

# TUNNELLING



**H+E LOGISTIK GMBH**  
A BRAND OF HERRENKNECHT

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**CLEVER  
CONVEYING**





## YOUR TEAM FOR THE FUTURE IN TUNNELLING – **H+E AND HERRENKNECHT**

The successful history of H+E started in the heart of the Ruhr area, a region characterised by its century-old mining tradition. The company was founded in 1999 as an affiliate of Herrenknecht AG, the first choice for underground infrastructure projects when it comes to innovative solutions for mechanized tunnelling. In cooperation with H+E, a comprehensive service and product portfolio for the tunnelling industry has been established.

With much commitment and based on many years of tunnelling expertise, we developed customized conveying concepts. We are here to support you with our extensively service – from the project idea up to final implementation of the project, and beyond with a service including all necessary spare parts.

# WE MAKE THINGS EASY – **STRONG PARTNERSHIP, THE KEY TO YOUR SUCCESS**

Also the fastest advance comes to a standstill if the conveyor logistics fail. H+E offers efficient conveyor technology solutions – and this has generated an excellent reputation all over the world.

From almost 25 years of tunnelling experience and more than 300 successfully completed projects world-wide, we have gained comprehensive knowledge and engineering expertise for tailored solutions that guarantee our clients high availability combined with excellent logistics.

### OUR TANGIBLE BENEFITS

- Pro-active partnership with direct contacts
- Tailored solutions for added flexibility
- Reliability thanks to German Engineering with zero error philosophy
- Precision based on many years of tunnelling experience
- Safety thanks to certified processes (ISO), automation and monitoring
- Sustainability through energy efficient and reusable components
- Economic conditions thanks to long-term relationships with suppliers
- Network of competent partners due to intensive cooperation with Herrenknecht
- 360° service for consultation, implementation, buyback and refurbishment

### TOGETHER WE ARE STRONG

- 70 hubs all over the world
- Integration of back-up belt conveyors in tunnel boring machines
- Permanent know-how transfer generates synergies
- Continuous further development of conveyor systems and construction site logistics
- Digital connection to Herrenknecht.Connected with Conveyor.On



# H+E CONVEYOR TECHNOLOGY – **PROJECT-SPECIFIC SOLUTIONS FOR ANY SITUATION**

The H+E solutions are perfectly adapted to toughest conditions in surface and underground mining. We adapt them to meet the on-site conditions of your tunnelling project. This means that you benefit from the best possible overall solution even for long conveying distances, confined spaces and challenging climatic conditions.



**VERTICAL STORAGE UNITS**

**STACKER**

**TBM**

**RETURN STRAND BOOSTER**

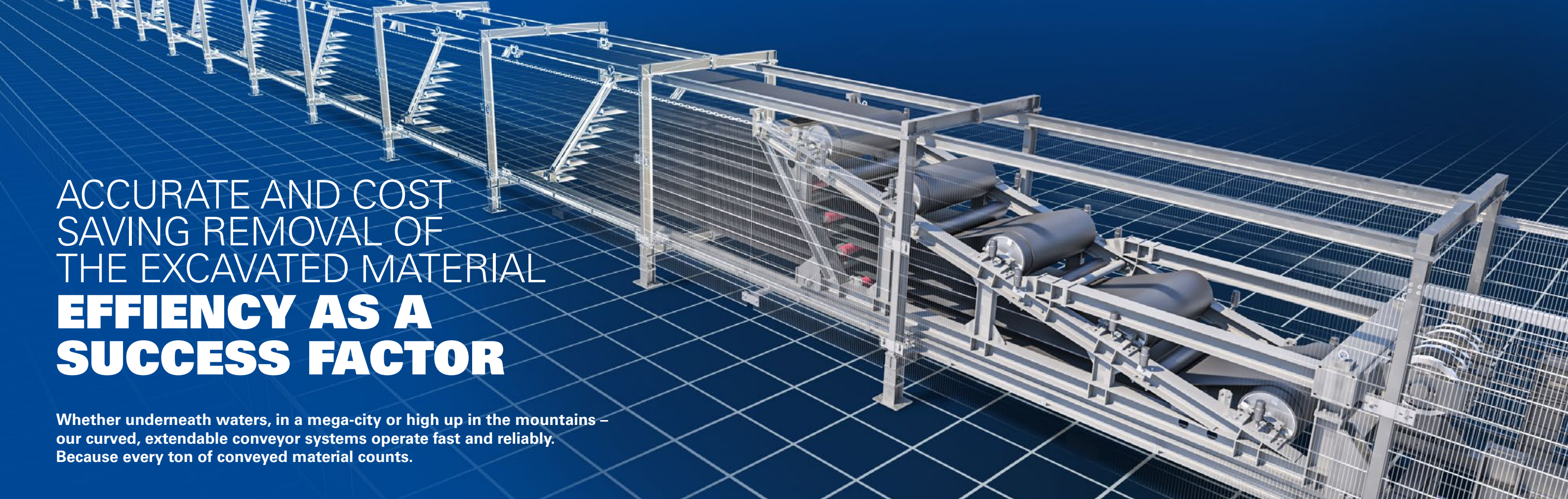
**TOP STRAND BOOSTER**

**VERTICAL CONVEYORS**

**FLYER**

**TRIPPER CAR**

**HORIZONTAL BELT STORAGE**



# ACCURATE AND COST SAVING REMOVAL OF THE EXCAVATED MATERIAL **EFFICIENCY AS A SUCCESS FACTOR**

Whether underneath waters, in a mega-city or high up in the mountains – our curved, extendable conveyor systems operate fast and reliably. Because every ton of conveyed material counts.



## **OUR ADDED VALUES**

### **FLEXIBILITY**

Thanks to our extensive product range, we can offer modular conveyor solutions. Thus, we always have the matching conveyor system for your tunneling operation – even for very demanding conditions.

### **ADJUSTABLE CONVEYOR RATES**

Our conveyor systems convey the material during the advance process right up to the tunnel portal – up to several thousand tons per hour. Therefore, we adapt our conveyors to meet your individual requirements.

### **RELIABILITY AND AVAILABILITY**

H+E conveyors are high-tech systems able to transport huge volumes of material with great precision over distances of up to 36 kilometres. A feat that is attributable to our German Engineering expertise and more than 25 years of tunnelling experience.

### **OPERATIONAL SAFETY**

The experience of our engineers, our standardised and certified processes, the high quality of the components used, and various safety sensors ensure the high operational safety of our conveyor systems.

### **SUSTAINABILITY**

Our professional refurbishment ensures that premium technology can be reused in other projects. Furthermore we reduce energy consumption, for example by frequency-controlled electrical drives with variable belt speed.

### **EFFICIENCY**

Our conveyor systems are perfectly customized thanks to certified management systems, with optimised internal processes as well as optimal calculated and selected components for your requirements.

# MASTERING CHALLENGES – PROBLEM-SOLVING SKILLS AS A FACTOR FOR SUCCESS

No space, it's dusty, and tons of material to be removed. To keep to your time frame and budget in tunnelling projects, you have to think ahead and beyond. We use all our tunnelling experience to reach these goals in cooperation with you while ensuring economic efficiency.

## VARIABLE SOLUTIONS FOR EXCAVATED MATERIAL CONCEPTS

- Different tripper cars for longitudinal stockpiles
- Varyingly rigid or moving dumpers for conical or kidney stockpiles

## MINIMUM DUST EMISSION

- Belt cleaning with wash box, ideally located in front of storage units
- Irrigation systems
- Main and secondary scrapers

## TIME SAVING

- Belt follows the TBM, for example by continuous extension of the tunnel belt
- Continuous removal of material instead of cyclic transport via rail-mounted vehicles or trucks
- Belt storage units allow longer tunnelling advance before the next stop for scheduled belt extension

## MAXIMUM ROBUSTNESS

- Material and manufacturing quality
- Corrosion protection thanks zinc coated steel structures
- Excellent durability and resilience at -40 °C to +50 °C
- Long service life: robust drives, sturdy design of the idlers, extremely durable reverse modules

## OPERATIONAL SAFETY

- Monitoring of the transfer points
- Belt tear sensors, belt misalignment switches, overflow sensors, emergency stop sensors, speed sensors, emergency pull wire switches, warning light and horn
- Metal detector and above-belt magnet
- Conveyor.On



## MANUFACTURING COMPETENCE

- Pre-assembly of key components
- Certified quality inspections

# FINDING ECONOMICALLY EFFICIENT SOLUTIONS – EQUIPMENT AS A FACTOR FOR SUCCESS

We have everything required for an effective conveyor system. On request, we also design special structures customized to your requirements.

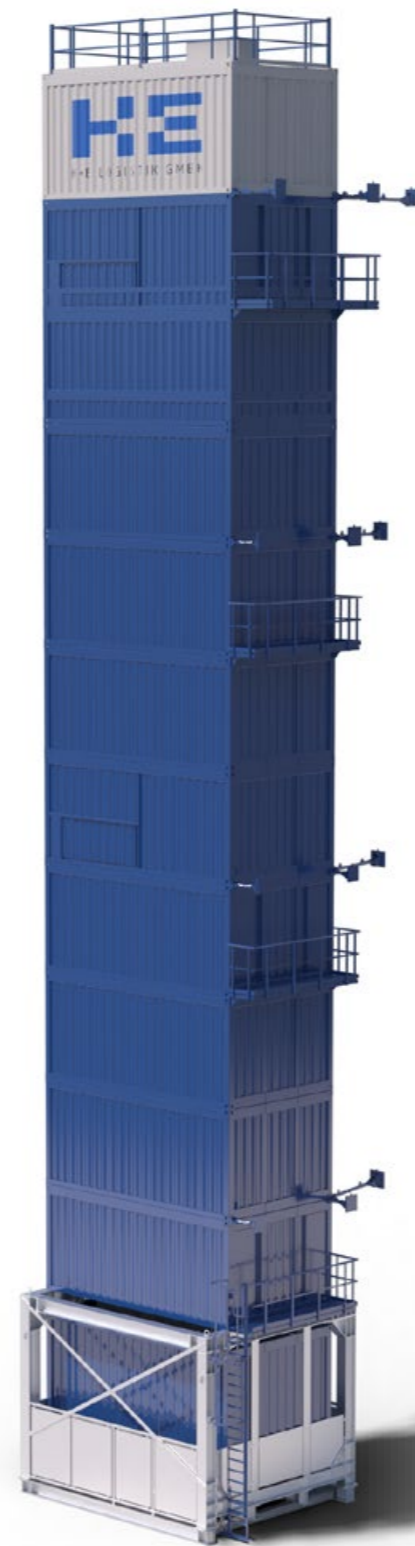
When it comes to transporting huge volumes of excavated material over many kilometres, the reliability of the conveyor system depends on its components. Durability and flexibility are mandatory for the extreme environment and the narrow spaces in which our systems operate.



## HORIZONTAL BELT STORAGE UNIT

Large belt storage capacity with low spatial requirements – for a fast reaction to changing requirements.

- Belt length capacity of 400 to 600 m (corresponds to a conveying distance of max. 300 m)
- Time saving and minimal space requirements
- Robust design



## VERTICAL STORAGE UNIT

Swift and on a small space, they supply new belt lengths for conveyor extension in keeping with the continuous advance.

- For confined spaces (urban projects etc.)
- Safe transport due to closed construction
- Belt length capacity of up to 600 m (conveying distance of max. 300 m)

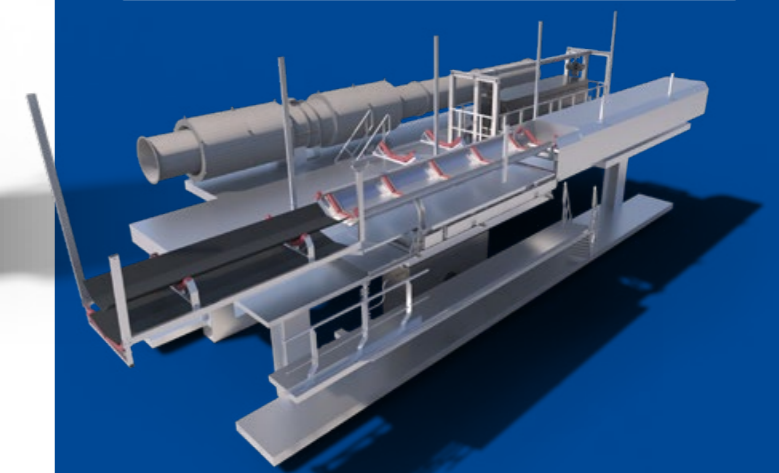


DRIVE UNIT

## TUNNEL BELT CONVEYOR

Our conveyor systems are extendable, curve going and reliable. They guarantee maximum tunnelling performance with minimum manpower.

- Seamless interface to tunnelling operations
- Outputs of up to 3,000 t/h and more
- Conveying volume adapted to project requirements
- For extreme temperatures ranging from -40 °C to +50 °C
- High level of safety
- Material transport from the shaft using incline conveyors
- Boosters for reducing the belt tension before curves
- Less emissions than with transport via truck or rail



## TUNNEL CONVEYOR EXTENSION

The structure is extended using assembly trolleys during ongoing operation.

- This accelerates the tunnelling performance
- Increases the ability to react to changing requirements of the conveyor belts.



**VERTICAL  
CONVEYOR  
HEAD STATION**

### VERTICAL CONVEYORS WITH SIDEWALL BELTS

In projects featuring spatial restrictions, the material is transported vertically out of the shaft on powerful systems.

- Seamless interface to boring operations
- Also perfect for sticky material
- Conveying heights of up to 130 meters and more
- Outputs of 900 t/h and more
- For extreme temperatures ranging from -40 °C to +50 °C

### VERTICAL SANDWICH CONVEYOR (no photo)

The material is pressed between two belts and compressed like a sandwich by the idlers. The perfect solution for very sticky material and for shaft constructions with openings in intermediate ceilings.

- Conveying height of up to 100 m
- Rises of up to 90° are possible
- Long service life of up to 20 years
- Outputs of 500 t/h and more
- For tunnelling projects with small shaft diameters

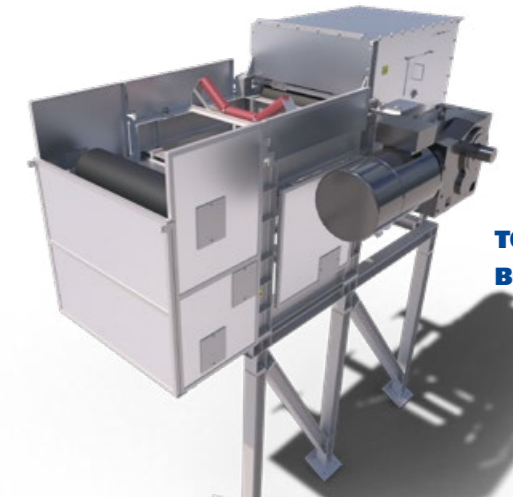
**VERTICAL  
CONVEYOR  
FOOT STATION**



### MOBILE TUNNEL BELT REVERSAL UNIT (FLYER)

Equipped with an electro-hydraulic drive, the Flyer provides the connection to the extendable tunnel belt with conventional tunnelling operations. Versatility of use is given by the crawler chassis, that follows the drill and blast operation.

- Loading of excavated material on the conveyor belt
- Operated via a remote control panel
- Moves independently due to crawler chassis
- Perfect for use as assembly platform for tunnel belt extensions



**TOP STRAND  
BOOSTER**



**RETURN  
STRAND  
BOOSTER**

### BOOSTERS

They are indispensable for example in tunnel construction in urban projects with very narrow curves, or in long straight sections.

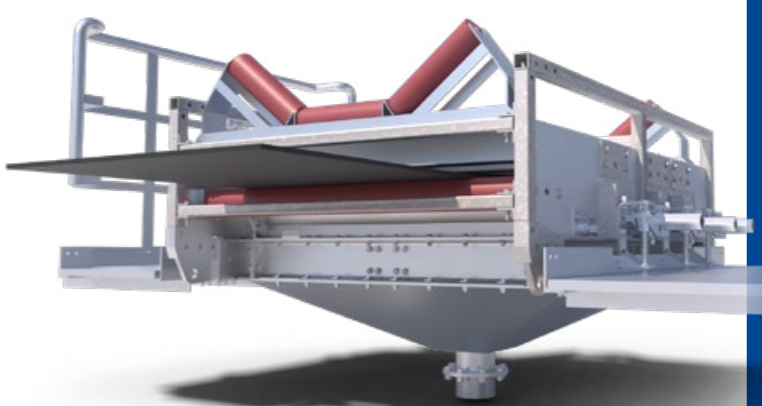
- Reduces the forces before curves
- Belt power reduction in straight sections to ensure a decentralized drive concept for cost-efficient solutions



**STACKER**

Targeted, clean spreading is a good way to finish off the conveyor chain.

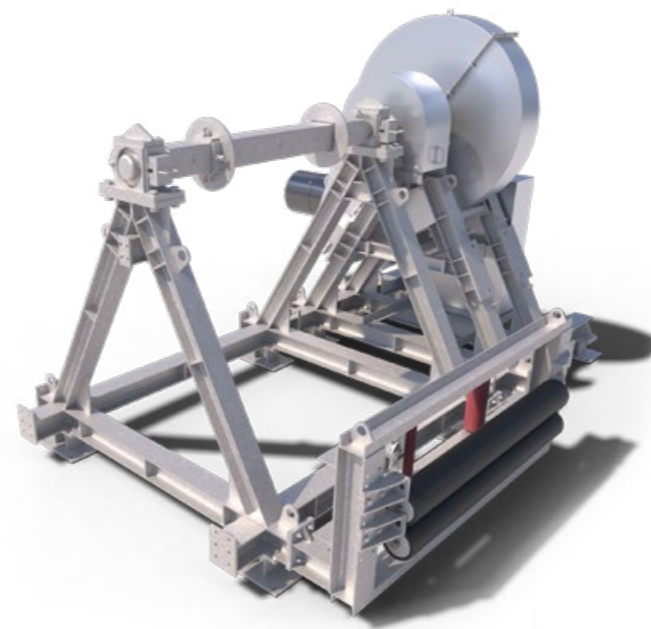
- Stationary, mobile or pivoting
- High capacity thanks to elevated discharge point
- High storage capacities even where spatial conditions are very restricted



**WASH BOX**

Our belt washing unit cleans conveyor belts and removes for example wet and adhesive material.

- Ideally in front of storage units
- Less soiling improves the availability
- Reduces dust emission
- Maximum cleaning effect thanks to three scraper systems
- Either with fresh water or with circulating operation



**BELT WINDER**

During disassembly of conveyor systems, the motorized belt winder winds up the conveyor belt in a controlled manner. It only has to be cut, fixed and labeled.

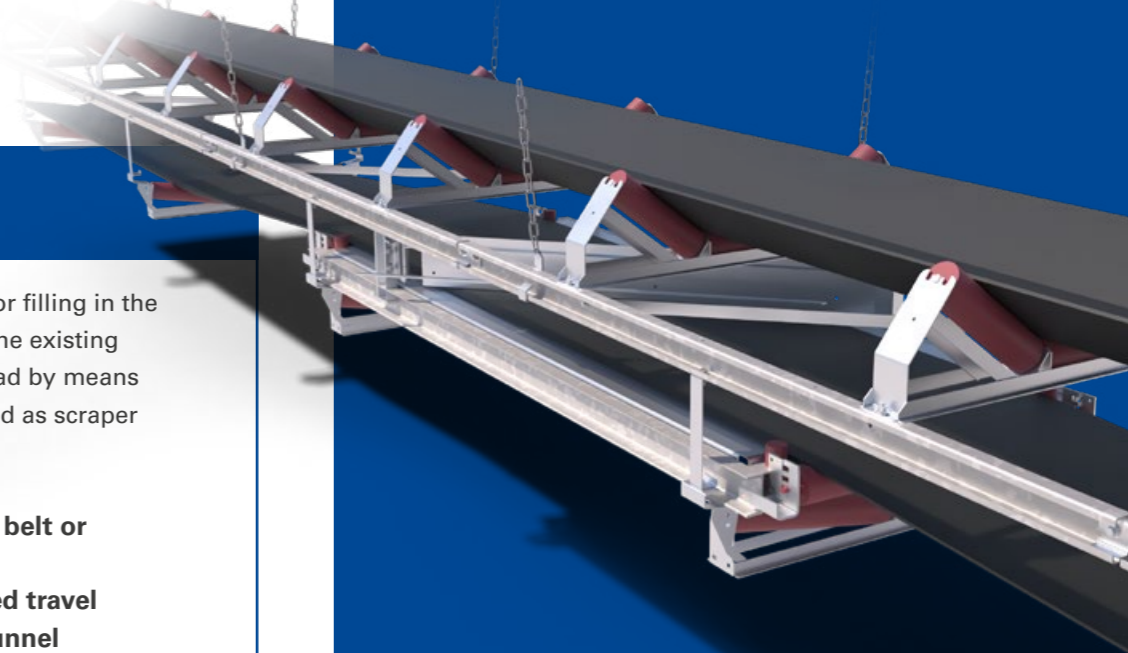
- Controlled pull-out with powerful electric motor
- Automatic winding saves time
- Refurbishment of the belts for reuse



**TRIPPER CAR**

For spreading longitudinal stockpiles, the mobile side discharge system is the product of choice.

- For large-volume stockpiles
- Very fast spreading
- Available with practical transverse conveyor
- Optionally available with telescopic chute for reduced dust development



**SCRAPER TABLE / LIFTING TABLE**

Concrete or other material for filling in the invert can be conveyed via the existing tunnel belt system and spread by means of the tables. Can be supplied as scraper table or lifting table.

- Transport on the lower belt or upper belt
- Spreading via controlled travel
- Ideal supplement for tunnel excavation work
- Simple and fast assembly

**SCRAPER TABLE**

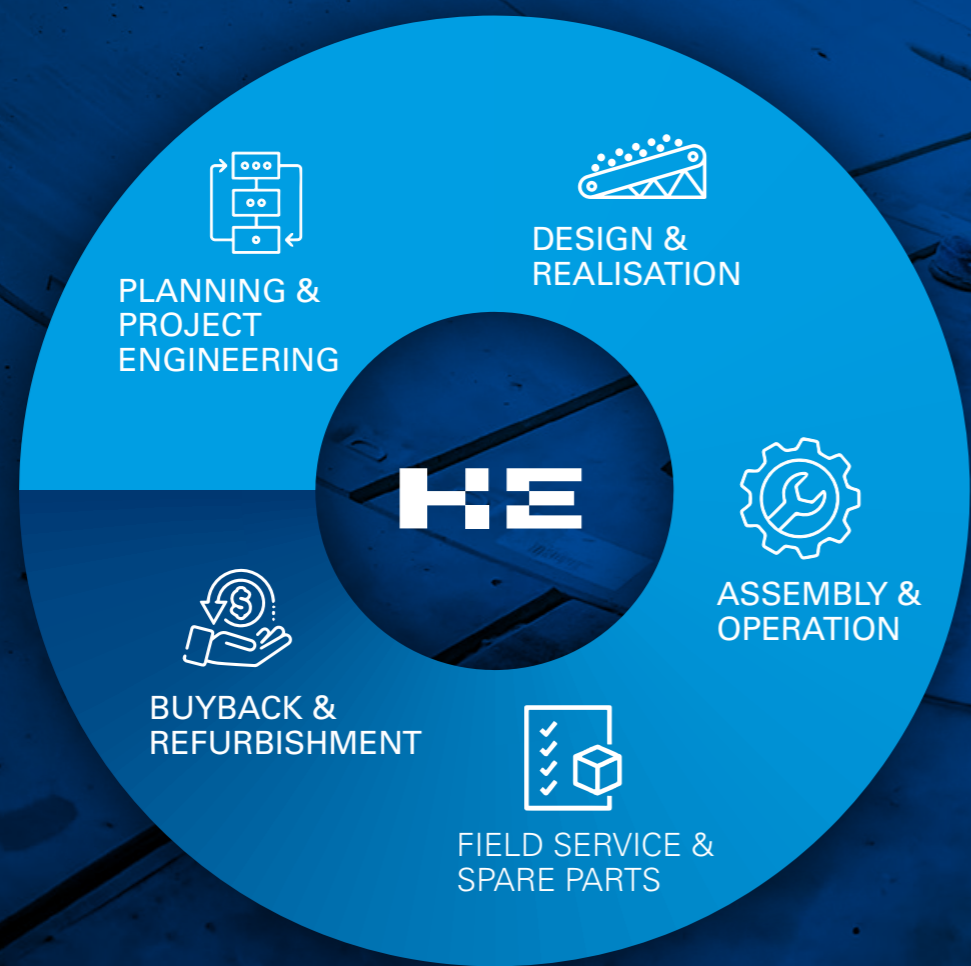


# COMPETENCE FOR PROJECTS WITH ALL-ROUND SUCCESS – **SUCCESS FACTOR 360° SERVICE**

We design, manufacture and install systems of up to 36 kilometre length, and more if required. This is our core business. But we also provide the service to ensure the continuous availability and maximum output of your conveyor system.



## + **H+E 360° SERVICE**



### **PLANNING & PROJECT ENGINEERING**

During concept development, we take into account the conditions and requirements on site, such as special weather conditions, the surrounding infrastructure, emission loads for adjacent residential areas, downtimes, etc. This, combined in close cooperation with you, is the key for finding the optimal solution for your project.

- Costs reduced to a minimum
- Development of complex solutions requiring minimum time and space
- Swift project handling

### **DESIGN & REALISATION**

Our team of experts with their comprehensive engineering know-how and many years of experience is our core competence – and our key to success.

- (Special) designs
- 3D-CAD software
- Manufacturing
- Network of experts

### **ASSEMBLY & OPERATION**

We are at your side for the entire duration of your project. This includes delivery to the site, supervision of assembly or complete assembly up to commissioning of your conveyor system.

- Direct contacts for a trustful relationship
- Many years of experience and thorough testing
- Reliable support during assembly

### **FIELD SERVICE & SPARE PARTS**

Thanks to fast delivery of spare parts and the professional on-site service, the system will be operative again quickly after unforeseen stops

- High availability, minimum downtimes
- Fast delivery of spare parts

### **REPURCHASE & REFURBISHMENT**

H+E guarantees a project-related buyback option after successful completion of the project. Our premium technology is designed to be reused over several project cycles. After thorough refurbishment, used products are as good as new.

# ALWAYS ONE STEP AHEAD – FUTURE ORIENTATION AS A FACTOR FOR SUCCESS

Developing new, sustainable solutions to the challenges of underground mining is what drives us. This is why we research innovative conveying concepts together with Herrenknecht and in close coordination with our customers. For us, responsible handling of resources and the development of environmentally sound products are of prime importance. Today and in the future.

## SUSTAINABILITY – BECAUSE EVERY CONTRIBUTION COUNTS

- Energy saving thanks to frequency-controlled electric drives – only the drive energy is consumed that is required for the actual load.
- Reuse of refurbished premium components, where possible.
- Direct delivery from the manufacturing locations to the construction site to keep transport to a minimum
- Low-emission systems – instead of trucks or rail cars
- Use of durable premium products made of robust materials, in particular for idlers and electric drives
- Solutions with focus on maximum efficiency – to reduce costs and consumption of resources



## CONVEYOR.ON – AT ANY TIME UP-TO-DATE

**Your exclusive customer link into the digital world of tunnelling**

With the new Herrenknecht.Connected customer portal, customers of Herrenknecht's tunnelling technology can access digital performance reports and get information on all processes in respect of advance, any time and from anywhere.

Our conveyor systems can be used in combination with your Herrenknecht TBM, or as a standalone solution. The Conveyor.On module, an in-house H+E development, allows access to all conveyor volumes, belt system overviews, and visualisations of the control cabin.

With Conveyor.On, you can interlink all relevant sensor data of the conveyor systems in use on your construction site. On your smartphone, tablet or PC, you can see the status of your project at a glance. View the data from the control cabin almost in real time on the screen of your device. Historical and current sensor data analyses by means of interactive dashboards and clearly structured reports are available as well.

The intuitive H+E app provides support for the entire construction site team, and for the management at the corporate headquarters. This makes it easy for site supervisors and managers to be up-to-date about all processes on the construction site. The descriptive analysis functions furthermore help them in their decision-making. Combined with other products from the Herrenknecht Group, it thus connects the data of the TBM including the navigation and monitoring systems installed with the data of the H+E conveyor systems. We are offering you a central, digital solution for optimum coordination of your construction site.

