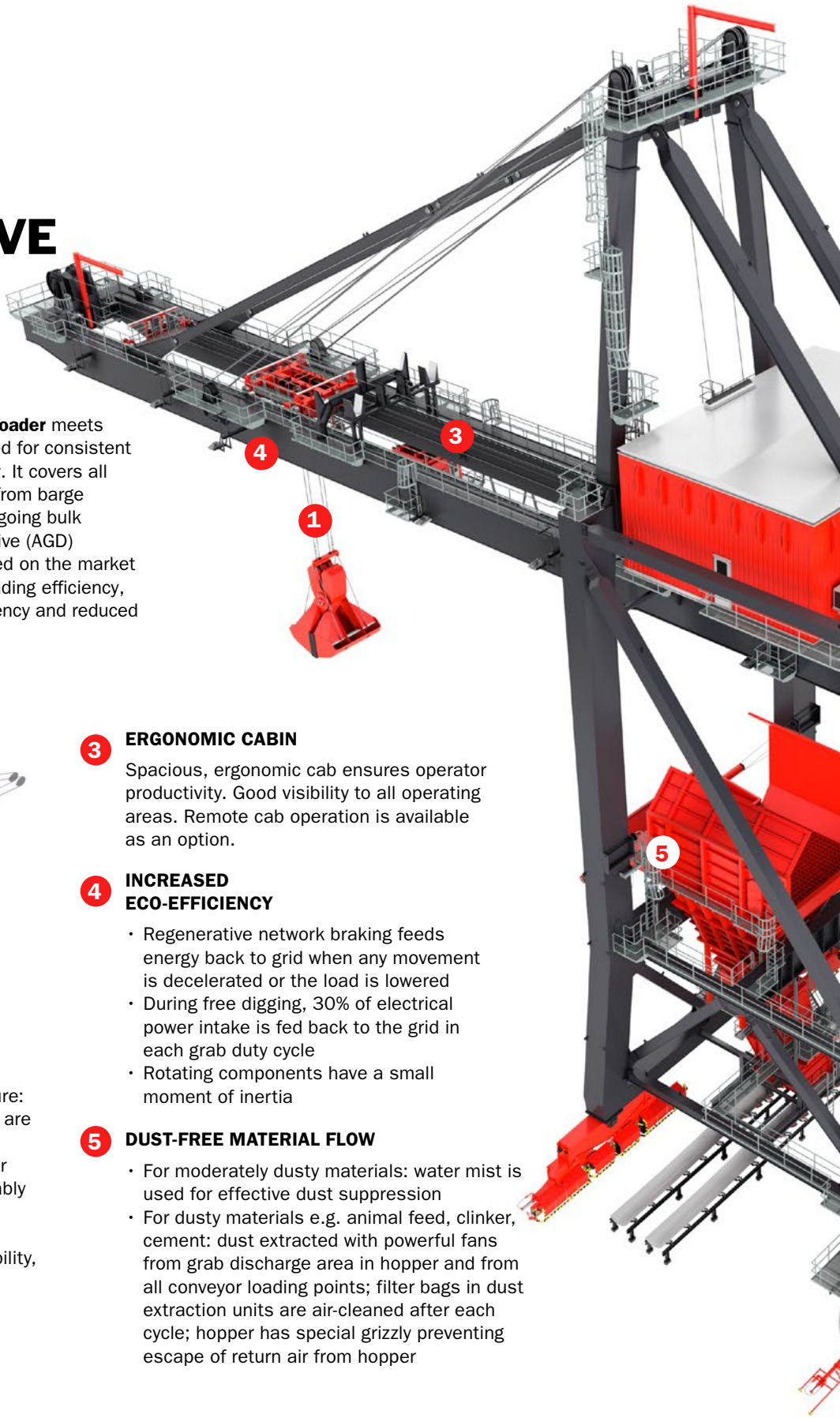
KONECRANES®
Lifting Businesses™

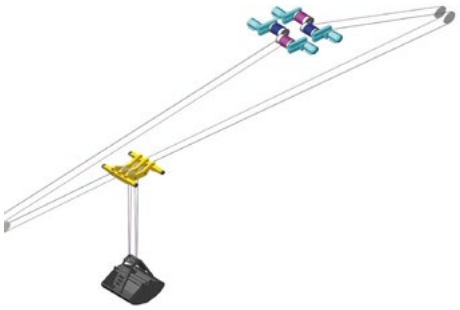
AGD GRAB UNLOADER

RELIABLE AND PRODUCTIVE BULK UNLOADING

RELIABLE AND PRODUCTIVE BULK HANDLING

The Konecranes AGD Grab Unloader meets the modern bulk terminal's need for consistent performance and high reliability. It covers all capacities and site conditions from barge unloading to the largest ocean-going bulk carriers. Our Advanced Grab Drive (AGD) technology is the most advanced on the market today, providing excellent unloading efficiency, high availability, high eco-efficiency and reduced energy consumption.





1 SMARTER ROPE REEVING

- Rope arrangement balances force impact on steel structure: total weight and wheel loads are decreased
- Total length of ropes, number of rope pulleys are considerably less than in conventional unloader design
- Greater reliability and availability, less maintenance

3 ERGONOMIC CABIN

Spacious, ergonomic cab ensures operator productivity. Good visibility to all operating areas. Remote cab operation is available as an option.

4 INCREASED ECO-EFFICIENCY

- Regenerative network braking feeds energy back to grid when any movement is decelerated or the load is lowered
- During free digging, 30% of electrical power intake is fed back to the grid in each grab duty cycle
- Rotating components have a small moment of inertia

5 DUST-FREE MATERIAL FLOW

- For moderately dusty materials: water mist is used for effective dust suppression
- For dusty materials e.g. animal feed, clinker, cement: dust extracted with powerful fans from grab discharge area in hopper and from all conveyor loading points; filter bags in dust extraction units are air-cleaned after each cycle; hopper has special grizzly preventing escape of return air from hopper

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ADVANCED GRAB DRIVE (AGD) SYSTEM

Four-drum system with electrical synchronization of drives. Provides automatic unloading with range of operating modes as standard. Greater efficiency and reduced operator fatigue.

All of the machinery components in the four main winches are interchangeable. Standard Konecranes components provide reliability and easy maintenance. Good access to all service points.

SMARTER CORE OF LIFTING

An integrated package of motor/gearbox/control system designed and built specifically for lifting by Konecranes, in-house. It provides:

- Accurate movement
- Lower weight
- Fewer components
- Better eco-efficiency
- Better reliability

KONECRANES AC ELECTRICAL SYSTEM

Designed for crane applications. Smooth, precise movements with short response times. Special circuitry for speed supervision. Controls ensure smooth starts and stops, reducing mechanical stresses and prolonging unloader lifetime. Software specifically designed for dynamic load handling.

CRANE MANAGEMENT SYSTEM (CMS)

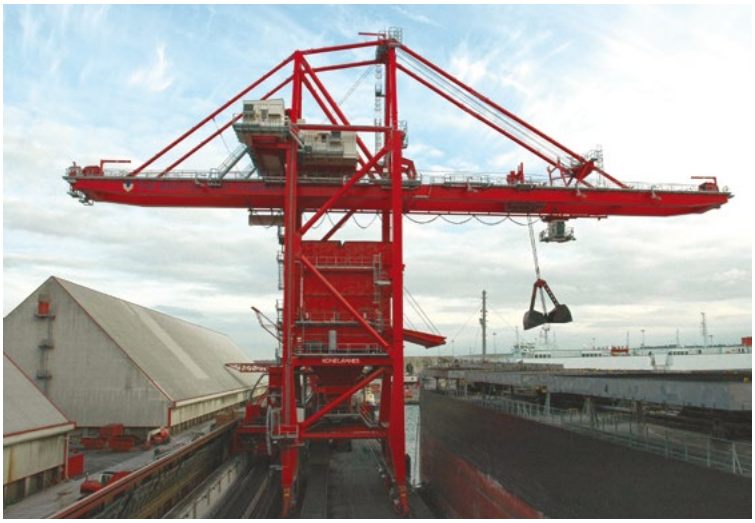
- Wide range of reporting, analytical and remote diagnostics features for terminal mgmt, unloader operation and maintenance
- Includes all operation and maintenance instructions and data collection system
- All signals from the unloader are collected at 30 ms intervals and stored to PC

TRUCONNECT REMOTE SERVICE

CMS can be connected to Konecranes Global Technical Service Center for remote trouble-shooting, technical assistance and real-time analytics.

THE BENCHMARK GRAB UNLOADER

Here is a representative selection of Konecranes AGD Grab Unloaders, at work around the world in leading bulk terminals.



THE BRISTOL PORT COMPANY
The Bristol Port Company handles coal and animal feed material, which is extremely dusty. They use a Konecranes AGD Grab Unloader with a lifting capacity of 28 tons, outreach of 35 m, and a loading capacity of 1200 tph.

The unloader is equipped with dust suppression and extraction systems. Dust suppression is used for unloading coal; dust extraction is used for unloading dusty materials. All of the material movement and transfer points are enclosed and dusty air is filtered before release.

Bristol Port Company has purchased all of its unloading equipment from Konecranes: two continuous ship unloaders and two AGD grab unloaders.

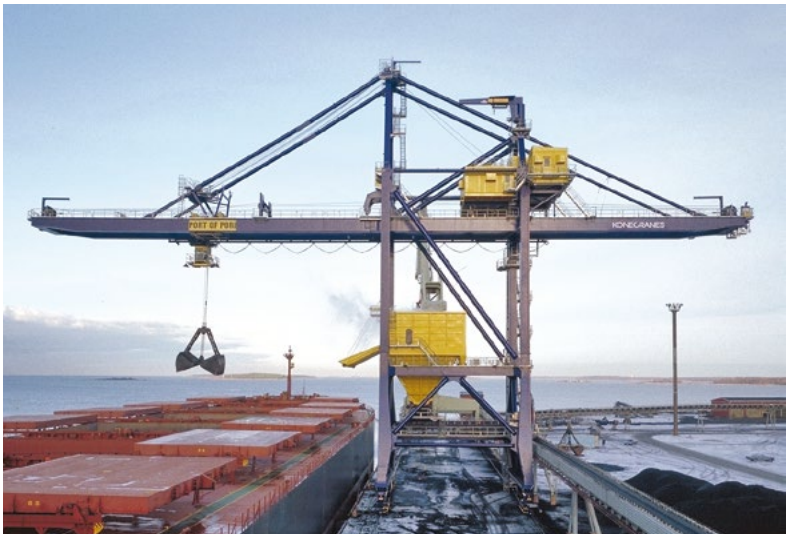
PORT OF KOPER, SLOVENIA
The Port of Koper uses a Konecranes AGD Grab Unloader to unload iron ore and coal. It has a lifting capacity of 32 tons, an unloading capacity of 1500 tph, and an outreach of 40 m. It is equipped with a dust suppression system.

The AGD is used with a scissors-type of grab in manual, semi-automatic and automatic modes. The Port of Koper likes the simplicity and reliability of the AGD technology, and now operates two Konecranes AGD grab unloaders.

DONG ENERGY GENERATION, STIGNAES, DENMARK
Dong Energy in Stignaes uses a Konecranes AGD Grab Unloader for unloading coal. It has a lifting capacity of 40 t, a loading capacity of 1800 tph, and an outreach of 44 m.

Noise reduction was very important to Dong Energy. This AGD is equipped with a dust suppression system and advanced Konecranes noise reduction technology that reduces operational noise by up to 90%.

PORT OF PORI, FINLAND
The Port of Pori uses a Konecranes AGD Grab Unloader to handle coal, ilmenite and other bulk materials used in paint manufacturing. This AGD has a lifting capacity of 32 tons, a loading capacity of 1500 tph, and an outreach of 37 m. Konecranes has delivered a range of lifting equipment to the Port of Pori.



ENDESA POWER PLANT, EL FERROL, SPAIN
The Endesa Power Plant uses two Konecranes AGD Grab Unloaders to handle coal for power generation. It has a lifting capacity of 54 tons, a loading capacity of 2200 tph, and an outreach of 44 m.

In this case, Konecranes supplied a design and component package to a third manufacturing party, which manufactured and delivered the AGDs to Endesa. Endesa wanted the latest grab unloading technology for high productivity, ease of use and maintenance. They were using two old grab unloaders that required too much maintenance.

KONECRANES ADVANCED GRAB DRIVE (AGD) TECHNOLOGY
THE ADVANTAGES

LOW OPERATING COSTS

- Low energy consumption per unloaded ton
- Low rope consumption
- Less maintenance
- Low downtime, high availability

EXCELLENT ENERGY EFFICIENCY

- Regenerative network braking feeds energy back to grid
- Rotating components have a small moment of inertia

HIGH PRODUCTIVITY

- Range of automatic operation modes as standard
- No slack rope problems
- Easy to drive, short learning curve for operators

HIGH RELIABILITY

- Smarter Core of Lifting: package of motor/gearbox/controls designed and built specifically for lifting
- Simple design
- Standard Konecranes components
- Konecranes worldwide service network for responsive local support
- Remote diagnostics supplied as an option

REDUCED MAINTENANCE

- Simple rope reeving: fewer ropes and pulleys
- Short rope change time: one-rope change possible
- Easy access to all maintenance points
- Minimum maintenance requirements for Konecranes AC drives and motors

HIGH ECO-EFFICIENCY

- Low energy consumption
- Modern control system enables spill-free material handling
- Dust suppression with water mist for moderately dusty materials
- Dust extraction with fully enclosed conveyor arrangement for materials such as animal feed, cement and clinker

INDUSTRIAL CRANES

NUCLEAR CRANES

PORT CRANES

HEAVY-DUTY LIFT TRUCKS

SERVICE

MACHINE TOOL SERVICE

Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity-enhancing lifting solutions as well as services for lifting equipment and machine tools of all makes. In 2014, Group sales totaled EUR 2,011 million. The Group has 12,000 employees at 600 locations in 48 countries. Konecranes is listed on Nasdaq Helsinki (symbol: KCR1V).

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	SMALL	MEDIUM	LARGE
Lifting capacity	Up to 80,000 dwt	Up to 160,000 dwt	Over 160,000 dwt
	20–35 tons	35–65 tons	50–90 tons
Unloading capacity			
	1000–1500 tph	1500–2800 tph	2000–3500 tph
	Unloading capacities are calculated based on actual vessel size and wharf/jetty conditions		
Dimensions			
Outreach	30–37 m	37–42 m	40–50 m
Rail span	11–20 m	16–30 m	16–30 m
Backreach	0–20 m	0–30 m	0–40 m
Speeds			
Gantry traveling	20–30 m/min	20–30 m/min	20–30 m/min
Hoisting	180 m/min	180 m/min	180 m/min
Closing	180 m/min	180 m/min	180 m/min
Trolley traversing	180 m/min	180 m/min	180 m/min
Boom hoisting	6–7 min	6–7 min	6–7 min
Power supply			
Cable reel power supply		50/60 Hz, 3.3–20 kV	
Current collector power supply		50/60 Hz, 3.3 kV	
Shore power supply		50/60 Hz, 400 V	
Drive system	Konecranes AC drives with regenerative braking		
Rope system			
	Four drum system with electric synchronization		
Grab types			
	Four rope grabs, clamshell/scissors		
Typical wheel loads			
	35–45 tons/wheel	45–60 tons/wheel	50–70 tons/wheel
	30–40 tons/m	35–50 tons/m	50–60 tons/m
	Wheel loads are calculated case-by-case, according to the dimensions of the crane and the local conditions		
Maintenance			
	Konecranes Crane Management System (CMS)		
	GPRS connection for remote diagnostics		

2015

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