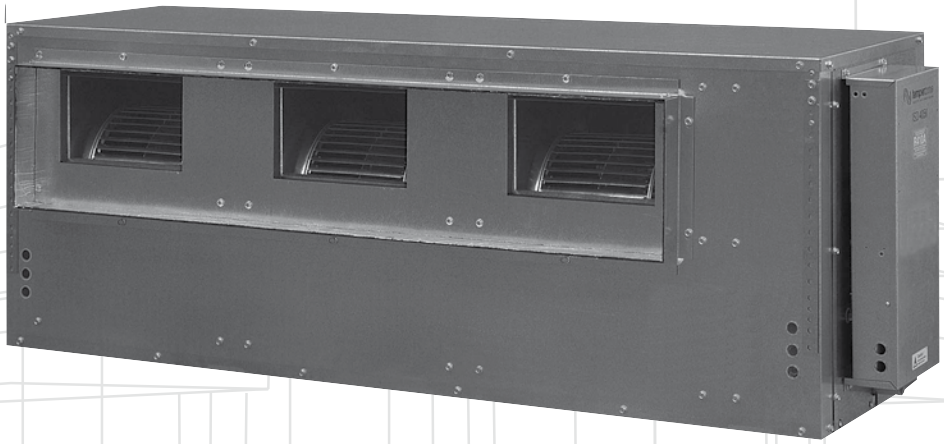
temperzone
QUALITY AIR CONDITIONING

Ducted Split System Air Conditioner

Technical Data

ISD 405K / OSA 405RKT



R410A

Extra Long Life
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity
41.5 kW

APRIL 2008

ISD 405K / OSA 405RKT DUCTED SPLIT SYSTEM AIR CONDITIONER

GENERAL

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

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 graph below).

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 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 compressor is isolated in a built-in, insulated compartment to minimise noise. The indoor unit is also insulated for noise attenuation.

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 polyester powder coated drain tray.

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 non-specific fault indicator is included for interface to external systems via the optional relay board.

OPTIONAL EQUIPMENT

Outdoor Unit:

1. Fault indicating auxillary relay board.
2. Anti-vibration mounts (rubber)
3. Drain connection - right angle

Indoor Unit:

1. Filter box - integrated return air spigot and washable polypropylene net filter.
2. **temperzone** TZ-701 Controller.
3. Spring Mounting Kit.

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 scroll type compressor is hermetically sealed, quiet running and supported on rubber mounts to minimise vibration.

REFRIGERATION PIPING

The standard unit contains oil for a line length of up to 40 m; extendable to 50 m with additional compressor lubricant.

For extended line lengths contact your nearest **temperzone** sales office for additional details on piping requirements.

Max. height separations between units are :
Outdoor unit above indoor unit : 18 m
Outdoor unit below indoor unit : 18 m.

The OSA 405 is shipped from the factory with a holding charge of HFC-410A (R410A) refrigerant. 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 brazed pipe connections.

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, with 24V control circiuit, is located in the outdoor unit and is fully wired ready to accept the main power supply.

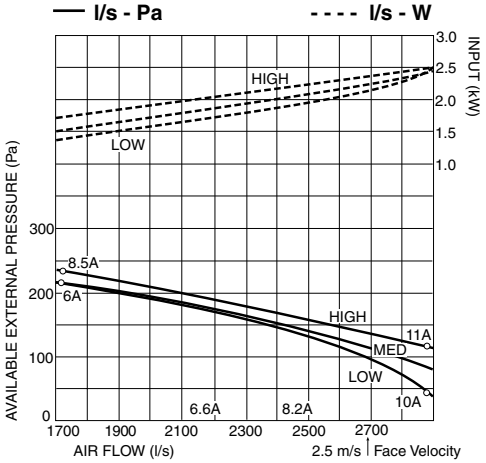
The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**:2000.

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)	2.90
Indoor Fan Full Load Amps	4.1 (x3)
Running Amps (Total System)	23 /23 /23
Recommended External Fuse	50 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.
ISD 405K / OSA 405RK	LOW	2350	15	21	40.3	30.6	39.2	30.5	38.0	30.0	36.8	29.6	35.7	29.1	34.3	28.4
			17	23	42.3	31.2	41.5	30.5	40.3	30.0	39.2	29.6	38.0	29.1	36.8	28.6
			19	27	45.1	35.5	43.8	35.1	42.7	34.5	(41.5)	34.4	40.3	34.0	38.9	33.5
			21	31	47.7	40.3	46.3	39.8	45.2	39.3	44.0	39.1	42.7	38.6	41.2	38.2

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) 10	20	30	40
16	35	1 %	2 %	3 %	4 %

Additional Pipe Length to allow per Bend	
Suction Pipe Size OD	35 mm
Long 90° Radius (2 x pipe dia.)	0.76 m

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 1300 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
ISD 405K / OSA 405RK	15	27.0	23.6	29.2	25.1	31.2	25.8	33.2	26.3	35.3	26.6	37.9	29.4	40.3	31.4	42.3	42.3
	20	26.5	23.2	28.6	24.6	30.6	25.3	32.6	25.7	34.6	26.1	37.1	27.1	(39.5)	30.8	41.5	41.5
	25	25.5	22.3	27.6	23.7	29.5	24.3	31.4	24.8	33.3	25.1	35.8	26.1	38.0	29.7	39.9	39.9

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	2350	76	72	70	74	71	69	65
MED	2380	77	73	70	75	72	70	66
HIGH	2430	77	74	71	75	73	70	67

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 405	LOW	72	82	72	69	66	62	56
	MED	76	85	75	73	70	66	59
	HIGH	79	86	78	76	74	68	61

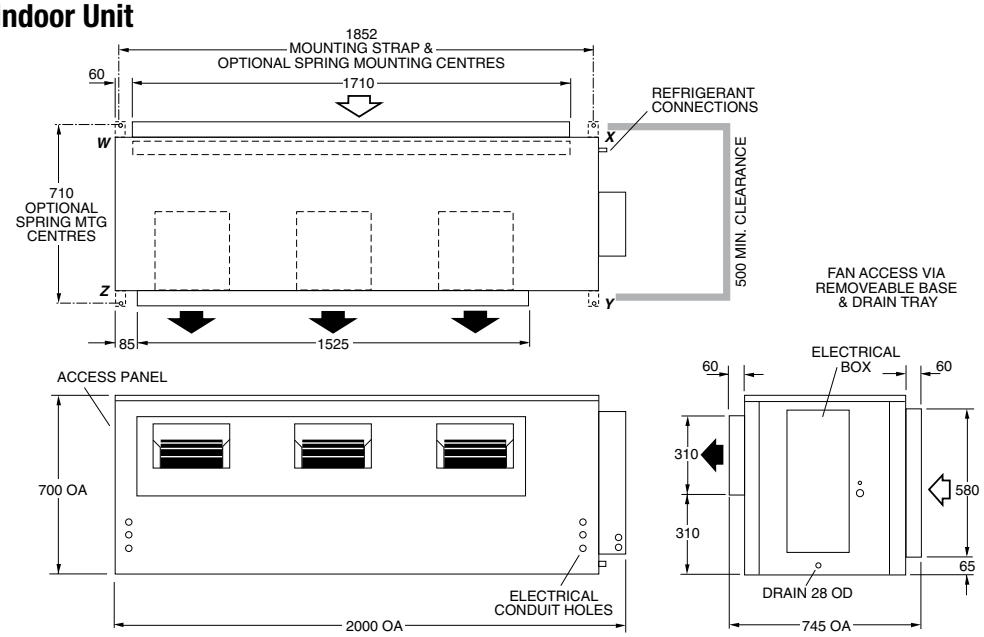
SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
	SOUND PRESSURE LEVELS dB					
56	66	53	53	50	46	40
60	69	59	57	54	50	43
63	70	62	60	58	52	45

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

DIMENSIONS (mm)

Not to Scale

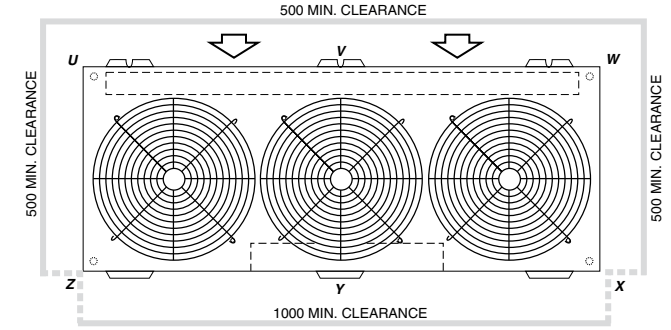
ISD 405K Indoor Unit



CORNER LOADS (kg)			
W	X	Y	Z
40	47	51	43

Net Weight 181 kg
Shipping Weight 191 kg

OSA 405RKT Outdoor Unit

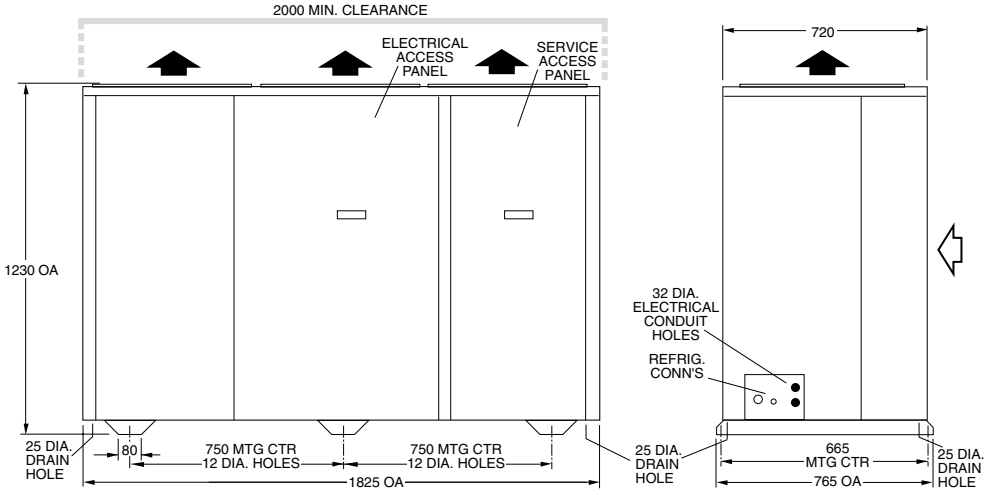


Note

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

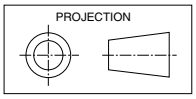
CORNER LOADS (kg)					
U	V	W	X	Y	Z
47	50	53	53	50	48

Net Weight 301 kg
Shipping Weight 339 kg



Recommended Pipe Line Sizes

Liquid: 16 mm OD
Suction: 35 mm OD



temperzone limited
Head Office, Auckland : 38 Tidal Rd, Mangere, N.Z.
Private Bag 93303, Otahuhu, NEW ZEALAND.
Email sales@temperzone.co.nz Website: www.temperzone.biz

temperzone australia pty ltd
Head Office, Sydney : 7A Bessemer St
PO Box 6448, Delivery Centre, Blacktown, NSW 2148,
AUSTRALIA. Email sales@temperzone.com.au

AUCKLAND	SYDNEY	MELBOURNE	PERTH
Ph. 0-9-279 5250	Ph. (02) 8822-5700	Ph. (03) 9551-7422	Ph. (08) 9314-3844
Fax 0-9-275 5637	Fax (02) 8822-5711	Fax (03) 9551-8550	Fax (08) 9314-3855
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Ph. 0-4-569 3262	Ph. (08) 8376-1505	Ph. (07) 3399-2544	Ph. (07) 4773-9566
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