

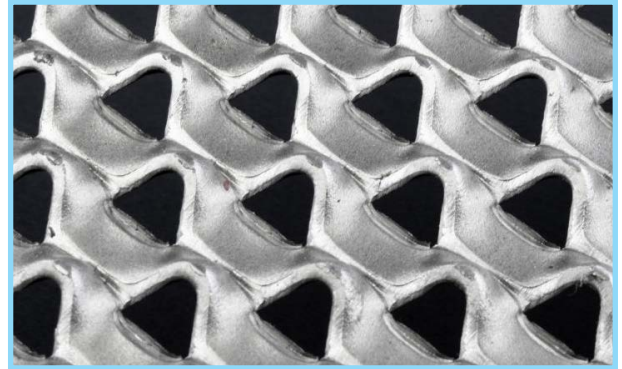
FLUID BED EQUIPMENT

Tapasya's Fluid Bed Equipment (FBE) is specially designed unit for agglomeration and simultaneous drying for top spray granulation conforming to the international quality norms and with all latest features incorporated. Built with a working pressure of 2 Bar at 80 degree C, the drying capabilities of our FBDs are enhanced by 18 - 20%, resulting in lesser drying time and uniform fluidization. Air Handling System is specially designed for evenly distribution of Heat to the material to be dried in order to supply the latent heat required for vaporization of the moisture. The fully automated system is designed to achieve robust formulation and stringent cGMP compliance.



Features:

- FBE suitable for granulation and drying for accurate process parameters
- Online charging from HSMG into FBE using vacuum. Inlet feed port with SS gas tight pneumatic actuated valve
- Closed loop discharged system from FBE into mill using pneumatic conveying systems
- Temperature control with a +/- 1° C (process accuracy)
- Humidity control over entire operating range ± 5% (process accuracy)
- Technical support in critical areas of validation at different levels of scaleup
- Process accessibility for selection on critical parameters such as inlet air temperature in drying and product temperature in top spray granulation
- Recipe storage for auto operation
- System provides Alarm Log



Conidur Mesh for Vortex fluidisation



Inline Sampling Assembly

Level of Instrumentation:

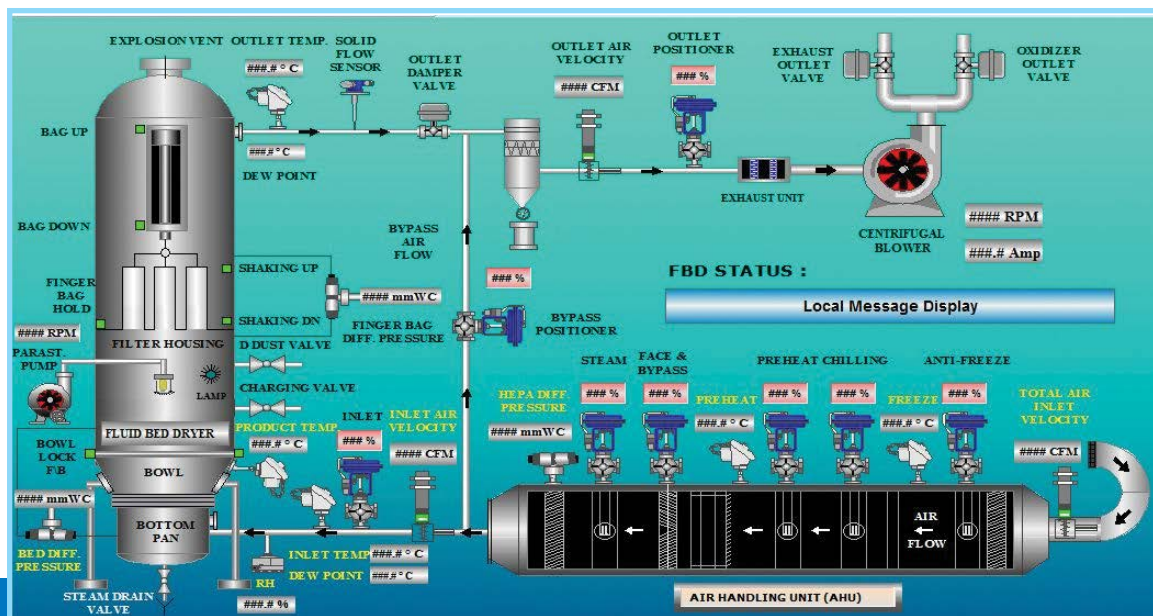
Type of control	Purpose	Operation range	Desired Least Count	Extent of Instrumentation			
				Indication	Alarm	Control	Printing
Temperature	Inlet	0°C to 100°C	0.1°C	Y	Y	Y	Y
Temperature	Exhaust duct	0°C to 100°C	0.1°C	Y	Y	Y	Y
Temperature	Product bed	0°C to 100°C	0.1°C	Y	Y	N	Y
Humidity	Inlet	0-100%	1 %	Y	Y	Y	Y
Time	Cycle time	On real time basis	1 Sec	Y	Y	Y	Y
Differential Pressure	Across the HEPA filter	**	1mm of WC	Y	Y	N	Y
Differential Pressure	Across the Dry type dust collector	**	1mm of WC	Y	Y	N	Y
Differential Pressure	Across product bowl	**	1mm of WC	Y	Y	Y	Y
Differential Pressure	Across Bag filter	(Vendor to recommend)	1CFM	Y	Y	Y	Y

Features:

- Control System compliant to GAMP 4/5 and 21 CFR Part 11
- 5 distinct levels for operation of control system
- Alarm for interlocks and process abnormalities integrated with system, with acknowledgement for respective alarms by operating personal
- Manual back-up system in case of PLC failure
- Specially designed Conidur mesh for mechanism of Vortex formation ensuring uniform core drying
- Twin shaking finger bag system (European make) to assist continuous fluidization and spraying
- Option of providing SS multilayers sintered filter with integrated air cleaning mechanism
- All filters provided with DP gauges with Integration with HMI for HEPA, Fine filter, Product container and Finger bag
- Inlet / Exhaust Location with several alternatives to suit individual customer requirements
- Specially designed explosion flaps
- Inflatable Silicon Seals used in the system
- 2 Pneumatic Cylinders - For Bag Up and Down movement and for Impact Bag Shaking
- Sampling provision of inline analysis of granulation profile such as moisture content and particle size analysis



FBE Bowl with Trolley



Mimic Display for Process Monitoring and Control

Features:

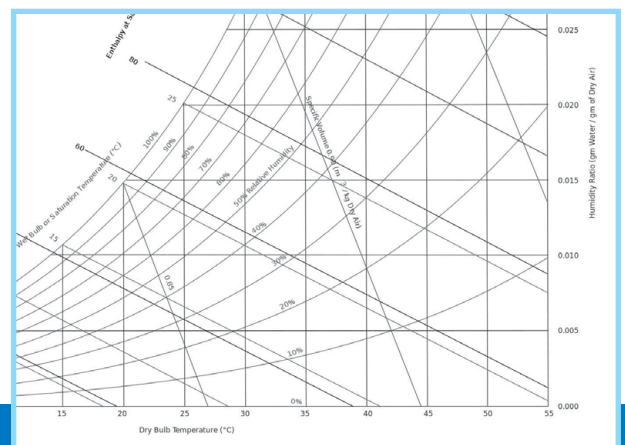
- Fully automated system for quality by design to correlate statistically
- Specially designed system for light sensitive products
- View port in filter housing and in expansion area of machine tower and product container
- Unique wiring schematics and position numbers for devices
- Inlet and exhaust system provided with a Quick acting safety valves (optional) valve to isolate the supporting ductwork and ancillary equipment should a deflagration in the machine tower occur
- Tri level filtration in Inlet AHU using 10 micron for Pre Air filtration, 3 micron for Secondary Air filtration and 0.3 micron for Final Air filtration using HEPA (99.997 efficiency)
- Humidification and dehumidification system to enable better control on RH (5% to 80%)
- Double skinned SS 304 AHU with a built in Face and --By Pass damper for $\pm 1\sigma$ Temperature control
- Specially designed anti-static anti sparking blower
- High static high efficiency FLP blower installed
- Completely Tool less AHU
- Broken bag detector system to indicate broken bag fault with a provision for adjustable sensitivity
- Filter bag unit with rapid doping control to avoid the personnel injury during the assembling and disassembling of filters
- Food grade gaskets with test certificates
- CE Certified
- In-house pressure tested 2 Bar FBE



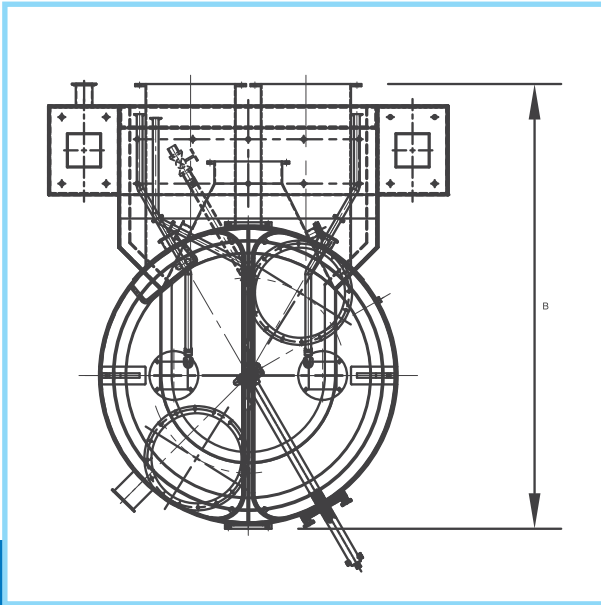
Finger Bags with Built-in Safety

Benefits For You:

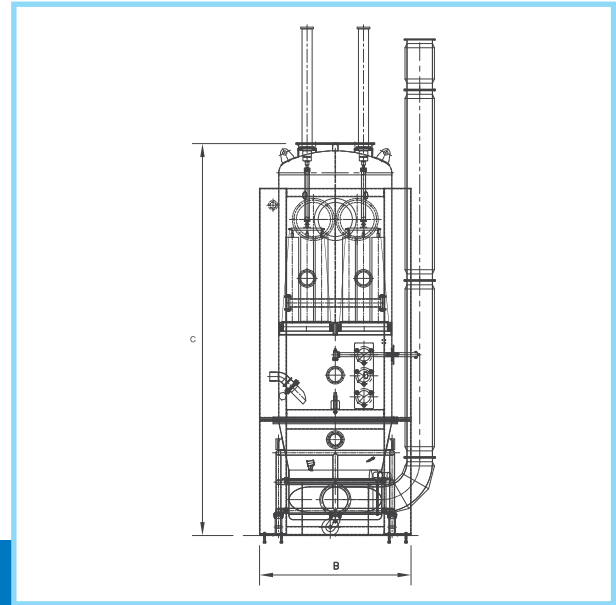
- 'State of Art' FBD with all latest features
- Easy operations
- Faster and uniform drying
- Easy maintenance
- Overcomes typical problems associated with drying, such as, Improper drying, Fine generation, Excessive drying time
- High quality and better shelf life of the product



Real Time Process Monitoring through IPC



Plan view



Elevation view

Technical Specifications:

MODEL	GROSS CAPACITY (in Liters)	WORKING CAPACITY (in Liters)	OVERALL DIMENSIONS (in mm)			MOTOR HP	APPROX. WEIGHT (in kg)
			L	B	H		
TAP-FBE-25	25	20	1000	1000	2200	10	400
TAP-FBE-75	75	60	1200	650	2800	15	600
TAP-FBE-150	150	120	1300	850	3000	15	800
TAP-FBE-250	250	200	1400	900	3400	20	1000
TAP-FBE-500	500	400	1500	1650	4000	30	1200
TAP-FBE-750	750	600	1700	1500	4300	50	1500
TAP-FBE-1000	1000	800	1800	1600	4500	70	1600
TAP-FBE-1250	1250	1000	1900	1700	4800	100	1800
TAP-FBE-1750	1750	1400	2100	1800	5000	120	2200

Customised sizes available on request
 10 bar compliant equipment available
 Laboratory model design available

Fluid Bed Equipment used in Industries:

- Pharmaceutical
- Nutraceutical
- Food
- Chemical
- Cosmetics