Dust-controlled coal loading from Cleveland Cascades

Cleveland Cascades is a specialist in the design and manufacture of bespoke dry bulk material loading chutes. Based in the North East of England, the company has a population of over 600 systems working in bulk handling facilities worldwide. It has built a reputation for well-engineered, robust, high performance chutes, backed up by excellent customer service and product support. The product is suitable for use in shiploading, storage, transfer points, road and rail wagons, as well as tanker loading. The product range includes both Cascade, controlled flow technology and Free Fall chutes capable of loading up to 6,000tph (tonnes per hour), with a chute length up to 30m.

Cleveland Cascades loading chutes are particularly well suited to handling coal and the sector has always been a major part of the company's business. The first coal handling chute was delivered to South Africa in 1995 and since then the population of coal handling systems has grown consistently. In 2015 it accounted for approximately 25% of sales and the systems were delivered worldwide to customers in North & South America, Asia, Australia as well as in Europe. The product types delivered last year in to the coal sector also varied widely, including

Cleveland Cascades stockpile chute.

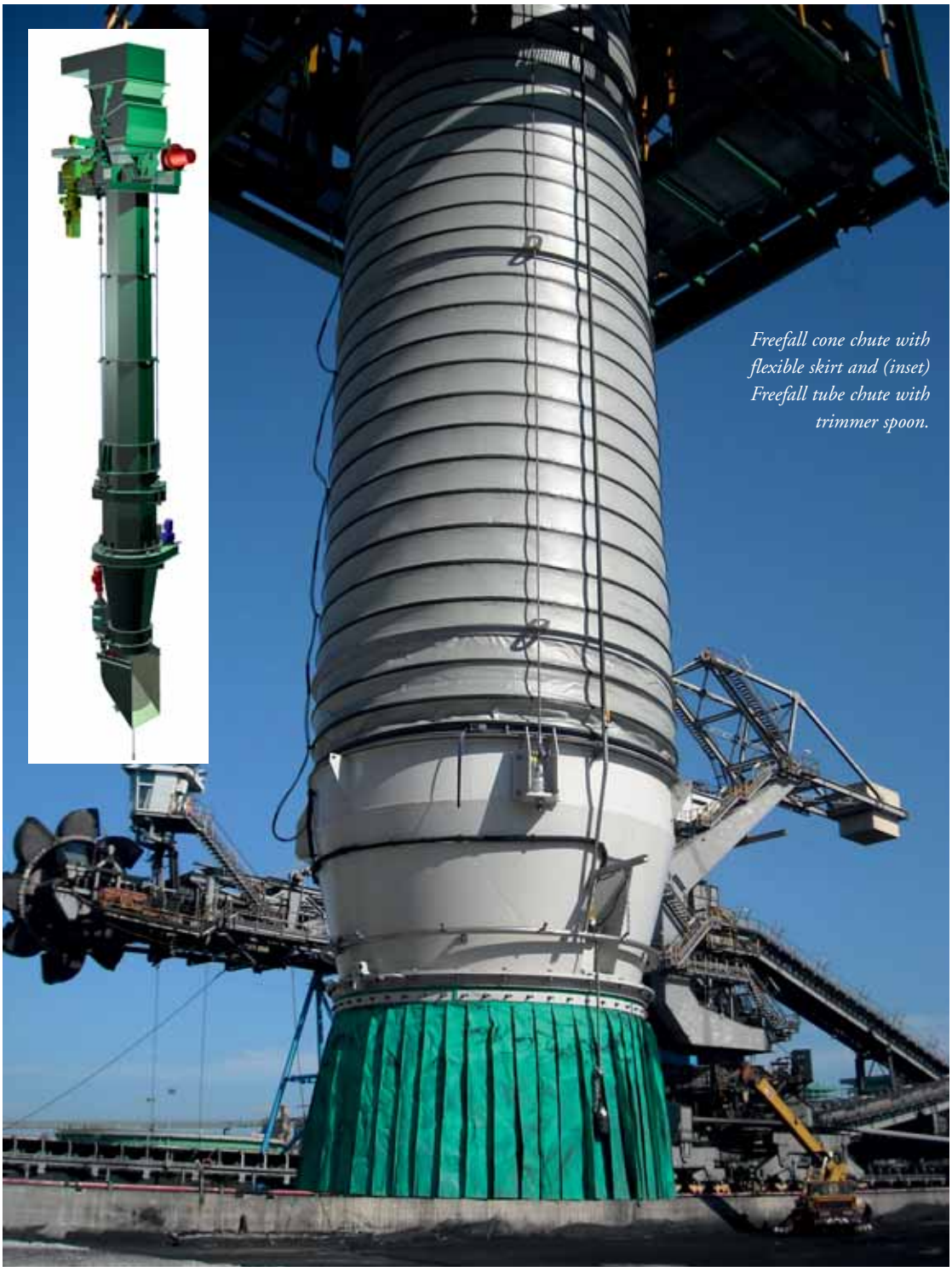
cascade shiploaders, transfer chutes and free fall vehicle loading chutes.

In addition to the key criteria of loading capacity, coal handling facilities often focus on minimizing dust pollution and preventing both material degradation and material segregation. Environmental health regulation, intended to protect the handling facility and its neighbours, is a growing concern in developing countries as well as the advanced economies. Most applications nowadays have a requirement to effectively control dust emissions during handling. In addition, coal can have a relatively wide range of particle sizes and some handling systems can damage larger pieces and reduce their size.

The Cleveland Cascade chute effectively addresses all these factors for coal handlers. The Cascade loads material through a

Cleveland Cascades shiploader with 1.5m trimmer.

series of oppositely inclined cones, which controls the flow at low velocity, yet high volume. During its descent, the material is supported through the full length of the chute, ensuring a soft delivery from the outlet to the material pile, for every load. It therefore arrives at the load pile with minimal degradation. The controlled descent of the material prevents air separating the particles and largely eliminates dust generation at source.



Freefall cone chute with flexible skirt and (inset) Freefall tube chute with trimmer spoon.

FAM, Colombia recognized this recently, when it installed a shiploading Cascade system with a chute length of 18.5m and a capacity of up to 2,750tph handling coal. The project had a special requirement for a 5m trimming spout. Globotech in Colombia recently installed a shiploading Cascade system, with a loading capacity of 1,000tph which also specified a trimming spout with 1.5m trajectory. Coal is abrasive and has a relatively large particle size, so to ensure longevity, the 1.5m trimmer spout was fitted with a 6mm ceramic lining.

Where dust control is not a critical requirement for loading, Cleveland Cascades' Free Fall chutes can be an effective solution and The Port of Riga in Latvia took this option recently when it needed a chute for loading vessels at its new coal terminal. With a capacity of 2,000m^3/hour, through a 15m chute, the system will load 3mt (million tonnes) of coal per annum. This free fall chute is designed to be robust over a long operating life and is constructed from 6mm hardened, wear-resistant steel.

Coal handlers not only load the material in to vessels. They also load coal to stockpiles as well as to vehicles; Cleveland Cascades has built numerous systems over the years for these applications, utilizing both the Cascade controlled flow and conventional free fall technology.

A big part of the package provided by Cleveland Cascades is ongoing product support, from the moment the product is delivered and throughout its operating life. Commissioning engineers can visit site to help install and optimize the operation of the chute according to customer needs, upon delivery. Manuals are comprehensive and detailed to give the operators the information they need to maintain the product and maximize its operational efficiency. On-site technical advice, repair and maintenance is also available during the life of the product using factory-trained engineers. Cleveland Cascade engineers have extensive international experience maintaining, servicing and optimizing Cleveland Cascade systems all over the world. To complete the support package, original OEM spare parts can be supplied with the original order and subsequently during the life time of the chute.