Overland conveyors with vertical and horizontal curves for piece goods and for bulk material handling
Overland conveyors with vertical and horizontal curve technology for handling both bulk materials and piece goods.

BEUMER has supplied conveying installations, for bulk materials and piece goods, worldwide for several decades. Belt conveyors with long center distances offer many economical and technical advantages over other types of long distance handling, such as labor intensive trucking. BEUMER horizontal curve technology allows for the installation of conveyors unique to the application. Some of these installations are outlined in this brochure. BEUMER conveying installations – the solution to your problems.
Principle of the tube belt conveyor
Overland troughed belt conveyors with vertical and horizontal curves

Installation Kali + Salz AG, Wintershall plant / Germany

Cost effective material transportation between the plant and the reject disposal area. A conveyor installation utilizing horizontal curve technology that allowed the installation of a single conveyor in the limited access available.

<table>
<thead>
<tr>
<th>Material handled:</th>
<th>potash salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity:</td>
<td>1200 t/h</td>
</tr>
<tr>
<td>Conveying speed:</td>
<td>3,35 m/s</td>
</tr>
<tr>
<td>Drive capacity:</td>
<td>4 x 200 kW</td>
</tr>
<tr>
<td>Center distance:</td>
<td>1232 m</td>
</tr>
<tr>
<td>Belt width:</td>
<td>1000 mm</td>
</tr>
<tr>
<td>Curve radius:</td>
<td>1400 m</td>
</tr>
<tr>
<td>No. of horizontal curves:</td>
<td>1</td>
</tr>
<tr>
<td>No. of vertical curves:</td>
<td>9</td>
</tr>
</tbody>
</table>
This overland conveyor, designed with horizontal and vertical curves, handles bulk materials on both the upper and lower belt strands at the same time. The conveyor reliably handles different materials simultaneously between the cement plant and the harbor.
Overland troughed belt conveyors
with vertical and horizontal curves for bulk material handling

Installation Ciments D’Obourg S.A.,
Obourg/Belgium

Five straight, short conveyors with transfer stations were replaced with this single overland conveyor designed with several horizontal and vertical curves. Improved productivity, economic savings, greater reliability and lower operating costs were realized. Environmental protection requirements were fully met and satisfied.

Material handled: Chalk material
Capacity: 1500 t/h
Conveying speed: 3,94 m/s
Drive capacity: 3 x 160 kW
Center distance: 2782 m
Belt width: 1200 mm
Curve radii: 700/5000/10000 m
No. of horizontal curves: 6
No. of vertical curves: 6
Installation National Cement Comp. Ragland, Alabama / USA

The installation of this conveyor guarantees a continuous flow of raw material from the primary preparation plant in the quarry and the cement operations. The layout design had many considerations to take into account, including mountains and valleys, rugged terrain and crossing of a road and river. Due to the topography of the conveyor route, this installation featured the integration of horizontal curves into vertical curves.

<table>
<thead>
<tr>
<th>Material handled:</th>
<th>Limestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity:</td>
<td>750 t/h</td>
</tr>
<tr>
<td>Conveying speed:</td>
<td>2.90 m/s</td>
</tr>
<tr>
<td>Drive capacity:</td>
<td>3 x 132 kW</td>
</tr>
<tr>
<td>Center distance:</td>
<td>3378 m</td>
</tr>
<tr>
<td>Belt width:</td>
<td>800 mm</td>
</tr>
<tr>
<td>Curve radii:</td>
<td>1200/1800 m</td>
</tr>
<tr>
<td>No. of horizontal curves:</td>
<td>4</td>
</tr>
<tr>
<td>No. of vertical curves:</td>
<td>22</td>
</tr>
</tbody>
</table>
Overland troughed belt conveyors
with vertical and horizontal curves for piece goods

Mail-order organization Quelle, Nürnberg / Germany

The requirement of this leading mail order company was for a reliable, continuous means of transport for a large quantity of parcels between the packing plant and the distribution center.

The only available option was to install a conveyor alongside and parallel to an existing railway line. In doing this, up to 50 trips per day by heavy trucks, through residential areas were successfully eliminated. Besides all the economic benefits that were realized by the installation of the BEUMER conveyor, there was an enormous contribution to environmental protection.

Material handled: Postal parcels
Throughput capacity: 20000 parcels/h
Conveying speed: 0.8/1.6 m/s
Drive capacity: 45 kW
Center distance: 1158 m
Belt width: 1200 mm
Curve radii: 775 / 1300 / 2000 m
No. of horizontal curves: 3
No. of vertical curves: 2
Overland troughed belt conveyors
with vertical and horizontal curves for bulk material handling
Installation Rohrbach Zement, Dotternhausen/Germany

The 2360 meter long horizontal curved belt conveyor is used for the development of a new limestone quarry. The loading of the main belt conveyor is done from a 300 meter long moveable feed conveyor that has a charging hopper. The charging hopper is fed by mobile loading equipment at the quarry face. The installation of this curved belt conveyor is through public access areas, so personal safety and environmental protection had to be of prime concern.

Material handled: Slate
Conveying capacity: 450 t/h
Conveying speed: 1,95 m/s
Drive capacity: 3 x 55 kW
Center distance: 2360 m
Belt width: 800 mm
Curve radius: 1.700 m
No. of horizontal curves: 4
Overland tube belt conveyors for bulk material handling

Installation Portlandzementwerk Wittekind, Erwitte / Germany

The tube belt conveyor is utilized for the transportation of limestone between the quarry and a material surge silo in the cement plant. Considerable cost savings were realized by using the tube belt conveyor in place of the continuous utilization of 5 heavy duty dump trucks that were the original operation.

Material handled: Limestone
Conveying capacity: 650 – 850 t/h
Conveying speed: max. 3,1 m/s
Drive capacity: 3 x 160 kW
Center distance: 750 m
Tube diameter: 350 mm
Inclination angle: max. 22,5°
No. of horizontal curves: 2
Vertical curves: 2
Hoisting height: 82 m
The BEUMER tube belt conveyor handles corn (granular) from the dock area to the plant. The requirement of 4 horizontal and 3 vertical curves make an ideal installation for the tube belt conveyor.

**Material handled:** Maize  
**Conveying capacity:** confidential  
**Conveying speed:** max. 2.75 m/s  
**Drive capacity:** 75 kW  
**Center distance:** 385 m  
**Tube diameter:** 200 mm  
**Inclination angle:** max. 15°  
**No. of horizontal curves:** 4  
**No. of vertical curves:** 3
A tube belt conveyor was selected for the transport of limestone between the quarry and the cement plant. This particular installation required a combination of special belt conveyor technology applied to satisfy the challenges of a difficult terrain. The BEUMER tube belt conveyor not only satisfied the clients technical demands and the problems of the difficult terrain, but also met the stringent demands regarding protection of the environment and nature.

**Installation Wülfrather Zement, Sötenich Plant/Germany**

- Material handled: limestone
- Capacity: 350 t/h
- Conveying speed: 2.5 m/s
- Drive capacity: 132 kW
- Center distance: 568 m
- Tube belt diameter: 250 mm
- Belt width: 960 mm
- Curve radius: min. 150 m
- No. of horizontal curves: 6
- No. of vertical curves: 6

**Diagram:**
- Conveying direction
- Center distance 568 m
- Curve radii and conveying direction indicated.
Overland tube belt conveyors for bulk material handling

Installation Rheinkalk, Hönnetal Plant / Germany

Until the installation of the tube belt conveyor, the railway system was used for the internal plant handling of the burned limestone between the kiln and the grinding installation. The use of a BEUMER tube belt conveyor greatly reduced the high costs associated with the original track system and met the customer requirements for a continuous, clean system that will be flexible enough and adaptable to fit into existing space confines, while offering optimum performance.

Material handled: calzined
Massflow: 120 t/h
Conveying speed: 2,0 m/s
Drive capacity: 45,0 kW
Center distance: 320 m
Tube diameter: 200 mm
Belt width: 800 mm
Curve radius: 180 m
No. of horizontal curves: 1
No. of vertical curves: 2
Overland troughed belt conveyors for bulk material handling

Installation lime plant Märker, Harburg/Germany

The 1100 meter long horizontal curved belt conveyor serves the development of a new limestone quarry and still connects to the old quarry. The conveyor route was designed with a horizontal curve radius of 700 meters in order to stay within property confines.

Material handled: limestone
Conveying capacity: 1.200 t/h
Material size: 0 – 400 mm

Conveying dates:
Belt width: 1.200 mm
Center distance: 1.100 m
Conveying speed: 3,1 m/s
Drive capacity: 2 x 110 kW
Radius of horizontal curves: 700 m
Overland troughed belt conveyors for bulk material handling

Installation Holcim Untervaz, Untervaz / Switzerland

<table>
<thead>
<tr>
<th>Material handled:</th>
<th>limestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massflow:</td>
<td>300 t/h</td>
</tr>
<tr>
<td>Conveying speed:</td>
<td>2,5 m/s</td>
</tr>
<tr>
<td>Drive capacity:</td>
<td>75 kW</td>
</tr>
<tr>
<td>Center distance:</td>
<td>1.300 m</td>
</tr>
<tr>
<td>Belt width:</td>
<td>650 mm</td>
</tr>
<tr>
<td>Curve radius:</td>
<td>450 m</td>
</tr>
<tr>
<td>No. of horizontal curves:</td>
<td>1</td>
</tr>
</tbody>
</table>

The trough belt conveyor is used for transportation of limestone between the quarry and the cement plant.
The conveyor has a center distance of approximately 1.3 kilometers, the majority of which operates in a tunnel.
The unit has a developed radius of 450 meters, and approximately 50% of the belt length is involved with the curve.
PROGRAM OF SUPPLY

CONVEYING TECHNOLOGY
- Conventional and closed belt conveyor systems
- Overland conveyors also in curved design
- High capacity belt and chain bucket elevators
- Apron conveyor systems with chains or steel cable reinforced belts as traction element
- Bag handling systems for packing plants
- Screw conveyors in various designs

LOADING TECHNOLOGY
- Plants for loading of bulk or bagged material onto trucks, into railroad vehicles and ships
- Semiautomatic railcar unloading machines
- Automatic bag loading systems for trucks and containers

PALLETTIZING TECHNOLOGY
- Palletizing robots
- Automatic high capacity palletizers
- Automatic depalletizers
- Pallet conveying systems

PACKAGING TECHNOLOGY
- Stretch wrapping
- Shrink wrapping
- Stretch hood wrapping
- Palletless shrink wrapping

SORTATION AND DISTRIBUTION SYSTEMS
- Computer-controlled handling, sorting and distributing systems for piece goods
- Routing controlled conveying of pallets and collected loads