



Port-mobile Siwertell grain unloader

BRUKS *Siwertell*



Designed to meet grain market demands

Siwertell is the world-leading manufacturer of ship unloaders based on screw-conveyor technology. Installations can be found at grain terminals across the globe and range from smaller road-mobile unloaders to massive unloading installations with record-beating capacities, and everything in between. Now, meet the latest addition to the Siwertell grain product family, the port-mobile unloader (PMU).

Delivering a competitive edge

Optimised on many key levels, the standardised unloader offers full port mobility, excellent efficiency and rated capacities and reduced investment costs. From its stable, lightweight steel structure through to its smooth, gentle cargo handling, which delivers extremely low degradation rates, the standardised port-mobile

unloader delivers efficient use of jetty space and minimised total operational and maintenance costs.

It is available as a 400t/h or a 600t/h unit and serves as an ideal solution for operators looking for a port-based system to discharge vessels up to 60,000 dwt.

	Features	Benefits
Mobility	Port-mobile on tyres	Flexible operation and ability to use the jetty without rails
Motions	Wide, fast slewing, luffing and pendulum motions of the conveying arm	Excellent reach into the ship's entire hold delivers the highest average efficiency rates on the market
Conveying type	Screw-type with low conveying velocity	Low cargo degradation rates
Truck loading	Independent truck-loading spouts	Quick truck filling times
Screw conveying	Enclosed transportation	Close to zero dust emission
Inlet feeder	Counter-rotating inlet feeder	Easy to switch between all kinds of grain cargoes including soya bean

Ideal for port operations

The new Siwertell port-mobile unloader features a number of advantages designed to optimise its use in ports. For example, the size and dimensions of its steel chassis has been minimised to ensure a lightweight design, which avoids costly additional infrastructure or preparatory quay-reinforcement work.

It is fitted with a set of heavy-duty rubber tyres and an advanced steering system, enabling it to easily navigate around sharp curves and obstacles.

Operated manually or by using any of the pre-programmed driving modes, when not in use the port-mobile unloader can quickly relocate and stow elsewhere, leaving the jetty area clear.





Cost-efficiency at its core

When analysing total operational costs, all elements must be considered including initial investment and shipping costs, day-to-day running expenses and maintenance.

Shipping and operational costs are dependent on total unloading times, making it essential to maintain high average through-ship capacities to reduce freight costs.

Unlike a pneumatic unloader, which can only operate its intake nozzle in a vertical position in relation to a ship's hold opening, the port-mobile unloader can move its vertical arm +/- 30 degrees and reach all areas of the cargo hold, including the troublesome area underneath the hatch corners. This reduces the amount of cargo left for the payloader to remove at the end of the unloading operation, which boosts operational efficiency and reduces the time taken to discharge a vessel.

Additionally, the port-mobile unloader uses simplified, standardised technology, which keeps maintenance and wear parts costs low compared with other unloading systems on the market.

A great advantage

One of the greatest advantages of unloading grain with screw-conveyor technology is the low degradation rates of the material. A low conveying velocity and a gap between the screw and the casing prevents the kernels becoming crushed during unloading.

Siwertell unloaders therefore avoid the cargo degradation concerns that traditionally accompany pneumatic unloaders, while maintaining equivalent throughputs.

These claims have been independently validated many times over decades, both by our clients and by third-party inspectors, using comprehensive testing regimes and measurements before and after unloading.





Full manoeuvrability

The port-mobile unloader is equipped with a self-propelled rubber-tyre system and an advanced steering solution for full, easy manoeuvrability between operations.

It can travel straight ahead, in reverse or diagonally, both to the left and to the right. It is also able to smoothly rotate up to 30 degrees both left and right.

When stationary, the end pairs of axles, both on the sea-facing and land-facing sides, are turned by 90 degrees to secure the gantry in all directions when parked. During operations, the port-mobile unloader is supported by hydraulic jacks for increased stability. An onboard diesel generator powers all movements and operations. A separate fuel tank, including an automatic fuel-replenishment system, is also incorporated into the design.

Efficient, independent loading

The port-mobile unloader features a dual truck-loading system as standard, with the option to add an additional, third loading system. As the loading systems are not interlinked, one, two, or all three loading positions can be used to load trucks independently and simultaneously with no interruption in cargo flow, delivering the fastest possible truck loading operation and ship discharge.

Furthermore, to minimise the impact of truck changeovers and an irregular truck supply, the unloader is equipped with a large-volume intermediate surge hopper. This hopper allows for discharge operations from a ship to continue even if no trucks are available immediately.



Port-mobile grain unloader

Technical specifications

	Siwertell 400 PMU	Siwertell 600 PMU
Rated capacity	Grain 400t/h Soya beans 375t/h	Grain 600t/h Soya beans 550t/h
Maximum ship size	60,000 dwt	60,000 dwt
Vertical conveyor	Ø 490mm/20.25m	Ø 490mm/20.25m
Horizontal conveyor	Ø 700mm/23.5m	Ø 700mm/23.5m
Number of truck loading outlets	Two	Two
Dust collectors	Yes	Yes
Travelling speed	0-8 m/min	0-8 m/min
Operation	Wireless remote control	Wireless remote control
Diesel generator	650 KVA	730 KVA
Maximum axle load	40t	40t
Maximum pad load (during operation)	60t	60t
Total number of axles	3+3 pcs on sea-facing side 4 pcs on land-facing side	3+3 pcs on sea-facing side 4 pcs on land-facing side
Number of rubber tyres	20 (two on each axle)	20 (two on each axle)
OPTIONAL EXTRAS		
Gantry conveyor with a loading spout	Not applicable	1 (optional)
Hoist	6.3t	6.3t

All Siwertell grain unloaders

Technical specifications

	Road-mobile unloaders	Siwertell 400 PMU	Siwertell 600 PMU	Siwertell 490 F	Siwertell 640 M	Siwertell 790 D
Capacity	240-400t/h	400t/h	600t/h	600t/h	1,200t/h	1,800t/h
Vessel size	Small (<15,000 dwt)	Panamax (60,000 dwt)	Panamax (60,000 dwt)	Panamax (60,000 dwt)	Post-Panamax (80,000 dwt)	Capesize (180,000 dwt)
Materials	Grain, corn, feedstuff products, and soya bean	Grain, corn, and soya bean	Grain, corn, and soya bean	Grain, corn, feedstuff products, soya bean and soya meal	Grain, corn, feedstuff products, soya bean and soya meal	Grain, corn, feedstuff products, soya bean and soya meal
Mobility options	Road-mobile, on gantry or stationary	Port-mobile with rubber tyres	Port-mobile with rubber tyres	With rubber tyres, on rails or stationary	On rails or stationary	On rails or stationary

Customer cases

Road-mobile ship unloader - Siwertell 5000 S

Graneros de Fuerteventura, Puerto del Rosario, Canary Islands

Aim

To install a high-capacity, efficient unloading solution for animal feedstuff and corn.

Solution

The Siwertell 5000 S road-mobile unloader was considered to be the most effective solution for this operation. Equipped with a high-capacity, fully-enclosed conveyor system and dual unloading spout, the road-mobile unloader provides flexible, highly efficient, environmentally-friendly ship-to-truck cargo transfer.

Truck loading dual bellows
Maximum ship size 5,000 dwt

Capacity 240t/h
Total weight 28t



Rail-mounted ship unloader - Siwertell 640 D

Rizhao Port, China

Aim

To meet the rapidly increasing capacity demands for cassava using a dust-free handling system. The operation had to include a radio remote-control option as well as an operator's cabin.

Solution

Siwertell rail-travelling unloaders discharge dry bulk material onto two belt conveyors running parallel with the quay, delivering a highly efficient, high-capacity operation. To ensure dust-free unloading, all conveying systems are totally enclosed and dust filters are installed at transfer points. The operator easily controls the entire operation and all unloader subsystems using Siwertell's specially designed control and monitoring system, SiMon.

Capacity (cassava) 400t/h
Maximum ship size 70,000 dwt

Capacity (grain, soya) 1,000t/h
Total weight 485t



Rail-mounted ship unloader - Siwertell 790 D

Peel Ports Group, Seaforth terminal, Liverpool, UK

Aim

A high-capacity solution able to unload Panamax-sized vessels in less than three days. The customer was looking for a system that would deliver exceptionally high through-ship capacities, low energy-consumption per unloaded tonne and a guaranteed long lifetime of conveyor parts.

Solution

Siwertell's screw-type unloader offered all of the desired features, along with low rates of cargo degradation and a totally-enclosed conveying line to ensure no dust or spillage. Additionally, its low weight meant that no jetty reinforcement costs were required. Siwertell's experience in delivering multi-grain ship unloaders, which are also capable of handling a range of more compact cargoes, was viewed as a benefit.

Capacity (grain) 1,800t/h
Maximum ship size 75,000 dwt

Capacity (soya) 1,700t/h
Total weight 500t



This is Bruks Siwertell

- Ship unloading
- Ship loading
- Conveying
- Truck unloading
- Chipping
- Milling
- Screening
- Stacking & Reclaiming
- Wood residue processing

Bruks Siwertell is a market-leading supplier of dry bulk handling and wood processing systems. With thousands of installations worldwide, our machines handle your raw materials from forests, fields, quarries and mines, maintaining critical supply lines for manufacturers, mills, power plants and ports.

We design, produce and deliver systems for loading, unloading, conveying, storing, and stacking and reclaiming dry bulk materials, alongside equipment for chipping, screening, milling and processing wood for the biofuel, board, saw mill, pulp and paper industries.

An extensive global service team offers support to Bruks Siwertell customers whenever and wherever it is needed.

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