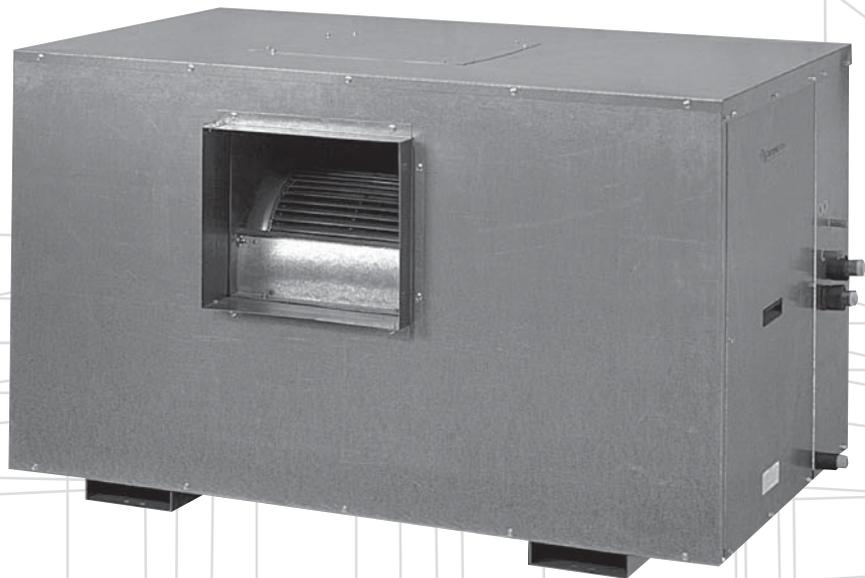


**Ducted Three Phase
Split System Air Conditioner**

Technical Data
ISD / OSA 500B, 600B



**Twin System
Enables Staging**

**Extra Long Life
oxy Coated Outdoor Coil**

**Minimal Cooling Capacity
52.6 kW 63 kW**

ISD / OSA 500B, 600B DUCTED THREE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

- ISD *QB** - Indoor unit usable for reverse cycle or cooling only
OSA - A general designation for outdoor unit
OSA *CB - Outdoor unit, cooling only version
OSA *RB - 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 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 commercial premises, e.g. offices, motels, shops and restaurants.

In tropical (high humidity) locations care must be taken to select an airflow which gives a suitable coil face air velocity that prevents water carry-over. 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

Economical. Each ISD/OSA system has two independent refrigeration circuits to provide the flexibility and economy of two stage operation, i.e. utilising one or two circuits as conditions vary, plus the advantage of staggered starting.

Efficient. Heat exchange coils incorporate inner grooved (rifled) tube for better heat transfer. Use of thermostatic expansion valves ensure the system remains efficient over a wide range of operating conditions.

Performance. Use of an adjustable pulley driven indoor fan motor enables fine tuning of the indoor unit to match the supply air requirements.

Quiet. The indoor unit's generous insulation ensures a quiet unit.

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 and drain tray are constructed from high grade galvanised steel - polyester powder coated for increased durability.

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 polyester powder coated drain tray.

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.

STANDARD EQUIPMENT

ISD Indoor Unit:

1. Coil
2. Fan - forward curved centrifugal
3. Fan motor - variable speed, belt drive
4. Thermostatic expansion device
5. Drain tray - powder coated
6. Return air spigot
7. Supply air spigot - horizontal discharge

OSA Outdoor Unit:

1. Compressor (x2)
2. Coil (x2) - epoxy coated
3. Fan (x2) - propeller
4. Fan motor (x2) - multi-speed, direct drive
5. Fan guard
6. High/low pressure switch
7. Circuit breaker control
8. External current overloads on compressors
9. 24V control circuit
10. Compressor crankcase heaters

OSA *RB version also includes:

11. Reversing valve (x2)
12. Thermostatic expansion device (x2)
13. Time/temperature electronic de-ice control (x2)

OPTIONAL EQUIPMENT

Outdoor Unit:

1. **temperzone** HP Fan Speed Controller - recommended where cooling is required in below 20°C ambient conditions for long periods of time.
2. Coil protection guards.

Indoor Unit:

1. Vertical supply air configuration.
2. Filters (rated EU4) integrated with return air spigot - six 50 mm deep pleated filters.

3. 12 kW electric booster heat (factory fitted) - 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 and external 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 *R only).
4. Crankcase heaters prevent liquid refrigerant condensing in the compressors during the 'off' cycle.

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 50 m.

Max. height separations between units are :
 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 unit is shipped from the factory with a holding charge of HCFC-22 (R22) refrigerant. 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.

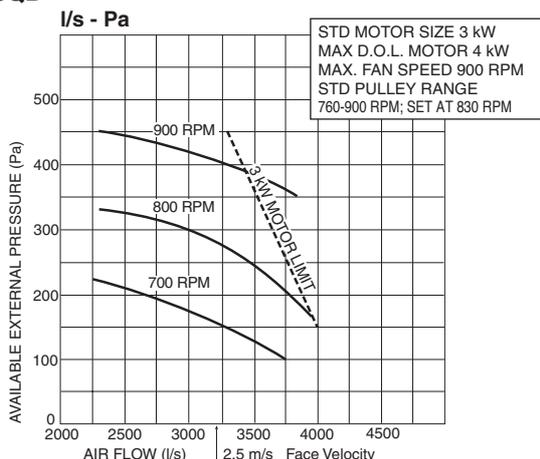
WIRING

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

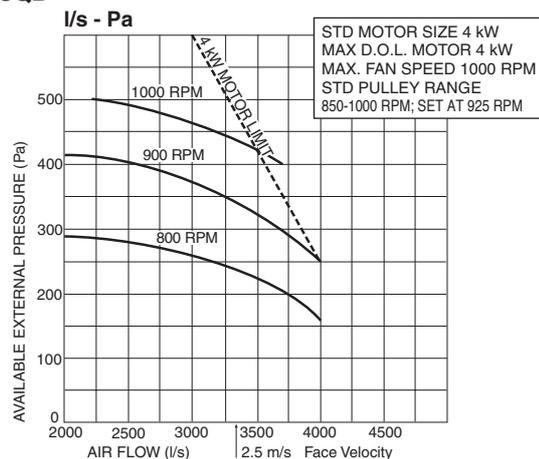
The manufacturer operates a quality management system that conforms to AS/NZS ISO 9001:2000.

AIR HANDLING

ISD 500QB



ISD 600QB



Note: Refer to back page for filter pressure drop graph

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 AIR FLOW l/s	INDOOR COIL E.A.T.		OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B.											
		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 500QB / OSA 500B	3000	15	21	50.7	38.5	49.2	37.9	47.9	37.3	46.6	36.7	45.3	36.1	43.7	35.5
		17	23	53.9	38.3	52.5	37.7	51.0	37.1	49.6	36.5	48.1	35.9	46.6	35.3
		19	27	57.1	43.9	55.7	43.3	54.1	42.7	52.6	42.1	51.1	41.6	49.5	41.0
		21	31	60.4	49.4	58.8	48.9	57.2	48.3	55.7	47.7	54.1	47.2	52.4	46.6
ISD 600QB / OSA 600B	3600	15	21	61.0	48.1	59.3	47.3	57.7	46.6	55.9	45.8	54.0	45.0	52.2	44.2
		17	23	64.8	47.7	63.0	46.9	61.3	46.2	59.5	45.5	57.7	44.8	55.9	44.1
		19	27	68.5	54.9	66.7	54.2	64.8	53.5	63.0	52.8	61.2	52.1	59.3	51.4
		21	31	72.4	62.1	70.5	61.4	68.6	60.8	66.7	60.1	64.8	59.5	62.8	58.8

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. Bracketed figures apply to ISD/OSA 600B.

Pipe Size (mm)		Equivalent Line Pipe Length (m)				Additional Pipe Length to allow per Bend		
Liquid	Suction	10	20	30	40	Suction Pipe Size OD	28 mm	35 mm
16	28	1 %	2.5 %	3.5 % (4%)	5 % (6%)	Long 90° Radius (2 x pipe dia.)	0.61 m	0.76 m
16	35	-	1 %	1.5 %	2 % (3%)			

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow.

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.															
		-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 500QB / OSA 500RB	15	36.8	32.2	39.8	34.2	42.5	35.1	45.3	35.8	48.0	36.3	51.6	40.1	54.9	42.8	57.6	57.6
	20	36.0	31.5	39.0	33.5	41.7	34.4	44.4	35.1	47.1	35.5	50.6	36.9	53.8	42.0	56.5	56.5
	25	34.7	30.4	37.6	32.3	40.2	33.1	42.7	33.8	45.3	34.2	48.7	35.6	51.8	40.4	54.4	54.4
ISD 600QB / OSA 600RB	15	43.9	38.4	47.5	40.8	50.8	41.9	54.0	42.7	57.3	43.3	61.6	47.8	65.5	51.1	68.8	68.8
	20	43.0	37.6	46.5	40.0	49.8	41.0	53.0	41.8	56.2	42.4	60.3	44.1	64.2	50.1	67.4	67.4
	25	41.4	36.2	44.8	38.5	47.9	39.5	51.0	40.3	54.1	40.8	58.1	42.4	61.8	48.2	64.9	64.9

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, at nominal airflow.

Indoor Unit - Supply Air Outlet

MODEL	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					
ISD 500QB	860 RPM	2500	84	83	81	79	79	78	76
	900 RPM	3000	85	83	82	79	80	78	76
ISD 600QB	860 RPM	3000	84	83	81	79	79	78	76
	900 RPM	3600	89	86	84	82	84	83	81

Outdoor Unit

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

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 500B & 600B	LOW	85	85	81	79	80	79	74	69	69	65	63	64	63	58
	HIGH	86	87	85	81	82	80	76	70	71	69	65	66	64	60

DIMENSIONS (mm)

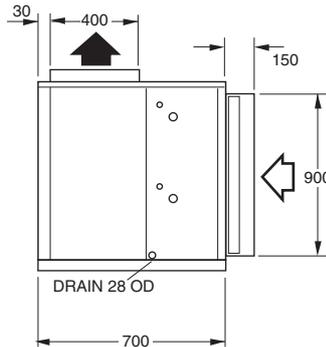
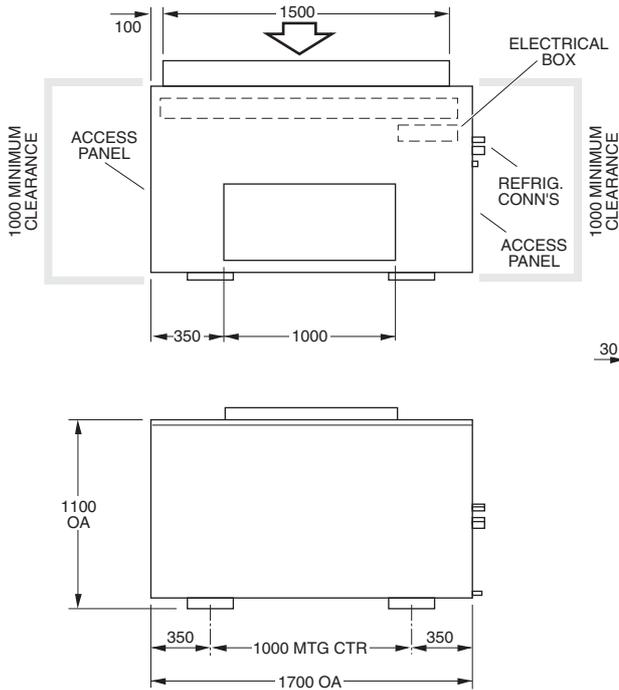
Not to Scale

ISD 500QB, 600QB Indoor Unit

ELECTRICAL ISD/OSA: 500B 600B

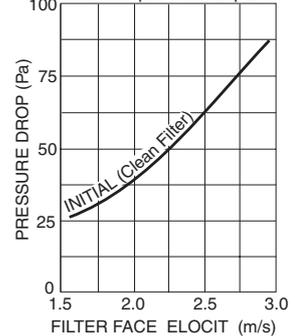
E.E.R. / C.O.P. (cooling)	9.7 / 2.8	9.8 / 2.9
Indoor Fan Full Load Amps	6.1 A/ph.	7.9 A/ph.
Running Amps (Total System)	36 A/ph.	41 A/ph.
Recommended External Fuse	63 A/ph.	80 A/ph.

Model	Weights (kg)		Corner Loads (kg)			
	Net	Shipping	A	B	C	D
ISD 500QB	275	288	75	91	63	46
ISD 600QB	285	298	78	99	65	43



OPTIONAL FILTERS - PRESSURE DROP

Based on each Multi-Pleat C filter.
Max. final pressure drop 250 Pa.



OSA 500B, 600B Outdoor Unit

	OSA 500CB	OSA 500RB	OSA 600CB	OSA 600RB
Net Weight	370 kg	380 kg	370 kg	380 kg
Shipping Weight	385 kg	395 kg	385 kg	395 kg

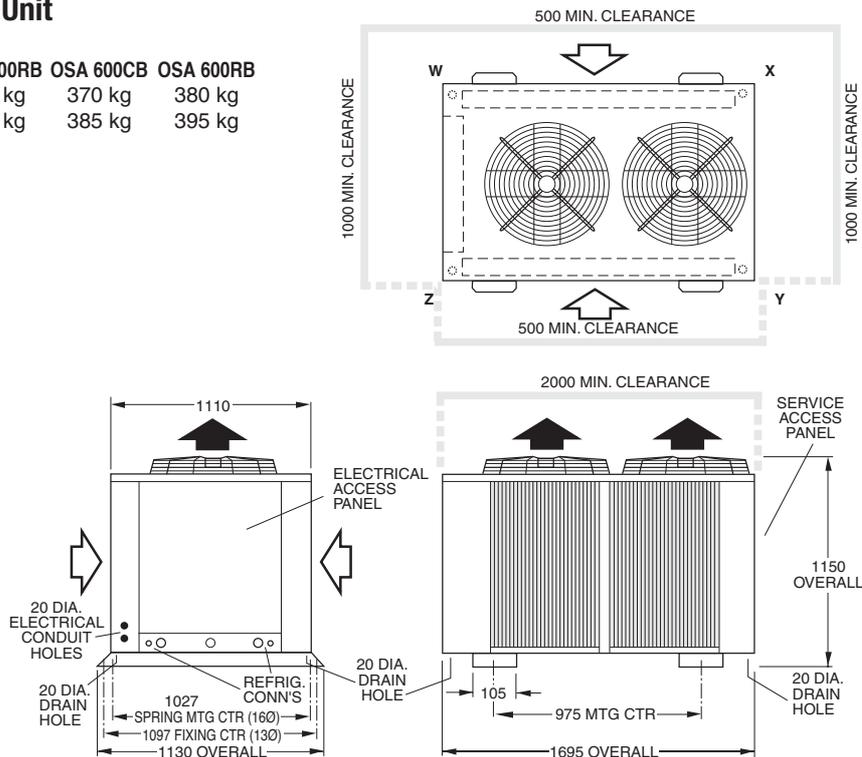
Point loads are approximately the same at each corner

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 (x2)
Liquid: 16 mm OD (x2)



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