

The Mersey Docks and Harbour Company
Animal Feed Import Facility



The turnkey contract incorporated for the design, manufacture and installation of a new Import, Storage & Distribution Facility for grains and animal feed at the Seaforth Dock, Port of Liverpool, UK. The challenging programme targets set at the commencement of the project were achieved by Redler with the equipment undergoing final commissioning prior to arrival of the first vessel during March 2003. As a major multi-million pound long-term investment by the port, the facility is to be utilised by Arkady Feed (UK) Ltd, one of the UK's largest animal feed trading groups.



The 800tph intake system uses traditional and proven forms of Redler belt conveyor handling equipment with the addition of a bespoke dockside 'Mobile Reception Hopper' and two 'En-Masse Redler Bridge Conveyor Systems', one for each of the two flat stores.

The Redler equipment used in its operational sequence is: -

Intake

A crane fitted with a 33 cubic metre grab suitable for unloading vessels Panamax size up to 65,000dtw, is used by the port to discharge into a custom built Redler mobile reception hopper fitted with high specification dust suppression equipment.

The material is then discharged from the mobile hopper either via its integral 12 metre long belt conveyor with over band magnet to the dockside belt conveyor or directly to lorries.

The 1200mm wide x 800tph dockside belt conveyor has been designed to accept product at any point along its 200 metre length but most importantly is fitted with a cover belt to minimise dust pollution and protect the environment.

The dockside conveyor discharges at a transfer tower T1, then via a 75 metre long inclined conveyor material is transferred to a second tower T2 that is fitted with a continuous bulk scale incorporating a dust suppression unit.

From the weigh tower T2 an open gantry belt conveyor with doghouse covers transports and elevates product to a third tower T3 positioned mid point along the side of the new store building.

From this elevated position and at 90 degrees to the incoming conveyor a covered gantry belt conveyor runs over the store roof and using a unique arrangement will feed to either of two in-store shuttle conveyors, one in each of the two separate flat stores.





Bulk Flat Storage

There are two new storage buildings each 45m wide x 220m long x 11.2m to eaves and 16.2m to the apex. The two stores are joined along their length by a 15 metre wide covered vehicle 'Link Road'. Each store has a 110m reversing shuttle conveyor fitted along the inside wall that feeds directly onto the unique Redler Bridge Conveyor.

'En-Masse Bridge Store Conveyor'

Each store is fitted with a 45 metre span Redler 'En-Masse Bridge Store Conveyor' that runs on rails mounted along the sidewalls of the store and is fed by the shuttle conveyor. The bridge gantry is shaped to match the profile of the store roof and supports a Redler En-Masse chain conveyor across its width having multiple outlets.

Based on operational requirements, a bridge position is selected within the store and once the whole system is started the product will discharge from the bridge conveyor onto the store floor.



The unique Redler En-Masse principles inherent within the bridge conveyor provides for the automatic discharge of product across the full width of the store from floor level right up to the underside of the bridge conveyor. A high level probe within the bridge conveyor triggers the incremental and automatic movement to a new working position, thus storage is maximised over the full height and width of the store.

Reclaim

Front-end loaders reclaim the product direct from the store floor to road vehicles with lorry access being provided by the central 'Link Road'.

After loading the lorries again use the 'Link Road' to move to the weighbridges that are situated outside the stores on the access roads within the facility boundary.

Controls

The dockside Mobile Hopper is independently controlled whilst the transfer conveyors and the store bridge system is operated by means of a fully integrated PLC system from a control room situated in the main office.

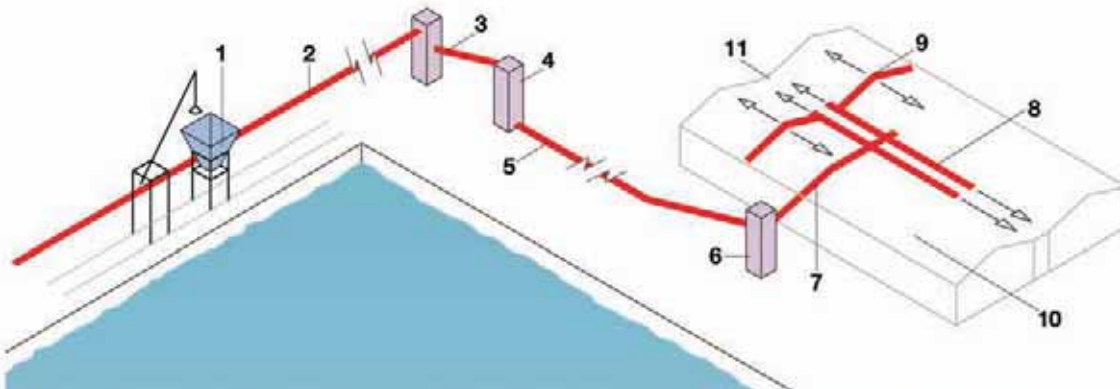


Environmental control

Careful consideration has been given to all aspects of the buildings and equipment design in particular with the fitting of dust suppression units on the mobile hopper and at all conveyor transfer points.

Redler have worked closely with The Mersey Docks & Harbour Company and Mazdon the civil and structural building contractors to ensure that the plant was delivered to specification and in accordance with the planned programme.

The Mersey Docks & Harbour Company 800 TPH Animal Feed Import Facility



- 1 Mobile Reception Hopper with Integral Dust Suppression and Belt Feeder Discharge Unit
- 2 Dockside Belt Conveyor with Cover Belt for Environmental Protection
- 3 Transfer Tower T1 and Intermediate Conveyor
- 4 Transfer Tower T2 with Weigher
- 5 Dock to Store belt Conveyor with Doghouse Covers for Environmental Protection

- 6 Transfer Tower T3
- 7 Roof Transfer Belt Conveyor
- 8 2 x Shuttle Belt Conveyor
- 9 2 x En-Masse Bridge Store Conveyors
- 10 Automated Control System
- 11 2 x 45,000 tonne Storage Buildings

International Coverage

'Total Mechanical Handling Capabilities for Dry Bulk Products'

Redler is a leading International supplier of plant for the handling of dry bulk products with many years experience in the design and supply of single items of equipment, right through to complete turnkey solutions.

weighing

feeding

conveying

automation



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