

**Ducted Three Phase
Packaged Air Conditioners**

Technical Data
OPA 1370



Multi-System Enables Staging

Extra Long Life

Epoxy Coated Outdoor Coil



**Four
Configurations
Available**

Nominal Cooling Capacity
137 kW

OPA 1370 - DUCTED PACKAGED ROOF TOP AIR CONDITIONER

GENERAL

This OPA 1370 is a reverse cycle (heat pump) packaged roof top air conditioner designed and developed to comply with AS/NZS 3823 specified conditions. The system has been tested and proven for cooling operation in outdoor temperatures up to 50°C.

APPLICATIONS

These units have been specifically developed for air conditioning of commercial premises, e.g. banks, supermarkets, shopping malls, food outlets, auditoriums 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 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 system uses refrigerant R410A which is deemed to have zero ozone depletion potential.

Economy. Each OPA unit has four independent refrigeration circuits to provide the flexibility and economy of four stage operation, i.e. utilising one to four circuits as conditions vary, plus the advantage of staggered starting. An economiser option is available to lower operating costs further during the cooling cycle.

Efficient. Heat exchange coils incorporate inner grooved (rifled) tube for better heat transfer. The indoor air coil is interlaced for efficient part load performance.

Performance. An adjustable pulley on the indoor air fan motors enables fine tuning to match the supply air requirements. Electronic expansion valves (EEV) assist in optimising refrigerant flow. 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 unit's generous insulation ensures a quiet unit.

Durable. The cabinet and drain tray are constructed from high grade galvanised steel - polyester powder coated (colour Grey) for increased durability. External fasteners are stainless steel. Heat exchange coils comprise aluminium plate fins on mechanically expanded rifled copper tube. The outdoor coil fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air. Outdoor air coil protection guards are supplied. Fan motor bearings are sealed for life so as not to incur regular maintenance.

Insulation. Closed cell foam insulation has been used in the indoor air section 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. Each system includes a controller (UC) that has a display of LEDs to indicate faults and running conditions. A non-specific fault indicator is included for interface to external systems.

CONFIGURATIONS

Two 'standard' versions are available for each model:

1. Horizontal supply/return air with box mounting channel (OPA*RKTM01),
2. Downward supply/return air with box mounting channel (OPA*RKTM23).

Two 'opposite hand' versions are available for each model:

1. Horizontal supply/return air with box mounting channel (OPA*RKTM10),
2. Downward supply/return air with box mounting channel (OPA*RKTM32).

OPTIONAL EQUIPMENT

1. Filters (rated EU4).
2. Economiser (factory fitted)
 - includes dampers, weatherhood.
3. Adjustable fresh air damper and weatherhood.
4. Electronic control systems
 - available by special arrangement.

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 prevents icing up of the outdoor coil during heating cycle.
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Crankcase heater prevents liquid refrigerant condensing in the compressors during the 'off' cycle.
8. Compressor minimum run time to ensure oil return.
9. Phase rotation protection device.
10. 24V control circuit

COMPRESSOR

Each high efficiency scroll type compressor is hermetically sealed and supported on rubber mounts to minimise vibration.

REFRIGERATION SYSTEM

The OPA units are factory charged with HFC-410A (R410A) refrigerant. Electronic expansion valves (EEVs) control the flow of refrigerant.

WIRING

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

ECONOMISER OPTION

If the outdoor air heat content or temperature is below that of the return air, the fresh air damper opens and the return air damper closes to provide the first stage of cooling. The compressor(s) will then operate to provide more cooling if required. An alternative way of removing return air may be required when operating on 100% fresh air.

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

Also available:
OPA 440-960 models (44-96 kW)

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. For fan motor heat loss refer to Air Handling graphs.

MODEL	INDOOR FAN		INDOOR COIL E.A.T.		OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B.											
	SPEED	AIR l/s	W.B. °C	D.B. °C	23		27		31		35		39		43	
					Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.
OPA 1370	HIGH	7500	15	21	134	106	133	106	129	104	123	101	115	95	105	88
			17	23	142	104	140	104	136	102	130	99	122	94	112	87
			19	27	149	119	147	119	143	117	137	114	129	108	119	101
			21	31	156	141	154	141	150	139	144	135	136	129	126	121

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

HEATING CAPACITY (kW)

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

N = Net Heating Capacity kW allowing for average defrost.

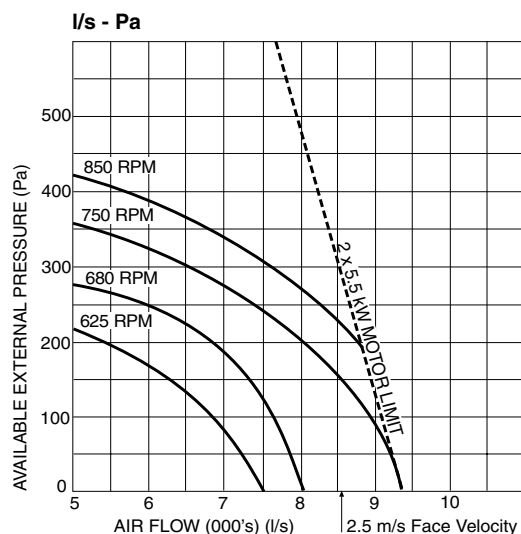
○ = Nominal Capacity (kW)

MODEL	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
OPA 1370	15	71.8	61.8	77.7	65.7	83.1	66.5	88.4	68.1	93.8	68.9	100.8	80.4	107	107	113	113
	20	70.4	60.6	76.2	64.4	81.5	65.2	86.7	66.7	91.2	67.6	98.8	74.1	105	105	110	110
	25	67.8	58.3	73.4	62.0	78.4	62.8	83.5	64.3	88.6	65.1	95.1	71.4	101	101	106	106

AIR HANDLING

Note: Airflows are for a dry coil. Reduce airflow by 5% in high moisture removal conditions. In a free blow or low resistance application, beware of exceeding indoor fan motor's full load amp limit (refer back page). As filters are optional, the fan air flows given are for units installed without filters.

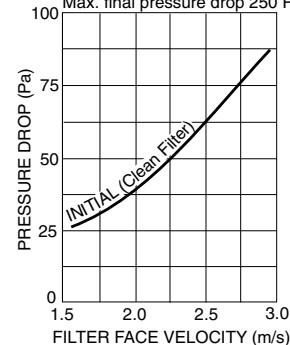
OPA 1370



Model :	OPA 1370
Std Motor Size kW	5.5 (x2)
Max. D.O.L. Motor kW	7.5 (x2)
Max. Fan Speed RPM	1000
Std Pulley Range RPM	780-970
Factory Setting RPM	825

OPTIONAL FILTERS - PRESSURE DROP

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



PERFORMANCE DATA

SOUND LEVELS

RADIATED

Sound Power Levels (SWL)

Measured in decibels re 1 picowatt.

MODEL	OUTDOOR FAN SPEED	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1 k	2 k	4 k
			SOUND POWER LEVELS (SWL) dB					
OPA 1370	HIGH	86	84	83	84	81	78	73

Sound Pressure Levels (SPL)

Measured in decibels re 20 µPa.

MODEL	OUTDOOR FAN SPEED	SPL @ 3 m dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1 k	2 k	4 k
			SOUND PRESSURE LEVELS (SPL) dB					
OPA 1370	HIGH	70	68	67	68	65	62	57

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.

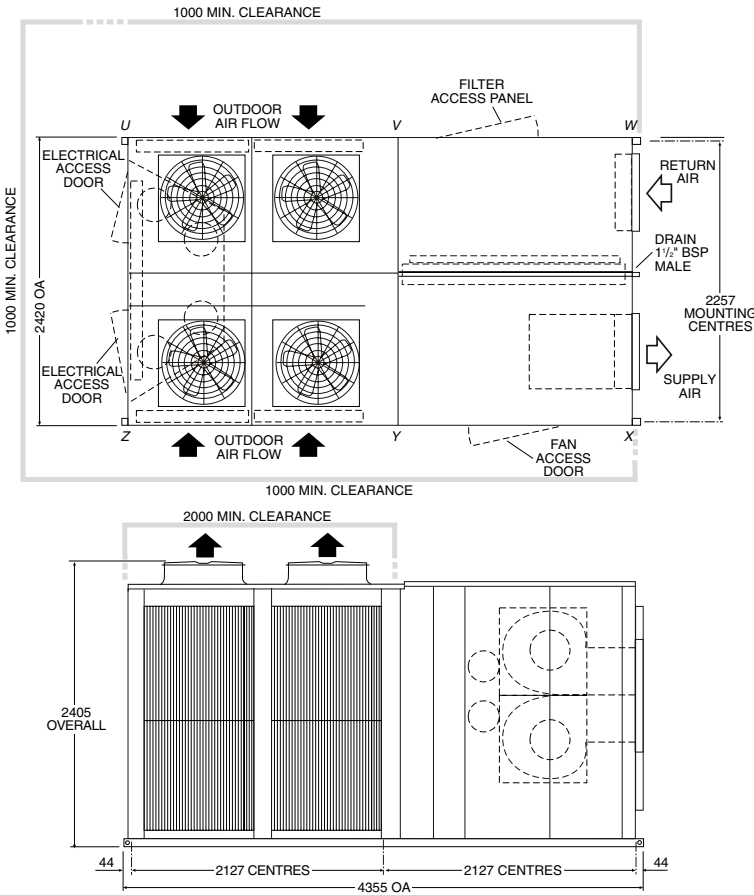
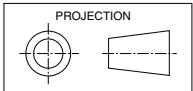
SUPPLY AIR OUTLET

MODEL	INDOOR FAN SPEED	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1 k	2 k	4 k
			SOUND POWER LEVELS (SWL) dB					
OPA 1370	750 RPM	87	85	86	85	82	79	75
	800 RPM	93	91	92	91	89	85	81

DIMENSIONS (mm)

Not to Scale

Fig. 1 Horizontal Supply & Return Air
OPA 1370RKTBM01



MODEL	POINT LOADS (kg)					
	U	V	W	X	Y	Z
OPA 1370	420	331	242	407	389	371

Opposite Hand version also available,
ie OPA 1370RKTBM10

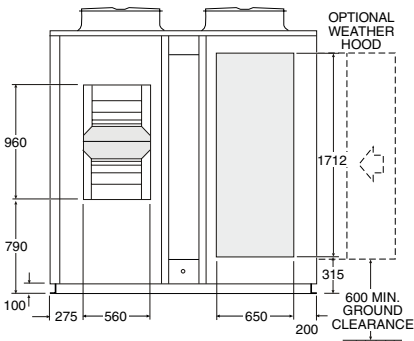
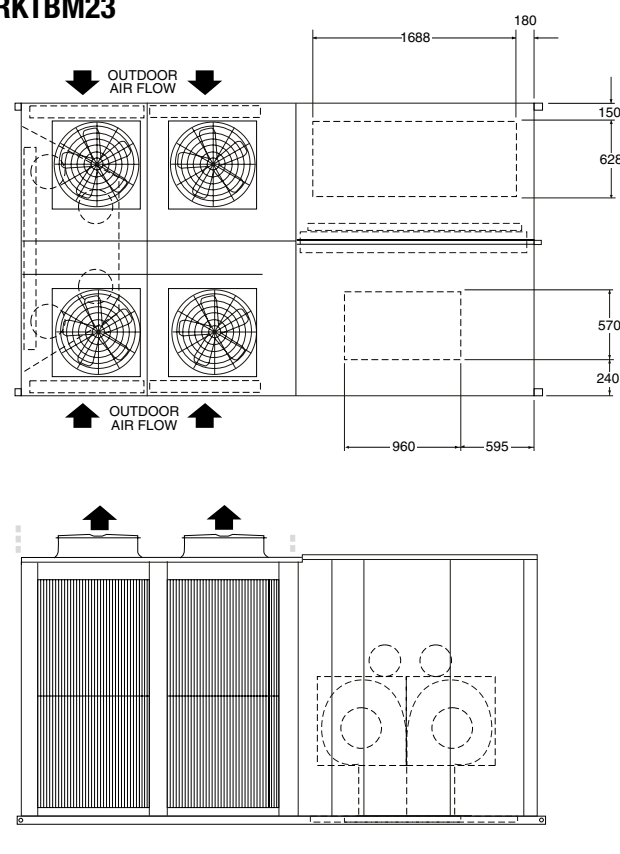


Fig. 2 Downward Supply Air & Return Air
OPA *RKTBM23



NOTE
The manufacturer reserves the right to make changes in specifications at any time without notice or obligation. Certified data is available on request.

Opposite Hand version also available, ie OPA 1370RKTBM32

Fig. 3 Economiser Option

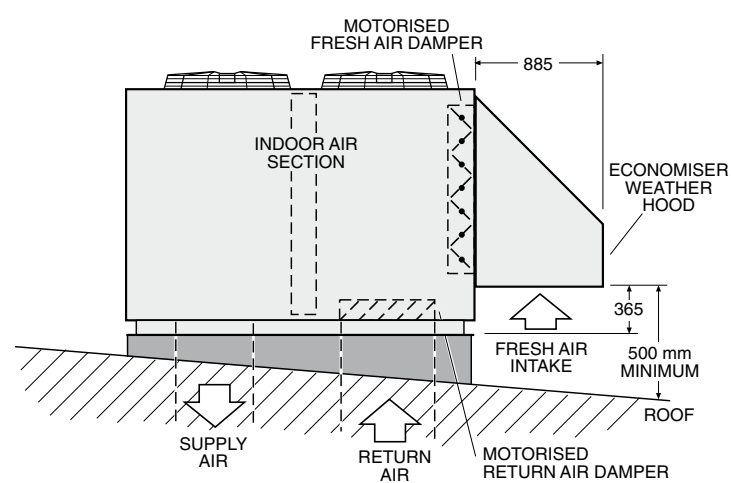
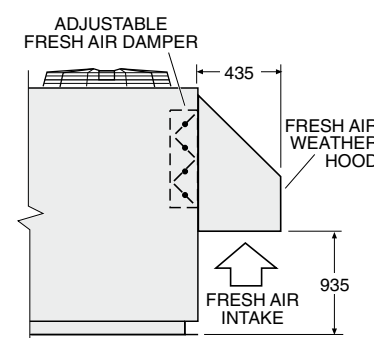


Fig. 4 Fresh Air Damper Option



SPECIFICATIONS

Model		OPA 1370
Cooling Capacity *1	kW	137
Net Capacity	kW	127.7
Heating Capacity *2	kW	105
E.E.R. (Cooling)		2.9
Air Flow *3	l/s	7500
Power Source *4		3 phase 342–436 V a.c. 50 Hz
Indoor Fan Full Load Amps	A/ph.	11.2 (x2)
Running Amps (Total System)	A/ph.	82 / 87 / 87
Recommended External Protection	A/ph.	125
Finish		Grey polyester powder coat
Net Weight	kg	2160
Shipping Weight	kg	2285

Notes:

*1 Nominal Cooling Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 27°C D.B., 19°C W.B.;
Outdoor Entering Air Temperature 35°C D.B.

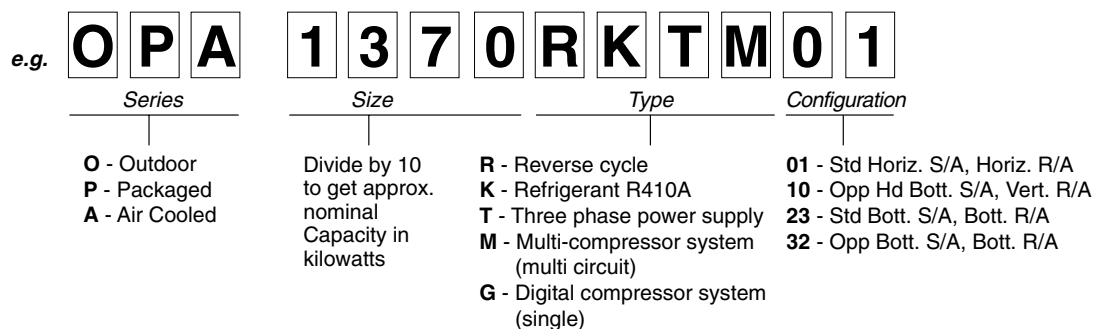
Subtract indoor fan power to calculate Net Capacity.

*2 Heating Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 21°C D.B.;
Outdoor Entering Air Temperature 7°C D.B., 6°C W.B.

*3 Supply air flow at Nominal Cooling Capacity conditions stated above.

*4 Power source includes voltage limits.

Nomenclature



NOTE

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