

# GRANULATE DRYER



# Lytzen - the expert in ovens for the pharmaceutical industry



*Dryer, type E for production without solvents, stainless steel.*

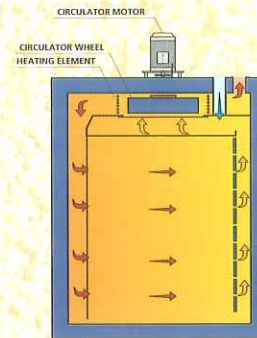
## Lytzen Granulate Dryers - Design Quality

- Dimensions according to customer request
- Reliable production
- Effective, uniform and gentle drying
- Safe production
- Electrically-heated dryers for zone I & II
- Reproducible process
- Construction according to cGMP
- Material in stainless steel AISI 304/316
- Heating element in stainless steel AISI 316L
- Long lifetime
- Low service costs
- High-quality components from world-wide recognized suppliers
- All inside sheets are easily removable for cleaning and inspection
- Suitable for CIP and SIP
- PLC - control system available
- Full documentation
- Full line of accessories

For more than 50 years Lytzen has supplied ovens for the pharmaceutical industry. Since the very beginning it has been a company goal never to compromise on the quality of our products, a fact that has proved most beneficial in the years past.

## Applications for Lytzen tray dryers

The Lytzen tray dryers are designed for drying of all kinds of granulates within the pharmaceutical industry.



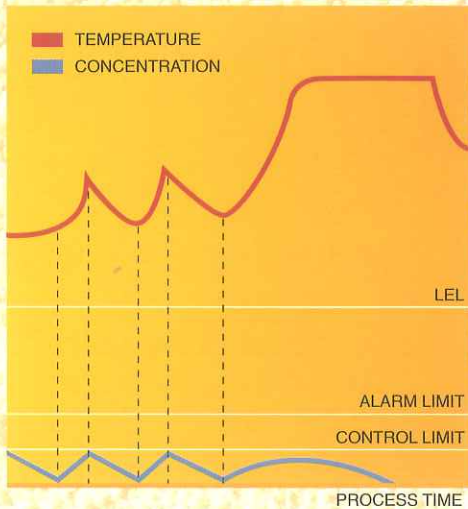
## Function of Dryer

The drying process is effected by a horizontal air flow. The unique construction of the chamber secures a uniform air distribution and a minimal difference of temperature inside the chamber, providing the most efficient drying. The Lytzen granulate dryer can be supplied with 100% air exchange. Electricity, hot water, steam and hot oil all available as heating media.



*Two J-granulate dryers with common control box*

# Granulate dryers in explosion-proof execution



The diagram is showing a typical course of process when a gas monitor is applied. The process is controlled by a temperature controller together with the LEL controller securing the evaporation of solvent to be kept at a safe level.

## Controlled process - short process time

By applying a LEL-controller for keeping the solvents inside the chamber below the lower explosion limit, Lytzen offers the optimal drying process for granulates containing solvents. Together with the safety equipment, it assures minimal process time, while keeping up a maximum of safety.

## Safety systems

The Lytzen Granulate Dryers for products with solvents are in compliance with the Atex-directive.

Primary safety systems:

- Explosion-proof execution
- Low air flow alarm
- LEL controller

Secondary safety systems:

- Precision designed explosion-relief door
- Emergency switch, illuminated, inside the chamber
- Automatic door interlock system



H1 Granulate Dryer with recorder, UPS, and GAS monitor (infra red).

## Process recording

The control panel is designed to record:

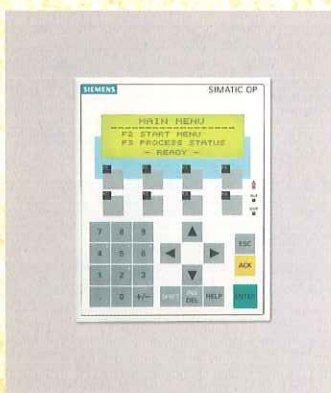
- Temperature
- Humidity
- Concentration of solvents
- Time

To provide:

- Minimum drying time
- Maximum security

## Documentation:

- The dryers are tested before delivery
- The measurements and other data are included in the documentation supplied with the dryer
- These data form the standard documentation for the dryer and facilitate the validation



PLC - control system



Conventional control system



*Two granulate dryers type E with common control board for controlling and recording of temperature, solvent and time*

## Accessories

Trays are included in Lytzen's standard range of accessories. Sizes are applicable to all dryers and their associated mobile racks.

Materials can be aluminium, stainless steel or per the customer's specification. Surface finish varies from mill finish, grit polish or electro polished.

The trays can be placed directly on tray supports inside the chamber.

As an alternative to tray supports, the granulate dryer can be loaded by a mobile rack directly from the floor via ramps. The mobile rack can also be supplied with a transfer trolley.

The trolley and mobile rack have been specially designed for the strict demands for cleanliness within pharmaceutical production facilities.



*Type 2CR - with round corners for easy cleaning.*

*Type 2C - with one inclined side.*



*Mobile rack.*

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## GRANULATE DRYERS

DRYER TYPE	TOTAL TRAY VOLUME LITRES	GRANULATE DRYER DIMENSIONS						TOTAL CHAMBER VOLUME M3	NUMBER OF TRAYS	TYPE OF TRAY	MOBILE RACK NUMBER /TYPE
		INSIDE FREE			OUTSIDE OF CABINET						
		W MM	D MM	H MM	W MM	D MM	H MM				
CB	294	600	810	1500	1045	1010	1980	0.70	21/42	2C/2B	-
C	280	700	810	1500	1190	1010	1980	0.85	20/40	2C/2B	1/1C
H1	560	900	1200	1500	1390	1400	1980	1.65	40	2C	1/1H
H2	1120	900	2400	1500	1390	2600	1980	3.25	80	2C	2/1H

DRYER TYPE	TOTAL TRAY VOLUME LITRES	GRANULATE DRYER DIMENSIONS						TOTAL CHAMBER VOLUME M3	NUMBER OF TRAYS	TYPE OF TRAY	MOBILE RACK NUMBER /TYPE
		INSIDE FREE			OUTSIDE OF CABINET						
		W MM	D MM	H MM	W MM	D MM	H MM				
EB	588	2 X 600	810	1500	2020	1010	1980	1.40	42/84	2C/2B	-
E	560	2 X 700	810	1500	2220	1010	1980	1.65	40/80	2C/2B	2/1C
J1D	830	2 X 700	1200	1500	2220	1400	1980	2.70	80/120	2B6/2B	2/1J
J2D	1660	2 X 700	2400	1500	2220	2600	1980	5.40	160/240 120/240	2B6/2B 2C/2B	4/1J 6/1C
2H2	2240	2 X 900	2400	1500	2620	2600	1980	6.50	160	2C	4/1H

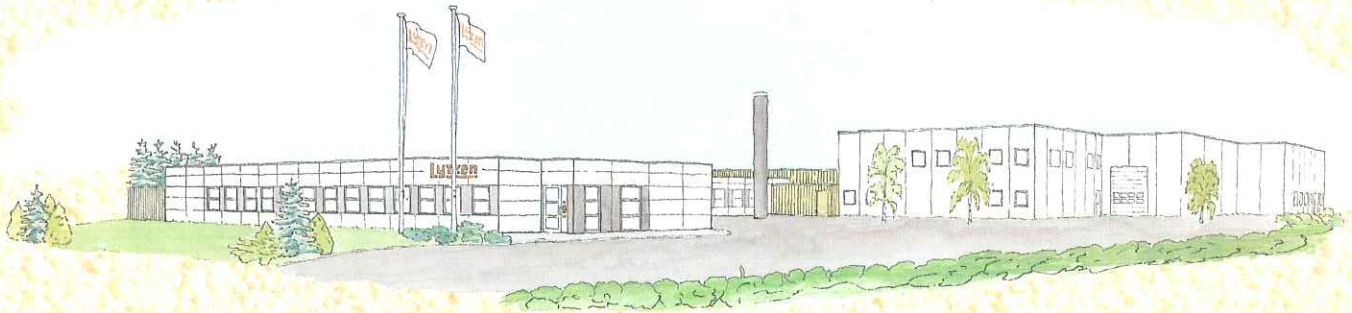
1 litre ~ 0.0353 cuft

A filling height of 30 mm has been implied, this means 100% efficiency.

If the inside oven height is changed from 1500 to 1750 mm, the capacity increases by 20%.

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## GRANULATE DRYERS



Lytzen is a high-technology organization, operating in markets around the world. We are the market leader for development, production and installation of ovens and sterilization equipment for the pharmaceutical industry.

Our products provide you with an effective and environmentally friendly production as well as a very efficient operation. These features will assist you in making your company more competitive.

Through our agents, our sales companies, and our research and development activities, we are constantly monitoring the market in order to be able to provide you with state-of-the-art products at all times.