The Conveyor System Company.

H+E Logistik GmbH, Bochum - Germany
Introduction.

- **Founded:** November 1999
- **Location:** D - 44805 Bochum / Germany
- **Employees:** 160
- **Main Share Holder:** Herrenknecht AG
Belt Conveyor for Tunnelling.
Belt Conveyor for Tunnelling.

- **Projects demands**
  - Long and short tunnel length
  - Tunnel diameter range between 5m…17+m
  - Small and huge capacity e.g. 3.000 t/h
  - Tunnel radius < 200 m
  - different material conditions
  - complex surface/shaft arrangements

*Special set-ups, we follow your demands*
Belt Conveyor for Tunnelling.

- Items of Tunnel Belt Conveyor:
  - Belt Drive Station
  - Booster Drive Stations
  - Horizontal or Vertical Belt Storage Units
  - Assembly Station for extending the Belt
  - Supporting Structure on TBM back-up
Belt Conveyor for Tunnelling.

- Tunnel belt conveyor from the TBM to the shaft
Belt Conveyor for Tunnelling.

Supporting Structure.

- Supporting structure in variable length according to segment width
- Modular design allows easy transport and assembly

Idlers
Special developed low friction idlers to reduce friction in bearings and sealings to reduce drive power & increasing livetime

Idler brackets
3 trough for carrying strand
2 trough for return strand

Stringers in U-profile

Diagonal to give more stability to be installed approx every 10th section of supporting structure

Long hole to adjust bracket in curve sections

3 positions for idler in brackets to track the belt
Belt Conveyor for Tunnelling.

Tunnel Alignment & Drive Arrangement.

- Winding horizontal alignment, H+E Reference is Toulouse with Radii > 200m
- Booster drives allow belt tracking through curves
Belt Conveyor for Tunnelling.

- Serves to transfer additional power to reduce the belt tension at certain places e.g. in front of horizontal curves
- Allows a lower Conveyor Belt Strength (cost saving)
Metro Toronto

Projects - Shaft Installation.

- Complex shaft installation for twin tube TBM drive
- Vertical muck transport with belt
- Longitudinal muck pit arrangement with tripper car
Equipment: Belt Storages.

- Vertical Belt Storage up to 500 m
- Horizontal Belt Storage up to 600 m
- Horizontal Double Stack Storages
Equipment: Vertical Conveyor.

- Vertical muck transportation for different lifting heights
- Application of Vertical Conveyor hard/soft rock as well as for sticky material possible
Equipment: Stacker Solutions.

- Tripper car installation for longitudinal muck pit arrangement
- Cross conveyor to assure the offset discharge
Equipment: Stacker Solutions.

- Tripper Car with telescopic chute
Equipment: Stacker Solutions.

- Different Stacker solutions for different demands
- discharge at end of tunnel belt conveyor
- fixed Stacker without and with telescopic chute to reduce dust emission
Equipment: Stacker Solutions.

- Movable Stacker
- Rotating Stacker
Projects: Hong Kong Conveyor Installation.

- Drill and blast driven tunnel in Hong Kong
- Conveyor installation underground and on surface
Vertical Conveyor in Hong Kong.

- Drive station and return station
- Shaft including all installation completely enclosed
Overland Conveyor Installation in Hong Kong.

- Overland conveyor arrangement
- Road crossing with a span of 40m
Overland Conveyor Installation in Hong Kong.

- Muck transportation in inner city Hong Kong
- Encapsulated overland conveyor at the water front
Projects: Overland Conveyor in Seattle.

- Overland conveyor from the shaft to the water front
- Different span of bridges between 15m and 45m
Contractor: Leighton Contractors & Baulderstone Hornibrook Bilfinger Berger JV
Projects: Road Tunnel Brisbane, Australia.
Contractor: KFT-JV København Fjernvarme Tunnel

Projects: Heating Tunnel, Copenhagen, Denmark.
Projects: Quarry Distribution Conveyor, Germany.

Contractor: JV Katzenbergtunnel.
Conveyor Structure – Also for Overland Arrangement.

- Structure with bridge and column easy and quick installation with span about 6 - 12m
Equipment: Concrete Transport System

Project 60539 Calle de Serrano (Atocha/Chamartin); Madrid, Spain

- Shaft arrangement with tunnel belt and concrete transfer

Feeding belt conveyor loading the bottom strand of the tunnel belt conveyor

Tunnel belt conveyor
Equipment: Concrete Transport System

Project 60539 Calle de Serrano (Atocha/Chamartin); Madrid, Spain

- Transportation of concrete into the tunnel via bottom strand
- Concreting the tunnel invert without using trucks
- Faster than using trucks for concrete transport (500 t/h)
Belt Conveyor Control System.

- General communication overview
- Communication via Profibus
- Emergency Stop every 250m or pull rope switch every 100m
Advantages of Belt Conveyor for Tunneling.

Advantages of conveyor belts to be mention as following:

- Increasing availability and boring time of TBM
- Vertical Conveyor simplifies muck transportation to surface
- Enclosed overland structure to avoid noise and dust pollution/trucks
- Stackers discharge muck in disposal area
- Space-saving because of availability of vertical cassette
- Separation of ways of logistic
- Less ventilation required as less use of diesel loko/truck
- Safer operation, as less traffic in tunnel, and less noise
- Less personnel required
The End.