

Demag Process Cranes

Efficient process flows with semi- and fully automatic cranes and hoists optimized for specific applications



Cranes and components expertise since 1819



The history of Demag Cranes & Components dates back to 1819, when Mechanische Werkstätten Harkort & Co. was established in Wetter/Ruhr.

The company already started manufacturing overhead traveling cranes in 1840 and concentrated on the production of cranes and crane components. In 1867, the company solidified its reputation as a crane building pioneer with the development of the first steam-powered crane, which was one of the attractions at the World Exhibition in Vienna in 1873. The first overhead traveling crane with separate electric motors for the long-travel and hoist motions was built in 1890. From 1963, cranes were manufactured in series.



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Today, Demag Cranes & Components is a subsidiary of Demag Cranes AG, a global player with locations in Germany and subsidiaries and many partner agencies all over the world.

With the product range of its Cranes, Handling Technology/Drives and Service business units, Demag Cranes & Components provides material flow, logistics and industrial drive solutions for companies of all sizes – from small workshops to major industrial corporations.

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Automatic material flow with Demag process and production cranes



Demag Process Cranes changing tools in a stamping plant in the automotive industry

Fully automatic process cranes are optimized to meet the specific requirements of the given application. They communicate with integrated higher-level control systems, such as a warehouse management computer, for example. All motions, including the load pick-up and deposit sequences, are controlled by a computer program. Continuous supervision is not necessary; manual intervention is limited to an emergency stop or switchover to manual control.

The decision between a standard or a fully automatic crane depends on the throughput rate in many applications. There is a clear trend towards automation, when the crane connects production, storage and shipping as an integral part of the intralogistics solution. In this case, the crane has a great influence on the efficiency and flexibility, and, ultimately, also on the profitability of the entire process.

The use of an automatic crane requires close cooperation between the owner, the planners and the manufacturer at an early date. Only coordinated teamwork between the partners, from planning and order processing to commissioning, can ensure that an integrated system will function well for many years. The starting point of any profitability study is always the given load range to which the load handling attachment has to be adapted.

The type and design of the load handling attachments are determined by the load or its load handling accessories. In fully automated systems, the load handling attachment plays a key role, as only a load handling device that is matched to the load to be handled will enable automated pickup. The positioning tolerance defined by the load, within which the load handling device has to pick up and deposit the load, also has to be considered.



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Demag process and production cranes in foundries

The harsh operating conditions in foundries, with difficult loads, complex handling functions and high or extremely fluctuating ambient temperatures, demand high levels of safety and functional reliability of the systems to be used.

For this reason, Demag has developed a three-pillar system especially for difficult applications. The first pillar, "redundant systems," feature multiple levels of sub-systems for hoists and travel units, power supplies and crane control systems. If one sub-system fails or is being

maintained, the crane system can continue operation with the back-up systems to avoid any downtimes. Secondly, "intelligent controls" for versatile operating modes include integrated control mode and error management for the drive control system, bypass controls and the general systems. The third pillar comprises "crane visualization". This provides a clear representation of the complex systems and gives the operator an overview of the system status at all times.



The casting ladle is precisely positioned and molten iron is safely and reliably transported to the casting machine in a foundry



Demag cranes safely transport loads to the next step of the process in foundries

Process cranes for semi- and fully automatic steel handling

Systems used in the steel industry need to perform increasingly faster and more flexible materials handling operations. The use of cranes is not only limited to the steel production sector, but they are used above all in the steel service industry, which has to respond more and more to just-in-time concepts to meet the demands of companies that process steel.

Demag cranes guarantee both maximum availability and high capacity utilization in storage facilities, as well as the required flexibility for handling the products.

Materials handling systems are a decisive factor for profitability in the steel trade, while having a major impact on the efficiency and flexibility of entire processes in the manufacturing industry. The trend is growing more and more towards full automation to make logistics processes more efficient.

A major contribution is provided by crane concepts developed by Demag Cranes & Components that are tailored to meet the specific needs of individual processes, and to satisfy the industry requirements for clearly and reliably organized storage facilities with a high level of capacity utilization.



Demag Steelmaster with a magnet spreader for handling long materials, single items or metal plates



Demag Coilmaster in a fully automatic coil store with magnets or grabs as load handling attachments



Demag process and production cranes in the paper industry

On one hand, the paper industry demands a high level of reliability for serving the paper machines at their wet and dry ends. On the other hand, the efficient storage and retrieval of rolls of paper require a high level of automation and, at the same time, smooth and precise handling. Demag cranes have been specially developed to satisfy these needs.

Besides the special requirements at the wet end of the paper production process with high humidity and temperature levels, precise handling is particularly necessary for all crane motions when paper reels are changed, and the paper machines need to be maintained for maximum production.

Automated processes with high lifting and travel speeds are needed for the vertical storage of rolls of paper. With annual production levels frequently in excess of a million tons, extremely high availability of the systems must be ensured.

Demag Cranes & Components provides cranes that are optimized for handling rolls of paper in storage facilities, meeting the customer's requirements in a most efficient way.



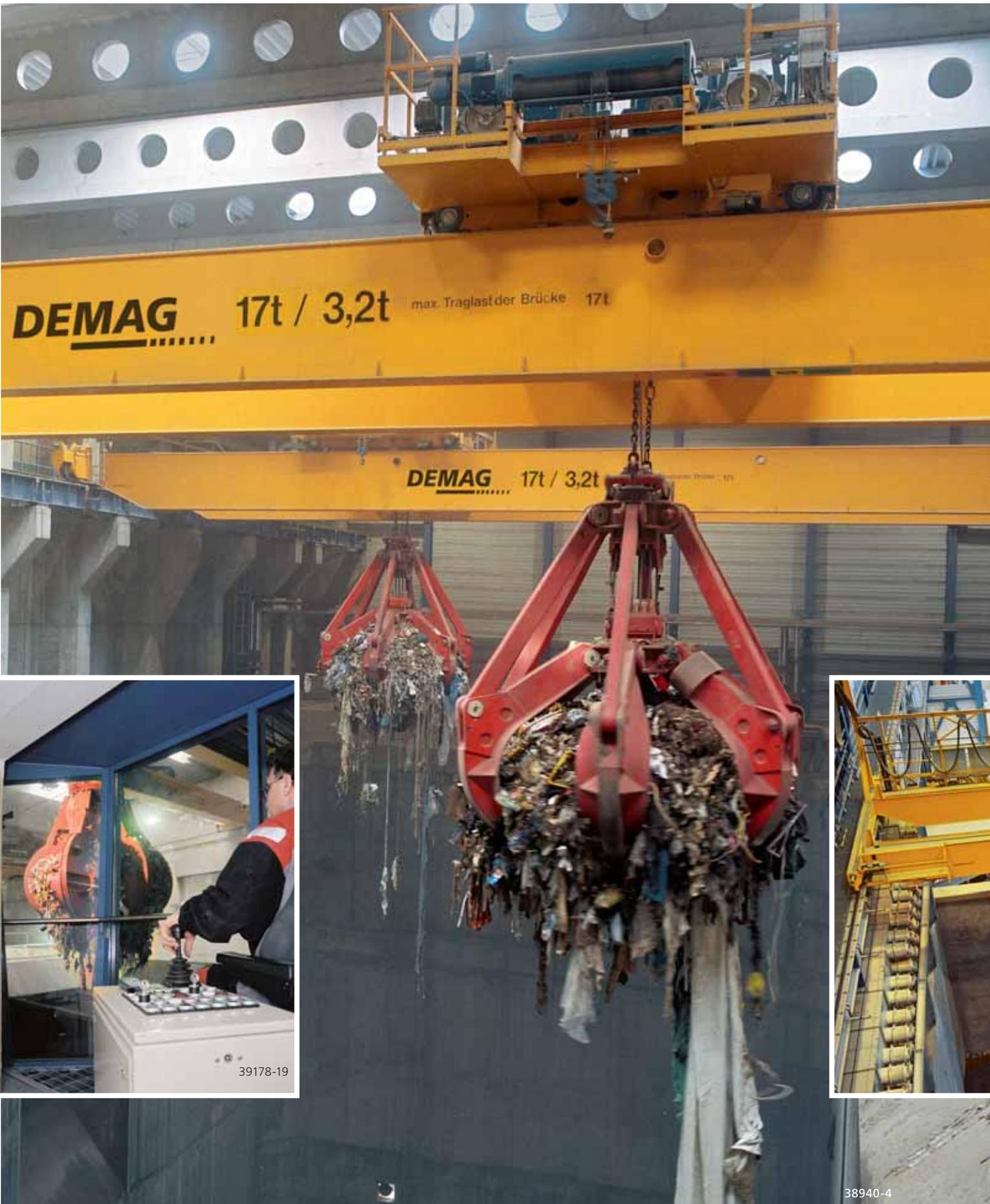
Warehouse management system with hardware and software specifically adapted to the installation

Demag process cranes in paper storage and in paper production



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Demag process cranes in refuse disposal and recycling

In order to operate economically, thermal waste processing facilities have to process large quantities of refuse. The cranes that operate in these facilities must provide high handling rates and reliable operation around the clock.

Blending refuse, feeding fuel to the incineration furnaces, and removing waste ashes as by-product of thousands of tons of waste every year place high demands on the crane systems as well as the facility infrastructure.

High throughput requirements of refuse disposal plants require high speeds for every axis of the cranes. State-of-the-art automatic controls combined with advanced, active, anti-sway load control allow are employed to meet these demands and, at the same time, prevent damage to equipment and buildings.

Demag refuse handling cranes are optimized for serving bunkers and pits. Using laser assisted vertical positioning controls they are able to perform all processes fully automated. This eliminates wasted cycle time for unnecessary movements and positioning in favor of optimum throughput performance.



Demag Process Cranes in the refuse disposal industry



Demag Process Cranes used for fully automatic filling of composting boxes with organic waste in a waste disposal facility

Demag process cranes in the cement and lime industry

Various bulk goods, such as raw materials and fuels, are stored in the cement industry. The required transport systems are specially designed for these applications and are provided with control and visualisation software.

Fully automatic process cranes are recommended from the very beginning wherever various materials have to be continuously stored and retrieved. Corresponding parameters, such as for areas reserved for certain additives, can be specified by means of a visualization system, which represents both the grid of the store as well as its surroundings. At a central control station, the personnel

can use a PC to switch the installation on and off or create special blends, while simultaneously viewing fault messages or operating status information.

An automatic process crane carries out the often difficult positioning processes more quickly and usually more accurately than a human operator. For load sway motions that occur due to high acceleration and deceleration rates, anti-sway controls are used to prevent load sway by continuous detection of the load status parameters followed by appropriate adjustments.



Fully automatic replenishment and retrieval of the various additives by a Demag automatic crane in a cement works



Demag automatic process cranes operating in a cement works



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Demag process cranes for handling furniture containers

The fast and efficient handling of containers is not only a major challenge in ports and railway terminals. The efficient utilization of space with furniture containers is increasingly being employed, not only for overseas traffic, but also for classic transport operations and intermediate storage applications. The standardized containers can be stored close together, thus ensuring optimum utilization of the available space. Operations become critical when it comes to finding and transporting specific containers. Demag Cranes & Components has perfect crane solutions for companies in this industry.

Due to the close storage of furniture containers, only fully automatic systems are usually employed. This means that Demag cranes find the containers via directions of a warehouse management system. These "intelligent" cranes enable the operator to store, transfer and retrieve items quickly and, therefore, efficiently with a minimum personnel requirement.

Whether the crane is controlled manually by radio remote control or by a warehouse management system, all Demag crane variants offer the benefits of optimum space utilization and simultaneously rapid access to the given furniture containers.



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Optimum utilization of space thanks to warehouse management systems and intelligent Demag process cranes

Demag automatic process crane handling containers at a shipping company



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Automatic spreaders for 20 and 40-foot containers

Demag process cranes in the aviation industry

Large parts have to be regularly lifted, turned and positioned in the aviation industry. The requirements to be met by the cranes and hoists used in these applications demand specially developed solutions in many cases. In close cooperation with the operators, this often results in key developments that also attract great attention in other sectors of industry.

Wherever complex components are developed as parts of a complete product, loads generally have to be handled gently and precisely. In addition, loads with a large surface area usually have to be suspended from several points to

prevent them from twisting. This requires a sophisticated combination of functions and mechanisms which can be achieved by a combination of crane motions with traversing trolleys and traveling hoists. Frequency inverters provide for high positioning accuracy as well as gentle and variable acceleration and braking.

Safety functions such as synchronized operation, light barriers or safety brakes integrated into the rope hoists ensure a high level of installation safety and reliability for the operator and the load.



Demag process cranes offer individual solutions for transporting entire aircraft fuselages, wings or fuselage sections in aircraft production

Telescoping cranes are used for aircraft maintenance





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Demag process cranes in the automotive industry

The increasingly shorter development and production times in the automotive industry pose great challenges for manufacturers and suppliers to meet the just-in-time demands of logistics operations. This means that materials handling components used in production have to offer a high level of availability, since the failure of just one important component may have a considerable financial impact on the overall production process.

Demag cranes transport, turn, pivot and lift loads into optimum assembly positions and satisfy operators'

demands for precise positioning throughout the assembly operation.

Demag cranes are used wherever stamping press tools for car body parts have to be handled or heavy injection molding tools have to be changed in the production of plastic parts.

In assembly operations, hoist units help to provide ergonomically favorable and efficient workplaces for the workers.



Demag hoist units provide for ergonomically optimum workplace design.



Demag cranes in operation in a stamping plant

Demag process cranes in mechanical engineering

The need for the efficient handling of large and small loads does not usually depend on the size of a company or the handling rate of an application. For this reason, modular load handling concepts are required to achieve specialized and, at the same time, economical solutions.

From lifting and positioning loads at the workplace to serving machinery or installations, Demag Cranes & Components offers a complete range of solutions that are tailored to meet individual requirements and provide improved ergonomics, flexibility and high efficiency.

Thanks to their smooth and reliable motions, Demag cranes ensure that a wide variety of machining centers, machine tools, assembly bays and test stations are served with high precision.

Cranes equipped with automatic functions or performing fully automated processes optimize precision operations for the changeover and setup of tools and machines. Reliable load-sway controls and automatic positioning systems ensure that Demag process cranes provide for high handling rates and gentle handling.



Demag process cranes are transporting workpieces weighing up to 200 mt with millimeter precision for the production of turbines and generators



Cranes are used for turning components in the production of crusher parts

Demag cranes are used in the manufacture of turbines and injection molded parts





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Demag product range



Cranes

- Standard cranes
- Process cranes
- Industry-specific cranes
- Open winches
- Crane components
- Crane sets



Handling technology

- KBK crane construction kit
- Control pendants



Hoists

- Wire rope hoists
- Compact chain hoists
- Balancers
- Controls



Drives

- Travel unit components
- Gear motors
- Frequency inverters
- Power supply lines



Service

- Maintenance
- Modernization
- Refurbishment

Leading companies have successfully used Demag cranes for many years

Customer	Application	Customer	Application
Automotive industry		Paper industry/paper machine	
BMW Munich (DE)	Press plant crane	Gold East Paper (CN)	Paper production cranes
Mercedes-Mettingen (DE)	Tool production	Holmen Paper Peninsular (ES)	Paper production cranes
VW Wolfsburg (DE)	Press plant crane	Huatai Paper (CN)	Paper production cranes
		Jass Schwarza (DE)	Paper production cranes
		Myllykoski (DE)	Paper production cranes
		SCA Packaging (DE)	Winder Annex
Coil handling		Paper industry/paper roll storage	
Bilstein (DE)	Automatic coil storage	Cascades Arnsberg (DE)	Automatic cranes
Exelsior Steel (CA)	Automatic coil storage	Gold East Paper (CN)	Automatic cranes
Hoesch Hohenlimburg (D)	Coil storage	Jass Schwarza (DE)	Automatic cranes
Nybor (DK)	Automatic coil storage	Nine Dragons (CN)	Automatic cranes
Panopa (DE)	Coil storage	Oudegem Papier (BE)	Automatic cranes
Preymesser (DE, GB, HU)	Coil storage	Sun Paper (CN)	Automatic cranes
Container handling		Recycling	
Baxter Moving Excellence (GB)	Auto. container storage	AVA Frankfurt Nordwestst. (DE)	Refuse and slag cranes
Charl Antoine (FR)	Container storage	Borlänge Energi (SE)	Refuse and slag cranes
Spedition Fröde (DE)	Container storage	MVA Allington (GB)	Refuse and slag cranes
Trans Euro (GB)	Auto. container storage	MVA Moskau (RU)	Refuse and slag cranes
Security Storage (US)	Auto. container storage	SCA Sundsvall (SE)	Handling of shredded wood chips
Aircraft industry, production		Heavy mechanical engineering	
Airbus (DE / ES / FR / GB)	Transport & assembly cranes	Flender-Winergy (DE)	Gearbox production
Alenia (IT)	Automatic section storage	MAN Turbo (CH)	Turbine production
Aviastar (RU)	Transport & assembly cranes	MMG-Waren (DE)	Production of ship propellers
Boeing (US)	Assembly cranes		
Embraer (BR)	Assembly cranes		
Xian Aircraft Manufacture (CN)	Teleplatform system		
Aircraft industry, maintenance			
ANA (JP)	Teleplatform system		
British Airways (GB)	Maintenance cranes		
Iberia (ES)	Teleplatform system		
Lufthansa (DE)	Teleplatform system		
Olympic Airways (GR)	Maintenance cranes		
Shanghai Airlines (CN)	Maintenance cranes		

Customer

Steel production

Alcoa (HU)
Böhler Edelstahl (AT)
Green Metal (CZ)
Hoesch Hohenlimburg (DE)
KazZinc (KZ)
MAN B&W Diesel (DE)
Meuselwitz (DE)
Meuselwitz Guss (DE)
Norddeutsche Affinerie (DE)
Schmolz + Bickenbach (DE)
Swiss Steel AG (CH)
United Steel Industrie (AE)
Vestas Casting (DE)

Steel trade

Aceros (ES)
Aratubo (ES)
ASD (GB)
Böhler (AT)
Donges Stahlbau (DE)
Finkenholl (DE)
Ib Andresen (HU)
Panopa (DE)
Stinnes Stahlhandel (DE)
Süderelbe (DE)
ThyssenKrupp Schulte (DE)

Cement industry

Adelaide Brighton Cement (AU)
Anneliese Zement Ennigerloh (DE)
Castle Cement Padeswood (GB)
Holcim Werk Höver (DE)
Lehigh Cement Union Bridge (US)
Spenner Zement Erwitte (DE)

Application

Coil transport
Foundry cranes
Mixing crane
Coil transport
Foundry cranes
Foundry cranes
Foundry cranes
Foundry cranes
Foundry cranes
Foundry cranes
Billet transport
Foundry cranes

Steel trade
Transporting bundles of tubes
Transporting long materials
Coil transport
Transporting steel components
Steel trade
Coil transport
Transporting long materials
Steelmater in the service centre
Coil transport
Steelmater in the service centre

Clinker crane
Handling of refuse derived fuels
Clinker crane
Handling of refuse derived fuels
Clinker crane
Clinker crane

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