



**MULTISPRAY**  
CABINET DRYER

Vacuum  
Tray  
Dryer



**italvacuum**

# MULTISPRAY<sup>®</sup> Cabinet Dryer

Vacuum tray dryer with the MULTISPRAY<sup>®</sup> patented fast washing system.

## Drying has never been so easy

Best results, ergonomics, safety and flexibility for any product batch. These are the qualities that have always characterised MULTISPRAY<sup>®</sup> vacuum tray dryers, result of Italtvacuum's consolidated experience in the cosmetic, pharmaceutical and chemical industry process applications.

But that's not all, because the important added value that differentiates MULTISPRAY<sup>®</sup> innovative dryers from conventional systems is that it guarantees **total cleanliness of the inner chamber and all heating plates**, in compliance with the increasingly restrictive **FDA** standards and the **cGMP** standards of good manufacturing.

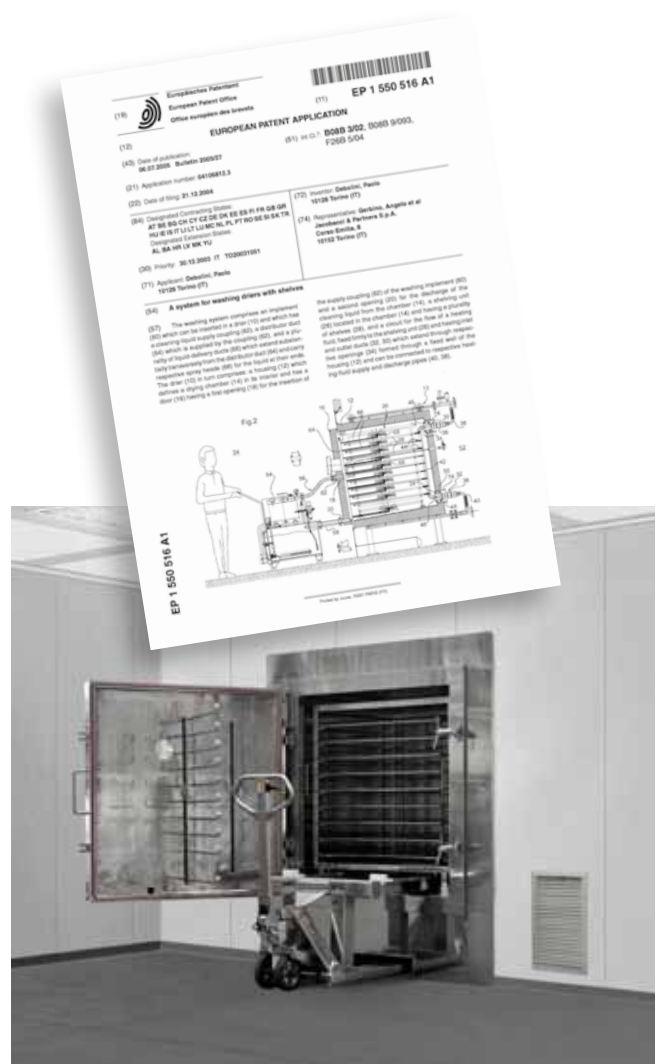
## Main technical features:

The MULTISPRAY<sup>®</sup> 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. Italtvacuum tray dryers are characterized by:

- ⊙ **drying surface areas from 0.15 to 32 m<sup>2</sup>**
- ⊙ **C.I.P. MULTISPRAY<sup>®</sup> patented fast washing system**
- ⊙ optimized fluid distribution for a **perfect temperature uniformity**
- ⊙ absolute precision in mechanical machining for **high operating vacuums**
- ⊙ geometries and construction criteria for **optimal operation and internal accessibility**
- ⊙ completely smooth inner elements, perfect polishing of the heating plates, minimum surface roughness and rounded edges for a **total and easy cleaning**
- ⊙ **"particle-free" trays** for complete product recovery
- ⊙ nitrogen diffuser for a uniform gas flow on every single plate
- ⊙ heated door as an additional process guarantee
- ⊙ ready for **installation in clean room**

- ⊙ airtight door cladding
- ⊙ automatic door opening system.

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.



Clean room installation

## C.I.P. MULTISPRAY® patented fast washing system

With the C.I.P. MULTISPRAY® patented fast washing system, **the drying chamber and inner plates can be washed and cleaned in just a few minutes, in a repeatable and certifiable way.** An innovative technology designed by Italtvacuum to offer a double advantage: 1) guaranteeing a perfect cleanliness of the inner parts using only a minimum amount of washing liquid 2) preventing the operator from prolonged times of contact with possible product residues and solvents present inside the dryer. Also, the perfect airtight closing and the special MULTISPRAY® design eliminate any risk of washing liquid contamination in the surrounding environment.

The C.I.P. MULTISPRAY® patented fast washing system consists of:

- ⊙ C.I.P. diffuser
- ⊙ mobile pneumatic washing unit.

The C.I.P. MULTISPRAY® 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 Italtvacuum in materials compatible with the process.

The 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 compliance with **ATEX** directives and **cGMP** standards.

The C.I.P. MULTISPRAY® patented fast washing system ensures an efficiency of more than 98% for plates inside the cabinet and of 100% with the plate pack extracted from the drying chamber. This result is certified by a washing test carried out by specialised personnel and proved with the use of riboflavin as a tracer substance.



*C.I.P. diffuser*



*Multispray® Cabinet Mobile pneumatic washing unit*

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## Range

The MULTISPRAY<sup>®</sup> vacuum tray dryers can be used in any type of application as there are two versions available, fixed plate and removable plate, the latter particularly indicated for multiproduct usage.

Also, for the production of highly active pharmaceutical ingredients and for R&D activity, Italtvacuum has developed the laboratory version LaboDry.

## Fixed shelves version

Total cleanliness and absence of any contaminating agents is essential for highly valued and delicate pharmaceutical products. The MULTISPRAY<sup>®</sup> dryer with fixed shelves 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

The MULTISPRAY<sup>®</sup> dryer with extractable shelves 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 process. An innovation 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 antistatic 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.



*Fixed shelves version with automatic door opening system*



*Extractable shelves version*

### Laboratory version

The LaboDry version was developed for the treatment of highly active pharmaceutical ingredients (high potency API) and to meet the production requirements of small batches. It features separate cell construction and skid-mounted auxiliary accessories, ready for installation in a glove box.

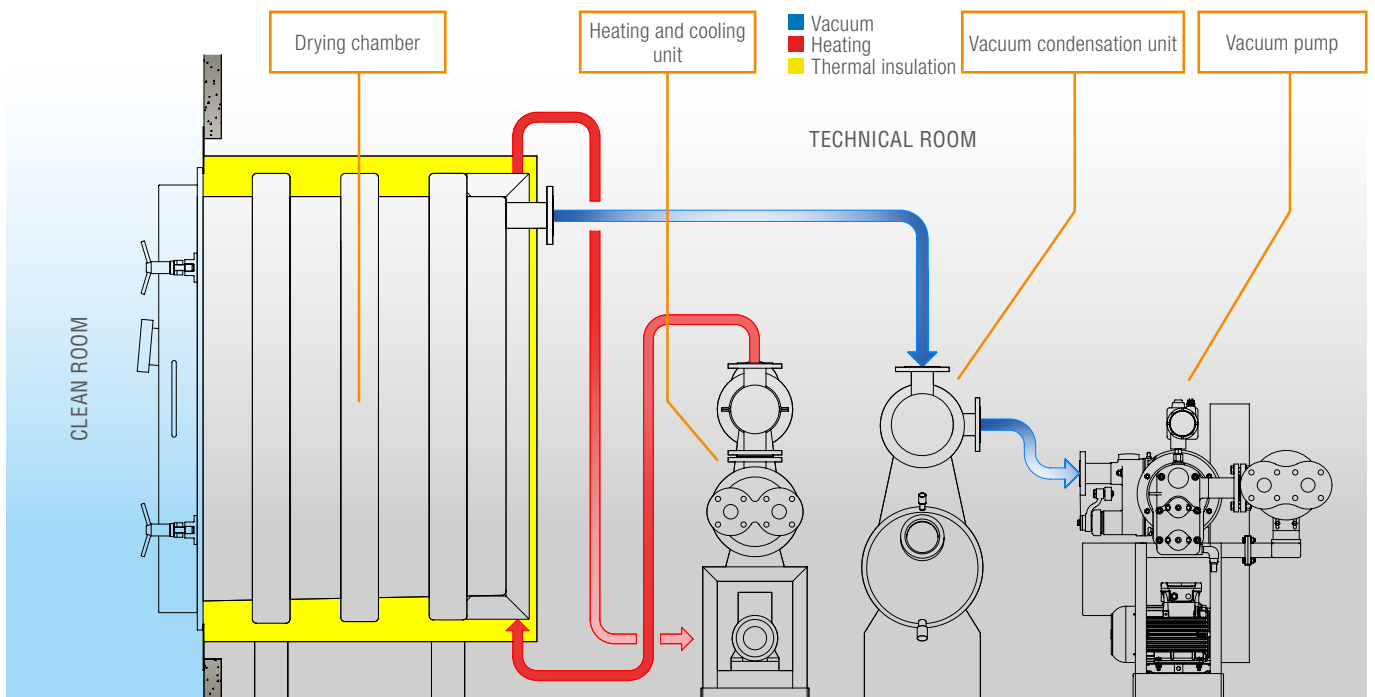


LaboDry version

### Turn-key systems

Italvacuum is the only manufacturer in the world that, in addition to the dryer itself, can design and build internally all the auxiliary units that complete the plant, properly sizing them to meet every process requirements, vacuum system included:

- ⊙ **Saurus939 high vacuum group**
- ⊙ **Vacuum condensation group** for reduction of drying times and recovery of extracted solvents
- ⊙ **Heating and cooling group** for system thermal regulation
- ⊙ **PLC control board** for total system management, equipped with software in compliance with the CFR 21 Part 11 standard, that guarantees the reproducibility of dried batches and can interface with centralized control systems.



Standard installation diagram of MULTISPRAY® Cabinet Dryer



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## Services

From laboratory to industrial installation: the best way for an accurate choice of the industrial plant

For drying trials Italvacuum has a wide range of pilot installations.

During the trials with the pilot installation it is possible to extract some product samples without breaking the vacuum and to vary at any time the process parameters in order to define the ideal drying path.

In this way the customer can make the best choice for the Italvacuum installation both in terms of dimensions and performance. On the other side the personnel of Italvacuum can obtain important information on the product to be dried, in order to adapt the industrial installation to the customer needs.

The tests are completed and formalized by drawing up a detailed report.

## Italvacuum customer service: efficiency guaranteed to last

The start-up of the installation is just the beginning of our relation with the customer. This relation will last for years starting with an efficient policy of preventive maintenance with planned interventions. The maintenance plans are organized individually considering the specific processes of the customer, that can take advantage of a remarkable cost saving and more tranquillity.

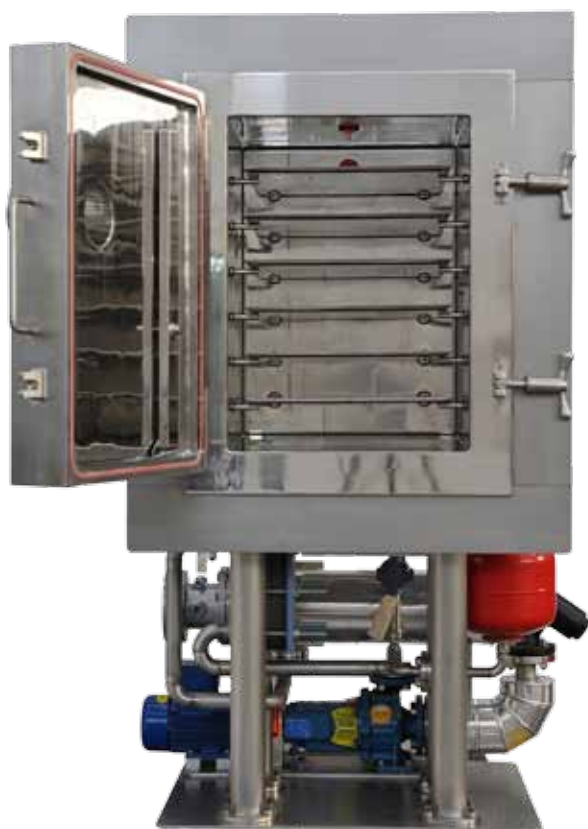
At the same time, for the solution of any inconvenient or breakdown, Italvacuum is able to offer prompt and efficient technical assistance services both at the customer's site with the intervention of specialized personnel or from its site through on-line diagnostic, in case the customer's installation has a control system supplied by our company.

For an efficient management of the spare parts, Italvacuum has a computerized warehouse that allows the prompt and immediate delivery of original spare parts anywhere in the world.

Moreover, Italvacuum can fully overhaul its own used plants and regularly supports the customer in upgrading the delivered installations with new technical solutions – that have been developed in the meantime - as well as adapting the machines to the new **ATEX** regulations.

## Integrated quality

ITALVACUUM has implemented a Quality Management System with **ISO 9001** certification covering from design to production of every single component, from end product sale to commissioning and technical assistance. In addition, acknowledging the importance of the welding process in the qualitative result and the reliability of the end product, ITALVACUUM has considered to certify its own processes and personnel complying to **ISO 3834-2** norms.



# Dimensions

The Italvacuum static vacuum dryers are available in a vast range of dimensions and capacities.



## Fixed shelves version

Model		E0,2 S	E0,5 S	E1 S	E1,5 S	E1,75 S	E2,5 S	E3,5 S
Inner volume	[lt]	250	600	1150	1530	1960	2730	4000
Inner dimensions (W x D x H)	[mm]	570 x 560 x 790	670 x 1060 x 840	1040 x 1060 x 1045	1040 x 1060 x 1385	1270 x 1060 x 1455	1550 x 1060 x 1660	1550 x 1560 x 1660
Number of heating shelves	--	6	7	9	11	13	15	15
Heating shelves dimensions (W x D)	[mm]	500 x 500	600 x 1000	970 x 1000	970 x 1000	1200 x 1000	1480 x 1000	1480 x 1480
Number of trays	--	6	14	36	44	52	90	60
Trays dimensions (W x D x H)	[mm]	480 x 480 x 40	600 x 480 x 40	480 x 480 x 40	480 x 480 x 40	600 x 480 x 40	480 x 480 x 40	710 x 710 x 40
Useful surface area	[m <sup>2</sup> ]	1,4	4	8,3	10	15	20,7	30,2

## Removable shelves version

Model		E0,33 P.E.	E0,9 P.E.	E1,6 P.E.	E2,7 P.E.	E3,9 P.E.	E5,5 P.E.
Inner volume	[lt]	340	900	1660	2600	3400	5200
Inner dimensions (W x D x H)	[mm]	600 x 650 x 870	760 x 1185 x 1000	1140 x 1185 x 1230	1380 x 1185 x 1590	1660 x 1185 x 1720	1820 x 1685 x 1690
Number of heating shelves	--	6	7	9	13	15	28
Heating shelves dimensions (W x D)	[mm]	500 x 500	600 x 1000	970 x 1000	1200 x 1000	1480 x 1000	750 x 1500
Number of trays	--	6	14	36	52	90	56
Trays dimensions (W x D x H)	[mm]	480 x 480 x 40	600 x 480 x 40	480 x 480 x 40	600 x 480 x 40	480 x 480 x 40	750 x 750 x 40
Useful surface area	[m <sup>2</sup> ]	1,4	4	8,3	15	20,7	31,5

## LaboDry version

Model:		ESL1	ESL2	ESL3
Inner volume	[lt]	26	52	78
Single cell inner dimension (W x D x H)	[mm]	420 x 420 x 150	420 x 420 x 150	420 x 420 x 150
Number of cells / trays	--	1	2	3
Trays dimensions (W x D x H)	[mm]	380 x 380 x 40	380 x 380 x 40	380 x 380 x 40
Useful surface area	[m <sup>2</sup> ]	0,15	0,3	0,45

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Your Vacuum Drying Specialist

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