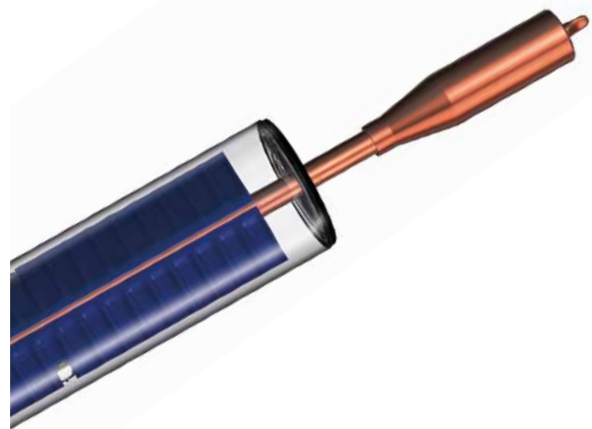


## HEAT PIPE vacuum tube for efficient thermosiphon systems



Made in Germany

In many regions of the world, e.g. the Mediterranean area, very simple syphon systems are used. The most important thing is to avoid „steam hammers“ when drawing from the outlets.

The NARVA heat pipe for Syphonsystems combines both: High efficiency and intrinsic safety heat pipe.

Due to the innovative design of the condensator it is possible to realize nearly twice as much as the power output of standard-solutions.

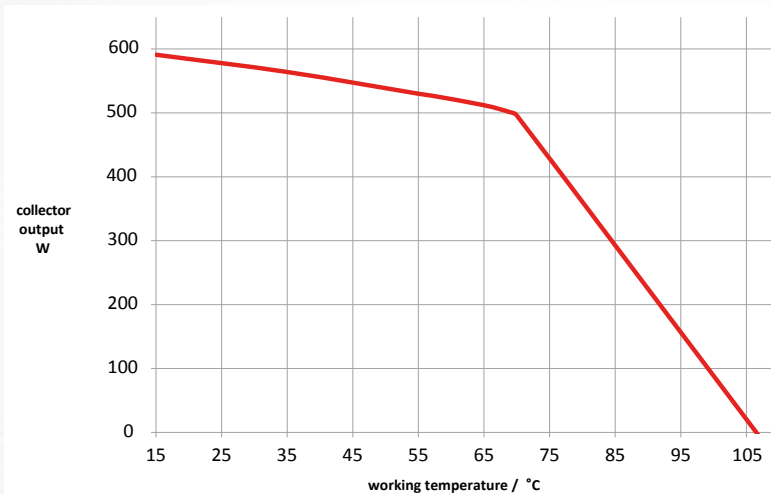
### Product benefits

- . Limitation of temperature via special evaporator fluid prevents vapour shocks when drawing from the outlets
- . simple systems (Plug and play)
- . electronic controls and pumps are not needed
- . solar Heat at a customized temperature level
- . cost efficient
- . system is less prone to breakdown and less maintenance is required

### Application areas

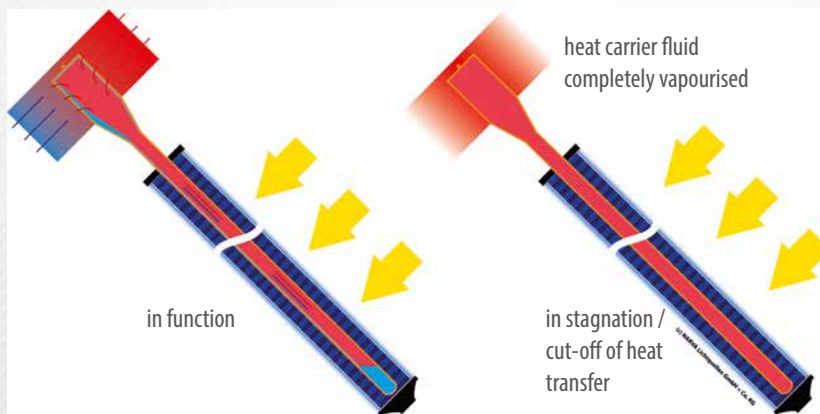
- . thermosiphon systems with integrated manifold
- . thermosiphon systems with external manifold

## NARVA technology guarantees intrinsic-safety:



Power output of tube collector at solar radiation of  $900\text{W/m}^2$  (collector with 10 tubes, length 1,75m)

## Cut-off behavior of NARVA heat pipe tubes



proprietary know-how:  
patent pending 10 213 009 869.6

## Technical data All data valid for type Standard (absorber one side coated)

Nominal length LT (mm)	800	1.500	1.775	2.000
Tube length (mm)	810	1.510	1.785	2.010
Diameter of glass tube (mm)	56			
Apertureface of glass tube ( $\text{m}^2$ )	0,0386	0,0750	0,090	0,1010
Nominal tube output (W) at an irradiance of $1,000\text{W/m}^2$	28	56	67	76
Packaging unit	10	10	10	10
Absorbed heat at $1,000\text{ kWh/a}\cdot\text{m}^2$ temperature difference 40K (KWh/a)	25	50	60	68
Absorbed heat at $1,000\text{ kWh/a}\cdot\text{m}^2$ temperature difference 100K (KWh/a)	21	42	50	57
Heat transmission coefficient linear ( $\text{W/m}^2\cdot\text{K}$ )	1,12			
Heat transmission coefficient quadratic ( $\text{W/m}^2\cdot\text{K}^2$ )	0,004			
efficiency factor	0,750			