

XR10, XR20 & XR35 Blast Chiller Cabinets

LAE CIB-BC-PU1 Controller

English



A Division of ITW Ltd
Foster Refrigerator
Oldmedow Road
King's Lynn
Norfolk, PE30 4JU
United Kingdom

April 2014 Issue 2

Call: +44 (0)843 216 8800

Fax: +44 (0)843 216 4700
www.fosterrefrigerator.co.uk

Email: support@foster-uk.com

Contents

Manual Information & Health & Safety Notes	1
Environmental Management Policy with Disposal Requirements & General Electrical Safety	2
Start Up & Operation	3 to 4
User Settings	4 to 5
Parameters	5 to 9
Technical Data for Blast Chiller	10 to 11
Servicing/Cleaning	12 to 14
Wiring Diagrams	15
Troubleshooting & Alarms	16
Notes	17

Service Manual Information:

The products and all information in this manual are subject to change without prior notice. We assume by the information given that the person(s) working on these refrigeration units are fully trained and skilled in all aspects of their workings. Also that they will use the appropriate safety equipment and take or meet precautions where required.

The service manual does not cover information on every variation of this unit; neither does it cover the installation or every possible operating or maintenance instruction for the units.

Health & Safety Warnings and Information



Make sure the power supply is turned off before making any electrical repairs.



To minimise shock and fire hazards, please do not plug or unplug the unit with wet hands.



During maintenance and cleaning, please unplug the unit where required.



Care must be taken when handling or working on the unit as sharp edges may cause personal injury, we recommend the wearing of suitable PPE.



Ensure the correct moving and lifting procedures are used when relocating a unit.



Do NOT use abrasive cleaning products, only those that are recommended. Never scour any parts of the refrigerator. Scouring pads or chemicals may cause damage by scratching or dulling polished surface finishes.



Failure to keep the condenser clean may cause premature failure of the motor/compressor which will NOT be covered under warranty policy.



Do NOT touch the cold surfaces in the freezer compartment. Particularly when hands are damp or wet, skin may adhere to these extremely cold surfaces and cause frostbite.



Please ensure the appropriate use of safety aids or Personnel Protective Equipment (PPE) are used for you own safety.

Environmental Management Policy

Product Support and Installation Contractors.

Foster Refrigerator recognises that its activities, products and services can have an adverse impact upon the environment.

The organisation is committed to implementing systems and controls to manage, reduce and eliminate its adverse environmental impacts wherever possible, and has formulated an Environmental Policy outlining our core aims. A copy of the Environmental Policy is available to all contractors and suppliers upon request.

The organisation is committed to working with suppliers and contractors where their activities have the potential to impact upon the environment. To achieve the aims stated in the Environmental Policy we require that all suppliers and contractors operate in compliance with the law and are committed to best practice in environmental management.

Product Support and Installation contractors are required to:

1. Ensure that wherever possible waste is removed from the client's site, where arrangements are in place all waste should be returned to Foster Refrigerator's premises. In certain circumstances waste may be disposed of on the client's site; if permission is given, if the client has arrangements in place for the type of waste.
2. If arranging for the disposal of your waste, handle, store and dispose of it in such a way as to prevent its escape into the environment, harm to human health, and to ensure the compliance with the environmental law. Guidance is available from the Environment Agency on how to comply with the waste management 'duty of care'.
3. The following waste must be stored of separately from other wastes, as they are hazardous to the environment: refrigerants, polyurethane foam, and oils.
4. When arranging for disposal of waste, ensure a waste transfer note or consignment note is completed as appropriate. Ensure that all waste is correctly described on the waste note and include the appropriate six-digit code from the European Waste Catalogue. Your waste contractor or Foster can provide further information if necessary.
5. Ensure that all waste is removed by a registered waste carrier, a carrier in possession of a waste management licence, or a carrier holding an appropriate exemption. Ensure the person receiving the waste at its ultimate destination is in receipt of a waste management licence or valid exemption.
6. Handle and store refrigerants in such a way as to prevent their emission to atmosphere, and ensure they are disposed of safely and in accordance with environmental law.
7. Make arrangements to ensure all staff who handle refrigerants do so at a level of competence consistent with the City Guilds 2078 Handling Refrigerants qualification or equivalent qualification.
8. Ensure all liquid substances are securely stored to prevent leaks and spill, and are **not** disposed of into storm drains, foul drain, or surface water to soil.

Disposal Requirements

If not disposed of properly all refrigerators have components that can be harmful to the environment. All old refrigerators must be disposed of by appropriately registered and licensed waste contractors, and in accordance with national laws and regulations.

General Electrical Safety

Foster Refrigerator recommends that the equipment is electrically connected via a Residual Current Device; such as a Residual Current Circuit Breaker (RCCB) type socket, or through a Residual Current Circuit Breaker with Overload Protection (RCBO) supplied circuit.

Start-Up and Operation

Initial Set Up

After unpacking, clean and allow the cabinet to stand for 2 hours before turning on (cleaning directions supplied within this manual). Ensure the cabinet is situated away from both hot and cold air sources, as this will affect its performance. Make sure that a minimum clearance of 10cm around the cabinet is available for ventilation and effective operation.

Install the drip tray underneath the cabinet after placing the unit in position.

Connect the unit to a suitable mains power outlet and turn the supply on. Do not plug or unplug the unit with wet hands.

Connect the unit to a suitable mains power outlet and turn the supply on. Do not plug or unplug the unit with wet hands.

Standby

When left for several minutes the cabinet will automatically switch to standby, this helps reduce energy consumption.

When in standby mode the cabinet will show the middle LED on the main display flashing green slowly.

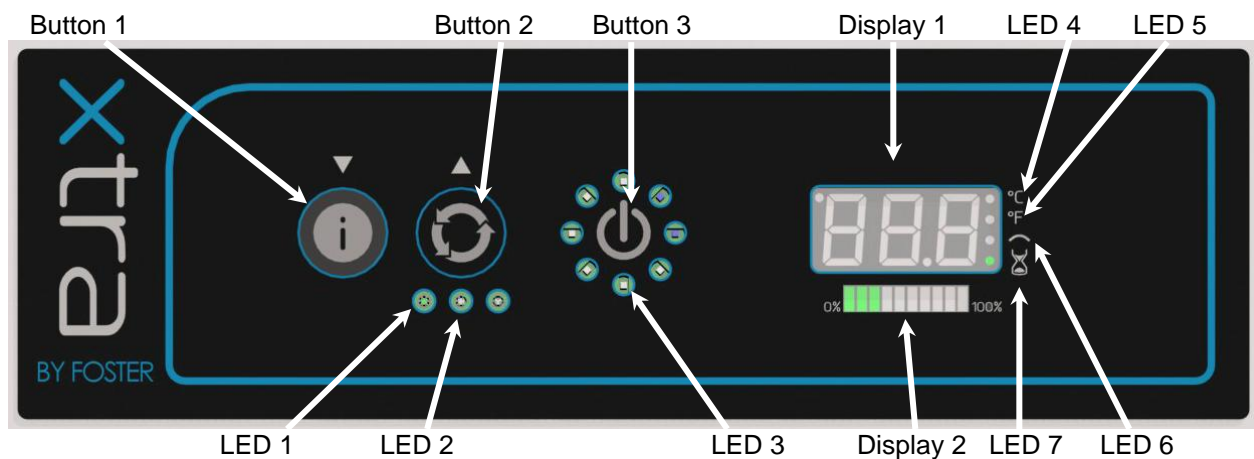


During this time the controller is still connected to the mains and standby does not cut off the main power supply. As a consequence only the compressor and condenser are switched off during this time.

If the cabinet is going to be unused for a prolonged amount of time than the units power supply should be switched off and or disconnected from the mains supply.

To exit standby press any button on the keypad and the controller will revert to displaying the current temperature.

Controller Panel Description



Buttons & Icons

- Button 1** Decrease Value/ Information
- Button 2** Select Cycle and Increase Value
- Button 3** Start/Launch Cycle
- Display 1** Main Temperature
- Display 2** Cycle Status Display

- LED 1** Cycle Indicator 'Soft Chill'
- LED 2** Cycle Indicator 'Defrost'
- LED 3** Cycle in Progress

Other Visible Indicators:

- LED 4** Temperature shown in °C
- LED 5** Temperature shown in °F

- LED 6** Probe Cycle Mode Active
- LED 7** Timer Cycle Mode Active

Button Description

Button 1 – Decrease/ Information - This button is used as a decrease button and when pressed will show the current controller information i.e. time remaining when using a cycle and the current temperature.

Button 2 – Choice of Cycle & Increase - From here you can select either 'Soft Chill' or 'Defrost' cycles. By selecting this button the LED for the relevant cycle will illuminate. From this point you can use button 3 to confirm and launch the selected cycle.

This is also used as an increase button when amending parameter values.

Button 3 – Start/Launch Cycle - This will start a cycle and then the LED's around this button (LED 3) will illuminate in a circular chase pattern confirming the action. If pressed and held this button will also stop a cycle.

User Settings

Before starting a cycle we advise that you bring the cabinet down to temperature for optimum performance. Select a Soft Chill Cycle (as described below) but only run this for 15 minutes. To stop after this time press and hold the Start/Launch button until the cycle stops. Warning 'rEG' will show on the display to acknowledge that the cycle didn't complete as determined by the parameters, this will clear after selecting your preferred cycle.

Selecting a Soft Chill

Activate a cycle by pressing the 'Select Cycle' button until the 'Soft Chill' LED is illuminated. Press the 'Start/ Launch Cycle' button to start the cycle. The cabinet will decide if this cycle should be run by a probe or timer mode at the start of the cycle (as described below).

Cycle Run Type

After pressing the 'Start/Launch Cycle' button and the unit will automatically detect if the cabinet should run in a 'Probe' or 'Time' cycle. A 'Probe' cycle is determined by the temperature read from the food probe already inserted in the product at the start of the cycle. The 'Time' cycle is determined if the food probe is not inserted in the product at the start of the cycle. **Please Note: If this button is pressed without selecting either a Soft Chill or Defrost cycle the unit will continually run on a probe detection cycle until 90 minutes is up and there is no temperature control with this type of cycle.**

Defrost & the Drip Tray

Check no foreign bodies obstruct the waste in the base of the cabinet. The drip tray is situated underneath the cabinet and should be emptied regularly as water will collect here.

There are two methods of defrost:

> **Natural Defrost**

Turn the cabinet off at the mains and or stop any cycles. Leave the cabinet door ajar and the frost will melt and collect in the drip tray.

> **Forced Defrost**

Press the 'Select Cycle' button followed by 'Defrost Cycle'.

Press the 'Start/Launch Cycle' and a defrost will take place showing LED 2 illuminated.

Modifying the End of Cycle Time or Temperature

While the current cycle is running press button 3. You will then be able to use buttons 1 and 2 to increase or decrease the values.

Stopping a Cycle or Function

It is possible to stop or interrupt a cycle at any time by pressing the 'Start/Launch' button and holding for several seconds. After doing this 'rEG' will show on the display to acknowledge that the cycle didn't complete as determined by the parameters.

End of Cycle Alarm

At the end of each cycle the audible alarm will sound to notify the user. This can be silenced by pressing any button on the keyboard.

Parameters

Cabinets have their parameters set at point of build to the correct settings. If you wish to modify these set points then you should have a full understanding of their purpose and the following instructions.

To amend any parameter press buttons 1 & 2 together for 5 seconds.
Parameter 'P01' will be displayed when the menu has been successfully accessed.

To move to the next parameter press button 1 or 2. Once on the parameter you wish to adjust press and hold button 3 while also using button's 1 or 2 to modify the pre-set value.
After adjustment has been made release button 3 to save the changes. The menu will automatically show the next parameter.

If no buttons are pressed for 5 seconds then the controller will leave the adjustment menu.

Parameter Values

Parameters highlighted in grey are not visible under the Foster standard parameter set up.

Parameter	Description	Range/Parameter Information	Min	Max	Units	All XR Models
P01	Temperature scale	1=°C 2=°F	1	2		1
P02	Ambient probe calibration		-10	10	°K	0
P03	Skewer probe activation	0=NO 1=YES	0	1		1
P04	Skewer probe calibration		-10	10	°K	0
P05	Action digital entry 1	0=NON 1=DOOR	0	1		0
P06	Polarity Digital Entry 1	0=NO 1=NF	0	1		0
P07	Action Digital Entry 2	0=NON 1=DIG INP 2=EVP	0	2		0
P08	Polarity Digital Entry 2	0=NO 1=NF	0	1		0
P09	Display Digital Entry 2	0=CD 1=HP	0	1		0
P10	Evaporator probe calibration		-10	10	°K	0
P11	Presence of bar graph	0 : No 1 : Yes	0	1		1
P12	Presence of light key	0: No 1: Light key 2: Progression cycle	0	2		1
P13	Type of buzzing sound	0: Frequency 1 (0.5s ON, 0.5s OFF) 1: Frequency 2 (0.35s ON, 0.35s OFF) 2: Frequency 3 (0.25s ON, 0.25s OFF)	0	2		0
P14	Max duration of sound alarm	-1 = Buzzer never stops	-1	99	min	1
P15	Alarm repeated afterwards	-1 = No repeat	-1	99	min	-1
P16	Function Standby	0=NO 1=YES	0	1		1
P17	Standby timer		1	60	min	10
P18	Anti-smell function	0=NO 1=YES	0	1		0
P19	Anti-smell timer	Interval between the start of two functions	1	120	min	60
P20	Anti-smell duration	Duration of function	1	120	min	30

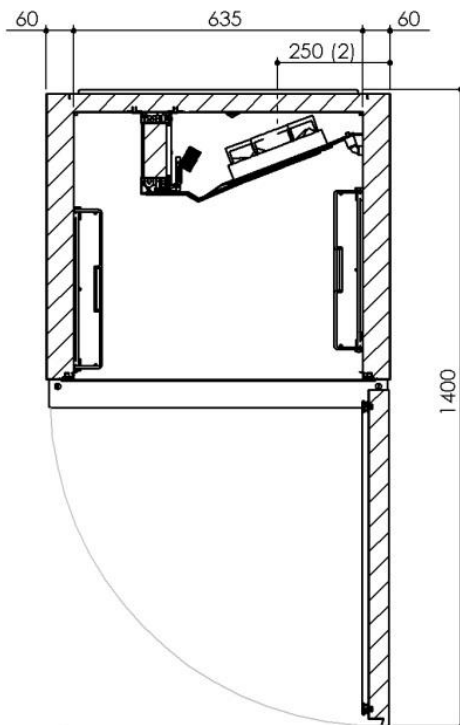
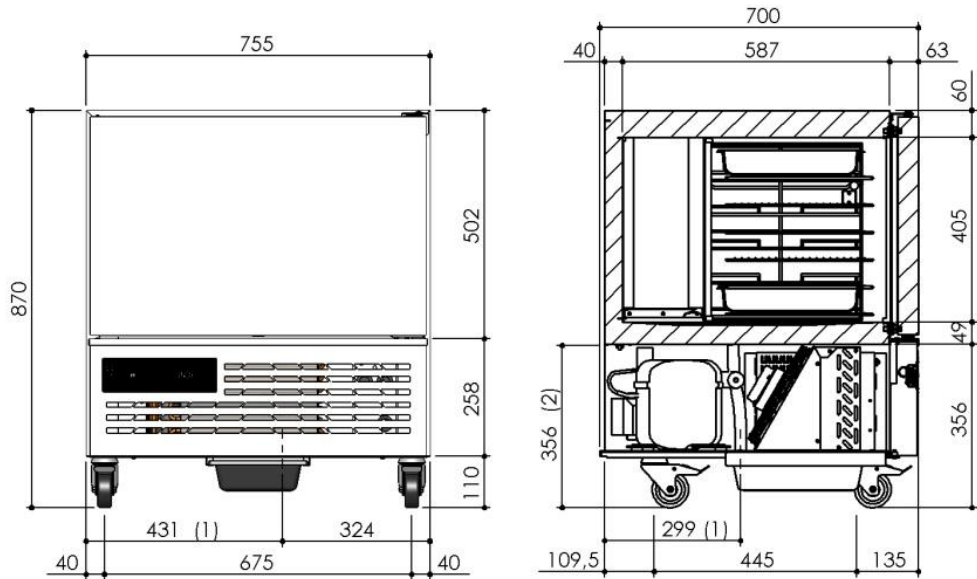
P69	Maximum duration of the anti-smell function		-1	24	hrs.	6
P21	Display slowdown		0	100		0
P22	Machine number		1	255		1
P23	Manual defrost activated	0=NO 1=YES	0	1		1
P24	Interval between 2 defrosting operations		0	99	hrs.	6
P25	Temperature at end of defrost	Evaporator probe	-50	100	°C	10
P26	Max. duration of defrost		1	99	min	30
P27	Type of defrost	0=OFF 1=ELE 2=GAS	0	2		0
P28	Drainage time		0	99	min	3
P29	Check display on defrosting		0	60	min	10
P30	Ventilators activated during defrost	0=NO, 1=YES	0	1		1
P31	Temperature at ventilator switching on after defrosting	Evaporator probe	-50	100	°C	-5
P32	Ventilators switched off after defrost		0	60	min	0
P33	Defrost at the beginning of cooling cycle	0=NO, 1=YES	0	1		0
P34	Defrost at the beginning of conservation cycle	0=NO, 1=YES	0	1		0
P35	Defrost delayed at the beginning of conservation cycle		0	99	min	10
P36	Compressor delayed after switching on		0	30	min	0
P37	Min. time between 2 start-ups of compressor		0	30	min	1
P38	Minimum standby duration after compressor is switched off		0	30	min	1
P39	Compressor on with failing probe T1		0	30	min	3
P40	Compressor stopped with failing probe T1		0	30	min	6
P41	Compressor stop delayed by door opening		0	30	min	1

P42	Choice of cycle by default	0 = Refrigeration. + S.P. 1 = Delayed Refrigeration 2 = Freezing + S.P. 3 = Delayed Freezing	0	3		0
P43	Set point refrigeration conservation	Set point of ambient probe for conservation	-50	100	°C	3
P44	Selection of soft chill cycle function activated	0=NO 1=YES	0	1		1
P45	Set point soft chill ambient probe	Set point of ambient probe during refrigeration cycle	-50	100	°C	-5
P46	Selection of freezing cycle activated	0=NO 1=YES	0	1		0
P47	Set point freezing conservation	Set point of ambient probe for conservation	-50	100	°C	-21
P48	Regulation differential		1	15	°K	3
P49	Duration of skewer probe presence test		0	99	s	60
P50	Check skewer probe inserted		0	99	°K	5
P51	Duration of pressure on key to switch off cycle in progress		0	20	s	4
P52	Regulation type	0=FRA 1=UK 2=Specified by user	0	2		1
P53	High refrigeration limit	63°C for FRA 70°C for UK	-50	100	°C	70
P54	Set point of refrigeration cycle	10°C for FRA 03°C for UK	-50	100	°C	3
P55	Max. duration of refrigeration	120min for FRA 90 min for UK	1	180	min	80
P56	High freezing limit	63°C for FRA 70°C for UK	-50	100	°C	70
P57	Set point freezing cycle	-18°C for FRA -18°C for UK	-50	100	°C	-18
P58	Max. duration of freezing	300 min for FR 270 min for UK	1	400	min	270
P59	Temperature alarm mode	0=NO 1=ABS 2=REL	0	2		0
P60	Low temperature absolute alarm		-50	100	°C	-50

P61	High alarm absolute temperature		-50	100	°C	100
P62	Low alarm differential		-12	0	°K	0
P63	High alarm differential		0	12	°K	0
P64	Temperature alarm delayed		0	120	min	60
P65	Door alarm delayed		0	30	min	5
P66	Operation with condenser alarm	0=NO 1=ALR 2=STP	0	2		0
P67	Display with sounding skewer probe.	0=E2 1=UN	0	1		0
P68	Reset		0	1		0

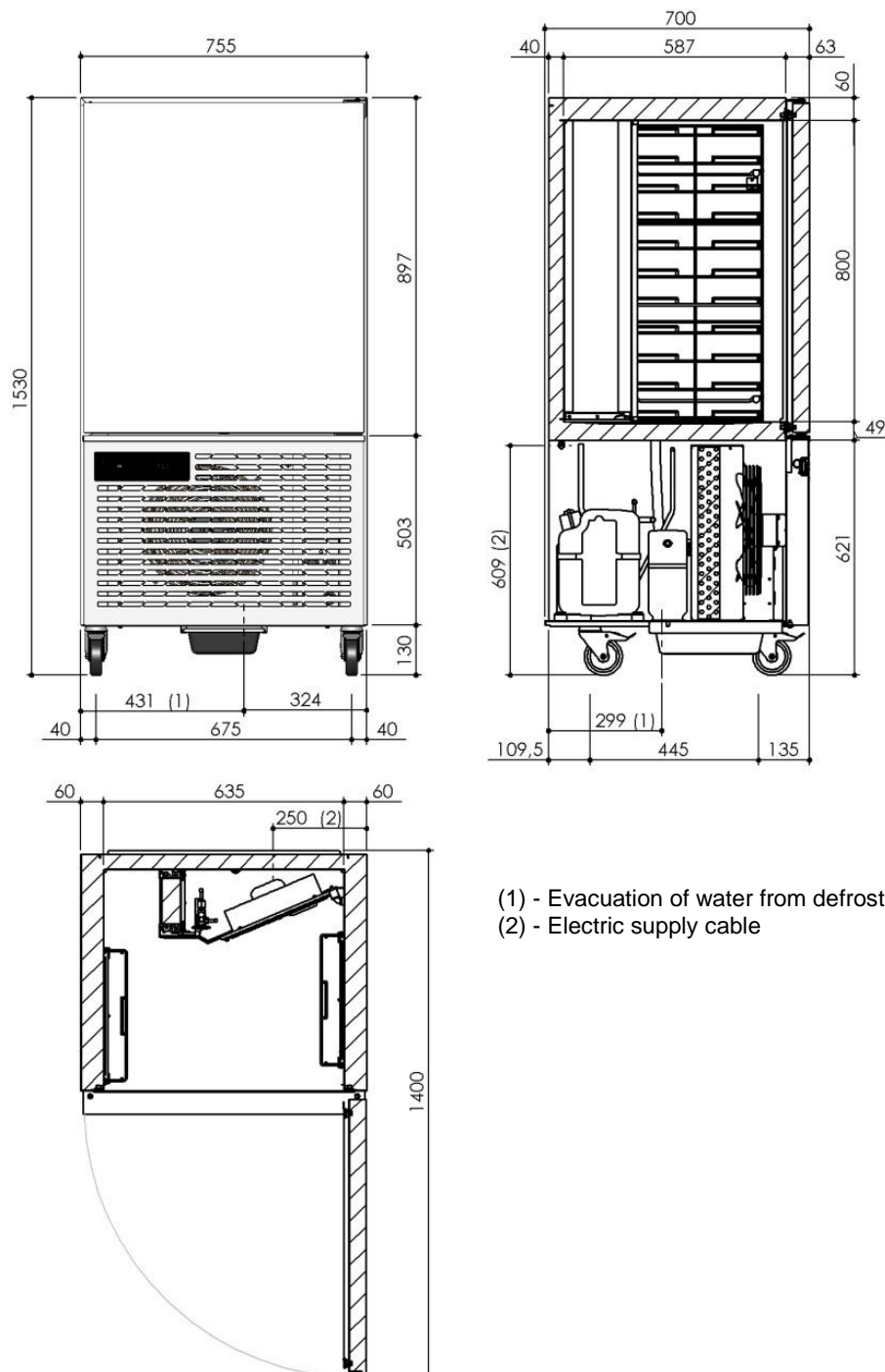
XR10 & 20 Models

	XR10	XR20
Chilling Capacity per Cycle (Kg)	12	20
Cooling Duty@ -15°C (Watts)	510	920
Number of Fans	1	1
Evaporating Temperature (°C)	-15	-15
Compressor	Hermetic	Hermetic
Gas	R404a	R404a
Gas Charge (Grams)	300	450
Power Consumption (Watts)	600	900
Current Consumption (Amps)	3.1	4.2
Electrical Supply	230/1/50 13A	230/1/50 13A
Total Heat Rejection (Watts)	1514	3052
Maximum Ambient Room Temperature	+43°C	+43°C



- (1) - Evacuation of water from defrost Ø20
- (2) - Electric supply cable

	XR35
Chilling Capacity per Cycle (Kg)	35
Cooling Duty@ -15°C (Watts)	2080
Number of Fans	1
Evaporating Temperature (°C)	-15
Compressor	Hermetic
Gas	R404a
Gas Charge (Grams)	1400
Power Consumption (Watts)	1600
Current Consumption (Amps)	5.1
Electrical Supply	230/1/50 13A
Total Heat Rejection (Watts)	5120
Maximum Ambient Room Temperature	+43°C



- (1) - Evacuation of water from defrost $\varnothing 20$
(2) - Electric supply cable

Servicing/Cleaning & Part Removal

Important: Before cleaning or the removal of any parts, the unit should be put into standby and then the power supply should be turned off at the mains.

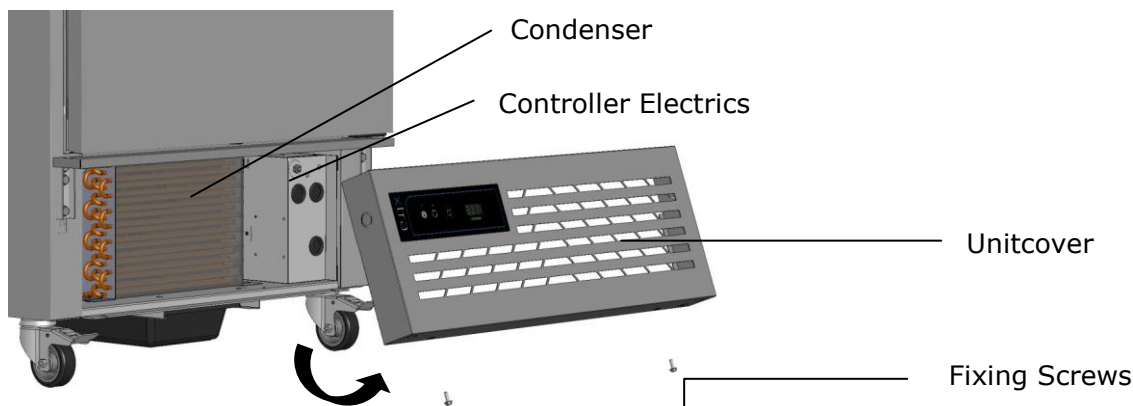
Please do not plug or unplug the unit with wet hands. Only when cleaning has been completed and the unit is dry should the cabinet be turned back on at the mains. Using high pressure water jets or lances is prohibited; the warranty policy will not cover problems that result from failure to heed the above warning.

Removing the Unitcover

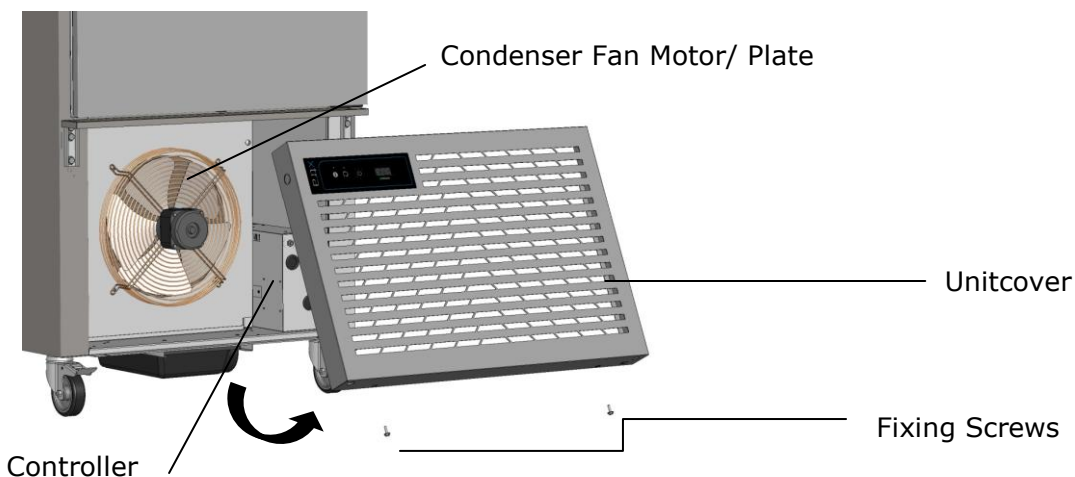
You should only be required to remove the unitcover for access to the condenser, compressor and or controller electrics.

Remove both the fixing screws situated at the bottom on the unitcover. Tilt the cover forward and pull towards you. Refitting is the same action but in reverse ensuring the fixing screws are refit.

XR10 & 20 Models



XR35 Model



Cleaning the Condenser

XR10 & XR20 models will clearly see the condenser after removal of the unitcover.
 XR35 model will have to also remove the Condenser Fan Plate and motor.

To do this unscrew the two fixing screws positioned on the top of the condenser fan plate. Tilt the plate forward on the rubber pivots and then remove from the unit. You will now be able to access the condenser for cleaning.

Fixing Screws

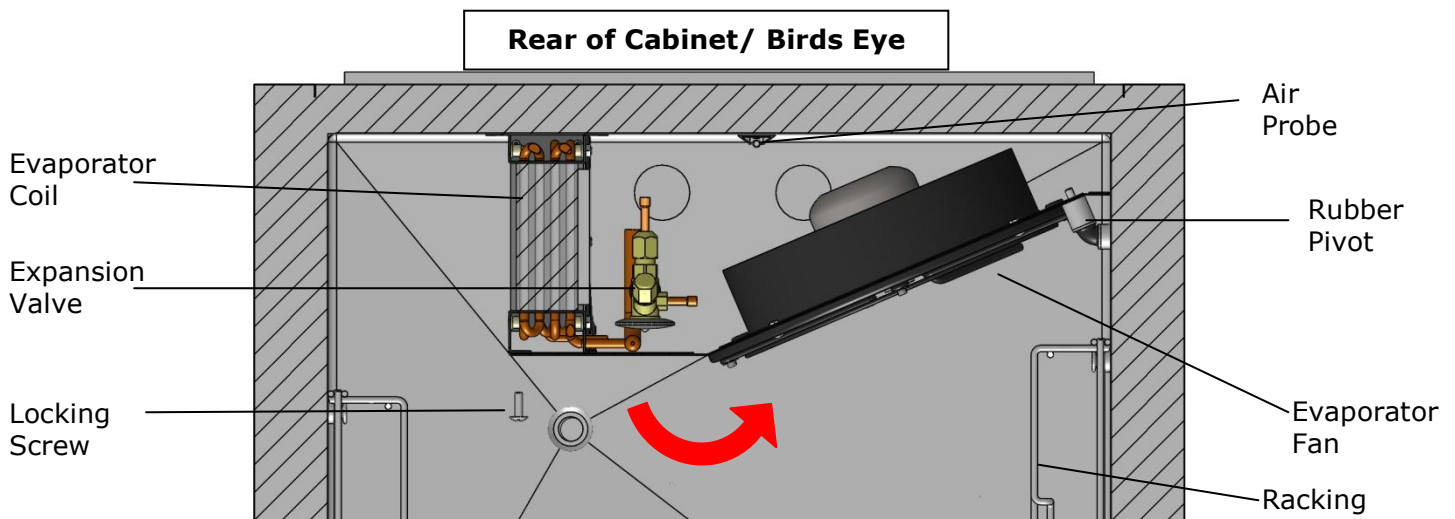


Once the unitcover is removed please do not leave the unit unattended.

Cleaning the condenser should be scheduled every 3 to 6 months and carried out by a service engineer. Use a soft brush or vacuum cleaner to remove dirt/dust.

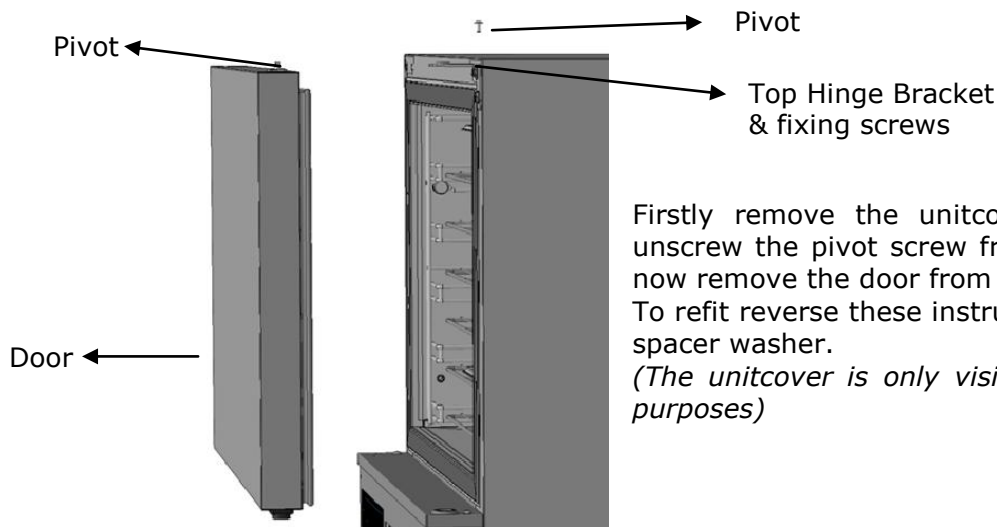
If there are any stubborn grease deposits left on or through the condenser call your supplier to carry out a full service (this is normally chargeable). Failure to maintain the condenser may invalidate the warranty of the condensing unit and cause premature failure of the motor/compressor. DO NOT use a wire brush to clean the condenser. Re-fit any panels removed after cleaning.

Access to the Evaporator



After opening the door you will be able to see the evaporator assembly situated at the rear of the cabinet.

- > Firstly, remove all shelves or pans and ladder racking before trying to proceed with the following instructions.
- > To remove the fan and or guard unscrew the guard fixings and pull it towards you.
- > To access the reducer valve, evaporator coil and air probe, remove one or more of the locking screws and then pivot the fan motor baffle on its rubber mounts. This baffle can be totally removed if required.

Door Removal

Firstly remove the unitcover (as described before), and unscrew the pivot screw from the top of the door. You can now remove the door from the upper hinge bracket. To refit reverse these instructions and make sure to refit the spacer washer.
(The unitcover is only visible on this image for illustrative purposes)

Door Gaskets

Door gaskets should be inspected on a regular basis and replaced if damaged. To clean, wipe with a warm damp soapy cloth followed by a clean damp cloth. Finally thoroughly dry before closing the door.

Regular Cabinet Cleaning

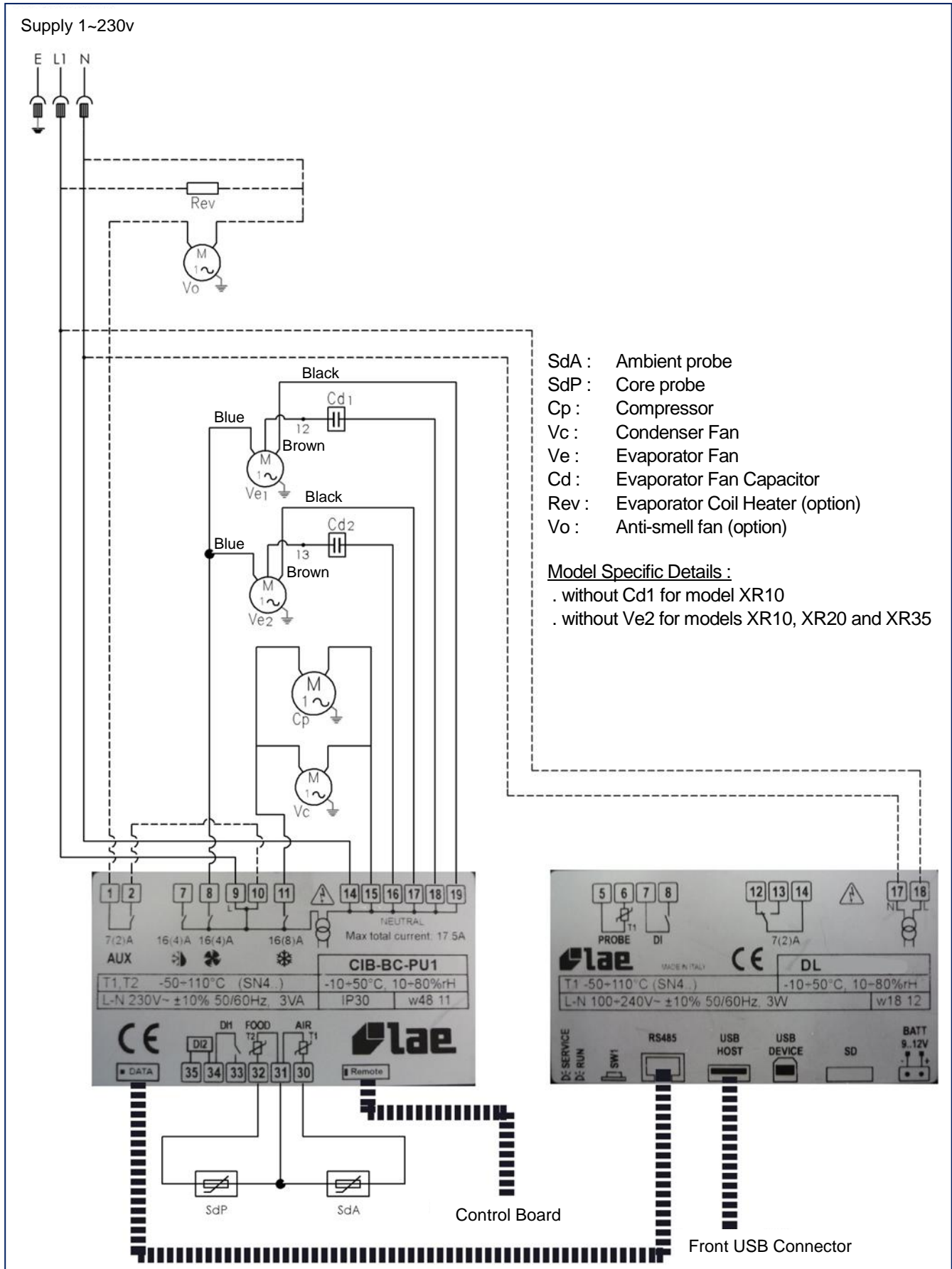
As and when required remove all product and shelving (beware of cold and or sharp components) from the unit. Clean exterior and interior surfaces with mild liquid detergent, following the directions on the pack at all times. Rinse surfaces with a damp cloth containing clean water. Never use wire wool, scouring pads/powders or high alkaline cleaning agents i.e. bleaches, acids and chlorines as these may cause damage. Dry the unit thoroughly before re-using.

Shelves, Pans and Supports

Shelves, Pans and their supports should be removed to clean. The shelves and pans are dishwasher safe; however the supports should be cleaned with warm soapy water then rinsed and dried.

Wiring Diagrams

Diagram for XR10, 20, 35 Model



Troubleshooting

Fault	Cause of Fault	Action /Solution To Rectify
Safety & Utility		
cE dEF rEG	<ul style="list-style-type: none"> > Indicates a communication problem between the display PCB and the controller PCB. > Indicates a defrost cycle is in progress. > Indicates that the cycle has not progressed according to how the parameters are set. 	<ul style="list-style-type: none"> > Press any button to acknowledge the warning & clear the fault
Function Faults		
E1	<ul style="list-style-type: none"> > Faulty Air Probe. 	<ul style="list-style-type: none"> > Acknowledge the alarm by pressing any key to silence the audible alarm. > Check and replace the probe if and where required.
E2	<ul style="list-style-type: none"> > Faulty Food Probe – If the probe is faulty, it is possible to use the cabinet in 'Time Cycle'. 	<ul style="list-style-type: none"> > Acknowledge the alarm by pressing any key to silence the audible alarm. > In the case of a faulty food probe it is always possible to run a cycle in timer mode. > Check and replace the probe if and where required.
ELE	<ul style="list-style-type: none"> > Power Failure – the cycle will have stopped and a hold cycle will be active. 	<ul style="list-style-type: none"> > Acknowledge the alarm by pressing any key to silence the audible alarm. > If the duration of the power cut is unknown the regulator will switch to conservation mode and display rEG. > If the power was cut during the conservation cycle the regulator will carry on this mode when power is resumed.
<p>Corrosion Issues – Listed below are the most common reasons of corrosion on Stainless Steel. Before reporting any issues of corrosion please ensure the following has been adhered too.</p> <ul style="list-style-type: none"> > Floor Cleaner – Splashes of floor cleaner can cause signs of corrosion on the cabinet base and side panels. This is due to floor chemicals being a lot higher in acidity than standard stainless cleaner. Also the vapour from these chemicals can hang in the air and prolong the damage. > Incorrect Use Of Cleaning Products – Bleaches, acids and soda have a high acidic content and should be avoided on the cabinet's internal and external parts. Only stainless specific products should be used or warm soapy water. Even when using these methods a clean warm water wipe down should be used to ensure all chemicals have been removed from the panels. Drying the unit thoroughly can also help. > Area Where Water/ Chemicals Can Gather – As build-up of product could gather on/in the cabinet likewise this can also gather in nearby gully's, drains etc. Please ensure these are also run clean of any chemicals. > High Temperatures - Cleaning solutions can become more aggressive when used with and in high temperatures. Ensure temperatures do not exceed 60°C thus avoiding blackening of stainless steel surfaces. > Salt and Brine - If salt or foods containing a brine is used within the area of the blast chiller pitting in the stainless could be visible if not cleaned regularly. Any spillage of salt or brine should be cleaned off the surface first by a soft cloth and then rinsing with warm soapy & clean water. > Chlorination – at times water chlorine levels can be high and this can have a corrosive effect on stainless. Although rare this is a factor that should be made aware of. 		

Notes

Before calling your supplier please make sure that:

- a) The plug has not come out of the socket and the mains power supply is on i.e. is the controller illuminated?
- b) Check to see if the unit is in standby
- c) The fuse has not blown
- d) The cabinet is positioned correctly – cold or warm air sources are not affecting the performance
- e) The condenser is neither blocked nor dirty
- f) The products are placed in the unit correctly
- g) Defrost is not in progress or required

If the reason for the malfunction cannot be identified, disconnect the electrical supply to the unit and contact your supplier. When requesting a service call, please quote the model and serial number (a 9 digit number) which can be found on the silver label located on the inside of the unit.

Page Left Blank Intentionally



Foster European Operations

France

Foster Refrigerator France SA

Tel: (33) 01 34 30 22 22. Fax: (33) 01 30 37 68 74.

Email: info@foster-fr.com

Germany

Foster Refrigerator Gmbh,

Tel: (49) 781 990 7840. Fax (49) 781 990 7844.

Email: info@foster-gmbh.de

Foster Refrigerator

Oldmedow Road

Kings Lynn

Norfolk

PE30 4JU

Tel: 0843 216 8833

Fax: 0843 216 4707

Website: www.fosterrefrigerator.co.uk

Email: support@foster-uk.com

a Division of 'ITW (UK) Ltd'

XR10 – XR35/SM 04/14v2 UK
