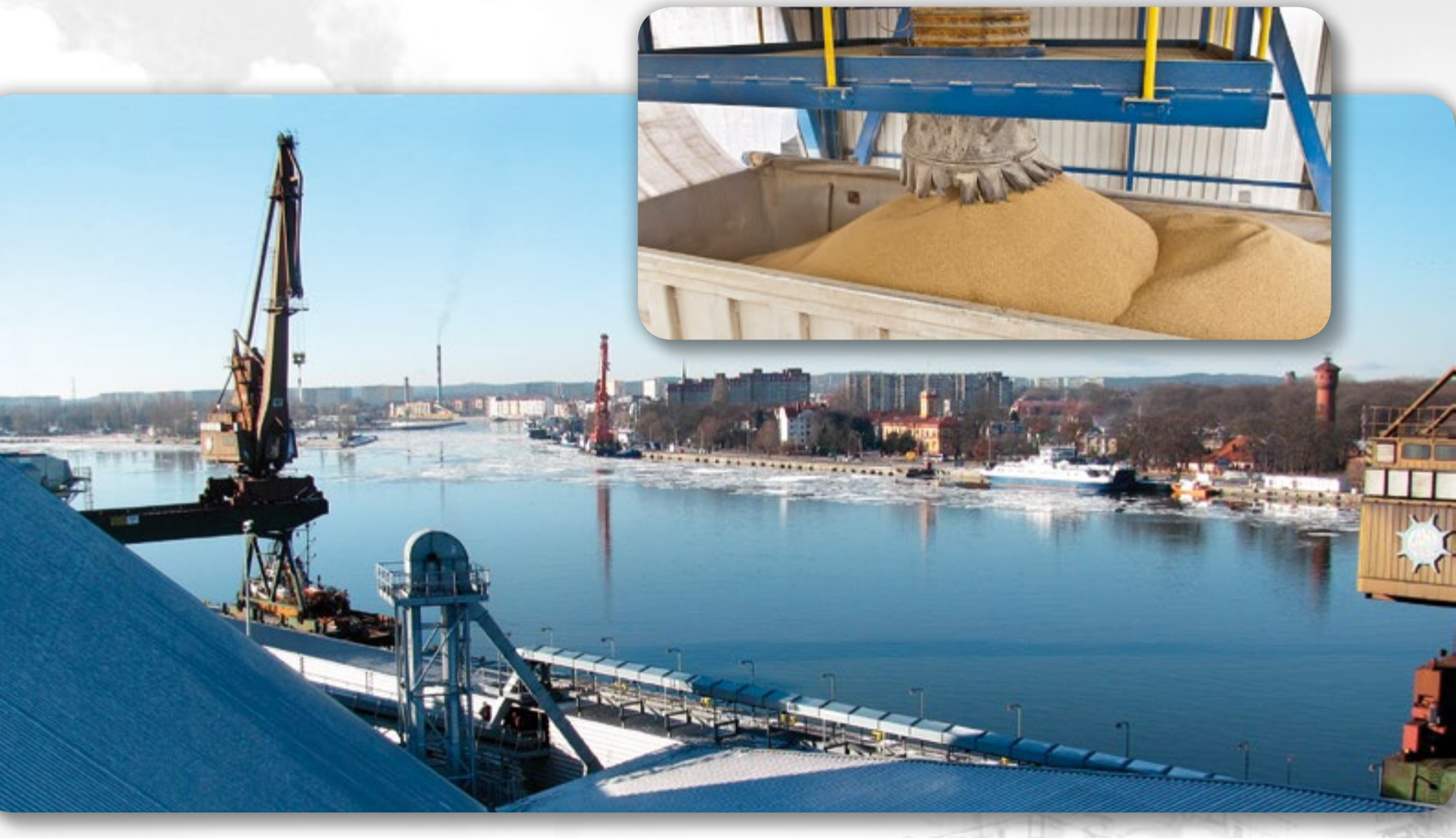
Bulk Cargo Terminals

Consulting • Design • Procurement • Project Management

BUTTIMER

Bulk Engineering



Introduction

Buttimer Bulk Engineering is an engineering and design company, experts in the mechanical handling of bulk materials. Part of the Buttimer Group, the company draws on more than 30 years of experience providing consultancy, engineering, design, fabrication and management services to bulk handlers including bulk cargo ports, commodity companies and agri-industry sectors.

Buttimer Bulk Engineering provides port operators, port authorities and EPC contractors with complete mechanical handling solutions—designed to optimise throughput, loading times, flexibility of commodity type and, ultimately, port effectiveness. With decades of experience designing systems to handle grains, coal, ores, biomass and others, Buttimer can provide expert process engineering, technical equipment specification, procurement and project management services. Systems can typically include ship loading and unloading, conveying, storage, drying, cleaning and other processing, with multimodal bulk transport integration. Buttimer strive to fully understand the clients' needs and environmental conditions at the port, to deliver a tailored and uniquely effective mechanical handling system.

The effectiveness of a Bulk Port's mechanical handling system—including throughput efficiency, layout, appropriateness of handling equipment—is a central component of its operations and has a direct influence on the operator's profitability. Buttimer Bulk Engineering works closely with clients to deliver services and solutions tailored to meeting the commercial and environmental demands unique to each bulk port. Volatility in global commodity trade, demanding throughput targets coupled with severe restrictions on space and storage capacity in many of the world's cargo ports, make clever port layout design and process engineering as important as ever. Buttimer Bulk Engineering is a competent and valuable partner to bulk port operators, EPC (Engineering, Procurement and Construction) contractors and Port Authorities seeking to develop or upgrade a dry bulk terminal.

Services

Buttimer Bulk Engineering offers turnkey mechanical handling solutions to projects for bulk cargo ports and commodity transport hubs. From concept design through to implementation, installation management and commissioning, Buttimer aims to be a valued partner to EPC contractors and operators—providing proven expert consultancy and services—in the development and delivery of their mechanical handling systems.

Engineering Consultancy

- Concept design
- Civil & mechanical feasibility studies
- Detailed planning design
- Start-up planning
- Mechanical specification consulting

Design

- System layout design
- Process engineering
- Detailed drawing
- Throughput & flow specification
- Equipment specification

Procurement

- Equipment specification & selection
- Global sourcing & OEM identification
- Tender preparation & analysis

Management

- Equipment installation management
- Design & installation of support structures, platforms and access walkways
- Mechanical handling systems ATEX, safety and compliance management
- Maintenance & asset life-cycle optimization, process design & management

Engineering Services

Buttimer Bulk Engineering draws on a design and engineering team with over 30 years' experience in the dry bulk handling sector. We have a highly skilled and mobile workforce, capable of turning their hand to any problem. We pride ourselves on the fact that we have the ability solve problems others cannot, or do not have the appetite to solve. The handling of bulk product—be it grain, iron ore or coal—is the primary purpose of bulk cargo terminals! Therefore integrating mechanical handling expertise into layout design, equipment specification and sourcing, process engineering, commissioning and operation is key to terminal optimisation.

Our consulting and design teams combine expertise in process engineering, layout design, storage design and the integration of processes such as de-stoning, cleaning, drying, bagging, milling etc. as appropriate, from concept design right through to installation, commissioning and operation. This can include procurement services, tender preparation and bespoke equipment fabrication where required.

Equipment Fabrication

In addition to the engineering and management services described, Buttimer Group specialises in the design and fabrication of bespoke bulk handling equipment for ports and transportation hubs. Our speciality lies in meeting the needs of the client by custom designing equipment that will meet the functional, environmental and throughput efficiency required. In the Port of Cork, Ireland, for example, Buttimer has installed two dock-side mobile loaders, and a rail mounted loader, all fully aspirated and dust-free. In a patented technology, Buttimer has designed a hydraulic suspension, breaking and jacking system, designed to keep loaders and hoppers stable, secure and level on the uneven, rough surfaces common on ship unloading quays worldwide.

Customers of port equipment and related services have included:

- ArcelorMittal Liberia
- Port of Cork
- Frontier Coal Colombia
- Foynes Port
- Greenore Port
- Bunge Ltd.
- Port of Gdynia

Equipment Procurement

Buttimer Bulk Engineering specialises in the specification and sourcing of equipment from OEMs internationally, to meet the requirements—throughput, commercial, environmental—of our clients. Buttimer have a longstanding relationship with Cimbria, one of the world's leading producers of specialist grain handling equipment, along with other mechanical equipment suppliers, in order to ensure quality and competitive mechanical handling systems for our clients.

Storage Equipment

We can provide silo storage, flat storage and open stack storage systems. We can offer a variety of steel silos, with flat bottom bins ranging from 50m^3 up to 19,700m^3, and hopper bottom bins from 55m^3 to 1,677m^3. The silos are made from corrugated steel and are made to either DIN 1055 or ANSI/ASAE (2001) standard with a minimum zinc coating of 450g/m^2. We can offer a wide range of capacities and methods for store loading and unloading, be it sweep augers or hydroscrews, depending on the products handled, their characteristics and the client's process engineering. Finally, with automated jacking systems we can quickly and efficiently erect the smallest to the largest silos. Flat stores can be customised entirely to the clients' requirements. Handling systems, including shuttle conveyors, mobile stacking conveyors or belt conveyors, complete with discharge car unloading—via horizontal reclaimers, hydroscrews, vibrating mats or just front-end-loaders—can be created to meet the client's needs and the characteristics of the product being handled. We can also design and install open stacking storage, fed by our radial telescopic stackers or simple stationary conveyors.

Shiploaders/Stackers

We design and supply shiploaders for a wide range of bulk products and applications. We offer mobile, rail mounted or stationery units, again to meet the customer's needs and tailored to the bulk product, environment and port layout. Our units can service barges up to post-Panamax vessels. The loaders can handle capacities up to 2500m^3 and the products handled can include, but are not limited to:

- Grains/cereals
- Coal
- Iron Ore and other minerals
- Fertilisers
- Biomass
- Woodchip
- Aggregates

Ship Unloaders

Ship unloading units can range from simple open ended hoppers up to fully aspirated self-drive dockside mobile loaders (DML). We can offer units that are rail mounted (RML) or pneumatic tyre mounted (DML). RMLs are designed to suit existing rail systems and can run along them powered by the crane that feeds them or can also be self-driven. Our DMLs are one of the most robust on the market. When we commenced to design and build DMLs in the early 1980's we set ourselves a task to solve the problem of the structures twisting. As no port wall is level and DMLs can be up to 14m wide, 14m long and 18m high, there can be deviations of up to 700mm over the diagonal length of the unit. In conventional units the structure is made in a way to take up these differences but as the structure twists it puts very large torsional loads on the structure with obvious consequences. Our engineers have designed a hydraulic suspension system to take up the differences in levels and hence keep a constant loading on each corner. This means a longer lifetime for the units and less maintenance. This combined with our advanced steering system allows for a highly manoeuvrable and robust unit. On both RMLs and DMLs we can design and fabricate a wide range of dust suppression features. We offer the unit with a 3m high thimble with a mechanical dust suppression system, flex-flap system, plus insert-able cassette filters that return the dust into the product. This combined with out-loading Cimbria Moduflex chutes allows for a greater control of dust emissions; both RMLs and DMLs can feed into a conveying system or direct to trucks, train wagons or barges.

Conveyors

We offer a wide range of conveying equipment for dry bulk cargos. As stated, we work with Cimbria and others to supply conveyors and elevators up to a capacity of 1000 TPH for grains and cereals, plus all necessary seed processing equipment, be it cleaning, drying, weighing etc. For non-grains and cereals we offer our own design of conveyors, up to a capacity of 2500m^3 per hour. Our conveyors can handle all bulk product commodities.

Unloading at Cork with two DMLs and an RML in the background

Project Examples

Bunge, Poland (Front cover photo)

The project delivered by Buttimer for Bunge, a global producer of food oils, at the port of Kruszwica in Poland, includes a large flat storage facility for soyabean cake and rapeseed cake, which also comprises a fully aspirated system for loading and unloading ships, rail and trucks, demonstrating very high throughput efficiency for a low density bulk product. It includes:

- A ship unloading capability of 800 TPH of soyabean cake.
- Ship loading of 600 TPH of rapeseed cake.
- Handling and storage capacity of 50,000 tonnes
- Loading and unloading dust reducing systems
- Ship, rail & truck loading and unloading

Port of Cork (Back cover photo)

Buttimer developed a DML (Dockside Mobile Loader) for the Port of Cork, which included the design, manufacture, erection and commissioning of a self-driving, fully aspirated unloading hopper, for loading cereals into trucks. The unit travels on 8 rubber tyres and has a suspension system which allows for ground level variation of 700mm.

- Size:13.5m wide x 11m long x 15m high
- Weight empty: 128 Tonnes
- Weight of product under grid: 60 Tonnes
- Maximum capacity of hopper:180 Tonnes
- Full dust aspiration with 'Flex Flap' baffle system under grid and dust aspiration from two truck out-loading spouts
- Discharge capacity: 450 TPH - 500 TPH through two truck loading spouts
- Filling grab size: 30m^3 capacity
- Max vertical dynamic load on grid: 150 tonnes
- Max horizontal load on legs: 30 tonnes

CRH Europe (Cement Roadstone Holdings) (Front cover inset)

Across three sites in Poland, Buttimer has designed and installed approximately 2 kilometres of aggregate conveyors, their throughput ranging between 200 and 800 tonnes per hour. The system includes stackers, radial stackers, reclaimers, and screens/screening processes. The CRH case demonstrates significant capability for complex system design, and large scale bulk aggregate conveying and handling.

Experts in the Mechanical Handling of Bulk Material

Buttimer Bulk Engineering are committed to offering clients workable and well thought-out solutions to their mechanical handling requirements, through consulting, engineering design, procurement and management services. The company has a strong problem solving ethos, and a willingness to accept a challenge, big or small. Part of the Buttimer Group, drawing on over three decades of experience in the sector, Buttimer Bulk Engineering is a competent and valuable partner to bulk cargo port authorities, operators and contractors. We are ready and eager to engage with new port and port upgrading projects internationally.

Our Background

E. Buttimer & Co. was founded in Tipperary, Ireland, in 1978, by Mr Edward Buttimer. The company specialises in the mechanical handling of bulk materials and began by providing equipment for handling bulk dairy and grain products to the Irish agri-industry market. In the years since, Buttimer has developed world class capabilities in the design and supply of mechanical handling equipment, drawing on a team of engineers with expertise in intake, conveying, storage and processing of a wide array of dry bulk materials, including grains, coal, ores, biomass and powders.

Buttimer has been providing engineering services, equipment supply, installation and complete turnkey solutions to agri-industry, mining, power generation, malting & brewing, construction and pharmaceuticals sectors in Ireland for decades. The company adheres to the highest standards of practice in engineering and management, is certified ISO 9001:2008, and has an impeccable health and safety record. In 2005, Buttimer opened a subsidiary in Warsaw, Poland, and has brought its experience to an increasing range of clients, including companies in the Middle East, Africa and Asia.

Buttimer Bulk Engineering is focussed on offering engineering services, such as consultancy, design and procurement to projects around the world. Drawing on the experience and expertise built up in Buttimer Ireland and Buttimer Polska, Buttimer Bulk Engineering brings an ingrained culture of problem solving and professionalism to projects further afield, making the intrinsic expertise and experience of the Buttimer Group available to a wider range of clients.

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