

WTO solar



0% energy cost
太陽能源費用

95% high absorption
高吸收率德國藍色濺鍍吸熱板

100% friendly our environment
友善對待我們的環境



台灣精品 2015
TAIWAN EXCELLENCE

Reliable like the sun – WTOsolar solar systems

Award of 『 Taiwan excellence 2015 』 , Come from the brand-new value that is creating constantly.
創造節能新價值，WTOsolar榮獲國家肯定2015「台灣精品獎」。

Certified in accordance indicate product high-quality.
F42/F43高階集熱器通過「德國ITW檢測/廠驗」。

Blue 『 Ultra-selective sputtering 』 Aluminum 『 Full Plate Absorber 』 , WTOsolar Efficient solar thermal collector.

專利「金屬超音波輪焊」「整板式吸熱板」，先進自動化綠能製程設備。

WTOsolar 太陽熱能用途 Application of Solar thermal energy

居家/住宅/ Domestic Hot Water / Home use



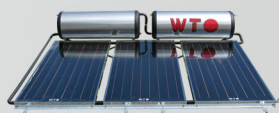
商業旅館/民宿/宿舍/ Commercial hotel / Home stay / dormitory



食品/工業製程預熱/ Industrial Process Heat



溫水游泳池/ Heated swimming pool

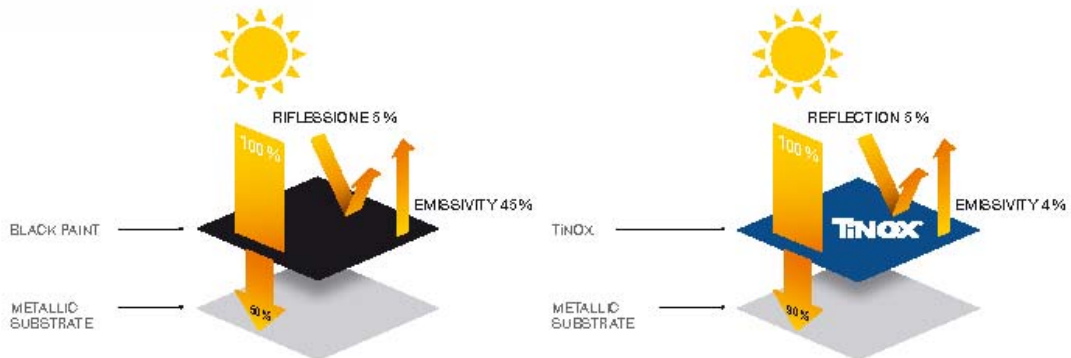
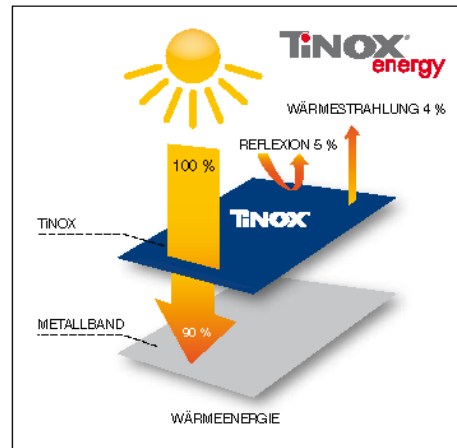


WTOsolar F42 集熱器特點簡介

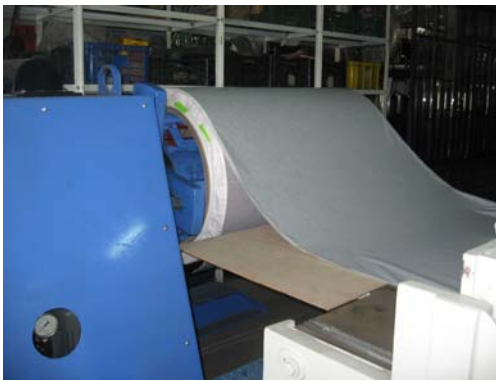
1. 國內唯一採用德國 Tinox 進口整捲板式吸熱板(最接近太陽的吸熱板)。

Solare Absorption: $\alpha \sim 95\%$ Thermische Emission: $\varepsilon \sim 5\%$

<http://www.almecogroup.com/en/pagina/16-solar>

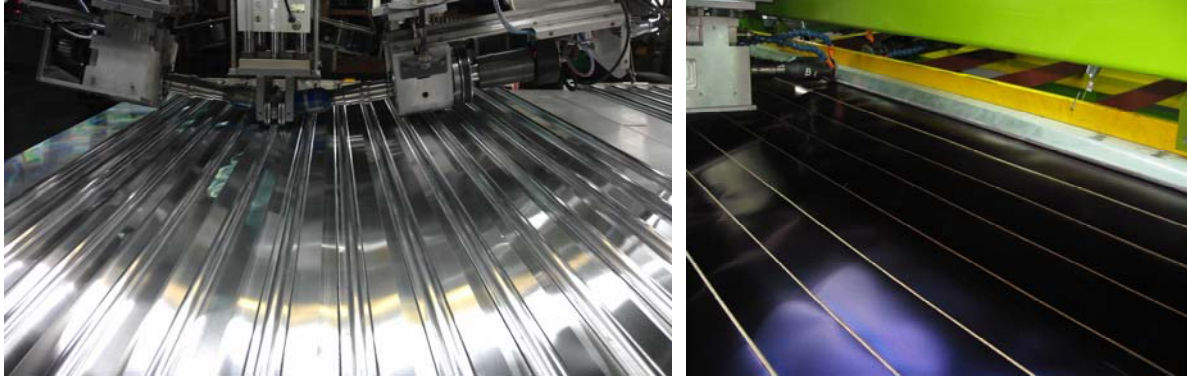


2. 本公司工廠製程及進口物料(國內唯一整捲 原物料德國進口)。



WTOsolar F42 集熱器特點簡介

3. 國內唯一整板式金屬超音波輪鋸焊接專利技術及綠能產業機械設備。



4. 國內唯一德國 ITW 集熱器實測/製造工廠 ISO 檢驗。

WTOsolar F42 德國 ITW 集熱效率測試報告。 <http://www.itw.uni-stuttgart.de/index.en.html>

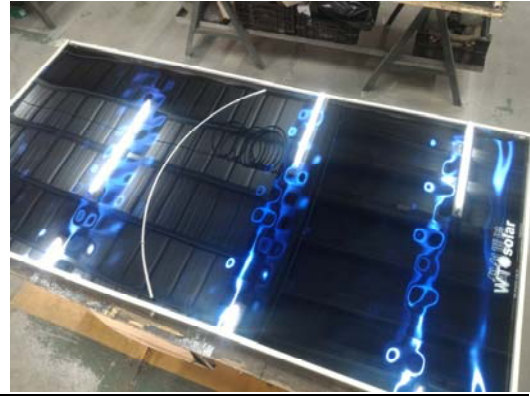
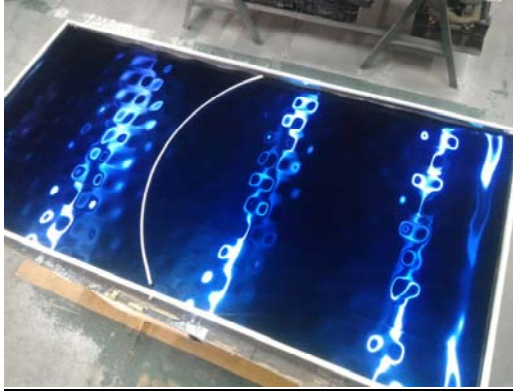
Collector name	Aperture area(Aa)	Gross length	Gross width	Gross height	Gross area(AG)	Power output per collector module				
						Gb = 850 W/m ² ; Gd = 150 W/m ²				
						Tm - Ta				
						0 K	10 K	30 K	50 K	70 K
	m ²	mm	mm	mm	m ²	W	W	W	W	W
WTOsolar F42	1.89	2005	1010	75	2.03	1428	1347	1164	952	711
Performance test method		Liquid heating collector – quasi-dynamic - outdoor								
Performance parameters related to aperture area		η_{0b}	C1	C2	C3	C4	C6	K θ d		
Units		-	W/(m ² K)	W/(m ² K)	J/(m ² K)	-	s/m	-		
Test results – Flow rate 0.020 kg/(s m ²) Fluid water		0.763	4.094	0.019	0.000	0.000	0.000	0.937		

5. 國內唯一空氣層"熱對流 抑制 弧形桿"兼具波浪形活潑視覺創新設計。



WTOsolar F42 集熱器特點簡介

6. 國內唯一非鍍片整板式藍色濺鍍吸熱板面，陽光下亮麗呈現具規則性波浪凹槽板面。



7. 國內唯一太陽能集熱器獲得國家品質肯定 2015 台灣精品獎。



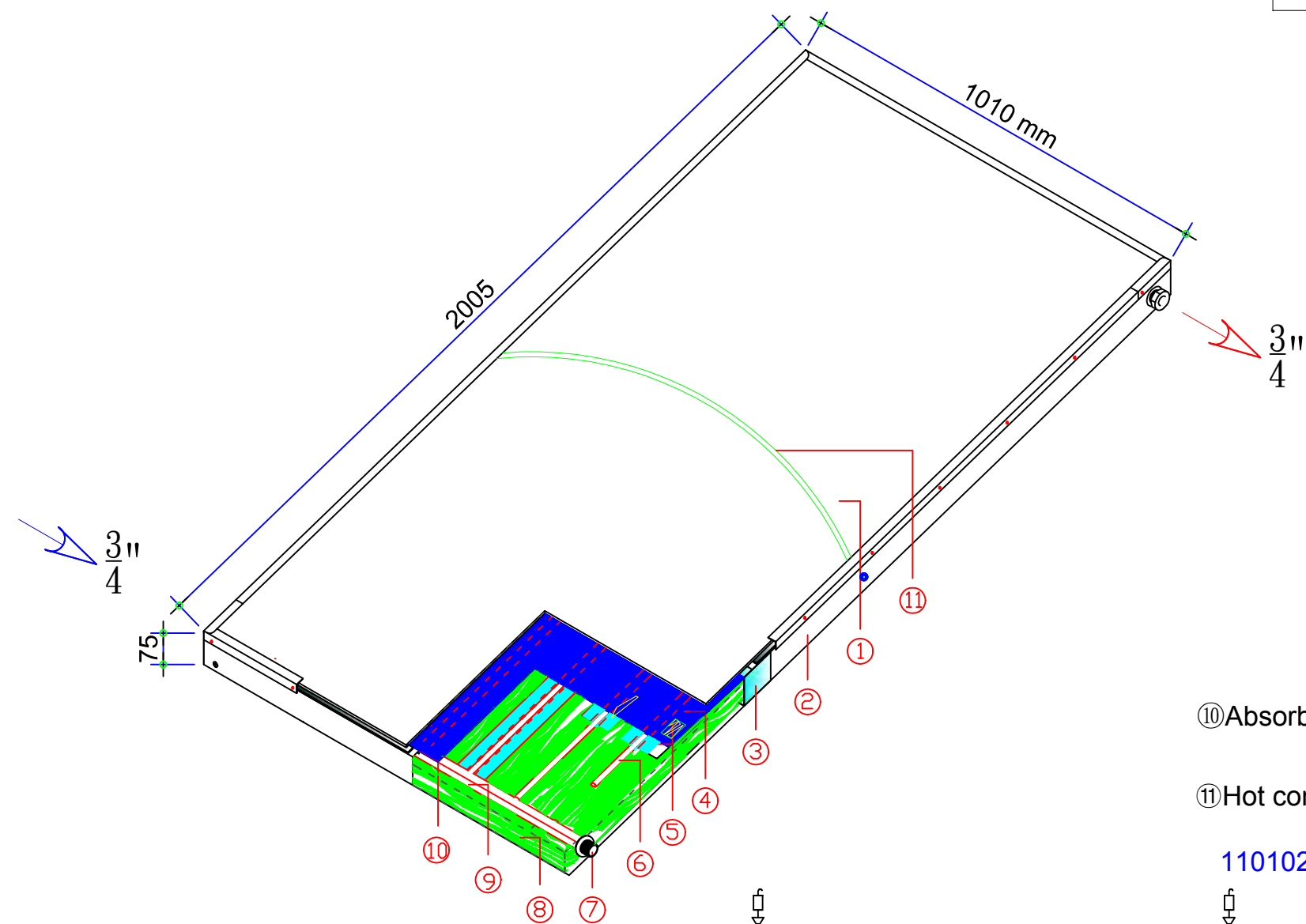
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

WTOsolar F42 solar collector

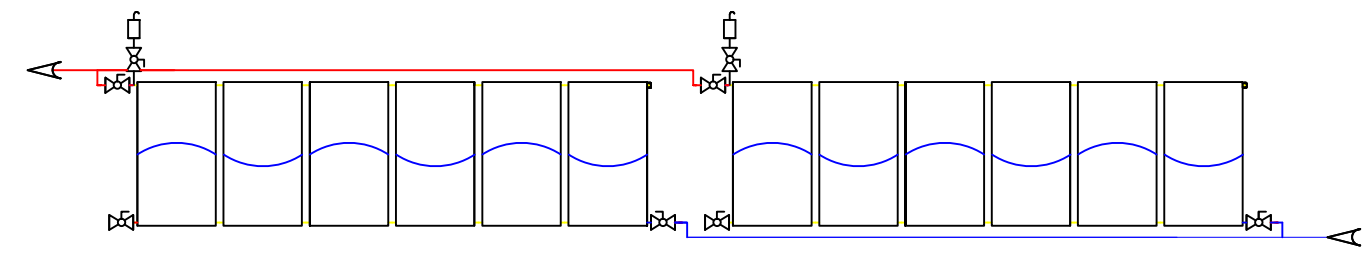
Structure Diagram

TECHNICAL SPECIFICATION: WTOsolar F42 Collector

Dimensions: 2005×1010×75 mm(L×W×H)
 Gross Weight: 36.8 kg
 Fluid Capacity: 3.05 Liters
 Net aperture Area: 1.89 m² (Ga:2.03m²)
 Max. Operation Pressure : 10kg/cm² / Test Pressure : 20kg/cm²



- ① Glass: 3.0mm Tempered Solar Glass
220006: 1996 x 998 x 3mm Total Heat Trans 87%
- ② Outer Casing: Stainless Steel Sus 304# 0.4 mm
101350-0: Sus304# 2198 x 1201 x 0.4mm
- ③ Strengthens the side frame: The galvanized sheeting are made solid construction Integrated to the casings
143039-9: Galvanized steel 1962 x 90 x 1.0mm
- ④ Absorber Coating: Highly-selective sputtering $\alpha 0.95 / \epsilon 0.05$
solar absorptance (AM1.5) $\alpha_{sol}=0.953 (100^{\circ}C) \epsilon_{373K}=0.068$
- ⑤ Absorber Plate: Aluminum Full Plate Absorber
131057: Al 1975 x 970 x 0.4mm
- ⑥ Tubing Material: 1/2"x 10pcs Stainless Tubes
110002: Sus304# 1908 X $\phi 12.7$ x 0.5mm
- ⑦ Piping Connection: 3/4" Ps B Thread (Drain Hole ; Piping Connection)
522009: Stainless welds the head 3/4" Ps x L42mm
- ⑧ Tubing Material: 1" Stainless Tubes
110001: Stainless Manage all sides tubes 974 x 1.0mm
- ⑨ Insulation Material: 16 kg/cm³ Wool Glass Of 25 mm
410000: 16 kg/cm³ Wool Glass Of 25 mm · 1970 x 1000 x 25mm
- ⑩ Absorber type: Patent M356884 M418270 Bonding technology for absorber Plate/tube Ultrasonically welded
- ⑪ Hot convection inhibitory pole: Collect the hot air within the heat exchanger and separate the convection
110102: Stainless tube Sus304# 1065 x $\phi 12.7$ x 0.4mm

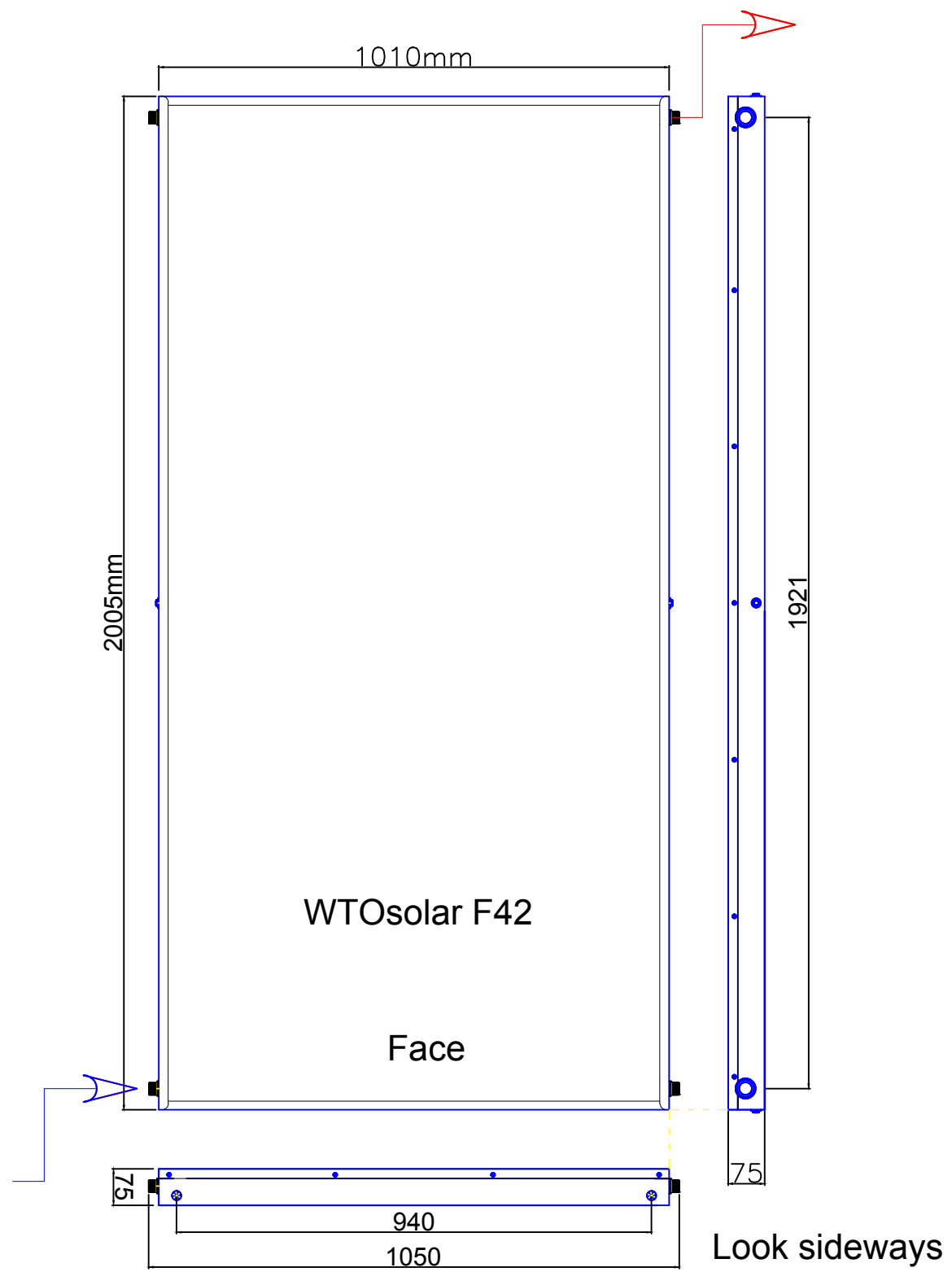


WTOsolar F42 solar collector Structure Diagram	FOREST LAI ENTERPRISE CO., LTD.			
	SIZE	FSCM NO.	DWG NO.	REV
mm		014200074	0	
WTOsolar	SCALE	1020514	SHEET	1/2

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

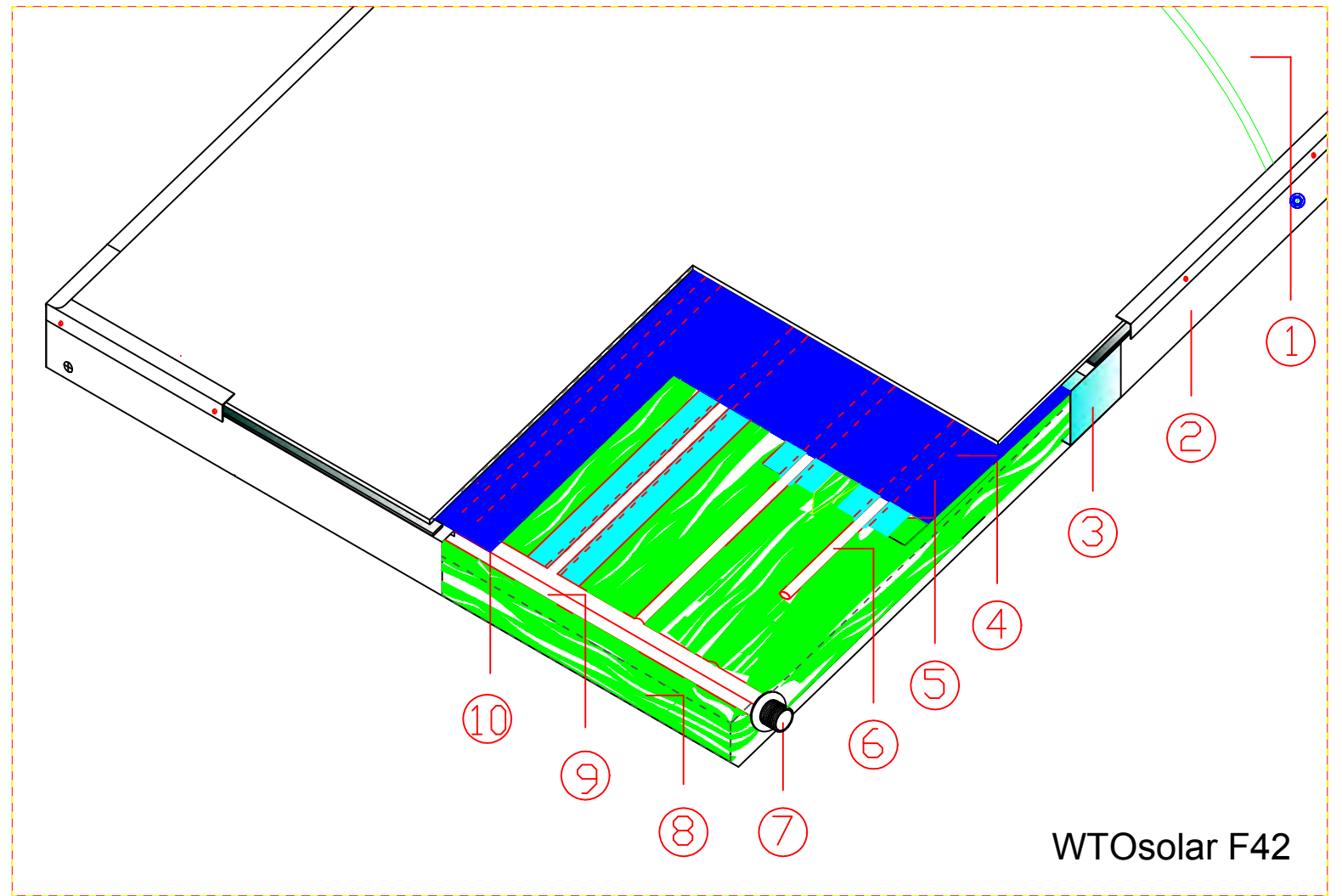
WTOsolar F42 solar collector

Size Diagram



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WTOsolar	FOREST LAI ENTERPRISE CO., LTD.			
	F42 solar collector Size Diagram			
	SIZE	FSCM NO.	DWG NO.	REV
	mm		014200074	0
WTOsolar	SCALE	1020514	SHEET 2/2	

台灣精品獎
Taiwan Excellence Award 2015

特頒予
Presented to

和利斯特企業股份有限公司
FOREST LAI ENTERPRISE CO., LTD.

平板式太陽熱能集熱器
Flat Plate Solar Collectors

F42 / F43

鄧振中
John C. C. Deng

經濟部 部長
Minister, Ministry of Economic Affairs, R.O.C.

中華民國104年4月22日
22nd of April 2015