



## **Bystronic glass to attend Photon Show in San Francisco** **New Application for Proven Machine Technology**

***Neuhausen-Hamberg, December 17, 2009.*** At the 5<sup>th</sup> Photovoltaic Technology Show in the USA the Bystronic glass group will present itself with its core competence Solar Technology. A large part of photovoltaic module production involves handling and processing of glass. In all areas, Bystronic glass can contribute significantly ensuring the customers' systems run smoothly and effectively - over a period of many years.

Bystronic glass knows its way around glass processing. For more than 40 years the company has been synonymous with innovative machines as well as plants, systems and services in the glass processing industry. From basic components to automated complete customer-specific solutions, Bystronic glass will supply its customers with extraordinary concepts – all, of course, at the highest quality level.

- Concepts covering all areas of thin-film modules
- Concepts for the manufacturing of crystalline modules
- Concepts for the manufacturing of concentrator modules
- Engineering services: Design and development of line concepts and factory layouts tailored for the customers' requirements
- Perfect integration of components into the overall line concept
- Any special solutions on request
- Worldwide hotline in the customers' languages
- Worldwide service right on the customers' premises
- Production support during commissioning of the system

### **Photovoltaic TPA: Application of high-viscous butyl**

The photovoltaic-TPA (Thermo Plastic Applicator) is a machine for the efficient encapsulating and sealing of photovoltaic modules. It applies high-viscous butyl on semiconductor thin-film substrates very precisely. Over ten years ago, Bystronic glass developed a process, during which the metallic spacer frame normally used in the insulating glass production between the two lites was replaced by a thermo plastic spacer. Due to its great flexibility and its excellent sealing properties, this TPS<sup>®</sup> material is ideally suited for use in the photovoltaic industry:

#### a) Encapsulating filmless thin-layer modules

The photovoltaic-TPA can generate spaces between 1 and 6 millimetres. Opposed to lamination, this encapsulating method uses considerably less energy as it operates without any heating or cooling. Depending on the module size, the cycle times are approximately 30 to 45 seconds.



b) Sealing of semi-conductor systems

Butyl is suitable for sealing of modules based on copper-indium-diselenide (Cis) or copper-indium-gallium-diselenide (Cigs) and cadmium telluride (CaTe). The machine is available in both horizontal and vertical options. Depending on the film thickness, the application thickness of the butyl varies between 0.5 to 1 millimetres – with the most precise application. Integration into complete back-end lines and existing plants is possible. Thanks to a dual drum pump system, the machine is able to operate 24 hours a day, 7 days a week.

**Roller Laminators Press Thin-Film Modules**

Bystronic glass also transfers technologies from laminated safety glass processing to the photovoltaic industry: a pre-nip laminating system for pressing thin-film photovoltaic modules. This technology is based on more than 25-years of experience in engineering machinery and equipment for the production of laminated glass. Here too, pressing the units using a pre-nip system is an important step in the process. Compared to the conventional process using a vacuum laminator, this method of manufacturing solar power modules offers a decisive advantage for the customer: the production cycle time. Manufacturing production cycles of less than 60 seconds are possible using the pre-nip system, whereas the vacuum laminator requires considerably longer. As a result, significantly more or larger vacuum laminators must be used to achieve the same output. This increases both the space and energy requirements for the user.

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