



### Features

- Partial crystallization of Amorphous PET up to 7500 PPH
- “Super Duty” Agitated Crystallizing Hopper
- “Intelligent” PLC controlled process with PID temperature control.
- Open or Closed Loop configuration depending on application
- Efficient and fast acting Open Coil Electric air heater, or optional indirect gas heat available
- Direct drive hopper agitator and blower for reduced maintenance
- Several filtration options available
- Positive discharge control via variable speed feeder or air operated gate valve.
- Numerous safety interlocks
- Hopper fully insulated with 3” high temp insulation and lagging
- Up to 350°F (175°C) heating capability.
- No post conditioning of material required

Sly Process Systems’ “Super Duty” PET crystallizing systems are the result of almost 20 years experience in the design, application, and manufacture of high performance crystallizing systems.

Amorphous PET resin, regrind, and post consumer bottle flake must first be surface crystallized before drying in order to avoid agglomeration and plugging issues within the drying vessel. The crystallizing process involves heating the amorphous resin to a temperature above the *glass transition* ( $T_g$ ) temperature (normally 158-176°F or 70-80°C). Rapid crystallization occurs between 194°F and 212°F (90-100°C), and the process is complete by the time the temperature reaches 275°F (135°C).

The typical SPS crystallizing system consists of a properly sized agitated crystallizing hopper, electric or gas air heater configured to deliver the required heating Btu, and an optional cyclone dust collector if the material is particularly dusty.

While not a complex process, without proper controls and safeguards in place to prevent amorphous resin from reaching the lower regions of the crystallizing vessel, serious operational issues, and even damage to the typical crystallizing hopper can result.

The SPS crystallizing system monitors both the level and the temperature of the resin in the top of the hopper and automatically regulates the speed at which material moves through the hopper in order to assure that every pellet or flake is crystallized before discharge. Crystallization takes place in the upper 1/3 of the crystallizing hopper, and the passage through the remainder of the hopper serves to break up any agglomerates before being discharged from the hopper. “Lump breakers” or screeners to post condition the material are not required with the SPS system.

The agitated crystallizing hopper is extremely robust and is designed to handle the occasional upset condition caused by an inexperienced operator, or upstream or downstream flow stoppages. Generally the system will automatically compensate for variations in the process without requiring operator intervention.

The hopper agitation system is adequately powered through an extremely efficient gear drive, and the agitator shaft and arms are virtually “unbreakable” (unlike those of competitive systems).

**A finer agitated hopper PET crystallizing package simply does not exist!**

# PET CRYSTALLIZING SYSTEM SPECIFICATIONS

## 100% PET Pellets at 50 PCF

Rate (PPH)	Hopper Model No.	Hopper Working Volume	Residence Time @ 50 PCF	Blower CFM Rating	Blower HP	Electric Heater kW (Note 1)	Gas Heater Max. Btu	Optional Cyclone Size
125	AH-5	5 CF	2 Hours	125	1	10	N/A	1
250	AH-10	10 CF	2 Hours	250	2	20	N/A	2
375	AH-15	15 CF	2 Hours	400	5	20	N/A	3
625	AH-25	25 CF	2 Hours	600	5	40	250,000	4
938	AH-38	37.5 CF	2 Hours	1000	10	60	500,000	5
1250	AH-50	50 CF	2 Hours	1200	15	70	500,000	6
1875	AH-75	75 CF	2 Hours	2000	25	100	750,000	8
2500	AH-100	100 CF	2 Hours	2500	30	130	750,000	9
3750	AH-150	150 CF	2 Hours	3500	40	180	1,250,000	11
5000	AH-200	200 CF	2 Hours	5000	30 (x2)	130 (x2)	1,500,000	13
6250	AH-250	250 CF	2 Hours	6000	40 (x2)	160 (x2)	2,000,000	14
7500	AH-300	300 CF	2 Hours	7000	40 (x2)	180 (x2)	2,500,000	15

## 100% PET Bottle Flake at 20 PCF

Rate (PPH)	Hopper Model No.	Hopper Working Volume	Residence Time @ 20 PCF	Blower CFM Rating	Blower HP	Electric Heater kW (Note 1)	Gas Heater Max. Btu	Optional Cyclone Size
80	AH-5	5 CF	1.25 Hours	85	1	10	N/A	1
160	AH-10	10 CF	1.25 Hours	125	1	10	N/A	1
240	AH-15	15 CF	1.25 Hours	185	2	10	N/A	2
400	AH-25	25 CF	1.25 Hours	400	5	20	N/A	3
600	AH-38	37.5 CF	1.25 Hours	600	5	40	250,000	4
800	AH-50	50 CF	1.25 Hours	750	7.5	40	500,000	5
1250	AH-75	75 CF	1.25 Hours	1000	10	60	500,000	5
1600	AH-100	100 CF	1.25 Hours	1500	20	80	500,000	7
2400	AH-150	150 CF	1.25 Hours	2000	25	100	750,000	8
3200	AH-200	200 CF	1.25 Hours	2500	30	130	750,000	9
4000	AH-250	250 CF	1.25 Hours	3500	40	180	1,250,000	11
4800	AH-300	300 CF	1.25 Hours	4000	40	210	1,250,000	12

Note 1: kW values are based on "closed loop" operation. Open loop heat requirements will be somewhat higher.