DUNNAIR (Aust) Pty Ltd

R410a Refrigerant

PHSE20

Economy Cycle Rooftop Packaged

PERFORMANCE DATA

INDOOR COIL ENTERING AIR TEMP °c		OUTDOOR COIL ENTERING TEMPERATURE °C											
		30℃			35℃			40℃			45℃		
DB °C	WB °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
21	17	18.8	11.6	11.5	17.9	11.2	11.8	17.0	10.8	12.1	16.5	10.8	12.2
	18	19.4	10.3	12.1	18.5	12.9	12.9	17.6	9.5	13.2	17.1	9.3	13.3
	19	20.0	9.1	13.6	19.1	13.9	13.9	18.1	8.3	14.2	17.6	8.0	14.3
	20	20.7	7.8	14.7	19.7	15.0	15.0	18.7	7.0	15.3	18.2	6.8	15.5
23	17	18.8	14.0	11.4	18.0	13.7	11.6	17.0	13.3	11.9	16.5	131.0	12.1
	18	19.4	12.7	12.5	18.5	12.3	12.8	17.5	11.9	13.1	17.0	11.7	13.3
	19	20.0	11.4	13.6	19.1	11.0	13.9	18.1	10.6	14.2	17.6	10.4	14.3
	20	20.7	10.1	14.8	19.7	9.8	15.1	18.7	9.3	15.5	18.2	9.1	15.6
	21	21.3	8.9	15.9	20.4	8.5	16.2	19.3	8.1	16.5	18.9	7.9	16.7
25	17	18.9	16.4	11.4	18.0	16.1	11.7	17.1	15.7	12.0	16.6	15.5	12.2
	18	19.4	15.9	12.6	18.5	14.8	12.8	17.6	14.4	13.0	17.1	14.2	13.3
	19	20.0	15.2	13.5	19.1	13.4	13.8	18.1	13.0	14.0	17.6	12.8	14.3
	20	20.6	14.5	14.7	19.7	12.1	15.0	18.7	11.6	15.3	18.2	11.4	15.5
	21	21.3	13.7	15.9	20.3	10.3	16.6	19.3	10.5	16.5	18.8	10.3	16.6
27	17	19.5	18.3	11.2	19.0	17.9	11.5	17.5	17.0	11.8	17.0	16.7	12.0
	18	19.6	17.8	12.4	19.2	17.4	12.7	17.6	17.1	13.0	17.1	16.4	13.2
	19	20.8	16.9	13.6	20.5	16.3	13.4	18.1	15.6	14.2	17.6	15.3	14.3
	20	21.3	15.6	14.7	20.6	14.9	14.6	18.6	14.2	15.3	18.2	13.8	15.4
	21	21.7	14.6	15.8	20.9	13.6	16.1	19.3	12.9	16.5	18.8	12.6	16.6
29	17	19.7	19.3	11.1	18.9	18.7	11.3	18.0	18.0	11.6	17.5	17.5	11.8
	18	19.8	19.1	12.3	18.9	18.6	12.6	18.0	18.0	12.9	17.5	17.5	13.0
	19	21.2	18.5	13.6	21.0	18.2	13.9	18.2	17.8	14.2	17.7	17.6	14.4
	20	21.6	17.1	14.7	21.5	16.7	15.0	18.7	16.3	15.3	18.2	16.1	14.4
	21	22.2	16.0	15.8	21.6	15.8	16.1	19.2	15.2	16.4	18.8	15.0	16.4
31	17	20.3	20.3	10.8	19.7	19.7	11.1	18.7	18.7	11.4	18.3	18.3	11.5
	18	20.4	20.3	12.2	19.7	19.7	12.4	18.7	18.7	12.8	18.3	18.3	12.9
	19	21.4	20.3	13.3	21.0	19.5	14.0	18.7	18.7	13.9	18.3	18.3	14.1
	20	21.7	19.7	14.6	21.5	19.4	15.0	18.7	18.7	15.2	18.3	18.3	15.3
	21	21.8	18.2	15.8	21.6	17.8	16.3	19.3	17.4	16.5	18.8	17.2	16.6

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

Technical Specification PHSE20 Economy Cycle Rooftop Packaged Model

Total Cooling Capacity (kW)*	20.5	Number of Compressors	1
Sensible Cooling Capacity (kW)*	16.3	Power Requirements (Volt /Phase)	415 / 3
Heating Capacity (kW)**	20.7	Normal Max. Current (Amps /Phase)	17.4
Nominal Evaporator Air Flow (L/S)	1110	Power Input (kW)	7.9
*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 1110 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)	14.4	15.6	20.0	22.0	24.0

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	1
Type	Scroll
RPM (Nom)	2900
Normal Max Current (Amps /Phase)	14.0
Locked Rotor Current (Amps /Phase)	68
Displacement (m^3/h)	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)	0.38
Air Quantity (l/s)	1110

Evaporator Fan

Number of Fans	1
Type	Centrifugal
Drive	Direct
Motor Voltage /Phase /Frequency	415 /3 /50
Motor Power (kW)	0.8
Maximum Fan Speed (rpm)	1173

Electrical

Power Requirements	3 Phase /415V /50Hz
Normal Max. Current (Amps /Phase)	14.6

Condenser Coil

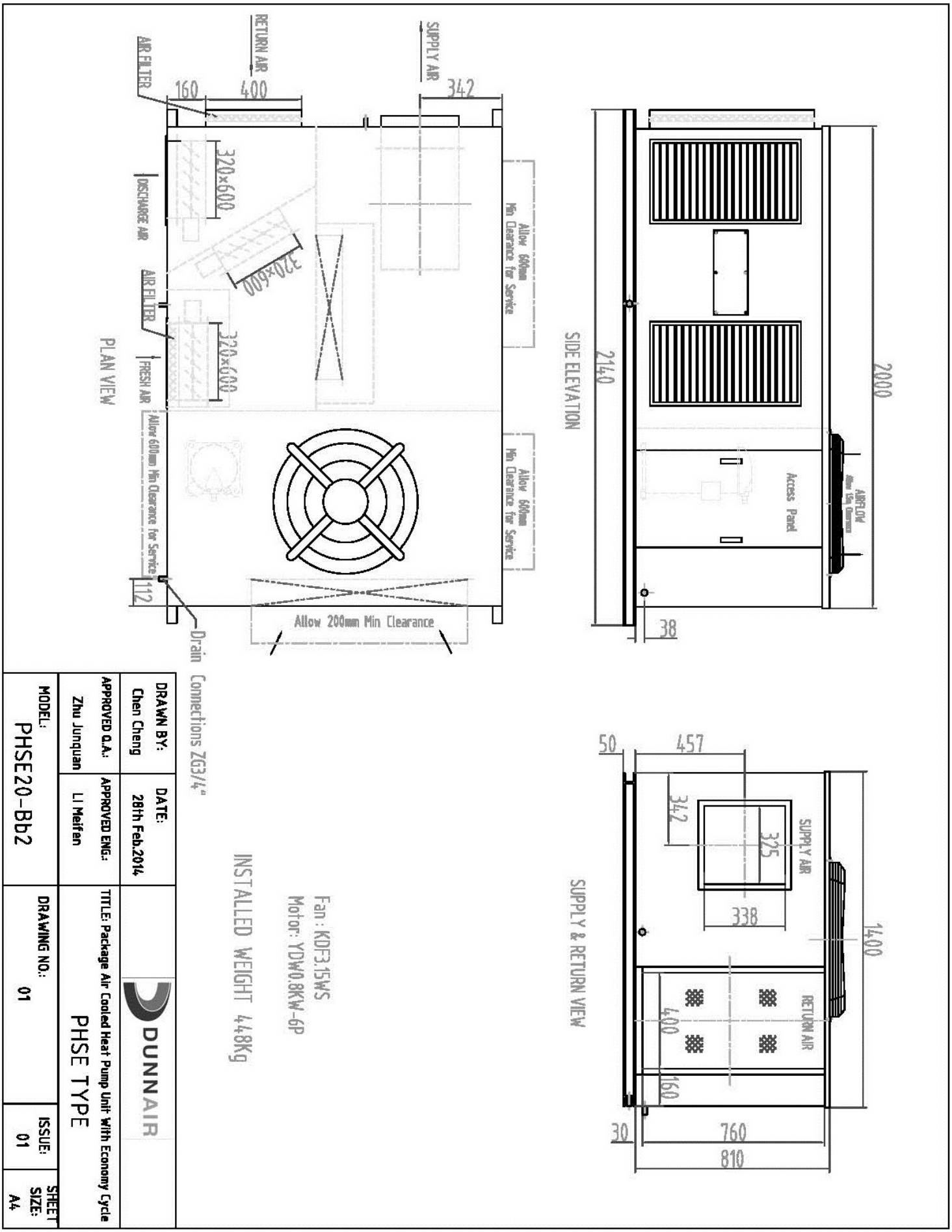
Type	Copper Tube /Aluminium Fins
Face Area(m^2)	0.61

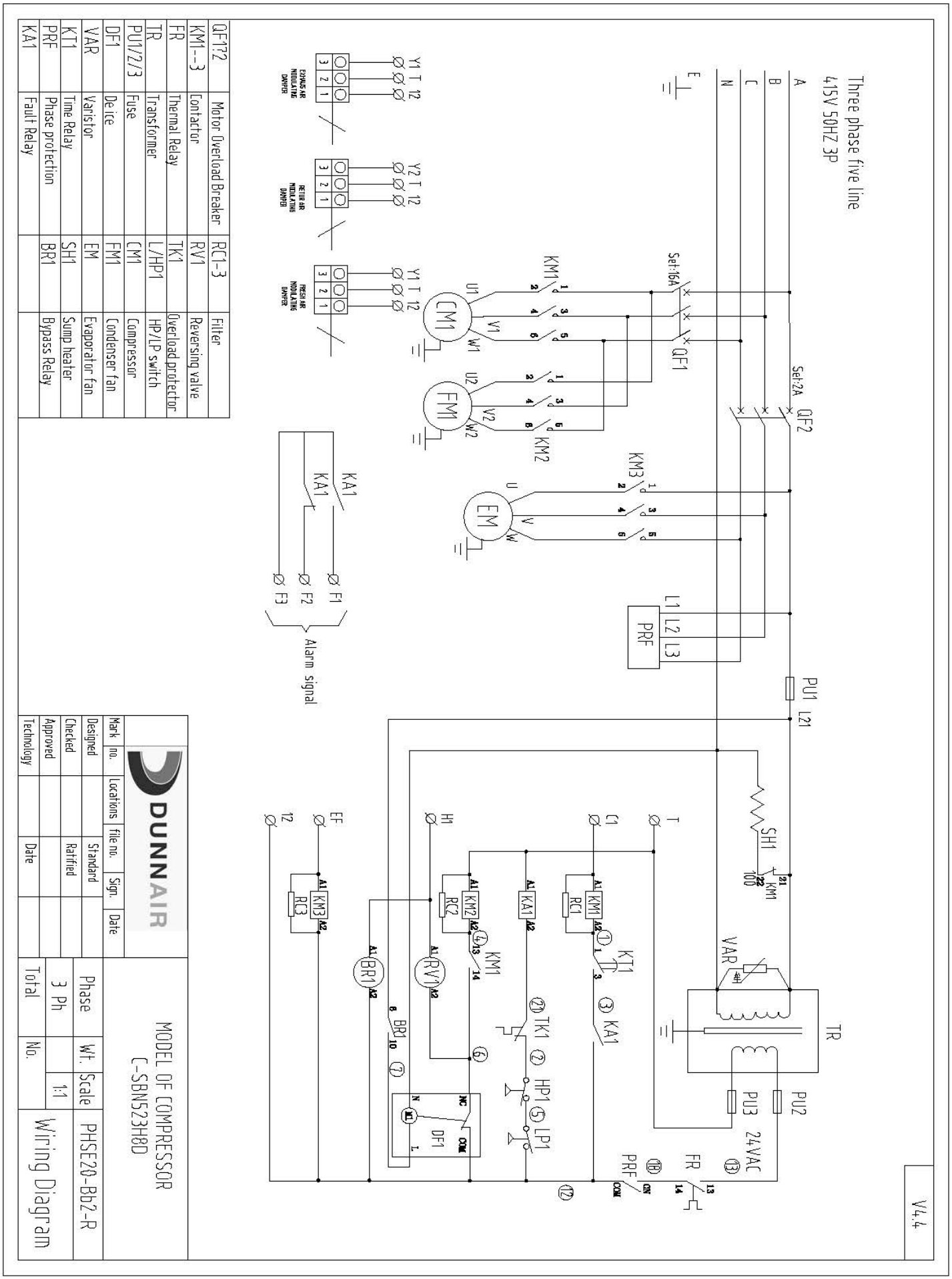
Condenser Fan

Number of Fans	1
Type	Axial
Drive	Direct
Motor Watts /rpm	370 / 950
Motor Voltage /Phase /Frequency	415 / 3 / 50

Refrigeration System

Refrigerant Type	R410A
Charge(kg)	5.0
Service Connections	Rotor Lock Valves
Expansion Control - In / Outdoor unit	TX Valve


RETURN AIR
SUPPLY AIR
AIR FILTER
160
400
342
320×600
DISCHARGE AIR
AIR FILTER
FRESH AIR
Allow 600mm Min Clearance for Service
Allow 200mm Min Clearance
112
Drain Connections ZG3/4"
PLAN VIEW
SIDE ELEVATION
2000
2140
Access Panel
AIRFLOW
38
SUPPLY & RETURN VIEW
50
457
342
325
338
SUPPLY AIR
1400
RETURN AIR
400
160
30
760
810
Fan : KDF3.15WS
Motor: YDW0.8KW-6P
INSTALLED WEIGHT 44.8Kg
DRAWN BY: Chen Cheng
DATE: 28th Feb.2014
APPROVED Q.A.: Zhu Junquan
APPROVED ENG.: LI Meifen
DUNNAIR
TITLE: Package Air Cooled Heat Pump Unit With Economy Cycle
PHSE TYPE
MODEL: PHSE20-Bb2
DRAWING NO.: 01
ISSUE: 01
SHEET SIZE: A4



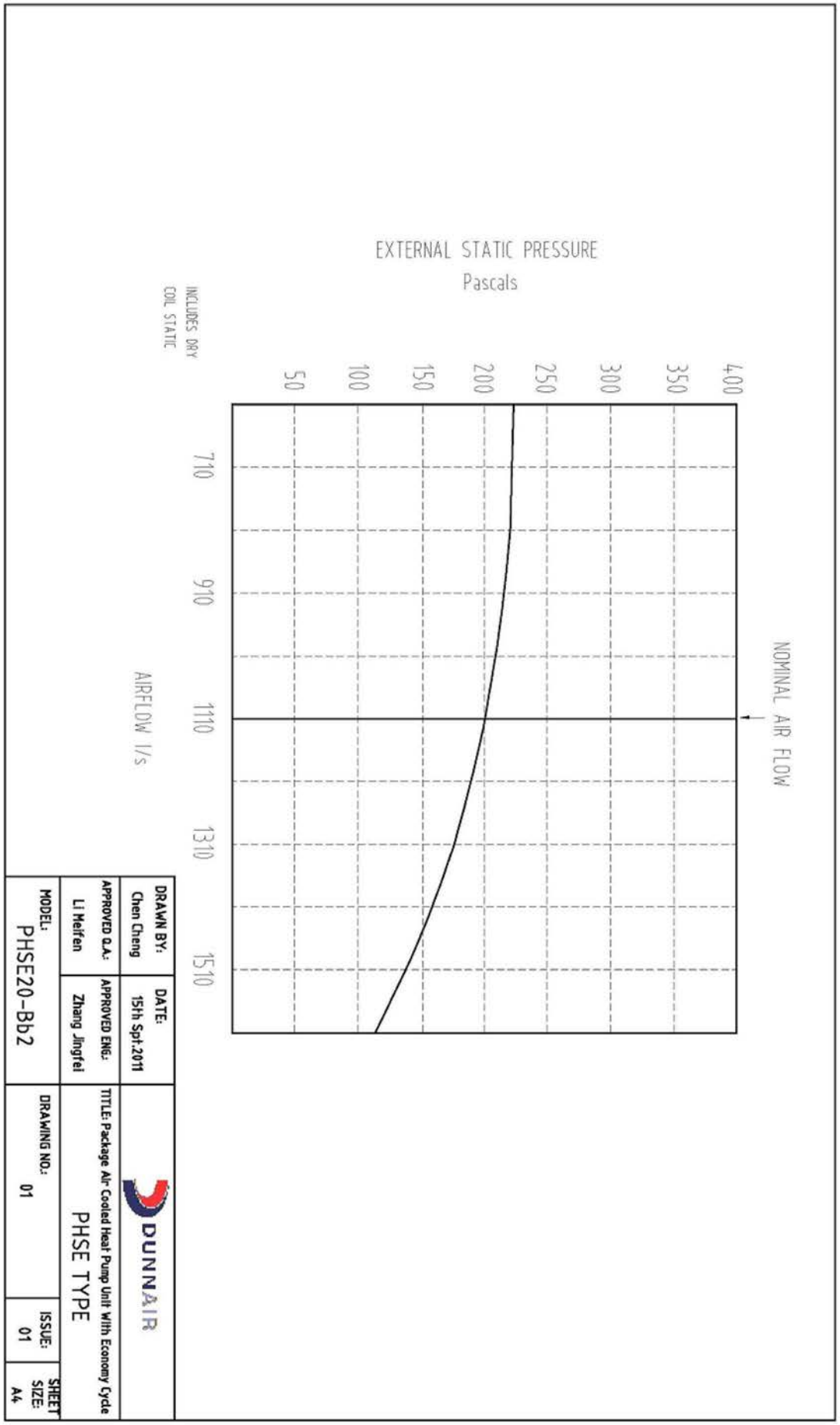
QF1?2	Motor Overload Breaker	RC1-3	Filter
KM1--3	Contactor	RV1	Reversing valve
FR	Thermal Relay	TK1	Overload protector
TR	Transformer	L/HP1	HP/LP switch
PU1/2/3	Fuse	CM1	Compressor
DF1	De ice	FM1	Condenser fan
VAR	Varistor	EM	Evaporator fan
KT1	Time Relay	SH1	Sump heater
PRF	Phase protection	BR1	Bypass Relay
KA1	Fault Relay		

DUNNAIR

Mark	No.	Locations	file no.	Sign.	Date
Designed			Standard		
Checked			Ratified		
Approved					
Technology			Date		

MODEL OF COMPRESSOR
C-SBN523H8D

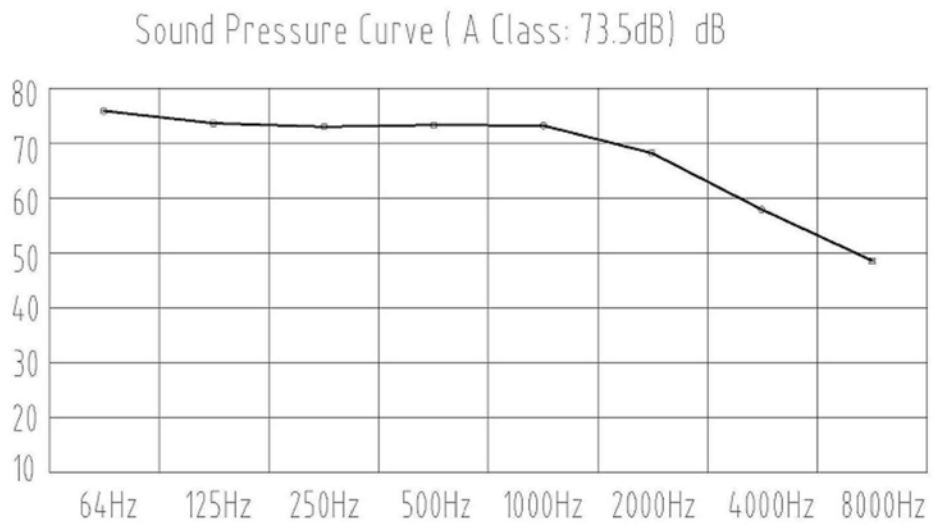
Phase	Wt.	Scale	PHSE20-Bb2-R
3 Ph		1:1	
Total	No.		Wiring Diagram


EXTERNAL STATIC PRESSURE
Pascals
INCLUDES DRY COIL STATIC
50
100
150
200
250
300
350
400
NOMINAL AIR FLOW
710
910
1110
1310
1510
AIRFLOW l/s
DRAWN BY: Chen Cheng
DATE: 15th Spt.2011
APPROVED Q.A.: Li Meifen
APPROVED ENG.: Zhang Jingfei
DUNNAIR
TITLE: Package Air Cooled Heat Pump Unit With Economy Cycle
PHSE TYPE
MODEL: PHSE20-Bb2
DRAWING NO.: 01
ISSUE: 01
SHEET SIZE: A4

PHSE20 Sound Pressure Curve

A Class: 73.5dB

Hz	dB
64Hz	77.3
125Hz	74.0
250Hz	72.8
500Hz	73.1
1000Hz	72.5
2000Hz	69.3
4000Hz	59.2
8000Hz	49.3



Note: Occupant at least 1.0m from sound source.

DRAWN BY: Chen Cheng	DATE: 24th.Dec.2011	DUNNAIR		
APPROVED Q.A.: Li Meifen	APPROVED ENG.: Zhang Jingfei	TITLE: Packaged Air Cooled Heat Pump Unit PHS TYPE		
MODEL: PHSE20-Bb2		DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4