BOMBAY PHARMA
EQUIPMENTS PVT. LTD

FLUID BED DRYER (FBD)

Fluid bed dryers are extensively used in the pharmaceutical, chemical, food processing, and other industries for the drying and granulation of solid materials. Here is an overview of the utilization of fluid bed dryers and the associated process:

Loading:

The solid material to be dried or granulated is loaded into the fluid bed dryer. The material is spread evenly on a perforated bed or plate, forming a fluidized layer.

Preheating:

The fluid bed dryer is initially preheated to the desired operating temperature. This helps create the necessary conditions for the drying or granulation process.

Fluidization:

Once the material is loaded, air or gas is introduced into the fluid bed dryer through a distributor plate or nozzles located at the bottom of the drying chamber. The upward flow of air or gas causes the material to become fluidized, forming a "fluid bed." This fluidization facilitates enhanced heat and mass transfer between the solid particles and the drying medium.

Drying or Granulation Process:

During the fluidization process, the heated air or gas passes through the fluid bed, absorbing moisture from the solid material. The moisture-laden air or gas is then expelled from the drying chamber through exhaust vents. The continuous flow of heated air or gas ensures efficient and uniform drying or granulation of the material.

Temperature and Airflow Control:

The temperature and airflow within the fluid bed dryer are carefully controlled to achieve the desired drying or granulation results. The temperature is adjusted based on the specific material requirements and heat sensitivity. The airflow rate is regulated to maintain the appropriate fluidization and drying conditions.

Particle Movement and Agglomeration:

As the material undergoes fluidization, the particles may collide, leading to particle movement and agglomeration. This movement and agglomeration can contribute to the granulation process if desired. Granulating agents or binders may be added to facilitate particle agglomeration and the formation of granules.

Monitoring and Control:

The drying or granulation process is closely monitored to ensure that the desired temperature, airflow, and processing time are maintained. Automated controls or manual adjustments are employed to regulate these parameters throughout the drying or granulation cycle.

Cooling and Discharge:

Once the desired moisture content or granulation size is achieved, the fluid bed dryer may be cooled down using ambient air or a separate cooling system. After cooling, the dried or granulated material is discharged from the fluid bed dryer through a discharge chute or a separate outlet.

Cleaning and Maintenance:

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

It is important to note that the specific utilization and process of a fluid bed dryer may vary depending on the manufacturer, model, and the specific requirements of the drying or granulation process. However, the efficient heat and mass transfer, uniform processing, and versatility make fluid bed dryers valuable equipment for drying and granulating a wide range of solid materials in various industries.

Technical Specifications Table:-

MODEL	15	30	60	120	200	250	300	500
CONTAINER VOLUME : LITERS	18	100	200	380	650	800	980	1700
BATCH CAPACITY IN KG	5-8	30-40	60-70	120-140	200-225	250-280	300-300	500-500
MOTOR H.P.	3	5	10	15	20	25	30	60
HEATINH LOAD : KW FOR ELECTRICAL HEATING APPROX. STEAM	9	18	36	54	ELECTRICAL HEATING NOT RECOMMENDED.			
CONSUMPTION KGS./HR. AT STEAM PRESSURE 3KG/CM2	15	25	50	100	160	200	250	430