

Hot-air crystallizers

Hot-air units CRYSTALLIZE TO MELT (C2M) for crystallization of amorphous polymers and biopolymers (A-PET, R-PET, PLA, etc...)

OPERATING PRINCIPLE

The crystallizers of the C2M 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 C2M 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.

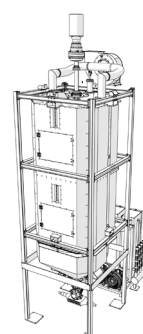
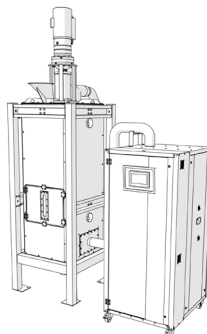
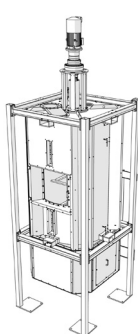
AISI 304 STAINLESS STEEL

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 C2M 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



Treatable materials: amorphous polymers and biopolymers (PET, PLA)
Applications: injection molding, extrusion, blow molding

TECHNICAL DATA

C2M	100	300	600	1000	1500	2000	2500	3000	4000	5000	6000	7000	9000
Crystallization technology	Hot air and slow mixing												
Process type	Continuous (FIFO)												
Max temperature (°C)	180 - 200												
Crystalliser volume (L/s)	100	300	600	1000	1500	2000	2500	3000	4000	5000	6000	7000	9000
Kg granules (0,8 kg/L)	80	240	480	800	1200	1600	2000	2400	***	***	***	***	***
Kg flakes (0,3 kg/L) h. kg/h	30	90	180	300	450	600	750	900	1200	1500	1800	2100	2700
Rotation speed (RPM)	2 - 4 settable												
Motor power (kW)	***												
Tension (V-Hz)	400-50												
Dimensions, weights and values marked with *** to be defined during the quotation phase.													

H (HEATER)	80	275	300	400	600	800	1500	1800	2400	3000	3600	4500	4800	5400	6500	7200	8100
Working temperature (°C)	180																
Air-flow (m³/h)	80	275	300	400	600	800	1500	1800	2400	3000	3600	4500	4800	5400	6500	7200	8100
Total power (kW)	8	18,5	24	24	35,2	47,1	97,7	120,3	140,1	195,4	235	294	314	354	427	472	531
Tension (V-Hz)	400-50																

TECHNICAL FEATURES - OPTIONS ⁽¹⁾	C2M / HEATER
Mixing motor handled by inverter	x
All the parts in contact with material made in stainless steel AISI 304	x
Control managed by PLC and touch-screen HMI	x
Self-adapting PID control temperature	x
Temperature control in hopper	x
Level control in hopper	x
Filtration systems for high-dusty materials	x
Frontal door for inspection	x
Lateral doors for easy access to the cone	x
Removable cone	o
Compatible with dehumidifier D2M	o
Remote control and data exchange OPC-UA	o
Remote alarm	o
Staircase and access mezzanine	o
Conditioner for electrical cabinet	o

⁽¹⁾ x = included; o = optional