



www.delkorglobal.com

HORIZONTAL BELT FILTERS

BROCHURE N° 1 : FEATURES

BROCHURE N° 2 : CARRIER BELT

BROCHURE N° 3 : APPLICATIONS

Introduction

The Delkor Belt Filter makes use of the most modern design capabilities and materials of construction to make it an efficient and reliable liquid/solid separation unit able to withstand operating under the most arduous conditions. The filter has been simplified for easy operation, yet all the wearing parts remain easily accessible for routine maintenance purposes.

The filter has numerous advantages over rotary type filters, including high filtration rates, flexibility of operation, excellent washing efficiency and drier filter cakes.



Delkor Horizontal Belt Filter Features

- **Filter Frames** 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
 - Fibre Reinforced Plastic

Our large filters are typically site erected, with smaller units fully assembled in the manufacturers workshop to save on installation time. Depending on transport, access and erection restrictions, it may be possible that larger units can be transported and erected in one piece.

• 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 centre zone to ensure long life by preventing contact between the carcass and corrosive filtrates.

• Vacuum boxes are made from either:

- a variety of stainless steels
- Glass Reinforced Plastic
- HDPE

The vacuum box is designed so that any excess lubricating and cooling seal water is collected and drained away immediately via an integral spillage launder.

• Wear strips

These are made from highly wear resistant, low friction material and are attached to the vacuum box shoulders to locate the loose wear belt system.

• Wear Belt

A life of 12 months is typical, but is largely dependent on the particular application and the maintenance practises employed. Replacement wear belts can be installed in less than one hour by utilising the simple pneumatic system for raising and lowering the vacuum box in situ.

• Transporter Belt Support

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

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

Horizontal Belt Filters Filter Presses Linear Screens Thickeners Clarifiers Underground Settlers

AUSTRALIA
DELKOR PTY LIMITED
Tel: +61-2-9550 5111
Email: delkor@delkor.com.au

INDIA
DELKOR TECHNIK INDIA PVT. LTD
Tel: +91-80 28392823 / 2824
Email: delkor@delkorindia.com

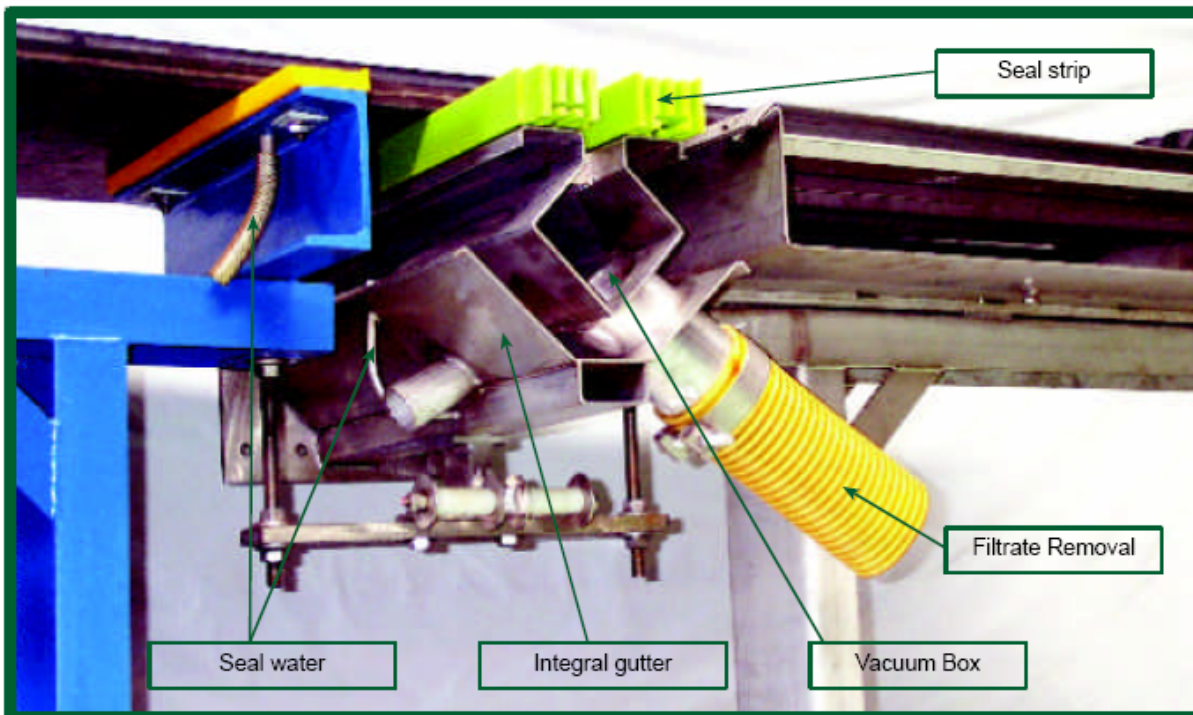
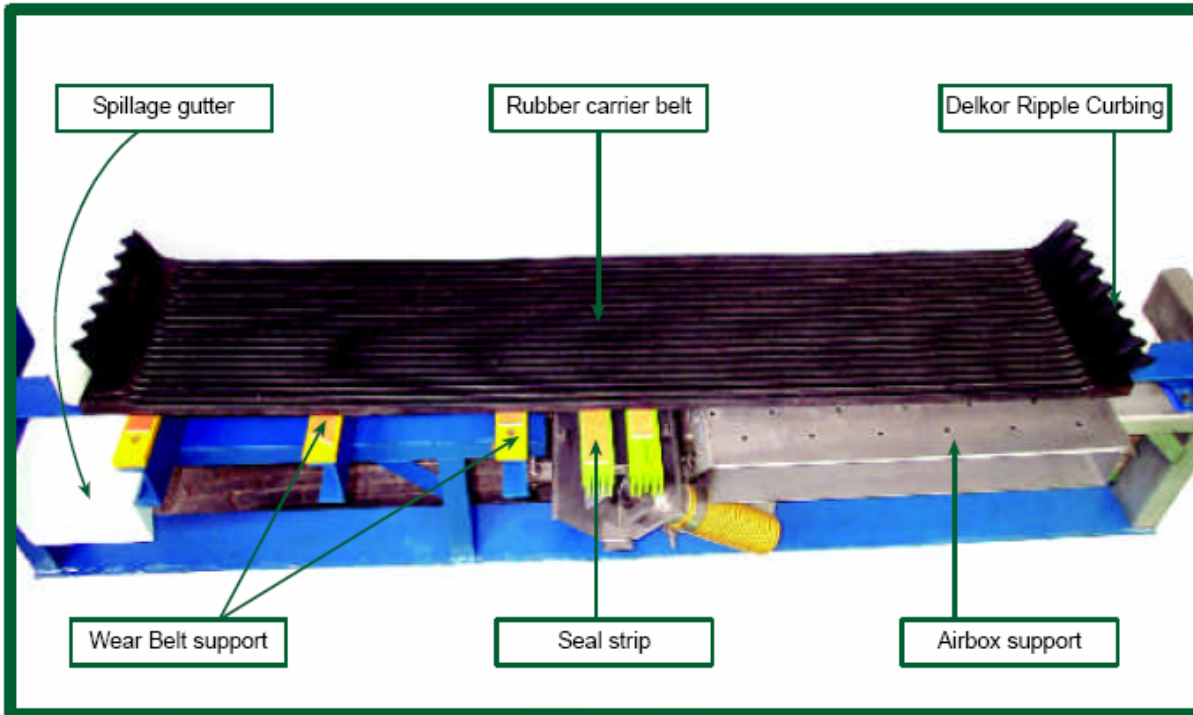
UNITED KINGDOM
DELKOR UK
Tel: +44-1764 417 079
Email: ebond@delkor.co.uk

SOUTH AMERICA
DELKOR (SOUTH AMERICA) LTD
Tel: +56 (2) 650 4702
Email: delkor@delkor.cl

CANADA
DELKOR INC
Tel: (604) 473 7767
Email: delkorinc@delkorglobal.com

THAILAND
DELKOR LIMITED
Tel: +66-2322 0507
Email: bills@delkorglobal.com

Cutaway of the Delkor Horizontal Belt Filter



Horizontal Belt Filters Filter Presses Linear Screens Thickeners Clarifiers Underground Settlers

AUSTRALIA
DELKOR PTY LIMITED
Tel: +61-2-9550 5111
Email: delkor@delkor.com.au

INDIA
DELKOR TECHNIK INDIA PVT. LTD
Tel: +91-80 28392823 / 2824
Email: delkor@delkorindia.com

UNITED KINGDOM
DELKOR UK
Tel: +44-1761-417 079
Email: ebond@delkor.co.uk

SOUTH AMERICA
DELKOR (SOUTH AMERICA) LTD
Tel: +56 (2) 650 4702
Email: delkor@delkor.cl

CANADA
DELKOR INC
Tel: (604) 473 7767
Email: delkorinc@delkorglobal.com

THAILAND
DELKOR LIMITED
Tel: +66-2322 0507
Email: bills@delkorglobal.com



www.delkorglobal.com

HORIZONTAL BELT FILTERS

BROCHURE N° 1 : FEATURES

BROCHURE N° 2 : CARRIER BELT

BROCHURE N° 3 : APPLICATIONS

The main belt is referred to as the carrier belt or transporter belt. Over the years Delkor have collaborated very closely with a world leading manufacturer of rubber components in the design and development of wide carrier belts. This involvement has led to the successful installation of the widest and longest Horizontal Belt Filters in the world.

• Belt Width

We can supply the following one-piece belt widths in a variety of thicknesses depending on the application and filter geometry:

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

• Rubber Grades

There are different grades of rubber available for various duties. As a general guide we utilise:

- Natural Rubber for most duties up to 60°C
- SBR for most duties between 60 & 100°C
- Chlor-Butyl for temperatures of < 100°C or high concentrations of acid at temperature.
- Neoprene with the presence of solvents.

• Belt Splicing

The grade of rubber, filter application and site conditions will normally determine the type of splice required. As a general guide:

- Operating temperatures
 - * <70°C : Cold bonded
 - * >70°C : Hot bonded

• Belt Life

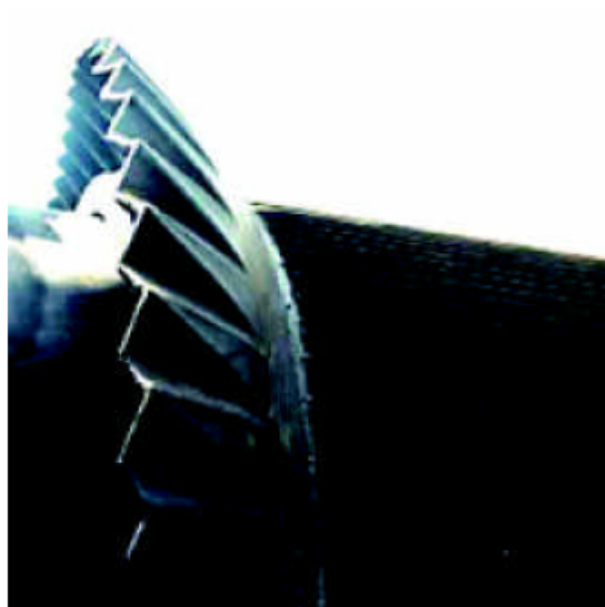
Many variables, typically the operating conditions, affect the life expectancy of the belt.

High temperatures, fast belt speeds and aggressive feed materials contribute negatively to the belt life. To maximise belt life, it is essential that the belt support system, vacuum box assembly and pulleys are correctly aligned, levelled and kept in good operating condition.

• Curbing

Rubber Curbs are bonded or vulcanised to the edges of the carrier belt to prevent the inadvertent spillage of feed material and cake washwater. They also serve as a vacuum seal.

Straight wall curbing was originally utilised on all sizes of filter. The rapid deterioration of this curbing due to stretching led to the development of a more cost effective curbing by Delkor in 1983. This major innovation, Delkor Ripple Curbing, gave rise to superior sealing and life cycle, and is utilised today by all manufacturers of Belt Filters in recognition of its unique qualities.



Horizontal Belt Filters Filter Presses Linear Screens Thickeners Clarifiers Underground Settlers

AUSTRALIA
DELKOR PTY LIMITED
Tel: +61-2-9550 5111
Email: delkor@delkor.com.au

INDIA
DELKOR TECHNIK INDIA PVT. LTD
Tel: +91-80 28392823 / 2824
Email: delkor@delkorindia.com

UNITED KINGDOM
DELKOR UK
Tel: +44-1764 417 079
Email: ebond@delkor.co.uk

SOUTH AMERICA
DELKOR (SOUTH AMERICA) LTD
Tel: +56 (2) 650 4702
Email: delkor@delkor.cl

CANADA
DELKOR INC
Tel: (604) 473 7767
Email: delkorinc@delkorglobal.com

THAILAND
DELKOR LIMITED
Tel: +66-2322 0507
Email: bills@delkorglobal.com



www.delkorglobal.com

HORIZONTAL BELT FILTERS

BROCHURE N° 1 : FEATURES

BROCHURE N° 2 : CARRIER BELT

BROCHURE N° 3 : APPLICATIONS

Drying Applications

- Drying of flotation concentrates or tailings including:
 - Coal
 - Copper
 - Lead
 - Nickel
 - Zinc
 - Pyrite
 - Phosphate Rock
 - Magnetite
- Drying of heavy and coarse materials including:
 - Ilmenite
 - Zircon
 - Paper effluent
 - Silica sand
 - Tin
 - Sand
 - Rutile
 - Chromite
 - Iron ore
 - Power station ash
 - Bagasse boiler smuts
 - Andalusite

Classification

One of the advantages of the Horizontal Belt Filter is the gravity feed method. By feeding the slurry on top of the filter, the coarser particles tend to settle out first in the form zone forming an effective precoat layer.

This allows the balance of the particles to pack tightly, thereby reducing voidage, resulting in higher filtration rates and lower residual moistures.

This natural phenomena can be further enhanced with the use of a cyclone on filter feed by removing the fines. These fines are recirculated to a thickener for water removal, and then introduced to the filter feed together with the cyclone underflow. This has the effect of increasing the feed density.

Cake Discharge

Cake discharge on most applications is spontaneous, but the use of a Delkor water slide ensures complete cake removal in the event of wet, sticky products.



Coal froth flotation concentrate dewatered on 27 m² Delkor Filter.

Horizontal Belt Filters Filter Presses Linear Screens Thickeners Clarifiers Underground Settlers

AUSTRALIA
DELKOR PTY LIMITED
Tel: +61-2-9550 5111
Email: delkor@delkor.com.au

UNITED KINGDOM
DELKOR UK
Tel: +44-1761 417 079
Email: ebond@delkor.co.uk

CANADA
DELKOR INC
Tel: (604) 473 7767
Email: delkorinc@delkorglobal.com

INDIA
DELKOR TECHNIK INDIA PVT. LTD
Tel: +91-80 28392823 / 2824
Email: delkor@delkorindia.com

SOUTH AMERICA
DELKOR (SOUTH AMERICA) LTD
Tel: +56 (2) 650 4702
Email: delkor@delkor.cl

THAILAND
DELKOR LIMITED
Tel: +66-2322 0507
Email: bills@delkorglobal.com

Washing Applications

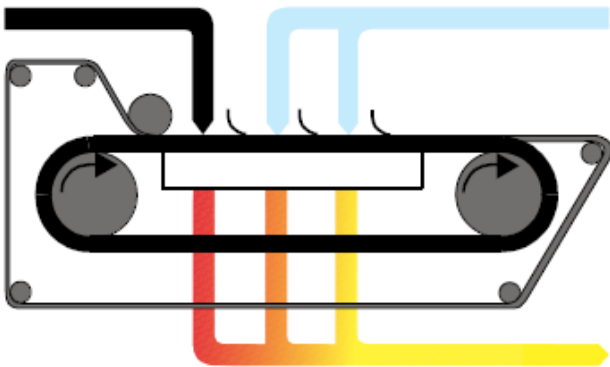
High extraction efficiencies are the key to profitability in most washing applications whether Gold, Uranium, Phosphoric acid, Copper or Alumina.

Washing 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 form zone is the secret to avoiding contamination of washwater. This is achieved with double rubber dams on the filter table, spades 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.

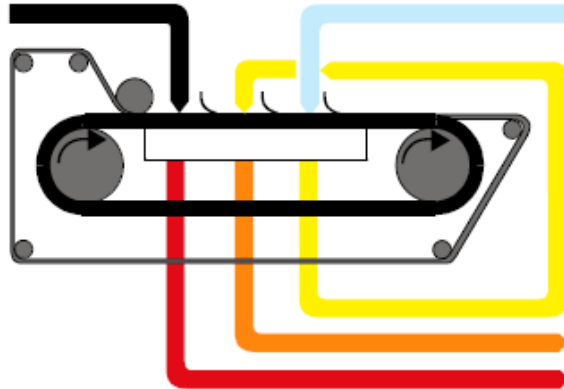


Typical applications:

- Gold and silver recovery 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

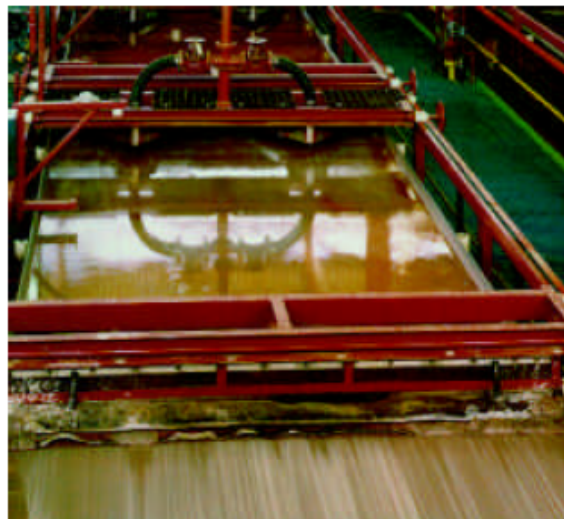
Counter-current washing

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 zones and vacuum box zones can be effectively and easily divided to give optimum washing.



Typical applications:

- Acid Leached Copper and Cobalt
- Washing of Nitrates
- Hemi- and Di-hydrate calcium sulphate from phosphoric acid
- Recovery of alumina from sintered mud
- Uranium recovery after acid or carbonate leaches
- Recovery of yellow cake
- Cellulose pulp washing
- Recovery of brine
- Soda ash
- Vanadium and Tungsten recovery
- Sugar cane mud washing.



Horizontal Belt Filters Filter Presses Linear Screens Thickeners Clarifiers Underground Settlers

AUSTRALIA
DELKOR PTY LIMITED
Tel: +61-2-9550 5111
Email: delkor@delkor.com.au

INDIA
DELKOR TECHNIK INDIA PVT. LTD
Tel: +91-80 28392823 / 2824
Email: delkor@delkorindia.com

UNITED KINGDOM
DELKOR UK
Tel: +44-1761 417 079
Email: ebond@delkor.co.uk

SOUTH AMERICA
DELKOR (SOUTH AMERICA) LTD
Tel: +56 (2) 650 4702
Email: delkor@delkor.cl

CANADA
DELKOR INC
Tel: (604) 473 7767
Email: delkorinc@delkorglobal.com

THAILAND
DELKOR LIMITED
Tel: +66-2322 0507
Email: bills@delkorglobal.com