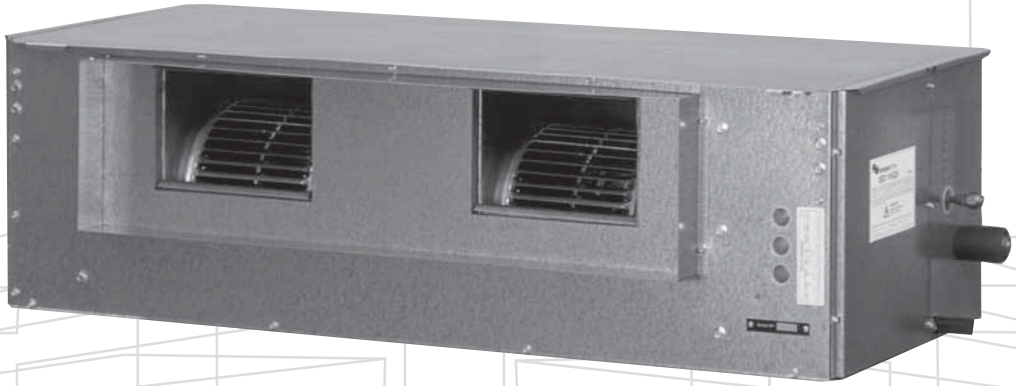
temperzone
QUALITY AIR CONDITIONING

Ducted Three Phase Split System Air Conditioner

Technical Data

ISD 150Q / OSA 148



Optional
HAN-L6 Controller

Extra Long Life
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity
14.8 kW

NOVEMBER 2005

ISD 150Q / OSA 148 DUCTED THREE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

ISD 150Q - Indoor unit usable for reverse cycle or cooling only

OSA 148 - A general designation for outdoor unit

OSA 148C - Outdoor unit, cooling only version

OSA 148R - 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 residential and light commercial premises, e.g. homes, offices, motels and shops.

Air Flow Selection

The nominal indoor air flow and temperature /humidity conditions meet AS/NZS 3823 rating standards (incl. 50%RH).

Consideration must always be given to selecting an air flow and face velocity that avoids water carry-over problems.

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. 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).

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 has 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, and above 15°C on heating cycle.

Quiet. The compressor is isolated in a built-in, insulated compartment for weather protection and 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 25 mm gap when placed alongside a wall. Its slimline cabinet and vertical discharge fans are particularly practical where there is restricted space, e.g. narrow side access pathways. 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 (IP 45). 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 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. The outdoor unit is supplied with anti-vibration rubber mounts.

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 auxillary relay board.
3. Wall mounting brackets.

Indoor Unit:

1. Filter box - integrated return air spigot and washable filter (rated EU2).
2. **temperzone** HAN-L6 Controller.
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.
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 148R 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

The 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 148 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. Accurator expansion devices control the flow of refrigerant. 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: 3 phase 342–436 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.

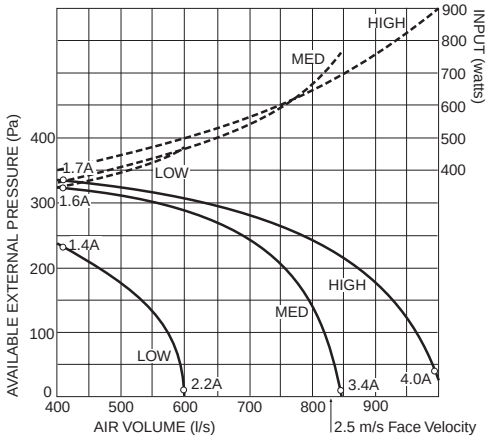
Note: A single phase version of this system, i.e. ISD 150Q/OSA 147 is also available.

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.

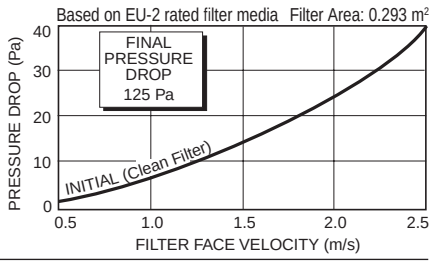
The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**:2000.



ELECTRICAL

E.E.R. (cooling)	2.62
Indoor Fan Full Load Amps	5.7 A
Running Amps (Total System)	12 / 8 / 8
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 Indoor Unit / Outdoor Unit	INDOOR FAN SPEED	INDOOR FAN AIR l/s	INDOOR COIL E.A.T. W.B. °C	INDOOR COIL E.A.T. D.B. °C	OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B. 23 Total	23 Sens.	27 Total	27 Sens.	31 Total	31 Sens.	35 Total	35 Sens.	39 Total	39 Sens.	43 Total	43 Sens.
ISD 150Q / OSA 148	HIGH	900	15	21	14.4	10.9	14.0	10.7	13.6	10.5	13.2	10.3	12.7	10.1	12.3	9.9
			17	23	15.1	10.7	14.6	10.5	14.2	10.3	13.7	10.1	13.3	10.0	12.9	9.8
			19	27	15.9	12.2	15.5	12.0	15.0	11.9	(14.8)	11.7	14.1	11.5	13.6	11.4
			21	31	16.8	13.8	16.3	13.6	15.9	13.4	15.4	13.3	14.9	13.1	14.4	13.0

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) Liquid	Suction	Equivalent Line Pipe Length (m) 5	10	15	20	30
13	22	0.7 %	2.1 %	3.4 %	4.7 %	6.1 %

Additional Pipe Length to allow per Bend	
Suction Pipe Size OD	22 mm
Long 90° Radius (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 Unit / Outdoor Unit	INDOOR ENTERING AIR TEMP. °C D.B.	OUTDOOR COIL ENTERING AIR TEMPERATURE (E.A.T.) °C D.B. – 5 G	– 5 N	– 3 G	– 3 N	– 1 G	– 1 N	1 G	1 N	3 G	3 N	5 G	5 N	7 G	7 N	9 G	9 N
ISD 150Q / OSA 148R	15	10.2	9.2	11.0	9.9	11.8	10.6	12.5	11.0	13.3	11.2	14.3	12.9	15.2	15.0	16.0	16.0
	20	10.0	9.0	10.8	9.7	11.5	10.4	12.3	10.8	13.0	11.0	14.0	12.6	(14.9)	14.8	15.6	15.6
	25	9.6	8.7	10.4	9.4	11.1	10.0	11.8	10.4	12.6	10.6	13.5	12.1	14.3	14.2	15.1	15.1

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 125	250	500	1 k	2 k	4 k
			SOUND POWER LEVELS dB					
OSA 148	MED	67	68	69	65	62	55	47
	HIGH	68	69	68	66	64	57	49

SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
	SOUND PRESSURE LEVELS dB					
51	52	53	49	46	39	31
52	53	52	50	48	41	33

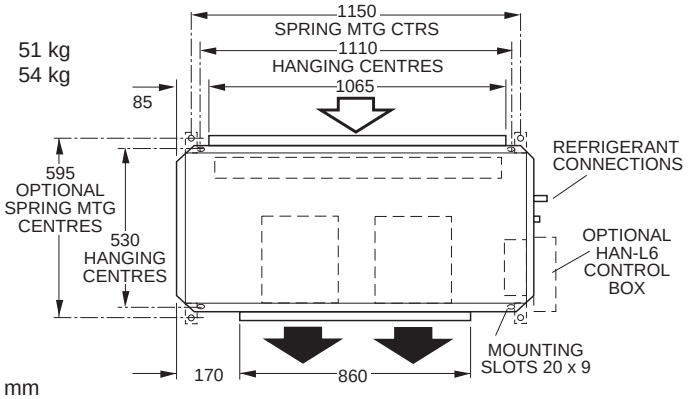
Sound Pressure Level (SPL) in decibels re 20 µPa.

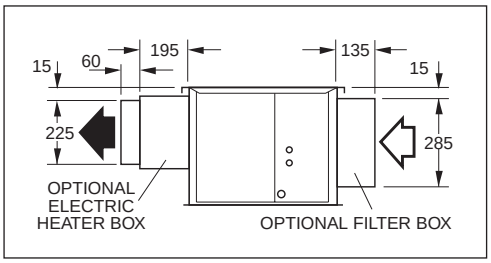
DIMENSIONS (mm)

Not to Scale

ISD 150Q Indoor Unit

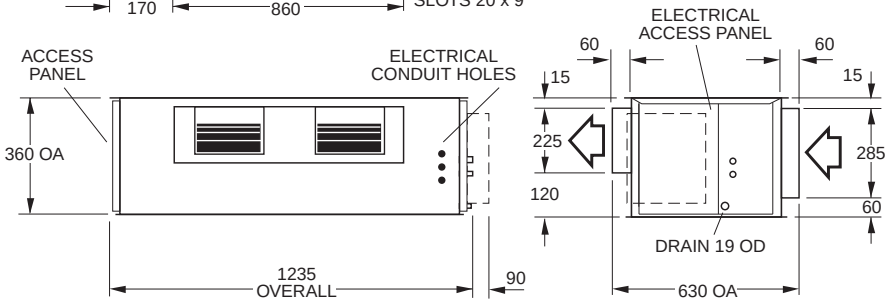
Net Weight	51 kg
Shipping Weight	54 kg





FAN ACCESS VIA
REMOVEABLE BASE
& DRAIN TRAY

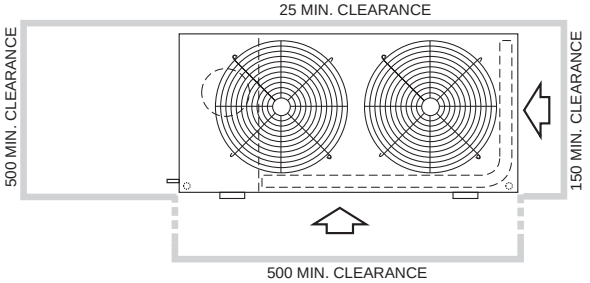
Note : Allow 500 mm minimum clearance to each access panel.

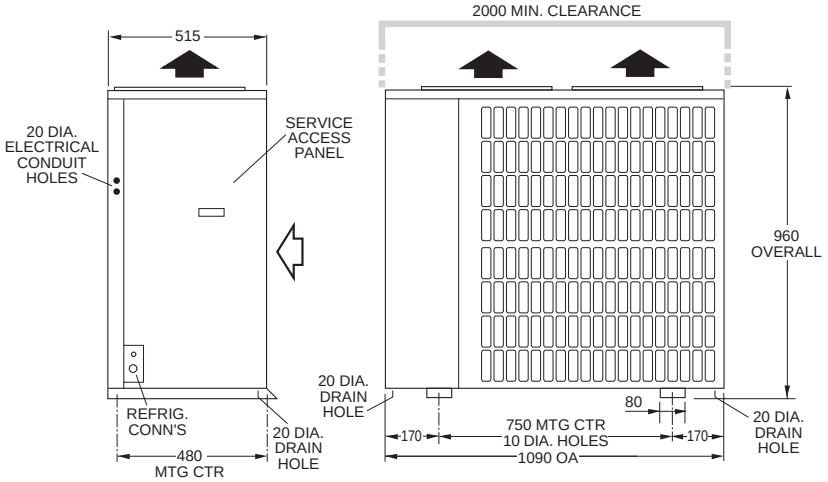


OSA 148 Outdoor Unit

	OSA 148C	OSA 148R
Net Weight	129 kg	134 kg
Shipping Weight	135 kg	140 kg

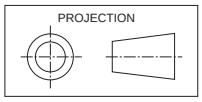
Note
Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.





Recommended Pipe Sizes

Suction:	22 mm OD
Liquid:	13 mm OD



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