



SCS3 Series 50/60Hz

Modular Central Station Air Handling Units

Air Volume: 1000 to 56000 cfm (1700 to 95000 m³/hr)



DUNHAM-BUSH®

Products that perform...By people who care

INTRODUCTION

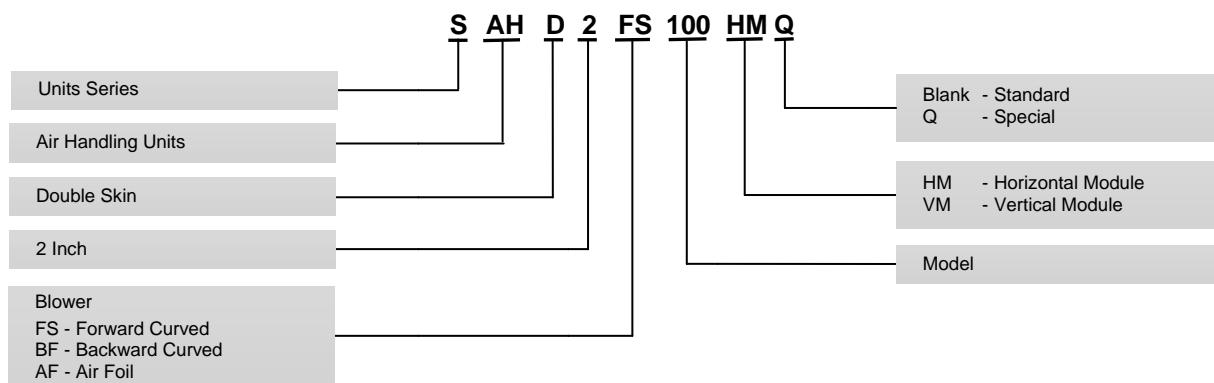
For more than 100 years, Dunham-Bush has focused on innovative product development. Today, we provide a full portfolio of HVAC/R products from Fan Coil Units to large centrifugal chillers as well as many other innovative green solutions. Our commitment to innovation, matched with an aggressive attitude toward growth, makes Dunham-Bush a leader in global markets. Our product development is tailored to meet the specific needs of customers, building-by-building, country-by-country and region-by-region. No other HVAC/R manufacturer takes this approach to meeting your performance expectations.

SCS3, Modular Central Station Air Handling Units, have an air volume range from 1000 to 56,000 cfm (1700 to 95,000 m³/hr) with new extruded aluminum frame profile. The entire product line features rigid construction, installation ease, control flexibility, high reliability and versatile functions, which is suitable for both commercial and industrial applications.

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NOMENCLATURE



DUNHAM-BUSH SCS3 Series

FEATURES

The SCS3 range of Air Handling Units from Dunham-Bush features an extruded aluminium frame profile that provides a high level of unit design and application flexibility necessary to meet the rising demand for improved Indoor Air Quality. The unit is constructed using rigid nylon corners and double skin polyurethane foam insulated panels. These units can be disassembled for shipment and reassembled at site. Internal joints are insulated with rigid with special sealing strips and PE foam to provide air-tight casing and minimize cold bridging. The SCS3 range is available in 17 models in horizontal and vertical formats with a wide range of options and accessories that can be selected from the Dunham-Bush Selection Program. SCS3 Air Handling Units can be configured to meet the requirements of all standard and many specialised applications.

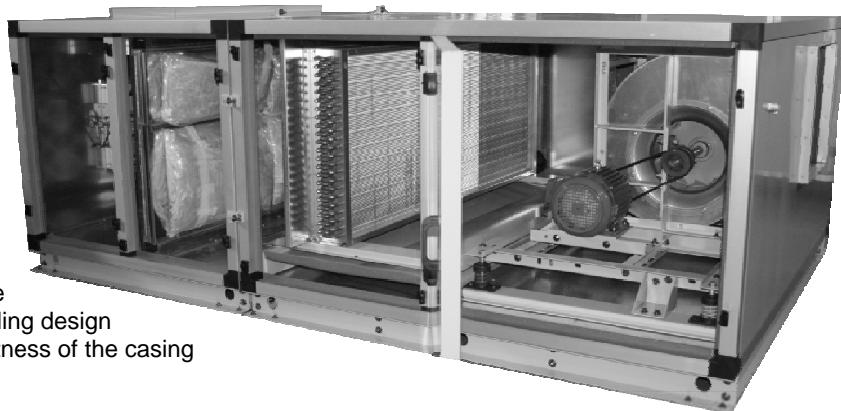
DUNHAM-BUSH SCS3 Series

SUPERIOR CASING PERFORMANCE

Excellent Air Tightness

The casing is made up of panels, frame and sealing strips. New casing structure of the unit avoids that any of the interior support member is exposed and ensures smooth internal surface, easy for maintenance and effective cleaning to reduce risk of dirt and bacteria accumulation.

New type of sealing strips between the frame and the panels, and careful sealing design to all panels ensures excellent air tightness of the casing structure and minimizes air leakage.

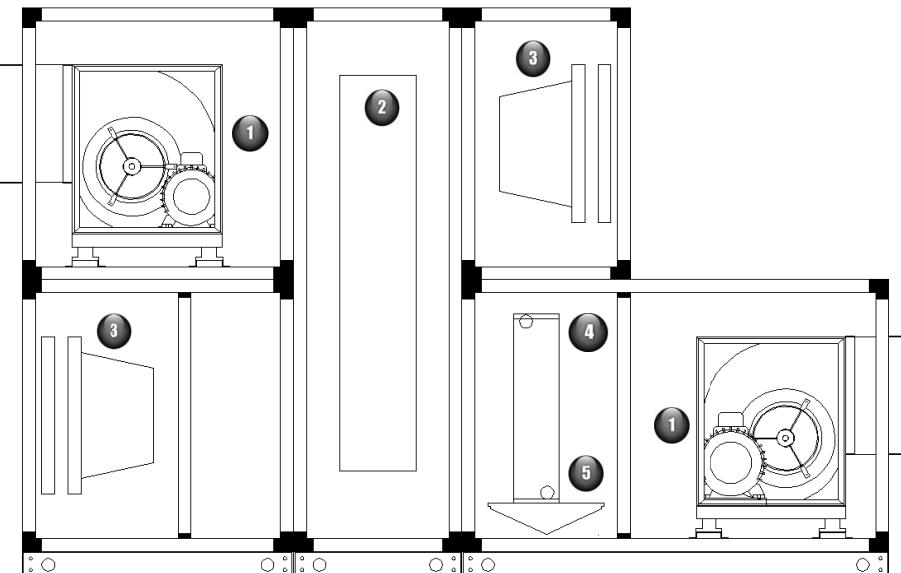


Thermal Bridge Free

Dunham-Bush unique frame design enables interpost covered by panel to prevent exposing in treated air, so the thermal bridge at posts is avoided. Each junction is subjected to special heat insulation treatment to prevent the thermal bridge effect. New design of screw also prevents the occurring of thermal bridge at screws, contributes to better casing performance.

Optimal Thermal Insulation

The unit wall is made up by minimum 50mm double skin polyurethane foam (PU) insulation panel with 0.5 mm high strength powder coated steel as external skin and 0.5 mm galvanized steel (GI) as internal skin. The sandwich panels are injected with PU foam of 40kg/m³ density with light weight, good rigidity, and thermal conductivity.



① Fans

- ❖ Forward Curved
- ❖ Backward Curved
- ❖ Airfoil
- ❖ Plug Fans

② Heat Recovery

- ❖ Heat Pipe
- ❖ Plate Heat Exchanger
- ❖ Heat Recovery Wheels

③ Filters

- ❖ Washable Filter
- ❖ Disposable Filter
- ❖ Bag Filter
- ❖ Cartridge Filter
- ❖ HEPA Filter
- ❖ Carbon Filter
- ❖ Electrostatic Filter

④ Coil

- ❖ Chilled Water Coil
- ❖ Direct Expansion Coil
- ❖ Hot Water Coil

⑤ Drain Pan

- ❖ GI Steel
- ❖ Stainless Steel

Note: Please consult Dunham-Bush representative for other accessories required.

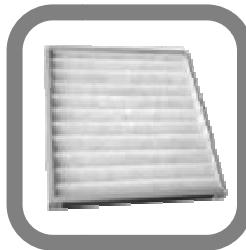
DUNHAM-BUSH SCS3 Series

CASING MECHANICAL CHARACTERISTICS

Insulation Material	Polyurethane Foam
Panel Thickness	50mm
Casing Strength	D1
Casing Air Leakage	L1
Thermal Transmittance	T2
Thermal Bridging Factor	TB2

YOUR CHOICE OF FILTRATION

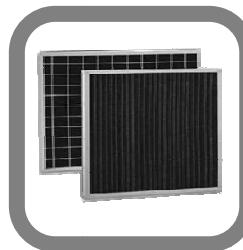
Various options of filter type, filter media and filter efficiency are available to meet the different air quality requirement.



High Efficiency Filter



Bag Filter



Carbon Filter

YOUR CHOICE OF COILS

Chilled water and DX cooling coils are manufactured from copper tubes with aluminum fins, copper fins, hydrophilic coated fins or other custom made coils. Heating can be hot water coil or electric heaters.

Three-way pitch drain pan design discharges condensate quickly and prevents microbial growth. Condensate pans of 304 stainless steel material are also available as an option.

YOUR CHOICE OF BLOWER

Forward, Backward Inclined and Backward Airfoils Centrifugal fans which are AMCA certified are available. You can select class I, II or III fans to meet your required air flow, static pressure, performance and sound power. Blower shall be coupled with pulley and motors.



Forward Curved
Fan Wheel (FS)



Airfoil Fan
Wheel (AF)

OPTIONAL

A wide choice of accessory sections – diffuser sections, mixing box sections, face and bypass damper sections, humidifier sections, reheating sections and heat recovery sections are available to meet the required air conditions application needs. For outdoor installation, applications in corrosive or hazardous atmosphere, other material options are available for the SCS3 range. Special motor voltages and dual speed motors can be supplied. Frequency inverter drive for Variable Air Volume applications is also offered as an option.

DUNHAM-BUSH SCS3 Series

COMPUTER SELECTION

There is a powerful selection software program available to optimize the best arrangement and performance of any air handling unit for a specific job requirement with its computer selection programs. Standard components can be selected and be placed according to customer requirement. Dunham-Bush software gives immediate feedback if there is no suitable choice for the units. The program provides us with fan curves data, coil performance data, dimension and shipment weight.

TECHNICAL REPORT

Project Name	New catalog	Part Number	91
Tag	AHU-HW100%	Database Version	20140215
Model	C33HR-40mm-AH4B	Print Version	20140217
Location		Report Date	9/2/2016

OUTLINE DRAWING

TECHNICAL REPORT

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GENERAL SPECIFICATIONS

AHU Type	4
Fan Type	1
Publication Type	3
Quantity	1
Season	5

AIR SIDE CRITERIA

Supply Air Volume	50
Fresh Air Volume	50
Return Air Volume	0
Exhaust Air Volume	0
Coil Face Velocity	21

SECOND

1 PRIMARY FILTER

FILTER SPECIFICATIONS

Filter type	1 - not filter (Washable 2')	Air Flow	5000 CFM	24" x 24"	0
Filter Area	10000 in ²	Delta Pressure (in. Hg)	20	Pa	24" x 24"
Mounting Type	Front PD	Max. Static Pressure	125	Pa	24" x 24"
Side Loading		Min. Static Pressure	10	Pa	24" x 24"
Filter Area		Max. Airflow	5000	CFM	
Filter Velocity		Min. Airflow	4500	CFM	

3 HEAT RECOVERY (HEAT WHEEL)

GENERAL SPECIFICATIONS

Model	HRW-1400-M200	Casing Width	1530 mm	Volute Diameter	1400 mm
Casing Height	1530	Casing Depth	295	Power Supply	280-415V/3Ph/50Hz

EXHAUST AIR SIDE

Air Flow	5200	W	CFM
DB. Temp.	32.2	°C	-10
WB. Temp.	24.8	°C	-10
R. Humidity	43.48	%	-
A. Humidity	13.49	%	-
Enthalpy	67.29	J/kg	-
Pres. Drop:	16.8	Pa	-

SUPPLY AIR SIDE

Air Flow	5000	W	CFM
DB. Temp.	26.7	°C	-10
WB. Temp.	20.9	°C	-10
R. Humidity	40.36	%	-
A. Humidity	14.34	%	-
Enthalpy	55.29	J/kg	-
Pres. Drop:	11.94	Pa	-

PERFORMANCE

Air Prep	FRESH AIR SIDE			SUPPLY SIDE			EXHAUST SIDE			WATER		
	B	W	Unit	B	W	Unit	B	W	Unit	B	W	Unit
Base	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
Air Type	BARRIER	SUPPLY	COOLING	SUPPLY	COOLING	-	SUPPLY	COOLING	-	SUPPLY	COOLING	-
Temperature Efficiency	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
Total Efficiency	68.30	68.30	-	68.30	68.30	-	68.30	68.30	-	68.30	68.30	-

PSYCHROMETRIC REPORT

ENTERING/LEAVING AIR CONDITION

Component: 1 = Entering Air Condition, 2 = Leaving Air Condition, 3 = Fresh air, 4 = Return air

Drop No.	1	2	3	4	5	6	7	8
Component	Heat Recovery	Coil						
Avg. Temperature	26.7	20.9	24.8	32.2	26.7	20.9	24.8	32.2
DB Temp	26.7	20.9	24.8	32.2	26.7	20.9	24.8	32.2
WB Temp	24.9	20.8	23.9	30.6	24.9	20.8	23.9	30.6
Pres.	%	48.12	48.12	48.12	48.12	48.12	48.12	48.12

CHART DISPLAY

ENTR/LEAV AIR CONDITION

Component: 1 = Entering Air Condition, 2 = Leaving Air Condition, 3 = Fresh air, 4 = Return air

Drop No.	1	2	3	4	5	6	7	8
Component	Heat Recovery	Coil						
Avg. Temperature	26.7	20.9	24.8	32.2	26.7	20.9	24.8	32.2
DB Temp	26.7	20.9	24.8	32.2	26.7	20.9	24.8	32.2
WB Temp	24.9	20.8	23.9	30.6	24.9	20.8	23.9	30.6
Pres.	%	48.12	48.12	48.12	48.12	48.12	48.12	48.12

TECHNICAL REPORT

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4 WATER COOLING COIL

COIL SPECIFICATIONS

Coil Tube Size	1/2"	Coil Layer	1
Coil Row	4	Medium	Water
Coil Fins	10	Cooling Method	F (ATC)

TECHNICAL REPORT

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Model	C33HR-40mm-AH4B	Print Version	20140217
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5 SUPPLY FAN

FAN SPECIFICATIONS

Fan Code	305-R-BF	Installed Power	5.00 kW
Fan Type	Backward	Power Supply	380-415V/3Ph/50Hz
Fan Quantity	1	Motor Efficiency	99 %
Fan Air Power	3.07	Fan Shaft Power	3.07 kW

MOTOR SPECIFICATIONS

Fan Code	305-R-BF	Installed Power	7.00 kW
Fan Type	Backward	Power Supply	380-415V/3Ph/50Hz
Fan Quantity	1	Motor Efficiency	99 %
Fan Air Power	4.07	Fan Shaft Power	4.07 kW

PERFORMANCE

Vol. Efficiency	70.02 %
Discharge Velocity	11.50 m/s
DP	326 Pa
SP	326 Pa
EP	326 Pa
DP	326 Pa
EP	326 Pa

TECHNICAL REPORT

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6 EXHAUST FAN

FAN SPECIFICATIONS

Fan Code	305-R-BF	Installed Power	4.00 kW
Fan Type	Backward	Power Supply	380-415V/3Ph/50Hz
Fan Quantity	1	Motor Efficiency	99 %
Fan Air Power	2.03	Fan Shaft Power	2.03 kW

MOTOR SPECIFICATIONS

Fan Code	305-R-BF	Installed Power	4.00 kW
Fan Type	Backward	Power Supply	380-415V/3Ph/50Hz
Fan Quantity	1	Motor Efficiency	99 %
Fan Air Power	2.03	Fan Shaft Power	2.03 kW

PERFORMANCE

Vol. Efficiency	70.02 %
Discharge Velocity	11.50 m/s
DP	326 Pa
SP	326 Pa
EP	326 Pa

7 PRIMARY FILTER

FAN SOUND POWER LEVEL, Lw

Band Frequency, Hz	60	120	250	500	1000	2000	4000	8000	Overall
Lw	91.0	85.0	80.0	82.0	83.0	82.0	78.0	71.0	96.0
Lw(A)	65.0	69.0	71.0	69.0	63.0	63.0	70.0	70.0	91.0

CFM

24" x 24"	0
24" x 12"	0
Pe	3
24" x 20"	3
Pe	0

CFM

24" x 24"	0
24" x 12"	0
Pe	3
24" x 20"	3
Pe	0

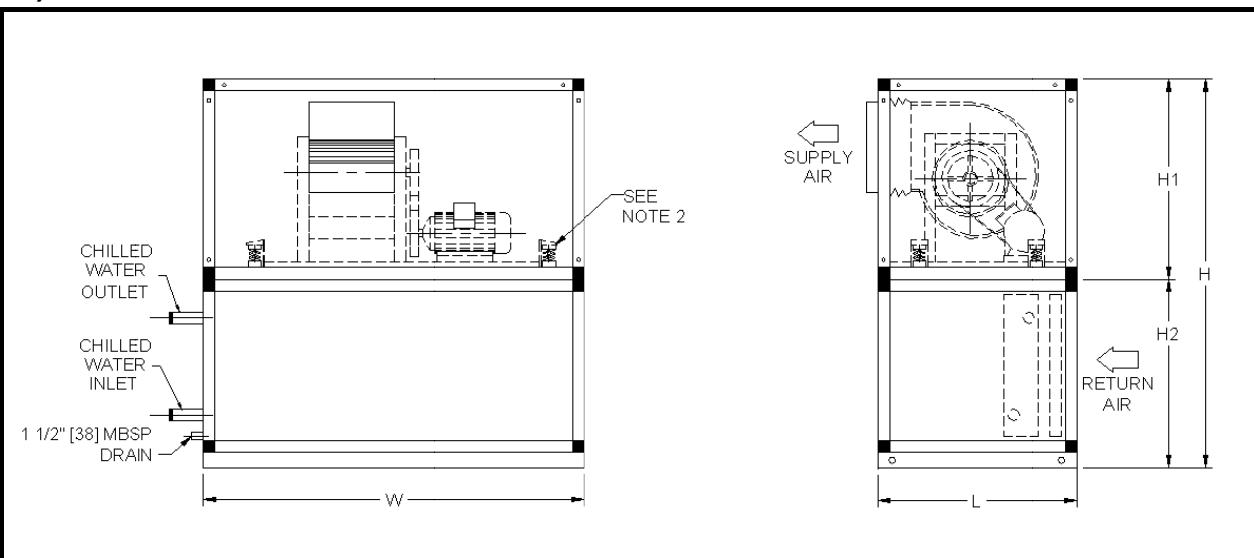
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MAXIMUM AIRFLOW

Model Size	12	22	32	40	48	64	80	100	120	150	180	210	240	270	320	420	520
Max. CFM m³/hr]	1667 [2833]	2667 [4532]	3896 [6620]	4813 [8178]	5729 [9735]	7563 [12851]	9625 [16355]	12375 [21028]	14438 [24533]	17000 [28886]	22000 [37382]	25458 [43258]	28708 [48781]	31958 [54303]	40000 [67968]	45000 [76464]	56250 [95580]

PHYSICAL DIMENSION

1.) VERTICAL TYPE



Model	2" Casing - inches [mm]				
	H	W	H1	H2	L
12	61 [1550]	33 7/16 [850]	-	-	33 7/16 [850]
22	68 7/8 [1750]	49 1/4 [1250]	-	-	33 7/16 [850]
32	76 3/4 [1950]	49 1/4 [1250]	-	-	33 7/16 [850]
40	84 5/8 [2150]	57 1/16 [1450]	-	-	33 7/16 [850]
48	84 5/8 [2150]	65 [1650]	-	-	41 3/8 [1050]
64	86 5/8 [2200]	80 3/4 [2050]	41 3/8 [1050]	45 1/4 [1150]	41 3/8 [1050]
80	102 3/8 [2600]	80 3/4 [2050]	49 1/4 [1250]	53 1/8 [1350]	49 1/4 [1250]
100	110 1/4 [2800]	80 3/4 [2050]	49 1/4 [1250]	61 [1550]	49 1/4 [1250]
120	118 1/8 [3000]	80 3/4 [2050]	49 1/4 [1250]	68 7/8 [1750]	49 1/4 [1250]
150	133 7/8 [3400]	80 3/4 [2050]	57 1/8 [1450]	76 3/4 [1950]	57 1/16 [1450]
180	141 3/4 [3600]	104 5/16 [2650]	65 [1650]	76 3/4 [1950]	65 [1650]
210	150 1/2 [3815]	112 3/16 [2850]	65 [1650]	85 1/8 [2165]	65 [1650]
240	150 1/2 [3815]	120 1/16 [3050]	65 [1650]	85 1/8 [2165]	65 [1650]

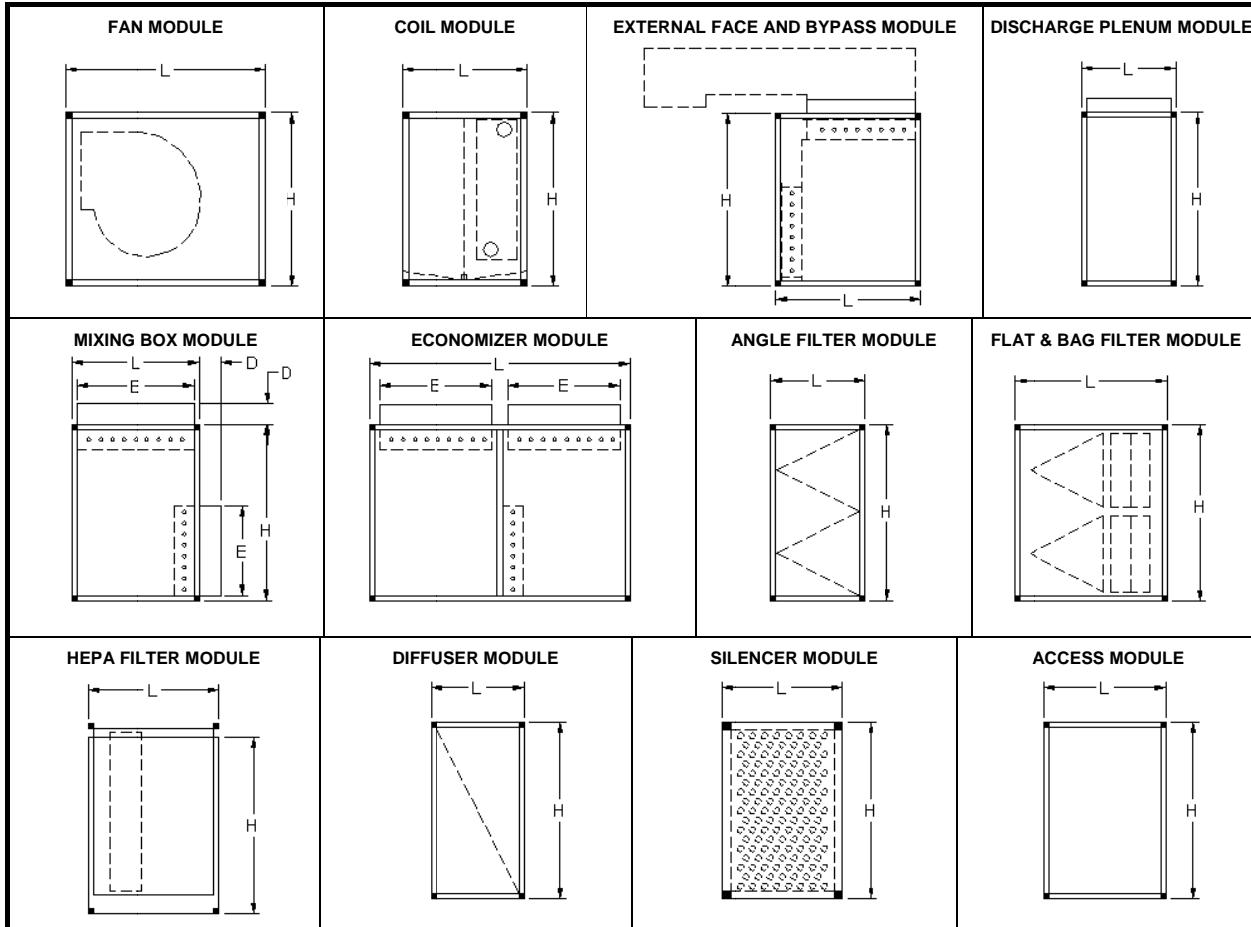
Notes: 1) Height (H) includes the unit base.

2) Spring type isolators are for standard fan of model AF64 onwards and FS80 onwards only. The rest are rubber isolator mounting.

3) L/H motor and R/H piping shown.

PHYSICAL DIMENSION

2.) DIMENSIONS FOR ACCESSORY SECTIONS



Model	Unit Height (H)	Unit Width (W)	Fan	Coil (Long)	Coil (Short)	External Face & Bypass	Mixing Box	Econo-mizer	Flat & Bag / Angle Filter	Hepa Filter	Diffuser	Silencer	Access	Discharge Plenum	Damper / Discharge Plenum Opening Size
	Width (E)	Length (L)													Inches [mm]
Module		Module Length (M)													
12	4	4	4	4	3	2	2	4	3	5	2	5	3	2	8 1/4 [210] 11 13/16 [300]
22	4	6	4	4	3	2	2	4	3	5	2	5	3	2	8 1/4 [210] 19 11/16 [500]
32	5	6	4	4	3	3	3	6	3	5	2	5	3	3	8 1/4 [210] 27 9/16 [700]
40	5	7	4	4	3	3	3	6	3	5	2	5	3	3	8 1/4 [210] 35 7/16 [900]
48	5	8	5	4	3	3	3	6	3	5	2	5	3	3	8 1/4 [210] 39 3/8 [1000]
64	5	10	5	4	3	3	3	6	3	5	2	5	3	3	12 3/16 [310] 39 3/8 [1000]
80	6	10	6	4	3	3	3	6	3	5	3	5	3	3	12 3/16 [310] 47 1/4 [1200]
100	7	10	6	4	3	4	4	8	3	5	3	5	3	4	16 1/8 [410] 47 1/4 [1200]
120	8	10	6	4	3	4	4	8	3	5	4	5	3	4	16 1/8 [410] 63 [1600]
150	9	10	7	4	3	4	4	8	3	5	4	5	3	4	16 1/8 [410] 63 [1600]
180	9	13	8	4	3	5	5	10	3	5	4	5	3	5	20 [510] 63 [1600]
210	10	14	8	4	3	5	5	10	3	5	5	5	3	5	24 [610] 70 7/8 [1800]
240	10	15	8	4	3	5	5	10	3	5	5	5	3	5	24 [610] 78 3/4 [2000]
270	10	17	8	4	3	5	5	10	3	5	5	5	3	5	24 [610] 78 3/4 [2000]
320	11	18	9	4	3	6	6	6 + 6	3	5	5	5	3	6	28 [710] 78 3/4 [2000]
420	11	20	10	4	3	7	7	7 + 7	3	5	5	5	3	7	35 13/16 [910] 90 9/16 [2300]
520	11	21	10	6	5	8	8	8 + 8	3	5	5	5	3	8	43 11/16 [1110] 90 9/16 [2300]

Notes: 1) To calculate actual unit height, **1 Module = 7 7/8" [200mm]**

Unit base = 4" [100mm]

eg. 2" Casing For Model 12, Unit Height (H) = (4 x 7 7/8" [200mm]) + 2" [50mm] + 4" [100mm] = 37 1/2" [950mm] (includes unit base)

For Model 210, Unit Height (H) = (10 x 7 7/8" [200mm]) + 2" [50mm] + 4 1/2" [115mm] = 85 1/8" [2165mm] (includes unit base)

2) To calculate actual unit width and length, **1 Module = 7 7/8" [200mm]**

2" Casing, For all Models, Unit Width (W) = (4 x 7 7/8" [200mm]) + 2" [50mm] = 33 1/2" [850mm]

3) Maximum shipping length, if, Unit Width <= 10M, Lmax = 15M

Unit Width > 10M, Lmax = 10M



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Manufacturer reserves the right to change specifications without prior notice.

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