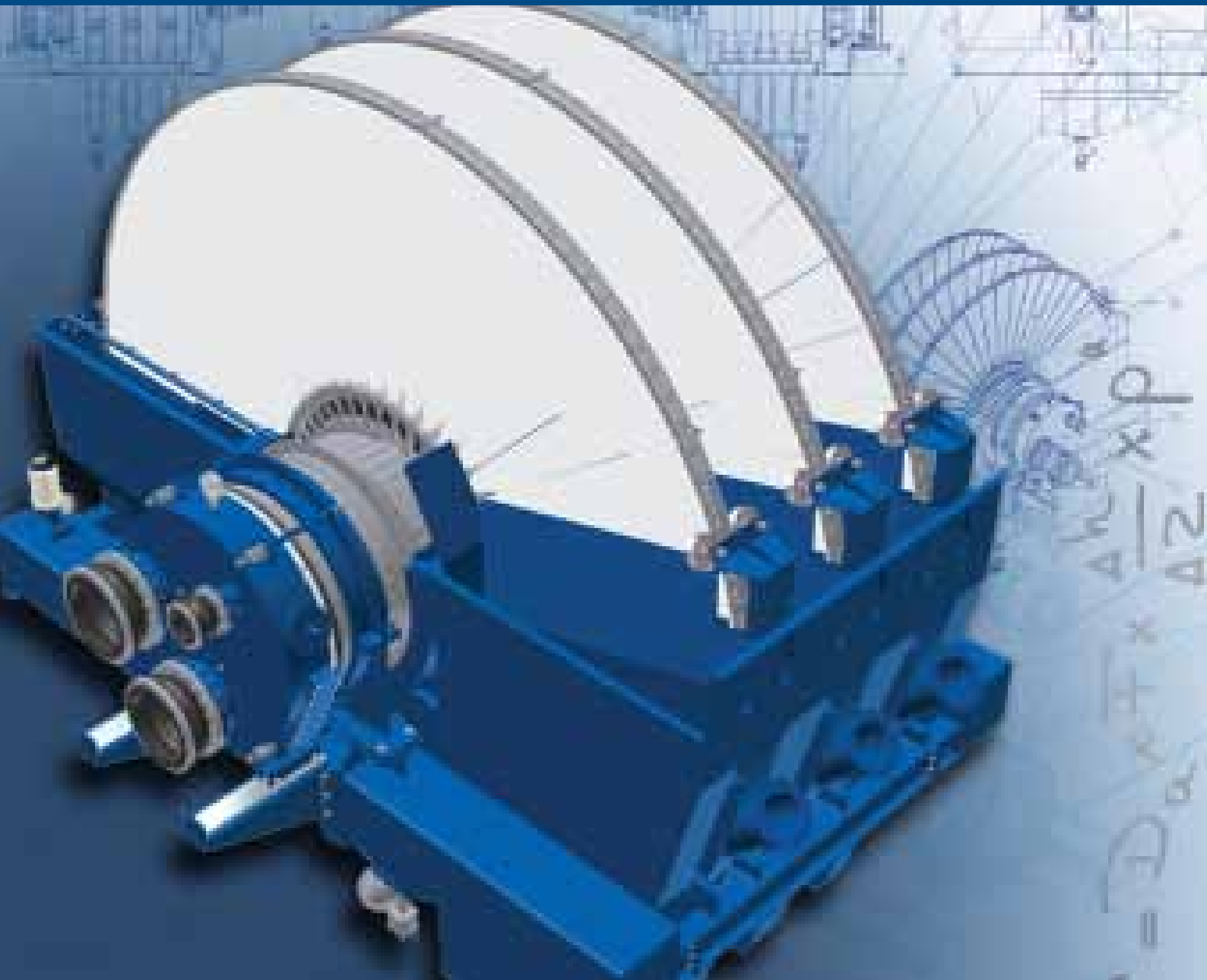


One Source

Dorr-Oliver Large Diameter Disc Filter



Improving productivity through technology

General

FLSmidth® is your proven specialist on Filtration equipment. FLSmidth provides conventional filtration equipment under the trusted brand names of DORR-OLIVER® and EIMCO®.

DORR-OLIVER and EIMCO have long been major pioneers and leaders in liquid/solid separation solutions. These well known companies and brand names each record over 100 years of technical innovation in the minerals processing industry.

In August 2007, DORR-OLIVER and EIMCO joined the worldwide operations of FLSmidth, complementing their cement and minerals divisions. With this added expertise and strength FLSmidth now combines longevity with one of the world's largest installed bases of original equipment operating under such well-known trademarks as DORR-OLIVER, EIMCO, Shriver®, and WEMCO®, brands that have long been synonymous with know-how, reliability, and performance.

Product profile

The primary application for DORR-OLIVER® Large Diameter Disc Filters is liquid/solid separation of seed hydrate in the precipitation circuit of the Bayer flowsheet.

Features

- Cake wash spray system
- Centralised and automatic grease lubrication system
- Quick bleeding valves for automatically emptying the trough
- Filter control and information system for effective filter operation in automatic mode

Design

The DORR-OLIVER Large Diameter Disc Filters are made of several parallel discs with a diameter of up to 6 m, providing maximum filtration area with minimum cost and operating space. Each disc is rotating in its own narrow trough. There are

no additional agitators required in the bottom of the troughs as circumferential disc rims are provided.

Operating principle

Slurry is fed into the trough and kept in suspension by an efficient agitation effect of the disc paddles which maintain homogenous slurry providing uniform cake thickness, resulting in lower moisture and higher production. As the large diameter shaft rotates, the filter discs travel through the slurry. Vacuum is applied to the sectors as they enter the slurry and cake forms on the surface of the filter media. After the sector leaves the slurry, the continuous vacuum pulls air and filtrate through the inside of the sector into and along the trapezoidal channel of the main shaft and out through the large diameter valve to the vacuum receivers. Vacuum cut-off occurs just before the dewatered cake-laden sector approaches the discharge point.



Economic efficiency, high performance

Pressurized air then loosens the cake from the filter media and guided deflector blades direct the cake as it falls through the wide discharge chutes for removal. The slurry level in each trough can be adjusted to allow for higher filtration capacity or lower cake moisture.

The main shaft

The main shaft is of large diameter and contains 40 internal trapezoidal manifold sections suitable for effective filtrate drainage at highest flow rates. The main shaft is connected to the HiFlow distribution valve accommodating liquid and pneumatic flows without restriction. It is optimized with the main emphasis on capacity increase and easy maintenance and well adjustable to allow for higher filtration capacity or lower cake moisture.

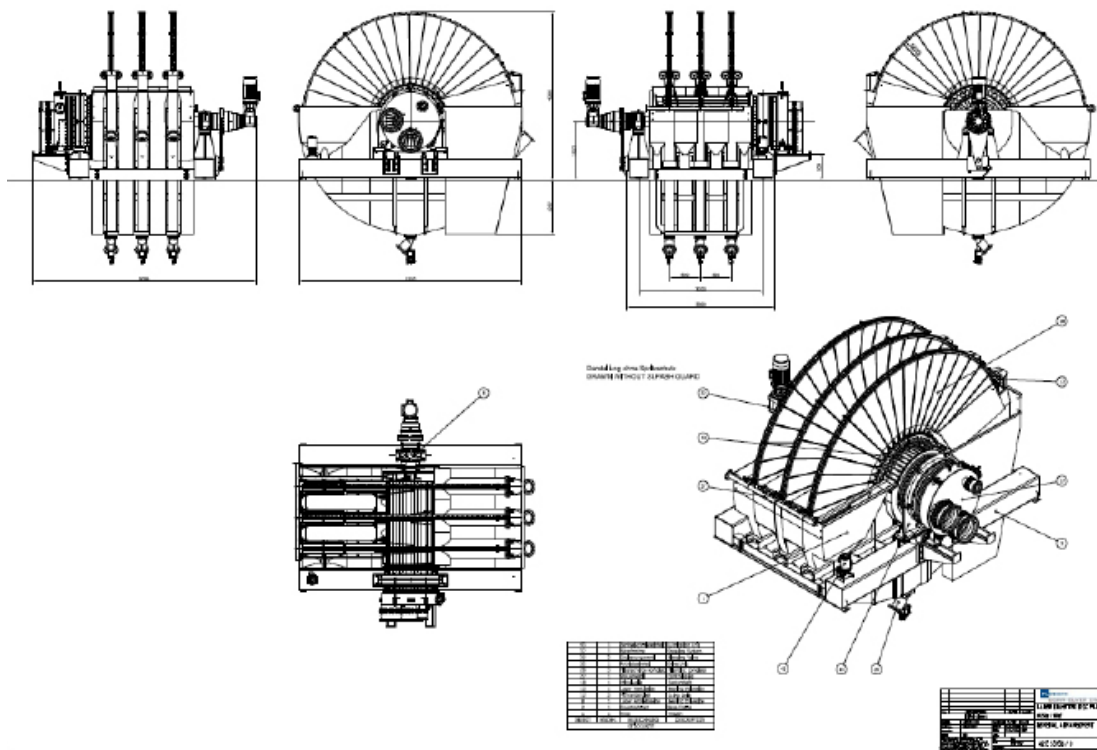
The Large Diameter Disc Filter is provided with a variable speed disc drive system and level control measurement allowing adjusting the filter at the optimum point of operation.

The sectors

Each filter disc comprises 40 single sectors with surrounding rim locked into the filtrate channel by means of a bayonet device and sealed with a rubber sleeve. The thickness of each sector is increasing progressively from the outer peripheral to the outlet nozzle (trapezoidal section). For drainage of the filtrate the filter cloth is supported by a waved wire net. The filter discs are designed to allow easy handling and installation of the sectors. Locking of the discs is by a bayonet device only, resulting in a minimum downtime required for the redressing of the sectors with new filter cloth bags.



Standard Sizes



Disc Diameter (m)	5.5				6.0			
No. of Discs	1	2	3	4	1	2	3	4
Filtration Area (m ²)	40	80	120	160	47.5	95	124.5	190
A (mm)	6200	6200	6200	6200	6700	6700	6700	6700
B (mm)	5750	5750	5750	5750	6250	6250	6250	6250
B* (mm)	4290	4290	4290	4290	4290	4290	4290	4290
C (mm)	1460	1460	1460	1460	1700	1700	1700	1700
D (mm)	3800	4600	5400	6200	4400	5200	6000	6800

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