

# ISD 135K, 160K, 200K, 230K

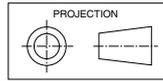
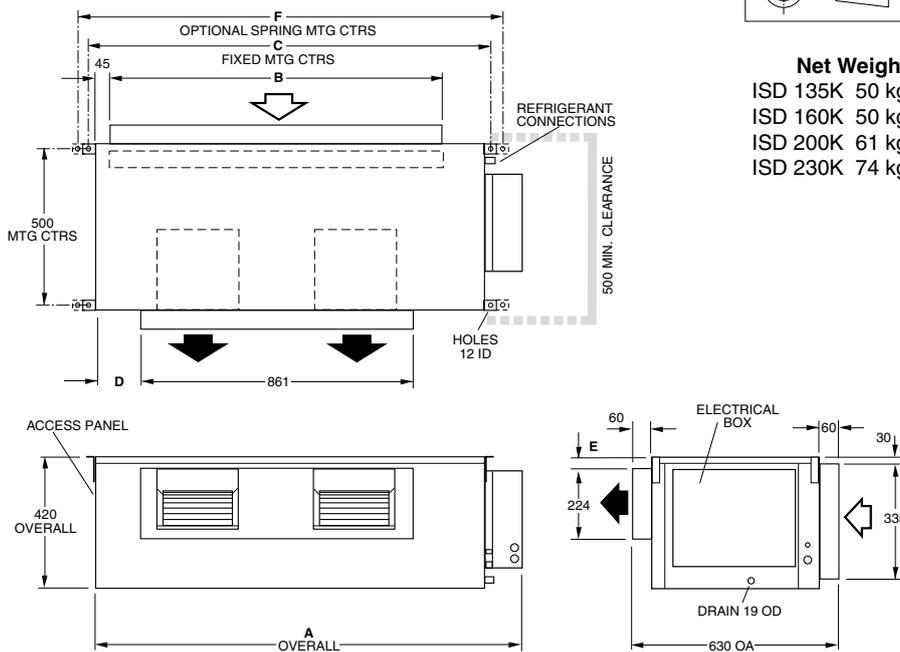
## Ducted Split System R410A Indoor Units

## Installation & Maintenance

**Fig. 1 Dimensions (mm)**

**ISD 135K, 160K, 200K, 230K**

Not to Scale



**Net Weight**

ISD 135K	50 kg
ISD 160K	50 kg
ISD 200K	61 kg
ISD 230K	74 kg

**GENERAL**

These ISD\*K indoor units are designed to be coupled with the OSA\*RKT outdoor units. Units must be installed in accordance with all national and local safety codes.

**Combinations**

- One ISD 135K with one OSA 135RKSGH
- One ISD 135K with one OSA 135RKTGH
- One ISD 135K with one OSA 140RKSH
- One ISD 135K with one OSA 140RKTH
- One ISD 160K with one OSA 155RKTV
- One ISD 160K with one OSA 160RKTH
- One ISD 200K with one OSA 200RKTH
- One ISD 200K with one OSA 200RKTV
- One ISD 230K with one OSA 230RKTH

**Options**

1. Filter Box c/w polypropylene net filter
2. Spring Mounting Kit
3. Electric Heater Box
4. Supply & Return Air Plenums.
5. SAT-2 Controller kit (for non-digital sys.) or TZT-701 Controller kit (for digital systems).

**AIR FILTRATION / FILTER BOX (Option)**

As air filtration requirements vary, filters are not supplied with the unit. Filters should ideally be installed on the return air side of the unit, no closer than 500mm from the back of the unit and easily accessible for cleaning. To maximise the efficiency of air flow, the return air filter should be twice the area of the ISD unit's return air spigot/s. If efficiency is less of a concern a Filter Box is available.

The Filter Box is installed by unscrewing the return air spigot and replacing it with the Filter Box's filter-integrated spigot. The filter may be accessed from either side of this spigot. This new spigot has a depth of 140 mm, instead of 60 mm.

**ELECTRIC HEATER BOX (Option)**

The Electric Heater Box is installed by unscrewing the supply air spigot and replacing it with the Electric Heater Box's element-integrated spigot. This new spigot has a depth of 195 mm, instead of 60 mm. A separate page of installation instructions is supplied with the Kit.

**INSTALLATION**

**Positioning & Mounting**

Provide 500 mm minimum clearance to the electrical box.

If the Electric Heat Kit or Filter Box options are to be used, allow adequate clearance for servicing.

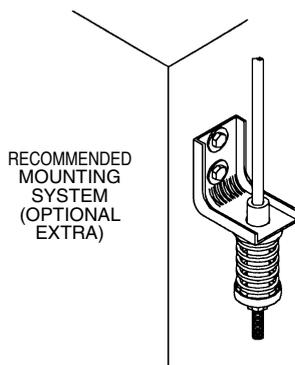
If low noise is a critical factor in the installation, refer to Figure 5 for noise isolation recommendations.

MODEL	A	B	C	D	E	F
ISD 135/160K	1140	881	1057	55	30	1115
ISD 200K	1495	1237	1412	235	25	1470
ISD 230K	1655	1397	1572	315	25	1632

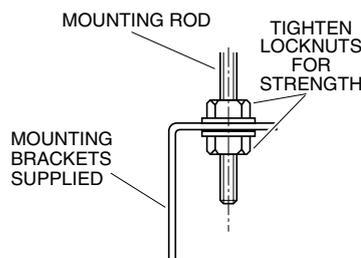
**NOTE**

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

**Fig. 2 Spring Mounting**



**Fig. 3 Solid Mounting**



It is recommended that the unit be mounted using the spring mounting system, supplied as an optional extra (Fig.2). This system minimises transfer of vibration into the building structure.

If a more rigid installation can be tolerated, then suspend the unit from four threaded rods (not supplied) and use the 'L' shaped brackets supplied on the unit (reversed).

The unit has a built-in sloping drain tray, therefore mount it level.

When finally positioned, tighten the lock nuts on the mounting rods from above and below the mounting brackets to give a firm installation (see Fig. 3).

#### Condensate Drain

The condensate drain should be trapped outside the unit cabinet. The trap should have a vertical height of at least 50 mm. The drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain tray. (Refer Fig.4).

For long condensate pipe runs, fit a vent pipe near the drain trap. The top of the vent pipe must be at least 100 mm above the ISD unit's drain tray.

It is essential that the drainage system for the evaporator is checked by pouring water in the drain tray and seeing that it discharges at the end of the drain and does not overflow the drain tray.

**Note:** The built-in drain tray can be removed for cleaning (or fan access) by first removing the unit's base.

#### INDOOR-OUTDOOR UNIT

##### CONNECTIONS

Refer to the relevant OSA Outdoor Unit 'Installation & Maintenance' pamphlet for piping instructions. For wiring connections, refer to the Outdoor Unit wiring diagram in conjunction with the ISD wiring diagram on this pamphlet.

#### REFRIGERATION PIPING

##### Pipe Connection Sizes & Type

Model	Liquid	Suction
ISD 135K*	10 ( $\frac{3}{8}$ " ) sweat	19 ( $\frac{3}{4}$ " ) sweat
ISD 160-230K	13 ( $\frac{1}{2}$ " ) sweat	22 ( $\frac{7}{8}$ " ) sweat

\* Interconnecting pipe size may vary; refer OSA outdoor unit installation instructions.

The ISD is shipped from the factory with a pressurised holding charge of nitrogen. Immediately before removing any brazed pipe connection's seal, reduce the holding charge to atmospheric.

**Warning:** failure to do so may cause injury.

Refer to the Outdoor Unit 'Installation & Maintenance' pamphlet for evacuation procedure and piping requirements.

#### ELECTRICAL WIRING

The electrical supply required (via the Outdoor Unit) is specified on the Outdoor Unit's wiring diagram.

Electrical work must be carried out by a qualified electrician in accordance with local supply authority regulations and the wiring diagram.

In a free blow or low resistance application, beware of exceeding the fan motor's full load amp limit (refer Outdoor Unit's wiring diagram).

It is recommended electricians run a spare wire between Outdoor Unit and Indoor Unit in case 'Indoor Fan Off During De-Ice' becomes a requirement. Leave this spare wire unconnected until required. If and when this option is required, the loop wire must be removed between terminals 'N' and '1'.

#### INDOOR FAN SPEED

The fan speed can be set to LOW, MED, or HIGH - whichever best suits the application.

If the air returning to the indoor unit is regularly expected to be above 50%RH, then the coil face velocity should be limited to be 2.5 m/s or less (refer Air Handling graph in Technical Data pamphlet).

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Select a fan speed that avoids water carry-over problems.

#### THERMOSTATS

The **temperzone** SAT-2 Controller (for non-digital sys.) or TZT-701 Controller (for digital systems) is available as kit for retro-fitting to this unit.

A dedicated neutral line is required where electronic or anticipator thermostats are used when you choose to have indoor fan off in de-ice.

#### ISD/OSA SYSTEMS WITH ELECTRIC HEATER BOX

Replace the systems external fuse with the size recommended in the table on the Outdoor Unit's wiring diagram.

Note: Tandem indoor units with electric heat may require greater fuse sizes on the power supply.

#### COMMISSIONING

##### Indoor Unit

1. Check that the thermostat is correctly wired and set at the desired temperature.
2. Check that the air filter (if fitted) is clean.
3. Check that the fan runs freely without vibration.
4. Check condensate drain for free drainage.
5. Run the unit in cooling and heating modes.

#### MAINTENANCE

##### Weekly For First Four Weeks

1. Check air filter (if fitted); vacuum clean as necessary.
2. Check condensate drain for free drainage.

##### Monthly

Check air filter (if fitted); vacuum clean as necessary.

##### Six Monthly

1. Check condensate drain for free drainage.
2. Check heat exchanger coil; vacuum or brush clean as necessary.
3. Check the tightness of the fan.
4. Check that fan motor is free running.
5. Check tightness of electrical connections.
6. Check air supply at diffuser outlets.

#### WARNING

This unit is designed for use ONLY with the refrigerant HFC-410A (R410A). The use of other refrigerants is NOT authorised or approved by the manufacturer and may cause operational problems such as poor performance and efficiency, loss of capacity, degradation of materials and refrigerant leaks.

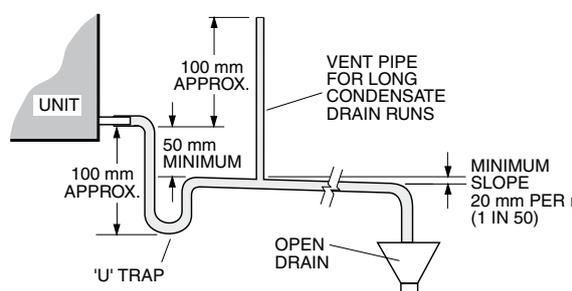
**The use of flammable or explosive materials as a refrigerant creates the additional risks of fire and explosion which may result in property damage, personal injury or death.**

#### NOTE

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

This pamphlet replaces the previous issue no. 3343 dated 03/10. Optional controllers; ISD 135K pipe size corr.

Fig. 4

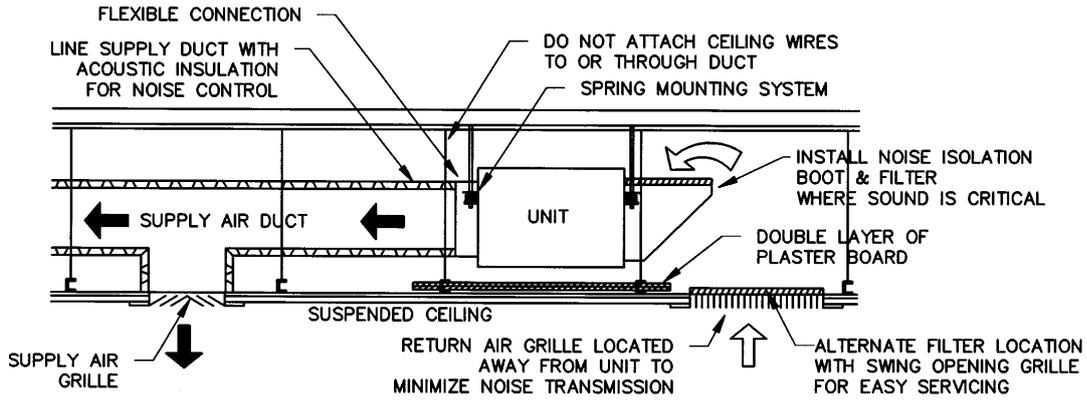
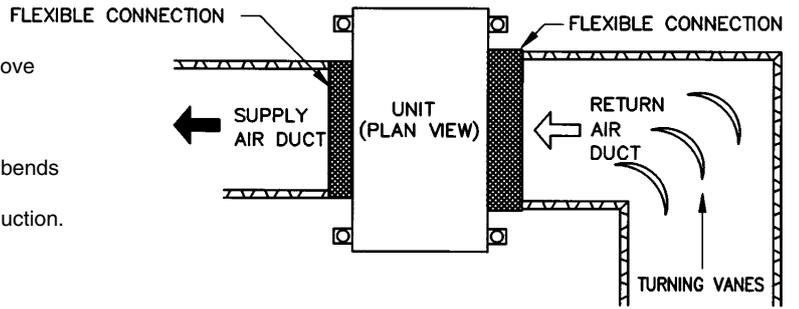


Condensate Drain

**Fig. 5 Application Considerations**

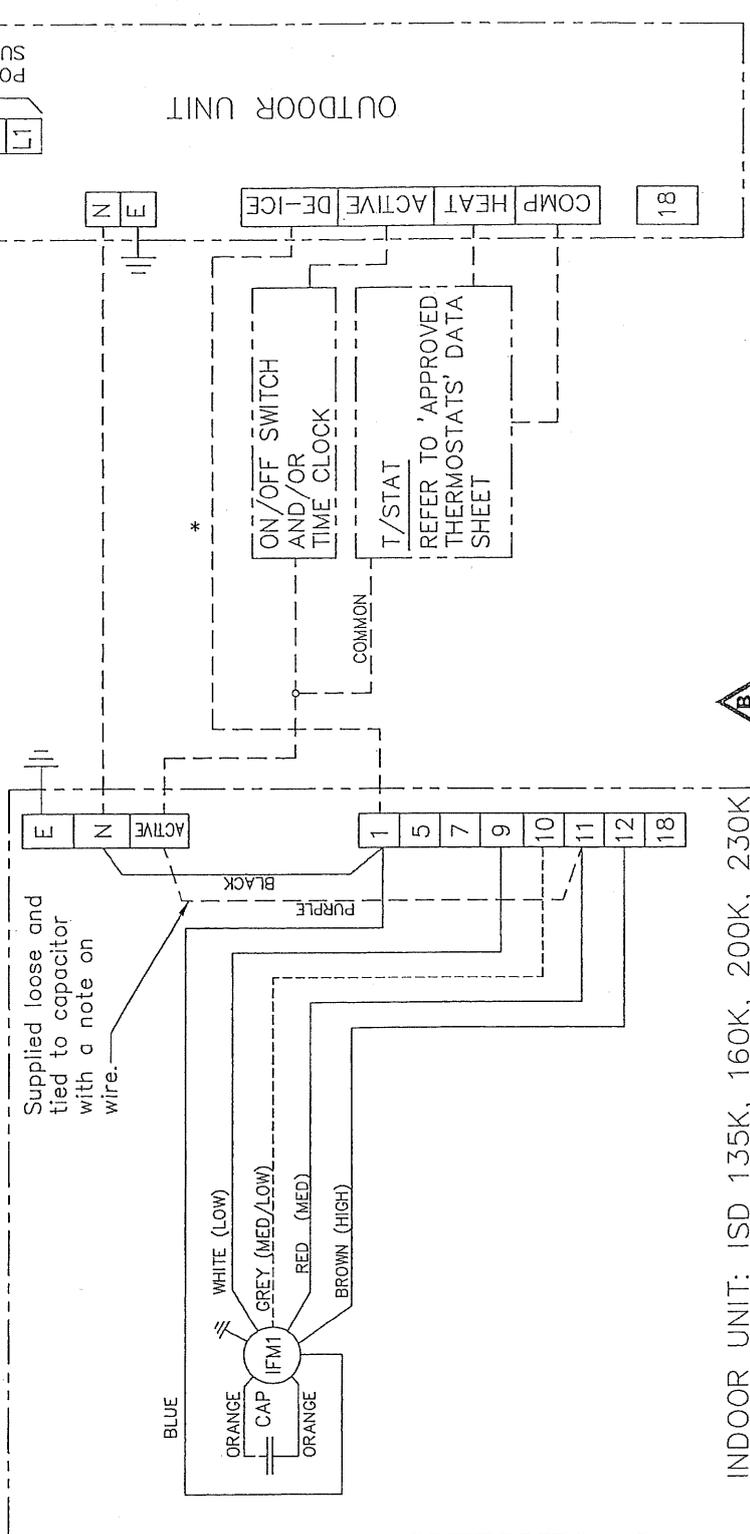
**Recommendations for Noise Isolation**  
**- particularly for high static installations:**

1. Avoid installing units, with non-ducted return air, directly above spaces where noise is critical.
2. Use flexible connections between unit and rigid ducting.
3. Use generously sized acoustically lined ducts.
4. If generous duct size is not possible, use turning vanes on bends to reduce air turbulence (regenerated noise).
5. Use 90° bends in ducting to significantly assist in noise reduction.



### IMPORTANT WHEN WIRING.

1. Run the following 4 wires from the outdoor unit: N, ACTIVE, HEAT & COMP (As shown on wiring diagram).
2. Optional extra wires from outdoor unit are:
  - \* From 'DE-ICE' TO TERMINAL 1, if the indoor fan is to be forced off during de-ice cycle.
3. Note! Remove the BLACK wire on the indoor unit between N and terminal 1.  
 The purple wire tied to capacitor body, should only be fitted where one fixed fan speed is required.  
 DO NOT fit this wire for installations with multi speed switches, otherwise damage to motor will occur.



CLIENT WIRING  
 Interconnections between units by  
 OPTIONAL  
 Electric Heat Wiring

NOTE: CHECK WIRING BEFORE  
 SWITCHING ON, INCORRECT  
 CONNECTION WILL DAMAGE MOTORS.

CAP	CAPACITOR
IFM1	INDOOR FAN MOTOR
LAT	LOW AMBIENT T/STAT
CMC	COMPRESSOR CONTACTOR

INDOOR UNIT: ISD 135K, 160K, 200K, 230K

Title ISD 135K, 160K, 200K, 230K  
 WIRING SCHEMATIC

Drawn KTT	Date 27-11-06	Drawing No. 525-304-002	Revision B
Scale	Asstd		

PLOTTED  
 13-01-10

MODEL	ISD 135K	ISD 160K	ISD 200K	ISD 230K
INDOOR FAN MOTOR RUNNING AMPS	HIGH 2.3 MED 2.0 MED/LOW 1.9 LOW 1.8	3.7 2.9 2.7 2.3	5.45 3.8 2.85	3.10 2.25 2.10
CAPACITOR	15MFd	10MFd	18MFd	15MFd

ISSUE	MODIFICATION	ECN	DATE	APRVD
B	ISD 230 H/MED/LOW WERE 5.45/3.8/2.85. CAP WAS 18MFd	N2409	13-01-10	D.A.B
A	ISD 187/223 REMOVED. ISD 135/200/230 ADDED. T/STAT TO TB TERM. 5 WIRE REMOVED	N2333	10-10-09	D.A.B