

CDF CONTINUOUS MELT FILTER

Filtration of the highest caliber

CDF – PATENTED TECHNOLOGY

In plastic recycling applications with typical contaminations like wood, paper, non-melting foreign plastics, conventional “mesh” filter systems reach their technical as well economical limits even with small amounts of contamination.

The M-A-S, developed and patented, CDF (**C**ontinuous **D**isc **F**ilter) removes extremely efficient and continuous wood, paper, non-melting foreign plastics, rubber, aluminum and similar contaminants from the melt stream. The melt passes through a filtration disc with self-cleaning, conical bore holes. Once the melt has passed through the filtration disc(s) it continues to the downstream equipment via the melt tube. All contaminates, which do not pass through the holes, remain on the rotating filtration disc until they are lifted off by the static scraper system. Once these contaminates are lifted off the surface, the scraper pushes them into a discharge screw, which eventually discharges all impurities from the CDF. The discharge is a combination of impurities and a small amount of melt (figure 1, page 2).

Due to the very generously sized active filtration area, specific throughputs are generally very low [kg/h/cm²]. A low specific throughput means low melt pressures, which results in a gentle extrusion and filtration process. The large filter surface is also an essential prerequisite for the high throughput and long service life of the filter discs and scrapers.

The filter discs are made from high quality, hardened steel and they are available in filtration fineness of 90 µm–1,000 µm. Changing the filtration discs and scrapers has been designed to be as intuitive as possible, allowing a very quick change if necessary.

The Filter discs and discharge screws are each speed controlled with their own drive. This allows the CDF to be adjusted to the changing processing conditions of the specific application. The so-called “tracking control” (figure 2, page 2) reacts to the prevailing pressure conditions and automatically adjusts the speed of the filtration discs and the discharge screws according to the current process conditions. This technology ensures minimum melt loss while maximising throughput (figure 4, page 2).

The scraper’s pressure can optionally be carried out either with the proven mechanical, self-regulating system of levers or a newly developed pneumatic pressure applicator. The newly developed pneumatic scraping pressure system offers the possibility, especially at high levels of impurities, to set defined intervals to automatically clean the filter disc during operation.



CDF 500-D (depiction)

Type	CDF 300	CDF 500	CDF 500-D	CDF 500-DP
Ø Filter [mm]	1 × 300	1 × 510	2 × 510	4 × 510
Active filtration surface [cm ²]	792	1,640	3,280	6,560
Throughput* [kg/h]	up to 700	up to 1,600	up to 2,200	up to 4,000
Number of heating zones	5	5	6	12
Installed heating power [kW]	22.7	28.25	40	2 × 40
Drive filtration disc [kW]	5.5	7.5	7,5/11	7,5/11
Drive discharge screw [kW]	1.1	1.1	2 × 1.1	4 × 1.1
Filtration fineness [µm]	90–1,000			

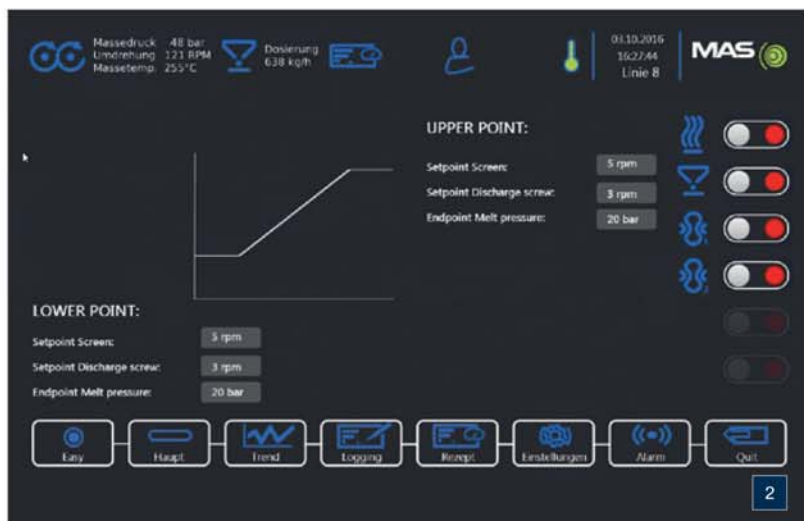
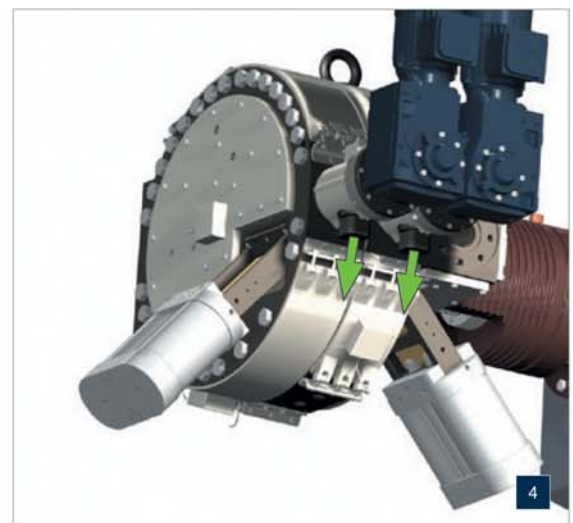
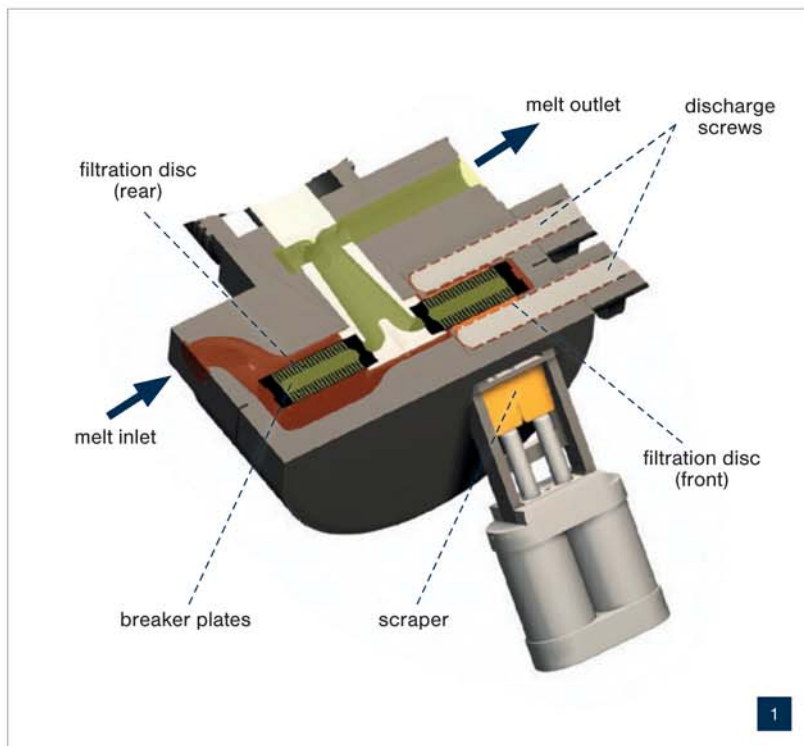
* Throughput depending on the viscosity of melt, type and degree of contamination as well as filtration-fineness.

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CDF MELT FILTRATION STANDS FOR

- a very large active filter surface ensures
 - high throughput [kg/h] at very low specific values [kg/cm²/hr]
 - low melt pressure
 - correspondingly long service life of the filter discs
- separate variable speed drive for filter disc and discharge screw
- optimal control of discharge rate from the CDF
- scraper pressure operated optionally by either mechanical or pneumatic force
- throughputs up to 4,000 kg/h (depending on the viscosity, the degree of contamination and the filtration fineness)
- fast and simple change of filtration disc as well as scraper



- 1 Cross-sectional view of a CDF 500-D with pneumatic scrapers
- 2 CDF-Control System – tracking control
- 3 CDF 500-D filtration disc with open housing
- 4 CDF 500-D contamination discharge