



**DUNNAIR**  
(Aust) Pty Ltd

**PH90**

*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	86.7	67.3	12.3	82.3	65.5	12.4	77.5	63.7	12.4	74.6	61.9	12.6
	18	90.0	61.2	13.2	85.7	59.6	13.3	80.9	57.8	13.5	77.8	56.2	13.8
	19	92.5	55.1	14.4	88.5	53.4	14.4	83.1	51.5	14.7	80.3	49.6	14.9
	20	94.8	48.7	15.3	90.6	47.1	15.6	85.4	45.4	15.6	82.9	43.8	15.7
23	17	87.1	73.2	12.1	82.6	71.4	12.4	78.0	69.6	12.6	74.6	67.8	12.9
	18	90.0	67.1	13.1	85.8	65.5	13.4	81.1	63.7	13.6	77.9	62.1	13.8
	19	92.9	61.0	14.2	88.5	59.3	14.4	83.2	57.4	14.7	80.4	55.6	15.0
	20	95.3	54.6	15.2	90.9	53.1	15.5	85.8	51.1	15.8	83.1	49.4	16.1
	21	98.3	48.4	16.3	93.1	46.7	16.6	88.0	44.8	16.8	84.5	43.1	17.2
25	17	87.4	79.1	12.0	82.9	77.3	12.3	78.0	75.4	12.5	74.9	73.3	12.9
	18	90.1	73.0	13.3	86.0	71.4	13.3	81.2	69.5	13.6	78.0	67.7	13.9
	19	93.2	66.8	14.2	88.5	65.2	14.4	83.0	63.2	14.5	80.4	61.4	14.8
	20	95.3	60.5	15.1	90.8	58.8	15.5	86.1	57.0	15.7	83.2	55.2	15.9
	21	98.6	54.2	16.3	93.4	52.5	16.5	88.2	50.7	16.8	84.8	49.1	17.1
27	17	88.1	84.9	11.9	83.6	82.6	12.2	79.1	78.0	12.5	75.1	73.7	12.8
	18	90.8	78.8	13.7	86.7	77.3	13.7	81.0	75.4	13.4	78.4	72.9	13.9
	19	94.1	72.8	14.0	88.5	71.0	14.4	84.2	69.1	14.4	80.9	67.3	14.9
	20	96.0	66.3	15.1	91.4	64.7	15.6	86.9	62.9	15.6	83.5	61.2	16.0
	21	99.2	60.1	16.6	94.2	58.4	16.9	89.3	56.6	16.5	86.0	54.8	17.0
29	17	89.4	88.1	11.8	84.9	82.6	12.1	80.4	78.5	12.5	76.1	74.1	12.7
	18	91.4	84.7	13.6	87.1	78.1	13.6	82.2	76.3	13.4	78.7	74.1	13.8
	19	94.1	78.5	14.1	88.7	76.9	14.4	85.3	75.0	14.5	81.4	73.2	14.8
	20	96.2	72.2	15.0	91.4	70.6	15.5	88.1	68.8	15.6	83.9	66.9	15.9
	21	99.3	66.0	16.5	94.3	64.3	16.8	90.4	62.5	16.5	87.1	60.5	16.8
31	17	91.8	91.6	11.6	87.4	86.6	11.9	83.7	82.8	12.1	78.7	78.1	12.4
	18	93.5	90.2	13.4	89.3	85.1	13.4	85.6	84.9	13.2	81.5	80.8	13.5
	19	96.4	89.8	14.0	92.9	84.7	14.3	89.2	83.2	14.3	84.2	80.4	14.6
	20	98.6	84.1	14.8	94.1	78.8	15.5	90.8	76.4	15.5	85.9	73.9	15.8
	21	101.5	77.8	16.3	96.5	76.2	16.6	93.1	73.5	16.5	89.3	70.5	16.7

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



## Technical Specification PH90 Rooftop Packaged Model

Total Cooling Capacity (kW)*	88.5	Number of Compressors	2
Sensible Cooling Capacity (kW)*	71.0	Power Requirements (Volt / Phase)	415 / 3
Heating Capacity (kW)*	85.0	Normal Max. Current (Amps / Phase)	74.4
Nominal Evaporator Air Flow (L/S)*	4800	Power Input (kW)	34.2
*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 4800 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	68.9	75.8	87.6	96.1	114.0

### 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 29.3
Locked Rotor Current(amps/phase)	2 x 180
Displacement(m <sup>3</sup> /h)	2 x 29.6

### 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	300sec	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

Type	Copper Tube/Aluminium Fins
Face Area(m)	2 x 0.90
Air Quantity(l/s)	4800

### Evaporator (Indoor)

Number of Fans	1
Type	Centrifugal
Drive	Belt
Motor voltage / phase / frequency	415 / 3 / 50
Motor(kW) Standard	5.5
Maximum Fan Speed(rpm)	720

### Electrical

Power Requirements	3 phase / 415V / 50Hz
Normal Max. Current (amps/phase)	74.4

### Condenser

Type	Copper Tube / Aluminium Fins
Face Area (m <sup>2</sup> )	2 x 1.36

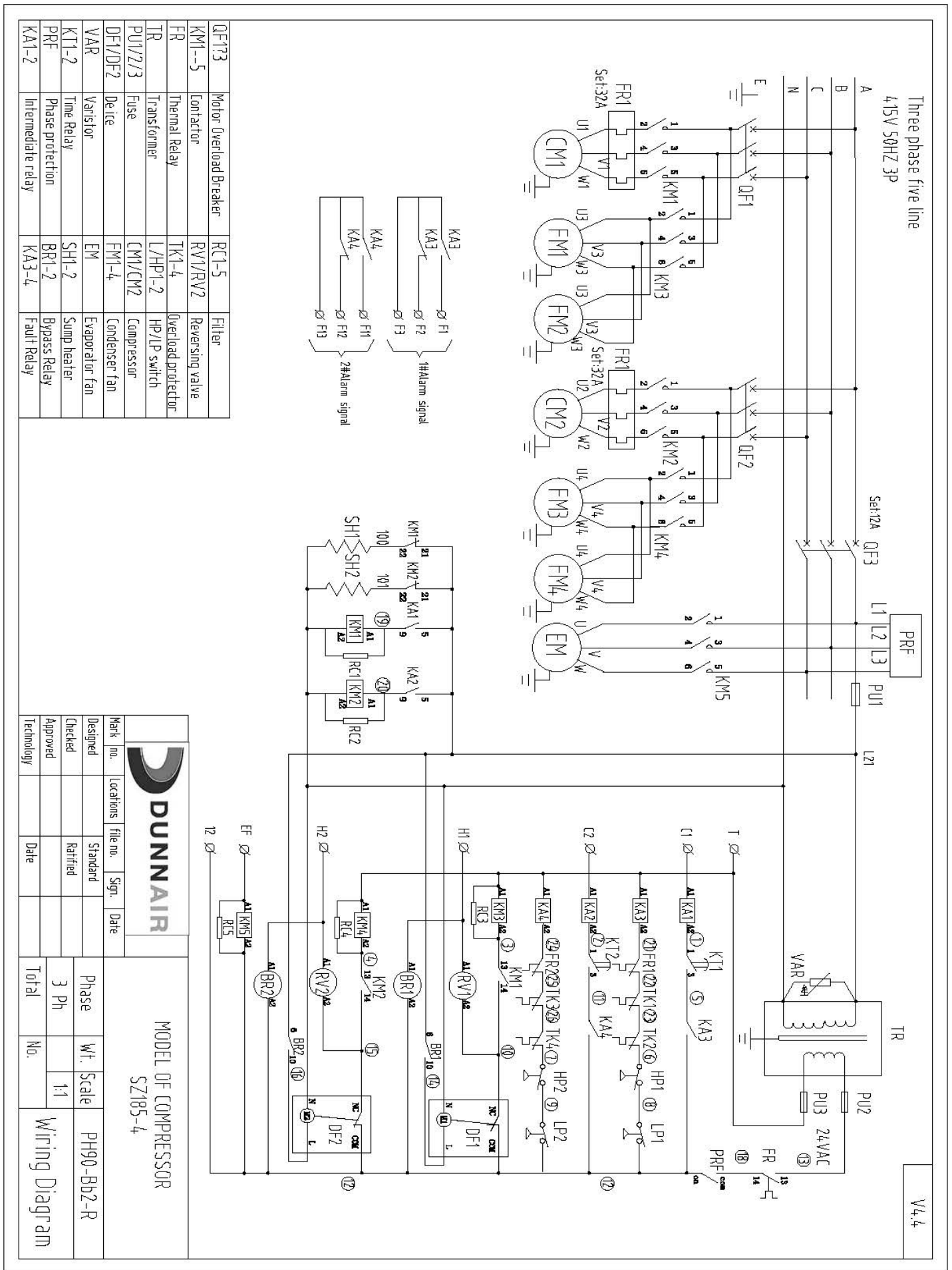
### Condenser (Outdoor)

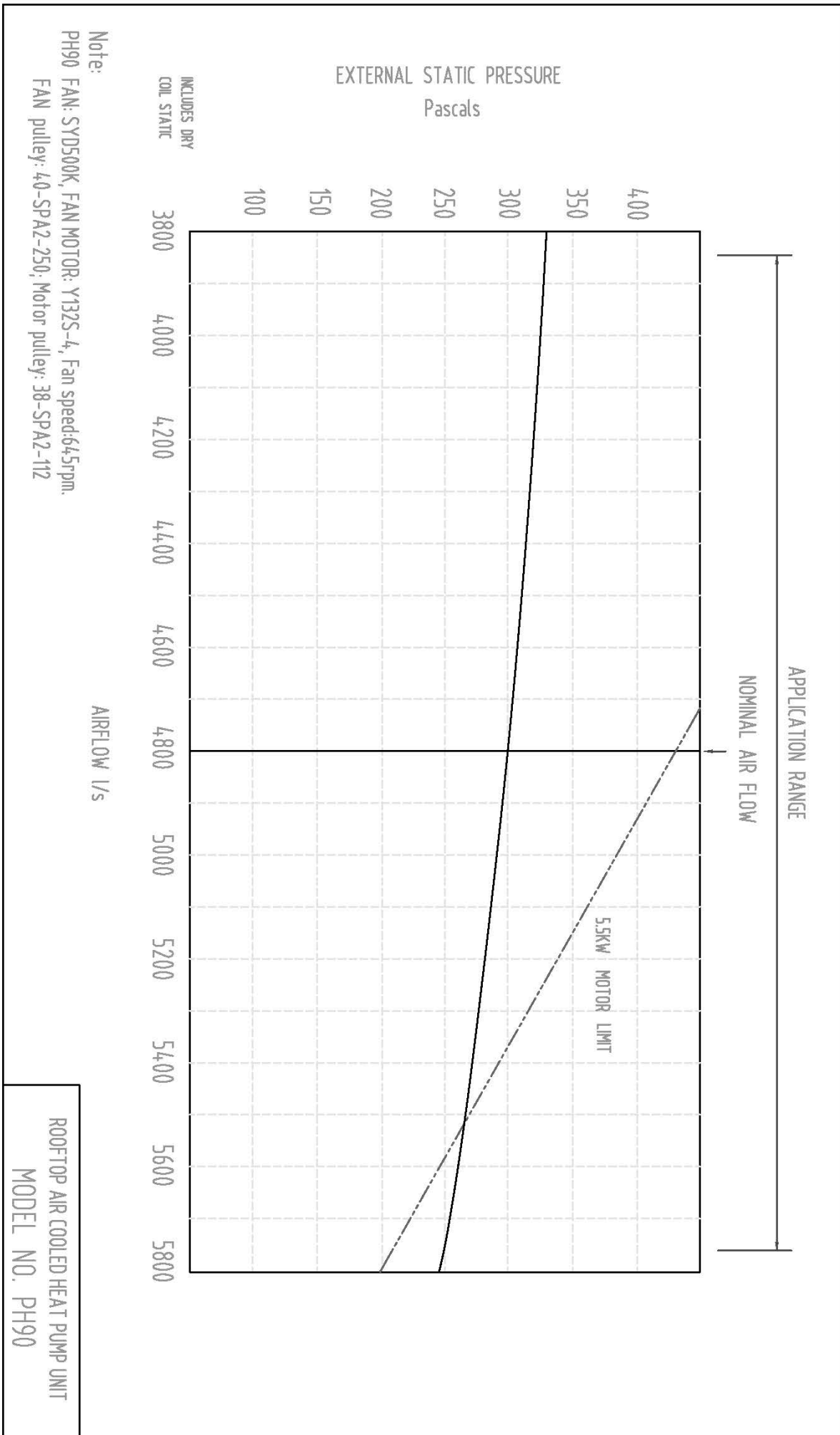
Number of Fans	4
Type	Axial
Drive	Direct
Motor Watts/rpm	4 x 370 / 950
Motor voltage/phase/frequency	415 / 3 / 50

### Refrigeration System

Refrigerant Type	R410A
Charge(kg)	2 x 12.0
Service Connections	Rotor lock valves
Expansion Control-in outdoor unit	TX valve





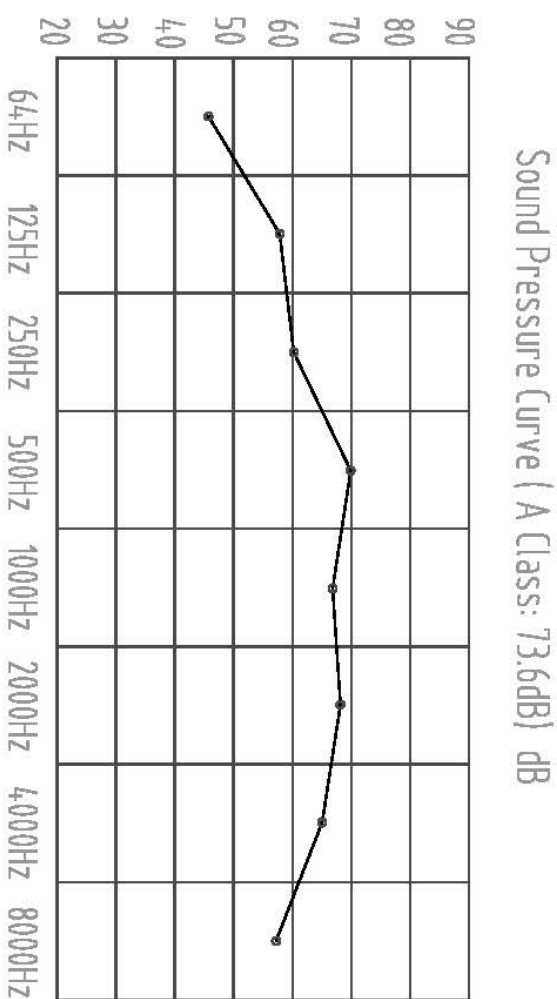



PH90 Sound Pressure Curve

A Class: 73.6dB

Hz	dB
64Hz	46
125Hz	58
250Hz	60
500Hz	70
1000Hz	67
2000Hz	68
4000Hz	65
8000Hz	58

Note: Occupant at least 1.0m from sound source.



<b>DRAWN BY:</b> Chen Cheng	<b>DATE:</b> 13th Feb, 2014	
<b>APPROVED O.A.:</b> Zhu Junquan	<b>APPROVED ENG.:</b> Li Meifen	
<b>TITLE:</b> Packaged Air-Cooled Heat Pump Unit <b>PH TYPE</b>		
<b>MODEL:</b> PH90	<b>DRAWING NO.:</b> 01	<b>ISSUE:</b> 01
		<b>SHEET SIZE:</b> A4