



DUNNAIR
(Aust) Pty Ltd

PHE45

Economy Cycle Rooftop Packaged

R410a Refrigerant

PERFORMANCE DATA

INDOOR COIL ENTERING AIR TEMP °C		OUTDOOR COIL ENTERING TEMPERATURE °C											
		30°C			35°C			40°C			45°C		
		Tot. Cap KW	Sens.Cap KW	LWB °C	Tot. Cap KW	Sens.Cap KW	LWB °C	Tot. Cap KW	Sens.Cap KW	LWB °C	Tot. Cap KW	Sens.Cap KW	LWB °C
DB °C	WB °C												
21	17	44.1	27.1	12.0	41.8	26.1	12.3	39.5	25.1	12.6	37.5	25.1	12.8
	18	45.5	24.0	12.4	43.2	23.1	13.3	40.8	22.1	13.6	38.9	21.3	13.8
	19	47.0	21.2	14.0	44.7	20.2	14.3	42.2	19.2	14.6	40.4	18.4	14.8
	20	48.6	18.3	15.1	46.1	17.3	15.4	43.6	16.4	15.7	41.8	15.7	15.9
23	17	44.0	32.6	11.9	41.7	31.7	12.2	39.4	30.8	12.5	37.5	30.0	12.8
	18	45.6	29.9	13.0	43.2	28.9	13.3	40.9	28.0	13.6	39.0	27.3	13.8
	19	47.0	26.6	14.0	44.6	25.6	14.3	42.1	24.6	14.6	40.3	23.9	14.8
	20	48.5	23.7	15.1	46.1	22.7	15.4	43.6	21.8	15.7	41.8	21.1	15.9
	21	50.1	20.9	16.3	47.6	20.0	16.6	45.0	19.0	16.9	43.3	18.4	17.1
25	17	44.4	37.8	11.8	42.1	36.8	12.0	39.8	35.7	12.3	37.9	34.9	12.6
	18	45.5	36.6	13.0	43.2	34.4	13.3	40.8	33.4	13.6	38.9	32.7	13.8
	19	47.0	35.0	14.0	44.6	31.3	14.3	42.2	30.3	14.6	40.3	29.6	14.8
	20	48.5	33.5	15.1	46.0	28.2	15.4	43.5	27.2	15.7	41.7	26.5	15.9
	21	50.1	31.9	16.1	47.6	25.4	16.4	45.0	24.4	16.7	43.2	23.8	16.9
27	17	45.2	41.6	11.7	43.0	40.0	12.0	40.8	39.1	12.3	39.0	38.0	12.5
	18	45.8	40.5	12.9	43.5	39.1	13.2	41.1	38.6	13.5	39.3	37.8	13.7
	19	47.0	37.7	14.0	44.6	36.4	14.3	42.1	35.8	14.6	40.3	35.0	14.8
	20	48.5	34.9	15.0	46.1	33.5	15.3	43.6	33.0	15.6	41.8	32.3	15.8
	21	49.9	31.8	16.2	47.5	30.5	16.5	44.9	30.0	16.9	43.1	29.3	17.1
29	17	46.2	45.0	11.5	44.2	43.4	11.7	42.1	42.1	12.0	40.4	40.4	12.2
	18	46.7	44.1	12.8	44.5	42.9	13.0	42.2	41.6	13.3	40.4	40.4	13.6
	19	47.2	43.1	13.8	44.9	42.2	14.1	42.5	41.2	14.4	40.4	40.4	14.6
	20	48.4	39.9	15.0	46.0	39.0	15.3	43.5	38.0	15.6	41.7	37.3	15.8
	21	50.0	37.2	16.1	47.5	36.2	16.4	44.9	35.3	16.7	43.1	34.6	16.9
31	17	47.9	47.9	11.4	45.7	45.7	11.7	43.7	43.7	12.0	42.2	42.2	12.2
	18	47.9	47.9	12.6	45.7	45.7	12.9	43.7	43.7	13.2	42.2	42.2	13.4
	19	47.9	47.9	13.8	45.7	45.7	14.1	43.7	43.7	14.4	42.2	42.2	14.6
	20	48.7	45.9	15.1	45.7	45.7	15.4	43.7	43.7	15.7	42.2	42.2	15.9
	21	50.0	42.5	15.9	47.5	41.6	16.2	44.9	40.6	16.5	43.2	40.0	16.7

Capacity multipliers should be applied to the above capacities to adjust for reduced or increased air flow.



Technical Specification PHE45 Economy Cycle Rooftop Packaged Model

Total Cooling Capacity (kW)*	44.6	Number of Compressors	2
Sensible Cooling Capacity (kW)*	36.4	Power Requirements (Volt /Phase)	415 / 3
Heating Capacity (kW)**	44.2	Normal Max. Current (Amps /Phase)	37.2
Nominal Evaporator Air Flow (L/S)	2700	Power Input (kW)	17.1
*Entering air @ 27/19 °C and ambient 35°C		** Entering air @ 21 °C DB and 7°C ambient	

Air Quantity Multiplying Factors

Capacity	% Rated Air Quantity - Nominal 2700 l/s				
	80	90	100	110	120
Total Cooling	0.95	0.98	1.00	1.02	1.04
Sensible Cooling	0.89	0.95	1.00	1.05	1.09

Heating Performance Data

Outdoor Coil Entering DB temperature °C					
	0	4	8	12	18
Heating Capacity (kW)	34.9	38.8	44.9	48.5	55.5

Heating Performance Correction

% Rated Air Quantity	Multiplier	Return Air Temp °C	Multiplier	Outdoor Air Temp °C	Approx. Defrost Factor
80	0.93	15	1.05	0	0.80
90	0.97	18	1.03	2	0.78
100	1.00	21	1.00	4 - 6	0.75
110	1.03	24	0.97	7	0.87
120	1.05	27	0.95	8	1.00

Compressor

Number Per Unit	2
Type	Scroll
RPM (Nom)	2900
Normal Max Current (Amps /Phase)	2 x 14.0
Locked Rotor Current (Amps /Phase)	2 x 68
Displacement (m ³ /h)	2 x 13.0

Electrical Controls and Safeties

High Pressure Switch (Setting kPa)	4000	Defrost	
Low Pressure Switch (Setting kPa)	300	Initiation Temperature (°C)	-2
Indoor Fan Overload	Internal	Termination Temperature (°C)	18
Outdoor Fan Overload	Internal	Min. Period Between De-Ice (min)	30
Compressor Delay Timer	300 sec	Max De-Ice Period (min)	10

Standard Features

Auto reset high pressure and auto reset low pressure cutouts	
Thermal overload protection on all motors	Suction line accumulator
Compressor crankcase heater	Automatic de-ice system
Limit start timer (anti short cycling)	Thermally insulated indoor unit

Evaporator Coil

Type	Copper Tube / Aluminium Fins
Face Area (m ²)	2 x 0.55
Air Quantity (l/s)	2700

Evaporator Fan

Number of Fans	1
Type	Centrifugal
Drive	Direct
Motor Voltage /Phase /Frequency	415 /3 /50
Motor Power (kW)	3.0
Maximum Fan Speed (rpm)	825

Electrical

Power Requirements	3 Phase /415V /50Hz
Normal Max. Current (Amps /Phase)	37.2

Condenser Coil

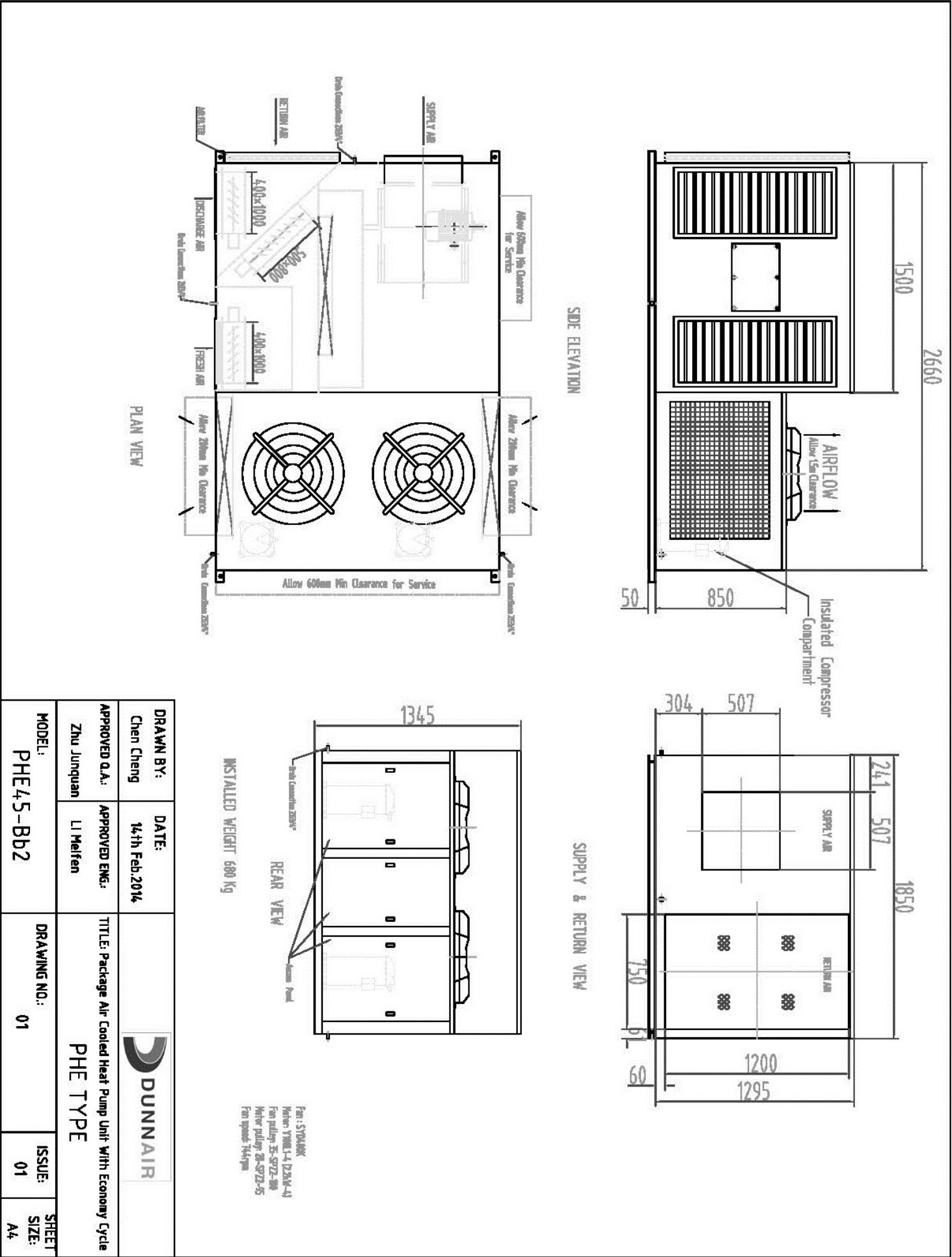
Type	Copper Tube /Aluminium Fins
Face Area(m ²)	2 x 0.73


Condenser Fan

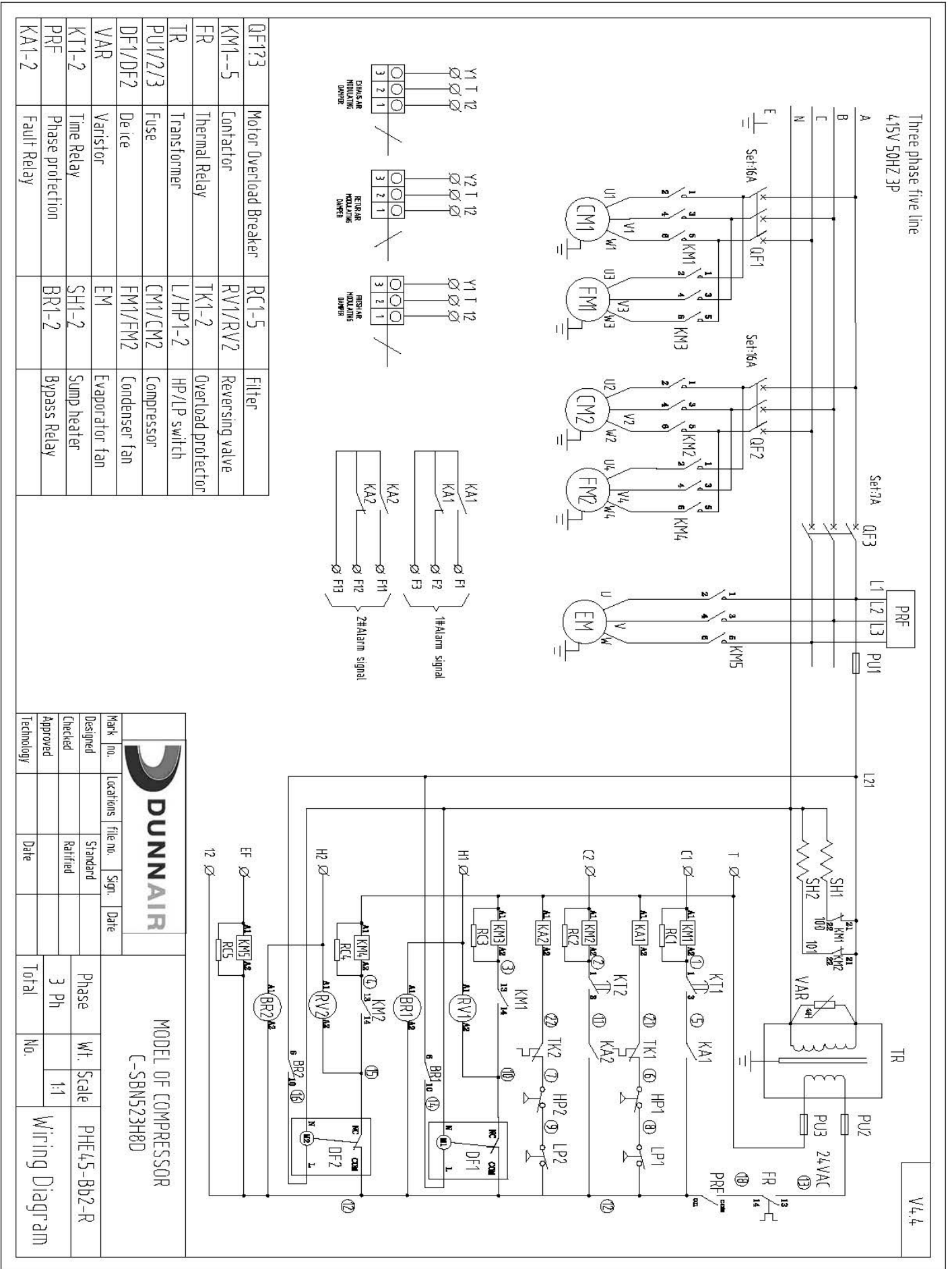
Number of Fans	2
Type	Axial
Drive	Direct
Motor Watts /rpm	2 x 370 / 950
Motor Voltage /Phase /Frequency	415 / 3 / 50

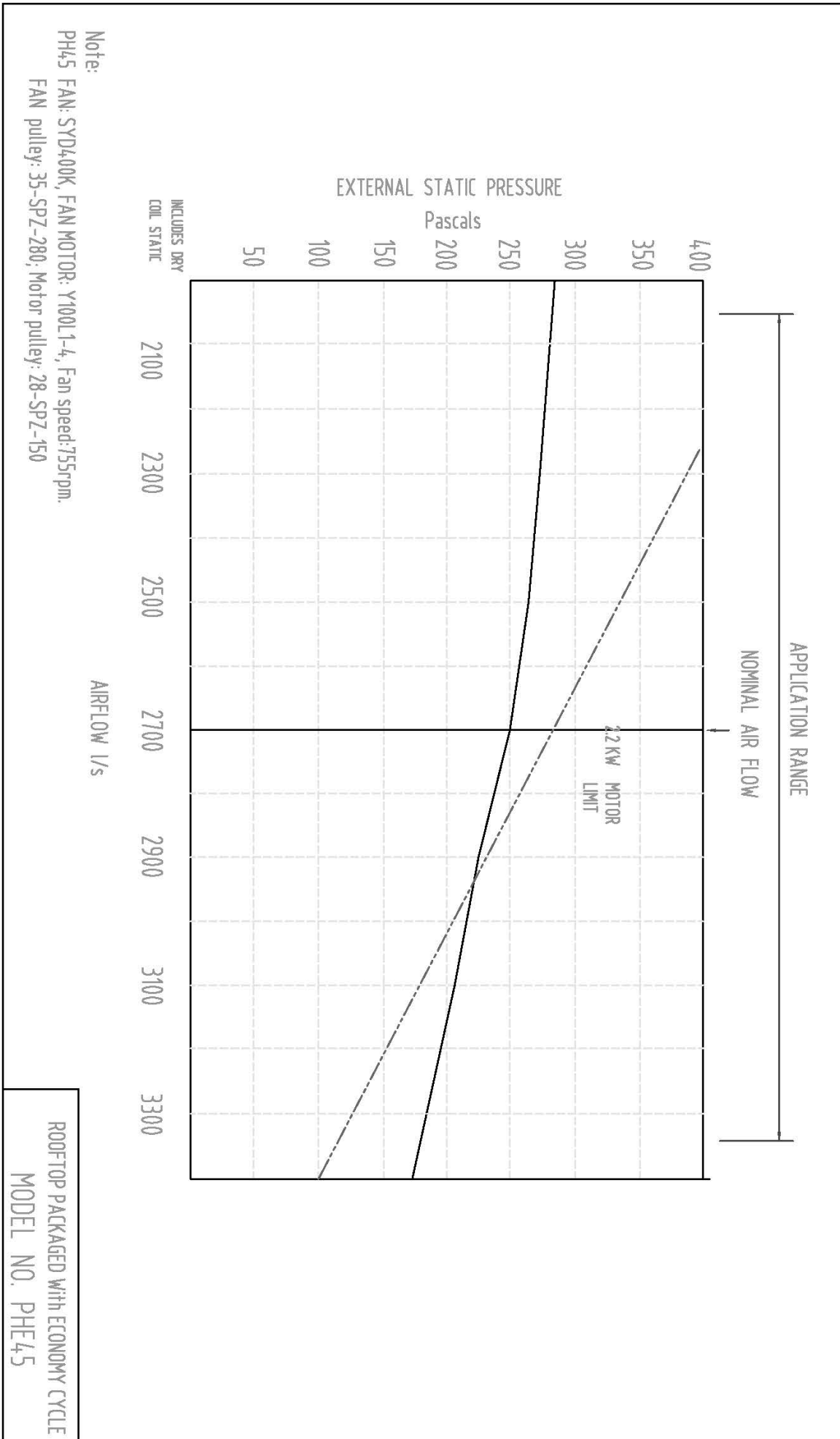
Refrigeration System

Refrigerant Type	R410A
Charge(kg)	2 x 5.6
Service Connections	Rotor Lock Valves
Expansion Control - In / Outdoor unit	TX Valve



MODEL: PHE45-BB2	DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4
DRAWN BY: Chen Cheng	DATE: 14th Feb 2014	 DUNNAIR	
APPROVED O.A.: Zhu Junquan	APPROVED ENG.: LI Melfen		
PHE TYPE			
TITLE: Package Air Cooled Heat Pump Unit With Economy Cycle			



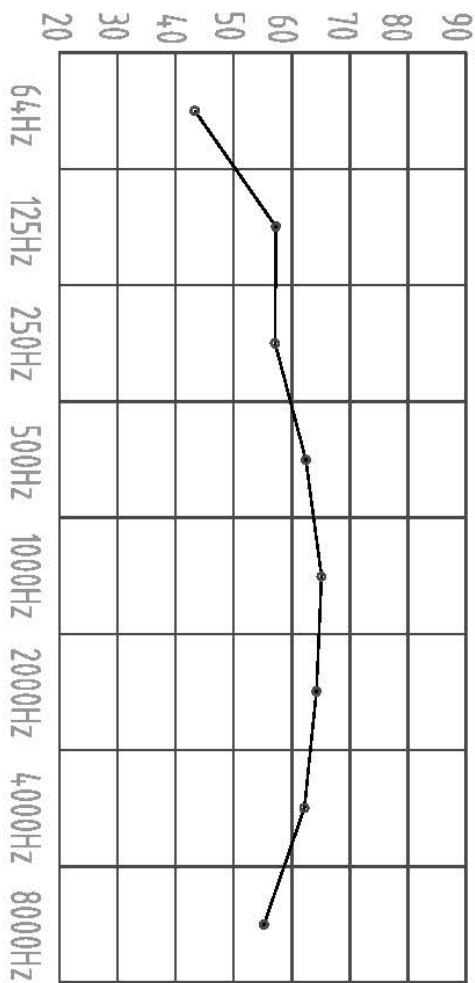


PHE45 Sound Pressure Curve


A Class: 70.3dB

Hz	dB
64Hz	43
125Hz	58
250Hz	57
500Hz	63
1000Hz	66
2000Hz	64
4000Hz	62
8000Hz	56

Sound Pressure Curve (A Class: 70.3dB) dB



Note: Occupant at least 1.0m from sound source.

DRAWN BY: Chen Cheng	DATE: 13th, Feb 2014		
APPROVED Q.A.: Zhu Junquan	APPROVED ENG.: Li Melfen		
MODEL: PHE45	DRAWING NO.: 01	PHE TYPE	
	ISSUE: 01	SHEET SIZE: A4	
TITLE: Packaged Rooftop With Economy Cycle			