AGITATED PAN DRYER

PAN DRYER is Robust & Heavy Version of Dryer.
The Pan dryer is based on the well established and proven Filter / Dryer technology. Here, however, the porous filter bottom is replaced with a heated flat bottom. The simple change in the design of the heated flat bottom increases the heat transfer area considerably. The agitator of the Pan Dryer is also normally heated and is equipped with speed control.

Types of PAN DRYER
A) Top Agitation type PAN DRYER
B) Bottom Agitation type PAN DRYER

A) PAN DRYER (TOP ENTRY AGITATOR TYPE)
The top driven Pan Dryer relies on rotational velocity. A particularly fast agitator with circumferential speed of up to 3 m/s ensures optimum mixing. The raising and lowering agitator also provides mixing on the vertical axis. At the same time, the minimal agitator to wall clearance keeps the wall free from product crust. The rotational high speed of the agitator combined with its vertical translation does not require the use of a chopper.

B) PAN DRYER (BOTTOM ENTRY AGITATOR TYPE)
The vessel is equipped with a bottom driven agitator turning at low and variable speed, depending on the nature of the product to be dried and its moisture content. The agitator ensures the constant renewal of the product in contact with the Heated vessel shell and ensures a good homogeneity and a constant temperature of mixing.

In Both type of Pan Dryer the heat required for drying is supplied by the circulation of hot fluid (water, steam or thermal fluid) in the insulated double jacket of the vessel (bottom, shell, cover, dust filter) and avoids areas of condensation. Loading is done at the top of the vessel in both type.

Agitator Sealing without Product Contact: -
The mechanical seal of the pan dryer is also advantageously located outside of the product area. Depending on the application, it can either be lubricated with gas or liquid. The axial motion of the agitator is sealed by metal bellows, as with the Filter / Dryer.

Easy internal inspection
Inspection is easily possible when the pan bottom is lowered. In the case of frequent cleaning and opening cycles, the pan dryer is also ideally equipped with a time-saving quick-locking bayonet flange instead of standard C-Clamps.

Important advantages at a glance
• Proven Filter / Dryer technology.
• Agitator speed controlled and heated.
• Fast cleaning (CIP/WIP and SIP)
• Simple emptying.
• Short drying times.
• Heal removal Discharge Port.
• Solvent recovery is possible.
• Easy to inspect.

BEW Engineering Pvt. Ltd.
(A group company of Bifriends Engineering Works)
### TECHNICAL DATA FOR APD (Ref. Fig A)

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<th>ØC (mm)</th>
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**NOTE:** Design & Dimensions of above are subject to change without notice.

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USE OF PAN DRYER
The operation under vacuum provides a vacuum drying at low temperature without product deterioration.
The dryer is generally equipped with a lump breaker which breaks up the agglomerates and thus increases the surface diffusion of the particles.
The discharge is made by rotation of the agitator through side discharge valve located at the bottom of the vessel. (Heel removable type Discharge Valve.) This equipment has been specially designed for batch drying of solid forms (paste, crystal, granular etc.) and for the concentration of liquids.
- To permanently maintain the product in motion (dynamic drying)
- To control heat exchange by using a temperature probe.
- To maintain permanently the product in contact with hot parts.
- To obtain a perfect homogeneity of drying with the original design of the agitator and a moisture content after drying less than 0.1 %
- To operate with a load factor of 20 to 70 % of the total volume.
- To work in hazardous or corrosive areas, particularly with use of special alloys.
- Eventually to cool the product after drying by circulating coolant in the jacket.

Material of Construction
A range of equipment in stainless steel (304L, 316L) or Alloy (C22, C276, 904L, etc.) configurable to meet your most stringent requirements.

Our Certifications and Qualifications
- ASME Stamp "U" certification.
- Manufacturing according to ASME Section VIII Div. 1
- Equipment conform to 94-9 CE norm for working under ATEX area.
- TIG and MIG welders qualified according to EN287-1 Div. 1, ASME Section IX Div. I.

NOTE: LAB SCALE MODELS ALSO AVAILABLE
PILOT PLANT AVAILABLE FOR TRIAL

Variants
1. Isolater Compatible
APD’s are available in variants compatible with barrier isolation systems at the discharge. This allows handling of Cytotoxic/ Potent products with operator safety. Additionally, these can be combined with automatic packing systems further downline. Also lab scale APD models are available for R&D purposes.

2. Sterile Construction
Sterile application APD models with completely automated SIP/CIP & operation cycles, metal to metal seating are also available.

3. Special Heel removal discharge value
A specially designed quick openable discharge valve which allows much closer access to interior of machine for heel removal is also available.

4. Special Quick detachable designs for bottom bed
a) Super ‘C’ Bayonet
This design is similar to a TC clamp design but hydraulic operated. This facilitates easy and fast bottom bed detachment for cleaning during product change over. This design is good for vacuum and very low pressure applications.

b) Teethed Bayonet
This design has teethed body flanges, which are hydraulic operated and this is a ‘Positive Locking’ design. It facilitates easy and fast bottom bed detachment for cleaning during product change over. This design is good for vacuum as well as high pressure applications.