

INS-FD-400 SIP/CIP Pharmaceutical Freeze Dryer



Parameters	Specifications
Model	INS-FD-400 SIP/CIP Pharmaceutical Vacuum Freeze Dryer
Application	Pharmaceutical, biotech, and sterile production freeze-drying with full SIP & CIP compliance
Drying Chamber (Inner)	AISI 316L Stainless Steel, rectangular shape, surface finish Ra ≤ 0.4 µm
Shelf / Plate Area	≥ 5.4 m ² effective drying area
Shelf Temperature Range	-50°C to +80°C (minimum coil temperature ≤ -70°C)
Temperature Uniformity & Heating	±1°C shelf uniformity, heating rate ≥ 1°C/min, silicone oil heat transfer
Condenser Capacity	100 kg ice per batch, AISI 316L stainless steel
Vacuum Performance	Ultimate vacuum ≤ 2.6 Pa; atmospheric to 10 Pa in ≤ 30 minutes
Refrigeration System	BITZER (Germany) compressors ×2, refrigerant R404A
Cooling Performance	Plate cooling to -40°C ≤ 60 min; condenser to -40°C ≤ 30 min
Mushroom Valve	DN300 mm hydraulic mushroom valve, AISI 316L, leak-proof with feedback control
Control System	Mitsubishi PLC, touchscreen HMI + industrial PC, auto/manual modes, 10-year data storage
Overall Dimensions & Compliance (Outer)	Approx. 4500 × 1500 × 3500 mm (L × W × H); 33.5 kW; ~6 tons; GMP / cGMP, FDA & EU compliant