

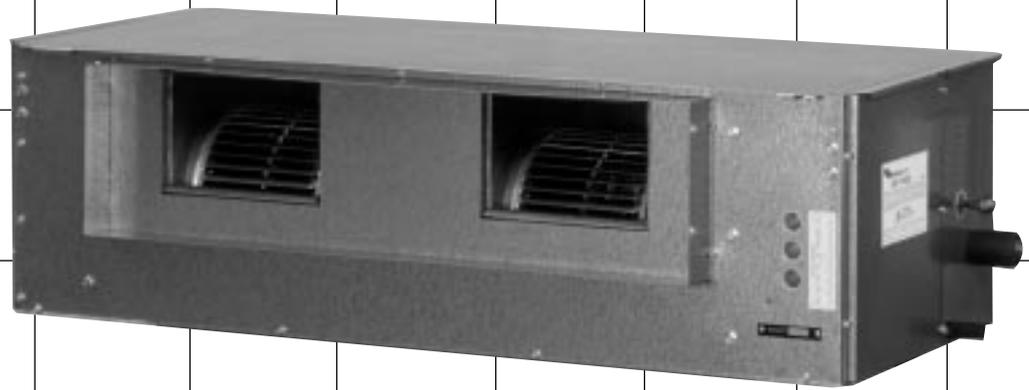
ENERGY
EFFICIENT



ISD 150Q / OSA 165

Technical Data

**Ducted Single Phase
Split System Air Conditioner**



EXTRA LONG LIFE
EPOXY COATED
OUTDOOR COIL

Nominal Cooling Capacity
16.5 kW

ISD 150Q / OSA 165 DUCTED SINGLE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

- ISD 150Q** - Indoor unit usable for reverse cycle or cooling only
- OSA 165** - A general designation for outdoor unit
- OSA 165C** - Outdoor unit, cooling only version
- OSA 165R** - Outdoor unit, reverse cycle version

The ISD indoor unit, together with its associated OSA outdoor unit, provides a single phase split system air conditioner designed and developed to comply with and exceed A.R.E.M.A. UEPS(7/84) specified conditions (i.e. guaranteed cooling cycle performance at 46°C outdoor temperature).

APPLICATIONS

These units have been specifically developed for air conditioning of light commercial and residential premises, e.g. offices, motels, shops and homes.

FEATURES

- Efficient.** The outdoor unit incorporates a high efficiency scroll compressor. Heat exchange coils incorporate inner grooved (rifled) tube for better heat transfer.
- Performance.** A dynamically balanced forward curved fan with a multi-speed motor enables fine tuning of the indoor unit to match the supply air requirements.
- Convenient.** The system requires only a single phase power supply - which is readily available and requires less wiring. Low startup amps are a design feature. It may be advisable to consult your local power supply authority's regulations for any restrictions on the use of single phase appliances.
- Quiet.** The compressor is isolated in a built-in, insulated compartment to minimise noise. The indoor unit is also insulated for noise attenuation.
- Slimline.** The compact up-right design of the outdoor unit requires only a 150 mm gap on the coil side where installation is against a wall. Its slimline cabinet is particularly practical where there is restricted space, e.g. side access pathways, balconies, narrow ledges, etc. The unit is free standing, but can be fitted on a wall using the optional wall mounting brackets.
- Durable.** The outdoor coil fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air.

The outdoor unit's cabinet is constructed from high grade galvanised steel – polyester powder coated for all weather protection. External fasteners are stainless steel. Heat exchange coils comprise aluminium plate fins on mechanically expanded rifled copper tube. The indoor unit's cabinet is constructed from high grade galvanised steel and also includes a plastic drain tray for complete corrosion resistance.

Service Access. The indoor unit's built-in drain tray can be removed for ease of cleaning and service accessibility.

Insulation. Closed cell foam insulation has been used in the indoor unit's cabinet to ensure no particles are introduced into the air stream. The insulation is foil faced and meets fire test standards AS 1530.3 (1989) and BS 476 parts 6 & 7.

Mounting. The indoor unit can be mounted rigid, or using the optional spring mounting brackets which minimise transfer of vibration.

STANDARD EQUIPMENT

ISD Indoor Unit:

1. Coil
2. Fan - forward curved centrifugal
3. Fan motor - multi-speed
4. Accuracor expansion device
5. Drain tray - plastic, removable
6. Spigots - supply and return

OSA Outdoor Unit:

1. Compressor
2. Coil - epoxy coated
3. Fan motor - multi-speed
4. Propeller fan - direct drive
5. Fan guard
6. High/low pressure switch
7. Circuit breaker control
8. Low startup current facility

OSA 165R version also includes:

9. Reversing valve
10. Accuracor expansion device
11. Time/temperature electronic de-ice control

OPTIONAL EQUIPMENT

Outdoor Unit:

1. **temperzone** HP Fan Speed Controller (4 amp) - recommended where cooling is required in below 20°C ambient conditions for long periods of time.
2. Wall mounting brackets.

Indoor Unit:

1. Filter box - integrated return air spigot and washable filter (rated EU2).
2. **temperzone** TTS-10 Wall Thermostat kit
3. Spring Mounting Kit.
4. 4.5 kW electric booster heater box - complete with safety cutouts required to meet AS/NZS 3350.2.40 1997.

SAFETY FEATURES

1. HP switch (auto reset), LP switch (auto reset) and an anti rapid cycle timer for compressor protection. The compressor also has internal overload protection.
2. Circuit breaker control circuits.
3. Time-and-temperature controlled electronic de-ice switch prevents icing up of the outdoor coil during heating cycle (OSA 165R only).

COMPRESSOR

Each high efficiency scroll type compressor is hermetically sealed, quiet running and supported on rubber mounts to minimise vibration.

REFRIGERATION PIPING

The standard unit allows for a line length of up to 30 m.

Max. height separations between units are :
Reverse Cycle systems:

Outdoor unit above indoor unit : 12 m

Outdoor unit below indoor unit : 12 m.

Cooling Only systems:

Outdoor unit above indoor unit : 18 m

Outdoor unit below indoor unit : 12 m.

For extended line lengths contact your nearest **temperzone** sales office for additional details on piping requirements.

The OSA 165 is shipped from the factory with a charge of HCFC-22 (R22) refrigerant sufficient for a 10 m line length. Liquid and suction service valves are provided. The matched indoor unit is shipped with a holding charge of nitrogen. Both units have one flare and one brazed pipe connection.

WIRING

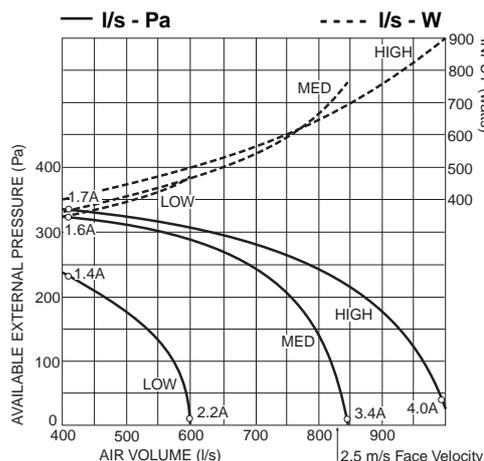
The electrical supply required (including voltage fluctuation limits) is:
1 phase 210-252 V a.c. 50 Hz with neutral and earth. A control panel, located in the outdoor unit, is fully wired ready to accept the main power supply.

The manufacturer operates a quality management system that conforms to international standard ISO 9002.

AIR HANDLING

Note: In a free blow application, beware of exceeding indoor fan motor's full load amp limit.

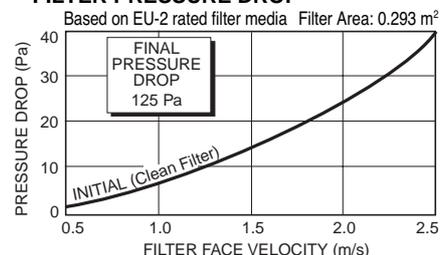
As filters are optional, the fan air flows given are for units installed without filters.



ELECTRICAL

| | |
|-----------------------------|-----------|
| E.E.R. / C.O.P. (cooling) | 9.7 / 2.8 |
| Indoor Fan Full Load Amps | 5.7 A |
| Compressor Starting Amps | 39 A |
| Running Amps (Total System) | 28.5 A |
| Recommended External Fuse | 45 A |

FILTER PRESSURE DROP



PERFORMANCE DATA

COOLING CAPACITY (kW)

Total = Total Capacity (kW) Sens. = Sensible Capacity (kW)
 E.A.T. = Entering Air Temperature ○ = Nominal Capacity (kW)

Note: Capacities are **gross** and do not include allowance for fan motor heat loss. Capacities are for close coupled systems. Interconnecting pipework will reduce capacity.

| MODELS Indoor / Outdoor Unit | INDOOR FAN | | INDOOR COIL E.A.T. | | OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B. | | | | | | | | | | | |
|---------------------------------|------------|---------|--------------------|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | SPEED | AIR l/s | W.B. °C | D.B. °C | 23 | | 27 | | 31 | | 35 | | 39 | | 43 | |
| | | | | | Total | Sens. | Total | Sens. | Total | Sens. | Total | Sens. | Total | Sens. | Total | Sens. |
| ISD 150Q / OSA 165 | HIGH | 950 | 17 | 23 | 16.9 | 11.4 | 16.5 | 11.2 | 16.1 | 11.0 | 15.6 | 10.8 | 15.0 | 10.6 | 14.5 | 10.4 |
| | | | 19 | 27 | 17.9 | 13.0 | 17.4 | 12.8 | 16.9 | 12.6 | 16.5 | 12.4 | 15.9 | 12.2 | 15.3 | 12.0 |
| | | | 21 | 31 | 18.9 | 14.5 | 18.4 | 14.4 | 17.9 | 14.2 | 17.4 | 14.0 | 16.8 | 13.8 | 16.2 | 13.6 |

Indoor Air Flow Correction Factors @ nominal conditions

| | Indoor Air Flow (%) | | | |
|-------------------|---------------------|-------|-------|-------|
| | -20% | -10% | Rated | +10% |
| Total Capacity | 0.95 | 0.975 | 1.0 | 1.025 |
| Sensible Capacity | 0.89 | 0.950 | 1.0 | 1.050 |

NOTE: An optional Outdoor Unit fan speed controller is available and is recommended where cooling is required in below 20°C ambient conditions for long periods of time.

PIPE LENGTH CAPACITY LOSS ON COOLING CYCLE DUE TO PRESSURE DROP

Note: Loss percentage is approximate only. No allowance made for vertical piping.

| Pipe Size (mm) | | Equivalent Line Pipe Length (m) | | | | | Additional Pipe Length to allow per Bend | |
|----------------|---------|---------------------------------|-------|-----|-----|-----|--|--|
| Liquid | Suction | 5 | 10 | 15 | 20 | 30 | Suction Pipe Size OD | |
| 13 | 22 | 1.5 % | 2.5 % | 4 % | 6 % | 8 % | 22 mm | |
| | | | | | | | Long 90° Radius (i.e. 2 x pipe dia.) | |
| | | | | | | | 0.5 m | |

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 950 l/s.
 N = Net Heating Capacity kW allowing for average defrost.

○ = Nominal Capacity (kW)

Reverse Cycle Systems

| MODELS Indoor / Outdoor Unit | INDOOR ENTERING AIR TEMP. °C D.B. | OUTDOOR COIL ENTERING AIR TEMPERATURE (E.A.T.) °C D.B. | | | | | | | | | | | | | | | |
|---------------------------------|-----------------------------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | -4 | | -2 | | 0 | | 2 | | 4 | | 6 | | 8 | | 10 | |
| | | G | N | G | N | G | N | G | N | G | N | G | N | G | N | G | N |
| ISD 150Q / OSA 165R | 15 | 11.6 | 10.4 | 12.4 | 11.1 | 13.2 | 11.7 | 14.0 | 12.1 | 14.9 | 12.6 | 15.9 | 14.5 | 16.9 | 16.9 | 17.5 | 17.5 |
| | 20 | 11.3 | 10.1 | 12.1 | 10.9 | 12.9 | 11.5 | 13.7 | 11.8 | 14.5 | 12.3 | 15.5 | 14.1 | 16.5 | 16.5 | 17.1 | 17.1 |
| | 25 | 10.9 | 9.8 | 11.7 | 10.5 | 12.5 | 11.1 | 13.2 | 11.4 | 14.0 | 11.9 | 15.0 | 13.7 | 16.0 | 16.0 | 16.5 | 16.5 |

SOUND LEVELS

Sound Power Levels (SWL)

Test Conditions: BS 848 PT2 1985. Installation Type A (free inlet and outlet). Direct method of measurement (reverberant room). Measured in decibels re 1 picowatt.

Indoor Unit - Supply Air Outlet

| FAN SPEED | AIR FLOW l/s | SWL dB(A) | OCTAVE BAND FREQUENCY Hz | | | | | |
|-----------|--------------|-----------|-----------------------------|-----|-----|-----|-----|-----|
| | | | 125 | 250 | 500 | 1 k | 2 k | 4 k |
| | | | SOUND POWER LEVELS (SWL) dB | | | | | |
| LOW | 600 | 63 | 60 | 60 | 62 | 58 | 55 | 51 |
| MED | 800 | 71 | 67 | 68 | 67 | 67 | 63 | 61 |
| HIGH | 900 | 75 | 70 | 71 | 70 | 72 | 67 | 65 |

Supply Air Outlet + Insulated Duct *

| FAN SPEED | AIR FLOW l/s | SWL dB(A) | OCTAVE BAND FREQUENCY Hz | | | | | |
|-----------|--------------|-----------|-----------------------------|-----|-----|-----|-----|-----|
| | | | 125 | 250 | 500 | 1 k | 2 k | 4 k |
| | | | SOUND POWER LEVELS (SWL) dB | | | | | |
| HIGH | 900 | 64 | 59 | 60 | 59 | 61 | 56 | 54 |

* 1 metre of 25 mm insulated duct

Outdoor Unit

| MODEL | FAN SPEED | SWL dB(A) | OCTAVE BAND FREQ. Hz | | | | | | SPL @ 3 m dB(A) | OCTAVE BAND FREQ. Hz | | | | | |
|---------|-----------|-----------|-----------------------|-----|-----|-----|-----|-----|-----------------|--------------------------|-----|-----|-----|-----|-----|
| | | | 125 | 250 | 500 | 1 k | 2 k | 4 k | | 125 | 250 | 500 | 1 k | 2 k | 4 k |
| | | | SOUND POWER LEVELS dB | | | | | | | SOUND PRESSURE LEVELS dB | | | | | |
| OSA 165 | MED | 68 | 76 | 70 | 66 | 61 | 55 | 49 | 52 | 60 | 54 | 50 | 45 | 39 | 33 |
| | HIGH | 68 | 76 | 71 | 67 | 63 | 57 | 49 | 52 | 60 | 55 | 51 | 47 | 41 | 33 |

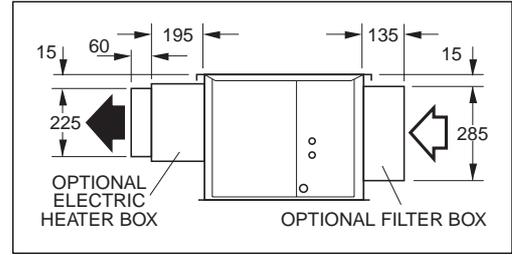
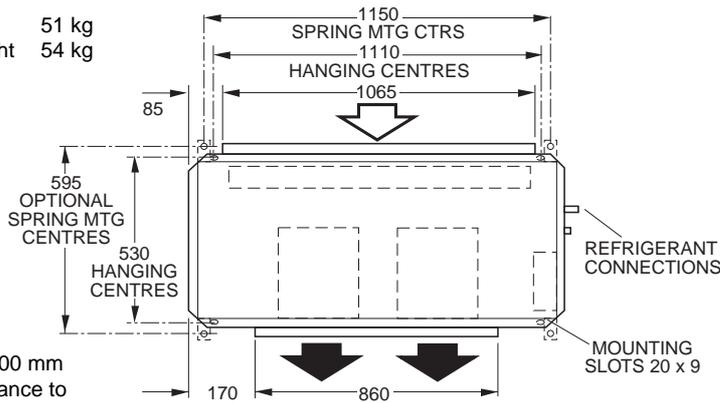
Sound Pressure Level (SPL) in decibels re 20 µPa.

DIMENSIONS (mm)

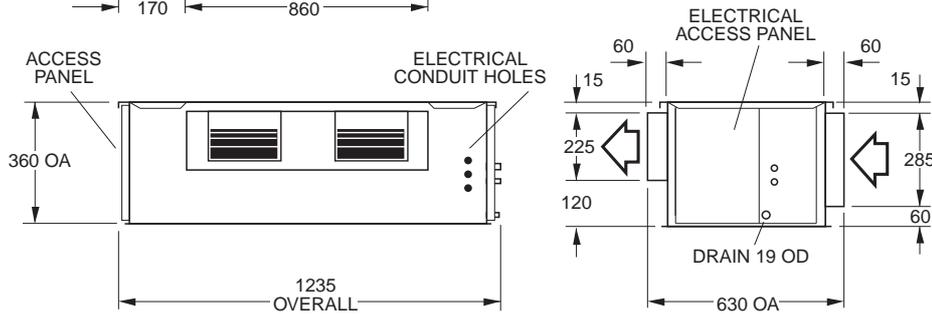
Not to Scale

ISD 150Q Indoor Unit

Net Weight 51 kg
Shipping Weight 54 kg



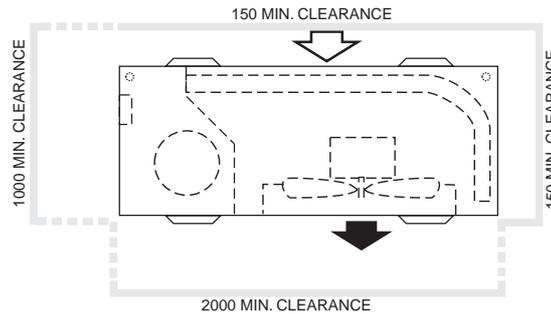
Note : Allow 500 mm minimum clearance to each access panel.



OSA 165 Outdoor Unit

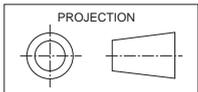
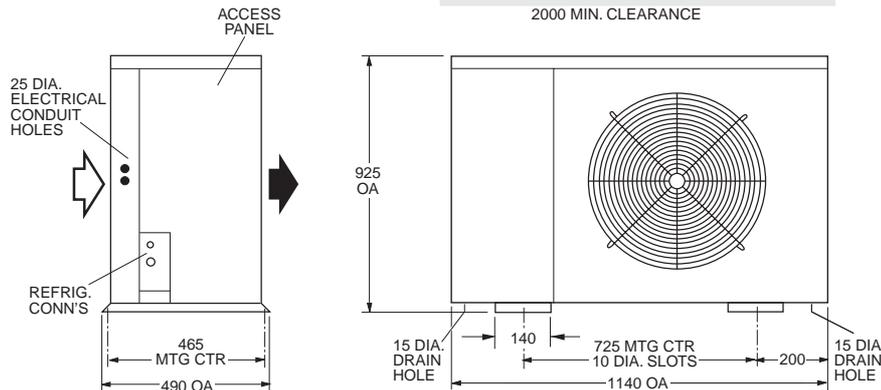
OSA 165C OSA 165R
Net Weight 120 kg 125 kg
Shipping Weight 126 kg 131 kg

Note
Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.



Recommended Pipe Sizes

Suction: 22 mm OD
Liquid: 13 mm OD



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