



CRYSTALLIZE TO MELT (CTM)

Hot-air crystallizers

Hot-air units CRYSTALLIZE TO MELT (CTM) for crystallization of amorphous polymers and biopolymers (A-PET, R-PET, PLA, etc...)



OPERATING PRINCIPLE

The crystallizers of the CTM series consist of a temperature-controlled air generator and a mixing hopper where the amorphous or semi-crystalline PET is stored. The air used for crystallization is optimized in terms of temperature, flow rate and pressure, factors which guarantee the efficient extraction of ethylene glycol (EG), a compound that PET releases together with water during the transition from amorphous to crystalline state. The hoppers, on the other hand, are equipped with a slow mixing reel which, in the glass transition phase, keeps the granules or regrinds separate, preventing them from solidifying into a single block during the PET crystallization process.



MAIN FEATURES

"EASY ACCESS" AND "HYGINIC DESIGN" OPTION

The crystallizers of the CTM series stand out for the simplicity of access to the mixing hopper: their characteristic "square" shape has been designed to guarantee easy cleaning of the internal parts, so as to minimize restart times between one campaign and the next. Furthermore, in the exclusive "hygienic design" version, they are perfect for all users who need not only to change the material, but also to completely clean the equipment to avoid any kind of contamination (for example, the producers of PET-based masterbatches).

START-UP FUNCTION

In phase of start-up of the process – i.e. when the crystallizer is empty – the material is recirculated from bottom to top in order to keep it fluid during the «glass transition». Once the start-up is done, the crystallizer is ready to work in a continuous mode. The whole phase is managed in automatic mode.

"ANTI-DUST" MIXING SYSTEM

The mixing of the material being treated takes place via a slowly rotating reel with settable speed, which minimizes the formation of dust by rubbing.

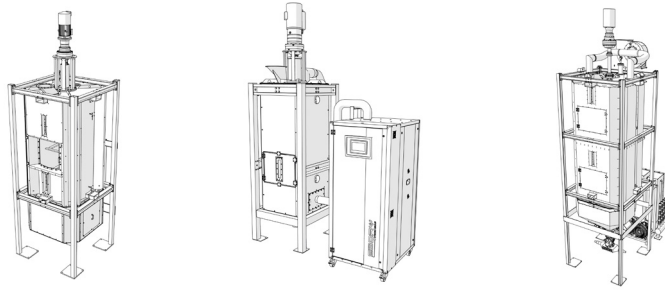
AISI 304 STAINLESS STEEL

All parts in contact with the raw material are made of AISI 304 stainless steel, which guarantees hygiene and the complete absence of contamination.

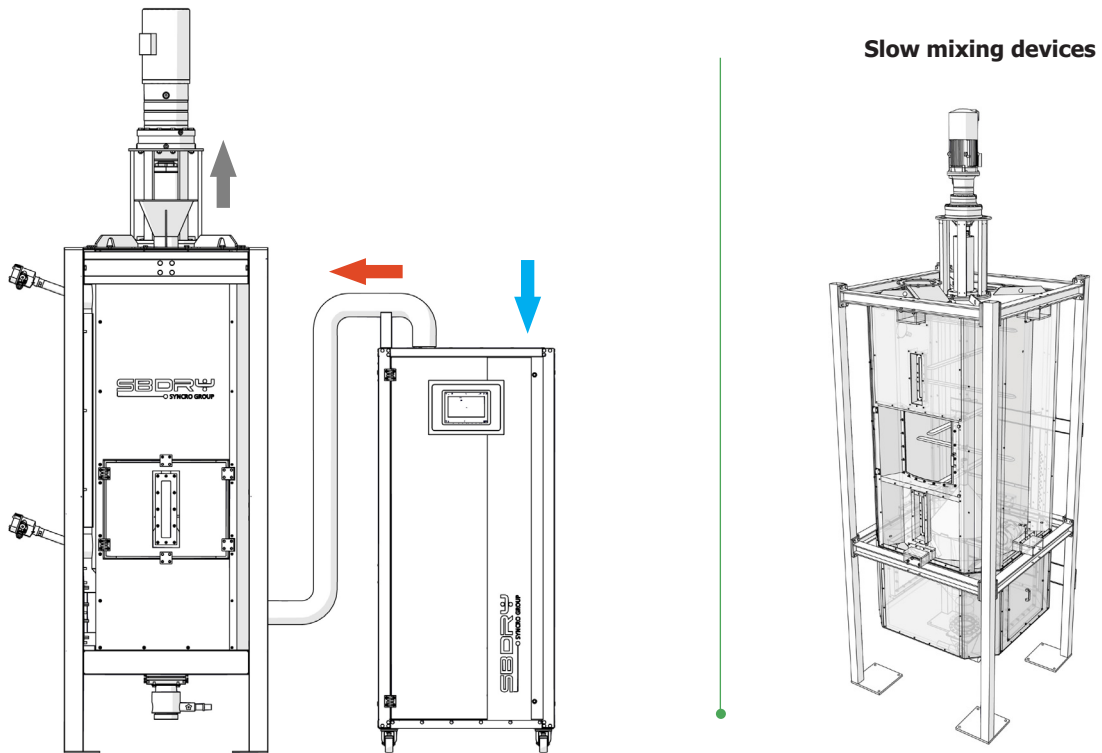
INDUSTRY 4.0 & IoT

The CTM crystallizers are all managed by Siemens PLCs which allow a high degree of both horizontal (in terms of I/O) and vertical (in terms of access and remote control, data exchange and supervision) configurability. All units are equipped with a 7" touch-screen HMI operator interface.

CONFIGURATIONS / OPTIONS



TECHNICAL DATA



Model	CTM																			
	100	150	200	300	400	600	800	1000	1500	2000	2500	3000	3500	4000	5000	6000	7000	8000	9000	10000
Volume of the crystalliser (L/s)	100	150	200	300	400	600	800	1000	1500	2000	2500	3000	3500	4000	5000	6000	7000	8000	9000	10000
Capacity* 45 min. kg/h	110	160	210	320	430	640	850	1050	1600	2100	2650	3200	***	***	***	***	***	***	***	***
Capacity* 1 h. kg/h	80	120	160	240	320	480	640	800	1200	1600	2000	2400	***	***	***	***	***	***	***	***
Capacity** 45 min. kg/h	40	60	80	120	160	240	320	400	600	800	1000	1200	1400	1600	2000	2400	2800	3200	3600	4000
Capacity** 1 h. kg/h	30	45	60	90	120	180	240	300	450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000

* Referred to a PET pellet with an apparent specific gravity of 0.80 kg/L and an initial moisture content < 0.4%.

**Referred to recycled PET (typically bottle-flakes) with an apparent specific gravity of 0.30 kg/L and initial moisture content < 0.8%.

***Values to be defined at quotation stage.