

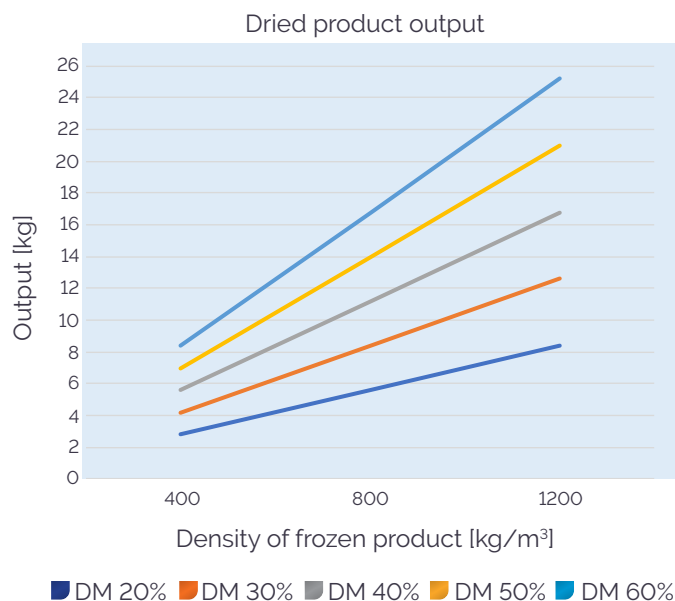
# FD30

## SMALL SCALE FREEZE DRYER

With its small size but high capacity, the FD30 is perfect for various setups and applications. The FD30 Pilot scale freeze dryer represents the next generation of freeze dryer solutions.

The small scale freeze dryer, type FD30, is a hygienic bulk freeze dryer with an external condenser which optionally can be isolated from the drying chamber. Heating for sublimation is as standard supplied by electrical heating elements. The heating shelves secure a uniform temperature gradient and pressure across the entire tray surface area. They offer the highest level of hygienic design and reduces the maintenance costs.

The design is optimised for up-scaling and ease of maintenance. The FD30 dryer has as an option CIP nozzles installed for full coverage of CIP liquid. It is manufactured from stainless steel, and all surfaces wetted by CIP-liquid can be documented with either 3.1, FDA and/or FCM certificate.



### Applications

The FD30 freeze dryer is designed for drying of nutraceuticals, food and pharmaceuticals:

- Probiotic bacteria
- Enzymes
- Algae
- Coffee
- Ready to serve food
- Fruit and vegetable (sliced, puree or extract)

| TECHNICAL DATA               |                              |
|------------------------------|------------------------------|
| Total tray area              | 1 m <sup>2</sup>             |
| Number of trays              | 8                            |
| Input/feed capacity          | 10-40 kg                     |
| Cooling coil capacity        | +30 kg H <sub>2</sub> O      |
| Maximum sublimation capacity | 1.6 kg H <sub>2</sub> O/hour |
| Unit dimensions, W x D x H   | 1.8 x 0.8 x 1.7 m            |

## Equipment

### STANDARD EQUIPMENT

|   |
|---|
| Stainless steel door  |
| Stainless steel drying chamber  |
| Stainless steel condenser chamber   |
| Stainless steel condenser coil  |
| Stainless steel frame and cladding  |
| Complete refrigeration system (water-cooled)                              |
| Non-lubricated vacuum pump (dry scroll pump)                              |
| Pressure sensors (high and low)   |
| Electrical heating shelves (individually controlled)                      |
| Natural anodized aluminium product trays                                  |
| Stainless steel sheeted thermocouples for product temperature measurement |
| Touch screen control panel with PLC                                       |
| Data logging  |
| Defrost of condenser (hardware/software sequence)                         |
| FAT, SAT and CE-documentation   |
| Hygienic design prepared for CIP  |
| Isolation valve   |
| Additional port   |

### OPTIONS

|   |
|---|
| 3.2/2.1 certificates for all product wetted parts |
| CIP equipment for both chambers                   |
| CIP return equipment                              |
| Disinfection v.e.g. H <sub>2</sub> O <sub>2</sub> |
| Wireless product temperature probes               |
| Nitrogen purging                                  |
| Pre-cooling of drying chamber                     |
| Double pressure sensor set                        |
| GMP software and documentation package            |
| Batch report                                      |
| Additional ports                                  |
| Cooling water unit                                |
| Defrost of condenser via vacuum steam             |

### OTHER VERSIONS

|   |
|---|
| SIP-able + equipment                              |
| Silicone heating/cooling shelves including system |
| Water heating/cooling shelves including system    |
| Realtime product weighing (in chamber)            |
| Air cooled refrigeration system                   |
| Alternative refrigerant (R404A, R744, R747)       |

## Product drawings

