



DUNNAIR
(Aust) Pty Ltd

PHE140

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	135.1	82.1	11.4	128.2	79.2	11.7	120.8	76.1	12.1	115.7	76.1	12.3
	18	139.9	74.1	12.0	132.7	71.1	12.9	124.9	67.7	13.2	120.0	65.7	13.5
	19	145.0	65.7	13.8	137.3	62.7	14.1	129.2	59.3	14.5	124.5	57.4	14.7
	20	150.2	56.9	14.7	142.3	53.7	15.2	134.0	50.4	15.6	129.2	48.3	15.9
23	17	135.7	98.1	11.3	128.6	95.4	11.7	121.3	92.2	12	116.2	90.1	12.3
	18	139.9	89.9	12.4	132.7	87	12.8	124.9	83.6	13.2	120	81.5	13.5
	19	145	81.5	13.6	137.4	78.6	14	129.3	75.4	14.4	124.5	73.3	14.7
	20	150.3	72.8	14.7	142.3	69.6	15.2	134	66.3	15.6	129.3	64.2	15.8
	21	155.6	64	15.8	147.6	60.8	16.2	138.7	57.3	16.6	134.1	55.2	16.9
25	17	137.0	112.9	11.2	130.0	109.7	11.5	122.7	106.3	12.0	117.9	104.1	12.2
	18	140.3	109.1	12.5	133.1	103.5	12.9	125.3	100.2	13.3	120.4	98.1	13.6
	19	145.8	103.9	13.6	137.4	94.4	14.0	129.3	91.2	14.4	124.7	89.2	14.6
	20	150.3	97.9	14.7	142.5	85.6	15.2	134.0	82.1	15.6	129.3	80.2	15.8
	21	155.8	91.4	15.8	147.6	71.3	16.2	138.7	73.1	16.6	134.1	71.3	16.8
27	17	139.2	125.2	11.1	132.9	121.4	11.4	125.7	117.2	11.8	121.1	114.5	12.1
	18	141.9	122.4	12.3	134.4	119.4	12.7	126.6	116.1	13.1	123.0	114.0	13.3
	19	146.3	113.6	13.4	137.8	110.6	13.8	129.6	107.2	14.2	124.9	105.2	14.4
	20	150.5	105.6	14.6	142.5	102.4	14.9	134.0	99.1	15.4	129.3	97.2	15.6
	21	155.8	95.7	15.8	147.8	92.5	16.2	138.9	89.0	16.6	134.2	87.1	16.8
29	17	142.9	129.4	11.0	136.5	131.1	11.4	129.3	125.9	11.8	124.0	123.1	12.0
	18	144.2	127.2	12.2	137.2	129.1	12.7	129.6	125.2	13.1	124.9	119.4	13.3
	19	146.3	125.0	13.5	138.9	127.6	13.8	130.8	124.2	14.2	125.4	117.2	14.5
	20	150.5	121.1	14.6	142.7	117.9	14.9	134.2	114.2	15.5	129.5	112.5	15.7
	21	155.8	111.6	15.8	147.8	108.4	16.2	138.9	104.8	16.6	134.2	103.0	16.8
31	17	147.4	144.6	10.7	141.2	139.0	11.0	133.7	132.7	11.4	129.5	128.8	11.6
	18	148.2	124.9	12.0	141.4	138.4	12.3	134.2	132.3	12.8	130.2	128.3	13.1
	19	149.0	141.4	13.3	141.9	137.9	13.7	134.2	131.6	14.1	130.2	128.0	14.3
	20	151.4	137.7	14.5	143.9	134.7	14.9	135.3	130.0	15.4	130.5	127.6	15.7
	21	156.0	128.5	15.8	148.0	125.4	16.2	139.1	127.2	16.6	134.4	120.0	16.9

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



Technical Specification PH140 Rooftop Packaged Model

Total Cooling Capacity (kW)*	137.8	Number of Compressors	2
Sensible Cooling Capacity (kW)*	110.6	Power Requirements (Volt /Phase)	415 / 3
Heating Capacity (kW)**	132.0	Normal Max. Current (Amps /Phase)	117.5
Nominal Evaporator Air Flow (L/S)	7500	Power Input (kW)	55.3
*Entering air @ 27/19 °C and ambient 35°C		** Entering air @ 21 °C DB and 7°C ambient	

Cooling Performance Correction

Capacity	% Rated Air Quantity - Nominal 7500 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)	103.2	113.8	132.0	145.0	174.4
Heating cap. Is based on 21 °C DB. Frost formation will have greatest effect at amb. 4-6 °C. Above 8 °C defrost is unlikely & a factor of 1 may be used.					

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	Hermetic Scroll
RPM (Nom)	2900
Normal Max Current (Amps /Phase)	37.8 / 46.6
Locked Rotor Current (Amps /Phase)	215 / 260
Displacement (m³/h)	39.6 / 49.7

Electrical Controls and Safeties

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

Standard Features

Auto reset high pressure and 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)	25 mm insulation to indoor unit
240 Volt Control	Sight Glass

Evaporator (Coil)

Type	Copper Tube / Aluminium Fins
Face Area (m²)	2.67
Air Quantity (l/s)	7500

Evaporator (Fan Motor)

Number of Fans	1
Type	Centrifugal
Drive	Belt
Motor Voltage /Phase /Frequency	415 /3 /50
Motor Power (kW)	11.0
Maximum Fan Speed (rpm)	658

Electrical

Power Requirements	3 Phase /415V /50Hz
Normal Max. Current (Amps /Phase)	117.5

Condenser (Coil)

Type	Copper Tube /Aluminium Fins
Face Area(m²)	2 x 2.51

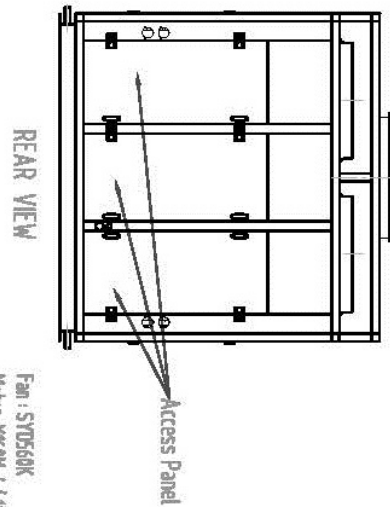
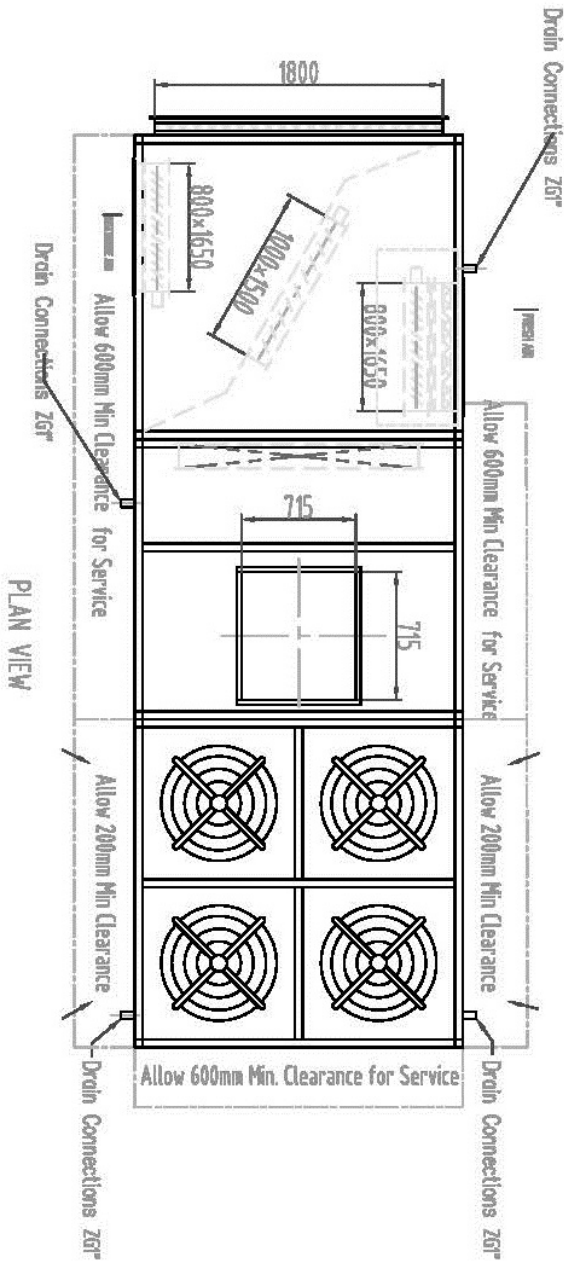
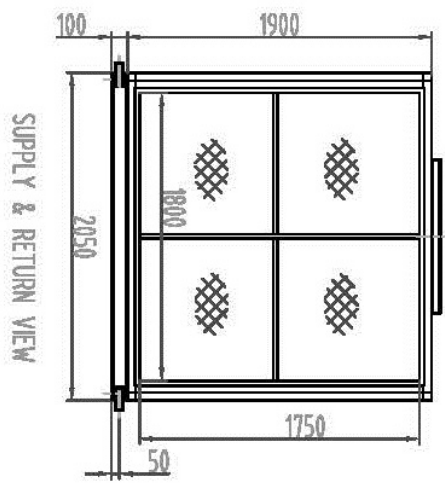
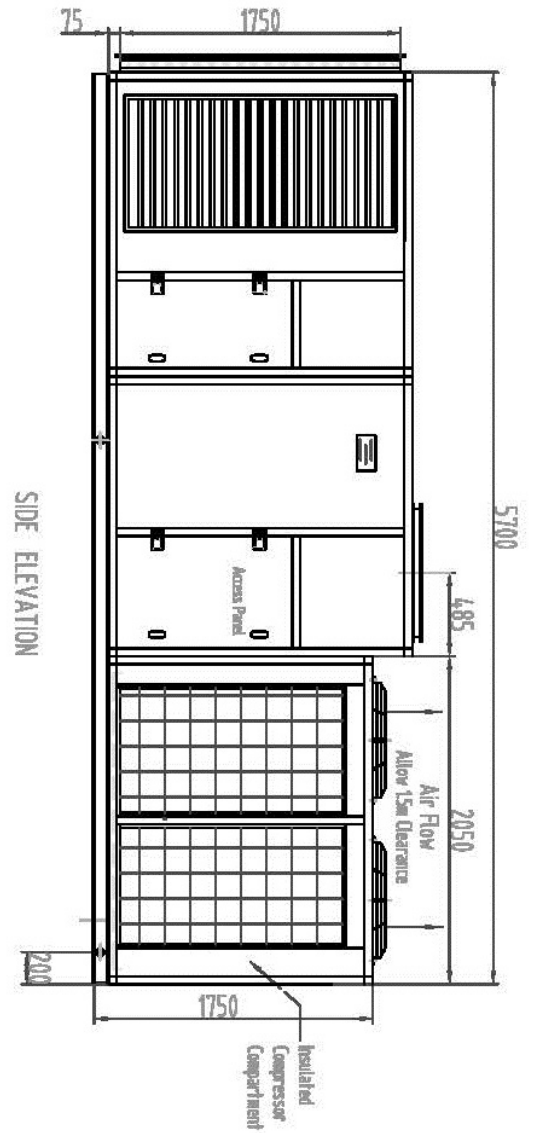
Condenser (Fan Motor)

Number of Fans	4
Type	Axial
Drive	Direct
Motor Type	Enclosed
Motor Power (kW)	4 x 0.75
Motor Voltage /Phase /Frequency	415 / 3 / 50

Refrigeration System

Refrigerant Type	R410A
Charge(kg)	14.6 / 18.8
Service Connections	Rotor Lock Valves
Expansion Control - In / Outdoor unit	TX Valve

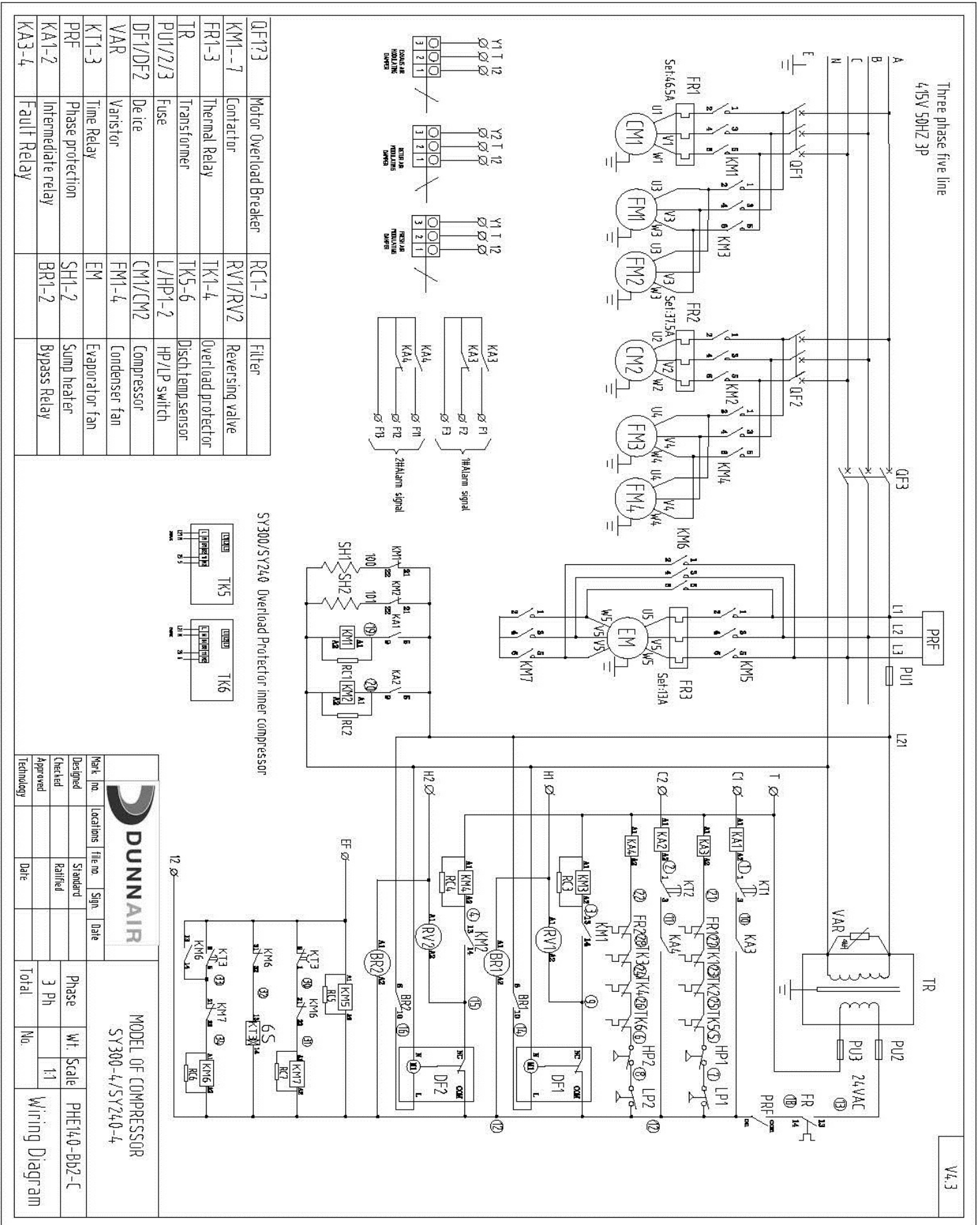
Evaporator unit is supplied with a variable speed motor pulley.

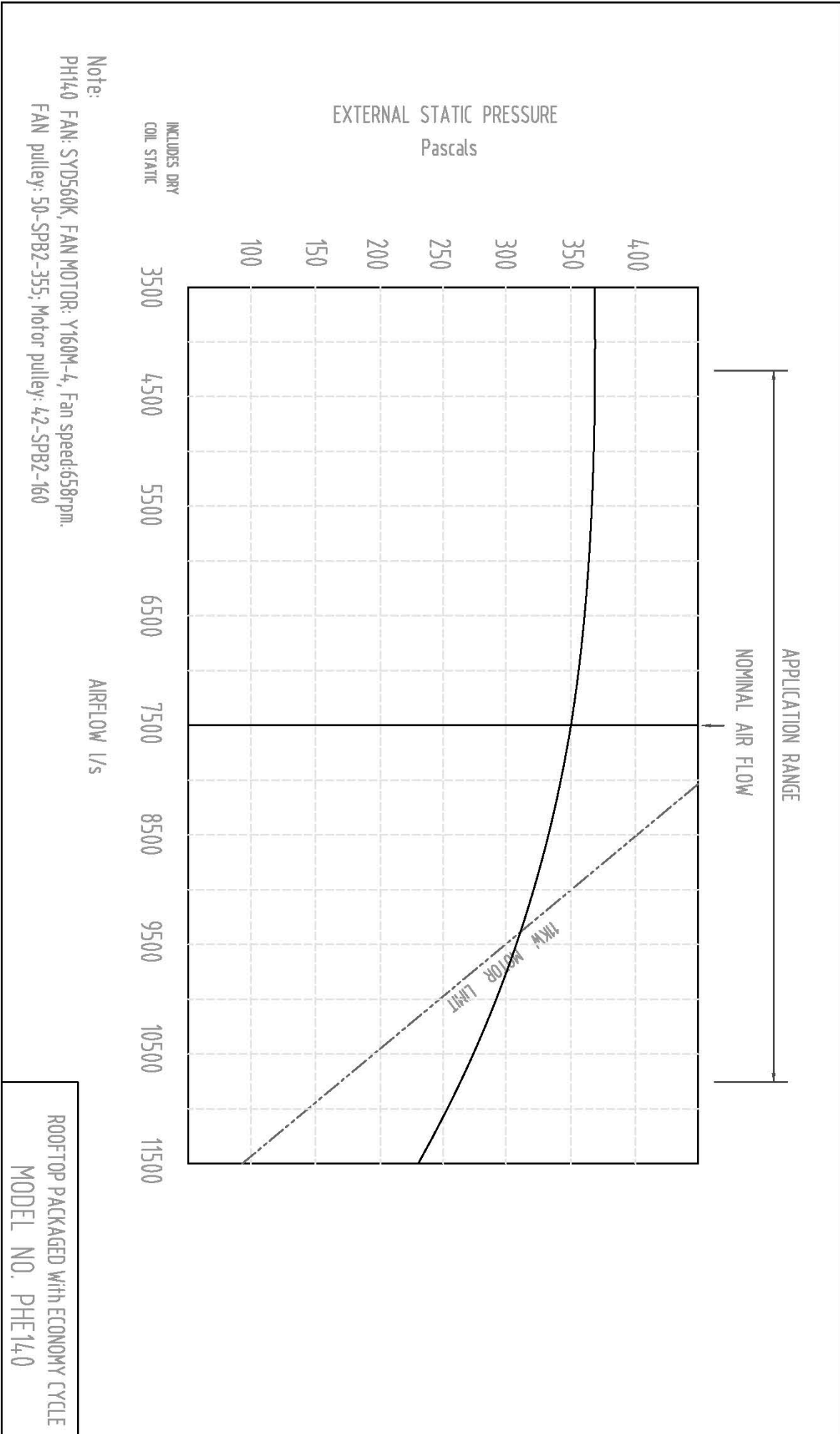


INSTALLED WEIGHT 2140KG

Fan : SYD56K
 Motor: Y160H-4 (11KW-4)
 Fan pulley: 50-SP82-355
 Motor pulley: 42-SP82-160
 Fan speed: 658rpm

DRAWN BY: Chen Cheng	DATE: 28th Feb 2014	
APPROVED Q.A.: Zhu Junquan	APPROVED ENG.: LI Melfan	
MODEL: PHE14.0-BB2		TITLE: Package Air Cooled Heat Pump Unit With Economy Cycle PHE TYPE
DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4





Note:

PH140 FAN: SYD560K, FAN MOTOR: Y160M-4, Fan speed: 658rpm.

FAN pulley: 50-SPB2-355; Motor pulley: 42-SPB2-160

AIRFLOW l/s

INCLUDES DRY
COIL STATIC

EXTERNAL STATIC PRESSURE
Pascals

APPLICATION RANGE
NOMINAL AIR FLOW

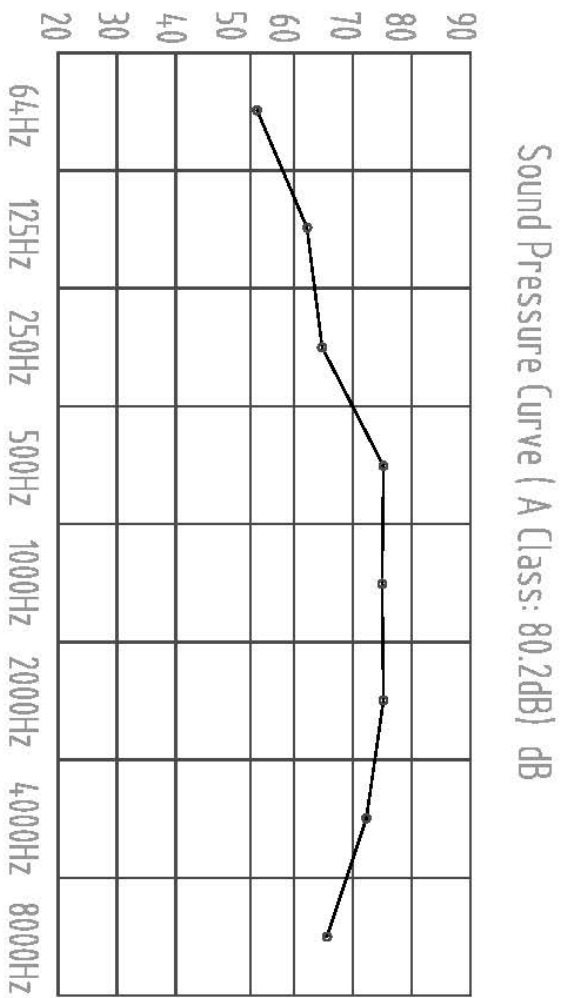
1kW MOTOR LIMIT

ROOFTOP PACKAGED with ECONOMY CYCLE
MODEL NO. PHE140


PHE140 Sound Pressure Curve

A Class: 80.2dB

Hz	dB
64Hz	51
125Hz	63
250Hz	66
500Hz	75
1000Hz	74
2000Hz	75
4000Hz	72
8000Hz	65



Note: Occupant at least 1.0m from sound source.

DRAWN BY: Chen Cheng	DATE: 13th Feb 2014			
APPROVED O.A.: Zhu Junquan	APPROVED ENG.: Li Meifen			
MODEL: PHE140		DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4
TITLE: Packaged Rooftop With Economy Cycle PHE TYPE				