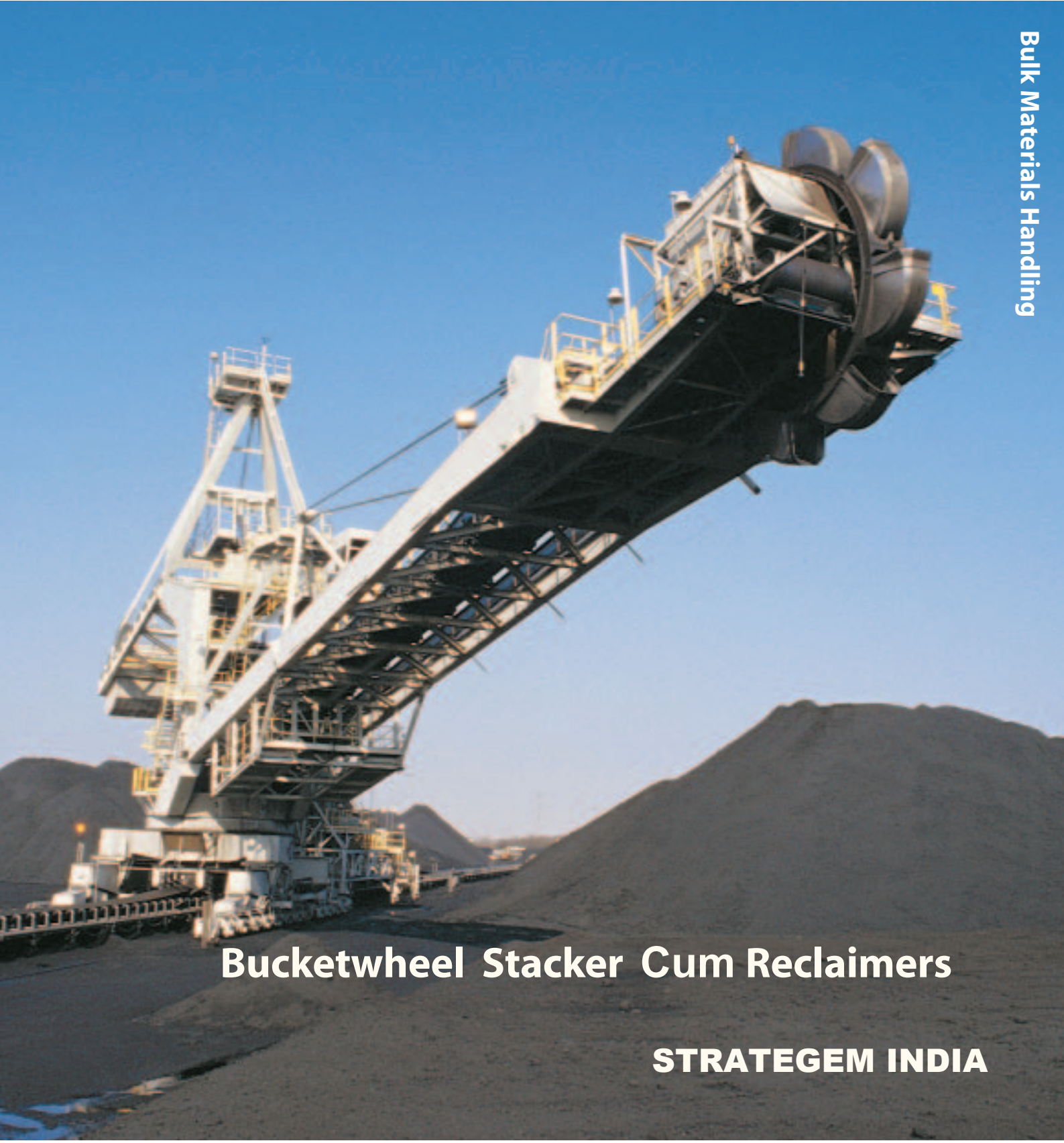
Bulk Materials Handling



Bucketwheel Stacker Cum Reclaimers

STRATEGEM INDIA

Bucketwheel Stacker Reclaimers

stacker reclaimers offer the most technologically-advanced list of standard features in the industry. System dependability, efficient operation, and long service life are the goals of every designed system.

Custom Design

Strategem stacker reclaimers are custom-built for each indi- vidual application, with the customer's needs in mind.

Boom Structure

Stiff boom structure limits drawdown and boom twist under digging loads.

Finite Element Analysis

State-of-the-art finite element analysis software allows Strategem engineers to evaluate high stress areas prior to manufacture for optimum fatigue life.

Fully Equalized, Four-Point Equipment Gantry

Mounted on rockers and equipped with cross-rail equal-ization to provide a statically determinate support.

Bucket Wheel Construction

Cell-less or cell-type bucket wheel construction is available dependent on the application and material handled. Bucket wheel drives are shaft-mounted with a fluid coupling and cushioned torque link to absorb bucket digging forces. A brake lock is included to allow bucket maintenance.

Buckets

Heavy-duty, self-cleaning buckets attach easily to the wheel body and dig cleanly without plowing or carryover.

Luffing Hydraulic System

Controlled acceleration and deceleration eliminates boom bounce and surge.

Variable Speed Drives

Provide adjustable speed and torque-controlled operation of slew and travel drives. The drives control acceleration and deceleration, softening impacts that occur during speed changes and increase the life of gearing, brakes, and motors. Maintenance is reduced and system reliability is enhanced.

Slew Bearing

Strategem stacker reclaimers make extensive use of heavy-duty "non-moment - no uplift" style slew bearings featuring hardened steel balls and through hardened races. These bearings offer the advantage of longer life, reduced maintenance cost and predictable wear behavior, compared to bearing shaving "moment resisting" capacity. When commercial slew bearings are used on certain styles of machines, the design provides rigid structural support for improved life.

Ergonomic Operator's Cab

Provides outstanding visibility, cushioned adjustable seating and a sensible control layout in a comfortable air-conditioned cab environment.

One operator controls all system functions, oversees machine status, and performs troubleshooting, all from this sensibly arranged cab environment.

Designs Control Systems for Precise Machine Regulation

Strategem stacker reclaimer control systems are designed with the operator in mind, from the novice to the experienced controls technician.

Man-Machine Interface (MMI)

The MMI system links the operator and the Programmable Logic Control (PLC) control system via a user-friendly, on-screen interface. The MMI system gives the operator the ability to control virtually all machine functions and provides messages regarding machine status, operations, maintenance, and safety. The MMI system even "walks through" steps of operation for training new or inexperienced operators.

Alarm/Fault Diagnostic Logic

Also included in all stacker reclaimer control systems. This advanced design minimizes troubleshooting by pinpointing the source of system problems. Advance warning messages alert the operator when a machine shutdown is imminent.

Designed for Operators of All Levels of Experience

Programmable Logic Controllers

PLCs allow complete automatic control or combination automatic/manual control through the MMI. PLCs promote ease of limit adjustment and rate selection, reduce maintenance, and improve system diagnostics through quick identification of problem areas. In addition, a modem interface allows remote trouble-shooting of PLCs from Metso's office.

Advanced Automation

stacker reclaimers are designed for fully automatic operation. Metso machines are quipped with a manual and automatic control system. Features of this system include: automated bucket wheel feedback logic to prevent overdigging, slew speed algorithm logic to achieve constant digging rates, selectable pile geometry limits for multiple stacking and reclaiming configurations, and automatic machine advance to ensure the same depth of cut on each slewing pass. Slewing limits can also be controlled manually by an operator through the MMI display. The automated control system has been designed with minimal operator interaction required.

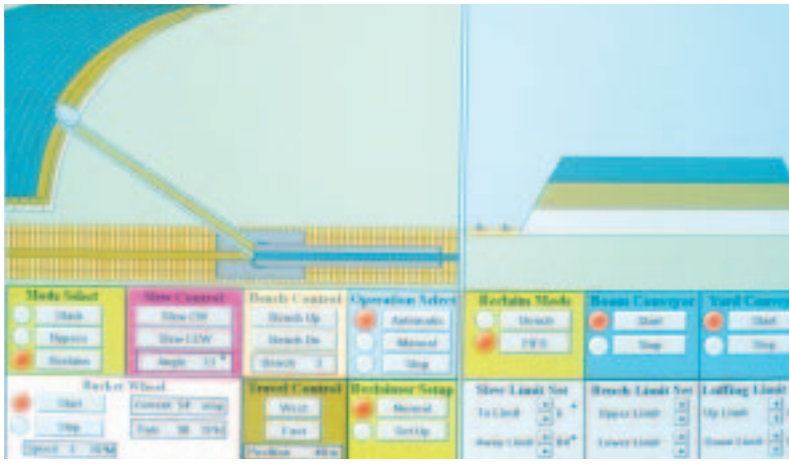
Operator Cab

The operator cab is provided with an ergonomically-designed chair and operations console for maximum comfort and ease of operation. Air conditioning and heating systems provide a comfortable work environment in all seasons. Wraparound windows provide a panoramic view and high-intensity flood-lights illuminate a broad work area for evening or pre-dawn operation. A self-leveling cab feature with operator control adjustment allows the operator to maintain maximum visibility of all operations throughout the entire boom angle range.

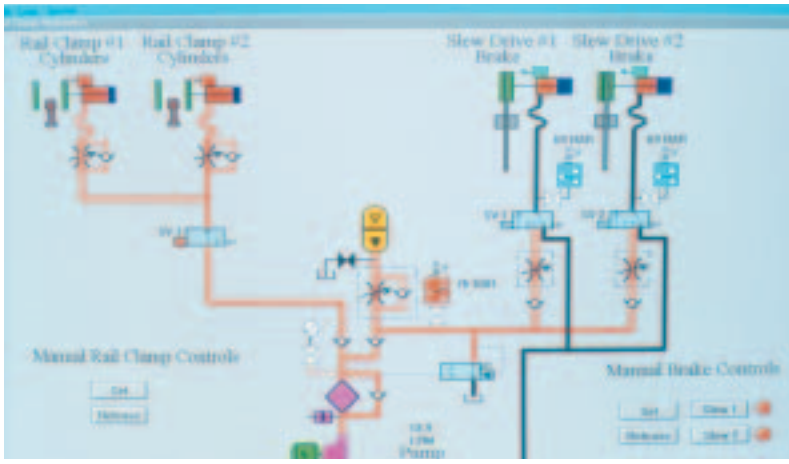
Remote Operation

With the use of high density TV cameras, all functions including machine start-up, digging parameters and pile dressing can be done remotely, if desired. There is virtu-ally no need for an operator to go out onto the machine.

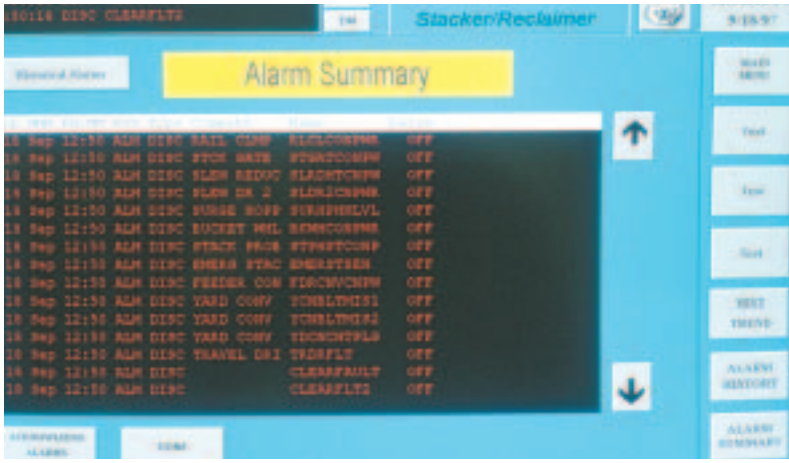
Man-Machine Interface (MMI)



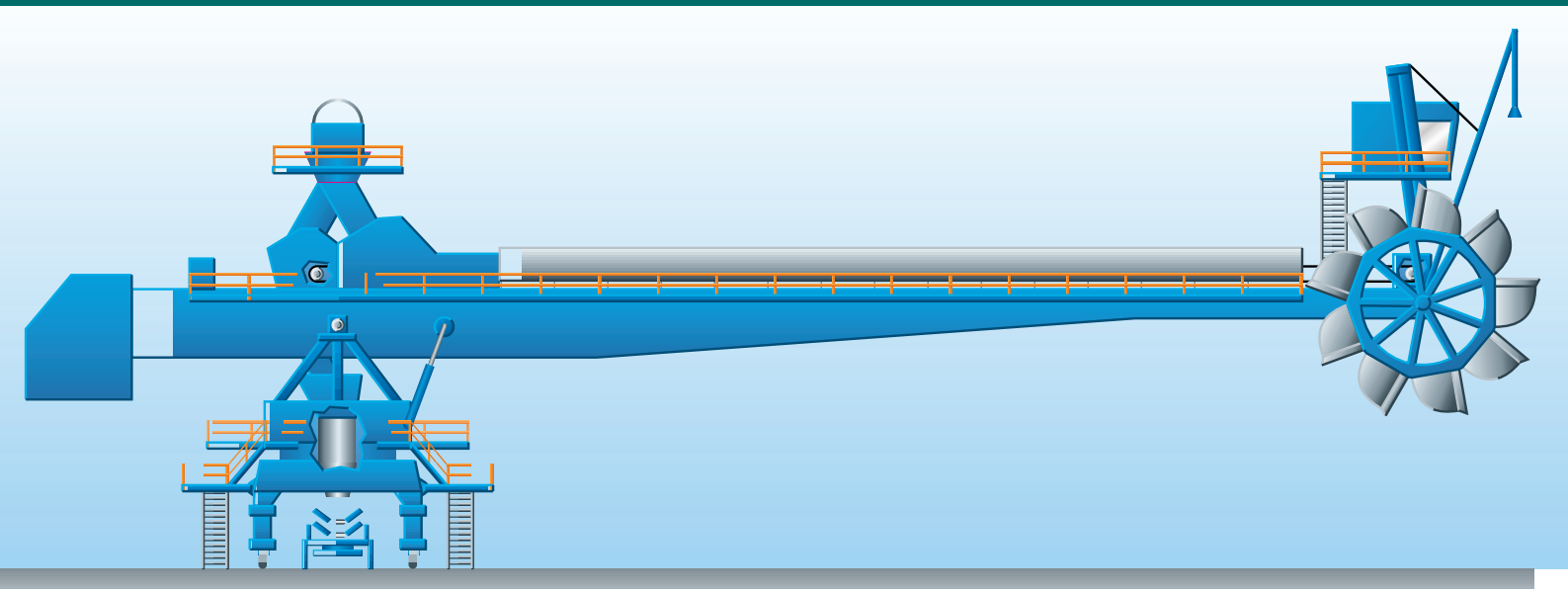
MMI system provides total intelligent operator system control. In the event of a problem, the MMI display instantly pinpoints the trouble area.



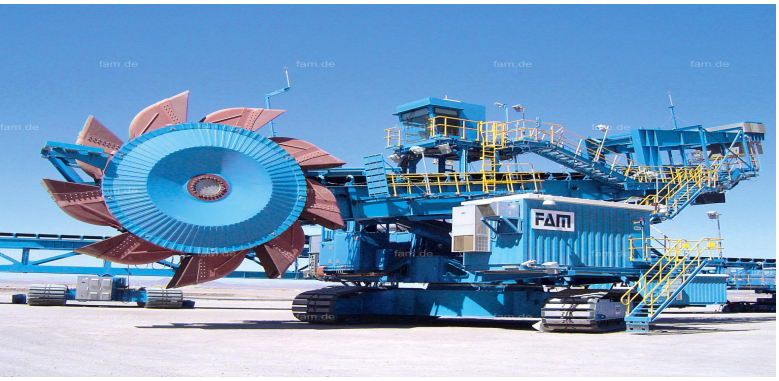
Detailed MMI animation of maintenance screens makes simple work of troubleshooting electro-hydraulic systems.



Alarm/fault diagnostic logic is included in all stacker reclaimer control systems, minimizing troubleshooting by immediately pinpointing the problem source.



Straight-Through Boom Configuration *provides rapid, efficient stacking and reclaiming of materials in an environment where boom length need not exceed 125 feet (38 meters). Ports, terminals, and power plants generally utilize this design when less expansive storage is required.*



Trench type *stacker reclaimers are ideal for installations with low-volume, high active storage pile capacities.*

Straight-Through Boom *slewing type machines typically are suitable for most storage facilities.*

Masted Boom *slewing type stacker reclaimers are used in facilities requiring higher live storage quantities.*

Built for Every Storage Need

Two basic styles of stacker reclaimers utilizing three different configurations of trailing tripper structures typically meet most storage requirements for bulk ports, terminals, electric power stations, and other facilities where efficient stockpile management of raw materials is essential.

Trench Type Stacker Reclaimers

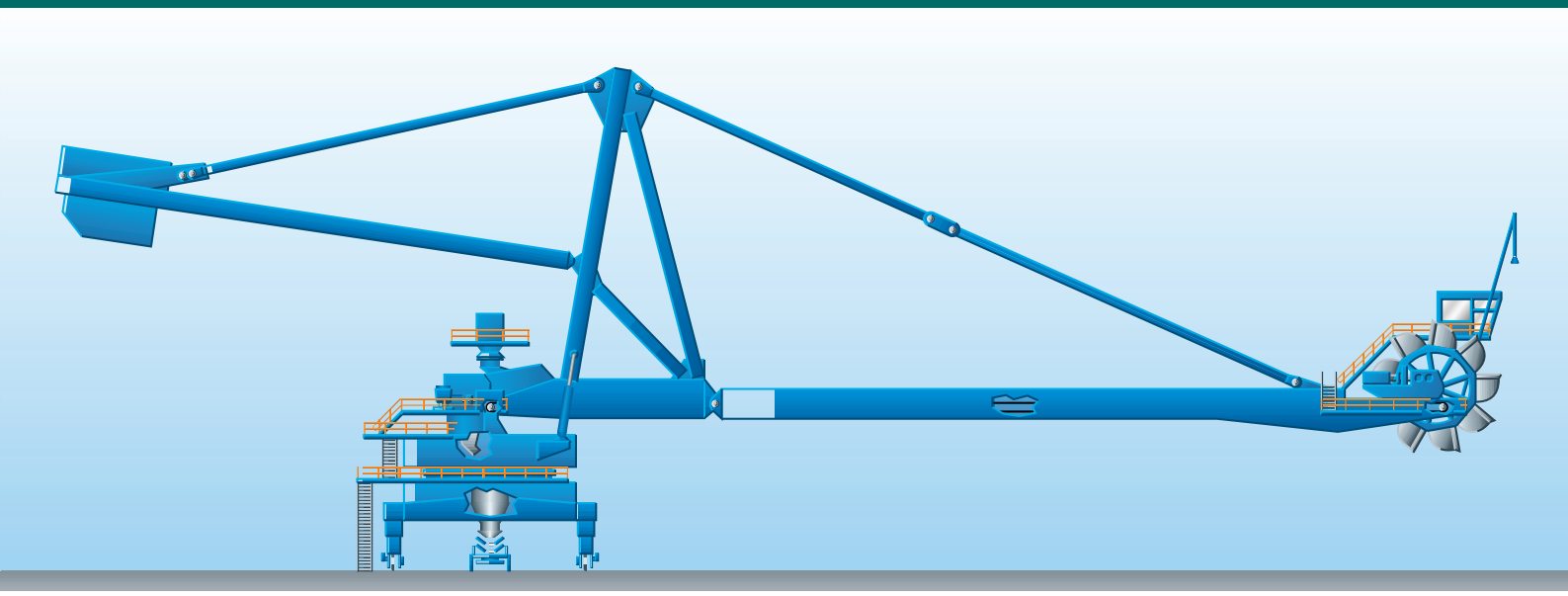
This configuration is ideal for installations with low-volume, high-active storage pile capacities between 30,000 and 60,000 tons, where reclaiming operations are accomplished by a longitudinal pass through the pile. Reclaim rates usually vary from 2,000 to 4,500 tons per hour.

Slewing Type Stacker Reclaimers

This type is typically used where large quantities of material must be readily available, where blending of grades of material is required, or where available yard length is limited. These machines feature boom lengths up to 220 feet (67 meters) and stacking and reclaiming rates up to 6,000 tons per hour for coal and 8,000 to 10,000 tons per hour for iron ore. While offering maximum flexibility, slewing type machines also help lower the unit costs involved in the handling of bulk materials.

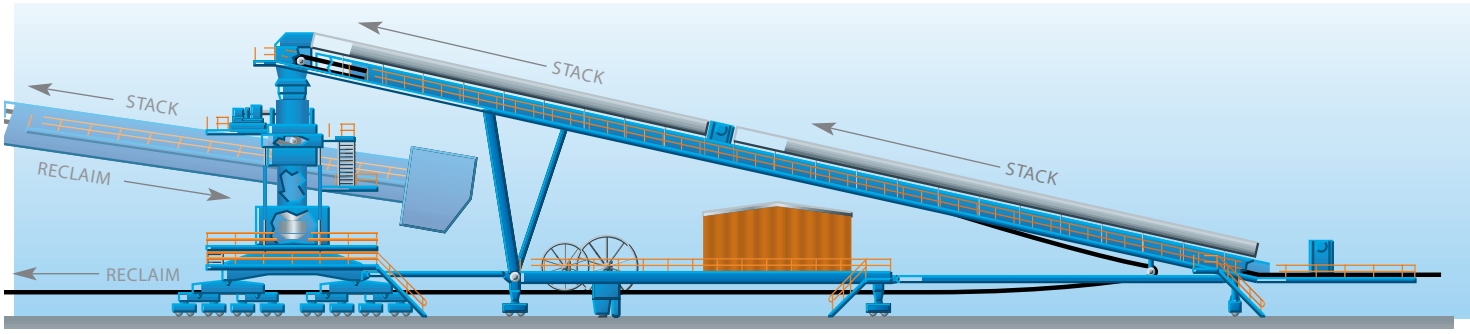
Both types of machines are vertically articulated (luffed) to reach both the top and bottom of the storage pile. Although both machines are horizontally pivoted (slewed) about the vertical axis, only the slewing stacker reclaimer utilizes this motion for operating in the pile during stacking and reclaiming. The slewing motion of the trench type machine is only required for switching between opposite sides of the storage yard.

Machine Configurations

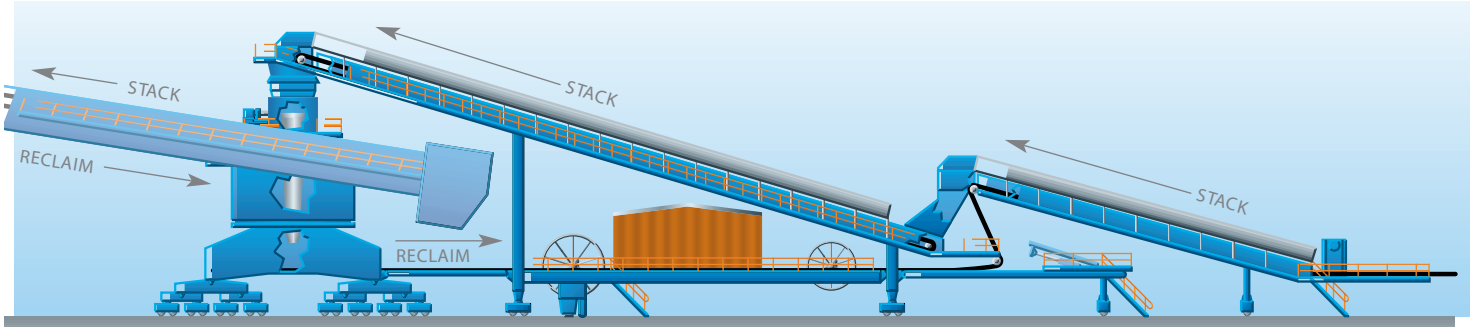


Masted Boom Configuration *is designed for use in applications where extended boom length (over 125 feet/38 meters) is necessary. The added support reduces excessive boom flex inherent in long-reaching stacker reclaimers or where high digging forces cause unacceptable boom tip deflection.*

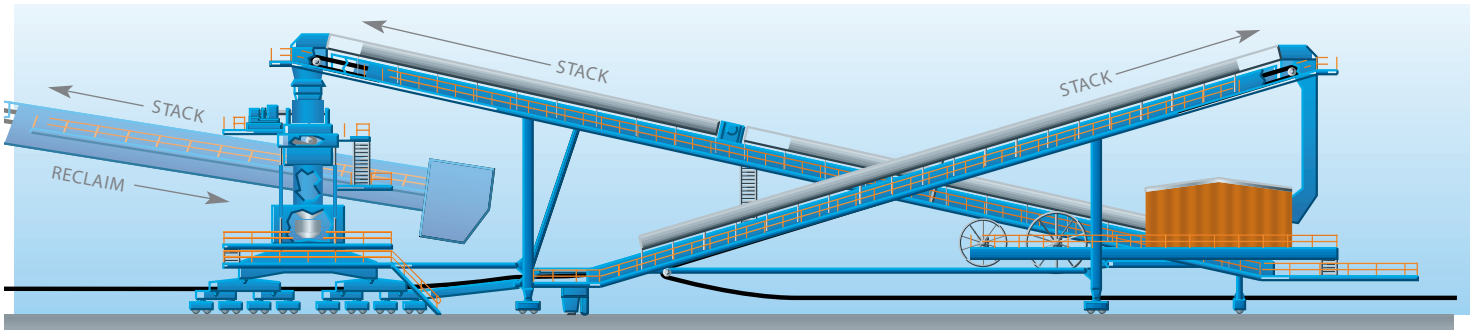
Tripper Configurations



Straight-Through Tripper *is utilized when material enters the storage yard from one end of the yard and leaves toward the other end. If facility operation is such that some or all of the material may bypass the storage yard, a splitter gate can be mounted at the tripper head chute.*



Articulating Tripper *is used when material enters and leaves the storage area from the same end of the yard. By articulating the tripper structure, this section can be lowered (retracted) for reclaiming operation.*



Scissors-Type Tripper *is also used when material enters and leaves the storage area from the same end of the yard. This tripper utilizes a separate elevating conveyor to direct the material to the centerline of rotation for stacking.*

Strategem Bulk Materials Handling

Our Ranges:

Equipment & Systems
Railcar Dumpers & Positioners Bucketwheel Stacker/Reclaimers Scraper Reclaimers
Ship and Barge Loaders
Stackers (Radial/Linear)
Grab Type Unloaders Continuous Barge Unloaders Cable Belt Overland Conveyors Self-Unloading

Engineered Products
Apron Feeders
Wobbler Feeders
Rail Car & Barge Pullers
Rail Car Indexers
Conveyors/Elevators Coal Preparation Equipment
Throwers & Ship Trimmers

Aftermarket Services
Machine Upgrades/Retrofits
Service Life Extension Projects Equipment Inspections
Operations & Maintenance Training Start-Up Assistance/Commissioning
Annual Service Agreements
Troubleshooting Services
Breakdown Assistance
Replacement Parts Programs

Our Project Partners

1. ThyssenKrupp.
2. FL Smidth.
3. Siemens.
4. TMP Engineering Pvt Ltd (Belgaum)
5. PMK Innovative Engineers Pvt Ltd
6. Bosch Rexroth.
7. Yashashri Engineers Pune.
8. Metcon Plant Equipment Pvt Ltd
9. Fenner India.

Our Clients

Metal Industries

1. TATA Steel
2. SAIL
3. Jindal Steel
4. ESSAR Steel
5. Bhushan Steel
6. NALCO
7. BALCO
8. Uttam Value Steel.

Mining Industries

1. Coal India
2. NMDC
3. SAIL
4. VEDANTA
5. OMC Orrisa

Power Industries

1. NTPC
2. TATA Power
3. Reliance Power
4. MPEB
5. CSEB
6. PSCB

Cement Industries

1. Madras Cement
2. ACC
3. Chettinad Cement
4. Aditya Birla Group
5. Ambuja Cement

Indian Port

1. Goa Port Trust
2. Krishnapatnam Port
3. Vizag Port Trust

Overseas Clients (UAE)

1. Al Jabar
2. Fujhera Cements
3. Gulf Cements
4. Star Cements

Souft Africa

1. Anglo Americans
2. Xstrata

STRATEGEM
An ISO 9001 : 2008 Certified Company

STRATEGEM ENGINEERS INDIA PVT LTD
(Division of Strategem, UK)
5, Gulmohar Complex, Nr. Post Office, Wadgaonsheri Pune - 411018. (India)
Tel : +91 20 27034860 ; +91 20 65609292 Telefax : +91 20 27030549
Email : admin@strategemindia.biz ; Website : www.strategemindia.biz

Distributors & Project Partners