



SMART SOLUTIONS TO DRIVE THE FUTURE

SINGULUS TECHNOLOGIES AG

November 2009

SINGULUS 

Agenda

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Overview

Financials

Optical Disc

Solar



Milestones

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- 1995 Start of SINGULUS TECHNOLOGIES AG
- 1996 Introduction of CD Inline systems in Optical Disc industry
- 1997 Introduction of DVD inline replication system
- 2001/2002 Acquisition of injection molding and 1st mastering
- 2004 2nd Mastering acquisition
- 2006 Take over of majority share in largest competitor HamaTech
- 2007 Acquisition of STANGL to enter the Solar Equipment market
First revenues in Blu-ray replication lines
- 2008 Acquisition of Blu-ray business from Oerlikon
- 2009 First shipments of BLULINE II to Japan and Brazil
4x Recordable Blu-ray Disc produced on SINGULUS BLULINE obtained the Verification by the Blu-ray Disc Association.
First shipment of SINGULAR for Solar Cell - AR Coating
First shipment of LINEA Wet Cleaning System for Solar Cell

- Global economic environment in 2009 will postpone the return to business growth into 2010
- Evident growth potential in Optical Disc markets for Blu-ray
- Evident growth potential in Photovoltaic markets for Silicon cells and Thin Film cells
- SINGULUS and STANGL will jointly develop and supply systems and processes for solar cell production
 - Silicon cells
 - Thin Film cells

Mid-Term Goals Optical Disc

- Leading Optical Disc equipment manufacturer worldwide
- Overcome entrance barrier into Sony
- Follow Blu-ray development up to 100 Gbyte (R & D activities for 1000 Gbyte)

Mid-Term Goals Solar

- Leading supplier of production equipment for silicon and thin film cells
- Enabler of mass production of new cell designs and manufacturing processes by lower cost of ownership and capital expenditures
- Innovative approach to reach “grid parity” as fast as possible
- Global presence in all relevant markets

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No Cash impact

All positions in the company have been reviewed in detail and necessary adjustments and write-offs have been made in Q3/2009:

- The difficult situation in the optical disc sector has increasingly deteriorated due to the global economic and financial crisis.
- Restrained investment spending in the past twelve months, combined with declined creditworthiness of individual customers
- Negative impacts on the valuation of our receivables and inventories.
- All assets were analyzed with respect to an impairment review in the course of a fair value assessment.
 - The assets of HamaTech APE have been reduced in the balance sheet due to a revaluation of the business activities.
 - The intangible assets from the Oerlikon acquisition in 2008 have been written off by around 50 %.

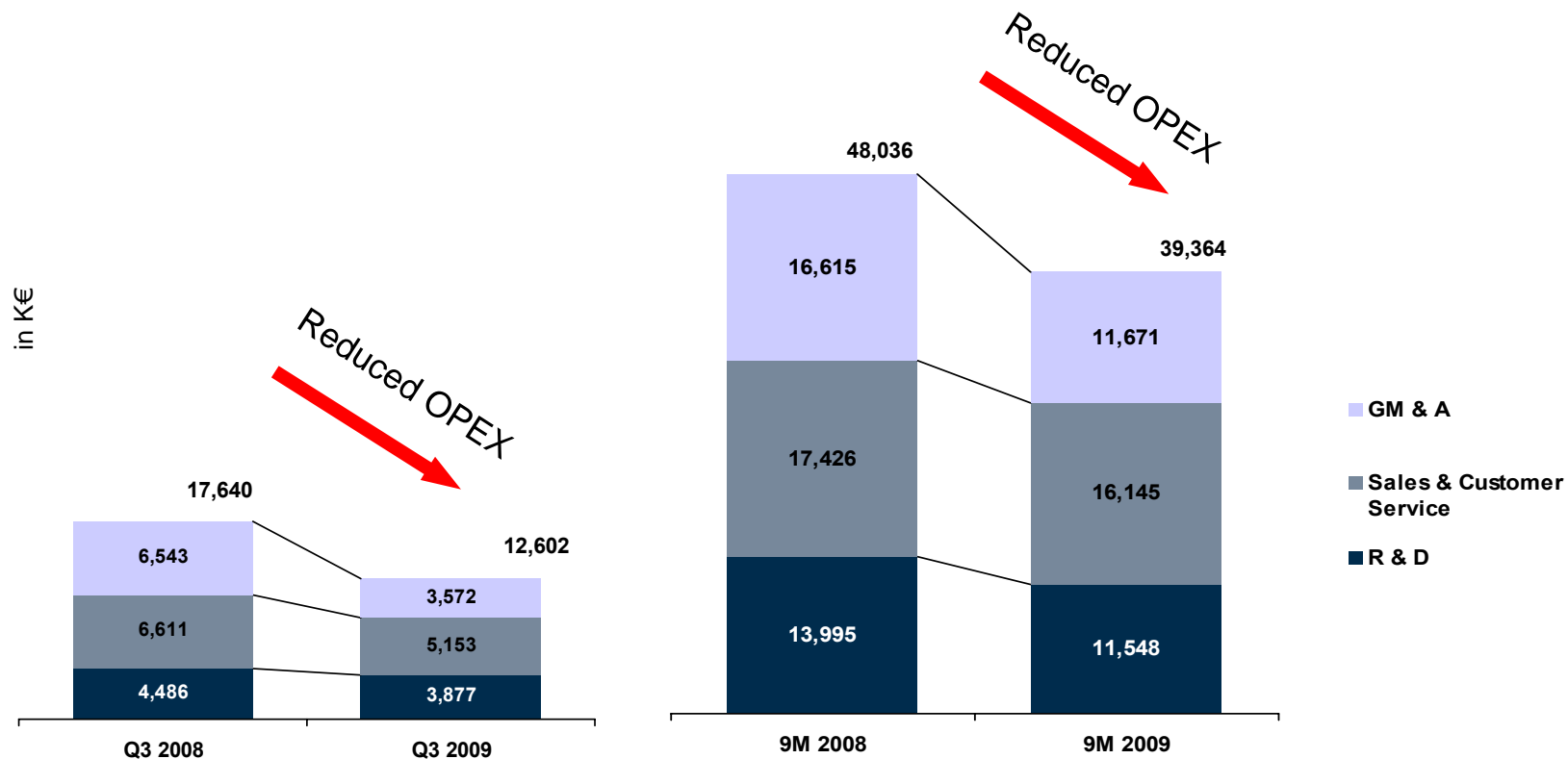
One Time Write-Offs

No Cash impact

One time write-offs:

• HamaTech APE	€ 8.6 million
• Oerlikon Blu-ray	€ 9.5 million
• Account receivables	€ 7.5 million
• Inventories	€ 11.8 million
	<hr/>
Total	€ 37.4 million

Restructuring Effects with Positive Impact for the Future



Employees

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	Q3/2008	Q3/2009	Δ
HamaTech APE	105	77	-28
STANGL	159	175	+16
SINGULUS	500	381	-119
SINGULUS Group	764	633	-131
Domestic	497	461	-36
Abroad	267	172	-95

Key Figures – 9 Months

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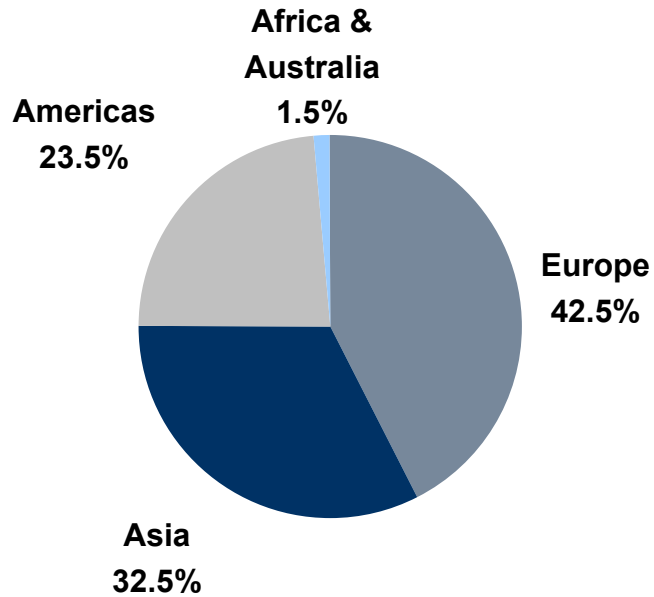
in million €	2007	2008	2009
Gross Revenue	170.2	149.9	95.9
Order Intake	167.6	197.5	56.0
Order Backlog (30.09.)	78.9	103.4	30.3
EBIT	0.8	-40.7*	-53.3*
Profit Before Tax	1.2	-44.2	-57.8
Net Income	1.2	-39.5	-55.4
Operating-Cashflow	23.6	0.2	-1.7
Shareholders' Equity	293.5	253.8	188.7
Balance Sheet Total	460.6	453.3	335.9
R&D Expenditures	17.6	15.6	8.0
Employees (30.09.)	762	764	633
Weighted Average Shares Basic	34,964,201	36,946,407	37,232,752
EPS, Basic (in €)	0.00	-1.11	-1.49

* The EBIT before the consideration of restructuring charges in the first 9 months of 2009 was negative at € -13.9 million (previous year: € -11.7 million)

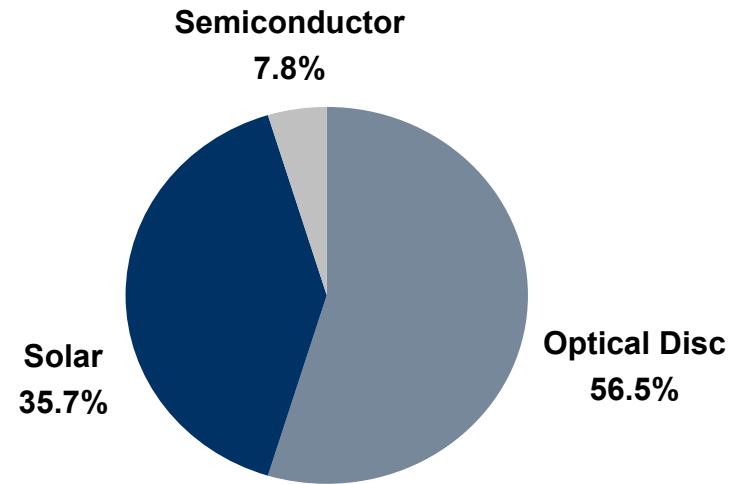
Sales Split – 9 Months

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... by Region 2009



... by Product



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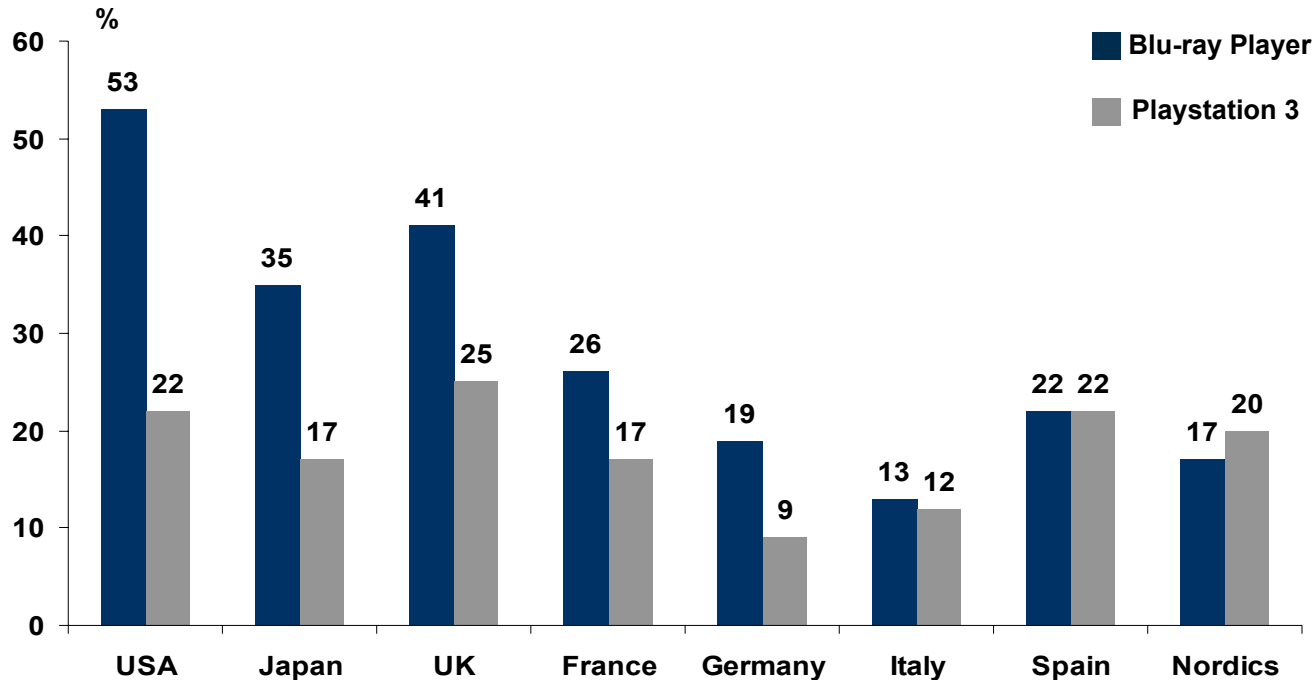
Optical Disc

Solar



Optical Disc: Expected Household Penetration by Blu-ray Players 2012

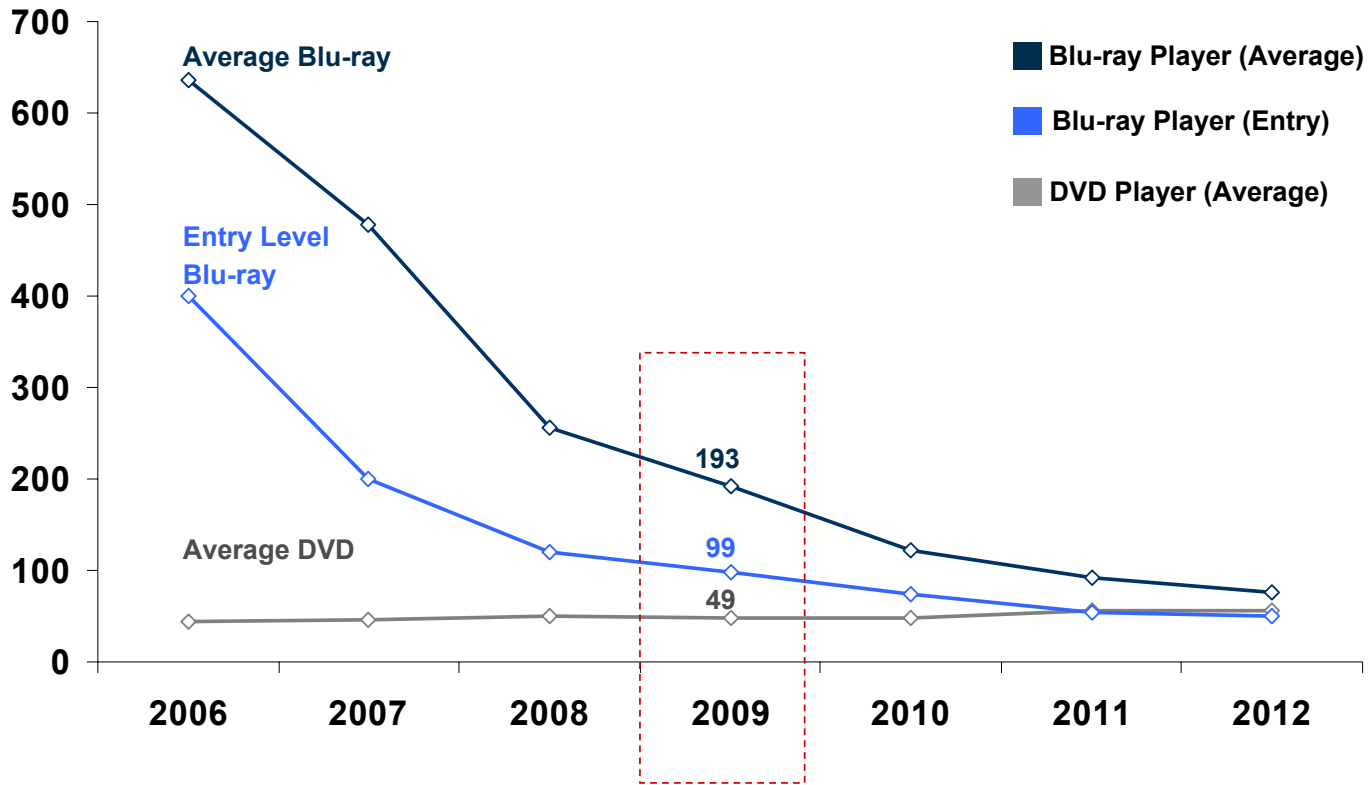
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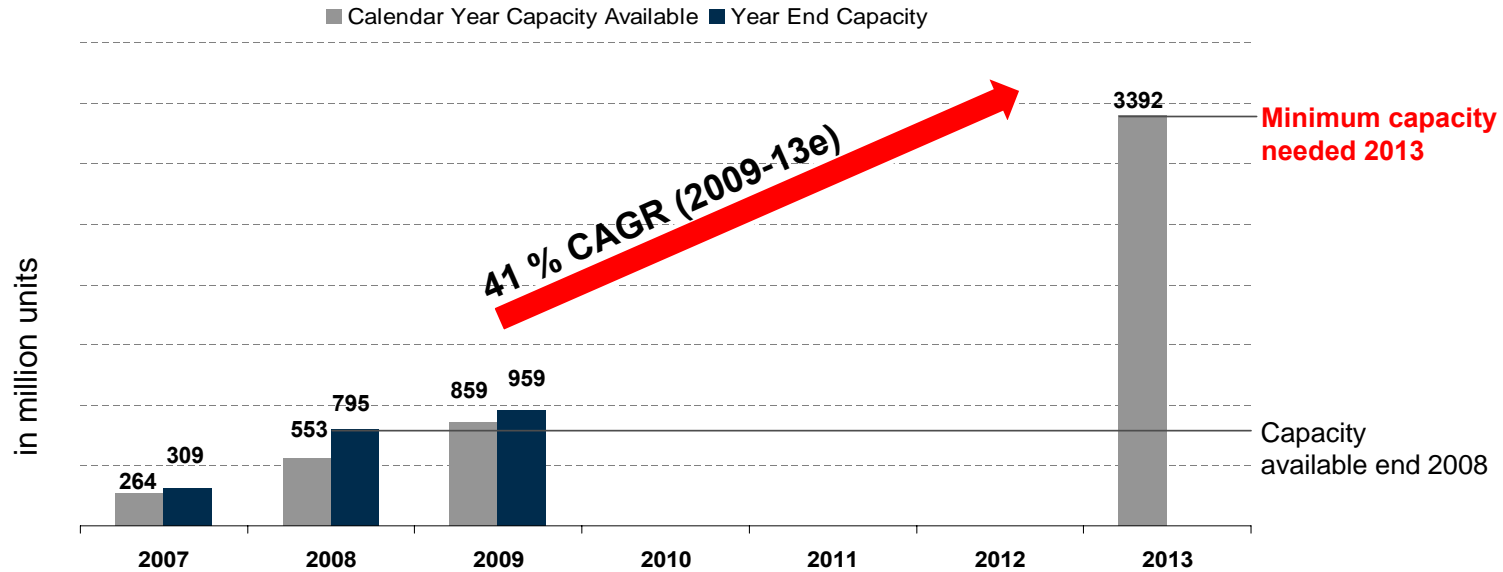
Source: Futuresource Consulting, July 2009

Optical Disc: Hardware Prices USA

Retail prices (USD)



Optical Disc: Minimum Future BD Pressing Capacity Requirements Worldwide



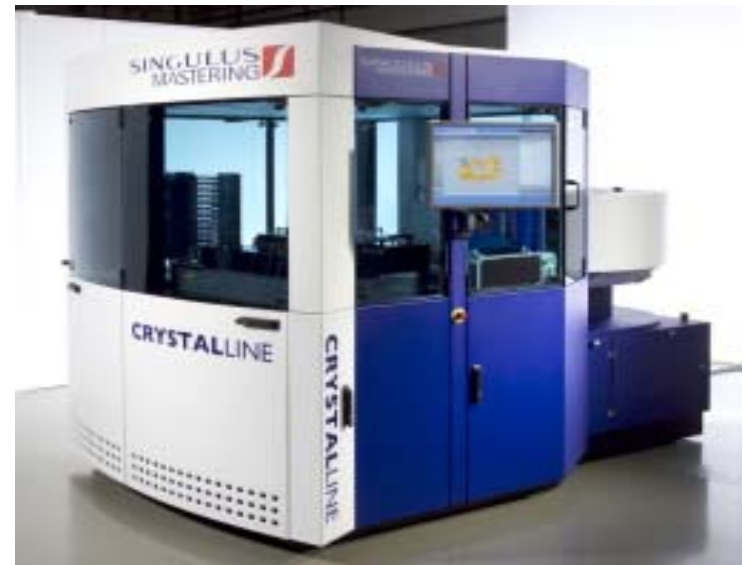
Optical Disc: Mastering System CRYSTALLINE for Blu-ray

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High Margin Product

- Unique Phase Change Technology
- No competitor (except Sony)
- Accepted for Blu-ray Single & Dual Layer

CRYSTALLINE



Optical Disc: Replication System BLULINE II for Blu-ray Single and Dual Layer

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High Margin Product

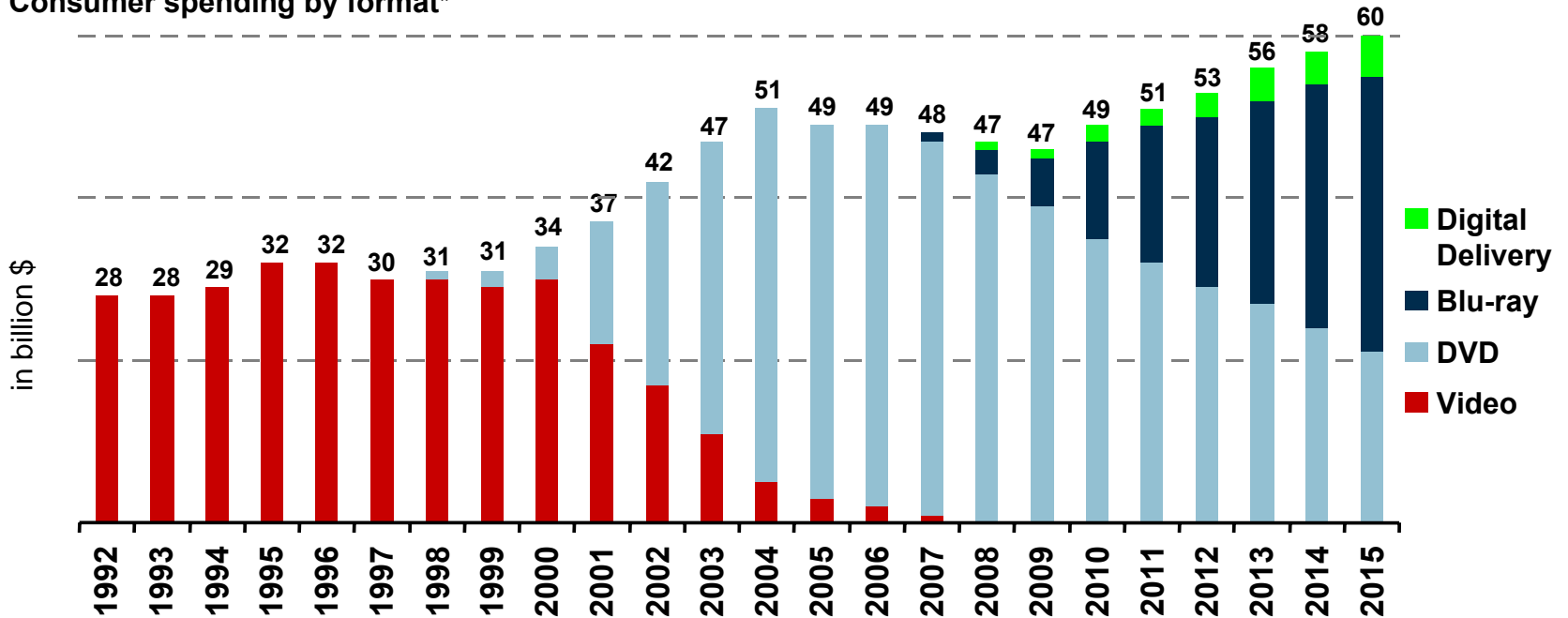
- Best of class
- Market share 90 % (without Sony)
- Excellent equipment performance

BLULINE II



Optical Disc Innovative Formats Like Blu-ray and Digital Will Grow Global Spending to \$60B+

Consumer spending by format*



*Rental and sell-through (excluding EST rental)

Blu-Ray will be the Future Format in Home Entertainment

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- Blu-ray format adopted worldwide
- 10 % European homes until today
- 20 % of European homes until end 2011
- Low cost players available
- More than 1,500 BD titles available
- HDTV will be the standard for Home Entertainment
- Half of 2009 BD player sales expected in Q4
- Packaged media DVD + Blu-ray generate higher revenues for Hollywood studios than movie theaters – more than 50 % of total revenues

Increased availability

Enhanced home entertainment

BD innovation

Blu-ray – the Driver of Future Growth

- 25 GB
- 50 GB

- ➔ Games
- ➔ High resolution movies
1080 x 1920 pixels

Future upside for BD Technology

- Capacity up to 100 GB by triple layer
- Capacity up to 1000 GB by multiple layer

- ➔ Future applications
- ➔ - New 3 D movies in HD quality
- ➔ - "Super Hi-Vision" technology
- ➔ - Professional storage

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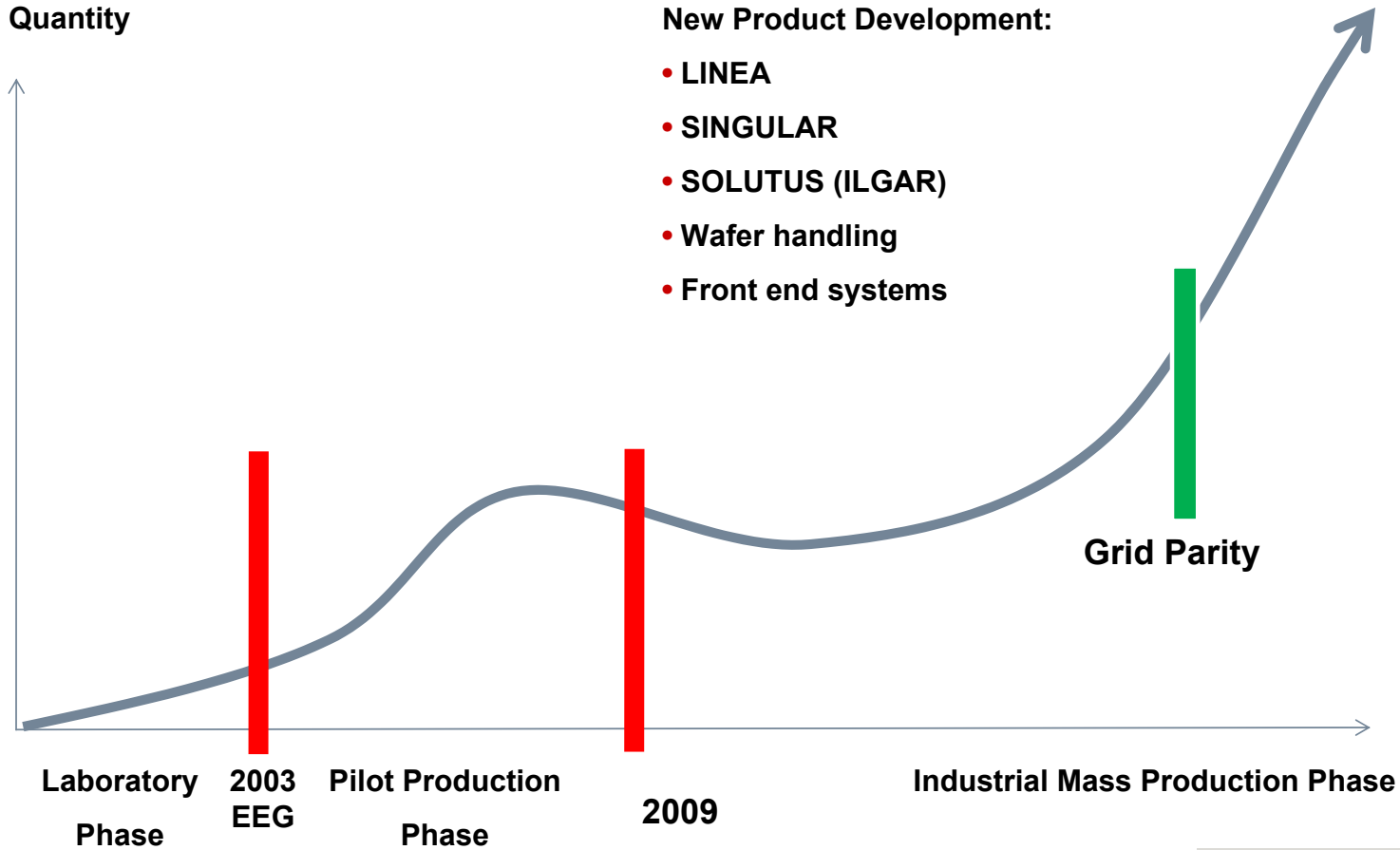
Optical Disc

Solar



Solar: Growth Market with New Machine Concepts for the Future

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Solar: Market Development for Cells and Panels

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Up to 2008

- Higher demand than supply
- Fast growing market
- High margin business

2009

- Higher supply than demand
- Market prices declining
- Lower margins vs. the past
- Change from seller market to buyer market

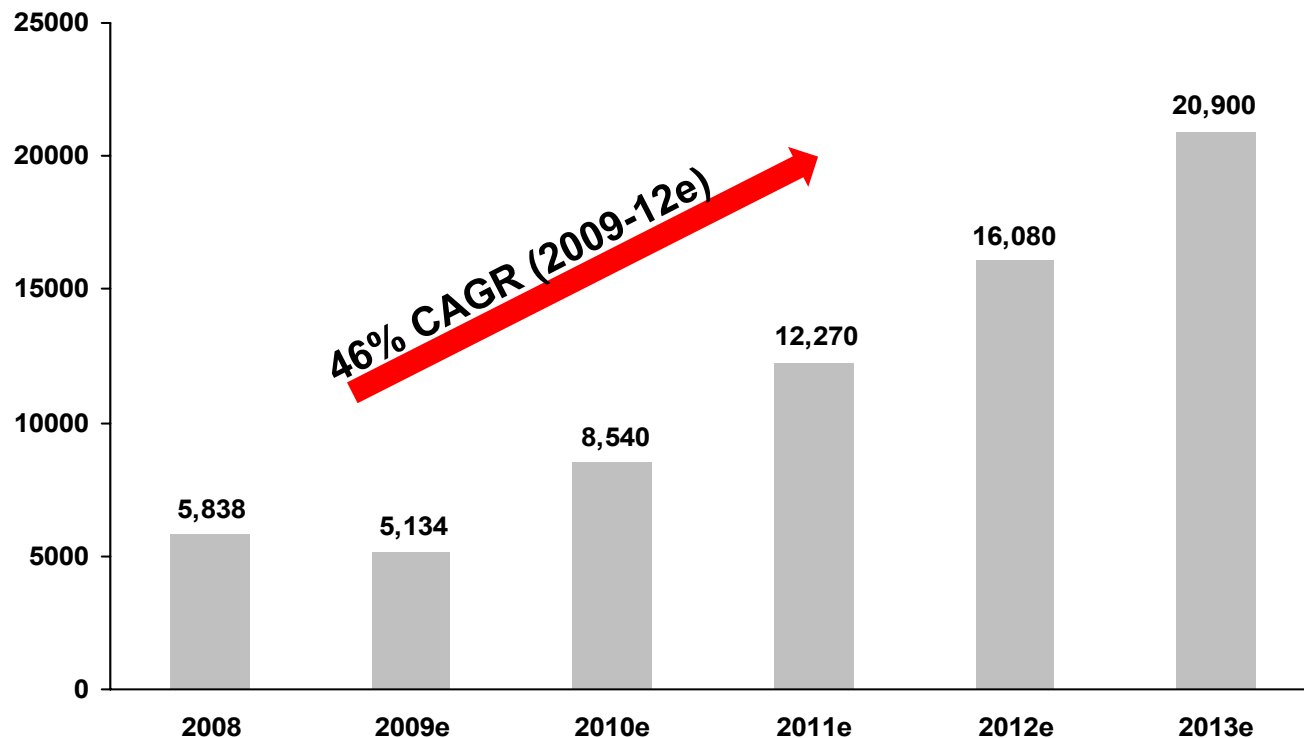
2010 and later

- Growing market long term with higher supply than demand
- Market will remain buyer market
- Price pressure will call for innovation and standardization
- New designs of cells and panels
- New manufacturing processes and new designs of equipment for lower cost of ownership and lower capex

PV Solar Installations

Growing at 46% CAGR (2009-12e)

Global Installations p.a. (MWp)





Silicon Solar Technology

Process Equipment for Silicon Solar Technology

STANGL provides completely automated solutions for poly silicon etching as well as treatment for Si wafers & cells in standard and high-efficient production lines. SINGULUS has developed an AR coating system which meets the demands for both current and future PV cell designs.



Thin-Film Solar on Glass

Process Equipment for Photovoltaic Thin-Film Cells on Glass

STANGL provides high-tech systems which are used for fully-automated coating processes of the single-sided wet chemical CdS . Dry Process Equipment is ready for market introduction this year.



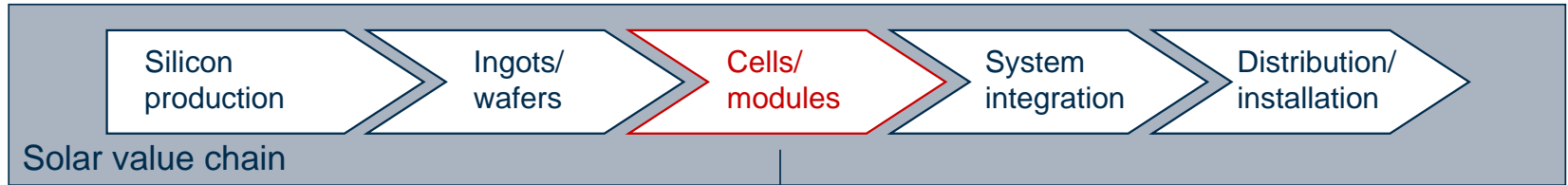
Thin-Film Solar on Flexible Substrates

Process Equipment for Photovoltaic Thin-Film Cells on Flexible Substrates

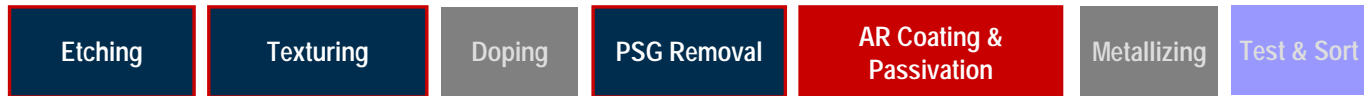
Thin-Film solar cells on flexible substrates are on the advance due to their properties of low weight, high flexibility and low cost of manufacturing compared to silicon based solar cells.

Silicon Solar: SINGULUS/STANGL Proprietary Technologies

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Process
SINGULUS +
STANGL =



Silicon Solar: Portfolio Si Solar Cell Production

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Established Solar Competence
Complementary R&D Activities

MATERIA
Raw Material



GERULUS
Si Block



SILEX
PSG/Texturing



LINEA
PSG/Texturing



SINGULAR
AR Coating



Wafer Handling



Silicon Solar: Wet Processing for Si-Raw Material & Si-Blocks

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MATERIA for Etching, Cleaning & Drying of Polycrystalline Silicon Material



GERULUS for Precleaning & Deglueing of Wafer Blocks



Silicon Solar: Automated Wafer Handling

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Automated Loading, Unloading & Transfer System for Si Wafer

- Fully automated system for loading/unloading and transfer of solar cells
- Automated handling system between LINEA and SINGULAR
- Transfer capability: 3600 wafer /hour

Wafer Handling



Silicon Solar: Wet Processing Equipment

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Inline Texturing & PSG Removal of Cells

- For Si wafer & Si cell production
- Inline machines for wafer-cleaning /
texturing and PSG-removal

LINEA



Silicon Solar: SINGULAR Modular Inline AR Coating System

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Advanced AR Layer Deposition

- Inline concept for high throughput
- Fully automated system “Single Cell”
- Coating of anti-reflective and passivation layer on silicon cells
- High quality coatings for high performance cells

SINGULAR



Established Solar Competence
Complementary R&D Activities

**TENUIS
Glass**

**VITRUM Inline
Glass**

**IMPEDIO
Foil**

NEW

**SOLUTUS
ILGAR-Process**



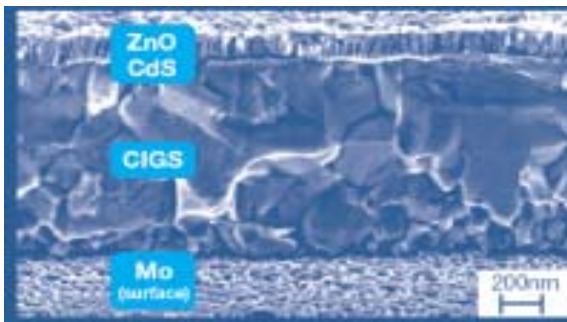
Thin Film Solar: Wet Processing on Glass

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TENUIS

- Economic processing of CdS buffer layers for CIS Cells
- Uptime > 98 %
- High throughput

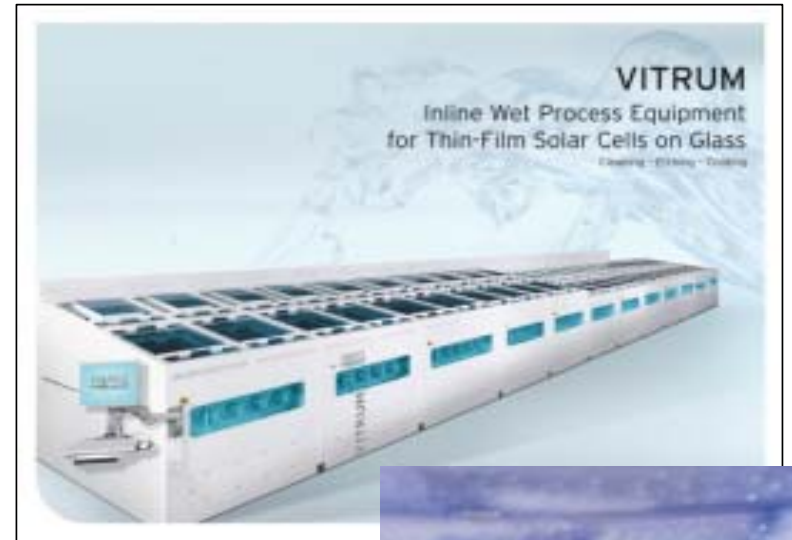
Thin-Film Solar Cells on Glass



VITRUM – Inline

- For all thin-film applications
- Cleaning – etching – coating
- Uptime > 98 %
- High throughput

Thin-Film Solar Cells on Glass



VITRUM
Inline Wet Process Equipment
for Thin-Film Solar Cells on Glass
Cleaning - Etching - Coating



Thin Film Solar: Wet Processing on Flexible Substrates

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Coating, cleaning and etching for Flexible Substrates

- Efficient process for coating, cleaning and etching
- Roll to roll
- Uptime > 98 %
- High throughput

IMPEDIO



Thin Film Solar: Innovative Approach – ILGAR Cadmium-Free Buffer Layer

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Coating, cleaning and etching

- Increasing market demand for thin-film technology
- Strong market demand for innovation “ILGAR” - Ion Layer Gas Reaction Process for cadmium-free buffer layer to substitute toxic materials
- First R&D Project with key costumers

SOLUTUS



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