Metso:Outotec

CC filters

Efficient dewatering and washing solution





High performance with low operating costs

Metso Outotec CC filters help minerals processing plants around the world to achieve outstanding process performance and with low operating costs.

Efficient dewatering and washing, competitive investment costs, low installation and operating costs, and high environmental and personnel safety protection ensure unrivalled customer value.

The unique design of the Metso Outotec CC filter utilizes microporous ceramic sectors and filter media, as well as a durable plastic frame instead of a conventional filter cloth. Capillary action in the micropores creates high suction without the need for large vacuum pumps, which consume large amounts of energy. The ceramic disc's micropores also ensure an extremely clear filtrate. Ancillary equipment is integrated into the CC filter, making it simple to install, operate, and maintain.

Benefits:

- High vacuum and dry filter cakes
- High filtration rates
- Very low energy consumption
- Extremely clear filtrates
- Simple installation, operation, and maintenance
- Integrated filter and ancillaries system
- Continuous, efficient cake discharge
- High availability
- No filter cloths
- Increased safety with closed-circuit monitoring system



Product features

Compact design
The Metso Outotec CC has a compact and simple design. The filter unit includes a control panel, vacuum pump and filtrate tank, drum and agitator drives, and an integrated ultrasonic cleaning system. The compact design eliminates the need for the large vacuum installations and complicated filtrate handling systems that are required with a conventional vacuum filter system.

Efficient and durable
The filter discs are made out of Metso Outotec Hybrid CC sectors that have a membrane with uniform micropores, which create suction through capillary action. This microporous filter medium allows only liquid to flow through. The filtrate is drawn through the ceramic sectors as they are immersed in the slurry bath, and a cake forms on the surface of the discs. Despite an almost absolute vacuum on the filtrate side, no air penetrates the filter media.

The ceramic material is strong, hard, and wear resistant, which guarantees a long lifetime for the filter plates under normal operating conditions. Good corrosion resistance and high durability allow the use of highly effective cleaning methods that ensure the consistent high performance of the ceramic discs.

Low energy consumption
CC filters require only a small (i.e. 5.5 kW) vacuum pump on a 144 m2 filter to transfer the filtrate from the discs to the filtrate receiver. The filter cake is removed from the ceramic discs with scrapers, eliminating the need to use compressed air for discharge.

Long-lasting scrapers
The filter is equipped with long-lasting ceramic scrapers made of high-grade aluminum oxide. The scraper blades are fitted on rigid, adjustable arms. The scrapers are adjusted to leave a thin residual cake in order to prevent wear on the filter media itself. The scrapers have a lifetime of over 12 months in normal operating conditions.

Automatic regeneration
The filter plates are regenerated by continuous backwash as well as periodic chemical and ultrasonic treatment to ensure maximum productivity. This eliminates the need for additional auxiliary equipment, which in turn minimizes the filter unit's footprint and simplifies maintenance.

Applications
Metso Outotec CC dewatering system is an exceptionally versatile solution for mineral and mining applications. The disc material is inert, resistant to almost all chemicals and slurry temperatures, and has a long operational life. CC filters are best suited to filter feed slurries with consistent, high solids concentration, such as base metal concentrates, iron ore, chromite and ferrochrome, as well as tailings.

Example applications include:
- Copper
- Gold
- Cobalt
- Chromite
- Iron
- Nickel
- Zinc
- Lead

Key benefits

High operational availability
The dependable, low-maintenance system ensures high availability. The durable materials and simplified design mean the unit requires only occasional maintenance and can run continuously without the need for operator intervention.

Environmentally safe
The CC filter has been designed with the safety of the environment and personnel in mind. The filtrate has exceptionally low suspended solids content and can therefore be recycled without further treatment. Furthermore, there is no filter cloth to dispose of. As an option, CC filters can be equipped with a recycling system that reduces consumption of the filter media regeneration agent by 90%.

Low energy consumption
Due to the capillary action in CC filters, the energy consumption for dewatering is exceptionally low.

Continuous, automatic operation
The operating principle is based on continuous, automatic operation. The cake scrapers ensure a continuous, even discharge of dewatered solids.

Low process costs
CC filters produce extremely dry filter cakes that meet the requirements for transportation. In iron and chromite pelletizing, the consistent low moisture levels reduce the need for binder addition and create stronger pellets.

Minimal maintenance
The robust disc construction and low number of wear parts help keep maintenance to a minimum. The simple construction with low dependency on auxiliary equipment makes the CC filter one of the most reliable dewatering technologies available.

Fast delivery and simple installation
Thanks to our reliable in-house manufacturing processes, use of standard components and modular construction, delivery time is only a few months. Metso Outotec CC filters with integrated auxiliary equipment are delivered fully assembled and tested to enable quick and simple installation.







Metso Outotec CC range

Metso Outotec CC filters are available in a wide range of capacities, from test-filter size (CC-1) with a filtration area of 1 m^2 to the CC-144 with a filtration area of 144 m^2. CC Capillary Action filters are suitable for a variety of different process and throughput requirements.

CC HiFlow filters are used in applications where capacity and filtrate flow are high. In addition to higher performance, HiFlow filters offer a higher degree of automation and control for plants where constant residual moisture is crucial.



CC Filter		CC-15	CC-30	CC-45	CC-45 HiFlow	CC-60	CC-60 HiFlow	CC-144
Filtration area	m^2	15	30	45	45	60	60	144
Filter media	-	M20 or Blue 24	M20 or Blue 24	M20 or Blue 24	M20	M20 or Blue 24	M20	M30
Discs/sectors, disc	/	5/12	10/12	15/12	15/15	20/12	20/12	12/15
Disc diameter	mm	1,900	1,900	1,900	1,900	1,900	1,900	3,800
Main dimensions	Length mm	4,050	5,600	7,040	7,210	8,530	8,750	8,571
	Width mm	3,300	3,300	3,300	3,420	3,400	3,420	5,900
	Height mm	2,700	2,700	2,750	2,863	2,750	3,000	4,780
Weight	kg	6,900	9,500	13,300	13,500	14,200	14,400	39,500
Vat volume	m^3	3.1	5.2	7.4	7.4	9.0	9.0	35
Vacuum pump	kW	2.2	2.2	2.2	2.2	2.2	2.2	5.5
Installed power	KW	16	28	33	43	36	44	96
Power consumption	kW	11	14	17	25	20	27	70

Metso Outotec is a frontrunner in sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By improving our customers' energy and water efficiency, increasing their productivity, and reducing environmental risks with our product and process expertise, we are the **partner for positive change.**

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