Industrial Solutions

Bucket wheel and drum reclaimers

Advanced technology and reliability for your stockyard
Advanced technology for stockpile management

Bucket wheel reclaimers are the ideal means of handling and moving large amounts of bulk materials in the shortest possible time. They can be designed as reclaimers or combined stacker-reclaimers for handling huge volumes of coal, ores and other materials in ports, power plants, stockyards or steel plants. High throughputs need optimum handling technology. The system components must be matched up with one another to ensure smooth transport flows. And that is where these types of machines provide ideal solutions.

Thyssenkrupp’s bucket wheel reclaimers combine robustness, high speed and high throughputs. They are the result of decades of experience and technical competence, proven in many special configurations and new developments, such as the lightweight bucket wheel design.

Drum reclaimers offer the highest possible homogenization at a constant reclaiming rate combined with low maintenance costs – for optimum blending of materials.

Following a lengthy standstill in Europe’s drum reclaimer business, thyssenkrupp Industrial Solutions has again set the precedent for high-capacity, high-performance and highly reliable blending machines operating in steelworks and in iron ore and coal mines. Thanks to specific design improvements the new drum reclaimers combine reduced wear, weight and power consumption, while still achieving the optimum homogenization and reclaiming process.

Proven technology tailored to your needs

Thyssenkrupp refines proven technologies and tailors them to your capacity requirements and intended use, regardless of whether you require a boom-type bucket wheel reclaimer, a combined stacker-reclaimer, a bridge-type bucket wheel reclaimer or a drum reclaimer.

A tradition of innovation

Thyssenkrupp Industrial Solutions has fully integrated the know-how of PWH Anlagen & Systeme and DEMAG Lauchhammer, companies with over a century of history that were known worldwide for their excellent bucket wheel and drum reclaimer solutions.

This tradition, combined with consistent innovative strength, ensures our proven bucket wheel and drum reclaimers will continue to set standards in quality and cost-effectiveness under the thyssenkrupp label. Our vast experience in building all types of bucket wheel and drum reclaimers guarantees the ideal solution to meet all your needs.
Boom-type bucket wheel reclaimers

Boom-type bucket wheel reclaimers are designed to reclaim stockpiles on both sides of their rail track. Changing between stockpiles arranged in line is also possible through luffing/slewing of the boom and subsequent long travelling.

In combination with a separate stacker, this type of machine provides the highest possible flexibility for stockyard management, along with the possibility of simultaneous stacking and reclaiming operations.

- Bucket wheel reclaimers for ore applications:
  - Ore mines
  - Steel mills
  - Export terminals

- High capacity bucket wheel reclaimers for iron ore mines

- Bucket wheel reclaimers for coal applications:
  - Coal-fired power plants, coking plants and steel mills
  - Coal export terminals
Boom-type bucket wheel stacker-reclaimers combine the functionality of a boom-type bucket wheel reclaimer and a stacker in a single machine. Thanks to a tripper car and reversible boom belt conveyor this type of machine provides the additional feature of stacking the incoming material into stockpiles.

This functional integration means that boom-type bucket wheel stacker-reclaimers are a solution characterized by relatively low investment costs.

Rocker type machine with luffing cylinder on the front side and rigid tripper car

- Location: Jiaxing, China
- Material: Coal
- Stacking capacity: 3,600 t/h
- Reclaiming capacity: 1,200 t/h
- Boom length: 50 m

Special design with foldable tripper car for stacking or reclaiming operation – no central chute needed for reclaiming

- Location: EECV L3, Netherlands
- Material: Iron Ore / Pellets
- Stacking capacity: 5,600 t/h
- Reclaiming capacity: 5,600 t/h
- Boom length: 40 m
This special type of bucket wheel stacker-reclaimer is equipped with a retractable tripper car. This allows it to operate in combination with a reversible stockyard conveyor featuring different running directions during stacking and reclaiming. On the other hand, when deployed in combination with a uni-directional stockyard conveyor, this type of machine can be used to by-pass incoming material.

During stacking, the belt loop of the tripper car is formed so as to allow material transfer from the stockyard belt conveyor onto the intermediate conveyor. During by-pass or reclaiming operations, the belt loop is retracted.
Bucket wheel stacker-reclaimers for coal handling at export terminals and steel mills

C-frame type machine with intermediate conveyor and retractable tripper car

Location: EECV L7, Netherlands
Material: Coal
Stacking capacity: 4,000 t/h
Reclaiming capacity: 3,400 t/h
Boom length: 47.5 m

Bucket wheel and drum reclaimers

Boom-type bucket wheel stacker-reclaimers with a shiftable tripper car

C-frame type machine with intermediate conveyor and shiftable tripper car with two-way chute for stacking or by-pass operation

Location: Kamsar, Guinea
Material: Bauxite
Stacking capacity: 4,500 t/h
Reclaiming capacity: 4,500 t/h
Boom length: 46 m

Boom-type bucket wheel stacker-reclaimers with a counter directional tripper car

Rocker type machine with intermediate conveyor, transverse conveyor and counter directional tripper car

Location: Jimah, Malaysia
Material: Coal
Stacking capacity: 3,800 t/h
Reclaiming capacity: 2,250 t/h
Boom length: 41.2 m
Robust, high-performance systems are needed for handling and blending bulk materials, especially in the case of semi-hard to hard materials. For such applications bridge-type bucket wheel reclaimers have proven themselves on stockyards all over the world.

Bridge-type bucket wheel reclaimers can be designed with one or two bucket wheels and for uni- or bi-directional operation. In addition, the bucket wheel trolley or trolleys are either equipped with a rake or an active scraper in case of poor flow properties. If equipped with two bucket wheels, bridge-type bucket wheel reclaimers provide a good degree of homogenization (blending effect) and a nearly constant flow of reclaimed material.

**Single bridge-type bucket wheel reclaimers**

- Single bridge with two bucket wheels
- For bi-directional operation
- Application of two bucket wheels provides high reclaiming capacities and a good degree of homogenization

<table>
<thead>
<tr>
<th>Single bridge-type bucket wheel reclaimer with two bucket wheels for bi-directional operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>VALE Tubarao, Brazil</td>
</tr>
<tr>
<td><strong>Material</strong></td>
</tr>
<tr>
<td>Iron ore</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td>2,500 t/h</td>
</tr>
<tr>
<td><strong>Rail gauge</strong></td>
</tr>
<tr>
<td>36 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single bridge with one bucket wheel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>Alcoa, Australia</td>
</tr>
<tr>
<td><strong>Material</strong></td>
</tr>
<tr>
<td>Bauxite</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td>3,850 t/h</td>
</tr>
<tr>
<td><strong>Rail gauge</strong></td>
</tr>
<tr>
<td>48 m</td>
</tr>
</tbody>
</table>
Double bridge-type bucket wheel reclaimers

Special feature: semi-automatic bucket reversing system

For bi-directional-operating bridge-type bucket wheel reclaimers we provide a semi-automatic bucket reversing system as an optional special feature. As there is no longer any need to reverse the buckets manually, which always involves a risk of injury for personnel, this feature helps to increase occupational safety.

Each bucket is connected to the wheel body via articulated joints and locked into position by means of a spring-loaded pin. A hinged switching curve, which can be shifted by means of an electric actuator, unlocks the buckets while the bucket wheel is turning slowly.

During the continuous rotation of the bucket wheel, the unlocked buckets flip over by gravity and are automatically re-locked in their reversed position.
Drum reclaimers have a high reclaiming capacity with a steady flow of material and provide the best possible homogenization effect of all bucket reclaiming machines. This robust type of machine is characterized by its low wear and maintenance requirements.

Drum reclaimers for ore handling at steel plants

Drum reclaimer for uni-directional operation

Location
Ilva, Italy
Material
Iron ore
Capacity
2,000 t/h
Rail gauge
38 m

Drum reclaimer for uni-directional operation

Location
VALE Itabira, Brazil
Material
Iron ore
Capacity
5,200 t/h
Rail gauge
31 m
Drum reclaimers for bi-directional operation

**Location**
Ekiibastus, Kazakhstan

**Material**
Coal

**Capacity**
4,000 t/h

**Rail gauge**
43.5 m

**Drum reclaimers for coal handling**

Our features – your added value

Sophisticated state-of-the-art features make our bucket reclaiming machines eco-friendly and ensure both reliable and user-friendly operation that avoids downtime and facilitates day-to-day processes.

**Environmental design**
To meet today’s environmental requirements, thyssenkrupp’s bucket reclaiming machines are generally equipped with all the necessary precautionary equipment and systems to minimize the impact of noise, dust emissions, etc. on the surroundings. In order to reduce dust emissions to a significant extent, an on-board water spraying system can be provided for our bucket reclaiming machines, if required and specified. In addition, the bucket wheel transfer point and the conveyors of our boom-type bucket wheel reclaimers and stacker-reclaimers can be covered by hoods.

**Maintenance assistant system (MAS)**
As a maintenance support tool, MAS helps to ensure maintenance takes place at regular intervals. Every time maintenance activities are completed, they are recorded and documented in the system logbook. By adhering to the preset maintenance schedule, operators can avoid expensive repairs caused by a lack of maintenance and ensure minimum downtimes.

**Local analyzer interface (LAI)**
As part of the standard equipment, the LAI is installed on each bucket reclaiming machine. This device collects and stores different kinds of data, e.g. measuring signals. As a benefit for the customer, the LAI provides access to this large set of historical data from the machine, which is useful for early recognition of possible upcoming defects or for subsequent analysis of failures or damage.

**Automation-ready design**
All bucket reclaiming machines built by thyssenkrupp are characterized by their automation-ready design, which is a prerequisite for a fully automated reclaimer. Our automation-ready reclaimers not only give you, as a standard feature, state-of-the-art integrated drive and operational safety control via a PLC system (operating in local, manual and semi-automatic mode) as a standard; they are also equipped with the specially configured control system required for the optional upgrade to an autonomously operating machine.

**Screen shot:**
MAS display

Cover hood over bucket wheel chute

Water spraying system for dust suppression

Bucket wheel and drum reclaimers
Lifting your stockpile operations to the next level

After mechanically optimizing your reclaimers, automation and digitalization is the next logical step to take your operations to the next level. By combining our mechanical know-how and operating experience with state-of-the-art sensor technology we can fully exploit the potential of our customers’ assets. From smaller process improvements or assistance modules to fully autonomous reclaimers, we offer our customers a wide range of smart automation and digitalization solutions.

Collision avoidance (risk reduction)
- Safe operation through our anti-collision management system
- Ensuring operations under the highest safety standards as the first step towards fully automated operations

Autonomous operation (productivity growth & optimizing machine lifetime)
- Productivity growth through our adaptive controller – optimal material flow by constantly measuring the stockpile surface
- Unmanned operation through fully automatic positioning
- Reducing peak loads that would otherwise lead to a shorter machine lifetime, higher maintenance costs and downtimes

Stockyard management (inventory transparency and advanced stockyard planning)
- 3D volume measurement of stockpiles for an overview of your stockyard at any given time
- Intelligent stockyard management for efficient utilization of available space and stocktaking material

Your added value
- Higher productivity
- Operational safety improvement & risk reduction
- Lower operational costs
- Less machine stress
- Inventory transparency

“Plug and play” – turnkey delivery

Through the turnkey delivery of tested, preassembled bucket reclaiming machines we supply a ready-to-use solution for your stockyard. This gives you an immediate economic benefit with minimum on-site construction work.

How you benefit from turnkey delivery
- Time-saving erection on the manufacturer’s pre-assembly yard where tools, lifting equipment and a workshop are always available
- Pre-commissioned bucket reclaiming machines mean only small adjustments are necessary at your site
- Minimized downtime on the stockyard, also when replacing an existing machine

3D volume measurement of stockpiles
Comprehensive service throughout the life cycle of your plant

With thyssenkrupp Industrial Solutions you can count on cost efficiency right from the start. Through the turnkey delivery of tested, preassembled bucket reclaiming machines, we ensure that on-site construction work is kept to a minimum. And even after commissioning, we remain a partner you can trust for all your needs.

Always there when you need us
Our portfolio includes a full range of services for your bucket reclaiming machines throughout their entire life cycle. thyssenkrupp Industrial Solutions provides its customers all over the world with a reliable and extensive customer service. The scope of customer services ranges from maintenance and engineering support, advisory services and spare parts, trainings for operation and maintenance to plant optimization, repair and refurbishment. On top of this, thyssenkrupp Industrial Solutions offers a range of tailor-made services to meet the requirements of today’s customers.