

## Specificatia tehnică completată

### Congelator pentru plasma

#### Model TSX3030LV, TSX Series High-Performance –30°C Plasma Freezers

Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către ofertant
<p>Congelator pentru plasmă sanguină pentru cabinetul de transfuzie a sângelui, vertical, volum minim 800L</p> <p>Descriere Congelatoarele sunt concepute pentru a oferi stocare specializată pentru pasmei sanguine</p> <p>Parametrul Specificația</p> <p>Configurație vertical</p> <p>Capacitatea internă a camerei Minim 800 litri</p> <p>Număr de sertare, cu delimitări pentru pungă cu plasmă sanguină Minim 4 buc.</p> <p>Ușa Externă 1</p> <p>Mecanism blocare cu cheie</p> <p>Roți da</p> <p>Construcție interioară inox medical sau material anti-bacterial prevazut pentru prelucrare cu solutii antiseptice</p> <p>Construcție exterioară cu acoperire anticorozivă</p> <p>Temperatura reglabilă - – 18°C ... 25°C</p> <p>stabilitate - ± 3 °C</p> <p>rezoluție - 1 °C</p> <p>Afișaj temperatură digital</p> <p>ecran grafic / LED</p> <p>Înregistrare temperaturii și posibilitatea de export pe stic USB da, cu soft inclus dacă este necesar pentru citirea datelor exportate la calculator</p> <p>Alarmerie acustică vizuală</p> <p>ușa deschisă</p> <p>lipsa curentului electric</p> <p>Posibilitatea de setare a alarmei limita maximă a temperaturii</p> <p>limita minimă a temperaturii</p> <p>Baterie internă pentru alarmă și menținerea detelor a alarmelor da, min. 48 ore</p> <p>Răcire ventilată forțată</p> <p>Alimentare 220 V, 50 Hz</p> <p>Nivelul de zgomot ≤ 60 db</p>	<p>Congelator pentru plasmă sanguină pentru cabinetul de transfuzie a sângelui, vertical, volum minim 800L</p> <p>Descriere Congelatoarele sunt concepute pentru a oferi stocare specializată pentru pasmei sanguine</p> <p>Parametrul Specificația</p> <p>Configurație vertical</p> <p>Capacitatea internă a camerei 827 litri</p> <p>Număr de sertare, cu delimitări pentru pungă cu plasmă sanguină 7 buc.</p> <p>Ușa Externă 1</p> <p>Mecanism blocare cu cheie</p> <p>Roți da</p> <p>Construcție interioară material anti-bacterial prevazut pentru prelucrare cu solutii antiseptice.</p> <p>Sertarele de depozitare sunt confectionate din inox</p> <p>Construcție exterioară cu acoperire anticorozivă</p> <p>Temperatura reglabilă - – 15°C ... - 35°C</p> <p><b>Plasma se pastreaza la -30C conform cerintelor international</b></p> <p>stabilitate - ± 3 °C</p> <p>rezoluție - 1 °C</p> <p>Afișaj temperatură digital</p> <p>ecran grafic / LED</p> <p>Înregistrare temperaturii și posibilitatea de export pe stic USB da, cu soft inclus dacă este necesar pentru citirea datelor exportate la calculator</p> <p>Alarmerie acustică vizuală</p> <p>ușa deschisă</p> <p>lipsa curentului electric</p> <p>Posibilitatea de setare a alarmei limita maximă a temperaturii</p> <p>limita minimă a temperaturii</p> <p>Baterie internă pentru alarmă și menținerea detelor a alarmelor da, min. 48 ore</p> <p>Răcire ventilată forțată</p> <p>Alimentare 220 V, 50 Hz</p> <p>Nivelul de zgomot 60 db</p>



## ANNEX 1 TO THE CERTIFICATE

VALID ONLY WITH CERTIFICATE

**No 1434-MDD-249/2021**

*List of medical devices covered by the certificate:*

Product Family	Product Sub-Group	Model/Type
High Performance Laboratory Refrigerators and Freezers	Blood Bank Refrigerators, TSX Series	TSX1204BV
		TSX2304BV
		TSX3004BV
		TSX5004BV
	Plasma Freezers, TSX Serie	TSX1230LV
		TSX2330LV
		TSX3030LV
		TSX5030LV



Issued under the Contract No. MD-141/2020  
Application No: 604/2020  
Certificate bears the qualified signature.  
Warsaw, 14/05/2021

**Vice-President**



# CERTIFICATE

**EC Certificate No. 1434-MDD-249/2021**

**Full Quality Assurance System  
Directive 93/42/EEC concerning medical devices**

Polish Centre for Testing and Certification certifies  
that the quality assurance system in the organization:

**Thermo Fisher Scientific (Asheville) LLC**  
**Laboratory Products Division**  
**275 Aiken Road**  
**Asheville, North Carolina 28804 UNITED STATES**

for the design, manufacture and final inspection of medical devices, class: Class IIa

**Blood Bank Refrigerators and Plasma Freezers**

*The list of medical devices covered by this certificate is provided in the Annex 1*

**complies with requirements of Annex II (excluding Section 4) to Directive 93/42/EEC (as amended)  
implemented into Polish law, as evidenced by the audit conducted by the PCBC**

Validity of the Certificate: from 14.05.2021 to 27.05.2024

The date of issue of the Certificate: 14.05.2021

The date of the first issue of the Certificate: 14.05.2021



Issued under the Contract No. MD-141/2020  
Application No: 604/2020  
Certificate bears the qualified signature.  
Warsaw, 14/05/2021  
Module H2/3/4/5  
FBM-26-E\_9

**Vice-President**

**[1] Manufacturer**

Thermo Fisher Scientific (Asheville) LLC  
275 Aiken Road  
Asheville, NC 28804  
USA

**[2] Authorized Representative**

Thermo Electron LED GmbH  
Robert-Bosch-Str. 1  
63505 Langenselbold  
Germany

**[3] Product Type**

TSX™ Series -30°C Freezer, FDA Class I Medical Device

**[4] Model Name(s) and [5] Rated Voltage, Rated Frequency**

TSX5030LV

[6] The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

**[7] EC Directives**

2014/30/EU	Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive
2011/65/EU	RoHS Directive
2015/863	RoHS Directive

[8] The object of the declaration described above is in conformity with Directive 2011/65/EU and 2015/863 of the European Parliament and of the Council of 22 July 2019 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

**[9] Standards**

EN 61326-1:2013	EN 378-2 :2008 + A1:2009 (applicable clauses)
EN 61010-1:2010	UL 471 Ed. 10 (applicable clauses)
EN 50581:2012	CSA C22.2 No. 120 :2013 (applicable clauses)
EN 60335-2-89:2007 (applicable clauses)	

[10] This declaration is valid from the product manufactured after the date. **May 06, 2019**



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Dana Jolley  
Global Regulatory Affairs Specialist  
Laboratory Products Division  
Thermo Fisher Scientific

<p><b>DE</b> <sup>[1]</sup> <b>Hersteller</b> - <sup>[2]</sup> <b>Bevollmächtigter Vertreter</b> - <sup>[3]</sup> <b>Produkttyp</b> - <sup>[4]</sup> <b>Modellbezeichnung(en)</b> - <sup>[5]</sup> <b>Nennspannung, Nennfrequenz</b> – <sup>[6]</sup> Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union.: <sup>[7]</sup> <b>EG-Richtlinien</b> - <sup>[8]</sup> Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2011/65/EU des Europäischen Parlaments und des Rates vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten: <sup>[9]</sup> <b>Normen</b> - <sup>[10]</sup> Diese Erklärung gilt für die nach diesem Datum hergestellten Produkte. <sup>[10]</sup> Diese Erklärung gilt für das Produkt mit folgender Seriennummer und Herstellungsdatum</p>
<p><b>FR</b> <sup>[1]</sup> <b>Fabricant</b> - <sup>[2]</sup> <b>Représentant agréé</b> - <sup>[3]</sup> <b>Type de produit</b> - <sup>[4]</sup> <b>Désignation(s) du modèle</b> - <sup>[5]</sup> <b>Tension nominale, Fréquence nominale</b> – <sup>[6]</sup> L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable : <sup>[7]</sup> <b>Directives européennes</b> - <sup>[8]</sup> L'objet de la déclaration décrit ci-dessus est conforme à la directive 2011/65/UE du Parlement européen et du Conseil du 8 juin 2011 relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques . <sup>[9]</sup> <b>Normes</b> - <sup>[10]</sup> La présente déclaration est valable à partir de la date de fabrication du produit. <sup>[10]</sup> La présente déclaration est valable pour le produit portant le numéro de série et la date de fabrication suivants.</p>
<p><b>IT</b> <sup>[1]</sup> <b>Produttore</b> - <sup>[2]</sup> <b>Rappresentante autorizzato</b> - <sup>[3]</sup> <b>Tipo di prodotto</b> - <sup>[4]</sup> <b>Nomi dei modelli</b> - <sup>[5]</sup> <b>Tensione nominale, Frequenza nominali</b> – <sup>[6]</sup> L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione <sup>[7]</sup> <b>Direttive CE</b> - <sup>[8]</sup> L'oggetto della dichiarazione di cui sopra è conforme alla direttiva 2011/65/UE del Parlamento europeo e del Consiglio dell'8 giugno 2011, sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche <sup>[9]</sup> <b>Standard</b> - <sup>[10]</sup> Questa dichiarazione è valida dal prodotto costruito dopo la data. <sup>[10]</sup> Questa dichiarazione è valida per il prodotto con i seguenti numero di serie e data di produzione</p>
<p><b>ES</b> <sup>[1]</sup> <b>Fabricante</b> - <sup>[2]</sup> <b>Representante autorizado</b> - <sup>[3]</sup> <b>Tipo de producto</b> - <sup>[4]</sup> <b>Modelos</b> - <sup>[5]</sup> <b>Tensión nominal, Frecuencia nominal</b> - <sup>[6]</sup> El objeto de la declaración descrita anteriormente es conforme con la legislación de armonización pertinente de la Unión: <sup>[7]</sup> <b>Directivas CE</b> - <sup>[8]</sup> El objeto de la declaración descrito anteriormente es conforme a la Directiva 2011/65/UE del Parlamento Europeo y del Consejo, de 8 de junio de 2011, sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos <sup>[9]</sup> <b>Normas</b> - <sup>[10]</sup> Esta declaración es válida para el producto fabricado después de la fecha. <sup>[10]</sup> Esta declaración es válida para el producto con el siguiente número de serie y fecha de manufactura.</p>
<p><b>PT</b> <sup>[1]</sup> <b>Fabricante</b> - <sup>[2]</sup> <b>Representante Autorizado</b> - <sup>[3]</sup> <b>Tipo de Produto</b> - <sup>[4]</sup> <b>Nome(s) do Modelo</b> - <sup>[5]</sup> <b>Tensão Nominal, Frequência Nominal</b> – <sup>[6]</sup> O objeto da declaração acima descrito está em conformidade com a legislação de harmonização da União aplicável: <sup>[7]</sup> <b>Directivas da CE</b> - <sup>[8]</sup> O objecto da declaração acima mencionada está em conformidade com a Directiva 2011/65/UE do Parlamento Europeu e do Conselho, de 8 de Junho de 2011, relativa à restrição do uso de determinadas substâncias perigosas em equipamentos eléctricos e electrónicos. <sup>[9]</sup> <b>Normas</b> - <sup>[10]</sup> Esta Declaração é válida para o produto fabricado após a data. <sup>[10]</sup> Esta Declaração é válida para o produto com o seguinte número de série e data de fabrico</p>
<p><b>NL</b> <sup>[1]</sup> <b>Producent</b> - <sup>[2]</sup> <b>Gemachtigd vertegenwoordiger</b> - <sup>[3]</sup> <b>Producttype</b> - <sup>[4]</sup> <b>Modelnaam/namen</b> - <sup>[5]</sup> <b>Nominale spanning, nominale frequentie</b> – <sup>[6]</sup> Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie: <sup>[7]</sup> <b>EC-richtlijnen</b> - <sup>[8]</sup> Het hierboven beschreven voorwerp is conform Richtlijn 2011/65/EU van het Europees Parlement en de Raad van 8 juni 2011 betreffende beperking van het gebruik van bepaalde gevaarlijke stoffen in elektrische en elektronische apparatuur: <sup>[9]</sup> <b>Normen</b> - <sup>[10]</sup> Deze verklaring is geldig voor de producten die zijn geproduceerd na deze datum. <sup>[10]</sup> Deze verklaring is geldig voor het product met het volgende serienummer en productiedatum.</p>
<p><b>PL</b> <sup>[1]</sup> <b>Producent</b> - <sup>[2]</sup> <b>Autoryzowany Przedstawiciel</b> - <sup>[3]</sup> <b>Typ produktu</b> - <sup>[4]</sup> <b>Nazwa(y) modelu</b> - <sup>[5]</sup> <b>Napięcie znamionowe , częstotliwość znamionowa</b> - <sup>[6]</sup> Wymieniony powyżej przedmiot niniejszej deklaracji jest zgodny z odpowiednimi wymaganiami unijnego prawodawstwa harmonizacyjnego: <sup>[7]</sup> <b>dyrektywy KE</b> - <sup>[8]</sup> Opisany powyżej przedmiot deklaracji jest zgodny z dyrektywą Parlamentu Europejskiego i Rady 2011/65/UE z dnia 8 czerwca 2011 r. w sprawie ograniczenia stosowania niektórych niebezpiecznych substancji w sprzęcie elektrycznym i elektronicznym: <sup>[9]</sup> <b>Standardy</b> - <sup>[10]</sup> Deklaracja ta jest ważna dla wyrobów wyprodukowanych po dacie. <sup>[10]</sup> Niniejsza deklaracja jest ważna dla produktu z następującym numerem seryjnym oraz datą produkcji.</p>
<p><b>CS</b> <sup>[1]</sup> <b>Výrobce</b> - <sup>[2]</sup> <b>Autorizovaný zástupce</b> - <sup>[3]</sup> <b>Typ produktu</b> - <sup>[4]</sup> <b>Názvy modelů</b> - <sup>[5]</sup> <b>Jmenovité napětí, jmenovitý kmitočet</b> – <sup>[6]</sup> Výše popsáný předmět prohlášení je ve shodě s příslušnými harmonizačními právními předpisy Unie: <sup>[7]</sup> <b>Směrnice ES</b> - <sup>[8]</sup> Výše popsáný předmět prohlášení je ve shodě se směrnicí Evropského parlamentu a Rady 2011/65/EU ze dne 8. června 2011 o omezení používání některých nebezpečných látek v elektrických a elektronických zařízeních: <sup>[9]</sup> <b>Normy</b> - <sup>[10]</sup> Toto prohlášení o shodě platí od data výroby produktu. <sup>[10]</sup> Toto prohlášení o shodě platí pro produkt s následujícím výrobním číslem a datem výroby.</p>

<p><b>DE</b> <sup>[1]</sup> <b>Hersteller</b> - <sup>[2]</sup> <b>Bevollmächtigter Vertreter</b> - <sup>[3]</sup> <b>Produkttyp</b> - <sup>[4]</sup> <b>Modellbezeichnung(en)</b> - <sup>[5]</sup> <b>Nennspannung, Nennfrequenz</b> – <sup>[6]</sup> Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union.: <sup>[7]</sup> <b>EG-Richtlinien</b> - <sup>[8]</sup> Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2011/65/EU des Europäischen Parlaments und des Rates vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten: <sup>[9]</sup> <b>Normen</b> - <sup>[10]</sup> Diese Erklärung gilt für die nach diesem Datum hergestellten Produkte. <sup>[10]</sup> Diese Erklärung gilt für das Produkt mit folgender Seriennummer und Herstellungsdatum</p>
<p><b>FR</b> <sup>[1]</sup> <b>Fabricant</b> - <sup>[2]</sup> <b>Représentant agréé</b> - <sup>[3]</sup> <b>Type de produit</b> - <sup>[4]</sup> <b>Désignation(s) du modèle</b> - <sup>[5]</sup> <b>Tension nominale, Fréquence nominale</b> – <sup>[6]</sup> L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable : <sup>[7]</sup> <b>Directives européennes</b> - <sup>[8]</sup> L'objet de la déclaration décrit ci-dessus est conforme à la directive 2011/65/UE du Parlement européen et du Conseil du 8 juin 2011 relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques . <sup>[9]</sup> <b>Normes</b> - <sup>[10]</sup> La présente déclaration est valable à partir de la date de fabrication du produit. <sup>[10]</sup> La présente déclaration est valable pour le produit portant le numéro de série et la date de fabrication suivants.</p>
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<p><b>PT</b> <sup>[1]</sup> <b>Fabricante</b> - <sup>[2]</sup> <b>Representante Autorizado</b> - <sup>[3]</sup> <b>Tipo de Produto</b> - <sup>[4]</sup> <b>Nome(s) do Modelo</b> - <sup>[5]</sup> <b>Tensão Nominal, Frequência Nominal</b> – <sup>[6]</sup> O objeto da declaração acima descrito está em conformidade com a legislação de harmonização da União aplicável: <sup>[7]</sup> <b>Directivas da CE</b> - <sup>[8]</sup> O objecto da declaração acima mencionada está em conformidade com a Directiva 2011/65/UE do Parlamento Europeu e do Conselho, de 8 de Junho de 2011, relativa à restrição do uso de determinadas substâncias perigosas em equipamentos eléctricos e electrónicos. <sup>[9]</sup> <b>Normas</b> - <sup>[10]</sup> Esta Declaração é válida para o produto fabricado após a data. <sup>[10]</sup> Esta Declaração é válida para o produto com o seguinte número de série e data de fabrico</p>
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<p><b>PL</b> <sup>[1]</sup> <b>Producent</b> - <sup>[2]</sup> <b>Autoryzowany Przedstawiciel</b> - <sup>[3]</sup> <b>Typ produktu</b> - <sup>[4]</sup> <b>Nazwa(y) modelu</b> - <sup>[5]</sup> <b>Napięcie znamionowe , częstotliwość znamionowa</b> - <sup>[6]</sup> Wymieniony powyżej przedmiot niniejszej deklaracji jest zgodny z odpowiednimi wymaganiami unijnego prawodawstwa harmonizacyjnego: <sup>[7]</sup> <b>dyrektywy KE</b> - <sup>[8]</sup> Opisany powyżej przedmiot deklaracji jest zgodny z dyrektywą Parlamentu Europejskiego i Rady 2011/65/UE z dnia 8 czerwca 2011 r. w sprawie ograniczenia stosowania niektórych niebezpiecznych substancji w sprzęcie elektrycznym i elektronicznym: <sup>[9]</sup> <b>Standardy</b> - <sup>[10]</sup> Deklaracja ta jest ważna dla wyrobów wyprodukowanych po dacie. <sup>[10]</sup> Niniejsza deklaracja jest ważna dla produktu z następującym numerem seryjnym oraz datą produkcji.</p>
<p><b>CS</b> <sup>[1]</sup> <b>Výrobce</b> - <sup>[2]</sup> <b>Autorizovaný zástupce</b> - <sup>[3]</sup> <b>Typ produktu</b> - <sup>[4]</sup> <b>Názvy modelů</b> - <sup>[5]</sup> <b>Jmenovité napětí, jmenovitý kmitočet</b> – <sup>[6]</sup> Výše popsáný předmět prohlášení je ve shodě s příslušnými harmonizačními právními předpisy Unie: <sup>[7]</sup> <b>Směrnice ES</b> - <sup>[8]</sup> Výše popsáný předmět prohlášení je ve shodě se směrnicí Evropského parlamentu a Rady 2011/65/EU ze dne 8. června 2011 o omezení používání některých nebezpečných látek v elektrických a elektronických zařízeních: <sup>[9]</sup> <b>Normy</b> - <sup>[10]</sup> Toto prohlášení o shodě platí od data výroby produktu. <sup>[10]</sup> Toto prohlášení o shodě platí pro produkt s následujícím výrobním číslem a datem výroby.</p>

<p><b>EL)</b> <sup>[1]</sup> Κατασκευαστής - <sup>[2]</sup> Εξουσιοδοτημένος αντιπρόσωπος - <sup>[3]</sup> Είδος προϊόντος - <sup>[4]</sup> Ονομασία μοντέλου - <sup>[5]</sup> Ονομαστική τάση, Ονομαστική συχνότητα - <sup>[6]</sup> Ο στόχος της δήλωσης που περιγράφεται παραπάνω είναι σύμφωνος με τη σχετική ενωσιακή νομοθεσία εναρμόνισης: <sup>[7]</sup> Οδηγίες ΕΚ - <sup>[8]</sup> Το ανωτέρω περιγραφόμενο αντικείμενο της δήλωσης είναι σύμφωνο με την οδηγία 2011/65/ΕΕ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου, της 8ης Ιουνίου 2011, σχετικά με τον περιορισμό της χρήσης ορισμένων επικίνδυνων ουσιών σε ηλεκτρικό και ηλεκτρονικό εξοπλισμό: <sup>[9]</sup> Πρότυπα - <sup>[10]</sup> Η παρούσα δήλωση ισχύει για το κατασκευασμένο προϊόν μετά την ημερομηνία. <sup>[10]</sup> Η παρούσα δήλωση ισχύει για το προϊόν με τον ακόλουθο σειριακό αριθμό και την ημερομηνία κατασκευής</p>
<p><b>GA)</b> <sup>[1]</sup> Monaróir - <sup>[2]</sup> Ionadaí údaraithe - <sup>[3]</sup> Cineál Táirge - <sup>[4]</sup> Ainm (neacha ) Samhail - <sup>[5]</sup> Rátáil Voltage , Minicíocht Rátáil - <sup>[6]</sup> Tá cuspóir an dearbhaithe a bhfuil tuairisc air thuas i gcomhréir le reachtaíocht ábhartha an Aontais maidir le comhchuibhiú: <sup>[7]</sup> Treoracha CE - <sup>[8]</sup> Tá cuspóir an dearbhaithe a bhfuil tuairisc air thuas i gcomhréir le Treoir 2011/65/AE ó Pharlaimint na hEorpa agus ón gComhairle an 8 Meitheamh 2011 maidir le srian ar shubstaintí guaiseacha áirithe a úsáid i dtrealamh leictreach agus leictreonach <sup>[9]</sup> Caighdeáin - <sup>[10]</sup> Tá an dearbhú bailí ón táirge a mhonaraítear i ndiaidh an dáta sin. <sup>[10]</sup> Tá an dearbhú bailí ar feadh an táirge foirgníochta an sraithuimhir leanas agus dáta monaraithe</p>
<p><b>HR)</b> <sup>[1]</sup> Proizvodáč - <sup>[2]</sup> Ovlašteni zastupnik - <sup>[3]</sup> Vrsta proizvoda - <sup>[4]</sup> Naziv(i) modela - <sup>[5]</sup> Nazivni napon, nazivna frekvencija - <sup>[6]</sup> Predmet navedene izjave u skladu je s mjerodavnim zakonodavstvom Unije o usklađivanju: <sup>[7]</sup> Direktive EZ-a - <sup>[8]</sup> Gore opisan predmet izjave u skladu je s Direktivom 2011/65/EU Europskog parlamenta i Vijeća od 8. lipnja 2011. o ograničavanju uporabe određenih opasnih tvari u električnoj i elektroničkoj opremi: <sup>[9]</sup> Norme - <sup>[10]</sup> Ova izjava vrijedi za proizvod proizveden nakon navedenog datuma. <sup>[10]</sup> Ova izjava vrijedi za proizvod sa sljedećim serijskim brojem i datumom proizvodnje</p>
<p><b>RO)</b> <sup>[1]</sup> Producător - <sup>[2]</sup> Reprezentant Autorizat - <sup>[3]</sup> Tipul Produsului - <sup>[4]</sup> Nume model(e) - <sup>[5]</sup> Tensiune nominală, Frecvența nominală - <sup>[6]</sup> Obiectul declarației descris mai sus este în conformitate cu legislația relevantă de armonizare a Uniunii: <sup>[7]</sup> Directive CE - <sup>[8]</sup> Obiectul declarației descris mai sus este conform Directivei 2011/65/UE a Parlamentului European și a Consiliului din 8 iunie 2011 privind restricțiile de utilizare a anumitor substanțe periculoase în echipamentele electrice și electronice: <sup>[9]</sup> Standarde - <sup>[10]</sup> Această declarație este valabilă pentru produsele fabricate după data curentă. <sup>[10]</sup> Această declarație este valabilă pentru produsul cu următorul număr de serie și următoarea dată de fabricație</p>
<p><b>HU)</b> <sup>[1]</sup> Gyártó - <sup>[2]</sup> Meghatalmazott képviselő - <sup>[3]</sup> Terméktípus - <sup>[4]</sup> Modell(ek) neve - <sup>[5]</sup> Névleges feszültség, névleges frekvencia - <sup>[6]</sup> A fent ismertetett nyilatkozat tárgya megfelel a vonatkozó uniós harmonizációs jogszabálynak: <sup>[7]</sup> EC-irányelvek - <sup>[8]</sup> E nyilatkozat fent leírt tárgya összhangban van az egyes veszélyes anyagok elektromos és elektronikus berendezésekben való alkalmazásának korlátozásáról szóló, 2011. június 8-i 2011/65/EU európai parlamenti és tanácsi irányelvvel: <sup>[9]</sup> Szabványok - <sup>[10]</sup> Jelen nyilatkozat a megadott dátum után gyártott termékekre érvényes. <sup>[10]</sup> Jelen nyilatkozat a következő sorozatszámú és gyártási dátumú termékre érvényes.</p>
<p><b>BG)</b> <sup>[1]</sup> Производител - <sup>[2]</sup> Оторизиран представител - <sup>[3]</sup> Тип продукт - <sup>[4]</sup> Име на модел - <sup>[5]</sup> Номинално напрежение, Номинална честота - <sup>[6]</sup> Предметът на декларацията, описан по-горе, отговаря на съответното законодателство на Съюза за хармонизация: <sup>[7]</sup> Директиви на ЕО - <sup>[8]</sup> Обектът на декларацията, който е описан по-горе, е в съответствие с Директива 2011/65/ЕС на Европейския парламент и на Съвета от 8 юни 2011 г. относно ограничението на употребата на определени опасни вещества в електрическото и електронното оборудване: <sup>[9]</sup> Стандарти - <sup>[10]</sup> Тази декларация е валидна за продуктите, произведени след датата. <sup>[10]</sup> Тази декларация е валидна за продукта със следния сериен номер и дата на производство.</p>
<p><b>ZH)</b> <sup>[1]</sup> 制造商 - <sup>[2]</sup> 授权代表 - <sup>[3]</sup> 产品类型 - <sup>[4]</sup> 型号 - <sup>[5]</sup> 额定电压、额定频率 - <sup>[6]</sup> 上述声明对象符合相关欧盟协调法规 <sup>[7]</sup> 欧盟指令 - <sup>[8]</sup> 上述声明对象符合欧洲议会和欧盟理事会2011年6月8日关于在电气和电子设备中限制使用某些有害物质的指令2011/65 / EU <sup>[9]</sup> 标准 - <sup>[10]</sup> 本声明自产品制造之日起生效。 <sup>[10]</sup> 本声明适用于具有下述序列号和制造日期的产品。</p>



# CERTIFICATE OF REGISTRATION

## Thermo Fisher Scientific (Asheville) LLC

Laboratory Equipment Division  
275 Aiken Road  
Asheville, North Carolina 28804 UNITED STATES

UL LLC®(UL) issues this certificate to the Firm named above, after assessing the Firm's quality system and finding it in compliance with:

**ISO 13485:2016**

**EN ISO 13485:2016**

The design and development, manufacture, distribution, service and installation, technical support, training, and Asheville depot repair of cold storage products and associated equipment; the manufacture, distribution, service, and Asheville depot repair of laboratory sciences products; the manufacture and distribution of temperature control products; the contact manufacture and distribution of automated microbial detection systems.

Certificate with Addendum(s) totals 2 pages.



Authorized by

**Deborah Jennings-Conner**  
Global Regulatory Director  
Life and Health Sciences, UL LLC



Check Certificate  
Status: [here](#)

File Number	A28309	Cycle Start	October 19, 2020
Certificate Number	1798.201019	Effective Date	October 19, 2020
Initial Issue Date	August 13, 2018	Expiry Date	October 18, 2021

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of UL LLC.



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333 Pfingsten Road  
Northbrook, IL 60062-2096 USA





# CERTIFICATE OF REGISTRATION

## Thermo Fisher Scientific (Asheville) LLC

Laboratory Equipment Division  
275 Aiken Road  
Asheville, North Carolina 28804 UNITED STATES

### Addendum 1

- 1-2**                                   **Thermo Fisher Scientific (Asheville) LLC**  
**28 Schenck Parkway Suite 400, Building 2B**  
**Asheville, North Carolina 28803 UNITED STATES**  
Performing: Customer service/technical support, contract review, order entry, human resources, field Installation and field servicing.
- 1-3**                                   **Thermo Fisher Scientific (Asheville) LLC**  
**501 Elk Park Drive**  
**Asheville, North Carolina 28804 UNITED STATES**  
Performing: Product specific training external and field staff
- 1-4**                                   **Thermo Fisher Scientific LLC**  
**220 Merrimon Avenue**  
**Weaverville, North Carolina 28787 UNITED STATES**  
Performing: Warehouse, shipping, and Asheville Depot Repair/servicing

File Number	A28309	Cycle Start	October 19, 2020
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UL LLC  
333 Pfingsten Road  
Northbrook, IL 60062-2096 USA

# Thermo Scientific TSX Series High-Performance Refrigerators and Freezers

A better environment  
inside and out



Thermo Scientific™  
TSX 1447 liter  
Refrigerator



Thermo Scientific™  
TSX 650 liter  
Freezer



Thermo Scientific™  
TSX 650 liter  
Pharmacy  
Refrigerator



Thermo Scientific™  
TSX 650 liter  
Manual Defrost  
Freezer

# Lab and clinical-grade storage that adapts to you and your environment



Temperature variation can have an impact on the viability and efficacy of vaccines, medication, reagents and other temperature-sensitive materials. These variations can shorten product shelf life, degrade enzymes and reduce vaccine effectiveness. Therefore, it is important to choose a high-performance refrigerator or freezer that has been designed for the demanding standards of the laboratory and clinical environment.

## The sustainable, compliant choice

Thermo Scientific™ TSX Series high-performance refrigerators and freezers are designed with features that support sample protection, sustainability objectives and the EU F-gas regulations. Our V-drive technology is designed to provide temperature uniformity that continually adapts to the lab or clinical environment, offering significant energy savings without compromising protection.

## Whisper quiet operation

Compared to conventional refrigerant, high-performance models†, the TSX Series offers a whisper quiet operation, so you can bring the refrigerator or freezer out of the hallway and back into your lab without disrupting your audio environment.

## Energy efficient products

While conventional refrigerant, high-performance refrigerators and freezers can run at very high kWh/day in energy usage, the TSX Series by comparison has been designed to reduce energy usage without compromising performance.

## Application-specific models

Our laboratory refrigerators feature your choice of glass or solid door with adjustable shelves. Freezers come in a choice of auto defrost  $-30^{\circ}\text{C}$  or manual defrost  $-20^{\circ}\text{C}$  setpoint. For blood banking applications, our plasma freezers are FDA Class I and our blood bank refrigerators are FDA Class II. Our pharmacy refrigerators feature convenient, adjustable basket drawers. And for enzyme storage, our  $-20^{\circ}\text{C}$  freezers feature enzyme bins for convenient storage.



† Based on published sound specifications, data on file. October, 2016.

# The drive for sample integrity and energy savings

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

- While conventional, high-performance refrigerators and freezers use single speed compressors that continually cycle on and off, the TSX Series V-drive runs at variable speeds to adjust cooling performance to the conditions inside and outside of the refrigerator or freezer.
- When combined with the automated tuning control, this variable speed drive optimizes the compressors running speed to the current conditions.
- When there are frequent door openings, or samples are added to the refrigerator or 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 Series delivers outstanding door opening recovery (DOR) speed, and more peace of mind for busy laboratories.
- When conditions are stable, such as when the unit is running overnight or on weekends, the drive runs at a low speed, reducing energy consumption while maintaining a stable temperature for your samples.

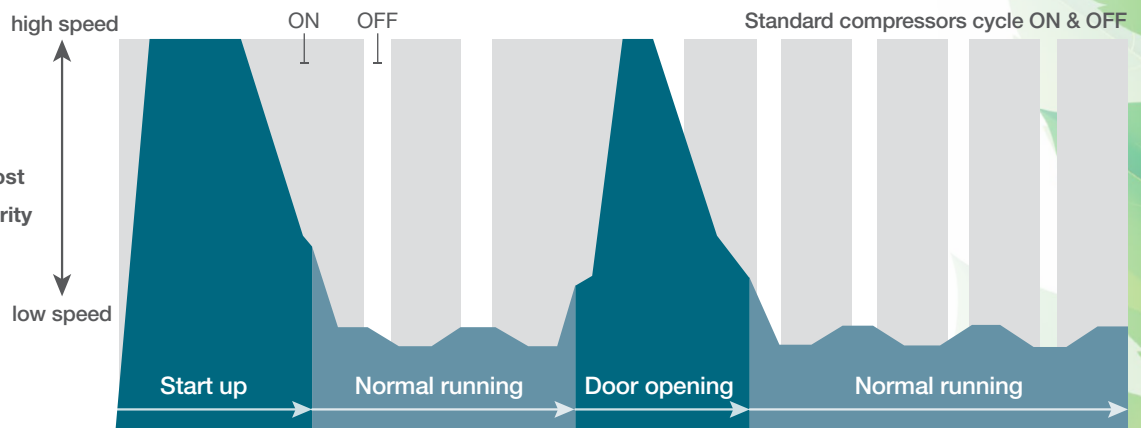
## V-drive

Low energy → **Low operating cost**

Adaptive control → **Sample security**

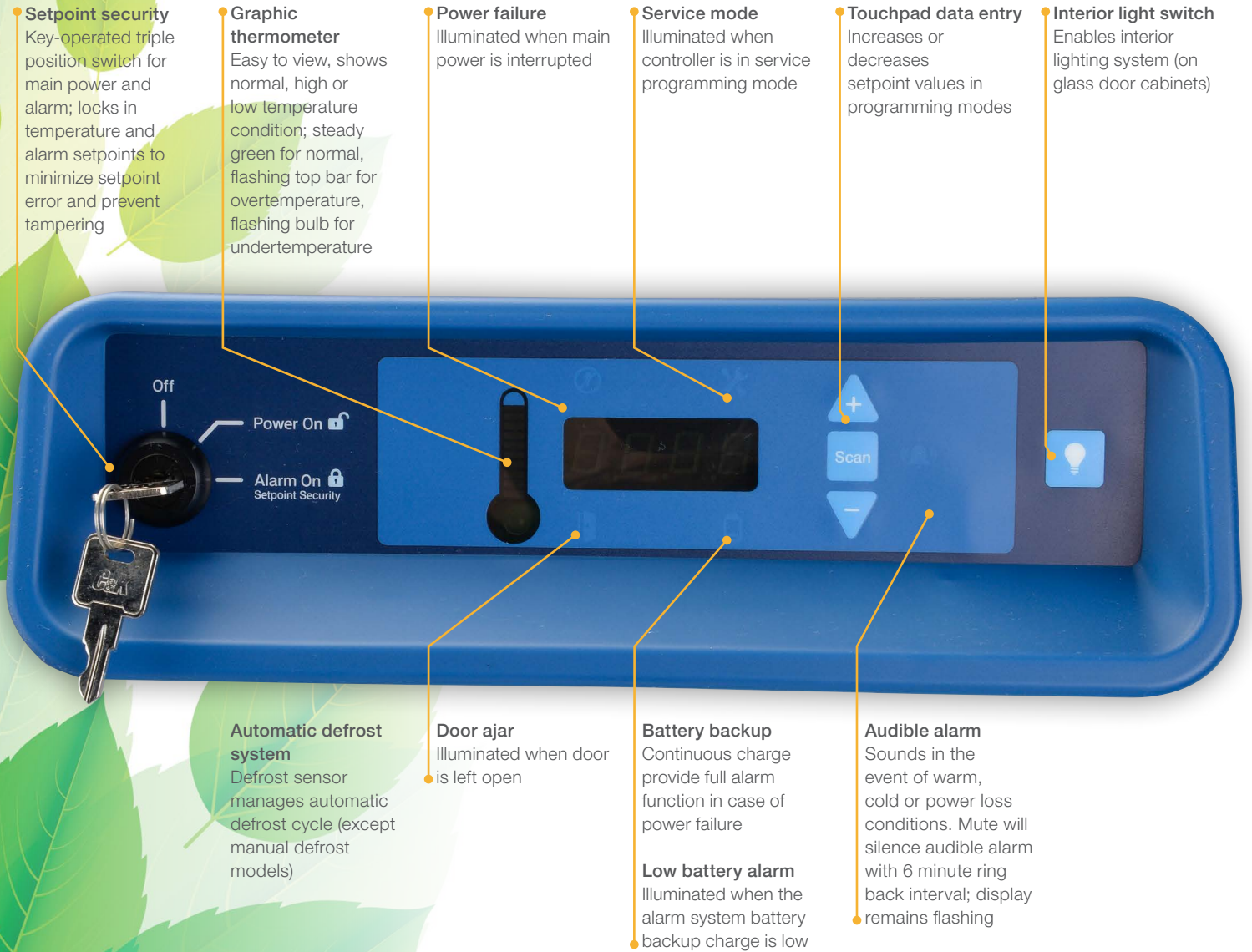
## Adaptive control

Adapting to your refrigerator or 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.

# Easy-to-access controls with setpoint security



# 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 Series is **up to 10X quieter than our previous generation of refrigerators and freezers.\*** Our V-drive technology, combined with superior insulation, limits the sound output of the TSX Series to just **52 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
<b>TSX Series</b>	<b>52</b>
Library	40
Quiet rural area	30
Rustling leaves	20
Breathing	10

\* Thermo Scientific TSX2304GA compared to Thermo Scientific high-performance 2304A model (non TSX).

\*\* Data on file. October, 2016.



up to  
**10X**  
quieter

# Designed for ergonomic usage

In addition to the significant reduction in sound, the TSX Series features an ergonomically designed door handle featuring soft touch grip and the microprocessor controller is angled to help prevent neck strain.



# TSX Series High-Performance BioMedical Glass Door Refrigerators



Our high-performance glass door refrigerators combine advanced temperature control with high-quality cabinet construction and alarm systems. Positive, forced-air circulation is designed to maintain temperature uniformity to protect important medical and pharmaceutical-products as well as laboratory media, reagents and more.

- Heat-free defrost for maximum temperature uniformity
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Bright, LED interior lighting
- Self-closing door with 90° stop to assist with inventory loads
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 650 liter  
refrigerator

## TSX Series high-performance glass door lab refrigerators

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Doors	Shelves	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1205GY			115V, 60Hz (NEMA 5-15)							339 (154)
TSX1205GZ	3–7°C (5°C)	11.5 (326)	208–230V, 60Hz (NEMA 6-15)	1 glass	4	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	30.5 x 24.0 x 73.0 (77.5 x 61.9 x 185.4)	339 (154)
TSX1205GV			208–230V, 50Hz (CEE 7/7)							339 (154)
TSX2305GY			115V, 60Hz (NEMA 5-15)							450 (204)
TSX2305GZ	3–7°C (5°C)	23 (650)	208–230V, 50/60Hz (NEMA 6-15)	1 glass	4	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.8 x 28.0 x 78.5 (96.0 x 71.1 x 199.4)	429 (195)
TSX2305GV			208–230V, 50/60Hz (CEE 7/7)							429 (195)
TSX3005GY			115V, 60Hz (NEMA 5-15)							458 (208)
TSX3005GZ	3–7°C (5°C)	29.2 (827)	208–230V, 60Hz (NEMA 6-15)	1 glass	4	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.3 x 34.0 x 78.5 (94.7 x 86.4 x 199.4)	458 (208)
TSX3005GV			208–230V, 50Hz (CEE 7/7)							458 (208)
TSX4505GY			115V, 60Hz (NEMA 5-15)							611 (277)
TSX4505GZ	3–7°C (5°C)	45.8 (1297)	208–230V, 60Hz (NEMA 6-15)	Double Sliding Glass	8	auto	CE, cUL	26.0 x 52.5 x 58.0 (66 x 133.4 x 147.3)	36.6 x 56.5 x 78.5 (93.1 x 143.5 x 199.4)	611 (277)
TSX4505GV			208–230V, 50Hz (CEE 7/7)							611 (277)
TSX5005GY			115V, 60Hz (NEMA 5-15)							669 (303)
TSX5005GZ	3–7°C (5°C)	51.1 (1447)	208–230V, 60Hz (NEMA 6-15)	2 Glass	8	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.8 x 56.5 x 78.5 (96.0 x 143.5 x 199.4)	669 (303)
TSX5005GV			208–230V, 50Hz (CEE 7/7)							669 (303)

# TSX Series High-Performance BioMedical Solid Door Lab Refrigerators



Our high-performance solid door refrigerators combine advanced temperature control with high-quality cabinet construction and alarm systems. Positive, forced-air circulation is designed to maintain temperature uniformity to protect important medical and pharmaceutical-products as well as laboratory media, reagents and more.

- Heat-free defrost for maximum temperature uniformity
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Bright, LED interior lighting
- Self-closing door with 90° stop to assist with inventory loads
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 1447 liter  
refrigerator

## TSX Series high-performance solid door lab refrigerators

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Doors	Shelves	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1205SY			115V, 60Hz (NEMA 5-15)							340 (154)
TSX1205SZ	3–7°C (5°C)	11.5 (326)	208-230V, 60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	31.1 x 24.0 x 73.0 (79.0 x 61.9 x 185.4)	340 (154)
TSX1205SV			208-230V, 50Hz (CEE 7/7)							340 (154)
TSX2305SY			115V, 60Hz (NEMA 5-15)							426 (193)
TSX2305SZ	3–7°C (5°C)	23 (650)	208-230V, 50/60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.9 x 28.0 x 78.5 (96.2 x 71.1 x 199.4)	405 (184)
TSX2305SV			208-230V, 50/60Hz (CEE 7/7)							405 (184)
TSX3005SY			115V, 60Hz (NEMA 5-15)							459 (208)
TSX3005SZ	3–7°C (5°C)	29.2 (827)	208-230V, 60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.9 x 34.0 x 78.5 (96.2 x 86.4 x 199.4)	459 (208)
TSX3005SV			208-230V, 50Hz (CEE 7/7)							459 (208)
TSX5005SY			115V, 60Hz (NEMA 5-15)							621 (282)
TSX5005SZ	3–7°C (5°C)	51.1 (1447)	208-230V, 60Hz (NEMA 6-15)	2 solid	8	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.9 x 56.5 x 78.5 (96.2 x 143.5 x 199.4)	621 (282)
TSX5005SV			208-230V, 50Hz (CEE 7/7)							621 (282)



# TSX Series High Performance Chromatography Refrigerators



Vaccines and medications



Clinical applications



Diagnostics kits and reagents



Columns



Our TSX high-performance chromatography refrigerators are designed for a variety of applications requiring close temperature control, full access to chromatography instrumentation, and easy set-up of instrumentation and apparatus within the chamber. The TSX Chromatography series features industry-leading safety features to ensure maximum protection.

- Heat-free defrost for maximum temperature uniformity
- Two 2" (5 cm) side wall access ports with insulated hinged covers
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Bright, LED interior lighting
- Self-closing door with 90° stop to assist with inventory loads
- Safety switch protected internal electrical outlet on all models (Duplex outlet on Y and Z models, single outlet on V models)
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 827 liter  
chromatography refrigerator

## TSX Series high-performance chromatography refrigerators

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Doors	Shelves	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX2305CY			115V, 60Hz (NEMA 5-15)							439 (199)
TSX2305CZ	3–7°C (5°C)	23 (650)	208-230V, 50/60Hz (NEMA 6-15)	1 glass	0 Full 2 Half	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.8 x 28.0 x 78.5 (96.0 x 71.1 x 199.4)	418 (190)
TSX2305CV			208-230V, 50/60Hz (CEE 7/7)							418 (190)
TSX3005CY			115V, 60Hz (NEMA 5-15)							442 (201)
TSX3005CZ	3–7°C (5°C)	29.2 (827)	208-230V, 60Hz (NEMA 6-15)	1 glass	0 Full 2 Half	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.3 x 34.0 x 78.5 (94.7 x 86.4 x 199.4)	442 (201)
TSX3005CV			208-230V, 50Hz (CEE 7/7)							442 (201)
TSX4505CY			115V, 60Hz (NEMA 5-15)							600 (272)
TSX4505CZ	3–7°C (5°C)	45.8 (1297)	208-230V, 60Hz (NEMA 6-15)	Double Sliding Glass	4 Full 2 Half	auto	CE, cUL	26.0 x 52.5 x 58.0 (66.0 x 133.4 x 147.3)	36.6 x 56.5 x 78.5 (93.1 x 143.5 x 199.4)	600 (272)
TSX4505CV			208-230V, 50Hz (CEE 7/7)							600 (272)
TSX5005CY			115V, 60Hz (NEMA 5-15)							658 (298)
TSX5005CZ	3–7°C (5°C)	51.1 (1447)	208-230V, 60Hz (NEMA 6-15)	2 glass	4 Full 2 Half	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.8 x 56.5 x 78.5 (96.0 x 143.5 x 199.4)	658 (298)
TSX5005CV			208-230V, 50Hz (CEE 7/7)							658 (298)

# TSX Series High-Performance Blood Bank Refrigerators



Our high-performance blood bank refrigerators are designed to meet strict requirements established by the AABB for the storage of whole blood and blood components.

- Factory pre-set to 4°C to meet blood storage guidelines
- Heat-free defrost for maximum temperature uniformity
- Convenient, stainless steel, fully extendable and adjustable drawers
- Standard, built-in chart recorder
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Bright, LED interior lighting
- Self-closing door with 90° stop to assist with inventory loads
- FDA listed Class II Medical Device, 510K exempt
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 650 liter  
blood bank refrigerator

## TSX Series high-performance blood bank refrigerators

Model no.	Temp. range (setpoint)	Capacity cu. ft. / liters (blood bags*)	Electrical (plug)	Doors	Drawers	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1204BY			115V, 60Hz (NEMA 5-15)							404 (183)
TSX1204BZ	3–7°C (4°C)	11.5 / 326 (192)	208-230V, 60Hz (NEMA 6-15)	1 glass	6	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	30.5 x 24.0 x 73.0 (77.5 x 61.9 x 185.4)	404 (183)
TSX1204BV			208-230V, 50Hz (CEE 7/7)							404 (183)
TSX2304BY			115V, 60Hz (NEMA 5-15)							550 (249)
TSX2304BZ	3–7°C (4°C)	23 / 650 (385)	208-230V, 60Hz (NEMA 6-15)	1 glass	7	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.8 x 28.0 x 78.5 (96.0 x 71.1 x 199.4)	529 (240)
TSX2304BV			208-230V, 50/60Hz (CEE)							529 (240)
TSX3004BY			115V, 60Hz (NEMA 5-15)							554 (251)
TSX3004BZ	3–7°C (4°C)	29.2 / 827 (426)	208-230V, 60Hz (NEMA 6-15)	1 glass	6	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.3 x 34.0 x 78.5 (94.7 x 86.4 x 199.4)	554 (251)
TSX3004BV			208-230V, 50Hz (CEE 7/7)							554 (251)
TSX5004BY			115V, 60Hz (NEMA 5-15)							865 (392)
TSX5004BZ	3–7°C (4°C)	51.1 / 1447 (770)	208-230V, 60Hz (NEMA 6-15)	2 glass	14	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.8 x 56.5 x 78.5 (96.0 x 143.5 x 199.4)	865 (392)
TSX5004BV			208-230V, 50Hz (CEE 7/7)							865 (392)

\*450 mL whole blood bags

# TSX Series High-Performance Pharmacy Refrigerators



Vaccines and medications



Clinical applications



Diagnostics kits and reagents



Our high-performance pharmacy refrigerators feature adjustable basket drawers and glass doors for the easy identification and access of vaccines, pharmaceuticals, chemotherapeutics and other material requiring 2 to 8°C storage.

- Heat-free defrost for maximum temperature uniformity
- Convenient, fully extendable and adjustable basket drawers
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Bright, LED interior lighting
- Self-closing door with 90° stop to assist with inventory loads
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 650 liter  
pharmacy refrigerator

## TSX Series high-performance pharmacy refrigerators

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Basket Doors	Basket Drawers	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1205PY			115V, 60Hz (NEMA 5-15)							388 (176)
TSX1205PZ	3–7°C (5°C)	11.5 (326)	208–230V, 60Hz (NEMA 6-15)	1 glass	5	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	30.5 x 24.0 x 73.0 (77.5 x 61.9 x 185.4)	388 (176)
TSX1205PV			208–230V, 50Hz (CEE 7/7)							388 (176)
TSX2305PY			115V, 60Hz (NEMA 5-15)							531 (241)
TSX2305PZ	3–7°C (5°C)	23 (650)	208–230V, 50/60Hz (NEMA 6-15)	1 glass	6	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.8 x 28.0 x 78.5 (96.0 x 71.1 x 199.4)	510 (231)
TSX2305PV			208–230V, 50Hz (CEE 7/7)							510 (231)
TSX3005PY			115V, 60Hz (NEMA 5-15)							541 (245)
TSX3005PZ	3–7°C (5°C)	29.2 (827)	208–230V, 60Hz (NEMA 6-15)	1 glass	6	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.3 x 34.0 x 78.5 (94.7 x 86.4 x 199.4)	541 (245)
TSX3005PV			208–230V, 50Hz (CEE 7/7)							541 (245)
TSX5005PY			115V, 60Hz (NEMA 5-15)							830 (376)
TSX5005PZ	3–7°C (5°C)	51.1 (1447)	208–230V, 60Hz (NEMA 6-15)	2 glass	12	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.8 x 56.5 x 78.5 (96.0 x 143.5 x 199.4)	830 (376)
TSX5005PV			208–230V, 50Hz (CEE 7/7)							830 (376)

# TSX Series High-Performance Auto Defrost $-30^{\circ}\text{C}$ Freezers



Our high-performance laboratory freezers are designed for applications requiring storage of reagents, pharmaceuticals, biological and other commonly used laboratory materials such as primers, siRNA molecules and fetal bovine serum (FBS).

- Forced-air circulation for temperature uniformity and fast temperature recovery
- Non-invasive defrost with time and temperature guided cycle
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Self-closing door with 90° stop to assist with inventory loads
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 1447 liter  
freezer



Thermo Scientific™  
TSX 326 liter  
freezer

## TSX Series high-performance auto defrost $-30^{\circ}\text{C}$ freezers

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Doors	Shelves	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1230FY			115V, 60Hz (NEMA 5-15)							335 (152)
TSX1230FZ	$-35^{\circ}$ to $-15^{\circ}\text{C}$ ( $-30^{\circ}\text{C}$ )	11.5 (326)	208-230V, 60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	31.1 x 24.0 x 73.0 (79.0 x 61.9 x 185.4)	335 (152)
TSX1230FV										335 (152)
TSX2330FY			115V, 60Hz (NEMA 5-15)							423 (192)
TSX2330FZ	$-35^{\circ}$ to $-15^{\circ}\text{C}$ ( $-30^{\circ}\text{C}$ )	23.3 (659)	208-230V, 60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.9 x 28.0 x 78.5 (96.2 x 71.1 x 199.4)	402 (182)
TSX2330FV										402 (182)
TSX3030FY			115V, 60Hz (NEMA 5-15)							439 (199)
TSX3030FZ	$-35^{\circ}$ to $-15^{\circ}\text{C}$ ( $-30^{\circ}\text{C}$ )	29.2 (827)	208-230V, 60Hz (NEMA 6-15)	1 solid	4	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.9 x 34.0 x 78.5 (96.2 x 86.4 x 199.4)	439 (199)
TSX3030FV										439 (199)
TSX5030FY			115V, 60Hz (NEMA 5-15)							621 (282)
TSX5030FZ	$-35^{\circ}$ to $-15^{\circ}\text{C}$ ( $-30^{\circ}\text{C}$ )	51.1 (1447)	208-230V, 60Hz (NEMA 6-15)	2 solid	8	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.3 x 133.4 x 147.3)	37.9 x 56.5 x 78.5 (96.2 x 143.5 x 199.4)	621 (282)
TSX5030FV										621 (282)

# TSX Series High-Performance Manual Defrost $-20^{\circ}\text{C}$ Freezers



Biologics



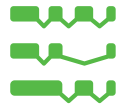
Diagnostics kits and reagents



Enzymes



Industrial testing



Molecular biology



Our manual defrost, high-performance freezers are designed for applications in which even slight intermittent coil warming during auto defrost cannot be tolerated.

- Cold wall convection cooling with temperature uniformity
- Enzyme freezers feature enzyme bins
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Four 2" casters for easy mobility; the front two are lockable
- Self-closing door with 90° stop to assist with inventory loads
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 659 liter  
freezer

## TSX Series high-performance manual defrost $-20^{\circ}\text{C}$ freezers

Model no.	Temp. range (setpoint)	Capacity cu. ft. (liters)	Electrical (plug)	Doors	Shelves (bins)	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX2320FY			115V, 60Hz (NEMA 5-15)							459 (208)
TSX2320FZ	$-25^{\circ}\text{C}$ to $-15^{\circ}\text{C}$ ( $-20^{\circ}\text{C}$ )	23.3 (659)	208-230V, 50/60Hz (NEMA 6-15)	1 solid	4 (0)	Manual	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	38.9 x 28.0 x 78.5 (99.0 x 71.1 x 199.4)	438 (199)
TSX2320FV			208-230V, 50/60Hz (CEE 7/7)							438 (199)
TSX3020FY			115V, 60Hz (NEMA 5-15)							483 (219)
TSX3020FZ	$-25^{\circ}\text{C}$ to $-15^{\circ}\text{C}$ ( $-20^{\circ}\text{C}$ )	29.2 (827)	208-230V, 60Hz (NEMA 6-15)	1 solid	4 (0)	Manual	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	38.9 x 34.0 x 78.5 (99.0 x 86.4 x 199.4)	483 (219)
TSX3020FV			208-230V, 50/60Hz (CEE 7/7)							483 (219)

## TSX Series high-performance manual defrost $-20^{\circ}\text{C}$ enzyme freezers

TSX2320EY			115V, 60Hz (NEMA 5-15)							514 (233)
TSX2320EZ	$-25^{\circ}\text{C}$ to $-15^{\circ}\text{C}$ ( $-20^{\circ}\text{C}$ )	23.3 (659)	208-230V, 50/60Hz (NEMA 6-15)	1 solid	9 (45)	Manual	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	38.9 x 28.0 x 78.5 (99.0 x 71.1 x 199.4)	493 (224)
TSX2320EV			208-230V, 50/60Hz (CEE 7/7)							493 (224)
TSX3020EY			115V, 60Hz (NEMA 5-15)							552 (251)
TSX3020EZ	$-25^{\circ}\text{C}$ to $-15^{\circ}\text{C}$ ( $-20^{\circ}\text{C}$ )	29.2 (827)	208-230V, 60Hz (NEMA 6-15)	1 solid	9 (54)	Manual	CE, cULL	28.5 x 30.0 x 58 (72.3 x 76.2 x 147.3)	38.9 x 34.0 x 78.5 (99.0 x 86.4 x 199.4)	552 (251)
TSX3020EV			208-230V, 50/60Hz (CEE 7/7)							552 (251)

# TSX Series High-Performance -30°C Plasma Freezers



Whole blood  
and plasma



Our pre-set, high-performance -30°C plasma freezers with automatic defrost are designed to meet strict requirements established by the AABB for the storage of plasma.

- Forced-air circulation for temperature uniformity and fast temperature recovery
- Convenient, stainless steel, fully extendable and adjustable drawers
- GMP Clean Room Class A / ISO 6 (ISO EN 14644-1) compatible with appropriate pre-install preparation
- Standard, built-in chart recorder
- Four 2" casters for easy mobility; the front two are lockable
- Self-closing door with 90° stop to assist with inventory loads
- FDA listed Class I Medical Device, 510K exempt
- See pages 14–21 for options and accessories



Thermo Scientific™  
TSX 659 liter  
plasma freezer

## TSX Series high-performance -30°C plasma freezer

Model no.	Temp. range (setpoint)	Capacity cu. ft. / liters (plasma boxes*)	Electrical (plug)	Doors	Drawers	Defrost	Certification	Interior dimensions D x W x H in. (cm)	Exterior dimensions D x W x H in. (cm)	Shipping weight lbs. (kg)
TSX1230LY			115V, 60Hz (NEMA 5-15)							412 (187)
TSX1230LZ	-35°C to -15°C (-30°C)	11.5 / 326 (273)	208-230V, 60Hz (NEMA 6-15)	1 solid	7	auto	CE, cUL	21.8 x 20.0 x 52.4 (55.4 x 50.8 x 133.1)	31.1 x 24.0 x 73.0 (79.0 x 61.9 x 185.4)	412 (187)
TSX1230LV			208-230V, 50Hz (CEE 7/7)							412 (187)
TSX2330LY			115V, 60Hz (NEMA 5-15)							526 (239)
TSX2330LZ	-35°C to -15°C (-30°C)	23.3 / 659 (532)	208-230V, 50/60Hz (NEMA 6-15)	1 solid	7	auto	CE, cUL	28.5 x 24.0 x 58.0 (72.3 x 61.0 x 147.3)	37.9 x 28.0 x 78.5 (96.2 x 71.1 x 199.4)	505 (229)
TSX2330LV			208-230V, 50Hz (CEE 7/7)							505 (229)
TSX3030LY			115V, 60Hz (NEMA 5-15)							556 (252)
TSX3030LZ	-35°C to -15°C (-30°C)	29.2 / 827 (665)	208-230V, 60Hz (NEMA 6-15)	1 solid	7	auto	CE, cUL	28.5 x 30.0 x 58.0 (72.3 x 76.2 x 147.3)	37.9 x 34.0 x 78.5 (96.2 x 86.4 x 199.4)	556 (252)
TSX3030LV			208-230V, 50Hz (CEE 7/7)							556 (252)
TSX5030LY			115V, 60Hz (NEMA 5-15)							817 (371)
TSX5030LZ	-35°C to -15°C (-30°C)	51.1 / 1447 (1064)	208-230V, 60Hz (NEMA 6-15)	2 solid	14	auto	CE, cUL	28.5 x 52.5 x 58.0 (72.4 x 133.4 x 147.3)	37.9 x 56.5 x 78.5 (96.2 x 143.5 x 199.4)	817 (371)
TSX5030LV			208-230V, 50Hz (CEE 7/7)							817 (371)

\*250 mL plasma boxes

# Options and Accessories

Productive use of our TSX Series refrigerators and freezers can be enhanced with options and accessories specifically designed to improve utility and convenience. Many options are factory-installed and must be specified with your refrigerator and freezer order. Customer-installed options may require the services of a factory authorized technician. The ordering chart on pages 16-19 will inform you which options are factory- or customer-installed.

## **Before ordering...**

Serial number tags on all of our TSX Series refrigerators and freezers provide model numbers and voltage information needed for accurate selection of options ordered for field installation. You can also refer to the refrigerator and freezer ordering charts in this brochure for model numbers and voltage information. It is recommended that options be ordered when your refrigerator or freezer is ordered. Factory-installed options eliminate down-time during product installation.

## **Adjustable alarm delay modules**

The adjustable alarm delay is designed to eliminate nuisance alarms due to intermittent or transitory conditions such as lightning or brief power outages. The adjustable delay requires an alarm condition to exist continuously for a pre-determined time (adjustable) before a signal is released to a central alarm/monitoring system or telephone dialer.

- Adjustable delay from 0.5 to 32 minutes
- Red alarm indicator light remains flashing after transient condition is corrected; requires manual reset
- Signals chronic alarm conditions that may indicate impending component failure; allows time for inspection or corrective maintenance
- Inserts variable time interval between detection of alarm condition and transmission of signal
- Includes accurate digital timing circuit adjustable from 0.5, 1, 2, 4, 8, 18 or 32 minutes
- Operates independent of the line power; built-in battery uses customer supplied 9V battery

## **Remote alarm modules**

Free-standing remote alarm modules tie-in to the standard remote alarm terminals on the refrigerators and freezers.

### **4–20 milliamp (MA) transmitters**

4–20 milliamp transmitters offer a point-to-point circuit to transmit signals from refrigerator and freezer sensors to a controller, sending an analog signal from 4 to 20 milliamps.

### **Temperature chart recorders**

Standard on blood bank refrigerators and plasma freezers but optional on other models. Chart recorders are 6" (15.2 cm), seven-day and use pressure-sensitive chart paper. One box of 50 charts is included with order.

### **Door swing options**

All single door TSX refrigerators and freezers are right-hand swing but factory-installed, left hand swing doors are available. Door swing direction cannot be changed on double door TSX refrigerators and freezers.

### **Surge suppressors**

Designed to prevent issues related to voltage surges.

### **Seismic restraint kits**

Provides additional stability for regions prone to earthquakes.

### **e-lock adapter kits**

E-locks provide access control with audit-trail capabilities, as well as temperature monitoring. These kits require no electricity and are available in both factory- and customer-installed options for CompX™, Pyxis®, Omnicell® and McKesson™ locks.

### **Specialty electrical plugs**

For countries where NEMA 5-15, 6-15 and Continental EU plugs are not standard, specialty plug options are available. See page 19 for these country-specific plugs.



# Options (Refrigerators)

## Options for High-Performance Refrigerators Ordering Guide

For use with refrigerator size →	11.5 cu. ft. (325 L)	23 cu. ft. (650 L)	29.2 cu. ft. (826 L)	45.8 cu. ft. (1297 L)	51.1 cu. ft. (1447 L)
<b>Door options (factory-installed)</b>					
Left hand swing, solid door	6995	6997	6999		
Left hand swing, glass door	6996	6998	7000		
Right hand swing, glass door	7066	7012	7013		
Left and right hand swinging doors, solid					7019
Left and right hand swinging doors, glass					7014
<b>6" 7-day inkless chart recorders, -40°C to +25°C</b>					
Free-standing, customer-installed, 115V, 60Hz models			6383-7A		
Free-standing, customer-installed, 208-230V, 60Hz models			6383-7D		
Free-standing, customer-installed, 230V, 50Hz models (EU)			6383-7V		
Free-standing, customer-installed, 230V, 50Hz models (UK)			6383-7W		
Factory-installed (all voltages)			6183-7		
Replacement chart paper, box of 50			6184		
<b>Surge suppressor (customer-installed)</b>					
115V, 60Hz models			6402-1		
208-230V, 60Hz models			6402-2		
230V, 50Hz models			6402-3		
<b>Remote alarm modules (customer-installed)</b>					
115V, 60Hz models			5612-1A		
208-230V, 60Hz models			5612-2D		
230V, 50Hz models			5612-3V		
<b>Alarm delay modules</b>					
Battery operated			6903		
<b>Digital temperature monitors</b>					
Single input channel, temperature range -100° to +25°C, set point resolution of 1°C, high temperature alarm only, numeric LCD display, red visual alarm, 8 ft. Teflon® lead wire, Velcro® mounting strap, 5"L x 2"D x 4.5"W (mm,130 x 50 x 110), 120v, 60hz, with a 15amp dual prong plug (fits NEMA 5-15R)			6898		

	11.5 cu. ft. (325 L)	23 cu. ft. (650 L)	29.2 cu. ft. (826 L)	45.8 cu. ft. (1297 L)	51.1 cu. ft. (1447 L)
<b>For use with refrigerator size →</b>					
<b>Deluxe electronic remote alarm</b>					
Requires a dedicated, analog phone line					6224TA
<b>4-20 milliamp transmitters</b>					
Self-powered, factory-installed					7204
Non-powered, factory-installed					6907-1
Non-powered, customer-installed					6907-2
<b>e-Lock adapter kits (does not include locks; single door models only)</b>					
CompX adapter, factory-installed		CXELAF			
CompX adapter, customer-installed		CXELAC			
Pyxis glass door adapter, factory-installed		PXELAGF			
Pyxis glass door adapter, customer-installed		PXELAGC			
Pyxis solid door adapter, factory-installed		PXELASF			
Pyxis solid door adapter, customer-installed		PXELASC			
Omnicell glass door adapter, factory-installed		OMELAGF			
Omnicell glass door adapter, customer-installed		OMELAGC			
Omnicell solid door adapter, factory-installed		OMELASF			
Omnicell solid door adapter, customer-installed		OMELASC			
McKesson glass door adapter, factory-installed		MKELAGF			
McKesson glass door adapter, customer-installed		MKELAGC			
McKesson solid door adapter, factory-installed		MKELASF			
McKesson solid door adapter, customer-installed		MKELASC			
<b>Stainless steel interior (factory-installed)</b>					
Stainless steel interior finish	6199-3D	6115	6709	6711	6116

# Options (Freezers)

## Options for High-Performance Freezers Ordering Guide

	For use with refrigerator size →	11.5 cu. ft. (326 L)	23.3 cu. ft. (659 L)	29.2 cu. ft. (826 L)	51.1 cu. ft. (1447 L)
Door options (factory-installed)	Model No.	Model No.	Model No.	Model No.	
Left hand swing, solid door	6995	6997	6999		
<b>6" 7-day inkless chart recorders, -40°C to +25°C</b>					
Factory-installed (all voltages)			6183-7		
Free-standing, customer-installed, 115V, 60Hz models			6383-7A		
Free-standing, customer-installed, 208-230V, 60Hz models			6383-7D		
Free-standing, customer-installed, 230V, 50Hz models (EU)			6383-7V		
Free-standing, customer-installed, 230V, 50Hz models (UK)			6383-7W		
Replacement chart paper, box of 50			6184		
<b>Surge suppressor (customer-installed)</b>					
115V, 60Hz models			6402-1		
208-230V, 60Hz models			6402-2		
230V, 50Hz models			6402-3		
<b>Remote alarm modules (customer-installed)</b>					
115V, 60Hz models			5612-1A		
208-230V, 60Hz models			5612-2D		
230V, 50Hz models			5612-3V		
<b>Alarm delay modules</b>					
Battery operated			6903		
<b>Digital temperature monitors</b>					
Single input channel, temperature range -100° to +25°C, set point resolution of 1°C, high temperature alarm only, numeric LCD display, red visual alarm, 8 ft. Teflon® lead wire, Velcro® mounting strap, 5"L x 2"D x 4.5"W (mm,130 x 50 x 110), 120v, 60hz, with a 15amp dual prong plug (fits NEMA 5-15R)			6898		
<b>Deluxe electronic remote alarm</b>					
Requires a dedicated, analog phone line			6224TA		
<b>4-20 milliamp transmitters</b>					
Self-powered, factory-installed			7205TA		
Non-powered, factory-installed			4706		
<b>e-Lock adapter kits (does not include locks; single door models only)</b>					
CompX adapter, factory-installed			CXELAF		
CompX adapter, customer-installed			CXELAC		
Pyxis solid door adapter, factory-installed			PXELASF		
Pyxis solid door adapter, customer-installed			PXELASC		
Omniceil solid door adapter, factory-installed			OMELASF		
Omniceil solid door adapter, customer-installed			OMELASC		
McKesson solid door adapter, factory-installed			MKELASF		
McKesson solid door adapter, customer-installed			MKELASC		
<b>Stainless steel interior (factory-installed)</b>					
Stainless steel interior finish (Not available on -20°C models)	6199-3D	6115	6709	6116	

# Accessories

## Accessories for High-Performance Refrigerators and Freezers Ordering Guide

For use with refrigerator size →	11.5 cu. ft. (326 L)	23.3 cu. ft. (659 L)	29.2 cu. ft. (826 L)	45.8 cu. ft. (1297 L)	51.1 cu. ft. (1447 L)
Shelves	Model No.	Model No.	Model No.	Model No.	Model No.
Epoxy-coated, full size shelf	7125	6696	6695		6696
Epoxy-coated, half size shelf		6698	6697		6698
Stainless steel, full size shelf	6696-3			6696-1	
<b>Drawer dividers for roll-out , stainless steel drawers</b>					
4-place divider, order one divider per drawer	7027 (4)	6206 (4)	6963 (5)		6206 (4)
<b>3" casters (note: all models ship standard with 2")</b>					
Set of four, 3" (76mm) casters				6041-1	
<b>Additional wire basket drawers</b>					
Single drawer, for pharmacy refrigerators	WB12	WB23/50	WB30		WB23/50
<b>Enzyme bins</b>					
Sold as each, labels not included			6736		
<b>Seismic restraint kits</b>					
Basic			TFR210		
For OSHPD	TF-LRF12	TF-LRF23	TF-LRF30	TF-LRF50	TF-LRF50

## Specialty Plugs for Refrigerators and Freezers

Specialty plugs (factory-installed) for all Models	Model No.	
Specialty Plug	Argentina	430381H01
Specialty Plug	Australia (10 Amp)	326741H01
Specialty Plug	Australia (15 Amp)	430268H01
Specialty Plug	Brazil	430383H01
Specialty Plug	China	316705H01
Specialty Plug	Denmark	430380H01
Specialty Plug	Great Britain	316704H01
Specialty Plug	India	430271H01
Specialty Plug	Israel	430273H01
Specialty Plug	Italy	430272H01
Specialty Plug	Switzerland	430382H01
Specialty Plug	Twist Lock Plug NEMA L5-20P	327197H02
Specialty Plug	Twist lock plug NEMA L6-15P	327197H01

# Services

Our TSX Series high-performance refrigerators and freezers are designed to meet UL and CE criteria for safety and performance. All connections must comply with local electrical codes.

- Selection charts for each standard model list voltage, rated amperage, recommended circuit breaker size, and NEMA (National Electrical Manufacturers' Association, USA) electrical plug information
- Most refrigerators and freezers are supplied with line cord plugs, which require corresponding receptacles
- Site preparation requires availability of the proper receptacle; a dedicated circuit is required
- Special voltage selections may be available at extra cost and must be specified when ordering
- For questions regarding site preparation, installation and electrical connection, contact your sales representative

## Certificate of Calibration

Control, alarm and temperature recording systems are systematically calibrated at the factory for accurate performance. An optional Certificate of Calibration to an NIST (National Institute of Standards and Technology, formerly National Bureau of Standards) traceable instrument includes a model number and serial number certificate (single point calibration). Multiple point calibration is also available. Calibration certificates must be requested when ordering; for details contact your sales representative.

## Validation Testing Program

Validation testing services in advance of shipment may accelerate in-house Installation Qualification (IQ) and Operation Qualification (OQ) programs. Validation services include documentation and performance reports, compressor and subsystem component specifications, microprocessor flow diagrams, software specifications and more. For more details, contact your sales representative.

Model no.	Services description
7455TA	Temperature mapping of 24 hours at setpoint to include: <ul style="list-style-type: none"> <li>• Mapping data graphed at each location</li> <li>• Thermocouple placement diagram</li> <li>• Test equipment list</li> <li>• Average uniformity and stability at specified cycle</li> <li>• Minimum, average and maximum temperatures at each thermocouple location</li> <li>• Uniformity and stability at each location</li> </ul>
7456TA	Temperature mapping of 24 hours (traceable instruments and raw data) at setpoint to include: <ul style="list-style-type: none"> <li>• Mapping data graphed at each location</li> <li>• Thermocouple placement diagram</li> <li>• Test equipment list- utilizing Kaye Validator® thermal validation equipment</li> <li>• Calibration certificates of test equipment</li> <li>• Thermocouple calibration reports</li> <li>• Average uniformity and stability at specified cycle</li> <li>• Minimum, average and maximum temperatures at each thermocouple location</li> <li>• Uniformity and stability at each location</li> </ul>
6916-2	Certificate of calibration

# Other Accessories



## Wireless Monitoring

Thermo Scientific Smart-Vue™ wireless monitoring solution offers 24/7 continuous, real-time wireless monitoring of critical parameters, early warning alerts, and remote data logging. Likewise, Thermo Scientific Smart-Tracker™ requires only a smart phone to access stored temperature readings. No other equipment or installation is necessary.



## Clinical Containers

Made with the highest quality resins, Thermo Scientific Nalgene™ bottles are engineered to work together with a proprietary valve seal and a strong, semi-buttnress thread design. Our Nalgene bottles offer a leakproof\* guarantee because we manufacture and test both components together as part of our routine quality program.



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Gibco™ media, sera, supplements, cells and cell culture reagents are designed to deliver reproducibility and performance for results you can count on. Regardless of whether you are performing cell culture in a research lab or production facility, need a special or defined formulation, or are growing cell lines, primary cells, or stem cells, Gibco products offer a reliable solution.

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\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.



## Also available, Thermo Scientific™ TSX Series high-performance undercounter refrigerators

The only undercounter lab-grade refrigerator with redundant cooling

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- Low noise
- High storage capacity

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