

## Van Melle - Breda, NL

### DRAINBACK SOLAR SYSTEM



#### General discription:

Sustainable solar-based energy systems have already been installed on a large scale in domestic systems. Also industrial applications have proven its success. Industrial use of solar energy is growing rapidly.

Van Melle, the leading Dutch confectionery manufacturer based in Breda, does have a solar installation: 2.400 m<sup>2</sup> of collectors and a storage tank of 95.000 litres. With 45 % of the hot tapwater needs covered by this installation, the company is able to save some 170.000 m<sup>3</sup> natural gas each year. On Sunny days the gained energy of the collector field can reach up to 2 Megawatts.

The solar panels used are the largest standard modules within the ZEN Renewables product range. The useful surface area of each of the 288 collector is 8,26 m<sup>2</sup>.

The energy that is collected can heat 125.000 litres of tapwater each day. This water is used in the production process and for cleaning and rinsing equipment and production areas.

The entire system has been manufactured on the well-known closed drainback principle and is by far the largest in the World to use this principle. The benefits of the drainback principle, which have already been enjoyed in the domestic sector for some time, can be as succesfull on a large industrial scale.



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## ZEN Project Information VANMELLE - Breda, NL

### Closed Drainback principle:

- No risk of overheating.
- Collectors are empty when the pump stops.
- 10-15% Higher performance. (hot collector water drains into the insulated drain-back tank)
- No risk when power fails.
- No need for additional expansion vessel.
- Transfer fluid is pure H<sub>2</sub>O.
- No risk of pollution due to absence of chemicals.
- Compact all in one design.
- Increases life expectancy of the solar system to more than 25-30 years.
- Minimal maintenance. A short check every 3-5 years.
- 10 year collector warrantee. Extra warranty possible with a system commissioning by ZEN service people.



### Van Melle: 288 special wind enforced collectors 6-module (HxW = 5119 x 1776 m) aperture surface 8,26 m<sup>2</sup>

Absorber Plate	Selectively coated surface layer: absorption coefficient = 0.96; emission coefficient = 0.08-0.12. Copper sheet and tube bonded over the full length of the pipe in an automated process. Interchangeable by means of compression fittings, after removal of glass cover
Glass Cover	Low iron, tempered, low reflection glass, 3.2mm. Removable with black aluminium frame cover. Light transmittance = 92%. Extra wind supports
Collector Box:	Heavy aluminium box section with anodized aluminium glass cover frame. A temperature sensor pocket is located at the top back side of the collector. Extra wind supports at the back
Insulation:	Glass wool, 100% CFC-free
Storage tank	95.000 litres of wich 5.000 litres for drainback circuit
Storage medium	Water
Function	Heat storage for 1 à 2 days
Tested by:	TNO - The Netherlands, ISFH - Germany

### 2400 m<sup>2</sup> solar collectors

