



3AHB / 3ADB / 3ADBT
Air Handling Units

Manufacturing of Equipment for Air Conditioning and Refrigeration



Registration Number: SC 4696-1



Registration Number: CO-SC 4696-1



AHU Coils AHRI Standard 410

MODELS DESCRIPTION

3AHB



The 3AHB Air Handling Units are manufactured with single wall panels of 1" nominal thickness up to model 32. The 3AHB Air Handlers use a thermal break aluminum profile and high resistance nylon corners. Available as an option, with gray or white almond color paint. Depending on the operation requirements, can be manufactured with Forward-curved fans or Airfoil with bands transmission, or Plenum Fan coupled directly to the motor; the motors are three phase and dual-voltage (220/ 440 v) for general purpose, high efficiency or Explosion Proof.

3ADB / 3ADBT



The 3ADB Air Handling Units are manufactured with double-wall panels 1" nominal thickness, up to model 32. The 3ADBT Air Handling Units are manufactured with double-wall panels 2" nominal thickness for all models. The 2 models use thermal break profile and high resistance nylon corners. Available as an option with gray or white almond color paint. Depending on the operation requirements, can be manufactured with Forward-curved fans or Airfoil with bands transmission, or Plenum Fan coupled directly to the motor; the motors are three phase and dual-voltage (220/ 440 v) for general purpose, high efficiency or Explosion Proof.

PRESENTATION

TECAM S.A. has developed the Air Handling Units 3AHB, 3ADB and 3ADBT with single wall and double wall panels, for heavy-duty applications with the distinctive feature of using profiles and panels with thermal break, creating a thermal barrier that prevents heat transfer by conduction from the outer surface to the inner surface of the unit, avoiding the generation of condensate on the outer surface and improving the thermal efficiency of the Air Handling Unit. The cooling coils for R410A or chilled water applications, that come installed in our Air handling units, are designed and manufactured in accordance with the performance results shown by our TECAM-COIL Software certified by AHRI. The AHRI certification under the Standard 410 is extended to the selected coils with this Software (see example on page 15). Our Air Handling Units offer a wide variety of options and solutions that meet the most stringent quality standards.

A wide range of coils, fans, filters, sections, and accessories, provides the user with multiple options for each application. In addition, its modular construction and easy access, provides the flexibility for installation and maintenance.

These AHUs have been designed for air conditioning, ventilation or heating applications, or there combination, guaranteeing indoor air quality and precise control of humidity and temperature conditions. When required, electronic controllers and sensors may be install, in its interior. Main applications for these units are in industry, laboratories, hospitals, supermarkets, airports, hotels, cinemas, commercial malls and other places where special environmental control is required.

EASY INSTALLATION

These Units can be installed on the floor or suspended from the ceiling, depending on the model and the available space; the Design Engineer selects the model. Optionally it can be manufactured for outdoor applications that include: roof, electrostatic painting and special seals.

MODULAR DESIGN

Its structure, built with thermal break profiles and nylon corners, allows single or multiple modules configuration. The vertical configuration is achieved by mounting the Fan Section on top of the Coil Section; the horizontal configuration is built assembling the Fan Section to the other sections in the same level. This provides multiple configuration options for customer/ user, at the moment of selecting a model.

VERSATILITY

The Fan section allows the use of blowers for high or low static pressure, the coil in each model is manufactured with up to 8 rows and between 8 and 14 fins per inch. The Air Handling Units for outdoor applications are manufactured with roof covers, designed to prevent the accumulation and leakage of water into the unit. The different models allow the use of a variety of filters and an adjustable Mixing Box, which combined with the Accesses and Plenum sections, provides a big variety of configuration options, to suit any application.

CONNECTIVITY

Optionally, Air Handling Units can be equipped with a group of sensors that allow the Electronic Controller to command actuators using software specially designed for applications in air conditioning, where different strategies developed by the manufacturer of the Controller, enable the Air Handling unit to provide excellent air quality in complying with the project or job requirements. A remote Monitoring and Managing System (PlantWatchPRO or PlantVisorPRO) manufactured by Carel, can also be offered as an option. This remote Monitoring system is capable of connecting up to 400 points that need to be monitored. The PlantWatchPRO or PlantVisorPRO is the monitoring and telecare system from CAREL based on a web server that allows easy access to the information, manage alarms and provide flexibility in its operation. With the appropriate driver, allows communication with other protocols such as Modbus, BACnet, Lon-ECHELON, LAN TCP/IP, SNMP and CAREL Protocol.

QUALITY

Coils used in these Air Handling Units, are certified under the Standard 410 of "The AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program".

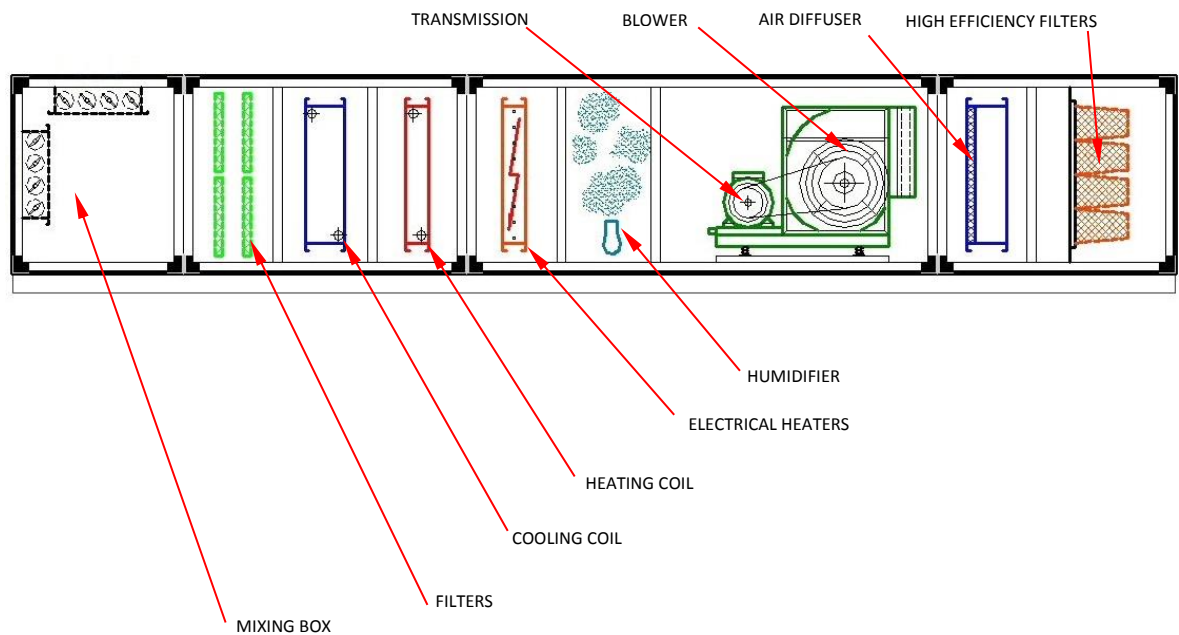
The Blower wheels that are used in the Air Handling Units are manufactured and tested in the engineering laboratory of LAU Industries, Inc*. The air flow performance tests are carried out in large air chambers. A reverberation room is available to measure the sound power levels in accordance with Standard AMCA 300. The Engineering Laboratory of LAU is accredited by AMCA for testing under Standards 210 and 300.

The manufacturing processes of the Air Handling Units are certified under the ISO 9001:2008 Standard, assuring confidence for investing in a TECAM product, which guarantees the maximum profitability in performance and efficiency, as well as the low operation cost and minimum maintenance.

SERVICE

TECAM S.A. through its distributors/ Dealers network and directly from the factory, extends its warranty for the supply of original spare parts and accessories for our equipment.

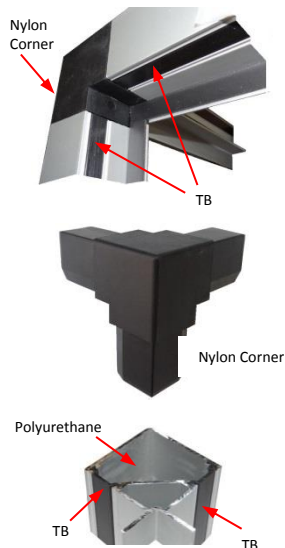
COMPONENTS



*LAU Industries, Inc.: Leader in manufacturing fans since 1931. Head office located in Ohio, U.S.A.

SECTIONS AND STRUCTURES

All sections are manufactured with galvanized steel metal G-90 in different gauges, ranging from 24 to 12, bolted together with galvanized bolts, protecting it from corrosion to provide extended durability.



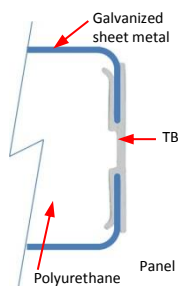
STRUCTURE

The structure is built with anodized aluminum profiles and Nylon corners in its junctions. The profiles have two components; anodized aluminum and Nylon, the Nylon serves as Thermal Break (TB), as shown in the figure; the thermal break allows to isolate the inner surface from the outer surface of the unit, by creating a thermal barrier between the inside and the outside of the unit.

The profiles have in their interior polyurethane thermal insulation that together with the thermal break of the profiles and panels, prevent condensation of water at contact with the outside air. A rubatex strip seal is placed between the aluminum profiles and the panels to avoid air leakage from the inside to the outside of the unit or vice versa, avoiding alterations in the air flow processed by the Air Handling Unit. The base of the structure is manufactured with galvanized sheet metal, strongly fastened to provide transport, installation and operation security.

PANELS

The 3ADB and 3ADB Air Handling Units are manufactured with panels constructed with galvanized sheet metal gauge 24, forming two walls, one on each side of the polyurethane insulation; the nominal thickness of the 3ADB is 1", while the 3ADB is manufactured with nominal thickness of 2". The inner wall is separated from the outer wall by a PVC band which forms a thermal break (TB) as shown in the figure. The TB isolates the inner wall from the outer wall, creating a thermal barrier that prevents the flow of heat by conduction between the inside and the outside of the unit, likewise, prevents the production of condensates outside the unit. The 3AHB Air Handling Units are manufactured with single wall panels, produced with 20-gauge galvanized sheet metal, and fiberglass insulation, optionally with anti-erosion film at customer's request. Optionally, panels of any of the previous machines may be painted with gray or almond white almond electrostatic paint, to give extended durability to its surface.



CONDENSATE PAN

The condensate pan of the double wall Air Handling Units (3ADB/ ADBT), is manufactured in stainless steel; the pan in single wall Units (3AHB) is manufactured in galvanized sheet metal with stainless steel option, all designed with 100% positive drain. Removing the rear panel, allows adequate maintenance of the pan.



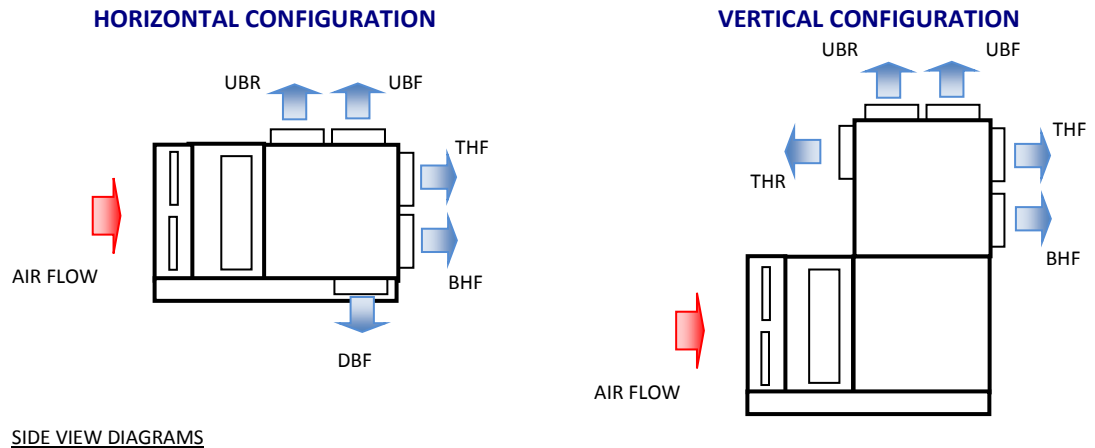
ROOF FOR OUTDOOR OPERATION

The Air Handling Units for outdoor installation are offered with roof designed to protect the machine from rain and sun. This roof comes with two side inclinations to prevent the accumulation of water, and it is also painted gray or almond white with electrostatic paint enabling it to withstand aggressive environments.

SECTIONS

FAN SECTIONS	
FCS0	Fan Section empty (without fan, or engine, or transmission, or springs, etc.)
FCS1	Fan Section Forward-Curved Class I, without Springs for Horizontal AHU
FCS2	Fan Section Forward-Curved Class I, without Springs for Vertical AHU
FCS3	Fan Section Forward-Curved Class I, with Springs for Horizontal AHU
FCS4	Fan Section Forward-Curved Class I, with Springs for Vertical AHU
FCS5	Fan Section Forward-Curved Class II, with Springs for Horizontal AHU
FCS6	Fan Section Forward-Curved Class II, with Springs for Vertical AHU
FCS7	Fan Section Forward-Curved Class I, with Springs for Horizontal AHU, Blow-thru
FCS8	Fan Section Forward-Curved Class I, with Springs for Vertical AHU, Blow-thru
FCS11	Fan section Forward-Curved Class II, with Springs for Horizontal AHU, Blow-thru
FCS12	Fan Section Forward-Curved Class II, with Springs for Vertical AHU, Blow-thru
AFS1	Airfoil Fan Section with Springs for Horizontal AHU, Blow-thru
AFS2	Airfoil Fan Section with Springs for vertical AHU, Blow-thru
AFS3	Airfoil Fan Section with Springs for Horizontal AHU
AFS4	Airfoil Fan Section with Springs for Vertical AHU
PFS1	Plenum Fan Section for Horizontal AHU
PFS2	Plenum Fan Section for Vertical AHU
COIL SECTIONS	
LCS1	Coil Section for Horizontal AHU
VCS1	Coil Section for Vertical AHU
FILTER SECTIONS	
FLT1	Flat Filter section with stages of 2" and 4" (see details in table on page 11)
FLT2	Pre-filters Section for 2" filters (without structure or panels)
FLT4	Filter Section with stages of 2" and 4" (see details in column of Bag/Hepa p. 11)
BFS1	Bag Filter Section
HFS1	Hepa Filter section
ANG1	Angle Filter Section (low speed)
CFS1	Cartridge Filter Section with stages of 2" + 4" + 4" (see details in the column Bag/Hepa page. 11).
ACCESS SECTIONS	
ACC1	Access Section Short
ACC2	Access Section Long
PLENUM SECTIONS	
PLN1	Plenum Section Short
PLN2	Plenum Section Long
REHEAT SECTIONS	
RHW1	Reheating Section with Water Coil
RHE1	Reheating Section with Electric Heaters
PREHEAT SECTIONS	
PHW1	Preheating Section with Water Coil for Horizontal AHU
PHW2	Preheating Section with Water Coil for Vertical AHU
PHE1	Preheating Section with 1 row of Electric Heaters
PHE2	Preheating Section with 2 rows of Electric Heaters
OTHER SECTIONS	
MXB1	Mixing Box Section
DIF1	Diffuser Section
BFE1	BFS1 Extension Section
SHS1	Steam Humidifier Section

DISCHARGES

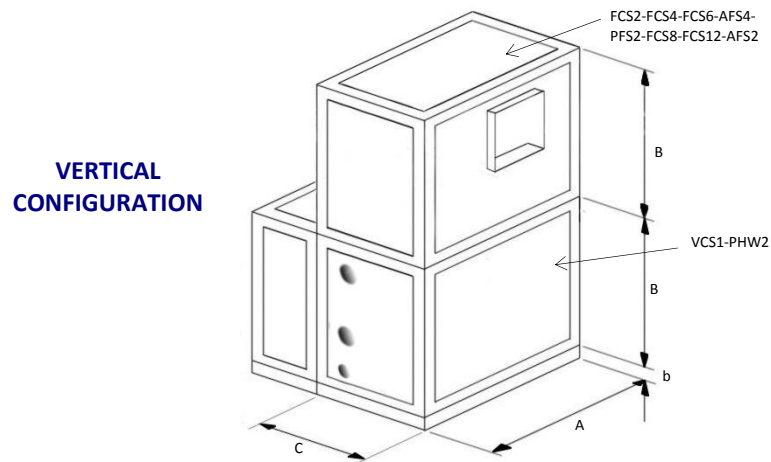


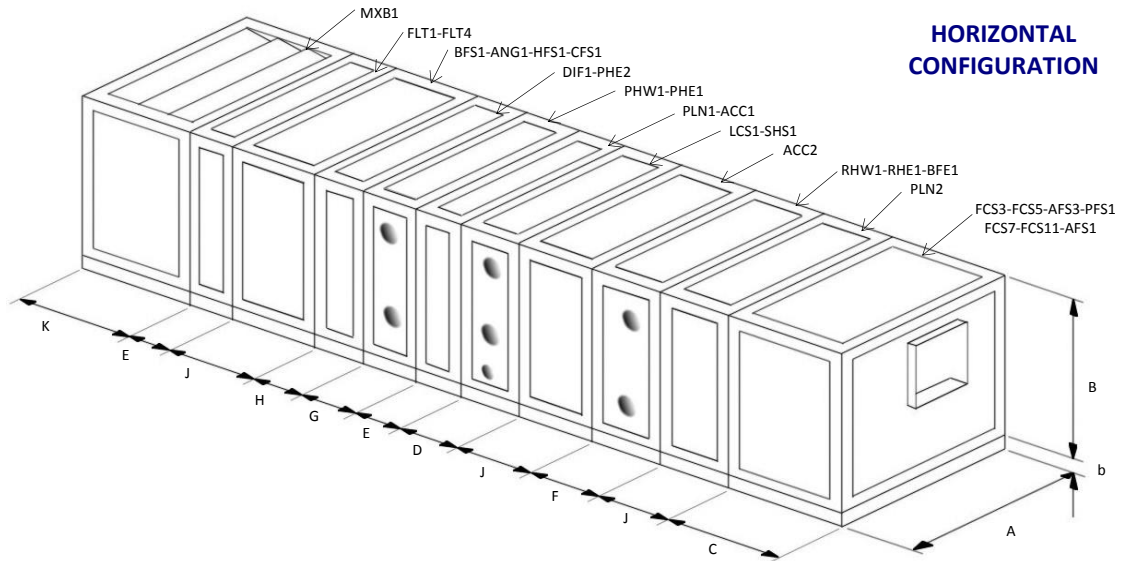
DISCHARGE OPTIONS

THR = Top Horizontal Rear
 UBR = Upblast Rear
 UBF = Upblast Front

THF = Top Horizontal Front
 BHF = Bottom Horizontal Front
 DBF = Down Bottom Front

3AHB / 3ADB / 3ADBT GENERAL DIMENSIONS





HORIZONTAL CONFIGURATION

3AHB / 3ADB

MODEL	AIR FLOW CFM		AREA (ft ²) COIL		3AHB / 3ADB - DIMENSIONS (in inches)											
	400 fpm	800 fpm	S	L	WIDTH			HEIGHT			LONG					
					A	B	b	C	D	D2	E	F	G	H	J	K
03	1080	2880	2.7	3.6	40.3	32.3	4.0	30.5	21.5	-	13.5	13.5	13.5	19.5	30.5	21.5
06	1880	4720	4.7	5.9	43.3	36.3	4.0	30.5	21.5	-	13.5	13.5	13.5	19.5	30.5	21.5
09	3160	7680	7.9	9.6	55.3	40.3	4.0	30.5	21.5	-	13.5	13.5	13.5	19.5	30.5	21.5
13	4520	9760	11.3	12.2	67.3	43.3	4.0	36.5	21.5	-	13.5	13.5	13.5	19.5	30.5	21.5
15	4840	11920	12.1	14.9	73.3	43.3	4.0	36.5	21.5	-	13.5	13.5	13.5	19.5	30.5	21.5
17	5600	13520	14.0	16.9	82.3	49.3	6.0	50.5	21.5	-	13.5	13.5	13.5	19.5	30.5	30.5
21	6760	17120	16.9	21.4	82.3	58.3	6.0	50.5	21.5	-	13.5	13.5	13.5	19.5	30.5	30.5
26	8560	22400	21.4	28.0	95.3	58.3	6.0	50.5	21.5	-	13.5	13.5	13.5	19.5	30.5	30.5
32	11200	24640	28.0	30.8	95.3	58.3	6.0	50.5	21.5	41.5	13.5	13.5	13.5	19.5	30.5	30.5

3ADBT

MODEL	AIR FLOW CFM		AREA (ft ²) COIL		3ADBT - DIMENSIONS (in inches)											
	400 fpm	800 fpm	S	L	WIDTH			HEIGHT			LONG					
					A	B	b	C	(* D)	(* D2)	E	F	G	H	J	K
03	1080	2880	2.7	3.6	42.3	34.3	4.0	32	23.0	-	15.0	15.0	15.0	21.0	32.0	23.0
06	1880	4720	4.7	5.9	45.3	38.3	4.0	32	23.0	-	15.0	15.0	15.0	21.0	32.0	23.0
09	3160	7680	7.9	9.6	57.3	42.3	4.0	32	23.0	-	15.0	15.0	15.0	21.0	32.0	23.0
13	4520	9760	11.3	12.2	69.3	45.3	4.0	38	23.0	-	15.0	15.0	15.0	21.0	32.0	23.0
15	4840	11920	12.1	14.9	75.3	51.3	4.0	38	23.0	-	15.0	15.0	15.0	21.0	32.0	23.0
17	5600	13520	14.0	16.9	84.3	51.3	6.0	52	23.0	-	15.0	15.0	15.0	21.0	32.0	32.0
21	6760	17120	16.9	21.4	84.3	60.3	6.0	52	23.0	-	15.0	15.0	15.0	21.0	32.0	32.0
26	8560	22400	21.4	28.0	97.3	60.3	6.0	52	23.0	-	15.0	15.0	15.0	21.0	32.0	32.0
32	11200	24640	28.0	30.8	97.3	60.3	6.0	52	23.0	43.0	15.0	15.0	15.0	21.0	32.0	32.0
36	12840	29280	32.1	36.6	120.4	60.3	6.0	52	23.0	43.0	15.0	15.0	15.0	21.0	32.0	32.0
39	15600	34240	39.0	42.8	120.4	72.3	6.0	72	-	43.0	15.0	15.0	15.0	21.0	32.0	44.0
48	19240	45520	48.1	56.9	143.3	82.3	6.0	72	-	43.0	15.0	15.0	15.0	21.0	32.0	44.0
57	22760	49120	56.9	61.4	150.3	82.3	6.0	72	-	43.0	15.0	15.0	15.0	21.0	32.0	44.0

* D = Dimension for section with 1 coil.

D2 = Dimension for section with 2 coils.

WEIGHTS SECTIONS

(Kilograms)

MODEL	03	06	09	13	15	17	21	26	32	36	39	48	57
MXB1	54.7	60.2	77.7	92.0	97.9	103.7	113.5	124.9	131.0	155.0	179.1	189.2	199.3
ANG1	46.5	51.2	66.1	78.2	83.2	88.1	96.4	106.1	111.4	131.8	152.3	155.8	159.3
BFS1	51.9	57.1	73.8	87.4	93.0	98.5	107.8	118.6	124.6	147.4	170.2	178.2	186.1
ACC1	41.0	45.1	58.3	69.1	73.4	77.7	85.1	93.6	98.3	116.4	134.4	141.6	148.9
PLN2	41.0	45.1	58.3	69.1	73.4	77.7	85.1	93.6	98.3	116.4	134.4	141.6	148.9
FLT1	28.3	29.7	34.4	39.9	43.1	46.4	55.5	58.2	60.0	68.4	76.8	79.2	81.5
PHW1	31.2	32.7	37.8	43.9	47.4	51.0	61.1	64.1	66.0	75.2	84.5	92.4	100.4
PLN1	25.5	26.8	31.0	36.0	38.9	41.7	49.9	52.4	54.0	61.6	69.2	73.2	77.2
DIF1	32.7	34.4	39.5	48.0	51.1	54.1	60.6	63.6	66.8	85.7	104.6	71.8	39.1
LCS1	36.4	38.2	43.9	53.3	56.7	60.1	67.3	70.7	74.2	95.2	116.1	122.1	128.1
VCS1	51.8	54.4	63.6	77.4	86.0	94.6	113.1	124.4	136.8	141.8	147.0	152.1	157.2
FCS3	90.5	101.3	142.7	192.1	227.1	262.2	306.0	336.5	370.2	384.0	397.8	404.2	410.5
AFS3	104.1	116.15	171.2	230.5	272.5	314.6	367.1	403.9	444.2	460.8	477.3	501.5	525.7

These values are approximate, may vary by modifications in their design or in their components. Does not include the weight of the coil, motor or transmission.

VENTILATION

The fan section of a standard Air Handling Unit, is equipped with the blower wheel, the coupling transmission by belts and the motor. The entire system is supported with springs carefully designed to provide a quiet operation, free of vibrations and noise. Optionally, available with Plenum Fan directly coupled to the motor and variable speed driver, complying with customer requirements.



Forward-curved centrifugal blower

FAN

Standard Air Handling Units are equipped with Forward-curved Class 1 centrifugal blower wheels, manufactured by LAU under AMCA standards, (up to unit size 57).



Air Foil

Optionally all models may be equipped with Forward-curved Class 2 centrifugal blower wheels manufactured by LAU, or Airfoil wheels manufactured by Chicago Blower.



Plenum-Fan

Another option is the Plenum-Fan, which come totally assembled by the manufacturer, with the motor directly coupled to the airfoil blower wheel and the nozzle for air entry. Air flow can be controlled increasing or decreasing the motors RPMs using a frequency driver. The selection of the best option of fan depends on the required air flow and the static pressure, and can be selected for a blow- thru or draw-thru Unit.

The air discharge in the vertical Units with power transmission by belts may be: THR, UBR, UBF, THF and BHF; the discharge in the horizontal Units with power transmission by belts may be: UBR, UBF, THF, BHF and DBF. The discharge on Units with Plenum-Fan can be at the top, bottom, front on both sides of the fan section.

TRANSMISSION



In Units with power transmission by belts, the transmission is statically and dynamically balanced. Imported pulleys are balanced by its manufacturer, this ensures a quiet transmission. Power for movement is generated by excellent quality motors (Siemens, Weg, Emerson or Baldor), totally enclosed, optionally supplied with high service factor and different polarities and voltages. The heavy-duty and long life bearings and shaft provide a smooth and quiet turn.

SPRINGS (vibration absorbers)



Springs are designed to easily withstand the load of entire fan section structure and components, and air displacement reaction. This ensures optimal vibration absorption, and a very calm and quiet operation outside the AHU.

COILS



Direct Expansion coils for refrigerant R-410A are manufactured using 3/8" or 1/2" diameter copper tubing, while Chilled Water coils are manufactured using 1/2" diameter copper tubing. All cooling coils are certified under the Standard 410 of "The AHRI Forced-Circulation Air- Cooling and Air-Heating Coils Certification Program". The selection and calculation of the coil performance is done using the TECAM-COIL software, also certified by AHRI. Other refrigerants may also be used in DX coils. Coils for Steam and Hot Water are also available. The coils are manufactured with aluminum fins and copper tubing. Fins per inch may vary between 8 and 16, and rows of tubing may vary from 1 up to 8 rows. Custom made coils can also be manufactured at customer request. Each Air Handling Unit model has the option of using large or small face area coils.

SMALL FACE AREA COILS

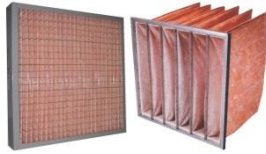
MODEL	03	06	09	13	15	17	21	26	32	36	39	48	57
Nom. Cap. (TR) at 550 fpm	5.0	7.1	11.6	17	18.4	21.2	25.5	32.2	38.7	44.1	61.6	74.7	88.4
Face Area ft ²	2.71	4.73	7.92	11.25	12.19	14.1	16.93	21.45	28.04	32.1	39.00	48.10	56.90
# of tubes in the Face	12	16	24	24	26	30	30	38	38	44	44	44	52

LARGE FACE AREA COILS

MODEL	03	06	09	13	15	17	21	26	32	36	39	48	57
Nom. Cap. (TR) at 550 fpm	5.7	8.5	14.4	18.4	21.2	25.5	32.2	38.7	44.2	50.3	67.6	88.4	93.9
Face Area ft ²	3.62	5.91	9.59	12.19	14.1	16.93	21.45	28.04	30.75	36.6	42.80	56.90	61.40
# of tubes in the Face	16	16	24	24	30	30	38	38	46	44	44	52	52

FILTER SECTION

The Filter Section is most frequently located before the cooling coil section, although depending on the application may be located at the end of the Unit, after the fan section and the Mixing Box. A door in the side of the Filter Section gives access to the filters.



FILTERS

Different filters sections are available to handle any type of filter, such as: flat filters, bag filters, cartridge filters, H.E.P.A. filters, etc. These filter sections, are manufactured with gaskets and special sealings that prevent the infiltration of outside air, and air by-pass in its interior, assuring that all the air will pass through the filters. All filters used include certificated filtering media.



DIFFERENTIAL PRESSURE GAUGE

Optionally the Air Handling Units are offered with control or measurement devices installed in factory, including differential air pressure gauges, which measure pressure drop or loss in some sections.

FILTERS DIMENSIONS

(Inches)

MODEL	ANGLE 2"		FLAT 2" Y 4"		BAG / HEPA	
	Quantity	Heigh x Width	Quantity	Heigh x Width	Quantity	Heigh x Width
03	4	20 x 16	2	25 x 16	1	24 x 24
06	4	20 x 20	1	25 x 20	1	24 x 24
			1	25 x 16	1	24 x 12
09	6	20 x 25	4	16 x 20	2	24 x 24
13	6	20 x 25	6	16 x 20	2	12 x 24
					2	24 x 24
15	9	20 x 20	2	16 x 25	1	12 x 12
			4	16 x 20	2	12 x 24
					1	24 x 12
17	16	16 x 20	6	20 x 20	3	12 x 24
			2	20 x 16	3	24 x 24
21	12	20 x 25	6	25 x 20	6	24 x 24
			2	25 x 16		
26	8	20 x 25	6	25 x 20	2	24 x 12
	8	20 x 20	2	25 x 16	6	24 x 24
32	8	20 x 25	6	25 x 25	4	24 x 24
	8	20 x 20	2	25 x 16	4	24 x 20
36	8	20 x 25	6	25 x 20	6	24 x 24
	12	20 x 20	4	25 x 25	4	24 x 20
39	8	20 x 25	6	25 x 20	6	24 x 24
	12	20 x 20	4	25 x 25	4	24 x 20
48	12	20 x 25	6	25 x 20	5	12 x 24
	12	20 x 20	6	25 x 25	10	24 x 24
57	15	20 x 25	5	12 x 25	6	12 x 24
			6	25 x 20	12	24 x 24
			6	25 x 25		

MIXING BOX

The MXB section or Mixing Box, is commonly used to combine the outside air with the air that recirculate and returns from occupied or conditioned areas. With the help of sensors (CO₂, humidity, others), and appropriate controls and actuators, air can be combined in an efficient way to deliver it back to the conditioned area, at the required mixture conditions.



ADJUSTABLE GATES (louvers)

The MXB section has 2 sets of adjustable gates, one to regulate the entry of outside air and another to regulate the entry of the return air. These gates are connected by a mechanism that opens a gate while the other closes.

VANES

The vanes of the adjustable gates are manufactured with aluminum profiles and seals, to ensure a very precise mixture of air. Its aerodynamic design allows an optimal air flow control in very demanding situations.

HUMIDITY CONTROL

The moisture can be controlled very precisely using an electronic controller that has installed the specifically designed software for this purpose. The controller is connected to the moisture sensor and controls the cooling devices (cooling coil + compressor), the humidifier and reheating devices, which may be electrical resistors or Hot Water coils.



HUMIDIFIER

The relative air humidity of the conditioned area is sensed within the AHU in the air return, by the moisture sensor and controlled by the Carel pCO processor, allowing a rapid response to the air moisture requirements. The humidifier is equipped with solenoid valves that allow the flow of water to the plastic cylinder (recipient) and the outlet to the drainage, automatically maintaining an appropriate level, for the optimum operation of the submerged electrodes. Additionally, using a water conductivity sensor, water quality may be monitored. The analogue communication between the humidifier and the processor allows a very precise steam production, capable of satisfying the required humidity levels.



ELECTRIC HEATERS

The stainless steel fin type heaters are activated in stages, following a determined strategy for dehumidifying and humidifying set by the electronic controller, to ensure that the air reheating is precise, avoiding in this way excessive energy consumption.

CONTROLS AND REMOTE MONITORING

One of the greatest advantages offered by the Air Handling Units 3AHB, 3ADB and 3ADBT, is the possibility to operate all its drivers using an electronic controller configured with programs developed especially for HVAC applications, and to remotely monitor operation using the Carel PlantWatchPRO software.

ELECTRONIC CONTROLLER



The Carel pCO controller operates with the standard application program for Air Handling Units, developed by Carel, with the capacity to manage cooling, heating, humidity, ventilation and air quality, among others. The controller allows the addition of expansion modules to increase the number of digital and analogue inputs, outputs and similar, required in special designs.

DISPLAY



Multiple liquid crystal displays may be used to access the configuration, monitoring and alarms from the controller. Some of them are integrated with the controller and others can be placed on flat surface or embedded in the AHU.

MONITORING SOFTWARE

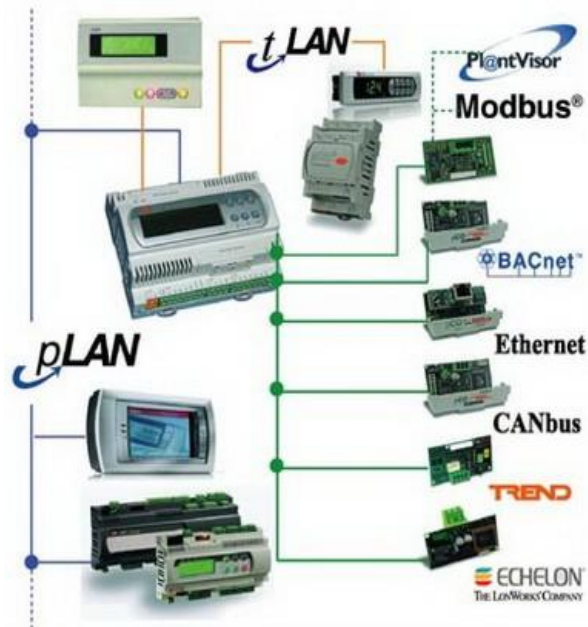


The controller can be remotely monitored from a central station, using the Carel PlantWatchPRO software, which allows connection and monitor up to 100 points. The PlantWatchPRO is the CAREL monitoring and remote assistance system based on a web server that allows easy access to the information; manage alarms, implementation, monitoring, energy savings management, graphics and flexibility in its operation.

SENSORS



A wide variety of sensors and transducers are available for different applications such as temperature, humidity, pressure, air quality. These can be installed in the Air Handling Unit, or ducts, or the conditioned area, or externally, depending on the design. The sensors used for monitoring air quality, are recommended in ventilation systems and to analyze the gas contamination that may be present in rooms or meeting rooms, offices, hotels, restaurants.



CONNECTIVITY

Air Handling Units with electronic controllers may be connected to most BMS and have the possibility of sending and receiving SMS messages using a GSM modem, to and from mobile phones.

With the appropriate controller, allows communication with other protocols such as Modbus, BACnet, Lon-ECHOLON, LAN TCP/IP, SNMP and CAREL Protocol.

Schneider controllers are also offered as an option, with the whole range of sensors, network drivers, field drivers, providing support and advice in their facilities.

TECAM-COIL SOFTWARE



TECAM S.A.

Calle 55 No 7N-06 Cali-Colombia,

00000-Cali, Colombia

Tel: 572-681-2618 Fax: 572-681-2872

Chilled Water Cooling Coil Schedule Ver 1.00

Customer:	Job Name	ACHC-14135Q-1	
Representative:	Date:	08-07-2014	
Serial Number:	AHRI Ref #:	Quall	
Analysis Type:	Rating	Coils/Bank:	1
Coil Height/Length: (In)	30.0 / 33.0	Fin Type/Fin Thickness: (In)	Corrugated / 0.0055
Coil Hand:	Right	Tube Mat / TubeType:	Copper / Smooth
Casing Material:	Galvanized	Wall Thickness: (In)	0.016
Altitude: (Ft)	0	Coil Type:	1/2-1.25x1.08
Fin Side Fouling Factor:	0.0000	Tube Side Fouling Factor:	0.0000
Number of Circuits/Coil:	12		
Coil Face Area/Coil: (Sq. Ft)	6.9		
Number of Rows:	4		
Connections In/Out: (In)	1.5		
Fin Material/Fins per (In):	Aluminum / 10		
Coil Wt./Coil: (Lb)	71		

Airside Information:

Air Flow Rate: (CFM)	2,500.0
Face Velocity: (Ft per min)	363.6
Air Pressure Drop: (In-wg)	0.32
Entering Dry Bulb /Wet Bulb: (°F)	80.0 / 67.0
Leaving Dry Bulb /Wet Bulb: (°F)	55.6 / 54.6
Sensible Heat: (BTU/Hr)	64,924
Total Heat: (BTU/Hr)	95,583
Sensible Heat Ratio:	0.68
Air Enthalpy Diff. (BTU/Lb)	8.66

Liquid Side Information:

Liquid Type/Conc.:	Water / 100%
Ent/Leaving Liq Temp: (°F)	45.0 / 52.6
Fl Flow(GPM)/Liquid Velocity(Ft/Sec):	25.0 / 3.6
Liquid Pressure Drop: (Ft of water)	7.79

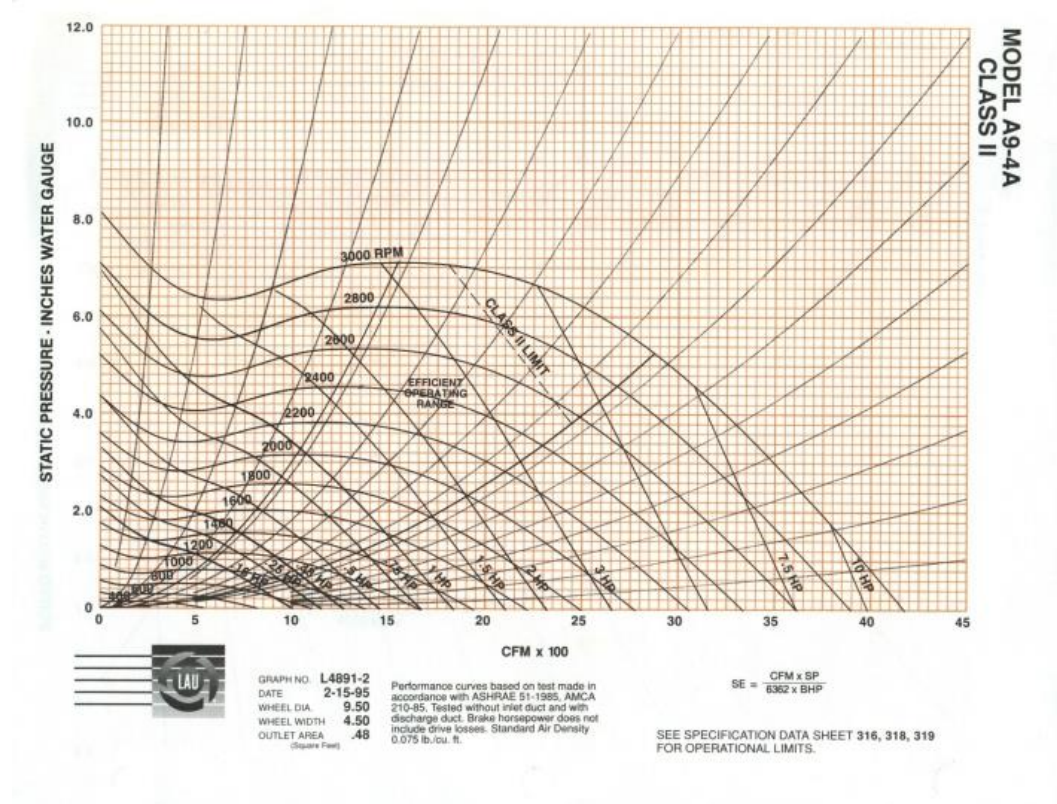
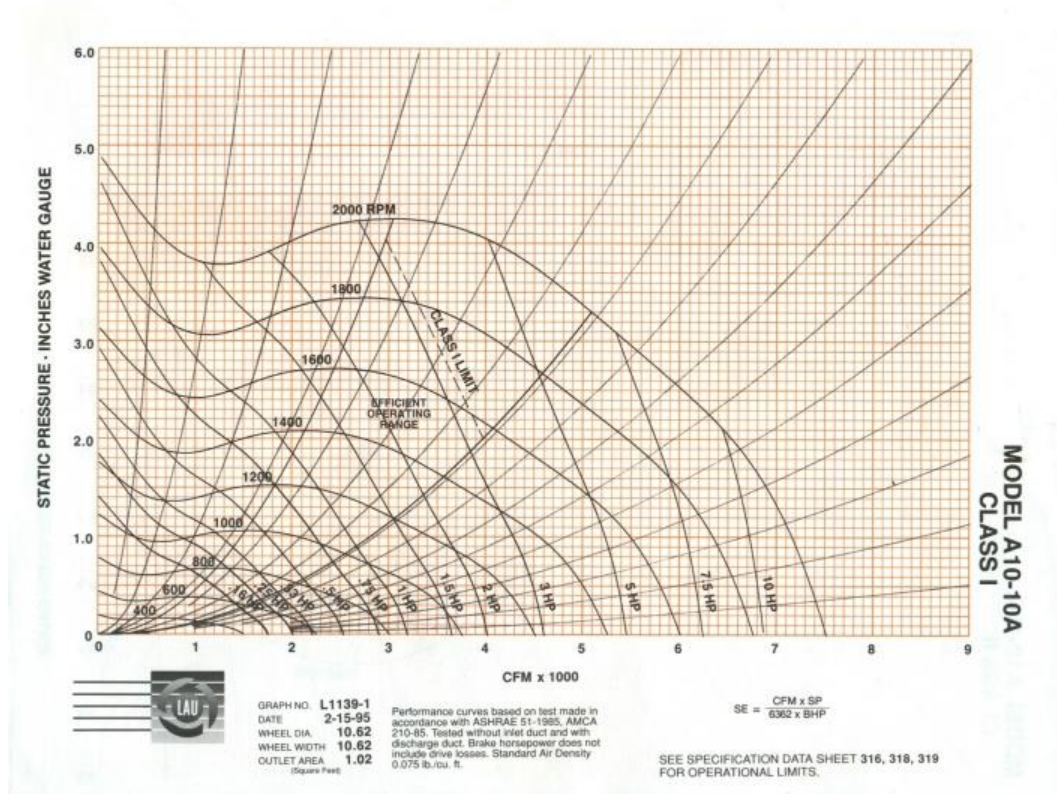
Model: 2CCW500-04-30.0-10-12-33.0

Certified in Accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program, which is based on AHRI Std.410 with in the Range of Standard Rating Conditions Listed in Table1 of the Standard.Certified units may be found in the AHRI Directory at www.ahridirectory.org

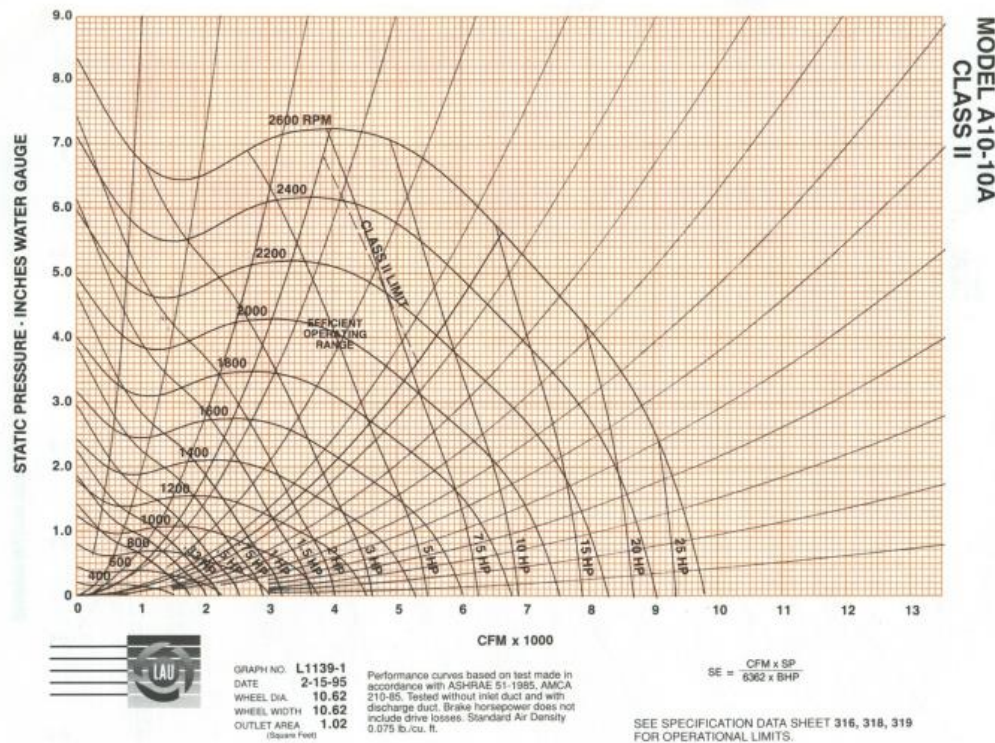
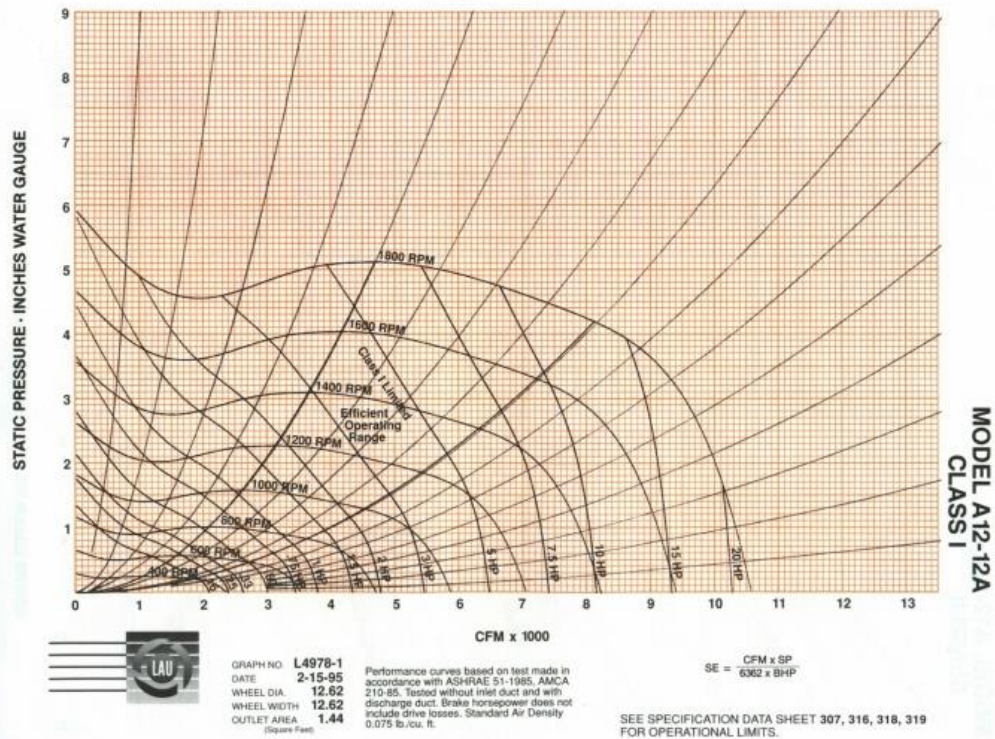
Sample of document submitted by the TECAM-COIL software

**PERFORMANCE CURVES
FORWARD-CURVED
CENTRIFUGAL BLOWER
LAU**

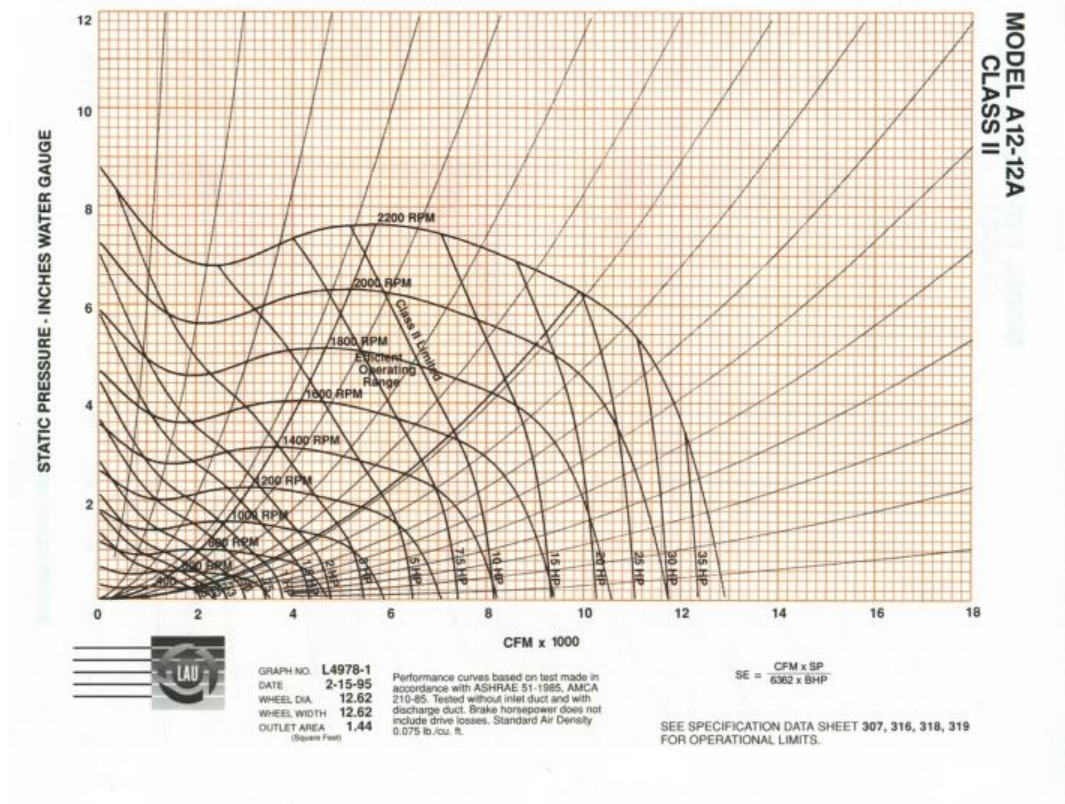
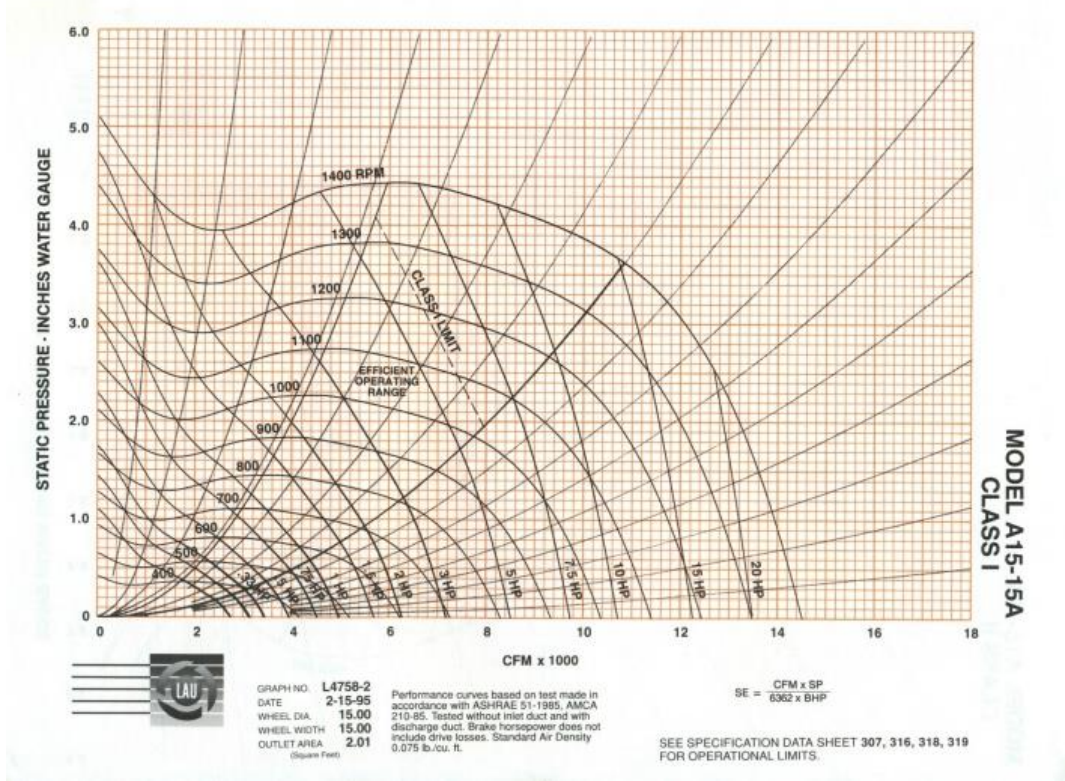
BLOWER IN 03 MODEL



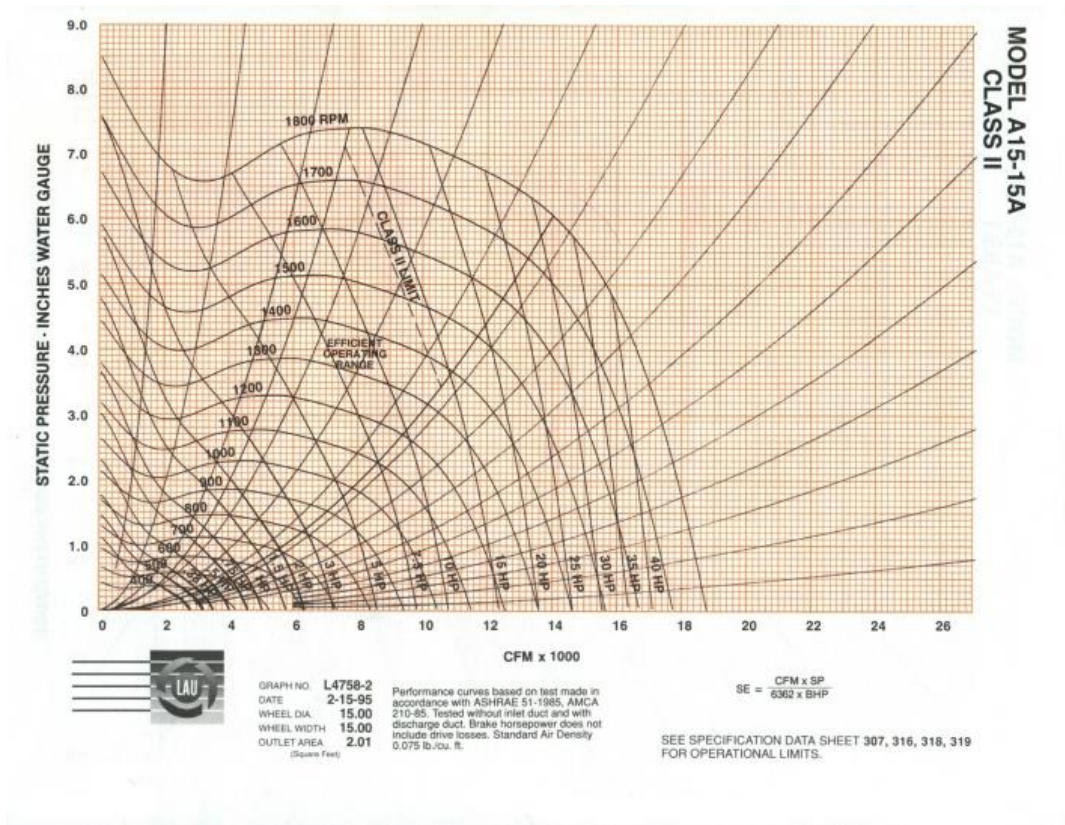
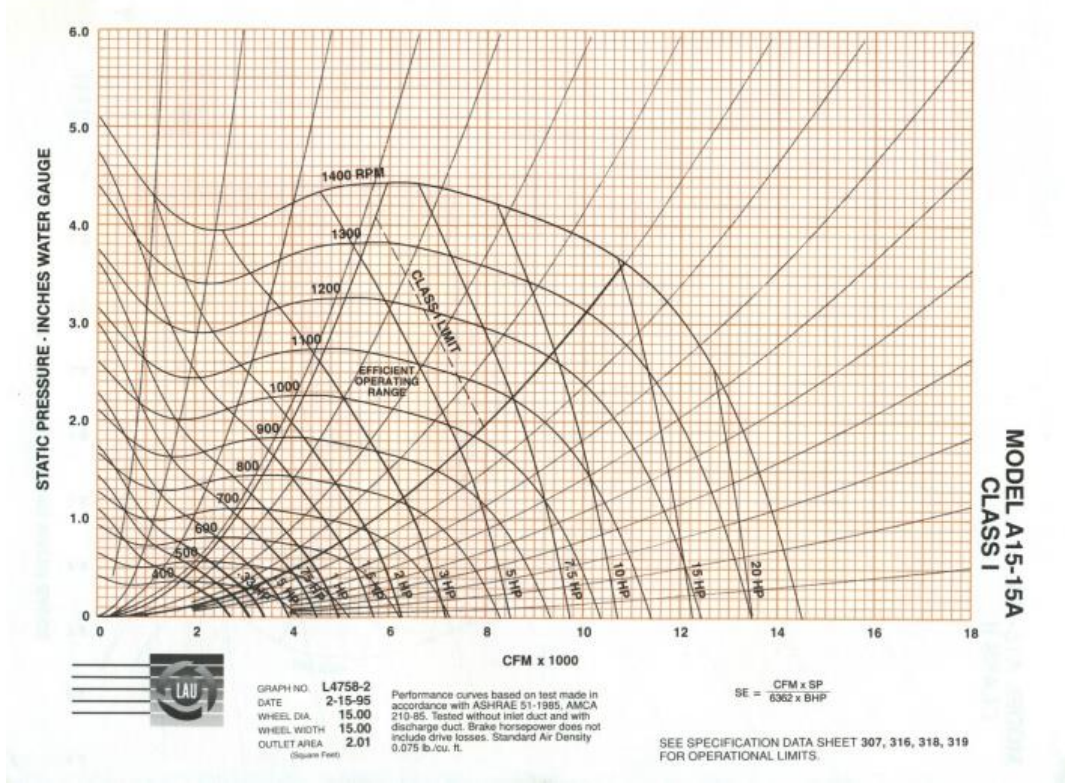
BLOWER IN 06 MODEL



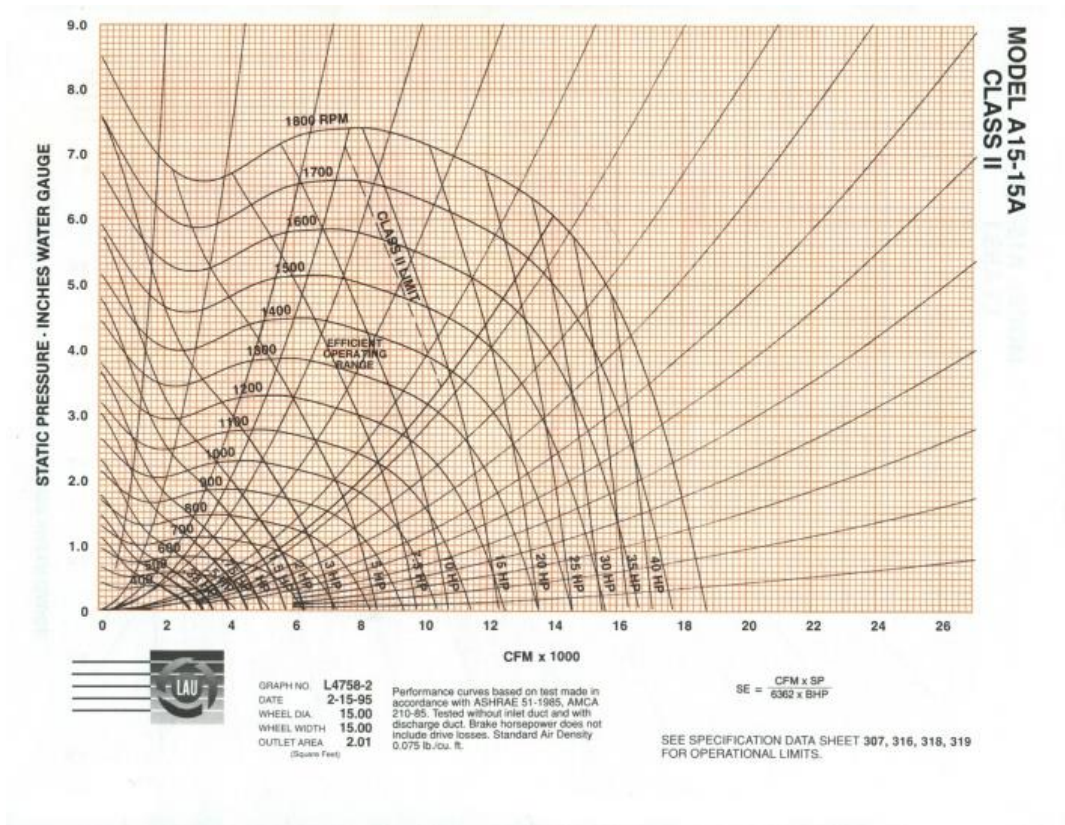
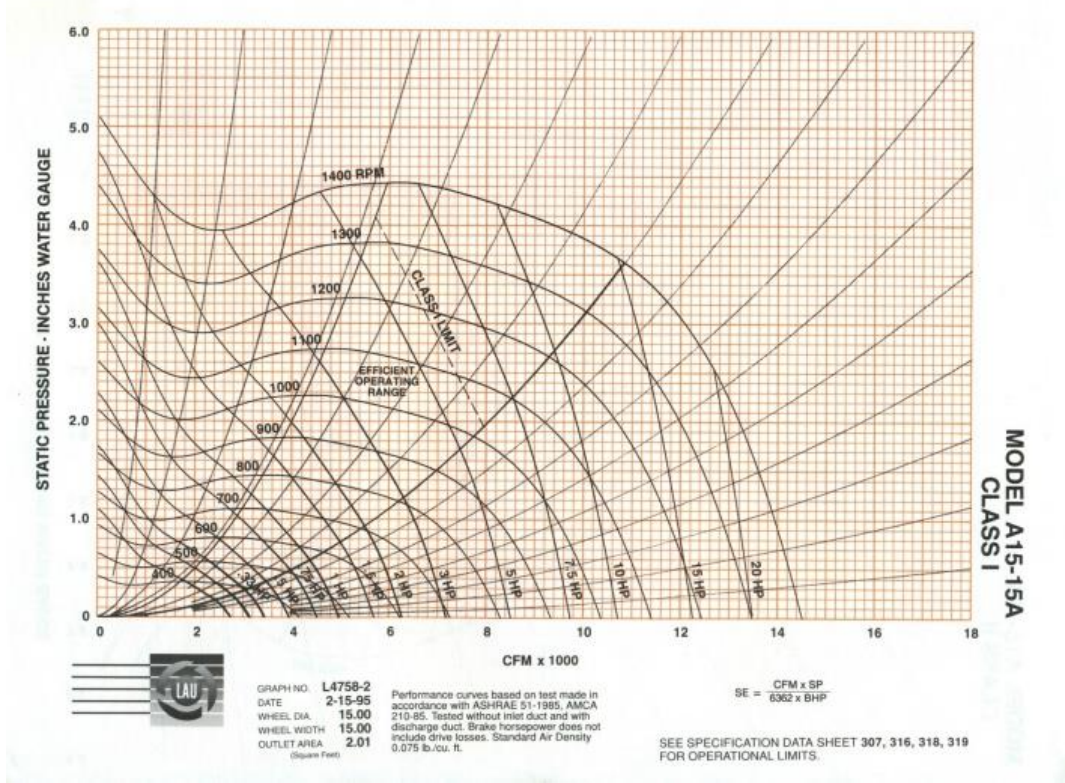
BLOWER IN 09 MODEL



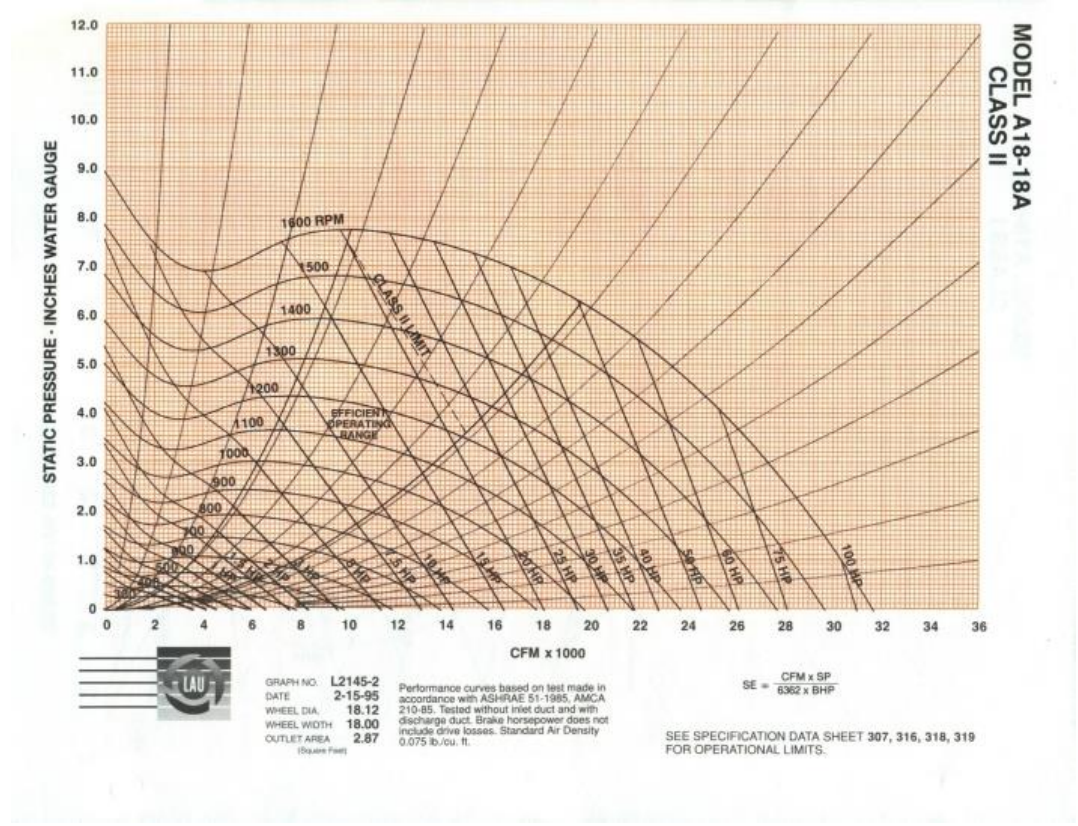
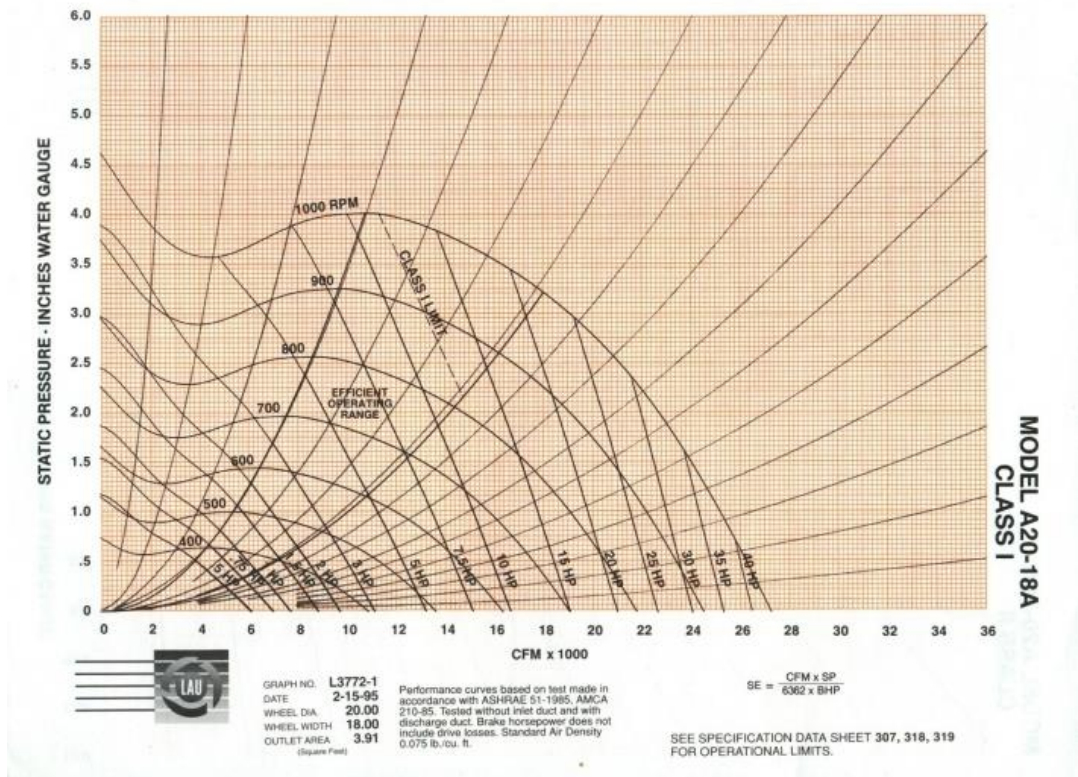
BLOWER IN 13 MODEL



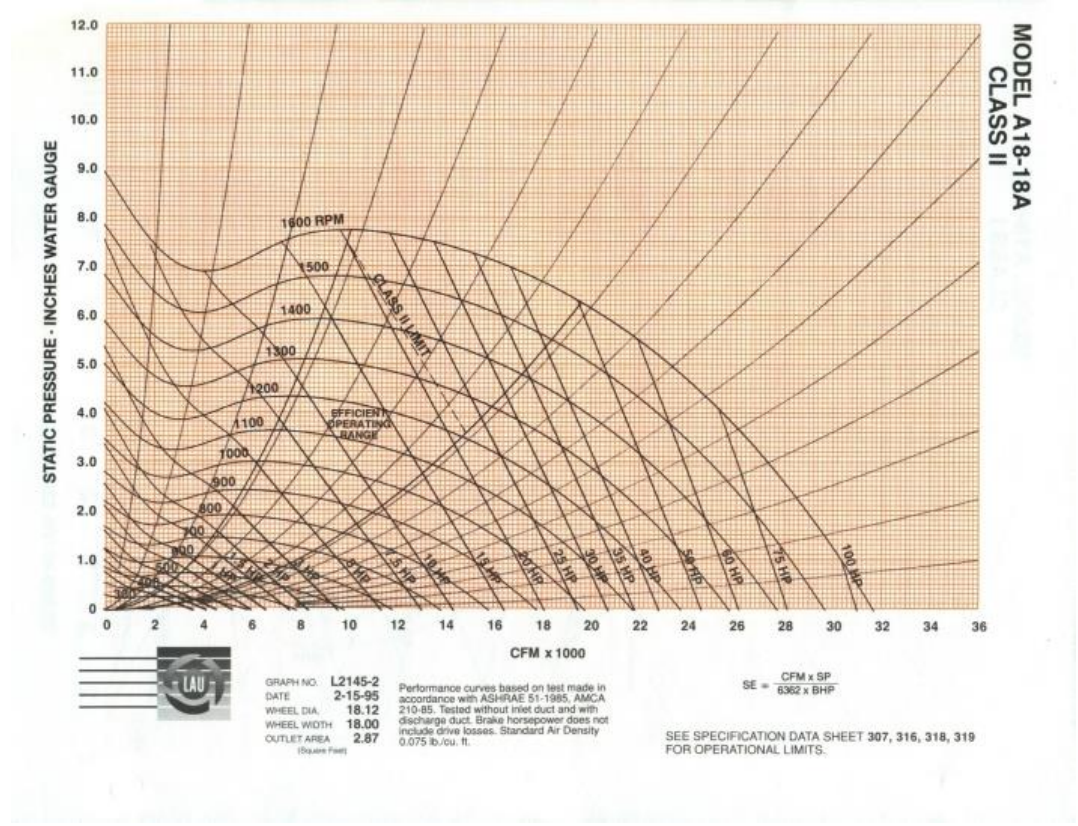
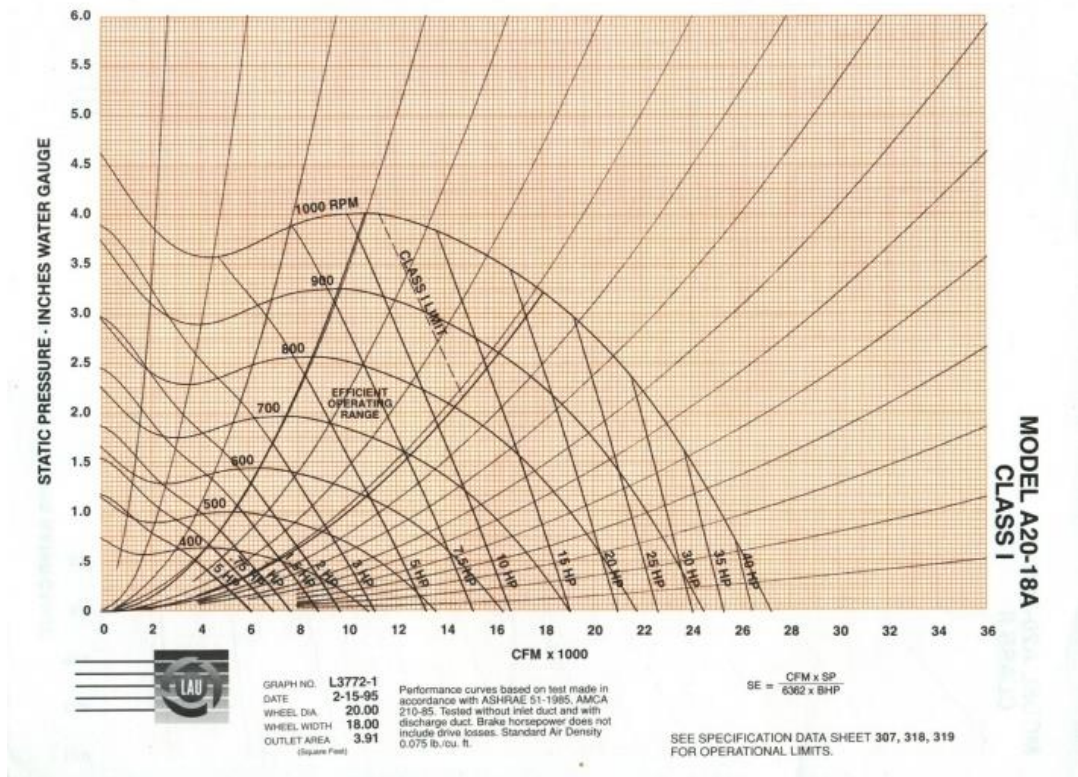
BLOWER IN 15 MODEL



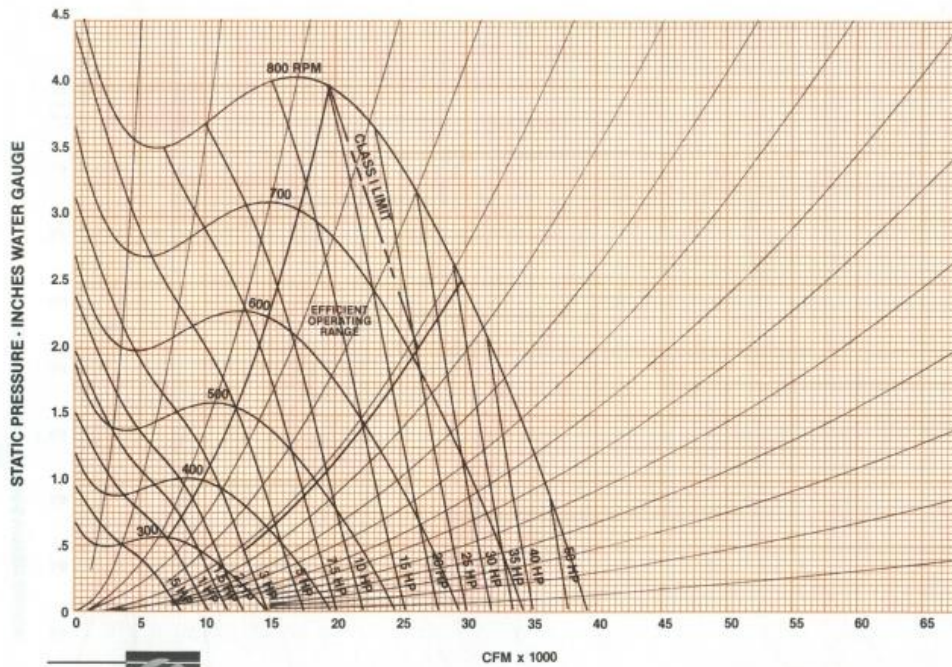
BLOWER IN 17 MODEL



BLOWER IN 21 MODEL



BLOWER IN 26 MODEL



MODEL A25-20H
CLASS I

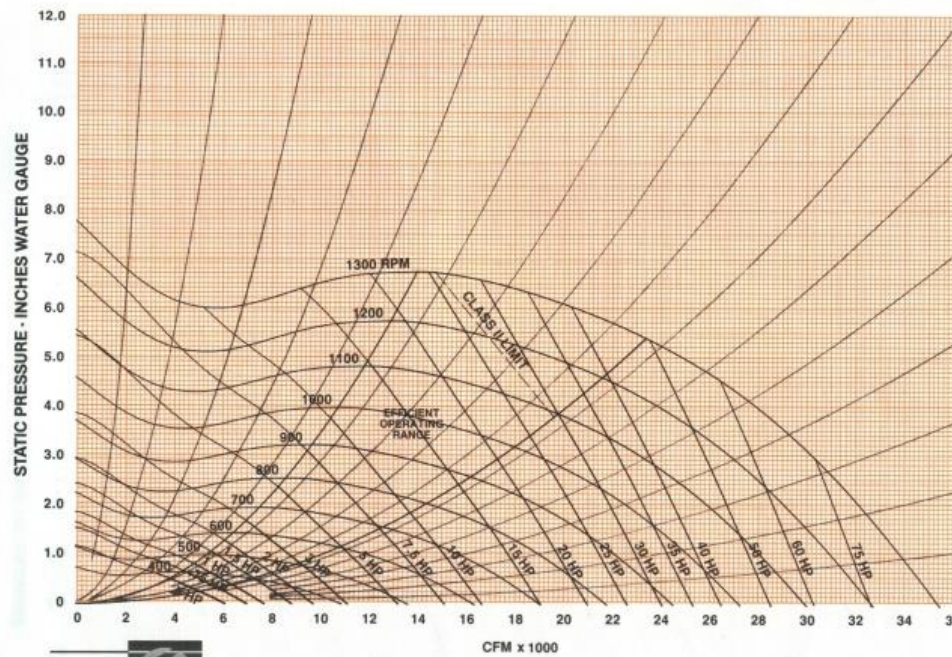


GRAPH NO. G4695-1
DATE 2-15-95
WHEEL DIA. 25.00
WHEEL WIDTH 20.00
OUTLET AREA 5.64
(Square Feet)

Performance curves based on test made in accordance with ASHRAE 51-1985, AMCA 210-85. Tested without inlet duct and with discharge duct. Brake horsepower does not include drive losses. Standard Air Density 0.075 lb./cu. ft.

$$SE = \frac{CFM \times SP}{6362 \times BHP}$$

SEE SPECIFICATION DATA SHEET 304, 305, 306 FOR OPERATIONAL LIMITS.



MODEL A20-18A
CLASS II



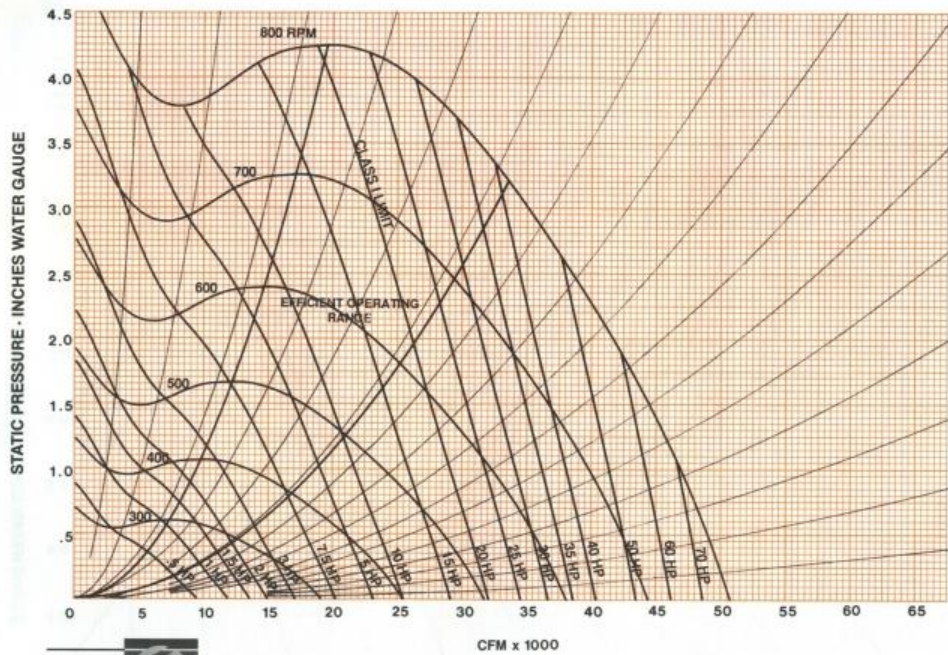
GRAPH NO. L3772-1
DATE 2-15-95
WHEEL DIA. 20.00
WHEEL WIDTH 18.00
OUTLET AREA 3.91
(Square Feet)

Performance curves based on test made in accordance with ASHRAE 51-1985, AMCA 210-85. Tested without inlet duct and with discharge duct. Brake horsepower does not include drive losses. Standard Air Density 0.075 lb./cu. ft.

$$SE = \frac{CFM \times SP}{6362 \times BHP}$$

SEE SPECIFICATION DATA SHEET 307, 318, 319 FOR OPERATIONAL LIMITS.

BLOWER IN 32 MODEL



**MODEL A25-25H
CLASS I**

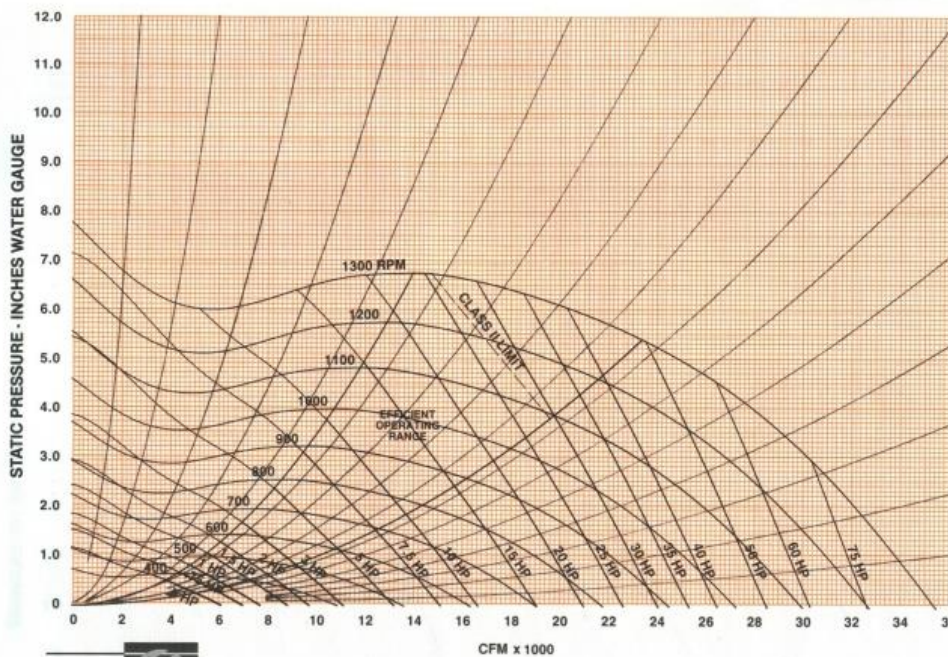


GRAPH NO. **G4561-1A**
DATE **2-15-85**
WHEEL DIA. **25.00**
WHEEL WIDTH **25.00**
OUTLET AREA **6.71**
(Square Feet)

Performance curves based on test made in accordance with ASHRAE 51-1985, AMCA 210-85. Tested without inlet duct and with discharge duct. Brake horsepower does not include drive losses. Standard Air Density 0.075 lb./cu. ft.

$SE = \frac{CFM \times SP}{6362 \times BHP}$

SEE SPECIFICATION DATA SHEET 304, 305, 306 FOR OPERATIONAL LIMITS.



**MODEL A20-18A
CLASS II**



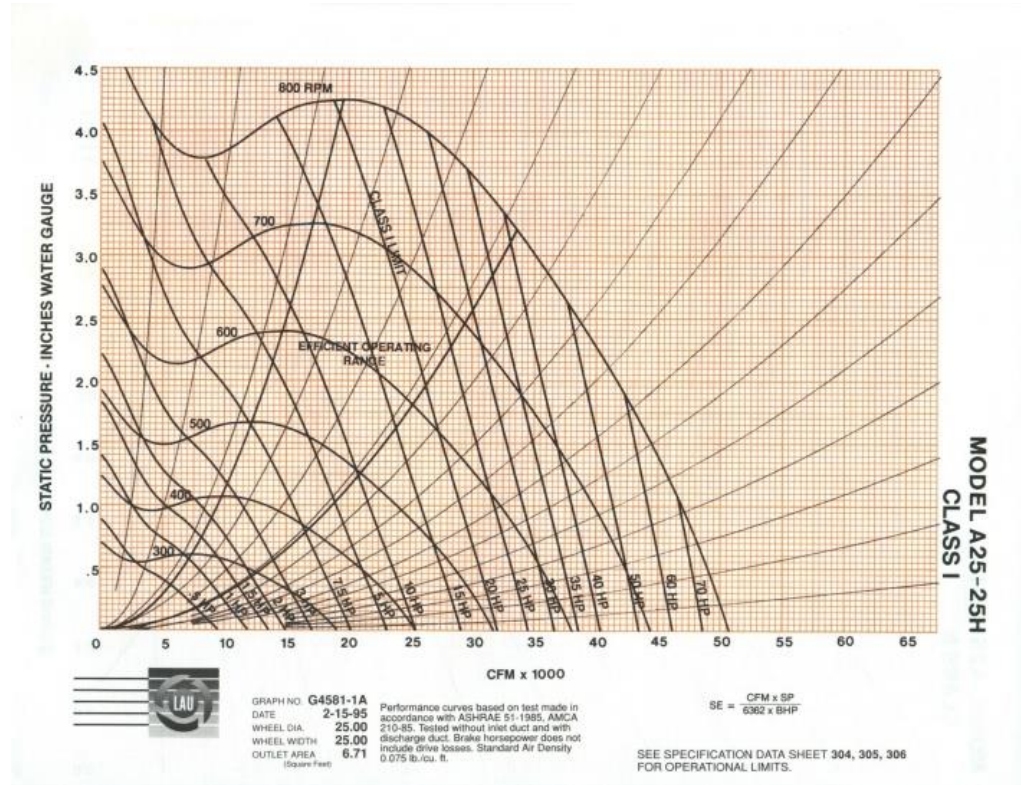
GRAPH NO. **L3772-1**
DATE **2-15-85**
WHEEL DIA. **20.00**
WHEEL WIDTH **18.00**
OUTLET AREA **3.91**
(Square Feet)

Performance curves based on test made in accordance with ASHRAE 51-1985, AMCA 210-85. Tested without inlet duct and with discharge duct. Brake horsepower does not include drive losses. Standard Air Density 0.075 lb./cu. ft.

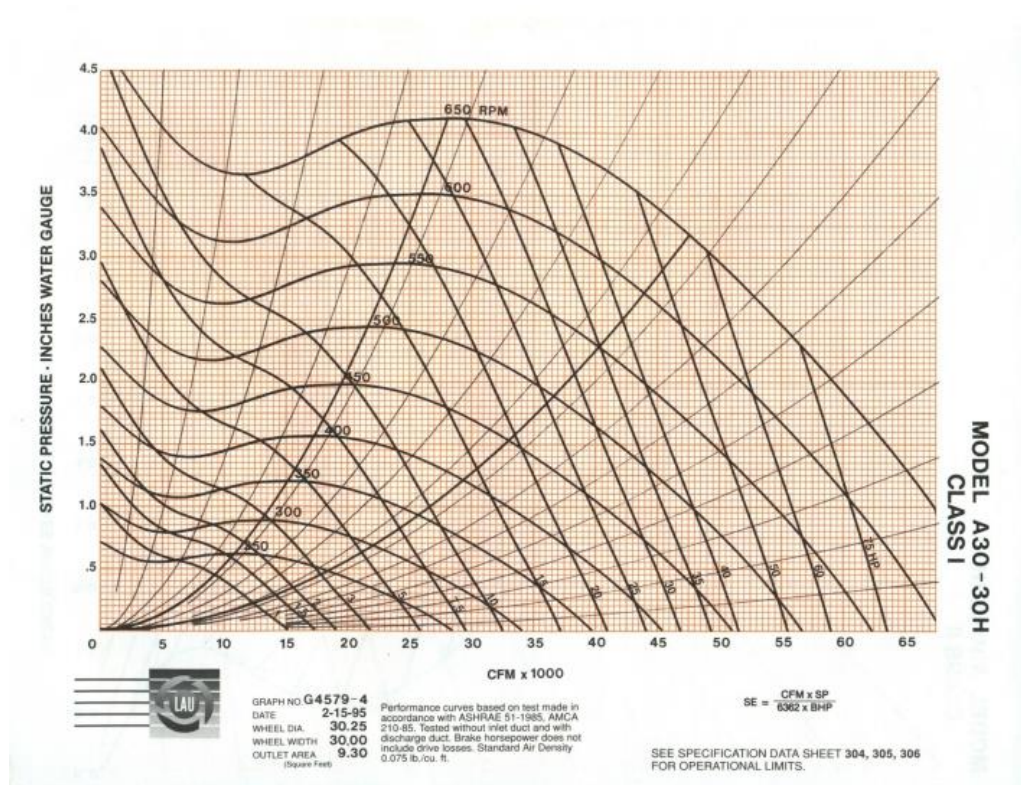
$SE = \frac{CFM \times SP}{6362 \times BHP}$

SEE SPECIFICATION DATA SHEET 307, 318, 319 FOR OPERATIONAL LIMITS.

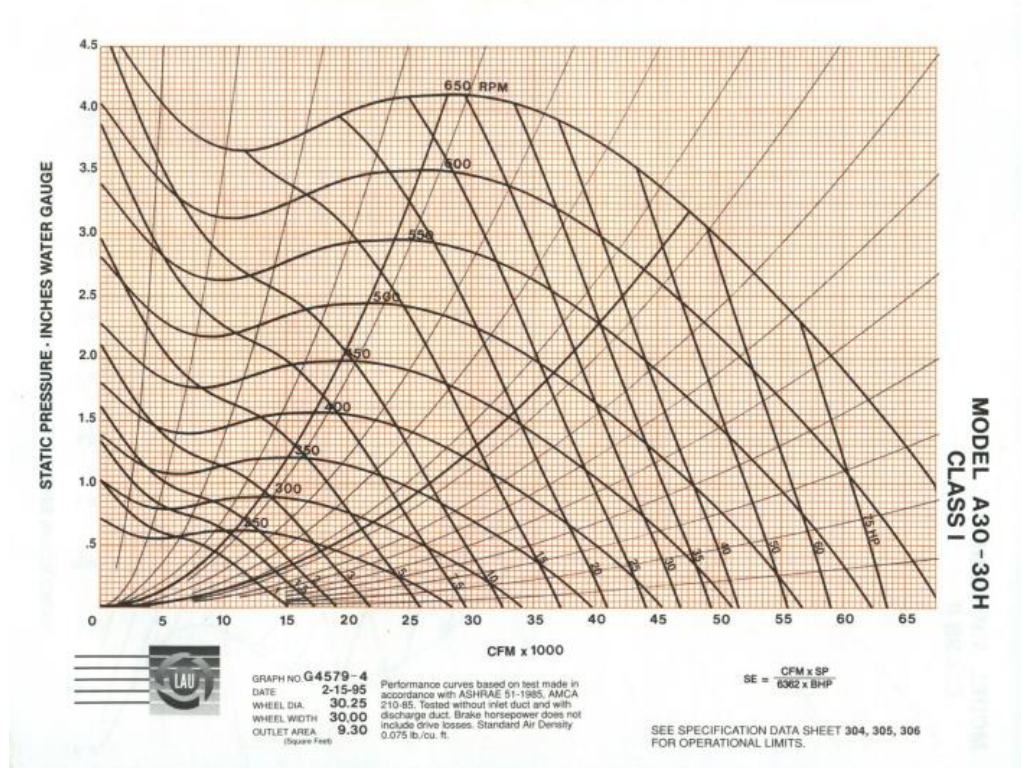
BLOWER IN 36 MODEL



BLOWER IN 39 MODEL



BLOWER IN 48 MODEL



BLOWER IN 57 MODEL

