

## Data Sheet Weiser Protect

AKOTEC full vacuum tube collectors are a guarantee, especially for solar heating for high yields - even in the cooler transitional periods and even in winter. All components are characterized by a very high quality, performance and service life. We give a **20-year manufacturer's guarantee** on our product!



### Advantages of our collectors:

- integrated overheating protection, switches off automatically
- plug connection tube – distributor
- dry connection of the tube to the collector (extra easy to exchange)
- tubes can be rotated 360° (optimal alignment to the sun)
- tube distance always the same (even with several interconnected collectors, optically very good overall impression)
- low volume of liquid
- self-supporting construction
- one person assembly
- collector and NARVA full vacuum tubes made in Germany
- NARVA full vacuum tubes with double-sided coated absorber
- shortest energy amortization
- mounting from 10°- 80° possible
- hailproof



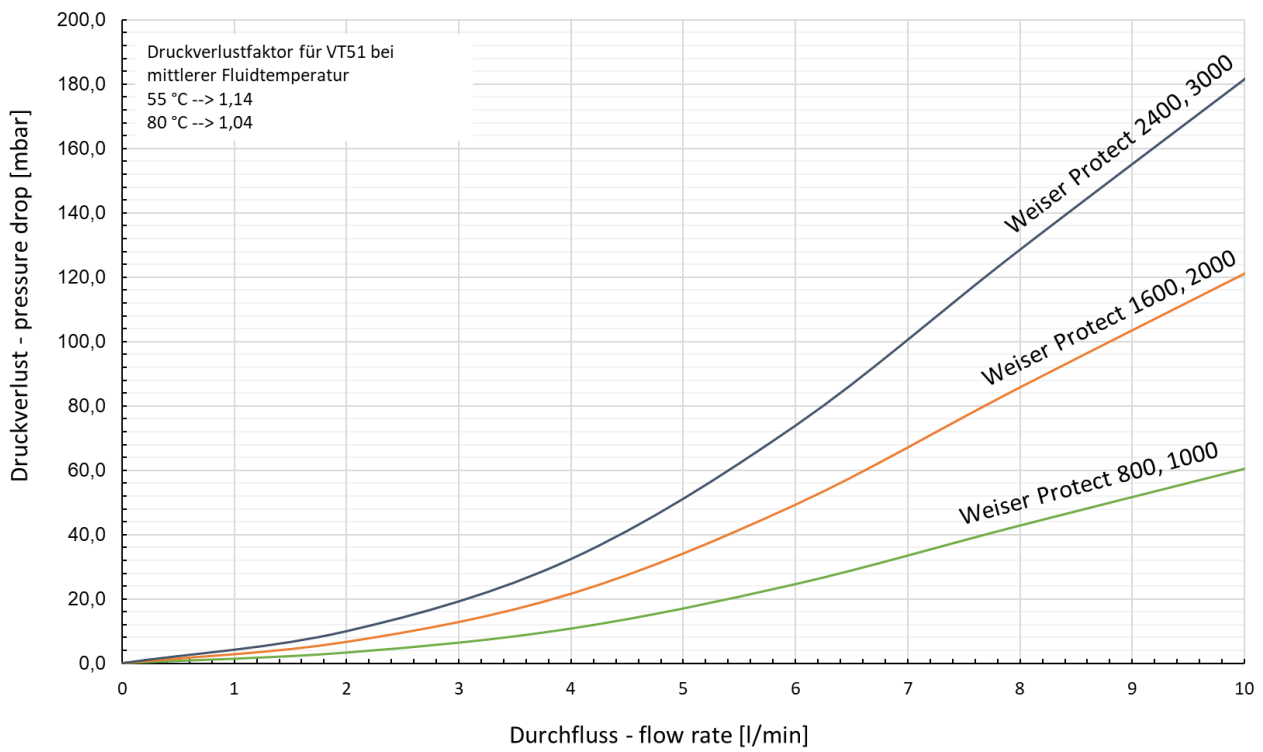
## Technical specifications

<b>Weiser Protect</b>		<b>800</b>	<b>1000</b>	<b>1600</b>	<b>2000</b>	<b>2400</b>	<b>3000</b>
number of tubes	-	10	10	20	20	30	30
reflector	-	No	Yes	No	Yes	No	yes
length	mm	2159					
broad	mm	745	1495		2245		
height	mm	128					
gross collector area	m <sup>2</sup>	1,61	3,23		4,85		
weight	kg	27,9	33,6	51,8	64,0	75,7	94,4
max. pressure load	kg/m <sup>2</sup>	458,7					
max. suction load	kg/m <sup>2</sup>	331,3					
collector output (Würzburg à 25 °C (T <sub>m</sub> ))	kWh/ module	736	883	1477	1773	2218	2662
case color	-	RAL9006 satin gloss, on request in one of 213 RAL colors					
operating temperatur	°C	- 28 to 135					
<b>energy label information</b>							
collector efficiency $\eta_{col}$	%	37	44	37	44	37	44
$\eta_0$	-	0,44	0,5	0,44	0,5	0,44	0,5
a <sub>1</sub>	W/(m <sup>2</sup> K)	1,4	1,43	1,4	1,43	1,4	1,43
a <sub>2</sub>	W/(m <sup>2</sup> K <sup>2</sup> )	0,005	0,004	0,005	0,004	0,005	0,004
reference surface A <sub>sol</sub>	m <sup>2</sup>	1,61	3,23		4,85		
IAM	-	0,98	1,03	0,98	1,03	0,98	1,03
<b>hydraulics</b>							
collector principle		heat pipe (hp)					
standstill temperature	°C	130 °C					
maximum operating pressure	bar	10					
connection	-	AKOTEC hp collector connector					
collector content	liter	0,47	0,94		1,41		
flow rate H <sub>2</sub> O*	l/min	0,75	1,5		2,5		
flow rate VT51*	l/min	1,0	2,0		3,0		

\* $\Delta T=15$  K, G = 1000 W/m<sup>2</sup>, T<sub>m</sub>-T<sub>a</sub> = 35 K

## Pressure drop

### Weiser Protect - Druckverlust Medium Wasser - bei 10°C



#### Example:

1. a collectorfield with 50 tubes
  - 1 x Weiser Protect 3000
  - 1 x Weiser Protect 2000
2. Target volume flow of water: 4,0 l/min
3. Read the pressure loss from the diagram:
  - Weiser Protect 3000 at 4,0 l/min = 32 mbar
  - Weiser Protect 2000 at 4,0 l/min = 22 mbar
4. add pressure losses: 32 mbar + 22 mbar = **54 mbar**

Misprints and technical changes reserved.