

DRYING WITHOUT CONTAMINATION

Vacuum tray dryer with the fast washing system for cleaning of all internal parts —

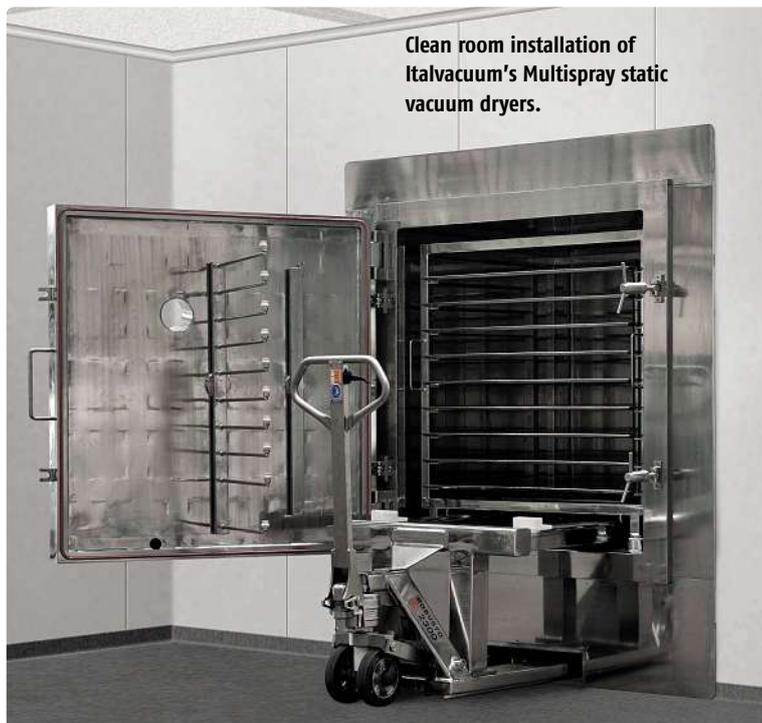
Producers demand for their batch process best results, safety, ergonomics and flexibility. To secure this an Italian expert for vacuum drying has equipped its vacuum tray dryer with a fast washing system and some other features.

Pharmaceutical manufacturers have to ensure that their drying processes are in compliance with FDA and cGMP standards. But also specialty chemicals company need to look for safe drying processes without contamination. The Italvacuum's Multispray static vacuum dryers consist of a cabinet type chamber and a series of heating plates. Both the chamber and plate surfaces are heated by the circulation of fluid.

The parts in contact with the product are built in AISI 316L (1.4404) stainless steel. For special applications, where there are problems related to the aggressiveness of the products or solvents treated, materials such as AISI 904L (1.4539), ALLOY C-22 (2.4602) are used, or FDA approved anti-corrosion coatings, for example PFA. For external parts AISI 304L (1.4307) stainless steel is used.

Fast Washing System

With the C.I.P. Multispray patented fast washing system, the drying chamber and inner plates can be cleaned in a few minutes. The washing system ensure a repeatable and certifiable cleaning by using a minimum amount of washing liquid and preventing the operator from coming into prolonged contact with possible prod-



Clean room installation of Italvacuum's Multispray static vacuum dryers.

Sources: Italvacuum

uct residues and solvents present inside the dryer. Also, the perfect airtight closing and the special design eliminate any risk of washing liquid contamination in the surrounding environment.

The fast washing system consists of a C.I.P. diffuser and a mobile pneumatic washing unit. The diffuser, equipped with washing nozzles capable of efficiently cleaning the walls and inner shelves, is quickly installed onto the dryer door. The nozzles are designed and

developed by Italvacuum in materials compatible with the process.

The Multispray mobile washing unit consists of a stainless steel tank complete with a PTFE membrane and pneumatic pump, which feeds the C.I.P. diffuser. The washing cycle is managed by a pneumatic control board situated on the mobile unit. Only a connection to compressed air is sufficient to make the system work. The mobile washing unit is equipped with antistatic polymer wheels, in compli-

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ance with Atex directives and cGMP standards.

Safe Operation

Total cleanliness and absence of any contaminating agents is essential for highly valued and delicate pharmaceutical products. The fixed shelves version satisfies such requirements thanks to the smooth geometry of the heating plates, minimum surface roughness, rounded edges and easy inner accessibility.

Also, to make cleaning operations easier, the base of the cabinet is tilted towards the door in order to facilitate the removal and discharge of the washing water. With a wide front flange and the set-back supporting systems, through the wall installation is possible, further isolating the clean room from the technical area.



Extractable shelves version guarantees total accessibility to all the internal surfaces exposed to the process.

The Multispray vacuum tray dryer with extractable shelves in turn ensures all the advantages of the fixed plate version, but offers an important added value: It is equipped with shelves mounted on a completely removable single structure, guaranteeing total accessibility to all the internal surfaces exposed to the drying process.

A technology that makes total cleaning even easier and minimizes the risk of cross contamination in case of frequent changeover operations. The connection to the heating circuit by means of two fast couplings outside the chamber, allows the plate pack removal without a previous discharge of the heating fluid from within.

The plate pack is removed with the aid of an external hydraulic trolley, completely made of stainless steel and equipped with anti-static polymer wheels. With this trolley the operator can quickly handle the plate pack in extreme safety and without any difficulty. In addition, by using an external hydraulic trolley, no rails or wheels are needed inside the cabinet, that would make cleaning and swab testing really difficult, complying with Atex directives and cGMP standards. *WÜH*

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