Presentation:

Advanced Technologies for Coal Materials Handling

Christian Rausch, Sales Director
Maschinenfabrik HESE GmbH
Agenda:

- Introduction HESE
- Product overview
- Project references
- Sales and service network
- Vision of business in Central Asia
The Company

Tradition & Progress
- Medium-sized machine & plant engineering company with a long tradition in conveying equipment of more than a century
- Single part production
- Materials Handling Systems & Mining Conveying Technology

Made in Germany
- Headquarters and production halls are located in Gelsenkirchen – Schalke (Ruhr area in West Germany)
- Exclusive use of quality equipment, produced in Germany

Materials Handling Systems - Worldwide
- Global business markets
- Worldwide proven and tested technology
- Leading in engineering and production of belt conveyor pulleys
- Representative office in Shanghai / China
- International Agencies & Cooperation with other companies
Since 1905

MATERIALS HANDLING SYSTEMS – MINING CONVEYING TECHNOLOGY – BELT CONVEYOR PULLEYS

Today

Highest volume of orders in company history

2010

Extending acquisition activities on the international target markets, especially in Asia.

2007

Redirection of the company in the course of a management buy-out. New co-owner and managing director Andreas Lojewski, Graduate Engineer.

2006

Opening of a representative office in Shanghai / China, owing to the enormous growth of demand on the Chinese market.

1994

Takeover of the product range belt conveyor pulleys and rollers of the Fritz Steller Fördertechnik GmbH from Wuppertal.

1992

Relocation of the operating site to Gelsenkirchen – Schalke, because of capacity.

1986

Expanding in other fields of industry. In addition to mining materials handling systems opencast/underground, there will be iron and steel industry, power plants, pit and quarry as well as processing industry.

1975

Developing and patenting TT-technology (intermediate drive with carrying belt/drive belt) that enables belt conveyor plants to run without interruption, increases efficiency and minimises the required belt fastness. These characteristics of the new product revolutionise the materials handling systems in mining. In large numbers new and already operating plants are being equipped and rebuilt with our new technology.

1960

Expansion of our product range by "belt conveyor plants for underground mining" and development of supplementary products for devices to move mine cars.

1905

Foundation of "Machine works for modern materials handling systems" by head miner Ernst Hese in Unna / Westphalia - Germany. The company mainly deals with the supply of patented devices to move mine cars in the underground coal mining.
The success of our company is largely based upon our qualified and motivated employees. They build the foundation of our continued success. We always offer further education to our 100 employees, now exceeding 100 in number, to ensure the long-term high quality standard of our products.
<table>
<thead>
<tr>
<th>Certificate</th>
<th>Description</th>
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<tbody>
<tr>
<td>DIN EN ISO 9001: 2008</td>
<td>Quality Management System</td>
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<td>SCC ** 2006</td>
<td>Safety Certificate Contractors Management System</td>
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<tr>
<td>DIN EN ISO 14001 : 2005</td>
<td>Environmental Management Systems</td>
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<tr>
<td>DIN 18800-7 Class E</td>
<td>Certificate for welding steel structures</td>
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<tr>
<td>ATEX - Guideline 94/9/EG</td>
<td>Explosion protection acc. to ATEX guidelines</td>
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Customised Solutions Out Of One Hand

Scope of work

» Consulting

» Engineering

» Manufacturing

» Assembly & Commissioning

» Training

» After-Sales Services
Our Main Industries

**Underground & Open Cast Mining Industry:**
- Loading equipment for underground and blind shafts, electric or pneumatic
- Complete conveyor units with compact single and double pulley drives
- Decking Device Rams with Mine Car Circuit and rotary tippers
- Hopper units and hopper discharge conveyors

**Power Plant Industry:**
- Turnkey coaling plant with coke crushing and screening station
- Hopper (steel construction) and hopper discharge conveyors, sampling and dedusting equipment
- Transport systems for RE-product, ash and cinder transport car and lorry loading and unloading devices

**Iron & Steel Industry:**
- Transport systems for crude ore, pellets, sinter and slag sand
- Charge hopper feeder- and discharge devices, tripper car and shuttle heads
- Heavy goods transportation
- Transportation vehicles for casting ladles and cinder containers

**Stone & Cement, Processing, Quarrying Industry**
Product Range

Belt Conveyors

TT Intermediate Drive Technology

Belt Conveyor Pulleys

Segment Sliding Chutes

Decking Device Rams with Mine Car Circuit

Rotary Tipper

Retractable Guide Rail

Chain Conveyors (Bunker Discharger)
The treatment of coke basically comprises the following main components:

- Drum discharge below the new coke wharf boxes
- Belt conveyor to the existing feed station
- Grading screen with chute instead of the previous 2-step filter road with 2-roll type crusher as intermediate
- Haulage road to connect the filtered undersized particles to the existing haulage road to the blast furnace burdening or to the car loading
- Car loading of the train
- Existing dedusting equipment with modified piping
**ARCELOR MITTAL - STEELWORK BREMEN**

Plant: Blast furnace 3  
Plant sector: burdening  
Year of construction: 2008

Upgrading of the burdening including planning, design, manufacture, delivery, assembly and commissioning.

Consisting of:
- Ore collating conveyors (ET 05/06)
- Coke collating conveyors (KT 05/06)
- Coke fines conveyors (KT 51/52)
- Ore single scales
- Ore- and coke accumulative scales

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**Ore conveyance**
Capacity: 750 t/h  
Belt width: 1,200 mm

**Coke conveyance**
Capacity: 175 t/h  
Belt width: 1,000 mm
Project References

Underground Mining

Plant: Mine Cayirhan / Turkey
Plant sector: Conveyor G 4007
Year of construction: 2006

Material: Coal
Capacity: 1,800 t/h
Belt width: 1,200 mm
Length: 2,027 m
Height: 27 m
Speed: 3.78 m/s
Power: 4 x 400 kW
Conveying belt: ST 2500
Drive traction: T1 = 637 kN; T2 = 260 kN

Design, manufacture, and delivery of a belt conveyor consisting of a double drum head drive, transfer point with storage loop, and rear drive.
Project References

Underground Mining

Double drum – TT drive station

CHINA
XIN ZHUANG ZI

Plant: XIN ZHUANG ZI
Hopper: SI HAO JING
Year of construction: 2011

Planning, design, manufacturing, delivery, assembly and commissioning of a TT drive station to extend the belt and increase.

Material: coal
Capacity: 1200 t/h
Belt width: 1200 mm
Length (old): 1100 m
Length (new): 1542 m
Length (TT-belt conveyor): 320 m
Height of stroke (new): 438 m
Conveyance speed: 3.5 m/s

Drive pulley: ø 1436 mm
Power: 5 x 500 kW

Material: coal
Capacity: 1200 t/h
Belt width: 1200 mm
Length (old): 1100 m
Length (new): 1542 m
Length (TT-belt conveyor): 320 m
Height of stroke (new): 438 m
Conveyance speed: 3.5 m/s
Project: Los Pelambres copper mine/ Chile
Year of construction: 1998

Delivery of 27 belt conveyor pulleys for one discharge conveyor and three downhill conveyors.

Pulleys for discharge conveyor CV-001:
- 2 drive pulleys ø 1,000 x 3,300 mm
  Pulley load 680 kN, bearing size 23160
- 3 tail pulleys ø 1,000 x 3,300 mm
  Pulley load max. 844 kN, bearing size 23160

Pulleys for downhill conveyor CV-005 / 006 / 007:
- 10 drive pulleys ø 2,500 x 2,100 mm
  Pulley load max. 4.409 kN, bearing size 241600
- 12 tail pulleys ø 1,800 x 2,100 mm
  Pulley load max. 260 kN, bearing size 23040

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<thead>
<tr>
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<th>CV-001</th>
<th>CV-005</th>
<th>CV-006</th>
<th>CV-007</th>
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</thead>
<tbody>
<tr>
<td>Capacity (t/h)</td>
<td>14,000</td>
<td>8,700</td>
<td>8,700</td>
<td>8,700</td>
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<tr>
<td>Belt width (mm)</td>
<td>3,000</td>
<td>1,800</td>
<td>1,800</td>
<td>1,800</td>
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<tr>
<td>Length (mm)</td>
<td>108</td>
<td>5,967</td>
<td>5,337</td>
<td>1,446</td>
</tr>
<tr>
<td>Conveyor belt</td>
<td>EP-1600</td>
<td>ST-7800</td>
<td>ST-7800</td>
<td>ST-4000</td>
</tr>
<tr>
<td>Speed (m/s)</td>
<td>3.0</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Power (kW)</td>
<td>800</td>
<td>10,000</td>
<td>10,000</td>
<td>5,000</td>
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ESKOM POWER PLANTS
MEDUPI & KUSILE, South Africa

Plants: KW Medupi Unit 1-6 & KW Kusile Unit 1-6
Plant sector: Coaling station
Year of construction: 2010 – 2012

Manufacture, delivery, assembly and test run of 60 coaling systems
(belt conveyor incl. two gate valves, expansion joints and downpipe)

Capped belt conveyor BB 1000 x 4000 mm incl. broaching device

Belt with corrugated sidewalls: XOE 315; 2+1
Power: 9.2 kW
Speed: 0.03 –0.12 m/s
Power broaching device: 0.55 kW
Speed: 0.03 m/s
**RHEINBRAUN/RWE POWER PLANT NIEDERAUSSEM**

<table>
<thead>
<tr>
<th>Plant:</th>
<th>Rheinbraun / RWE Power plant Niederaussem 950 MW Block K</th>
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<tbody>
<tr>
<td>Plant sector:</td>
<td>Outside coaling</td>
</tr>
<tr>
<td>Year of construction:</td>
<td>1998</td>
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<tr>
<td>Design, manufacture, delivery, assembly, and commissioning of power plant coaling with coal conveyor bridge, feeding and distribution belts.</td>
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</tbody>
</table>

**Material:** Raw lignite

**Capacity:** 3,800 – 5,100 t/h

**Speed:** 2,5 – 4,3 m/s

**Power:** 75 kW to 1,200 kW

- **N113 / N123** Belt conveyor BB 2,200 x 254/15 m with shuttle head
- **N114 / N124** Belt conveyor BB 2,200 x 1050/45 m with conveyor bridge
- **N115 / N125** Belt conveyor BB 2,200 x 16 m mobile and reversible

**Plant:** Rheinbraun / RWE

**Power plant Niederaussem 950 MW Block K**

**Plant sector:** Outside coaling

**Year of construction:** 1998

**Design, manufacture, delivery, assembly, and commissioning of power plant coaling with coal conveyor bridge, feeding and distribution belts.**

**Commissioning of power plant coaling with coal conveyor bridge, feeding and distribution belts.**
Key Benefits

Reliability
- Robust design that allows for high levels of plant availability
- Reliable operation based on proven technology

Quality
- Design and calculation are carried out individually and are dependent on the ambient conditions and environmental influences of the particular areas of application

Optimal Lifecycle Costs
- Reduction of Total Cost of Ownership through right balance between CAPEX and OPEX
- Optimized for maintenance
- Saving in operational costs
Our Vision Of Business In Central Asia I

Chances

+ Enormous potential of growth
+ Enormous reserves of natural resources
+ Investments needed to strengthen the economy
+ Development of domestic industry, especially electricity, power plant, mining, metallurgy & chemical sector to refine their own mineral resources
+ Central Asia Strategy of EU
Our Vision of business in Central Asia II

HESE as reliable partner

+ Long term business experience in Asia (China, Russia)
+ Experience in partnerships & local manufacturing
+ Organized in special committee from the VDMA concerning Asia (trainee programme of mining managers from Central Asia, Mongolia and Russia)
+ Running projects in Kazakhstan, Mongolia
+ Concept of extension our service and manufacturing network in Central Asia
Our Customers

Long standing customer relationship with global players

- With our solutions we meet the continuously changing requirements of markets.
- Our mission is close cooperation to achieve maximum consumer satisfaction.
Thank you very much for your attention.

Maschinenfabrik HESE GmbH

Magdeburger Straße 16a
D - 45881 Gelsenkirchen

Phone +49 209 9 80 99 – 0
Fax +49 209 9 80 99 – 199
E-Mail info@hese.de
Internet www.hese.de