

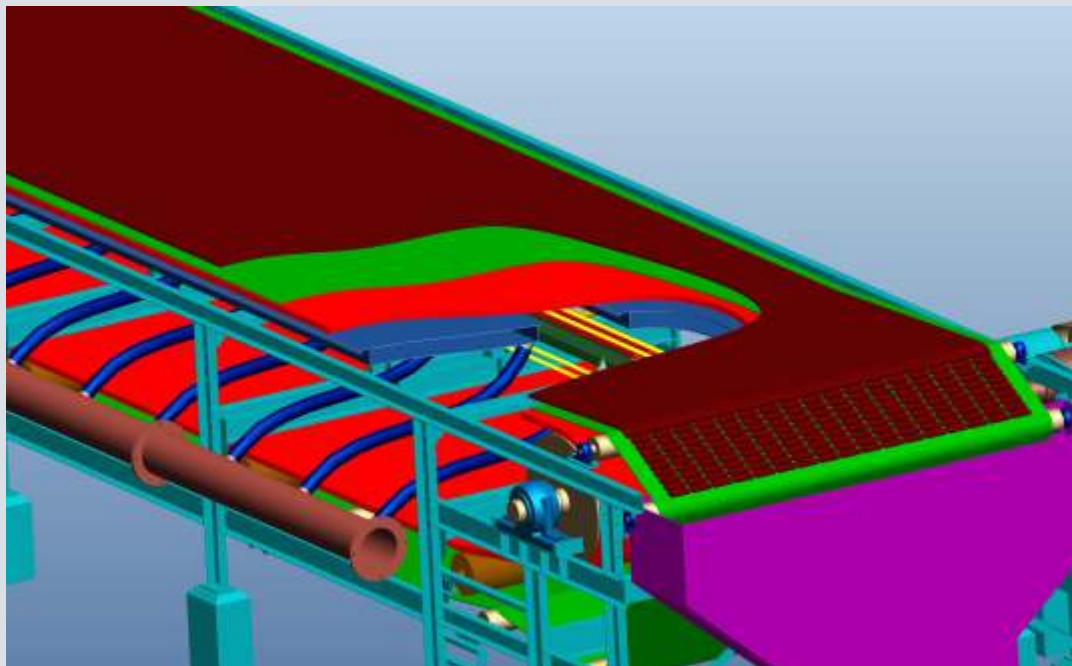
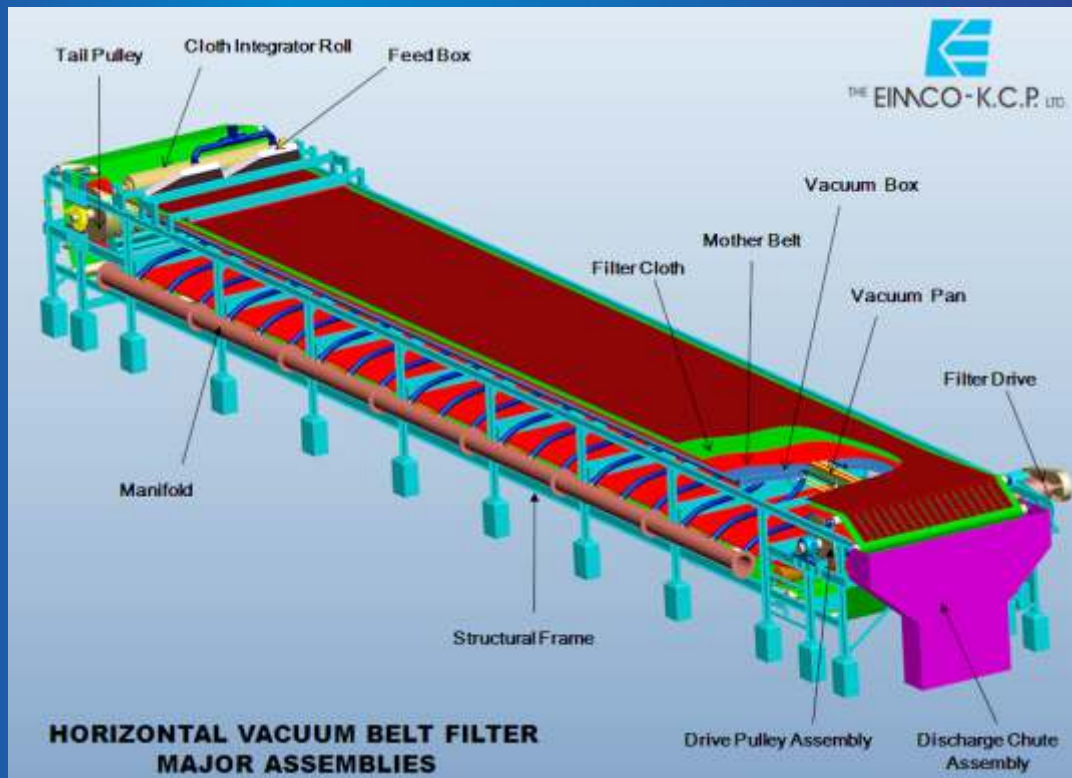


THE EIMCO-K.C.P. LTD.



Horizontal Vacuum Belt Filter

# Horizontal Vacuum Belt Filter



## THE EIMCO-K.C.P. HORIZONTAL VACUUM BELT FILTER

A highly versatile device in Metallurgical, Chemical, and food processing flowsheets for high tonnage production at low operating cost.

The Eimco KCP Horizontal Vacuum Belt Filter offers most of the operating capability of a bottom pickup vacuum filter. Additionally, it provides the operating flexibility to meet particular processing requirements. Unique Benefits --- Simplicity of operation and fluctuations, ability to handle feed with low & high solids concentrations and highly effective cake washing for increased product recoveries and profitability.



## PRINCIPLE

Inlet feed slurry is distributed to the full width of the mother belt. The feed distribution boxes, mounted on top of the filter with their unique design, ensure uniform distribution which results in superior cake formation. Variants of Feed box are also available to suit incoming feed.

The feed slurry forms cake on the surface of the filter cloth which is carried out by applying vacuum to the drainage belt. The filtrate flows through the mother belt grooves and is drained out through the center hole of the belt.

Washing in the form of co-current or counter current is carried out according to the process requirement which ensures superior product recovery.

The whole belt with the load of cake is supported by air box design with independent air blower, wherein air pressure keeps friction at extremely low level, enhancing the life of the mother belt.

Cake at the end of the traveling belt is broken down with a series of rollers and then discharged fully into the trough.

On the return side, the belt and filter cloth are washed and cleansed, to prepare the same for the next cycle.

The pneumatic auto-alignment system, for cloth and guide rollers for the belt, keeps them in alignment with the original cycle. On its return, the belt and cloth are supported by a series of rollers mounted on anti-friction bearings.

## WIDE RANGE OF APPLICATIONS

EIMCO-K.C.P. offers the most reliable and efficient horizontal belt filters in the field that are designed for the separation of liquids and solids in various fields, as listed below:

- Coal, Iron ore, Lead, Copper, Zinc, Nickel etc.
- Flue Gas Desulphurization (FGD)
- Washing of Gypsum Cake
- Pyrite
- Magnetite
- Phosphate Rock
- Chemical Processing



HBF After assembly



134 m<sup>2</sup> HBF in Operation

## CONSTRUCTIONAL FEATURES

- EIMCO KCP filters are available from 5 sq.m to 200 sq.m with belt sizes ranging from 0.2 m to 4.2 m width. The belts are imported as factory vulcanized (endless) from reputed suppliers in Europe
- Rigid structural main frames and cross frames with higher load carrying capacity
- German Planetary drive with variable frequency speed drives, offering speed range up to 30 meters per minute
- Head pulley and tail pulleys with rubber covered, grooved to provide prevention of belt slippage. Shaft ends with suitable material is offered according to the process
- Standard pulley bearings from reputed makes of SKF / FAG for the pulleys and rollers
- Belt support deck with air float as standard feature. Optional systems of roller design / slide rails are also provided
- Vacuum pans designed to provide high liquid handling with material suitable to process
- Maintenance: Air operated lowering mechanism of pan is provided with ample space for wear belt change
- In-house manufacturing capability with assured quality and certified ISO 9001 company

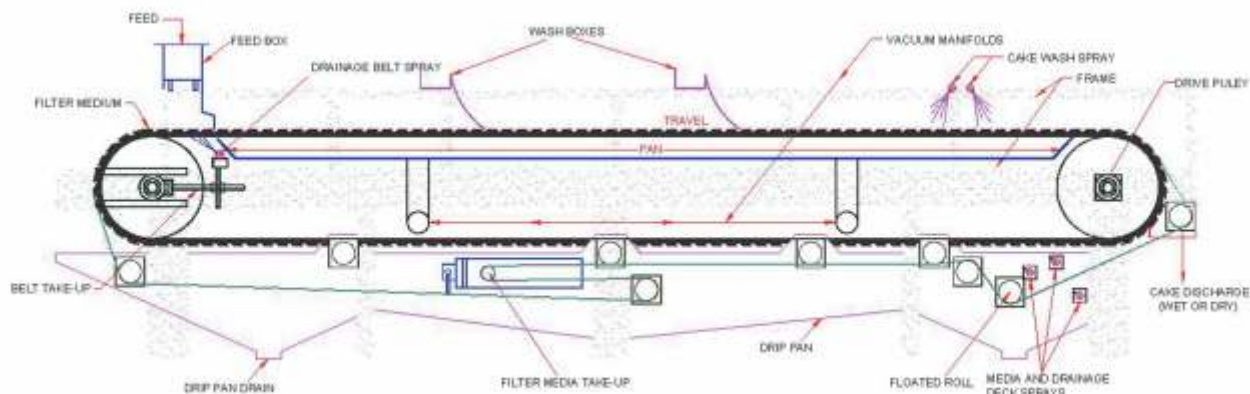


## BENEFITS

- Higher Filtration rates with minimum moisture content
- Lower operating and maintenance costs due to efficient & sturdy design
- Low friction advanced air box mother belt support system. Variants can be offered with slide rails or roller decks support system
- Controlled belt aligning systems results in long maintenance free life
- Multi-stage washing
- Longer life of mother belt due to less friction of air box support
- Drier filter cake output
- As the length and process time of each belt filter is configured to suit the application for which it is intended, superior results can be achieved

134 Sq-m Horizontal Vacuum Belt Filter supplied for Iron ore beneficiation project.

## Schematic Diagram Shows Operating Simplicity, Advantages of EIMCO KCP Horizontal Vacuum Belt Filters.



### ADVANTAGES OF TOP FEED OPERATION

- Eliminates the problems of cake forming from materials which are difficult to suspend or too heavy to draw up on a bottom pickup machine
- All feed material is processed. No slurry inventory remains as with a bottom feed machine
- Operating flexibility enables feed changes, process fluctuations or temporary surges without problems
- Simplicity of operation provides easy control and adjustment
- Complete visibility of the HBF surface and feedbox as well as convenient location of simplified controls, make this one of the easiest of all processing machines to operate and maintain
- The Eimco-K.C.P. HBF is in-fitted with automated controls for adequate instrumentation
- The Eimco-K.C.P. HBF is a heavy-duty machine designed to meet the requirements of around-the-clock, seven day operation in the process industries.

### CAKE WASHING CAPABILITY

- Unlimited flexibility and efficiency in cake washing can be achieved on Eimco-K.C.P. HBF
- Spray or weir box application in single or multiple stages and counter-current washing is available
- Effective washing of the cake produces much higher recoveries of the soluble
- Length of the washing time is easily controlled and can be adjustable
- Separation of wash filtrates minimizes intra-stage contamination and insures maximum recovery of solubles
- Wash is applied evenly over the entire surface of the machine. There is no concentration of wash in small areas or dilution in large areas
- To minimize fresh water requirements, the filter media wash can be separated and recycled to the cake wash or for re-pulping of the cake where this is desirable

### TESTING & SIZING TO ENSURE THE END RESULT

With an expertise of more than 45 years of field experience, EIMCO K.C.P. offers accurate, reliable bench scale and pilot test works to take care of the predictable behavior of slurry in the field.

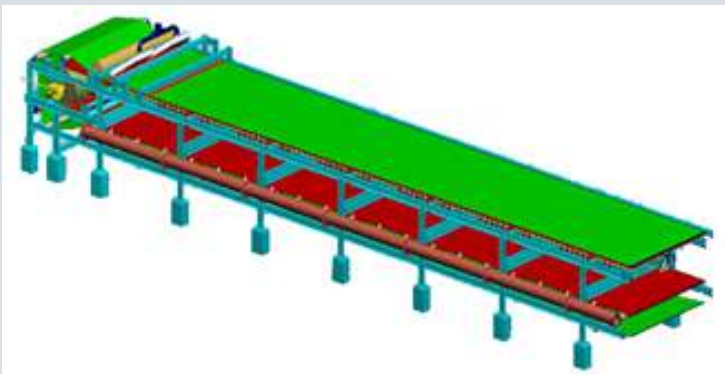


## Cake Discharge and Moisture Control

- The complexities of many processes which require close control of cake moisture and product content can be better accomplished on an Eimco-K.C.P. -Horizontal Vacuum belt filter
- Cake moisture is reduced by long drying times controlled by the speed of the machine. Steam or hot air drying is helpful depending on process applications
- If the cake must be dried in subsequent steps of the process, the reduced moisture in the cake substantially lowers the size of the dryer and the fuel required. In some operations where the Eimco-K.C.P. filter has been applied, this figure has been reduced by as much as 50 per cent
- The Filter belt aligning device has made possible the continuous belt operation which allows media and cake to travel away from the extraction deck and over a small diameter roller for discharge. Complete discharge of all cakes, even thin and sticky cakes, is an operating standard of the Eimco-K.C.P. HBF
- Apart from thin cake thickness, cakes as thick as 3 to 5 inches can also be handled on the Eimco-K.C.P. HBF
- As cake discharge is away from the extraction surface, cake conveying is easy and simple
- The cake can be handled with minimum of particle degradation on discharge.



64sq.m HBF supplied for copper concentrate application in Congo



Feed side cross sectional view of HBF



## Installation and commissioning

Eimco-K.C.P provides complete installation or supervision as required. We are always on call to assist with the supervision of erection, installation, check-outs and process start-ups.

## Supports

Our field engineers, technicians, and supervisors are adept at assessing problems and offering solutions based on their technical training and broad base of field experience.



Erection activities of 64 m<sup>2</sup> Horizontal Vacuum Belt Filter at Congo for Copper concentrate application.



Erection activities of 134 m<sup>2</sup> Horizontal Vacuum Belt Filter at Barbil, India for Iron ore beneficiation application.

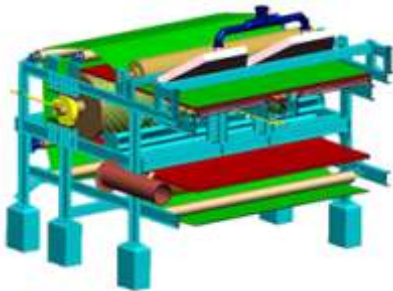


The Eimco K.C.P. Ltd. - Chennai office and Work shop.

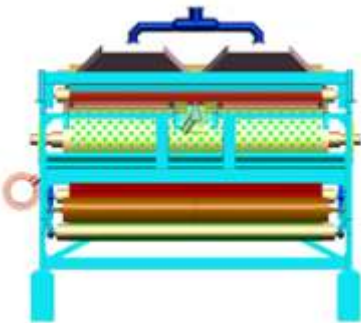
## QUALITY STANDARDS

The EIMCO-K.C.P. Ltd. operates and maintains its manufacturing facilities at Ambattur, Chennai, INDIA - ISO 9001 Certified by Lloyds Register Quality Assurance (LRQA).

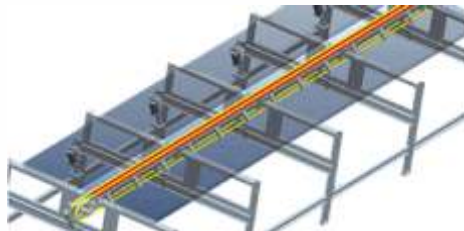
Feed end View



Filter Frame



Feed end cross sectional



Vacuum Pan Assembly

### Regd. Office:

The EIMCO-K.C.P. Ltd. Ramakrishna  
Buildings, 239 Anna Salai,  
Chennai - , 600 006 India  
Phone: 044-2855 5171  
Fax: 044-2855 5863  
E-mail: [ekcp@vsnl.com](mailto:ekcp@vsnl.com)  
[info@ekcp.com](mailto:info@ekcp.com)  
Website: [www.ekcp.com](http://www.ekcp.com)  
Mobile: 94440 86921/ 94440 86920

### Branch Office:

231, Arun Chambers, J. Dadaji  
Road, Mumbai-400 034 India  
Phone: 022-2352 4608  
E-mail: [eimcokcp@vsnl.net](mailto:eimcokcp@vsnl.net)

### Factory:

No. 11-A. 3rd Main Road,  
Industrial Estate, Ambattur.  
Chennai 600058 India  
Phone 044 – 2625 3375  
Fax: 044 – 2625 5085



ISO 9001:2008