



The Turkish company Solimpeks was represented at Intersolar with its new international branch, Solimpeks Solar GmbH. The products on show included the Volther hybrid collector and the company's new drain meander collector.

Photo: Wilhelm Breuer

integrated solar module providing an autonomous supply to a fan motor in the collector. The MT-MS-200B is fitted with an additional heat exchanger to produce hot water using the heated air within the collector. The air collectors are placed in an aluminium housing and are covered with borosilicate glass. They measure 2,000 mm x 1,000 mm x 130 mm and weigh between 44 and 46 kg.

**Grammer Solar** introduced its new air collector "Twin Solar Compact". Contrary to the German company's conventional air collectors, components such as fan and photovoltaic module are here already integrated. The actual building installation is thus reduced to the piping and a thermostat. "This not only shortens the installation time. There are also fewer sources of error, because the collector is supplied ready-to-use," says Rudolf Ettl, the responsible Head of Solar Air Systems at Grammer Solar. For installations requiring pipes above a certain length, however, it is necessary to use modular air collectors with an external fan. But according to Ettl, that makes no difference to the price.

### Thermosiphons: relying on gravity

Austrian collector manufacturer **Tisun GmbH** presented a thermosiphonic system aimed at the markets in Southern Europe, North Africa and the Middle East. Three different packages with tank volumes of 160, 200 and 300 litres and either one or two 2 m<sup>2</sup> collectors are to become available from July 2010. The highly selective absorbers are designed as harps. Another new product is the module collector FM 2.00, which Tisun has similarly developed for the Mediterranean and Middle East regions. The collector area is again only 2 m<sup>2</sup>, instead of the standard Tisun size of 2.55 m<sup>2</sup>, which is seen as a means to avoid overdimensioning and stagnation of the solar system. The collector can be mounted horizontally or vertically on the roof or on a freestanding frame. Press Spokeswoman Nina Karner reported furthermore that the company has been working with the American boiler manufacturer Lochinvar since the beginning of the year to design a solar thermal system for the US mar-

ket. The collectors are to come from Tisun, the storage tanks from Lochinvar. Karner: "That is our starting signal for the USA, Canada and Mexico."

**Thermosolar**, the pioneer solar brand of Iff Kollmannsberger KG from Germany, has also launched a thermosiphonic system. The closed system is available with tank capacities of 150 and 300 litres. The objective was to develop a visually appealing system which can hold its own against the typical market prices for gravity systems. Thermosolar produces the coating for its aluminium absorbers itself, and claims that this coating is especially effective under diffuse irradiation. The thermosiphonic system is not able to match up to competitors with vacuum coatings in direct sunlight, but there are on the other hand no problems with stagnation.

### Plates, tubes and coatings

Norwegian aluminium giant **Norsk Hydro ASA** has already been supplying back plates and frame profiles for collectors for some time. Now, the company is also moving into the manufacturing of aluminium absorber plate. HySelect is applied as the first coating in a coil-coating process.

The coating comprises three inorganic layers: first an anodised layer, and then a priming and passivation layer, before the actual absorbing surface layer. The rear side of the plate, furthermore, is provided with a special corrosion protection coating.

The advantage of HySelect: the process is 10 to 15 times faster than standard PVD or sputter techniques, and is thus correspondingly cheaper. Hydro is able to coat coils up to a width of 2 metres at its German facility in Grevenbroich, opening the door to new formats of large-area collectors. The disadvantage: HySelect achieves a solar absorption of 90 ± 3 % and a thermal emission of 12 ± 3 %. Those values are still very good compared to other painted coatings, but fall noticeably short of the performance of a coating produced under vacuum. The wide tolerance range, however, is indicative of the potential for improvement which still lies dormant in the process. The coating is temperature-resistant up to 600 °C and has already passed corrosion tests. Ageing tests taking into account the micro-climate in the collectors are currently in progress.

**Alanod-Solar GmbH & Co. KG**, a German coater of aluminium strip, now offers not only vacuum coatings, but also two selective, water-resistant paint coatings for solar absorbers. Both are rated with an absorption of 90 %. Mirosol WP – WP here standing for weatherproof – emits 40 % of the converted radiation as thermal energy. Alanod developed the coating specifically for air collectors and collectors in open systems. It is insensitive to fingerprints and scratches, and is particularly corrosion-resistant when exposed to salt water. Mirosol TS (thermal selective) features an emission rating of 20 % and is to be used for collectors for the Southern European markets. Both coatings are applied to aluminium strip at Alanod's new coating plant in Ennepetal. According to information provided by

Euroterm from Macedonia currently concentrates on south-eastern European countries.







Solver is one of Poland's aspiring collector manufacturers: the photo shows Company President Katarzyna Kachel with a staff member.

Photos (4): Jens-Peter Meyer

and has invested above all in automation. Watt is now using these machines to manufacture a series of new collector types. The harp-type collectors Watt 3000 S with four pipe connections and the 3000 SU with two pipe connections are now designed with ten risers to further increase the output efficiency. The same new absorbers are used for the 3000 P, a variant for horizontal mounting.

**Solver Sp. z o.o.**, again from Poland, began as an installation business – like so many other solar thermal pioneers. For the past five years, however, the company has also been manufacturing its own collectors with ultrasonic-welded copper absorbers. The GAK series with double-harp absorber is supplied with gross areas of 2.02, 2.54 or 2.96 m<sup>2</sup>. GAKm is the designation for a meander-type collector with an area of 2.09 or 2.62 m<sup>2</sup>, and the GAM2.5, finally, is a meander-type collector with an anti-reflective glass coating and a correspondingly high efficiency rating. During the testing for INTA certification in Spain, the collector achieved an efficiency of 0.906.

Ultrasonic welding is also employed by **Euroterm d.o.o.** from Macedonia. The company has its roots in a solar planning office founded in 1986. Euroterm has been manufacturing collectors with a gross area of 2.49 m<sup>2</sup> since 2000, concentrating on four models. The ESK 2.5 SB is a standard harp-type collector, whereas the ESK 2.5 SB U modules are designed with double harps. Both types are also offered in a high-performance version with double-glazed front covers and 12 mm elastomer insulation in addition to the usual 40 mm glass wool.

Hungarian collector manufacturer **Spring Solar Kft** attended Intersolar on the lookout for new cooperation partners. "It is very difficult to survive on just the Hungarian domestic market," said Sales Manager Norbert Hanti. For this reason, he is already working together with sales partners in Romania, Italy and England.

Israeli company **Elsol – Solar Energy Systems Ltd.** is planning a greater presence on the Central European markets. To this end, the company has developed a collector with ultrasonic-welded aluminium absorber, manufactured in Israel by Rand Solar Energy Systems Ltd. The modules with highly selective absorber coatings are available in the variants EL2AT with polypropylene backing and 2.06 m<sup>2</sup> absorber area, and EL3AT with aluminium backing and 2.66 m<sup>2</sup> absorber area. One special feature is the insulation, which comprises three layers. The frame itself is lined with PU foam. Over this foam, there is a layer of glass wool, and finally an aluminium foil barrier, which serves as heat protection for the insulation and at the same time prevents any outgassing from the PU foam reaching the absorber.

**Chromagen**, similarly from Israel, is working on a new collector family, for which the number of risers in the harp absorber has been increased to 12 to enhance the efficiency. The new collectors are currently in the test phase. Chromagen has been very successful to date in South Africa. Incentive levels there are dependent on the efficiency of a solar water heater as determined in testing to the standards of the SABS (South African Bureau of Standards). As International Sales Manager Elon Hait reports, Chromagen achieves outstanding results in these tests.

**Sun Master Energiesysteme GmbH** from Austria has designed a new in-roof collector with wooden frame with the designation SIC21. A particularly flat design and minimised gaps between the collectors help to maintain the elegant appearance of the roof (see also Intersolar preview in S&WE 5/2010, p. 62).

The in-roof collector AF27HE4 from **SunWin Energy Systems GmbH**, another Austrian specialist, embodies a different concept. The aluminium-frame collector is provided with four pipe connections and can be installed either horizontally or vertically. Unlike the previous wooden-frame modules from SunWin, the harp-type collectors are also suitable for on-roof mounting. That is intended to make stock management easier for the wholesalers.

**S.S.T. Solar System Technik GmbH** from Austria has presented an "Eco Collector" with aluminium CSW absorber. CSW here stands for "continuous step welding". The new S.S.T. Eco Collector with aluminium-copper absorber is supplied in 28 standard formats in in-roof and on-roof variants. The Institute for Solar Energy Research Hameln (ISFH), Germany, has tested the new CSW absorber and compared its performance with that of a laser-welded alternative. "An aluminium CSW absorber with a wall thickness of 0.3 mm is more effective than a significantly more expensive 0.3 mm copper absorber," as Mathias Muther emphasises. He is the Managing Director of S.S.T. The CSW process is furthermore the most energy-efficient absorber welding method on the market.

German manufacturer **KBB Kollektorbau GmbH** showcased its new collector K420-LC for the South European markets at the fair. "Our development objective was not simply maximum power, because a high level of irradiation can also lead to problems in



Elsol Managing Director Eli Shilton plans to score on the European markets with a new collector.