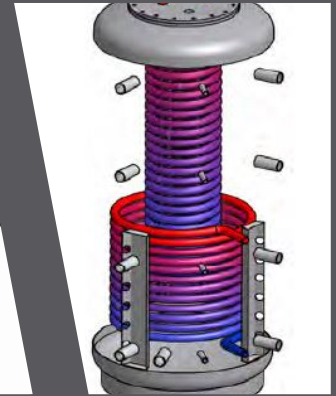
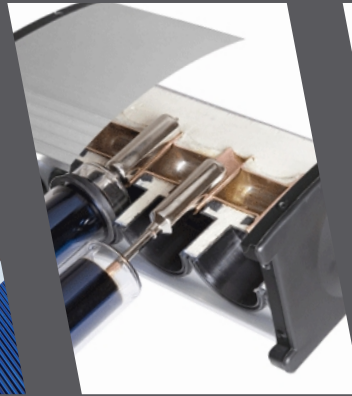


Vakuumpöhrrenkollektor

Serie WST-N-24-1800

von WeserSolar

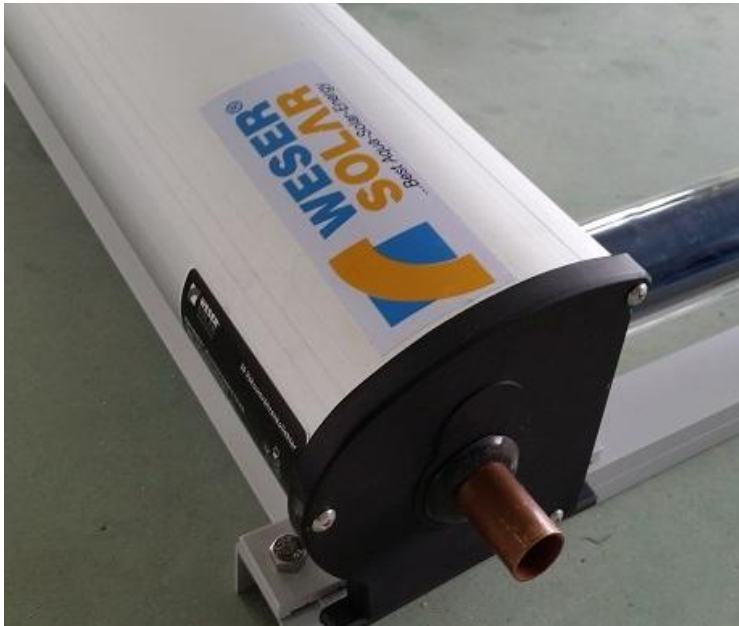


Heat-Pipe-Vakuumkollektor TYP WST-N-24-1800-30

Heat-Pipe-Vakuumröhrenkollektor der Spitzenklasse Typ WST-N-24-1800-30 werden nach neuesten Technologien hergestellt. Durch die spezielle Bauweise leisten unsere Kollektoren höchste Erträge.



Prozesswärmanlage 2500m²



TYP WST-N-24-1800-30

- Anzahl Röhren 30Stk
- Farbe silber oder schwarz
- Bruttokollektorfläche 4,48m²
- Anschlüsse 22CU
- Hochselektive Beschichtung
- Zertifikate DIN EN 12975
- Montage: Flachdach/Aufdach/Fassade
- Fluid Inhalt 2,3L
- Gewicht 106kg
- Eta0= 0,769

Ideal auch für solare Großanlagen



Unsere Kollektoren sind aufgrund Ihrer kompakten Bauweise und sehr hohen Leistungen und Erträge auch sehr gut für solare Großanlagen geeignet.



Wahlweise können diese als Flachdachaufständerung oder auf einem Schrägdach in fünfer Reihen maximal zusammengeschaltet werden.



Sehr gerne beraten wir Sie weiterhin im Bereich
-Fördermöglichkeiten
-Planung und Erstellung



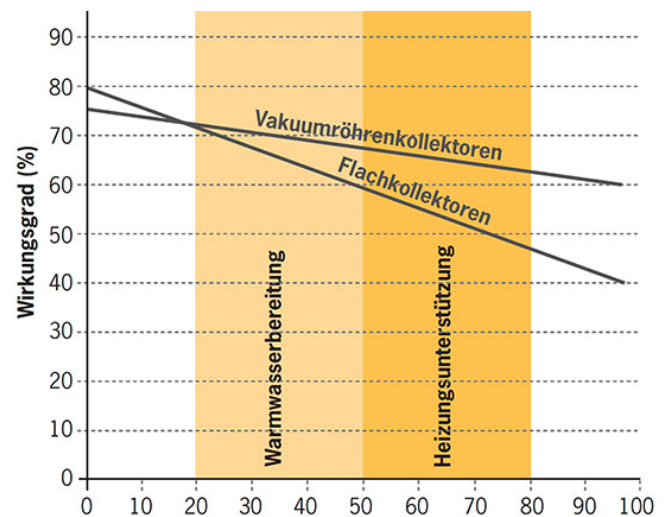
Vorteile unserer Heat-Pipes:

Herkömmliche Heat-pipe-köpfe sind in der Regel 14mm groß. Unsere Heatpipes haben einen Kopf von 24mm Durchmesser.

Weiterhin haben wir unser Heat-Pipe-Köpfe vernickelt. Dieses bringt bessere Leistungsübertragung und beugt einer entstehenden Korrosion vor.

Röhrenkollektor vs Flachkollektor

Durch die Vakuumeigenschaft in den doppelwandigen Glasröhren haben Röhrenkollektoren eine wesentlich höheren Energieertrag als vergleichbare Flachkollektoren. Dieses resultiert auf dem geringen Wärmeverlust der Glasröhren nach "Thermostkannenprinzip"





Annex to Solar Keymark Certificate



Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					Licence Number		SP SC0314-17							
					Date issued		2017-03-29							
					Issued by		SP							
Licence holder		WeserSolar GmbH&CO.KG			Country	Germany								
Brand (optional)		WeserSolar			Web	www.solareprozesswaerme.de								
Street, Number		Hohelucht 7			E-mail	info@solareprozesswaerme.de								
Postcode, City		27798	Hude		Tel	+49 4408-3088709								
Collector Type					Evacuated tubular collector									
					Power output per collector Gb = 850 W/m ² ; Gd = 150 W/m ² θ _m - θ _a									
						0 K	10 K	30 K	50 K	70 K	60 K			
Collector name		Gross area (A _G)	Gross length	Gross width	Gross height	W	W	W	W	W	W			
		m ²	mm	mm	mm									
Titan WST-N-24-1800-10		1,56	1 944	804	132	727	714	675	616	538	578			
Titan WST-N-24-1800-12		1,85	1 944	954	132	862	848	801	731	638	686			
Titan WST-N-24-1800-15		2,29	1 944	1 179	132	1 066	1 048	990	904	788	847			
Titan WST-N-24-1800-18		2,73	1 944	1 404	132	1 269	1 248	1 179	1 076	939	1 009			
Titan WST-N-24-1800-20		3,02	1 944	1 554	132	1 405	1 381	1 305	1 191	1 039	1 117			
Titan WST-N-24-1800-22		3,31	1 944	1 704	132	1 540	1 514	1 431	1 306	1 139	1 225			
Titan WST-N-24-1800-24		3,60	1 944	1 854	132	1 676	1 648	1 557	1 421	1 240	1 332			
Titan WST-N-24-1800-25		3,75	1 944	1 929	132	1 744	1 714	1 620	1 478	1 290	1 386			
Titan WST-N-24-1800-30		4,48	1 944	2 304	132	2 083	2 047	1 935	1 766	1 541	1 656			
Power output per m² gross area					465	457	432	394	344	370				
Performance parameters test method					Steady state - outdoor									
Performance parameters (related to AG)					η _{0,hem}	a ₁	a ₂							
Units					-	W/(m ² K)	W/(m ² K ²)							
Test results					0,465	0,631	0,016							
Incidence angle modifier test method					Steady state - outdoor									
Bi-directional incidence angle modifiers					Yes									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					K _{θT, coll}	1,03	1,06	1,16	1,26	1,37	1,47	0,98	0,49	0,00
Longitudinal					K _{θL, coll}	0,98	0,96	0,93	0,91	0,89	0,67	0,45	0,22	0,00
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A _G)					dm/dt	0,012	kg/(sm ²)							
Maximum temperature difference for thermal performance calculations					(θ _m -θ _a) _{max}	60,39	K							
Standard stagnation temperature (G = 1000 W/m ² ; θ _a = 30 °C)					θ _{stg}	220	°C							
Effective thermal capacity, incl. fluid (per gross area, A _G)					C/m ²	6,345	kJ/(Km ²)							
Maximum operating temperature					θ _{max, op}	125	°C							
Maximum operating pressure					p _{max, op}	1200	kPa							
Testing laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch			http://www.intertek.com									
Test report(s)		170120089GZU-001			Dated		2017-02-13							
Comments of testing laboratory					Datasheet version: 5.01, 2016-03-01									
The "negative pressure test of the collector" according to EN12975-2:2006,5.9.2 was not performed.														
Tests were performed based on EN 12975-2:2006.														
Certification Body: SP Technical Research Institute of Sweden Box 857, 501 15 Borås, Sweden www.sp.se info@sp.se tel +4610 516 5000														

Annex to Solar Keymark Certificate

Annex to Solar Keymark Certificate	Licence Number	SP SC0314-17
Supplementary Information	Issued	2017-03-29

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
Collector name	Standard Locations ϑ_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
TITAN WST-N-24-1800-10		1 332	1 159	911	1 133	925	687	826	666	485	887	719	520
TITAN WST-N-24-1800-12		1 581	1 375	1 081	1 344	1 098	816	980	790	575	1 052	853	617
TITAN WST-N-24-1800-15		1 954	1 699	1 337	1 661	1 357	1 008	1 211	976	711	1 300	1 054	763
TITAN WST-N-24-1800-18		2 327	2 023	1 592	1 978	1 616	1 200	1 442	1 163	847	1 548	1 255	908
TITAN WST-N-24-1800-20		2 575	2 239	1 762	2 189	1 789	1 329	1 596	1 287	937	1 714	1 389	1 005
TITAN WST-N-24-1800-22		2 824	2 456	1 932	2 401	1 961	1 457	1 750	1 411	1 028	1 879	1 523	1 102
TITAN WST-N-24-1800-24		3 073	2 672	2 102	2 612	2 134	1 585	1 904	1 535	1 118	2 045	1 657	1 200
TITAN WST-N-24-1800-25		3 197	2 780	2 187	2 717	2 220	1 649	1 981	1 597	1 163	2 127	1 724	1 248
TITAN WST-N-24-1800-30		3 818	3 320	2 612	3 246	2 652	1 970	2 366	1 908	1 390	2 541	2 059	1 491
Annual output per m ² gross area		853	741	583	725	592	440	528	426	310	567	460	333
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18,5°C			3,2°C			7,5°C			9,0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

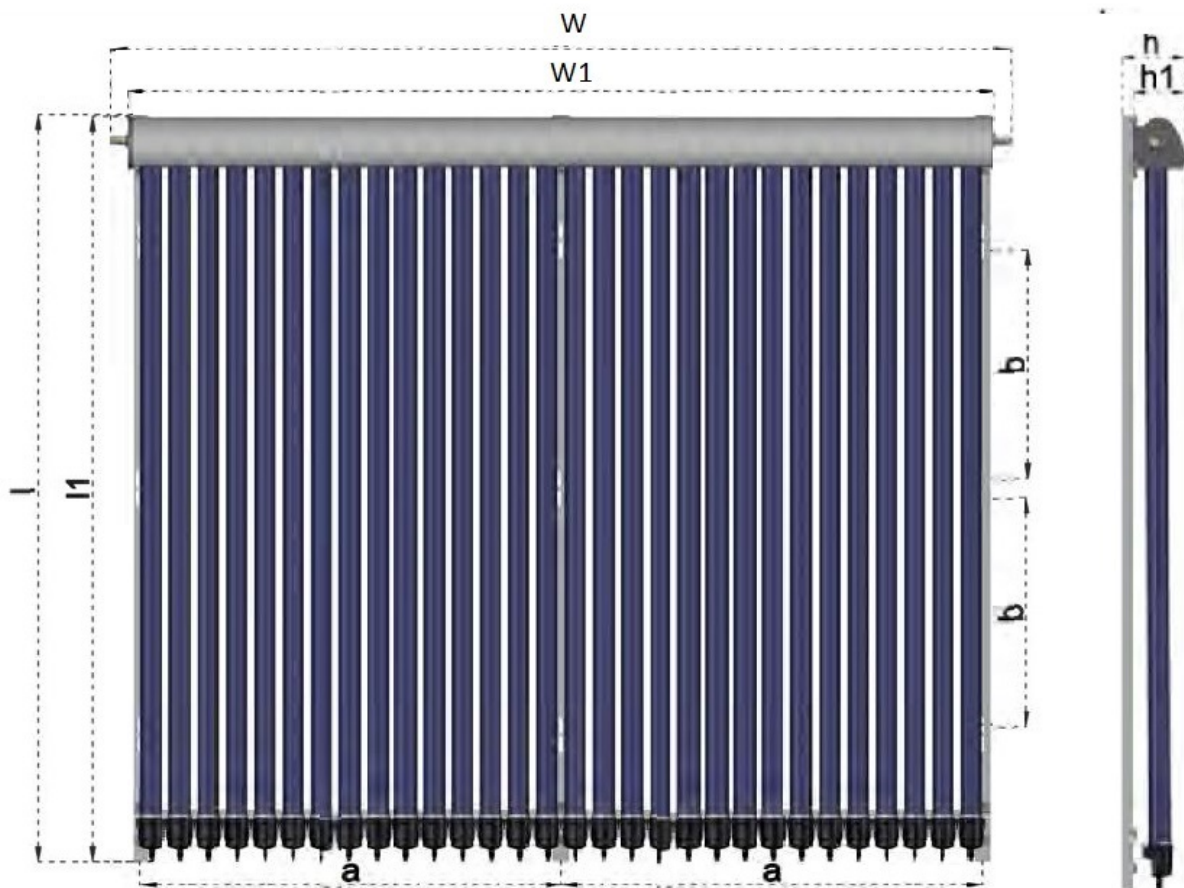
Additional Information

Collector heat transfer medium	Water-Glycole
Hybrid Thermal and Photo Voltaic collector	No
The collector is deemed to be suitable for roof integration	No
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:	
Climate class (A, B or C)	C
Maximum tested positive load	3200 Pa
Maximum tested negative load	-- Pa
Hail resistance using steel ball (maximum drop height)	0,8 m

Energy Labelling Information

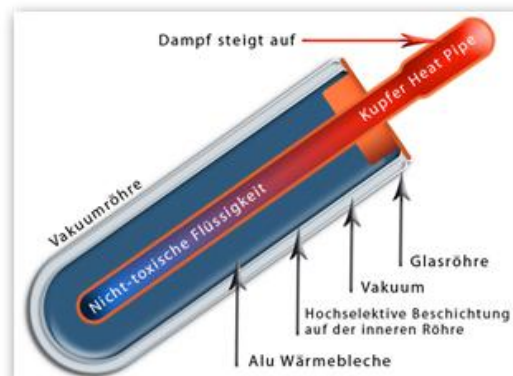
	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
I WST-N-24-1800-10	1,56	Collector efficiency (η_{col})	41 %
I WST-N-24-1800-12	1,85	<i>Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W, expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area, ISO 9806:2013.</i>	
I WST-N-24-1800-15	2,29		
I WST-N-24-1800-18	2,73		
I WST-N-24-1800-20	3,02		
I WST-N-24-1800-22	3,31		
I WST-N-24-1800-24	3,60		
I WST-N-24-1800-25	3,75		
I WST-N-24-1800-30	4,48	Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0,465
		First-order coefficient (a_1)	0,63 W/(m ²)
		Second-order coefficient (a_2)	0,016 W/(m ²)
		Incidence angle modifier IAM (50°)	1,15
		<i>Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.</i>	





Model	Heat-Pipe-Röhre			Maß netto	Maß brutto	Maß Schiene	(kg)
	Anzahl	Ø	Länge	(l1xw1xh1)(mm)	(l1xw1xh1)(mm)	(a1xb1) (mm) *	
Titan WST-N-24-1800-10	10	58	1800	1975x804x132	1980x890x160	735x605	33.2
Titan WST-N-24-1800-20	20	58	1800	1975x1554x132	1980x1640x160	1485x605	65
Titan WST-N-24-1800-24	24	58	1800	1975x1854x132	1980x1975x160	1785x605	76
Titan WST-N-24-1800-30	30	58	1800	1975x2304x132	1980x2390x160	2235x605	94.5

* Der Montageabstand des Maßes "a" kann variiert werden , das min sollte nicht mehr als 50% des max Maßes betragen



Ihr Fachpartner:

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