

**DELKOR** 



## **HORIZONTAL BELT FILTERS**

For efficient and reliable dewatering

*Innovation out of tradition – It pays to talk to a specialist!*

TAKRAF Group, through its established and well-known brands, TAKRAF and DELKOR, provides innovative technological solutions to the mining and associated industries. We leverage our experience, acquired over more than a century, to provide equipment, systems and services that best satisfy our clients' mining, comminution, material handling, liquid/solid separation and beneficiation requirements. Owners and operators around the world trust our engineered solutions to lower the total cost of ownership and reduce environmental impact by improving efficiency with safe and reliable equipment. For sustainable solutions backed by expert service you can rely on TAKRAF Group. Visit us at [www.takraf.com](http://www.takraf.com).

**We at TAKRAF Group are committed to environmental and social sustainability in all our business interactions and have adopted a Zero Harm approach under our global safety promise.**

Owners and operators around the world are confident that TAKRAF Group provides the most suitable solution to their unique project requirements. We assist our clients in overcoming the most complicated challenges in transforming the resource industry towards a sustainable future. We focus on specific areas that are critical for reliable and sustainable operations, as it is here where we best support our clients with innovative solutions that save energy, lower environmental impact and meet or exceed operational requirements.

One focus area is liquid/solid separation, where we capitalize on our global DELKOR brand and its track record of thousands of successful installations. In line with our commitment to environmental sustainability, DELKOR dewatering and process equipment are specifically designed for the needs of the mining industry.

We leverage our global organization and aggregate our extensive expertise by offering a unique combination of both application experience and product based knowledge. Clients therefore benefit from direct technical discussions with our local specialists, who are able to draw upon this expertise and provide the most suitable local solution and service that enhances safety, improves sustainability, decreases costs and increases efficiency.

Our commitment is summarized by:

Safety | Reliability | Innovation | Sustainability



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## DELKOR HORIZONTAL BELT FILTER FEATURES

### FILTER FRAMES

They are manufactured in standard rolled and pressed metal sections. Materials are selected depending on the operating conditions and include:

- Mild steel, painted or otherwise protected
- A variety of stainless steels
- Our large filters are typically site erected, with smaller units fully assembled in the workshop to save on installation time. All major components of the filter are test assembled and dismantled before dispatch to ensure easy assembly at site.



### THE TRANSPORTER BELT

This belt supports the filter cloth and provides drainage channels and holes for filtrate removal. All **DELKOR** transporter belts have a carcass free center zone to ensure long life by preventing contact between the carcass and corrosive filtrates.

### BELT WIDTH

All belts are specifically designed in a variety of thickness and grooving configurations depending on the application and filter geometry:

- 500 mm
- 800 mm
- 1200 mm
- 1600 mm
- 2000 mm
- 2400 mm
- 2800 mm
- 3200 mm
- 4200 mm
- 4800 mm

### RUBBER GRADES

There are different grades of rubber available for various duties. Depending on the application we select between:

- Natural Rubber
- SBR (HT or LT)
- EPDM
- Chlor-Butyl
- Neoprene

The grade of rubber, filter application and site conditions will normally determine the type of splice required.

As a general guide:

- < 70°C - cold bonded
- > 70°C - hot bonded

### CURBING

Rubber curbs are bonded or vulcanized to the edges of transporter belt to prevent the inadvertent spillage of feed material cake wash water. They also serve as vacuum seal.

Straight wall curbing was originally utilized on all sizes of filter. The rapid deterioration of this curbing due to stretching led to development of a more cost effective curbing by **DELKOR** in 1983. This major innovation, **DELKOR** Ripple curbing, provided superior vacuum sealing and life cycle and is utilized today by all manufacturers of belt filters in recognition of its unique qualities.



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## VACUUM BOX

**DELKOR's** vacuum box design ensures that it is suited for both the process conditions as well as the mechanical stresses found in the most extreme applications. Vacuum boxes are available in the following materials:

- A variety of stainless steels
- Glass reinforced plastic
- HDPE / PP

## WEAR STRIP AND WEAR BELT

The concept of wear strips and wear belt for vacuum sealing was developed by **DELKOR** in 1976 and has since adopted by all major belt filter manufacturers around the world. Wear strips are made from highly wear resistant, low friction material and are attached to the vacuum box shoulders to locate loose wear belts.

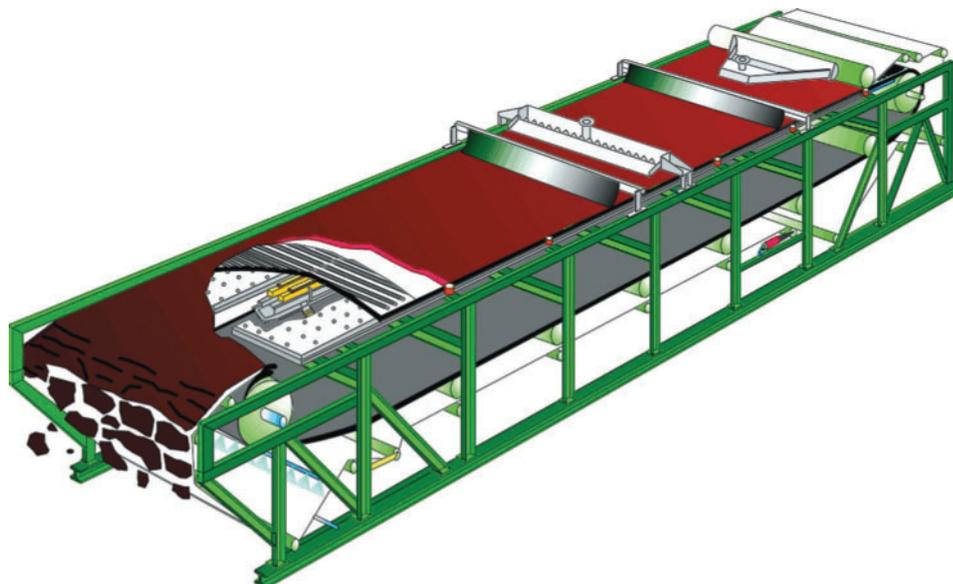
Wear belts have a typical life of 12 months - but largely dependent on the specific application and maintenance practices employed. Replacement wear belts can be installed in less than one hour by utilizing the simple pneumatic system for lowering and raising the vacuum box in situ.



## TRANSPORTER BELT SUPPORT

This can be effected in a variety of ways depending on the application of the filters.

- Heavy duty drying filters typically utilize a system of air boxes which direct a cushion of air to the underside of the belt.
- Light duty washing filters typically utilize a system of wear belt support stations similar to that used for vacuum sealing.
- Another proven system is that of utilizing a support slide manufactured from stainless steel or HDPE with a film of water to provide frictionless belt movement.



## APPLICATIONS

Drying of concentrates and tailings including:

- Iron Ore
- Coal
- Phosphate Rock
- Copper
- Lead
- Zinc
- Pyrite
- Ilmenite
- Zircon
- Rutile
- Silica Sand
- Tin
- Chromite
- Power Station Ash



## CAKE WASHING APPLICATIONS

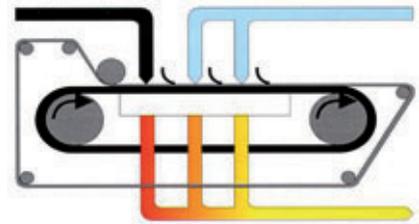
High extraction efficiencies greater than 99.8 % can be achieved when a flooded level of solution is maintained in the wash zone, allowing plug flow displacement. Efficient separation of wash zones from the filter table, sprades in the vacuum box and a patented slope on the filter. By ensuring that no forward leakage occurs, the client is assured of maximum liquor concentration and recovery.

## CO-CURRENT WASHING

Co-current washing in several stages gives excellent washing efficiency when filtrate dilution is not critical and two to three displacement washes are common.

Typical Applications:

- Gold and silver recovers in cyanide processes
- Recovery of metals in solution followed by precipitation
- Washing of phosphate rock
- Recovery of manganese
- Cement copper
- Tailings washing as final stage after CCD

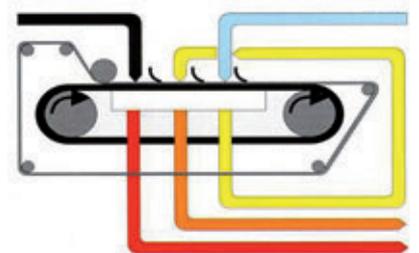


## COUNTER-CURRENT WASHING

This method is used when down-stream treatment of filtrates requires minimum dilution such as solvent extraction, evaporation or when limited washwater is available. Both cake filtration and vacuum box zones can be effectively and easily divided to give optimum washing.

Typical Applications:

- Acid leached copper, cobalt and pyrites
- Washing nitrates
- Recovery of alumina from sintered mud
- Uranium recovery after acid or carbonate leaching
- Recovery of yellow cake
- Hemi- and di-hydrate calcium sulphate from phosphoric acid
- Soda ash
- Recovery of brine
- Cellulose pulp washing
- Vanadium and Tungsten recovery
- Sugar cane mud washing



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