The European Foundry Industry

IFF 2012 - Prague

CAEF - The European Foundry Association
The European Foundry Industry
Structure, Trends and SWOT Analysis

IFF 2012 - Prague

CAEF - The European Foundry Association
European Foundry Industry Key Figures 2011

Production:
- 15.7 m t
  Fe: 12.2 m t; NF: 3.5 m t

Value:
- approx. 41 bn €
  Fe: 21 bn €; NF: 20 bn €

Employees:
- 280,400 employees
  Fe: 169,600; NF: 110,800

Foundries:
- 4,998 foundries
  Fe: 2,102; NF: 2,896

Source: CAEF
Casting Production Main Regions

Source: CAEF, moderncasting, national associations, Data 2010
European Foundry Industry Fe-Castings – Second Worldwide

Impact of 2008/2009

Source: CAEF (2000 incl. Turkey), moderncasting, national associations
European Foundry Industry NF-Castings – Second Worldwide

Impact of 2008/2009

Source: CAEF (2000 incl. Turkey), moderncasting, national associations
European Foundry Industry: Materials

- Grey Cast Iron: 41.4%
- Ductile Cast Iron: 32.9%
- Steel Castings: 6.2%
- Copper Castings: 1.7%
- Magnesium: 0.2%
- Aluminium: 16.3%
- Zinc: 1.3%

Source: CAEF
Europe: Ferrous Castings 2010/2011 (sorted by 2010)

Production volume 2011
12.231 million tons
+ 9.3 %

Source: CAEF
Europe: Non Ferrous Castings 2010/2011 (sorted by 2010)

Production volume 2011
3.545 million tons
+ 9.2 %

Source: CAEF
CAEF Number of Ferrous Foundries and Employment

Foundries 2011:2009 = - 4.4%

Employees 2011:2009 = + 4.9%

Driven by automotive platform strategies and similar components:
bigger units to manage high volume series

Source: CAEF
CAEF Number of Non-Ferrous Foundries and Employment

Foundries 2011:2009 = + 5.2 %

Employees 2011:2009 = + 6.7 %

Driven by automotive lightweight trends

Source: CAEF
Productivity in the European Foundry Industry 2011

- Ferrous castings:
  Average performance 55 tons per employee with a range up to 103 tons

- Non-ferrous castings:
  Average performance 22 tons per employee with a range up to 65 tons

- Sample company
  Turnover 170,000 Euro per employee
  Amount of material used 90,000 Euro per employee
  Gross profit 80,000 Euro per employee

Source: estimation by CAEF and BDG
Export quota European Foundry Industry 2011

- Export quota total (including deliveries inside Euro area) 37 %
- Export quota Euro area 23 %
- Export quota outside Euro area 14 %
- = castings are produced where castings are needed: 86 % delivered directly within the Euro area!

The end use of European castings is all over the world!

Source: estimation by CAEF
Economic Status, Early Indicators and Driving Forces
World Economic Climate August 2012

**Upswing**
- Recovery / Expansion
  - Present economic situation: *improvement*
  - Economic expectations: *improvement*

**Boom**
- Consolidated Upturn / Peak
  - Present economic situation: *good*
  - Economic expectations: *optimistic*

**Through / Late Phase of Downturn**
- Present economic situation: *deterioration*
- Economic expectations: *cautious*

**Recession**
- Present economic situation: *deterioration*
- Economic expectations: *deterioration*

**Cooling-down / Contraction**
- Present economic situation: *satisfactory*
- Economic expectations: *deterioration*

**Downswing**
- Present economic situation: *good*
- Economic expectations: *improvement*

Source: Ifo-Institut, München

**Economic expectations for the next six months**

- US Sub-prime credit crisis

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EU Gross Domestic Product Quarter over Quarter

Source: Eurostat, forecast 3Q 12 – 4Q 13 Dekabank
EU Gross Domestic Product Quarter over Quarter

Source: Eurostat, forecast 3Q 12 – 4Q 13 Dekabank
Euro Area Purchasing Manager Index (PMI) Sept. 2012 Industry Bottom Out?

Source: Markit, Deka
FISI – European Foundry Industry Sentiment Indicator
August 2012 – Expectations for the next half year

Source CAEF, Index May 2007 = 100
Typical Customer Structure for Castings in %: Importance of Vehicle Industry

Share varies between 80% and 37%
Automotive Supply Current Status

• Heterogeneous situation in Europe – the OEMs in the south are suffering whereas others acting stable or dynamic

• Commercial vehicles recovering only outside of Europe

• Two major trends (IFF 2010) are continuing
  – Market saturation in the Triad
  – Climate policy

• Innovative castings and light weight are a relevant contribution to the energy and CO2 efficiency of products!
## Automotive Global Market Production Forecast 2013

<table>
<thead>
<tr>
<th>Region</th>
<th>2010</th>
<th>2011</th>
<th>2012E</th>
<th>2013E</th>
<th>2013 Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Sales (SAAR)</td>
<td>11.6</td>
<td>12.7</td>
<td>14.2</td>
<td>15.0</td>
<td>+4.8%</td>
</tr>
<tr>
<td>NA Production</td>
<td>11.9</td>
<td>13.0</td>
<td>14.5</td>
<td>15.2</td>
<td>+0.7%</td>
</tr>
<tr>
<td><strong>Europe (E27)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>15.3</td>
<td>15.1</td>
<td>14.2</td>
<td>14.9</td>
<td>+7.0%</td>
</tr>
<tr>
<td>Production</td>
<td>18.6</td>
<td>19.6</td>
<td>18.6</td>
<td>18.8</td>
<td>+1.4%</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Sales</td>
<td>14.2</td>
<td>15.1</td>
<td>15.5</td>
<td>16.6</td>
<td>+7.0%</td>
</tr>
<tr>
<td>Japan Production</td>
<td>9.3</td>
<td>8.0</td>
<td>9.5</td>
<td>9.6</td>
<td>+1.4%</td>
</tr>
<tr>
<td>Korea Production</td>
<td>4.1</td>
<td>4.5</td>
<td>4.7</td>
<td>4.9</td>
<td>+3.0%</td>
</tr>
<tr>
<td><strong>Other Regions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil Production</td>
<td>3.4</td>
<td>3.1</td>
<td>3.1</td>
<td>3.3</td>
<td>+6.0%</td>
</tr>
<tr>
<td>India Production</td>
<td>3.2</td>
<td>3.6</td>
<td>3.7</td>
<td>3.9</td>
<td>+5.0%</td>
</tr>
<tr>
<td>&quot;Global&quot; Production</td>
<td>64.2</td>
<td>66.2</td>
<td>68.8</td>
<td>71.7</td>
<td>+4.3%</td>
</tr>
</tbody>
</table>

Source: JD Power, WARD’s Automotive, BAIRD
Automotive Global Market
Key Drivers

• Europe: Already high efficiency means key drivers are incremental changes and electrification

• US: 2016 targets achievable with current technologies; 2025 targets require change in fleet mix, smaller engines and Evs

• China: Adopting EU standards with a lag; aggressively pursuing “low-cost” electrification

• ROW: Most regions adopting EU standards with a lag

• Suppliers: Consumption and efficiency are the permanent challenge

Source: JD Power, WARD´s Automotive, BAIRD
## Commercial Vehicles – Global Market Production Forecast 2013

<table>
<thead>
<tr>
<th>Region</th>
<th>2010</th>
<th>2011</th>
<th>2012E</th>
<th>2013E</th>
<th>2013 Change in %</th>
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</thead>
<tbody>
<tr>
<td><strong>North America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl. 8 Orders</td>
<td>181</td>
<td>306</td>
<td>-</td>
<td>-</td>
<td>+3.6%</td>
</tr>
<tr>
<td>Cl. 8 Production</td>
<td>154</td>
<td>255</td>
<td>285</td>
<td>295</td>
<td>+4.7%</td>
</tr>
<tr>
<td><strong>Europe (E27)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registrations</td>
<td>291</td>
<td>341</td>
<td>307</td>
<td>315</td>
<td>+4.7%</td>
</tr>
<tr>
<td>Production</td>
<td>409</td>
<td>512</td>
<td>473</td>
<td>496</td>
<td>+8.0%</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Production</td>
<td>1,486</td>
<td>1,278</td>
<td>1,307</td>
<td>1,411</td>
<td>+8.0%</td>
</tr>
<tr>
<td>Japan Production</td>
<td>360</td>
<td>357</td>
<td>430</td>
<td>430</td>
<td>+0.0%</td>
</tr>
<tr>
<td>Korea Production</td>
<td>154</td>
<td>161</td>
<td>161</td>
<td>165</td>
<td>+3.0%</td>
</tr>
<tr>
<td><strong>Other Regions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil Production</td>
<td>231</td>
<td>255</td>
<td>239</td>
<td>256</td>
<td>+7.0%</td>
</tr>
<tr>
<td>India Production</td>
<td>332</td>
<td>372</td>
<td>385</td>
<td>412</td>
<td>+7.0%</td>
</tr>
<tr>
<td>&quot;Global&quot; Production</td>
<td>3,244</td>
<td>3,356</td>
<td>3,455</td>
<td>3,651</td>
<td>+5.7%</td>
</tr>
</tbody>
</table>

Source: JD Power, WARD´s Automotive, BAIRD
Commercial Vehicles Global Market
Key Drivers

• US: For first time in 30 years, there are no EPA emission standards on the horizon in the US

• China/India: The “westernisation” of fleets in China/India drives content/share growth for western OEMs/suppliers

• Brazil: Secular growth in Brazil economy expected to be driven by World Cup (2014), Olympics (2016)

• Opportunities for suppliers: Powertrain and fuel technologies as well as weight reduction and reduce friction
Typical Customer Structure for Castings in %

Importance of Engineering Industry

Share varies between 86 % and 26 %

Source: BDG
International Engineering Sales Forecast 2012

Change in % against previous year

China
USA
World
Japan
Austria
Germany
Switzerland
France
Denmark
UK
Belgium
Finland
Italy
Netherlands
Portugal
Spain

Source: national Institutes, VDMA

September 2012: upward revision!
Economic Cycle General Engineering: Incoming Orders

Change in % against same quarter of the previous year

Signs of leveling out could lead to a moderate growth in 2013

Source: VDMA, Example Germany (share of 40 % in Europe)
General Engineering - US Wind power could suffer: Impact on heavy weight castings delivered from EU

Costs of electricity generation at current prices

<table>
<thead>
<tr>
<th>Costs (cents per kilowatt-hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New natural gas</td>
</tr>
<tr>
<td>New coal</td>
</tr>
<tr>
<td>New wind + natural gas backup</td>
</tr>
<tr>
<td>New nuclear</td>
</tr>
<tr>
<td>New solar + natural gas backup</td>
</tr>
</tbody>
</table>

Data reflect current prices. Costs include those of building and operating a new power plant and the cost of fuel.

Source: The Hamilton Project (June 2012)
General Engineering Supply
Key Drivers

• General Engineering is a follower of automotive regarding the high demands on foundries

• Western European Engineering OEMs will continue dominating their home markets (at least until 2020)

• Energy efficiency and other "green" concepts are getting more important in developed countries

• Foundries are required to deliver proactive ideas and components to facilitate the customers to reach these targets
Perspectives 2013 for European Foundries

- Passenger cars: In Europe moderate recovery on low level,
  Growth rates in the US and BRICs moderate

  Commercial vehicles: Sales in Europe weak
  Export markets are still alive

- General Engineering: A small increase is possible
  The perspectives are depending from the casting intensity of the subsectors within general engineering.

- All fundamental trends published in „Castings 2020“ are intact.
  Questions are often the unresolved financing issues and the political framework!
Europe = Industrial Base for Foundries
SWOT Analysis

Strengths

• State of the art production technologies lead to high productivity
• Top level energy efficiency (cost awareness and policy driven)
• Top level OEMs and leading engineering customers nearby
• Heterogeneous company structure:
  Foundries as generalists and specialists
  Foundries as hidden champions
• Trend to dual training (company and school) will increase the level of workforce
Europe = Industrial Base for Foundries
SWOT Analysis

Weaknesses

• Suppliers with high dependency on strategical decisions of the customer industries

• Energy intensive production leads to dependency on energy prices (heterogeneous price level within Europe)

• Europe has no significant sources of important raw materials
Europe = Industrial Base for Foundries
SWOT Analysis

Opportunities

• Custom made castings and Customer oriented R & D

• Traditional: Cooperative industrial research between foundries, customers and universities leads to innovative production technologies, energy efficiency and new materials

• More intensive participation within the value chain

• Climate friendly products (e.g. for electrification trends in the vehicle industry and regenerative energy)

• Hybrid materials to fulfil new customer demands (e.g. metal and plastics)
Europe = Industrial Base for Foundries
SWOT Analysis

Threats

• Competition with substitution trends (carbon fiber, new plastics)

• Significant changes in the demand of „traditional“ components (e.g. powertrain)

• Looming shortage of skilled workers and engineers in some countries

• A lot of foundries have to cope with relatively scarce capital but need to innovate: Foundries have to take more and more R & D risks from their customers
Europe = Industrial Base for Foundries
SWOT Analysis

Threats

• Competition with other materials (Carbon for plastics)

• Significant changes in the demand for "traditional" components (e.g. powertrain)

• Looming shortage of skilled workers and engineers in some countries

• Foundries have to cope with relatively scarce capital but need to innovate

• Foundries have to take more and more R & D risks from their customers

A threat is always an opportunity!
If you have any queries please contact!

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