

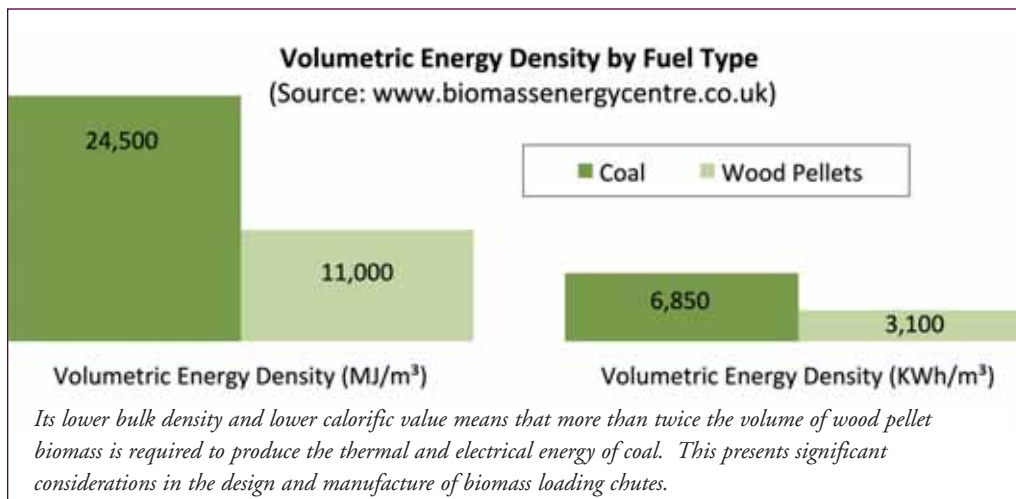
Cleveland Cascades Ltd – at the forefront of biomass loading solutions

Global manufacturer of loading chutes, Cleveland Cascades Limited, is seeing increased interest in biomass wood pellet applications, on top of another year of sales growth in 2012 that saw the company post record annual sales and be short-listed for two prestigious local business awards.

The Teesside-based (UK) company is well known for its shiploaders, silo loaders and road loaders for dry bulk materials such as

potash, fertilizers and coal, with over 500 of these loading chutes already supplied throughout the world.

“So far this year, we have delivered silo loaders for soda ash to the USA, for sulphur to the UAE and for sulphates in Spain”, says Commercial Manager, Chris Wise. “In many ways, this is our core business, as these are the types of applications we have supplied over the past decades. We are, however, also seeing



increased biomass enquiries for our Cascade Loading Chute. So far we have already supplied biomass chutes to UK power stations and the port of Tyne, however more recently we won an order for a shiploading facility in Canada. This demonstrates the versatility of the Cascade system, in that it can load huge volumes for sea freight from North American ports, but can also handle more specific loading, such as rail tanker loading when

Handling wood pellets in ports and power stations

The year 2012 saw Cleveland Cascades deliver and commission loading chutes for the loading of wood pellet biomass in port unloading facilities and power station storage applications.

Unlike coal, which can be stored outside, biomass wood pellets need to be stored in a dry environment to prevent biological degradation. Storage of the material also needs to be continually rotated, as prolonged residence times in the silo can lead to further degradation.

The Cleveland Cascades Cascade loading chute allows the safe and efficient loading of wood pellet biomass and is available in a variety of configurations: shiploader; silo loader; road loader; and rail/tanker loader.

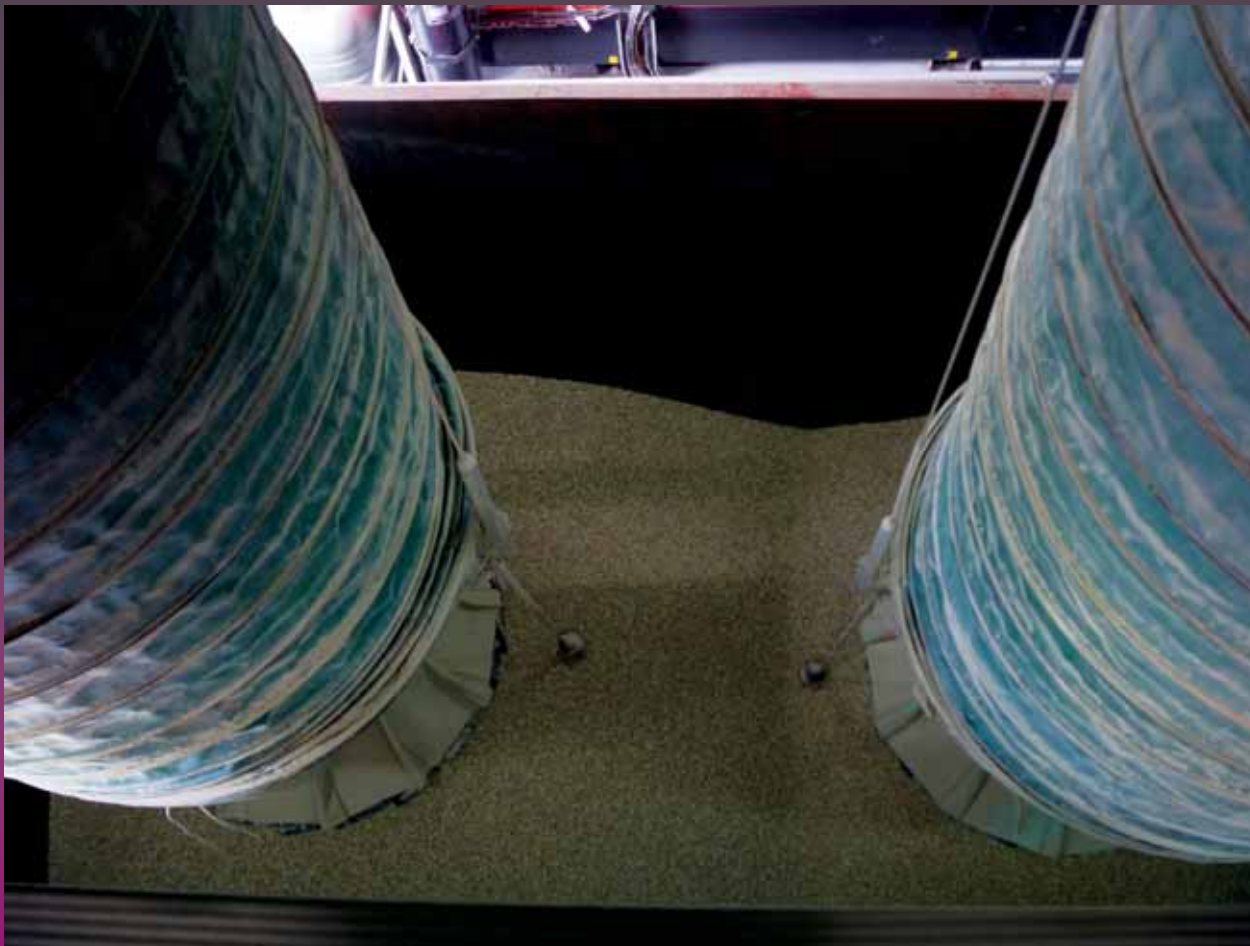


Controlled loading of biomass wood pellets

The Cleveland Cascade loading chute allows the controlled and efficient loading of material from conveyor to ship, silo, stockpile or rail/road loader. This photograph shows biomass wood pellet loading of a road tanker at the port of Tyne, United Kingdom.

The material is supported the full length of the chute by

means of an arrangement of oppositely inclined cones. This arrangement controls the mass flow of the material; loading at low velocity and high volume which means that products can be transferred with minimized degradation and segregation of product, meaning more efficient loading and minimized dust emissions.



the biomass reaches the UK.

Biomass wood pellets are being increasingly used as a renewable fuel source, predominantly as an alternative to coal. The loading of biomass wood pellets poses particular loading challenges however. Wood pellets are brittle and are prone to material degradation, therefore improper handling can result in increased dust emissions.

The material is also relatively low bulk density but needs to be handled in huge volumes to be economically viable. Wood pellets also have a lower calorific value than coal, which all means that the Cascade loading chutes need to be capable of handling large volumetric loading rates. This also means that silos need to be bigger and taller, meaning longer chute lengths. "This is something that we have encountered in the biomass projects we have already delivered. As in all our projects, our design teams worked closely with their client counterparts to develop the best possible solution to these issues."

Traditional loading chutes that allow the freefall of material from conveyor to pile would result in high material velocity, subsequent material degradation and dust emission. The higher

the loading drop, the greater the material velocity and the bigger the problems. This is avoided with the Cascade loading chute, as the material falls for a minimal distance from cone to cone throughout the length of the chute. As the pile height increases during the loading process, the chute is retracted, which allows greater pile heights and optimizes storage utilization in the vessel or silo.

The importance of biomass wood pellets as a source of renewable energy looks set to continue, with industry estimates of a threefold increase in demand by 2020. Cleveland Cascades recognizes this, and its staff recently attended a biomass training course at the renowned University of Greenwich Wolfson Centre for Bulk Solids Handling Technology.

This is part of the company's proactive and innovative approach to bulk solids handling, which has resulted in continued sales growth and peer recognition in the upcoming North East Business Awards. "We have been shortlisted in two awards, the Export Award and Manufacturing Award" says Chris Wise. "It is a nice bonus to be recognised in this way, especially given the strength of competition in these categories."