



**DUNNAIR**  
(Aust) Pty Ltd

**PH180**

*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	173.4	106.6	11.2	164.4	102.9	11.5	154.9	98.8	12.0	148.4	98.8	12.2
	18	179.5	96.2	11.8	170.2	92.3	12.7	160.3	87.9	13.0	154.0	85.3	13.3
	19	186.0	85.3	13.6	176.2	81.4	13.9	166.1	77.0	14.3	159.8	74.6	14.5
	20	192.6	73.9	14.5	182.8	69.7	14.9	171.8	65.4	15.4	165.8	62.7	15.7
23	17	174.1	127.4	11.1	165	123.8	11.5	155.7	119.7	11.8	149.1	117	12.2
	18	179.5	116.8	12.3	170.2	112.9	12.6	160.3	108.5	13	154	105.8	13.3
	19	183	105.8	13.4	176.3	102	13.8	166.2	97.9	14.2	159.8	95.2	14.5
	20	192.8	94.5	14.5	182.8	90.3	14.9	171.8	86	15.4	165.9	83.3	15.6
	21	199.8	83.1	15.6	189.6	79	16	178.5	74.4	16.4	172.1	71.7	16.7
25	17	175.8	146.5	11.0	166.8	142.4	11.3	157.4	138.1	11.8	151.3	135.2	12.1
	18	179.9	141.7	12.4	170.7	134.4	12.7	160.8	130.1	13.1	154.5	127.4	13.4
	19	186.5	134.9	13.4	176.3	122.6	13.8	166.2	118.5	14.2	159.9	115.8	14.4
	20	192.8	127.2	14.5	182.9	111.2	14.9	171.9	106.5	15.4	165.9	104.2	15.6
	21	199.9	118.7	15.6	189.6	92.6	16.0	178.5	94.9	16.4	172.1	92.6	16.6
27	17	178.6	162.5	10.9	170.5	157.7	11.2	161.2	152.2	11.6	155.4	148.7	12.0
	18	182.1	158.9	12.2	172.4	155.0	12.5	162.5	150.7	12.9	157.9	148.0	13.1
	19	187.7	147.4	13.2	176.8	143.6	13.6	166.3	139.2	14.0	160.3	136.6	14.2
	20	193.0	137.1	14.4	182.9	133.0	14.7	171.9	128.7	15.1	165.9	126.2	15.4
	21	199.9	124.3	15.6	189.7	120.1	16.0	178.5	115.5	16.4	172.2	113.1	16.6
29	17	183.4	168.0	10.8	175.1	170.3	11.2	165.9	163.5	11.6	159.1	159.1	11.8
	18	185.1	165.1	12.1	176.1	167.6	12.5	166.3	162.5	12.9	160.3	155.1	13.1
	19	187.7	162.3	13.3	178.2	165.7	13.6	167.8	161.3	14.0	160.9	152.2	14.3
	20	193.0	157.2	14.4	183.1	153.0	14.7	172.2	148.3	15.2	166.1	146.1	15.5
	21	199.9	144.8	15.6	189.7	140.7	16.0	178.5	136.1	16.4	172.2	133.7	16.6
31	17	189.2	187.7	10.5	181.2	180.5	10.8	171.5	171.5	11.2	166.2	166.2	11.4
	18	190.1	185.5	11.8	181.4	179.7	12.2	172.2	171.4	12.6	167.1	166.2	12.9
	19	191.1	183.6	13.1	182.1	179.0	13.5	172.2	170.9	13.9	167.1	166.1	14.1
	20	194.3	178.8	14.3	184.6	174.9	14.7	173.6	168.7	15.1	167.5	165.7	15.5
	21	200.1	166.9	15.6	189.9	162.8	16.0	178.5	165.1	16.4	172.4	155.8	16.7

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



## Technical Specification PH180 Rooftop Packaged Model

Total Cooling Capacity (kW)*	176.8	Number of Compressors	2
Sensible Cooling Capacity (kW)*	143.6	Power Requirements (Volt /Phase)	415 / 3
Heating Capacity (kW)**	169.4	Normal Max. Current (Amps /Phase)	148.2
Nominal Evaporator Air Flow (L/S)	9500	Power Input (kW)	69.3
*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 9500 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)	132.4	146.0	169.4	186.0	223.8
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)	46.6 / 58.2
Locked Rotor Current (Amps /Phase)	260 / 320
Displacement (m³/h)	49.7 / 60

### 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 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)	3.35
Air Quantity (l/s)	9500

### 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)	606

### Electrical

Power Requirements	3 Phase /415V /50Hz
Normal Max. Current (Amps /Phase)	148.2

### Condenser (Coil)

Type	Copper Tube /Aluminium Fins
Face Area(m²)	2 x 3.35

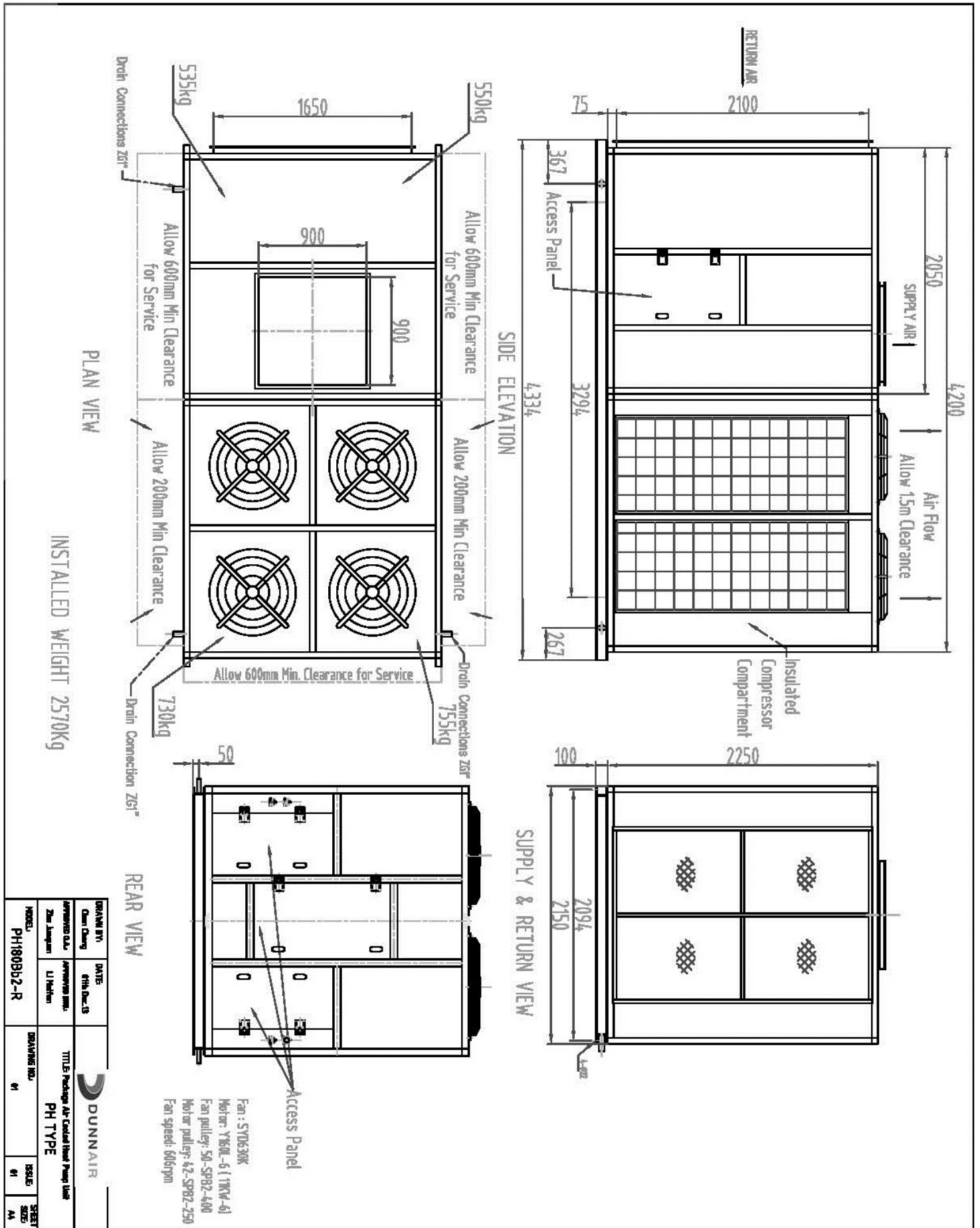
### Condenser (Fan Motor)

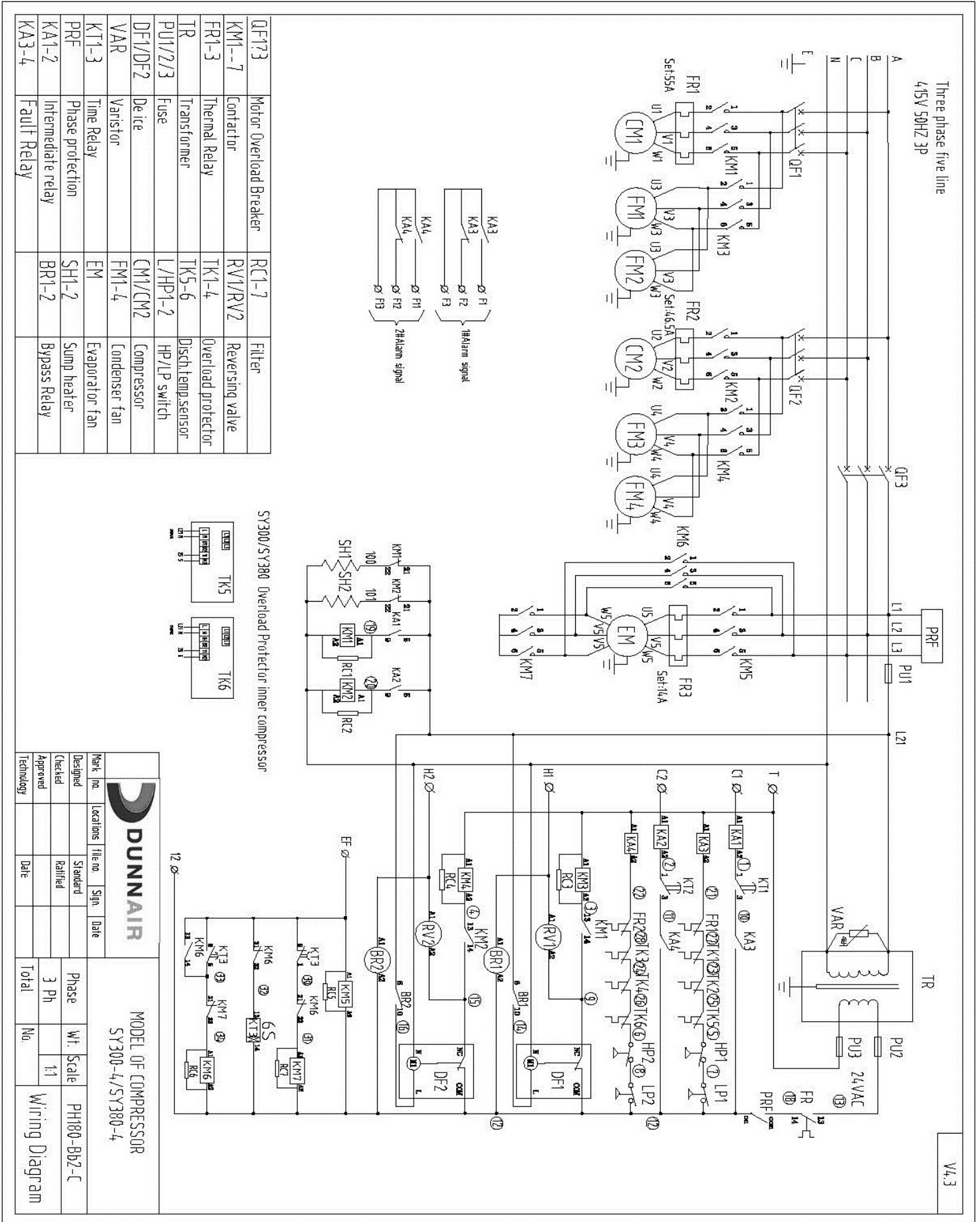
Number of Fans	4
Type	Axial
Drive	Direct
Motor Type	Enclosed
Motor Power (kW)	4 x 1.8
Motor Voltage /Phase /Frequency	415 / 3 / 50

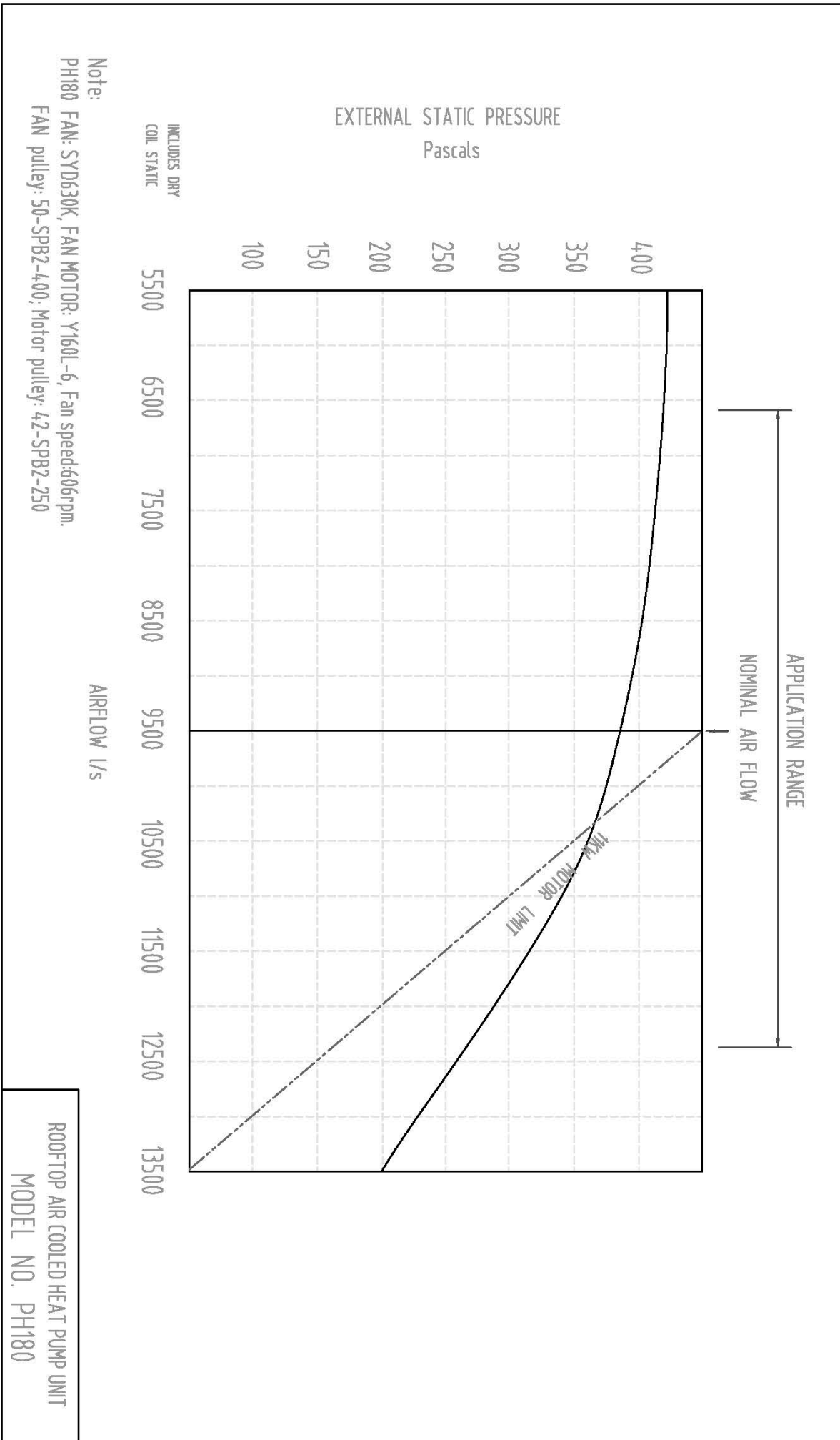
### Refrigeration System

Refrigerant Type	R410A
Charge(kg)	18.8 / 25.4
Service Connections	Rotor Lock Valves
Expansion Control - In / Outdoor unit	TX Valve

# Evaporator unit is supplied with a variable speed motor pulley.





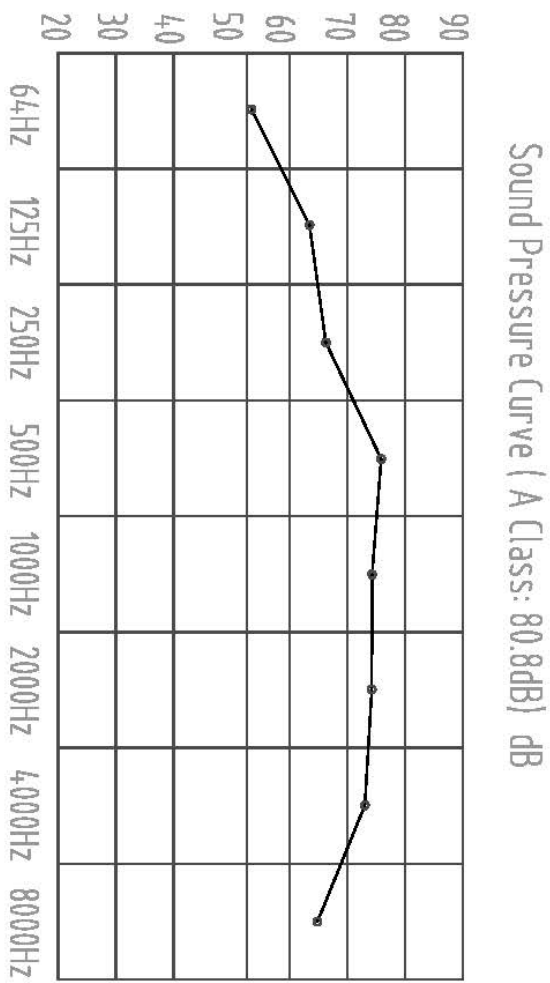



PH180 Sound Pressure Curve

A Class: 80.8dB

Hz	dB
64Hz	52
125Hz	64
250Hz	67
500Hz	76
1000Hz	75
2000Hz	75
4000Hz	73
8000Hz	66

Note: Occupant at least 1.0m from sound source.



<b>DRAWN BY:</b> Chen Cheng	<b>DATE:</b> 13th, Feb, 2014	
<b>APPROVED a.A.:</b> Zhu Junquan	<b>APPROVED ENG.:</b> Li Meifen	
<b>MODEL:</b> PH180	<b>DRAWING NO.:</b> 01	<b>TITLE:</b> Packaged Air Cooled Heat Pump Unit  PH TYPE
	<b>ISSUE:</b> 01	<b>SHEET SIZE:</b> A4