



Hot Solutions for the Iron and Steel Industry



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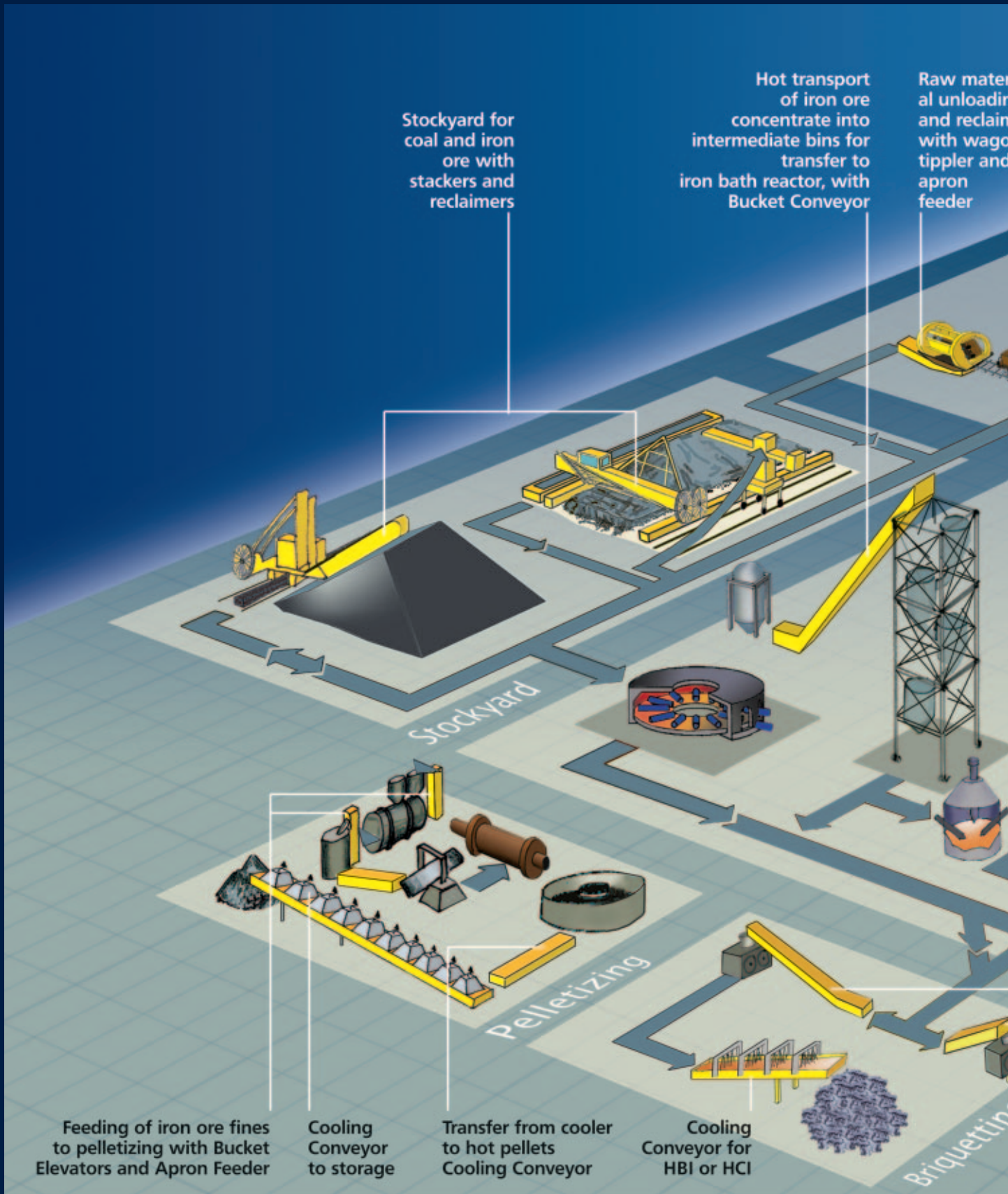
Serving customers' needs has been our strategy since incorporation 90 years ago. This concept is the essence of our vision and the driving force for the development of every area of our business. Our competence in the field of materials handling is proven by more than 10,000 installations of high technological standard operating in more than 100 countries.

We have developed innovative solutions for state-of-the-art technologies in direct reduction and electric steelmaking. With our unique conveying systems for hot DRI and for other outstanding technologies in iron

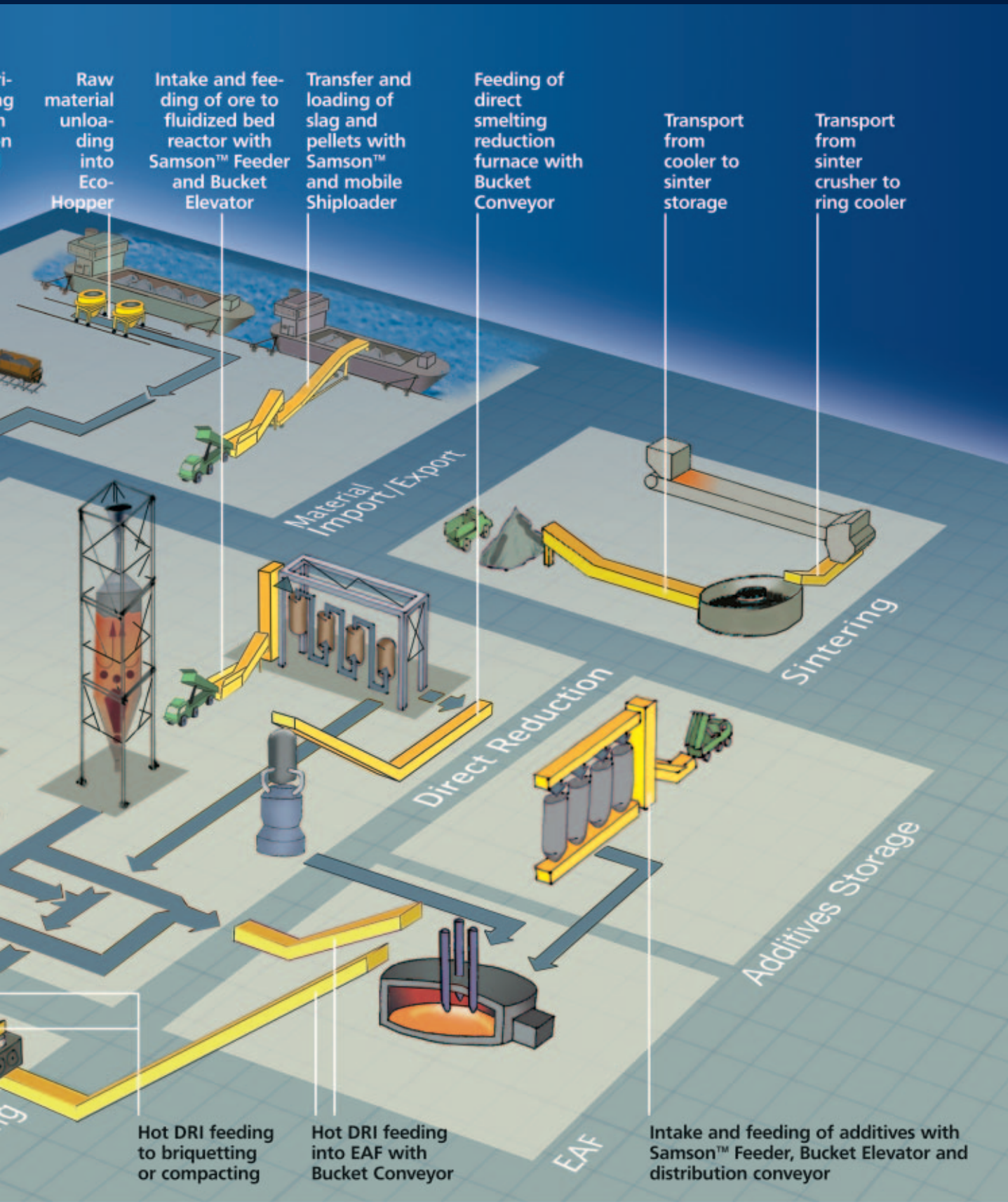
and steelmaking we continue to meet the requirements of hot bulk materials handling in metallurgical processes and contribute to the success of our customers in saving resources and energy.

Innovative design, consistently high quality, close customer relationship, dedicated engineers and a sales and service network on all continents are our key assets as a recognized supplier of materials handling solutions to the global industry.

AUMUND Group Equipment



in Iron and Steel making



AUMUND in Direct Reduction Plants



Energy efficient Conveying of DRI

Hot charging of DRI, HBI, HCI and similar into Electric Arc Furnaces can significantly benefit the operating efficiency through reduced power consumption and reduced tap-to-tap cycles.

Most of new Direct Reduction Plants therefore feature hot charging options or are planned for future addition of hot charging equipment into the subsequent melt shop. Latest projects provide for even more flexibility by installing feeding systems able to choose between cold or hot material. This allows to manage market changes and to meet the future needs of the steel industry.

For mechanical conveying of hot DRI in a non-oxidizing atmosphere the AUMUND Conveyor represents the most adequate solution for modern applications, subject to the plant layout, the conveying distance and

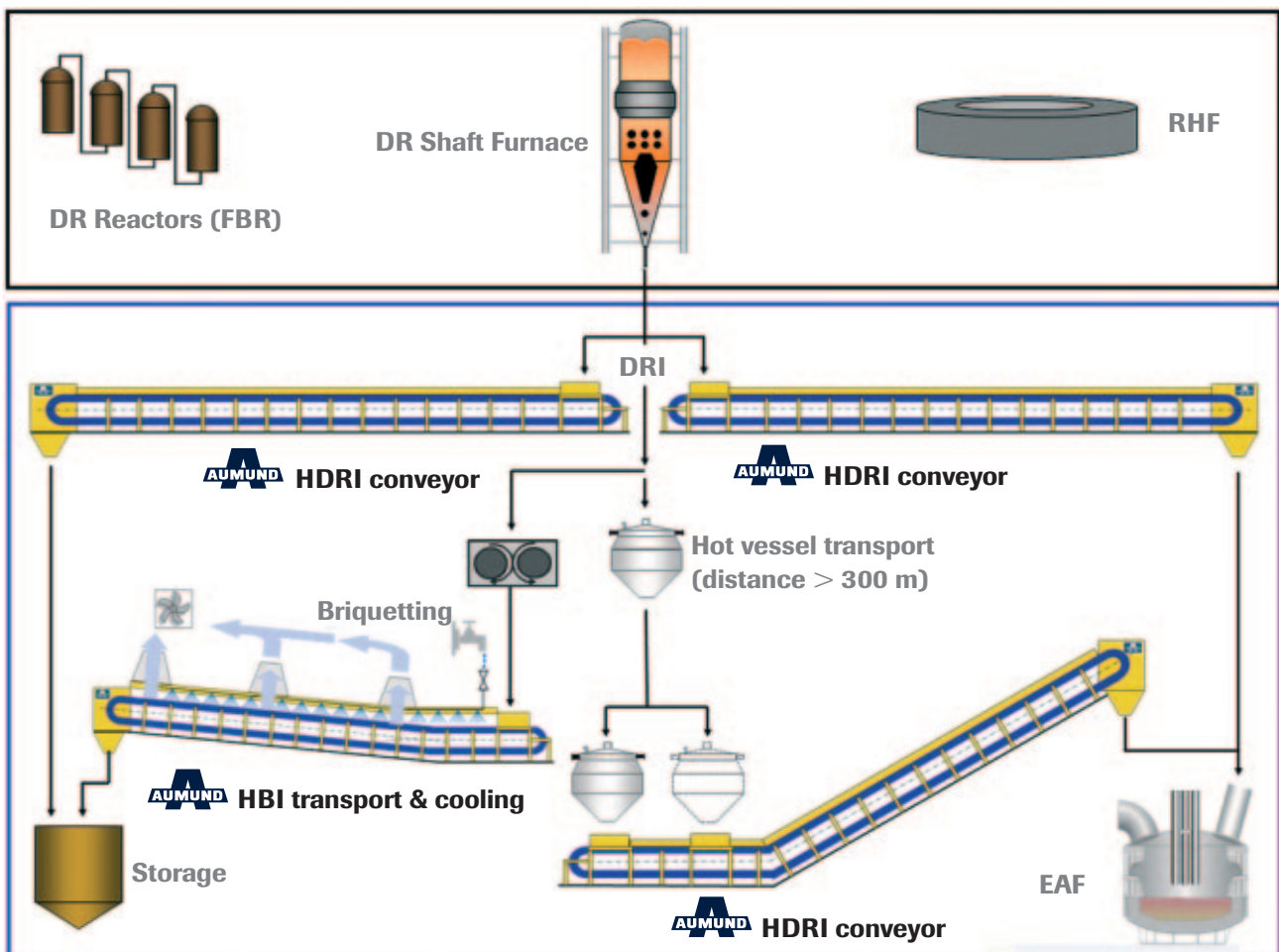
the conveying capacity. Capacities to 1,200 t/h are realized along horizontal sections whereas 210 t/h are handled up to an elevation of about 100 m and 400 t/h up to 80 m.

An important feature with the AUMUND Conveyor is the air seal provided by the enclosure with integrated inert gas system ensuring that dust is contained inside and oxygen is kept out. No dust is emitted from the conveyor and no spillage is generated underneath. Special sensors monitor the safe operation. No special tools, no specialized staff and no special equipment is required.

Features and Benefits of the AUMUND Conveyor

Compared to a pneumatic system, the AUMUND conveyor

- Ensures handling of material temperatures up to 1,100°C where a pneumatic system will accept only 600-700°C
- Reaches conveying capacities to 1,200 t/h with low slopes. Approx. 50 t/h are feasible with a pneumatic system.
- Requires less power and reduces energy consumption
- Allows for operation with variable speed
- Guarantees simple and easy operation with Start/Stop by just pushing the button, whilst preparation/silent time is unavoidable with a pneumatic system



Schematic of applications with the AUMUND Conveyor

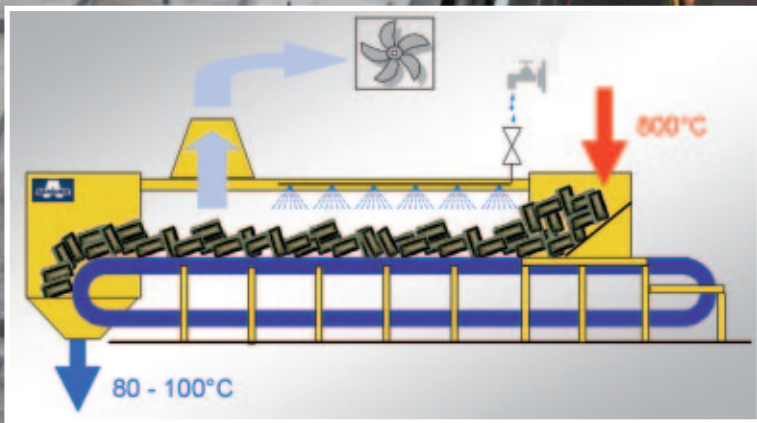
Transport and Cooling of HBI



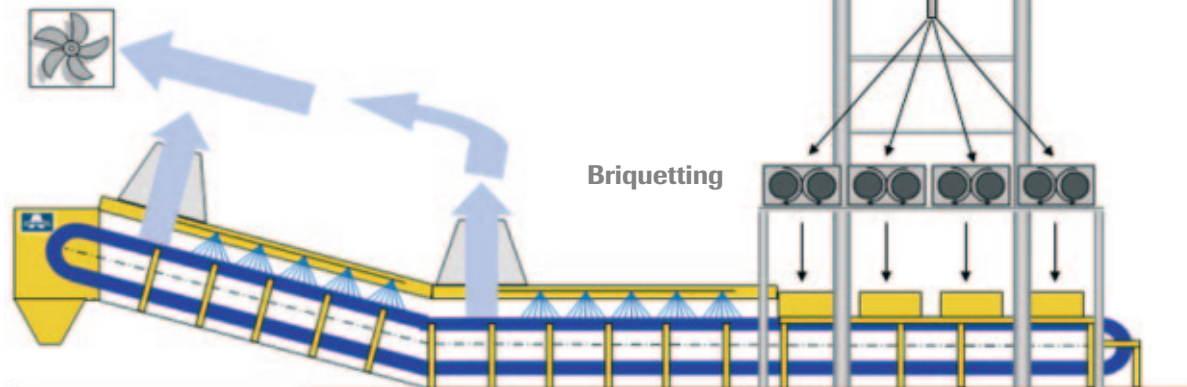
The AUMUND Conveyor for Cooling of Hot Briquetted Iron features a patented cooling system and ensures soft cooling in a short time.

Features and Benefits

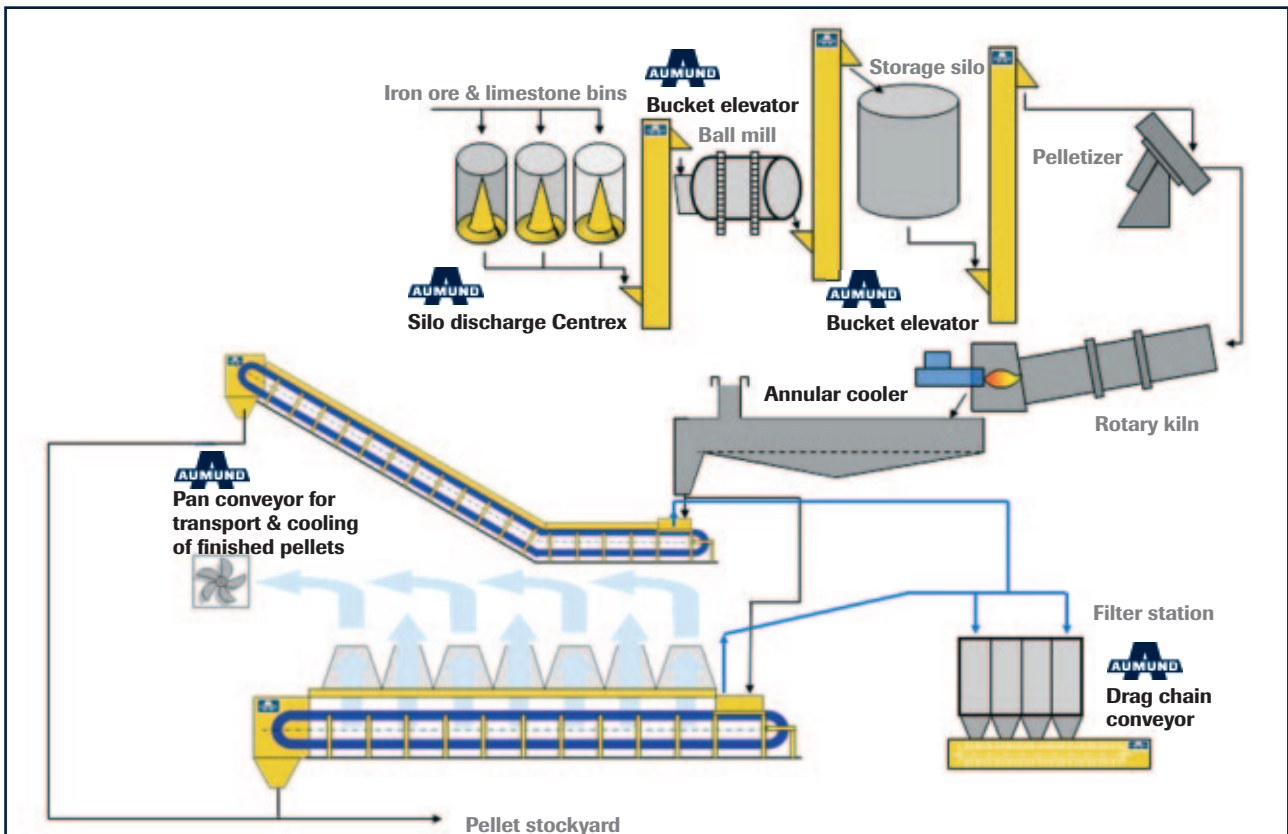
- Mist cooling with minimum water
- No sludge
- Totally automated operation
- Proven equipment with high quality standards
- Improved product quality through soft cooling
- No cracks, less fines, no reoxidation
- Significant improvement of HBI quality



Cooling conveyor type FPB-K 1400/250/12



Materials Handling in Pelletizing Plants

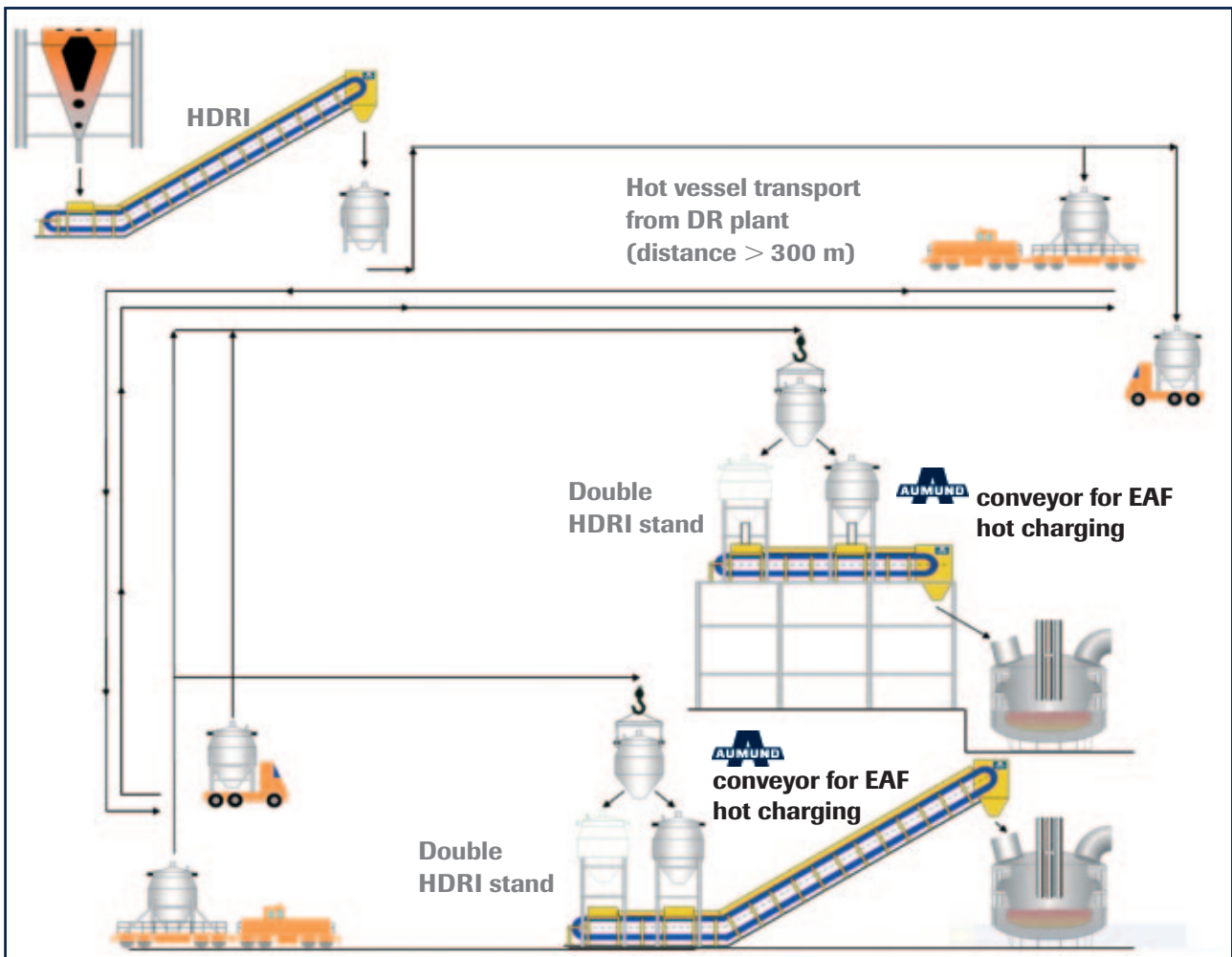


- Pan Conveyors to convey and/or cool finished pellets
- Chain Conveyors to reclaim and convey fines
- Silo Discharge equipment to reclaim raw materials
- Bucket Elevators to transport raw material, iron ore fines after grinding or pelletized fines

With installations i.e. in Oman, Bahrain, Venezuela, Brasil, India and Kazakhstan. AUMUND is the specialist in transport of hot pellets or cooling of pellets.

Aumund conveyor after Annular cooler for hot pellets.

Hot charging into EAF



Major benefits of hot charging:

- Reduced carbon losses from SF to EAF
- Flexible Plant operation
- Availability to 98%
- Yield improvement
- Quick ROI
- Significant lower CAPEX vs. pneumatic systems
- Significant lower OPEX vs. pneumatic systems
- Significant lower energy consumptions vs. pneumatic systems
- Green plant operation (CO₂ emission reduction)

AUMUND hot material conveyor

- For hot DRI, hot HBI and similar
- Fully covered design with Aumund inert gas system prevents reoxidation
- Minimizes temperature losses and reduces losses of carbon or metallization
- Direct connection between Direct Reduction Furnace and steel making furnace (e.g. to EAF as per figure page 7)
- For longer distances appr. >300 m various options with vessel transport possible
- Geometry and layout depends on situation at site. Horizontal or inclined conveyors possible.

Sinter Plant Application

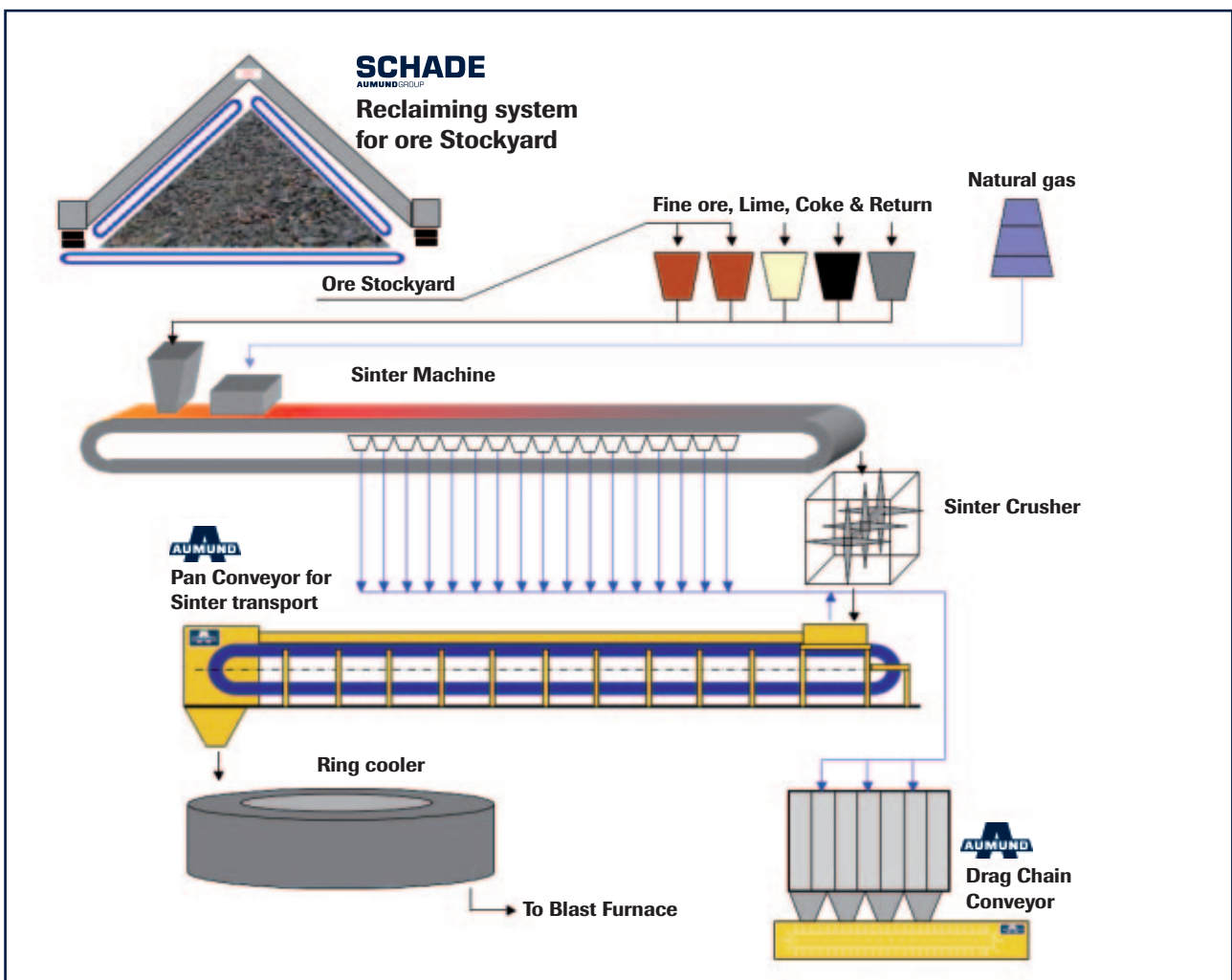


Pan Conveyor, type KZB-S, Sinter plant, Bremen

The AUMUND Pan Conveyor, type KZB-S transports the hot Fe-Sinter from the crusher to the ring cooler.

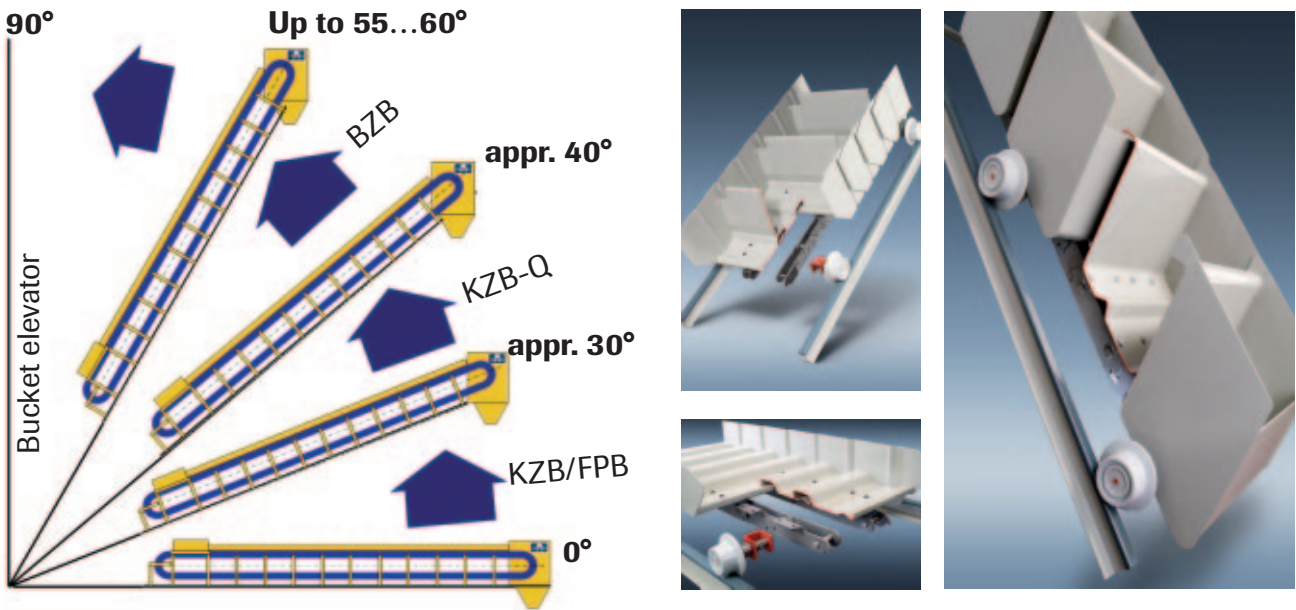
The Pan Conveyor receives the hot Fe-Sinter from the crusher at a temperature of 800 to 900 °C with a grain size of more than 200 mm and transfers it to the cooler. The particularly solid and stress resistant design avoids deformation of the conveyor pans and the pan overlapping prevents spillage of hot sinter. The sinter conveyor as shown is available with a pan width up to 2,400 mm and is able to transport up to 1,500 t/h.

With worldwide installations AUMUND is an expert for hot Fe-Sinter transport. Reference plants are in operation since many years in sinter plants in Germany, Austria, Brasil and Russia.



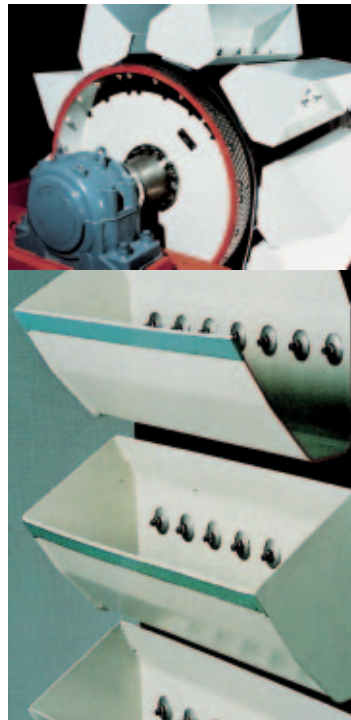
Pan Conveyor Types

The AUMUND Pan Conveyor with its versatile design of pans or buckets fits into any plant layout, from horizontal to 60° inclination.

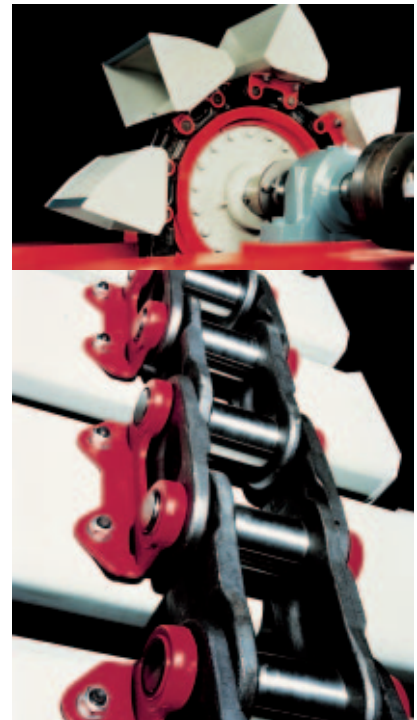


Bucket Elevators

AUMUND Bucket Elevators for vertical conveying, with central chain or steel-reinforced belt.



Belt Bucket Elevators for material size to 10 mm and temperatures to 130°C



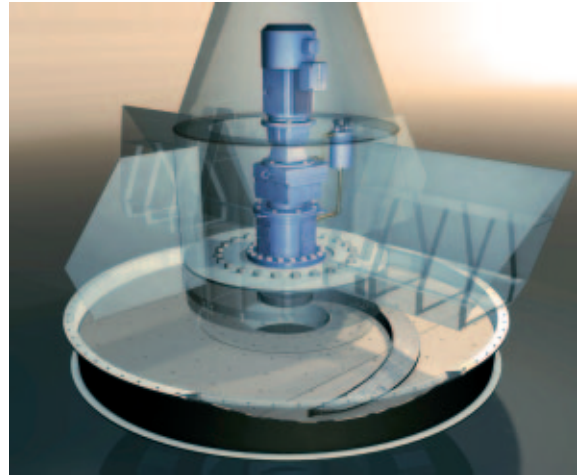
Chain Bucket Elevators for material size to 200 mm and temperatures to 300°C

Feeding and Reclaim Equipment



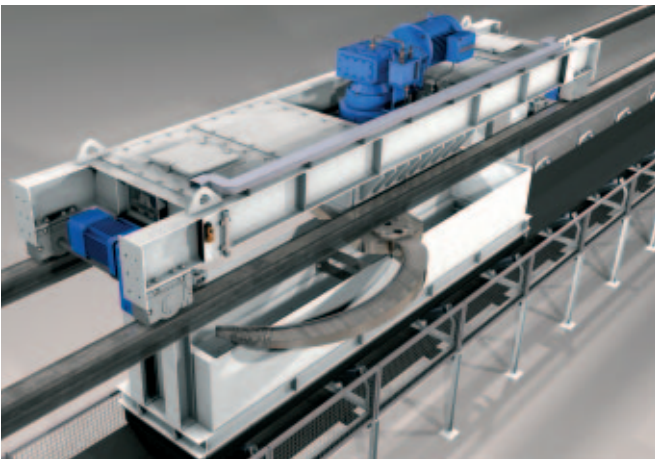
Apron Feeder

- For hopper discharge
- Light and heavy duty design
- With impact beams depending on drop height



Silo Discharge CENTREX™

- For silos with a diameter of 1,500 to 7,000 mm
- Capacity of 1-1,000 t/h variable
- Discharge of bulk materials with poor flow properties
- First in, first out



Rotary Discharge Machine

- For reclaim from rectangular hoppers and open stockpiles up to 300 m length
- For reclaim from large silos with a diameter up to 50 m
- Discharge wheel diameter 2 to 5 m
- Capacity 1 - 3,500 t/h

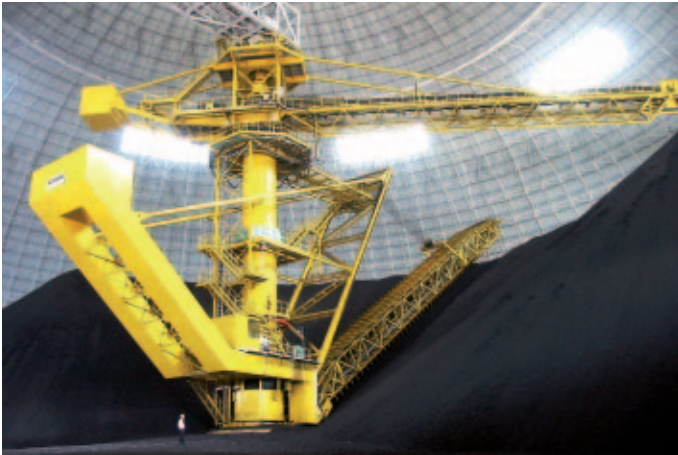


SAMSON™ Feeder

- Bulk material receiving unit from truck or rail wagon
- Dust control
- Buffer capacity and discharge rate control
- Flexible in location. No underground hoppers, no expensive civil work, no deep pits.

Stockyard Equipment, Loading and Unloading Systems

SCHADE
AUMUNDGROUP



Covered Stockyard with SCHADE Circular Stacker / Reclaimer



Longitudinal Stockyard with Portal Reclaimers

B&W
AUMUNDGROUP



Ship unloading with Eco Hopper



Material intake: SAMSON™ Surface Feeder and stockpiling STORMAJOR™

After-Sales Services

• Customer Proximity around the World

At AUMUND, service does not end at the sale of the equipment. It's the beginning of a long-term partnership. AUMUND offers you a full range of services – from commissioning to the delivery of quality spare and wear parts, to customized preventive maintenance programs and equipment upgrading. The benefits for you: Maximum equipment efficiency at lower operating cost.

• Commissioning and Field Service

Today, presence “on the spot” is an absolute “must”. Therefore, our commissioning and service engineers operate from support centers on all continents to guarantee immediate and competent support.

• Spare and Wear Parts

A comprehensive range of genuine spare parts is available for our entire product range from stocks in Germany, Hong Kong and the USA. Our product specialists provide assistance and respond instantly.

• Retrofits

Aged and worn equipment? Capacity increase needed? Too high operating cost? Aumund “just as new” retrofits are economical and tailor-made solutions for improving your existing equipment at reasonable cost.

• Preventive Maintenance

Knowing beforehand that service will be needed allows you to schedule downtime and save money with timely repairs. Repairs or retrofits can be accurately anticipated allowing for the downtime to be at the most convenient times and at the lowest possible cost.



THE AUMUND GROUP

GERMANY

AUMUND Fördertechnik GmbH

Saalhoffer Str. 17
47495 Rheinberg
Phone: +49 - 2843 - 72 0
Fax: +49 - 2843 - 6 02 70
e-mail: aumund@aumund.de
www.aumund.com

AUMUND Logistic GmbH

Saalhoffer Str. 17
47495 Rheinberg
Phone: +49 - 2843 - 72 0
Fax: +49 - 2843 - 72 47 3
e-mail: logistic@aumund.de
www.aumund.com

SCHADE Lagertechnik GmbH

Dorstener Straße 360
44653 Herne
Phone: +49 - 2325 - 58 74 0
Fax: +49 - 2325 - 58 74 74
e-mail: info@schade-lagertechnik.de
www.schade-lagertechnik.com

GREAT BRITAIN

B&W Mechanical Handling Ltd.

Gemini House Cambridgeshire
Business Park, 1 Bartholomew's Walk
Ely, Cambridgeshire CB7 4EA
Phone: +44 - 1353 - 665 001
Fax: +44 - 1353 - 666 734
e-mail: sales@bwmech.co.uk
www.bwmech.co.uk

INDIA

AUMUND Engineering Private Ltd.

2nd Floor, Lakshmi Neela Rite Choice
Chambers - 9, Bazulla Road,
T. Nagar Chennai - 600 017
Phone: +91 - 44 - 4393 63 00
Fax: +91 - 44 - 2815 60 46
e-mail: aumund@vsnl.com

RUSSIA

AUMUND Representative Office Moscow

German-Russian House, Office 44
ul. Malaya Pirogovskaya 5
119435 Moscow / Russia
Phone: +7 495 2879002
Fax: +7 495 2879006
e-mail: info@aumund.ru

HONG KONG SAR

AUMUND Asia (H.K.) Limited

Unit 3B & 5, 30/F,
148 Electric Road, North Point
Hong Kong
Phone: +852 - 3695 - 43 33
Fax: +852 - 3695 - 43 11
e-mail: info@aumund-asia.com

DUBAI U.A.E.

AUMUND Fördertechnik GmbH Representative Office

P.O. Box 35291
Dubai, UAE
Phone: +971 - 4 - 2823762
e-mail: catalina@aumund.com

THE NETHERLANDS

AUMUND Holding B.V.

Wilhelminapark 40
5911 EE Venlo
Phone: +31 - 77 - 320 01 11
Fax: +31 - 77 - 320 07 28
e-mail: info@aumund-holding.nl

SWITZERLAND

AUMUND AG

Arther Str. 3
6301 Zug
Phone: +41 - 41 - 710 10 82
Fax: +41 - 41 - 710 42 02
e-mail: info@aumund.ch

FRANCE

AUMUND France S.A.R.L.

43, rue de Tréville - F 75009 Paris
Phone: +33 - 1 - 42 46 72 72
Fax: +33 - 1 - 42 46 72 74
e-mail: aumund@aumund.fr

BRAZIL

AUMUND Ltda.

Av. Eng. Luis Carlos Berrini, 716
4. andar - Conj. 41
04571-000 São Paulo / SP, Brazil
Phone: +55 - 11 - 3059 0160
Fax: +55 - 11 - 3059 0161
e-mail: aumund@aumund.com.br

USA

AUMUND Corporation

1825 Barrett Lakes Boulevard
Barrett Lakes Center II
Suite 520
Kennesaw, GA 30144
Phone: +1 - 770 - 226 - 95 78
Fax: +1 - 770 - 953 - 48 44
e-mail: sales@aumundusa.com

P.R. CHINA

AUMUND Machinery Trading (Beijing) Co. Ltd.

Rm. 7-8, 22-F, East Ocean Centre
No. 24 Jianguomenwai Avenue
Chaoyang District
Beijing 100004
Phone: +86 - 10 - 65 15 58 13 / 14
Fax: +86 - 10 - 65 15 58 15
e-mail: aumund@aumund.cn



AUMUND Headquarters in Rheinberg, Germany

AUMUNDGROUP

Your partner for all requirements regarding material handling and storage.

We design, engineer, manufacture, erect and service reliable equipment.

Reputation and competence proven by more than 10,000 installations in over 100 countries.

AUMUND Foerdertechnik GmbH · Saalhoffer Str. 17 · 47495 Rheinberg (Germany)

Tel.: +49 (0)28 43-720 · Fax: +49 (0)28 43-60270 · e-mail: aumund@aumund.de

www.aumund.com