

**NARVA**



**HEWALEX**  
SOLAR COLLECTORS

# German – Polish- cooperation In the field of Solar Heat

NARVA GmbH + Co. KG  
Germany

[www.narva-bel.de](http://www.narva-bel.de)

HEWALEX SOLAR COLLECTORS  
Poland

[www.hewalex.pl](http://www.hewalex.pl)



## Products / Portfolio

### NARVA

Manufacture of fluorescent lamps  
and Vacuum tubes

- Fluorescent lamps since 1966
- Vacuum tubes for solar thermal  
applications since 2005
  - Direct Flow
  - Heat Pipe

### HEWALEX

Manufacturer of Solar Collectors

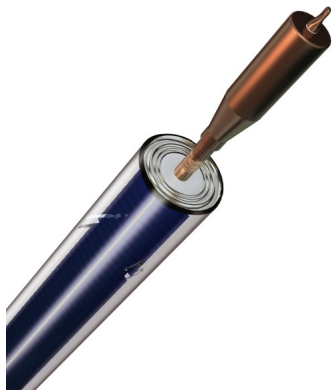
- Solar Collectors and Fixtures
- Water heaters and fixtures
- Installation materials
- Solar Systems Accessories
- Solar kits



# Form Follows Function

Sullivan 1896, US-American Architect

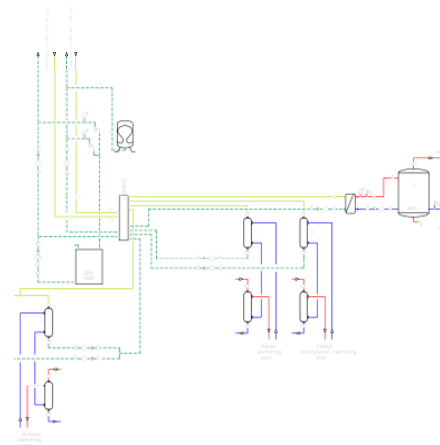
1. Vacuum tubes



2. Module



3. System-  
integration



4. Architecture





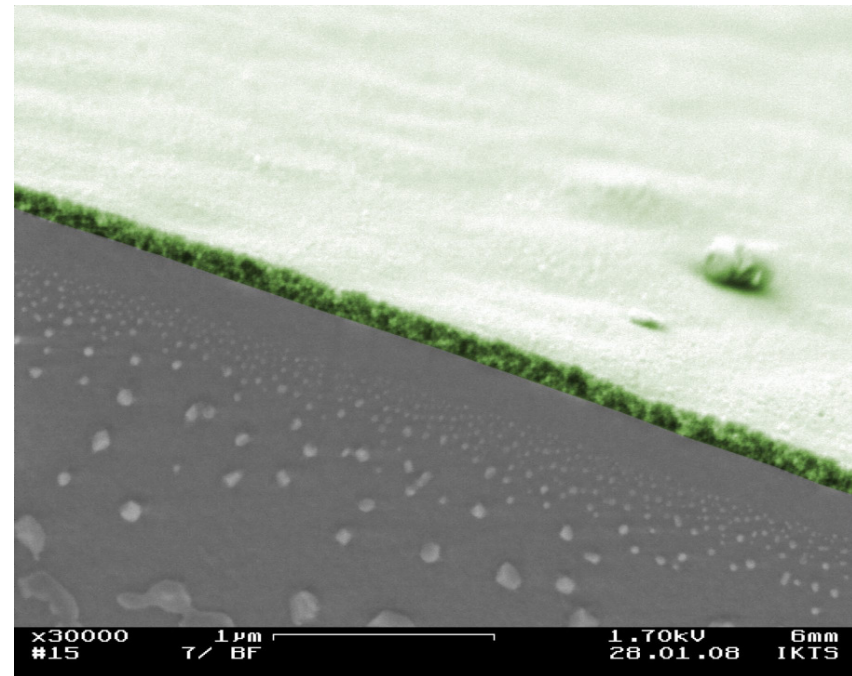
## 1. Vacuum tube

- Cladding tube
- Glass-metal connection
- Absorber
- Direct flow / Heatpipe





## 1. Vacuum tube - Anti Reflex Coating

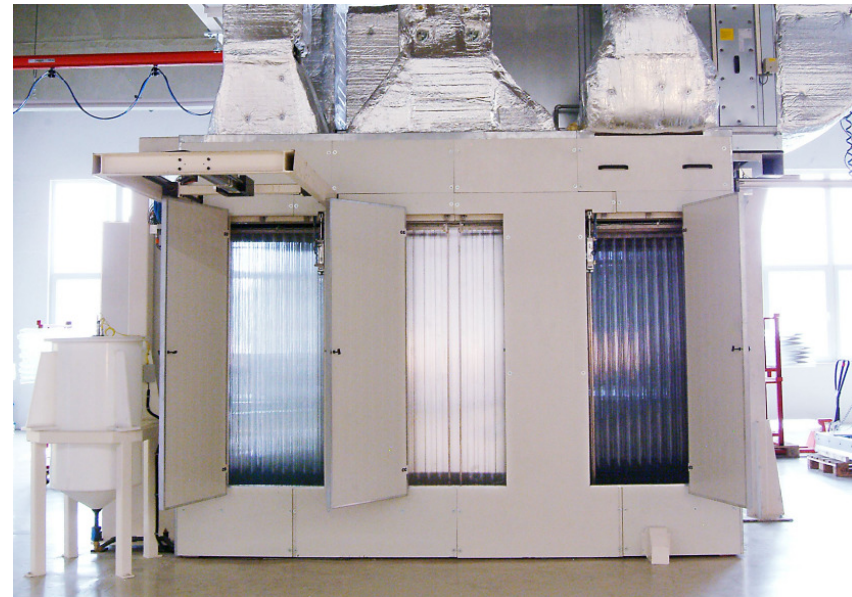






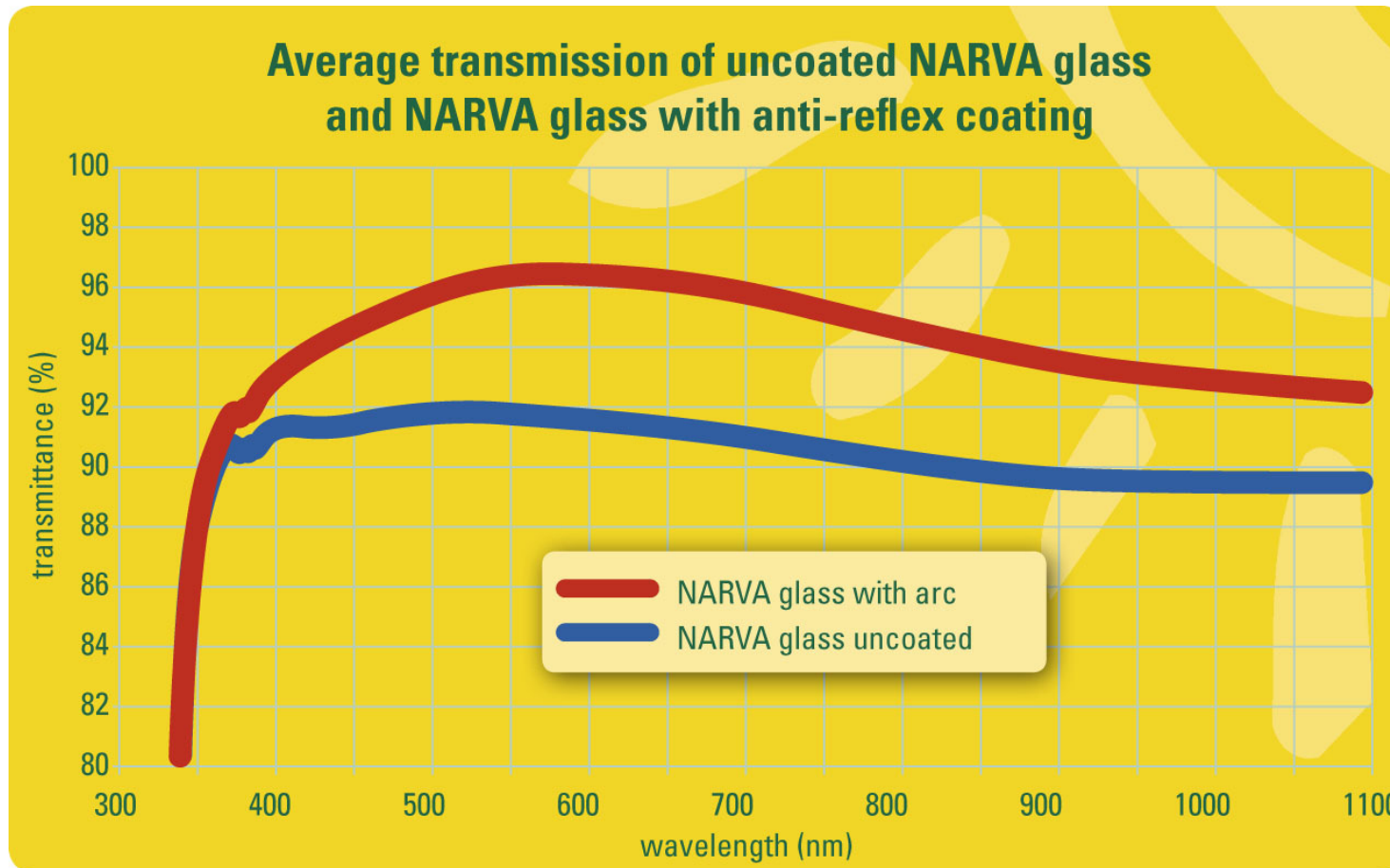
## 1. Vacuum tube – Coating- Functions

- increases the transparency
- increases the hydrolytic resistance (comparable to Borosilicate glass)
- increases the resistance to impact (no implosion because of surface tension)



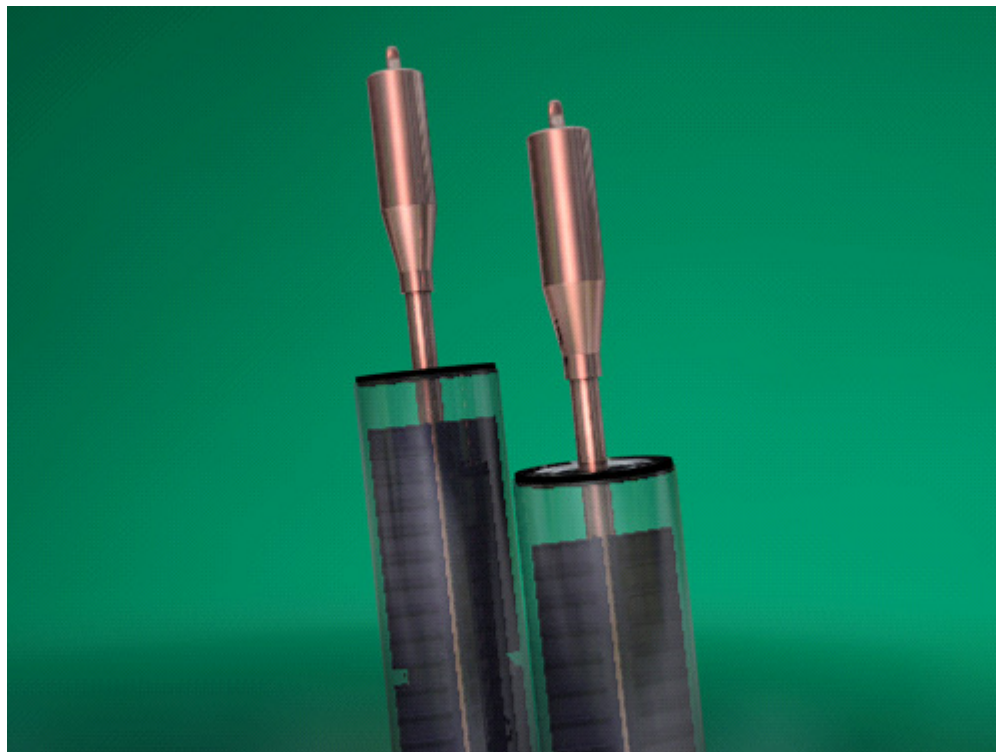


## 1. Vacuum tube – Coating- Functions





## 1. The coating of the absorber



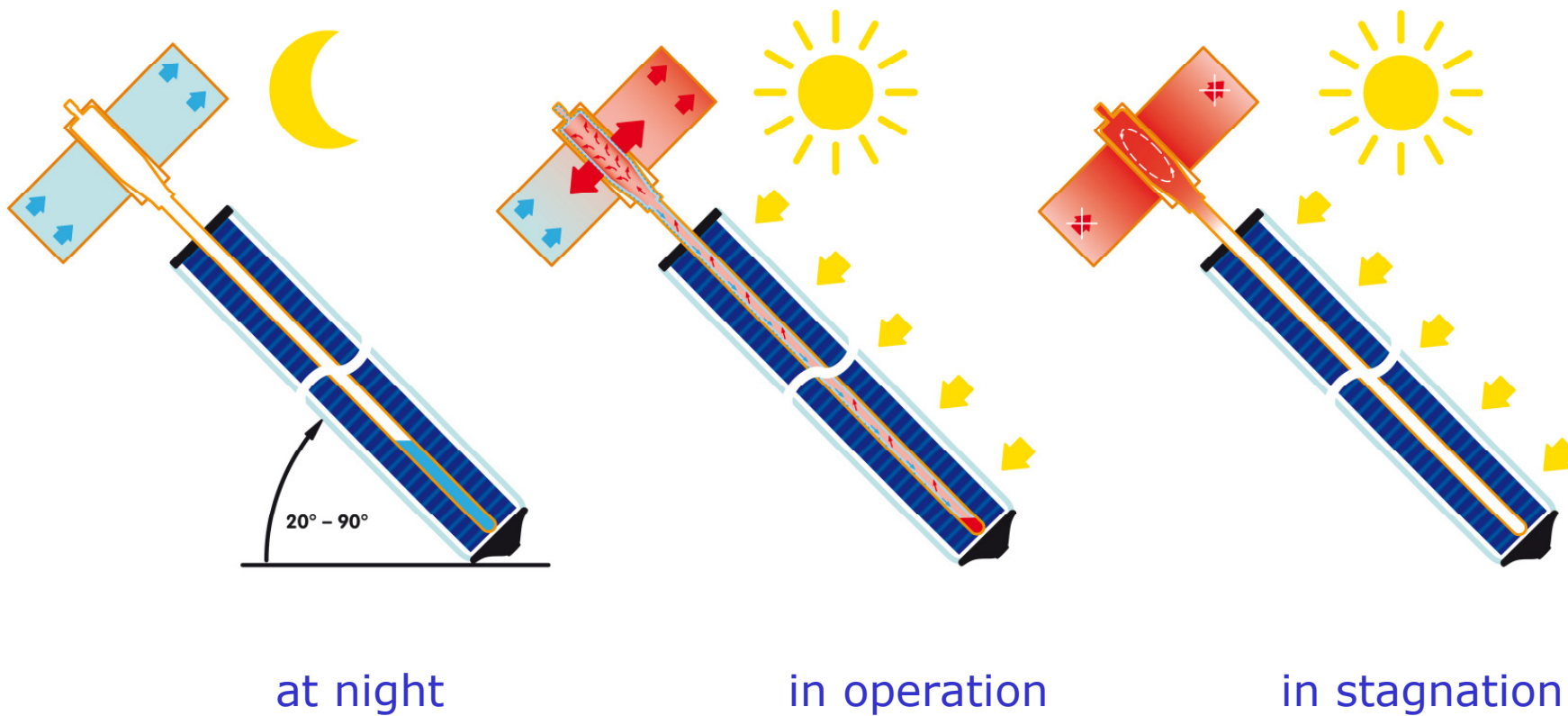
The coating of the absorber:

- single sided (Standard)
- double-sided (Power) coating.
  - used with reflector systems
  - increase in performance of up to 30%  
(Depending on the design of the reflector)



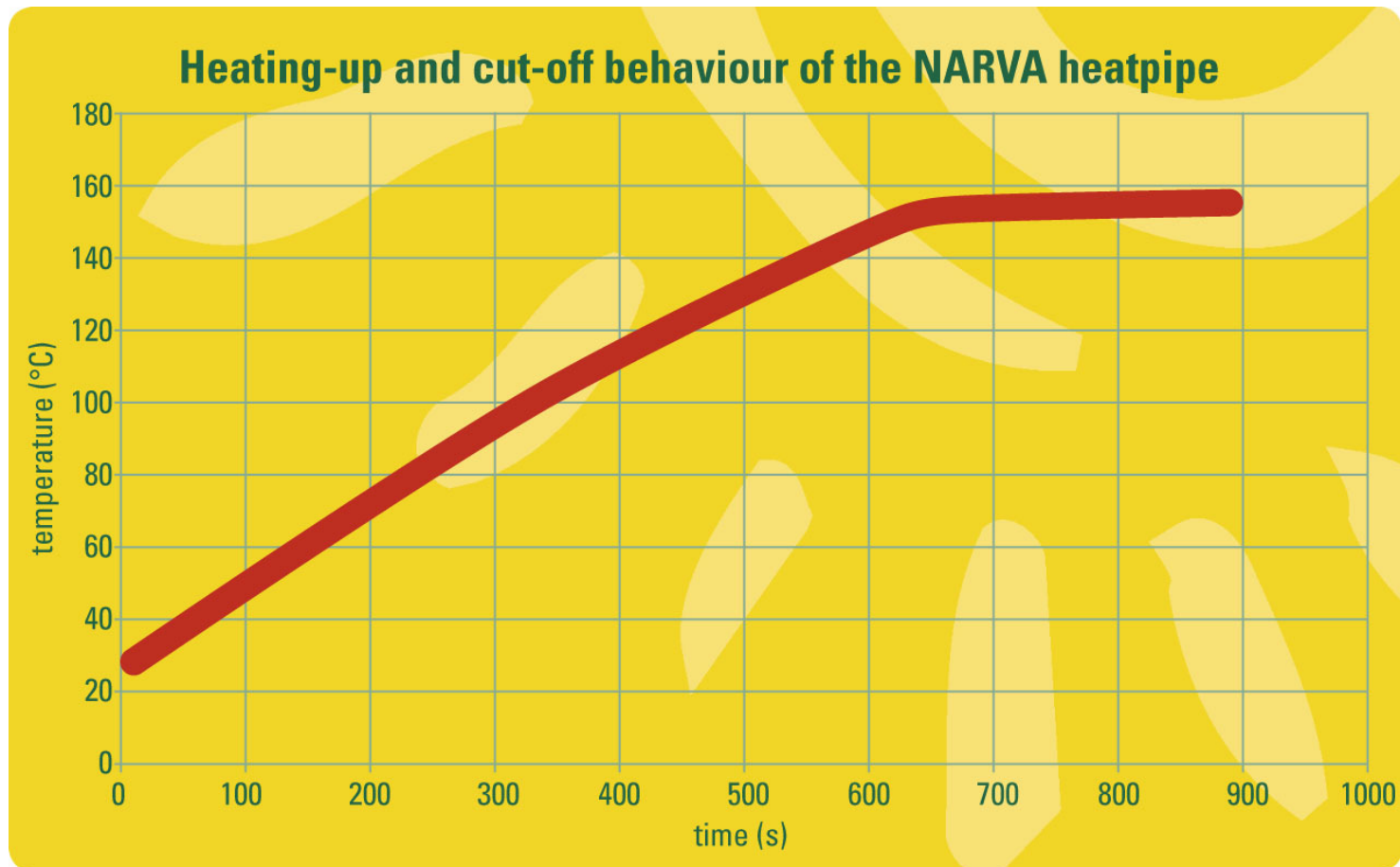


## 1. Vacuum tube - Heatpipe



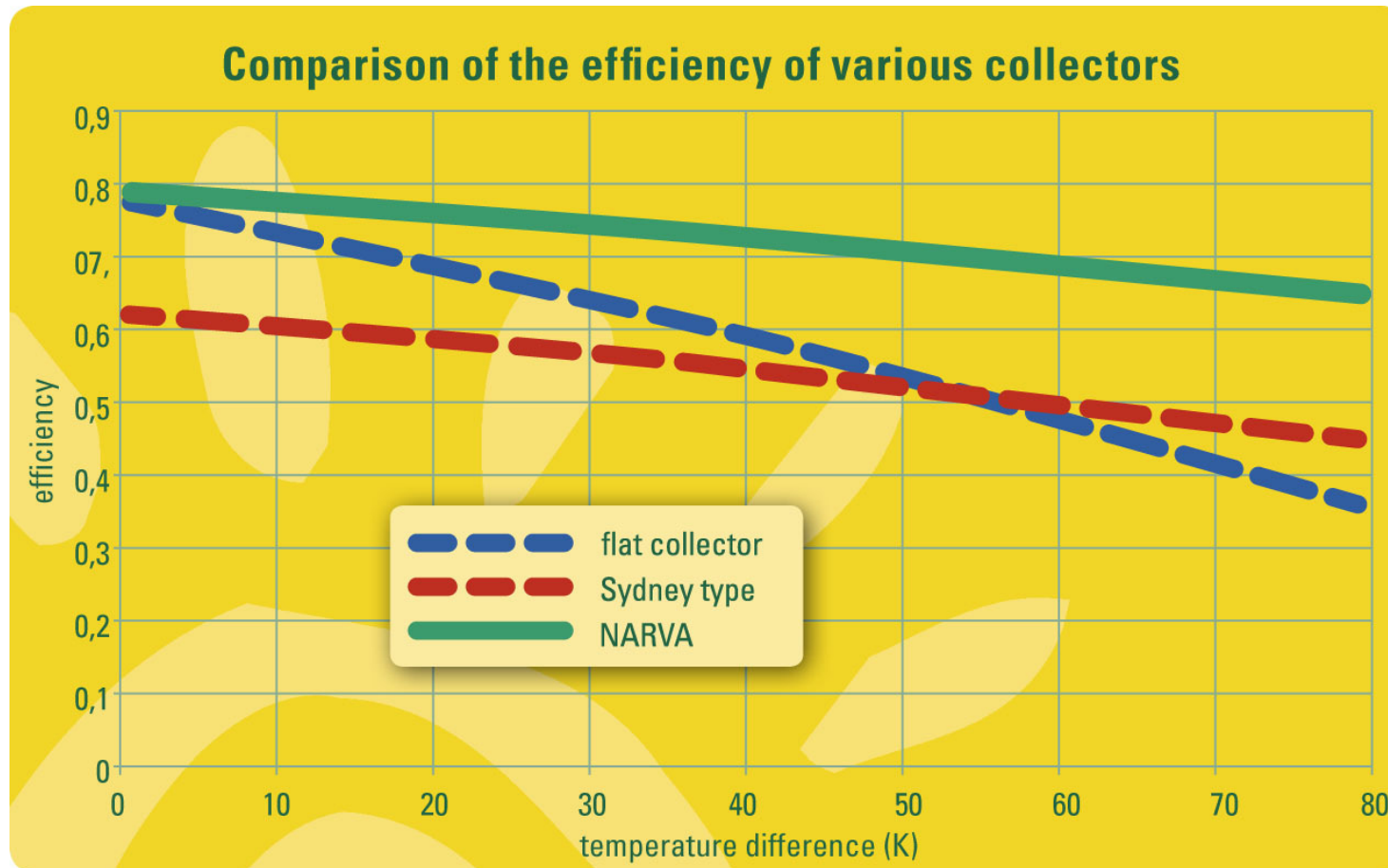


## 1. Vacuum tube – Heatpipe – cut- off



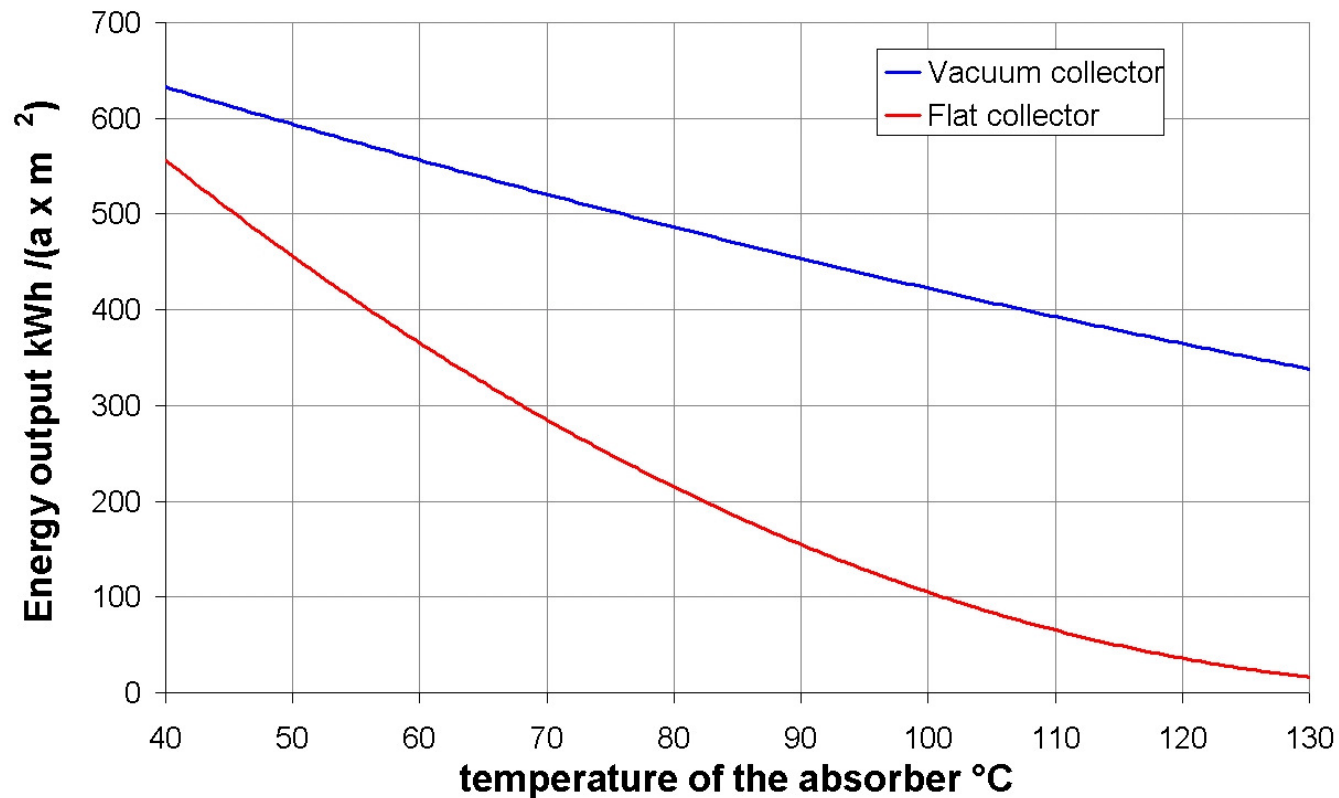


## 1. Vacuum –tubes - comparison





# 1. Vacuum tube – flat collector comparison Energy Output







## 2. Solar Collector Modul - Hewalex

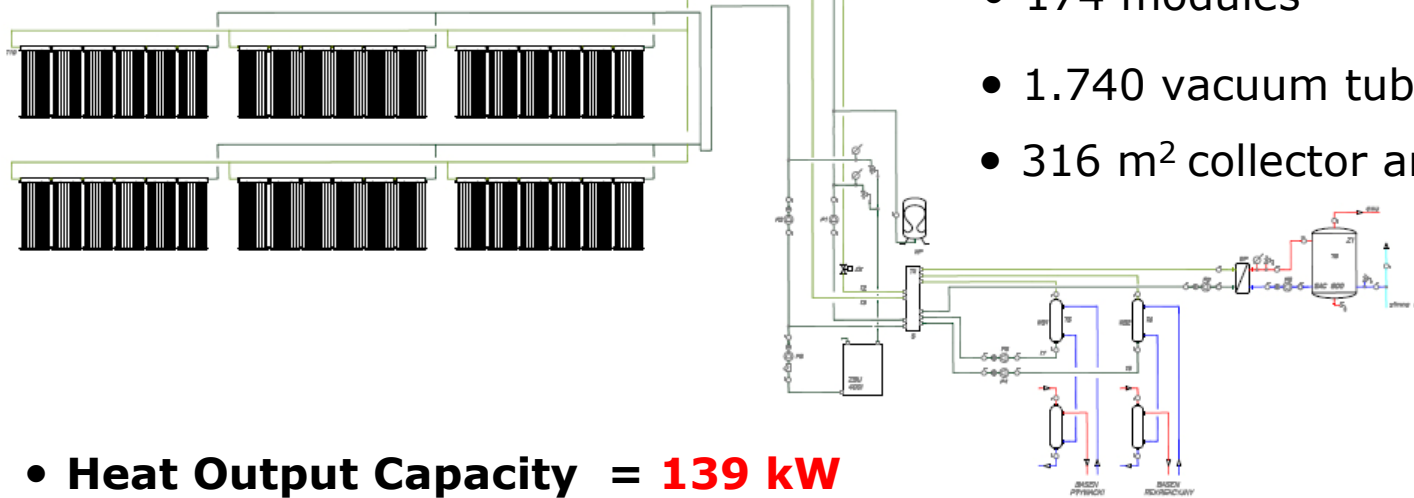
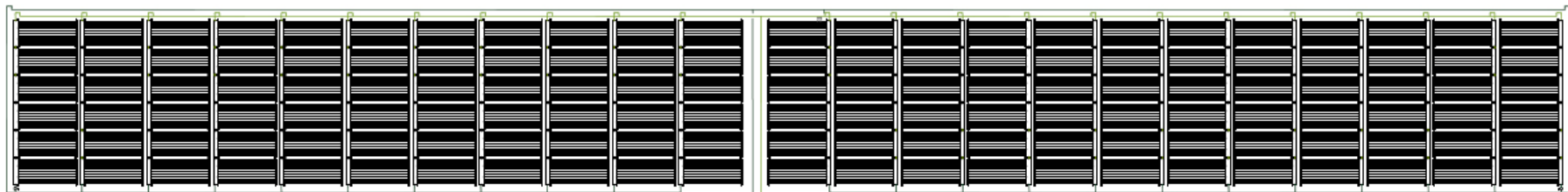
### Solar collector KSR10

Length: 2130 mm  
Width: 860 mm  
Height: 116 mm  
Weight: 30 kg  
Cross surface: 1.823 m<sup>2</sup>  
Aperture area: 1.014 m<sup>2</sup>





## 3. System Integration - Open air pool Wodny Raj ŁÓDŹ Hydraulic flow chart



- 174 modules
- 1.740 vacuum tubes (2m) direct flow
- 316 m<sup>2</sup> collector area

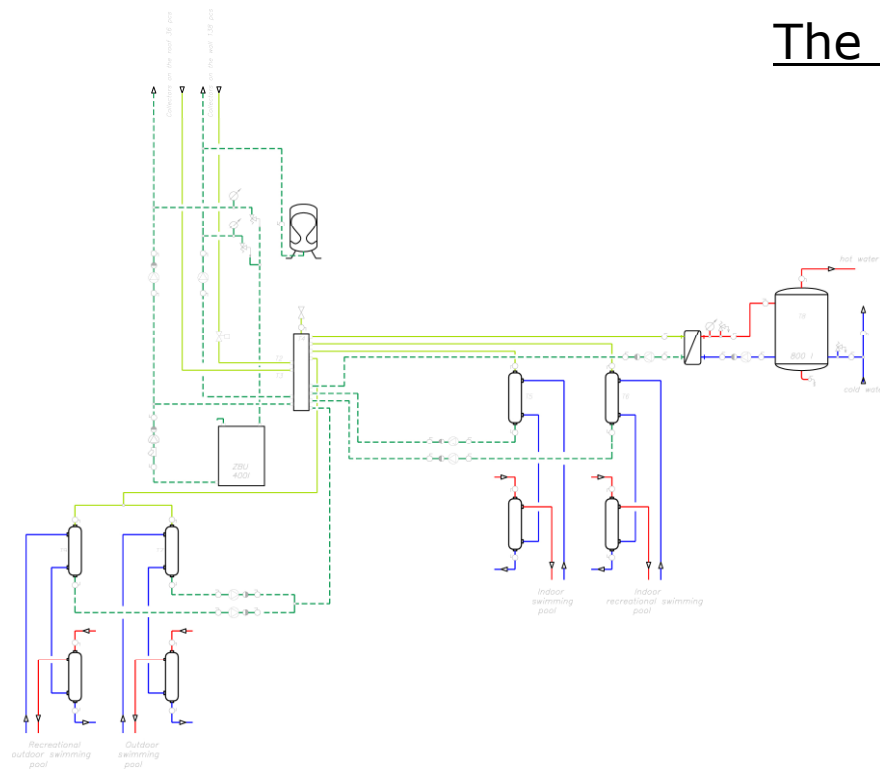
• **Heat Output Capacity = 139 kW**



### 3. System Integration - Wodny Raj ŁÓDŹ

The solar thermal installation supplies:

- 4 swimming pools
- Hot water supply for shower and washrooms





## 4. Architecture

Wodny Raj  
ŁÓDŹ







## 4. Architecture Wodny Raj ŁÓDŹ



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Thank You for Your Attention!