

AIR TRAY DRYER (ATD)

Tray dryers are commonly used in various industries, including pharmaceuticals, chemicals, food processing, and more, for the drying of solid materials. Here's an overview of the utilization of tray dryers and the associated process:

Loading:

The solid material to be dried is spread evenly on trays or shelves inside the tray dryer. The trays are typically made of perforated or mesh material to allow proper airflow and heat transfer.

Air Circulation:

The tray dryer is equipped with a heating system and a fan. The heating system generates hot air, which is circulated through the drying chamber by the fan. The hot air passes over and through the trays, facilitating the drying process.

Temperature Control:

The temperature inside the tray dryer is controlled to ensure optimal drying conditions for the specific material being processed. The temperature can be adjusted based on the drying requirements and the characteristics of the material.

Drying Process:

As the hot air circulates through the trays, it absorbs moisture from the solid material, causing evaporation. The moisture-laden air is then expelled from the drying chamber through vents or exhausts. The drying process continues until the desired moisture content is achieved.



Airflow Adjustment:

The tray dryer may have provisions for adjusting the airflow within the drying chamber. This helps control the drying rate and ensures uniform drying across all trays. Proper airflow distribution minimizes drying imbalances and promotes consistent drying of the material.

Monitoring and Control:

The drying process is monitored to ensure that the desired drying parameters, such as temperature, airflow, and drying time, are maintained. Automated controls or manual adjustments may be used to regulate these parameters throughout the drying cycle.

Cooling and Discharge:

Once the drying process is complete, the trays may be cooled down using ambient air or a separate cooling system. This helps prevent heat damage to the dried material. After cooling, the dried material can be discharged from the trays for further processing or packaging.

Cleaning and Maintenance:

After use, the tray dryer is thoroughly cleaned to remove any residual material and ensure proper hygiene. Routine maintenance tasks, such as cleaning filters, inspecting heating elements, and lubricating moving parts, are also performed as needed.

It is important to note that the specific utilization and process of a tray dryer may vary depending on the manufacturer, model, and the specific requirements of the drying process. However, the controlled temperature, uniform airflow, and efficient drying capabilities of tray dryers make them valuable equipment for drying solid materials in various industries.

Technical Specifications Table:-

MODEL	TD- 12	TD- 24	TD- 48	TD- 96	TD- 192
LOADING CAPACITY	12 TRAYS	24 TRAYS	48 TRAYS	96 TRAYS	192 TRAYS
NO. OF DOORS	ONE	ONE	ONE	TWO	TWO
NO.OF BLOWERS	ONE	ONE	ONE	TWO	FOUR
NO OF MOTORS/H.P.	1/0.5 H.P	1/0.5 H.P	1/0.5 H.P	2/ 1 H.P	4/1 H.P EACH
3 PHASE 415 VOLTS	3 PHASE 415 V	3 PHASE 415 V	3 PHASE 415 V	3 PHASE 415 V	3 PHASE 415 V
ELECTRICAL HEATING LOAD FOR 100°C/ 200°C/ 300°C	3Kw/6Kw /9Kw	6Kw/9Kw/ 12Kw	9Kw/15Kw/ 18Kw	15Kw/21Kw/ 27Kw	36Kw/42Kw/ 48Kw
STEAM HEATER NO.OF COILS	2	2	2	2	2
STEAM PRESSURE	3.3 Kg /cm2	3.3 Kg /cm2	3.3 Kg /cm2	3.3 Kg /cm2	3.3 Kg /cm2
STEAM CONSUMPTION	25 LBS/ HR	45 LBS/ HR	60 LBS/ HR	80 LBS/ HR	120 LBS/ HR
INSULATION IN MM 100°C/ 200°C/ 300°C	50 / 75/ 75	50 / 75/ 75	50 / 75/ 75	50 / 75/ 75	50 / 75/ 75
NO. OF TROLLEYS	RACK SYSYTEM	RACK SYSYTEM	ONE	TWO	FOUR
TRAY SIZES	812 x 406 x 31	812 x 406 x 31	812 x 406 x 31	812 x 406 x 31	812 x 406 x 31
TROLLEY DIMENSIONS	FIXED RACKS	FIXED RACKS	840 x 960 x 1780	840 x 960 x 1780	840 x 960 x 1780