

# TECHNICAL MANUAL

## JCC2 Cellar and Product Coolers



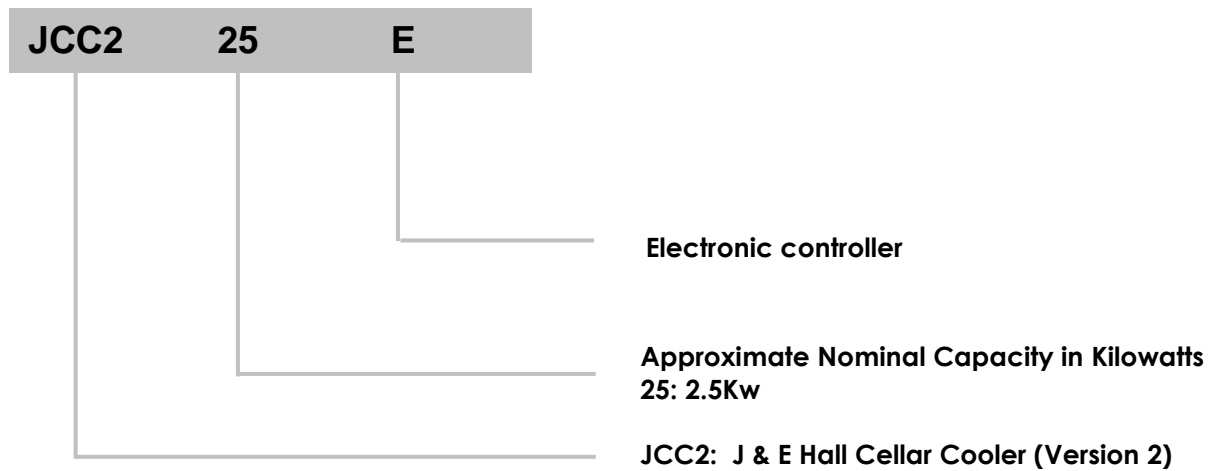
CE

**J&E Hall**  
International

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## Nomenclature



## Standard product configuration

- Brewery specification 6 fins per inch evaporator coil
- Galvanised mild steel casing with polyester powder coating
- Electronic controller
- Refrigerant R410A
- Low pressure safety switch
- Rotary type compressor
- Acoustic insulation on outdoor unit and compressor
- 3/4" BSP drain fitting on indoor unit
- Can operate down to +4°C and up to +16°C
- Suitable for cooling beers, wines, flowers, fruit & vegetables etc

# Specifications

## Capacity data

Model	Cooling capacities in kW at 32°C ambient temperature							
	4°C	6°C	8°C	10°C	12°C	<b>12.7°C</b>	14°C	16°C
JCC2 25E	1.68	1.77	1.85	2.13	2.38	<b>2.45</b>	2.58	2.76
JCC2 40E	2.96	3.13	3.36	3.70	3.93	<b>4.05</b>	4.17	4.28
JCC2 50E	3.96	4.16	4.45	4.68	4.97	<b>5.10</b>	5.33	5.58
JCC2 60E	4.92	5.14	5.34	5.71	5.92	<b>6.13</b>	6.52	6.70

## System data

Model	Cooling Capacity Kw	System Pipe Sizes		Maximum Pipe Run		Unit Airflows m <sup>3</sup> /s	Noise Levels dB(A)
		Liquid	Suction	Length	Rise		
JCC2 25E	2.45	1/4"	1/2"	12m	5m	0.83	45
J5LC15C						0.45	30
JCC2 40E	4.05	1/4"	1/2"	15m	8m	0.83	45
J5LC20C						0.61	32
JCC2 50E	5.10	1/4"	5/8"	15m	8m	1.11	48
J5LC25C						0.69	32
JCC2 60E	6.13	3/8"	5/8"	15m	8m	1.11	48
J5LC28C						0.63	34

### Notes:

- 1) Db(A) Noise levels are sound pressure levels @ 10m free field
- 2) Cooling capacities are nominal duties @ 12.7°C db / 10°C wb & 32°C ambient
- 3) The pipe length must include the rise - the rise is not additional to the length



# Specifications

## Unit dimensions & weights

Model	Unit Dimensions (mm)			Fixing Centres (mm)		Weights
	Width	Depth	Height	Width	Depth	Kg
JCC2 25E	865	372*	489	745	n/a	30
J5LC15C	700	250	540	441	278	33
JCC2 40E	865	372*	489	745	n/a	33
J5LC20C	855	328	651	603	362	59
JCC2 50E	902	370*	545	824	n/a	36
J5LC25C	855	328	750	603	362	62
JCC2 60E	902	370*	545	824	n/a	38
J5LC28C	855	328	750	603	362	68

Notes:

- 1) \* Does not include fan motor depth - add 90mm
- 2) Unit width does not include pipe services - add approximately 70mm

## Electrical data & requirements

Model	Outdoor Unit				Indoor Unit		Mains Power Supply V/Ph/Hz	Mains Power To	Interconnecting Cable	Suggested Fuse Rating Amps
	Compressor		Condenser Fan		Evaporator Fan					
	LRA	RRC	Watts	RRC	Watts	RRC				
JCC2 25E	n/a	n/a	n/a	n/a	70	0.65	240/1/50	Indoor	3 Core	16
J5LC15C	24	5.1	35	0.3	n/a	n/a				
JCC2 40E	n/a	n/a	n/a	n/a	70	0.65	240/1/50	Indoor	3 Core	20
J5LC20C	27	6.5	64	0.5	n/a	n/a				
JCC2 50E	n/a	n/a	n/a	n/a	110	0.82	240/1/50	Indoor	3 Core	25
J5LC25C	32	7.5	75	0.6	n/a	n/a				
JCC2 60E	n/a	n/a	n/a	n/a	110	0.82	240/1/50	Indoor	3 Core	32
J5LC28C	63	11.3	75	0.6	n/a	n/a				

Notes:

- 1) LRA ~ Locked Rotor Amps
- 2) RRC ~ Rated Running Current

# Health and Safety

## Important Note:

Only a qualified refrigeration engineer, who is familiar with refrigeration systems and components including all controls, should perform the installation and start-up of the system. To avoid potential injury, use care when working around coil surfaces or sharp edges of metal cabinets. All piping and electrical wiring should be installed in accordance with all applicable codes, ordinances and local by-laws.

## General information

### Before Installation

- Ensure the units received are the correct models for the intended application
- Ensure the refrigerant, voltage and MWP are all suitable for the proposed application
- Check there is no damage to the units
- Check that the proposed equipment locations are suitable and provide adequate support for the weight of the units

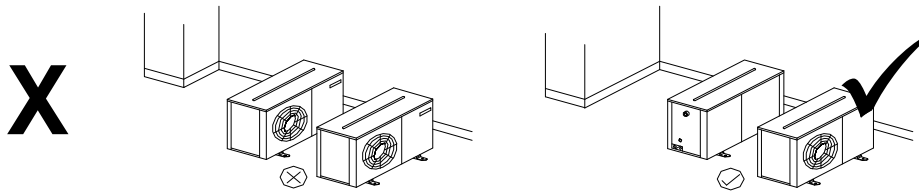
### During Installation and subsequent maintenance

- Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment
- If lifting equipment is required, ensure that it is suitable for purpose, certificated and that the operatives are qualified to use it
- Safe working methods are identified and operatives have suitable PPE
- Ensure the working area has adequate ventilation during brazing procedures
- The units contain moving machinery and electrical power hazards, which may cause severe injury or death. Disconnect and shut off power before installation or service of the equipment
- Refrigerant release into the atmosphere is illegal. Proper evacuation, recovery, handling and leak testing procedures must be observed at all times
- Units must be earthed and no maintenance work should be attempted prior to disconnecting the electrical supply
- The electrical covers and fan guards must remain fitted at all times
- Use of the units outside of the design conditions and the application for which the units were intended may be unsafe and be detrimental to the units, regardless of short or long term operation
- The units are not designed to withstand loads or stresses from other equipment or personnel. Such extraneous loads or stress may cause failure/leak/injury

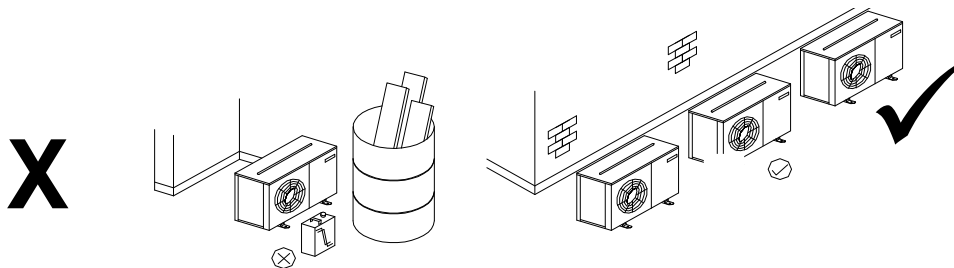
# Installation

## Unit location

- In order to achieve maximum cooling capacity, the installation location for the condensing unit should be carefully selected
- Install the condensing unit in such a way so that hot air ejected by the condensing unit cannot be drawn in again (short circuit of hot discharge air). Allow sufficient space for maintenance around the unit



- Ensure that there is no obstruction to air flow into or out of the unit. Remove obstacles which block air intake or discharge



- The location must be well ventilated, so the unit can draw in and distribute plenty of air thus lowering the condensing temperature
- To optimize the unit running conditions, the condenser coil must be cleaned at regular intervals

The indoor units can be mounted directly to a wall or to the ceiling utilizing the fixing holes on the rear of the unit or on the top of the unit. No additional brackets are required. Position the indoor unit where the optimum airflow can be achieved. Avoid locating in corners or in alcoves which may restrict airflows. A minimum 10mm rawlbolt type fixing is required with a large steel washer to bear the unit weight. **It is important to ensure that the wall/ceiling is able to withstand the unit weight and that all fixings are secure.**

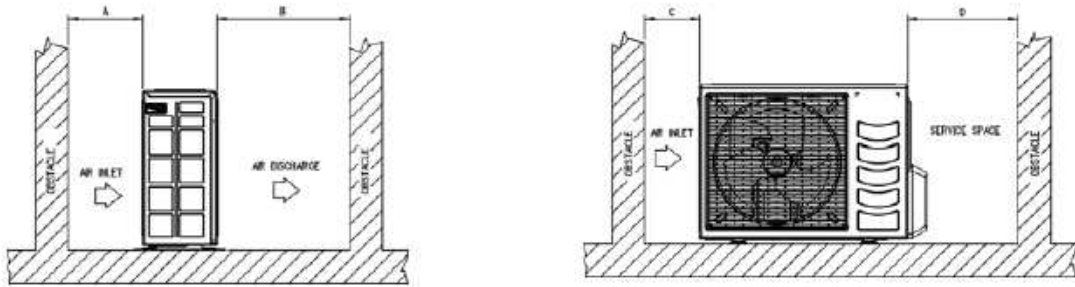
**Both indoor and outdoor units must be level in both directions.**

# Installation

## Installation clearances

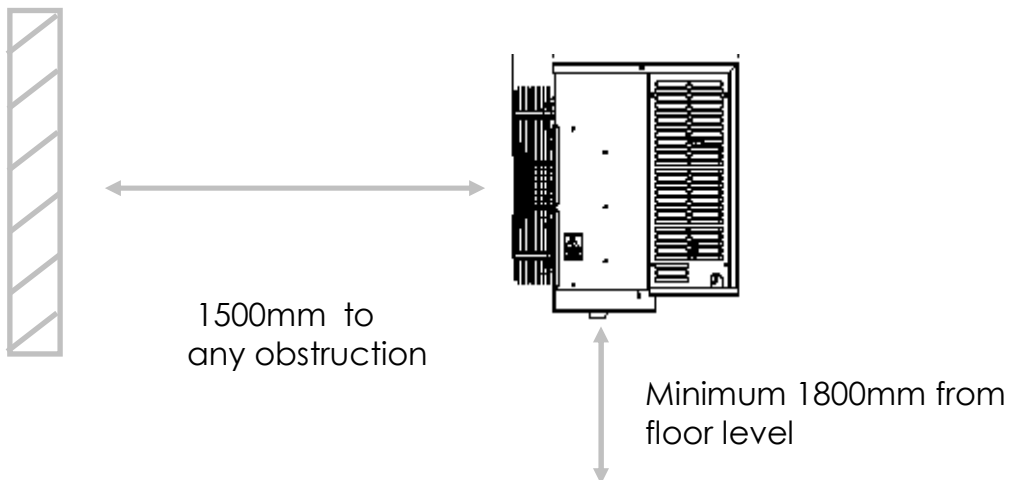
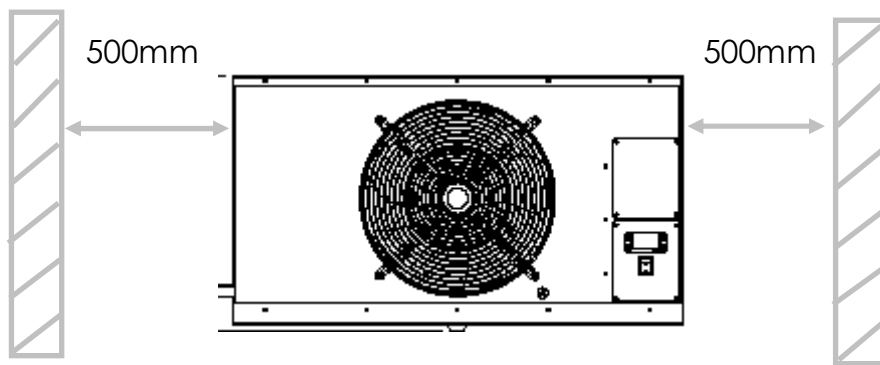
- The installation location should allow sufficient space for air flow and maintenance around the units

### Outdoor



ALL MODELS	A	B	C	D
Minimum Distance	300 mm	1000 mm	300 mm	500 mm

### Indoor





# Installation

## Field piping

### Important Note:

Pipe sizes and maximum lengths/heights should be strictly as per the information given on page 4. All local codes of practice must be observed in the installation of refrigerant piping

To ensure satisfactory operation and performance, the following points should be noted for field piping arrangements:

- Pipework routes must be as simple and as short as possible
- Avoid low points on pipework where oil can accumulate
- Use only clean, dehydrated refrigeration grade copper tube with long radius bends
- When brazing use only silver alloy rods
- Run braze without over filling to ensure there is no leakage into the tube
- To prevent oxidization, blow oxygen free nitrogen through pipework when brazing
- Protect the casing of the unit when brazing connections
- Install insulation with a minimum wall thickness of 3/8" on both liquid and suction lines
- Adequately support all pipe work at a maximum of 2 metre intervals

Use of incorrect pipe sizes can affect system pressures/temperatures and gas velocity for proper oil return.

### Important Note:

One of the main factors affecting equipment reliability and compressor service life is refrigeration circuit contamination. During installation, circuit contamination can be caused by:

- Brazing & Welding Oxides
- Filings & Particles from de-burring pipework
- Brazing Flux
- Moisture & Air

# Installation

## Pressure testing

Both the indoor and outdoor units have been pressure tested in the factory prior to dispatch. The indoor unit contains a holding charge of oxygen free nitrogen. The outdoor unit contains a charge of R410A refrigerant.

### Important Note:

Do not open the service valves on the condensing unit until pressure testing and evacuation procedures have been carried out.

Once the pipework installation is complete, it should be pressure tested prior to evacuation to test for leaks. A pressure leak test should be carried out using oxygen free nitrogen (OFN). NEVER USE OXYGEN FOR PRESSURE TESTING SYSTEMS. A calibrated nitrogen pressure regulator must always be used. Before starting any pressure testing, ensure the area surrounding the system is safe, inform relevant personnel and fit warning signs indicating high pressure testing. Also, use correct PPE as required.

A simple procedure for testing is as follows:

- Connect a pressure hose from the regulator to the schrader connection on the service port on the condensing unit
- Pressure system slowly up to 3 bar (45 psi) for 5 minutes and check for any signs of leakage
- Increase pressure slowly up to 10 bar (150 psi) for 5 minutes and check for any signs of leakage
- Increase pressure slowly up to 33 bar (500 psi) and check for any signs of leakage. Leave system under pressure for 24 hours

Listen for any possible leaks and check all joints with bubble spray. If any leaks are discovered, release pressure slowly from system until empty, repair leak and then restart pressure testing procedure. Never attempt to repair a leak on a pressurized system.

A strength test should also be incorporated according to local regulations.

Once testing has been completed satisfactorily, release the pressure from the system gradually and safely to external atmosphere.

# Installation

## Evacuation & Charging

### Important Note:

Moisture prevents proper functioning of the compressor and the refrigeration system. Ensure that a good quality vacuum pump is used to pull a minimum vacuum of 250 microns (0.33 mbar)

Once pressure testing has been completed, the system can now be evacuated to remove air and any moisture from the piping. This can be done as follows:

- Ensure any nitrogen charge is safely released from the system
- Connect a gauge manifold to the schrader connection on the service valve on the condensing unit
- Connect a vacuum pump and vacuum gauge to the system
- Evacuate the system until vacuum is below 250 microns (0.33 mbar)

**Note: A triple evacuation procedure is recommended for all new systems or where moisture is suspected**

Once the system is isolated and the vacuum pump is switched off, any rise in pressure indicates that either there may be a leak in the system or moisture is still present. In this case, recheck the system for leaks, repair as necessary, and then restart the evacuation procedure. Once completed satisfactorily, the vacuum pump and vacuum gauge can be removed.

At this point, any additional refrigerant charge can be added to the system as required. Additional refrigerant must be charged in the liquid phase. Use calibrated weighing scales to add the correct amount. With the gauge manifold connected and closed, slowly open both of the service ports fully on the condensing unit. This will release the refrigerant charge from the condensing unit into the system.

**Systems are precharged with refrigerant for pipe runs up to 7.6 metres**

### Additional refrigerant charge

- JCC2 25E matched with J5LC15C – Pre Charged with 0.83kg R410a  
Additional Charge – 20g per metre up to maximum permissible
- JCC2 40E matched with J5LC20C – Pre Charged with 1.38kg R410a  
Additional Charge – 20g per metre up to maximum permissible
- JCC2 50E matched with J5LC25C – Pre Charged with 1.54kg R410a  
Additional Charge – 20g per metre up to maximum permissible
- JCC2 60E matched with J5LC28C – Pre Charged with 1.80kg R410a  
Additional Charge – 50g per metre up to maximum permissible

# Installation

## Drainage

### Important Note:

The evaporator drain pan fitting is supplied loose and must be fitted on site. It is attached to the indoor unit fan guard with a cable tie. Correct fitting is vital to ensure leak – free operation. The fitting does not require any sealant but a small amount of silicon sealant can be applied between the flared face of the fitting and the drip tray if so desired.

The drain fitting is aluminium alloy with a 3/4" BSP male thread. A locknut is supplied to secure to the drain pan. The locknut only requires hand tightening and then pinching up with a spanner. Do not over tighten or the threads may strip from the nut and also damage the tray. To fit the drain fitting, remove the drip tray (unscrew the seven screws that secure it), locate the fitting then refit the tray.

A minimum suggested size of drain from the indoor unit is 20mm or 3/4". This can be either copper or plastic. Flexible hose is not recommended as it can easily kink causing a blockage and water to back up in the unit.

# Installation

## Electrical

### Important Note:

The mains electrical supply to the indoor unit must be via a suitably rated isolator and motor rated circuit breaker or fuse. There is no isolator fitted to either the indoor or the outdoor unit. The rocker switch on the front of the indoor unit is for isolating the indoor fan and electronic controller only.

Cable type and sizing must be selected for the particular application and the electrical installation should conform to the current local standards. All indoor and outdoor units are Single Phase.

- Cables to the indoor unit should be routed through the 'U' shaped cut-out in the bottom of the removable air grille at the side of the unit and into the rear of the electric box
- Cables to the outdoor unit should be routed under the plastic pipe / electrical connection cover on the end of the unit
- The interconnecting cable between the indoor and outdoor unit should be 3 core (2core + E)
- Connect the mains supply and interconnecting cables as per the wiring diagrams on page 19

Access to the electrical terminals and components on the indoor unit is via the two removable cover plates on the front of the unit. Removal of the upper cover plate gives access to the outdoor unit contactor. Removal of the lower cover plate gives access to the terminal block and fan capacitor, as well as the electronic controller and rocker switch connections.

# Installation

## Commissioning

### Important Note:

Before starting the system, ensure that all electrical connections are correctly made and tight, service ports are in the correct position and all covers and guards are fitted.

Switch on the power at the mains isolator and then switch on the rocker switch on the front of the indoor unit. Set the required operating temperature on the electronic controller and check the system parameters in the controller are as required (the controllers are pre-programmed in the factory to suggested settings)

Run the system to the required temperature and check system pressures, gas charge and running currents of motors to ensure correct operation.

Carry out a manual defrost (press the defrost button on the controller for more than 2 seconds) to ensure the defrost period is adequate to clear any frost build up on the evaporator coil

Carry out final leak test and ensure all covers are fitted and securing screws are tightened

Log all information along with system model and serial numbers for future reference

Ensure that the customer / responsible person is provided with basic operating instructions and where electrical isolators are situated in case of emergency

# Service & Maintenance

## Important Note:



Warning! – Disconnect the mains electrical supply before servicing or opening the units

The units are designed to give long life operation with minimum maintenance. However, they should be routinely checked and the following service schedule is recommended under normal circumstances:

### 1. Indoor and Outdoor units – Inspect at regular intervals

- Check for refrigerant leaks on all joints and fittings
- Inspect pipework for any damage
- Ensure that no abnormal noise or vibration is detected during test run
- Check all electrical connections

### 2. Condenser & Evaporator Fan Motors & Blades – Clean and inspect at regular intervals

- Check for abnormal noise, vibration and fan imbalance
- Ensure that the fan motors are clean and spin freely
- Check that the fan blades are clean and free from restriction
- **Note:** The Fan Motors are pre-lubricated and factory sealed so no maintenance is necessary

### 3. Condenser & Evaporator Coils – Clean and inspect at regular intervals.

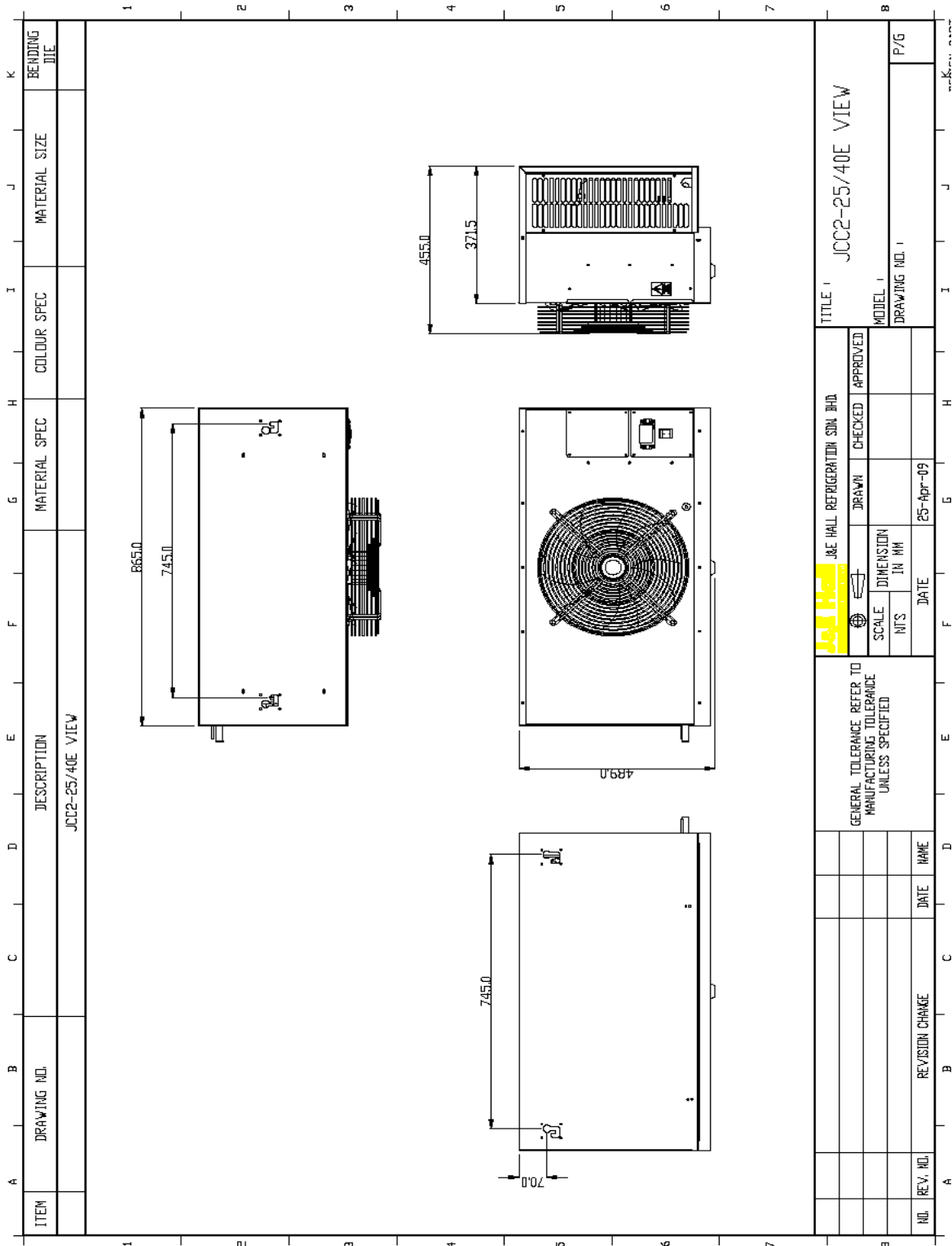
- Check and remove the dirt and debris between the fins using a soft brush and/or a suitable chemical coil cleaner then rinse with clean water
- Check and remove any obstacles that may hinder the airflow through the coils
- Repair any damage to fins and ensure any guards are fitted correctly
- **DO NOT USE HIGH PRESSURE WASHERS ON COILS – THEY DAMAGE THE FINS**

### 4. Power Supply – Inspect at regular intervals.

- Check the running current and voltage for the units
- Check the electrical wiring and tighten the wires onto the terminal blocks if necessary

# Drawings

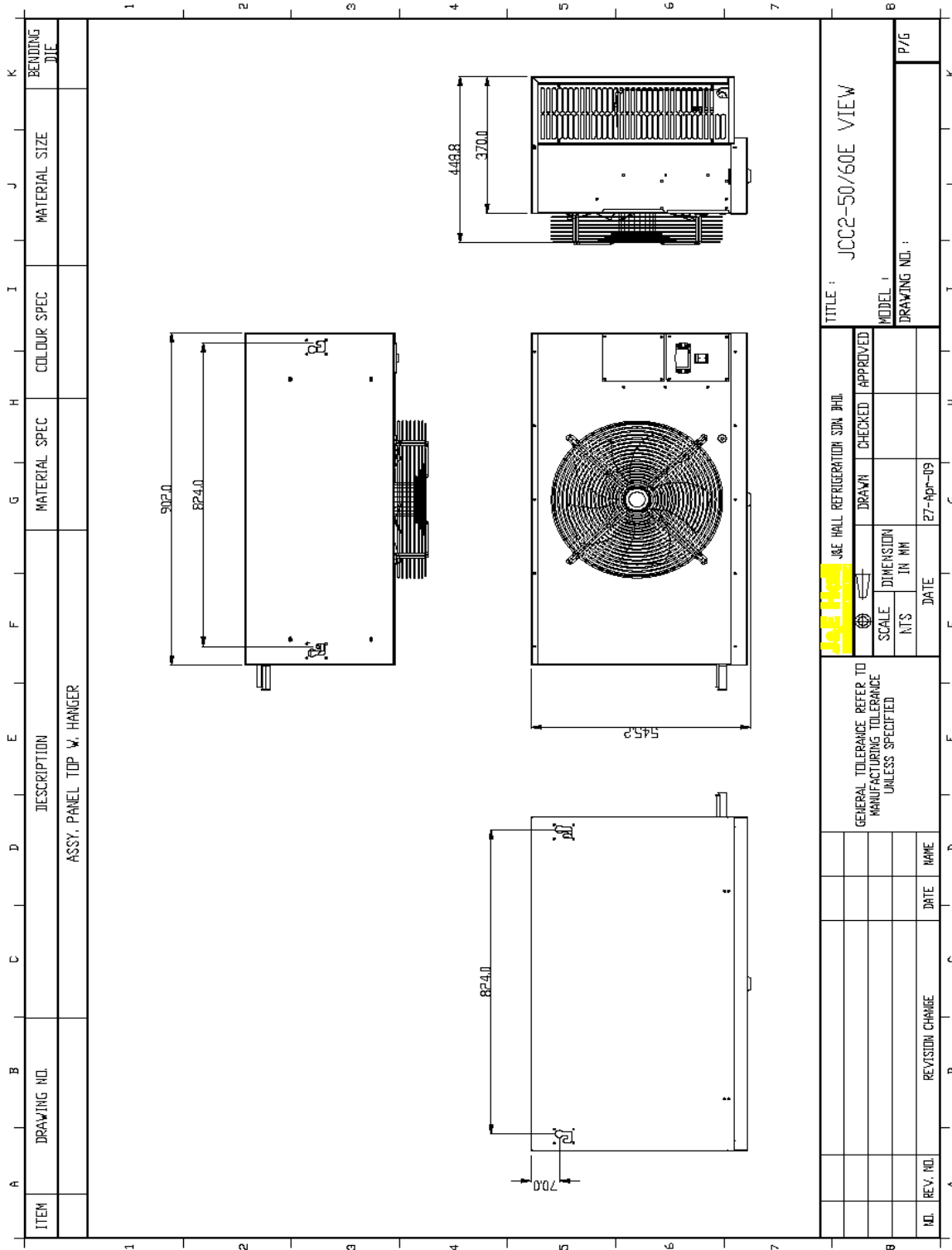
## Indoor unit dimensions (25E & 40E)





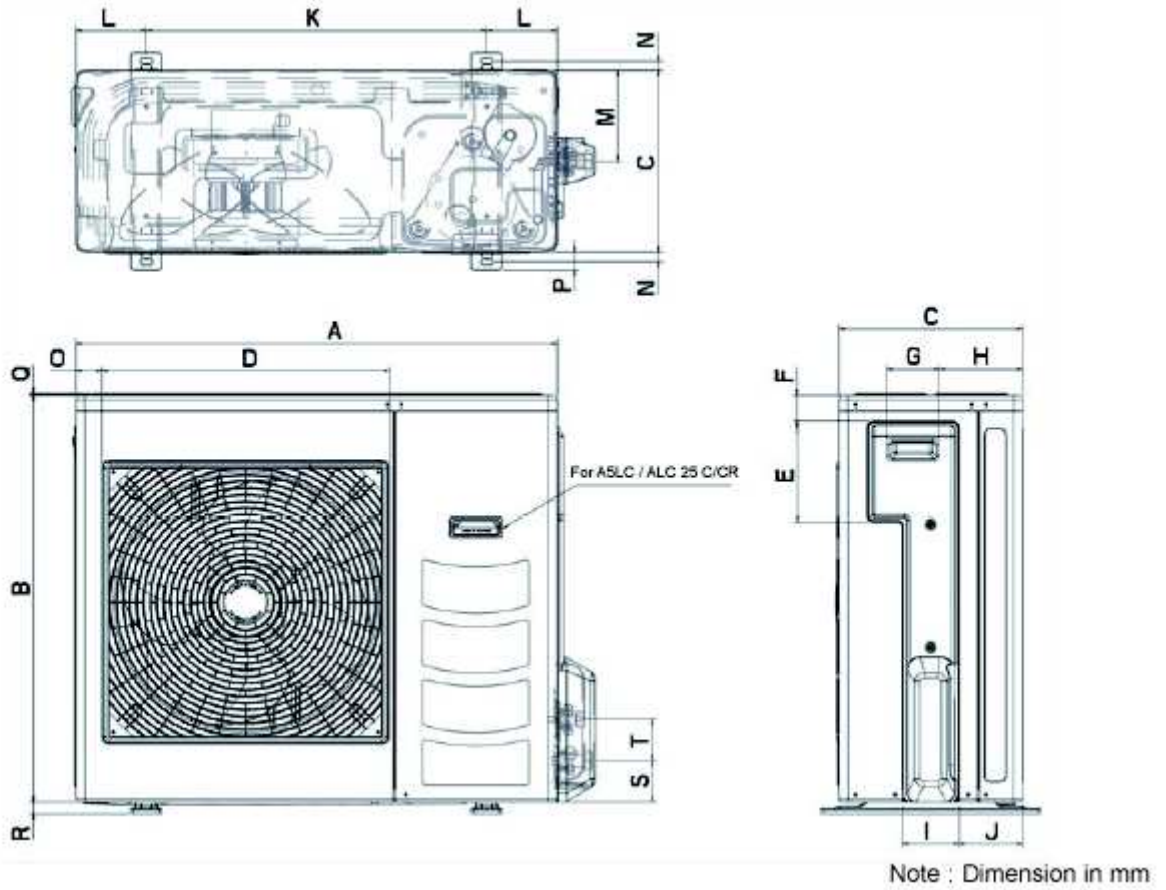
# Drawings

## Indoor unit dimensions (50E & 60E)



# Drawings

## Outdoor unit dimensions

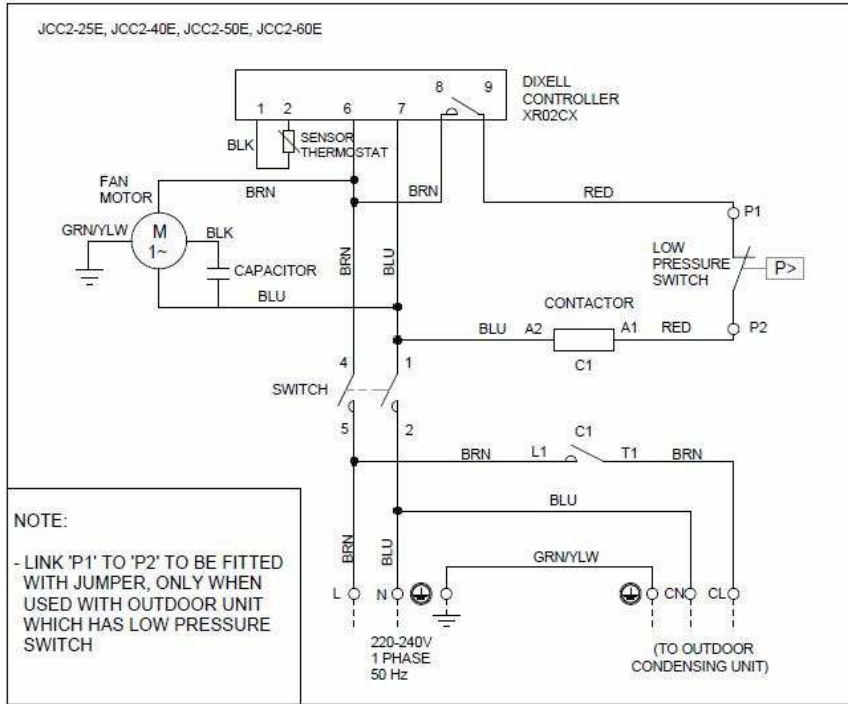


MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
J5LC15C	700	521	250	475	170	37	93	100	93	63	441	130	110	14	23	25	3	20	85	65
J5LC20C	855	628	328	508	181	44	93	149	101	113	603	126	164	17	49	32	3	23	73	75
J5LC25C	855	730	328	513	182	44	93	149	101	113	603	126	164	17	47	32	3	23	73	75
J5LC28C	855	730	328	513	182	44	93	149	101	113	603	126	164	17	47	32	3	23	73	75

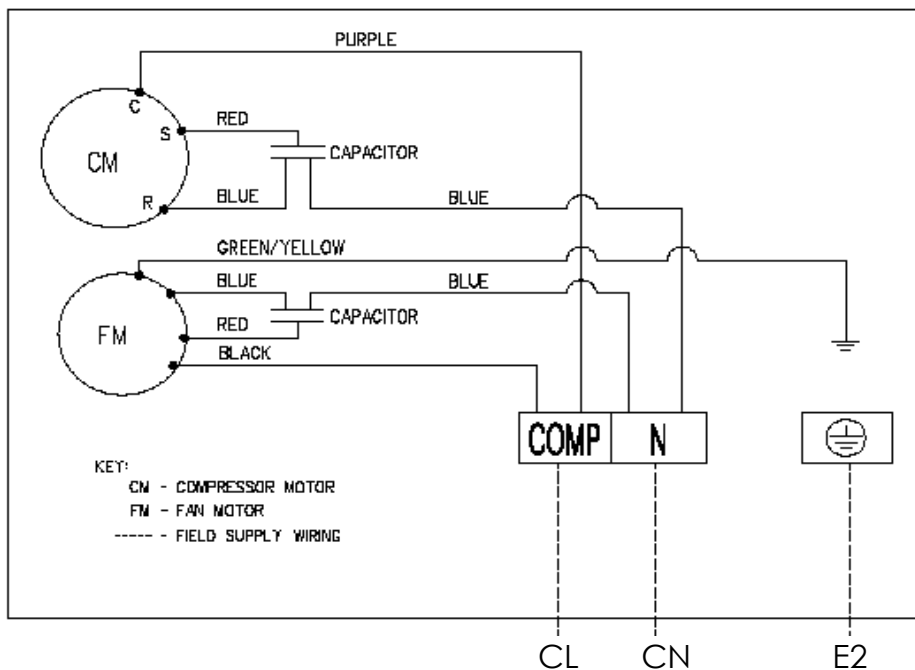
# Drawings

## Electrical wiring diagrams

### Indoor



### Outdoor



# Technical Information

## Electronic Controller (Dixell XR02CX)

### To check the setpoint temperature:

- Press and release the SET button

### To change the setpoint temperature:

- Press the SET button for more than 3 seconds
- The setpoint value is displayed and the °C or °F led starts flashing
- To change the setpoint value press the ▲ or ▼ button within 10 seconds
- To retain the new setpoint press the SET button again or wait 10 seconds

### To start a manual defrost:

- Press the defrost button (top left ) for more than 2 seconds

### To lock the buttons:

- Press the ▲ and ▼ buttons together for more than 3 seconds. The 'OF' message will be displayed and the buttons are now locked to prevent unauthorized access

### To unlock the buttons:

- Press the ▲ and ▼ buttons together for more than 3 seconds. When the 'ON' message is displayed the buttons will be unlocked

### To change a parameter value (selected parameters):

- Enter the programming mode by pressing the SET and the ▼ buttons together for more than 3 seconds (°C or °F LED starts blinking). The first parameter (Hy) is displayed
- Press the SET button to display the parameter value
- Use the ▲ and ▼ buttons to change the parameter value
- Press the SET button to store the new value and move to the next parameter
- To exit the programming mode press the SET and ▲ buttons together or wait 15 seconds without pressing a button

### To enter the hidden parameter menu (full parameter list):

- Enter the programming mode by pressing the SET and ▼ buttons together for 3 seconds (°C or °F LED starts blinking)
- Release the buttons, and then press the SET and ▼ buttons for more than 7 seconds. L2 will be displayed followed by the first parameter (Hy). **You are now in the hidden menu**
- Select the required parameter
- Press the SET button to display the parameter value
- Use the ▲ and ▼ buttons to change the parameter value
- Press the SET button to store the new value and move to the next parameter
- To exit the programming mode press the SET and ▲ buttons together or wait 15 seconds without pressing a button



# Technical Information

## Controller parameters

Dixell XR02CX Parameters				
Label	Description	Range	Default setting	JEH Setting
<b>Parameter Menu (selected parameters)</b>				
Hy	Differential	0.1 ~ 25°C / 1 ~ 45°F	2.0°C / 4°F	<b>2.0°C</b>
ot	Probe calibration	-9.9 ~ 9.9°C / -18 ~ 18°F	0.0	<b>0.0</b>
AC	Anti Short Cycle Delay	0 ~ 50 minutes	1	<b>3</b>
CH	Kind of Action (Cool / Heat)	cL ~ Ht	cL	<b>cL</b>
rE	Resolution (°C only): dE = decimal between -9.9 ~ 9.9°C; in = integer	dE ~ in	dE	<b>in</b>
id	Interval between defrost cycles	0 ~ 99 hours	8	<b>6</b>
Md	Maximum defrost length	0 ~ 99 minutes	20	<b>30</b>
AU	Maximum Alarm Temperature	~ 99°C / ~210°F	99°C / 99°F	<b>99°C</b>
AL	Minimum Alarm Temperature	-55°C / -67°F	-55°C / -55°F	<b>-55°C</b>
iP	Digital input polarity: oP = activated by closing the contact; cL = activated by opening the contact	cL ~ oP	cL	<b>cL</b>
iF	Digital input configuration: EA = external alarm; EA message is displayed; bA = serious alarm; CA message is displayed; do = door switch function; dF = defrost activation; Au = not used; Hc = inversion of the kind of action	EA / bA / do / dF / Au / db / Hc	EA	<b>EA</b>
di	Digital input delay. With iF = EL or bA delay between the detection of the external alarm condition and its signalling. With iF = do it represents the delay to activate the door open alarm	0 ~ 99 minutes	5	<b>5</b>
<b>Hidden Parameter Menu (Full list including above parameters)</b>				
LS	Minimum Set Point	-55°C / -67°F	-55°C / -55°F	<b>4°C</b>
US	Maximum Set Point	99°C / 210°F	99°C / 99°F	<b>16°C</b>
od	Output activation delay at startup	0 ~ 99 minutes	0	<b>0</b>
Cy	Compressor on time faulty probe. Cy = 0 compressor always OFF	0 ~ 99 minutes	15	<b>5</b>
Cn	Compressor off time faulty probe. Cn = 0 compressor always active	0 ~ 99 minutes	30	<b>10</b>
CF	Measurement units: °C = Celsius; °F = Fahrenheit	°C / °F	°C	<b>°C</b>
dY	Display delay	0 ~ 15 minutes	0	<b>0</b>
dF	Display during defrost: rt = real temperature; it = start defrost temperature; St = SET POINT; dF = label dF	rt / it / St / dF	it	<b>it</b>
Ad	Temperature alarm delay	0 ~ 99 minutes	15	<b>15</b>
dA	Exclusion of temperature alarm at startup	0 ~ 99 minutes	90	<b>90</b>
dC	Compressor and fan status when door open: no = normal; Fn = Fans OFF; cP = Compressor OFF; Fc = Compressor and fans OFF	no / Fn / cP / Fc	no	<b>no</b>
rd	Regulation with door open: n = no regulation if door is opened; Y = when di is elapsed regulation restarts even if door open alarm is present	n ~ Y	Y	<b>Y</b>
Pt	Parameter code table	Read Only	-	-
rL	Firmware release	Read Only	-	-

# Certification

J&amp;E/DOC/003-09(0)



## Declaration of Conformity Déclaration de Conformité Declaracion de Conformidad Dichiarazione di Conformità Konformitätsbescheinigung

We **J & E HALL REFRIGERATION SDN. BHD.**  
 Nous  
 Nosotros **LOT 10, JALAN PERUSAHAAN 8, KAWASAN PERUSAHAAN PEKAN**  
 Noi **BANTING, 42700 BANTING, SELANGOR DARUL EHSAN, MALAYSIA.**  
 Wir

declare under our sole responsibility that the products  
 déclarons sous notre seule responsabilité que les produits  
 declaramos sobre nuestra sola responsabilidad que los productos  
 dichiariamo sotto nostra sola responsabilità che i prodotti  
 bescheinigen auf unsere eigene Verantwortung, daß die Produkten

**Cellar Cooler**  
 Refroidisseur de cave  
 Kellerküh Vorrichtung  
 Dispositivo di raffreddamento della cantina  
 Refrigerador del sótano

Model Designations: JCC2-25E, JCC2-40E, JCC2-50E, JCC2-60E

Désignations Modèles:

Designaciones Modelo:

Indicazioni de Modello:

Baumuster-Bezeichnungen:

which this declaration relates is in conformity with the requirements of the following directives  
 auxquels se réfèrent cette déclaration, sont conformes aux prescriptions des directives  
 a los cuales se reieren está declaración, son conformes a las prescripciones de las directivas  
 alla quale si riferisce questa dichiarazione, sono conformi alle prescrizioni delle direttive  
 auf diese Bescheinigung sich beziehen, sind den Vorschriften der Normen entsprechend

<b>Electromagnetic Compatibility Directive</b>	<b>2004/108/EC</b>
<b>Low Voltage Directive</b>	<b>2006/95/EC (valid until 29/12/2009)</b>
<b>Machinery Directive *</b>	<b>2006/42/EC (valid from 29/12/2009)</b>

The conformity was checked for EMC & LVD in accordance with the following harmonised EN standard:

La conformité a été vérifiée pour EMC et LVD conformément aux normes EN-harmonisées:

La conformidad se repasa para EMC y LVD de acuerdo con el siguiente EN-armonizadas:

La conformità è stata controllata per EMC e LVD in conformità con il seguente standard armonizzato dell' EN:


Die Konformität wurde auf EMC u. LVD in Übereinstimmung mit dem folgenden harmonisierten en-Standard überprüft:

<b>EMC</b>	<b>EN 61000-6-1(2001)</b>	Immunity for residential, commercial and light-industrial environments
	<b>EN 61000-6-3(2001)</b>	Emission standards for residential, commercial and light-industrial environments
<b>LVD</b>	<b>EN 60335-1</b>	Safety of Household and Similar Electrical Appliances: Part I
	<b>EN 60335-2-89</b>	Safety of Household and Similar Electrical Appliances: Part II

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