

Telestack's customised mobile ship loading system

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Telestack has recently installed and commissioned a mobile materials transfer and ship loading system for Riga Fertiliser Terminal (RFT). The transshipment terminal, when completed at the end of 2014, will be the most advanced and safest handling facility for fertiliser in northern Europe.

The material is brought by rail from Russia via RFT's partner, Uralchem. The rail wagons are then unloaded and transferred by a series of conveyors to covered dome storage, each with a capacity of 25,000 tonnes. Telestack was involved in this project in order to supply custom design mobile feeding/material transfer/ship loading solutions for the first phase of the project. This system has enabled the company to export fertilisers before the project is finished, hence enabling them to have a revenue stream before complete construction is finished. The Telestack system will be used for the first three years as the main ship loader and after this period will be used as supplementary capacity and back up for a fixed installation.

Considerations for the Telestack system

Due to the proximity of the terminal to the city of Riga, the complete system incorporated fully covered conveyors and fully sealed transfer points as well as dust extraction to minimise dust emissions into the nearby environment. This was paramount in the facility being granted permission to export from the terminal, and was something that was foremost in Telestack's design brief.

The material is reclaimed from the dome storage via two Liebherr 576 wheel loaders. These feed the material into a Telestack HF514 mobile hopper feeder, which has a 15 cubic metre capacity with a 1200 millimetre wide belt feeder. The hopper is fully lined with 6 millimetre polyurethane liners to minimise wear and protect the paint finish. The feeder and incline conveyor speeds are controlled by a variable speed drive. This is required as RFT will handle a variety of materials with densities ranging from 0.7 to 1.4 tonnes per cubic metre. The variable speed drive also enables the operator to run the belt speeds as slow as possible so as to minimise dust creation at transfer points.

Dust extraction process

After the hopper feeder, the material is then transferred to a series of 30 metre Telestack mobile link conveyors. These link conveyors are wheel mounted and can be manoeuvred around the site by a wheel loader. The link conveyors also incorporate a dust extraction system at each transfer point. Telestack used Donaldson Torit, an internationally recognised manufacturer of quality extraction systems for this part. The filter element on the extraction unit is made up of a special neoprene fabric which is suitable for use with fertilisers. The extraction systems also feature an intelligent automated monitoring system which maintains efficiency of the units.

The extraction units are supplied with pneumatic air by means of a 150 litre compressor mounted on each link conveyor. The



Mobile radial telescopic ship loader



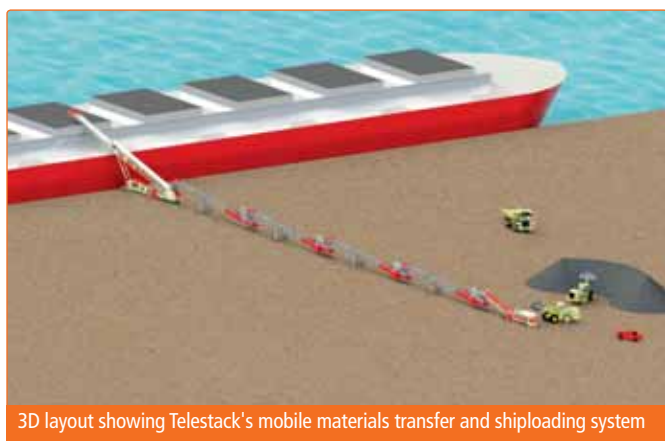
Mobile hopper feeder and link conveyors feeding ship loader



Layout showing Telestack's mobile materials transfer and ship loading system



Mobile link conveyors feeding ship loader



3D layout showing Telestack's mobile materials transfer and shiploading system

link conveyors also feature a variable speed drive to control the belt speeds. As with all the transfer points, the link conveyors utilise the fully enclosed chutes both at discharge points and at the intake point.

The final Telestack mobile link conveyor also has a radial drive incorporated into the wheels which enables the unit to radial 45 degrees of centre line, so as to feed the ship loader at two positions to load each hatch on an 8,000 tonnes coaster vessel. This enables a quick set up time for the hatch changes.

Customisation

The Telestack mobile ship loader supplied to RFT was a custom design TS 542. The unit incorporates complete dust extraction and containment features, some of which include fully sealed transfer points, fully covered conveyors both on the inner and the outer, dust extraction and transfer points, complete under trays to prevent material dropping onto the jetty, and an 8.5 metre free-fall chute to contain the dust right into ships hold. The TS 542 is crawler tracked mounted and fully mobile to move from hatch to hatch. The crawler tracks also had rubber pads to protect the

concrete structure of the jetty. The telescopic, luffing and radial ability enables RFT to completely trim the 8,000 tonne vessel from the two loading positions.

The Telestack mobile solution for RFT is easily moved around the terminal as required giving RFT significant flexibility. Due to the corrosive nature of the fertiliser, a very high paint specification was used on all machines with average dry film thickness of 250 micron two pack epoxy paint finish. The complete system is powered by RFT's mains electricity which enabled very low operating costs for the complete system. The system also complies with environmental dust pollution regulations.

ABOUT THE AUTHOR



Philip Waddell has been involved in the bulk materials handling industry for the last 15 years. In his capacity as international sales manager, Philip has been involved in projects within mining and in the ports and terminals sector across all six continents with major blue chip clients.

ABOUT THE COMPANY

UK-based **Telestack** was formed in 1999 to offer mobile bulk material handling solutions. The equipment is used for handling coal, iron ore, aggregates, fertiliser, grains and woodchip, the loading and unloading of ships, barges and rail wagons, stockpiling material, and reclaiming stockpiles. Telestack's mobile bulk material handling solutions offer significant benefits over traditional handling methods, including cost savings of up to 80 percent; improved on site safety, mobility and flexibility; reduced carbon emissions; and higher resale value. Telestack has a proven record of performance around the world with satisfied clients including Rio Tinto, BHP Billiton, Xstrata, Arcelor Mittal and Tata Steel.

ENQUIRIES

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