PIPE CONVEYORS
Optimal Solutions for Specialised Handling
TAKRAF is a key supplier of equipment and systems for open pit mining and bulk handling, having provided hundreds of complete systems, as well as individual machines, to clients all over the world. Based upon more than a century of experience and know-how, the product range stretches from overburden removal, raw material extraction, conveying, processing, comminution, homogenizing, blending and storage to onward transport or shipment.

TAKRAF provides the full range of services, from project studies, planning, engineering and design to fabrication, supply, erection and commissioning, technical assistance, service and after-sales service for plants, systems and equipment. Its equipment has proved robust and reliable in adverse geological conditions, in extreme climates with temperatures down to minus 45°C, in dust, wind or extreme humidity, as well as in seismic zones and altitudes of up to 5,000 m above sea level or in underground applications.

TAKRAF has committed to both environmental and social sustainability in their business interactions and has adopted a Zero harm approach to safety under the SAFETY FIRST promise of the Tenova Group.
PIPE CONVEYORS

The pipe conveyor overcomes several of the problems commonly associated with conventional conveyors, e.g. spillage of material, belt training, limited angle of incline, horizontal curves and multiple flights.
THE PIPE CONVEYOR

The conveyor resembles a conventional troughed conveyor at its tail end where the material is loaded. The open belt then passes through a series of transition idlers to form a pipe shape, which is maintained for the length of the conveyor. Just before the discharge pulley, the belt opens up again and allows the material to be discharged in the normal fashion. On the return side, the belt is again formed into a pipe shape.

SERVICES AND TECHNICAL BACK-UP

Pipe conveyors are offered as turnkey installations, with the design done in-house by TAKRAF engineers, backed up by dedicated spares and after sales service teams.

TRACK RECORD.

About 60 Pipe Conveyor systems have been installed.
PIPE CONVEYOR CHARACTERISTICS

Totally Enclosed Conveying
Material being transported by a pipe conveyor is completely enclosed by the conveyor belt for the major portion of its travel. This has several benefits, including:
- Environmental pollution is minimised as dust generation and en route spillage are eliminated,
- the product is protected from outside contamination, and
- valuable product is protected from theft along the conveyor’s path.

Steep Inclined Conveying
Increased friction between the material and the pipe shape of pipe conveyors makes steep inclines possible, generally 50% steeper than a conventional belt conveyor. This means that:
- the overall length of the conveyor system may be reduced, and
- plant footprints can be smaller with further cost savings.

Minimal Space Requirements
The pipe conveyor is narrower than a conventional conveyor of the same capacity and uses less floor space.

Return Belt Conveying
The return belt is also formed into a pipe shape and can, in special circumstances, transport material. This offers cost advantages.

Curved Transport
The pipe shape of the belt permits the conveyor to curve horizontally as well as vertically. A single pipe conveyor can thus replace several conventional belt conveyors, reducing:
- the need for multiple transfer points and drives that require more space and cost,
- power required to lift the product at repeated transfer points,
- degradation of the product and dust generation at transfer points, and
- costly chute liner replacements.

STANDARD SPECIFICATIONS

The table below shows indicative capacities of the pipe conveyor. Belt speeds indicated are nominal, based on selected idler sizes. Belt speeds and transport volumes can, however, be increased within accepted design limitations to cater for the customer’s specific needs.

<table>
<thead>
<tr>
<th>Pipe Diameter (mm)</th>
<th>Belt Speed (m/min)</th>
<th>Transport Volume up to (m³/min)</th>
<th>Lump Size up to (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>156</td>
<td>121</td>
<td>30 - 50</td>
</tr>
<tr>
<td>200</td>
<td>169</td>
<td>233</td>
<td>50 - 70</td>
</tr>
<tr>
<td>250</td>
<td>182</td>
<td>487</td>
<td>70 - 90</td>
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<tr>
<td>300</td>
<td>195</td>
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<td>600</td>
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<td>3,564</td>
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<td>700</td>
<td>275</td>
<td>4,620</td>
<td>250 - 300</td>
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