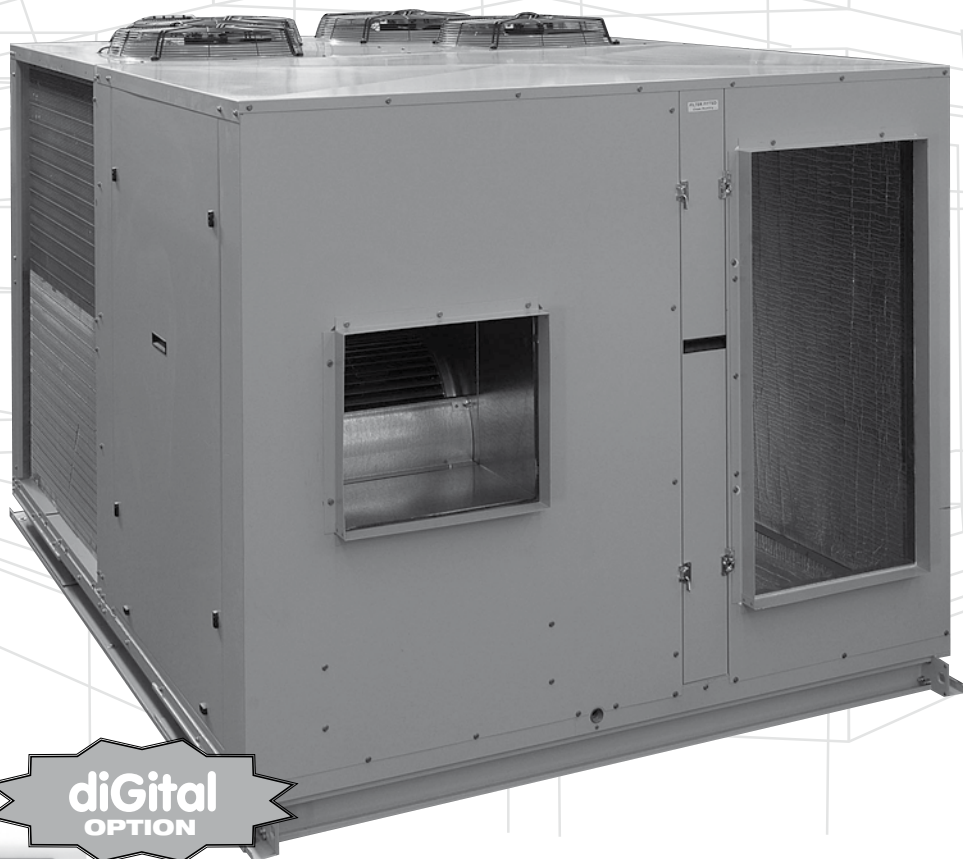


**Ducted Three Phase
Packaged Air Conditioners**

Technical Data
OPA 465 – 960

R410A

Twin System Enables Staging
Extra Long Life
Epoxy Coated Outdoor Coil



**diGital
OPTION**



**TZT Controller &
Digital Scroll Compressor
for close temperature control**

**Nominal Cooling Capacity
47 kW – 96 kW**

OPA 465, 550, 700, 800, 850, 960 - DUCTED PACKAGED ROOF TOP AIR CONDITIONER

GENERAL

This OPA Series is a range of 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 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. 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 motor enables fine tuning 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.

OPA 700/800 only: Electronic expansion valves (EEV) improve performance across a wide range of operating conditions.

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, eg salt laden sea air. 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 (OUC*) that has a display of LEDs to indicate faults and running conditions. A non-specific fault indicator is included for interface to external systems.

* UC on OPA 700/800

CONFIGURATIONS

Two standard versions are available for each model:

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

OPTIONAL EQUIPMENT

1. Filters (rated EU4).
2. Coil protection guards protect against accidental damage or vandalism; supplied on OPA 465.
3. Economiser (factory fitted) - includes dampers, weatherhood.
4. Adjustable fresh air damper and weatherhood.
5. TZT-701 thermostat (or TZT-100 on OPA 700/800).
6. Electronic control systems - available by special arrangement.
7. Digital compressor replaces one of the two compressors - for close control applications.

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.

OPA 700/800 only: 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.

Digital Version:

Digital Scroll Compressor. 'Digital' systems include one conventional scroll compressor and one digital scroll compressor. The digital version of this unit provides a variable capacity ability that enables closer control of room temperature. This is achieved by avoiding on/off cycling of the compressor. These compressors have proven very reliable because of their design simplicity. Electrical harmonic noise is very low.

Extended Capability. Digitals are particularly suitable for applications requiring full or high proportions of fresh air, VAV, close control and supply air temperature control.

User Friendly. Each digital air conditioning system is supplied a TZT Controller. This thermostat has been designed to maintain a high level of comfort for room occupants. Emphasis has been placed on providing controls that are easy to use - despite the sophisticated microprocessor system that runs it. Use of the Auto and Timer function settings allows you to "set it and forget it".

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 dampers reverse and the compressor(s) will then operate to provide more cooling if required. A way of exhausting air from the space will 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 225-385 models (23-38 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 I/s	D.B. °C	W.B. °C	23		27		31		35		39		43	
					Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.
OPA 465	HIGH	2500	21	15	45.8	36.2	45.2	36.2	43.9	35.5	41.9	34.3	39.1	32.4	35.7	29.9
			23	17	48.2	35.4	47.6	35.4	46.3	34.8	44.3	33.7	41.5	32.0	38.1	29.7
			27	19	50.7	40.5	50.1	40.6	48.8	40.0	46.7	38.8	44.0	36.9	40.5	34.4
			31	21	53.1	48.0	52.5	48.0	51.2	47.4	49.1	46.1	46.4	44.0	42.9	41.2
OPA 550	HIGH	2800	21	15	55.1	43.5	54.3	43.5	52.8	42.7	50.3	41.2	47.0	39.0	42.9	36.0
			23	17	58.0	42.5	57.3	42.5	55.7	41.8	53.2	40.5	49.9	38.4	45.7	35.7
			27	19	60.9	48.7	60.2	48.7	58.6	48.0	56.1	46.6	52.8	44.4	48.7	41.4
			31	21	63.8	57.7	63.1	57.7	61.5	57.0	59.1	55.4	55.8	52.9	51.6	50.1
OPA 700	HIGH	3700	21	15	68.3	53.9	67.4	53.9	65.4	53.0	62.4	51.1	58.3	48.4	53.1	44.6
			23	17	71.9	52.7	71.0	52.7	69.0	51.9	66.0	50.2	61.9	47.7	56.8	44.2
			27	19	75.5	60.4	74.6	60.4	72.7	59.6	69.6	57.8	65.5	55.1	60.4	51.3
			31	21	79.1	71.5	78.2	71.6	76.3	70.7	73.3	68.7	69.2	65.6	64.0	61.5
OPA 800	HIGH	4250	21	15	77.2	61.0	76.2	61.0	74.0	59.9	70.6	57.9	66.0	54.7	60.1	50.5
			23	17	81.3	59.6	80.3	59.6	78.1	58.7	74.7	56.8	70.1	53.9	64.2	50.0
			27	19	85.4	68.4	84.4	68.4	82.2	67.4	78.7	65.4	74.1	62.3	68.3	58.1
			31	21	89.5	80.9	88.5	81.0	86.3	80.0	82.9	77.7	78.2	74.3	72.4	69.5
OPA 850	HIGH	4200	21	15	83.9	65.9	82.9	62.5	80.4	64.4	76.7	62.2	71.6	59.0	65.4	54.3
			23	17	88.4	64.4	87.3	64.4	85.1	63.4	81.1	61.2	76.3	58.3	69.8	53.9
			27	19	92.8	74.1	91.7	73.9	89.5	72.3	85.1	70.6	80.7	67.0	74.1	62.6
			31	21	97.5	87.3	96.4	87.3	93.9	86.2	90.2	83.6	85.1	80.0	78.9	74.9
OPA 960	HIGH	5200	21	15	94.8	74.4	93.5	74.4	90.6	72.8	86.5	70.3	80.8	66.6	73.7	61.3
			23	17	99.7	72.8	98.5	72.8	96.0	71.5	91.5	69.1	86.1	65.8	78.7	60.9
			27	19	104.6	83.6	103.4	83.4	100.9	82.1	96.0	79.7	91.1	75.6	83.6	70.7
			31	21	110.0	98.5	108.8	98.5	105.9	97.3	101.8	94.4	96.0	90.3	89.0	84.6

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

PERFORMANCE DATA

HEATING CAPACITY (kW)

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

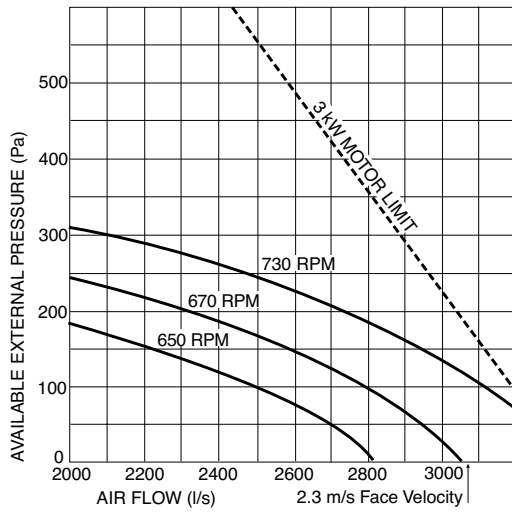
N = Net Heating Capacity kW allowing for average defrost.

○ = 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 465	15	29.7	25.5	32.2	27.2	34.4	27.5	36.6	28.2	38.8	28.5	41.7	33.3	44.4	44.4	46.6	46.6
	20	29.2	25.1	31.6	26.6	33.7	26.9	35.9	27.6	38.1	28.0	40.9	30.7	43.5	43.5	45.7	45.7
	25	28.1	24.1	30.4	25.7	32.5	26.0	34.6	26.6	36.7	26.9	39.4	29.5	41.9	41.9	44.0	44.0
OPA 550	15	33.9	29.1	36.6	31.0	39.2	31.3	41.7	32.1	44.2	32.5	47.5	37.9	50.5	50.5	53.1	53.1
	20	33.2	28.5	35.9	30.3	38.4	30.7	40.9	31.5	43.3	31.9	46.6	34.9	49.5	49.5	52.0	52.0
	25	32.0	27.5	34.6	29.2	37.0	29.6	39.4	30.3	41.7	30.7	44.8	33.6	47.7	47.7	50.1	50.1
OPA 700	15	46.1	41.4	49.8	44.8	53.3	47.4	56.7	48.7	60.1	51.4	64.6	61.4	68.7	68.7	72.2	72.2
	20	45.1	40.6	48.9	44.0	52.2	46.5	55.6	47.8	59.0	50.4	63.3	60.2	67.4	67.4	70.8	70.8
	25	43.5	39.1	47.0	42.3	50.3	44.8	53.5	46.0	56.8	48.5	61.0	57.3	64.9	64.9	68.1	68.1
OPA 800	15	48.3	43.4	52.3	47.1	55.9	49.7	59.5	51.2	63.1	54.0	67.8	64.4	72.1	72.1	75.7	75.7
	20	47.4	42.6	51.3	46.1	54.8	48.8	58.3	50.2	61.9	52.9	66.5	63.1	70.7	70.7	74.2	74.2
	25	45.6	41.1	49.4	44.4	52.8	47.0	56.2	48.3	59.6	50.9	64.0	60.2	68.1	68.1	71.5	71.5
OPA 850	15	57.0	49.9	61.8	53.1	66.0	54.4	70.3	55.5	74.5	56.3	80.0	62.2	85.2	66.5	89.4	89.4
	20	56.0	48.1	60.5	51.2	64.7	51.8	68.9	53.0	73.1	53.7	78.5	58.9	83.5	83.5	87.7	87.7
	25	53.8	47.2	58.3	50.1	62.3	51.4	66.3	52.4	70.4	53.1	75.6	55.2	80.4	62.7	84.4	84.4
OPA 960	15	61.5	53.8	66.6	57.2	71.2	58.7	75.8	59.9	80.3	60.7	86.3	67.1	91.8	71.6	96.4	96.4
	20	60.3	52.7	65.3	56.2	69.8	57.5	74.3	58.7	78.8	59.5	84.6	61.7	90.0	70.2	94.5	94.5
	25	58.1	50.9	62.8	54.0	67.1	55.4	71.5	56.5	75.9	57.2	81.5	59.5	86.7	67.6	91.0	91.0

PERFORMANCE DATA

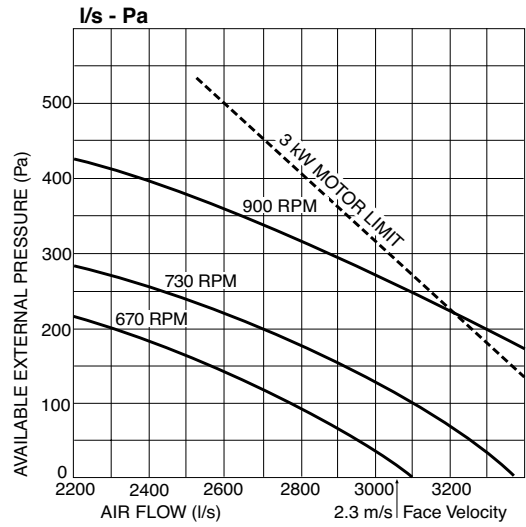
OPA 465



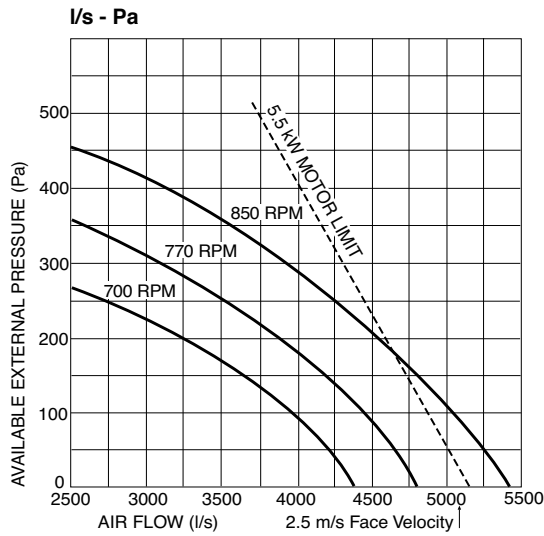
AIR HANDLING

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.

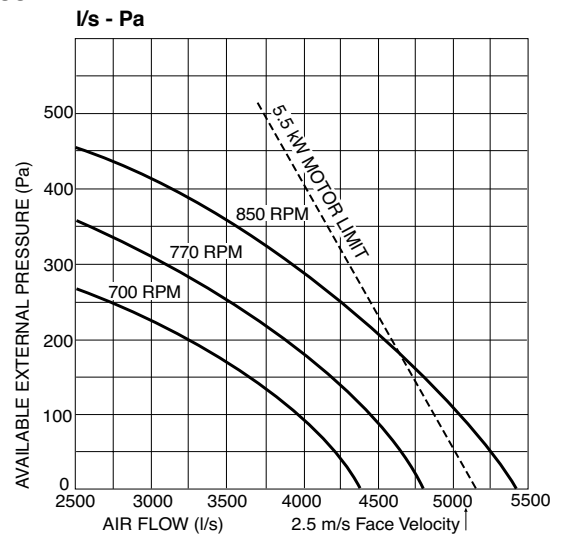
OPA 550



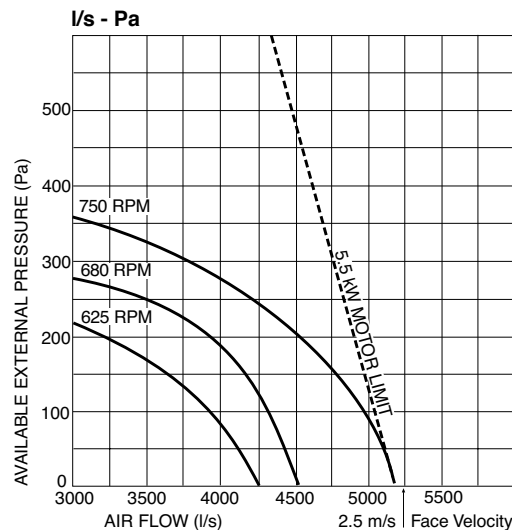
OPA 700



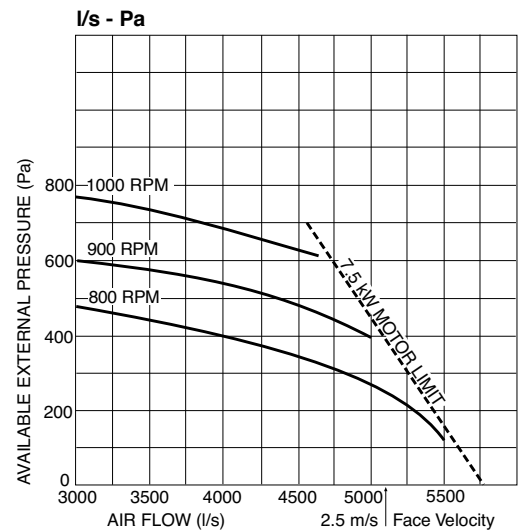
OPA 800



OPA 850



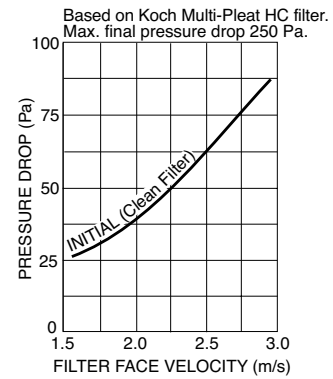
OPA 960



PERFORMANCE DATA

Model :	OPA 465	OPA 550	OPA 700	OPA 800	OPA 850	OPA 960
Std Motor Size kW	3	3	5.5	5.5	5.5	7.5
Max. D.O.L. Motor kW	4	4	7.5	7.5	7.5	7.5
Max. Fan Speed RPM	850	950	1000	1000	950	1000
Std Pulley Range RPM	610-765	690-875	780-970	780-970	600-750	780-970
Factory Setting RPM	685	785	825	825	680	825

OPTIONAL FILTERS - PRESSURE DROP



SOUND LEVELS

Sound Power Levels (SWL)

Measured in decibels re 1 picowatt.

RADIATED

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 465	HIGH	78	84	78	76	74	69	61
OPA 550	HIGH	84	85	80	80	79	77	69
OPA 700	HIGH	82	84	83	78	75	67	61
OPA 800	HIGH	82	85	80	79	78	73	66
OPA 850	HIGH	84	82	81	82	79	76	71
OPA 960	HIGH	85	78	77	80	81	79	77

Sound Pressure Levels (SPL)

Measured in decibels re 20 μ Pa.

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 465	HIGH	62	68	62	60	58	54	47
OPA 550	HIGH	68	69	64	64	63	61	53
OPA 700	HIGH	64	68	67	62	59	51	45
OPA 800	HIGH	66	69	64	63	62	57	50
OPA 850	HIGH	66	64	63	64	61	58	53
OPA 960	HIGH	67	73	66	64	62	57	49

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.

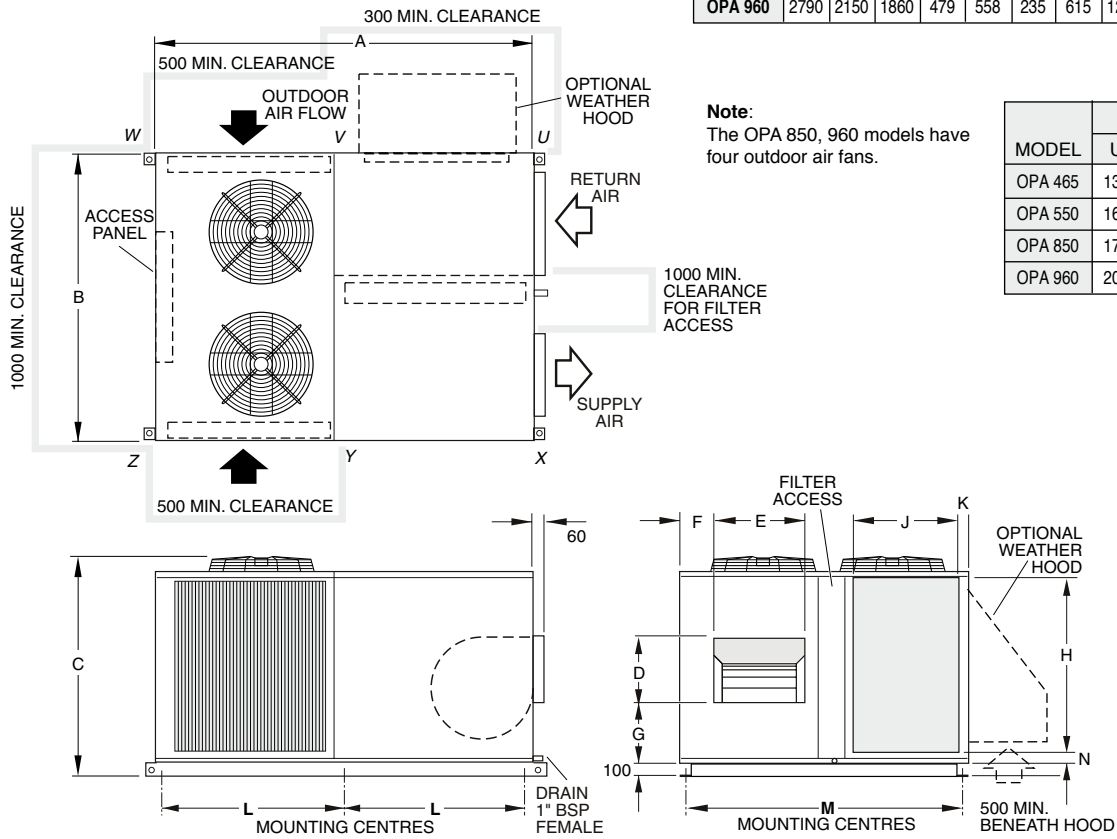
SUPPLY AIR OUTLET

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 465	750 RPM	83	79	79	78	79	76	75
OPA 550	830 RPM	85	79	77	79	81	78	77
OPA 700	750 RPM	81	80	81	78	78	76	73
OPA 800	850RPM	86	87	85	82	88	80	77
OPA 850	750 RPM	84	82	83	82	79	76	72
	800 RPM	90	88	89	88	86	82	78
OPA 960	800 RPM	86	84	85	84	81	78	74
	850 RPM	92	90	91	90	87	84	80

DIMENSIONS (mm)

Not to Scale

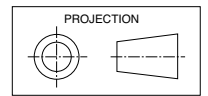
**Fig. 1 Horizontal Supply & Return Air
OPA *RKTBH**



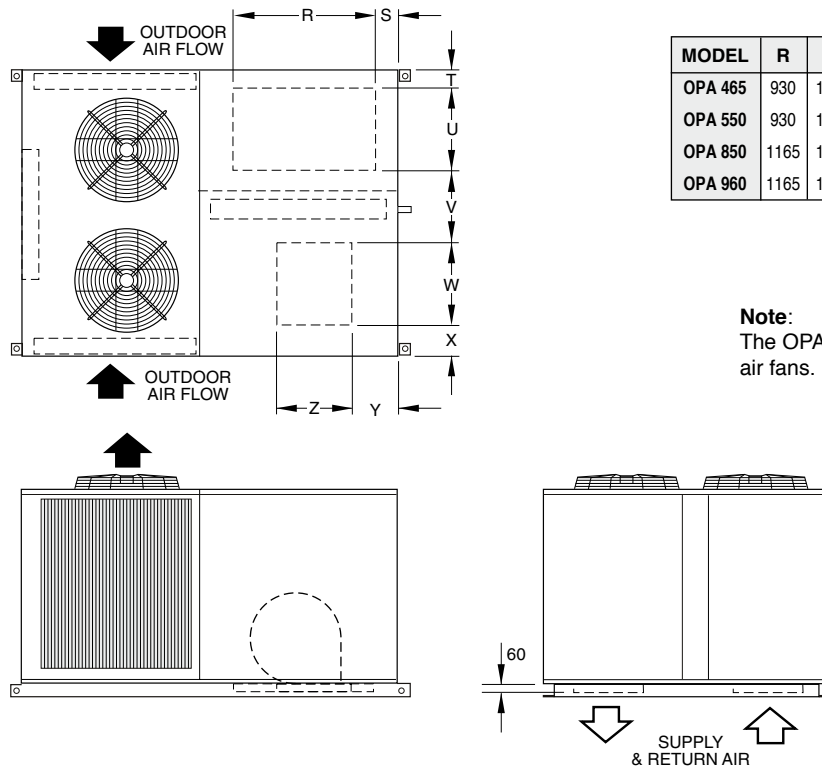
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N
OPA 465	2225	1950	1635	532	443	195	585	955	497	135	1080	1879	210
OPA 550	2225	1950	1750	535	483	190	590	955	497	135	1080	1879	210
OPA 850	2790	2150	1860	479	558	235	615	1200	596	130	1364	2079	266
OPA 960	2790	2150	1860	479	558	235	615	1200	596	130	1364	2079	266

Note:
The OPA 850, 960 models have four outdoor air fans.

MODEL	POINT LOADS (kg)					
	U	V	W	X	Y	Z
OPA 465	130	120	110	134	147	159
OPA 550	160	136	111	132	148	164
OPA 850	172	172	184	207	207	221
OPA 960	206	194	194	231	230	246



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



MODEL	R	S	T	U	V	W	X	Y	Z
OPA 465	930	120	205	475	625	435	200	185	483
OPA 550	930	120	205	475	608	435	215	185	483
OPA 850	1165	160	220	575	545	567	235	415	475
OPA 960	1165	160	220	575	545	567	235	415	475

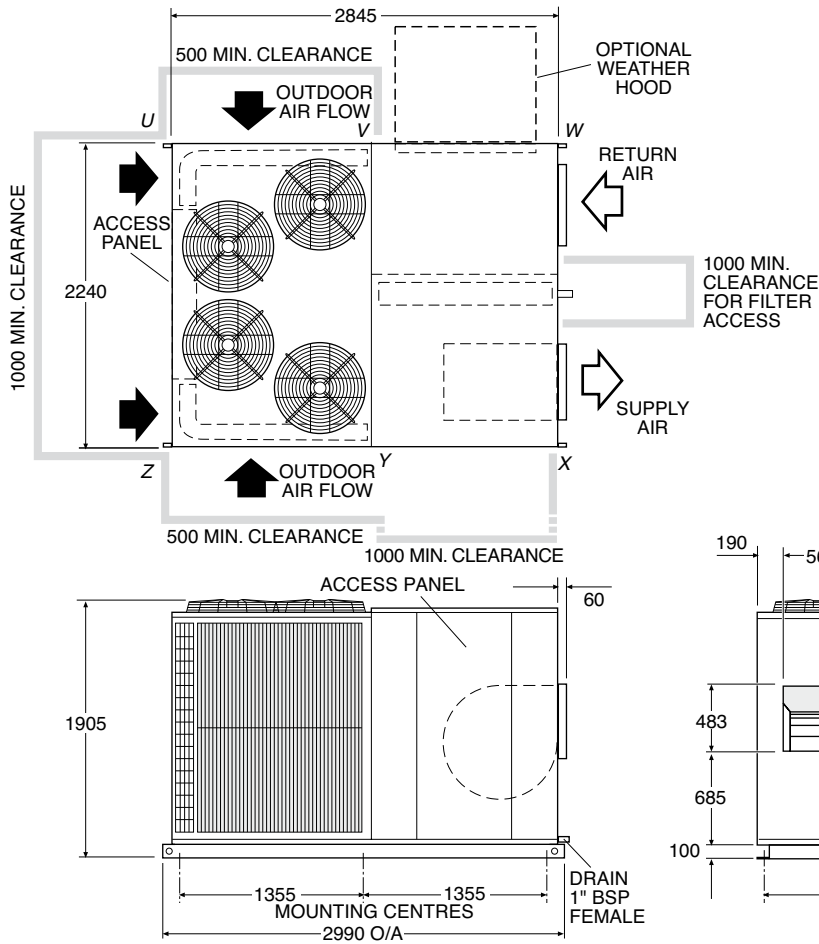
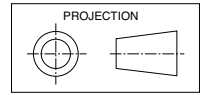
Note:
The OPA 850, 960 models have four outdoor air fans. Refer to Fig.1 for overall dimensions.

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

DIMENSIONS (mm)

Not to Scale

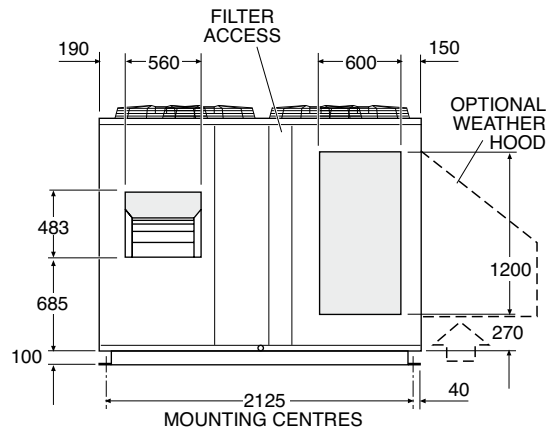
**Fig. 3 Horizontal Supply & Return Air
OPA 700RKTB01, OPA 800RKTB01**



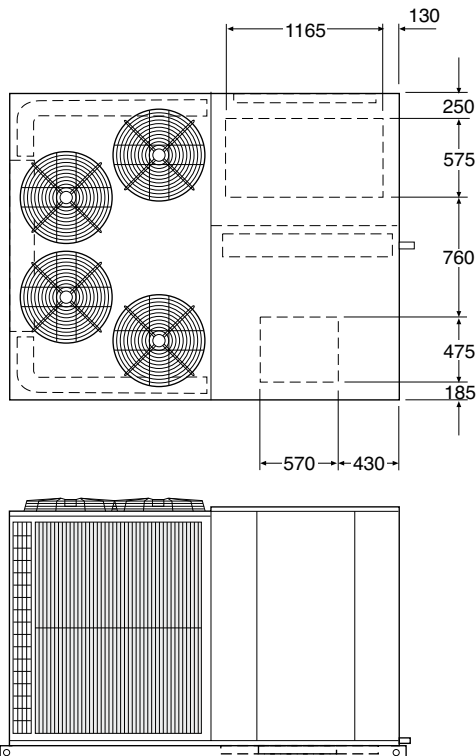
POINT LOADS (kg)					
U	V	W	X	Y	Z
243	189	135	249	222	195

Opposite Hand version also available,
ie OPA 700RKTB10
or OPA 800RKTB10

Note : A 2 m clearance
is required above the
exhaust air fans



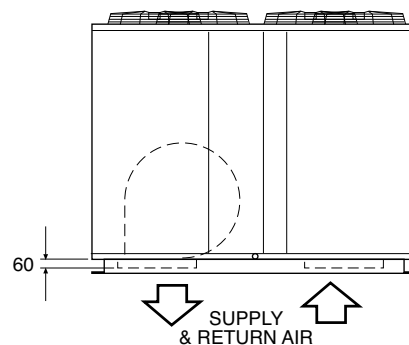
**Fig. 4 Downward Supply Air & Return Air
OPA 700RKTB23, OPA 800RKTB23**



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 700RKTB32
or OPA 800RKTB32

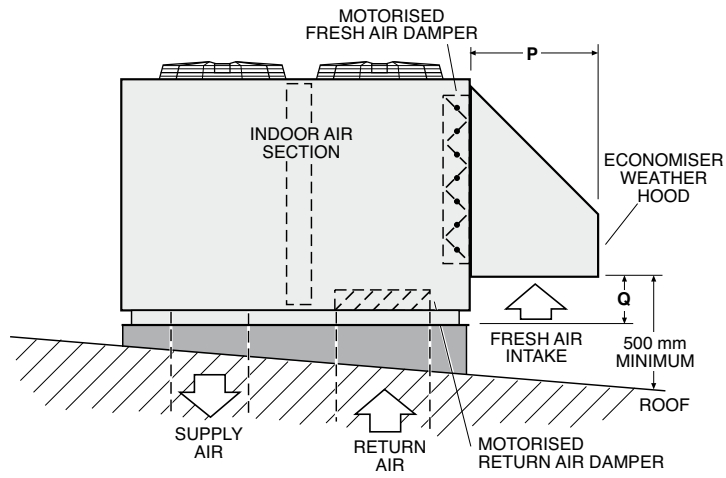


OPTIONS

Dimensions (mm)

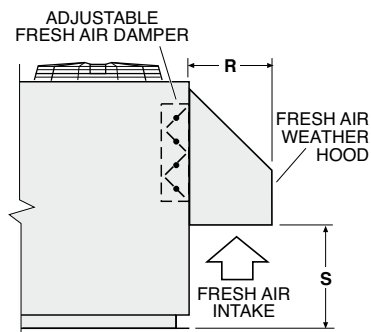
Economiser

MODEL	P	Q
OPA 465	735	335
OPA 550	735	335
OPA 700	975	370
OPA 800	975	370
OPA 850	875	310
OPA 960	875 <td 310	

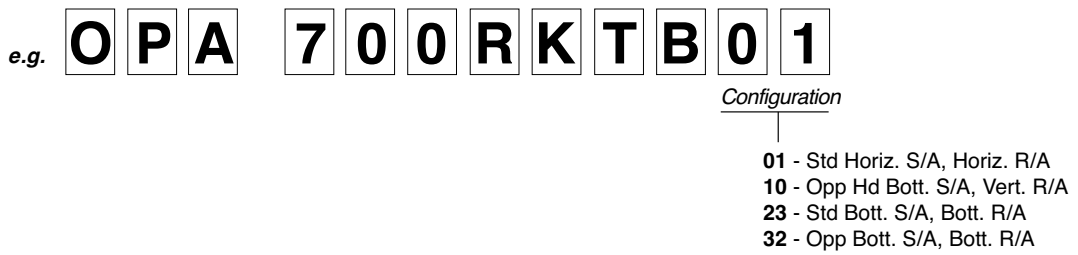
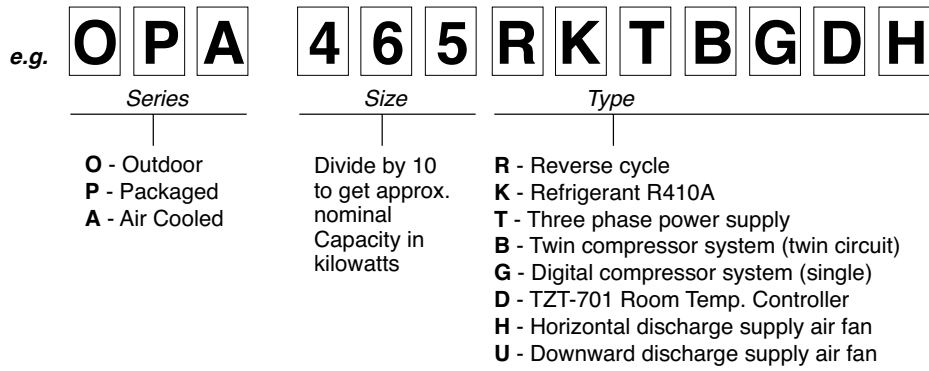


Fresh Air Damper

MODEL	R	S
OPA 465	435	785
OPA 550	435	785
OPA 700	260	835
OPA 800	260	835
OPA 850	430	810
OPA 960	430	810



NOMENCLATURE



NOTES

SPECIFICATIONS

Model		OPA 465	OPA 550	OPA 700	OPA 800	OPA 850	OPA 960
Nominal Cooling Capacity *1	kW	46.7	56.1	69.6	78.7	85.1	96.0
Net Cooling Capacity	kW	44.6	53.9	66.2	74.2	80.1	87.9
Heating Capacity *2	kW	43.5	49.5	67.4	70.7	83.5	90.0
E.E.R. (Cooling)		2.96	3.05	3.17	2.99	3.04	2.80
Air Flow *3	l/s	2500	2800	3700	4250	4200	5200
Power Source *4		3 phase 342 - 436 V a.c. 50 Hz					
Indoor Fan Full Load Amps	A/ph.	6.5	6.5	11	11	10.3	13.8
Running Amps (Total System)	A/ph.	32 / 27 / 27	39 / 30 / 29	42 / 36 / 37	50 / 40 / 40	51 / 46 / 46	68 / 59 / 59
Recom'd External Protection	A/ph.	50	80	100	120	100	120
Finish		Grey polyester powder coat					
Net Weight	kg	800	851	1234	1234	1162	1167
Shipping Weight	kg	905	960	1379	1379	1264	1259

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.

Net Cooling Capacity at AS/NZS 3823 includes an allowance for indoor fan motor heat loss.

*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.

NOTE

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



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