DUNNAIR (Aust) Pty Ltd

SH180

R410A Refrigerant

Split Ducted Model

PERFORMANCE DATA

INDOOR COIL ENTERING AIR TEMP °c		OUTDOOR COIL ENTERING TEMPERATURE °C											
		30°C			35°C			40°C			45°C		
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	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	165.0	123.8	11.5	155.7	119.7	11.8	149.1	117.0	12.2
	18	179.5	116.8	12.3	170.2	112.9	12.6	160.3	108.5	13.0	154.0	105.8	13.3
	19	183.0	105.8	13.4	176.3	102.0	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	86.0	15.4	165.9	83.3	15.6
	21	199.8	83.1	15.6	189.6	79.0	16.0	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 SH180 Split Ducted Model

Indoor Unit Model Number	SH180N	Nominal Evaporator Air Flow (l/s)	9500
Outdoor Unit Model Number	SH180W	Number of Compressors	2
Total Cooling Capacity (kW)*	176.8	Power Requirements (Volt /Phase)	415 / 3
Sensible Cooling Capacity (kW)*	143.6	Normal Max. Current (Amps /Phase)	143.2
Heating Capacity (kW) **	169.4	Power Input (kW)	77.3

*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 and 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 (m^3 /h)	49.7 / 60.0

Electrical Controls and Safeties

High Pressure Switch (Setting kPa)	4000	Defrost	
Low Pressure Switch (Setting kPa)	300	Initiation Temperature (°C)	-4
Indoor Fan Overload	Internal	Termination Temperature (°C)	10
Outdoor Fan Overload	Internal	Min. Period Between De-Ice (min)	33
Compressor Delay Timer	300 sec	Max De-Ice Period (min)	4

Standard Features

HP / LP Cutouts	Thermal Overload Protection
Crankcase Heater	Limit Start Timer
Automatic De-Ice System	Indoor 25mm Insulation
Liquid Accumulator	240 Volt Control
Sight Glass	Evap. Unit is supplied with a variable speed motor pulley

Evaporator (Indoor Coil)

Type	Copper Tube / Aluminium Fins
Face Area (m^2)	3.63
Air Quantity (l/s)	9500

Evaporator (Indoor fan)

Number of Fans	1
Type	Centrifugal
Drive	Belt
Motor Voltage /Phase /Frequency	415 / 3 / 50
Motor Power (kW)	15
Maximum Fan Speed(rpm)	610

Electrical

Power Requirements	3 phase / 415V / 50Hz
Normal Max. Current (Amps /Phase)	143.2

Condenser (Outdoor Coil)

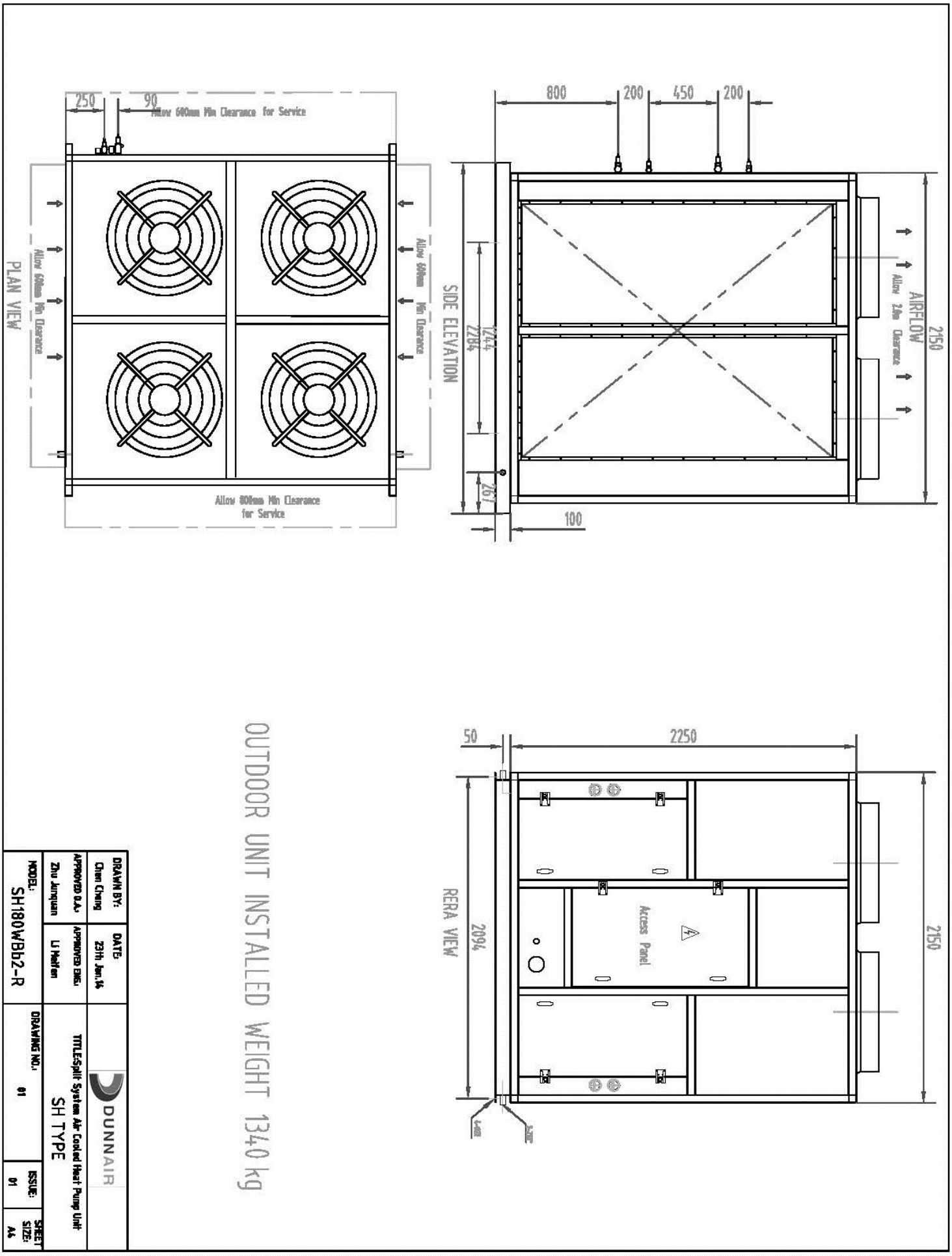
Type	Copper Tube / Aluminium Fins
Face Area (m^2)	2 x 3.35

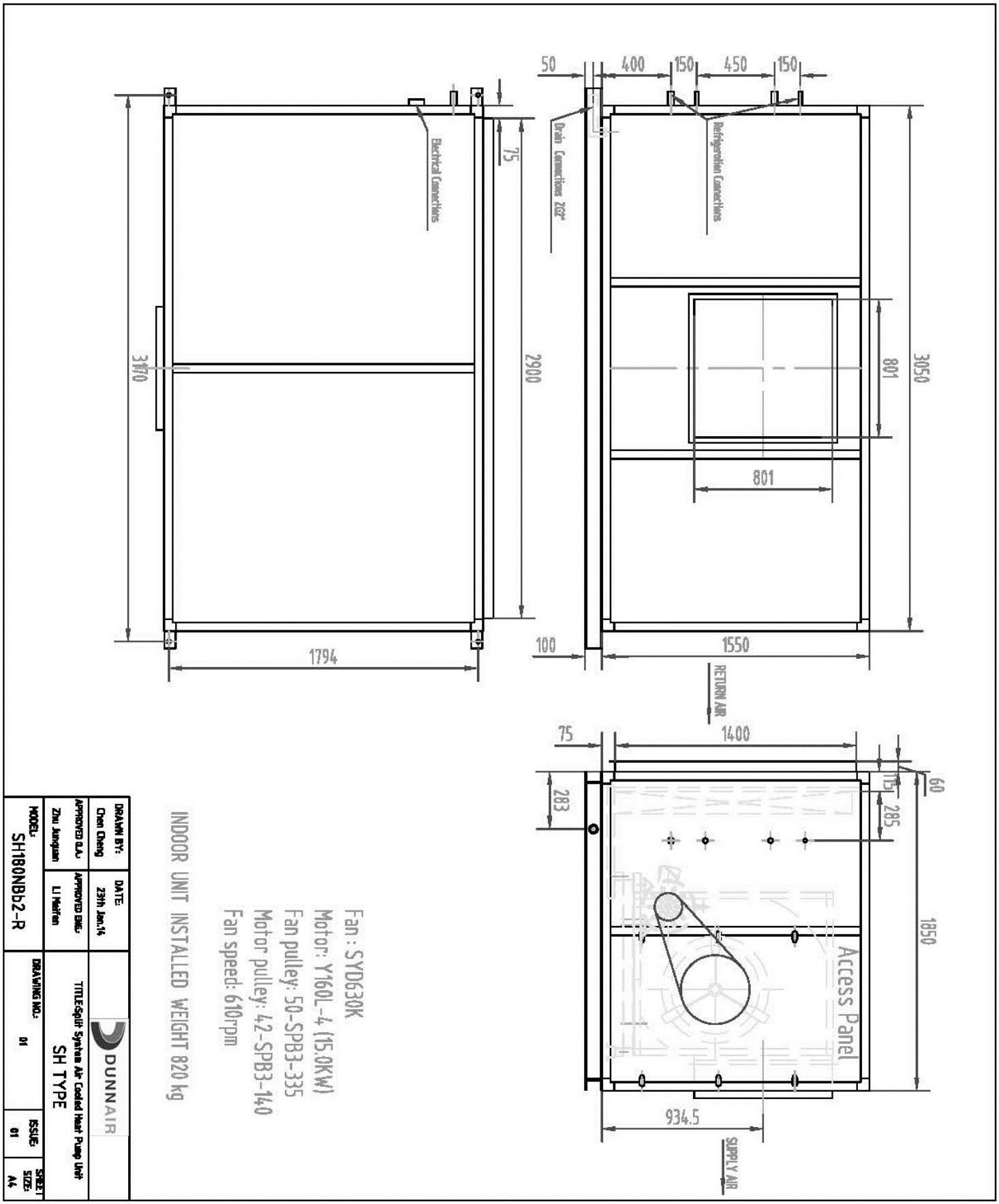
Condenser (Outdoor Fan)

Number of Fans	4
Type	Axial
Drive	Direct
Motor Output 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
Line Size (mm)	
Liquid Line 0 – 15 Meters	29 ($1^1/_8$")
Gas 0 Line – 15 Meters	41 ($1^5/_8$")
Liquid Line 15 – 30 Meters	29 ($1^1/_8$")
Gas Line 15 – 30 Meters	41 ($1^5/_8$")

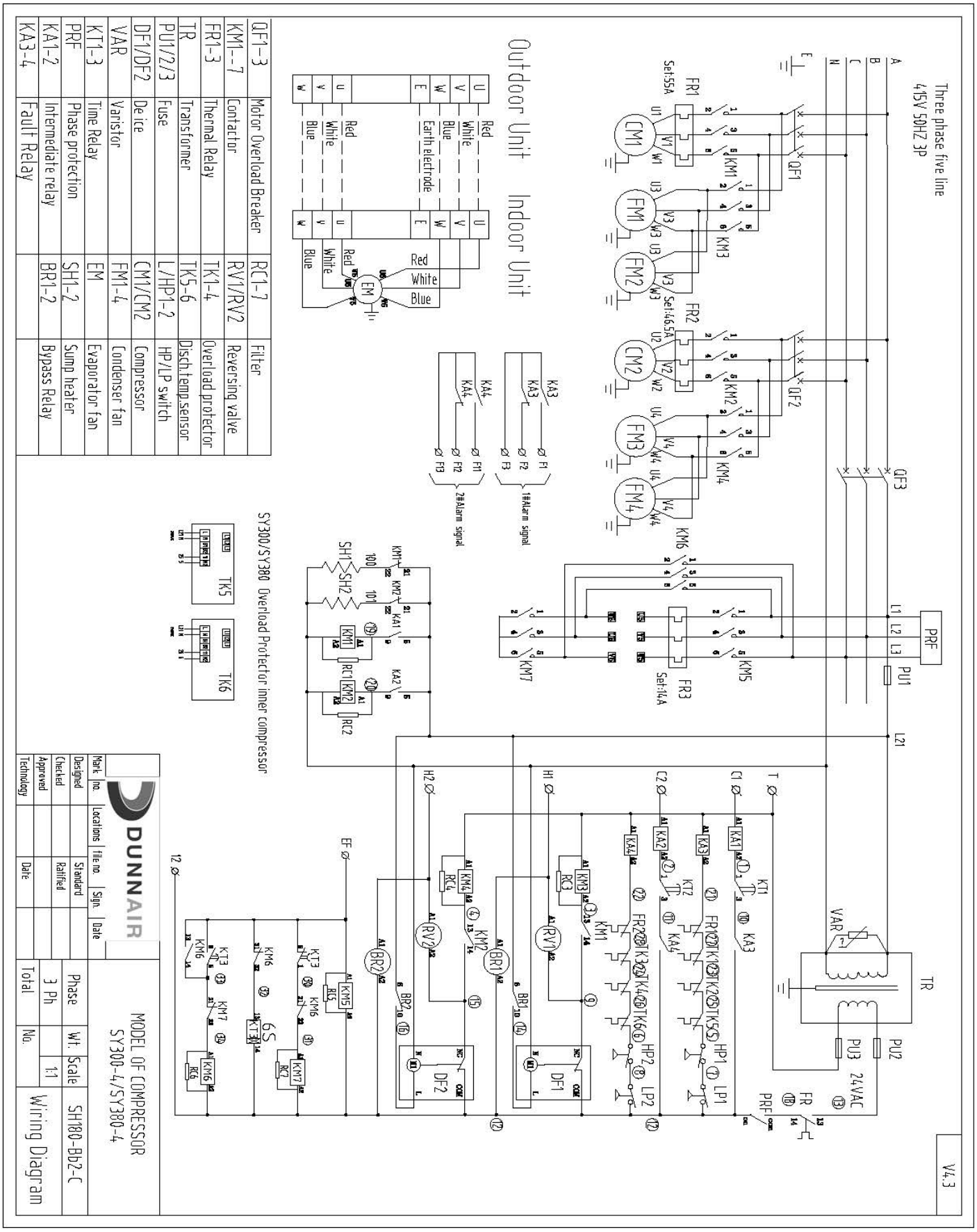

PLAN VIEW
250
90
Allow 600mm Min Clearance for Service
Allow 600mm Min Clearance
Allow 600mm Min Clearance
Allow 600mm Min Clearance for Service
SIDE ELEVATION
800
200
450
200
2150
AIRFLOW
Allow 2.0m Clearance
1244
2284
267
100
RERA VIEW
50
2250
2094
2150
Access Panel
OUTDOOR UNIT INSTALLED WEIGHT 1340 kg
DRAWN BY: Chen Cheng
DATE: 23th Jan.14
APPROVED D.A.: Zhu Junquan
APPROVED ENG.: Li Haifen
MODEL: SH180WBb2-R
TITLE:Split System Air Cooled Heat Pump Unit
SH TYPE
DRAWING NO.: 01
ISSUE: 01
SHEET SIZE: A4
DUNNAIR



Fan : SYD630K
Motor: Y160L-4 (15.0KW)
Fan pulley: 50-SPB3-335
Motor pulley: 42-SPB3-140
Fan speed: 610rpm

INDOOR UNIT INSTALLED WEIGHT 820 kg

DRAWN BY: Chen Cheng	DATE: 23th Jan.14		
APPROVED D.A.: Zhu Junquan	APPROVED ENG.: LI Haifan	TITLE:Split System Air Cooled Heat Pump Unit SH TYPE	
MODEL: SH180NBb2-R	DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4


Three phase five line
415V 50HZ 3P
Outdoor Unit
Indoor Unit
SY300/SY380 Overload Protector inner compressor
QF1-3 Motor Overload Breaker
KM1-7 Contactor
FR1-3 Thermal Relay
TR Transformer
PU1/2/3 Fuse
DF1/DF2 De ice
VAR Varistor
KT1-3 Time Relay
PRF Phase protection
KA1-2 Intermediate relay
KA3-4 Fault Relay
RC1-7 Motor Overload Breaker
RV1/RV2 Reversing valve
TK1-4 Overload protector
TK5-6 Disch.temp.sensor
L/HP1-2 HP/LP switch
CM1/CM2 Compressor
FM1-4 Condenser fan
EM Evaporator fan
SH1-2 Sump heater
BR1-2 Bypass Relay
Filter
MODEL OF COMPRESSOR
SY300-4/SY300-4
Wiring Diagram
SH180-Bb2-C
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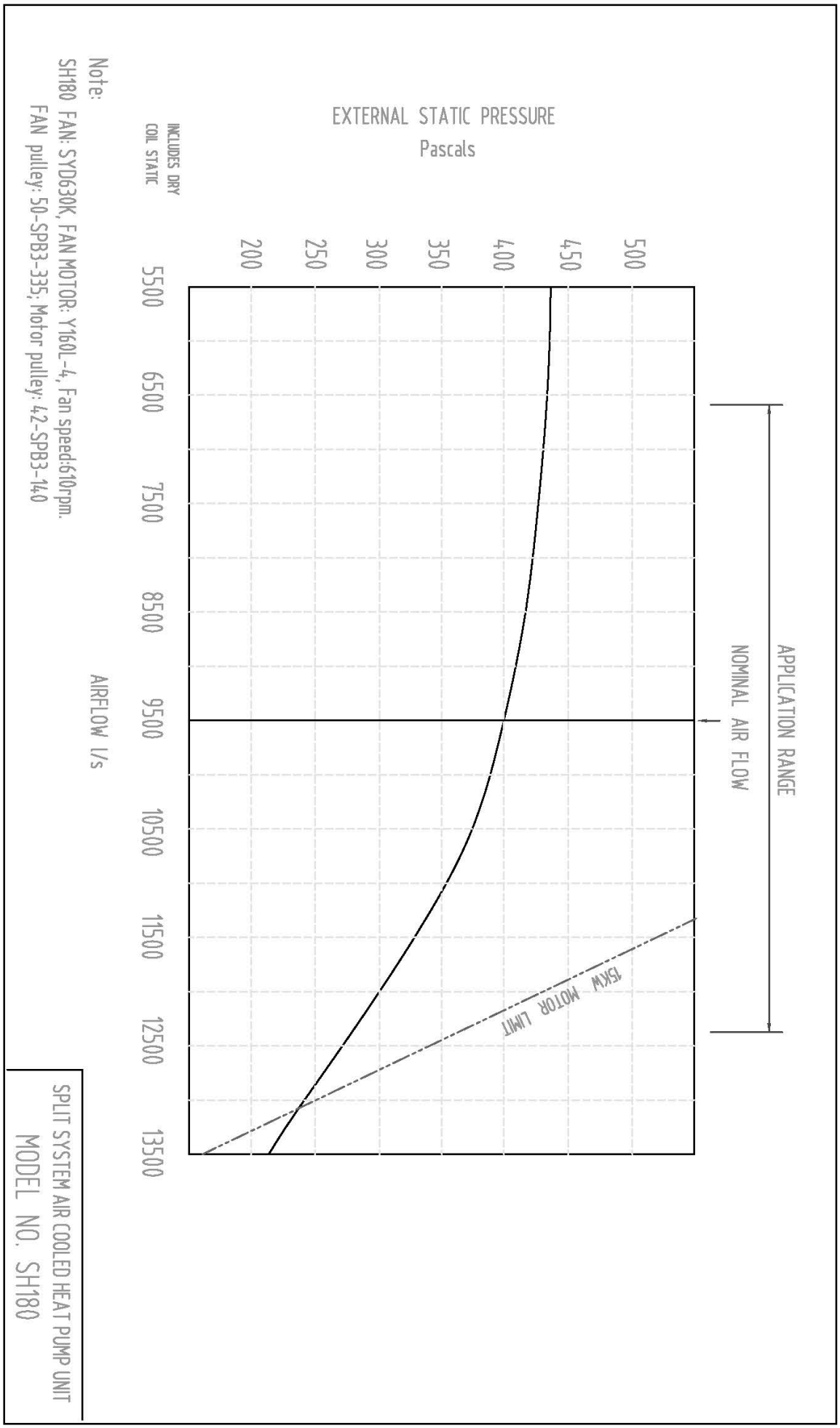
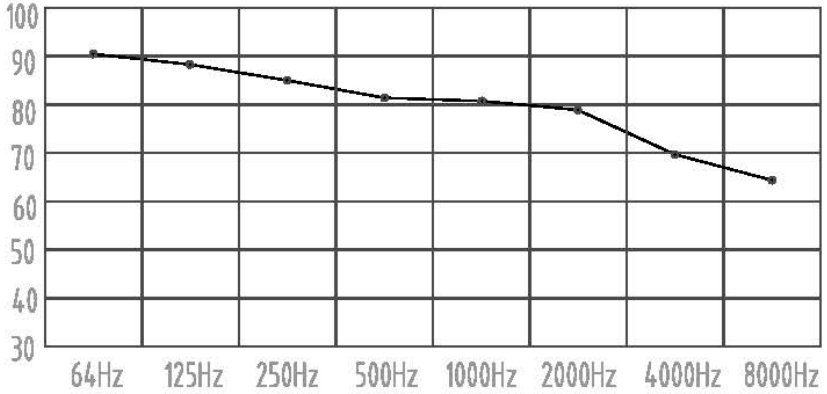
V4.3


EXTERNAL STATIC PRESSURE
Pascals
200
250
300
350
400
450
500
INCLUDES DRY COIL STATIC
5500
6500
7500
8500
9500
10500
11500
12500
13500
AIRFLOW l/s
APPLICATION RANGE
NOMINAL AIR FLOW
15KW MOTOR LIMIT
Note:
SH180 FAN: SYD630K, FAN MOTOR: Y160L-4, Fan speed:610rpm.
FAN pulley: 50-SPB3-335; Motor pulley: 42-SPB3-140
SPLIT SYSTEM AIR COOLED HEAT PUMP UNIT
MODEL NO. SH180

SH180W Sound Pressure Curve
A Class: 85.4dB

Hz	dB
64Hz	90.1
125Hz	87.8
250Hz	84.3
500Hz	82.1
1000Hz	80.6
2000Hz	78.2
4000Hz	69.8
8000Hz	64.1

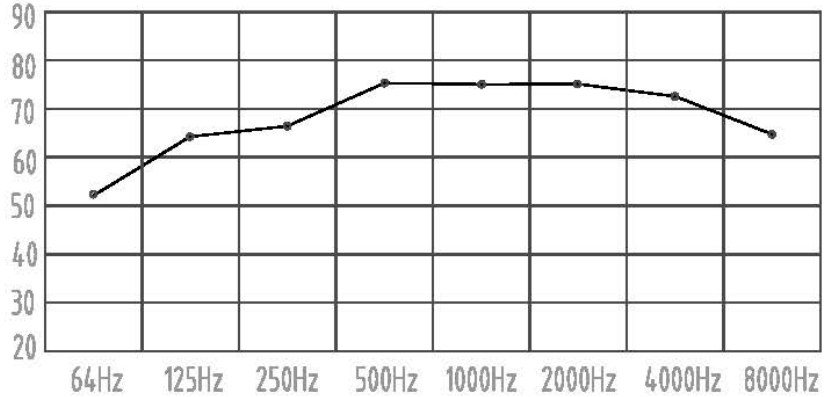
Sound Pressure Curve (A Class: 85.4dB) dB



SH180N Sound Pressure Curve
A Class: 80.8dB

Hz	dB
64Hz	52
125Hz	64
250Hz	67
500Hz	76
1000Hz	75
2000Hz	75
4000Hz	73
8000Hz	65

Sound Pressure Curve (A Class: 80.8dB) dB



Note: Occupant at least 1.0m from sound source.

DRAWN BY: Chen Cheng	DATE: 2014-3-5	DUNNAIR		
APPROVED Q.A.: Zhu Junquan	APPROVED ENG.: Li Meifen	TITLE: Split System Air Cooled Heat Pump Unit SH TYPE		
MODEL: SH180		DRAWING NO.: 01	ISSUE: 01	SHEET SIZE: A4

DUNNAIR (Aust) Pty Ltd supports a policy of continuous improvement. Therefore specifications and designs are subject to change without prior notice.
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