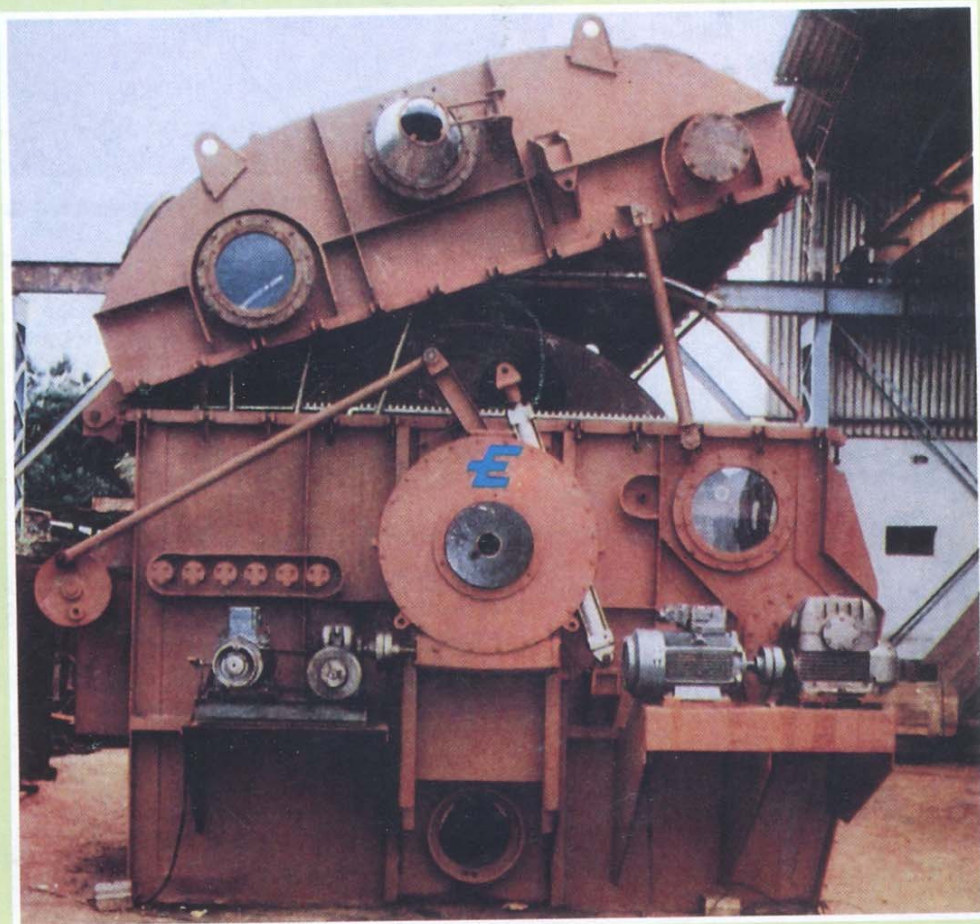


 THE EIMCO-K.C.P. LTD.



DRUM FILTERS

Drum Filter Capabilities

The unique capabilities of drum filters provide the widest performance range of any bottom pick-up vacuum application. Drum filters have the operating flexibility to handle either dewatering or clarification applications.

With increased emphasis on reducing capital, operating and maintenance costs, and improving productivity, it is important to recognize the variations in dewatering or clarification apparatus.

Design Experience

Not all filters are equal for every set of conditions.

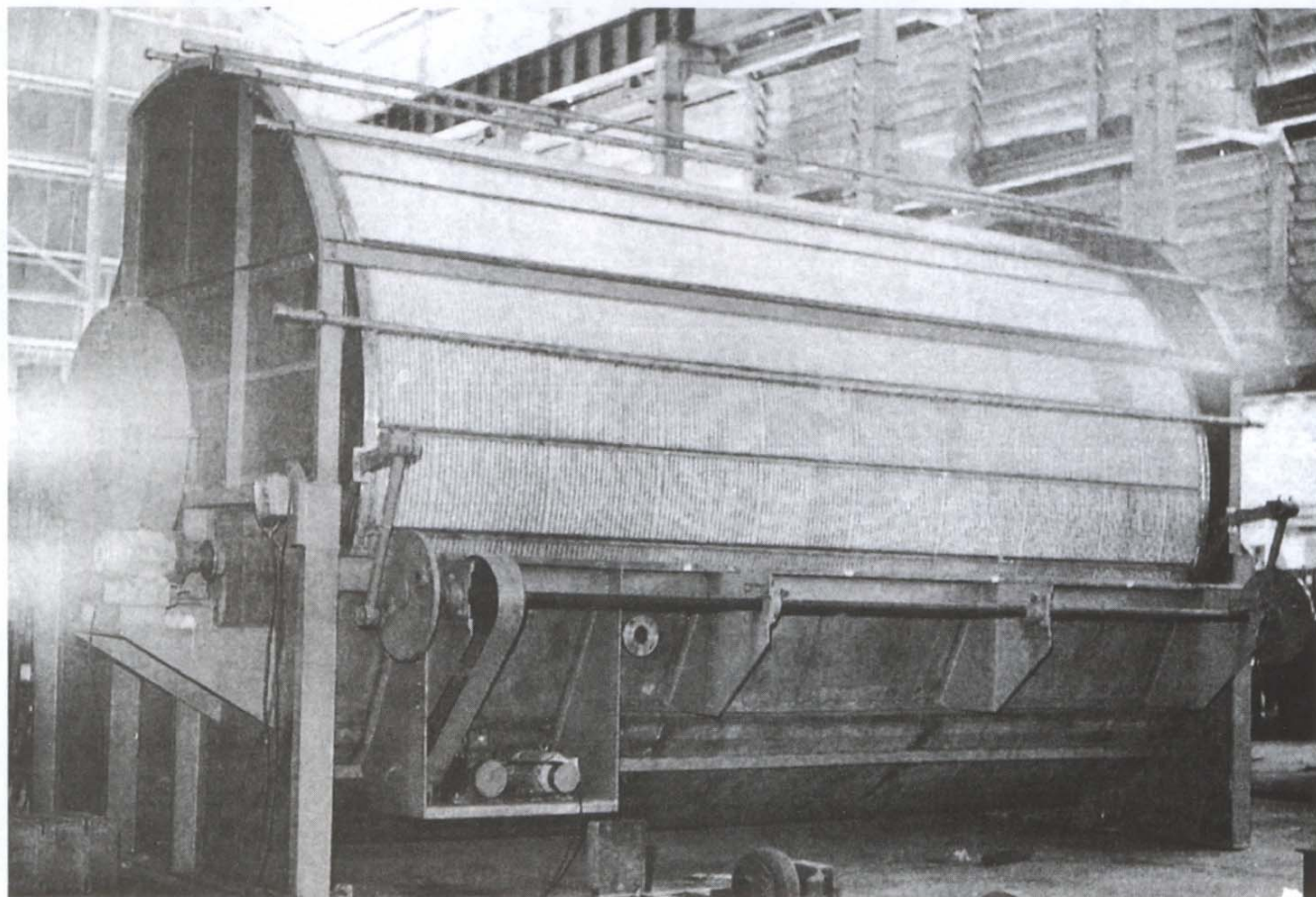
Eimco-K.C.P. engineers have experience with all filter types and have designed a variety of drum filters which provide high production rates at low operating and

maintenance costs. Also because the basic configurations of these drum filters have many interchangeable components, units can be tailored to meet individual needs at lower capital costs than is usual for customdesigned equipment.

Eimco-K.C.P. Advanced Technology

Drum filters frequently appear to be similar. One of the most important criteria in selecting a proper filter is the knowledge and expertise of the manufacturer.

Eimco-K.C.P. is highly qualified to recommend effective solutions for exacting liquid-solids separation requirements. Eimco-K.C.P. have laboratory facilities available for leaf testing of any process stream, or pilot plants are available for testing in your plant. Confidential reports will outline specific needs for your individual application and recommend solutions.



Operating Benefits and Advantages

High Capacity

- * Continuous high production for maximum filtering capacity-wide latitude in productivity per unit area.

Low Labour Cost

- * Minimum operator attention reduces operating cost.

Simple operation

- * Simplicity of design utilizing uncomplicated controls assures accurate, easy operation.

Positive Cloth Alignment

- * Filter cloth alignment on continuous belt discharge filters is maintained by simplified edge track mechanism.

Efficient Vacuum Use

- * High operating vacuums of 20 to 28 inches Hg., with

complete seals on all operating sections and minimum atmospheric air leakage delivers dryer cake at lower vacuum cost.

Positive Cake Discharge

- * Reduced Solids recycle.

Flexibility

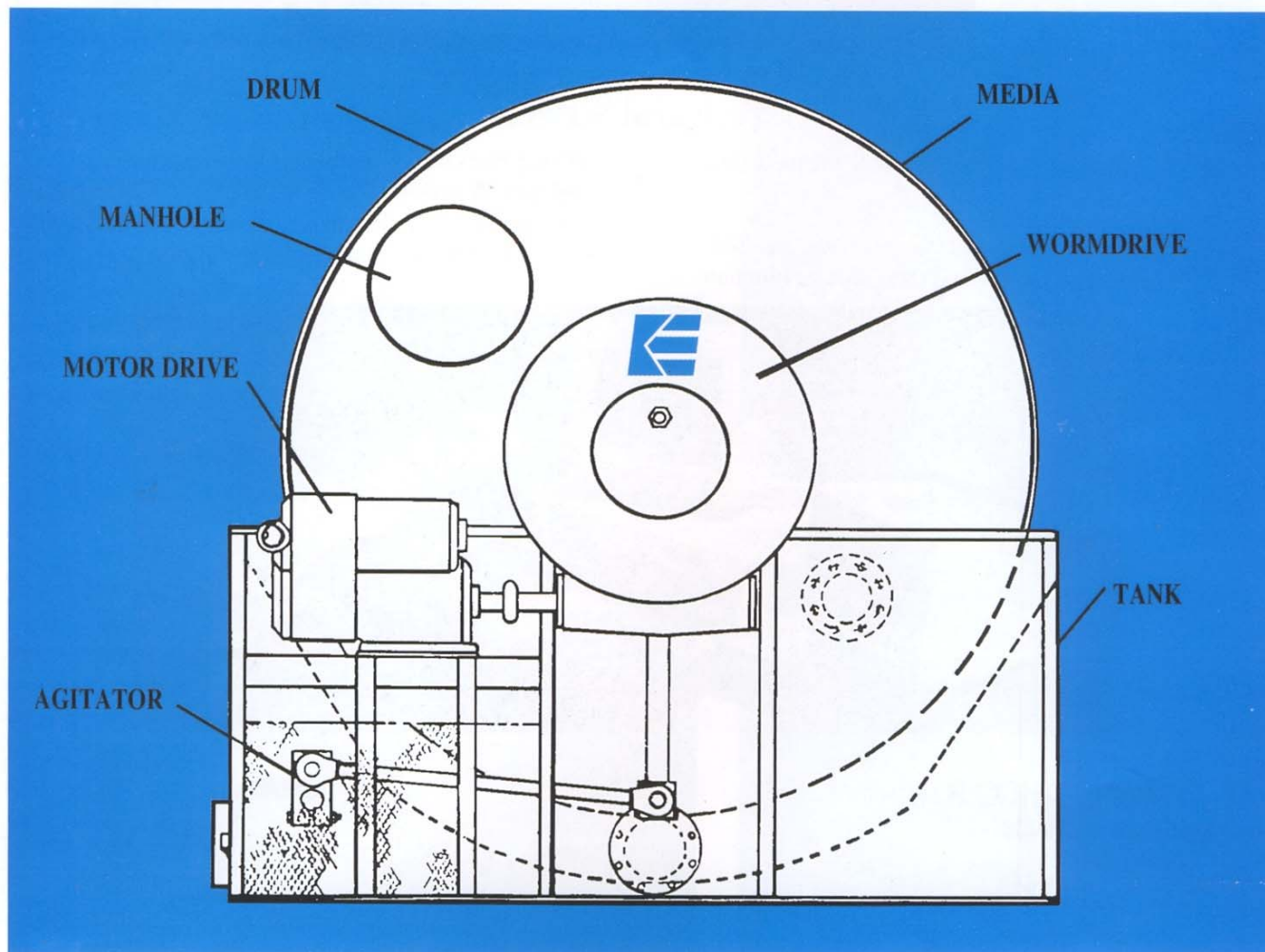
- * Ability to handle wide fluctuations in feed.

Excellent Filtrate Clarity

- * Feeds are frequently clarified to as low as 100 ppm and, with precoat design, clarities of less than 20 ppm can be achieved.

Effective Cake Washing

- * High purity of valuable product can be recovered with cake washing.



Continuous Vacuum Filtering

EIMCO-K.C.P. continuous vacuum drum filters are designed to handle the broadest range of slurries of any filter. This permits drum filters to be used in a variety of applications.

In order to minimize energy consumption, feed should be concentrated as much as possible prior to filtration. Pretreatment by flocculation in many industrial applications prevents media blinding by fine solids and improves consistency.

Vacuum filters allow a more complete separation of solids from liquids than other mechanical dewatering filters. Vacuum filters are not as dependent on specific gravity differentials for the degree of clarity, nor are they subject to upset due to variation in the process.

EIMCO-K.C.P. drum filters provide high filtration rates and have excellent washing characteristics. Wide variations are possible in cycle time to ensure optimum cake formation, dewatering and washing on any application flow-sheet. EIMCO-K.C.P. drum filters are ideally suited for filtering solids when cake washing is necessary when a uniform deposit of cake on the media is desired, or when the cake is difficult to discharge.

Several variations of drum filters are available, usually differentiated by the type of discharge mechanism.

EIMCO-K.C.P. has developed a basic drum filter incorporating pre-engineered components adaptable to all four discharge types - an economical approach to design selection. Variable submergence units are available with scraper blade, continuous belt, precoat, or string discharge.

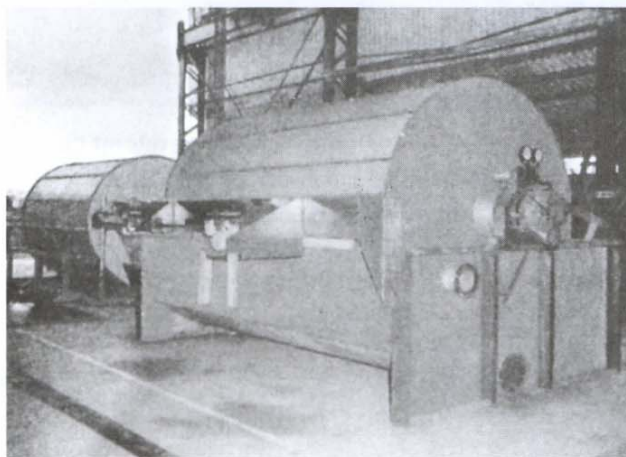
Operating Design Features

The Drum is mounted to rotate through the feed in the filter tank where cake or sludge is picked up on the media for ultimate discharge. The drum is of rigid box and gusset construction, with unitized end plates, for maximum strength. Weight of the drum is carried by fabricated steel trunnions which are an integral part of the drum - head. The drum head is reinforced with internal gussets. Drum heads and Division strips are completely sealed to prevent liquor infiltration or air leakage.

Manholes are provided to facilitate inspection and routine maintenance. The deck of the drum is constructed of a series of grids to permit rapid unobstructed filtrate removal. The drum shell is supported by accurately machined annular gusset rings to enhance trueness of surface and assure even rotation. The drum is rotated by a worm and wormwell drive and requires less maintenance.

An inboard valve with large diameter ports is provided for maximum hydraulic flow. Minimal restrictions reduce pressure drop. Little moisture entrapment occurs during operation. All pipes and connections have large diameters to make maximum use of vacuum with minimum turbulence. For Standard applications bronze/C.I. Highflow valve is employed.

All media rollers on continuous belt type mechanisms run on antifriction, sealed bearings for long operating life. The media belt is raised slightly over the end of the drum surface to seal the vacuum side. Consistent high vacuums result in high production rate and a drier cake.



As the drum rotates through the feed in the filter tank, vacuum is applied to dewater cake picked up on the media. Vacuum, cutoff occurs just prior to the cake discharge point.

Vapour-retaining hoods are available with any of the Eimco-K.C.P. drum filters for special applications.

Materials of Construction

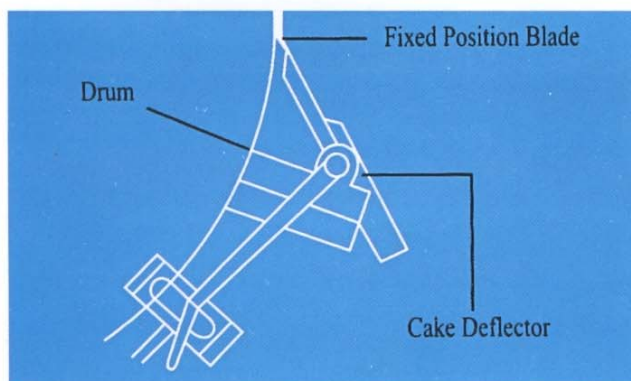
Eimco-K.C.P. drum filters have fabricated mild steel parts for standard applications. When required, rubber coverings and linings are available. For handling acids and other corrosive materials, stainless steel of various grades, can be offered.

Discharge Mechanisms

All Eimco-K.C.P. drum filters incorporate the basic unit features described in the "Operating Design Features" section of this brochure. However, four different discharge mechanisms are available and characteristics of each type are described below.

Scraper Discharge

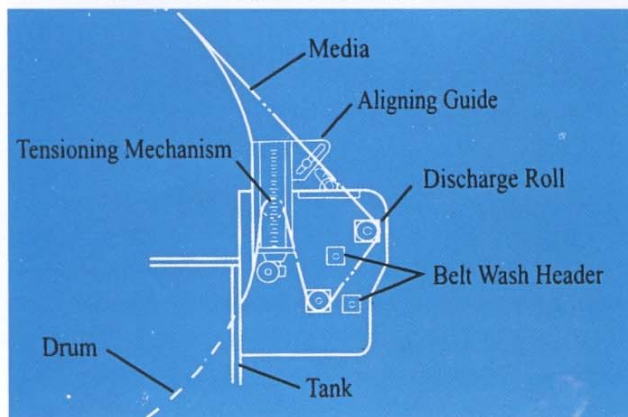
Eimco-K.C.P. Scraper discharge drum filters employ a fixed-position blade that is easily retracted for routine cleaning. This design is the simplest, most basic configuration. In specific applications, the cake discharge is assisted by a continuous blow of air/steam, which performs as a cake deflector in conjunction with the plastic scraper blade. This results in less wear and longer life of the media, and reduced maintenance.



Belt Discharge

During each cycle of a belt filter, the belt travels off the drum to a demooning bar and discharge roll. The abrupt change in the radius of the curvature causes the cake to cleanly break free, defelcting in onto the cake conveying system.

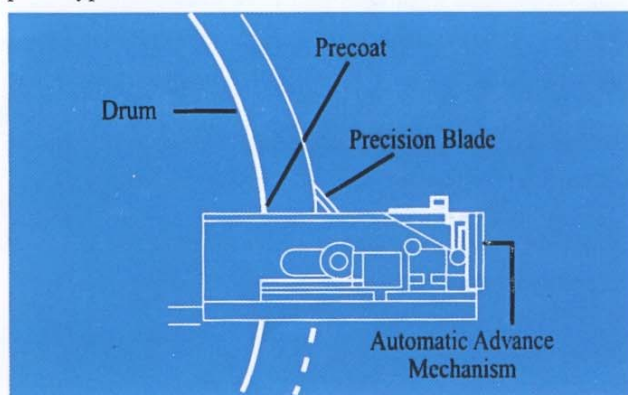
Cake as thin as 1.5 mm can be satisfactorily discharged on a continuous basis. After discharge, but prior to returning to drum, the cloth can be cleaned on both sides by high impact wash sprays to prevent subsequent blinding and assure continued high productivity and full filtering. The wash is performed away from the drum and discharge points to prevent contamination. Blinding by fines in the interstices of the cloth is prevented because suspended solids are cleanly removed from the media reducing any tendency for plugging. An acid wash system also is available to handle carbonaceous materials.



Precoat Discharge

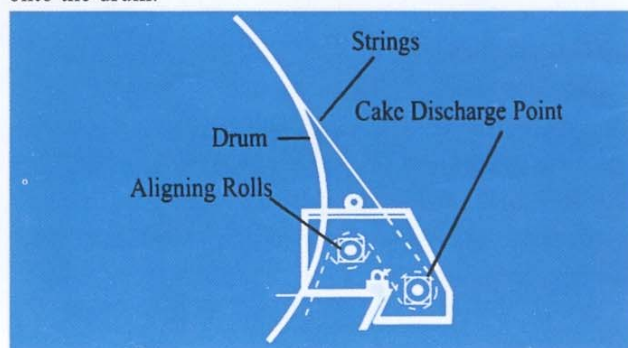
Eimco-K.C.P. precoat drum filters are coated with a bed of diatomaceous earth or similar material. During cycling a clear filtrate is obtained. When vacuum is applied, the liquid is drawn through the precoat material, and solids deposited on the precoat surface are removed along with a thin portion of the precoat by an advancing scraper blade, as the drum revolves. The blade operates independently of the drive to provide a "precision lathe" movement. Depending on the movement of the blade the drum can operate upto a week without retracting the blade to apply a new precoat bed. Precoat filters are recommended when small amounts of solids are to be removed from large volumes of liquids, for clarification or polishing of effluent, or for the filtration of material that produces sticky solids. They provide a high clarity of filtrate when the filtrate is the valuable product and the cake is to be discarded.

Continuous cycling with precoat discharge mechanisms reduces the cost of solids removal as compared to batch press-type mechanisms.



String Discharge

Eimco-K.C.P. string discharge type is one in which a cloth medium is caulked onto the drum. The strings leave the drum and travel over a small diameter discharge roll where the abrupt change in axis discharges the cake, the strings then go through a comb mechanism and are guided back onto the drum.



Testing and Pilot Plant studies

Eimco-K.C.P. has extensive facilities and evaluating the most cost-effective approach to filtration problems. The most accurate methods for determining the proper filter type and size involve beach scale or pilot plant testing. When not feasible, the only adequate substitute is the engineering knowledge and experience of the manufacturer.

Eimco-K.C.P. is one of the pioneers in drum filter design and has extensive experience with almost every possible application, including :

- * Chemical processing
- * Coal preparation plants
- * Petroleum Oils
- * SO₂ scrubber sludges
- * Steel mill wastes
- * Food processing
- * Distillery wastes
- * Organic sludges [primary, digested, activated]
- * Dairies
- * Pharmaceuticals
- * Iron ore processing
- * And many others

Pilot plant testing system is also available from Eimco-K.C.P. on rental to meet immediate testing and service requirements.



Technical Services

The technical staff includes both chemical and mechanical engineers.

Modern, computerized data processing services are used to optimize development work. Several vacuum filtration

investigations have been conducted by Eimco-K.C.P. engineers. A working knowledge of over a hundred types Filter media enables Eimco-K.C.P. to recommend the one which will best suit your Specific application.



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