DESIGNED
with your science in mind

Ultra-low temperature freezers

Thermo Scientific TSX Universal Series ULT freezers
The next generation of our most trusted ULT platform
Designed with your science in mind

For over 80 years, Thermo Fisher Scientific has been designing ultra-low temperature (ULT) freezers with your science in mind. Prioritizing sample security and reliability, we recognize the importance of your work, which goes beyond the realm of science and touches the lives of those who benefit from your breakthroughs.

We continue to invest in advancing our products’ technological capabilities with the labs of the future in mind. Our in-house expertise is combined to help improve user experiences and enable high performance for excellent sample protection, future-proof technology with connectivity enablement, more sustainable production, and more efficient operation, supported by global services to help keep your work running.

We focus on designing from the bottom up to help advance your research.

+80 years of innovation

1940
Thermo Fisher Scientific began innovating cold storage lab equipment with the introduction of the Revco™ ULT freezer.

2015
The Thermo Scientific™ TSX™ Series ULT freezers with V-Drive cooling technology with natural refrigerants and insulation was launched.

2019
Updates to the TSX Series ULT platform included implementation of our immersive user touch screen interface, connectivity platform, and performance enhancements.

2021
TSX Series ULT freezers were upgraded to include new sample safety features and participation in the My Green Lab ACT label to help provide transparency around the environmental impact of our ULTs.

2024
Thermo Scientific™ TSX™ Universal Series ULT Freezers
The next generation of the TSX Series ULT platform has launched.
TSX Universal Series ULT freezers

The next generation of our most trusted ULT platform

The new TSX Universal Series ULT freezers herald a new era in performance with Universal V-Drive technology, delivering tighter control and faster recovery times. Coupled with an expanded setpoint range, universal voltage, whisper-quiet operation, simplified software updates and much more, TSX Universal seamlessly adapts to your workflow. Advancing sustainability, they are ENERGY STAR® certified with a 33% efficiency improvement, ACT labeled, and produced in our Zero-Waste to Landfill certified facility in Asheville, North Carolina.

TSX Universal ULT: the pinnacle of reliability, sustainability, and innovation.

Confidence in quality and reliability

Universally better performance

Greener by design™

Pioneering user-centric design

Ordering information
We understand the pivotal role reliable and high-quality lab equipment plays in your research endeavors, that’s why our ULT freezers are carefully engineered to meet the exacting demands of modern research environments.

TSX Universal Series ULTs represent our most robust design to date, incorporating insights from over 80 years of experience to enhance every aspect of the system. From sealed system and cabinet construction to software architecture and electrical components, each element of the TSX Universal ULT platform has undergone significant testing and improvements.

**Long-term reliability testing:** We have implemented a new long-term reliability testing protocol for our TSX Universal ULT freezers platform. This protocol involves rigorous and continuous testing of our ULTs in field and laboratory environments to simulate real world usage across application types.

**Every unit tested and documented:** 100% of TSX Universal ULT units undergo a comprehensive end-of-line testing process to ensure they meet our rigorous quality standards. We document the results in a factory acceptance test report and a certificate of calibration, which are provided with every unit produced.

**Industry-leading warranty:** We confidently stand behind our products, and we take pride in offering an industry-leading warranty, which sets us apart from any other ULT supplier in the market.

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**Designed for reliability-**

- Compressor, electronics, cabinet, and sealed system
  - High usage test
  - 20 parameter test procedure
  - Vibration testing

**Tested for reliability-**

- Multi-ambient testing
  - Tested at 15°C, 20°C and 32°C
  - Minimum 16 open air probes
  - Peak variation, stability, uniformity
  - Door open recovery

**Tested to help ensure quality-**

- 100% end of line test
  - Temperature pull down
  - Monitoring compressor cycling
  - Defrost temperatures
  - Warmup time
  - Bottom out temperature

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**20-point**

- Reliability test, 16+ probe location performance test, and 100% end of life test.

**+5400**

- Combined days of continuous reliability testing in the field and laboratory environments.

**12 years**

- Compressor parts and 5-year parts and labour warranty*.

*Restrictions and exclusions apply. Warranty is void if the unit is not maintained as set forth in the operation.
Universally better performance

Our ULT freezers are more than just a product - they are a testament to our commitment to meeting and exceeding our customers’ expectations. Through extensive research and development, we have created the next-generation TSX Universal ULTs that sets a new standard for performance, across all metrics.

Enhancements to our V-Drive cooling technology: By updating our variable speed compressors, enhancing our intelligent algorithms, and optimizing hardware with our new Universal V-Drive cooling technology, users can now benefit from universally better performance than the previous generation TSX Series ULT platform - demonstrated in Table A.

Adaptable across workflows: Thanks to our new and innovative Universal V-Drive technology, users will experience tighter performance with faster pull-down and recovery times. From high-use academic labs to longer-term storage facilities, you can now enjoy the convenience of using the same unit throughout your diverse workflows, streamlining processes and enhancing overall manageability.

Table A: TSX Universal ULTs have universally better performance when compared to the previous generation TSX Series ULT platform.

<table>
<thead>
<tr>
<th>Model</th>
<th>TSX70086FA</th>
<th>TSX70086A</th>
<th>TSX60086FA</th>
<th>TSX60086A</th>
<th>TSX50086FA</th>
<th>TSX50086A</th>
<th>TSX40086FA</th>
<th>TSX40086A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak variation</td>
<td>-80°C setpoint</td>
<td>3.5</td>
<td>5.8</td>
<td>3.4</td>
<td>5.5</td>
<td>3.3</td>
<td>6.9</td>
<td>4</td>
</tr>
<tr>
<td>Uniformity</td>
<td>3.3</td>
<td>3.9</td>
<td>3.2</td>
<td>3.4</td>
<td>3.1</td>
<td>4</td>
<td>3.7</td>
<td>4.5</td>
</tr>
<tr>
<td>Stability</td>
<td>0.2</td>
<td>1.5</td>
<td>0.2</td>
<td>1.9</td>
<td>0.2</td>
<td>2.6</td>
<td>0.2</td>
<td>2.1</td>
</tr>
<tr>
<td>1-minute open door 20°C C ambient running @ -75°C minutes</td>
<td>19</td>
<td>29</td>
<td>15</td>
<td>31</td>
<td>15</td>
<td>24</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Pull down 20°C to -80°C C minutes (hours)</td>
<td>307 (5)</td>
<td>576 (10)</td>
<td>287 (5)</td>
<td>486 (8)</td>
<td>250 (4)</td>
<td>438 (7)</td>
<td>229 (4)</td>
<td>390 (7)</td>
</tr>
<tr>
<td>ENERGY STAR power consumption kW-hr/day/ft³ (m³)</td>
<td>0.24</td>
<td>0.36</td>
<td>0.27</td>
<td>0.4</td>
<td>0.31</td>
<td>0.45</td>
<td>0.36</td>
<td>0.49</td>
</tr>
<tr>
<td>dBA</td>
<td>43.6</td>
<td>48.6</td>
<td>43.6</td>
<td>49.4</td>
<td>43.6</td>
<td>50</td>
<td>43.6</td>
<td>49.8</td>
</tr>
</tbody>
</table>

1) Data is representative of performance and not published product specifications. Technical data sheet test results should not be referenced in developing any regulatory parameters for specific customer usage.

2) Freezer performance will vary based on customer product volume, storage format, operating conditions, test methodology and performing recommended maintenance.
Greener by design™

We leverage the power of innovation to positively contribute to a healthier world, which includes reducing the environmental impact of our products and packaging—from design to end of life. By incorporating environmental sustainability principles into each design step, we can better understand and reduce the environmental impact of our products early in the design process, helping to ultimately deliver on our commitment to achieve net-zero emissions by 2050 while helping customers advance their sustainability goals.

Greener by design: In 2022, we elevated our Design for Sustainability (DfS) approach, positioning our R&D organization to expand, accelerate, and standardize how environmental considerations are embedded into product development. Our strategy focuses on five key impact areas: less hazardous, less waste, more energy efficient, responsibly packaged, and extended life. (Demonstrated in Figure 1)

ENERGY STAR–certified: Built with an unwavering commitment to sustainability, the next-generation TSX Universal ULTs are ENERGY STAR certified, with our largest size using 43% less energy than the allowed amount.

Transparency in sustainability: We believe it should be easy to make informed purchasing decisions when looking for more sustainable products. By participating in the ACT label program, run by the non-profit organization My Green Lab, we can provide easy-to-use information about our ULTs’ environmental impact.

Figure 1: TSX Universal Series ULT freezers – Greener by design approach

<table>
<thead>
<tr>
<th>Less hazardous</th>
<th>Less waste</th>
<th>More energy efficient</th>
<th>Responsibly packaged</th>
<th>Extended life</th>
</tr>
</thead>
<tbody>
<tr>
<td>We use natural refrigerants and insulation with extremely low GWP &amp; ODP levels, far lower than current regulatory requirements.</td>
<td>Asheville, NC, is a Zero-Waste to Landfill site and our lab freezers are manufactured with 60-70% recycled steel.</td>
<td>All ULTs are ENERGY STAR certified, providing substantial energy savings.</td>
<td>We use locally sourced and 100% by-weight recycled corrugate packaging and manufacture regionally to reduce transport emissions.</td>
<td>Our ULTs offer a 12-year industry-leading warranty, helping minimize the production, shipping, and disposal of units each year.</td>
</tr>
</tbody>
</table>
Expanding on the already versatile TSX series’ feature suite, the TSX Universal ULT platform is designed for laboratories looking to enhance their capabilities and redefine user experience. With its improved user interface, reduced rapid re-entry times, expanded set points, improved noise output, connectivity integration solutions, and introduction of universal voltages, this platform is designed to help take your laboratory to the next level.

**Universal voltage:** Operates on 100-230V, 50/60Hz, streamlining procurement and qualification strategies from early R&D to global clinical trials.

**Setpoint expansion:** Users can now enjoy an expanded setpoint range of up to -40°C, a first for the TSX Series ULT platform.

**Simplified updates:** Our onboard software streamlines startup and integration, making it easier to access and install the latest updates for continuous access to new features.

**Faster re-entry:** Improved pressure relief port (PEP) enables re-entry in just 30 seconds, 57% faster than previous TSX ULTs, helping ensure uninterrupted freezer access.

**Whisper-quiet:** Operating at under 44 decibels, the TSX Universal ULT can be placed anywhere, singly or in multiples, without causing sound pollution.

**Certificate and documents:** TSX Universal ULTs come shipped with documentation* for GMP or qualification environments, helping facilitate import, incoming inspection, and qualification needs.

TSX Universal ULTs offer a variety of options that can be customized to your application needs:

**Versatile & durable storage**
- 4 sizes
- 2 inner doors / (5 door option)
- Adjustable shelves
- High density footprint
- Stainless steel shelves
- Extra large capacity
- 7 zone gasket design
- Vacuum insulation panels
- Cold rolled steel cabinet
- Onboard diagnostics
- Optional:
  - 100s of rack options
  - Stainless steel interiors

**Compliance & security**
- UL 61010, CE, ISO 13485
- ISO 5.5 Cleanroom†
- Factory acceptance reports
- Calibration certificates
- Event & temperature logs
- Settings security
- Back-up battery
- Optional:
  - IQ/OQ documents
  - Electronic locks
  - \(\text{LN}_2\) & \(\text{CO}_2\) back-up systems
  - Status lights

**Ergonomics & convenience**
- Customizable display
- Eye level, high contrast large text display
- Automatic pressure relief
- Frost management system
- Multiple access ports
- Easy roll casters
- Easy to clean surfaces
- Full 7” capacitive touch screen

* Shipped documents include: Certificate of conformance, EC declaration of conformance, certification of calibration, QC test log sheets, and QC temperature graphs.

† Test according to ISO 14644-14 and designated as ISO Class 5.5; operational; 0.1 μm, 0.2 μm, 0.3 μm, 0.5 μm, 1.0 μm.
Pioneering user-centric design

Designed with labs of the future in mind, the TSX Universal ULT freezers come with 5V and Power over Ethernet supplies, enabling users to introduce connectivity solutions to help monitor, share, and analyze data, all of which help streamline processes and improve research outcomes.

Enhance sample security and streamline asset management with Thermo Fisher Connect Platform

Thermo Fisher™ Connect Platform provides a secure, centralized platform for cutting-edge asset management and 24/7 remote monitoring to help ensure the integrity of products and samples vital to the work you do.

Thermo Scientific connectivity hardware connects your TSX Universal Series ULT freezer.

Monitor your ULT through the Thermo Scientific InstrumentConnect mobile platform or directly from your PC.

InstrumentConnect features:
- Real-time instrument health status
- Customizable report downloads
- Mobile and web applications
- Notifications: in-app alerts, email and push messaging
- Measurement data: temperature, system data, settings
- Bulk download and expert capability across multiple units
- Alarms: system, environmental, connectivity
- Event notifications: warnings, user-based events, door open
- Detailed event descriptions
- Up to 6-month notification card of active alarms/events
- Full (lifetime) historical data storage and report retrieval
- Summary health report generation (on-demand and planned)

To learn more about the Connect Platform and available connectivity hardware, visit: thermofisher.com/connectedsolutions
## Ordering information

**Thermo Scientific TSX Universal Series ULT freezers (-86°C to -40°C) - ordering information**

<table>
<thead>
<tr>
<th>Model number</th>
<th>Capacity cu. ft. (liters)</th>
<th>Rack capacity (2 inch boxes)</th>
<th>Electrical Plug</th>
<th>Shelves</th>
<th>Door style</th>
<th>Interior dimensions H x W x D in (cm)</th>
<th>Exterior dimensions H x W x D in (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSX40086FA</td>
<td>19.4 (549)</td>
<td>16 (400)</td>
<td>100-230V 50/60 Hz</td>
<td>4 shelves (5 Adjustable)</td>
<td>Outer (1) Inner (2)</td>
<td>28.3 x 23.1 x 51.2 in. (71.9 x 58.8 x 130.1)</td>
<td>37.6 x 28.3 x 78 in. (95.5 x 71.9 x 198.1)</td>
</tr>
<tr>
<td>TSX50086FA</td>
<td>24.1 (682)</td>
<td>20 (500)</td>
<td></td>
<td></td>
<td></td>
<td>28.3 x 23.1 x 51.2 in. (71.9 x 58.8 x 130.1)</td>
<td>37.6 x 28.3 x 78 in. (95.5 x 71.9 x 198.1)</td>
</tr>
<tr>
<td>TSX60086FA</td>
<td>28.8 (816)</td>
<td>24 (600)</td>
<td></td>
<td></td>
<td></td>
<td>28.3 x 23.1 x 51.2 in. (71.9 x 58.8 x 130.1)</td>
<td>37.6 x 28.3 x 78 in. (95.5 x 71.9 x 198.1)</td>
</tr>
<tr>
<td>TSX70086FA</td>
<td>33.5 (949)</td>
<td>28 (700)</td>
<td></td>
<td></td>
<td></td>
<td>28.3 x 23.1 x 51.2 in. (71.9 x 58.8 x 130.1)</td>
<td>37.6 x 28.3 x 78 in. (95.5 x 71.9 x 198.1)</td>
</tr>
</tbody>
</table>

### Options and accessories (field installation must be completed by a qualified professional)

<table>
<thead>
<tr>
<th>Options</th>
<th>Factory installation</th>
<th>Field installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LN₂ backup system</td>
<td>LNTSXU</td>
<td>FLNTSXU</td>
</tr>
<tr>
<td>Maintains temperature down to -80°C with liquid nitrogen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO₂ backup system</td>
<td>COTSXU</td>
<td>FCOTSXU</td>
</tr>
<tr>
<td>Maintains temperature down to -67°C with CO₂.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access key option card</td>
<td>ELTSXU</td>
<td>FELTSXU</td>
</tr>
<tr>
<td>Stainless steel freezer interior</td>
<td>SS34567</td>
<td></td>
</tr>
</tbody>
</table>

### Free standing chart

<table>
<thead>
<tr>
<th>115v 60Hz</th>
<th>115v 50Hz</th>
<th>230v 60Hz</th>
<th>230v 50Hz</th>
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</thead>
<tbody>
<tr>
<td>6383-6A</td>
<td>6383-6D</td>
<td>6383-6V</td>
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</table>

### Size dependent options

<table>
<thead>
<tr>
<th>Installation</th>
<th>TSX40086</th>
<th>TSX50086</th>
<th>TSX60086</th>
<th>TSX70086</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory</td>
<td>5D400</td>
<td>5D600</td>
<td>5D600</td>
<td>5D700</td>
</tr>
<tr>
<td>Field</td>
<td>SK400TSX</td>
<td>SK500TSX</td>
<td>TSK600TSX</td>
<td>SK700TSX</td>
</tr>
</tbody>
</table>
Accessories (optional)

Access key pack (U.S.): Includes five key cards. Supports ISO15693 protocol  ACU34567
Replacement back-up battery  400159
Cryo gloves medium  4425
Cryo gloves large  4426

<table>
<thead>
<tr>
<th>Size dependent options</th>
<th>TSX40086</th>
<th>TSX50086</th>
<th>TSX60086</th>
<th>TSX70086</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory for light bars</td>
<td>TSXLBSM</td>
<td>TSXLBSM</td>
<td>TSXLBLG</td>
<td>TSXLBLG</td>
</tr>
<tr>
<td>Seismic restraint kit</td>
<td>TF-ULT400</td>
<td>TF-ULT500</td>
<td>TF-ULT600</td>
<td>TF-ULT700</td>
</tr>
<tr>
<td>Replacement air filter</td>
<td>AF34567LE</td>
<td>AF34567LE</td>
<td>AF34567LE</td>
<td>AF34567LE</td>
</tr>
</tbody>
</table>

unity
lab services

Service and support

Unity™ Lab Services provides comprehensive service solutions to support your ULTs—everything from start-up to maintenance and repair to stay compliant. Keep focused on what matters. We’ve got your back.

Learn more: thermofisher.com/unitylabservices

Start-up services

<table>
<thead>
<tr>
<th>Service</th>
<th>Region</th>
<th>Cat. No.</th>
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</thead>
<tbody>
<tr>
<td>Start-up</td>
<td>US and Europe</td>
<td>STARTULT</td>
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</table>

Service plans

<table>
<thead>
<tr>
<th>Service plans</th>
<th>Factory warranty period</th>
<th>Post-warranty period</th>
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</thead>
<tbody>
<tr>
<td>Region</td>
<td>Total Care warranty</td>
<td>Tech Direct service plan</td>
</tr>
<tr>
<td>US</td>
<td>TCSWULT</td>
<td>TDSPLULT</td>
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<tr>
<td>Europe</td>
<td>TCWTYULT</td>
<td>TEDULT</td>
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Compliance services

<table>
<thead>
<tr>
<th>Service</th>
<th>Region</th>
<th>Specification</th>
<th>Model coverage</th>
<th>Cat. No.</th>
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</thead>
<tbody>
<tr>
<td>IQ/OQ + TM</td>
<td>US and Europe</td>
<td>TSX ULTs</td>
<td>TSX-series (post 2018), Advanced 89000-series, HLE, RLE, TLE</td>
<td>IOQPCKE89003810</td>
</tr>
<tr>
<td>IQ/OQ</td>
<td>US and Europe</td>
<td>TSX ULTs</td>
<td>TSX-series (post 2018), Advanced 89000-series, HLE, RLE, TLE</td>
<td>IOQPCKE89003810</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service</th>
<th>Region</th>
<th>Accreditation</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration</td>
<td>US</td>
<td>ISO/IEC 17025</td>
<td>CALPRCOLD</td>
</tr>
<tr>
<td>Calibration</td>
<td>US</td>
<td>ISO 9001</td>
<td>CALBCCOLD</td>
</tr>
</tbody>
</table>
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Reliability assured
User-centric design
Enhanced performance
Greener by design

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