Economy Laboratory Freezers

User Manual & Setup Guide

TF RANGE

Dixell XR70

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Symbols

General Warning Sign

Warning sign: signifies a general warning, and indicates a risk to people specified by the supplementary sign that if not avoided, may result in death or serious injury.

Warning; Crushing of Hand

Warning; Flammable: signifies a flammable warning, and indicates a risk of flammable content as specified by the supplementary sign that if not avoided, may result in a fire by igniting flammable material.

Warning; Electricity

Warning; Electricity: signifies an electricity warning, and indicates a risk of contact with electricity as specified by the supplementary sign that if not avoided, could result in injury.

Warning; Hot Surface

Warning; Hot Surface: signifies hot surface warning, and indicates a risk to people specified by the supplementary sign that if not avoided, will result in contact with hot surface.

General Prohibition Sign

General Prohibition: signifies a prohibited action, indicates a risk to people specified by the supplementary sign that if not avoided, will result in death or serious injury.

Do Not Expose Outside

Do Not Expose Outside: signifies prohibiting the exposure to direct sunlight, and indicates a raised temperature due to sunlight or placement on hot surface can cause harmful damage to cabinet.

General Information

This user manual is intended for Thermoline's range of economy laboratory freezers. We recommend that you read this user manual the whole way through before you start using the freezer. Consider this manual as a component of the freezer and an integral part to its function. We recommend keeping it close and within easy access.

The single door economy laboratory freezer range is an excellent choice when lab space is limited.

Control Accuracy: +/- 0.25°C Operating

Temperature from -20°C to -10°C in the freezers.

Product Specifications
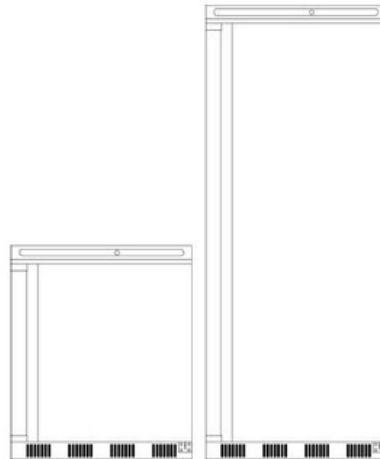
Dimensions

External
WxDxH (mm)

TF-160-1-SD	TF-260-1-SD
600x600x850	600x600x1850

Internal
WxDxH (mm)

TF-160-1-SD	TF-260-1-SD
480x470x620	480x470x1620

Spacing

	TF-160-1-SD	TF-260-1-SD
Front (mm)	600	
Back (mm)	100	
Sides (mm)	100	
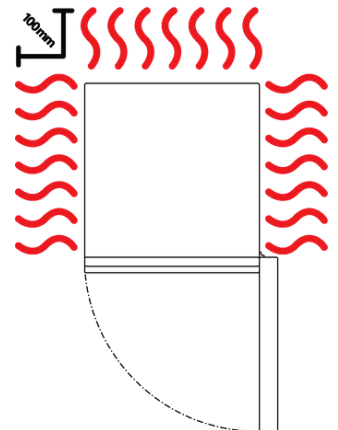
Product Specifications

Technical Specifications	TF-160-1-SD	TF-260-1-SD
Temperature Range	-20°C to -10°C	
Temperature Stability	+/- 2.0°C does not include below the step	
Electrical	1A/230V	2A/230V
Nominal Capacity	160L	260L
Weight	50kg	100kg
Heat Output (Watts)	240	300
Noise Level @ 1 metre (dbA)	40	40
Refrigerant Type	R600a (Isobutane)	

Features		
Shelves	3x levels	6
Castors	Rear Rollers	
Porthole Diameter	N/A	
Manual Defrost	✔	✔
Door Locks	✔	✔
BMS Plug	✔	✔
Ecofoam Insulation	✔	✔

Safety		
Over Current Protection	✔	✔
Over Temperature Safety	✔	✔

Operating Environment

Cabinet Location

Ensure the economy laboratory freezers are placed in the correct environment, away from direct sunlight or direct heat sources such as heaters. The product shouldn't be placed in a room where the ambient temperature exceeds that of which it was designed to operate.

The economy laboratory freezers should be stored

inside at all times. Failure to adhere to this could cause significant drops in cabinet performance and damage to items stored inside.

Extreme Operating Environment:

- **Temp:** *10°C to 32°C (+/-2.0°C)*
- **Humid:** *Up to 85%RH (Non Condensing)*

Optimal Environment:

- 23°C (+/-2.0°C)
- 50%RH (+/-5%RH)

Installation Requirements:

- Under no circumstances should these cabinets be stacked on top of each other.

Fig 1. Non-Suitable Environment

Electrical Connections

The Thermoline economy laboratory freezers are suitable for connection to a standard 10Amp, 230 volts, 50Hz, power supply. A dedicated outlet should be used for the supply; do not use power boards or the like. A 3-pin moulded plug is tted as standard to the 2.5 metre power cord.
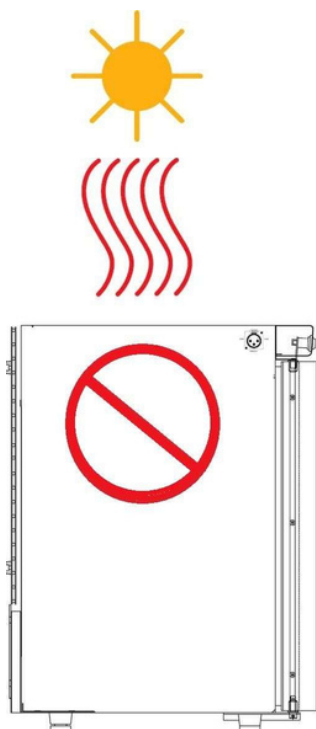
Operating Environment

Operating Environment Warnings

The economy laboratory freezers should be stored inside at all times. Failure to adhere to this could cause signi cant drops in cabinet performance and damage to items stored inside.

Setup

Unpacking
Unpacking Process for Box and Skid

- The economy laboratory freezer will be delivered packed in a box on a skid.

- Before proceeding make sure that all internal and external packaging has been removed from the appliance and that all tape, plastic bags and pieces of foam have been removed.

- Removing the box requires the cling wrap and straps to be cut, then expose the cabinet by carefully sliding the box upwards. **(Fig 1)**

- If upon opening your package damage is present, notify the detail of any damage to your supplier or to Thermoline without delay at +61 2 9604 3911 or email at service@thermoline.com.au.
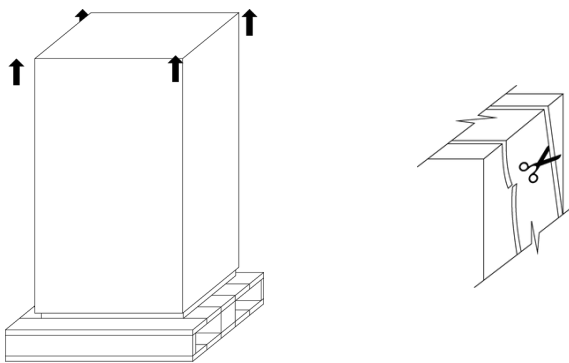

Fig 1 . Unpacking Process (Box)

Cabinet Location

Location Requirements:
- The economy laboratory freezers require a level surface to operate correctly. There are adjustable feet at the front to allow for levelling

- Do not store items on top of the freezer.

Ventilation:
- All economy laboratory freezers require ventilation around them. 100mm on either side and 100mm on the back back is required.

- The cabinet door should also be allowed to open and close at full range.

Moving
Moving the Cabinet:

- With the economy laboratory freezer being on a on a skid it can be moved around using a pallet jack until it is unpacked. **(Fig 2)**

- Once unpacked the economy laboratory freezer has single direction rollers at the back to assist with moving.
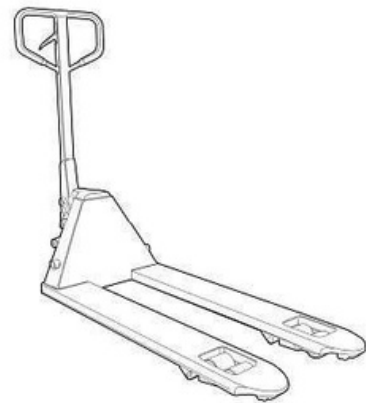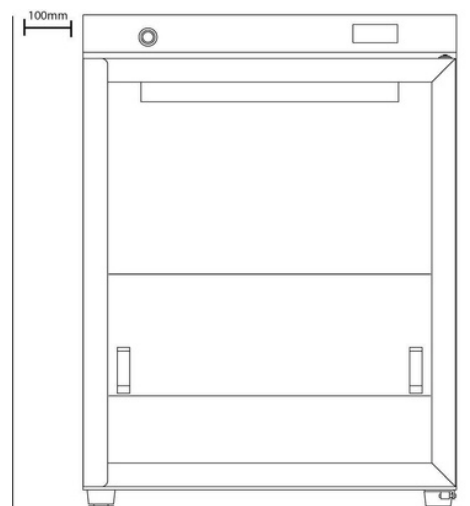

Fig 2 . Pallet Jack

Setup

Start Up Process

Start up process for the economy laboratory freezers.

- Locate the cabinet as previously described, and plug the mains lead into the power supply but do not turn the power on just yet.

- Turn on the power at the outlet to economy laboratory freezer.

- After a short start-up procedure, the temperature control will display the temperature inside the economy laboratory freezer.

- Allow the economy laboratory freezer to reach operating temperature and, if possible, operate for at least 8 hours before loading stock.
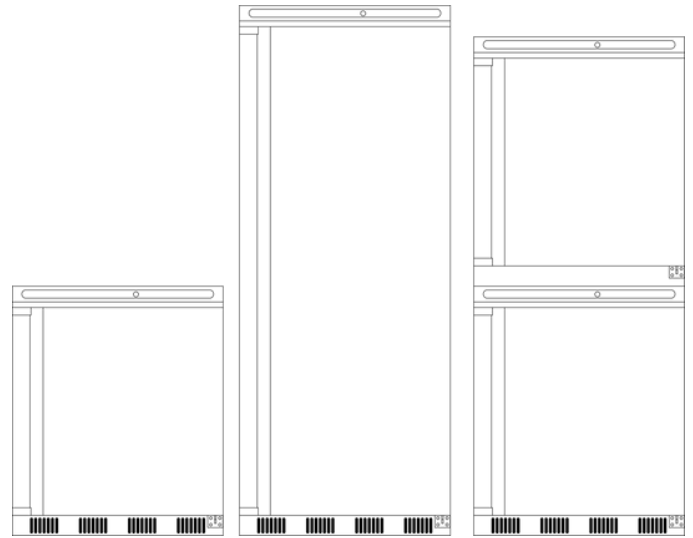
Shelves

The economy laboratory freezers come equipped with shelves that are fixed as they act as part of the of the refrigeration.

Setup

Loading

Thermoline suggests no loading below the step (on the floor) ofthe freezers to ensure samples stay within acceptable temperature ranges.

Loading Requirements :

With the economy laboratory freezers not being fan forced, good internal air ow is not as important. Grouping samples very close, or even touching together, will slow the freezing process. Once in a steady state, the sample location (other than below the step) will make little difference to the freezer's performance.
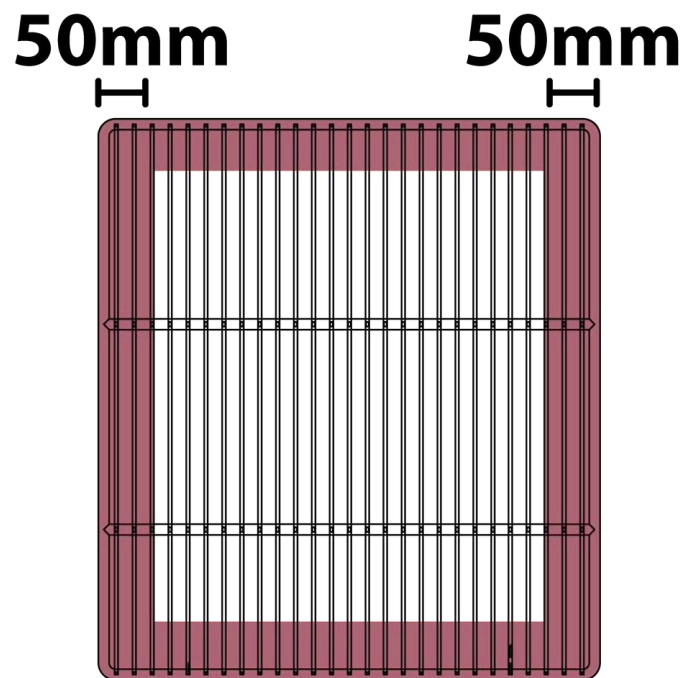

50mm   **50mm**

Fig 1.

Cleaning

The interior, exterior, and door gasket can be cleaned as often as required using a soft cloth and soapy water. Never use abrasive cleaners or scouring pads, as these will scratch the surface and may result in corrosion. Never use caustic type, cleaning agents.

All cabinets have electrical components such as the temperature control and internal light. These items should not be subjected to any levels of moisture.
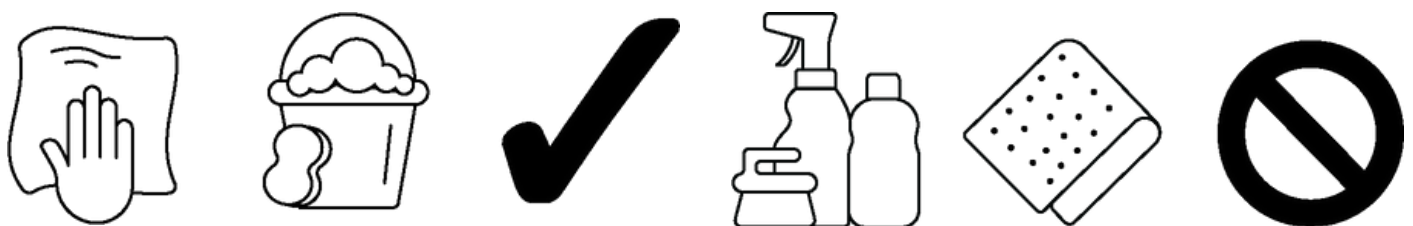
General inspection of the freezer should be made at regular periodic intervals depending on a range of factors. Generally, every six months, the following tasks should be performed:
- Inspect and clean the f.
- Check the door gasket for damage, including splits, tears or areas where it isn't sealing to the freezer frame when the door is closed. If a gasket is to be replaced, please contact Thermoline Scientific.
- The door self closes when opened to a 90° angle
- The condenser is embedded within the walls of the freezer and is not accessible, and therefore, cleaning isn't required.

Setup

Door Gasket

Door gaskets are an essential part of a cabinet. A gasket with impaired functionality can lead to poor performance, excessive ice buildup (in freezers), and decreased lifetime expectancy of the cabinet. It is therefore crucial to be aware of the door gaskets condition. Regular inspection is recommended.

Freezer Defrost

As the freezer has no auto defrost function, it will periodically need to be defrosted. With the freezer defrosted, you will be able to carry out inspection and cleaning. All samples should be relocated, and the freezer turned off and unplugged. Allow the frost build up to melt while using towels or alike to remove excess water. Clean, inspect and dry the interior of the freezer. Once clean and dry, plug the freezer back in, turn it on and shut the door. When the freezer returns to the working temperature, replace the samples.

Setup Warnings

Ensure that the economy laboratory freezers are placed on an even and at surface. Uneven surfaces can cause issues within the cabinet. Uneven surfaces can cause the cabinet to fall over and damage the product.

Failure to adhere to the requirements can lead to improper ventilation. Failure to observe these guidelines may void manufacturing warranty.

Before proceeding, make sure that all internal and external packaging has been removed from the cabinet and that all tape, plastic bags and pieces of foam have been removed.

Be careful when using knives to cut tape and cardboard when removing packaging from the economy laboratory freezer.

Dixell User Guide

The Dixell XR70 Controller is a microprocessor based controller suitable for applications on medium or low temperature freezers, with relay outputs that control the compressor, fan and defrost (if applicable). The temperature control has been factory set to operate between -20°C to -10°C. The alarms are set to operate at 1°C below the set point for low alarm and 1°C above the set point for high alarm. Any button can be pressed to mute the alarm. Once muted, the alarm will NOT resound.

LED Mode		Function
❄	On	Compressor Running
❄	Flashing	Anti-Short Cycle delay enabled
🌀	On	Fans Enabled
🌀	Flashing	Not Used
❄	On	Not Used
❄	Flashing	Not Used
📢	On	An alarm is occuring

SET *Set:* To display the target set point; in programming mode, it selects a parameter or con rms an operation.

⏻ *Power Button:* Not Used

△ *Increase Button:* To see the maximum stored temperature; in programming mode, it browses the parameter codes or increases the displayed value.

▽ *Decrease Button:* To see the minimum stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.

❄ *Defrost:* Not Used

💡 *Light:* Not Used

On Screen Alarms

Message	Cause	Explanation / Action
P1	Probe 1 Failure	Call Service
P2	Probe 2 Failure	Call Service
HA	High Alarm - Product Temperature	Probe in bottle is above alarm point
LA	Low Alarm - Product Temperature	Probe in bottle is lower than alarm point
DA	Door Open Alarm	Door not closed securely
PoF	UP & DOWN buttons pressed simultaneously	Press UP & DOWN buttons simultaneously until 'PoN' appears

General Controls

Temperature Logging

The digital temperature control has a feature that allows the operator to log or record the maximum and minimum temperatures attained over a period of time. These logged temperatures can be reset by simply pressing the buttons on the face of the instrument as follows:

How to: see the minimum temperature
- Press and release the DOWN key.
- The "Lo" message will be displayed, followed by the minimum temperature recorded.
- By pressing the DOWN key again or by waiting 5 seconds, the normal display will be restored.

How to: see the maximum temperature
- Press and release the UP key.
- The "Hi" message will be displayed, followed by the maximum temperature recorded.
- By pressing the UP key again or by waiting 5 seconds, the normal display will be restored.

How to: reset the maximum and minimum temperature
- While the max or min temperature is displayed, press and hold the SET key for 3 seconds until "rSt" is displayed. To confirm the operation, the "rSt" message
- will start blinking, and the normal temperature will be displayed.

Calibration

Calibration of the unit ensures correct product temperature and optimal freezer performance. Calibration should be done by a trained technician.
Press and hold the **SET and DECREASE buttons** simultaneously. The following parameters will be available:

Ot - Sensor Offset in Bottle

OE - Return Air Sensor Offset

O4 - - Not Used

dP1 - Current Temperature of the Bottle Sensor

dP2 - Current Return Air Temperature

dP4 - Not Used

Calibration is usually performed at -20°C for freezers. This procedure is a standard procedure used by Thermoline Scientific. The aim when calibrating a Thermoline economy freezer is to have the sensor at -20°C. This is achieved by placing a reference sensor in the bottle, or in a bottle adjacent to the units bottle, and noting the indicated temperature. The **OE** parameter is then adjusted to increase or decrease the air temperature until the reference sensor reads -20°C. Once the reference sensor has an average temperature of -20°C, adjustments to **Ot** are made so that **dP1** (Display Temperature) equals -20°C.

Set Point

Press and hold **SET** for 5 seconds. Then press the **UP** or **DOWN** buttons to determine the desired setpoint. Then press **SET** to save the setpoint.

If your wish is to just view the set point. Simply press the **SET** button.
Press **SET** = View Set Point Value.

NOTE:
- High temperature alarm set at 1°C above setpoint.
- Low temperature alarm set at 1°C below setpoint.
- Freezer operating temperature set between -10°C & -20°C

Alarm Outputs

BMS Plug

This economy laboratory freezer is fitted with a 3-pin socket to allow for connection to a building monitoring system or phone dialler. A plug is also supplied separately to connect the socket to your system.

The alarm contacts have no voltage present but we recommend that the wiring is connected by a suitably qualified technician. **An alarm can be triggered by the following:**

- Loss of power
- High temperature inside cabinet (1°C above setpoint)
- Low temperature inside the cabinet (1°C below setpoint)
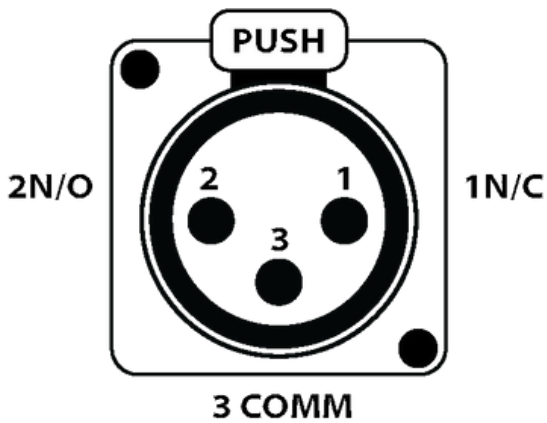
Location of BMS plug

1N/C: Will open loop upon alarm situation. This is the optimal option as any break in the loop is detected.
2N/O: Will close loop upon alarm situation.
3COMM: At least one wire in connected to this pin.

Troubleshooting

Problem	Fix	Part Number
Temperature of the freezer is running hotter than expected.	**Condenser** Condenser could be dirty and contain blockages. Clean condenser as described within manual. **New items in the freezer** Have you put new samples in the cabinet? Allow about an hour to see if the temperature comes down.	
PoF is shown on the Dixell Controller.	**Locked Controller** The message PoF means the controller is locked. Please press the **UP** & **DOWN** buttons simultaneously until '**PoN**' appears. This should resolve the issue.	
The buttons on the controller are damaged and the controller does not respond, even though the controller display is working.	**Damaged Faceplate** The faceplate is damaged and needs replacing.	41931 - **Dixell XR70 Faceplate**

Technical and Repair Support

When contacting Thermoline regarding information about the product, it is important to have the Serial Number and other related information with you. The serial number is on a silver sticker, usually located near the power IEC socket. Contact Thermoline service on +61 2 9604 3911 or email at service@thermoline.com.au

Model:
Serial No:
Watts/Amps:
Volts:

Phone: +61 2 9604 3911
Email: hello@thermoline.com.au

2 Years Warranty

Warranty

Standard 24 Month Warranty
Thermoline Scientific Equipment Pty Ltd ABN 80 000 859 129 ('Thermoline')

Thermoline warrants to the original purchaser that this product will perform to its product specification for a period of 2 years from date of purchase, provided that the installation of the product has been carried out in accordance with the latest version of the manufacturer's instructions and further provided that the use of the product complies with that specified in the relevant specification. Thermoline is not responsible for any loss or damage arising from incorrect usage, usage outside the suitability of the product as stipulated in the manufacturer's instruction, damage caused by accident, fire, flood, act of God or failure to properly install, operate or maintain the goods in accordance with the printed instructions provided.

The following statement applies only to product sales that fall within the definition of a Consumer Sale set out in the Australian Consumer Law contained within the Competition and Consumer Act (Cth) 2012:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Notwithstanding the preceding clause and to the extent permissible by law, the liability of Thermoline is limited, in relation to the warranted product and at the option of Thermoline to:

Replacing the product or the supply of equivalent product;

The repair of the product;
The payment of the cost of replacing the product or of acquiring equivalent product; or
The payment of the cost of having the product repaired.

To the extent permitted by law, all other warranties whether implied or otherwise, not set out in this Warranty are excluded and Thermoline is not liable in contract, tort (including, without limitation, negligence or breach of statutory duty) or otherwise to compensate the Purchaser for:

any increased costs or expenses;

calibration/certification services;
any loss of profit, revenue, business, contracts or anticipated savings;
any loss or expense resulting from a claim by a third party.
Any special, indirect or consequential loss or damage of any nature whatsoever caused by Thermoline's failure in complying with its obligations or the purchaser's failure due to accident damage, impact, misuse or negligence.

The benefits given to the purchaser in this Warranty are in addition to other rights and remedies under a law in relation to the

products or services to which this warranty applies. This warranty applies only to products purchased and installed in Australia and does not cover any consumable items e.g. filters, light globes, ultrasonic nebulizers. The warranty does not extend to labour and freight costs where the warranted product is located outside Australia.

To make a warranty claim, contact Thermoline on 02 9604 3911 or service@thermoline.com.au.

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We will continue to invest in Australian manufacturing.