



SCHADE

AUMUND Group



INTRODUCTION of AUMUND GROUP COMPANIES

For the
Power and related Industries



AUMUND Conveying Technology

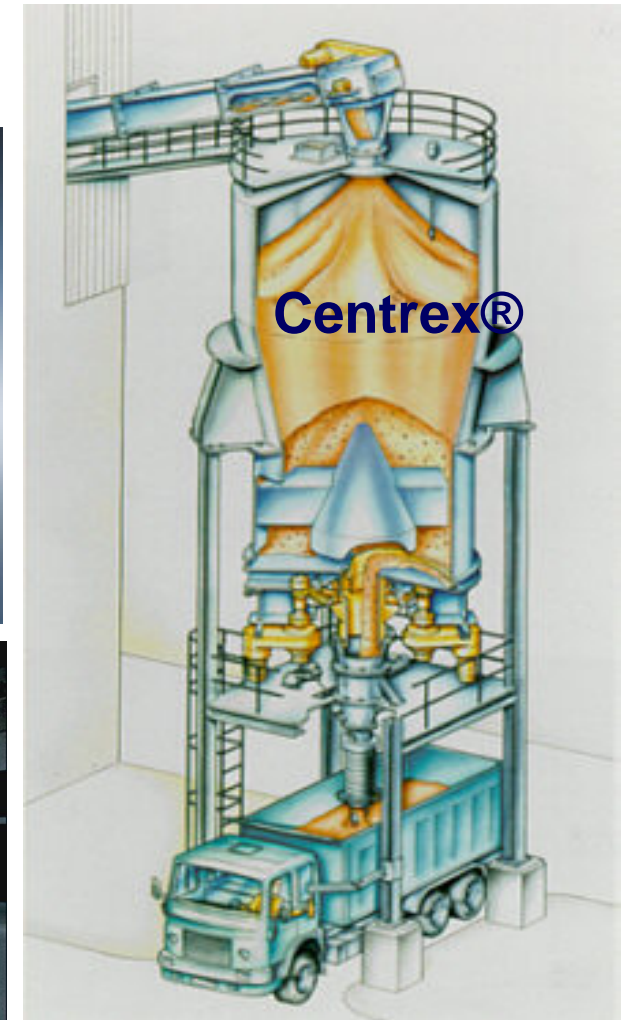


Heavy Duty Apron Feeders



Bucket Elevators and Pan Conveyors

LOUISE Products:



Rotary Discharge Machines, Flight Conveyors and Silo Dischargers with Centrex System

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B&W Material Handling

Ship loaders



Stormajor



Link Conveyors



Grab Hoppers



Samson Feeders



SCHADE Storage Systems



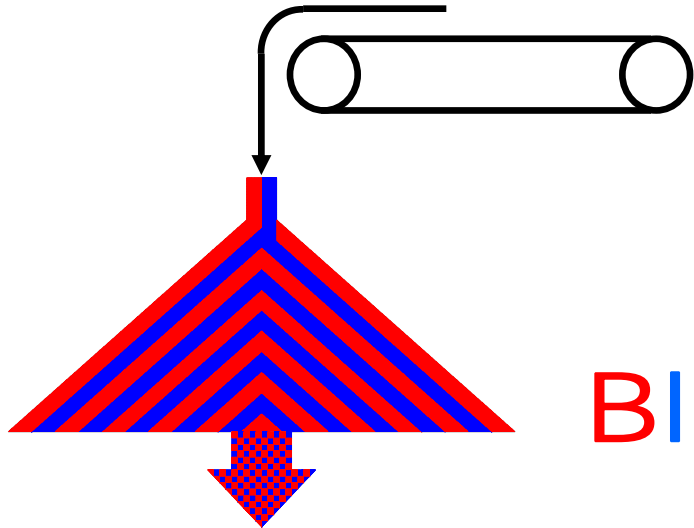
SCHADE
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SCHADE in all major industries

SCHADE expertise in storing and blending of dry bulk materials from customized project design to commissioning of complete plants in:



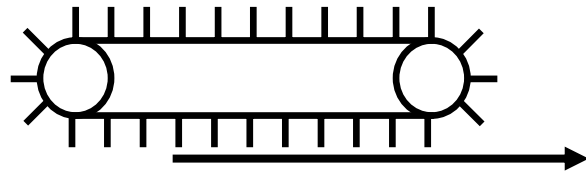
Stacking



Blending

SCHADE

equipment
used for various
stockyard
applications



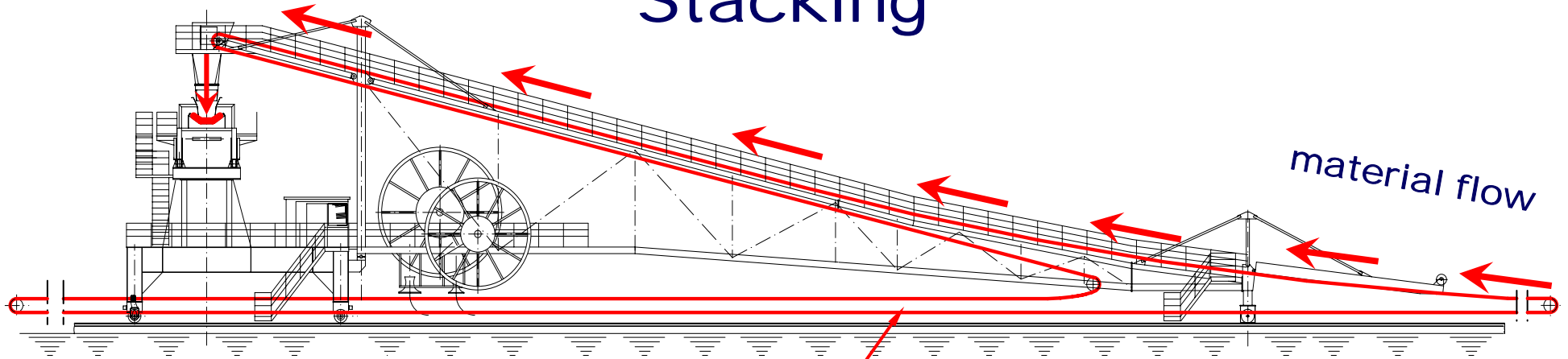
Reclaiming

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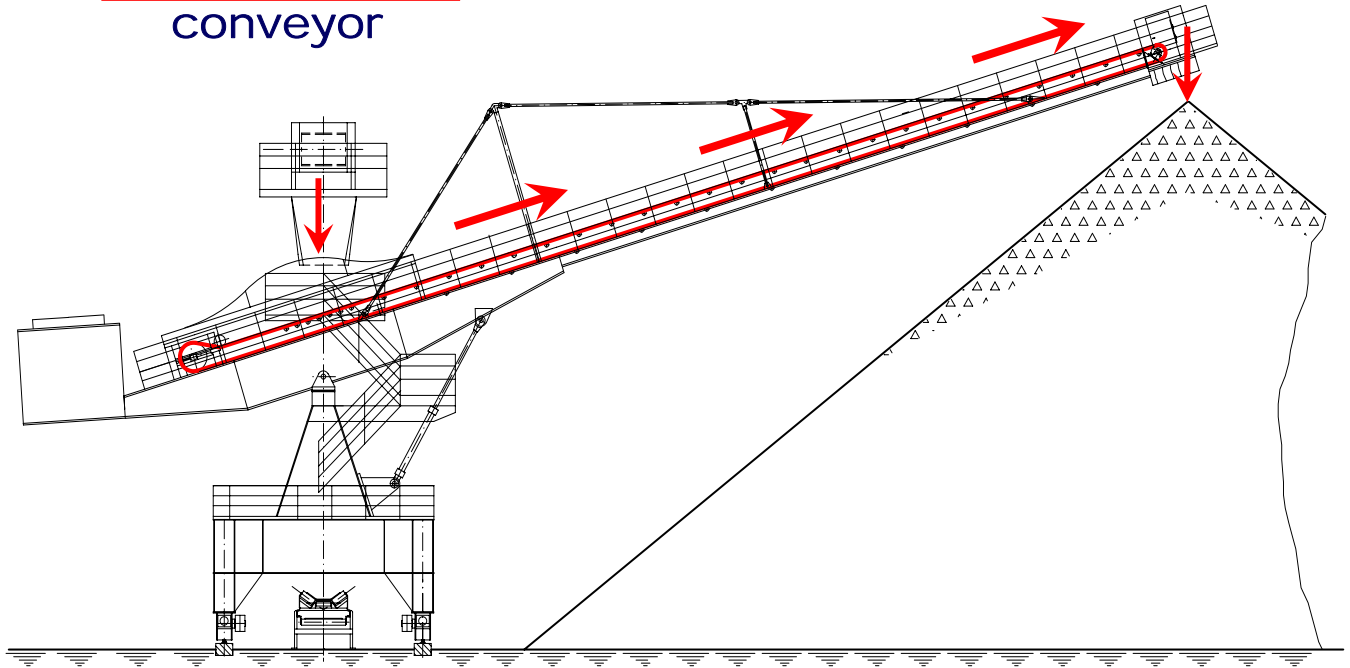
presented by Dipl. Ing. Matthias Suttrup

Stacking

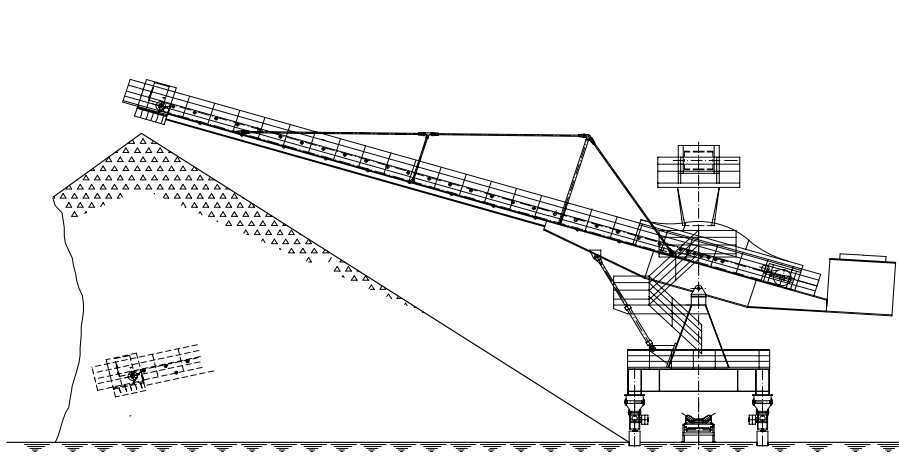


material flow

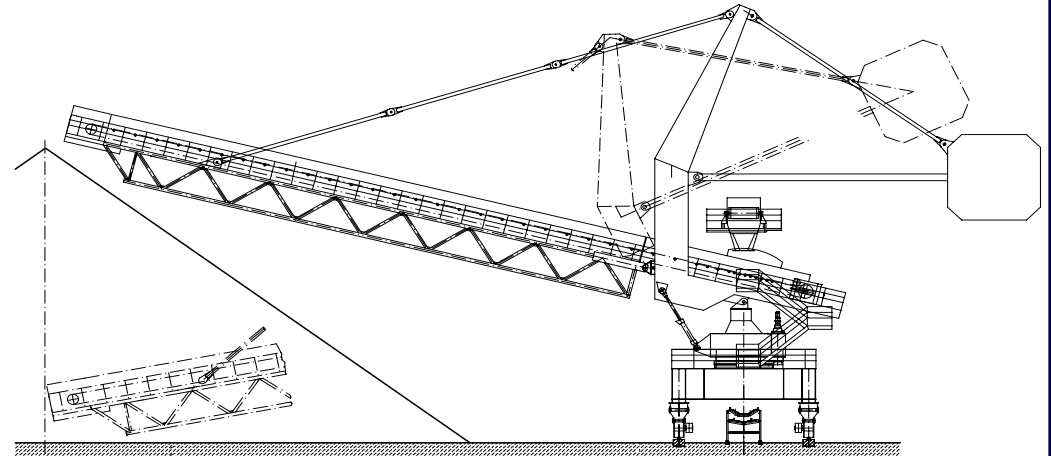
feeding belt conveyor



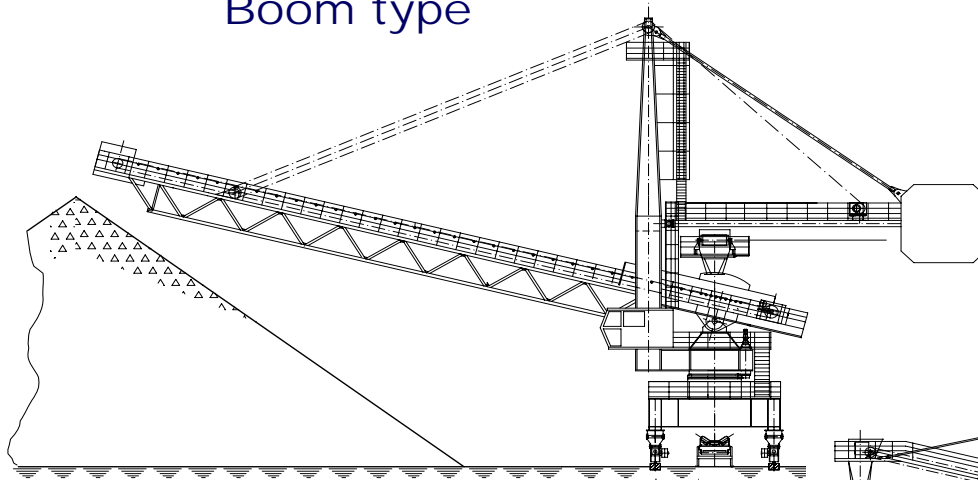
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Boom type

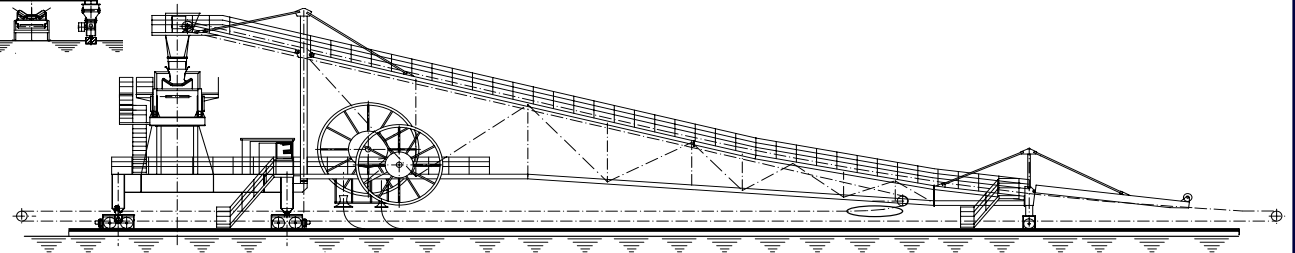


Pylon type (hydraulic hoist)



Pylon type (rope hoist)

Stackers



Tripper car

Stackers (coal handling)



Stacker, slewing and luffing (hydraulic)

Stackers (coal handling)



Stacker, slewing and luffing (hydraulic)

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Stackers (alternative fuel => woodchips handling)



Stacker, luffing (hydraulic)

Stackers (bulk material handling)



Stacker, slewing and luffing (hydraulic)
with by-pass unit

Stackers (coal handling)



Stacker pylon type,
slewing and luffing (hydraulic)

Stackers (coal handling)



Stacker, slewing and luffing (hydraulic)

Stackers (coal handling)



Stacker pylon type,
slewing and luffing (rope hoist)

Stackers (coal handling)



Stacker pylon type,
slewing and luffing (hydraulic)

Stackers (coal handling)

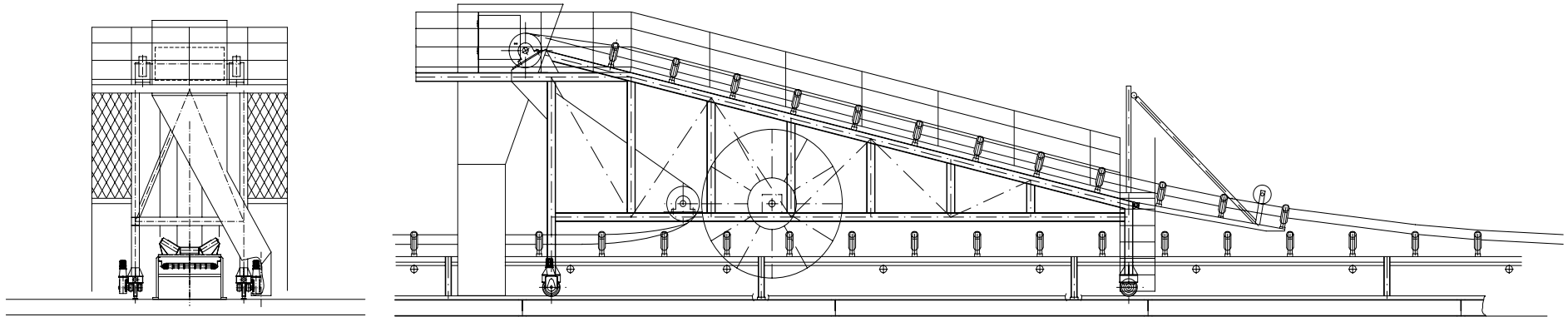


Stationary Circular Stackers ,
slewing and luffing (hydraulic)

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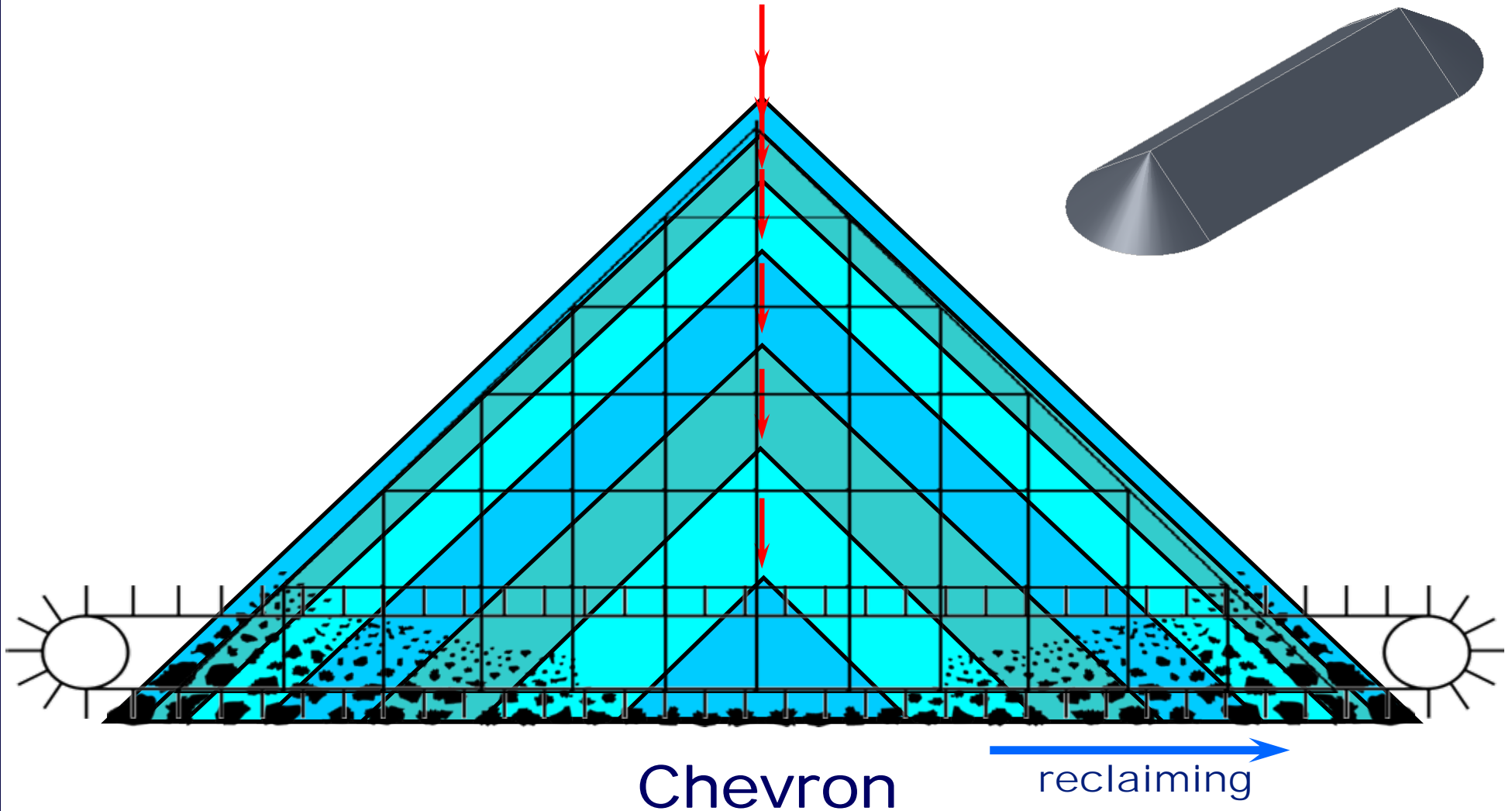
presented by Dipl. Ing. Matthias Suttrup

Stackers (bulk material handling)



Tripper Car

Stacking Methods

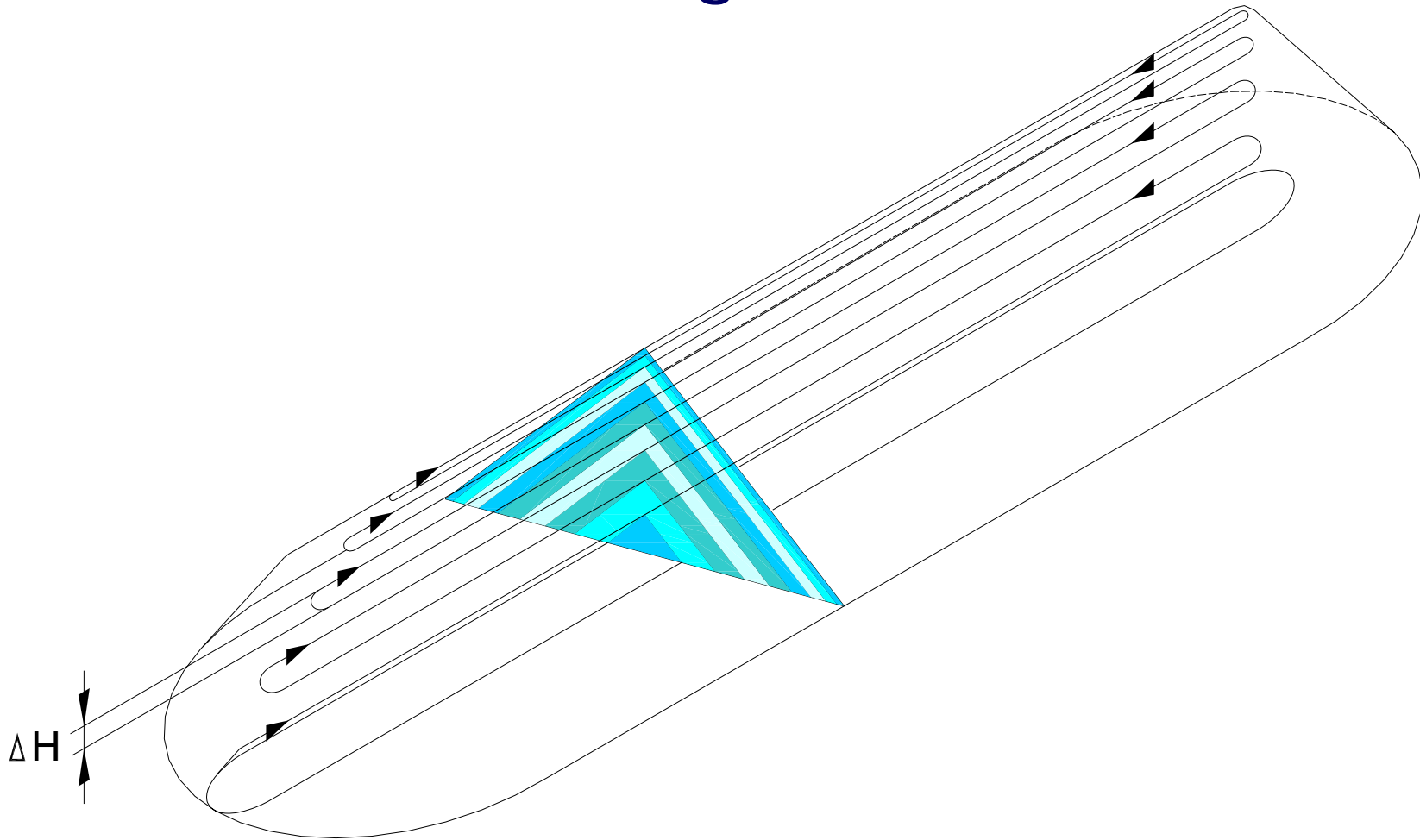


Chevron

reclaiming

(mainly for blending purpose)

Stacking Methods



Chevron

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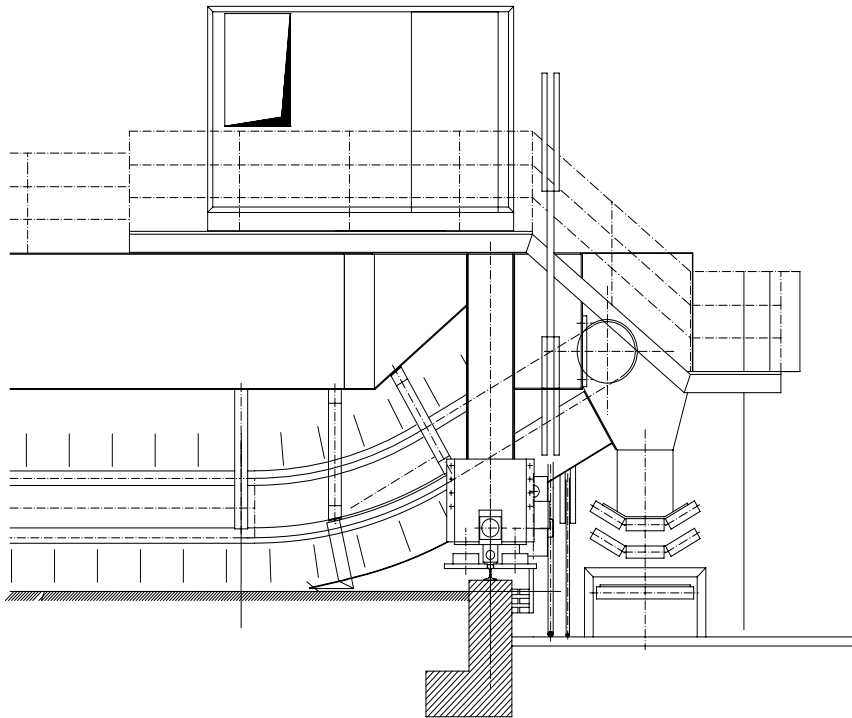
(course of stacker movement)

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presented by Dipl. Ing. Matthias Suttrup

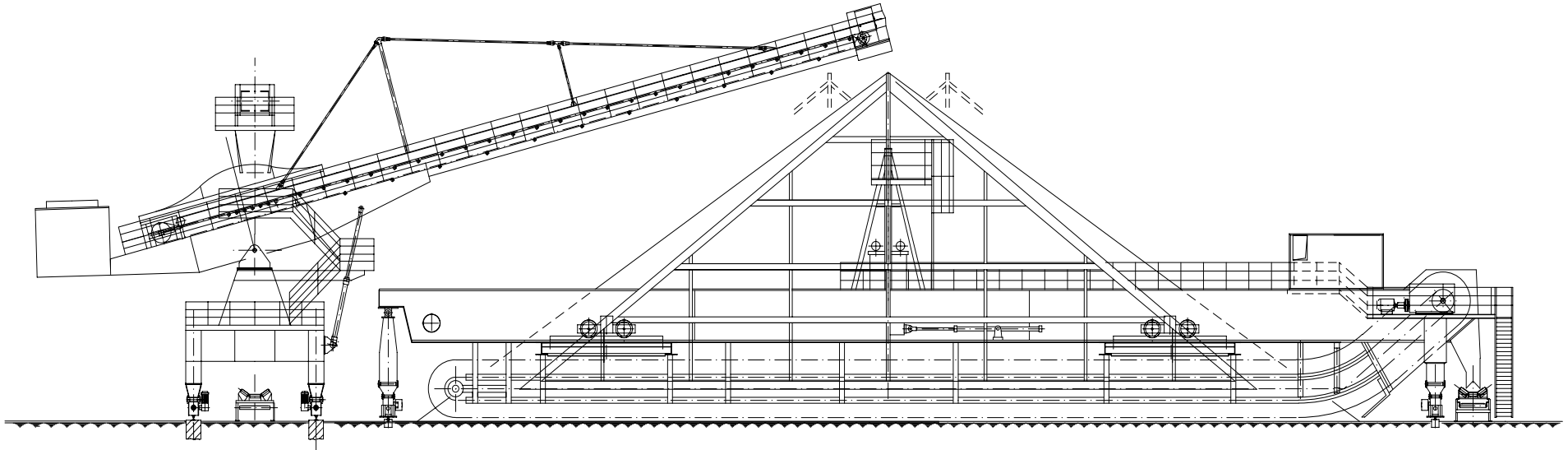
Front Reclaiming from Stockpile

by Bridge Type Scraper Reclaimers

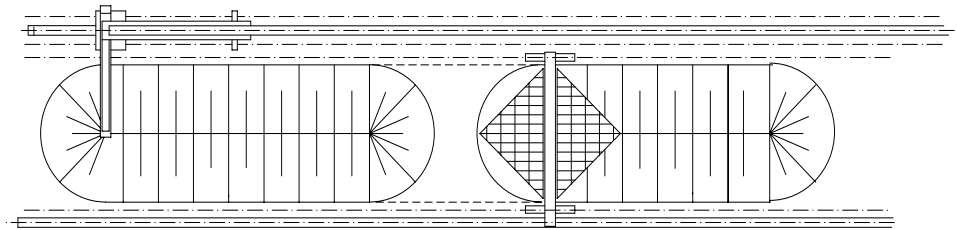


discharge via inclined drag trough

Typical Outdoor Storage Arrangements



- Stockpile built up by travelling / luffing Stacker in Chevron Method
- Reclaiming from the front of the pile by Bridge type Scraper Reclaimer
- Perfect homogenization and blending of segregated bulk material
- Automatic operation
- Simultaneous stacking and reclaiming by operating with two piles



Typical Storage Arrangements (coal blending)



Blending Bed of Longitudinal Shape

Typical Storage Arrangements



Blending Bed of Longitudinal Type

Typical Storage Arrangements



Blending Bed of Longitudinal Type

Scraper Reclaimers (coal handling)



Bridge Reclaimer

(discharge via drag trough)

Scraper Reclaimers (coal handling)



Bridge Reclaimer
(discharge via drag trough)

Scraper Reclaimers (coal handling)



Bridge Reclaimer
(discharge via drag trough)

Scraper Reclaimers (coal handling)

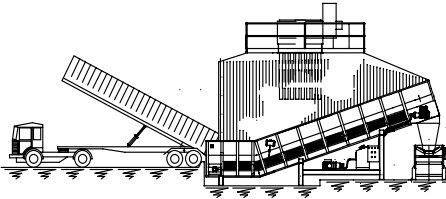


Bridge Reclaimer
(discharge via drag trough)

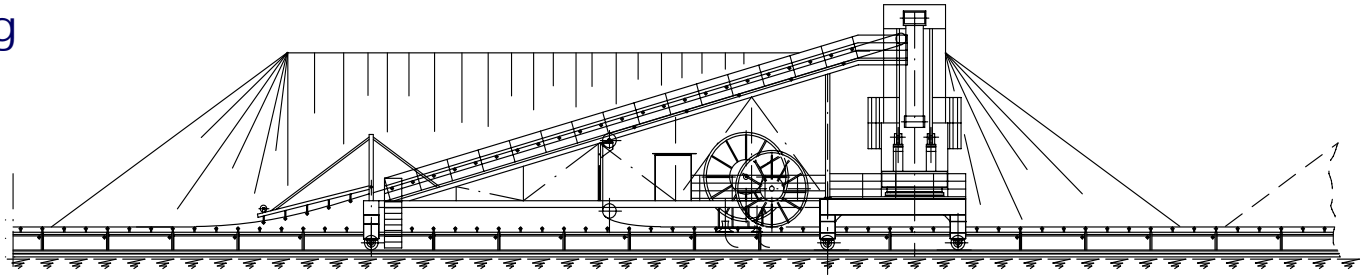


Coal and Ore Handling

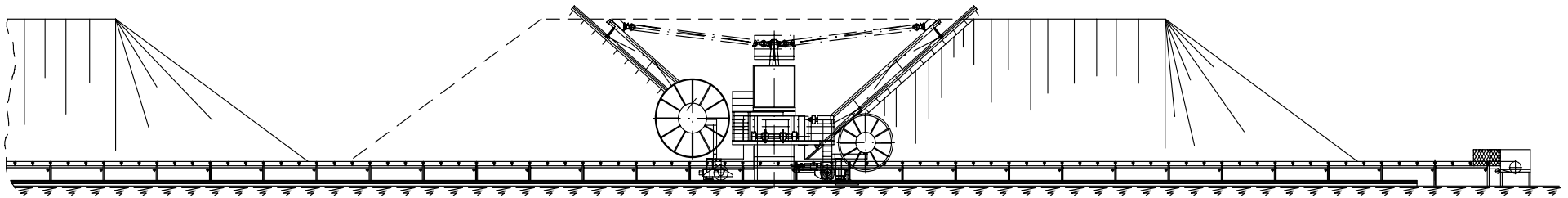
Truck Unloading



with Samson Feeder

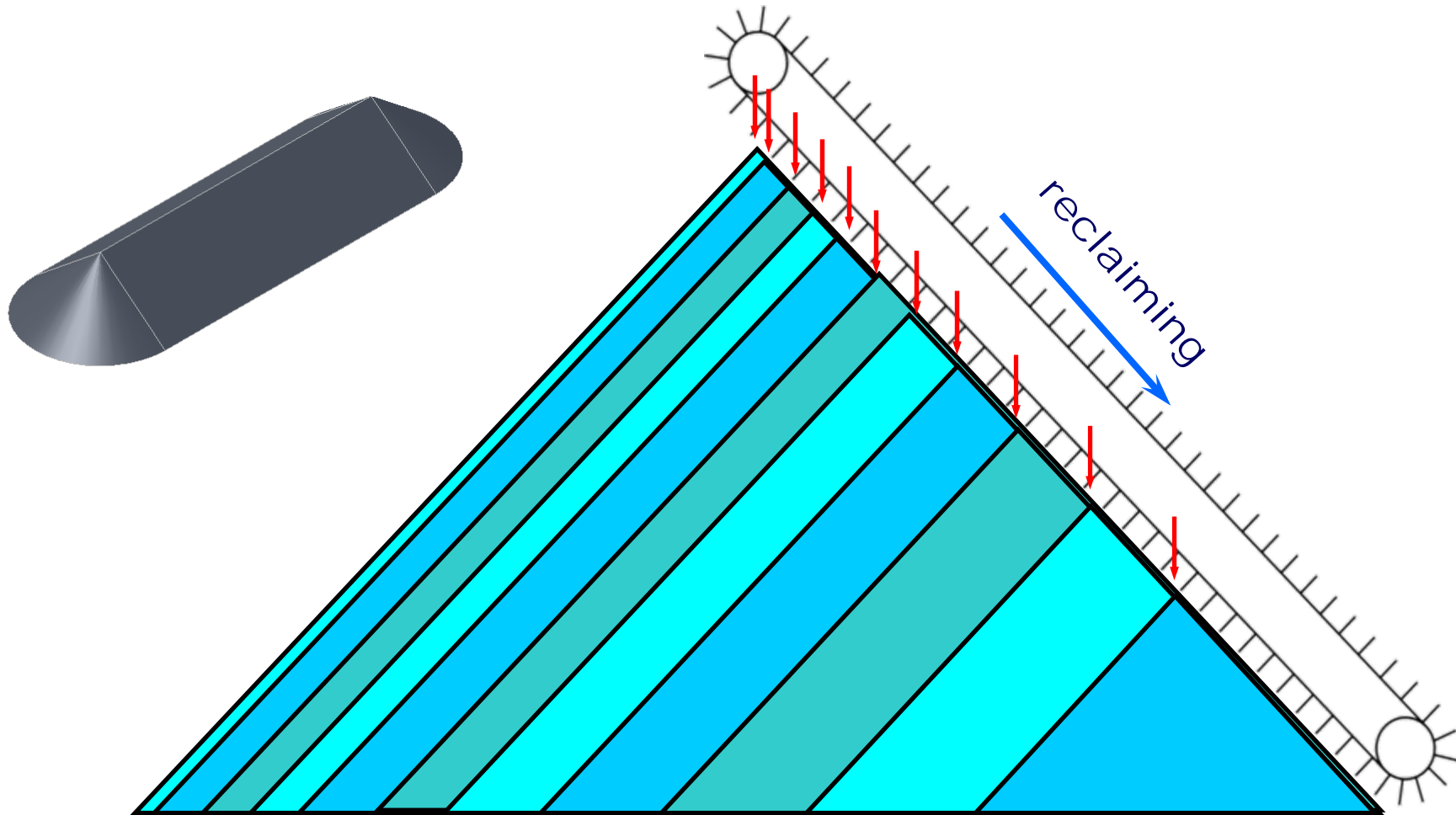


Stacker



Bridge Reclaimer

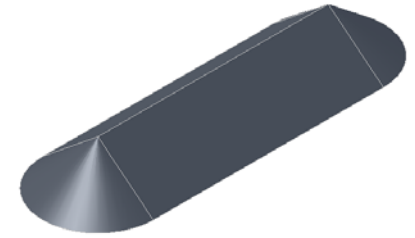
Stacking Methods



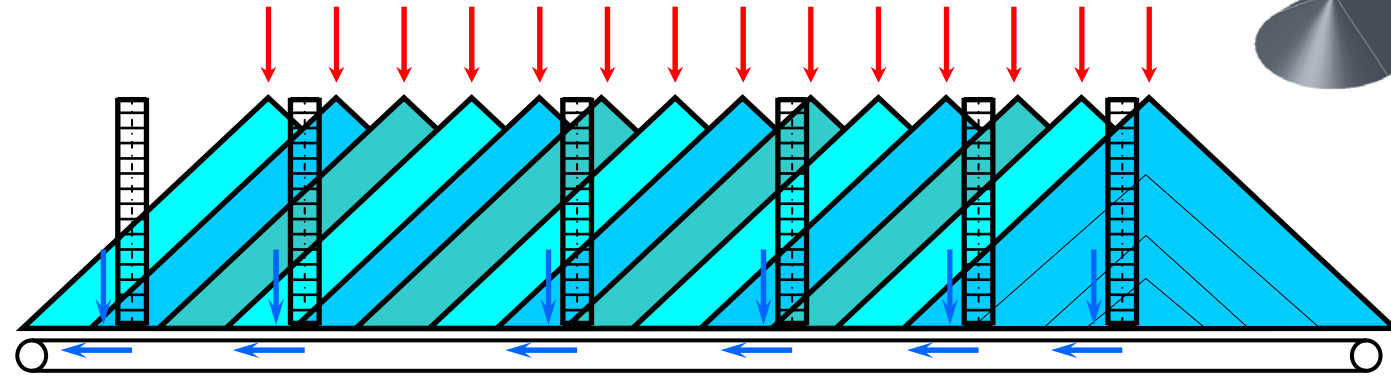
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Strata (for medium blending purpose)

Stacking Methods

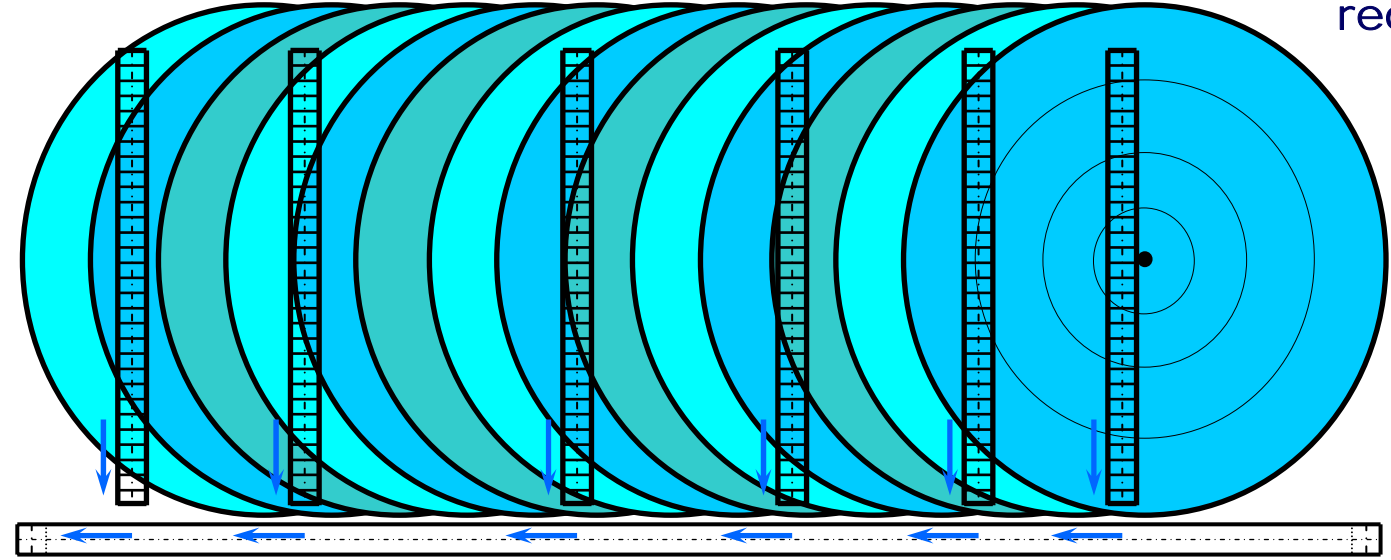


Side view



reclaiming

Top view

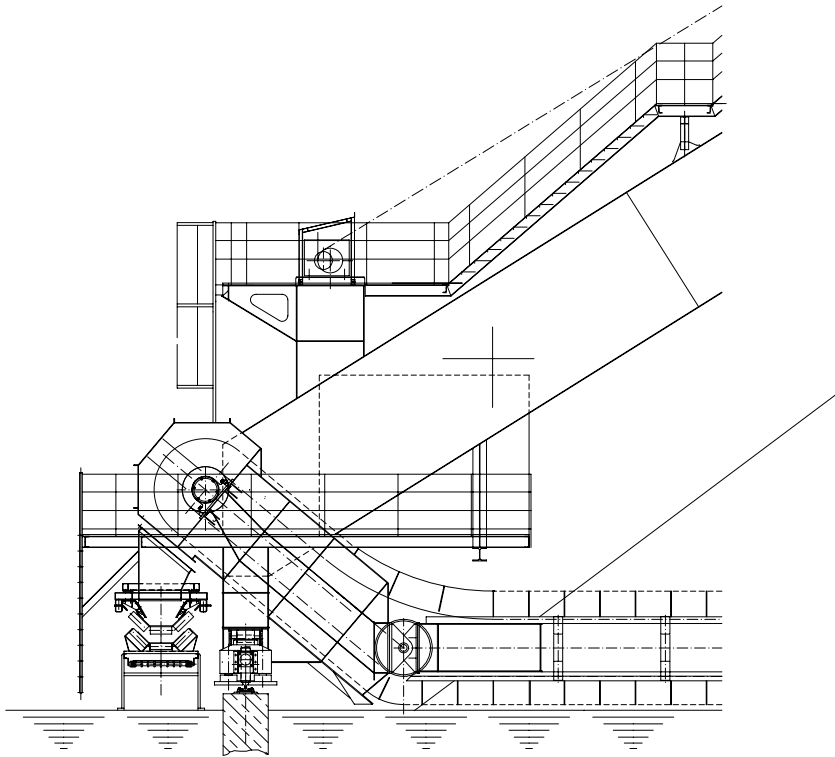


reclaiming

Coneshell (for buffer purpose)

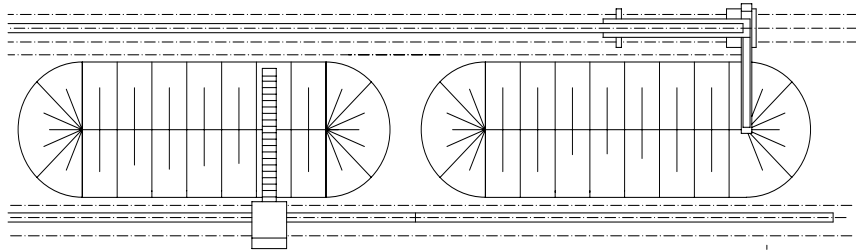
Side Reclaiming from Stockpile

by Cantilever and / or Portal Type Scraper Reclaimers

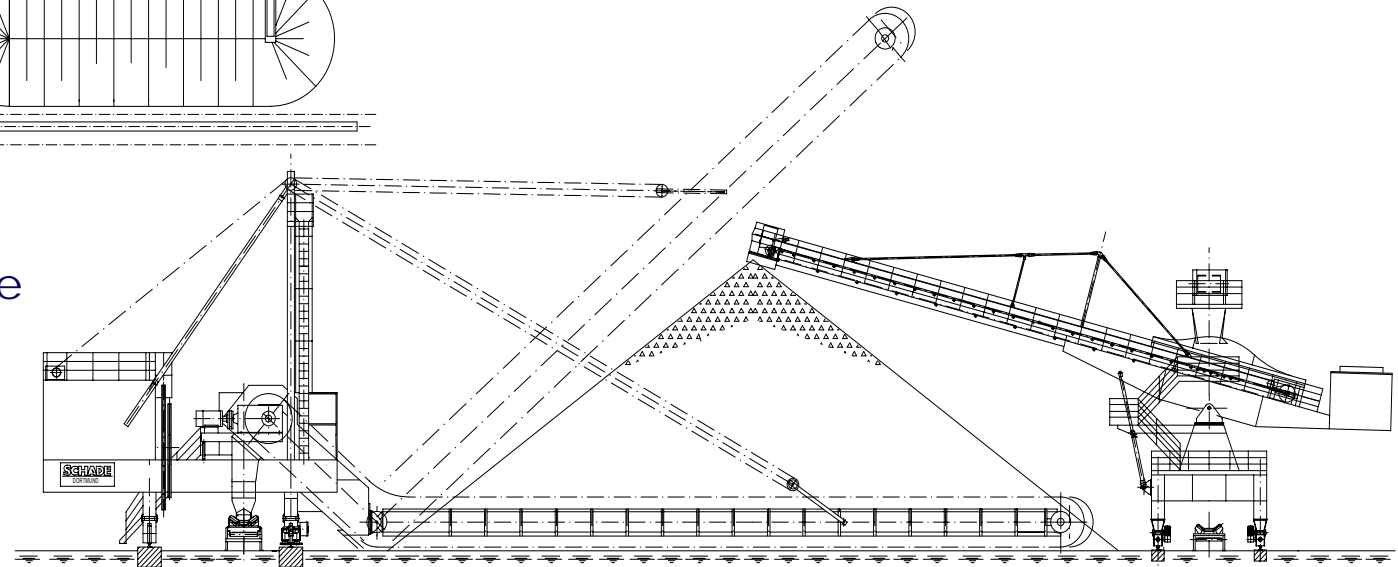


discharge via inclined drag trough

Typical Storage Arrangements



Canter Lever Type



- Stockpile built up by travelling and luffing Stacker
- Reclaiming from the side slope of the pile by Cantilever Scraper Reclaimer (for pile widths up to 30 m)
- Operating along the whole length of the stockpile or pre-selected sections
- Automatic operation
- Quick travelling between different working locations

Scraper Reclaimers (coal handling)



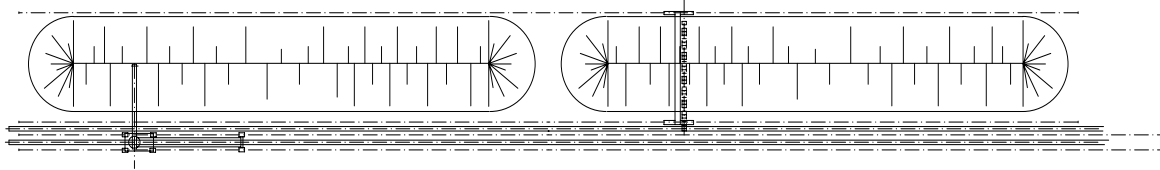
Cantilever Reclaimer
(discharge via drag trough)

Scraper Reclaimers (coal handling)

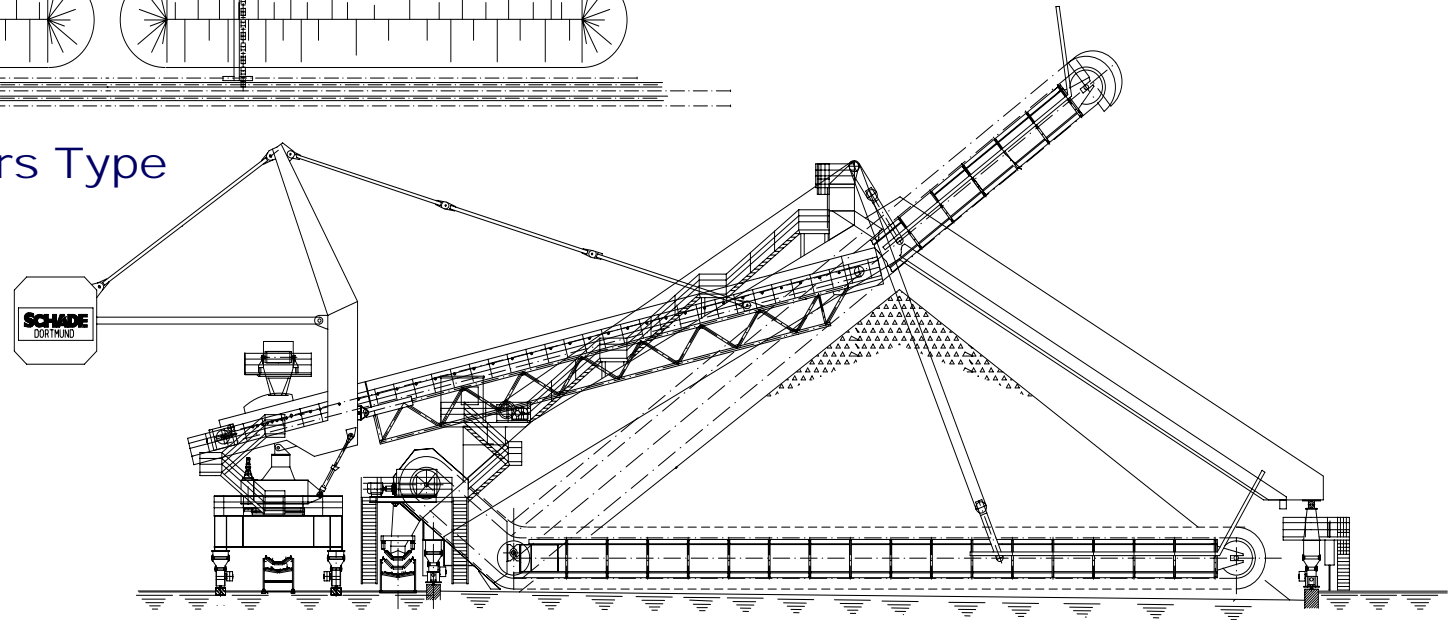


Cantilever Reclaimer
(discharge via drag trough)

Typical Storage Arrangements



PORTAL Reclaimers Type



- Stockpile built up by travelling, slewing and / or luffing Stacker
- Reclaiming from the side slope of the pile by Portal Scraper Reclaimer (for pile widths exceeding 30 m)
- Operating along the whole length of the stockpile or pre-selected sections
- Automatic operation
- Quick travelling between different working locations

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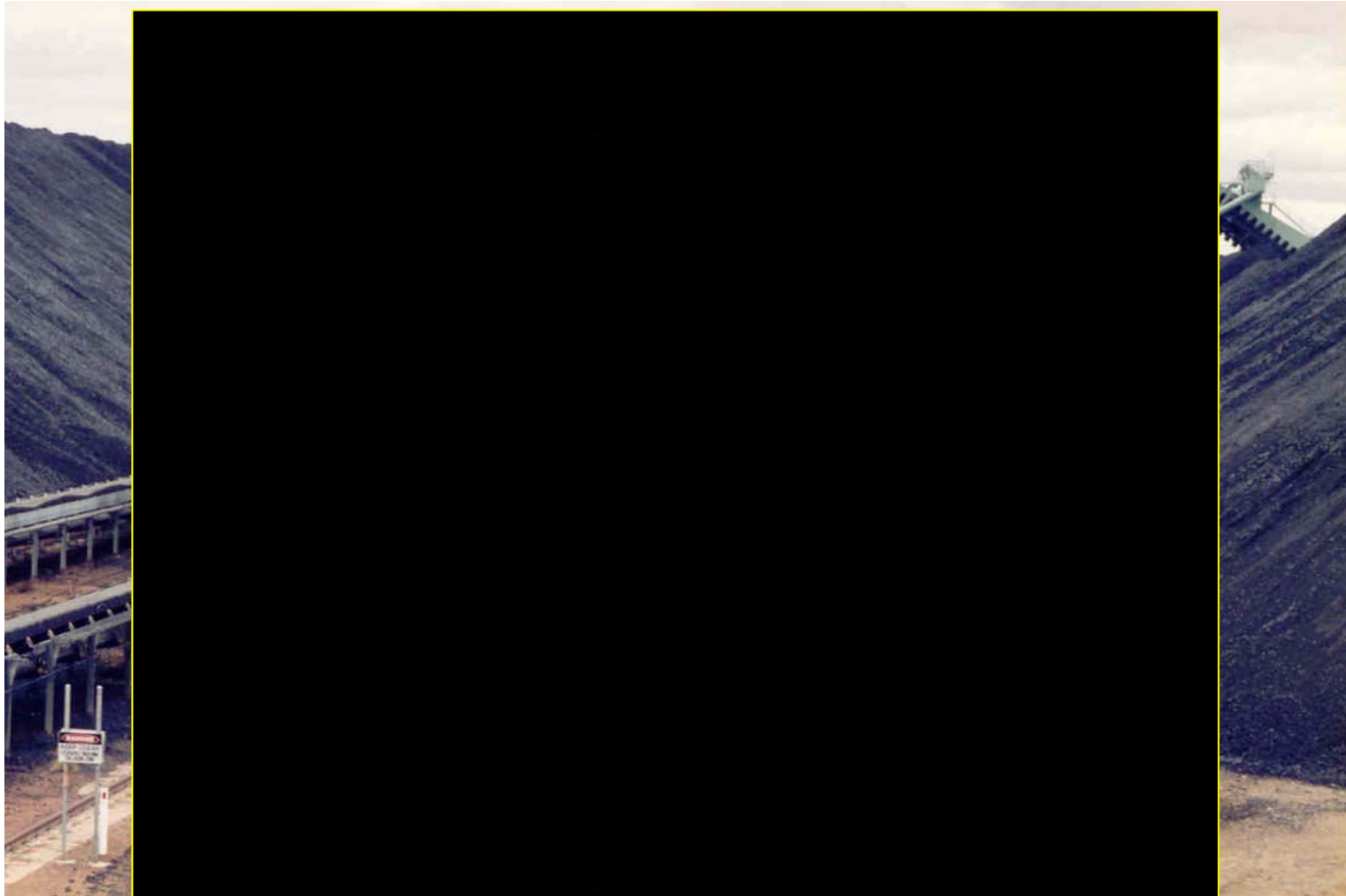
Buffer Storage of Longitudinal Type

Typical Storage Arrangements



Buffer Storage of Longitudinal Type

Coal Storage Arrangements



Buffer Storage of Longitudinal Type

Coal Storage Arrangements



Buffer Storage of Longitudinal Type

Typical Coal Storage Arrangements



Buffer Storage of Longitudinal Type

Scraper Reclaimers (coal handling)



Portal Reclaimer
(discharge via drag trough)

Scraper Reclaimers (coal handling)



Portal Reclaimer
(discharge via drag trough)

Scraper Reclaimers (coal handling)



Portal Reclaimer

(discharge via drag trough)

Scraper Reclaimers (coal handling)



Portal Reclaimer with worldwide largest Capacity of 3,600 t/h, Span 52m, Dartbrook coal Pty. Limited, NSW, Australia

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Scraper Reclaimers (coal handling)



Portal Reclaimer

(discharge via concrete ramp)

Scraper Reclaimers (coal handling)



Portal Reclaimer

(discharge via concrete ramp)



A-side view, showing boom,
shovels, power supply

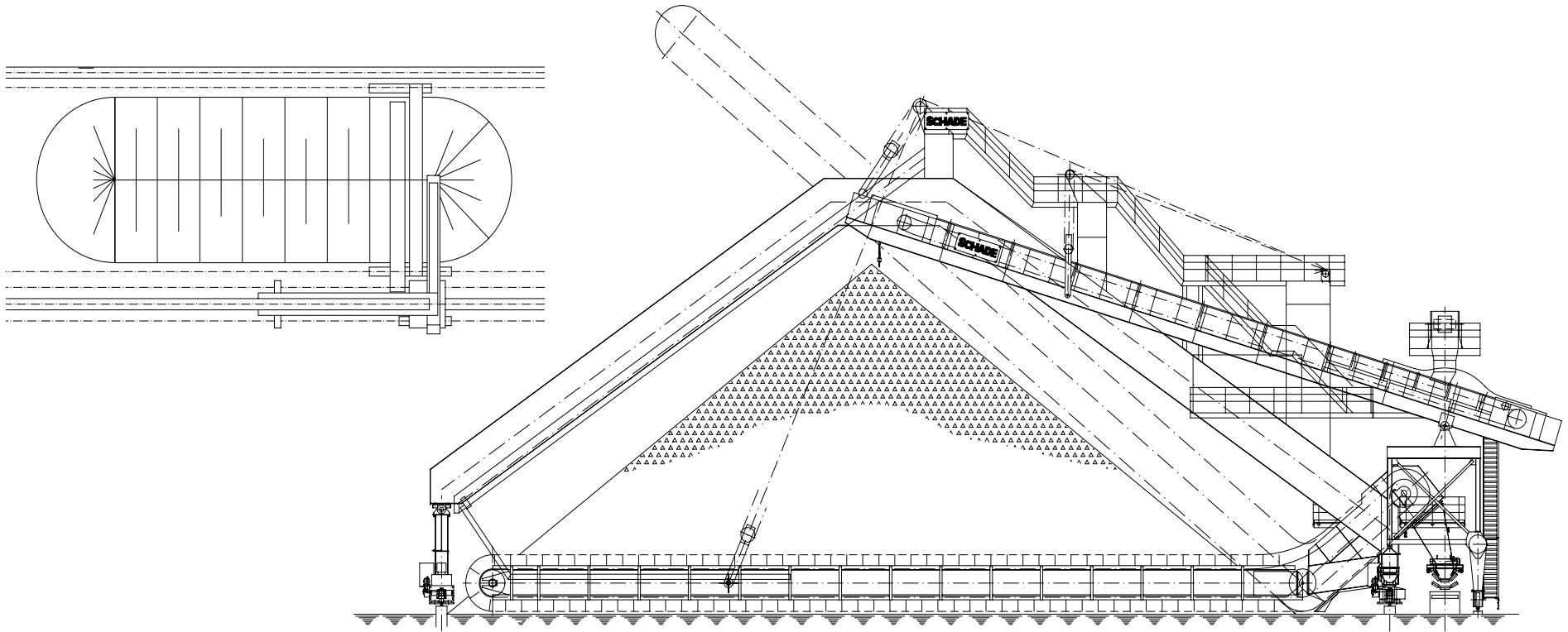
Scraper Reclaimers (alternative fuel => woodchips handling)



Portal Reclaimer

(discharge via drag trough)

Batch Storage with a combined Stacker / Reclaimer



- For applications where stacking and reclaiming will not occur simultaneously
- Stacking and reclaiming performed with one machine only
- Less space required
- Reduced Capital expenditure

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Buffer Storage of Longitudinal Type

Combined Stacker / Reclaimers (coal handling)



Portal type Stacker / Reclaimer

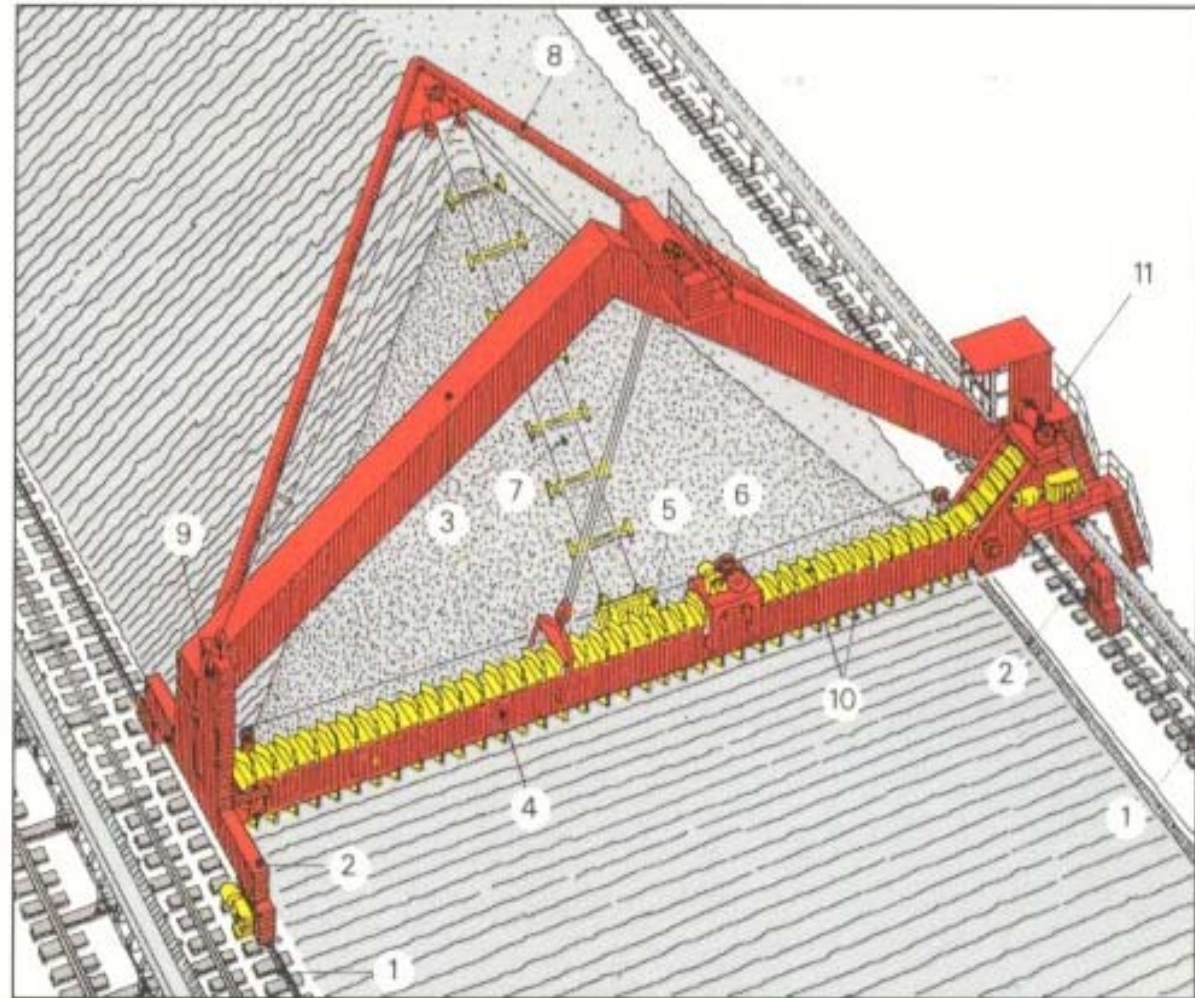
Combined Stacker / Reclaimers (coal handling)



Portal type Stacker / Reclaimer

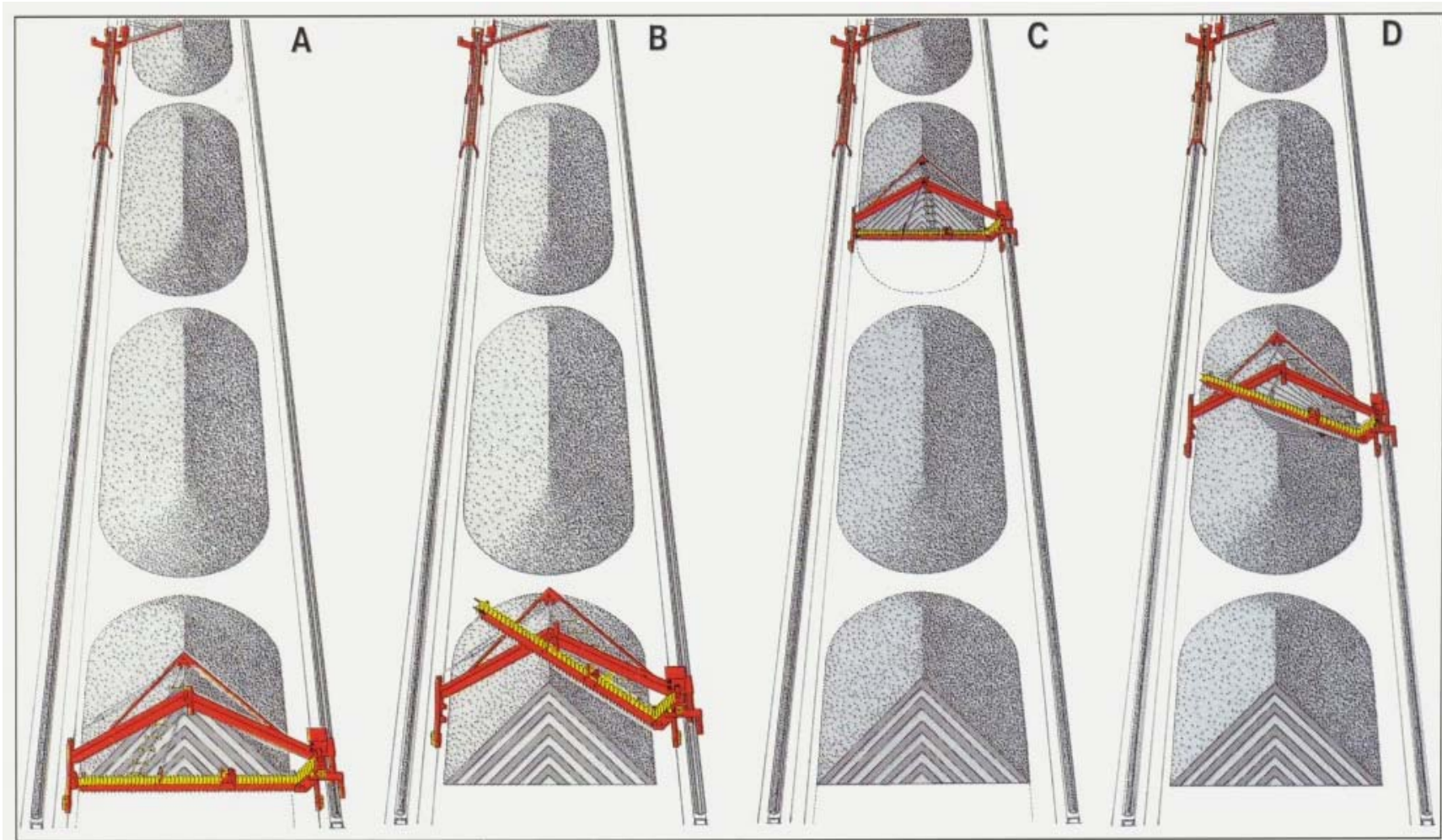
Portal Bridge Reclaimers !

- 1 Rails
- 2 Travelling beams
- 3 Portal structure
- 4 Reclaiming boom
- 5 Harrow sledge
- 6 Drum winch
- 7 Rope harrow
- 8 Triangular jib
- 9 Counterweight
- 10 Scraper chain
- 11 Rope hoist



Multiple Purpose Reclaimer
(front and side reclaiming)

Portal Bridge Reclaimers



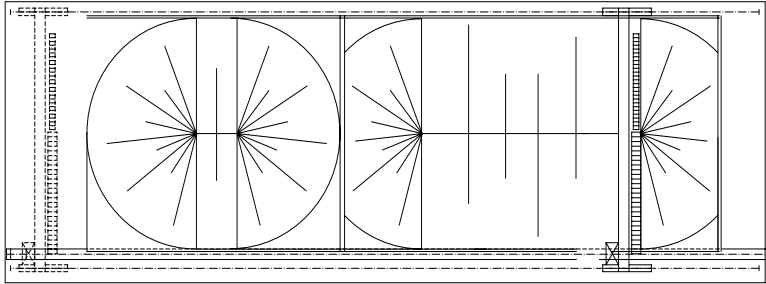
Multiple Purpose Reclaimer
(front and side reclaiming)

Scraper Reclaimer and Stacker (coal handling)

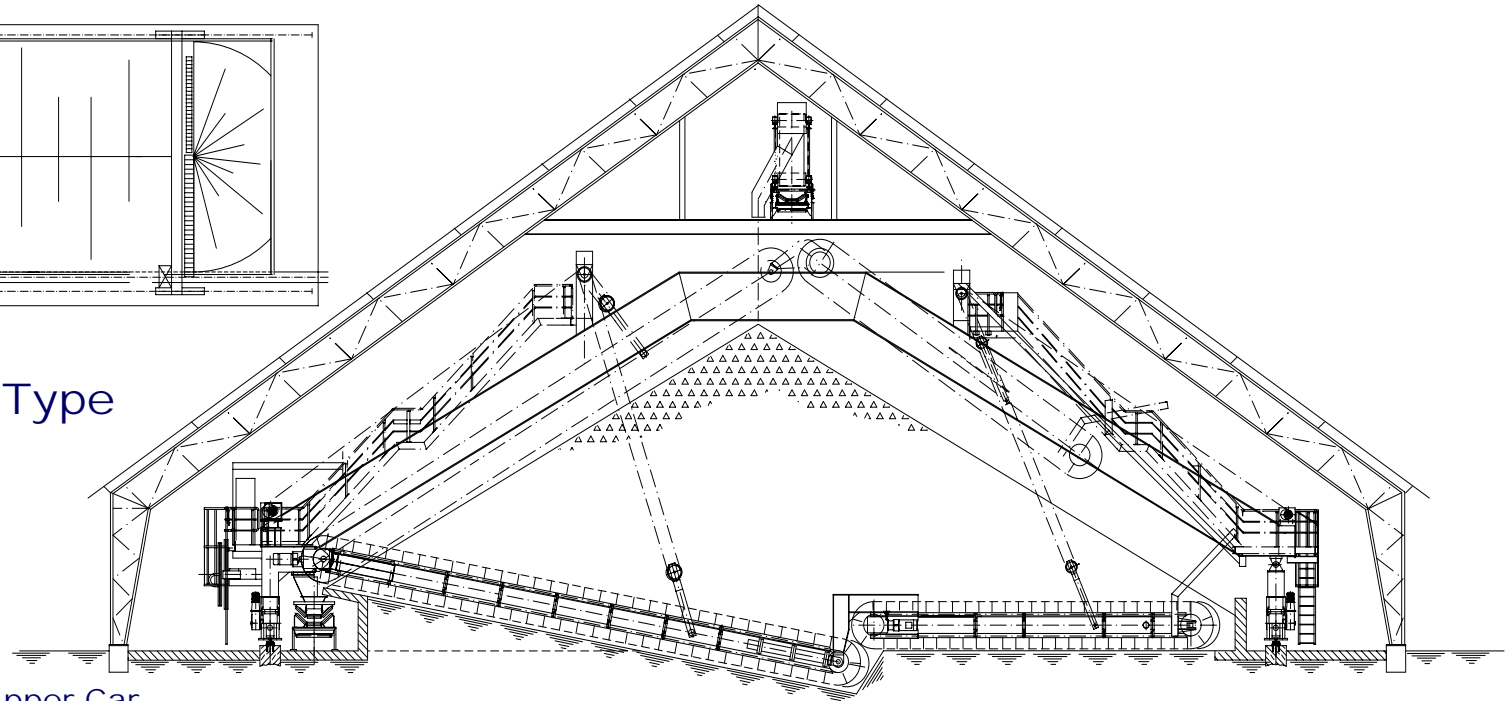


Stacker and Multiple Purpose Reclaimer
(front and side reclaiming)

Typical Storage Arrangements



PORTAL internal Type



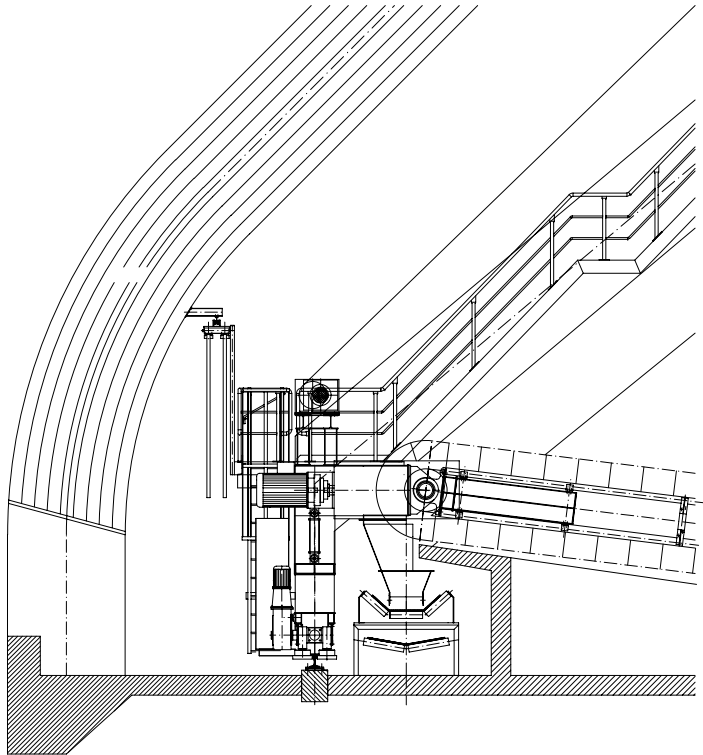
- Stockpile built up by Trippler Car
- Free sloping or comparted by walls
- Reclaiming from the side slope of the pile by Portal Scraper Reclaimer
- Operating along the whole length of the stockpile or compartments or pre-selected sections
- Automatic operation
- Quick travelling between different working locations
- Reduced building height due to Portal Reclaimer arrangement with two booms

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Buffer Storage of Longitudinal Type

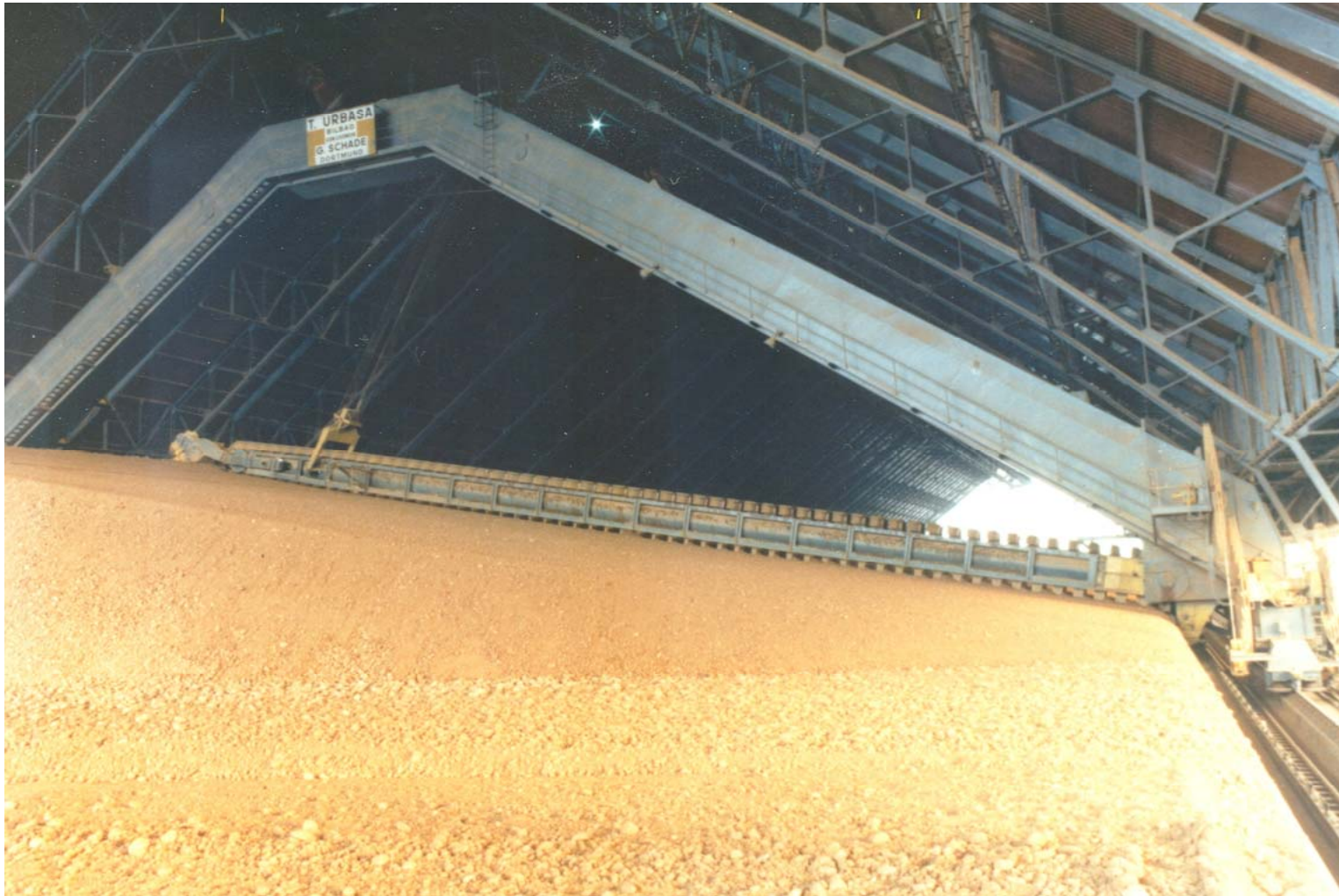
Side Reclaiming from Stockpile

by Portal / Semi-Portal Type Scraper Reclaimers



discharge via concrete ramp

Scraper Reclaimers (Bauxite handling)



Portal Reclaimer

(discharge via concrete ramp)

Scraper Reclaimers (Kimberlite Ore handling)



Portal Reclaimer

(discharge via concrete ramp)

Scraper Reclaimers (FGD-gypsum handling)

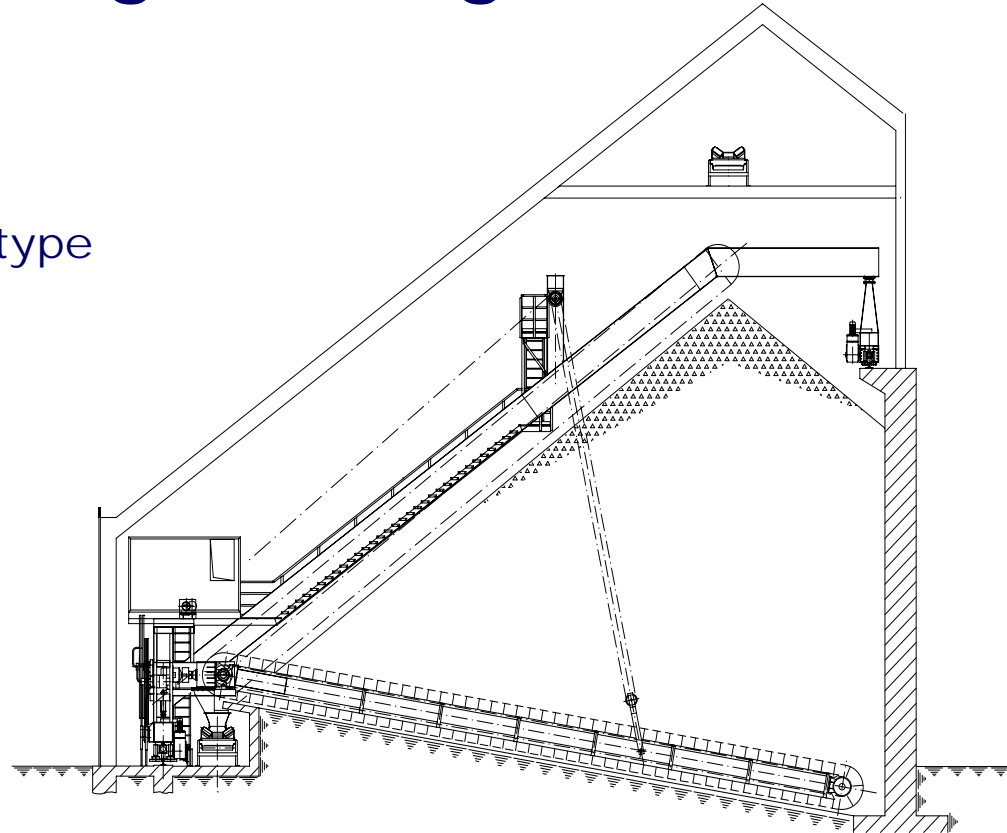


Portal Reclaimer

(discharge via concrete ramp)

Typical Storage Arrangements

SEMI - PORTAL Undercover type



- Stockpile built up by Tripper Car
- Free sloping or comparted by walls
- Reclaiming from the side slope of the pile by Semi-Portal Scraper Reclaimers
- Operating along the whole length of the stockpile or or compartments or pre-selected sections
- Automatic operation
- Quick travelling between different working locations

Covered Storage Arrangements

SEMI - PORTAL Undercover type



Buffer Storage of Longitudinal Type

Scraper Reclaimers (FGD-gypsum handling)



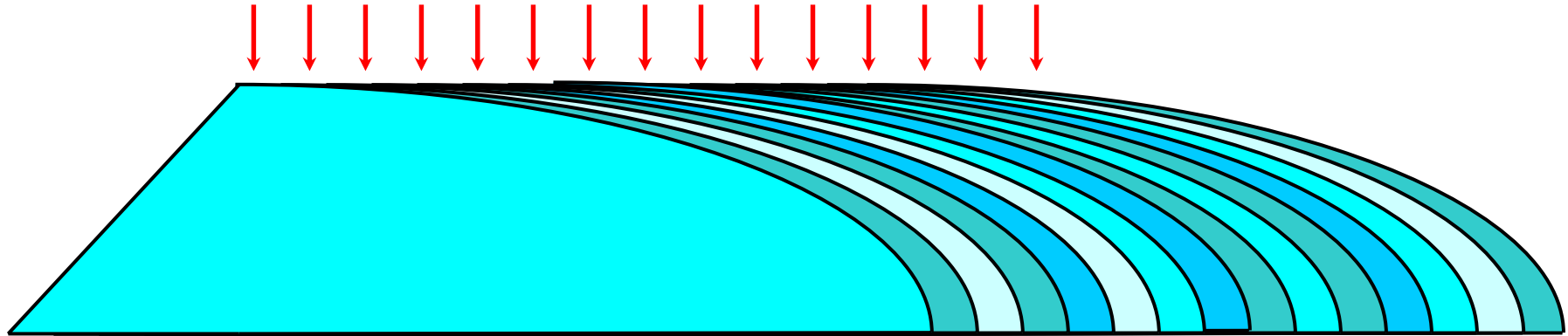
Semi-Portal Reclaimer
(discharge via concrete ramp)

Scraper Reclaimers (FGD-gypsum handling)



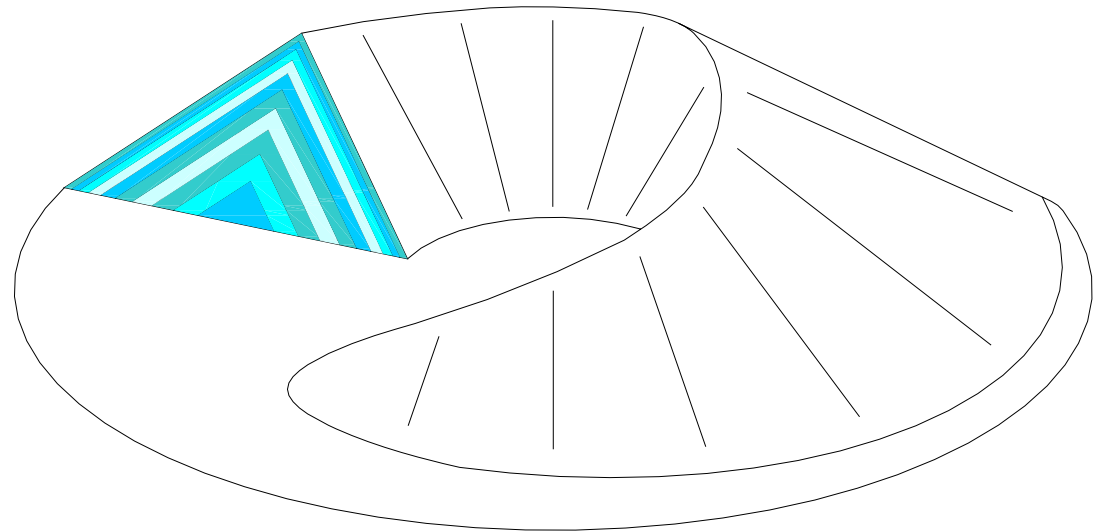
Semi-Portal Reclaimer
(discharge via concrete ramp)

Stacking Methods



Chevcon

homogenizing of
circular stockpiles



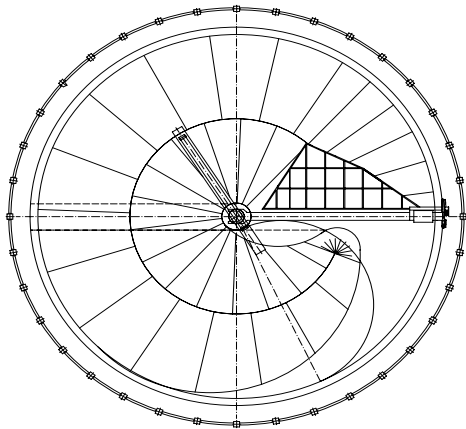
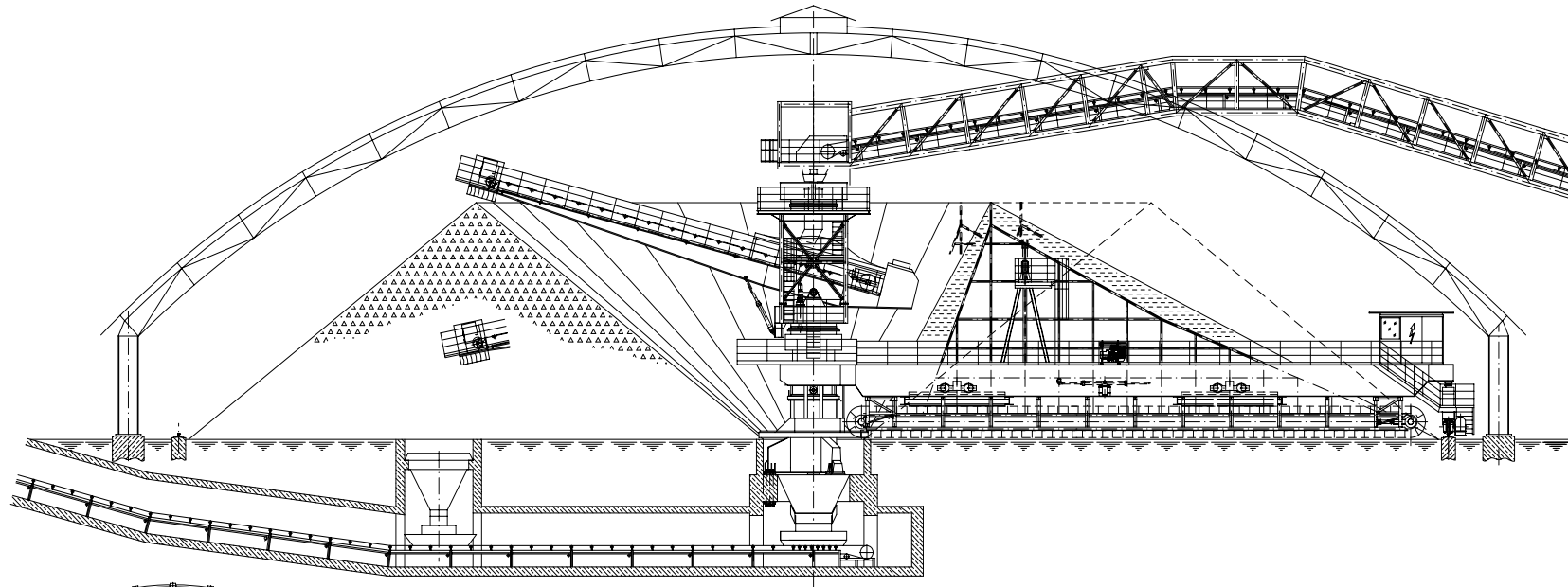
Chevcon Stacking Methods



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High capacity Circular Blending Bed

Circular Storage Arrangements



- One pile built up continuously by slewing / luffing Stacker in Chevcon Method
- Reclaiming from the front of the pile by Bridge type Scraper Reclaimer
- 360° rotation and endless pile
- Perfect homogenization and blending of segregated bulk material
- Automatic operation (also simultaneously)
- In enclosed buildings or outdoor operation

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Blending Bed of Circular Type

Circular Stacker / Reclaimers (Zinc Ore handling)



Stacker (slewing and luffing)
with Bridge Reclaimer

Circular Stackers / Reclaimers (coal handling)



High Capacity Circular Blending Bed dia.
120m

Circular Stacker / Reclaimers (coal handling)



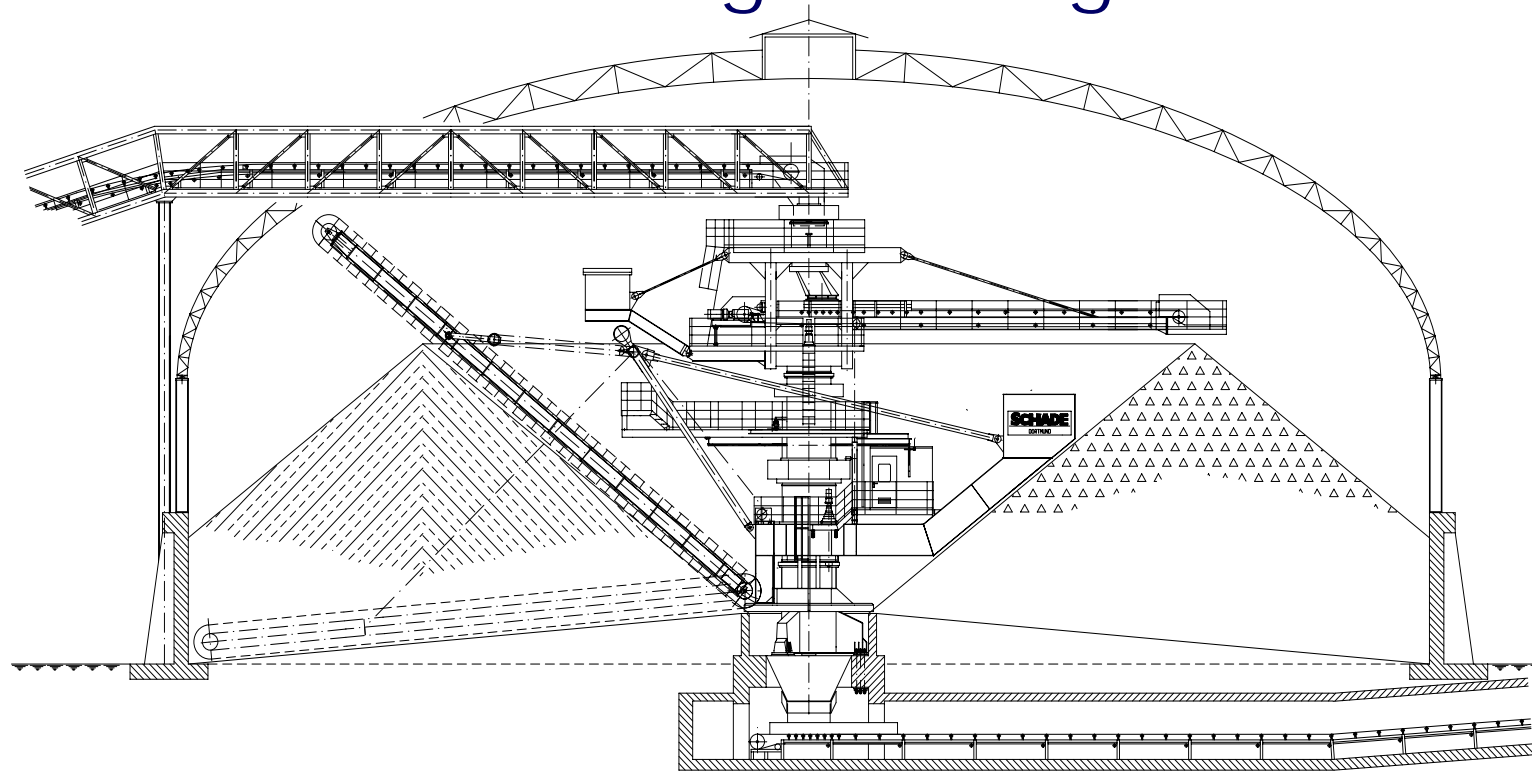
Stacker (slewing and luffing)
with Bridge Reclaimer

Circular Stacker / Reclaimers (coal handling)



Stacker (slewing and luffing)
with Bridge Reclaimer

Circular Storage Arrangements



- Less space required as with storages of longitudinal shape
- Large storage capacities on small base area
- Stockpile built up by Slewing Stacker
- Reclaiming from the inner side slope of the pile by slewing/luffing scraper boom
- Automatic operation (also simultaneously)

Typical Storage Installations



9 SCHADE Circular Storages at the FPC - Mai Liao Plant in Taiwan - 180,000 tons each

Circular Stacker / Reclaimers (coal handling)



Circular Coal Storage, 4000 t/h stacking
2000 t/h reclaiming

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Circular Stacker / Reclaimers (coal handling)



Stacker (slewing)

with Reclaimer Boom (slewing and luffing)

Circular Stacker / Reclaimers (coal handling)



Stacker (slewing)

with Reclaimer Boom (slewing and luffing)

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Circular Stacker / Reclaimers (Iron Ore Concentr.)



Stacker (slewing)

with Reclaimer Boom (slewing and luffing)

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Outdoor Circular Stacker / Reclaimers



(coal handling)

Stacker (slewing)

with Reclaimer Boom (slewing and luffing)

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Outdoor Circular Stacker / Reclaimers

(USA alternative fuel => woodchips handling)



Stacker (slewing and luffing)

with Reclaimer Boom (slewing and luffing)

Outdoor Circular Stacker / Reclaimers

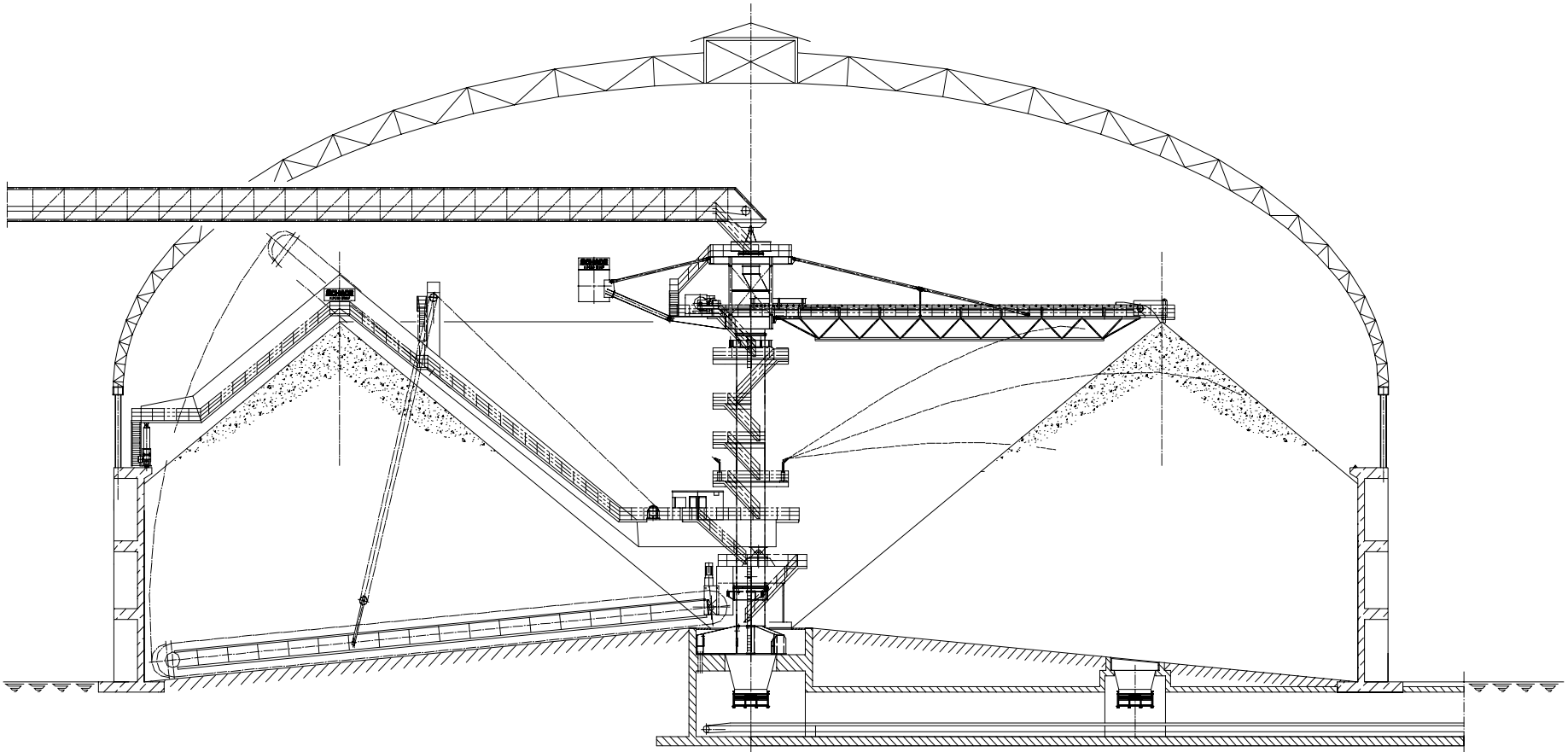
(USA alternative fuel => woodchips handling)



Stacker (slewing)

with Reclaimer Boom (slewing and luffing)

Circular Storage Arrangements



Circular with Semi-Portal Reclaimer

Circular Stacker / Reclaimers (coal handling)



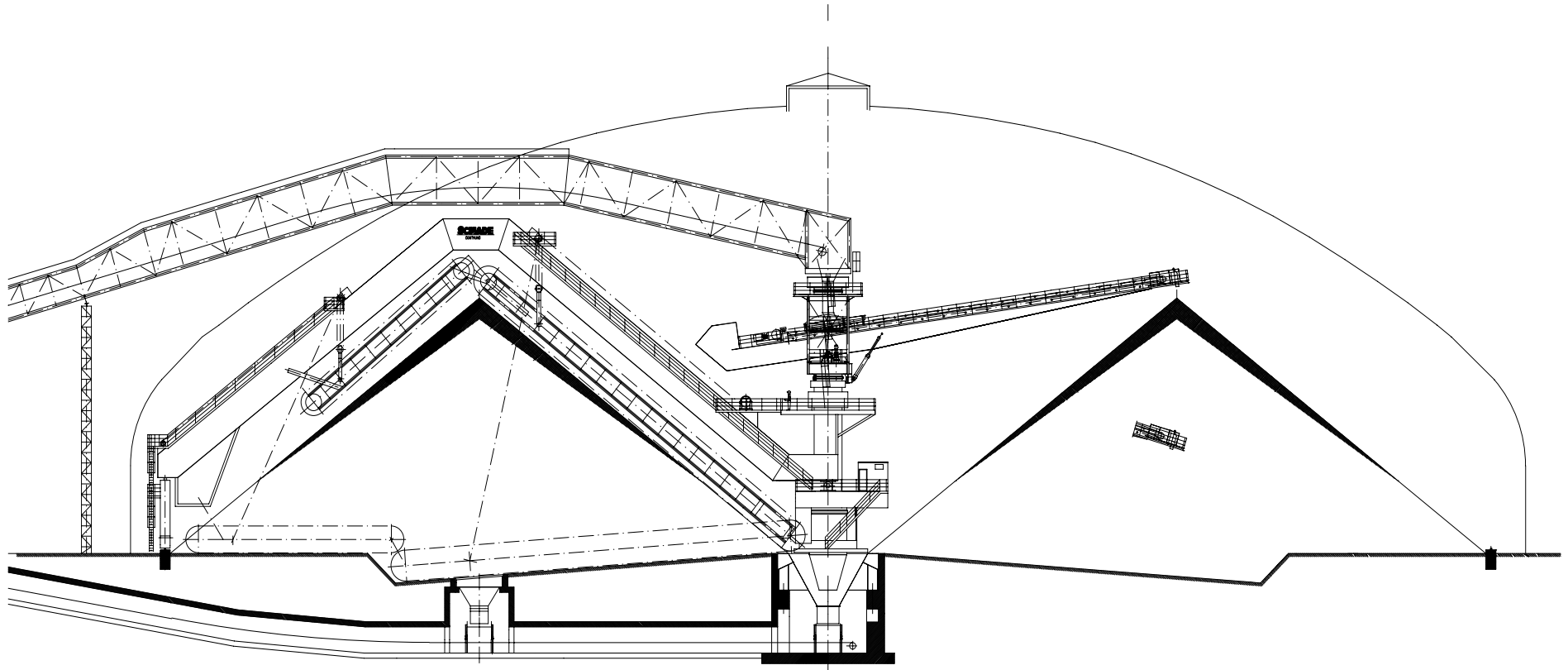
Stacker (slewing) with Semi-Portal
Reclaimer (slewing and luffing)

Circular Stacker / Reclaimers (coal handling)



Stacker (slewing) with Semi-Portal
Reclaimer (slewing and luffing)

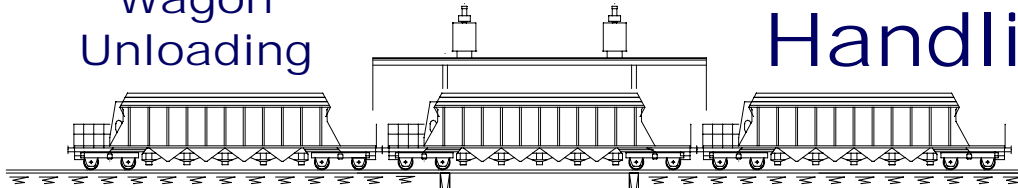
Circular Storage Arrangements



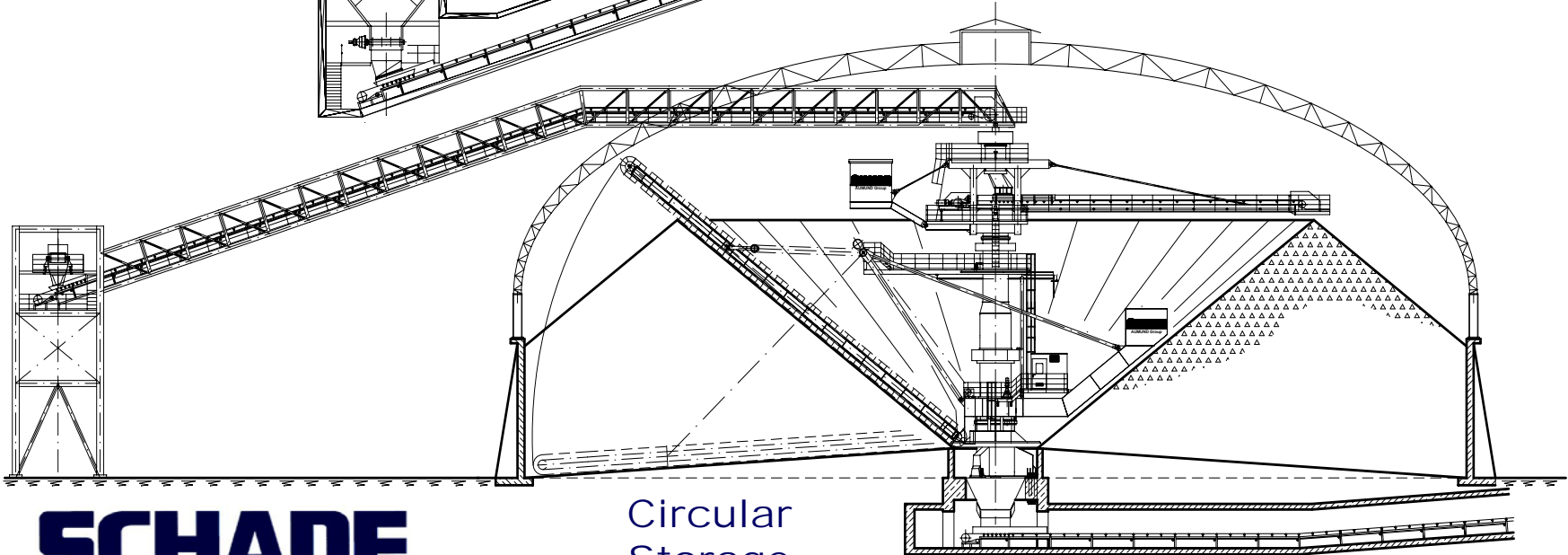
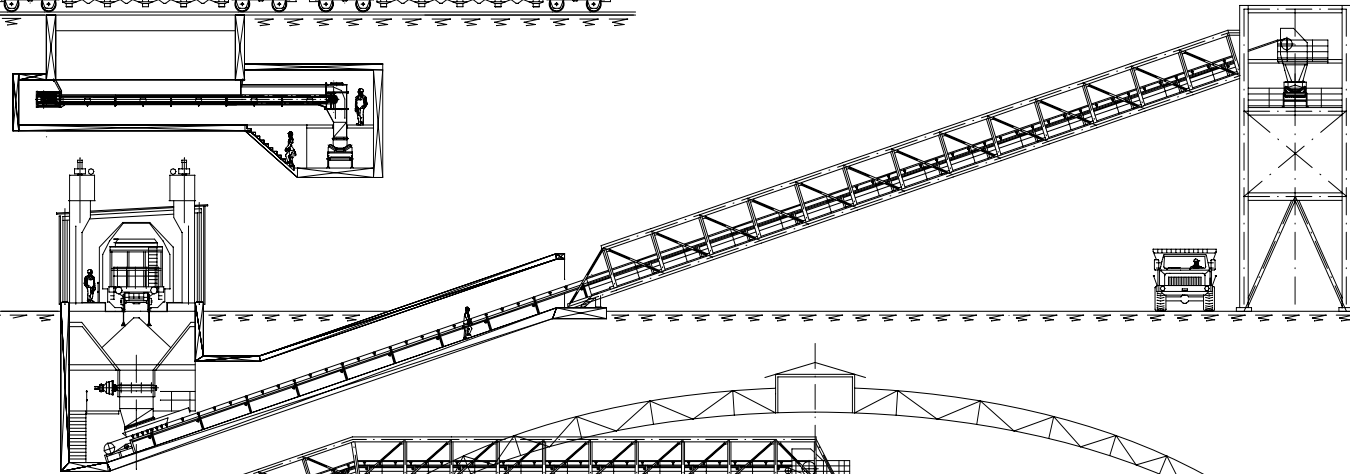
Circular with Full-Portal Reclaimer

Coal and/or Ore Handling

Wagon
Unloading



with Armoured
Chain Conveyor
type PKF



Circular
Storage

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SCHADE equipment in an Iron Ore Processing Plant



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SCHADE equipment in Power Plants



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SCHADE equipment in Power Plants



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SCHADE equipment in Power Plants



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SCHADE equipment in Power Plants



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SCHADE equipment in Power Plants



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SCHADE equipment in Power Plants

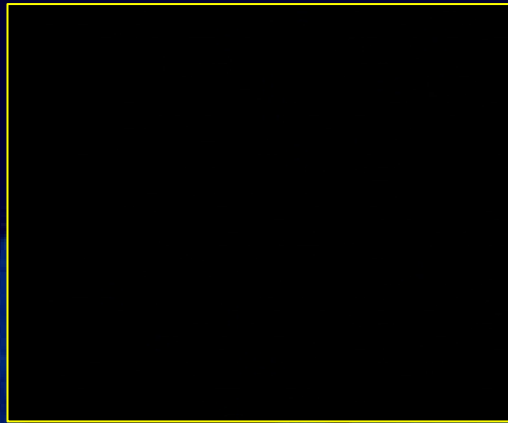


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SCHADE equipment in Power Plants



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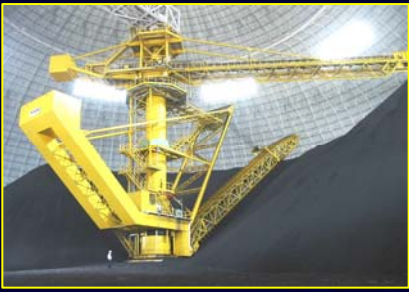
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"We Convey Quality"

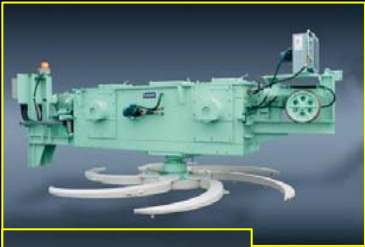
In over 12,000 conveyors Worldwide





“We Convey Quality”
In over 12,000 conveyors Worldwide

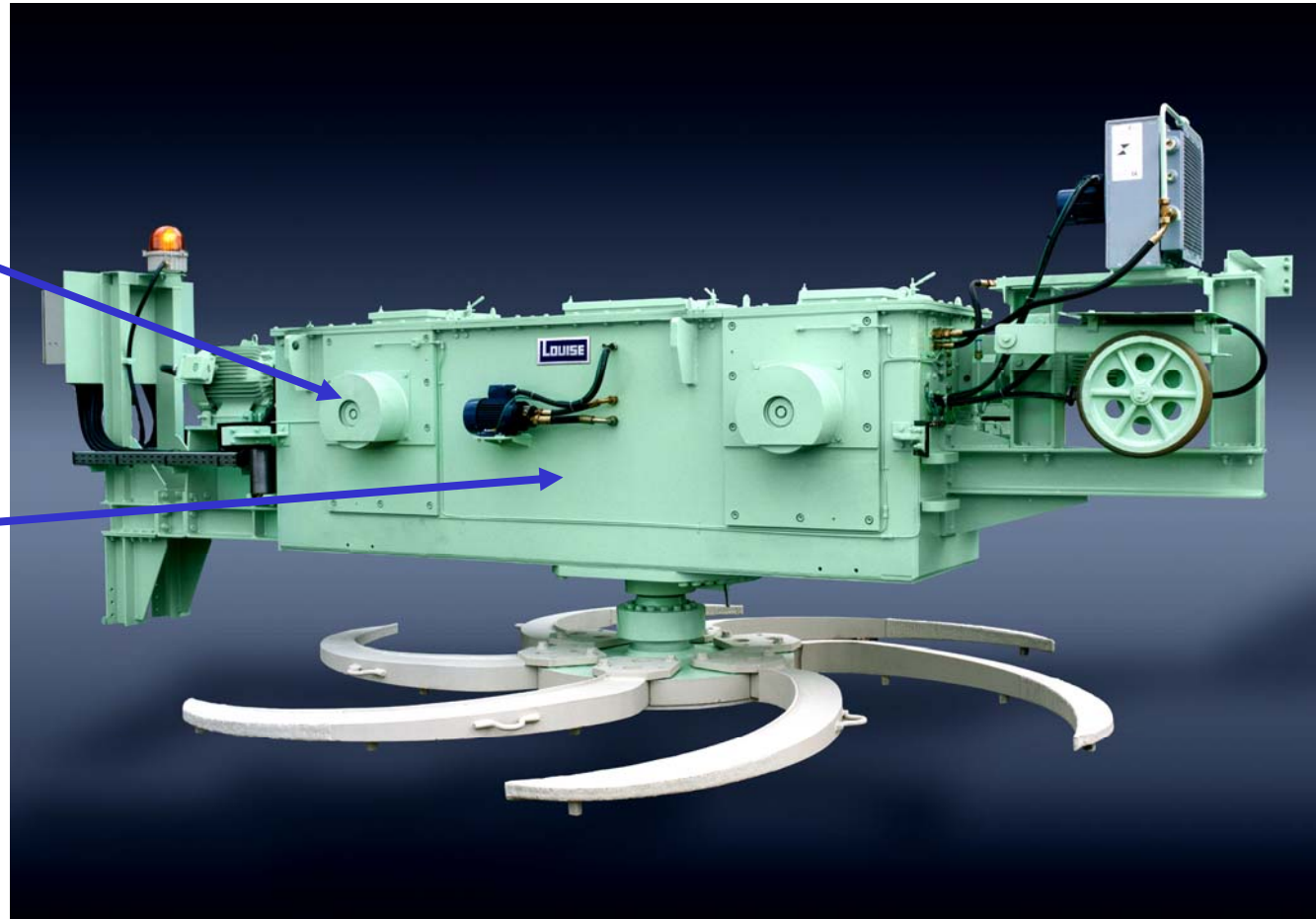
AUMUND Group



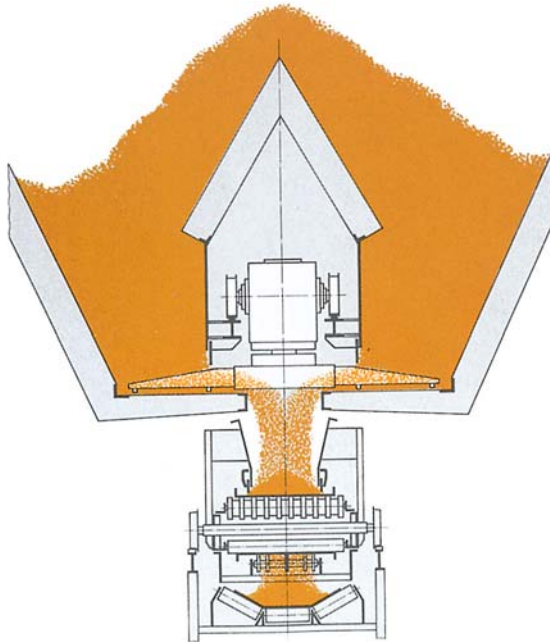
Rotary discharge machine – Block design

Four-wheel drive

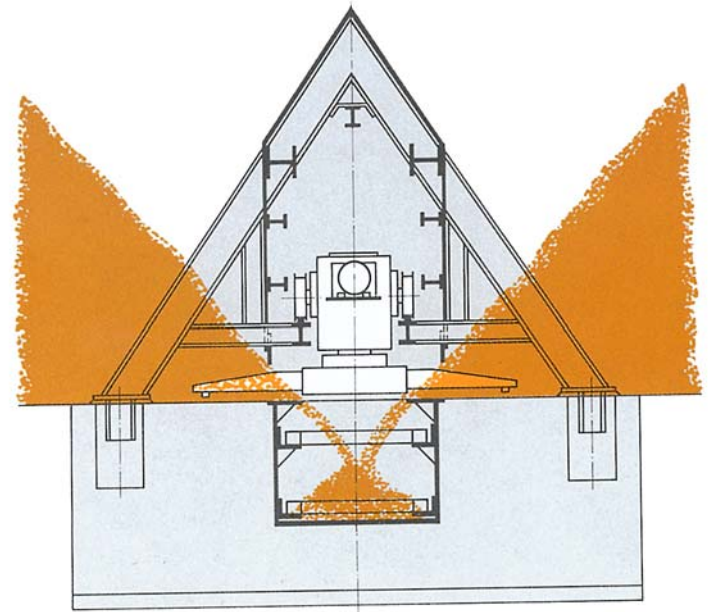
Closed, dust-tight
Gear unit (combined
drive for travel and
discharge)



Rotary discharge machine – Travel design

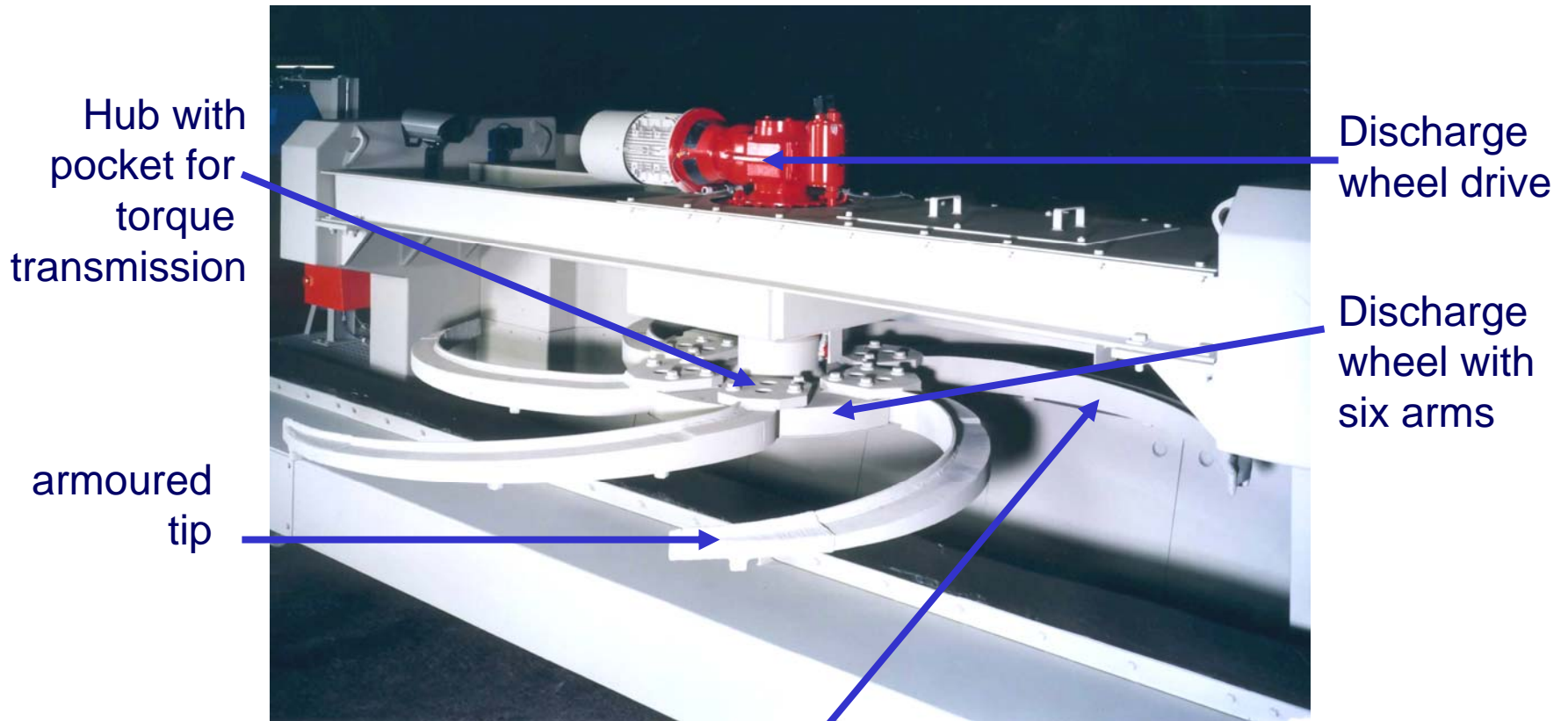


**Double side discharge of
a rectangular hopper**



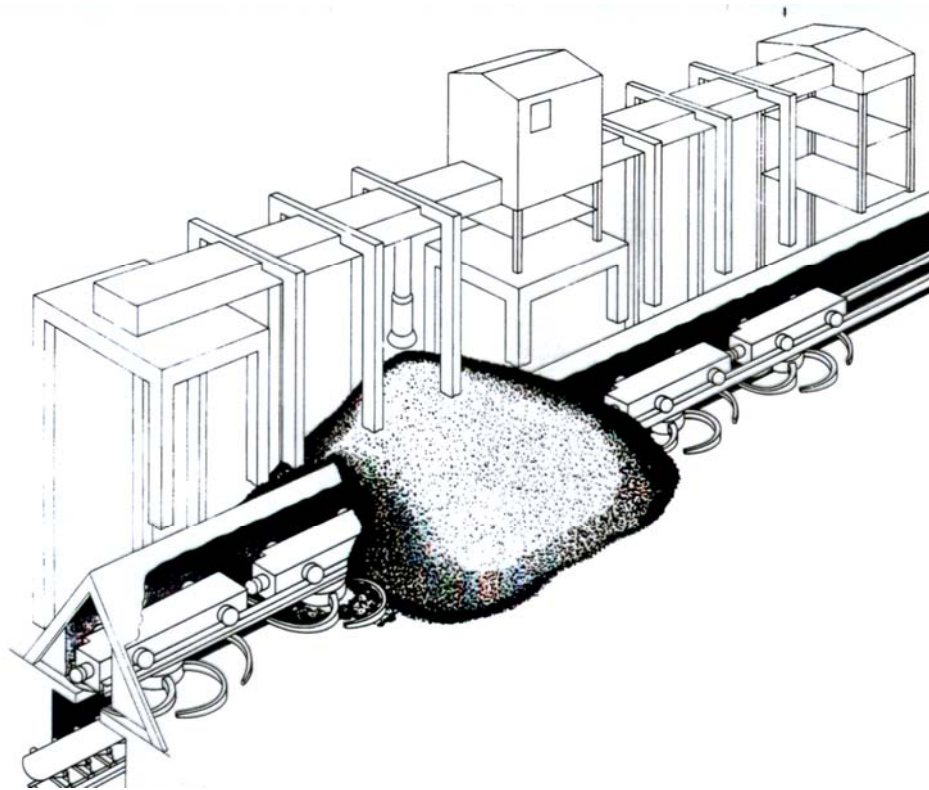
**Double side discharge from
open stockpile**

Rotary discharge machine - Low profile design



Applications

Block Design – Discharge from open stockpile



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9pc. RDM-BL 4000; 150 kW, 3300 t/h hard coal,
Orba / Superior, Wisconsin - USA

Applications

Block Design – Discharge from open stockpile



9pc. RDM-BL 4000; 150 kW, 3300 t/h hard coal,
Orba / Superior, Wisconsin - USA



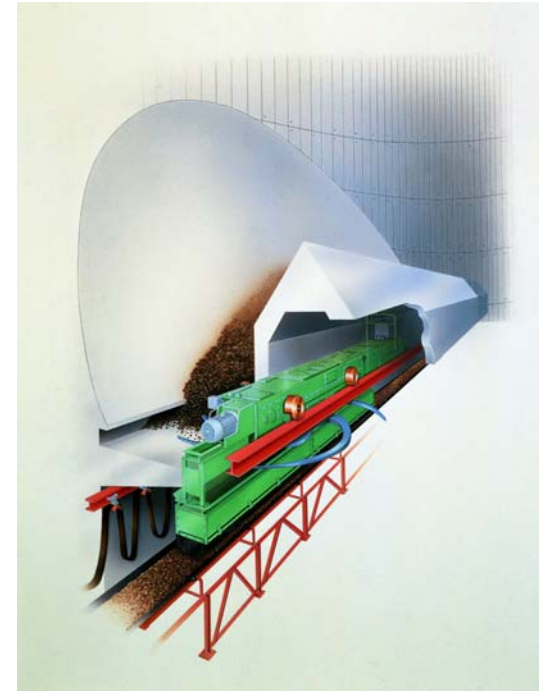
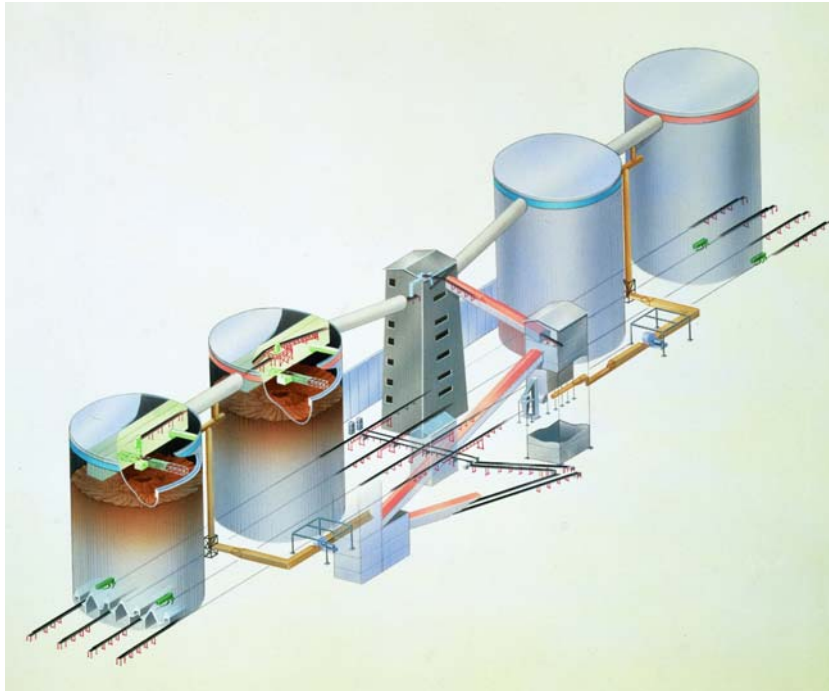
Applications - Block Design



4pc. RDM-BL 4000; 37 kW, 40 - 400 t/h hard coal,
Okinawa, Japan

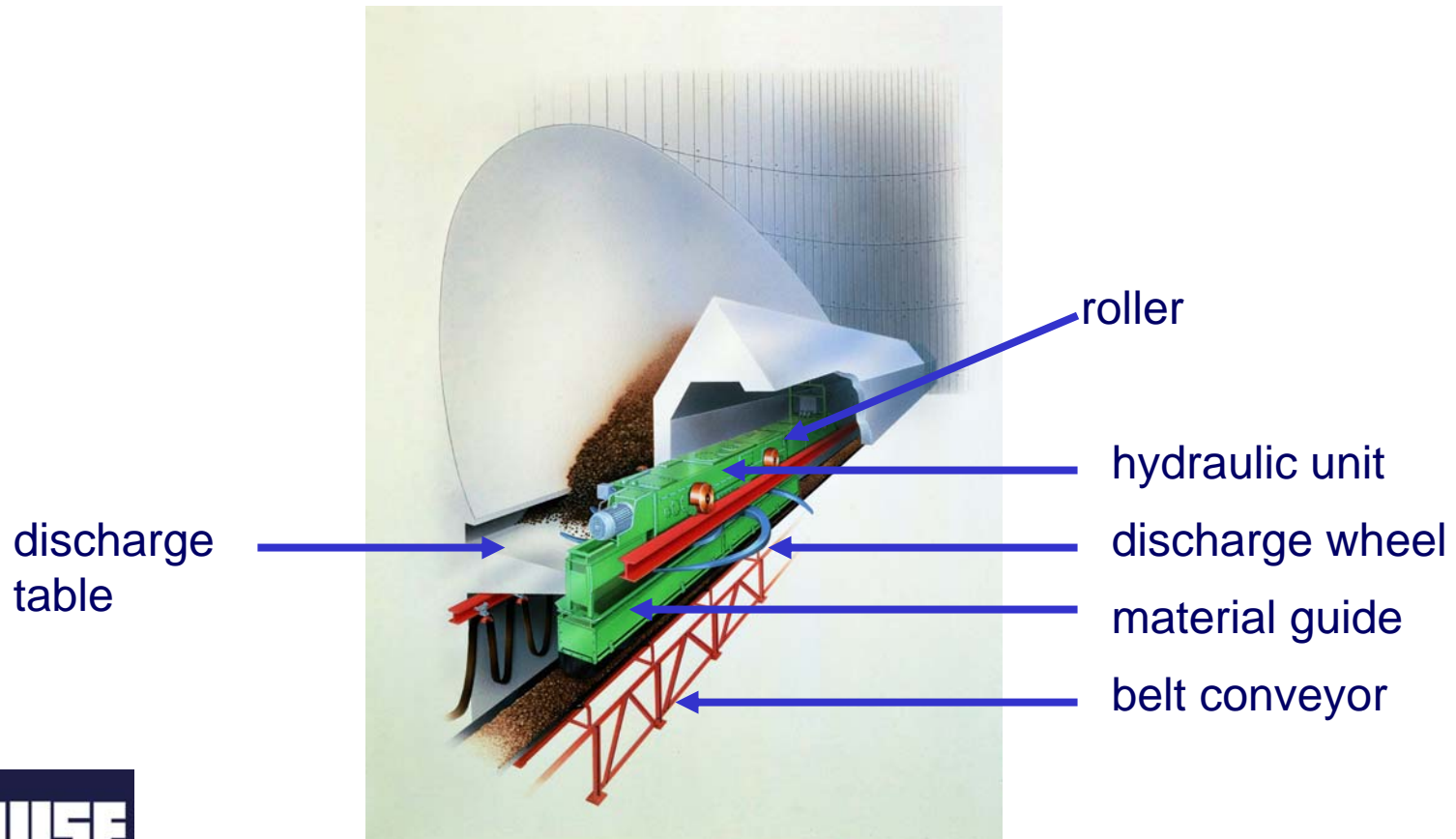
Applications

Block Design - Silo Discharge



4pc. RDM-BL 4000; 37 kW, 40 - 400 t/h hard coal,
Okinawa, Japan

Applications – Block Design, Silo discharge



Applications - Block Design



RDM-BL 3000; 11 kW
90 t/h FGD-gypsum
Idstein - Germany



RDM-BL 3000; 11 kW, 200 t/h
limestone and marl
LEUBE, Austria

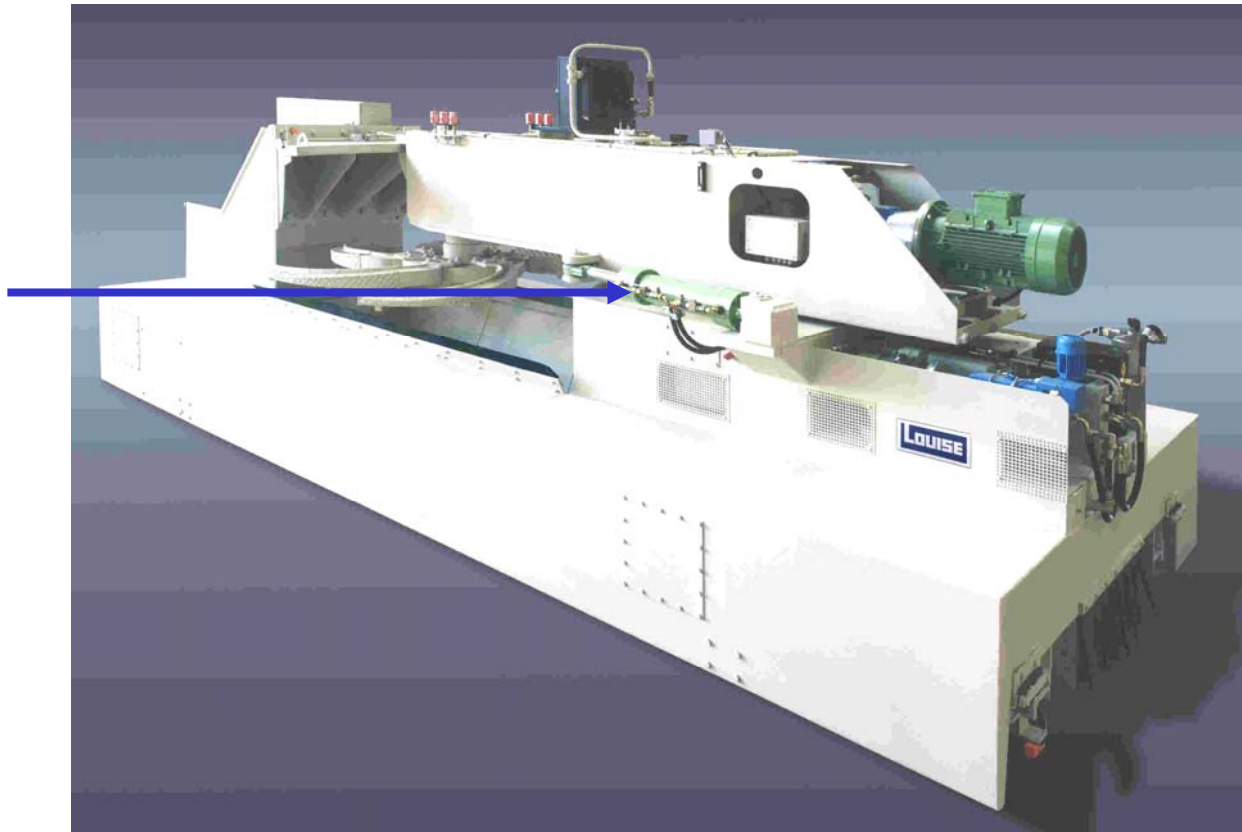
Applications - Low profile design



RDM-FL 2500
11 kW, 200 t/h
limestone
Nürtlingen
Germany

Application – Low profile design with double swivel drive

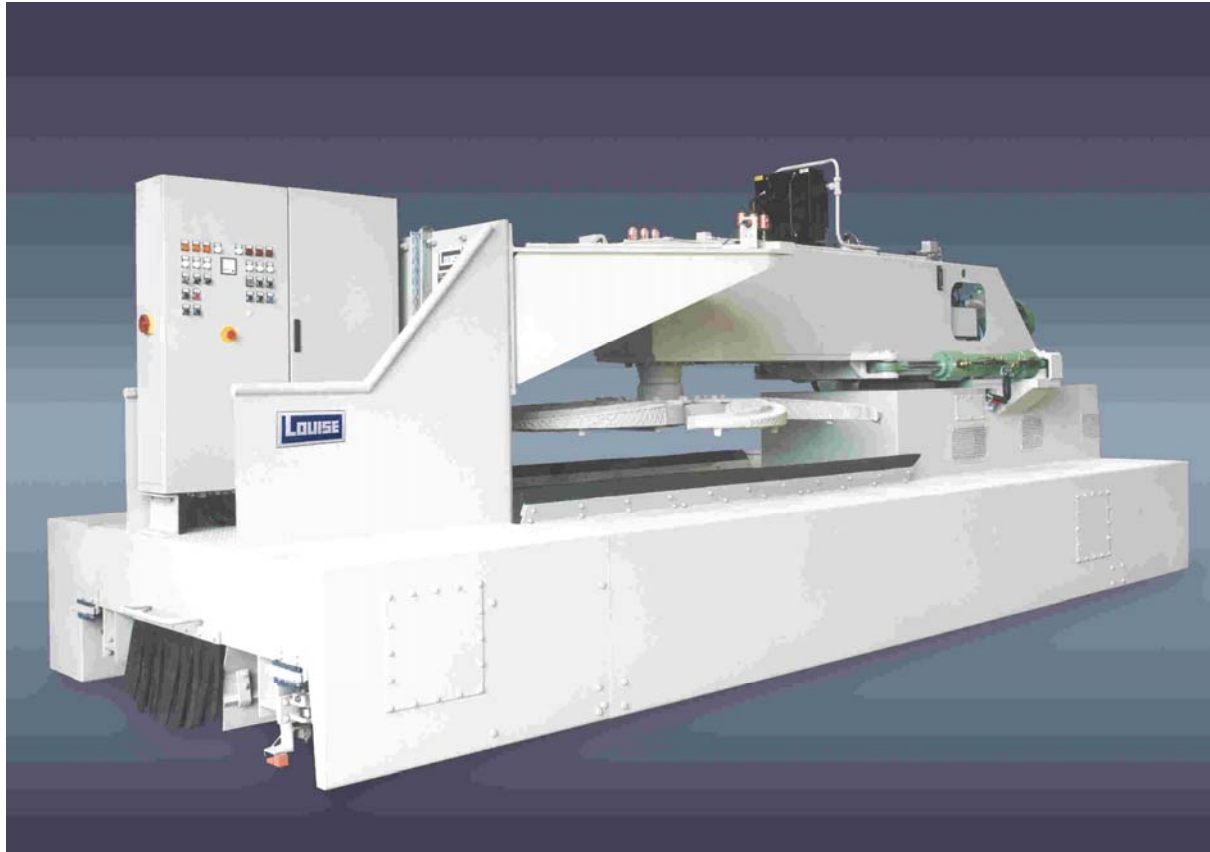
Swivel motion cylinder



RDM-FL-BS
2500; 30 kW,
100- 1000 t/h
Rock
Raron -
Switzerland



Application – Low profile design with double swivel drive



BEW-FL-BS
2500; 30 kW,
100- 1000 t/h
Rock
Raron -
Switzerland



Variable speed discharge and travel with frequency controlled drive

Rotating rotary discharge machine for discharge openings with a diameter of 6 - 12 m

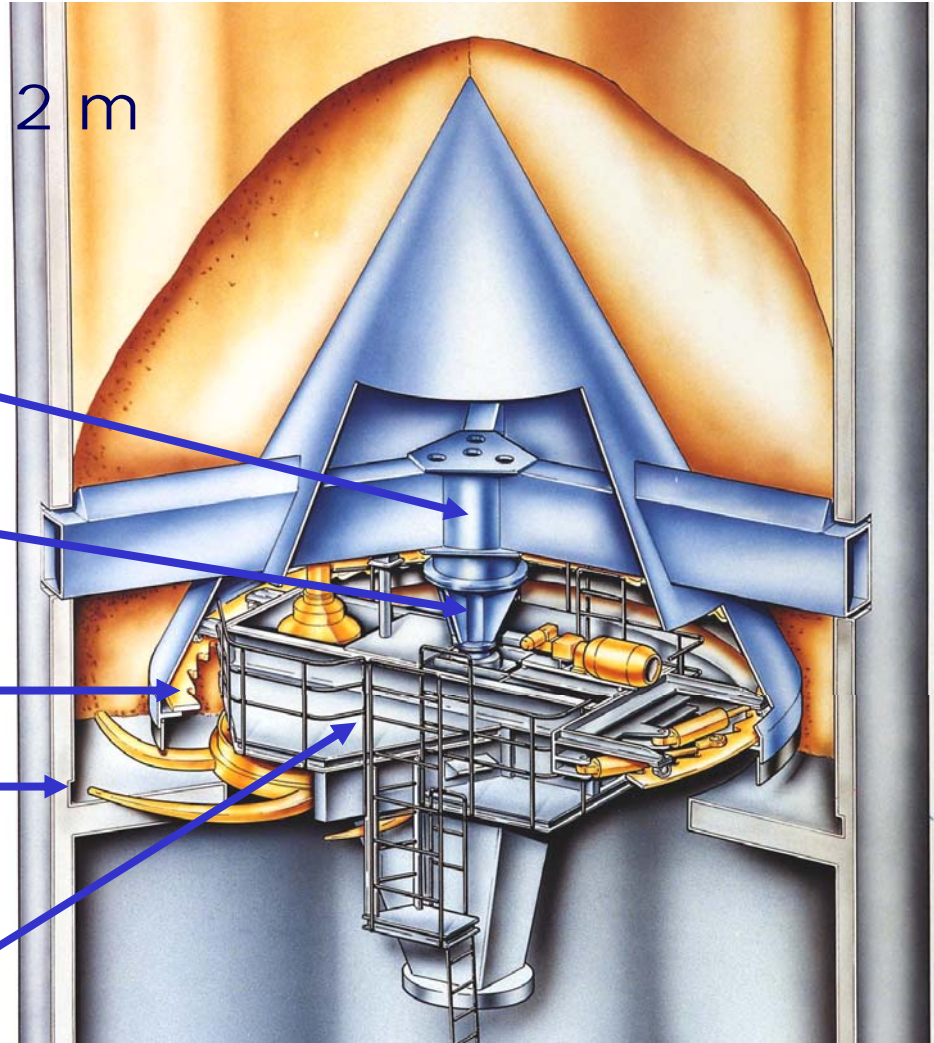
Main and control cable
collector (slip ring)

Centre shaft

Ratchet segments

Slot to undercut
material column

Service platform



Applications – Rotating rotary discharge machine



2 x RRDM 8000/4500, 400 t/h FGD-gypsum
Culley Generating Plant, Indiana - USA

Rotary Wagon Tippers / Railcar Dumpers

- Economic unloading from four wagons per hours upwards
- Hydraulic lifting gear
- Handling up to 35 wagons per hour with tippers placed opposite one another
- Handling wagons with a total weight of 40 to 80 tons
- Tipping facility can be driven trough by complete trains including locomotive
- Eliminates shunting times if wagons are not correctly arranged or if fitted with only one drop end



Rotary Wagon Tippers / Railcar Dumpers

Coal Unloading



B&W

AUMUND GROUP

...Samson Projects...

...Highlights...

over the

...Last Two Years...



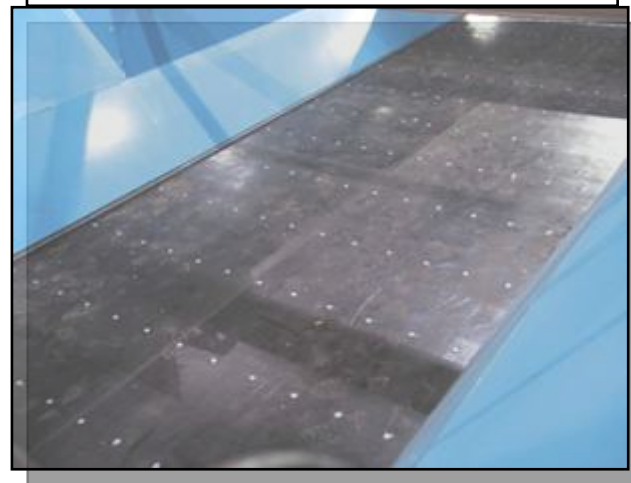
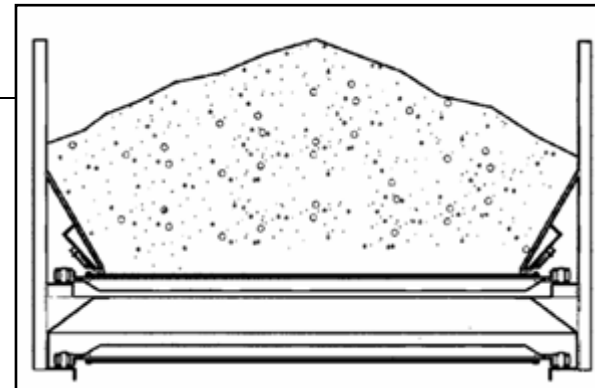
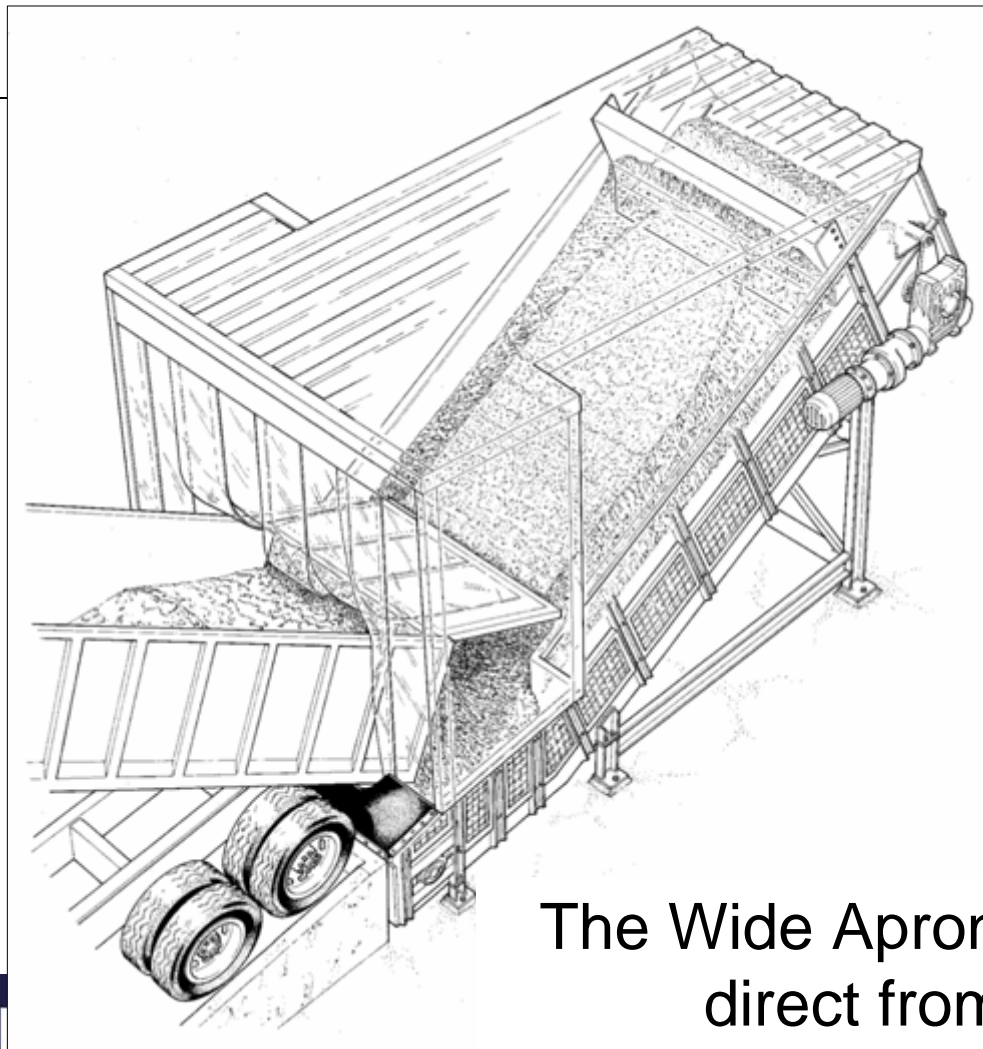
Surface Installation



Surface installation eliminates underground pits and hoppers with complete flexibility in location and relocation



The Samson Solution for Road



The Wide Apron-Belt Design receives
direct from Tipping Trucks

Case Study – TDCIM - Portugal



A New Grinding Plant located at Sines including the Samson as the Primary Intake Facility



Case Study – TDCIM - Portugal



Side Tip Samson for Additions and
Clinker Intake to Dome Storage



Case Study – Cementos Balboa -

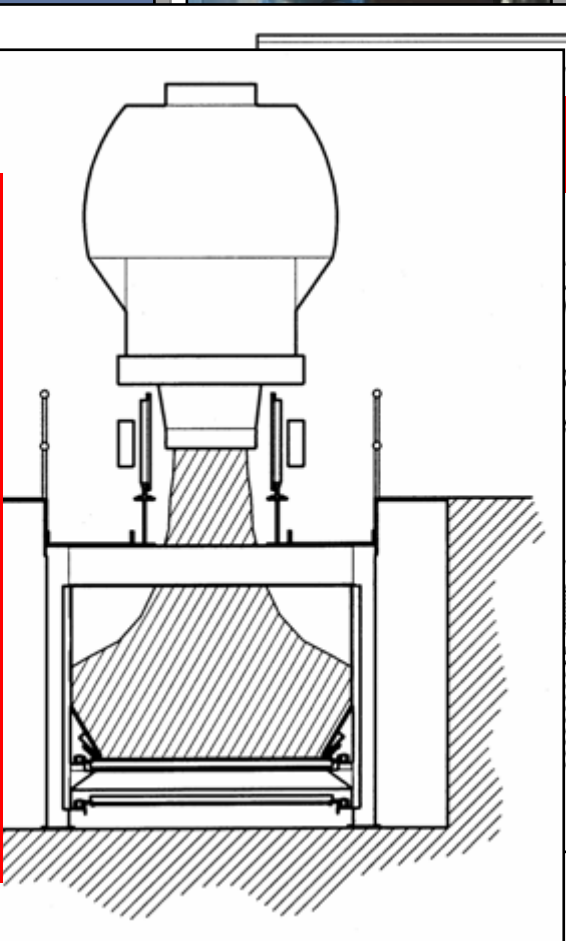


The Samson Receives Limestone for Transfer to Storage Hall

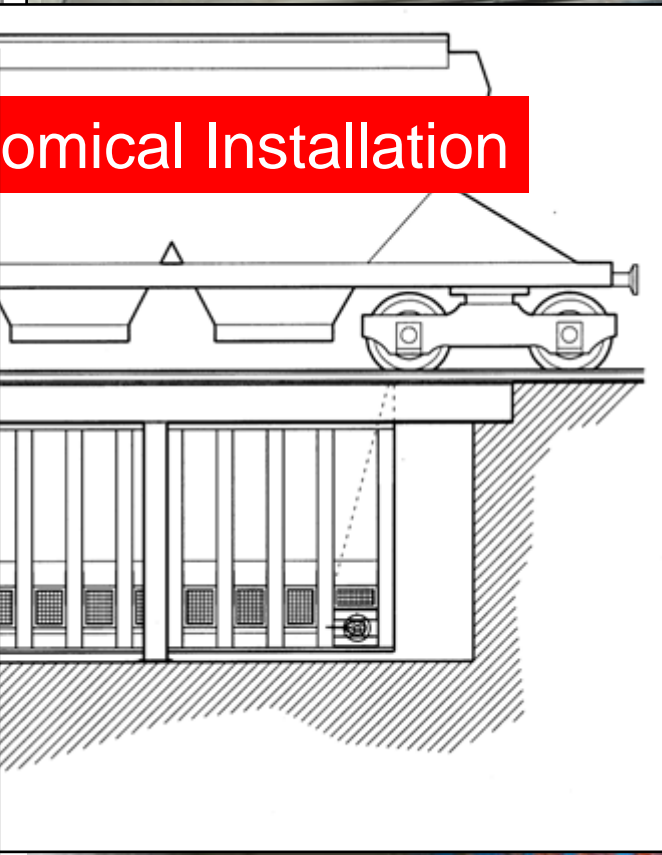


Case Study – Cementos Balboa -

R
Wide Belt
Eliminates
Bridging in the
Hopper
allowing
Reduced Pit
Depth and
Reduced Dust
Generation



omical Installation



The Samson Under Rail Feeder



Case Study – Cementos Balboa -

Complete Clinker Transport
by
Aumund



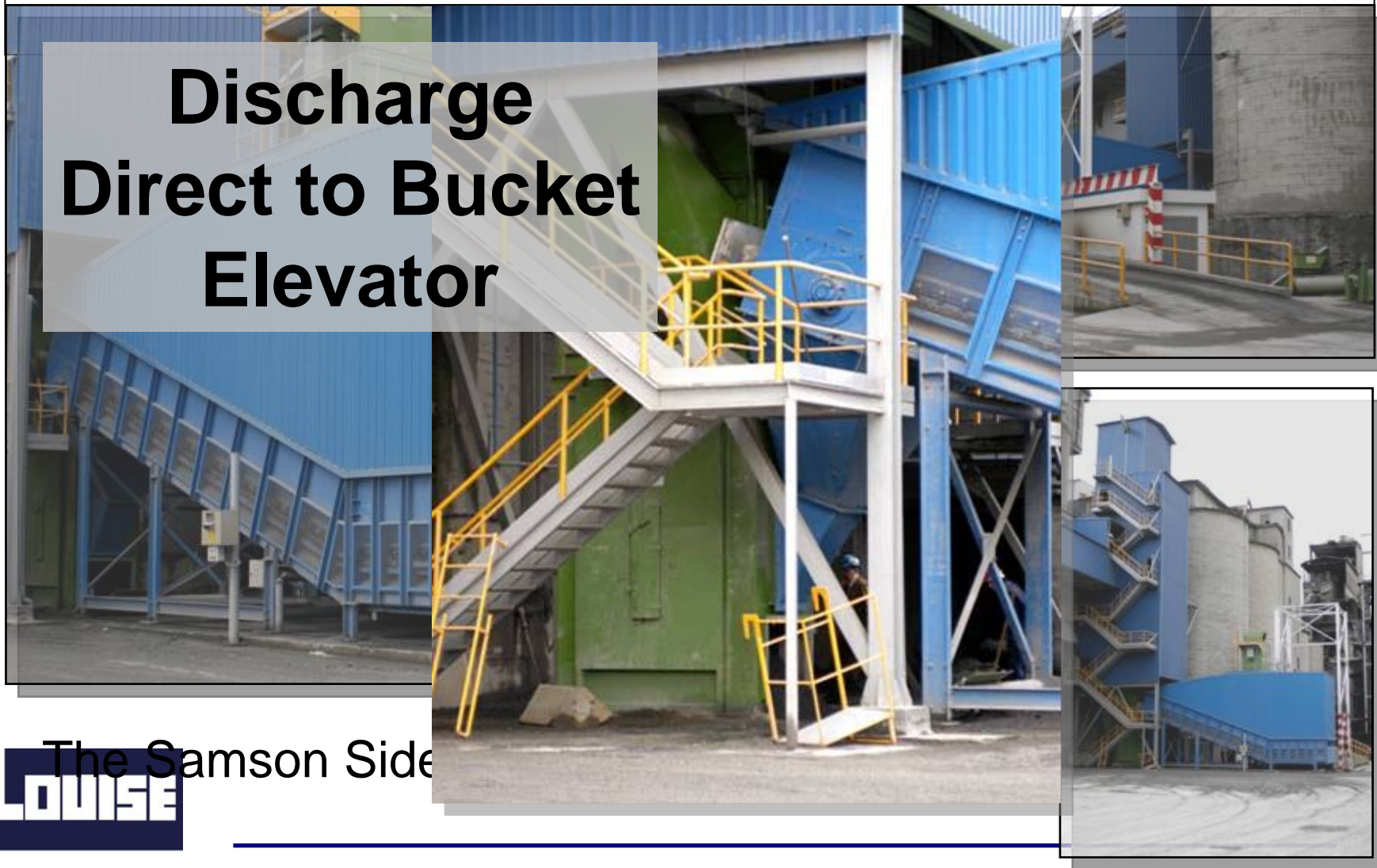
Case Study – Cementos Balboa -

All Bucket Elevators for the Complete Plant
by
Aumund



Case Study – Cementos Lemona -

**Discharge
Direct to Bucket
Elevator**



The Samson Side



Case Study – Cementos Lemona -



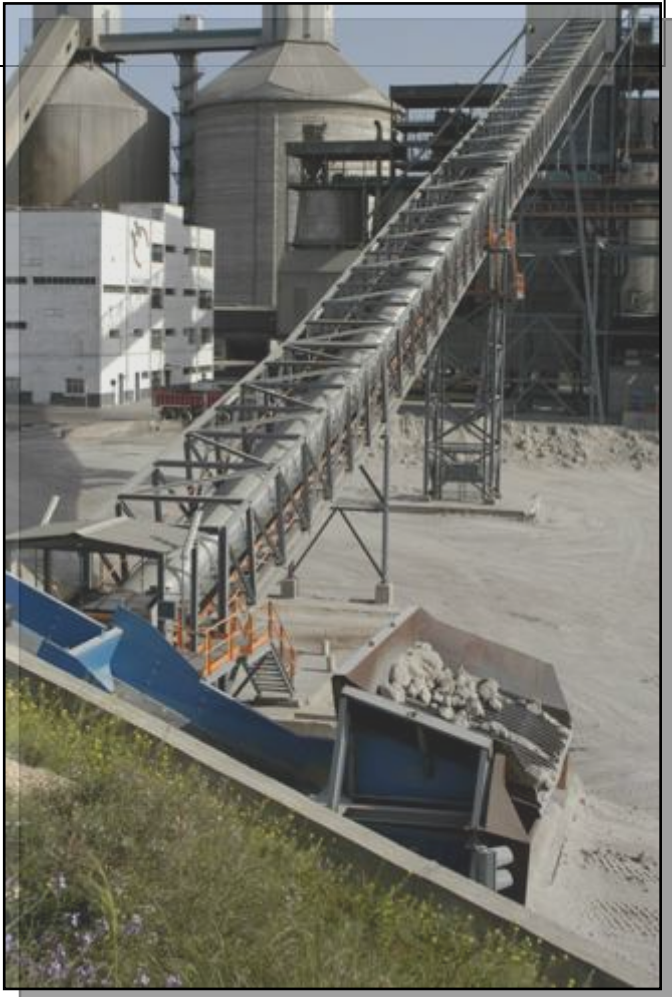
Integral Dust Plant with Filter Bag Housing above the Samson Enclosure



Case Study – Holcim Carboneras -



Granulated Blast Furnace Slag received by Loading Shovel



Case Study – Holcim Carboneras -



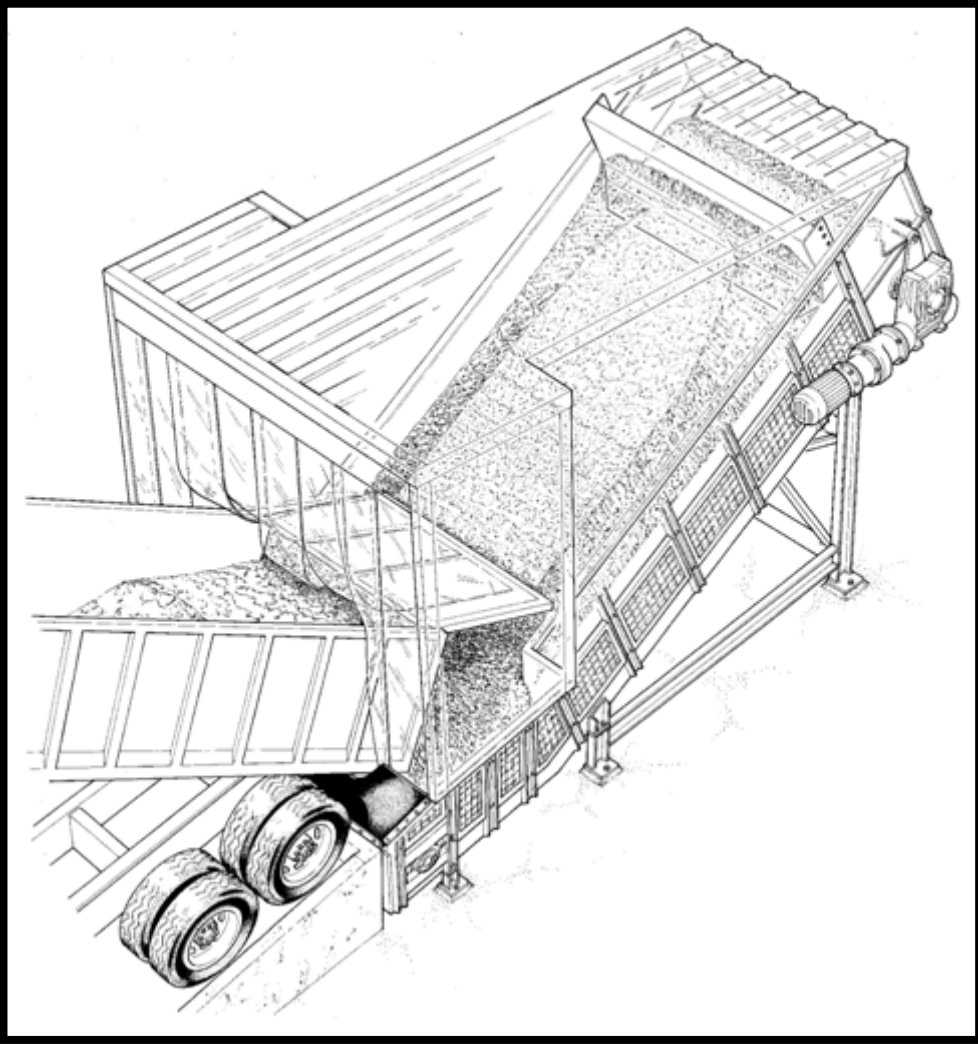
Levelling Blade Controls the Samson Discharge Rate with Independent Grizzly Screen to Reject Oversize material



Case Study – Holcim Carboneras -



Samson I
Fuels ha



Case Study – Holcim Carboneras -



Samson main Coal and Pet-Coke Fuel Intake received by tipping truck from the local port storage

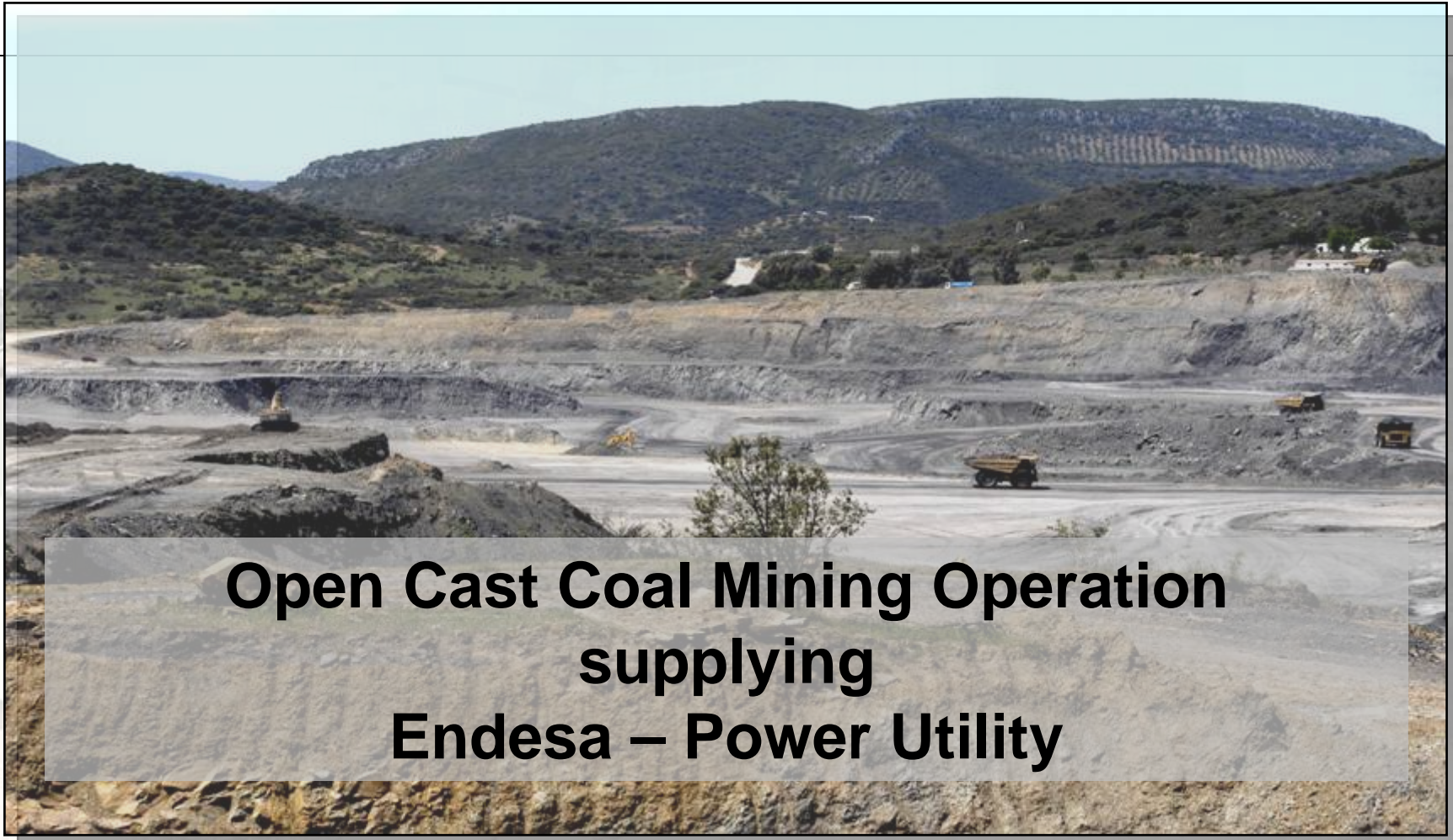


Case Study – Holcim Carboneras -

**Hydraulic Drive
with Discharge to
Circular Storage
at 500 t.p.h.**



Case Study – Encasur - Spain



**Open Cast Coal Mining Operation
supplying
Endesa – Power Utility**

Case Study – Encasur - Spain



The Samson Receives Run-of-Mine Coal for main Preparation Plant

Case Study – Encasur - Spain



**Levelling Blade
and
Dust Filter**

Barrosa - Portugal



Samson Handling Glass
Cullet for Bottle Making
Process