temperzone
QUALITY AIR CONDITIONING

Ducted Closet Single Phase Split System Air Conditioner

Technical Data

CISD 80K / OSA 80RK

R410A

Optional
SAT-1 Controller

Extra Long Life
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity
7.7 kW

AUGUST 2008

CISD 80K / OSA 80RK DUCTED CLOSET SINGLE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

The CISD indoor unit, together with its associated OSA outdoor unit, provides a reverse cycle (heat pump) 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.

The indoor unit is designed to be installed in a concealed closet. This is ideal where no ceiling space is available.

Air Flow Selection

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

Refrigerant R410A. Each complete system uses refrigerant R410A which is deemed to have zero ozone depletion potential.

Efficient. The outdoor unit incorporates a high efficiency rotary 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 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. A vertical discharge grille is available to to deflect prevailing winds and reduce clearances. 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 (grey) 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. This is made easy with typical installation of the indoor unit at waist height, as opposed to in the ceiling. An EU2 rated filter is supplied with each indoor unit to cleanse the return air.

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.

Self Diagnostics. The Outdoor Unit Controller (OUC) has a display of LEDs to indicate faults and running conditions. A non-specific fault indicator is included for interface to external systems via the optional auxilliary relay board.

OPTIONAL EQUIPMENT

Outdoor Unit:

1. Fault indicating auxillary relay board.
2. Vertical discharge grille.
3. Wall mounting brackets.
4. Anti-vibration mounts (rubber)
5. Drain connection - right angle
6. Soft Starter for lowering starting current.

Indoor Unit:
temperzone SAT-1 Controller.

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.
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Compressor minimum run time to ensure oil return.

COMPRESSOR

Each high efficiency rotary 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; extendable to 40 m with additional compressor lubricant.

Max. height separations between units are :
Outdoor unit above indoor unit : 12 m
Outdoor unit below indoor unit : 12 m.

The OSA 80 is shipped from the factory with a charge of HFC-410A (R410A) 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. The outdoor unit has brazed pipe connections; the indoor unit flare nuts.

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.

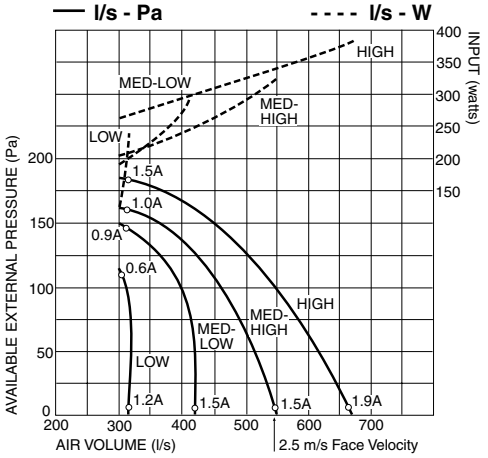
The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**:2000.

AIR HANDLING

Note: Airflows are for a dry coil. Reduce airflow by 5% in high moisture removal conditions.
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.

If using EU-2 filter media, provide 0.08 m^2 face area per 100 l/s of airflow to maximise efficiency.



ELECTRICAL

E.E.R. (cooling)	3.04
Indoor Fan Full Load Amps	1.5 A
Running Amps (Total System)	12 A
Recommended External Fuse	25 A

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.
CISD 80K / OSA 80RKS	MED-HIGH	460	15	21	7.5	5.7	7.3	5.7	7.1	5.6	6.9	5.5	6.6	5.4	6.4	5.3
			17	23	7.9	5.8	7.7	5.7	7.5	5.6	7.3	5.5	7.1	5.4	6.9	5.3
			19	27	8.4	6.6	8.1	6.5	7.9	6.4	(7.7)	6.4	7.5	6.3	7.2	6.2
			21	31	8.9	7.5	8.6	7.4	8.4	7.3	8.2	7.3	7.9	7.2	7.7	7.1

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
10	16	2 %	4 %	6.5 %	9 %	13 %
10	19	-	-	3 %	4 %	6 %

Additional Pipe Length to allow per Bend		
Suction Pipe Size OD	16 mm	19 mm
Long 90° Radius (2 x pipe dia.)	0.3 m	0.4 m

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 460 l/s.
N = Net Heating Capacity kW allowing for average defrost.
◯ = Nominal Capacity (kW)

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
CISD 80K / OSA 80RKS	15	5.3	4.8	5.8	5.2	6.2	5.6	6.6	5.8	7.0	5.9	7.5	6.8	8.0	7.9	8.4	8.4
	20	5.2	4.7	5.7	5.1	6.1	5.5	6.5	5.7	6.8	5.8	7.4	6.6	(7.8)	7.7	8.2	8.2
	25	5.1	4.5	5.5	4.9	5.8	5.3	6.2	5.5	6.6	5.6	7.1	6.4	7.5	7.5	7.9	7.9

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.

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	310	55	55	53	53	49	47	44
MED-LOW	390	61	59	58	59	55	54	52
MED-HIGH	460	66	63	62	63	60	58	57
HIGH	510	68	65	64	65	63	61	59

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					
MED-HIGH	460	63	62	61	62	58	52	50

* 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 80	LOW	64	70	65	63	57	51	47
	MED	65	70	66	64	59	54	49

SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
	SOUND PRESSURE LEVELS dB					
48	54	49	47	41	35	31
49	54	50	48	43	38	33

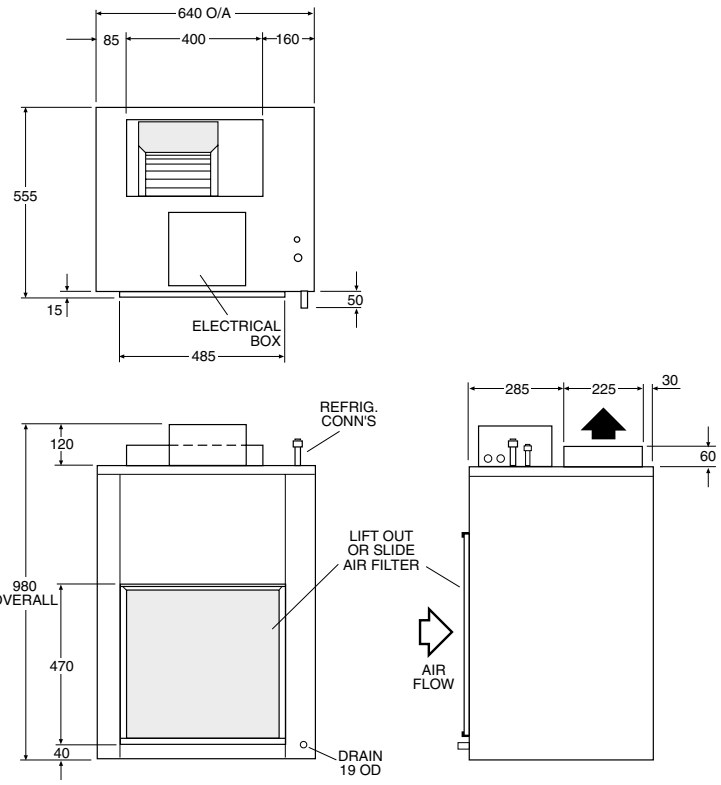
Sound Pressure Level (SPL) in decibels re 20 µPa.

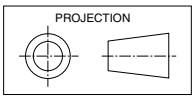
DIMENSIONS (mm)

Not to Scale

CISD 80K Indoor Unit

Net Weight 46 kg
Shipping Weight 48 kg

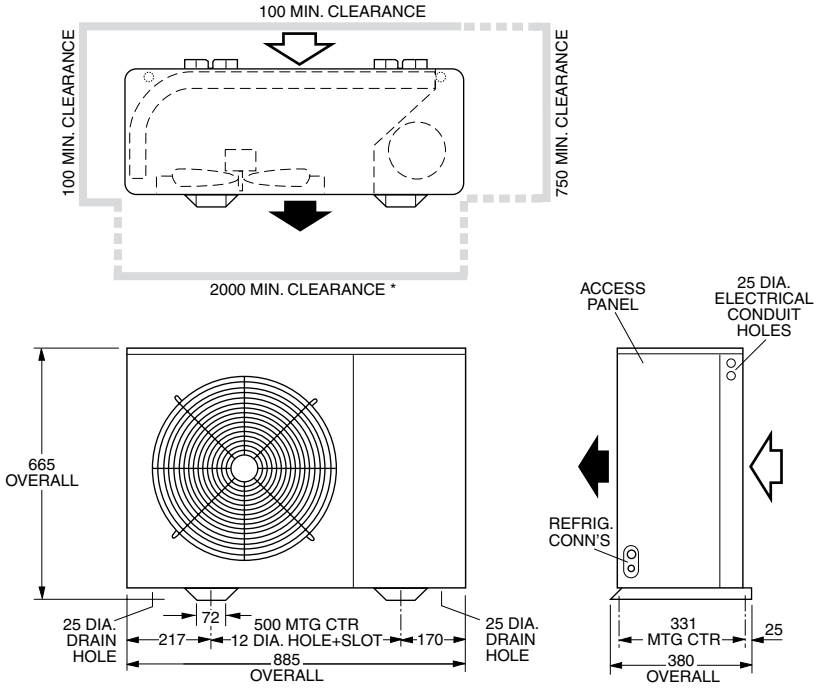




Note

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

OSA 80RKS Outdoor Unit



Net Weight 78 kg
Shipping Weight 85 kg

Recommended Pipe Line Sizes

Liquid: 10 mm OD
Suction: 16 mm OD

* 600 min with optional Vertical Discharge Grille

Available from

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