

thermo scientific



# TSX Series Ultra-Low Temperature Freezers

A better environment inside and out

**ThermoFisher**  
SCIENTIFIC

# Sample protection that adapts to you and your environment



## The sustainable, SNAP-compliant choice for sample protection

Thermo Scientific™ TSX Series ultra-low temperature freezers are designed with features that support sample protection, sustainability objectives and the U.S. Environmental Protection Agency's Significant New Alternatives Policy (SNAP).<sup>\*</sup> 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.

## Significant energy savings

While conventional refrigerant ultra-low freezers can run up to 18 kWh/day in energy usage, at  $-70^{\circ}\text{C}$ , the TSX600 performs at just 7.8 kWh/day in standard operating mode while the TSX400 performs at 6.5 kWh/day.<sup>\*\*</sup>

## 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 11.38 sq. ft. footprint while the new TSX400 can hold up to 400 2-inch boxes in a footprint of 8.45 sq. ft.

## Whisper quiet operation

Compared to standard freezers<sup>†</sup>, 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.



<sup>\*</sup> [www.epa.gov/snap/snap-regulations](http://www.epa.gov/snap/snap-regulations). See page 8 for details on our SNAP compliance.

<sup>\*\*</sup> Based on internal performance data at  $-70^{\circ}\text{C}$  setpoint. Data on file. April, 2016.

<sup>†</sup> Based on published sound specifications, data on file. March, 2015.

Energy savings

Sustainability

More sample storage

Quiet

SNAP-compliant

V-drive technology

# 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**



## Adaptive control

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

**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.

# Save more energy at -70°C setpoint

## Energy usage and savings: TSX400

	Conventional ultra-low freezer*		TSX400 Standard Mode		Cost/kWh**	Annual cost savings/freezer	10 year savings	Metric tons of CO <sub>2</sub> reduced per year†
	Energy usage (kWh/day)	Annual energy usage (kWh)	Energy usage (kWh/day)	Annual energy usage (kWh)				
U.S. average	18.5	6753	6.5 (-70°C) 7.9 (-80°C)	2884	\$0.11	\$425.59	\$4,225.90	2.29

## Energy usage and savings: TSX600

	Conventional ultra-low freezer†		TSX600 Standard Mode		Cost/kWh**	Annual cost savings/freezer	10 year savings	Metric tons of CO <sub>2</sub> reduced per year†
	Energy usage (kWh/day)	Annual energy usage (kWh)	Energy usage (kWh/day)	Annual energy usage (kWh)				
U.S. average	18	6570	7.8 (-70°C) 8.7 (-80°C)	3175.5	\$0.11	\$358.12	\$3,581.20	2.01

\* Thermo Scientific TSU400D

\*\* Calculated using data from the U.S. Energy Information Administration Retail Sales of Electricity to Ultimate Customers published electricity and natural gas price statistics. <http://www.eia.gov/electricity>. Accessed October, 2015.

† metric tonnes/kWh - 0.0005925

‡ Thermo Scientific TSU600D

# More samples, less freezer footprint

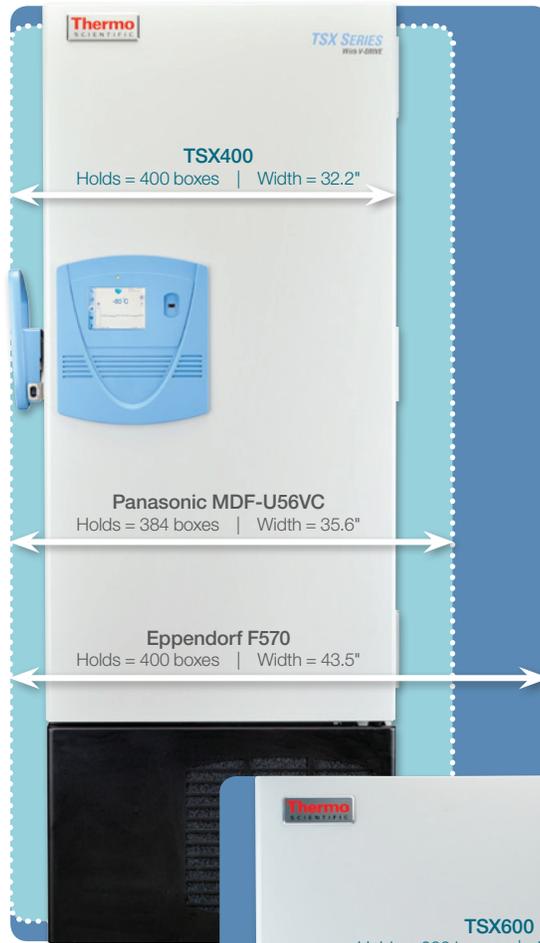
Big storage capacity, small freezer footprint

## TSX400

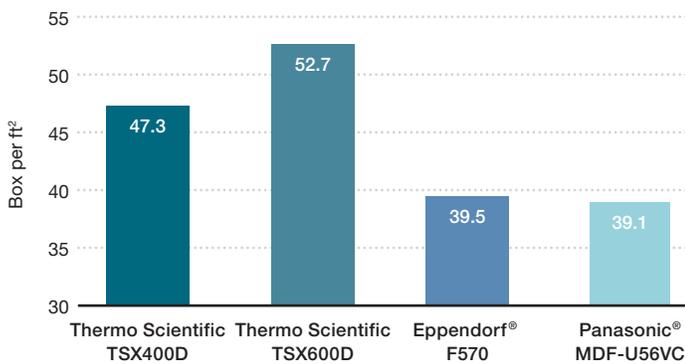
- 400 box capacity (2" standard cryo boxes)
- Store up to 40,000 2 mL tubes
- Store up to 67,600 1 mL tubes

## TSX600

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



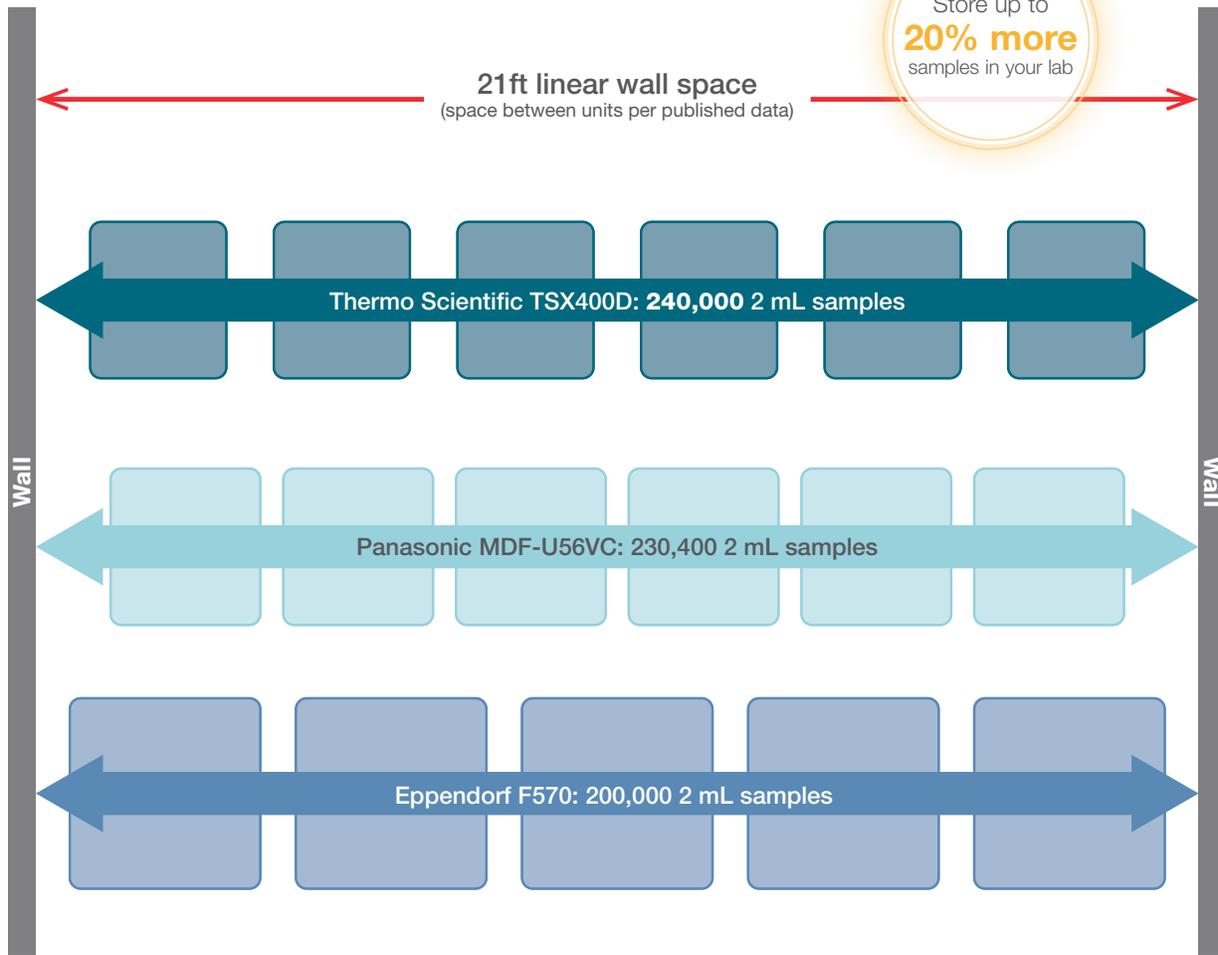
Box to footprint ratio



Panasonic MDF-U56VC and Eppendorf F570 specifications based on published data as of May, 2016.

# Optimize your lab space

Store up to **20% more** samples in your lab



# Leading performance and cost-of-ownership

## 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		
TSX400A	8.3	10.2	+7.2/-0.5	+4.8/-2.4	+5.8/-5.7	+3.8/-5.4	18	255
TSX400D	7.9	9.4	+6.0/+1.1	+4.0/-1.4	+3.6/-2.8	+3.6/-2.8	17	267

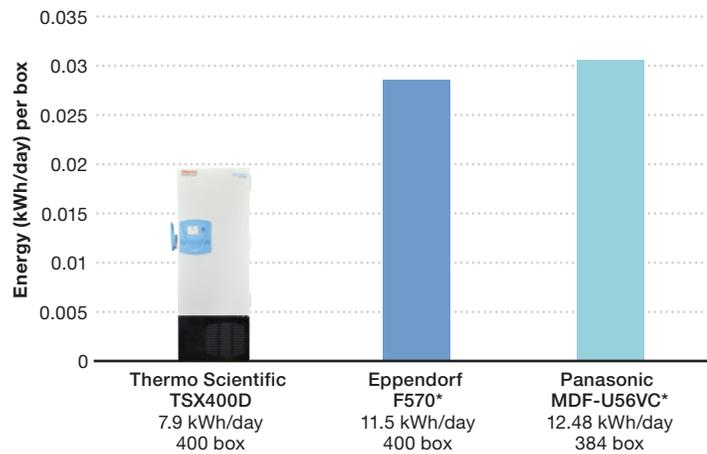
\* Energy calculation: Typical freezer data based on internal testing with freezer setpoint at -80°C and ambient temperature at 20°C

\*\* 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

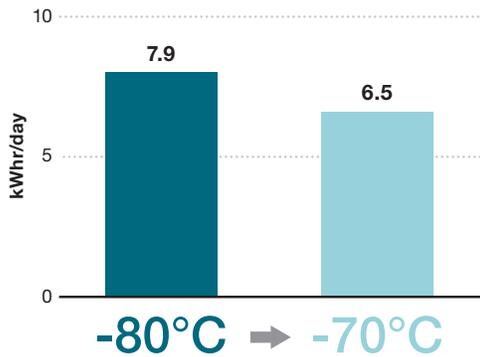
### Energy savings per box

Save up to **39%** over conventional refrigerant freezers



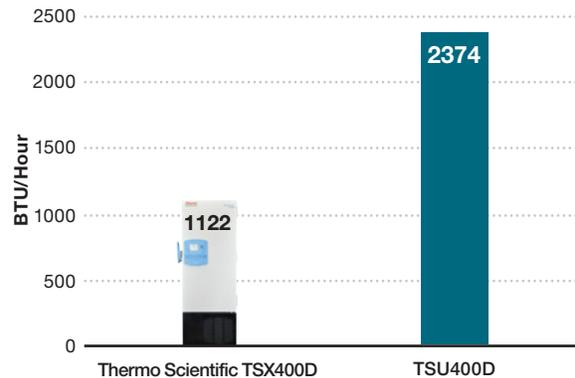
\*From 2015 Published energy data in brochures, May, 2016.

### Save an additional 18% by switching to a -70°C setpoint\*



\*Data based on TSX400 internal testing, May, 2016.

### Reduce your HVAC costs by emitting less heat into the room



Based on internal testing data using a -80°C setpoint, March, 2015

# Leading performance and cost-of-ownership

## 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		
TSX600A	9.5	11.1	+6.6/+1.3	+4.4/-0.9	+6.3/-4.1	+4.0/-3.2	27	295
TSX600D	8.7	10.2	+6.9/+1.8	+4.4/-0.4	+4.3/-3.7	+3.6/-2.8	24	303

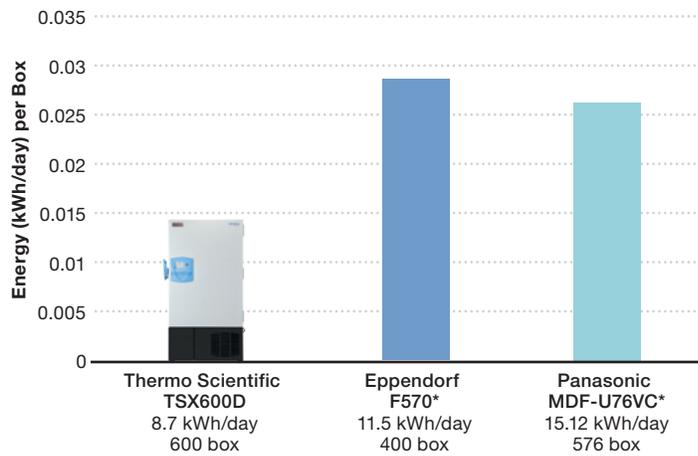
\* Energy calculation: Typical freezer data based on internal testing with freezer setpoint at -80°C and ambient temperature at 20°C

\*\* 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

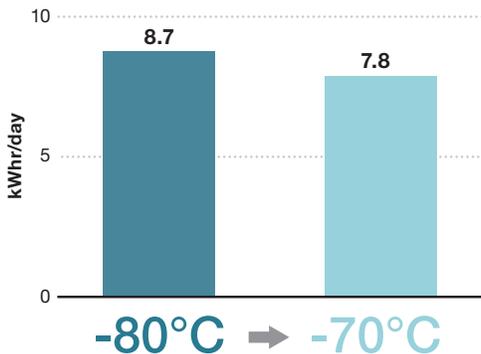
### Energy savings per box

Save up to **49%** over conventional refrigerant freezers



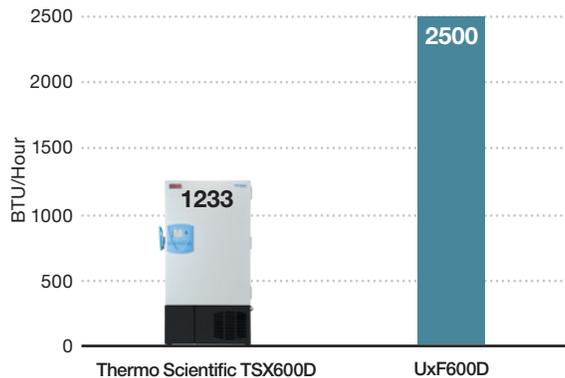
\*From 2015 Published energy data in brochures.

### Save an additional 10% by switching to a -70°C setpoint\*



\*Data based on TSX600 internal testing, May, 2016.

### Reduce your HVAC costs by emitting less heat into the room



Based on internal testing data using a -80°C setpoint, March, 2015

# A sound environment for critical samples



up to  
**20X**  
quieter

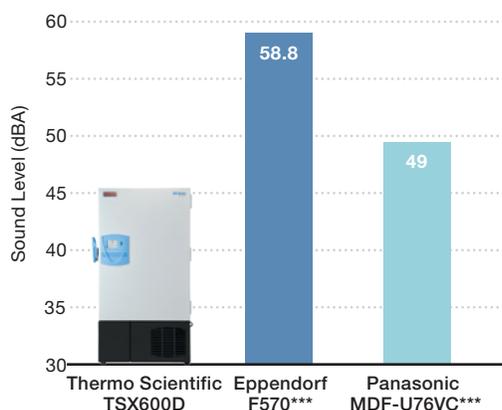
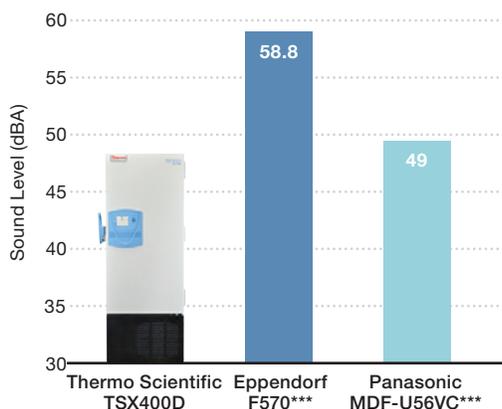
You know that the constant noise created by compressors can compromise communications and create a less than ideal working environment. The new TSX is **up to 20X quieter than our previous generation of freezers.\*** Our new V-drive technology, combined with superior insulation, limits the sound output 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
<b>TSX400A</b>	<b>47.4</b>
<b>TSX400D</b>	<b>47.5</b>
<b>TSX600A</b>	<b>46.9</b>
<b>TSX600D</b>	<b>45.5</b>
Library	40
Quiet rural area	30
Rustling leaves	20
Breathing	10

## Whisper Quiet Operation\*\*\*



\* Thermo Scientific TSU600.

\*\* Internal performance data comparing TSX600D and TSX400D sound to conventional refrigerators. Data on file. March, 2015.

\*\*\* Based on manufacturers' published specifications, May, 2016.

## How is the TSX Series SNAP-compliant?

Under Title VI of the Clean Air Act (Stratospheric Ozone Protection), regulations in the U.S. were established to phase out the use of both CFC and HCFC refrigerants. Under section 612 of that Act, the U.S. Environmental Protection Agency (EPA) is empowered to review and approve new substitutes, and prohibit the use of older refrigerants to reduce the overall risk to human health and the environment. Hence, the EPA's Significant New Alternative Policy (SNAP) program was created.

Our TSX Series ultra-low freezers are "SNAP compliant", meaning we have already transitioned from HFCs in our insulating foam to the approved natural refrigerants — well in advance of any phase-out deadlines.

# 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<sub>2</sub> and CO<sub>2</sub> 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" (15.2 cm) chart recorder for validation and regulatory requirements.

## Simplified installation

With our new easy-roll 2" (5.1 cm) 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 lbs. (kg)	Interior dimensions H x D x W in. (cm)	Exterior dimensions H x D x W in. (cm)	Shipping weight lbs. (kg)
TSX400A	115V 60Hz	9/15 (NEMA 5-15)	165 (73.4)	51.2 x 27 x 23.2 (130 x 68.6 x 58.9)	78.0 x 37.8 x 32.2 (198.1 x 96 x 81.8)	760 (354)
TSX400D	208-230V 50/60Hz	4/10 (NEMA 6-15)	165 (73.4)	51.2 x 27 x 23.2 (130 x 68.6 x 58.9)	78.0 x 37.8 x 32.2 (198.1 x 96 x 81.8)	730 (332)
TSX600A	115V 60Hz	8.5/15 (NEMA 5-15)	245 (110.1)	51.2 x 27 x 34.4 (130 x 68.6 x 87.4)	78.0 x 37.8 x 43.4 (198.1 x 96 x 110.2*)	884 (401)
TSX600D	208-230V 50/60Hz	4/10 (NEMA 6-15)	245 (110.1)	51.2 x 27 x 34.4 (130 x 68.6 x 87.4)	78.0 x 37.8 x 43.4 (198.1 x 96 x 110.2*)	854 (388)

\* Door opening clearance is 34.5" (86cm)

### Capacity

Model No.	Interior volume cu. ft. (liters)	Area footprint (nominal)	2" box capacity	3" box capacity	2mL tube capacity	CryoBank™ 1mL tube capacity
TSX400	19.4 (548)	8.45 sq. ft. (0.79m <sup>2</sup> )	400	300	40,000	67,600*
TSX600	28.8 (815)	11.38 sq. ft. (1.06m <sup>2</sup> )	600	450	60,000	101,400*

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

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

Product		Model No.	
		TSX400	TSX600
LN <sub>2</sub> Backup System Maintains temperature down to –80°C with liquid nitrogen	Factory installed	LN4567	
	Field installed	FLN4567	
CO <sub>2</sub> Backup System Maintains temperature down to –67°C with CO <sub>2</sub>	Factory Installed	CO4567	
	Field Installed	FCO4567	
Chart Recorder (Inkless) 6" (15.2 cm), seven day inkless recorder, –115 to +50°C, +5°C resolution	Factory Installed	CR400TSX	CR567TSX
	Field Installed	F CR400TSX	F CR567TSX
Chart Recorder (Ink) 6" (15.2 cm), seven day ink recorder, –100 to +38°C, +2°C resolution	Factory Installed	CRP400TSX	CRP567TSX
	Field Installed	F CRP400TSX	F CRP567TSX
Access Key Option 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	
Twist Lock Plug (NEMA L6-15P for 208–230V, 60Hz)	Factory Installed	US230V15ATL	
	Field Installed	TL230V15A	
Twist Lock Plug (NEMA L5-20P for 115V, 60Hz)	Factory Installed	US125V20ATL	
	Field Installed	TL125V20A	

### Accessories

Product	Model No.	
	TSX400	TSX600
Access Key Pack (North America) Includes five cards; supports ISO15693 protocol	ACU34567	
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 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



New to our TSX portfolio are these convenient packages featuring freezers with two shelves of sliding drawer racks and boxes,\* plus your choice of factory-installed back-up system or chart recorder. See previous page for freezer external and internal dimensions.

**TSX with two shelves of sliding drawer racks, including boxes**

Model No.	Freezer Description	Package Includes
TSX400ARAK	TSX400A, 400 box capacity freezer, 19.4 cu. ft., 115V, 60Hz	8 sliding drawer racks and 200 boxes*
TSX400DRAK	TSX400D, 400 box capacity freezer, 19.4 cu. ft., 208–230V, 60Hz	8 sliding drawer racks and 200 boxes*
TSX600ARAK	TSX600A, 600 box capacity freezer, 28.8 cu. ft., 115V, 60Hz	12 sliding drawer racks and 300 boxes*
TSX600DRAK	TSX600D, 600 box capacity freezer, 28.8 cu. ft., 208–230V, 60Hz	12 sliding drawer racks and 300 boxes*

**TSX with LN<sub>2</sub> back-up, plus two shelves of sliding drawer racks, including boxes**

Model No.	Freezer Description	Package Includes
TSX400ARAKLN	TSX400A, 400 box capacity freezer, 19.4 cu. ft., 115V, 60Hz	Factory-installed LN <sub>2</sub> back-up, 8 sliding drawer racks and 200 boxes*
TSX400DRAKLN	TSX400D, 400 box capacity freezer, 19.4 cu. ft., 208–230V, 60Hz	Factory-installed LN <sub>2</sub> back-up, 8 sliding drawer racks and 200 boxes*
TSX600ARAKLN	TSX600A, 600 box capacity freezer, 28.8 cu. ft., 115V, 60Hz	Factory-installed LN <sub>2</sub> back-up, 12 sliding drawer racks and 300 boxes*
TSX600DRAKLN	TSX600D, 600 box capacity freezer, 28.8 cu. ft., 208–230V, 60Hz	Factory-installed LN <sub>2</sub> back-up, 12 sliding drawer racks and 300 boxes*

**TSX with CO<sub>2</sub> back-up, plus two shelves of sliding drawer racks, including boxes**

Model No.	Freezer Description	Package Includes
TSX400ARAKCO	TSX400A, 400 box capacity freezer, 19.4 cu. ft., 115V, 60Hz	Factory-installed CO <sub>2</sub> back-up, 8 sliding drawer racks and 200 boxes*
TSX400DRAKCO	TSX400D, 400 box capacity freezer, 19.4 cu. ft., 208–230V, 60Hz	Factory-installed CO <sub>2</sub> back-up, 8 sliding drawer racks and 200 boxes*
TSX600ARAKCO	TSX600A, 600 box capacity freezer, 28.8 cu. ft., 115V, 60Hz	Factory-installed CO <sub>2</sub> back-up, 12 sliding drawer racks and 300 boxes*
TSX600DRAKCO	TSX600D, 600 box capacity freezer, 28.8 cu. ft., 208–230V, 60Hz	Factory-installed CO <sub>2</sub> back-up, 12 sliding drawer racks and 300 boxes*

**TSX with chart recorder, plus two shelves of sliding drawer racks, including boxes**

Model No.	Freezer Description	Package Includes
TSX400ARAKCR	TSX400A, 400 box capacity freezer, 19.4 cu. ft., 115V, 60Hz	Factory-installed chart recorder, 8 sliding drawer racks and 200 boxes*
TSX400DRAKCR	TSX400D, 400 box capacity freezer, 19.4 cu. ft., 208–230V, 60Hz	Factory-installed chart recorder, 8 sliding drawer racks and 200 boxes*
TSX600ARAKCR	TSX600A, 600 box capacity freezer, 28.8 cu. ft., 115V, 60Hz	Factory-installed chart recorder, 12 sliding drawer racks and 300 boxes*
TSX600DRAKCR	TSX600D, 600 box capacity freezer, 28.8 cu. ft., 208–230V, 60Hz	Factory-installed chart recorder, 12 sliding drawer racks and 300 boxes*

\*2-inch fiberboard boxes with 100-count cell dividers

## Racks for boxes and microplates

	Model No. Description	Dimensions H x W x D in. (cm)	Storage	TSX400	TSX600
<b>2" box racks</b>					
	920090 Sliding Drawer Rack for 2" Boxes	11.9 x 5.5 x 26.9 (30.2 x 14 x 68.3)	Boxes per rack	25	25
			Racks per shelf	4	6
			Racks per freezer	16	24
			Boxes per freezer	400	600
	1950520 Adjustable Side Access Rack for 2" Boxes	11.6 x 5.4 x 26.75 (29.5 x 13.7 x 67.9)	Boxes per rack	25	25
			Racks per shelf	4	6
			Racks per freezer	16	24
			Boxes per freezer	400	600
<b>3" box racks</b>					
	920091 Sliding Drawer Rack for 3" Boxes	11.9 x 5.5 x 26.9 (30.2 x 14 x 68.3)	Boxes per rack	15	15
			Racks per shelf	4	6
			Racks per freezer	16	24
			Boxes per freezer	240	360
	1950521 Adjustable Side Access Rack for 3" Boxes	11.6 x 5.4 x 26.75 (29.5 x 13.7 x 67.9)	Boxes per rack	15	15
			Racks per shelf	4	6
			Racks per freezer	16	24
			Boxes per freezer	240	360

Description	TSX400	TSX600
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### Racking Shelf Kit

	Model No.	RSK400SD4	RSK600SD4
Includes sliding drawer racks and 2" boxes with 100 count cell dividers	Racks included	4	6
	Boxes included	100	150

	Model No. Description	Dimensions H x W x D in. (cm)	Storage	TSX400	TSX600
<b>Microplate racks</b>					
	1950642 Sliding Drawer Rack for Standard or Deepwell	11.9 x 5.5 x 26.9 (30.2 x 14 x 68.3)	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	11.9 x 5.5 x 25.7 (30.2 x 14 x 65.3)	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	11.9 x 5.5 x 25.7 (30.2 x 14 x 65.3)	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

Tube Model No.	Tube description	Freezer rack model no. 1950787		
<b>for 200 µL capacity tubes</b>				
3747, 3748 & 4988	Thermo Scientific™ Matrix™ 200 µL 2D internally-threaded universal tubes  <b>Rack dimension:</b> 3.365 x 5.03 x 1.082 in. (8.5 x 12.8 x 2.7 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		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
<b>for 500 µL capacity tubes</b>				
<b>Freezer rack model no. 1950787</b>				
3734, 3735 & 4898	Thermo Scientific Matrix 500 µL 2D open top tubes  <b>Rack dimension:</b> 3.365 x 5.03 x 1.022 in. (8.5 x 12.8 x 2.6 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
3736, 3737 & 4899	Thermo Scientific Matrix 500 µL 2D tubes with Duraseals™ installed  <b>Rack dimension:</b> 3.365 x 5.03 x 1.082 in. (8.5 x 12.8 x 2.7cm)	Tubes per box	96	96
		Tube racks per freezer rack	56	56
		Racks per shelf	4	6
		Racks per freezer	16	24
		Tubes per freezer	86,016	129,024
<b>Freezer rack model no. 1950791</b>				
374086 & 374087 (incl. color options)	Thermo Scientific™ Nunc™ Cryobank™ 500 µL internally threaded tubes  <b>Rack Dimension:</b> 3.365 x 5.03 x 1.394 in. (8.5 x 12.8 x 2.6 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		Tubes per box	96	96
3743, 3744 & 3745 (incl. color options)	Thermo Scientific Matrix 500 µL 2D internally threaded screw top tubes  <b>Rack Dimension:</b> 3.365 x 5.03 x 1.745 in. (8.5 x 12.8 x 4.4 cm)	Boxes per rack	42	42
		Racks per shelf	4	6
		Racks per freezer	16	24
		Tubes per freezer	64,512	96,768



## Sliding drawer freezer racks for Thermo Scientific Nunc Cryobank and Matrix Tubes

Tube Model No.	Tube description	Freezer rack model no. 1950791		
<b>for 750 µL capacity tubes</b>				
3731, 3732 & 4896	Thermo Scientific Matrix 750 µL 2D open top tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 1.55 in. (8.5 x 12.8 x 3.9 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		Tubes per box	96	96
		Boxes per rack	42	42
3729 & 4896	Thermo Scientific Matrix 750 µL 2D Tubes with Duraseals installed <b>Rack Dimension:</b> 3.365 x 5.03 x 1.55 in. (8.5 x 12.8 x 3.9 cm)	Racks per shelf	4	6
		Racks per freezer	16	24
		Tubes per freezer	64,512	96,768
<b>for 1.0 mL capacity tubes</b>				
<b>Freezer rack model no. 1950642</b>				
374088 & 374089 (incl. color options)	Thermo Scientific Nunc Cryobank 1.0 mL internally threaded tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 1.92 in. (8.5 x 12.8 x 4.9 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		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
<b>Freezer rack model no. 1950799</b>				
3740, 3741 & 3742 (incl. color options)	Thermo Scientific Matrix 1.0 mL 2D internally threaded screw top tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 2.3 in. (8.5 x 12.8 x 5.8 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		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
<b>for 1.4 mL capacity tubes</b>				
<b>Freezer rack model no. 1950642</b>				
3791, 3792 & 4890	Thermo Scientific Matrix 1.4 mL 2D open top tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 1.92 in. (8.5 x 12.8 x 4.9 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		Tubes per box	96	96
3801 & 4890	Thermo Scientific Matrix 1.4 mL 2D tubes with Duracell installed <b>Rack Dimension:</b> 3.365 x 5.03 x 1.92 in. (8.5 x 12.8 x 4.9 cm)	Boxes per rack	35	35
		Racks per shelf	4	6
3711, 3112 & 4890	Thermo Scientific Matrix 1.4 mL human readable open top tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 1.92 in. (8.5 x 12.8 x 4.9 cm)	Racks per freezer	16	24
		Tubes per freezer	53,760	80,640

## Sliding drawer freezer racks for Thermo Scientific Nunc Cryobank and Matrix Tubes

Tube Model No.	Tube description	Freezer rack model no. 1950642		
<b>for 1.8 to 2.0 mL capacity tubes</b>				
374500 & 374501	Thermo Scientific Nunc 1.8 mL externally-threaded universal tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 2.15 in. (8.5 x 12.8 x 5.5 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		Tubes per box	48	48
374221 & 374223	Thermo Scientific Nunc Cryobank 2.0 mL internally threaded tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 2.15 in. (8.5 x 12.8 x 5.5 cm)	Boxes per rack	35	355
		Racks per shelf	4	6
		Racks per freezer	20	24
		Tubes per freezer	26,880	40,320

Tube Model No.	Tube description	Freezer rack model no. 1950819		
<b>for 5.0 mL capacity tubes</b>				
374220 & 374222	Thermo Scientific Nunc Cryobank 5.0 mL internally threaded tubes <b>Rack Dimension:</b> 3.365 x 5.03 x 3.78 in. (8.5 x 12.8 x 9.6 cm)	Freezer rack dimensions	5.5 x 11.9 x 26.96 in. (14 x 30.2 x 66.5 cm)	
			<b>TSX400</b>	<b>TSX600</b>
		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.

For more information, visit  
[thermofisher.com/smart-vue](http://thermofisher.com/smart-vue)



### Smart-Vue Package

Wireless radio module system, external PT100 temperature probe (100 mm x 3 mm), 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.

**Model No.**  
915MHz – North America

SV200-100-LSB



## Make your TSX a more colorful place

Thermo Scientific water repellent fiberboard boxes are now offered in a variety of colors. Choose from red, yellow, pink, green or blue. And, for your private sample collection: black. Fiberboard dividers are sold separately.

Colors	Quantity	Dividers	Model No.
<b>Colored 2-inch boxes</b>			
Multiple Colors	12	none	1950878
Pink	12	none	1950879
Red	12	none	1950880
Yellow	12	none	1950881
Green	12	none	1950882
Blue	12	none	1950883
Black	12	none	1950884

Description	Quantity	Dividers	Model No.
<b>Grid dividers</b>			
10 x 10, 0.49" cell	12	100–12 mm vials	5958
9 x 9, 0.54" cell	12	81–13 mm vials	6212
8 x 8, 0.91" cell	12	64–14 mm vials	5960
7 x 7, 0.70" cell	12	49–16 mm vials	5959

Dimensions	Dividers	Quantity	Holds	Model No.
<b>5.1 cm (2 in.) Fiberboard Cryo Boxes</b>				
12.7 cm x 12.7 cm (5" x 5")	none	12	versatile	5954
	81	1	81 vials	820002
	100	1	100 vials	820109

Dimensions	Dividers	Quantity	Holds	Model No.
<b>7.6 cm (3 in.) Fiberboard Cryo Boxes</b>				
12.7 cm x 12.7 cm (5" x 5")	none	12	versatile	5956
	81	1	81 vials	820003

<b>Fiberboard grid dividers</b>				
10 x 10, 0.49" cell	100	12	12 mm vials (100)	5958
10 x 10, 0.49" cell	100	1	12 mm vials (100)	820100
9 x 9, 0.54" cell	81	12	13 mm vials (81)	6212
9 x 9, 0.54" cell	81	1	13 mm vials (81)	820081
8 x 8, 0.61" cell	64	12	14 mm vials (64)	5960
8 x 8, 0.61" cell	64	1	14 mm vials (64)	820064
7 x 7, 0.7" cell	49	12	16 mm vials (49)	5959
7 x 7, 0.7" cell	49	1	16 mm vials (49)	820049
5 x 5, 0.98" cell	25	1	25 vials	820025
4 x 4, 1.22" cell	25	1	16 vials	820016

## Keep track of your samples with Thermo Scientific Matrix and Nunc 2D storage tubes

When your workflow includes semi-automated and fully-automated platforms for high throughput, Thermo Scientific tubes allow robust storage and tracking of sample volumes ranging from 70  $\mu$ L to 12 mL in 384-, 96-, 48- and 24-place arrays. We have storage formats available for temperatures down to VPLN, and multiple sealing options including ScrewTop caps and septa seals. Solid, one-piece construction means there are no labels to fall off and medical grade, class VI resin tubes are supplied free of RNase, DNase, endotoxins and cytotoxins and SAL down to  $10^{-6}$ .

For more information, visit [thermofisher.com](http://thermofisher.com)



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