



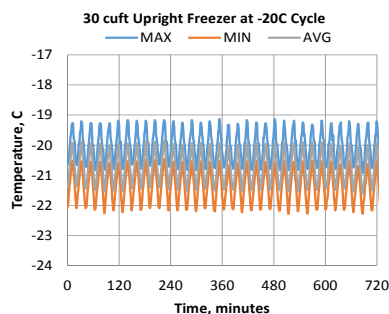
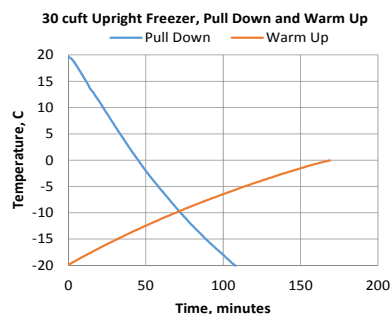
# Technical Data Sheet

## High Performance General Purpose Freezer

Revision-0

Thermo Fisher Scientific, Asheville, North Carolina

| Specifications                                          | Catalog number                                                                                  |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|                                                         | TSX3020FV                                                                                       |
|                                                         | Model Number                                                                                    |
|                                                         | TSX3020FV                                                                                       |
| Application, Rating and Electrical Data                 |                                                                                                 |
| Application                                             | Storage of General (non-flammable) Laboratory Materials                                         |
| Storage Volume                                          | 827 Liters / 29.2 Cubic Feet                                                                    |
| Factory Set Point                                       | -20°C                                                                                           |
| Set Point Range/Adjustable Increment                    | -25°C to -15°C / 0.1°C                                                                          |
| Electrical Power / Rated Current                        | 208-230V 50 Hz 1 Phase / 3.0A                                                                   |
| Building Supply Rating                                  | 15A dedicated grounded non-GFCI circuit. Protected by circuit breaker rated for inductive loads |
| Power Plug/Power Cord Length                            | 16 Amp (CEE 7/7) / 3.048 Meters (10 feet)                                                       |
| Agency Listings                                         | CE, UL, cUL                                                                                     |
| Indoor/Outdoor Usage                                    | Indoor Use Only                                                                                 |
| Application Environment                                 | Non-Corrosive, Non-Flammable, Non-Explosive, Good Air Ventilation                               |
| Ambient Operating Temperature                           | 15° C - 32° C (60° F - 90° F)                                                                   |
| Refrigeration Configuration                             |                                                                                                 |
| Refrigeration System                                    | Vapor compression system                                                                        |
| Compressor / Number / Capacity                          | Hermetic Variable Capacity Compressor / 1 / 398W                                                |
| Condenser Type/Number                                   | Enhanced Finned-Tube and Forced-Air Cooled / 1                                                  |
| Expansion Device                                        | Capillary Tube                                                                                  |
| Evaporator Type / Defrost Method                        | Cold Wall With Enhanced Heat Transfer Treatment / Manual Defrost                                |
| Refrigerant Charge / Flammability                       | R290,145gms,GWP:3 ODP:0 / Flammable                                                             |
| Controller/Electrical System Configuration and Features |                                                                                                 |
| Controller Level                                        | Eye Level                                                                                       |
| Power Switch                                            | Keyed Off-On - Alarm                                                                            |
| Controller Type                                         | IntrLogic Control System: Digital display, Graphic thermometer                                  |
| Setpoint Security / Programmable                        | Yes / Yes                                                                                       |
| Compressor Safe Guard                                   | Current protection                                                                              |
| Control Sensor                                          | Single RTD (1000 ohm shielded Platinum RTD)                                                     |
| Connectivity / Remote Outputs                           | Remote alarm contacts, RS485 output and 4-20 mA output (optional)                               |
| Adjustable Warm / Cold Alarms                           | Fully Adjustable                                                                                |
| Power Failure Alarm                                     | Standard                                                                                        |
| Electronic Chart Recorder                               | Optional                                                                                        |
| Dimensions and Construction                             |                                                                                                 |
| Interior Dimensions (D x W x H)                         | 72.3 cm x 76.2 cm x 147.3 cm (28.5" x 30.0" x 58.0")                                            |
| Exterior Dimensions (D x W x H)                         | 99.0 cm x 86.4 cm x 199.4 cm (38.9" x 34.0" x 78.5")                                            |
| Insulation                                              | 5.08 cm (2.0") High-Density Water-Blown Polyurethane Foam                                       |
| Door Perimeter heater                                   | Yes                                                                                             |
| Shelves / Load Limit                                    | (4) Adjustable Wire Shelves / 45 kg (100 lbs) per Shelf                                         |
| All-Direction Casters                                   | Standard with Locks                                                                             |
| Shipping Weight                                         | 219 kg / 483 lb                                                                                 |
| Typical Performance Characteristics                     |                                                                                                 |

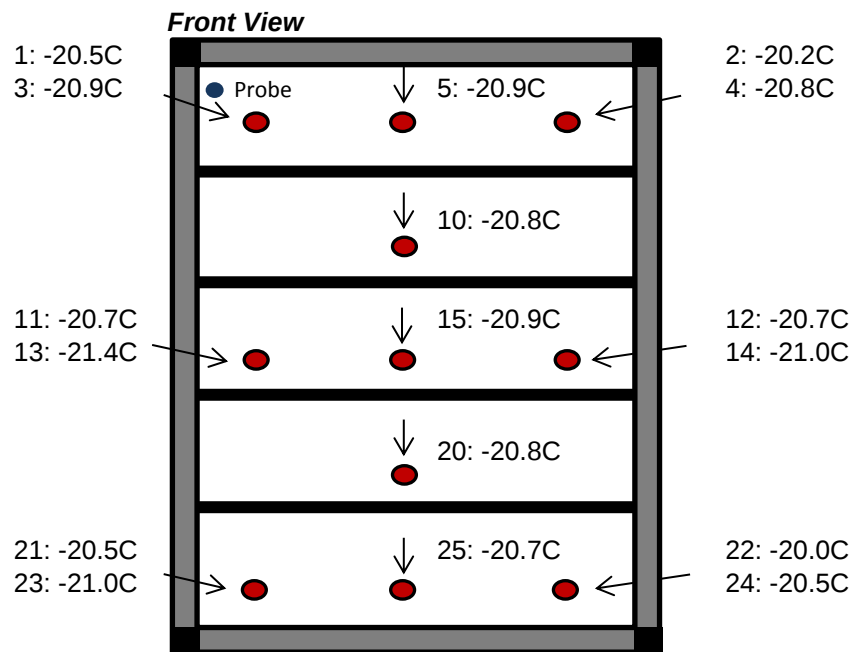
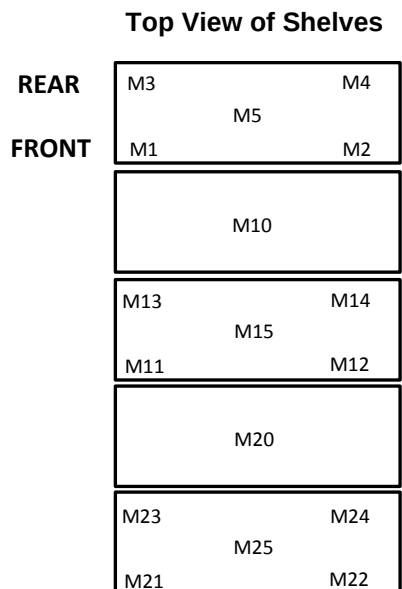


|                                            |             |
|--------------------------------------------|-------------|
| Test Unit Series Number or MSO Number:     | 19758-B-8   |
| Cabinet Load:                              | Unloaded    |
| Average Cabinet Temp at -20C Cycle (C):    | -20.7       |
| Peak Variation from Setpoint (C):          | +0.9 / -2.3 |
| Uniformity (C):                            | 1.3         |
| Stability (C):                             | 1.9         |
| 1-min Door Opening Recovery to -20C (min): | 17          |
| Duty Cycle at -20C (%):                    | 50          |
| Cycle (on/off) rate at -20C (min):         | 11 / 11     |
| Energy Consumption (kw-hr/day):            | 4.3         |
| Heat Rejection Rate (btu/hr):              | 607         |
| Pull Down Time (to -20C) (min):            | 108         |
| Warm Up Time (-20C to 0C) (min):           | 169         |
| Sound (dBA):                               | 52          |

- Performance is nominal and individual units may vary.
- Product performance will differ due to product amount, product size and operating conditions.
- Continuous product enhancements may, without notice, result in amendments or omissions to this specification. Thermo Scientific cannot accept responsibility for damage, injury, loss or expenses resulting from misapplication of the information herein.

**Typical Cabinet Temperature Map**  
Freezer 30cuft , 4 Inner-Shelves + Base, Single Outer Door

Temperatures are averages during > 20 cycles after reaching a setpoint of -20C

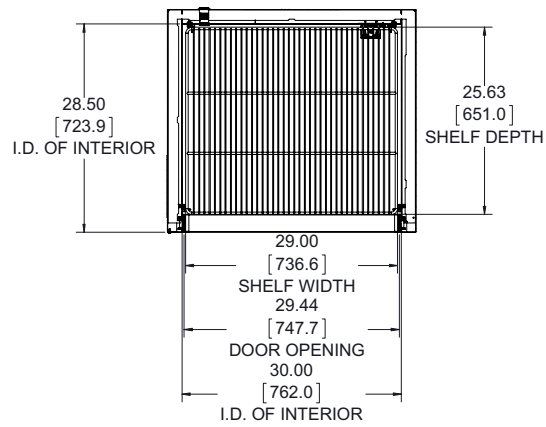


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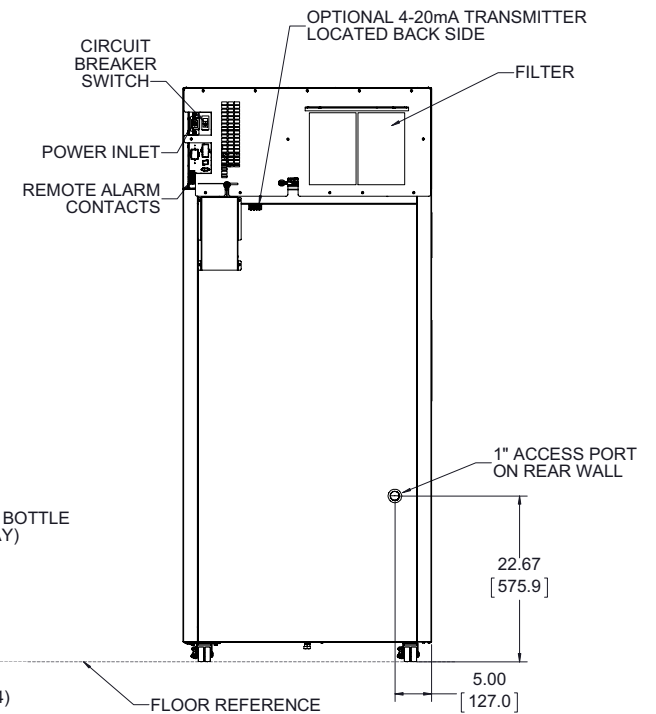
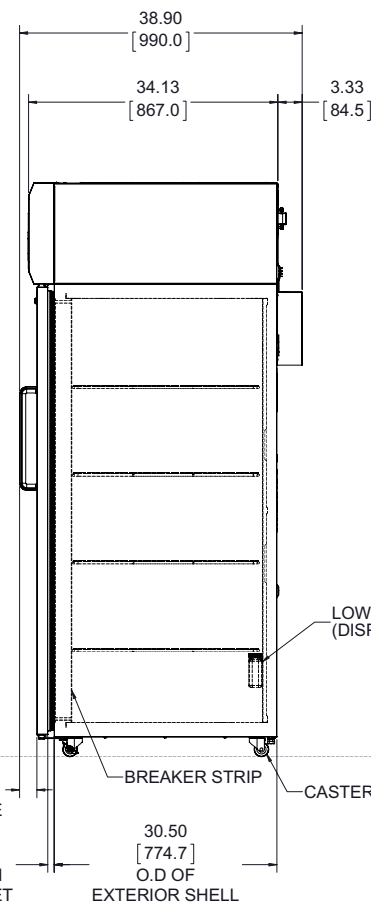
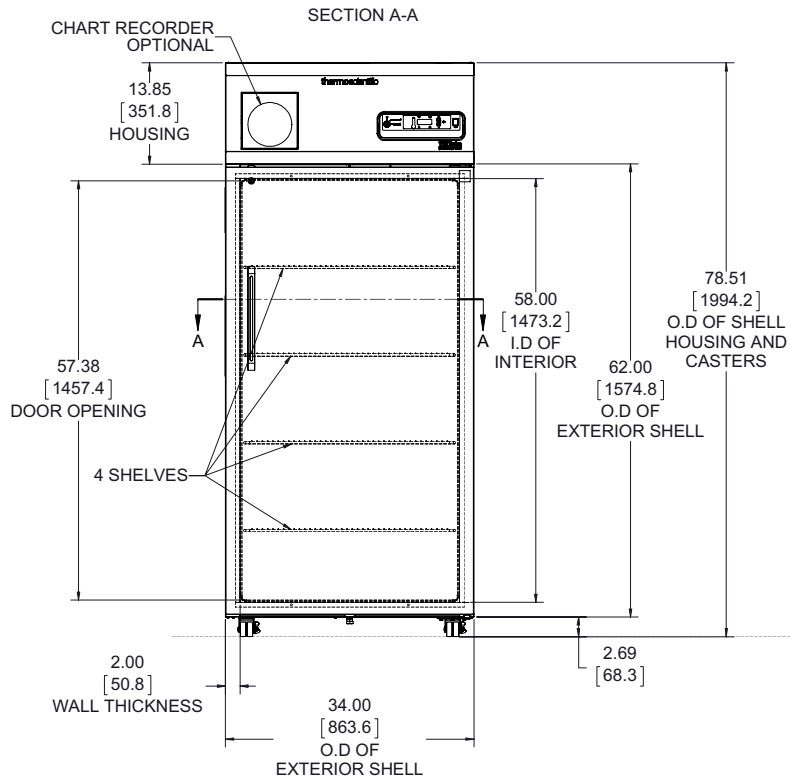
**Cabinet Average:** -20.7 C  
**Probe Average:** -23.5 C  
**Peak Variation:** +0.9 C / -2.3 C

|     | M1    | M2    | M3    | M4    | M5    | M10   | M11   | M12   | M13   |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Avg | -20.5 | -20.2 | -20.9 | -20.8 | -20.9 | -20.8 | -20.7 | -20.7 | -21.4 |
| Max | -19.6 | -19.4 | -19.8 | -19.7 | -19.6 | -19.9 | -19.9 | -19.9 | -20.5 |
| Min | -21.4 | -20.9 | -22   | -21.7 | -21.9 | -21.7 | -21.5 | -21.5 | -22.3 |

|     | M14   | M15   | M20   | M21   | M22   | M23   | M24   | M25   |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| Avg | -21   | -20.9 | -20.8 | -20.5 | -20   | -21   | -20.5 | -20.7 |
| Max | -20.1 | -20.1 | -20.1 | -19.4 | -19.1 | -19.8 | -19.6 | -19.7 |
| Min | -21.9 | -21.6 | -21.4 | -21.5 | -21.1 | -22.3 | -21.5 | -21.8 |



ONLY CABINET SHOWN FOR CLARITY IN TOP VIEW,  
TO ILLUSTRATE INTERIOR DIMENSIONS



**NOTE: DUAL DIMENSION IS INCHES OVER MILLIMETERS**  
DO NOT USE FOR ENGINEERING PURPOSES. SUBJECT TO CHANGE WITHOUT NOTICE.

**30 cu. ft. Lab Freezer**  
4 Shelves  
Single Outer Door  
Top Mount Controls

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