

FARRAR™

**REFRIGERATION
SOLUTIONS
FOR LIFE SCIENCE
APPLICATIONS**

TRANE
TECHNOLOGIES™

MEETING THE RAPIDLY GROWING DEMAND

FARRAR™, powered by global climate innovator, Trane Technologies, focuses on meeting the rapidly growing demand for low and ultra-low temperature processes involved in the manufacturing, freezing and storage of medicines, vaccines, and other life-science products.

We bring value to global customers through our powerful portfolio of solutions, predictive monitoring capabilities, and robust services. Collaborating with each customer, FARRAR tenaciously tackles unique **+40°C to -86°C** temperature storage challenges — based on application, product/substance/sample requirements and workflow demands.

FARRAR'S CONSULTATIVE APPROACH

Whether an application requires reach-in or walk-in solutions – or both, FARRAR™ is all in. Drawing from years of industry experience as trusted advisors and collaborative consultants, we start with a customer's temperature-driven need, then apply our deep application knowledge.

From new construction to facility expansion or renovation, we integrate with your team to drive success at every level to help you achieve your project and sustainability goals - on time and on budget.



DEPEND ON US FOR:

- Refrigeration expertise
- Commitment to quality and excellence
- One contact: many solutions

APPLICATIONS WE SERVE

When it comes to protecting Life Sciences' most valuable and fragile materials, our offerings include proven solutions for:

- Pharmaceutical manufacturing
- Biopharmaceutical manufacturing
- Bio-repository (bone, bone tissue, etc.)
- Clinical (blood, plasma, etc.)
- Bio-logistics
- Research/Academia



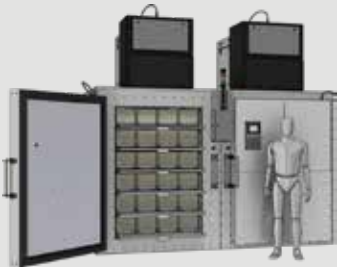
FORCED AIR CONVECTION: AN INDUSTRY GAME CHANGER



FARRAR™ pioneered forced air convection technology in its reach-in chambers. The key differentiator affects uniformity. Our chambers uniformly force air — at the targeted temperature — throughout the chamber. The result? FARRAR freezer and freeze/thaw equipment is up to 10 times more efficient at removing heat than the traditional cold-wall heat

displacement process. But we didn't stop there. Recovery from door opening is critical to helping ensure product integrity. FARRAR ULC Series chambers' dual refrigeration units recover to -80°C in less than 25 minutes from a 1 minute door opening, versus several hours experienced with competitor solutions.

FORCED AIR CONVECTION IS AVAILABLE IN OUR REACH-IN SOLUTIONS:



ULTRA-LOW
TEMPERATURE
FREEZERS



FREEZE/THAW
RATE CHAMBERS



LAB GRADE
REFRIDGERATORS



LAB GRADE
FREEZERS

ULC SERIES CHAMBERS

Purpose-built for life science applications, FARRAR's ULC Series including the Ultra-Low Chamber (ULC-190), Ultra-Low Chamber (ULC-311), and the new Ultra-Low Chamber (ULC-259) are the only +2°C to +8°C and -20°C to -80°C, forced air, ultra-low-temperature freezers on the market with air and water-cooled options.

Gain peace of mind: FARRAR™ ULC units can help ensure temperature uniformity and up to 10 times faster temperature recovery while conserving footprint, increasing yield, and offering full redundancy - alleviating the need for empty backup freezers that waste budget and space.



BENEFITS INCLUDE:

OPTIMIZED FOOTPRINT

Up to 50 percent less floorspace vs standard ULT configurations with six times the capacity (one ULC = six ULTs)

INDUSTRY'S FASTEST TEMPERATURE RECOVERY

Up to 10x faster temperature recovery from door opening helps ensure product integrity

INTEGRATED FULLY REDUNDANT (CONTROL, REFRIGERATION, AIRFLOW AND POWER) SYSTEMS

Eliminates need for backup freezer or liquid nitrogen system

AUTOMATIC DEFROST

Never worry about taking units out of service to manually defrost

EXTREMELY TIGHT TEMPERATURE UNIFORMITY AT ANY SET POINT

No matter the set point, count on better than +/- 3°C, even during a defrost cycle

ENGINEERED WITH MATERIAL HANDLING IN MIND

Optional racking, shelving, drawers and carts optimize process and workflow (available for all models)

EQUIPMENT PERFORMANCE/TEMPERATURE MONITORING (MODBUS)

Enables easy connection to nearly every building management and automation system (BAS/BMS)

4000 SERIES CONTROLLED RATE CHAMBERS

Eliminate uncertainty in your freeze-thaw processes. Purpose-built for bio-processing applications, the Controlled Rate Chamber Model 4000 offers uniformity and repeatability in rapid, controlled freezing and thawing applications. Unique forced air convection cooling rapidly freezes material from ambient to -80°C. Integrated thaw capability warms material from -80°C up to +40°C. This technology reduce freeze/thaw times from up to days or weeks to hours, enabling you to increase yield.



BENEFITS INCLUDE:

RAPID PULLDOWN

Pull down an empty chamber in less than 38 minutes

EXCELLENT PRODUCT UNIFORMITY

Product temperature uniformity of +/-1°C, and air temperature uniformity of +/-2°C

UNIVERSAL CONTAINER ACCEPTANCE

Precisely freezes small or large volumes of product in nearly any container type or size

CUSTOMIZABLE FREEZING AND THAWING

Programmable freeze /thaw profiles match your process (+40°C to -80°C setpoints)

INTEGRATED PROCESS DOCUMENTATION

Optional product probe monitors freeze/thaw process for data documentation

PROVEN TRACK RECORD

Adopted by the world's leading pharmaceutical companies

MISSION-CRITICAL LOW-TEMPERATURE SOLUTIONS

FARRAR™ provides North American customers with proven, engineered, integrated, and controlled environmental chambers for ultra-low temperature suites, freezers, and cold, warm, cold clean, stability (temperature and humidity), and wide range rooms. We engineer, design, install, and maintain a diverse portfolio of controlled walk-in environmental chambers and suites for precision-temperature spaces. Our solutions are ideal for pharmaceutical manufacturing, biobanking, and clinical donation companies committed to +40°C to -80°C mission-critical refrigeration processes and storage.

Drawing on deep application expertise, we leverage a broad range of refrigerants, equipment, material handling, access and enclosures to develop the right solution for each product and process in a development facility application. Our solutions are ideal for companies committed to low-temperature storage in:

- | | |
|--|---|
| STABILITY ROOMS
+13°C to +40°C | FROZEN BLOOD/BLOOD PRODUCT STORAGE
-30°C to -40°C |
| FINISHED GOOD STORAGE
+1°C to +12°C, with a +5°C=set point | VACCINE AND DRUG SUBSTANCE STORAGE
-50°C to -80°C |
| BULK PRODUCT UNFINISHED GOODS STORAGE
-20°C | |

FARRAR ECOFLEX



- LOW GWP R-448
- TEMPERATURE FLEXIBILITY +4°C TO +37°C
- UP TO 50% MORE ENERGY EFFICIENT*
- EXCEPTIONALLY QUIET OPERATION <60dB
- PRECISION CONTROL +/- 0.5°C

*Up to 50 percent more energy efficient in standard use vs. traditional environmental rooms, dependent on loading.



LAB GRADE AND ULT SOLUTIONS

EVEN MORE REASONS TO CHOOSE FARRAR



A SINGLE-SOURCE PARTNER

FARRAR offers a complete line of wide-range, proven, precision cold storage refrigerator and freezer solutions in various upright and undercounter configurations for laboratory applications to meet your product and process needs.



ENGINEERED TO LAST

FARRAR’s Lab Grade Solutions undergo Accelerated Life Testing (ALT) to support a 10-year service life, providing the high reliability and performance you’ve come to expect from our solutions.



OPTIMIZED FOR EFFICIENCY AND SUSTAINABILITY

We can help you achieve both operational and sustainability goals. To decrease carbon footprint and increase energy efficiency, FARRAR Lab Grade and ULT solutions use R290, R600a, EPA SNAP, and EU F-Gas compliant low global warming potential (GWP) natural hydrocarbon (HC) refrigerants.

REFRIGERATORS

FARRAR Lab Grade Refrigerators are the ideal upright and undercounter solutions for applications that require both consistent, powerful temperature performance and energy efficiency to meet rigorous sustainability requirements.



FLR120 FLR125 FLR245 FLR105

FREEZERS

FARRAR Lab Grade Freezers are the ideal solution when temperature excursions, reaching/maintaining set point temperature, and ice management are a challenge.



FLF120 FLF125 FLF105

ULT

The FARRAR Ultra-Low Temperature Freezer delivers superior temperature performance across three key areas – chamber uniformity, reliability, and temperature recovery – while also supporting sustainability goals.



FUF126

CAPABILITIES AND BENEFITS

SOLUTION	CAPABILITY/FEATURE	BENEFIT
LAB GRADE REFRIGERATORS (FLR105, FLR120, FLR125, FLR245)	<ul style="list-style-type: none">+2°C to +10°C with +/-1°C uniformityUltra-quiet operation 42dB – 52dB	<ul style="list-style-type: none">Usage flexibilitySuitable for productive office and lab environments
	<ul style="list-style-type: none">ENERGY STAR® certified and SNAP/EU F-gas-compliant	<ul style="list-style-type: none">Helps minimize environmental impact by pairing a variable capacity compressor with a low global warming potential (GWP) natural hydrocarbon refrigerant (R600a)
	<ul style="list-style-type: none">Available in multiple sizes 5.3 cu ft (150 L), 20.2 cu ft (572 L), 25.2 cu ft (714 L), 44.9 cu ft (1271 L) with premium features (single/double door configurations, glass doors, interior lights, solid buffer thermal ballast, and fast recovery from door opening)	<ul style="list-style-type: none">Purpose-built with quality components and features to help protect samples and ensure customer satisfaction
LAB GRADE FREEZERS (FLF105, FLF120, FLF125)	<ul style="list-style-type: none">-15°C to -35°C with <+/-2°C uniformityUltra-quiet operation 46dB - 52d	<ul style="list-style-type: none">Usage flexibilitySuitable for productive office and lab environments
	<ul style="list-style-type: none">Fast recovery to -30°C after 1 minute door openingENERGY STAR® certified and SNAP/EU F-gas-compliant	<ul style="list-style-type: none">Enables frequent access and helps ensure sample integrityHelps minimize environmental impact by pairing a variable capacity compressor with a low global warming potential (GWP) natural hydrocarbon refrigerant (R290)
	<ul style="list-style-type: none">Available in multiple sizes 5.3 cu ft (150 L), 20.2 cu ft (572 L), 25.2 cu ft (714 L) with premium features including auto-defrost	<ul style="list-style-type: none">Purpose-built with quality components and features to help protect samples and ensure customer satisfaction
ULTRA-LOW TEMPERATURE FREEZER (FUF126)	<ul style="list-style-type: none">-50°C to -86°C with +/-5°C uniformityIntegrated Smart Access Panel and PIN controlled electronic door lock	<ul style="list-style-type: none">Usage flexibilityIntuitive interface and touchscreen enables quick user experience, prevents unauthorized access, and helps ensure sample safety
	<ul style="list-style-type: none">Integrated temperature logs	<ul style="list-style-type: none">Enables convenient temperature data download and firmware upload
	<ul style="list-style-type: none">Low energy consumption5 layers of protection with 5 inner doors	<ul style="list-style-type: none">Helps minimize environmental impact by pairing a variable capacity compressor with a low global warming potential (GWP) natural hydrocarbon refrigerant (R290)Restricts access to specific shelf and helps protect samples from transient temperature warming that reduces sample viability

SERVICES AND SOLUTIONS

You need a proactive approach to help ensure robust performance over time. Our maintenance and service solutions can help you protect critical cold-chain infrastructure at each potential point of vulnerability.

COUNT ON US FOR:

INSTALLATION

We can complete proper and timely walk-in or reach-in system installation

QUALIFICATION/VALIDATION

In addition to IQ/OQ and temperature mapping, our expert team can help facilitate development of the certifications and qualifications necessary for your operations

PREVENTATIVE MAINTENANCE

Our expert team stays on top of timely system maintenance, giving you one less thing to worry about

BREAK/FIX OPTIONS

Should the unexpected occur, our global network of trained service technicians can provide the support you need

PREDICTIVE ANALYTICS

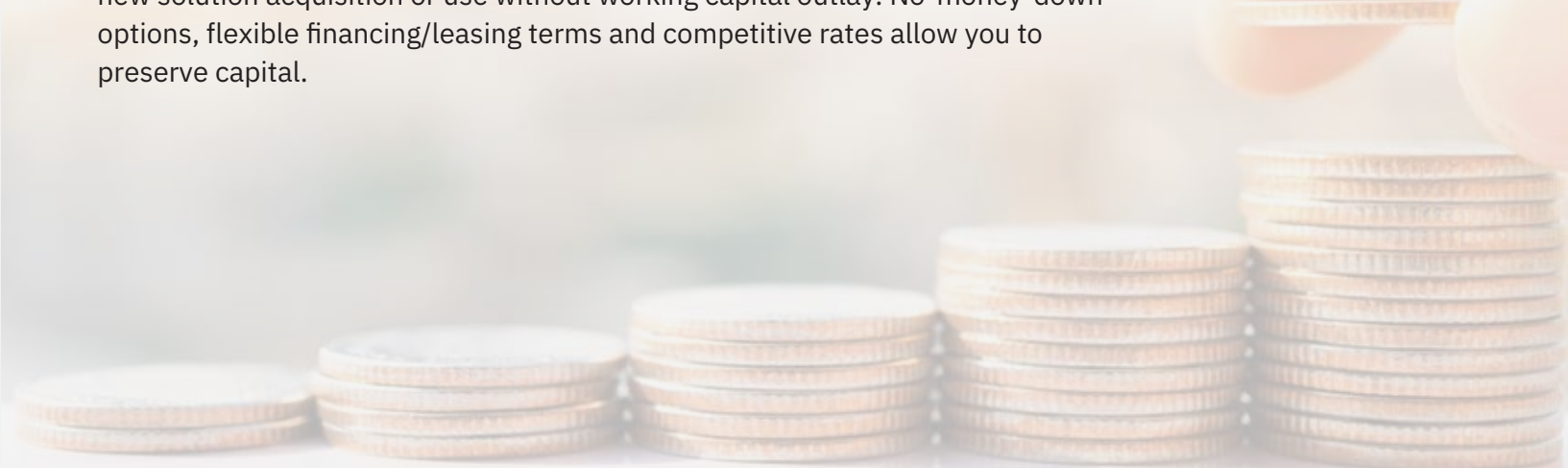
Our proprietary system allows you to get insights before a failure occurs

REMOTE MONITORING

We can monitor your system remotely to help ensure your application stays within tolerance

FINANCING & LEASING PROGRAMS

Capital expenditures can test your budget limits. FARRAR™ offers flexible financing/leasing programs to help you fund your project needs. Through Trane Technologies Financial Services (TTFS), FARRAR provides creative financing/leasing options for businesses within the United States and Canada — allowing new solution acquisition or use without working capital outlay. No-money-down options, flexible financing/leasing terms and competitive rates allow you to preserve capital.



NO MONEY
DOWN



FLEXIBLE
FINANCING TERMS



COMPETITIVE
RATES



PRESERVE
CAPITAL



MATCH CASH OUTLAY
WITH REVENUES



For more information, or to apply for FARRAR solution financing, contact your area sales representative or email our team at LSSInfo@tranetechnologies.com or visit farrarscientific.com/finance-options

ADVANCING SUSTAINABILITY

We are committed to advancing sustainability as we focus on meeting the rapidly growing demand for cold-chain solutions. To decrease carbon footprint and increase energy efficiency, many of our solutions are ENERGY STAR® rated and use R290, R600a, EPA SNAP, and EU F-Gas compliant natural hydrocarbon (HC) refrigerants. We also support Trane Technologies' commitment to reducing one billion metric tons of greenhouse gas emissions (CO2e) from customers' carbon footprints by 2030.

"Globally, large public biotech and pharmaceutical companies are responsible for more than 200 million metric tons of carbon dioxide and equivalent missions, according to estimates from one 2022 report."*

*Ladyzhets, Betsy, "Under pressure, biotech and pharma grapple with how to take climate action," STAT, March 29, 2023, referencing "The Carbon Impact of BioTech and Pharma, Progress to the UN Race to Zero," produced by MyGreen-Lab in collaboration with ICE, November 2022.

A PORTFOLIO OF POWER



Trane Technologies brings the full power and cold chain manufacturing expertise of Trane®, Thermo King® and FARRAR™ to provide a combined, 100-year strong, balanced, end-to-end portfolio of cold chain capabilities. From research and development to bulk storage and distribution, we offer scalable solutions covering temperature ranges of +40°C to -86°C.



RESEARCH | BULK PRODUCTION FREEZE

PRODUCTS & PROCESS DEVELOPMENT | BULK STORAGE

FARRAR™

Ultra-Low Temperature Freezers, Freeze/Thaw Rate Chambers, Walk-in Rooms



Contracting & Engineering Services, Remote Monitoring, Predictive Analytics, Temporary Storage, Power

TRANSPORT TO FILL



Truck and Trailers
Precise Temperature Control, Real-Time Data, Remote Monitoring & Security

FORMULATION/FINAL FILL STORAGE

FORMULATION/FINAL FILL THAW

FARRAR™



TRANSPORT TO MARKET



SuperFreezer™
Long Haul/Global Transport

Coldtainer®
Last Mile Delivery

FARRAR™

CONNECT WITH A COLD CHAIN EXPERT TODAY!

Discuss your needs, schedule a product demonstration, or receive a quote.



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