

TRF's turnkey projects in ports and stockyards

INTRODUCTION TO TRF

TRF Limited has been a major provider of material handling solutions for five decades. Set up in 1962, it is part of the Tata Group that operates in seven sectors and has a combined turnover of about \$100,00 billion. The company designs, supplies, erects and commissions bulk material handling equipment and systems in infrastructure industries like steel, power, mining, ports and cement. It provides total engineering solutions, from the concept to commissioning, to fulfill the requirements of its customers in the core sectors. TRF has the expertise in executing turnkey projects for handling dry bulk cargo within the country and also overseas.

TRF's PORT & YARD EQUIPMENT DIVISION: CAPABILITY AND PRODUCTS

TRF's Port and Yard Equipment Division is a renowned supplier of port equipment and specializes in the engineering and manufacturing of bulk material handling equipment for ports, shipyards, power plants and metallurgical units. An in-house manufacturing unit located at Jamshedpur, India, supported by a highly skilled engineering team using advanced computer-aided designing tools and a strong quality assurance and inspection system are some of the key strengths of the division. An extremely efficient and dedicated team of erection and commissioning engineers ensure high level of supervision of the project equipment at site. The division also offers consultancy and maintenance services to these sectors. To enhance the performance of its state-of-the-art equipment and the benefits that accrue to its customers, they are customized to fit the requirements and unique characteristics of every location. This translates into uninterrupted higher output and a competitive advantage for its customers.

TRF's Port and Yard Equipment Division is capable of undertaking turnkey projects for delivering material at high capacity and on continuous basis for different types of industries handling bulk cargo like coal, iron ore, limestone, dolomite, coke,

Level luffing cranes.



lignite, fertilizers, food grains and similar types of raw materials. The projects start from unloading of bulk material, conveying, processing/sizing through a series of crushers and screens, storing and reclaiming through mechanized equipment and again feeding the discharge point by a series of conveyors and appropriate unloading machinery. To ensure that the entire operation is completed efficiently TRF supplies most of associated equipment, such travelling trippers, slewing stackers, bucket wheel reclaimers, stacker cum reclaimers, barrel reclaimers, stacker/reclaimers, wagon loaders, wagon tippers along with side-arm-chargers which are manufactured in-house at its plant in Jamshedpur. Similarly, various types of ELL (electric level luffing) cranes such as goose neck, single boom grab and hook duty etc. and shiploaders, ship/barge unloaders have been supplied to various ports and shipyards for handling dry bulk material and construction of ships respectively.

The capacity of the TRF stacking and reclaiming equipment ranges from 3,600tph (tonnes per hour) in stacking mode to 3,000tph in reclaiming mode. TRF's wagon loaders are of 3,000tph with a boom length of 7.5 metres, ship unloaders are of 2,000tph with an outreach of 38 metres and ELL cranes are of 60tph capacity with outreach of 50 metres.

Travelling wagon loaders.



SOME TURNKEY PROJECTS IN INDIA AND THE INTERNATIONAL MARKET

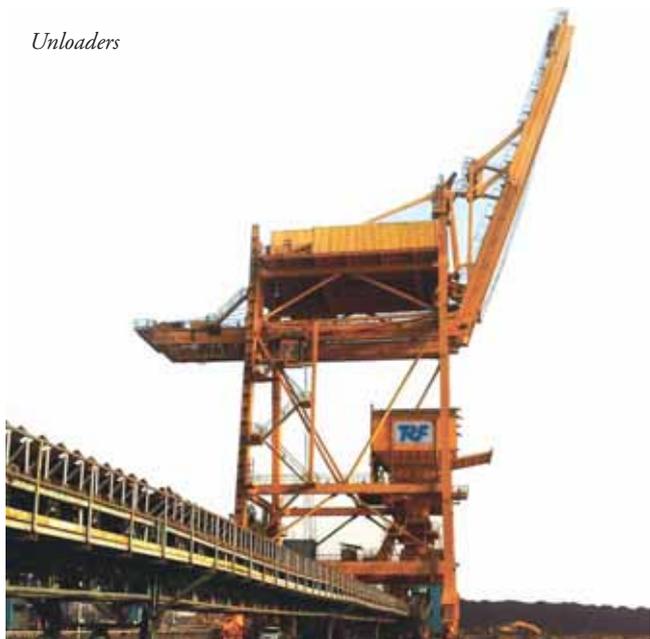
The company's major customers include Tata Steel Ltd, National Thermal Power Corporation,

Stacker/reclaimers.



Steel Authority of India Ltd, Rashtriya Ispat Ngam Ltd, various state electricity boards, Bharat Heavy Engineering Ltd, Damodar Valley Corporation, Jindal Steel & Power Ltd, Essar Steel Ltd, Mideast Integrated Steels Ltd, Durgapur Projects Ltd, Bhushan Power and Steel Co Ltd, LANCO, Jindal Power Ltd, BMM Ispat Ltd, Heavy Engineering Corporation Ltd, Energo, National Aluminium Co Ltd, Calcutta Port Trust, Krishnapatnam Port Co. Ltd, NTPC Tamil Nadu Energy Co Ltd, NLC Tamil Nadu Power

Unloaders



Ltd, Paradip Port Trust, Kandla Port Trust, Mumbai Port Trust, Visakhapatnam Port Trust, Tuticorin Port Trust, Nippon Denro Ispat Limited, Oswal Chemicals & Fertilizers Ltd, Mazagon Dock Ltd, Cochin Shipyard Ltd, Birla Copper Ltd and many more in government and private sectors.

TRF has also established a presence in the international market by supplying bulk material handling equipment to various projects and customers such as Tata Steel KZN, South Africa, Doosan Heavy Industries, Korea for their Cirebon, Indonesia project and Shadeed Iron & Steel Company, Oman (now Jindal).

The company has supplied a slewing stacker to Tata Steel KZN for its ferrochrome plant in Richard's Bay, a reversible stacker reclaimer to Doosan Heavy Industries and various equipment and complete electrical and automation systems to Shadeed Iron and Steel Company.

MARKET OPPORTUNITIES IN INDIA

India has a coastline of approximately 7,517km and is serviced by various major ports and other minor and intermediate ports — both in public and private sectors. These ports handle various types of cargo, out of which dry bulk cargo — mainly food grains, iron ore, coal, chemicals

and fertilizers constitute about 45% of the total volume of cargo handled. Although the volume of cargo has grown considerably in the recent past, most of the ports even today still carry out their operations with primitive methods of unloading by using obsolete geared vessels and mobile harbour cranes. These operations consume valuable time and lead to huge amount of wastage during loading and unloading. Immediate augmentation of the port facilities in terms of investment in high-capacity mechanized handling facility is required.

Some ports have already taken appropriate action to augment their cargo handling capabilities. Hence TRF sees this as a huge potential market as it has the ability to excel its market peers, in the country, by providing reliable and durable turnkey solutions that are developed in-house at highly competitive prices. This is possible because TRF has the complete range of products required for the purpose of putting up a mechanized berth, from start to finish, to handle dry bulk cargo at ports.

TRF is geared to provide the following products for:

A. Incoming cargo:

- ❖ ship/barge unloaders or ELL cranes (depending on the type of dry bulk cargo) or wagon tippers as the case may be for unloading cargo;
- ❖ transportation of the cargo after discharging from the above equipment to the stockyard through a chain of conveyors; and
- ❖ stacking of cargo at the stockyard using stacker/reclaimers or slewing stackers.

B. Outgoing cargo:

- ❖ reclaiming of cargo from stockyard using stacker/reclaimers or bucket wheel reclaimers;
- ❖ transportation of cargo to the loading point by a chain of conveyors;
- ❖ loading of cargo by wagon loaders or shiploaders as the case may be for onward dispatch.

All the above products of TRF are well established in the market with a proven track record and customers have reported a high level of satisfaction with product performance. TRF is one of the engineering companies in India which has the expertise and ability to carry out such turnkey project in-house by designing and supplying equipment manufactured by it.