temperzone
QUALITY AIR CONDITIONING

Ducted Split System Air Conditioner

Technical Data

ISD / OSA 520RKTVB
ISD / OSA 630RKTVB

Twin System Enables Staging

Extra Long Life
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity
52.5 kW 62.7 kW

AUGUST 2010

ISD / OSA 520, 630 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.

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. Each outdoor unit incorporates a high efficiency scroll compressor. Heat exchange coils incorporate inner grooved (rifled) tube for better heat transfer.

Performance. Use of an adjustable pulley driven indoor fan 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 and indoor 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.

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.

OPTIONAL EQUIPMENT

Outdoor Unit:
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. **temperzone** TZT-701 Controller kit or SAT-2 Controller kit .
4. 12 kW electric booster heat (factory fitted) - complete with safety cutouts required to meet AS/NZS 3350.2.40 1997.

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 allows for a line length up to 40 m. For line lengths between 40 m and 60 m, refer to **temperzone**'s *Split Systems Installation Guide (refer www.temperzone.biz/Technical Support).*

Maximum line length when extended is 90m.

Max. height separations between units are :
Outdoor unit above indoor unit : 20 m
Outdoor unit below indoor unit : 20 m.

Each OSA 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.

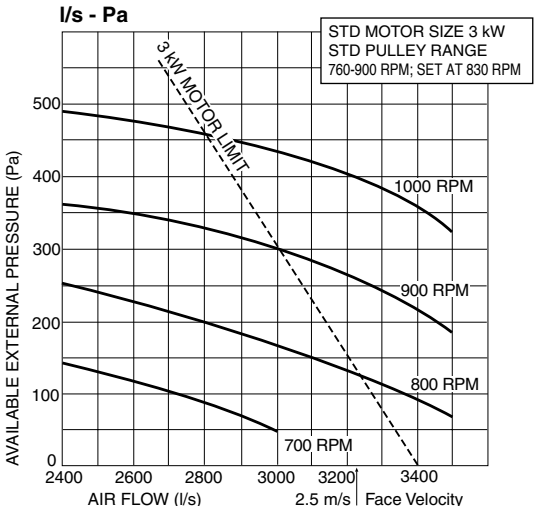
The compressor crankcase heater requires a 24 hour power supply. A control panel, with 24V control circiuit, is located in the outdoor unit and is fully wired ready to accept the main power supply.

The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**:2008.

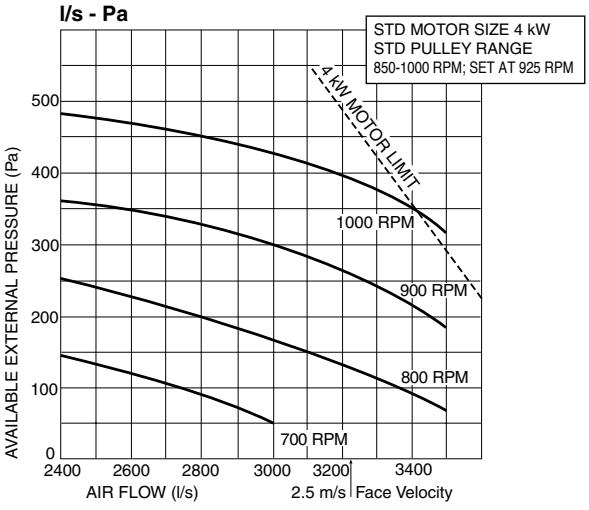
AIR HANDLING

Note: Refer to back page for filter pressure drop graph

ISD 520KB



ISD 630KB



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 AIR FLOW 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 520KB / OSA 520RKTVB	2800	15	21	48.9	7.5	47.7	36.5	46.5	35.6	45.3	34.7	43.2	33.8	41.1	32.8
		17	23	53.6	39.1	51.1	37.8	48.6	36.4	46.0	35.6	45.0	35.4	44.0	35.2
		19	27	56.8	47.1	55.3	45.5	53.8	43.9	◯52.5	43.0	50.5	41.2	48.4	39.3
		21	31	61.1	49.4	59.4	48.4	57.7	47.3	55.8	46.3	53.9	45.7	52.1	45.2
ISD 630KB / OSA 630RKTVB	3250	15	21	58.5	44.9	57.0	43.8	55.5	42.7	54.2	41.7	51.7	40.6	49.2	39.5
		17	23	63.9	46.8	61.1	45.3	58.1	43.7	54.9	42.8	53.9	42.5	52.7	42.3
		19	27	67.7	56.3	66.0	54.4	64.2	52.5	◯62.7	51.4	60.3	49.3	57.8	47.1
		21	31	72.8	59.1	70.8	57.8	68.8	56.6	66.5	55.4	64.4	54.6	62.2	54.0

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)		Equivalent Line Pipe Length (m)		
Liquid	Suction	10	20	30
13	28	1.5 %	3.75 %	5 %

Additional Pipe Length to allow per Bend	
Suction Pipe Size OD	28 mm
Long 90° Radius (2 x pipe dia.)	0.61 m

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 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 520KB / OSA 520RB	15	35.7	31.2	38.6	33.2	41.3	34.0	43.9	34.7	46.6	35.2	50.1	38.9	53.2	41.5	55.9	55.9
	20	35.0	30.6	37.9	32.6	40.5	33.4	43.1	34.0	45.7	34.5	49.1	35.8	◯52.2	40.7	54.8	54.8
	25	33.7	29.5	36.4	31.3	39.0	32.1	41.5	32.8	44.0	33.2	47.3	34.5	50.3	39.2	52.8	52.8
ISD 630KB / OSA 630RB	15	42.3	37.0	45.8	39.4	49.0	40.4	52.1	41.2	55.3	41.7	59.4	46.1	63.2	49.3	66.3	66.3
	20	41.5	36.3	44.9	38.6	48.0	39.6	51.1	40.4	54.2	40.9	58.2	42.5	◯61.9	48.3	65.0	65.0
	25	40.0	35.0	43.2	37.2	46.2	38.1	49.2	38.9	52.2	39.4	56.1	40.9	59.7	46.5	62.6	62.6

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 520KB & 630KB	800 RPM	2800	81	78	77	79	76	73	71

Outdoor Unit

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

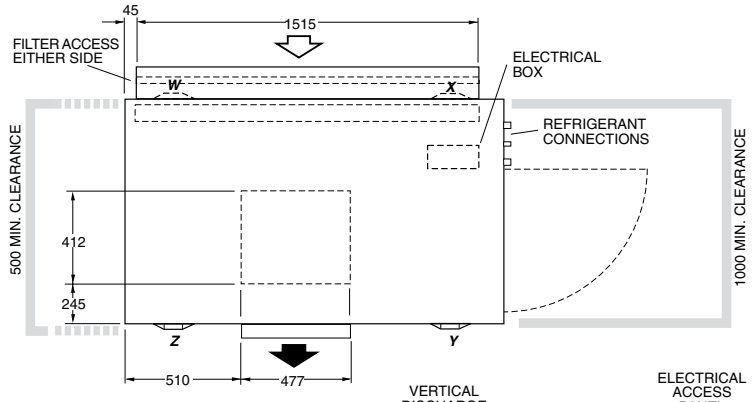
MODEL	FAN SPEED	SWL dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
			SOUND POWER LEVELS dB					
OSA 520 & 630	LOW	79	84	82	77	73	64	58
	HIGH	80	84	83	78	75	67	61

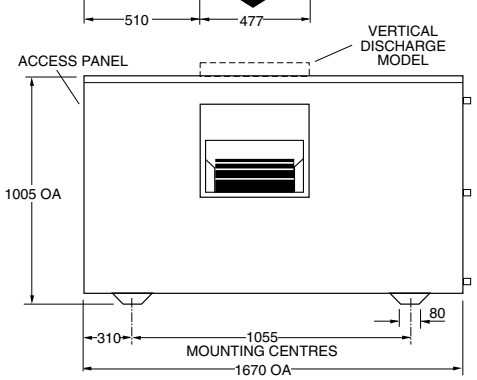
SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz 125	250	500	1 k	2 k	4 k
	SOUND PRESSURE LEVELS dB					
63	68	66	61	57	48	42
64	68	67	62	59	51	45

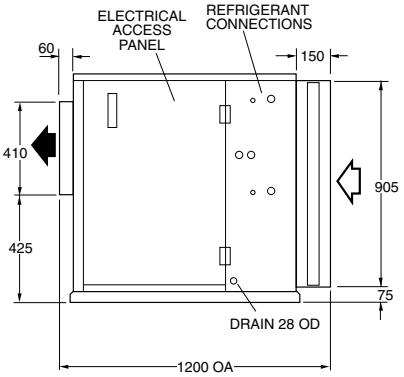
DIMENSIONS (mm)

Not to Scale

ISD 520KB, 630KB Indoor Unit







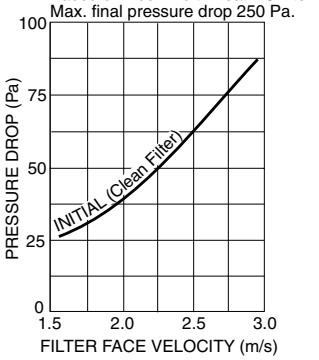
ELECTRICAL ISD/OSA: 520 630

E.E.R. (cooling)	2.96	2.75
Indoor Fan Full Load Amps	6.2 A/ph.	8 A/ph.
Running Amps (Total System)	37 A/ph.	43 A/ph.
Recommended External Fuse	60 A/ph.	80 A/ph.

Model	Weights (kg)		Corner Loads (kg)			
	Net	Shipping	W	X	Y	Z
ISD 520KB	250	288	51	68	74	57
ISD 630KB	274	298	54	82	83	55

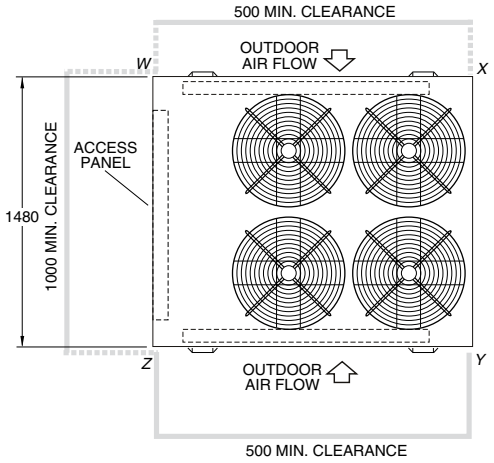
OPTIONAL FILTERS - PRESSURE DROP

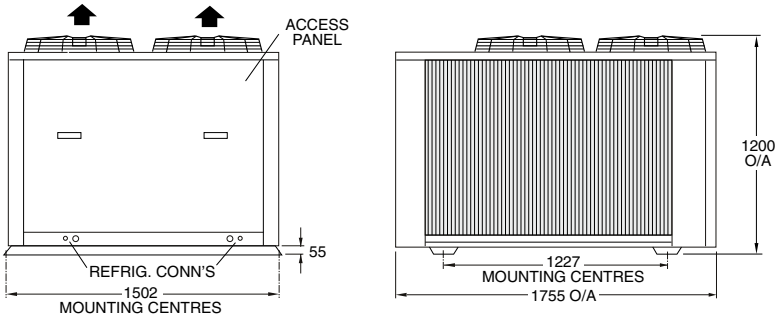
Based on Koch Multi-Pleat HC filter.
Max. final pressure drop 250 Pa.



OSA 520/630 RKTVB Outdoor Unit

Model	Weights (kg)		Corner Loads (kg)			
	Net	Shipping	W	X	Y	Z
OSA 520	438	498	151	68	68	151
OSA 630	446	506	155	68	68	155





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: 13 mm OD (x2)

Available from

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