

*Energie, die ankommt.*



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# **Press Conference, July 27<sup>th</sup> 2010**

## **Schwäbisch Hall**

# Strategic Positioning Manz Automation AG



From an expert in Automation Systems...

...to an expert in Integrated Solutions.

- ⇒ With a higher degree of integration of production processes, automation is increasingly losing significance (currently < 30% share of sales)
- ⇒ The strategic repositioning process from an automation specialist to a specialist in integrated production solutions has been initiated several years ago
- ⇒ Measures for achieving this goal in recent years:
  - Concentration on development of process machines (laser, metallization, wet chemistry...)
  - Takeover of Intech in Taiwan, which focuses on wet chemical processes
  - Establishment of Manz Coating (development of vacuum coating systems)
- ⇒ Starting in 2012, Manz will cover 90% of the supply chain with its own products (cSi and tfs)

**>> Manz is successfully positioned as a supplier of production systems.**

# Extended Business Model Manz Automation AG



Signing the exclusive know-how licensing and strategic alliance agreement with Würth Solar allows Manz to take the decisive step towards positioning itself as a supplier of integrated production systems including process expertise in the thin-film solar sector.



CIGS module production since 2000



Leading system manufacturer for PV

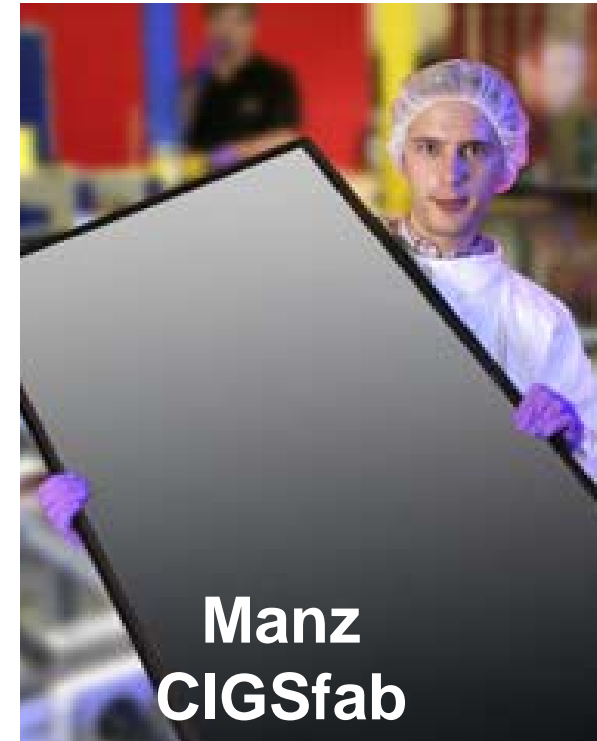


Leading research institute with  
CIGS world record 20.1%

Process and production  
expertise

Manufacturing and  
machine expertise

Basic & advanced  
research



## Three strong partners – one big goal



1975 start of basic research  
Institute of Physical Electronics,  
University of Stuttgart



1988 Establishment of  
ZSW Stuttgart



1999 Establishment of  
Würth Solar



2010 Cooperation  
agreement with Würth Solar

1975

1980

1985

1990

1995

2000

2005

2010

1975 pilot production of  
CIGS modules at the IPE

1995 pilot production of  
CIGS modules at the ZSW

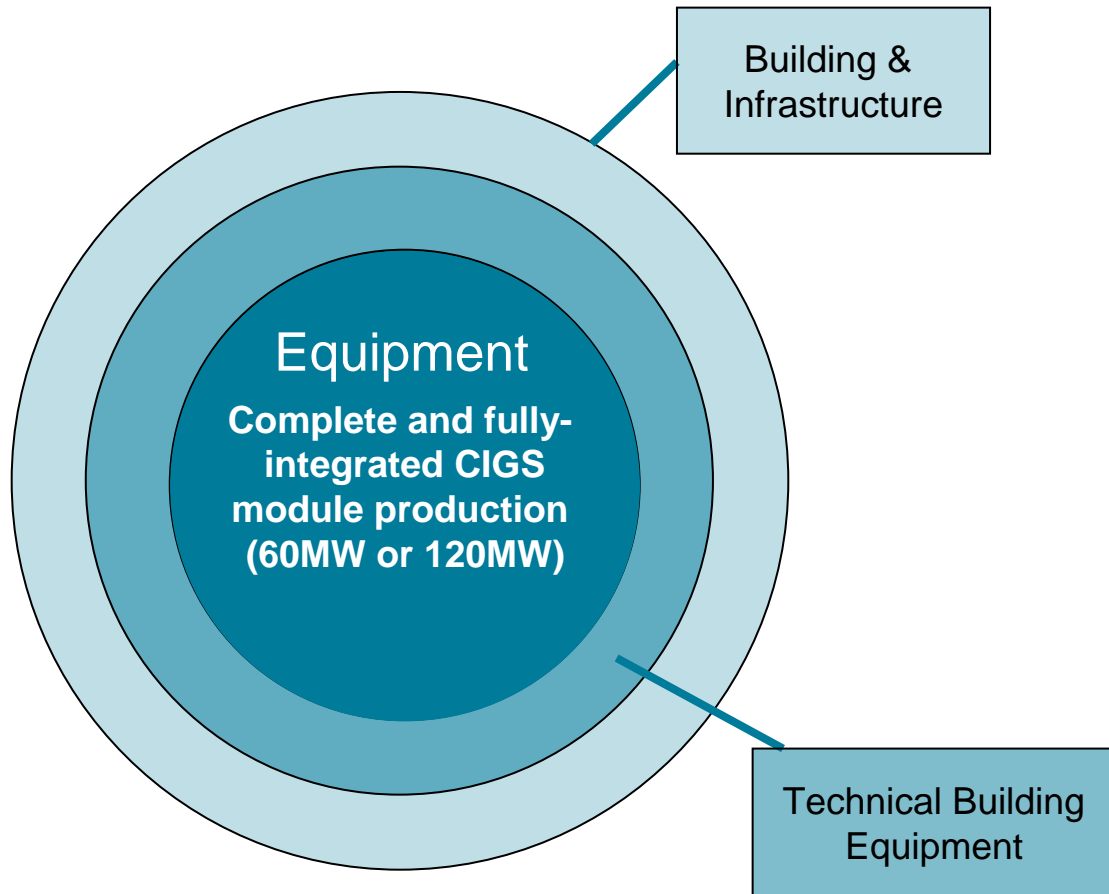
2000 start of pilot line  
CIGS modules 1200x600

2006 start of mass production  
in Schwäbisch Hall

- ⇒ Future commercialization of CIGS technology by Manz
- ⇒ CIGS development with 35 years of history in Baden-Württemberg
- ⇒ CIGS technology is licensed further by Manz and sold worldwide
- ⇒ Unique constellation of the partners ensures the success of the project

**>> Manz wants to become the market leader for integrated thin-film production lines.**

# The Manz CIGSfab



## Manz CIGSfab:

- ⇒ Complete, fully-integrated line for production of CIGS modules with capacity of 60 or 120 MW
- ⇒ Sublicensing of the Würth/ZSW technology
- ⇒ Offer via partner companies:
  - Utilities
  - Building and infrastructure

>> Sales potential for equipment of a factory between EUR 90 and 150 million

## Competitive advantage – Costs



**Manz is the only supplier of an integrated and fully-productive production line for CIGS modules that can already be operated economically today**

- ⇒ Lowest production costs of all thin-film turn-key lines due to high internal value creation at Manz and many years' optimization of production at Würth Solar
- ⇒ Turn-key line with the highest efficiency (currently 12.8%)
- ⇒ Very high cost reduction potential thanks to unique cooperation of machine manufacturer, research institute and experienced manufacturer
- ⇒ Joint roadmap for cost reduction and increase of efficiency

## Competitive advantage – Technology



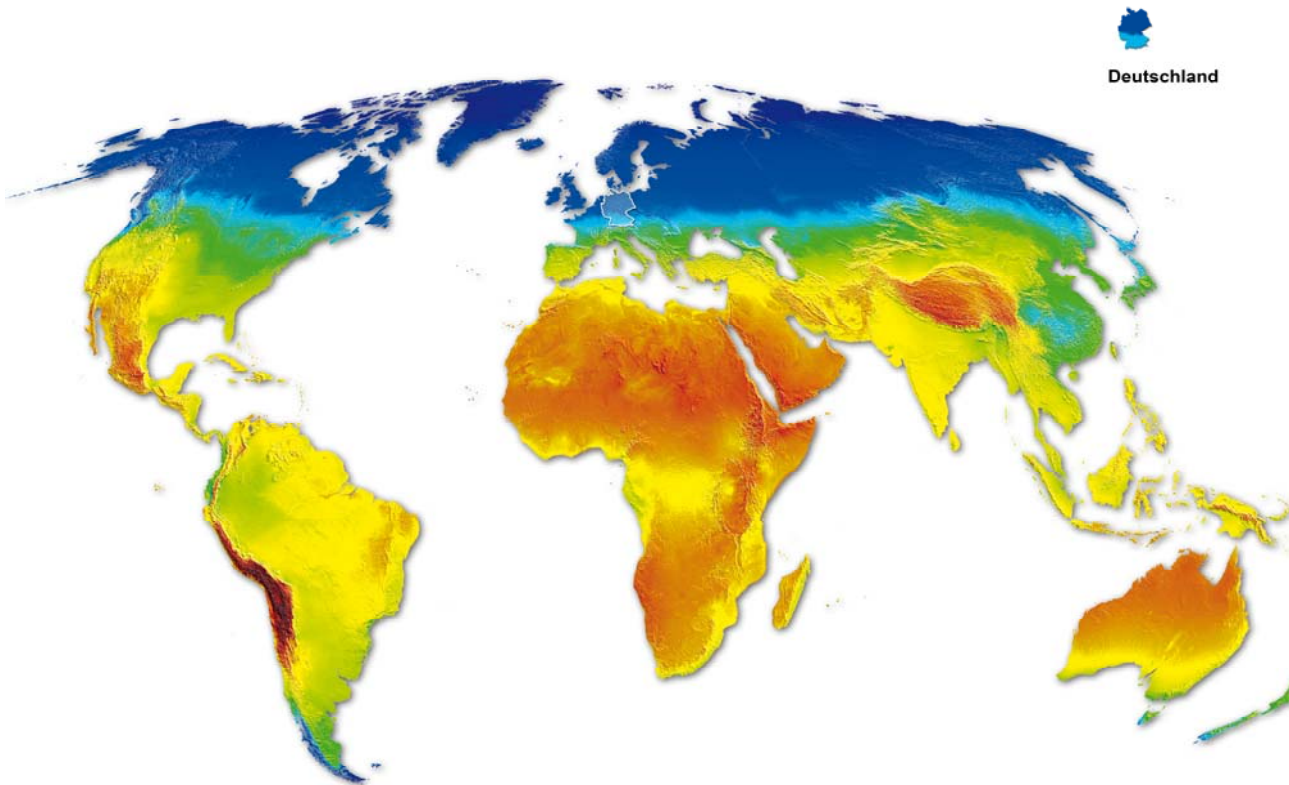
- ⇒ Greatest investment security with thin-film factories due to highest potential degree of efficiency and believable technology and cost roadmap
- ⇒ Exclusive access to research results of the ZSW.  
With 20.1%, the ZSW holds the world record for efficiency for all thin-film technologies
- ⇒ ZSW has complete small format and 30x30 cm pilot lines and employs the world's leading research experts in the CIGS sector
- ⇒ Use of the Würth Solar 30MW line for further development
- ⇒ Manz is the sole supplier of integrated CIGS production lines with cadmium-free CIGS manufacturing process

## Competitive advantage – Risk minimization



- ⇒ Support of Würth Solar for the planning, execution, and start-up of the CIGSfab (20 person-years included in the contract)
  - ⇒ Manz is the only company that can assure “bankable products“
  - ⇒ Würth Solar has the largest installed base of all CIGS manufacturers worldwide
  - ⇒ As the world’s only manufacturer, Manz can also offer Würth Solar as a potential customer
  - ⇒ Customers can convince themselves about the technology in the Würth Solar 30 MW CIGS reference factory
- >> The technology of the CIGSfab offered by Manz really exists – it is not just a vision!**

# Market potential



⇒ Today, solar energy contributes less than 0.1% to the global energy supply

⇒ In Germany, the share is approx. 1%

⇒ More than 50% of the solar modules used are installed in Germany

>> Large parts of the earth with significantly higher solar radiation are hardly using photovoltaics due to the high costs

>> Enormous potential for cost-effective CIGS technology

# Manz CIGSfab – Summary and outlook



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Expansion of the business model is a milestone in company development for Manz

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Through licensing of the Würth Solar know-how and patents, there is a great chance to become the world's leading supplier of turn-key production lines for thin-film solar modules

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Thanks to the cooperation, there is a combination unique in the world of CIGS expertise in research, production and equipment technology

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CIGS as the PV technology with the highest potential for cost reduction will develop further quickly and can be used economically to the greatest extent

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**>> Manz CIGSfab – enabling CIGS mass production!**