

TEC

TRADE | EQUIP | CONVEY



FROM FIRST SKETCH TO EXECUTION - SINGLE SOURCED

ENGINEERING → PROJECT MANAGEMENT → COMPLETION | STEEL | MINING | TUNELLING

Decades of experience in the steel industry

- ▶ Founded in 2003 by Dipl. Ing. Michael Ristovitch with a focus on industrial consulting
 - ▶ Merger of senior experts in the field of layout planning, conveyor technology, basic and detail engineering for metallurgical plants including supply technology
 - ▶ Technical design of complete systems
 - ▶ Mediation of production capacities within Europe
 - ▶ Utilisation of design capacities of RCE GmbH
- ▶ Redesign 2022 to become a plant manufacturer
 - ▶ Expansion of the management and shareholders
 - ▶ Expansion of the business units (Mining & Tunelling)
 - ▶ Subdivision of the divisions into MHS systems and conveyor belt systems



What does TEC GmbH stand for?



PROCUREMENT DONE RIGHT

- Preparing Inquiry Documents
- Evaluating Offers
- Acquire Best-Fit Suppliers
- Meeting Costumers' Expectations
- Highest Quality Measures
- Deliver & Assemble:
 - Supporting Steel Structure
 - Special Steel Construction
 - Machine Construction
 - Turned Parts
 - Electrical Equipment

SPECIALISED ENGINEERS DELIVERING SOLUTIONS

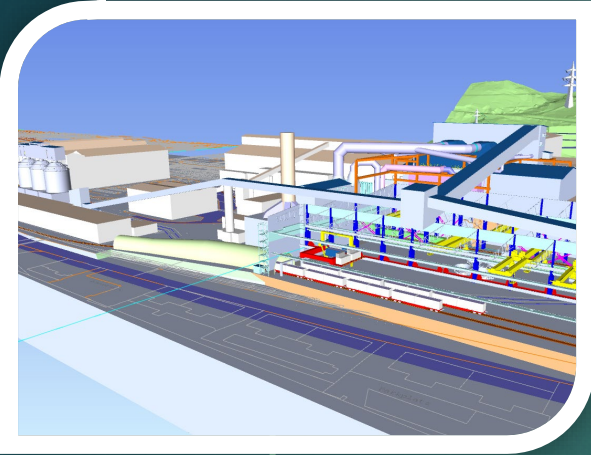
- Fact Finding & Visualization
- Matching References
- Transferring Know-How
- Creating Solutions
- Matching Manufacturers
- Deliver Components:
 - Plant/Mine Logistics
 - Smelting
 - Vacuum
 - Pyrolysis

MATERIAL HANDLING DRIVING YOUR INDUSTRY

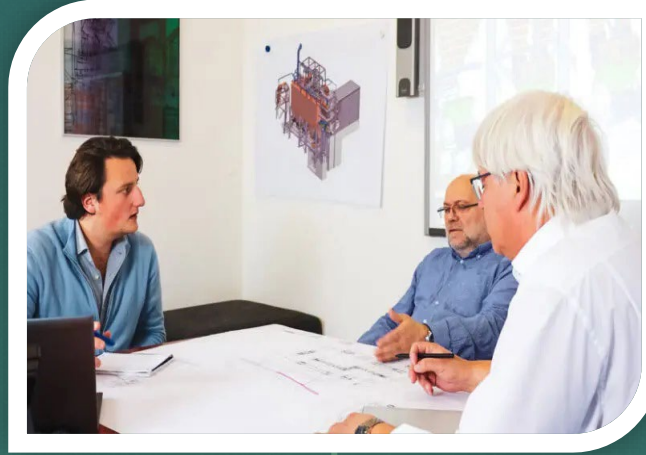
- Consulting -> Engineering -> Manufacturing
- Complete Material Handling Systems incl:
 - Reception Solution
 - Dosing & Sorting
 - Belt Conveyor
 - Vertical & Shuttle Conveyor
 - Hoppers & Silos
 - Vacuum Treatment
- Gained Trust In:
 - Mining
 - Primary & Secondary Metallurgy
 - Tunnelling
 - Waste to Energy

Project workflow

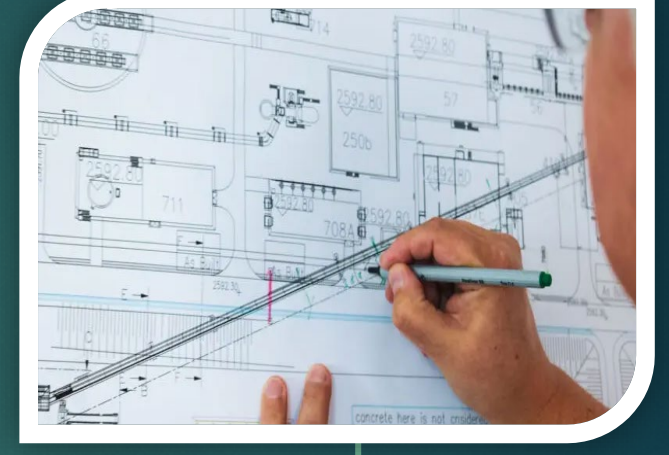
Your project request at TEC



Quote/Offer Generation



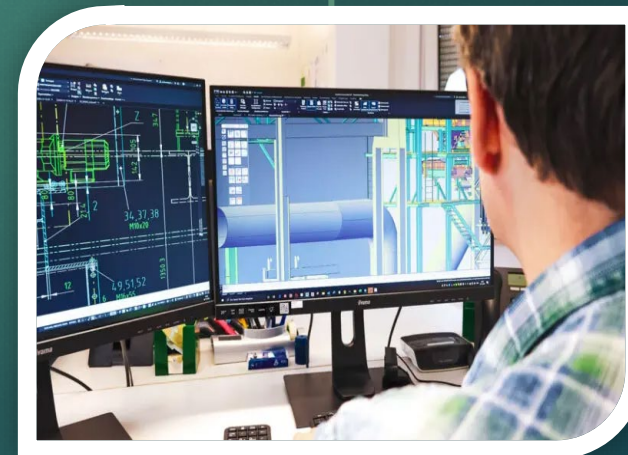
Engineering Approval



Inquiry



On-Site measurements



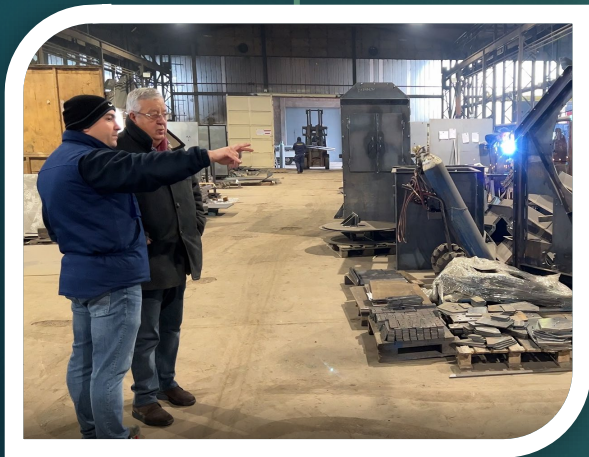
Engineering – Study/Layout/Basic/Detail/Static – RCE

Project workflow

Drawing adaptation to manufacturing specifications



Logistic Services



Procurement of Best-Fit Supplier



Technical Acceptance Test



Assembly/Commissioning

Flagship Projects

For more than 30 years, TEC & RCE GmbH have been a reliable partner in the steel industry and plant engineering. In the first few years after the company was founded, the companies grew to a considerable size. Starting with a focus on metallurgy, our team has developed into one of the most experienced in conveying processes in heavy industry. One reason for this is that we are always looking for new challenges to broaden our horizons and range of services.

HADEED (2001-07) DRI-Handling

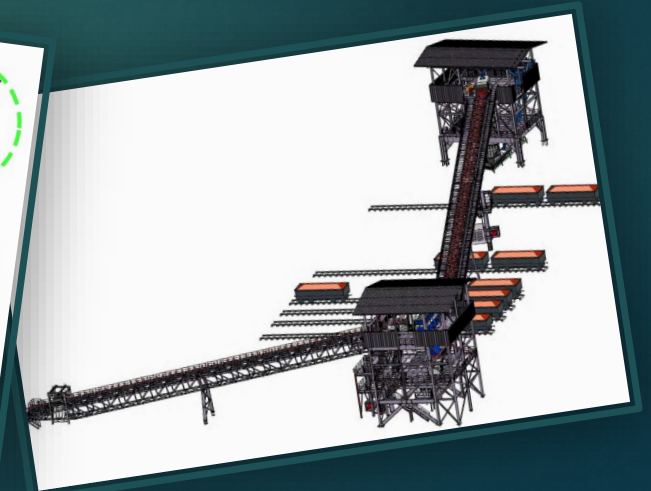
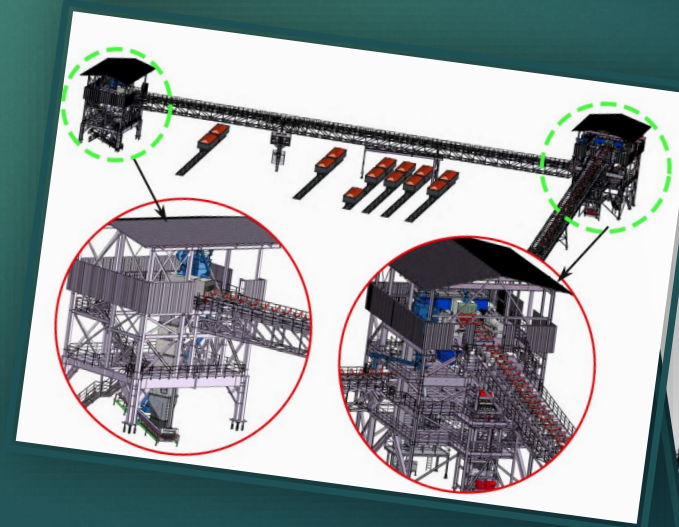
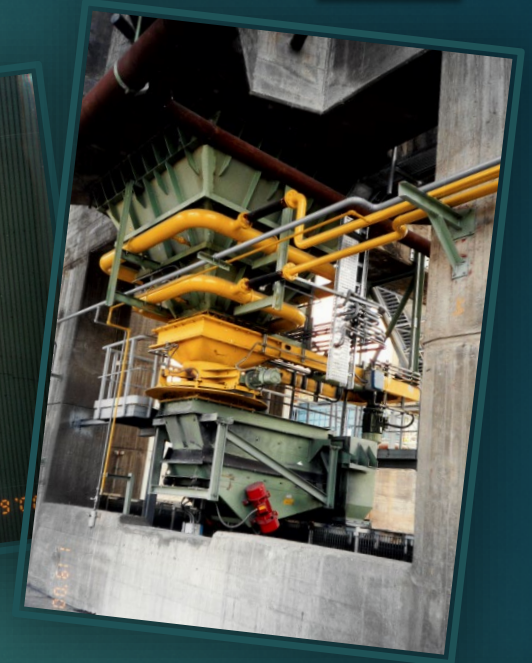
Consulting&Engineering

- Feasibility assessment
- Calculations
- Draft
- Consultation
- Preparation of inquiry documents
- Verification of inquiry documents
- Procurement Services

SNIM – Mauretanie (2015) Iron Ore Mine

Engineering

- Mechanical Engineering
- Static calculations incl. FEM
- Raw Material Handling
- Handling of the recovered material
- Supporting steel construction

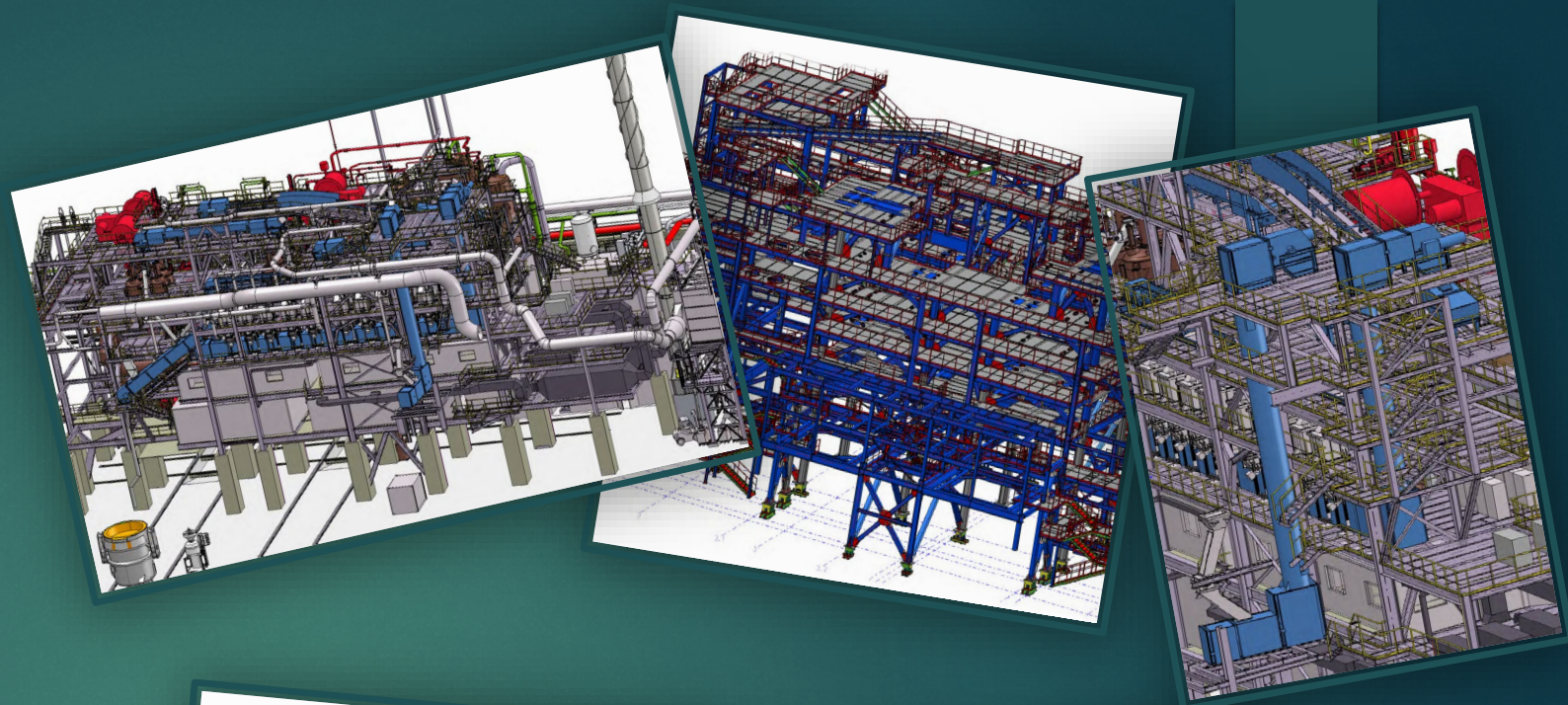


Salzgitter AG – VPL 6 (2014-17)

Material Handling System

Engineering & Supply

- Vertical Conveyor
- Reversible conveyor
- Day bunker
- Weighing hoppers/belts
- Rotating slides
- Vacuum hopper
- Dust collection lines
- Steel construction
- Static calculations

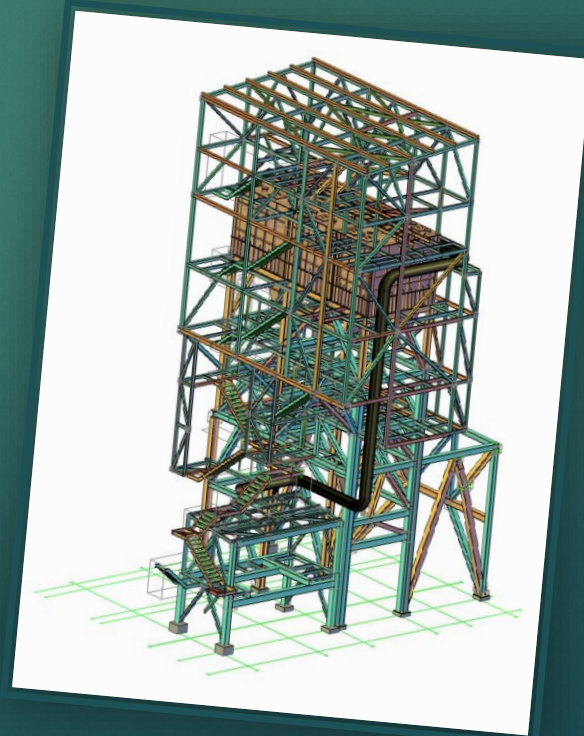


ACERINOX (2017)

Material Handling System

Engineering & Supply

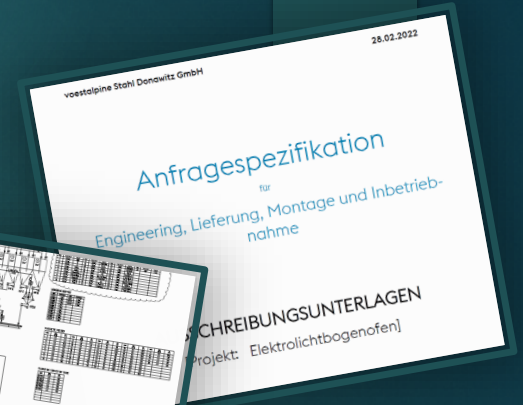
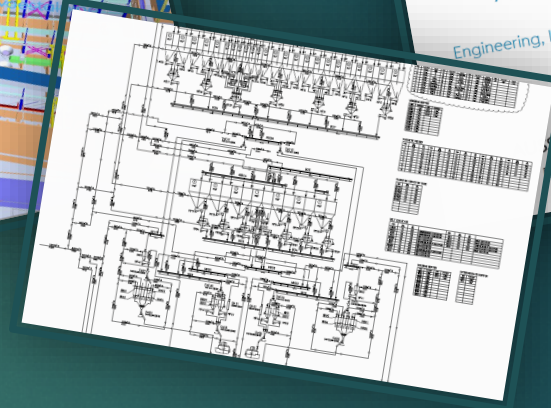
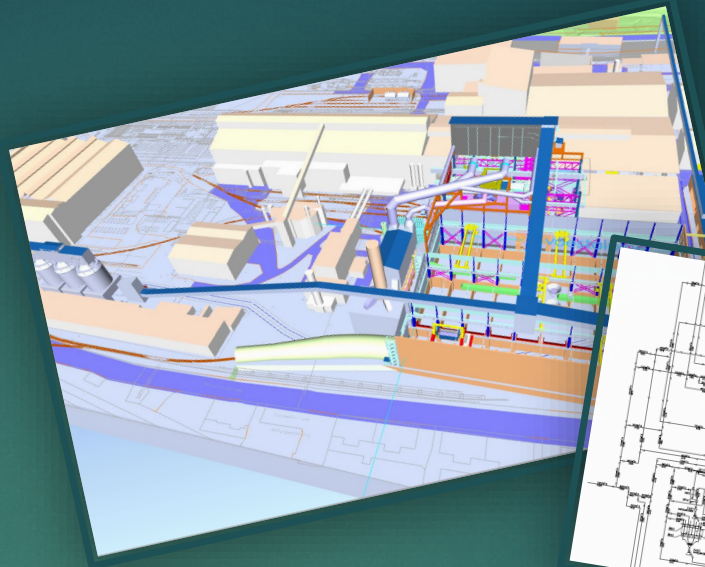
- Engineering incl. FEM
- Acceptance Silo
- Vertical Conveyor
- Reversible conveyor
- Day bunker
- Weighing containers/belts
- Vacuum hopper
- Structural steelwork
- Static calculation



Voestalpine Donawitz (2021) Double Twin-EAF 65t

Consulting & Engineering

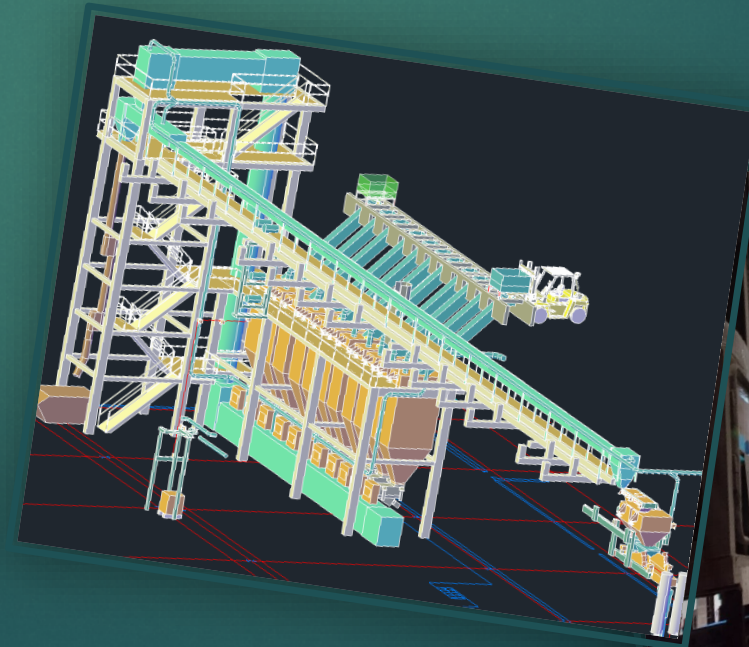
- Feasibility assessment
- Calculations
- Draft
- Consultation
- Preparation of inquiry documents
- Verification of inquiry documents
- Procurement Services



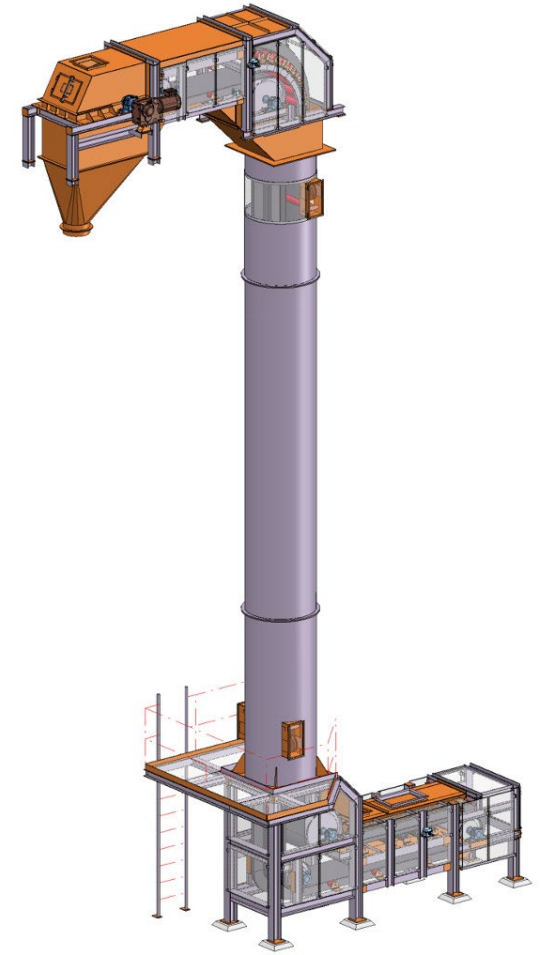
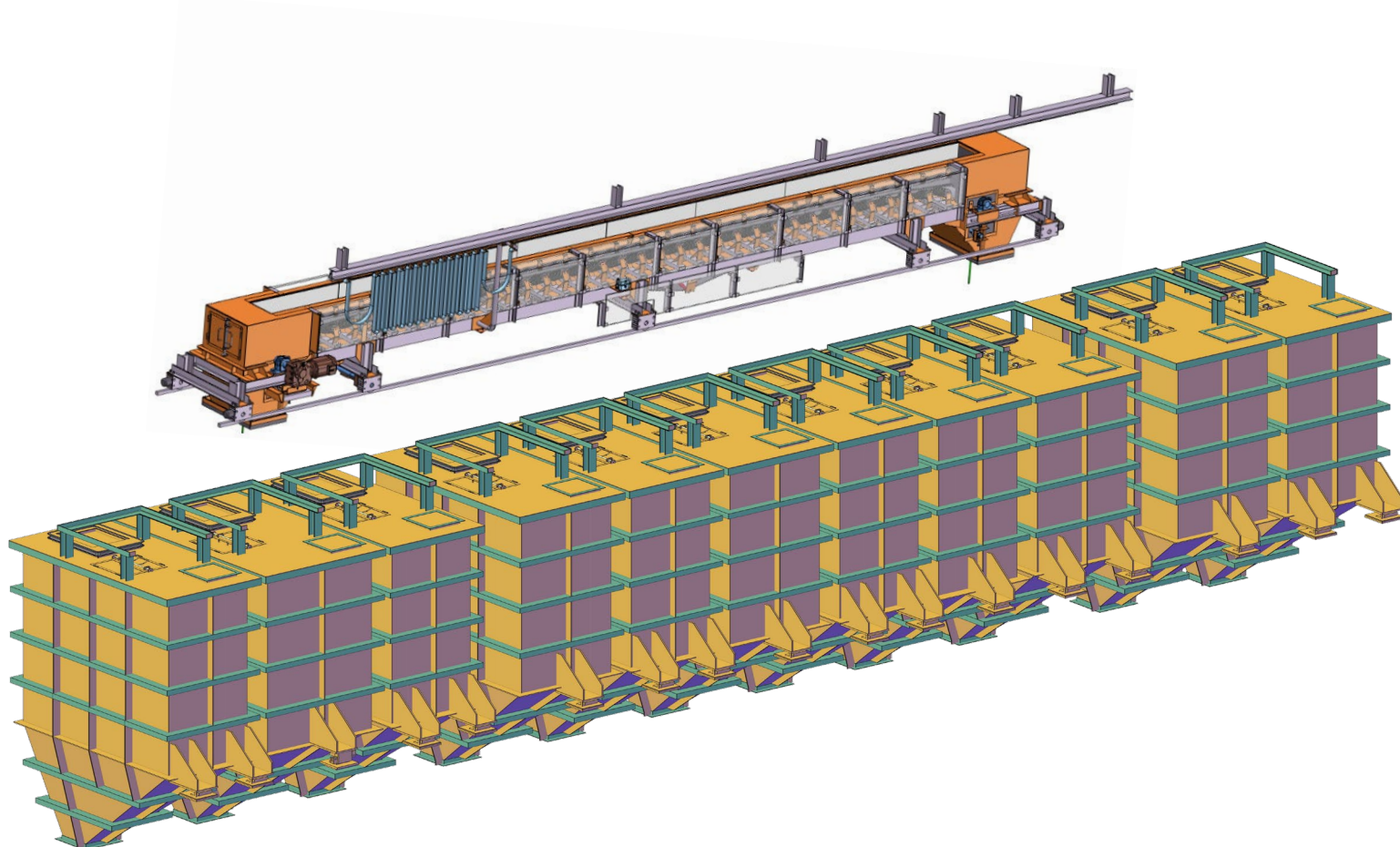
Uddeholms AB (2020-21) Automation of MHS to EAF

Engineering & Supply

- Tagesbunker
- Vertikal-Förderer
- Bandförderer
- Wiegetrichter/Bänder
- 2-Wege-Rutschen
- Shuttle-/Vibrationsförderer



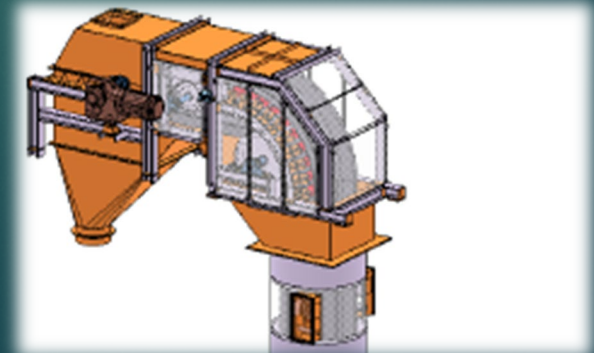
Technical Introduction Material Handling Systems



The vertical conveyor consists of four main components - the corrugated edge belt incl. carriers, the head station, the foot station and the vertical or inclined section:

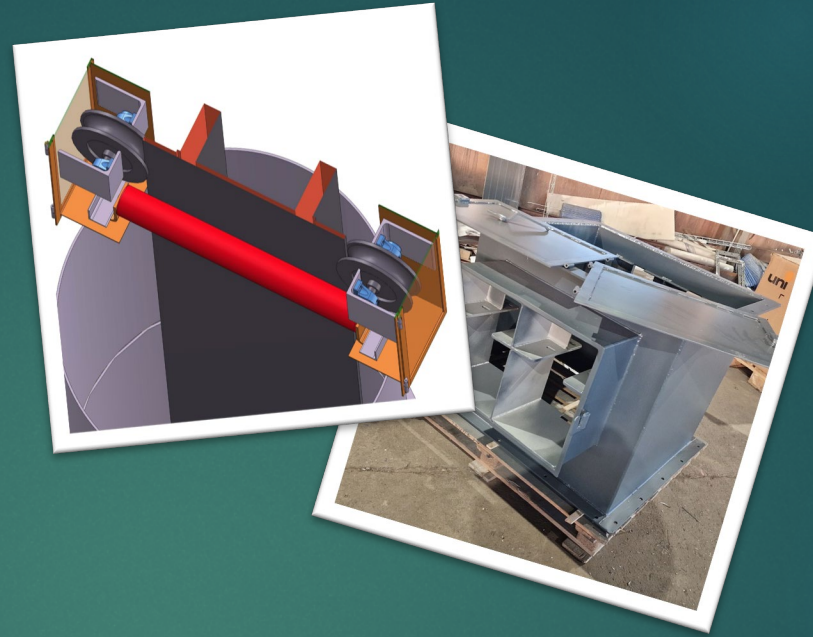
Head-end station

- Conveyor system drive (bevel gear motor incl. shrink disc & backstop)
- Transfer area to a stockpile or conveyor belt by means of a transfer chute
- Trickle removal from the pockets as well as the corrugated edge by means of a rapping drum
- Deflection station from and into the vertical/sloping area of the conveyor, consisting of disc drum and roller cam
- Steel construction
- If necessary, trickle chute incl. pipe return to the foot station/feed area
- Protective grating or complete sheet metal housing (optional)
- If necessary, dust extraction (optional)
- The head-end station can be rotated by up to 180°



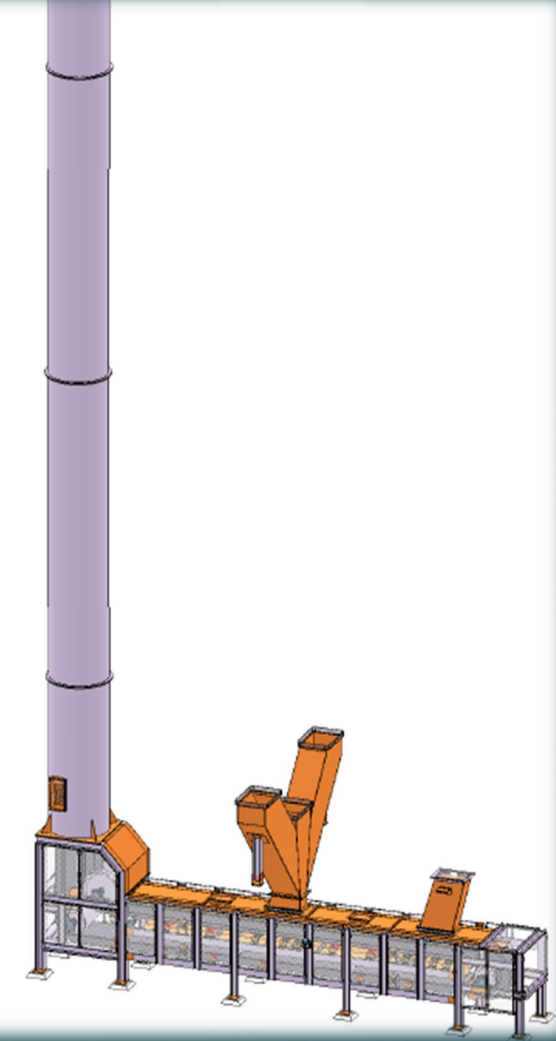
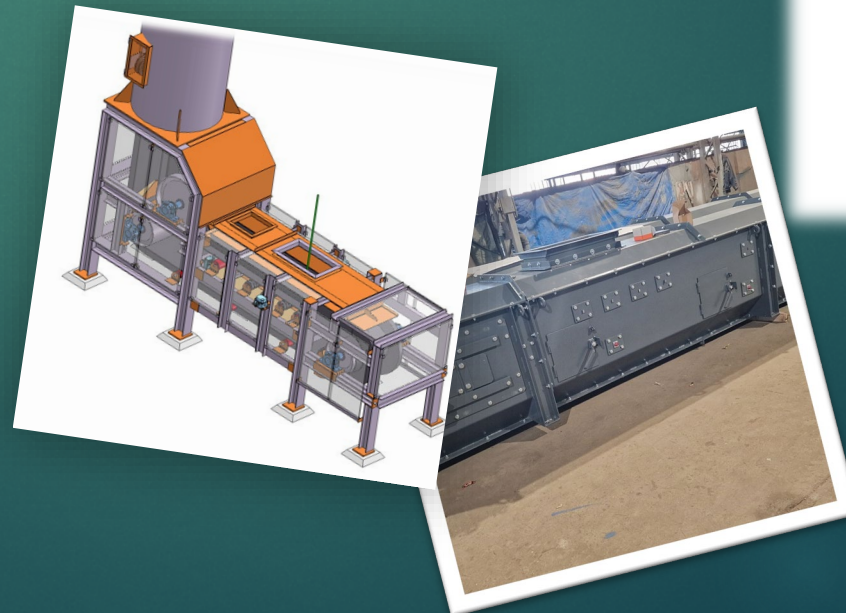
Vertical or inclined area

- Shoring
- Complete protective grating or sheet metal enclosure
- Belt guiding station at the infeed and outfeed to the vertical/inclined area



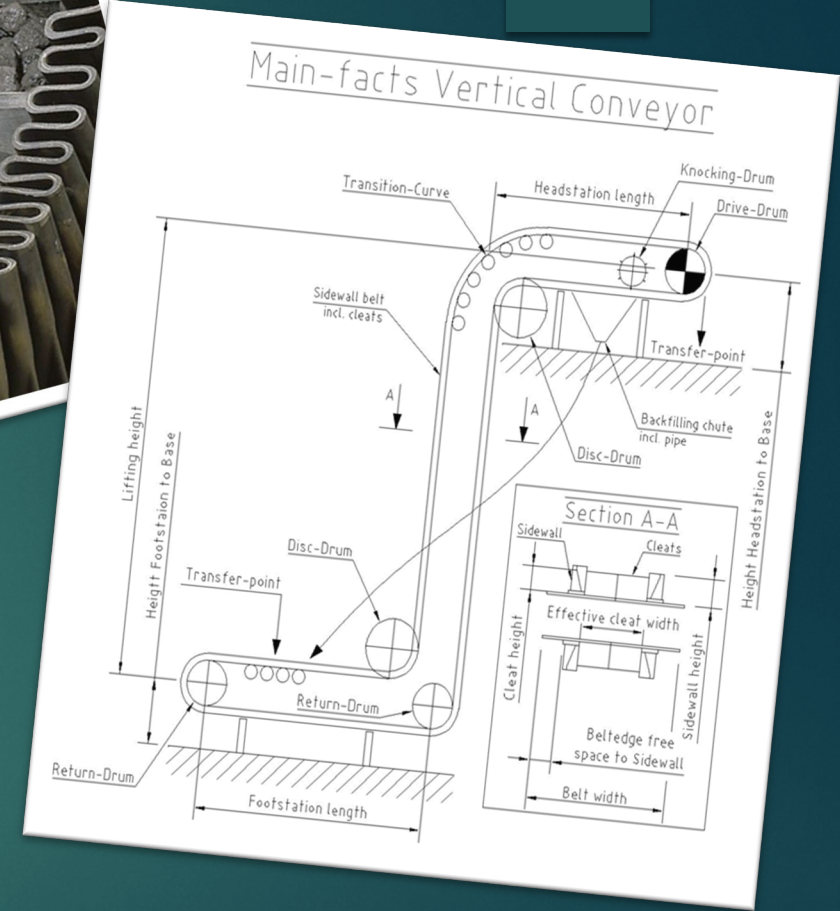
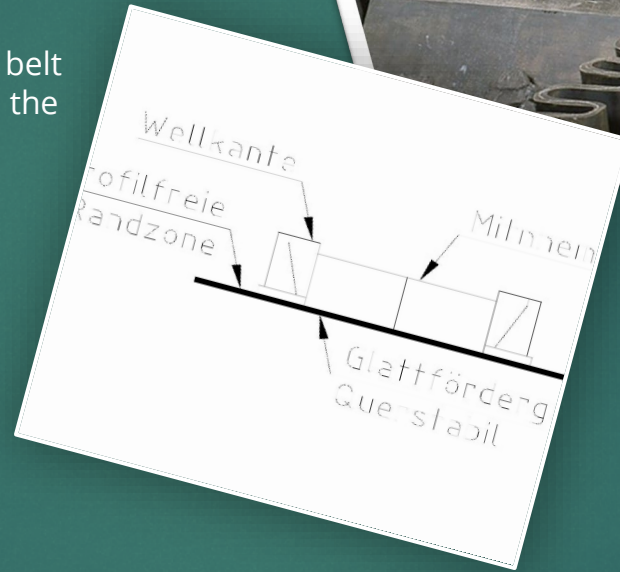
Foot station

- Reversing/feeding station of the conveyor system
- Feeding station consisting of material guide and cover
- Tensioning station for pre-tensioning the corrugated edge belt
- Deflection station from and into the vertical/inclined area of the conveyor, consisting of plate drum and deflection drum
- Protective grating or complete sheet metal enclosure (optional)
- Steel construction
- Scraper trough for entraining trickle material
- If necessary, trickle material conveyor



Corrugated edge belt

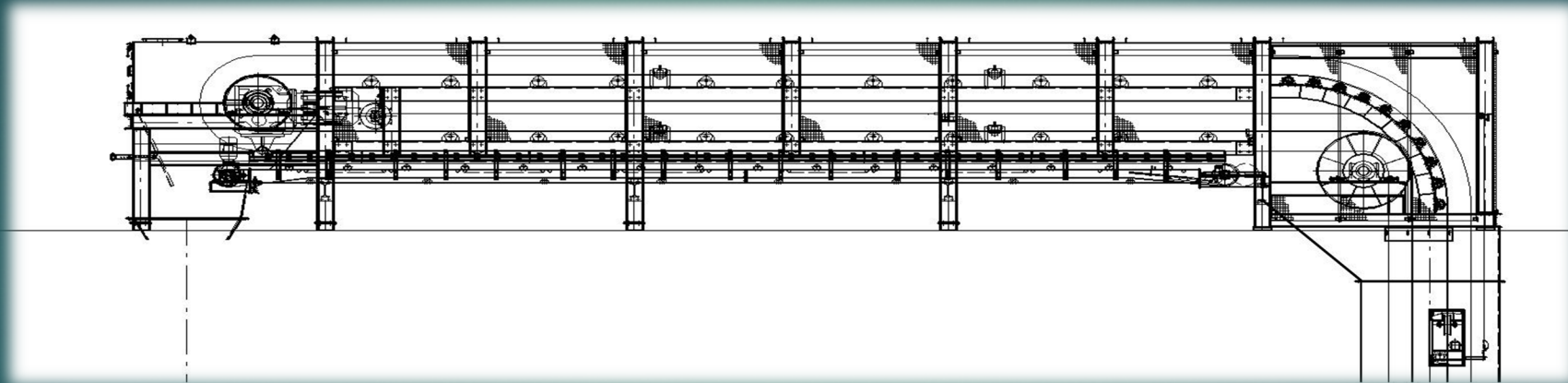
- Base is a plain conveyor belt, become transversely stable on it:
- Corrugated edges on both sides and flights between the corrugated edge edges are applied
- The profile-free edge zone is created between the corrugated edge and the belt edge (used/needed for deflection with the aid of pulley drums)



The vertical conveyors are designed according to the current European standards and the Machinery Directive 2006/42/EC and receive an optional CE certification after assembly, carried out by an independent certification company (TüV or similar). The painting is carried out in accordance with DIN EN ISO 12944.

Technical options

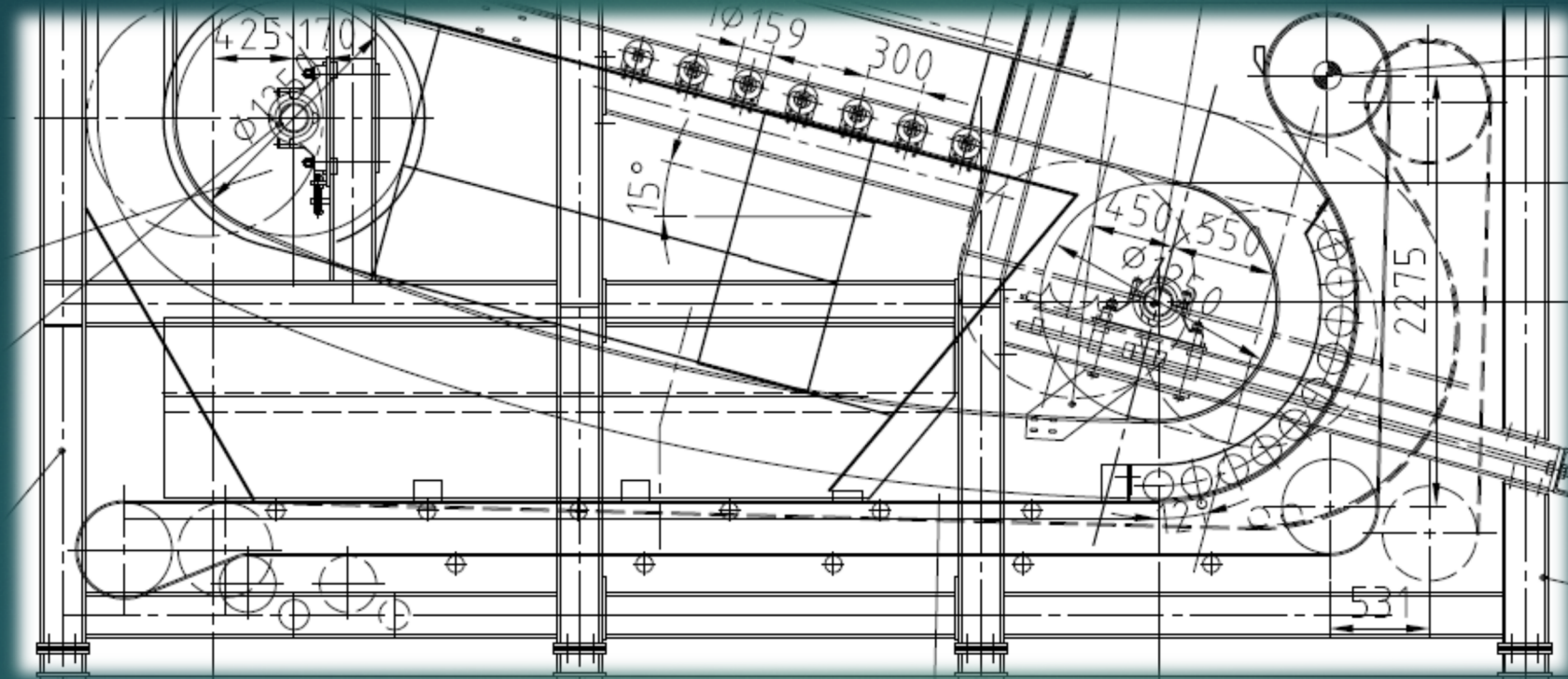
The spillage conveyor head station is a proven option for the trickle chute incl. pipe return and is constructed as shown in the following diagram:



The spillage conveyor runs below the open pockets of the corrugated edge belt, so that the substantial residual material from the corrugated edges and flights falls onto the spillage conveyor and is conveyed into the transfer chute. The spillage conveyor is driven by a drum motor, which is pre-tensioned at the reversing station, just behind the disc drum of the vertical conveyor.

The spillage conveyor foot station is a proven option to the scraper trough and is constructed as shown in the following diagram:

Technical options



The spillage conveyor runs below the open pockets of the corrugated edge belt, so that the substantial residual material from the corrugated edges and drivers falls onto the spillage conveyor and is conveyed into a spillage container. The spillage conveyor is chain-driven by the return-drum of the vertical-conveyor, is pre-tensioned at the reversing station, below the deflection/tensioning drum of the vertical conveyor.

Flagship Projects

Z-Shape Conveyor

- Maximum capacity: 276 m (905 ft) vertical up to 2,000 t/h (2,204 st/h)
- Vertical conveying: up to 500 m (1,640 ft) possible
- Widest belts: 2.4 m (7.87 ft) Highest tensile strength: up to 8,600 N/mm (4,910 PIW)
- Lowest belt elongation: due to high-strength fabric or steel cord carriers
- Highest corrugated edges: up to 630 mm (24.8 in.)
- Highest cleat profiles: up to 600 mm (23.8 in.)

Turkey STFA 2001

Bandwidth: 1200 mm
Power: 75 kW
Lifting height: 134 m
Capacity: 123 t/h

Alrosa 2008

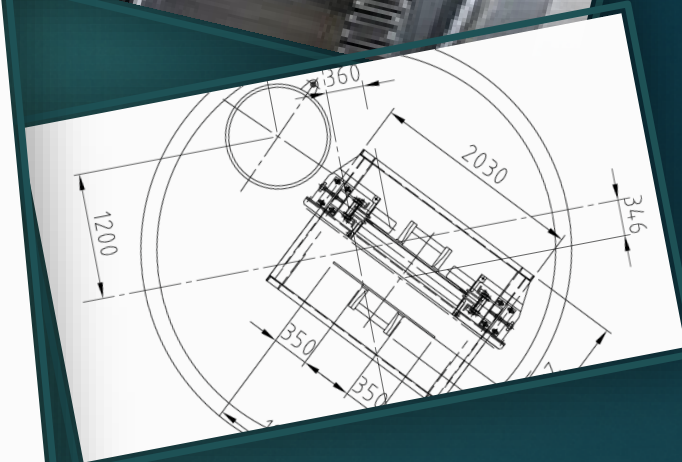
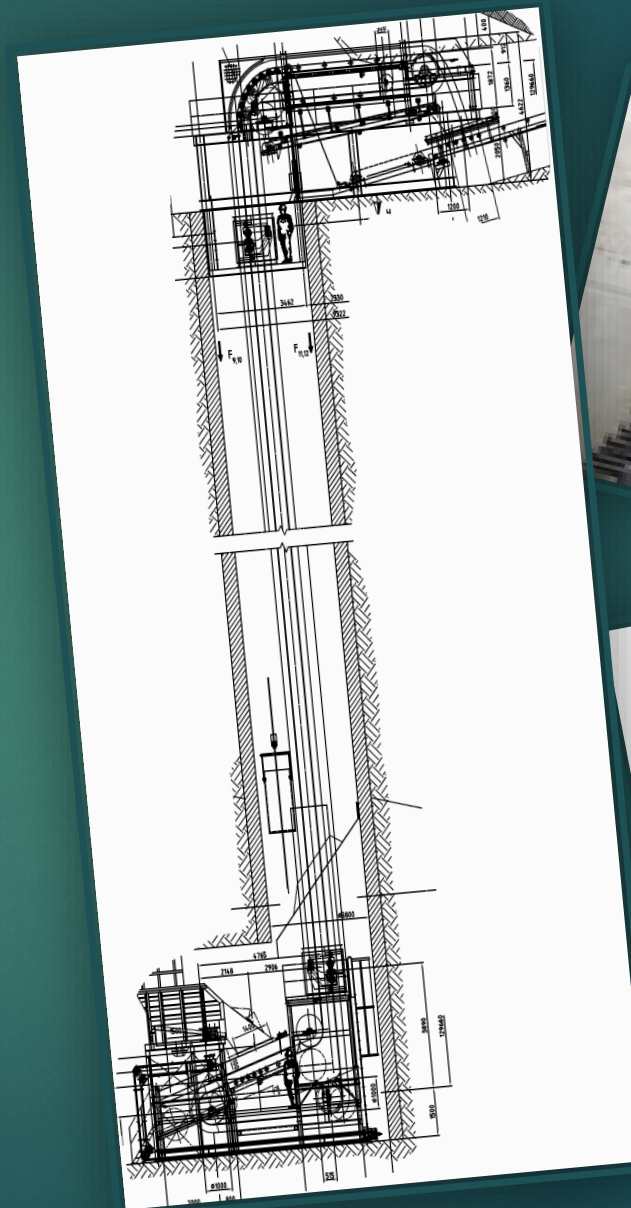
Bandwidth: 1400 mm
Power: 132 kW
Lifting height: 38,2 m
Capacity: 600 t/h

Kosice 2019

Bandwidth: 800 mm
Power: 18,5 kW
Lifting height: 21,5 m
Capacity: 100 t/h

Yongzuh Power Plant 2020

Beltwidth: 2000 mm
Power: 710 kW
Lifting high: 71 m
Capacity: 1500 t/h



L-Shape conveyor

L- Conveyors are a perfect solution where transported goods must be discharged from very low machine shafts and then transported upwards. Step-less tilt adjustment between 0° and 60°.

Kazachstan 2007

Bandwidth: 400 mm
Power: 5,5 kW
Lifting height: 9,4 m
Capacity: 40 t/h

Enppi Egypt 2010

Bandwidth: 800 mm
Power: 2,2 kW
Lifting height: 5,5 m
Capacity: 92 bales per hour

Pocketlift

Pocketlift system is designed for use in deep shafts in mining and tunnelling and reaches lifting heights of up to 800 m (2625 ft).

Halbach 2000

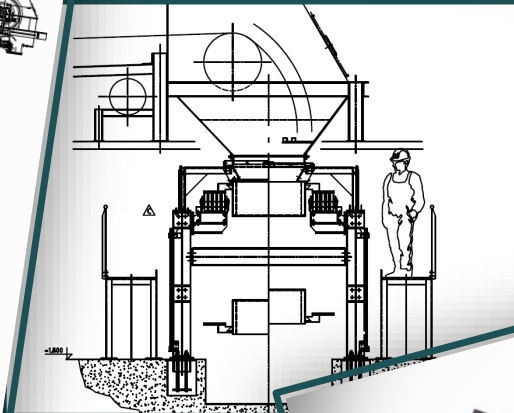
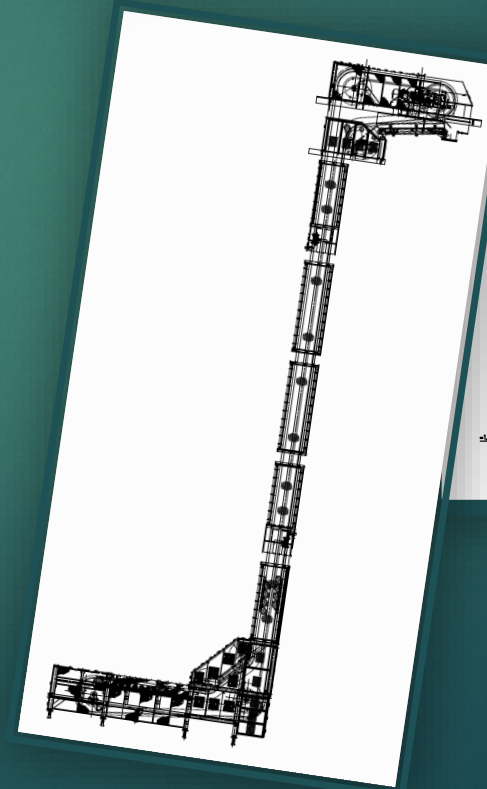
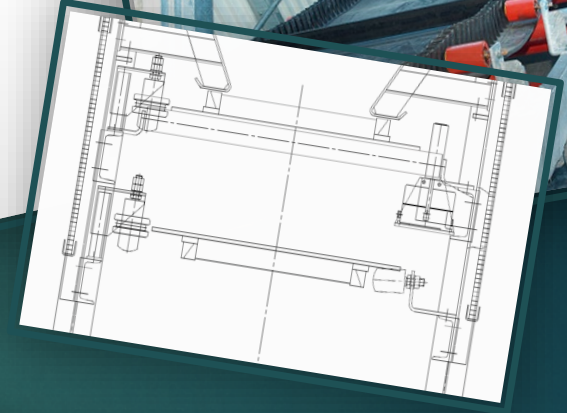
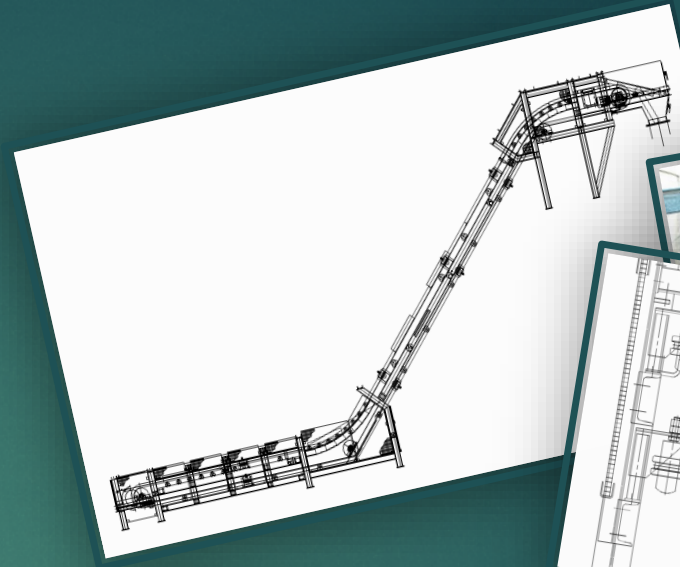
Bandwidth: 1400 mm
Power: 110 kW
Lifting height: 67,3 m
Capacity: 500 t/h

Helsinki 2001

Bandwidth: 1600 mm
Power: 220 kW
Lifting height: 100 m
Capacity: 500 t/h

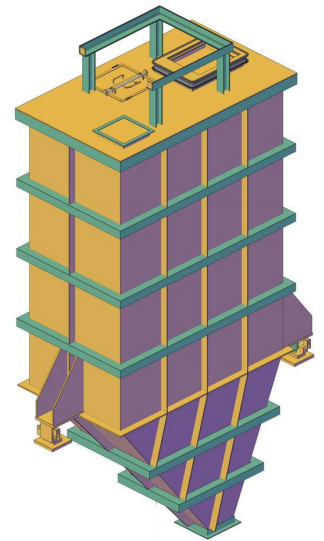
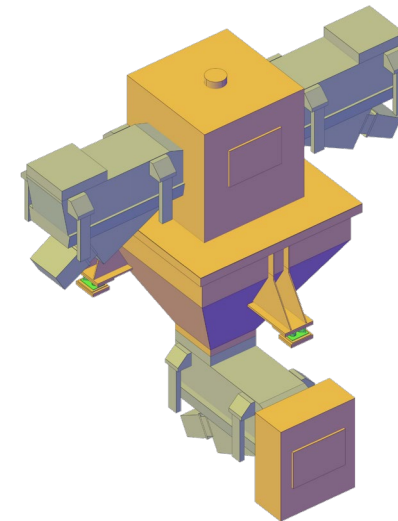
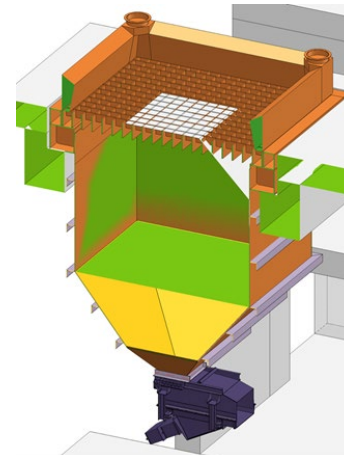
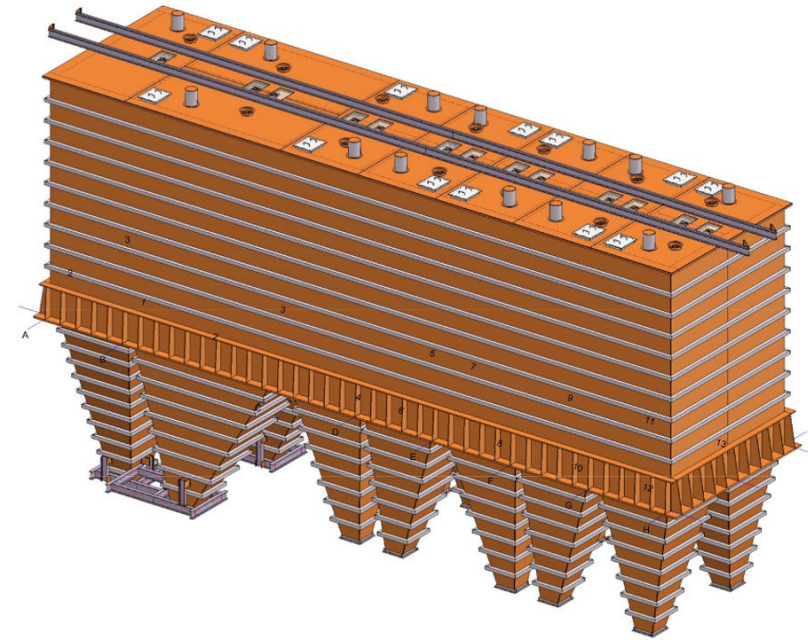
Alrosa 2000

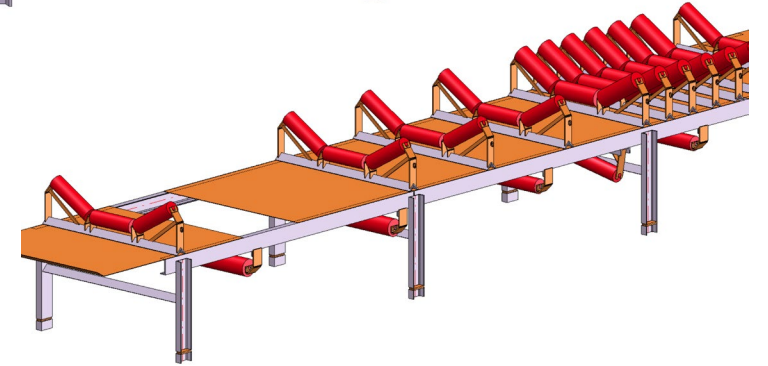
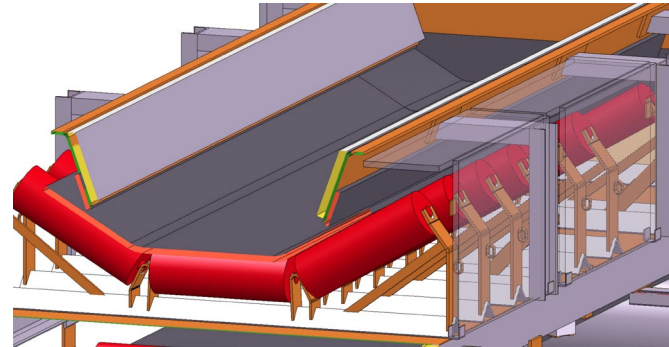
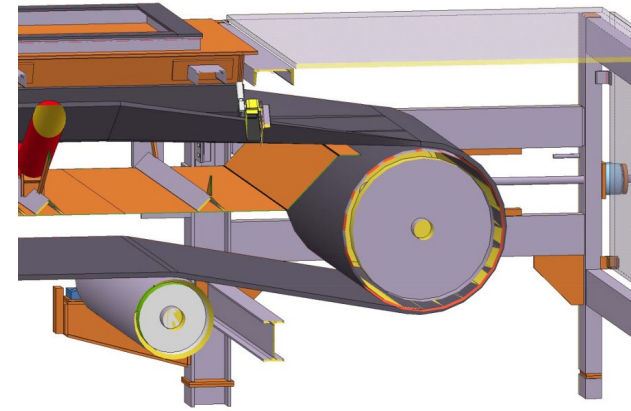
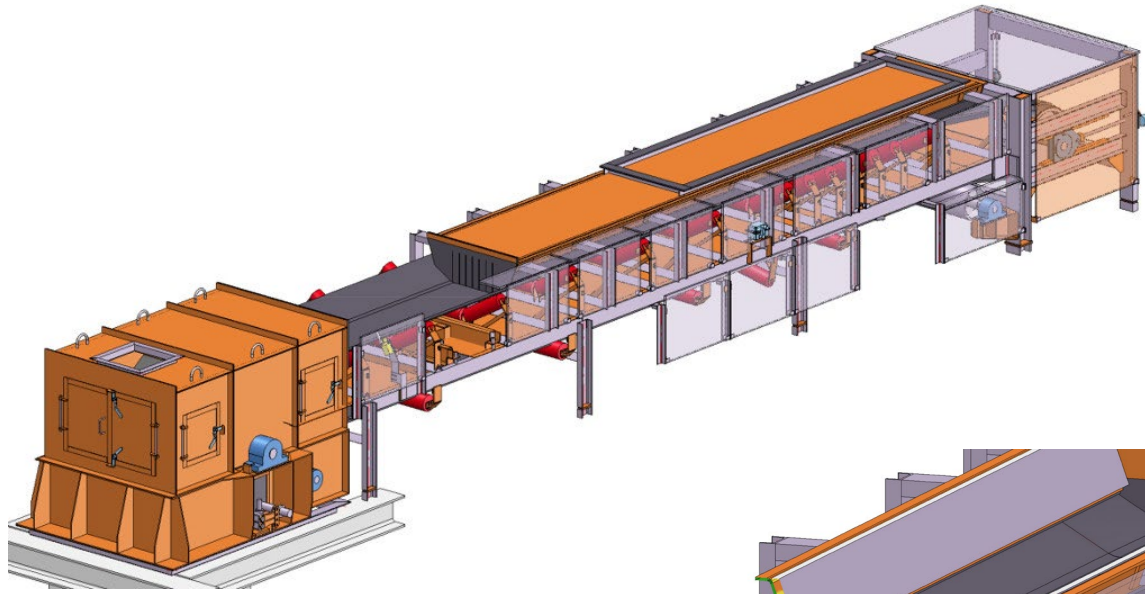
Bandwidth: 1800 mm
Power: 220 kW
Lifting height: 377 m
Capacity: 1120 t/h



Bunker-/Dosiersysteme

- ▶ Feed hopper with material delivery by front loader or truck incl. U-extraction
- ▶ Bunker system for bulk material storage
 - ▶ Steel body and inlet hopper
 - ▶ Extraction (optional)
 - ▶ HARDOX(or similar) lined cone
 - ▶ Support steel construction
- ▶ Dosing system for aggregates
 - ▶ Dosing system (belt/vibrating conveyor)
 - ▶ Weighing unit (belt scale or weighing hopper)
 - ▶ Discharge technology for the melting process

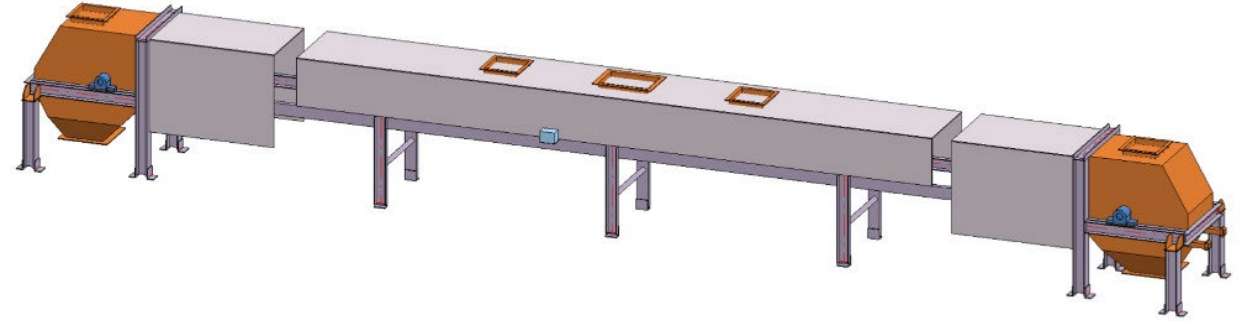
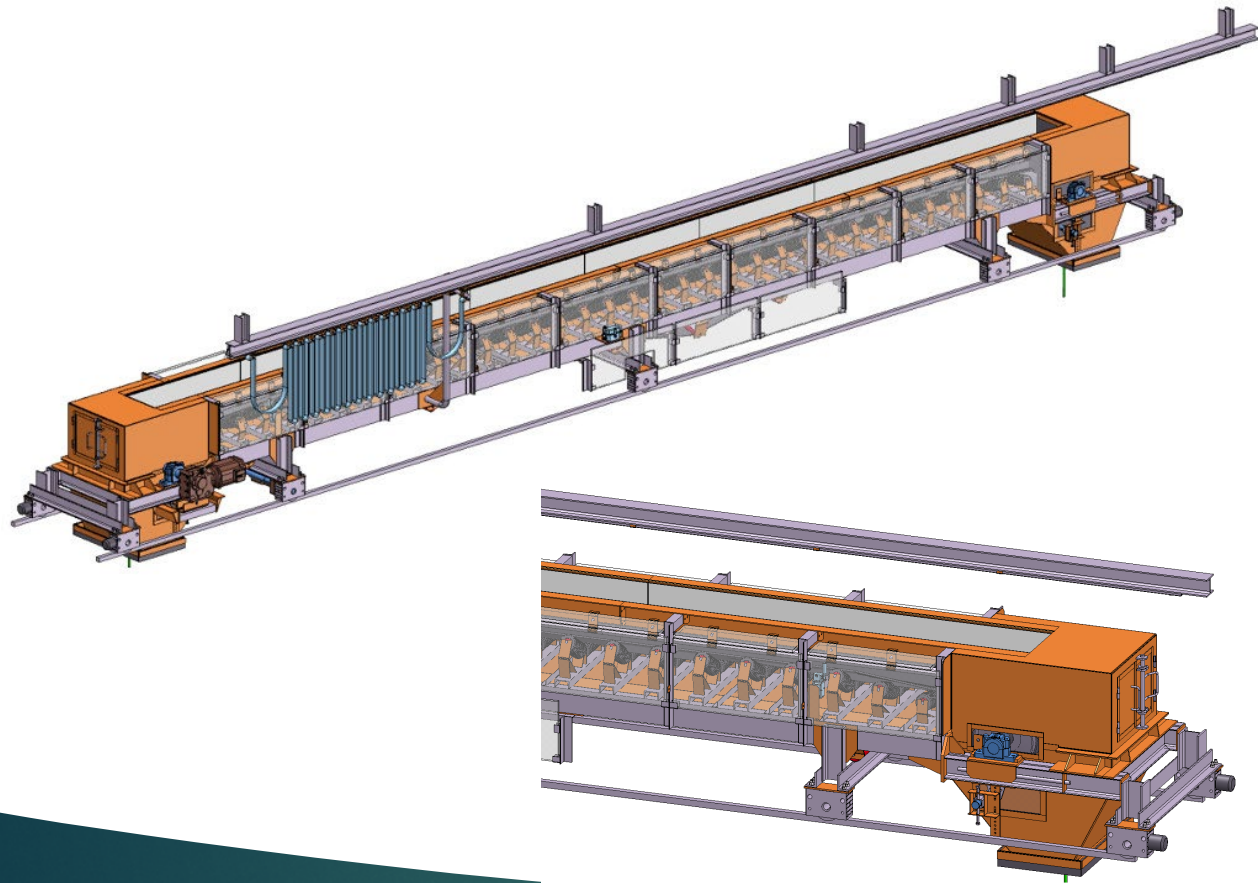




Belt Conveyor

Bulk material handling systems often use conveyor belts and weighing conveyor belts for transportation purposes.

Horizontal belt conveyors are unidirectional, with equipment arranged in a horizontal position depending on the requirements of the site plan. They can be equipped with a single- or double-sided walkway and a maintenance platform around the belt conveyor head.



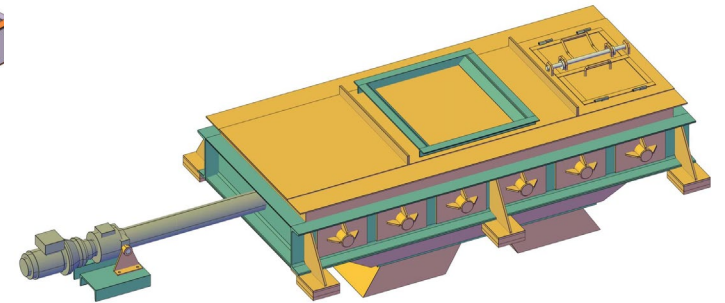
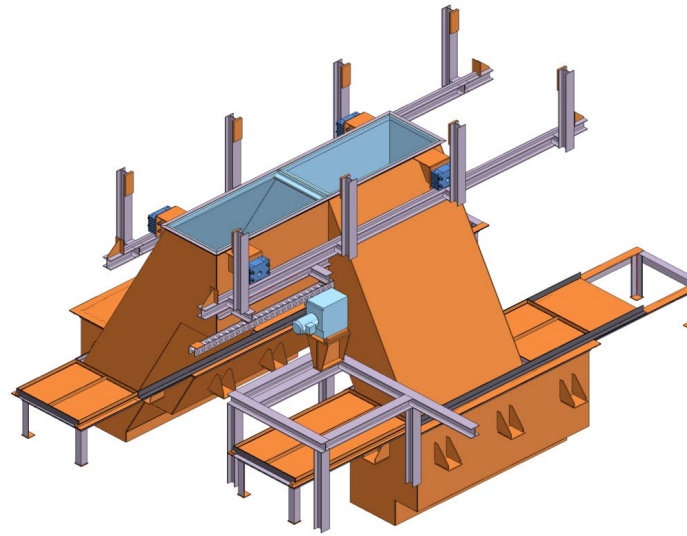
Traversing and reversing conveyors

The traversing and reversing conveyor is a bidirectional horizontal belt conveyor. This can be moved on rails that are arranged directly on the silo battery. The conveyor belt stops at various transfer points, through a position sensor.

Movable distributor chute

A movable distribution shaft can be used bi-directionally. It moves on rails arranged directly on two conveyor belts. The distribution shaft stops at at least two transfer points.

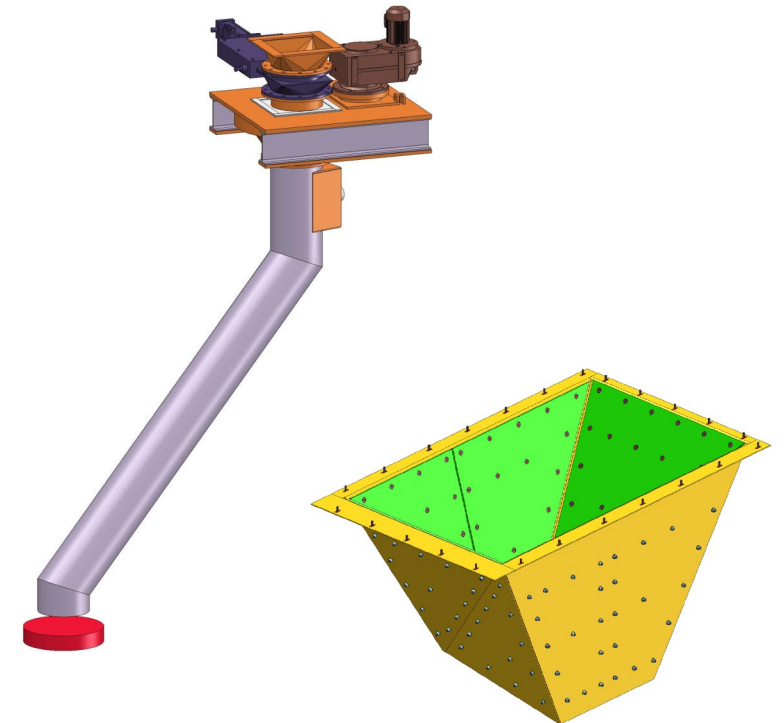
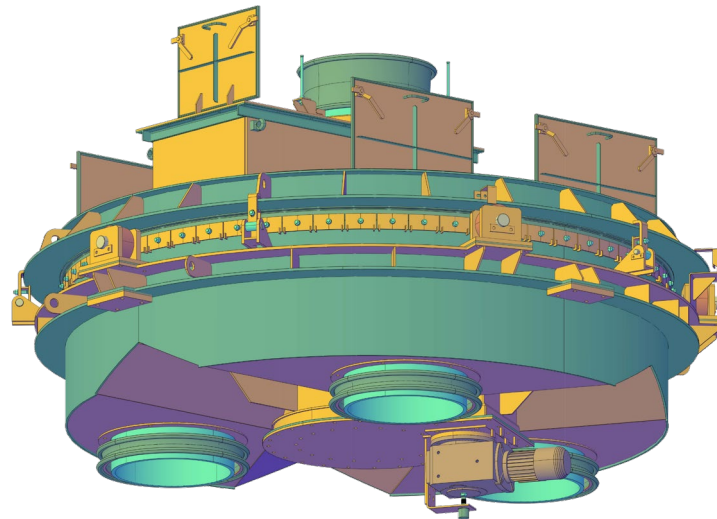
It is driven by either a geared motor or a pneumatic/hydraulic cylinder.

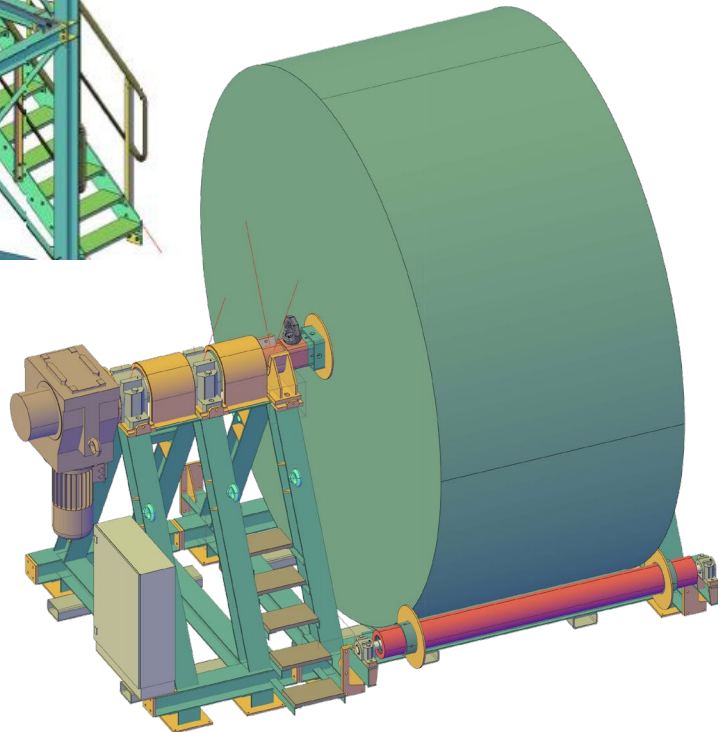
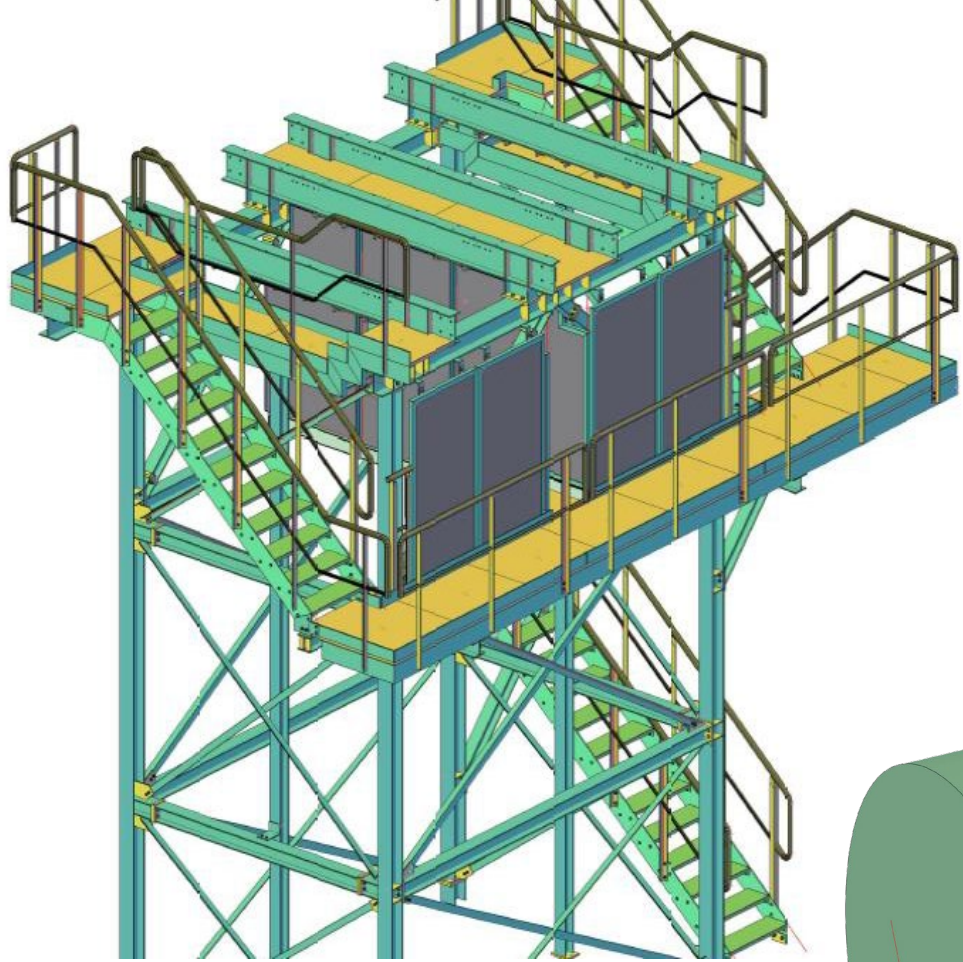


Swivel Chute

The main function of the chute is a material flow from the "upper part" to the target chamber of the "lower part" for the later use/continuation of the material.

The rotary chute is driven by a geared motor.





Support structures

Many different special solutions such as supporting structures for drive units, feed points, bunkers and much more in the steel industry, mining and tunnel construction have been designed, manufactured and built by TEC GmbH for decades.

Belt winding machine

The belt winding machine is typically used in mining and heavy industry to rewind conveyor belts that need to be pulled in, replaced, or serviced.

List of reference (extract) 1995-2022

FINAL CUSTOMER	CONCEPT	TYPE OF WORK	YEAR
NISCO YAZD / IRAN	FERROALLOYS AND DRI CHARGING SYSTEM	ENGINEERING	1995-1998
SALZGITTER AG / GERMANY	MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION / DVAI / VPL PREUSSAG	ENGINEERING	1996
THYSSEN / GERMANY	MATERIAL HANDLING SYSTEM	ENGINEERING	1996
VSZ KOSICE	DAY BIN-SYSTEM 170 t RH	SUPPLY	1997
ACICO / KUWAIT	MATERIAL HANDLING SYSTEM OF LIMESTONE AND OIL COKE	ENGINEERING	1997
HADEED / SOUTH ARABIA	DRI-PLANT MODUL D (delivered by DAVY QArner) OXIDE PELLETS STORAGE TRANSPORT AND SCREENING SYSTEM AS WELL AS TRANSPORT AND STORAGE SYSTEM TO EAF.	CONSULTANCE	2001-2003
CSC / KAOHSIUNG / TAIWAN	MATERIAL HANDLING SYSTEM FOR LF-PLANT	SUPPLY	2001
CST / BRAZIL	VACUUM HOPPER SYSTEM	SUPPLY	2002
QATAR STEEL	DRI:PLANT MATERIAL HANDLING	ENGINEERING	2003
HADEED / SOUTH ARABIA	OXIDE PELLETS HANDLING	ENGINEERING	2004
EGYPT	MATERIAL HANDLING SYSTEM FOR LADDLE FURNACE III CONVEYOR FOR ANSDK	SUPPLY	2004
NTMK / RUSSIA	MATERIAL HANDLING SYSTEM / DOUBLE-RH-PLANT	ENGINEERING	2004
STEEL PLANT / BAHRAIN	PELLETISING PLANT EXPANSION	ENGINEERING	2005
COLACOGLU / TURKEY	MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION / 300 TWIN STAND	SUPPLY	2005

CHINA STEEL	STEEL CONSTRUCTION FOR 180t-RH-PLANT, LAYOUT AND CALCULATION	BE / DE	2005
TAIYUAN IRON & STEEL / CHINA	(TIS/DE) STEEL CONSTRUCTION LAYOUT AND CALCULATION	BE / DE	2005
AZOVSTAL / UKRAINE	MATERIAL HANDLING SYSTEM FOR 350 t VD-DB / UA	SUPPLY	2005
MAANSHAN / CHINA	MATERIAL HANDLING SYSTEM 330t TWIN STAND / CN, STEEL CONSTRUCTION	SUPPLY	2005
TAIYUAN / CHINA	MATERIAL HANDLING SYSTEM 180t TWIN STAND / CN, STEEL CONSTRUCTION 650t	SUPPLY	2005-2006
HADEED / SOUTH ARABIA	DRI-PLANT MODUL E MATERIAL HANDLING SYSTEM FROM PORT (OXID PELLETS) TO MIDREX-REACTOR AND FROM REACTOR TO EAF	CONSULTANCE	2005-2007
ANSDK / EGYPT	BELT CONVEYOR AND STEEL CONSTRUCTION FOR "FLEXOWELL CONVEYOR"	SUPPLY	2006
SIDMAR / BELGIUM	300t DUPLEX RH / BE, VACUUM HOPPER	SUPPLY	2006-2007
ZSMK / RUSSIA	MATERIAL HANDLING / STEEL CONSTRUCTION	ENGINEERING	2006-2007
ZapsSib / RUSSIA	BELT CONVEYOR FLEXOWELL FOR 300t RH PLANT / RU	ENGINEERING	2006-2007
CSA / Brazil	STEEL CONSTRUCTION	ENGINEERING	2006-2007
ESISCO BESTRAY STEEL / EGYPT	DRI-PRODUCT HANDLING	CONSULTANCE	2007
ACOMINAS / BRAZIL	230t RH / MATERIAL HANDLING SYSTEM	SUPPLY	2007-2008
COSIPA / Brazil RH No.2 / BRAZIL	RH No.2, LADLE POWDER SYSTEM	ENGINEERING	2007-2009
CSA / BRAZIL	330t RH & AHF/ BR, LADLE POWDER SYSTEM, VACUUM HOPPER SYSTEM / STATIC	SUPPLY	2006-2008
SALZGITTER / GERMANY	SZFG VPL 5, MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION	SUPPLY	2007-2008

List of reference (extract) 1995-2022

FINAL CUSTOMER	CONCEPT	TYPE OF WORK	YEAR
NISCO CHAHARMAHAL / IRAN	DRI-PRODUCT HANDLING / STEEL CONSTRUCTION	ENGINEERING	2008 - 2011
SKS STEEL PLANT / IRAN	DRI PRODUCT HANDLING	ENGINEERING	2008-2010
MAGHREB STEEL / SAUDI ARABIA	MATERIAL HANDLING SYSTEM	ENGINEERING	2009-2010
HOSCO STEEL / IRAN	DRI-PRODUCT HANDLING	ENGINEERING	2009
NEYRITZ / IRAN	STEELPLANT MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION	ENGINEERING	2009-2010
NISCO CHAHARMAHAL / IRAN	STEELPLANT MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION / DRI-PRODUCT HANDLING	ENGINEERING	2009-2010
SEVERSTAL / RUSSIA	MATERIAL HANDLING SYSTEMveAF / LF / STEEL CONSTRUCTION	ENGINEERING	2010-2011
ENNPI / EGYPT	V-CONVEYOR	SUPPLY	
CHADORMALU / IRAN	COLD AND HOT DRI-HANDLING	CONSULTANCE	2011-2013
DILLINGER HÜTTE / GERMANY	MATERIAL HANDLING SYSTEM / STEEL CONSTRUCTION	ENGINEERING	2011-2013
SNIM / MAURETANIEN	IRON ORE TRANSPORT SYSTEM / STEEL CONSTRUCTION	ENGINEERING	2014-2015
BAKKI / ISLAND	NEW SILIZIUM PLANT / COMPLETE ROW AND PRODUCT MATERIAL HANDLING SYSTEMS	ENGINEERING	2015-2017
BAKKI / ISLAND	NEW SILIZIUM PLANT / STEEL CONSTRUCTION	ENGINEERING	2015
SALZGITTER / GERMANY	RH PLANT 240 t MATERIAL HANDLING SYSTEM	SUPPLY	2014 - 2017
SALZGITTER / GERMANY	STEELCONSTRUCTION	SUPPLY	2014 - 2017
DAIMLER / GERMANY	STEELCONSTRUCTION	ENGINEERING	2017

BASF / GERMANY	MATERIAL HANDLING SYSTEM	ENGINEERING	2017
ACERINOX / SPAIN	MATERIAL HANDLING SYSTEM	SUPPLY	2017
BAJSTRINSKY / RUSSLAND	MATERIAL HANDLING SYSTEM	SUPPLY	2018
BOEHLER / AUSTRIA	STAINLESS STEEL PLANT / EAF - AOD - DC-FURNACE	CONSULTANCE	2018
KOSICE / SLOWAKEI	MATERIAL HANDLING SYSTEM	SUPPLY	2019
HONG KONG / CHINA	STEELCONSTRUCTION	ENGINEERING	2019
KAZCHROM / KAZACHSTAN	MATERIAL HANDLING SYSTEM CHROME ORE TO EAF & LF	CONSULTANCE	2020
KOSICE / SLOWAKEI	MATERIAL HANDLING SYSTEM VD / VOD	SUPPLY	2020
NLMK VERONA / ITALY	MATERIAL HANDLING SYSTEM 70T VOD-PLANT / STEEL CONSTRUCTION	ENGINEERING	2020
VOESTALPINE / AUSTRIA	COMPLETE PLANT LOGISTIC / 2X TWIN_EAF 65t	CONSULTANCE / ENGINEERING	2021
UDDEHOLM AB/ SWEDEN	MATERIAL HANDLING SYSTEM 60T EAF-PLANT / STEEL CONSTRUCTION	SUPPLY	2021-2022
BAOSTEEL / CHINA	CONSTRUCTION RH PLANT CONSTRUCTION RH PLANT 150 to	ENGINEERING	2022
HOA PHAT / VIETNAM	CONSTRUCTION VD PLANT 120 to	ENGINEERING	2022
CONTITECH / KAZAKHSTAN	VERTICAL CONVEYORS / GOLD ORE MINE	SUPPLY	2022
H2 GREEN STEEL / SWEDEN	CONSTRUCTION RH PLANT 180 to	ENGINEERING	2022
JOEST / GERMANY	SUPPORTING STEEL STRUCTURES / VIBRATION TECHNOLOGY	SUPPLY	2022
ARCELORMITTAL / GERMANY	MATERIAL HANDLING SYSTEM / SUPPLY TO EAF	ENGINEERING	2022
SALZGITTER AG / GERMANY	DRI PLANT FUELED BY HYDROGEN	ENGINEERING	2022

EXTRAORDINARY CONVEYING SOLUTIONS FROM FIRST SKETCH TO EXECUTION

- ▶ TEC GmbH
Wittekindstrasse 25
44536 Lünen
- ▶ Tel.: +49 (0) 231 / 880 85 95 – 5
Fax: +49 (0) 231 / 880 85 95 - 9
Mail: info@tec-tech.de
- ▶ www.tec-tech.de



Steel mill components supplied transparently

- ▶ Founded in 2015 by Dipl. Ing. Michael Ristovitch with a focus on the steel industry
 - ▶ Metallurgical plant design
 - ▶ Engineering of steel mill components
 - ▶ Services within the steel mill
 - ▶ Technical support for large-scale projects
 - ▶ Utilization of senior experts on a freelancer basis
- ▶ Realignment in 2023 to become a service provider and service provider
 - ▶ Deployment of former senior experts from SMS Group
 - ▶ Intrinsic support of the steel mill operator in large-scale projects
 - ▶ Know-How Transfer
 - ▶ Design and supply of steel mill components
 - ▶ Maintenance services
 - ▶ Services
 - ▶ Programming Services



STEEL
Steel Tec GmbH

The logo for Steel Tec GmbH features the word "STEEL" in a large, bold, blue, blocky font. Below it, the words "Steel Tec GmbH" are written in a smaller, teal-colored font. The "S" in "STEEL" is partially cut off on the left side of the image.

Our team consists of the most experienced experts within the steel industry and has experience in the following components

- VD/VOD Vacuum Lid
- VD/VOD Vacuum Tank
- RH Vacuum Vessel
- Pipe diverter
- Vacuum pump
- Vacuum Lock
- RH-Top/VOD Vacuum feedthrough
- Blowing lances
- T+P Lances
- Wire winding system
- VD/VOD Vacuum Lid Transfer Carriage
- RH ladle lifting device
- LF/LTS Pan Lid
- RH Lining and Stripping Stands
- Converter Doghouse
- Treatment bell
- Electric floor lifting device

