

PACKAGE UNIT



UNIT FEATURES

- Tru-Inverter™ Variable Speed Compressor and Drive Technology
- Pre-charged with R-410A Refrigerant
- Multiple Speed Outdoor Fans
- 40-100% Variable Refrigeration Capacity
- Low Ambient Cooling Operation to +5 deg
- Phase Protection
- Hydrophilic Blue Coat Coil Fin Protection - Indoor and Outdoor Coils
- Removable Louvred Outdoor Coil Guard
- Adaptive Demand Defrost
- EC Variable Speed Indoor Fan + Reduce Fan Airflow Feature
- Adjustable Indoor Airflow
- Foil Faced Polyethylene Insulation
- Active Power Factor Correction
- Bi-Flow Electronic Expansion Valves

UNIT OPTIONS

- Additional Full Coil Coat Protection

CONTROL OPTIONS AND FEATURES

ActronAir LC7-2 (BCA Compliant)

- Available in White or Grey
- 7-day Programmable Controller with 2 Events per Day
- 24-hour ON/OFF Timer
- Temperature Setback
- After Hours Time
- Auto / Cool / Heat / Fan Only / Night Modes Functions
- Auto / Continuous Indoor Fan Operation
- Optional 2nd and 3rd Controllers with Mimic Logic
- On-Board Temperature Sensor

ActronAir Neo

- 7" Colour Touch Screen Master Controller
- In-built Wi-Fi and Blue-Tooth
- Neo Connect App
- On-Board Temperature, Humidity and Proximity Sensor
- Optional wireless Zone Sensor
- Available in White or Black

ActronAir Group Control

ActronAir BMS ICUNO (Modbus 485)

THIRD PARTY CONTROL

- Manual Control Inputs (Heat, Cool and Fan Operation)
- Analogue Input (Fan and Cool Operation)

SPECIFICATION SUMMARY

UNIT MODEL		PKV210T	
		(1) TOTAL	(2) NETT
(3) COOLING CAPACITY (kW)	MINIMUM	7.76	7.60
	RATED	19.40	19.00
	TRUMAX (9)	21.55	21.00
(4) HEATING CAPACITY (kW)	MINIMUM	8.23	8.40
	RATED	19.60	20.00
	TRUMAX (9)	22.45	23.00
(3) SENSIBLE CAPACITY (kW)	RATED	15.98	15.58
(5) COOLING INPUT POWER (kW)	RATED	5.70	
(5) HEATING INPUT POWER (kW)	RATED	5.50	
EER	RATED	3.40	3.33
COP	RATED	3.56	3.64
(6) INDOOR AIRFLOW (l/s) - MIN. / NOMINAL / MAX.	800 / 1000 / 1200		
MINIMUM AIRFLOW WHEN IN MODULATION (l/s)	260		
OUTDOOR SOUND PRESS. LEVEL @ 3M dB(A) - LOW / HIGH	49.0 / 59.0		
OUTDOOR SOUND POWER LEVEL dB(A) - LOW / HIGH	68.2 / 77.0		
POWER SUPPLY	400V/3Ph+N/50Hz		
(2) RATED LOAD AMPS	11.4		
(7) FULL LOAD AMPS	20.0		
(8) CIRCUIT BREAKER AND CABLE AMPS	25		
APPROXIMATE STARTING AMPS	< 45		
POWER FACTOR	0.96		
WEIGHT (kg)	316		

(1) Based on unit rating excluding indoor fan kW.

(2) Measured and tested in accordance with AS/NZS 3823.1.2.

(3) At 27°C DB / 19°C WB entering air temperatures and 35°C ambient.

(4) At 20°C DB entering air temperature and 7°C DB / 6°C WB ambient.

(5) Total input power excludes indoor fan kW.

Nett input power includes indoor fan kW.

(6) Max. - Min. airflow application range irrespective of external static pressure.

(7) Full Load Amps are based on compressor and fan motors' maximum expected current.

(8) See Specifications sheet for cable size and circuit breaker size details.

(9) **TRUMAX** - Maximum Capacity.

Note: Use nett input power to estimate running cost.

3 Phase
1 Stage

19.40 kW

CAPACITY SELECTION DATA

PKV210T

COOLING PERFORMANCE

AIR ENTERING		TOTAL CAPACITY kW	TOTAL SENSIBLE CAPACITY - kW										
OUTDOOR DB - °C	INDOOR WB - °C		AT DB TEMPERATURE ONTO INDOOR COIL - °C										
			20	21	22	23	24	25	26	27	28	29	30
25	16	19.72	12.61	13.37	14.14	14.90	15.66	16.47					
	17	20.35	12.15	12.75	13.35	14.42	15.49	16.14	16.79	17.44			
	18	20.98	11.69	12.13	12.57	13.94	15.32	15.81	16.30	17.33	18.35		
	19	21.66	11.46	11.81	12.16	13.03	13.90	15.15	16.39	16.62	16.85	17.19	
	20	22.34	11.23	11.65	12.12	12.46	12.79	13.99	15.20	16.16	17.13	17.23	17.34
	21	22.86		11.49	12.10	12.38	12.66	13.51	14.37	15.31	16.11	16.70	17.30
	22	23.38			12.08	12.31	12.53	13.03	13.54	14.46	15.10	16.18	17.25
30	16	19.05	12.22	13.04	13.87	14.66	15.45	16.07					
	17	19.70	11.48	12.25	13.02	14.10	15.18	15.77	16.36	16.94			
	18	20.35	10.74	11.45	12.16	13.53	14.90	15.46	16.02	16.53	17.05		
	19	20.77	10.71	11.19	11.66	12.60	13.53	14.85	16.17	16.26	16.36	16.94	
	20	21.37	10.69	11.06	11.59	11.97	12.35	13.58	14.81	15.82	16.49	16.82	17.14
	21	21.76		10.92	11.55	11.95	12.34	13.18	14.01	14.84	15.61	16.34	17.06
	22	22.15			11.52	11.92	12.33	12.78	13.22	13.87	14.72	15.85	16.99
35	16	18.79	11.62	12.48	13.34	14.34	15.34	15.98					
	17	18.76	10.86	11.68	12.50	13.69	14.88	15.58	16.27	16.96			
	18	18.73	10.10	10.89	11.67	13.05	14.43	15.18	15.92	16.14	16.35		
	19	19.40	9.83	10.53	11.24	12.14	13.04	14.37	15.71	15.98	16.25	16.86	
	20	20.10	9.55	10.36	10.69	11.18	11.68	13.01	14.34	15.39	16.33	16.56	16.97
	21	20.60		10.18	10.41	11.01	11.60	12.47	13.35	14.38	15.30	16.04	16.86
	22	21.10			10.14	10.83	11.52	11.94	12.36	13.37	14.28	15.52	16.75
40	16	17.08	11.34	12.23	13.11	14.05	14.99	15.69					
	17	17.67	10.38	11.30	12.23	13.38	14.54	15.26	15.97	16.69			
	18	18.26	9.42	10.38	11.34	12.71	14.08	14.82	15.55	15.95	16.36		
	19	18.61	9.37	9.68	9.99	11.33	12.66	13.94	15.21	15.39	16.09	16.79	
	20	19.28	9.33	9.34	9.42	10.34	11.27	12.68	14.09	14.82	16.46	16.63	16.90
	21	19.82		8.99	9.13	10.03	10.93	11.91	12.90	13.83	15.20	15.93	16.71
	22	20.35			8.84	9.72	10.59	11.15	11.71	12.84	13.93	15.23	16.53
45	16	16.22	10.96	11.76	12.56	13.59	14.62	15.28					
	17	16.69	10.40	11.02	11.65	12.91	14.16	14.87	15.58	16.28			
	18	17.16	9.84	10.29	10.74	12.22	13.71	14.46	15.21	15.78	16.35		
	19	17.53	9.24	9.58	9.92	11.11	12.30	13.64	14.97	15.48	16.06	16.64	
	20	18.04	8.63	9.23	9.27	10.07	10.87	12.24	13.61	14.88	16.15	16.43	16.72
	21	18.50		8.87	8.95	9.79	10.63	11.48	12.33	13.55	14.83	15.65	16.47
	22	18.95			8.62	9.50	10.39	10.72	11.05	12.22	13.50	14.86	16.22
50	16	15.27	10.57	11.03	11.49	12.88	14.27	15.13					
	17	15.78	9.66	10.34	11.02	12.42	13.82	14.67	15.53	16.38			
	18	16.29	8.74	9.65	10.55	11.96	13.37	14.22	15.07	15.39	15.70		
	19	16.56	8.55	8.82	9.09	10.53	11.96	13.32	14.67	15.05	15.43	15.82	
	20	17.03	8.36	8.40	8.63	9.60	10.58	11.94	13.30	14.38	15.46	15.67	15.88
	21	17.54		7.99	8.39	9.34	10.29	11.13	11.97	12.82	14.34	15.09	15.84
	22	18.06			8.16	9.08	9.99	10.31	10.64	11.25	13.22	14.51	15.79

19.40 kW
3 Phase
1 Stage

HEATING PERFORMANCE

WB TEMP ON OD COIL - °C	TOTAL HEATING CAPACITY - kW									
	AT DB ENTERING INDOOR - °C									
	16		18		20		22		24	
	TH	IH	TH	IH	TH	IH	TH	IH	TH	IH
-10	12.41	11.91	12.36	11.86	12.31	11.81	12.24	11.75	12.18	11.70
-8	13.23	12.57	13.16	12.50	13.09	12.44	13.02	12.37	12.95	12.30
-6	14.07	13.22	13.98	13.14	13.91	13.08	13.88	13.04	13.81	12.98
-4	14.96	13.76	14.85	13.66	14.82	13.63	14.73	13.55	14.64	13.47
-2	15.94	14.18	15.83	14.09	15.73	14.00	15.62	13.90	15.53	13.82
0	16.88	14.85	16.76	14.74	16.69	14.68	16.56	14.58	16.46	14.48
2	17.82	16.22	17.68	16.09	17.54	15.96	17.42	15.85	17.30	15.74
4	18.85	18.85	18.66	18.66	18.55	18.55	18.43	18.43	18.29	18.29
6	19.93	19.93	19.76	19.76	19.60	19.60	19.44	19.44	19.32	19.32
8	21.05	21.05	20.86	20.86	20.68	20.68	20.52	20.52	20.37	20.37
10	22.20	22.20	22.01	22.01	21.82	21.82	21.64	21.64	21.47	21.47
12	23.40	23.40	23.20	23.20	22.99	22.99	22.78	22.78	22.58	22.58
14	24.64	24.64	24.42	24.42	24.19	24.19	23.96	23.96	23.75	23.75
16	25.94	25.94	25.67	25.67	25.43	25.43	25.18	25.18	24.94	24.94
18	27.26	27.26	26.98	26.98	26.70	26.70	26.42	26.42	26.16	26.16

TH - Total Heating Capacity (kW).
IH - Integrated Heating Capacity (kW)
Includes defrost losses.

AIRFLOW CORRECTION MULTIPLIER

% VARIATION	-20%	-15%	-10%	-5%	Nominal	+5%	+10%	+15%
INDOOR AIRFLOW (l/s)	800	850	900	950	1000	1050	1100	1150
TOTAL COOLING	0.965	0.982	0.989	0.997	1.000	1.004	1.009	1.015
SENSIBLE COOLING	0.884	0.916	0.945	0.974	1.000	1.024	1.046	1.072
HEATING FACTOR	0.969	0.976	0.983	0.991	1.000	1.011	1.022	1.033

NOTES:

- No allowance has been made for the effect of indoor fan motor.
- Selection tables are based on nominal airflows.
Correction factors must be applied for selection away from these conditions.



INDOOR FAN DATA

PKV210T

APPLICATION RANGE (COMPRESSOR ON)

AIRFLOW (l/s)	EXTERNAL STATIC PRESSURE (Pa)											
	50		100		150		200		250		300	
	% PWM	W	% PWM	W	% PWM	W	% PWM	W	% PWM	W	% PWM	W
800	35	204	39	262	44	330	48	391	57	467	76	534
850	38	228	43	295	47	354	52	429	62	507	81	584
900	42	260	46	316	51	394	56	469	70	552	88	630
950	46	293	50	354	55	431	61	515	75	600	96	684
1000	49	315	54	391	60	477	65	563	82	646	MOTOR / BLOWER LIMIT	
1050	54	364	60	449	64	518	70	607	90	699		
1100	59	406	64	487	69	578	78	669	97	750		
1150	64	456	69	545	75	643	86	723				
1200	69	512	75	607	80	700	95	872				

REDUCED AIRFLOW *(COMPRESSOR OFF)

AIRFLOW (l/s)	EXTERNAL STATIC PRESSURE (Pa)											
	50		100		150		200		250		300	
	% PWM	W	% PWM	W	% PWM	W	% PWM	W	% PWM	W	% PWM	W
200	MOTOR / BLOWER LIMIT								20	153	25	200
250									21	172	27	208
300									23	185	29	235
350									22	165	26	210
400									25	187	28	228
450			21	143	25	187	28	228	34	282		
500			22	134	26	178	30	228	34	284	40	300
550	20	102	24	142	28	191	32	243	37	305	50	361
600	22	113	27	167	31	216	35	269	39	326	56	395
650	25	130	30	189	34	241	38	299	43	356	58	427
700	28	152	33	213	37	269	41	329	47	392	62	460
750	31	172	36	236	40	310	45	363	51	425	69	495

3 Phase
1 Stage
19.40 kW

NOTES

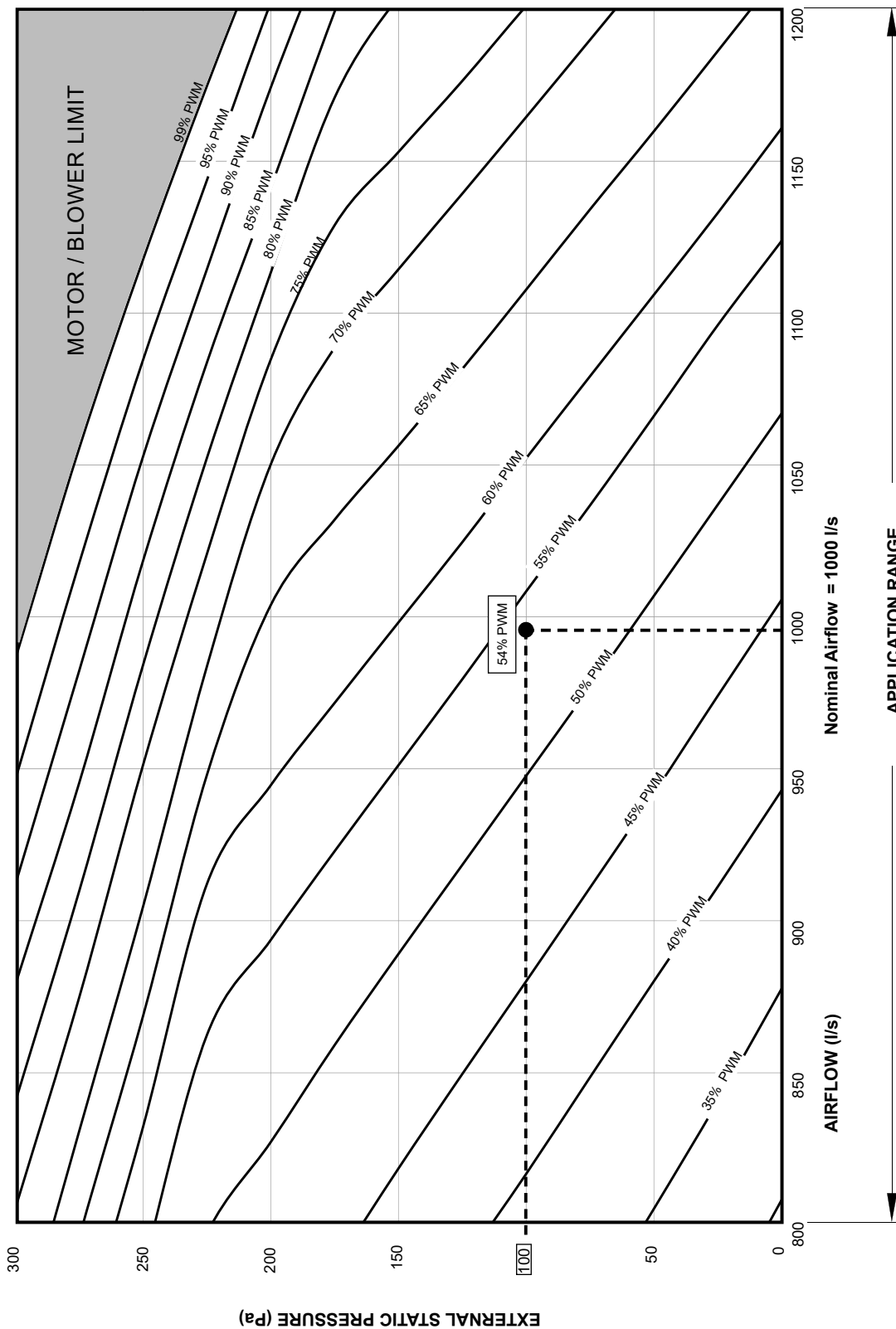
* Reduced fan airflow is the airflow during compressor OFF operation (optional feature)
 W = Indoor Fan Power, Watts
 PWM = Pulse Width Modulation Setting, % PWM (Adjustable through the NEO / LC7-2 Control Interface or Outdoor Board)

Default Fan Speed Value at 100Pa	
Speed	Default PWM (adjustable)
High PWM (%)	75
Medium PWM (%)	54
Low PWM (%)	39

Indoor Fan PWM Limits	
PWM High Limit	99
PWM Low Limit	34



19.40 kW
3 Phase 1 Stage



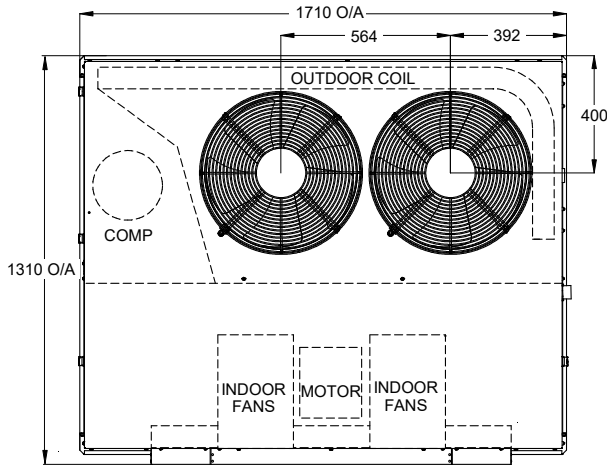
Notes:

1. Performance Fan Curve shown is at Dry Coil Condition.
2. Airflow should be reduced with respect to the moisture content in the air.
3. All data provided does not include filters. Please review filter manufacturer for application.
4. 2.5 m/s face velocity point will occur at 1405 l/s.

UNIT DIMENSIONS

PKV210T

PACKAGE UNIT - STANDARD MODEL

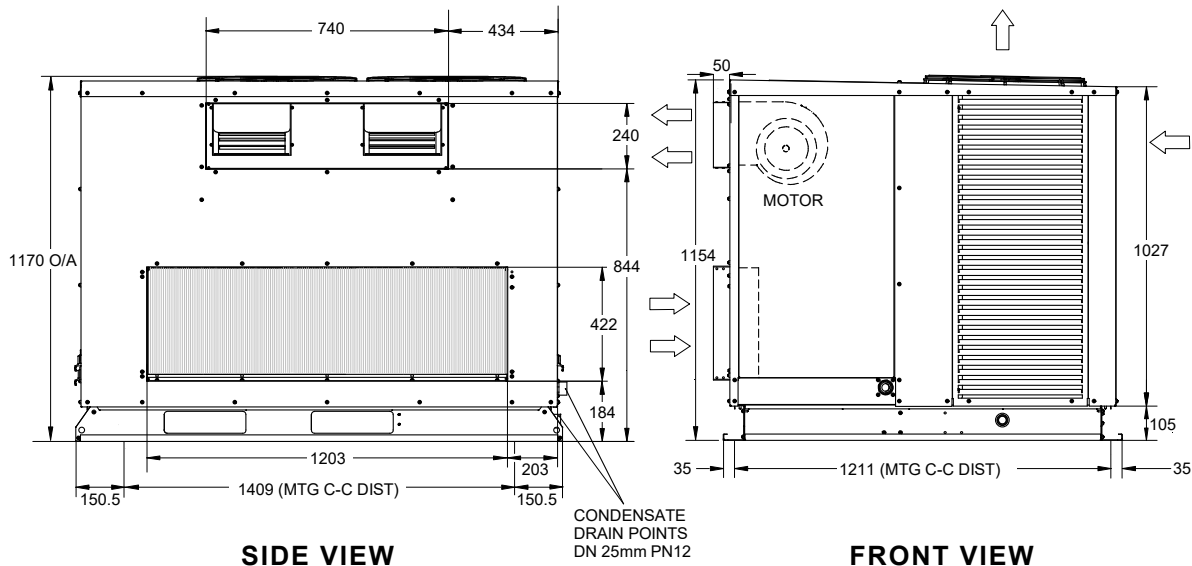
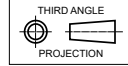


TOP VIEW

OVERALL NOMINAL DIMENSION (H x W x D)
= 1170 x 1710 x 1310
SUPPLY DUCT (H x W) = 240 x 740
RETURN DUCT (H x W) = 422 x 1203

NOTES:

1. Do not scale drawing.
2. All dimensions are in mm unless specified. Refer to corresponding unit dimensional drawing for mounting hole details
3. Suggested Service Clearance and Airflow Allowances are based on conditions that the spaces are free from obstructions and walkway passage of 1m is available to allow coil replacement without lifting coil over the top of the unit.
4. Minimum service access areas and space for airflow clearances are responsibilities of the installer.
5. Under circumstances, condenser air must not recirculate back onto condenser coil. Keep all clearances free of any obstructions.
6. STACKING OF UNITS: Ensure that minimum airflow and service clearances are met.
7. MTG C-C DIST = Mounting Centre to Centre Distance.
8. Use M12 bolt for feet mounting.

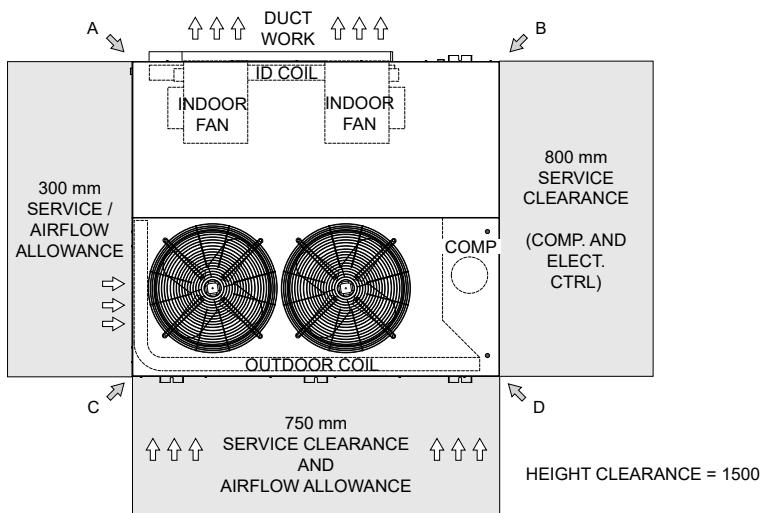


SIDE VIEW

FRONT VIEW

UNIT MODEL NUMBER	UNIT WEIGHT (kg)	CORNER WEIGHTS (kg)			
		A	B	C	D
PKV210T	316	88	54	47	127

MINIMUM SERVICE ACCESS CLEARANCES and AIRFLOW SPACE ALLOWANCES



3 Phase
1 Stage
19.40 kW

Outdoor Radiated

Sound Power Level (SWL)

Fan Speed	Sound Power Level dB(A)	Octave Band Centre Frequency (Hz), dB						
		125	250	500	1k	2k	4k	8k
Low	68.2	67.0	65.0	69.2	59.7	55.7	58.1	47.2
High	77.0	80.6	78.4	75.5	71.0	66.5	62.0	51.8

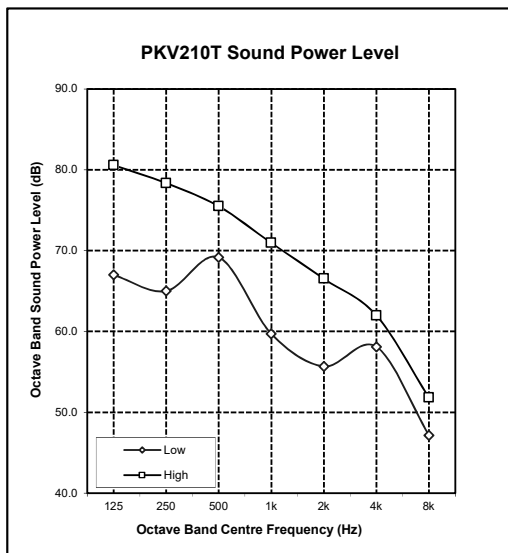
Indoor Outlet

Sound Power Level (SWL)

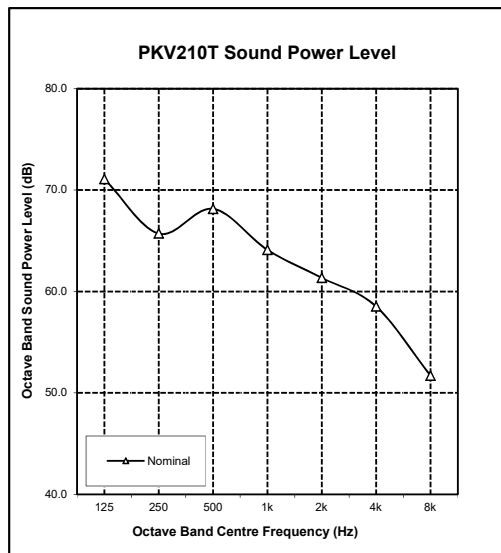
Airflow Setting	Airflow l/s	Sound Power Level dB(A)	Octave Band Centre Frequency (Hz), dB						
			125	250	500	1k	2k	4k	8k
Nominal	1000	69.7	71.1	65.7	68.2	64.1	61.3	58.5	51.7

19.40 kW
3 Phase
1 Stage

OUTDOOR RADIATED



INDOOR OUTLET



NOTES:

Radiated sound power levels are based on ISO 3743-1.

SPECIFICATIONS

PKV210T

CONSTRUCTION	
CABINET BASE	1.1 - 1.6 Galvanised Steel
CABINET TOP AND SIDES	0.9 - 1.1 mm Galvanised Steel
SURFACE FINISH	65 μ Baked Polyester Powder Coat

INSULATION	
TYPE	Foil Faced Polyethylene

ELECTRICAL	
Power Supply - 50 Hz	400 Volts x 3 Phase + N
VOLTAGE RANGE (min - max)	380 V - 440 V
FULL LOAD AMPS* - (L1 / L2 / L3)	16.4 / 20.0 / 14.2
RATED LOAD AMPS**	11.4
APPROXIMATE STARTING AMPS	< 45.0
IP RATING	IP44

IMPORTANT - The local electricity authority may require limits on starting current and voltage drop, please check prior to purchase.

* Full Load Amps are based on Compressor and Fan Motor's maximum expected current.

** Rated Load Amps are measured and tested in accordance with AS/NZS3823.1.2.

CABLE SIZE and CIRCUIT BREAKER SIZE	
Suggested minimum cable size should be used as a guide only, refer to the accordance with the latest edition of the AS/NZS 3000 "Australian/New Zealand Wiring Rules" for more details.	
CABLE SIZE (main line)	4.0 mm ² (SUGGESTED MINIMUM)
CIRCUIT BREAKER SIZE	25.0 Amps

OUTDOOR COIL	
TUBE TYPE	Copper - Rifle Bore
FIN TYPE	Aluminium - Wave
FACE AREA (m sqr)	1.51
FIN SPACING (per m)	472
COIL COATING	Hydrophilic Blue Coat Coil Fin Protection

OUTDOOR FAN	
NUMBER OF FANS x TYPE	2 x Axial
NUMBER OF BLADES PER FAN	5
DIAMETER (mm)	500
OUTPUT kW (each)	0.27
MOTOR TYPE / DRIVE TYPE	6 Pole External Rotor / Direct
FAN SPEED CONTROL	3 Speed via Capacitor
The standard type outdoor fans fitted to this unit will only accept 5 Pa of external static resistance.	

INDOOR COIL	
TUBE TYPE	Copper - Rifle Bore
FIN TYPE	Aluminium - Louvre
FIN SPACING (per m)	472
COIL COATING	Hydrophilic Blue Coat Coil Fin Protection

INDOOR FAN	
NUMBER OF FANS x TYPE	1 x Twin Deck Centrifugal EC Fan
DIAMETER (mm)	204 x 204
INPUT kW (each)	0.35
MOTOR TYPE / DRIVE TYPE	Variable Speed EC Motor / Direct
FAN SPEED CONTROL	Electronic Control

COMPRESSOR	
NUMBER PER UNIT x TYPE	Tru-Inverter Variable Speed Scroll / 1
FULL LOAD AMPS	14.2
LOCKED ROTOR AMPS	128.0
STARTING METHOD	In-built Soft Starting

REFRIGERATION SYSTEM	
REFRIGERANT TYPE	R-410A
EXPANSION CONTROL	Direct Expansion Orifice / EEV
FACTORY CHARGE (grams)	6800

PROTECTION DEVICES	
HIGH PRESSURE CUTOFF SWITCH	Nonadjustable (Automatic Reset)
LOW PRESSURE CUTOFF SWITCH	Nonadjustable (Automatic Reset)
COMPRESSOR MOTOR TEMP.	Internal Thermal Cut-Out
INDOOR FAN OVERLOAD	Internal Thermal Cut-Out
OUTDOOR FAN OVERLOAD	Internal Thermal Cut-Out
SUMP HEATER WATTS	37 W during compressor off cycle

ELECTRONIC CONTROLS	
DEFROST METHOD	Reverse Cycle
DEFROST TYPE	Adaptive Demand Defrost
CONTROL CIRCUIT BREAKER	16.0 Amps
LC7-2 FIELD CONTROL WIRING	Cat5e UTP (AWG24) Data Cable

OPERATING RANGE			
It is essential that the unit is correctly sized for the application and operates within its recommended range of operating conditions as shown below.			
MODE	RANGE	INDOOR AIR INTAKE TEMPERATURE	OUTDOOR AIR INTAKE TEMPERATURE
Cooling	Max.	30°C DB / 22°C WB	50°C DB
	Min.	20°C DB / 16°C WB	5°C DB
Heating	Max.	24°C DB	19.5°C DB / 18°C WB
	Min.	16°C DB	-15°C DB

AIR FILTERS	
All return air including fresh air must have adequate filters supplied and fitted by the installing contractor. Filters must be located in accessible location between the return air grille and the unit.	
ActronAir does not supply or make any provisions for return air filter.	

UNIT COMPLIANCE	
<ul style="list-style-type: none"> AS/NZS 3823.2 (MEPS) AS/NZS 4755.3.1 (DRM1, 2 and 3) AS/NZS CISPR 11, Group 1 Class A (EMC) 	

3 Phase
1 Stage

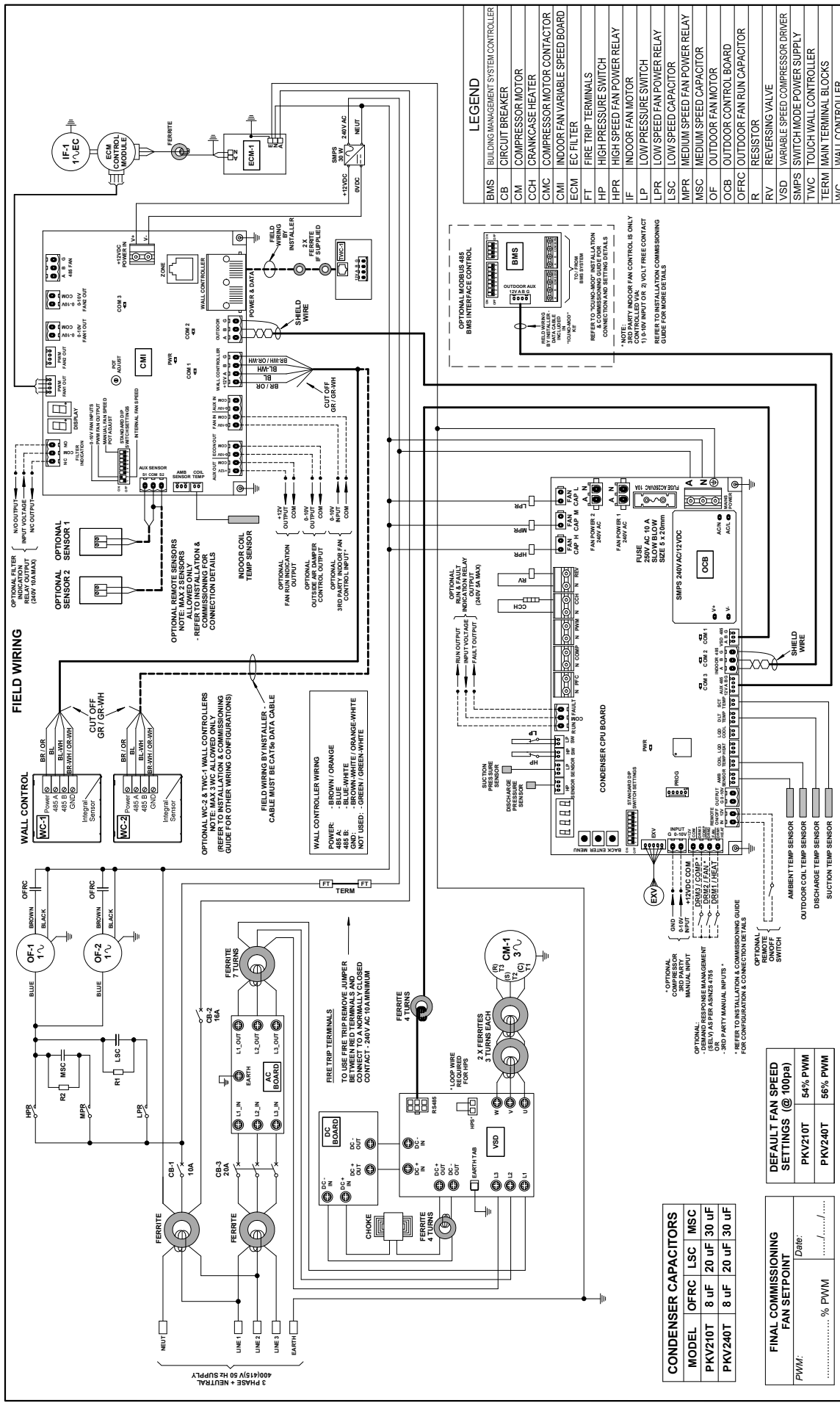
19.40 kW



WIRING DIAGRAM

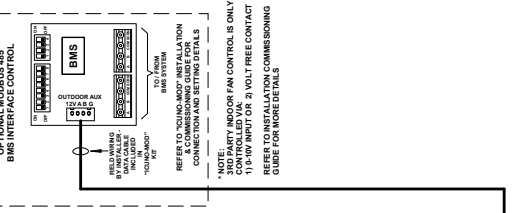
PKV210T

19.40 kW
3 Phase 1 Stage



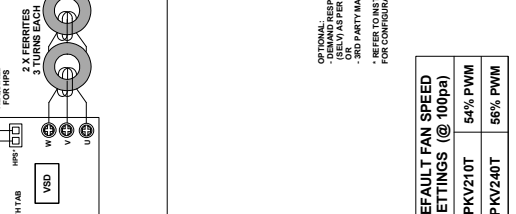
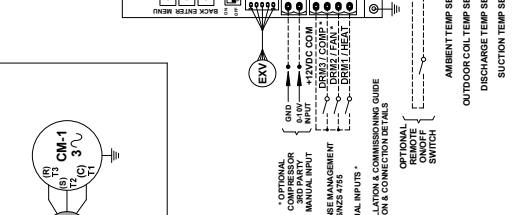
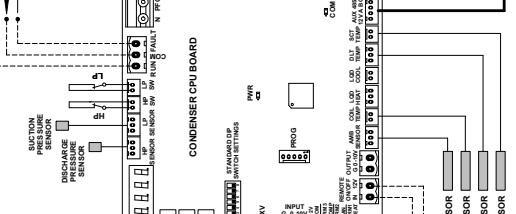
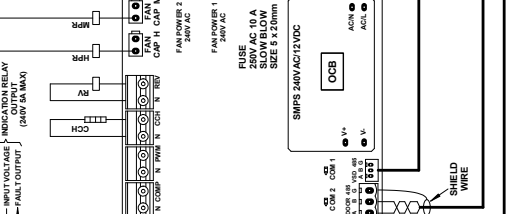
LEGEND

BMS	BUILDING MANAGEMENT SYSTEM CONTROLLER
CB	CIRCUIT BREAKER
CM	COMPRESSOR MOTOR
CCH	CRANKCASE HEATER
CMC	COMPRESSOR MOTOR CONTACTOR
CMI	INDOOR FAN VARIABLE SPEED BOARD
ECM	EC FILTER
FT	FIRE TRIP TERMINALS
HP	HIGH PRESSURE SWITCH
HPR	HIGH SPEED FAN POWER RELAY
IFR	INDOOR FAN MOTOR
LP	LOW PRESSURE SWITCH
LPR	LOW SPEED FAN POWER RELAY
LSC	LOW SPEED CAPACITOR
MPR	MEDIUM SPEED FAN POWER RELAY
MSC	MEDIUM SPEED CAPACITOR
OF	OUTDOOR FAN MOTOR
OFC	OUTDOOR CONTROL BOARD
OFR	OUTDOOR FAN RUN CAPACITOR
R	RESISTOR
RV	REVERSING VALVE
VSD	VARIABLE SPEED COMPRESSOR DRIVER
SMPS	SWITCH MODE POWER SUPPLY
TWIC	TOUCH WALL CONTROLLER
TERM	MAIN TERMINAL BLOCKS
WVC	WALL CONTROLLER



NOTES:

- 3RD PARTY INDOOR FAN CONTROLS ONLY
- 115-110V INPUT OR 2 VOLT FREE CONTACT
- REFER TO INSTALLATION COMMISSIONING GUIDE FOR MORE DETAILS



CONDENSER CAPACITORS

MODEL	OFC	LSC	MSC
PKV210T	8 uF	20 uF	30 uF
PKV240T	8 uF	20 uF	30 uF

FINAL COMMISSIONING FAN SETPOINT

PWM: % PWM

DATE:

ActronAir

Base Model No: **PKV210/240T** Variation Code: **STANDARD**

Description: **UNO SERIES CONTROL SYSTEM WIRING DIAGRAM WITH LC SERIES WALL CONTROL, CMI VARIABLE SPEED INDOOR FAN CONTROL BOARD**

E	ADDED FERRITE TO TWC-1	3571	RL	16-09-2022
Rev.	Description	PCR	By	Date
D				

Drawn: **RL** Date: **04-04-2019** Drawing No: **WD2031** Size: **A3**

Approved: **JL** Date: **20-09-2022** Revision: **E**

ORIGINAL