Loading chutes channel bulk material

Cimbria Bulk Equipment, Sunds, Denmark

For many years, loading chutes have been used for loading dry bulk products into different vessels, such as tanker trucks, open trucks, wagons, ships and barges. The strength of the loading chute has always been its flexibility and versatility, as well as the fact that it is able to load all kinds of dry bulk materials, under virtually all conditions, and in nearly all known applications, ie. in ports, in refineries, in cement and power plants, and in grain terminals.

For 25 years, Cimbria has produced and installed more than 12,000 loading chutes worldwide, branded Moduflex, where the chutes are being used for loading anything from cobber concentrate over fly ash and cement to fertiliser, grain and food stuffs. The chutes are used for loading ships and barges, open back trucks and dumper trucks, stockpiling, tanker trucks and boats as well as train wagons. In many cases, the chutes are loading not only one specific product, but many products through the same chutes – for instance in port terminals. Other systems on the market only offer loading in open back trucks, and only with very specific and homogenous products.

Flexibility in design

This variety of applications can only be supplied due to the versatility of the loading chute, based on the general construction and build. The Moduflex loading chutes are designed with a unique modular construction, which means that the loading chute can be adapted to suit 99 percent of all known applications within the dry bulk industry, although the parts being used are standard components. This ensures that the operators know that the loading chutes are based on well-founded, known technology that provides the user with quick access to standard spare parts if a breakdown occurs, so down times are kept to a minimum. On top of this, the Moduflex loading chutes can cater for capacities up to 4000 t/h in the standard configuration, and a drop of more than 25 meters. This flexibility can only be achieved using a loading chute, and is not possible in alternative loading systems.

Due to the fact that Cimbria manufactures several hundred Moduflex loading chutes every year, the price becomes very attractive, considering the price to quality relationship, and very low life cycle cost for the user. Installation costs for the loading chutes are negligible, as it only requires mounting the chute to the flange of the inlet with a number of bolts and connecting it to power - or pressurised air if the chute is with integral filter.

Adapting to industry

The Moduflex loading chutes can of course be used in light duty industries for loading items such as grain, bran and food stuffs. It can also be used in the heavy duty industries for loading things like cement, limestone, fly ash, clinker and minerals. Again this versatility is founded in the ability to construct the various parts of the chute in – for example, high density polyamides, abrasive resistant steel, stainless steel, liners in Vautid and/or ceramic compound materials. Furthermore, loading products with larger particle sizes or very low densities and little structure is completely impossible, except through a loading chute. No other loading system can offer the same degree of adaption to meet the needs of the users, or the same safety and durability in one piece of equipment.

The proof of this becomes even more evident when looking at toxic products, or products that need to be loaded in a closed system - like food and chemicals, as this again is only possible using a loading chute. The demands of food safety and cleanliness within the chemical industry make it impossible to load products like sugar with any 'open' system that exists on the market. The risk of contamination loading any product for human consumption and almost any chemical base materials in non-sealed systems is unacceptable and in some case dangerous to health. Genetically Modified Organism (GMO) products are another example of materials that need to be loaded within totally concealed systems. In order to avoid contamination, a closed system with a closing device at the outlet, there to ensure active sealing during loading and plugging - when the chute is not in use, is required. Avoidance can be achieved by using accessories, FlexClose and FlexSeal, which are available for the Moduflex loading chutes.

Environmental protection

Looking at it from a different point of view, the overall purpose of the loading chute is to ensure a dust free loading of the products. The environmental authorities in more and more countries are imposing strict legislation on environmental protection. This means that the duties of loading involve - protecting the natural environment: air, water and soil, as well as protecting the surrounding environment and the working environment: health and safety. There is no argument against the fact that only loading chutes are able to fulfil all these tasks, by truly providing a dust free situation. Although other systems claim to do so, dust and particles will inevitably escape in the space between the outlet of the material provider - a silo or similar - and the inlet of the chute, eg. a hopper, a hose or similar. Looking at the products mentioned above, they all have this common characteristic, that they create dust during loading. This dust needs to be confined and dealt with in a safe and efficient way. This objective can only be secured in a well aspirated loading chute, which is either connected to a separate filter or is provided with an integral filter.

The third aspect of modern loading is the varied environments where loading takes place. In some cases the loading does take place inside, in nice enclosed surroundings, but the vast majority of loadings are done outside, where wind, sun and humidity is affecting the material being loaded and the loading equipment. For example when loading is done through a hopper system, the wind will seriously affect the free falling product, creating dust problems, and if loading is done using a simple hose or bag, the humidity in the air will affect the product and cause disruptions in the loading procedure.

Conclusion

The conclusion must be then that loading chutes are for now - and likely to be for years to come, the only alternative within loading systems where you can combine flexibility and versatility with efficient loading, and at the same time adhere to the environmental legislation and work safety. This is a must for companies dealing in the loading and transportation of dry bulk commodities. Alternative systems

Moduflex loading chute with integrated filter loading ammoniumsulphate into flatbed truck

have such a limited usage, and can only be justified in a small number of applications, where the conditions and the product are so homogenous that they will work to the satisfaction of the users. Cimbria Moduflex has built-up a vast experience - due to the huge installed base – in the loading of all kinds of dry bulk materials. This means that whenever we are faced with ever more stringent environmental legislation and new demands from companies, we can draw from this experience and very quickly adapt to fulfil these demands.

ABOUT THE COMPANY

Cimbria was established in 1947 and is today an international organisation with 600 employees in 15 companies located throughout the world. Cimbria offers equipment and processing plants for the grain and seed industry; and transport and conveying equipment for bulk handling. The Moduflex loading chute is designed and sold by Cimbria Bulk Equipment A/S, a part of the Cimbria Group of companies.

ENQUIRIES

Cimbria Bulk Equipment Member of the Cimbria Group of Companies
Drejervej 10 , DK-7451 Sunds, Denmark
Tel: +45 72 42 24 00
Fax: +45 72 42 24 99
Email: cbe@cimbria.com
Web: www.cimbria.com

Dust free loading of dry malt into open ship.