	2168	1158	95	1848	1761	1563	1335	1077	536
<b>K425-MS-AL</b>					2.74	2368	1158	95	2018	1922	1706	1457	1175	585
<b>Power output per m<sup>2</sup> gross area</b>					<b>736</b>	<b>702</b>	<b>623</b>	<b>532</b>	<b>429</b>	<b>214</b>				
<b>Performance parameters test method</b>		<b>Quasi dynamic</b>												
<b>Performance parameters (related to A<sub>G</sub>)</b>		<b>η<sub>0</sub>, b</b>	<b>a1</b>	<b>a2</b>	<b>a3</b>	<b>a4</b>	<b>a5</b>	<b>a6</b>	<b>a7</b>	<b>a8</b>	<b>Kd</b>			
<b>Units</b>		-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )	J/(m <sup>3</sup> K)	-	J/(m <sup>2</sup> K)	s/m	W/(m <sup>2</sup> K <sup>4</sup> )	W/(m <sup>2</sup> K <sup>4</sup> )	-			
<b>Test results</b>		<b>0.741</b>	<b>3.342</b>	<b>0.015</b>	<b>0.000</b>	<b>0.00</b>	<b>12.320</b>	<b>0.000</b>	<b>0.00</b>	<b>0.0</b>	<b>0.959</b>			
<b>Incidence angle modifier test method</b>		<b>Quasi dynamic - outdoor</b>												
<b>Incidence angle modifier</b>		<b>Angle</b>	<b>10°</b>	<b>20°</b>	<b>30°</b>	<b>0.95°</b>	<b>50°</b>	<b>60°</b>	<b>70°</b>	<b>80°</b>	<b>90°</b>			
<b>Transversal</b>		<b>K<sub>θT, coll</sub></b>	<b>1.00</b>	<b>0.99</b>	<b>0.98</b>	<b>0.95</b>	<b>0.92</b>	<b>0.85</b>	<b>0.71</b>	<b>0.29</b>	<b>0.00</b>			
<b>Longitudinal</b>		<b>K<sub>θL, coll</sub></b>	<b>1.00</b>	<b>0.99</b>	<b>0.98</b>	<b>0.96</b>	<b>0.92</b>	<b>0.85</b>	<b>0.71</b>	<b>0.29</b>	<b>0.00</b>			
<b>Heat transfer medium for testing</b>					<b>Water</b>									
<b>Flow rate for testing (per gross area, A<sub>G</sub>)</b>					<b>dm/dt</b>		<b>0.020</b>		<b>kg/(sm<sup>2</sup>)</b>					
<b>Maximum temperature difference during thermal performance test</b>					<b>(ϑ<sub>m</sub>-ϑ<sub>a</sub>)<sub>max</sub></b>		<b>76</b>		<b>K</b>					
<b>Standard stagnation temperature (G = 1000 W/m<sup>2</sup>; ϑ<sub>a</sub> = 30 °C)</b>					<b>ϑ<sub>stg</sub></b>		<b>187</b>		<b>°C</b>					
<b>Maximum operating temperature</b>					<b>ϑ<sub>max op</sub></b>		<b>120</b>		<b>°C</b>					
<b>Maximum operating pressure</b>					<b>p<sub>max, op</sub></b>		<b>1000</b>		<b>kPa</b>					
<b>Testing laboratory</b>		<b>Institut für Gebäudeenergetik, Thermotechnik und Energiespeicherung (IGTE)</b>					<b>http://www.igte.uni-stuttgart.de</b>							
<b>Test report(s)</b>		<b>16COL1344/1 17COL1394/1 22COL109-08/KQ, 22COL27-17/KQT</b>					<b>Dated</b>		<b>13.07.2022 13.07.2022 13.07.2022</b>					
<b>Comments of testing laboratory</b>					<b>Ver. 6.2 (13.01.2022)</b>									
This data sheet replaces the data sheet issued on 09.10.2017 (ISFH) Documented performance parameters are taken from 16COL1344/1 (K420-MS-AL) The company details were updated.					 <b>Forschungs- und Testzentrum für Solaranlagen</b> Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 6, 70560 Stuttgart (Vaihingen)									
<b>DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany</b> <b>Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de</b>														

