


# Thermo Scientific TSX Series Ultra-Low Temperature Freezers

## A better environment inside and out

Thermo SCIENTIFIC

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committed to science

# Sample protection that adapts to you
## and your environment

# TSX 400 and TSX 600

### The sustainable choice for sample protection

Thermo Scientific™ TSX Series ultra-low temperature freezers are designed with features that support sample protection and sustainability objectives. Our V-drive technology is designed to provide temperature uniformity that continually adapts to the lab's environment, offering significant energy savings without compromising sample protection.

### Energy savings

While conventional refrigerant ultra-low freezers can run up to 18 kWh/day in energy usage, the TSX600 performs at just 8.7 kWh/day in standard operating model while the TSX400 performs at 7.9 kWh/day

### More samples, less freezer footprint

Make the most of your lab space with a choice of two sizes. The TSX600 can hold up to 600 2-inch boxes in a 1.06m$^2$ footprint while the new TSX400 can hold up to 400 2-inch boxes in a footprint of 0.79m$^2$.

### Whisper quiet operation

Compared to standard freezers*, the TSX offers a whisper quiet operation, so you can bring the freezer out of the hallway and back into your lab without disrupting your audio environment.

### Designed to meet tight temperature uniformity requirements

Should your application require ultra-tight temperature control, select high-performance mode for the most stringent qualification requirements.

* Based on published sound specifications, data on file. March, 2015.

**Energy savings**

Quiet

Sustainability

**Sample protection**

**More sample storage**

V-drive technology

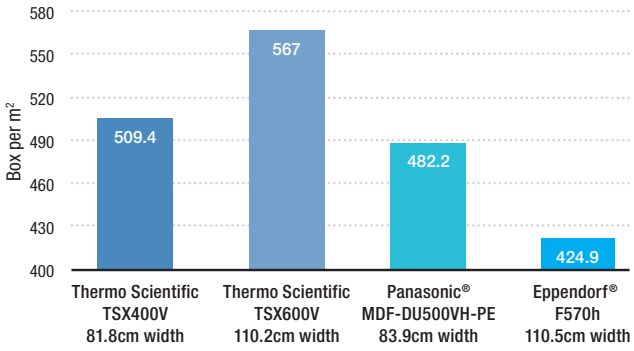
# More samples
## less freezer footprint

## Big storage capacity, small freezer footprint

**TSX400**
- 400 box capacity (2" standard cryo boxes)
- Store up to 40,000 2mL tubes
- Store up to 67,600 1mL tubes

**TSX600**
- 600 box capacity (2" standard cryo boxes)
- Store up to 60,000 2mL tubes
- Store up to 101,400 1mL tubes


### Box to footprint ratio




Panasonic MDF-DU500VH-PE and Eppendorf F570h specifications based on published data as of February 2016.

# **The drive for sample integrity** and energy savings

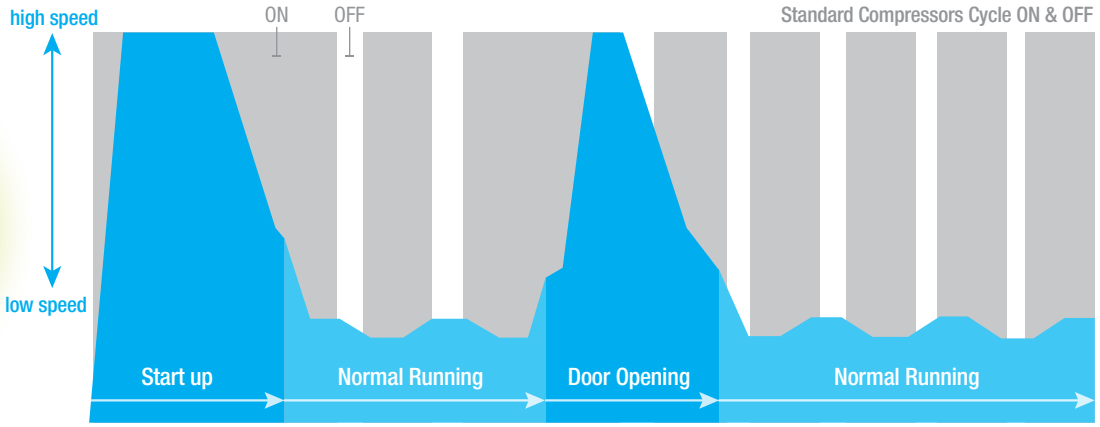
The performance and energy savings of the new TSX are driven by our unique **V-drive technology**.

- While conventional ultra-low temperature freezers use single speed compressors that continually cycle on and off, the TSX V-drive runs at variable speeds to adjust cooling performance to the conditions inside and outside of the freezer.
- When combined with the automated tuning control, this variable speed drive optimizes the compressors running speed to the current conditions.
- When conditions are stable, such as overnight or on weekends, the drive runs at a low speed, reducing energy consumption while maintaining a stable temperature for your samples.
- When there are frequent door openings, or samples are added to the freezer, the control system detects the activity and increases the drive speed to bring temperatures back to the set point quickly. This innovative technology is one of the reasons the TSX delivers outstanding door opening recovery (DOR) speed, and more peace of mind for busy laboratories.

**V-drive**

Low Energy → **Low Operating Cost**

Adaptive Control → **Sample Security**




### Variable Speed Compressors (V-Drive) change speed

As shown in the above graphic, the TSX V-drive, unlike standard compressors that cycle on and off, adjusts to factors such as start-up and door openings, when a higher compressor speed is needed. During normal running time when the door is closed, the V-drive runs at a lower speed to maintain your setpoint.

## Energy Usage and Savings: TSX600

| | Conventional Ultra-Low Freezer* | | TSX600 Standard Mode | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Energy Usage (kWh/day) | Annual Energy Usage (kWh) | Energy Usage (kWh/day) | Annual Energy Usage (kWh) | Cost/kWh** | Annual Cost Savings/ Freezer | 10 Year Savings | Metric Tons of $CO_2$ Reduced Per Year*** |
| U.K. | 18 | 6570 | 8.7 | 3175.5 | £0.13 | £441.29 | £4,412.85 | 2.01 |
| Germany | | | | | €0.31 | €1,052.30 | €10,522.95 | |
| France | | | | | €0.17 | €577.07 | €5,770.65 | |
| Italy | | | | | €0.24 | €814.68 | €8,146.80 | |

* Thermo Scientific TSU600V

** Calculated using data from the European Commission's published electricity and natural gas price statistics. http://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_and_natural_gas_price_statistics. Accessed March, 2015.

*** metric tonnes/kWh - 0.0005925

## Energy Usage and Savings: TSX400

| | Conventional Ultra-Low Freezer* | | TSX400 Standard Mode | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Energy Usage (kWh/day) | Annual Energy Usage (kWh) | Energy Usage (kWh/day) | Annual Energy Usage (kWh) | Cost/kWh** | Annual Cost Savings/ Freezer | 10 Year Savings | Metric Tons of $CO_2$ Reduced Per Year*** |
| U.K. | 17 | 6205 | 7.9 | 2883.5 | £0.13 | £431.80 | £4,317.95 | 1.97 |
| Germany | | | | | €0.31 | €1,029.67 | €10,296.65 | |
| France | | | | | €0.17 | €564.66 | €5,645.55 | |
| Italy | | | | | €0.24 | €797.16 | €7,971.60 | |

* Thermo Scientific TSU400V

** Calculated using data from the European Commission's published electricity and natural gas price statistics. http://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_and_natural_gas_price_statistics. Accessed March, 2015.

*** metric tonnes/kWh - 0.0005925

### Adaptive control

Adapting to your freezer usage patterns, the TSX V-drive increases compressor speed to quickly restore temperature after door openings.

# Leading performance

## Thermo Scientific TSX400

| Freezer | Energy Consumption (kWh/day)* | | Peak Variation From –80°C Setpoint** | | Peak Variation From –70°C Setpoint** | | Door Opening Recovery Minutes | Warm-Up Time (–80°C to –50°C) Minutes*** |
|---|---|---|---|---|---|---|---|---|
| | Standard Mode | High-Performance Mode | Standard Mode | High-Performance Mode | Standard Mode | High-Performance Mode | | |
| TSX400 | 7.9 | 9.4 | +6.0/+1.1 | +4.0/–1.4 | +3.6/–2.8 | +3.6/–2.8 | 17 | 267 |

* Energy calculation: Typical freezer data based on internal testing with freezer setpoint at –80˚C and ambient temperature at 20˚C

** Peak variation from set point: Typical freezer data based on internal testing with freezer set point at –80˚C/–70˚C and ambient temperature at 20˚C

*** Warm up time: Typical freezer data based on internal testing with freezer set point at –80˚C and ambient temperature at 20˚C

## Optimize Your Lab Space


*Space between units per manufacturer published data as of April 2016. Sample storage capacity is based on 100 sample tubes per 2" standard cryo box.

# Leading performance

## Thermo Scientific TSX600

| Freezer | Energy Consumption (kWh/day)* | | Peak Variation From –80°C Setpoint** | | Peak Variation From –70°C Setpoint** | | Door Opening Recovery Minutes | Warm-Up Time (–80°C to –50°C) Minutes*** |
|---|---|---|---|---|---|---|---|---|
| | Standard Mode | High-Performance Mode | Standard Mode | High-Performance Mode | Standard Mode | High-Performance Mode | | |
| TSX600 | 8.7 | 10.2 | +6.9/+1.8 | +4.4/–0.4 | +4.3/–3.7 | +4.3/–3.7 | 24 | 303 |

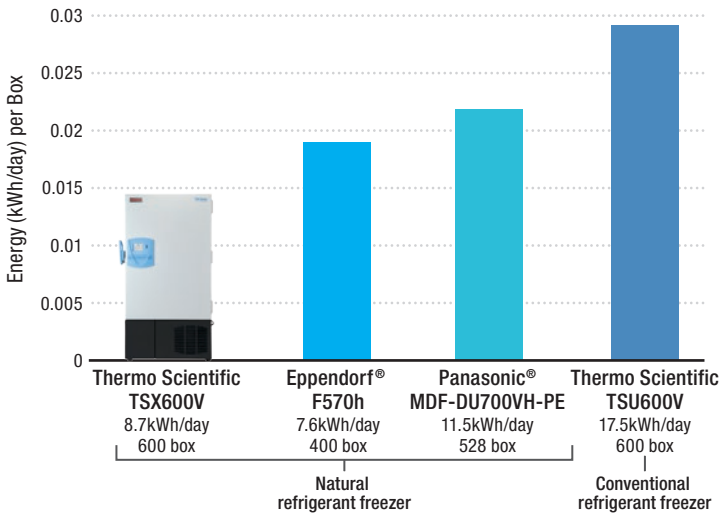
* Energy calculation: Typical freezer data based on internal testing with freezer setpoint at –80˚C and ambient temperature at 20˚C

** Peak variation from set point: Typical freezer data based on internal testing with freezer set point at –80˚C/–70˚C and ambient temperature at 20˚C

*** Warm up time: Typical freezer data based on internal testing with freezer set point at –80˚C and ambient temperature at 20˚C

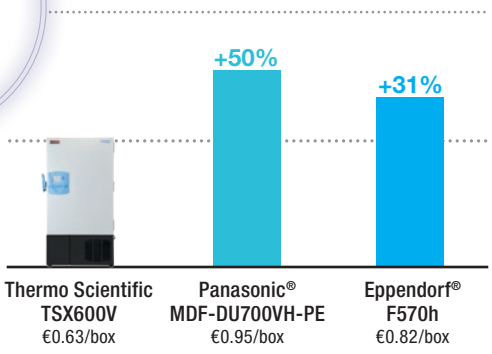
### Energy Savings Per Box†

Save up to **50%** over conventional freezers

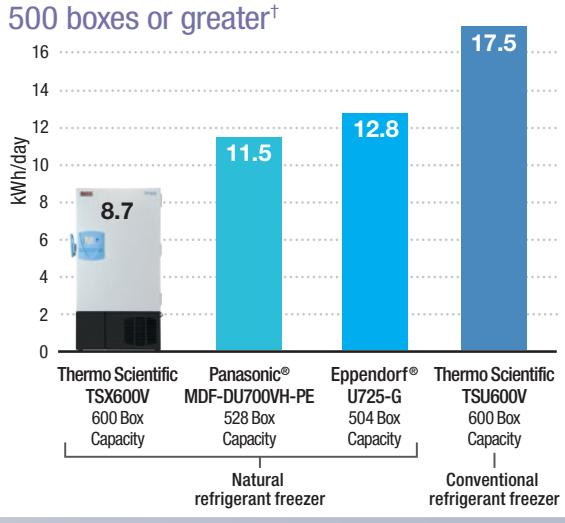



Save on storage costs

### Cost to Store 1 box for 1 year†




### Freezer kWh/day comparison of freezers 500 boxes or greater†




† Calculated based on manufacturer published energy consumption data as of 2/26/2015 (TSX600V) and 2/24/2016 (TSX400V) and energy cost assumption of 0.12 euros / kWh. Energy consumption is based on manufacturer published energy consumption data as of 2/26/2015. Data on file. Thermo Scientific TSU600V data with high-performance mode.

# A sound environment
## for critical samples

You know that the constant noise created by compressors can compromise communications and create a less than ideal working environment. The new TSX is **up to 20X quieter than our previous generation of freezers**.* Our new V-drive technology, combined with superior insulation, limits the sound output of the TSX600 to **less than 46 dB**, and the new TSX400 to **47.5 dB** approximately the sound generated by a conventional refrigerator.**


**Decibel Scale of Common Sounds**
Examples of noise levels in decibels

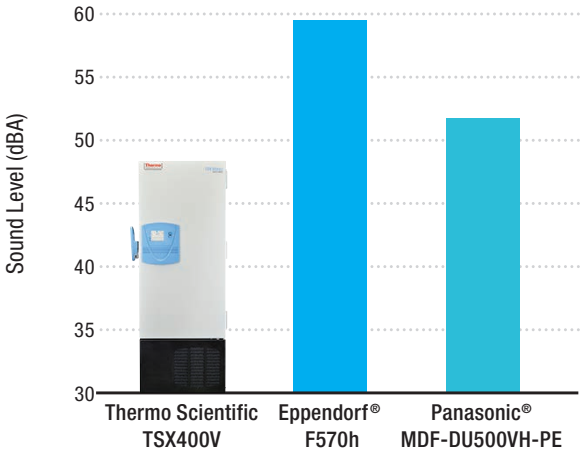
| Noise Source | Decibel Level |
|---|---|
| Freeway traffic 15M, vacuum cleaner | 70 |
| Conversation in restaurant, office, background music | 60 |
| Quiet suburb, conversation at home | 50 |
| TSX 400 | 47.5 |
| TSX 600 | 45.5 |
| Library | 40 |
| Quiet rural area | 30 |
| Rustling leaves | 20 |
| Breathing | 10 |

* Thermo Scientific TSU600V.

** Internal performance data comparing TSX sound to conventional refrigerators. Data on file. March, 2015.

*** Based on manufacturers' published specifications, April 2016.

### Whisper Quiet Operation***




## Environmentally-friendly design

- Natural refrigerants for lower environmental impact and higher cooling efficiency
- Water-blown foam insulation eliminates the refrigerant out-gassing, common in other foam products
- Manufactured in an award-winning*, zero waste to landfill facility (93% recycling, 7% waste to energy)

* *Industry Week* 2013 Best Plant Award. http://www.industryweek.com/quality/2013-iw-best-plants-winner-thermo-fisher-scientific-growing-quality-culture-lab

# What are the details, inside and out?

## Information at your fingertips
New touch-screen user interface provides access to vital freezer information including event log, settings and user profiles.

## Environmentally-friendly refrigerants and insulation
Natural refrigerants and water-blown foam insulation

## Optional $LN_2$ and $CO_2$ back-up systems
Provide three control points of additional protection to maximize sample protection.

## On-board data storage
Store up to 15 years worth of temperature and event data on our on-board computer.

## Easily exchange data
Use the new USB port to download freezer temperature and event log data or freezer settings from one freezer to another.

## Single-hand operation
Easy-to-use, padlock-compatible, ergonomic door handle with integrated key lock.

## Easy-to-remove, washable filter
Provides protection from dust on the condenser, increasing refrigeration performance and decreasing risk to samples.

## Optional chart recorder
Seven day, 6" (15.2cm) chart recorder for validation and regulatory requirements.

## Simplified installation
With our new easy-roll 2" (5.1cm) locking casters.

## Insulated inner doors
Improve energy consumption and reduce ice. Polystyrene insulated inner doors allow for 4 or 5 shelf configurations and are removable for easy cleaning.



While there are a lot of new features to the TSX, you'll appreciate the performance of our touch screen interface. Whenever you need to know what's going on inside the freezer, the answers are just a touch away.

- Alarm status
- Door opening status
- Temperature status
- Environmental conditions
- Back-up system status

# Specifications and Ordering Information

## Thermo Scientific TSX Series Upright Freezers (–50°C to –86°C)

### Specifications

| Model No. | Electrical | Amps/Breaker (Plug) | Max. Shelf Weight kg (lbs.) | Interior Dimensions H x D x W cm. (in.) | Exterior Dimensions H x D x W cm. (in.) | Shipping Weight kg (lbs.) |
|---|---|---|---|---|---|---|
| TSX400V | 208-230V 50/60Hz | 4/10 (European) | 73.4 (165) | 130 x 68.6 x 58.9 (51.2 x 27 x 23.2) | 198.1 x 96 x 81.8 (78.0 x 37.8 x 32.2) | 332 (730) |
| TSX400D | | 4/10 (NEMA 6-15) | | | | |
| TSX600V | 208-230V 50/60Hz | 4/10 (European) | 110.1 (245) | 130 x 68.6 x 87.4 (51.2 x 27 x 34.4) | 198.1 x 96 x 110.2* (78.0 x 37.8 x 43.4) | 388 (854) |
| TSX600D | | 4/10 (NEMA 6-15) | | | | |

* Door opening clearance is 86cm (34.5")

### Capacity

| Model No. | Interior Volume liters (cu. ft.) | Area Footprint (Nominal) | 2" Box Capacity | 3" Box Capacity | 2mL Tube Capacity | CryoBank™ 1mL Tube Capacity |
|---|---|---|---|---|---|---|
| TSX400V | 548 (19.4) | 0.79m² (8.45 sq. ft.) | 400 | 300 | 40,000 | 67,600* |
| TSX400D | | | | | | |
| TSX600V | 815 (28.8) | 1.06m² (11.38 sq. ft.) | 600 | 450 | 60,000 | 101,400* |
| TSX600D | | | | | | |

* CryoBank 1mL tube stored in 2-inch box with 169 cell divider

### Options (Field-installed must be installed by a qualified professional)

| Description | | Model Number TSX400 | TSX600 |
|---|---|---|---|
| $LN_2$ Backup System<br>Maintains temperature down to –80°C with liquid nitrogen | Factory Installed | LN4567 | |
| | Field Installed | FLN4567 | |
| $CO_2$ Backup System<br>Maintains temperature down to –67°C with $CO_2$ | Factory Installed | CO4567 | |
| | Field Installed | FCO4567 | |
| Chart Recorder (Inkless)<br>6" (15.2cm), seven day inkless recorder, –115 to +50°C, +5°C resolution | Factory Installed | CR400TSX | CR567TSX |
| | Field Installed | FCR400TSX | FCR567TSX |
| Chart Recorder (Ink)<br>6" (15.2cm), seven day ink recorder, –100 to +38°C, +2°C resolution | Factory Installed | CRP400TSX | CRP567TSX |
| | Field Installed | CRP400TSX | FCR567TSX |
| Access Key Option<br>Card access control. Includes five key cards. Supports ISO15693 and ISO14443 protocols | Factory Installed | RAC34567 | |
| | Field Installed | FFAC34567 | |
| Five Shelf Option | Factory Installed | 5IDTSX | |
| | Field Installed | SK400TSX | SK600TSX |
| Stainless Steel Freezer Interior | Factory Installed | SS34567 | |
| Specialty Plug – Argentina | Factory Installed | AR230V16A | |
| Specialty Plug – Australia | Factory Installed | AU230V16A | |
| Specialty Plug – Brazil | Factory Installed | BR230V16A | |
| Specialty Plug – China | Factory Installed | CH230V16A | |
| Specialty Plug – Denmark | Factory Installed | DK230V16A | |
| Specialty Plug – Great Britain | Factory Installed | UK230V13A | |
| Specialty Plug – India | Factory Installed | IN230V16A | |
| Specialty Plug – Israel | Factory Installed | IS230V16A | |
| Specialty Plug – Italy | Factory Installed | IT230V16A | |
| Specialty Plug – Switzerland | Factory Installed | SW230V16A | |
| Twist Lock Plug (NEMA L6-15P) | Factory Installed | US230V15ATL | |
| | Field Installed | TL230V15A | |

### Accessories

| Description | Model Number TSX400 | TSX600 |
|---|---|---|
| Access Key Pack (EU)<br>Includes five cards; supports ISO14443 protocol | ACE34567 | |
| Chart Paper Ink (pack of 50) | 17020 | |
| Chart Paper Inkless (pack of 50) | 6185 | |
| Replacement Air Filter | AF34567 | |
| Replacement Back-Up Battery | 400159 | |
| Alarm Delay Module<br>Designed to eliminate alarms due to intermittent or transitory conditions. Adjustable delay requires alarm condition to exist for user defined period before signal is released to monitoring system. | 6903 | |
| Cryo Gloves™ Medium | 4425 | |
| Cryo Gloves Large | 4426 | |
| Seismic Restraint Kit | TF-ULT400 | TF-ULT600 |

## Boxes and Dividers

### 5.1cm (2 in.) Fiberboard Cryo Boxes

| Model No. | Dimensions | Dividers | Quantity | Holds |
|---|---|---|---|---|
| 5954 | 12.7cm x 12.7cm (5" x 5") | None | 12 | versatile |
| 820002 | | 81 | 1 | 81 vials |
| 820109 | | 100 | 1 | 100 vials |

### 7.6cm (3 in.) Fiberboard Cryo Boxes

| Model No. | Dimensions | Dividers | Quantity | Holds |
|---|---|---|---|---|
| 5956 | 12.7cm x 12.7cm (5" x 5") | None | 12 | versatile |
| 820003 | | 81 | 1 | 81 vials |

### Fiberboard Grid Dividers

| Model No. | Dimensions | Dividers | Quantity | Holds |
|---|---|---|---|---|
| 5958 | 10 x 10, 0.49" cell | 100 | 12 | 12mm vials (100) |
| 820100 | 10 x 10, 0.49" cell | 100 | 1 | 12mm vials (100) |
| 6212 | 9 x 9, 0.54" cell | 81 | 12 | 13mm vials (81) |
| 820081 | 9 x 9, 0.54" cell | 81 | 1 | 13mm vials (81) |
| 5960 | 8 x 8, 0.61" cell | 64 | 12 | 14mm vials (64) |
| 820064 | 8 x 8, 0.61" cell | 64 | 1 | 14mm vials (64) |
| 5959 | 7 x 7, 0.7" cell | 49 | 12 | 16mm vials (49) |
| 820049 | 7 x 7, 0.7" cell | 49 | 1 | 16mm vials (49) |
| 820025 | 5 x 5, 0.98" cell | 25 | 1 | 25 vials |
| 820016 | 4 x 4, 1.22" cell | 25 | 1 | 16 vials |

## Racks for Boxes and Microplates

### 2" Box Racks

| 2" Box Racks | Model No. Description | Dimensions H x W x D cm (in.) | Storage | TSX400 | TSX600 |
|---|---|---|---|---|---|
|  | 920090 Sliding Drawer Rack for 2" Boxes | 30.2 x 14 x 68.3 (11.9 x 5.5 x 26.9) | Boxes Per Rack | 25 | 25 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Boxes Per Freeze | 400 | 600 |
|  | 1950520 Adjustable Side Access Rack for 2" Boxes | 29.5 x 13.7 x 67.9 (11.6 x 5.4 x 26.75) | Boxes Per Rack | 25 | 25 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Boxes Per Freezer | 400 | 600 |

### 3" Box Racks

| 3" Box Racks | Model No. Description | Dimensions H x W x D cm (in.) | Storage | TSX400 | TSX600 |
|---|---|---|---|---|---|
|  | 920091 Sliding Drawer Rack for 3" Boxes | 30.2 x 14 x 68.3 (11.9 x 5.5 x 26.9) | Boxes Per Rack | 15 | 15 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Boxes Per Freezer | 300 | 360 |
|  | 1950521 Adjustable Side Access Rack for 3" Boxes | 29.5 x 13.7 x 67.9 (11.6 x 5.4 x 26.75) | Boxes Per Rack | 15 | 15 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Boxes Per Freezer | 240 | 360 |

### Racking Shelf Kit

| Racking Shelf Kit | | TSX400 | TSX600 |
|---|---|---|---|
| Includes Sliding Drawer Racks and 2" Boxes with 100 Count Cell Dividers | Model No. | RSK400SD4 | RSK600SD4 |
| | Racks Included | 4 | 6 |
| | Boxes Includled | 100 | 150 |

### Microplate Racks

| Microplate Racks | Model No. Description | Dimensions H x W x D cm (in.) | Storage | TSX400 | TSX600 |
|---|---|---|---|---|---|
|  | 1950642 Sliding Drawer Rack for Standard or Deepwell | 30.2 x 14 x 68.3 (11.9 x 5.5 x 26.9) | Plates Per Rack | 35 | 35 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Plates Per Freezer | 560 | 840 |
|  | 1950523 Side Access Rack for Standard Plates | 30.2 x 14 x 65.3 (11.9 x 5.5 x 25.7) | Plates Per Rack | 105 | 105 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Plates Per Freezer | 1540 | 2520 |
|  | 1950592 Side Access Rack with Locking Rod for Standard or Deepwell | 30.2 x 14 x 65.3 (11.9 x 5.5 x 25.7) | Plates Per Rack | 147 | 147 |
| | | | Racks Per Shelf | 4 | 6 |
| | | | Racks Per Freezer | 16 | 24 |
| | | | Plates Per Freezer | 2352 | 3528 |

## Sliding Drawer Freezer Racks for Thermo Scientific Nunc Cryobank and Matrix Tubes

### for 200µL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950787 | | |
|---|---|---|---|---|
| 3747, 3748 & 4988 | Thermo Scientific™ Matrix™ 200µL 2D internally-threaded universal tubes **Rack Dimension:** 8.5 x 12.8 x 2.7cm (3.365 x 5.03 x 1.082 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| | | Boxes Per Rack | 56 | 56 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 86,016 | 129,024 |

### for 500µL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950787 | | |
|---|---|---|---|---|
| 3734, 3735 & 4898 | Thermo Scientific Matrix 500µL 2D open top tubes **Rack Dimension:** 8.5 x 12.8 x 2.6cm (3.365 x 5.03 x 1.022 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| 3736, 3737 & 4899 | Thermo Scientific Matrix 500µL 2D tubes with Duraseals™ installed **Rack Dimension:** 8.5 x 12.8 x 2.7cm (3.365 x 5.03 x 1.082 in.) | Tube Racks Per Freezer Rack | 56 | 56 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 86,016 | 129,024 |

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950791 | | |
|---|---|---|---|---|
| 374086 & 374087 (incl. color options) | Thermo Scientific™ Nunc™ Cryobank™ 500µL internally threaded tubes **Rack Dimension:** 8.5 x 12.8 x 2.6cm (3.365 x 5.03 x 1.394 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| 3743, 3744 & 3745 (incl. color options) | Thermo Scientific Matrix 500µL 2D internally threaded screw top tubes **Rack Dimension:** 8.5 x 12.8 x 4.4cm (3.365 x 5.03 x 1.745 in.) | Boxes Per Rack | 42 | 42 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 64,512 | 96,768 |

### for 750µL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950791 | | |
|---|---|---|---|---|
| 3731, 3732 & 4896 | Thermo Scientific Matrix 750µL 2D open top tubes **Rack Dimension:** 8.5 x 12.8 x 3.9cm (3.365 x 5.03 x 1.55 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| 3729 & 4896 | Thermo Scientific Matrix 750µL 2D Tubes with Duraseals installed **Rack Dimension:** 8.5 x 12.8 x 3.9cm (3.365 x 5.03 x 1.55 in.) | Boxes Per Rack | 42 | 42 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 64,512 | 96,768 |

### for 1.0mL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950642 | | |
|---|---|---|---|---|
| 374088 & 374089 (incl. color options) | Thermo Scientific Nunc Cryobank 1.0mL internally threaded tubes **Rack Dimension:** 8.5 x 12.8 x 4.9cm (3.365 x 5.03 x 1.92 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| | | Boxes Per Rack | 35 | 35 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 53,760 | 80,640 |

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950799 | | |
|---|---|---|---|---|
| 3740, 3741 & 3742 (incl. color options) | Thermo Scientific Matrix 1.0mL 2D internally threaded screw top tubes **Rack Dimension:** 8.5 x 12.8 x 5.8cm (3.365 x 5.03 x 2.3 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| | | Boxes Per Rack | 28 | 28 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 43,008 | 64,512 |

### for 1.4mL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. 1950642 | | |
|---|---|---|---|---|
| 3791, 3792 & 4890 | Thermo Scientific Matrix 1.4mL 2D open top tubes **Rack Dimension:** 8.5 x 12.8 x 4.9cm (3.365 x 5.03 x 1.92 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 96 | 96 |
| 3801 & 4890 | Thermo Scientific Matrix 1.4mL 2D tubes with Duracell installed **Rack Dimension:** 8.5 x 12.8 x 4.9cm (3.365 x 5.03 x 1.92 in.) | Boxes Per Rack | 35 | 35 |
| | | Racks Per Shelf | 4 | 6 |
| 3711, 3112 & 4890 | Thermo Scientific Matrix 1.4mL human readable open top tubes **Rack Dimension:** 8.5 x 12.8 x 4.9cm (3.365 x 5.03 x 1.92 in.) | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 53,760 | 80,640 |

### for 1.8 to 2.0mL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No.1950642 | | |
|---|---|---|---|---|
| 374500 & 374501* | Thermo Scientific Nunc 1.8mL externally-threaded universal tubes **Rack Dimension:** 8.5 x 12.8 x 5.5cm (3.365 x 5.03 x 2.15 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 48 | 48 |
| 374221 & 374223 | Thermo Scientific Nunc Cryobank 2.0mL internally threaded tubes **Rack Dimension:** 8.5 x 12.8 x 5.5cm (3.365 x 5.03 x 2.15 in.) | Boxes Per Rack | 35 | 35 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 20 | 24 |
| | | Tubes Per Freezer | 26,880 | 40,320 |

### for 5.0mL Capacity Tubes

| Tube Model No. | Tube Description | Freezer Rack Model No. | 1950819 | |
|---|---|---|---|---|
| 374220 & 374222 | Thermo Scientific Nunc Cryobank 5.0mL internally threaded tubes **Rack Dimension:** 8.5 x 12.8 x 9.6cm (3.365 x 5.03 x 3.78 in.) | Freezer Rack Dimensions | 14 x 30.2 x 66.5cm (5.5 x 11.9 x 26.96 in.) | |
| | | | TSX400 | TSX600 |
| | | Tubes per Box | 48 | 48 |
| | | Boxes Per Rack | 21 | 21 |
| | | Racks Per Shelf | 4 | 6 |
| | | Racks Per Freezer | 16 | 24 |
| | | Tubes Per Freezer | 16,128 | 24,192 |

## Thermo Scientific™ Smart-Vue™

The Smart-Vue wireless monitoring solution is designed to safeguard the integrity of precious samples by continuously monitoring critical parameters of laboratory equipment and securely logging data to give you peace-of-mind.

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| Smart-Vue Package | Model No 868Mhz – Europe | Model No 867Mhz – India | Model No 434Mhz – Asia/Pacific |
|---|---|---|---|
| Wireless radio module system, external PT100 temperature probe (100mm x 3mm), range: –100°C to +150°C, calibrated at –80°, –40° and 0°C. Package consists of: Module, external sensor, 3.6V lithium battery, mounting holder with Velcro, magnet and hardware, sensor mounting kit. | SV200-101-LSB | SV200-102-LSB | SV200-103-LSB |

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