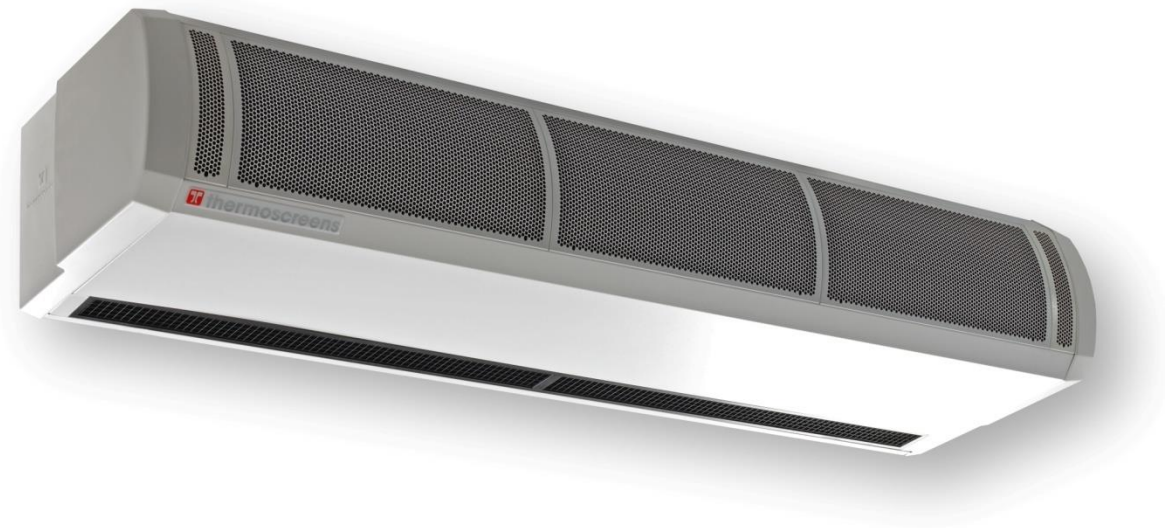


# HX CS.

## COLD STORE AIR CURTAIN



# INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

**English**

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## 2 ELECTRICAL SAFETY

### Electrical Supply and Wiring to the Air Curtain

All electrical wiring and connections **MUST** be carried out by a competent qualified electrician in accordance with the latest edition of IEE wiring regulations and local statutory regulations if applicable.

- A 1 phase local isolator having a contact separation of at least 3mm on Live and Neutral poles must be fitted in the electrical supply to the air curtain and located in an accessible position adjacent to the unit.
- The appliance must be connected by cables having an appropriate heat resistant temperature rating.
- All supply cables, circuit breakers and other electrical installation equipment must be correctly sized for the air curtain model being installed; see section 3: Specifications.
- 20mm size cable glands or conduit connectors of IP44 rating or above must be used for the Electrical Supply and Control Cables into the air curtain.
- See Wiring Diagrams for connecting electrical supply and control cables to the air curtain. The air curtain must be earthed.

## 3 SPECIFICATIONS

Table 1

Air Curtain Model No	Electrical Supply (V/ph/Hz)	Rated Electrical Power Input (W)	Rated Current (A)	Max. Air Volume Flow rate (m <sup>3</sup> /h)	Specific Fan Power min. - max. (W/l/s)	Effective Width of Airstream (m)	Weight (kg)
F-HX1000	230/1/50	430	1.8	2250	0.20 - 0.70	1.10	60
F-HX1500	230/1/50	630	2.7	3400	0.23 - 0.69	1.63	70
F-HX2000	230/1/50	820	3.5	4500	0.25 - 0.68	2.15	85

## 4. INTRODUCTION

Established in the 1960s, Thermoscreens is a leading air curtain manufacturer that exports to over 60 countries worldwide.

As with all our products, the HX CS range of cold store air curtains are designed with energy efficiency in mind which is why they have fans with advanced EC motor technology to produce a very high air flow to function in a cold store environment but with low electrical energy consumption.

HX CS cold store air curtains are designed to be surface mounted inside a building and located horizontally over the doorway between the loading bay and the cold store maintained at minus temperatures.

They must not be installed on the outside of a building or built into a cabinet or recessed in any way.

Please complete the following details for your reference:

Date of Purchase .....  
Place of Purchase .....  
Serial Number .....

Proof of purchase is required to make a claim under warranty.



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## 5. DELIVERY CONTENTS

The following items are supplied in the box at delivery.

**NOTE:** If any parts are missing or damaged contact your place of purchase.

**HX CS Cold Store Air Curtain**



**Note:** End caps are supplied loose to be fitted during installation

**Ceiling Hanging Brackets**



M12 x 25mm bolts (x4) supplied

**Door Switch  
(Optional)**



**Wall Hanging Brackets  
(Optional)**



## 6. TOOLS REQUIRED

The following tools are required for installation:

- Flat blade screwdrivers
- Pozi head screwdrivers
- 10mm and 19mm spanners
- Adjustable spanner
- Electric drill
- Equipment for working at height
- Appropriate lifting equipment

## 7. INSTALLATION

HX CS cold store air curtains are designed to be surface mounted inside a building and located horizontally over the doorway between the loading bay and the cold store which is maintained at minus temperatures. It must not be installed outside of the building.

### 7.1 Location

Mount the air curtain above the doorway, with:

- the discharge grille not more than 4m above floor level
- at least 100mm clearance above the air curtain, see Fig 1
- with the back edge of the hanging bracket 100mm from the doorway, so the air curtain can swivel, see Fig 1, Figs 2a and 2b.

Beware of doorway top edges, structural beams, door opening/closure devices, etc., which may interfere with the air stream and affect the location of the unit.

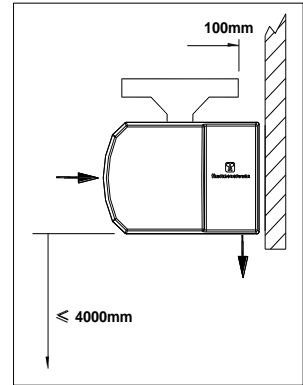


Fig 1

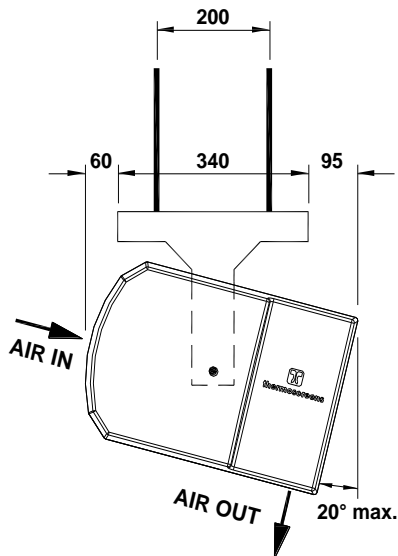


Fig 2a

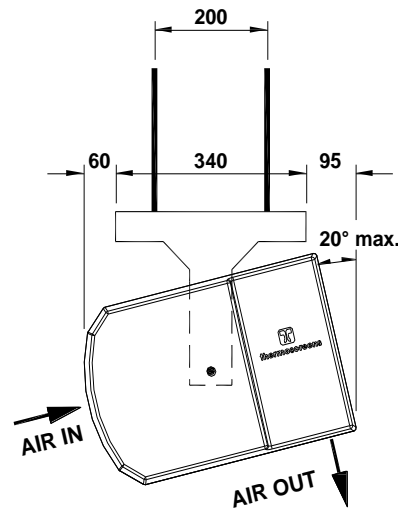


Fig 2b

**NOTE:** For the air curtain to work well the width of the open doorway should be less than the effective width of the airstream, see Table 1.

## 7.2 Ceiling Suspension

M10 Threaded rods (not supplied) are used to suspend the unit from the ceiling.

Suspend the unit from the ceiling as follows:

- Step 1** Locate Ceiling Hanging Brackets to each side of the air curtain as shown in Fig 3.
- Step 2** Fit two M12 bolts from inside the air curtain to secure each Ceiling Bracket. The top bolt is fitted through a slot which allows the air curtain to be tilted.
- Step 3** Fit and secure M10 threaded hanging rods into holes on the top face of each Ceiling Bracket.
- Step 4** Secure all hanging rods (x4) to a suitable structure that can support the weight of the unit (see section 3: Specifications for weights).
- Step 5** Tighten all fixing bolts until the air curtain is safely secured.

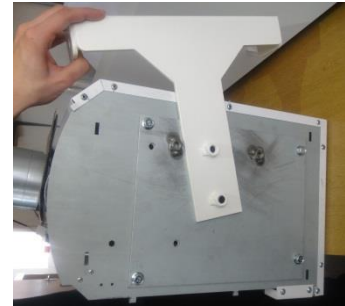


Fig 3



Fig 4

## 7.3 Wall Fixing

**NOTE:** Use suitable wall fixing bolts (not supplied) to fix the unit to the wall, taking into account the type of wall and the weight of the unit (see section 3: Specifications).

- Step 1** Drill fixing points in the wall, referring to Appendix 1 for correct positioning. Using suitable fixing bolts, fix both wall brackets to the wall.
- Step 2** Locate Ceiling Hanging Brackets to each side of the air curtain as shown in Fig 3.
- Step 3** Fit two M12 bolts from inside the air curtain to secure each Ceiling Bracket. The top bolt is fitted through a slot which allows the air curtain to be tilted.
- Step 4** Air curtain can be fitted directly to Ceiling Hanging Brackets using M10 nuts and bolts. Alternatively, using M10 threaded hanging rods air curtain can be fitted to Ceiling Brackets (see Appendix 1).
- Step 5** Tighten all fixing bolts until the air curtain is safely secured to the wall.

**WARNING:** It is the sole responsibility of the installer to ensure that the fixing locations and suspension system used are suitable for the air curtain being installed.

## 8. ACCESS FOR ELECTRICAL CONNECTION

### 8.1 How to access terminals

To gain access to the air curtain for connection and commissioning, remove air inlet grilles and bottom access panel as explained below.

First remove the plastic end caps at each end of the unit, if fitted, by pulling off to the side.

**NOTE:** All air curtain panels are protected in a plastic film. When access panels are removed this film can be removed.

#### 8.1.1 Remove air inlet grilles

Using a Pozi No 1 screwdriver, remove each grill with its filter.

To remove, insert screwdriver into the elongated hole at the bottom corner of the grille (see Fig 5) and turn the screw one quarter of a turn anticlockwise.

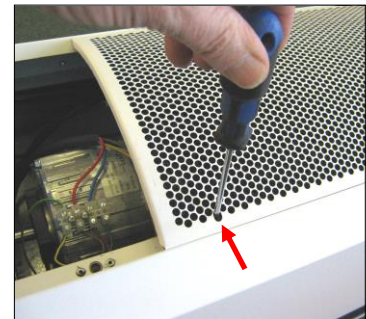


Fig 5

#### 8.1.2 Remove bottom access panel and access terminals

Unfasten the securing screw at each end (see 1, Fig 6) and, if applicable, two screws in the centre (HX1500 and HX2000 units only).

To remove, slide the access panel (see 2, Fig 6) out forwards.

Remove the control box upper lid cover (see Fig 7).

Connect electrical supply from local isolator as shown in Fig 8. Refer to Appendix 2 and 3 for Wiring Diagrams.

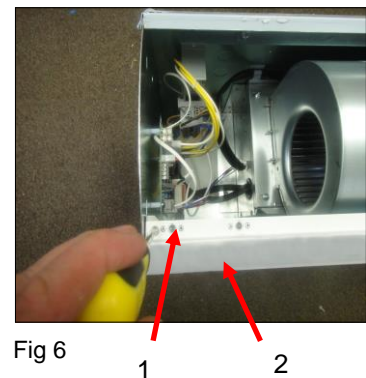


Fig 6



Fig 7



Fig 8



## 8.2 Door Switch Connection

For an optional door switch to be fitted, remove link fitted to terminals 6 and 7 (see Fig 9) and connect switch to these terminals (see Appendix 1).

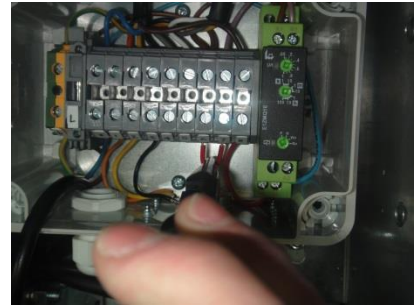


Fig 9

If two air curtains are required on the same doorway (i.e. master/slave), connect an additional trigger signal wire from master terminal 7 (see Fig 10) to slave terminal 7.

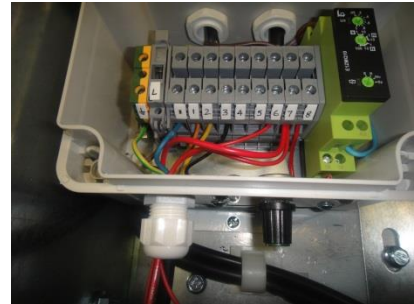


Fig 10

## 8.3 Fan Speed Selection

Set a suitable fan speed by adjusting the EC speed potentiometer (see Fig 11) to suit outdoor environmental conditions and indoor noise levels.



Fig 11

## 8.4 Off Timer Delay Settings

The Off Timer Delay is factory set to 24 seconds with time and adjustment ranges set to 0.4 and 1. The function setting dial is set to R (OFF delay), as shown in Fig 12.



Fig 12

## 9. COMMISSIONING THE SYSTEM

### 9.1 Verify system operation

To commission the system, verify the following conditions are met:

- All fans are working.
- The door switch (if fitted) correctly starts the fans when the doors open.
- The timer relay keeps the fans running for the specified time (factory default is 24 seconds).
- Fan speed changes in accordance to the speed dial fixed within the unit (as shown in Fig 11).
- There is no excessive mechanical noise coming from the fans..

### 9.2 Instruct customer and hand over

Before leaving site, hand over the installation to the customer/end user or their representative.

**Explain** that any person operating the air curtain must be given supervision and instruction by the person responsible for their safety, concerning the safe use of the unit and to understand any hazards involved. Children and those with reduced physical, sensory or mental capabilities should not operate the air curtain.

**Recommend** that the doorway should be closed whenever possible but that during times of high traffic it will become an 'open doorway'. The air curtain then serves an essential purpose of reducing the energy needed to maintain the internal temperatures.

**Explain** that the inlet grilles must be cleaned regularly and the unit serviced at schedule intervals – see section 12: Service & Maintenance.

<b>NOTE:</b> Leave these instructions with the customer/end user or their representative
--

## 10. SIGN OFF

Complete the following once commissioning is completed.

Installer signature:		Customer signature:	
Installer name:		Customer name:	
Installer company:		Customer company:	
Date:		Date:	

## 11. FAULT CONDITIONS

### 11.1 Fuses

In the event of an electrical fault check the fuses. The Control Box within the air curtain is fitted with a 5 x 20mm cartridge anti-surge 5A fuse. See Wirings Diagrams in Appendix 2 and 3. The motors are also fitted with internal thermal overload protection that under normal operation shouldn't activate. If you find they have, refer to the Warranty section at the end of this set of instructions.

## 12. SERVICE & MAINTENANCE

**WARNING:** Failure to adequately maintain the unit and provide a suitable cleaning schedule will result in a loss of performance and reduced life expectancy of the air-curtain.

### 12.1 Every week

**NOTE:** Weekly maintenance can be carried out by anyone who has access (at height) to the unit.

Turn off the air curtain to prevent entry of contaminants then wipe clean the face of the air inlet grilles.

### 12.2 Every 3 months

**WARNING:** Before servicing, isolate and disconnect the air curtain from the electrical power.

**WARNING:** The following servicing and maintenance must be carried out by a competent electrician or a Thermoscreens appointed technician.

Clean and inspect the inside of the air curtain as follows:

- Step 1** Remove plastic end caps at each end of the unit by pulling off to the side.
- Step 2** Use a Pozi No.1 screwdriver to remove air inlet grilles by releasing the quarter-turn fasteners at the bottom corners of each air inlet grille.
- Step 3** Wipe clean to remove any build-up of dust and dirt within the air-curtain (inlet/outlet grilles, fan impellers, housings and motors).

**NOTE:** Build-up of dirt on fan impellers can cause vibration, noise and excessive wear on the motor bearings.

- Step 4** Check within the unit to ensure all electrical connections and crimped terminals are tight and that all cables are in good condition. Pay special attention to the edges of the electrical boxes to ensure they aren't damaged that would lead to water ingress.

Reconnect electrical supply and test to ensure correct operation (see Section 9: Commissioning).

## 13. WARRANTY

All units are covered by a two year warranty.

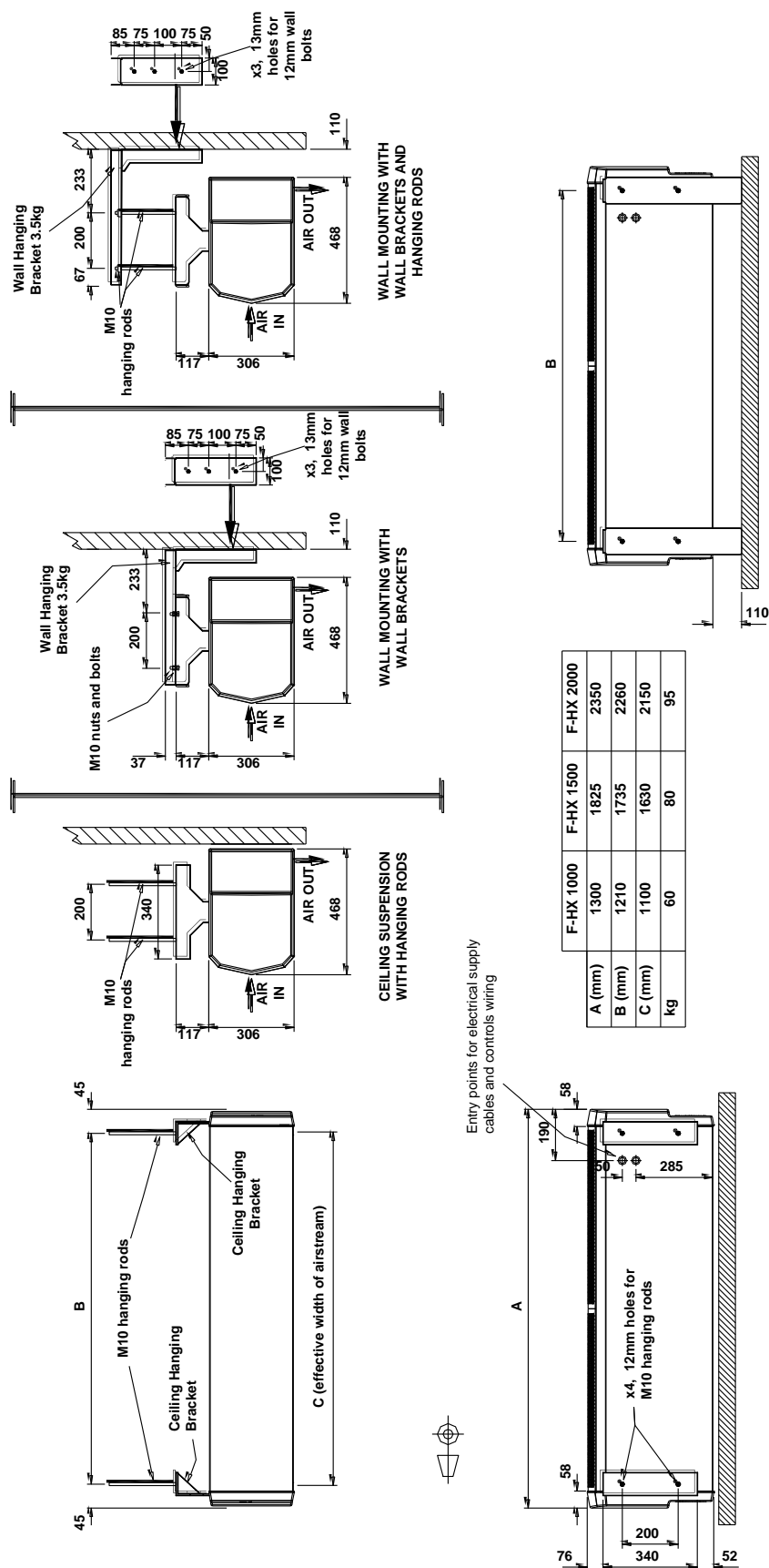
If any problems are encountered, please contact your installer/supplier.

Failing this please contact the Thermoscreens warranty department.

Care has been taken in compiling these instructions to ensure they are correct. Thermoscreens Ltd. disclaims all liability for damage resulting from any inaccuracies and/or deficiencies in this documentation. Thermoscreens Ltd. retain the right to change the specifications stated in these instructions.

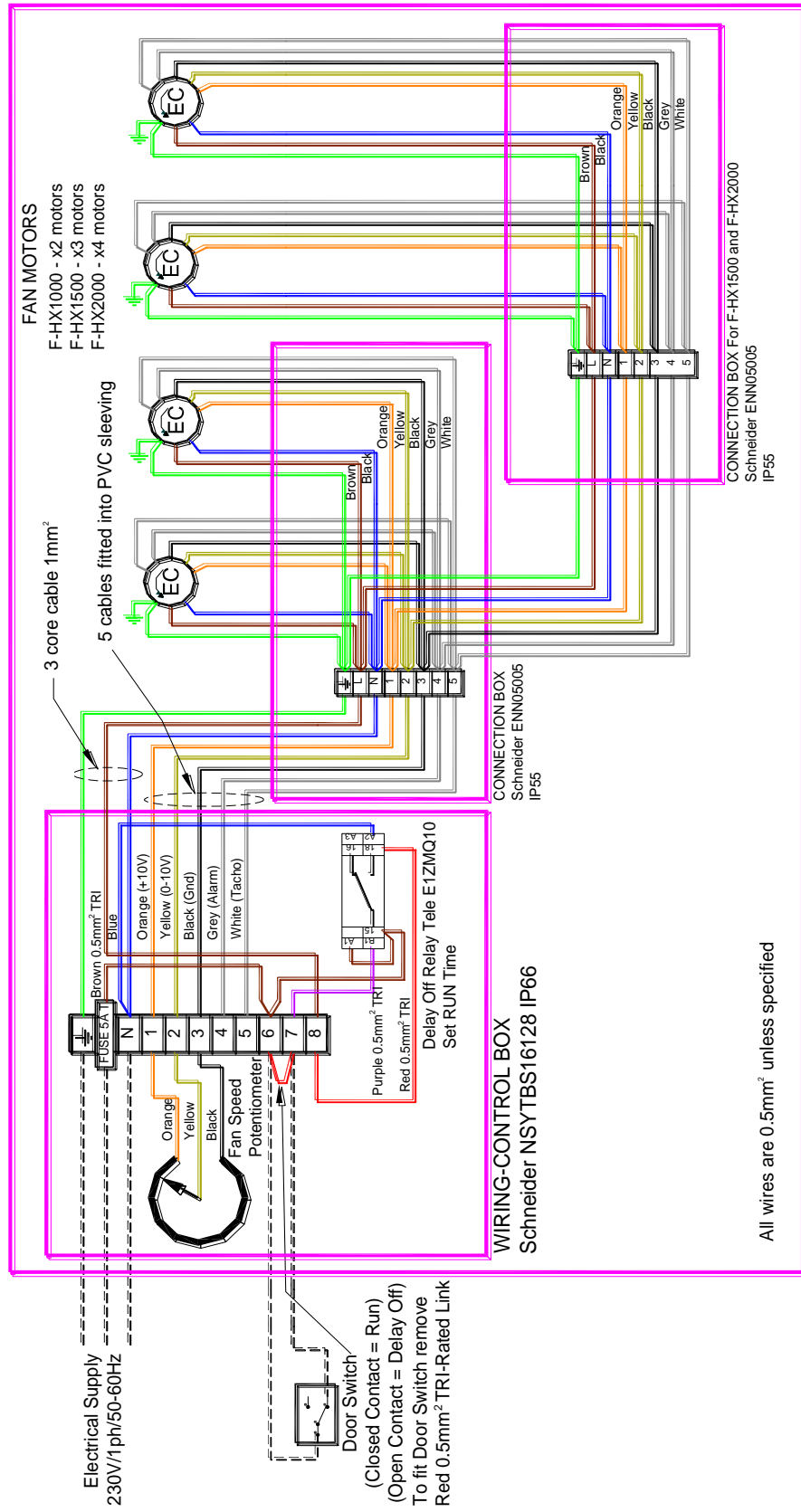
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## APPENDIX 1 — DIMENSIONS OF HX CS AIR CURTAIN

## F-HX COLD STORE AIR CURTAIN WITH DELAY OFF

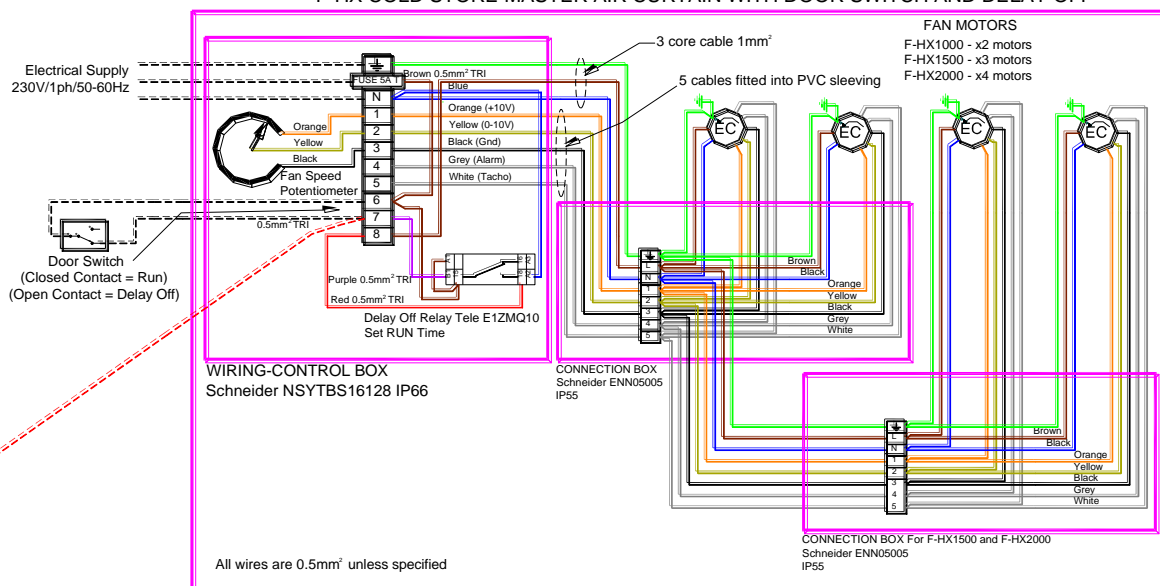


## APPENDIX 2 — WIRING DIAGRAM HX CS AIR CURTAIN

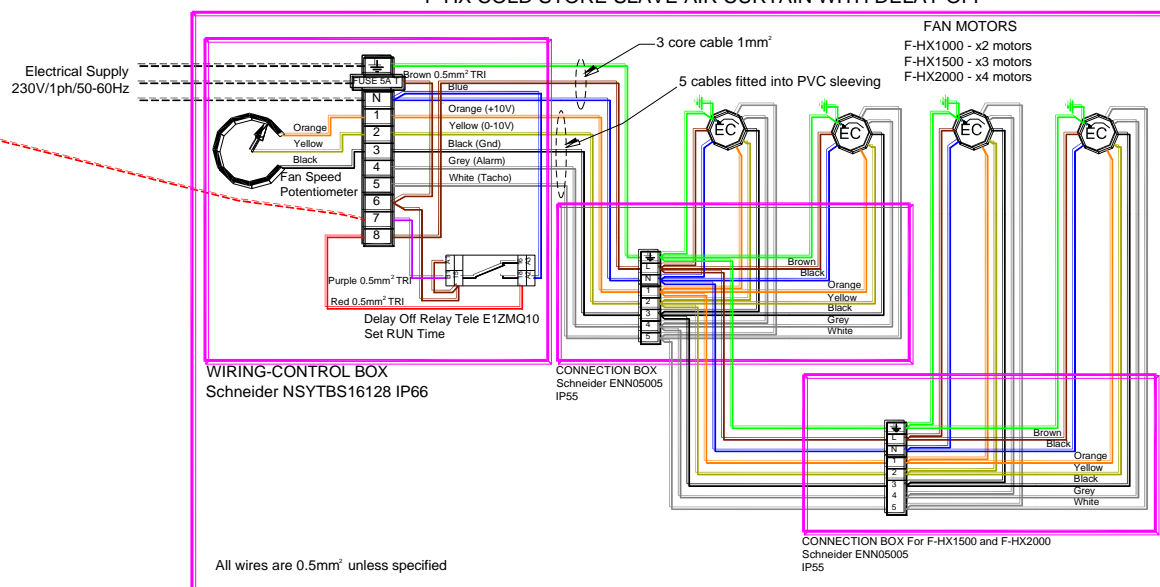
Always disconnect and isolate mains electrical supply to ALL Master and Slave units before installing, maintaining or servicing

**WARNING:** Ensure all live phases are the same on Master and Slave units

### F-HX COLD STORE MASTER AIR CURTAIN WITH DOOR SWITCH AND DELAY OFF



### F-HX COLD STORE SLAVE AIR CURTAIN WITH DELAY OFF



## 14. DECLARATION OF CONFORMITY

Thermoscreens Ltd.  
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United Kingdom  
Telephone: +44 (0)24 7638 4646  
www.thermoscreens.com



**EC DECLARATION OF CONFORMITY**  
**as defined by the EC Council Directive on Machinery 2006/42/EC,**  
**the Low Voltage Directive 2014/35/EC, Electromagnetic Compatibility Directive 2014/30/EU**  
**and the Energy related Products Directive 2009/125/EC**

Herewith we declare that the air movement equipment designated below, on the basis of its design and construction in the form brought onto the market by us in accordance with the relevant safety, health and performance requirements of the Machinery. If alterations are made to the machinery without prior consultations with us, this declaration becomes invalid.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

**Designation of Equipment:** AIR CURTAINS

**Series Type:** HX CS 1000; 1500; 2000;  
Motor Type: EC

**Relevant EC Council Directives:** the Machinery Directive (2006/42/EC)  
the Low Voltage Directive (2014/35/EU)  
the Electromagnetic Compatibility Directive (2014/30/EU)  
the Energy related Products Directive (2009/125/EC)

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery - BS EN ISO 12100:2010, BS EN ISO 13857:2008  
LVD - EN 60335-1:2012+A11:2014, EN 60335-2-30:2009+A11:2012  
EMC - EN 61000-6-1:2007, EN 61000-6-3:2007+A1:2011,  
EN 61000-3-2:2014+A2:2009, EN 61000-3-3:2013  
ErP - Commission Regulation (EU) No.327/2011,  
ISO 5801:2007, ISO 12759:2010

**Basis of Self Attestation:** Quality Assurance to BS EN ISO 9001:2008  
B.S.I. Registered Firm Certificate Number FM 85224  
SGS Test Report ELS150049/2/R/DC/11;  
SGS Test Report EMC150049/1  
CE Marking Association Test Report 6799 and 6800

**Responsible Person:** Mr. K. Challenger, UK Operations Director, Thermoscreens Ltd.

**Date:** 1<sup>st</sup> January 2017

**Signed:**

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line and a loop.