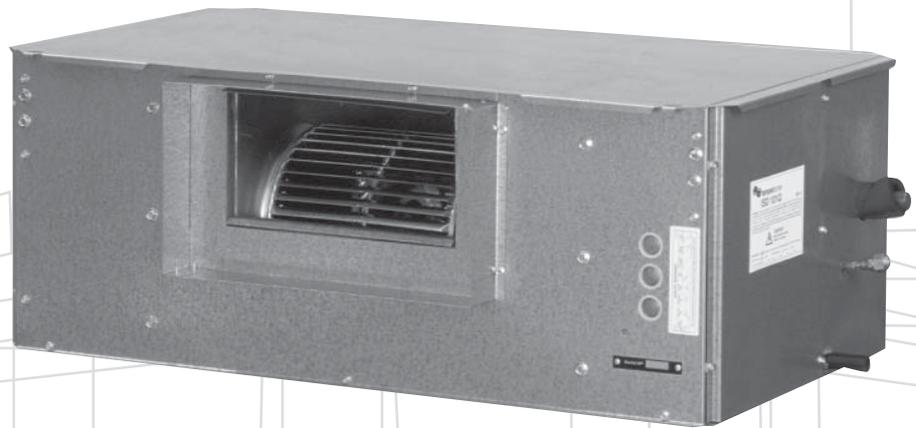


**Ducted Single Phase  
Split System Air Conditioner**

**Technical Data**  
**ISD 85Q / OSA 85**



**Optional  
HAN-L6 Controller**

**Extra Long Life  
Epoxy Coated Outdoor Coil**

**Nominal Cooling Capacity  
8.5 kW**

# ISD 85Q / OSA 85 DUCTED SINGLE PHASE SPLIT SYSTEM AIR CONDITIONER

## GENERAL

- ISD 85Q** - Indoor unit usable for reverse cycle or cooling only  
**OSA 85** - A general designation for outdoor unit  
**OSA 85C** - Outdoor unit, cooling only version  
**OSA 85R** - 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 AS/NZS 3823 specified conditions (i.e. guaranteed cooling cycle performance at 43°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.

## Air Flow Selection

The nominal indoor air flow and temperature/humidity conditions meet ASHRAE rating standards (incl. 50%RH). If the air returning to the indoor coil 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 Flow graph; 2.5 m/s is clearly marked).

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Consideration must always be given to selecting an air flow and face velocity that avoids water carry-over problems.

Applications using full or high proportions of fresh air should be referred to your nearest **temperzone** sales office to establish the correct selection of units.

## 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. The system includes a temperature sensing head pressure control which enables the system to compensate for outdoor ambient temperatures below 20°C on cooling cycle, and above 15°C on heating cycle.

**Quiet.** The outdoor unit's coil design permits low fan speeds and hence low noise levels. 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 100 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 (IP45). 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.

**Self Diagnostics.** The Outdoor Unit Controller (OUC) has a display of LEDs to indicate faults and running conditions. A general fault indicator is included for interface to external systems.

## OPTIONAL EQUIPMENT

Outdoor Unit:

1. LP switch.
2. Fault indicating auxiliary relay board.
3. Wall mounting brackets.
4. Quick Start Soft Starter for lowering starting current.

Indoor Unit:

1. Filter box - integrated return air spigot and washable filter (rated EU2).
2. **temperzone** HAN-L6 Controller.
3. Spring Mounting Kit.

4. 2 kW electric booster heater box - complete with safety cutouts required to meet AS/NZS 3350.2.40 1997.
5. Supply and return air plenums.
6. Safety drain tray.

## SAFETY FEATURES

1. HP and loss of refrigerant protection.
2. Anti-rapid cycle timer and internal overload for compressor protection.
3. Circuit breaker control circuits.
4. Time-and-temperature controlled electronic de-ice switch prevents icing up of the outdoor coil during heating cycle (OSA 85R only).
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Crankcase heater prevents liquid refrigerant condensing in the compressors during the 'off' cycle.
8. Compressor minimum run time to ensure oil return.

## 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 85 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. Accuratur expansion devices control the flow of refrigerant. The matched indoor unit is shipped with a holding charge of nitrogen. Both units have flared pipe connections.

## WIRING

The electrical supply required (including voltage fluctuation limits) is:

1 phase 200-252 V a.c. 50 Hz with neutral and earth.

The compressor crankcase heater requires a 24 hour power supply.

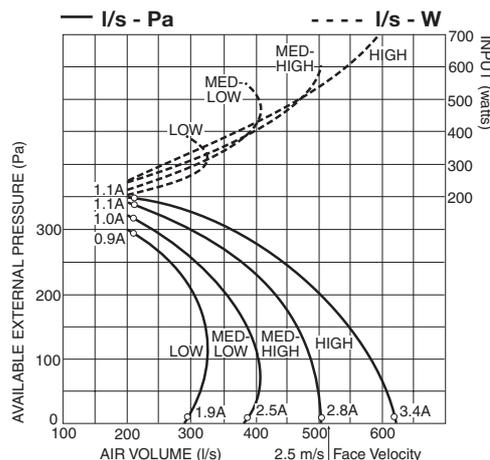
A control panel, located in the outdoor unit, is fully wired ready to accept the main power supply.

## 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.

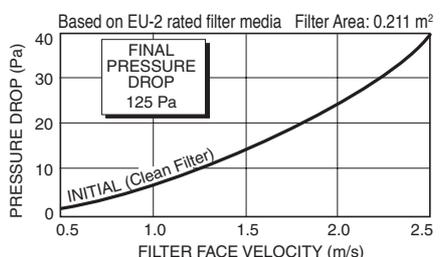
The manufacturer operates a quality management system that conforms to AS/NZS ISO 9001:2000.



## ELECTRICAL

|                             |        |
|-----------------------------|--------|
| E.E.R. (cooling)            | 2.93   |
| Indoor Fan Full Load Amps   | 3.0 A  |
| Running Amps (Total System) | 15.7 A |
| Recommended External Fuse   | 25 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<br>Indoor / Outdoor<br>Unit / Unit | INDOOR FAN |            | INDOOR COIL<br>E.A.T. |            | OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B. |       |       |       |       |       |       |       |       |       |       |       |
|---|------------|------------|-----------------------|------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | SPEED      | AIR<br>l/s | W.B.<br>°C            | D.B.<br>°C | 23  |       | 27    |       | 31    |       | 35    |       | 39    |       | 43    |       |
|   |            |            |                       |            | Total   | Sens. | Total | Sens. | Total | Sens. | Total | Sens. | Total | Sens. | Total | Sens. |
| ISD 85Q / OSA 85                          | HIGH       | 500        | 15                    | 21         | 8.3   | 6.3   | 8.1   | 6.2   | 7.9   | 6.1   | 7.6   | 5.9   | 7.3   | 5.8   | 6.9   | 5.7   |
|   |            |            | 17                    | 23         | 8.6   | 6.1   | 8.4   | 6.1   | 8.2   | 6.0   | 8.0   | 5.9   | 7.8   | 5.8   | 7.5   | 5.7   |
|   |            |            | 19                    | 27         | 9.2   | 7.0   | 8.9   | 7.0   | 8.7   | 6.9   | 8.5   | 6.8   | 8.2   | 6.7   | 8.0   | 6.6   |
|   |            |            | 21                    | 31         | 9.7   | 7.9   | 9.5   | 7.9   | 9.2   | 7.8   | 9.0   | 7.7   | 8.8   | 7.6   | 8.5   | 7.5   |

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 |

## 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                     | 16 mm | 19 mm |
| 10             | 16      | 2 %                             | 4 %   | 6 %   | 8 %   | 12 % | Long 90° Radius<br>(2 x pipe dia.)       | 0.3 m | 0.4 m |
| 10             | 19      | 1 %                             | 1.5 % | 2.5 % | 3.5 % | 5 %  |  |       |       |

## HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 500 l/s.

N = Net Heating Capacity kW allowing for average defrost.

○ = Nominal Capacity (kW)

## Reverse Cycle Systems

| MODELS<br>Indoor / Outdoor<br>Unit / Unit | INDOOR<br>ENTERING<br>AIR TEMP.<br>°C D.B. | OUTDOOR COIL ENTERING AIR TEMPERATURE (E.A.T.) °C D.B. |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|   |  | - 5  |     | - 3 |     | - 1 |     | 1   |     | 3   |     | 5   |     | 7   |     | 9   |     |
|   |  | G  | N   | G   | N   | G   | N   | G   | N   | G   | N   | G   | N   | G   | N   | G   | N   |
| ISD 85Q / OSA 85R                         | 15   | 6.1  | 5.5 | 6.6 | 5.9 | 7.0 | 6.3 | 7.5 | 6.6 | 7.9 | 6.7 | 8.5 | 7.7 | 9.1 | 9.0 | 9.5 | 9.5 |
|   | 20   | 6.0  | 5.4 | 6.5 | 5.8 | 6.9 | 6.2 | 7.3 | 6.5 | 7.8 | 6.6 | 8.4 | 7.5 | 8.9 | 8.8 | 9.4 | 9.4 |
|   | 25   | 5.7  | 5.2 | 6.2 | 5.6 | 6.6 | 6.0 | 7.1 | 6.2 | 7.5 | 6.3 | 8.1 | 7.3 | 8.6 | 8.5 | 9.0 | 9.0 |

## 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<br>SPEED | AIR<br>FLOW<br>l/s | SWL<br>dB(A) | OCTAVE BAND FREQUENCY Hz    |     |     |     |     |     |
|--------------|--------------------|--------------|-----------------------------|-----|-----|-----|-----|-----|
|              |                    |              | 125                         | 250 | 500 | 1 k | 2 k | 4 k |
|              |                    |              | SOUND POWER LEVELS (SWL) dB |     |     |     |     |     |
| LOW          | 320                | 63           | 62                          | 60  | 60  | 59  | 55  | 53  |
| MED-LOW      | 400                | 68           | 65                          | 66  | 64  | 64  | 60  | 59  |
| MED-HIGH     | 460                | 71           | 70                          | 70  | 67  | 67  | 63  | 62  |
| HIGH         | 540                | 73           | 72                          | 72  | 68  | 69  | 66  | 64  |

### Supply Air Outlet + Insulated Duct \*

| FAN<br>SPEED | AIR<br>FLOW<br>l/s | SWL<br>dB(A) | OCTAVE BAND FREQUENCY Hz    |     |     |     |     |     |
|--------------|--------------------|--------------|-----------------------------|-----|-----|-----|-----|-----|
|              |                    |              | 125                         | 250 | 500 | 1 k | 2 k | 4 k |
|              |                    |              | SOUND POWER LEVELS (SWL) dB |     |     |     |     |     |
| HIGH         | 540                | 60           | 61                          | 61  | 58  | 55  | 50  | 47  |

\* 1 metre of 25 mm insulated duct

## Outdoor Unit

| MODEL  | FAN<br>SPEED | SWL<br>dB(A) | OCTAVE BAND FREQ. Hz  |     |     |     |     |     | SPL<br>@ 3 m<br>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 85 | MED          | 64           | 69                    | 66  | 63  | 59  | 53  | 46  | 48                    | 53                       | 50  | 47  | 43  | 37  | 30  |
|        | HIGH         | 66           | 73                    | 67  | 64  | 60  | 53  | 46  | 50                    | 57                       | 51  | 48  | 44  | 37  | 30  |

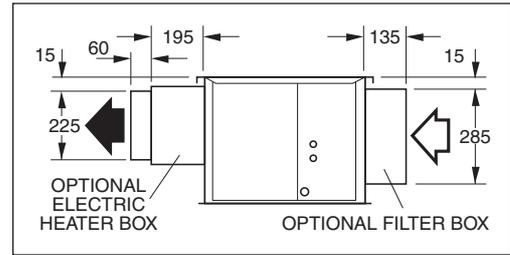
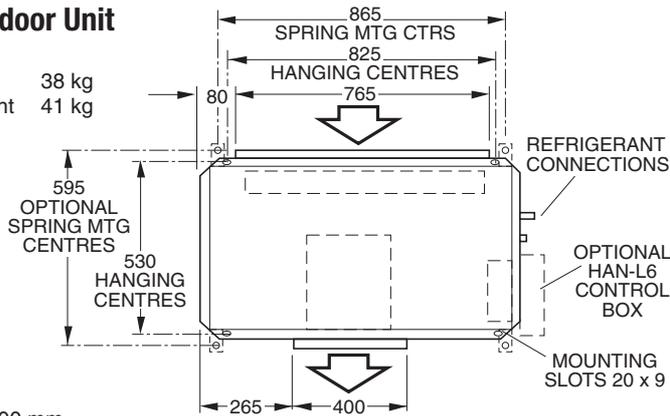
Sound Pressure Level (SPL) in decibels re 20 µPa.

## DIMENSIONS (mm)

Not to Scale

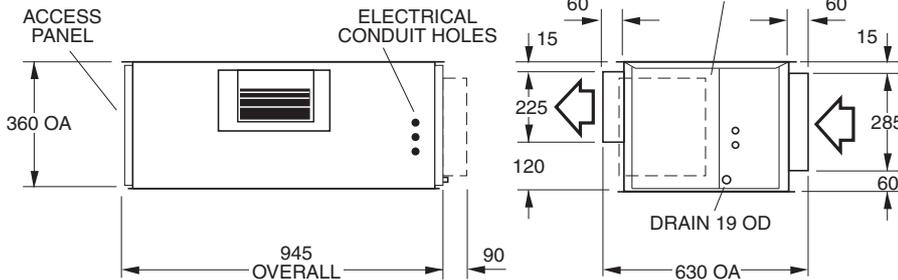
### ISD 85Q Indoor Unit

Net Weight 38 kg  
Shipping Weight 41 kg



FAN ACCESS VIA REMOVEABLE BASE & DRAIN TRAY

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

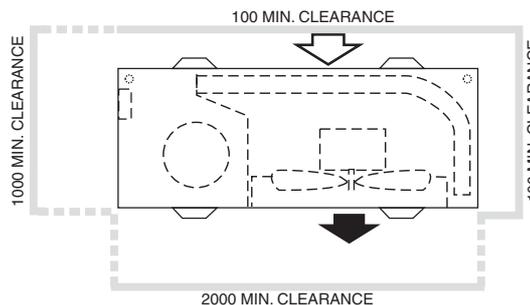


### OSA 85 Outdoor Unit

OSA 85C OSA 85R  
Net Weight 76 kg 78 kg  
Shipping Weight 79 kg 81 kg

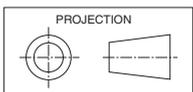
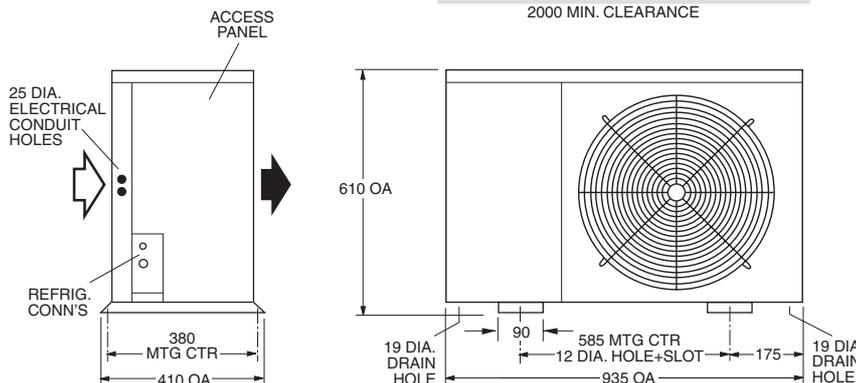
**Note**

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



**Recommended Pipe Line Sizes**

Liquid: 10 mm OD,  
Suction: 16 mm OD  
(19 mm above  
15 m line length)



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