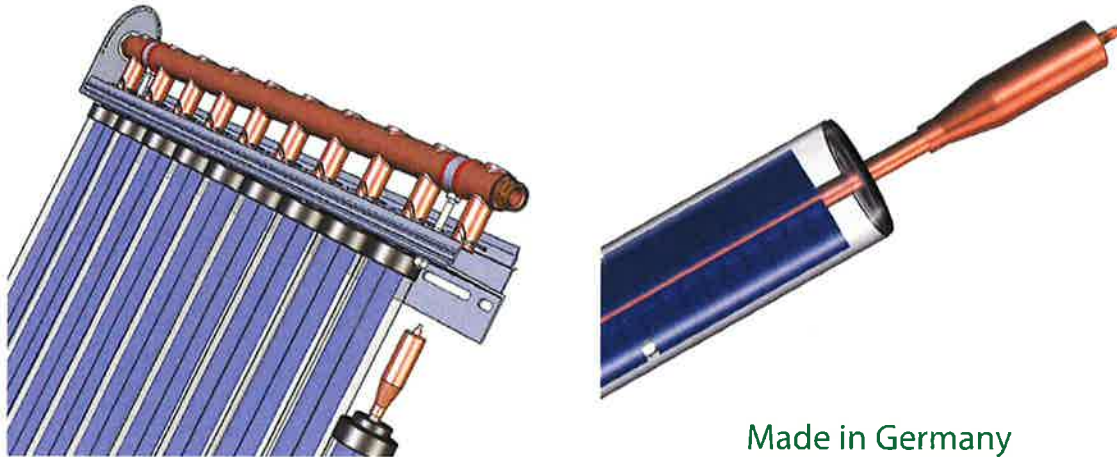


# NARVA

## intrinsic safety HEAT PIPE vacuum tube maximum solar fraction at customised temperature level



Made in Germany

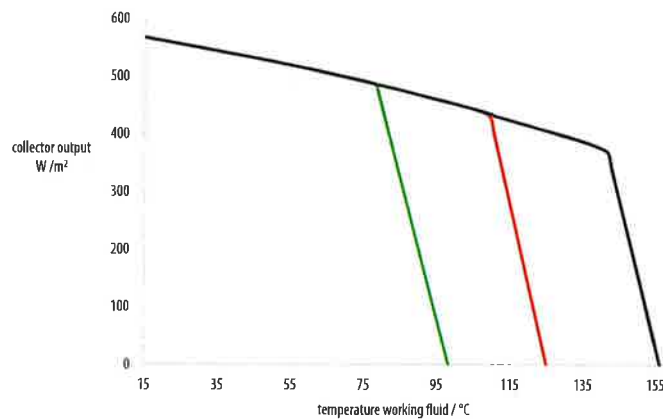
### Product benefits

- intrinsic-safety: no stagnation management needed
- pure physical cut-off behaviour: no wear and tear of components
- easy plug-and-play system
- temperature limit avoids dangerous „steam hammers“ (cavitation)
- variable cut off temperature due to different customer requirements (90 - 160° C system temperature)
- vacuum protected absorber - no corrosion
- stability of vacuum insulation for 20 years
- available in Standard and Power (absorber one or both sides coated)
- high efficiency
- weatherproof nano coating guarantees very high hail resistance (hail proof according EN 12975-2 TÜV Rheinland)
- patented glass-metal connection

### Application areas

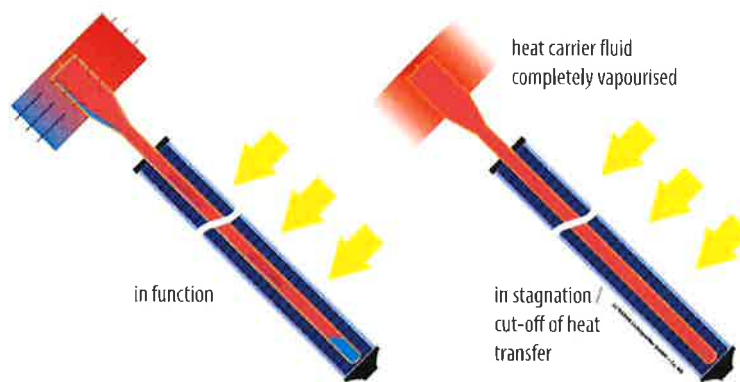
- thermosiphon systems
- solar heating
- process heat

## NARVA technology guarantees intrinsic-safety:



Power output of tube collector at solar radiation of  $1.000 \text{ W/m}^2$  (collector with 10 tubes)

## 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     |        |       |        |
| Aperture area 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  |        |       |        |

**NARVA**

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