

Energy control desiccant dryers

D2M energy controlled desiccant dryers represent the new standard in the dehumidification of hygroscopic polymers and biopolymers.

OPERATING PRINCIPLE

The energy-controlled dehumidifiers DRY TO MELT (D2M) fall into the category of so-called "desiccant dryers", i.e. they are circuits made up of a dehumidified air generator unit and a raw material storage hopper.

The treatment air is mechanically dehydrated at a dew-point between -40 and -70°C and then thermoregulated at the optimum temperature to act on the polymer being treated, removing its humidity.



MAIN FEATURES

"ECO SHIFT" and "ECO SHIFT PRO" ENERGY CONTROL

The dehumidification air is optimized in terms of flow rate and temperature. A regulation that can be set by the user allows these parameters to be varied, in such a way as to be able to adapt the process air to the characteristics of the polymer being processed, to the hourly production of the plant, to prevent any "over-drying" phenomena of the raw material and, above all, the amount of energy required for the process.

INDUSTRY 4.0 & IoT

D2M dehumidifiers 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.

PROCESSED MATERIALS

- Technopolymers: ABS, PA, PBT, PC, PMMA, PS, PVC, TPU and many more.
- PET / A-PET / Recycle PET.
- Biopolymers: PLA, MATER-B and many more.

TREATMENT TEMPERATURES

- MT (up to 150°C): for most technopolymers.
- HT (up to 180°C): for PET and recycled PET.
- LT ($< 50^{\circ}\text{C}$): for amorphous materials in applications where they must not crystallize.
- HLT ($< 50^{\circ}\text{C}$ up to 180°C): for any type of polymer and biopolymer.

Treatment temperature control is managed by a latest generation self-adaptive and self-learning PID.

AISI 304 STAINLESS STEEL

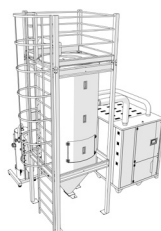
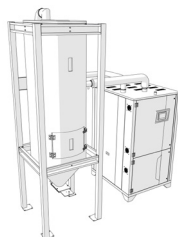
All parts in contact with the raw material, with reference to the treatment hoppers, are made of AISI 304 stainless steel, which guarantees hygiene and the complete absence of contamination.

SINGLE OR MULTI-STATION CONFIGURATION

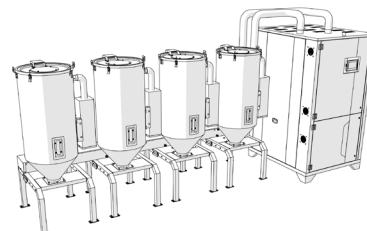
D2M dehumidification units can be configured as single station or multi-station. In the case of the multi-station, the dehumidified air generator can manage up to 6 hoppers with individual control of the treatment conditions (temperature, time, air flow) and, where required, self-adaptive modulation of the air flow of treatment.

CONFIGURATIONS / OPTIONS

D2M: single-station version



D2M NX: multi-station version



Treatable materials: hygroscopic polymers and biopolymers
Applications: injection molding, extrusion, blow molding

TECHNICAL DATA

Model		Serie 3 D2M							Serie 5 D2M							Serie 7 D2M						
		310	315	321	330	340	350	361	530	540	550	571	581	591	710	712	715	718	722	730		
Dehumidification technology		Hot and dehumidified air recirculation																				
Type*		2 T/1 P							2 T/2 P							2 T/2 P					2 T/3 P	
Air-flow (m³/h)		50	80	115	125	185	250	300	150	200	275	350	550	750	1050	1200	1500	1800	2200	3000		
Dew-point level (°C)		-40 / -50							-50 / -70							-60 / -70						
Hopper (L)**		60 100	100 150	150 200	200 300	300 400	400 600	600 800	200 300	300 400	400 600	800 1000	1000 1500	1500 2000	2000 2500	2500 3000	3500 4000	4000 4500	5000	7000		
Total power (kW)	MT	4,9	4,9	5,5	9,8	11	14,7	23,5	11	15	15,7	29	35	57	71	82	98	120	130	220		
	HT-HLT	8	8	8,5	13	14	18	28,5	14	18,5	22	35	45,5	73,5	97	110	131	167	186	288		
	LT	2	2	2,3	3,8	5	6	8,5	5	6,5	7,2	14,5	16	34	37,5	45,5	51,5	66,5	66,5	129		
Tension (V-Hz)		400-50																				
* 2 T/1 P = 2 towers / 1 pump _ 2 T/2 P = 2 towers /2 pump_ 2 T/3 P = 2 towers / 3 pump; ** Value calculated on treatment times of 2-3 hours.																						
Dimensions and weights to be defined during the quotation phase.																						

TECHNICAL FEATURES - OPTIONS ⁽¹⁾	D2M / HB	D2M NX / HB
Energy control ECO SHIFT 80-100%	x	x
Working temperature (°C) MT - HT - LT - HLT ⁽²⁾	o	o
Processing hoppers made in stainless steel AISI 304	x	x
Self-adapting PID control temperature	x	x
Wide led showing the machine status	x	x
Remote control; data exchange OPC-UA	x	x
Dew-point sensor integrated	o	o
Remote alarm	o	o
Connectable hoppers (Nr)	nd	6
Individual temperature control per each station	nd	x
Temperature control in hopper and level control in hopper	nd	o
Filtration systems for high-dusty materials	nd	o
Staircase and access mezzanine	nd	o
"Open" circuit working mode	nd	o
Weekly scheduler	nd	o
Conditioner for electrical cabinet	nd	o
Inline moisture meter	nd	o

⁽¹⁾ x = incluso; o = opzionale; nd = non disponibile

⁽²⁾ MT = < 150°C / HT = < 180°C / LT = 50-70°C / HLT = 50-180°C