ANDRITZ GROUP

Capital Market Day 2017, Graz
Contents

1 Update on business areas

2 Financial performance and targets
Contents

1 Update on business areas
   - HYDRO
   - PULP & PAPER
   - METALS
   - SEPARATION

2 Financial performance and targets
ANDRITZ HYDRO order intake peaked in 2011

Order intake (in MEUR)

CAGR 2006-2012: 12.8%
CAGR 2012-2016: -7.0%

Sales (in MEUR)

CAGR: 2006-2012: 16.1%
CAGR: 2012-2016: -1.2%
HYDRO: sales generation from order backlog

Sales generation from order backlog 2011

- Order Backlog / Sales (MEUR)
- Year: 2011 (3671), 2012 (-1505), 2013 (-918), 2014 (-587)

Expected sales generation from order backlog 2016

- Order Backlog / Sales (MEUR)
- Year: 2016 (3270), 2017 (-1406), 2018 (-916), 2019 (-687)
ANDRITZ’s average world market share at around 23%

Source: ANDRITZ HYDRO project database

China (Harbin, Dongfang, Zhefu, GE, Voith, other Chinese)
Guri I Rehab (Dongfang)
Site C, Saratovskaya 4th package (Voith)
Kafue Gorge Lower, Mangla (GE)
Huanggou (Harbin)
Longtoushan (Zhefu)
Nam Theun 1, Yusufeli, Gouvães (AH)
Global market for electromechanical equipment: market volatility mainly caused by large scale projects

>> Change/reduction of global market volume mainly caused by large-scale hydropower projects > 100 MEUR

>> Excluding large-scale hydropower projects > 100 MEUR, global electromechanical equipment market amounts to 4-5 bn. EUR p.a.

>> Low market share of ANDRITZ in large projects

* bn. EUR
Source: ANDRITZ
1) Average global market volume for electro-mechanical equipment below 100 MEUR per project
Regional split of global hydropower equipment capex

Hydro E&M Equipment Market

Source: ANDRITZ HYDRO project data base
NME: Near Middle East
Regional mismatch of global capex and ANDRITZ orders

ANDRITZ strong in Europe, weak in China

Comparison of regional split:
Global capex vs. ANDRITZ order intake 2016

Source: ANDRITZ HYDRO project data base
NME: Near Middle East
Electricity demand globally and by regions

Source: Enerdata, Global Energy Statistical Yearbook 2017; IEA
Hydropower the key renewable energy source
Split by renewable energy source 2016

Source: Renewables 2017 Global Status Report
Note: Based on renewable generating capacity at year-end 2016
Renewable net additions to capacity by technology (2001-2021E)

- Since 2013, yearly capacity additions for solar and wind have surpassed capacity additions to hydro.
- China, Asia and Latin America will be the most active regions for new hydropower capacities until 2021.

Global grid-connected energy storage capacity by technology 2016

~ 156 GW installed + ~7 GW in 2016

- Electrochemical
  - Lithium-ion, lead-acid, sodium sulphur and sodium nickel chloride batteries
- Thermal Storage
  - mostly molten salt storage at CSP (concentrated solar power) plants
  - Phase change materials
  - Ice storage
  - Thermo-chemical storage
- Electromechanical
  - Pumped hydro (separately shown in this chart)
  - Flywheels
  - Compressed Air
  - Experimental types like gravitational storage

Pumped storage

150 GW

+ 6 GW in 2016

3.1 GW
Thermal storage

1.6 GW
Electrochemical

1.7 GW
Electromechanical

+ 0.2 GW in 2016

+ > 0.1 GW in 2016

+ 0.6 GW in 2016
Global grid-connected energy storage capacity by technology 2016


Source: Renewables 2017 Global Status Report
Global electricity storage investments

(2015; in billion USD)

- **Pumped hydro storage**: 8.3
- **Others**: 1.7
- **Batteries**: 1.0
- **Other storage**: 0.7

**Batteries include**: lithium-ion, lead-acid, nickel-cadmium, redox-flow, sodium-sulphur, other batteries

**Other storage includes**: thermal storage, flywheel, Compressed Air Energy Storage (CAES)

Levelised cost of energy

Hydropower vs. onshore wind power

Global average:

- **Hydropower**
  - 5 $ct/kWh
- **Onshore wind power**
  - 7 $ct/kWh

Hydropower is still the cheapest form of renewable energy

Source: Renewables 2017 Global Status Report
Hydro pumped storage expected to remain dominating

*) IEA 2DS ("Two Degrees") Scenario; energy system deployment pathway and an emissions trajectory to limit the average global temperature increase to 2°C.

Source: IEA, Energy Technology Perspectives 2017
Update on Hydro capacity adjustments and strategy

- Target is to increasingly shift resources China and India to cover and serve growing Asian and Chinese markets locally

- In line with this strategy and based on overall low market activity several capacity adjustment measures have been taken during the last three years

- Total restructuring costs 2014-2016: 23 MEUR

- Reduction of total headcount by approximately 1,000 employees and almost 400 contracted personnel
  - Increase in China and India
  - Reduction in most other countries

- Reduction of direct labour hours by around 10%:
  - Increase India to become by far largest production facility
  - Reduction in other facilities, mainly Sweden, Spain, Switzerland, and Austria

- Additional slight restructuring highly likely in 2017 to further adjust capacities to market conditions
Conclusions regarding hydro (1)

**Market:**
- Declining growth rates in electricity consumption worldwide
- Majority of investments in renewable energies relate to solar and wind

**Still optimistic about future of hydropower:**
- Future availability of cost-competitive sites for onshore wind?
- Closure of nuclear/coal-fired power plants will lead to need for new baseload capacities → chance for hydro?
- High potential for production increases of existing hydropower stations by refurbishments
- Despite sinking costs for battery storage, hydro pumped storage will remain the cheapest form for energy storage
Conclusions regarding hydro (2)

**ANDRITZ:**
- Generally low market share (~15%) in large hydro projects → goal 20%
- Re-entry in China in pumped storage achieved → potential for future orders
- Further growth of pumps business targeted

**Business volume potential for ANDRITZ HYDRO:**
- Average global hydro equipment market: 6,000 MEUR
  - thereof 23% market share ANDRITZ 1,380 MEUR
  - Pumps, Turbogenerators 250 MEUR

Total HYDRO >1.630 MEUR

*plus possible volume* from market share in increase in large projects
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PULP & PAPER

Satisfactory project and investment activity

Modernizations
Satisfactory project and investment activity for modernization/refurbishment projects → change of production from graphic to packaging paper, increase productivity and efficiency
Outlook: Stable +/-

Long-term average growth potential: 2-3% p.a.

Service
Solid market development to continue
Outlook: Slightly up

Competition
Stable competitive environment

Greenfield
Investments in greenfield pulp mills to continue; mid- to long-term good project activity for greenfield pulp mills; most likely no greenfield order to be placed in Brazil in 2017; some mid-sized projects in Russia
Outlook: Stable +

Nonwoven
Continued good project activity.
Outlook: Slightly up

Papermaking fibre consumption growth 2014-2030E

Highest growth rates for BHKP and recovered paper

Source: Pöyry Fibre Outlook up to 2030
Continued market pulp production growth (BHKP, BSKP)

Growth mainly in South America and Europe

CAGR
2016-2031: 2.6%
2001-2015: 2.8%
New pulp line start-ups by region
High investments in Latin America expected

Note: Chemical and mechanical
Source: Pöyry
**Good project pipeline for greenfield pulp mills**

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USA:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUN BIO Arkansas</td>
<td>0.6</td>
<td>2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brazil:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arauco – MAPA</td>
<td>1.6</td>
<td>2021</td>
</tr>
<tr>
<td></td>
<td>Eldorado – Três Lagoas</td>
<td>2.3</td>
<td>2021**</td>
</tr>
<tr>
<td></td>
<td>Veracel – Eunápolis</td>
<td>1.8</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>Braxel – Peixes</td>
<td>2.0</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>CRPE Holding S.A – Ribas do Rio Pardo</td>
<td>2.2</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>Suzano – Imperatriz</td>
<td>1.3</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>Fibria – Aracruz</td>
<td>1.7</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>Eldorado - Três Lagoas</td>
<td>2.3</td>
<td>2022 et seq.</td>
</tr>
<tr>
<td></td>
<td>CMPC Brazil – Pelotas</td>
<td>1.8</td>
<td>2022 et seq.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mozambique:</strong></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Arauco – MAPA</td>
<td>1.6</td>
<td>2021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finland:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finnpulp – Kuopio</td>
<td>1.2</td>
<td>2020</td>
</tr>
<tr>
<td></td>
<td>Kemijärvi</td>
<td>0.4</td>
<td>2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>China:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guangxi Jingui – Qinzhou City</td>
<td>1.2</td>
<td>2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Owner – project</th>
<th>Capacity/a.*</th>
<th>Planned start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russia:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Siberwood</td>
<td>0.9</td>
<td>2019</td>
</tr>
<tr>
<td></td>
<td>Sveza Group</td>
<td>1.2</td>
<td>2020</td>
</tr>
<tr>
<td></td>
<td>Segezha</td>
<td>1.3</td>
<td>2022 et seq.</td>
</tr>
</tbody>
</table>

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* Annual capacity in million tons (may change over time); source: Pöyry. Capacity/year refers to added gross capacity (i.e. relevant as accessible market) without taking into account possible shut-downs of existing capacities
** open after sale to APP Group
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Financial performance and targets
Schuler
Order intake and sales 2012-2016

Order intake (in MEUR)

<table>
<thead>
<tr>
<th>Year</th>
<th>Order Intake (in MEUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12</td>
<td>1,300.9*</td>
</tr>
<tr>
<td>2013</td>
<td>1,039.4**</td>
</tr>
<tr>
<td>2014</td>
<td>1,193.7</td>
</tr>
<tr>
<td>2015</td>
<td>1,015.7</td>
</tr>
<tr>
<td>2016</td>
<td>1,199.5</td>
</tr>
</tbody>
</table>

thereof ~ 290 MEUR service and 85 MEUR tooling

Sales (in MEUR)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (in MEUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12</td>
<td>1,226.1*</td>
</tr>
<tr>
<td>2013</td>
<td>1,164.9**</td>
</tr>
<tr>
<td>2014</td>
<td>1,178.5</td>
</tr>
<tr>
<td>2015</td>
<td>1,200.0</td>
</tr>
<tr>
<td>2016</td>
<td>1,174.2</td>
</tr>
</tbody>
</table>

* 01.10.-30.09.
** Pro forma 1.1.-31.12., first-time consolidation in March 2013
Schuler: automotive accounts for ~80% of the business

<table>
<thead>
<tr>
<th>Year</th>
<th>Press lines, tryout presses</th>
<th>Hydraulic presses, incl. hot forming automotive OEMs and automotive suppliers</th>
<th>Other products, mostly to automotive suppliers</th>
<th>Total</th>
<th>Non-automotive: 20%</th>
<th>Automotive: 80% (968.5 MEUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>255.0</td>
<td>152.2</td>
<td>351.8</td>
<td>759*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>380.1</td>
<td>246.8</td>
<td>365.4</td>
<td>992.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>191.2</td>
<td>245.8</td>
<td>387.0</td>
<td>824</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>268.7</td>
<td>288.1</td>
<td>411.7</td>
<td>968.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Pro forma; first-time consolidation in March 2013

*▲ Production of double parts at an automotive components supplier with a servo press in tie rod design with 16,000 kN press force
Schuler: order intake non-automotive

Coin minting, railways, white goods, etc.

* Pro forma; first time consolidation in March 2013

A wide variety of materials can be processed on the Schuler Blankmaster SAK for the manufacture of blanks for coins or circular blanks for aluminum packaging applications.
Total number of press lines awarded worldwide
2012-2016

Note: total amount of press lines sold in A, B, C segments
Order awards for press lines by German automotive OEMs by region

(in units)

- 2012: 7 awarded to Schuler (5 units in China, 2 units in Rest of the world)
- 2013: 6 awarded to Schuler (2 units in China, 4 units in Rest of the world)
- 2014: 5 awarded to Schuler (1 unit in China, 4 units in Rest of the world)
- 2015: 3 awarded to Schuler (3 units in Rest of the world)
- 2016: 5 awarded to Schuler (2 units in Rest of the world)

Thereof 7 awarded to Schuler
Thereof 6 awarded to Schuler
Thereof 5 awarded to Schuler
Thereof 2 awarded to Schuler
Thereof 3 awarded to Schuler
Development of global market volume for presses
Schuler-Yadon addresses B-segment

CAGR 2016-2020E:
- A-Segment: +3.1%
- B-Segment: +3.2%
- C-Segment: +2.7%

Group companies and addressed target segments:

<table>
<thead>
<tr>
<th>Year</th>
<th>A-Segment</th>
<th>B-Segment</th>
<th>C-Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>4.8</td>
<td>5.4</td>
<td>2.1</td>
</tr>
<tr>
<td>2017E</td>
<td>4.9</td>
<td>5.6</td>
<td>2.2</td>
</tr>
<tr>
<td>2018E</td>
<td>5.1</td>
<td>5.8</td>
<td>2.3</td>
</tr>
<tr>
<td>2019E</td>
<td>5.2</td>
<td>6.0</td>
<td>2.3</td>
</tr>
<tr>
<td>2020E</td>
<td>5.4</td>
<td>6.2</td>
<td>2.3</td>
</tr>
</tbody>
</table>

* bn. EUR

Schuler-Yadon

Light vehicles production (in million units)

Further growth expected until 2021, especially in China

CAGR 2016-2017E  CAGR 2016-2021E

- Americas +1.0% +2.3%
- Europe +2.3% +2.6%
- Asia (ex. China) +4.2% +3.1%
- China +2.6% +5.3%
- Others +8.7% +6.4%

Source: PwC, Autofacts, July 2017
Strong rise of hot forming parts per vehicle expected

**Trend upwards**

- Number of hot forming parts per vehicle will increase from an average of 10 today to more than 30 in 2018.
- OEM experts say that by 2018 up to 600 million parts per year will be needed.
- 1/3 of installed base from Schuler.
Ford USA orders three hydraulic hot stamping lines with PCHflex technology

- In late July 2016, Schuler received an important order from Ford USA, Michigan for three hydraulic hot stamping lines with PCHflex technology incl. automation and furnace.

- **Schuler PCHflex technology** is leading technology for Pressure Controlled Hardening:
  - Improved part quality
  - Short cycle times of up to eight seconds (conventional process: approx. 15 seconds)
  - Precise cooling to achieve special steel characteristics
First order for hot stamping line with PCHflex technology for China

- The Chinese car manufacturer Baowei placed an order with Schuler in July 2016 for a **hydraulic hot stamping line with PCHflex technology** incl. automation.

- Baowei is thus the **first Chinese customer to invest in a hot stamping line with PCHflex technology**

- The line will be supplied to the company’s **Hangzhou (Chongqing) facility** in China. It will be used to produce **hot stamped parts**

- Baowei is a joint venture between Baosteel and Chongqing Pingwei Enterprise

▲ Hydraulic hot stamping line with PCHflex technology
Today’s cars are composed of over 10,000 single parts/component groups

In addition to the items shown in the image, technologies from ANDRITZ and Schuler are also used in production of the following vehicle components:

- **Card body** (tailgate, engine hood, side panels, roof, doors, wheelhouse, rocker)
- **Chassias** (axles, axle shaft, side and cross members, twist beam, wishbone, shock absorbers)
- **Powertrain** (engine cradle, cylinder head gasket, oil and fuel filter, fuel tanks, drive shaft, con rod, rolling elements, prop shafts)
- **Exhaust system** (diesel particulate filter, catalytic converters, muffler)
- **Interior and exterior fittings** (dash panel, airbag material, floor, car mats, rear luggage cover, underseat crossbeam, sunroof, windscreen, door reinforcement)
### Number of component groups in powertrain by type of car

<table>
<thead>
<tr>
<th>Powertrain designs</th>
<th>Component groups</th>
<th>Number of component groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cars with combustion engines</td>
<td>Engine components and gear boxes, gearbox shafts, gear parts, gear transmissions, crank shafts, piston rods, cone gear wheels, toothed wheels, pistons, parts for plate hubs, combustion gas and exhaust systems, axle shafts, drive shafts, stretchers, bevel wheels for differential gears, cone gear wheels</td>
<td>19+</td>
</tr>
<tr>
<td>2. Hybrid</td>
<td>Motor/engine components and gear boxes, gearbox shafts, gear parts, gear transmissions, crank shafts, piston rods, cone gear wheels, toothed wheels, pistons, parts for plate hubs, combustion gas and exhaust systems, axle shafts, drive shafts, stretchers, bevel wheels for differential gears, magnetic sheet steel for electric motors, energy storage systems (battery cells, battery modules, battery connectors, battery packs)</td>
<td>25+</td>
</tr>
<tr>
<td>3. Electric cars</td>
<td>Magnetic sheet steel for electric motors, energy storage systems (battery cells, battery modules, battery connectors, battery packs), axle shafts</td>
<td>6+</td>
</tr>
</tbody>
</table>

**Schuler sales for equipment related to powertrains amounted to ~50 MEUR in 2016**
ANDRITZ furnaces for high-strength steel production
Confidential customer

**Introduction:**

Today the customer does not have a galvanizing furnace which is able to process the AHSS-grades of the 3rd generation with a hot dip coating (Q&P = Quench & Partitioning).

**Technical data:**

<table>
<thead>
<tr>
<th>Scope</th>
<th>Installation of a new ANDRITZ furnace for production of AHSS-grades of the 3rd generation with a hot dip coating (Q&amp;P = Quench and Partitioning) Max. strip temp. at DFF exit: 700°C - 900°C at exit of RTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Strip width: 850 - 1880 mm Strip thickness: 0.6 - 2.1 mm Process section speed max. 180 m/min Non Q&amp;P 120 m/min for Q&amp;P</td>
</tr>
<tr>
<td>Coating:</td>
<td>GI</td>
</tr>
<tr>
<td>Start of operation</td>
<td>5th of January 2018</td>
</tr>
</tbody>
</table>
Schuler technology for laser blanking lines
Mercedes-Benz Kuppenheim

- Lines cut blanks out of a moving sheet metal coil which are then formed into car body parts in further steps.
- As **fiber lasers** are used for the cutting process, no dies are required – in contrast to conventional blanking lines.
- **Product changes without any set-up time** – simply by loading the corresponding cutting program.
- Material can be saved by optimizing nesting

▲ As the Schuler line uses fiber lasers, no dies are required – in contrast to conventional blanking lines.

▲ In modern car manufacturing, as with this Schuler laser blanking line at the Mercedes-Benz plant in Kuppenheim, thousands of high-strength, weight-optimized car body parts are blanked every day out of extremely heavy aluminum coils.
ANDRITZ Soutec

Soutrac welding line for hot stamped door rings
### Technical data: SOUSPEED®

<table>
<thead>
<tr>
<th>Scope</th>
<th>Fully Automatic Laser Welding System:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Dimpling and Blank Turning</td>
<td></td>
</tr>
<tr>
<td>- Gap controlled filler wire</td>
<td></td>
</tr>
<tr>
<td>- 6kW Disk Laser</td>
<td></td>
</tr>
<tr>
<td>- Souvis® 5200 Quality Control System</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>HSS, AHSS, zinc coated, galvannealed Usibor / Ductibor</th>
</tr>
</thead>
</table>

| Line capacity                      | 5 Mio. TWBs p.a.                                       |
|                                    | 30 m/min max. speed in process section                 |

| Dimensions                         | Blank thickness: 0.5 mm – 3.0 mm                        |
|                                    | Blank length: 100 mm – 600 mm                          |

| Start of operation                 | February 2015                                          |

### System highlights:

- Worldwide fastest TWB welding system
- Multi partition pallet system with integrated dimpling and blank turning system
- Maximum possible capacity

▲ SOUSPEED is the high speed laser welding system for Tailored Blanks
Acquisition of Powerlase

- Acquisition of 50.1 percent stake

- Powerlase provides high-energy laser technology for ablation, surface processing, cleaning and processing composite materials in industrial applications with high production speed demands.

- International customers from the photovoltaic, microelectronics, automotive, and aerospace industries.

**Reasons for the acquisition:**

- ANDRITZ Soutec, Switzerland, has been using lasers from Powerlase in its ablation systems for removing coatings from metal, e.g. in the production of tailored welded blanks.

- Potential is anticipated in other fields of business.

**Powerlase**

- Headquarters: Crawley, West Sussex, UK
- Employees: ~ 28
- Annual sales: ~ 2 MEUR
- Assigned to: METALS Processing / Welding & Stamping division
Schuler
First order for new battery business unit

Promising growth opportunities in market for e-mobility

- In November 2016, the Battery business unit from Schuler received its first order from one of the world’s leading battery manufacturers.
- Scope of supply: a complete production line incl. process technology for the manufacture of battery casings for electric vehicles.
- The line consists of two presses as well as peripheral equipment from suppliers (trimmers, washing machine and optical inspection).
- Delivery is planned for late 2017; production is due to be launched in 2018.

▲ Schuler helps to produce prismatic and cylindrical battery cases.
Update on Schuler restructuring program

- **2015:** 78 MEUR provisions for restructuring (thereof 18 MEUR released in 2016) → main focus on reduction of production capacities to avoid cost under-absorption in times of lower order intake
- Closure of inhouse production of Waghäusel and Weingarten
- All cost saving targets reached
- Reduction of headcount of around 650 employees since 2013 (corresponds to -30% of workforce in Germany)
- Reduction of direct labour hours for new machines in Europe from 1.8 to 1.5 million direct labour hours
- Direct labour hours in emerging markets doubled, now around one third of total direct labour hours
Conclusions regarding Schuler

**Market:**
- Continued growth of light-weight vehicles produced
- E-mobility will reduce the total number of car body parts, however very limited impact on Schuler expected
- New steel types require new press and die technologies → opportunity for Schuler

**Schuler:**
- Still too focused on German car manufacturers and their suppliers
- Mid-term strategy:
  - Develop attractive products for Non-German car manufacturers (China, US, Europe)
  - Additional growth from non-automotive products
Update on business areas

- HYDRO
- PULP & PAPER
- METALS
- SEPARATION

Financial performance and targets
SEPARATION
Satisfactory investment and project activity

Municipal
Investment activity at reasonable levels, mainly in developed markets
Outlook: Stable +

Industrial
Reasonable demand in chemicals and mining/minerals; low project activity in food
Outlook: Stable +

Feed and biomass pelleting
Solid project activity
Outlook: Stable +/-

Long-term average growth potential: 2-3% p.a.

Competition
Unchanged market environment with some global and many regional competitors
SEPARATION (1)
Quarterly development of order intake since 2016
SEPARATION (2)
Development of order intake in July and August 2017

(in MEUR)

July/August 2017

SE+FT

SE
SEPARATION (3)

Development of centrifuges sold since 2014

Centrifuges (units)

- 2014: 417 units
- 2015: 457 units
- 2016: 389 units
- H1 2017: 272 units
Launch of several innovative products

**Substantial reduction in power consumption for large decanters**

- Reduction of power consumption of **up to 40%**, achieving a decrease in operating costs and total cost of ownership
- Reduced service costs by enhanced wear protection and so further reduced total cost of ownership
- Achieving same performance with less power consumption
RheoScan - Real time, automatic adjustment of polymer doses

First optical measurement system on the market

- Detects actual sludge viscosity during thickening and dewatering process
- Adjusts the needed polymer dose
- Is compatible with all models of belt filter presses, gravity belt systems and polymer dosing systems

Benefits

- **Cost savings** due to reduction of polymer consumption up to 40%
- **Amortization period** of only a few months
- **Increase of operation stability** and plant reliability
- Operation **without requiring supervision**
## Results H1 2017: Major findings

### ANDRITZ GROUP

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>H1 2017</th>
<th>H1 2016</th>
<th>Change</th>
<th>Q2 2017</th>
<th>Q2 2016</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order intake</td>
<td>MEUR</td>
<td>2,771</td>
<td>2,566</td>
<td>+8%</td>
<td>1,211</td>
<td>1,319</td>
<td>-8%</td>
</tr>
<tr>
<td>Sales</td>
<td>MEUR</td>
<td>2,779</td>
<td>2,761</td>
<td>+1%</td>
<td>1,393</td>
<td>1,476</td>
<td>-6%</td>
</tr>
<tr>
<td>EBITA (%)</td>
<td>MEUR</td>
<td>207 (7.5%)</td>
<td>183 (6.6%)</td>
<td>-</td>
<td>110 (7.9%)</td>
<td>99 (6.7%)</td>
<td>-</td>
</tr>
</tbody>
</table>

### Order intake:
Weak first H1 in METALS and HYDRO, no orders in automotive, no large projects in hydro

### EBITA at 7.5%, without extraordinary items is 6.6%
which is the same level as H1 2016 on a comparable basis

### Rise of order intake and stabilization of profitability in SEPARATION

### Extraordinary profit from the sale of Technical Center in China
Review of past Capital Market Day goals

Sales:
- Share of renewable energy sales >50%
- 2010: 4.0/4.5 bn. EUR
- 2011: 4.0/4.5 bn. EUR
- 2012: 5.0 bn. EUR
- 2013: 5.0 bn. EUR
- 2014: 5.0 bn. EUR
- 2015: 5.0 bn. EUR
- 2016: 5.0 bn. EUR

EBITA margin:
- 7.0% over the cycle
  - Goal achieved in 2010 and 2011: 7.2% in each case
  - Goal almost achieved in 2012: 6.9%
  - Average 2010-2014: 6.2%
  - Regain 7.0% (achieved 2.9%)
  - Regain 7.0% (achieved 6.5%)
  - Regain 7.0% (achieved 6.7%)
  - Regain 7.0% (achieved 7.3%)

Payout ratio:
- 2010: ~50%
- 2011: ~50%
- 2012: ~50%
- 2013: ~78%
- 2014: ~50%
- 2015: ~52%
- 2016: ~56%
Target to continue long-term profitable growth
Goal: further improve profitability with top-line sales growth

<table>
<thead>
<tr>
<th>Period</th>
<th>Sales CAGR:</th>
<th>Sales CAGR:</th>
<th>Sales CAGR:</th>
<th>Sales CAGR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2004</td>
<td>12.1%</td>
<td>6.0%</td>
<td>6.2%</td>
<td>7.0-8.0%</td>
</tr>
<tr>
<td>2005-2009</td>
<td>16.4%</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2010-2014</td>
<td>13.3%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2015-2019P</td>
<td></td>
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</tbody>
</table>

Growth rates include organic growth and acquisitions.

Average EBITA margin
- 5.3%
- 6.0%
- 6.2%
- 7.0-8.0%

How to achieve long-term profitable growth:
- Price discipline
- Launch of new service products (OPP, eShop)
- Continued cost optimization
- Focus on further acquisitions
Update on long-term EBITA margin goals per business area

**HYDRO**

- Long-term goal: 8.5-9.0%
- CONFIRMED

**PULP & PAPER**

- Long-term goal: 7.0-8.0%
- NEW: >8%

**METALS**

- Long-term goal: 7.0-8.0%
- NEW: 6.0-7.0%

**SEPARATION**

- Long-term goal: 8.0-9.0%
- CONFIRMED

* Including restructuring expenses of ~40 MEUR for Schuler
** Schuler: 8.8%
Consistent dividend policy

DIVIDEND per share (EUR)

PAYOUT RATIO (%)

Confirmation of dividend goals:
- Maintain payout ratio at a minimum of ~50%
- Mid-term increase to ~60%
ANDRITZ GROUP growth opportunities

**Aftermarket:**
- Digital business
  - Metris IoT solutions and Metris spare part catalog (eShop)
  - Mill maintenance
  - O & M (HYDRO)
- Grow METALS aftermarket

**Capital:**
- HYDRO → China
- Schuler → B-segment automotive/non-automotive
- SEPARATION