

Portaload Portacombi

Ship loading systems and
combined ship unloaders/loaders.



Mobile and stationary ship loading systems.

High throughputs.

Since decades, Buhler has been a globally acknowledged leader in the supply of systems for handling bulk materials such as cereal grains, oilseeds and derivatives. This includes mechanical and pneumatic ship unloaders, ship loading systems, combined ship unloaders and loaders and bulk storage facilities of all types of design. State-of-the-art Buhler control systems guarantee efficient operation of these systems.

Buhler has accumulated vast experience in the field of ship loading systems, which has produced technically matured and reliable solutions especially in Buhler's activity in Argentina.

Customer requirements and project parameters vary to such a wide extent that decades of experience are needed for successfully designing and constructing such systems. Buhler has demonstrated these capabilities in a wide variety of projects for a large number of customers around the world.

Mobile and stationary ship loading systems

In the selection of the type of ship loaders, diverse parameters are crucial, for example:

- Location of the system and type of material supply
- Loading throughput and ship sizes
- Water levels of rivers or sea tides

The selection of a mobile or stationary loading system will depend on the terrain, the infrastructure and the operating parameters. Loading terminals with piers are typically equipped with mobile ship loaders. Terminals without piers are provided usually with stationary loading towers with booms, which can be slewed, lifted and lowered. They are capable of loading one or simultaneously two holds with throughputs of 2000 t/h and more.

An example of such a facility is the Terminal of Santarém in Brazil, which has been in service since 2003. This stationary design has 3 loading towers and 1 loading line with a throughput of 1500 t/h.



Cargill Agricola S.A. – Terminal in Por-de-Sol, Santarém, Brazil.

- Short berthing times
- High throughputs
- High reliability
- Wide range of ship sizes
- Customized solutions



Noble Argentina S.A. – Río Paraná, Argentina. 3 loading towers, 2 loading lines with throughputs of 1600 t/h of soybeans each.

Portaload – stationary ship loader.

Efficient and versatile.

The loading of sea-going vessels by stationary loaders has proven to be an efficient and cost-effective solution. These units allow ship holds to be loaded individually or simultaneously by several loading lines. Their possible loading boom motions (lifting, lowering, and slewing) eliminate the need for time-consuming shifting of ships. If required, the loading booms can be equipped with a kick system to optimize loading of the ship holds.

Hydraulically powered deflection shovels attached to the end of the loading spouts increase the area that can be loaded. Often, low-dust loading systems are demanded in order to satisfy operating as well as environmental requirements.

Buhler loading installations with throughputs of 2000 t/h of grain are based on vast experience and dependable engineering and have been successfully applied in numerous countries.

Exports from countries such as Argentina, Brazil, the U.S., China, Australia, etc. are carried out by such systems, which are capable of loading ships up to 120,000 DWT (Cape Size).



Bunge S.A., Ramallo – Buenos Aires, Argentina.
2 loading lines with a throughput of 1600 t/h, 4 loading towers.



Large kick angle allows optimal filling of the holds.

Stationary Portaload:

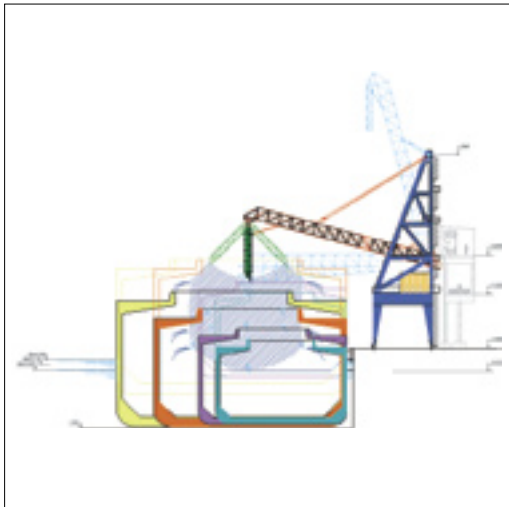
Throughputs up to	2000 t/h per line
Ship sizes up to	120,000 DWT
Kick angle	+/-45°

Portaload – mobile ship loader.

Flexible and cost-effective.

Mobile rail-mounted ship loaders are distinguished by their high flexibility. The combination of the ship loader's capability of travelling along the ship's side, the vertical boom motions and the kick-in/kick-out technique of the loading spout allow an ideal loading of a wide variety of ship types and sizes.

Excellent examples of such loading terminals are the systems operated by Bunge Alimentos S.A. and Terlogs S.A. in San Francisco do Sul in Brazil. Each of the two loaders is capable of loading up to 2000 t/h of soybeans or wheat or 1500 t/h of soybean meal.



Loading of a wide variety of ship sizes.

Illustration of the kick system and loading areas.

Mobile Portaload:

Throughputs up to	2000 t/h
Ship sizes up to	120,000 DWT
Kick angle	+/-45°



Bunge Alimentos S.A., San Francisco do Sul, Brazil.

Mobile ship loader, throughput 2000 t/h of soybeans or wheat or 1500 t/h of soybean meal.

Portacombi – Ship unloader and loader. Versatile and space saving.



Arasco, Dammam, Saudi Arabia.

Buhler Portacombi during unloading in Port Dammam, Saudi Arabia.
The loading boom has been slewed 90°.

Combined mechanical ship unloaders and loaders

Combined ship unloading and loading systems for cereal grains, oilseeds and derivatives are frequently applied in facilities with import and export activities. They may also be used after processes such as oil extraction from soybeans, where the extraction meals are sold to further processors. Combined ship unloading and loading systems are available in a wide variety of design versions.

Portacombi in Saudi Arabia

The Portacombi is based on the best-known mechanical ship unloader Portalink.

An example of such a facility is the Arasco project in Dammam, Saudi Arabia. The Portacombi in this installation is applied as an efficient unit for unloading and loading wheat, corn (maize), barley and soybean meal. The unloading throughput for grain is 600 t/h and soybean meal can be unloaded with a throughput up to 360 t/h from ships with sizes up to 70,000 DWT. Ships with sizes up to 20,000 DWT are loaded at a throughput rate of 300 t/h.

The Portacombi is equipped with bogies, enabling it to travel on rails. The shuttling distance along the pier is 200 meters, which enables it to easily access all ship holds.

Belt conveyors

For the conveying of grain from the ship unloaders to the silos or from the silos to the ship loaders in many cases belt conveyors are applied. Buhler uses open, covered or enclosed belt conveyors with high throughputs up to 2000 t/h. Galleries can be provided if requested by customers.

Open belt conveyor.



Portaloader – with dust suppressor.

Low-dust loading.

Mobile rail-mounted ship loader in Tallinn

A substantial part of the grain from the countries of the former Soviet Union is exported through Estonian ports. As far back as in 1986, Buhler commissioned a grain handling facility in this Baltic country. The new ship loader in Tallinn is installed on a finger pier. The throughput of the installation is 1200 t/h.

Low-dust loading using the RGLZ dust suppressor

Increasingly stringent in-plant, sanitation and environmental requirements in terms of dust emissions are satisfied by the dust suppressor type RGLZ. It regulates the material throughput in such a manner that the material velocity at the outlet of the spout is only little and therefore no dust will be whirled at the spout outlet.



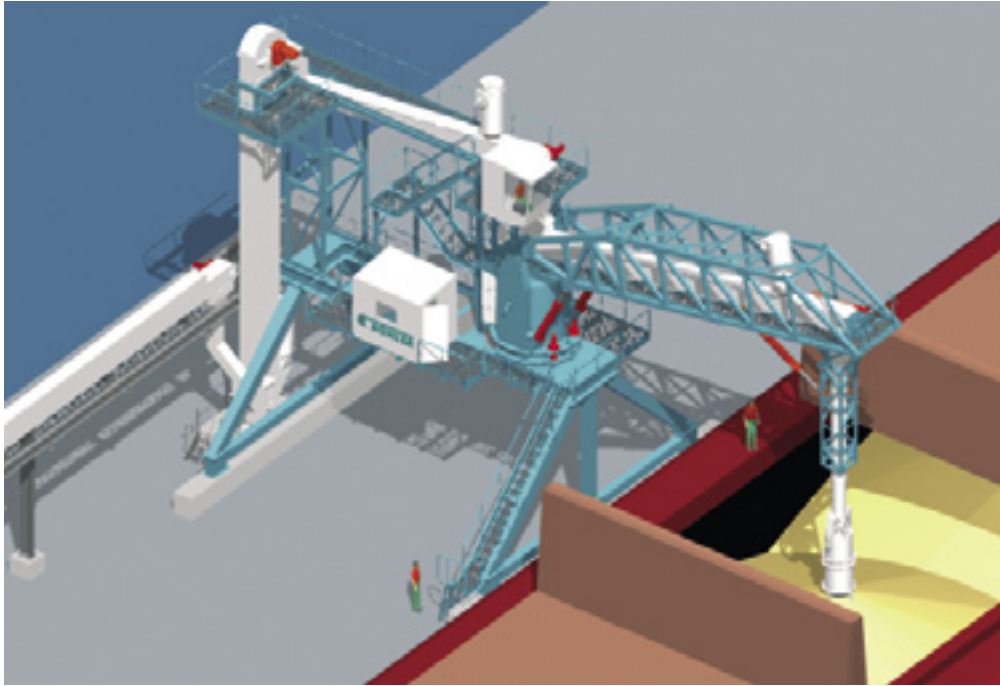
Muuga Grain Terminal, Tallinn, Estonia. Ship loader with RGLZ dust suppressor.



RGLZ dust suppressor.



RGLZ-1000 dust suppressor, designed for loading throughputs up to 2000 t/h of grain. The dust suppressor is provided with a distribution chute that can be rotated 360° and therefore allows optimal filling of the hold.



Lantmännen, Moss, Norway. Stationary ship loader 300 t/h with dust suppressor.



Dust suppressor with pivot pin for low-dust loading.

Upgrading of existing plants. Economical and reliable.



Storage facility of P. Kruse in Hamburg, Germany.

Various ship unloading and loading systems with throughputs of 250 t/h to 600 t/h.

Many bulk storage facilities can look back on a long tradition, having adapted over time to accommodate the specific needs of a certain age and to give consideration to the state of the art. The P. Kruse storage facility in Hamburg, Germany, is an excellent example of this development. After extensive expansions in 2005, the combined ship unloading and loading system today again reflects the state of the art.

The brick facade of the old structure, which is listed as a historical monument, had to be preserved in this project.

Dynamic market development. Fast unloading and loading.



Dalian Beiliang Grain Terminal, China.
Ship loaders, 2×1000 t/h.

The dynamic development in Asia, also in the area of bulk materials handling, is increasing the demand for efficient ship unloading and loading equipment. In the field of ship unloaders, Buhler has already equipped numerous renowned terminals with mechanical Portalink ship unloaders. In 2006, the two first loaders have gone into service in Dalian Beiliang with throughputs of 1000 t/h of grain each.



Dalian Beiliang Grain Terminal, China.
Efficient and modern Grain Terminal with 2 Buhler ship loaders Portaloader (2×1000 t/h) and 2 Buhler ship unloaders Portalink (2×1000 t/h) as well as with belt conveyors.

