Facts about ABB

- Headquarters: Zurich, Switzerland
- About 105,000 employees in around 100 countries
- Orders in 2005: $23.6 billion
- Revenues in 2005: $22.4 billion
- Listed on Stockholm, Swiss & New York exchanges; traded on virt-x

- A leading power and automation technology company with strong market positions in its core businesses
- Core business organized into 5 divisions:
  - Power Products,
  - Power Systems,
  - Automation Products,
  - Process Automation,
  - Robotics

www.abb.com/robotics
Our offer: divisional structure and portfolio

- **Power Products**
  - Sales: $6.4 billion
  - Transformers, high- and medium-voltage switchgear, breakers, automation relays

- **Power Systems**
  - Sales: $4.0 billion
  - Substations, FACTS, HVDC, HVDC Light, power plant & network automation

- **Automation Products**
  - Sales: $5.9 billion
  - Low-voltage products, drives, motors, power electronics, and instrumentation

- **Process Automation**
  - Sales: $5.0 billion
  - Control systems and application-specific automation solutions for process industries

- **Robotics**
  - Sales: $1.7 billion
  - Robots, peripheral devices and modular manufacturing solutions for industry

- Market-leading positions in most key product areas
- Integrated solutions for grid reliability, productivity and energy efficiency
- Robust global value chain to serve established and emerging markets
- Extensive global network of value-added channel partners

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Robotics division overview

Key deliverables

Products, systems and services for industrial robotics
- Robots, related equipment and software
- Standardized manufacturing cells for material handling, machine tending, welding, cutting, painting, finishing, etc.
- Engineering for turnkey solutions in press automation, body-in-white, paint process automation, power train assembly
- Product, system and asset management services

Markets served

- Automotive and Tier 1 suppliers
- General industries such as foundry, metal fabrication, plastics, electronics, consumer Industries

Over 145,000 ABB robots installed worldwide

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5000 employees

R&D and manufacturing in Sweden, Norway, China

Production capacity 17,000 robots/year

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## Robotics market landscape

- World market $7-9 billion with avg. market growth of 6 - 8%

### Market positions 2005

<table>
<thead>
<tr>
<th>Products</th>
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<tbody>
<tr>
<td>Foundry</td>
<td>ABB</td>
<td>Fanuc</td>
<td>Kuka</td>
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<tr>
<td>Plastics</td>
<td>Fanuc</td>
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<td>Metal Fabrication</td>
<td>Yaskawa</td>
<td>ABB</td>
<td>Fanuc</td>
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<tr>
<td>Consumer</td>
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### Systems

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<td>Paint Automation</td>
<td>Durr</td>
<td>ABB</td>
<td>Fanuc</td>
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<td>Powertrain Assembly</td>
<td>Krause</td>
<td>ABB</td>
<td>Comau</td>
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<td>Body-in-White</td>
<td>Comau</td>
<td>Kuka</td>
<td>ABB</td>
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End markets as percentage of 2005 ABB robotics revenues

Source: ABB, McKinsey, IFR, Company Reports
Robotics is a Growing Industry

The robot market is driven by demands for:

- Increased need for flexibility/variants and volume
- Improved productivity
- Improved Life Cycle Cost
- Improved quality
- Reduced environmental impact
- Improved work environment
Industrial robot market growth (in units)

World total
Quarterly index (1996=100) of orders (in number of units) placed for industrial robots

Sources: United Nations Economic Commission for Europe,
International Federation of Robotics (IFR)

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Partners are a vital part of our capabilities

- Consumer Industry
- Metal Fabrication
- Foundry
- Plastics
- Electronics
- Other

Value-added Partners  ABB

> 80% of general industry via partners
Foundry Robots & Application
Foundry Core Area – **Die Casting**

- Lets robots take care of spraying, insertion and extraction
- Trim press tending
- Cooling & Inspection
- Labeling & Leakage testing
- Incorporate peripheral handling systems in the robot controller
- RobotWareDieCast for easy operation

- Facilitate constant production
- Maximum die life time due to controlled spraying
- Short cycle time
- Track and trace production due to requirements of Automotive industry
- Down stream process
- One common controller
- Flexibility
Foundry Core Area - Sand Casting

- Core processing (handling, gluing, deburring, assembly, coating)
- Moulding
- Ladling
- Decoreing & Cast cleaning
- Premachining
- Mould cleaning

- Facilitate Continuous production flow
- Casting with reproducible result
- Less human exposed to hazardous environment
- Flexible production
- Overall efficiency
- Flexibility

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Foundry Core Area - Forging

- Handling & press tending
- Withstand temperatures up to 1200°C
- Spraying
- Deburring

- Facilitate Continuous production
- Constant quality on high level
- Defined and constant metal structure for the required quality
- Maximize up time
- Extended live time of tooling
- Flexibility
Foundry Core Area - Precision Casting

- Wax model assembly
- Wax model coating
- Model handling
- Remove shell
- Cut & clean castings

- Facilitate Continuous production
- Constant quality on high level
- Maximize up time
- Flexibility
Foundry Segment – From Upstream to Downstream

- Die Casting HP/LP
- Sand Casting
- Precision Casting
- Forging

- Cleaning
- Machining
- Surface treatment
- Quality
- Assembly
Strong Product Portfolio

Track Motion

Robots & Controller

Software Products

RobotWare Die Cast

RobotWare Die Cast

RobotStudio

WebWare

RAB

www.abb.com/robotics
Our excellent **Foundry offer**

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*Track Motions to all sizes*

**www.abb.com/robotics**
Our excellent shelf/wall mounted Foundry offer

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IRB 140
IRB 1600
IRB 4450S
IRB 6650S

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Product Feature - Foundry Plus

FOUNDARY PLUS ROBOTS

Most ABB robots are available in Foundry Plus version:

SMALL AND MEDIUM-SIZED
- IRB 140
- IRB 1600
- IRB 2400
- IRB 4400
- IRB 4450S

LARGE
- IRB 6400R
- IRB 6600
- IRB 6650S
- IRB 7600

FEATURES OF ABB FOUNDARY PLUS OPTION

- Wrist complete protected
- Environment adaption for motors & connectors
- Special sealings & covers
- Protected electronics
- Two component epoxy lack
Foundry Plus for Die-Casting

- **Tightness**
  - Withstand lubricants and coolants
  - Entire robot IP67
  - Corrosion Protected
- **Withstand Aluminum Spits and Flashes**
- **Hot Steam Washable Robot**
- **Spec**: 100 liters of lubricant / cycle

Products available with Foundry Plus
- IRB 140
- IRB 1600
- IRB 2400
- IRB 4400
- IRB 4450S
- IRB 6600
- IRB 6650S
- IRB 7600
- Track Motions

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