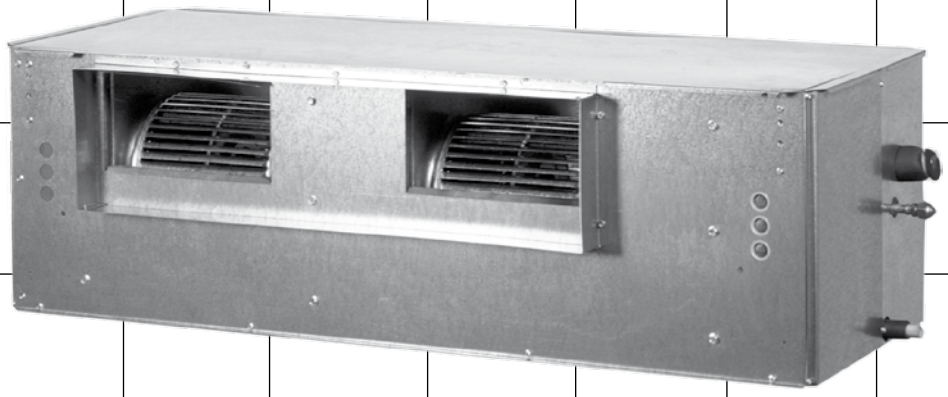
ENERGY EFFICIENT

temperzone

ISD 220Q / OSA 220

Technical Data

Ducted Three Phase
Split System Air Conditioner



EXTRA LONG LIFE EPOXY COATED OUTDOOR COIL

Nominal Cooling Capacity
22.1 kW

JANUARY 2004

ISD 220Q / OSA 220 DUCTED THREE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

ISD 220Q - Indoor unit usable for reverse cycle or cooling only

OSA 220 - A general designation for outdoor unit

OSA 220C - Outdoor unit, cooling only version

OSA 220R - Outdoor unit, reverse cycle version

The ISD indoor unit, together with its associated OSA outdoor unit, provides a three 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 commercial premises, e.g. offices, motels, shops and restaurants.

Air Flow Selection

The nominal indoor air flow and temperature /humidity conditions meet AS/NZS 3823 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.

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 upright 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 (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 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.

OPTIONAL ACCESSORIES

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.
3. Phase rotation protection device.

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.
5. Supply and return air plenums.

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 220R 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 220 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

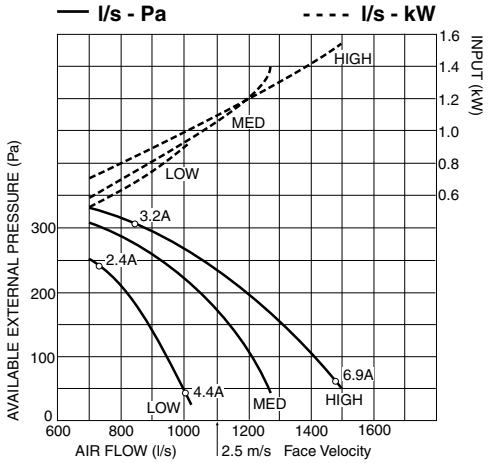
The electrical supply required (including voltage fluctuation limits) is:
3 phase 342-436 V a.c. 50 Hz with neutral and earth. A control panel, located in the outdoor unit, is fully wired ready to accept the main power supply.

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

AIR HANDLING

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

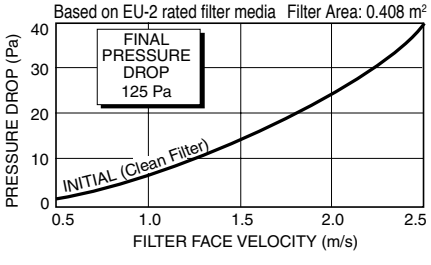
As filters are optional, the fan air flows given are for units installed without filters.



ELECTRICAL

E.E.R. (cooling)	2.82
Indoor Fan Full Load Amps	5.7 (x2)
Running Amps (Total System)	12 / 14 / 14
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 (22.1) = 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 220Q / OSA 220	HIGH	1250	17	23	23.0	17.1	22.3	16.8	21.5	16.5	20.8	16.2	20.0	15.9	19.2	15.6
			19	27	24.3	19.8	23.6	19.5	22.8	19.2	(22.1)	18.9	21.2	18.6	20.4	18.3
			21	31	25.7	22.4	24.9	22.1	24.1	21.8	23.2	21.5	22.4	21.3	21.5	21.0

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

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) Liquid	Suction	Equivalent Line Pipe Length (m) 5	10	15	20	30
13	28	1.2 %	1.7 %	2.25 %	2.7 %	4.0 %

Additional Pipe Length to allow per Bend	
Suction Pipe Size OD	28 mm
Large 90°Radius	0.61 m
Standard 90°Elbow	0.91 m

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 1250 l/s.
N = Net Heating Capacity kW allowing for average defrost.
(22.1) = 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. -4 G	-4 N	-2 G	-2 N	0 G	0 N	2 G	2 N	4 G	4 N	6 G	6 N	8 G	8 N	10 G	10 N
ISD 220Q / OSA 220R	15	15.2	13.7	16.3	14.7	17.4	15.5	18.5	15.9	19.6	16.6	21.0	19.1	22.3	22.3	23.0	23.0
	20	14.8	13.4	15.9	14.3	17.0	15.1	18.0	15.5	19.1	16.2	20.5	18.6	(21.8)	21.8	22.5	22.5
	25	14.4	12.9	15.4	13.8	16.4	14.6	17.4	15.0	18.5	15.7	19.8	18.0	21.0	21.0	21.7	21.7

SOUND LEVELS

Sound Power Levels (SWL)

Test Conditions: BS 848 PT2 1985.
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	930	68	70	68	64	63	60	57
MED	1100	72	74	72	68	68	64	61
HIGH	1260	73	74	74	69	69	65	62

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	1260	62	63	63	58	58	54	51

* 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 220	MED	69	72	72	65	63	58	56
	HIGH	71	77	75	68	65	60	56

SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
	SOUND PRESSURE LEVELS dB					
53	56	56	49	47	42	40
55	58	59	52	49	44	40

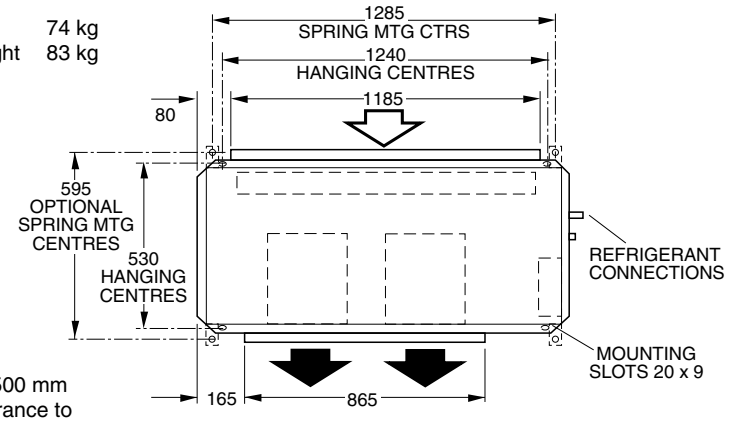
Sound Pressure Level (SPL) in decibels re 20 µPa.

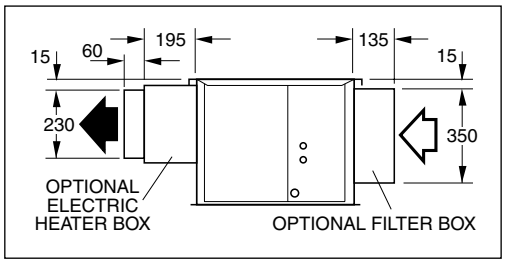
DIMENSIONS (mm)

Not to Scale

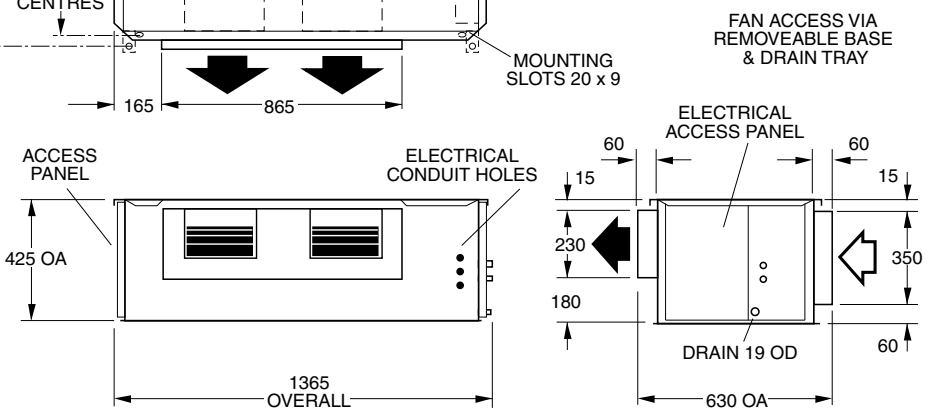
ISD 220Q Indoor Unit

Net Weight	74 kg
Shipping Weight	83 kg





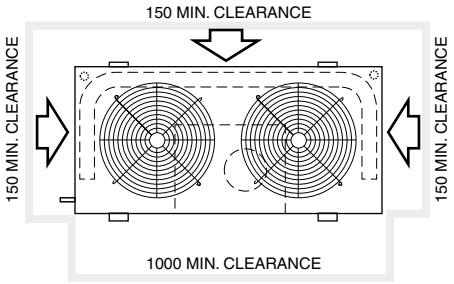
Note : Allow 500 mm minimum clearance to each access panel.



OSA 220 Outdoor Unit

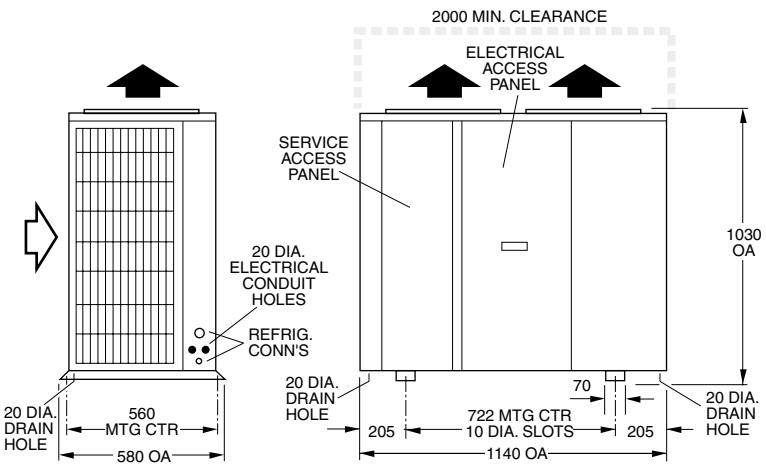
	OSA 220C	OSA 220R
Net Weight	147 kg	151 kg
Shipping Weight	172 kg	175 kg

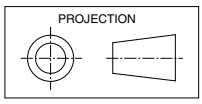
Note
Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.



Recommended Pipe Sizes

Suction: 28 mm OD
Liquid: 13 mm OD





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REGISTERED AS/NZS **ISO 9001:** 2000 SUPPLIER

01/04 Pamphlet No. 2320

Manx Press