New technologies to increase competitiveness of the steel industry

Dr. Kay Mayland
President & CEO
SMS Siemag AG
Technological challenge: final product

In the past …

… today

- High-strength steel with good formability
- Tailored steel grades for special purpose
Technological challenge: plants

In the past ...

... today

► Flexible production of different grades
► Greater output and utmost flexibility
Technological challenge: production process

In the past ...

... today

► Reliable and stable production processes
► Rising level of automation
Technological challenge: environment

In the past …

… today

- Legal regulations (emission allowances)
- Cost of raw materials / use of energy / CO₂ emissions
## Market trends

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Energy and environment

Eco mode to save energy

Energy recovery by steam generation

Energy from hot slabs or coils

Water treatment plants
Energy and environment – Steam generation plants

Customer project: Fuxin Special Steel, China
Commissioning: 2012
Energy recovery plant for EAF and AOD

Saturated steam 36 tons per hour

- Power generation
- Pumps in VD plant
- Air conditioning
- Steam network

Energy recovery by steam generation
Efficient processes – Vacuum converter

- Combination of converter and vacuum technology
- Decarburization and degassing under vacuum in the converter
- One cart for both hoods
- Reduction of 'total cost of ownership'
Innovative technologies – Revolutionary casting process

- Revolutionary casting technology
- New special steel grades
- Reduction of weight and CO₂ emissions
- Co-operation with Salzgitter Flachstahl GmbH

Belt Casting Technology (BCT®)
Near net-shape casting

100 mm
Innovative technologies – Ultra-thick slab casting

Market: new sizes and qualities

- Quality A
- Quality B

World record: 450 mm

DILLINGER HÜTTE

- 1 x 2-strand vertical solid bending
- 1,400 – 2,200 mm
- 230 – 350, 400, 450 mm
- 1.4 million t/year
Flexible concepts – CSP® Flex

**CSP® Flex**
Flexible plant concept
Ready for later technological upgrade

**Current status**
Output more than 3 million tons per year
Diversified product spectrum

**Benefit from flexibility**
Extension of product mix
(e.g. API up to 18 mm)

Vario mill with pre-leveler and interstand induction heating device
Innovation needs pioneers

Sanzhong Wang
Metallurgist Caster Project
Anyang Iron & Steel, China

Oliver Wiens
Specialist Commissioning
SMS Siemag, Germany

Members of project team after realization of the widest slab caster worldwide
What does SMS stand for?

- Complete process chain
- Outstanding reference situation
- Global presence and local focus
- Know-how and qualification
- Innovation
- Spirit of a family-owned enterprise
SMS group: full-range supplier of equipment and technology
### SMS group: outstanding references for all process steps

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<td>Steelmaking</td>
<td>&gt; 2,000</td>
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<tr>
<td>Continuous Casting</td>
<td>&gt; 950</td>
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<tr>
<td>Hot Rolling</td>
<td>&gt; 1,300</td>
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<td>Cold Rolling</td>
<td>&gt; 500</td>
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<tr>
<td>Strip Processing</td>
<td>&gt; 350</td>
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<td>Tubes</td>
<td>&gt; 2,000</td>
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<td>Long Products</td>
<td>&gt; 640</td>
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<tr>
<td>Pressing and Forging</td>
<td>&gt; 4,000</td>
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<td>Induction and Electro Heating</td>
<td>&gt; 4,750</td>
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<tr>
<td>Metals Logistic Systems</td>
<td>&gt; 500</td>
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</table>
„Made in Germany“

In the past …

... today

► Manufacturing of core components
► Most modern heavy machinery workshop in Europe
Highly qualified and motivated employees

In the past …

… today

- Skilled staff: high quality of education
- Various offers for continuous and further training in the company
Inspired teams create innovations

In the past ...

► Construction and engineering expertise
► Latest tools for simulation and virtual engineering

... today