Thermal Dryer

Functioning:

Thermal dryers use a hot air stream for drying plastic material to remove humidity from the surface.

With some plastics, a low humidity is the first step for a further treatment. In any case, a maximum efficiency is achieved in extruders or injectio molding machines. Thermal drying is used if mechanical drying is not sufficient for the further treatment of the material.

Components:

Thermal drying always consists of a burning chamber where heat is generated and then conveyed to the material by a blower.

Main heating sources are:

- Electric heating
- Gas heating
- Steam heating
- Thermal oil heating

A mixing chamber where grinding material and hot air are mingled. Here the control of the right percentage of air volume and temperature are important in order to achieve an optimal drying result with minimum energy consumption and a choking-free operation. The drying track where ground material is well whirled and a sufficient contact time in order to evaporate the humidity.

At the end of the thermal drying process, in the air exchange unity, hot and humid air is replaced by dry cold ambient air.

Construction sizes:

Two different construction sizes are available.

Construction sizes:

TNT 250, 500, 1000

TNT 500 dryer:

The material is being conyeyed into the stainless steel cyclone, and discharged through the bottom opening into the dryer via rotary airlook valve. Below the rotary airlook valve, ambient air is sucked into the system through a heat exchanger. To create the necessary temperature we do offer several alternatives:

- electrical heating with heating registers
- gaz burner (recommened for minimizing the operational costs)
- steam
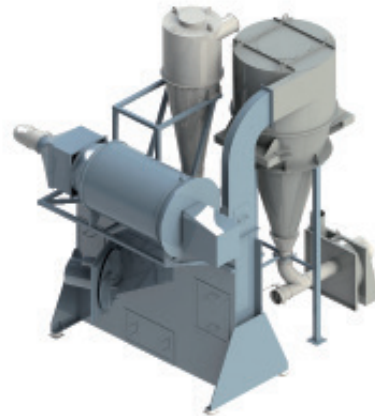
The Product stream is sucked together with the hot air into the blower. Passing the blower, the product is turbulent contact with the hot air, and blown through a circle-shaped drying section of about 30 meters in lenght to create the necessary dwell time to allow the hot air to absorb the humidity. In this section a thermal sensor has been installed constantly measuring the temperature. The temperature is being displayed in the electric panel. (If heating registers are being used, the actual temperature is compared with the pre-adjusted temperature and corrected if necessary. This is achieved by switching heating elements in the heating register on or off). Depending on the desired residual moisture and the kind of material, the temperature measured should range between 40°C and 80°C.

A pressure control device constantly checks if there is any airflow. In case of a material jam this pressure control device would react and switch off the warm air supply.

After the drying section the material goes into the separation cyclone which again separates material from the warm moist air.

TNT 250 dryer:

The material is conveyed through a circular tube arrangement.

This design is for low volume throughputs.

Technical data:

Model	TNT 250	TNT 500	TNT 1000
Blower	MFT 75/500	MFT 110/1000	100/1000
Drive (kW)	15	37	37
Cyclone diameter (mm)	800	1400	1.400
Gas burner (kW)	150	300	max. 350
Throughput			
LDPE (kg/h)	300-800	500-1500	1500-1800
Output humidity (weight % H_2O)	< 3% hum.	< 3% hum.	< 3% hum.
HDPE/PET (kg/h)	1500-2000	3500-4000	4000-5000
Output humidity (weight % H_2O)	< 1% hum.	< 1% hum.	< 1% hum.

TNT 250
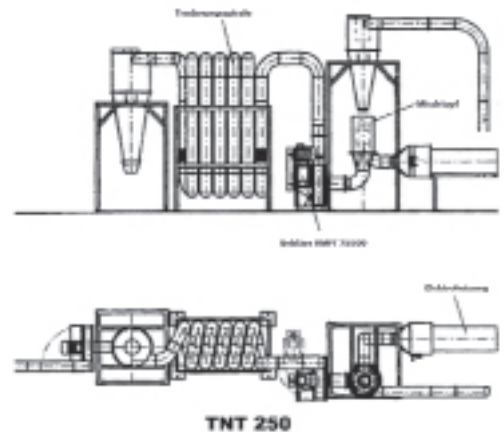
* dimensions in mm

Our Product Range

Size Reduction
❱ Shredder
❱ Granulators
❱ Pulverizing Systems

Washing / Separation Systems & Components
❱ Pre-washing Units
❱ Friction Washers
❱ Separation Tanks and Hydrocyclones
❱ Mechanical and Thermal Drying
❱ Water Processing

Agglomeration
❱ Plastcompactors

Service
❱ Parts and Overhauls
❱ Inspections and Trouble Shooting
❱ Upgrades and Performance Service

Specifications are not binding and subject to change without notice. 09 / 2023