



Medium R&D Freeze Dryer



STANDARDS

ASTM E3250

IEC 61010-1

ISO 13408-3

Medium R&D Freeze Dryer - QualiRFD™ 8

A Freeze Dryer for R&D needs production-like control in a mid-size footprint. The QualiRFD™ 8 is a pilot-scale freeze dryer built for parameter development, method optimization, and scale-up work where you want process behavior close to production equipment.

QualiRFD™ 8 is positioned for research teams that run iterative cycles and need stable, repeatable control. The system is described as using an industrial-style PLC approach and a dedicated control platform that supports recipe storage, real-time recording, curve generation, alarms, and reporting. This helps you compare runs, refine setpoints, and document results with less manual tracking.

APPLICATIONS

Medium R&D Freeze Dryer - QualiRFD™ 8 Applications

- Pharmaceutical freeze-drying development: Cycle development depends on controlling shelf temperature and vacuum to protect sensitive formulations. QualiRFD™ 8 is intended to replicate production freeze dryer functionality so you can refine parameters before moving to larger equipment.

- Biotech and life science sample preparation: Proteins, biologics, and research samples often require careful thermal control and consistent vacuum behavior. The platform is presented for early R&D and later process amplification when reproducibility matters across multiple runs.
- Specialty materials and chemical engineering: Some materials have low critical temperatures and narrow process windows. The QualiRFD™ 8 targeted design and process optimization to address applications that conventional freeze dryers may not handle well.
- Food process trials and scale-up studies: Pilot freeze drying supports recipe testing, structure retention studies, and process transfer to larger equipment. QualiRFD™ 8 is positioned for stepwise scale-up where you want industrial-style heating/cooling dynamics and recorded process curves.

Standards

- ISO 13408-3 (lyophilization guidance for aseptic processing of health care products).
- ASTM E3250 (best practices for temperature/pressure instrumentation in freeze drying).
- IEC 61010-1 (general electrical safety requirements for lab and control equipment).

FEATURES

Medium R&D Freeze Dryer - QualiRFD™ 8 Key Features

- Pilot-scale design intended to mirror production freeze dryer behavior for scale-up and parameter optimization.
- Tray and cold-trap approach described to support more uniform drying across shelves.
- Heating and cooling rate stated up to 1 °C/min, matching industrial-style dynamics.
- Stainless-steel sample-contact materials with a hygiene-focused layout to support easier cleaning access.
- PLC-based control with recipe storage, real-time recording, curve generation, reports, alarms, and history.
- Optional capability set for deeper R&D work, including vacuum level control, eutectic point testing, chamber isolation valve, and PC/mobile remote control.

THEORY & METHOD

Theory and Method

Freeze drying starts by freezing the product so water becomes ice. Vacuum is then applied so ice transitions directly into vapor, which is captured by the cold trap. Shelf temperature control manages heat input during sublimation, and secondary drying reduces bound moisture to reach the target residual level. SY-30F supports program-based operation and recorded

cycle curves, which helps you tune segments and confirm repeatability.

TECHNICAL SPECIFICATIONS

Medium R&D Freeze Dryer - QualiRFD™ 8 Technical Specification

Specification	QualiRFD™ 8
Freeze drying area	0.4 m ²
Cold trap temperature	< -75 °C (no-load)
Vacuum level	≤ 1 Pa (no-load)
Shelf temperature range	-55 to +70 °C (no-load)
Maximum ice capacity	≥ 8 kg/24 h
Number of shelf layers	4 + 1
Material tray size	340 × 300 mm
Shelf spacing	50 mm
Overall power	4.5 kW
Weight	400 kg
Dimensions (W×D×H)	825 × 928 × 1366 mm
Loadable materials	4 L/kg
Defrost mode	Natural defrost
Safety devices	Audible alarm, emergency stop switch, overpressure protection

Specification	QualiRFD™ 8
Voltage	Single-phase 3-wire, 220 V (110V is also available)



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