

DemcoTECH AeroConveyor™ makes inroads across wide range of industries

A 73 m DemcoTECH AeroConveyor™ has been installed at a major titanium mining operation in Mozambique, following an assessment by engineering and project-focused company DemcoTECH Engineering of the existing in-plant materials handling equipment, which was not performing as required. Found to be a perfect application for the Aeroconveyor and based on the success of this installation, the client has contracted DemcoTECH to retrofit four more Aeroconveyors in other parts of the plant.

The Aeroconveyor can transport the product up an incline of up to 18°. In addition, to the benefits provided by fully enclosed conveying, the system utilizes a standard scraper at the head end, standard take-up pulleys and return idlers, as well as a small fan to introduce air into the system. As a result, it is both easy and cost-effective to maintain, as well as being compact.

“The unique DemcoTECH AeroConveyor™ offers the same benefits as a traditional pipe conveyor in terms of fully enclosed conveying, protecting both the environment and product from mutual contamination,” notes DemcoTECH Engineering General Manager, Paul van de Vyver. “But, unlike the pipe conveyor, it is also suitable for short distances, can convey material at steep inclines and is very energy efficient.

“This tried-and-tested technology, which has been in use for over 40 years for conveying products that are dusty, of low bulk density and often difficult to convey, represents the ideal solution for certain applications.

“For example, the development of the Aeroconveyor was a breakthrough for the diamond industry, where its ability to be easily and securely enclosed enables the kimberlite ore to be transported without risk of theft.”

This is due to the fact that air, which provides the ‘cushion of air’ necessary to support the belt and product, comes from outside of the trough structure and, since no idlers or rollers are required on the carrying side, personnel do not need to access the enclosed conveyor for any reason whatsoever.

In addition, as the design of the Aeroconveyor is based on the hovercraft principle with a bed of air below the belt conveyor, it does not experience the rolling motion or wave effect of idlers, making it highly suitable for conveying precious minerals and metals.

As a result, some 20 DemcoTECH AeroConveyors™ have been installed on diamond mines to convey kimberlite, gravel, diamonds and diamond tailings. It has also found wide acceptance in other mining industries, with installations to convey material

Fabrication and installation of DemcoTECH AeroConveyor™ at a titanium miner in Mozambique (and below).



from coal, crushed limestone and vermiculate to furnace feed and slag and manganese.

In addition to a wide range of general industrial applications, conveying products from woodchips to soap noodles, fertilizer, salt, animal feed and ash, the Aeroconveyor has made significant inroads in the sugar industry, with machines supplied for actual sugar plants and sugar mill-related products. For the port handling industry, the Aeroconveyor is deployed on the wharf, both to feed shiploaders and to carry products from ships to silos.

BENEFITS OF THE DEMCO TECH AEROCONVEYOR™

Traditionally used over short distances and at high inclination angles, the modern DemcoTECH AeroConveyor™ offers high capacity conveying at greater belt speeds, over longer conveying distances.

“Besides the environmental benefits, which include reduced noise pollution, other benefits of the Aeroconveyor include its reliability, long belt life and minimal maintenance requirements,” says van de Vyver.

“It is also easy to install as fewer supporting structures are required due to the fact that the aeroconveyor can easily span 12m, enabling installations to take place in difficult to reach areas such as roofs. Walkways are not necessary since the idlers have been eliminated on the carrying-side. The DemcoTECH AeroConveyor™ has no moving parts along the carrying side and is fully enclosed.”

HOW DOES THE AEROCONVEYOR WORK?

The DemcoTECH AeroConveyor™ is an enclosed troughed conveyor, which eliminates idlers by supporting the conveyor belt on a cushion of low pressure



Turnkey Petronas RAPID project in Malaysia (and below).

air. A continuous belt is driven around a head and tail pulley using the normal motor drive, however with one major difference — the trough section is used as the structural support of the belt.

The air cushion is supplied by means of a centrifugal fan, which blows into the plenum chamber and enters the conduit area via holes positioned along the length of the trough. An air film or cushion is thus created, lifting the belt off the steel trough and providing a smooth surface for the product.

RESPECTED SUPPLIER IN CONVEYOR DESIGN AND ENGINEERING

DemcoTECH provides, in addition to the Aeroconveyor, a comprehensive range of advanced conveying technologies, including overland and in-plant belt conveyors, pipe conveyors and stacking, shuttle, mobile and grasshopper conveyors, and feeders.

Recent awards from India for an upgrade on an existing 4.6km pipe conveyor, as well as for a number of overland conveyors, have added to its

extensive track record in the supply of pipe and belt conveyors, which includes downhill, extendable and inclined systems. In line with its total solutions approach, DemcoTECH also provides a full range of supporting and auxiliary equipment, including trippers, stackers and load-out equipment.

Offering services from conceptual design through to project completion, DemcoTECH's project services are tailored to the needs of small to mega contracts.

“Our projects demonstrate the flexibility of our services, ranging from providing a shuttle conveyor and installing it during a plant shut of seven days working 24 hour days for a miner in South Africa, through to a massive four-year contract for Vale's multimillion-dollar iron-ore import/export facility in Malaysia. We also completed a turnkey project in Malaysia for the prestigious Petronas RAPID project, with the main feature of our system being a 2.2 km pipe conveyor,” concludes van de Vyver.

ABOUT DEMCO TECH

DemcoTECH Engineering is a specialist bulk materials handling and niche process plant company, offering services from concept design through to project completion to the power generation, cement, mining, metallurgical, manufacturing and port handling industries. Services include conceptual design, feasibility studies, design, engineering, procurement, expediting, construction and commissioning. After-sales services include spares, maintenance, refurbishments and operational readiness packages covering procedures, systems and workplace tools required to successfully operate and maintain a new or upgraded plant.

