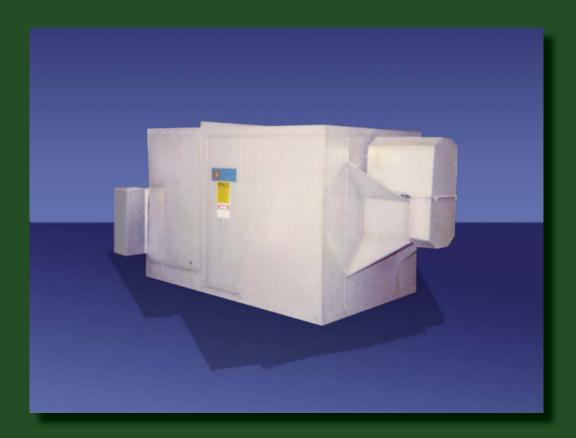
SUN WEST AIR Washing UNITS Class 3 with Plug Fan Selection

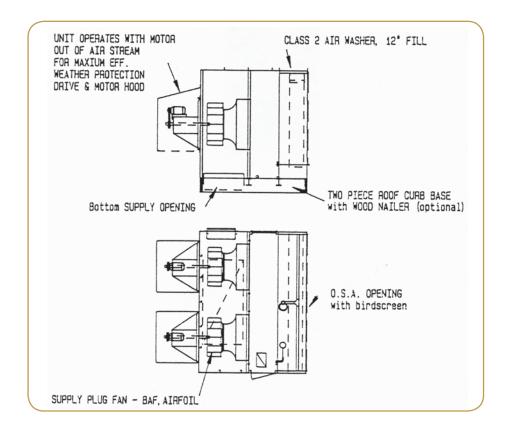




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SAMPLE SPECIFICATIONS CLASS 3 AIR WASHER WITH PLUG FAN SECTION

GENERAL CONSTRUCTION FEATURES

<u>Supply Fan:</u> Supply fan shall be factory manufactured PLUG FAN AIRFOIL BACKWARD CURVED WHEEL with the motor and drive located out of the air stream. The fan shall be manufactured by the same manufacturer of the air washer unit.

Plug fan design with non-overloading backwardly inclined, airfoil wheel normally requires less BHP than a forwardly-curved fan giving the owner a more energy conserving design as well as maintenance savings because the motor and drive assemblies are located out of the moist air stream.

Plug Fan assembly shall be manufactured by Mallory/Sun West, model BAFPG, and shall be quite operating, centrifugal type, backward curved airfoil design, statically and dynamically balanced. Fan(s) shall be single inlet (SWSI), Class 1, arrangement 9, mounted on a minimum 10 gauge steel panel with formed flanges to maintain flatness and rigidity. Panel is pre-punched for bolt mounting. "Cross Frame" bearing support is designed for maximum stability and load spreading. Bearings are serviceable without disassembly of panel or frame. Fans shall not incorporate a curved scroll housing.

Adjustable Motor Base having a four point leveling and tension adjustment to insure proper drive belt alignment. The motor base is heavy gauge steel and pre-punched to accept standard motor frame specified.

Motors shall be designed for 460/230V-3hp-60cy-cle electrical service unless otherwise scheduled. The speed of the motors for belt driven machinery shall be 1800 RPM (maximum) and the pulley ratio shall not exceed 6 to 1. All motors for belt driven machines shall have adjustable mounting bases for adjusting belt tension.

Motors shall be installed protected from weather having open drip proof (ODP) enclosures. Motors shall be provided with double shielded grease lubricated ball bearings, with grease pockets on each side for re-greasing while in service. Inlet and outlet grease connections shall be provided in motor housings for each bearing. ODB motors shall be of sufficient capacity to drive the equipment thereto at the indicated conditions without exceeding the name plate rating of the motor (not including the service factor).

Motors shall be of energy efficient design and rated in accordance to the NEMA Test Standard MG1-12.53a (IEEE-112, Test Method). The motors used shall be a Class B rating and bearing life on the motor shall be L-10 rated for 50,000 hours. Motors shall be self-ventilating suitable for operation at the required elevation above sea level. The motors shall be constructed with cast iron or steel frames.

Fan inlet cones shall be of the aerodynamically spun type matching the fan wheel cone. Bearings shall be supported from a pedestal frame welded to the panel assembly. All sheet metal parts and angle iron parts shall be painted with a rust resistant finish.

Fan impeller shall be non-power overloading with die-formed, backwardly inclined airfoil blades. Blades shall be welded to the spun rim and the hub plate. Hubs shall be cast iron or machined steel billet type securely bolted to the hub plate. All wheels shall be turned after assembly and dynamically balanced. Wheels shall be keyed to the shaft in all classes.

Fan bearings shall be of ball or spherical roller type mounted in sealed self aligning pillow blocks and pre-lubricated. Bearings shall be selected for a minimum L-10 life of 200,000 hours. Bearings





Shall be installed to precise tolerances at the factory and shall require no field adjustment.

Fan shafts shall be solid steel machined to standard diameters and tolerances for turned ground and polished shafts. Shafts shall be sized to accommodate a critical speed at least 25% greater than the fan design speed.

The fan wheel and shaft assembly shall be statically and dynamically balanced prior to assembly. Following assembly, the fan balance shall be tested using an electronic balance analyzer with tunable filter and strobescope. Vibration measurements shall be taken on each bearing at design RPM to detect misalignment, bearing defects, mechanical looseness or foundation weakness.

Fan drives shall be detected with a minimum belt horsepower capacity of 120% of the motor nameplate horsepower. The motor sheaves shall be selected for the rated fan RPM as determined by the fan capacity requirements scheduled. The fan sheaves shall be of the non-adjustable type with removable machined bushings. Fan sheaves shall be machined on all surfaces. Fan sheaves shall be statically balanced. The belts shall be standard "V-Groove" type suitable for the service intended with the capacities required. The belts shall be closely matched and installed prior to delivery to the job site.

<u>Air Washer & Fan Section Casing:</u> Fabricated of galvanized steel 22 Ga. through 18 Ga. with flange connection and stiffening and support members as required.

The floor shall be a single layer of 18 Ga. galvanized steel welded in place where required with silicon bronze. Safety drains shall be provided as required. See detail drawing.

The wall and roof construction to be 20 and/or 18 Ga. galvanized steel single wall construction. Wall joints to be double channel lock with self-tapping screws with all joints and seams caulked and sealed air and water tight. Roof shall be 18 Ga. galvanized steel using a 2" high (max.) standing

seam joint with sealant or a cross broken single piece assembly. See detail drawing.

Access to Equipment: Two removable panels on each side of the fan cabinet and removable roof provide ample access passage into the unit. All removable parts are securely held in place by non-rusting screws.

Evaporative Cooling Section/Air Washer: With 12" thick fill and shall employ a media in which one cubic ft. of media provides a minimum of 123 ft.² of evaporative surface. Evaporative media shall be made of cellulose paper impregnated with insoluble anti-rot salts, rigidifying saturants and wetting agents. The media shall be non-clogging and produce no water carry over at velocities as high as 700 FPM with proper water flow. Unit capacity and efficiency as scheduled. The tank shall be 14-10 Ga. steel with continuous welds at all joints with two coatings of coal tar epoxy on all surfaces - including the angle fill support brackets. Tank to have 3/8" or 1/2" float valve for balancing. Bleed off provision provided piped to overflow drain.

<u>Pump:</u> Pump shall be submersible type with cast iron housing, polypropylene base, polycarbonate cover, and lifetime oil supply. Non-clog pumping head and impeller. Screened intake; 1/150 to 1/6 H.P. motor, 115V-1ph-60cy, with sleeve bearings and thermal overload protector. See schedule.

Distribution Header and Pump Discharge Piping: The water distribution header shall be Sch. 40 PVC or copper pipe with drilled ports, no nozzles. the pump discharge riser shall be Sch. 40 PVC or copper with sweated fittings and a threaded fitting connected to pump. Pump and piping sized for desired water flow required for each size Air Washer section to ensure maximum performance. Brass ball valve or other flow control device shall be provided for balancing.

Exterior: Degreased, treated with acid-vinyl-wash primer and painted with acrylic enamel.



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Access to Equipment: Two removable panels on each side of the fan cabinet and a removable roof provide ample access passage into the unit. All removable parts are securely held in place by nonrusting screws.

OPTIONAL EQUIPMENT

<u>Access Doors:</u> Double wall construction 1" thick with round rubber gasket seals. See detail drawing. Door seals are removable with #260 latches.

2-Piece Roof Curb/Unit Base: Shall be constructed of continuously welded formed channel. The base shall be 2-piece type formed channel sub-base curb with a wood nailing strip, and a formed channel unit base to be matched with the sub-base. The curb can be sloped to match that required by the roof structure. Auxiliary cross members of structural angle shall be welded in place under critical sections where heavy internal equipment is to be supported and fastened (i.e.) fans, evaporative cooling sections, etc.).

The base shall be factory manufactured and shall also be furnished with an 18 Ga. cap flashing to facilitate the roofing protection. All openings in the bases shall be framed with either angles or channels welded to the main structural base. The unit shall be fitted with welded lifting lugs. The base will be designed such that during lifting, loading, and transportation, no deflection will occur that results in permanent deformation of any of the equipment. See detail drawings.

<u>Stainless Steel Alternate Construction</u> <u>for Air Washer Section:</u> The entire Air Washer section, the tank only, or the Air Washer casing walls and roof only may be constructed of #304-2B.

Protective Intake Screen/Guard: One half inch bird screen shall be attached to the inlet side of the air washer section and shall be 16 Ga. - 0.063 galvanized wire. The screen shall be removable and shall be designed to eliminate the accumulation of trash and other large debris in the sump.

<u>Intake Louver:</u> Shall be fabricated by the air washer unit manufacturer. The blades and frame shall

be formed of 20 Ga. (min.) sheet metal, reinforced as required. One half inch bird screen shall be attached to the inside of the louver and shall be 16 Ga. - 0.063 galvanized wire. The louver shall be removable and shall be designed to withstand a wind load of 20 pounds per square foot. The performance of the louver shall be designed for minimum pressure losses at maximum air flow with virtually no water penetration.

<u>Intake Hood:</u> Shall be constructed of 18 Ga. (min.) galvanized steel with one half inch galvanized bird screen attached to the intake opening.

ESTIMATED WEIGHTS CLASS 3 UNITS

Model	Estimated Shipping Wt.	Estimated Operating Wt.
1-182-3-2	643	853
1-200-4-3	1150	1330
1-200-4-4	1176	1431
1-222-4-3.5	1172	1389
1-245-4-4	1559	1814
1-270-4-5	1963	2218
1-270-5-4	2039	2309
1-300-6-4	2258	2574
1-330-6-5	2840	3235
1-365-7-6	3173	3618
1-365-8-5	3212	3662
1-402-8-6	3788	4318
2-300-8-5	4115	4565
2-330-10-5	4457	5084
2-330-10-6	4601	5245
2-365-10-7	5817	6631
2-365-10-8	5980	6817
2-402-11-7	6561	7479
2-402-12-7	6820	7774
2-402-12-8	7042	8026
2-445-12-9	8441	9622
2-445-13-10	9092	10364



CLASS 3 AIR WASHER



DIMENSIONS using PLUG BAF SWSI FANS

MODEL	A	В	О	D	E	F	Ð	Н	Ι	J	K
1-200-4-3	48	54	61	36	12	45	9	18	19	4	4
1-245-4-4	48	99	06	96	12	47	9	18	19	4	4
1-270-5-4	09	99	89	48	18	46	9	18	26	9	4
1-300-6-4	72	99	89	09	18	46	9	18	40	9	9
1-330-6-5	72	78	28	09	24	48	9	18	36	8	9
1-365-7-6	84	92	98	72	24	99	9	26	36	8	9
1-365-8-5	96	80	98	84	24	99	9	26	36	8	9
1-402-8-6	96	92	94	84	36	54	9	26	44	8	9

.

NOTE:

MAKE-UP WATER CONNECTION 1/2" NPT
DRAIN AND OVER FLOW CONNECTION 1" NPT
FLOAT VALVE 1/2"
SUPPLY FAN FORWARD CURVED DWDI
MOUNTED ON RUBBER/CORK PADS
REMOVABLE PANEL ON EACH SIDE OF UNIT FOR ACCESS

ALL DIMENSIONS ARE IN INCHES
SEE FAN TABLES FOR MOTOR SIZE RATED AT VARIOUS STATIC PRESSURES
SEE FAN TABLES FOR EXACT RPM AND BRAKE HORSE POWER
TABLES BASED ON STATIC PRESSURE AT 0.25"

MIST ELIMINATORS ARE RECOMENDED AT 0.15" STATIC PRESSURE DROP

Drain and Overflow connection 1" NPT Make-up water connection 1/2"

.9.	 CHANNEL BASE
.0.	.ce. 4. min
2	

	CFM	M	Z 451	IN A C	MOTOF	OR HP				AIR	EFFICIENCY	IENCY	CMIddillo	CMTA dad	
_	NOM.	MAX.		SIZE	MIN.	MAX.	PUMP HP	GPM	HEAD	PRESSURE DROP	MIN. 6"	MAX. 12"	WEIGHT (Est.)	WEIGHT (Est.)	
	5,400	6,480	10.8	200	2.0	5.0	1/6	7.0	10 ft.	0.20	%02	%06	1,150	1,330	
	7,400	8,880	14.8	245	3.0	5.0	1/4	7.5	10 ft.	0.20	%02	%06	1,550	1,815	
	9,400	11,280	18.8	270	5.0	7.5	1/4	7.5	10 ft.	0.20	%02	%06	1,817	2,231	
	11,200	13,440	22.4	300	5.0	10.0	1/3	10.5	10 ft.	0.20	%02	%06	2,031	2,579	
	14,250	17,100	28.5	330	7.5	15.0	1/3	10.5	10 ft.	0.20	70%	%06	2,220	3,234	
	19,750	23,700	39.5	365	7.5	20.0	1/3	14.0	10 ft.	0.20	70%	%06	3,173	3,526	
	18,600	22,320	37.2	365	10.0	20.0	1/2	14.1	15 ft.	0.22	70%	%06	3,211	3,662	
	102-8-6 22,400	26,800	44.8	402	10.0	20.0	1/2	14.6	15 ft.	0.22	%02	%06	3,788	4,318	



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DIMENSIONS using PLUG BAF SWSI FANS

MODEL	A	В	О	D	E	F	G	Н	I	J	K
2-330-10-5	120	82	06	96	30	54	12	76	40	9	9
2-330-10-6	120	94	06	96	30	54	12	26	40	9	9
2-365-10-7	120	106	06	108	30	54	9	76	40	9	9
2-365-10-8	120	118	06	108	30	54	9	76	40	9	9
2-402-12-7	144	106	86	108	36	56	9	76	48	8	9
2-402-12-8	144	118	86	120	36	56	9	78	48	8	9
2-445-12-9	144	130	86	120	36	56	12	76	48	8	9
2-445-13-10	156	142	86	120	36	56	9	56	48	8	9

NOTE:

DRAIN AND OVER FLOW CONNECTION 1" NPT FLOAT VALVE 1/2" SUPPLY FAN FORWARD CURVED DWDI MOUNTED ON RUBBER/CORK PADS MAKE-UP WATER CONNECTION 1/2" NPT

REMOVABLE PANEL ON EACH SIDE OF UNIT FOR ACCESS ALL DIMENSIONS ARE IN INCHES SEE FAN TABLES FOR MOTOR SIZE RATED AT VARIOUS STATIC PRESSURES SEE FAN TABLES FOR EXACT RPM AND BRAKE HORSE POWER

MIST ELIMINATORS ARE RECOMENDED AT 0.15" STATIC PRESSURE DROP TABLES BASED ON STATIC PRESSURE AT 0.25"

l" NPT

Drain and Overflow connection	Make-up water connection 1/2"

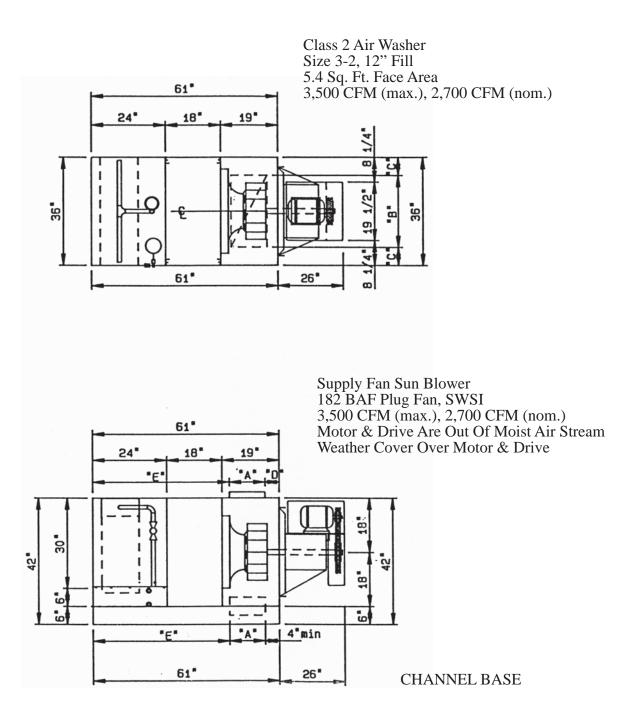
	MODEL 2-330-10-2-330-10-2-365-10-2-365-10-2-402-12-2-402-12-3-402-12-3-402-12-3-445-13-1	BASE
		GHANNEL BASE
26. 70 36.		
-		
"C" 07.96	9 0	
1.	· · · · · · · · · · · · · · · · · · ·	



	CF	CFM	7		MOTO	OR HP				AIR	EFFICIENCY	ENCY	Cividania	Civilly dado
MODEL	NOM.	MAX.	AREA	SIZE	MIN.	MAX.	PUMP HP	GPM	HEAD	PRESSURE DROP	MIN. 6"	MIN. 6" MAX. 12"	WEIGHT (Est.)	WEIGHT (Est.)
2-330-10-5	24,300	21,960	48.6	330	5.0	7.5	1/3	17.5	10 ft.	0.20	%0 <i>L</i>	%06	4,457	5,084
2-330-10-6 28,300	28,300	33,960	56.6	330	5.0	10.0	1/3	17.5	10 ft.	0.20	%0 <i>L</i>	%06	4,601	5,245
2-365-10-7	32,100	38,520	64.2	365	5.0	7.5	1/3	17.5	10 ft.	0.20	%0 <i>L</i>	%06	5,817	6,631
2-365-10-8 36,900	36,900	44,280	73.8	365	5.0	10.0	1/2	17.5	10 ft.	0.20	%0 <i>L</i>	%06	6,561	7,479
2-402-12-7	38,750	46,500	77.5	402	7.5	15.0	1/2	21.2	10 ft.	0.20	%0 <i>L</i>	%06	6,820	7,774
2-402-12-8	44,500	53,400	89.0	402	7.5	20.0	1/2	21.2	10 ft.	0.20	%0 <i>L</i>	%06	7,042	8,026
2-445-12-9	50,500	60,600	101.0	445	10.0	20.0	1/2	24.1	15 ft.	0.22	%0 <i>L</i>	%06	8,441	9,622
2-445-13-10 61,500	61,500	73,800	123.0	445	10.0	20.0	1/2	26.6	15 ft.	0.22	%0 <i>L</i>	%06	9,092	10,364

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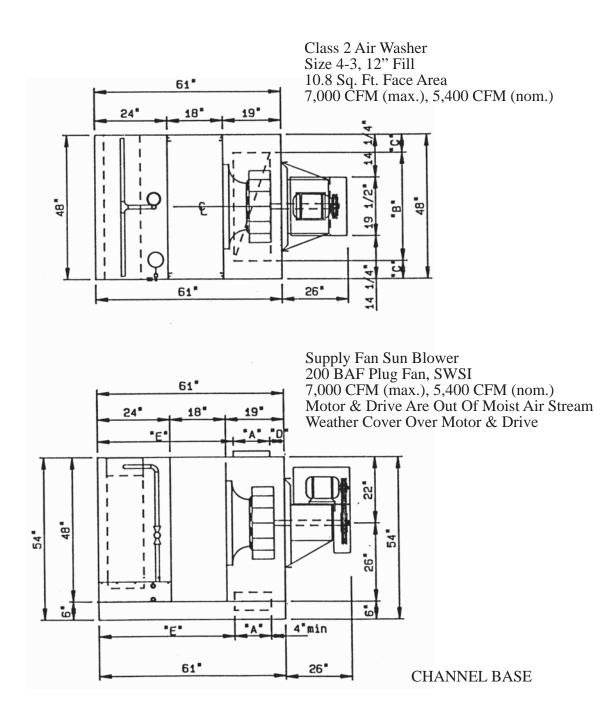


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-182-3-2



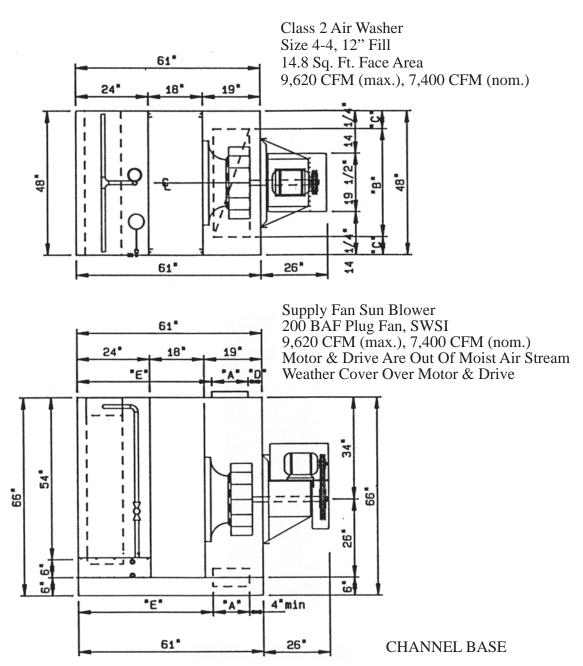




MODEL: 1-200-4-3





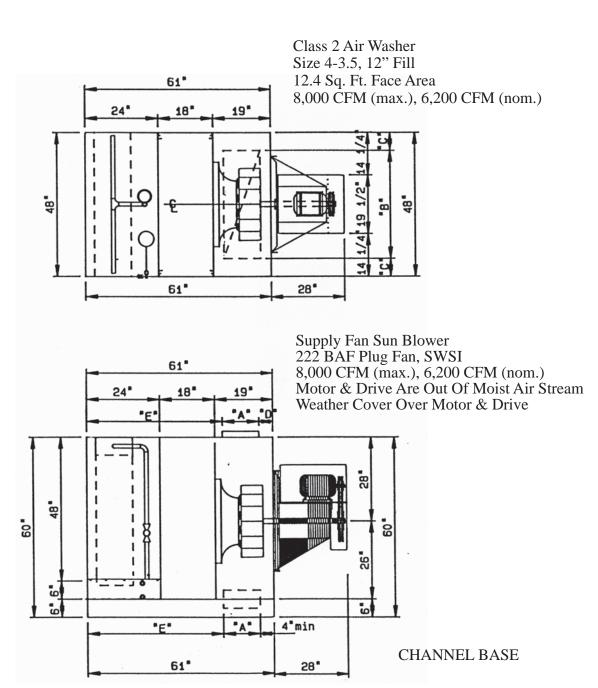


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-200-4-4





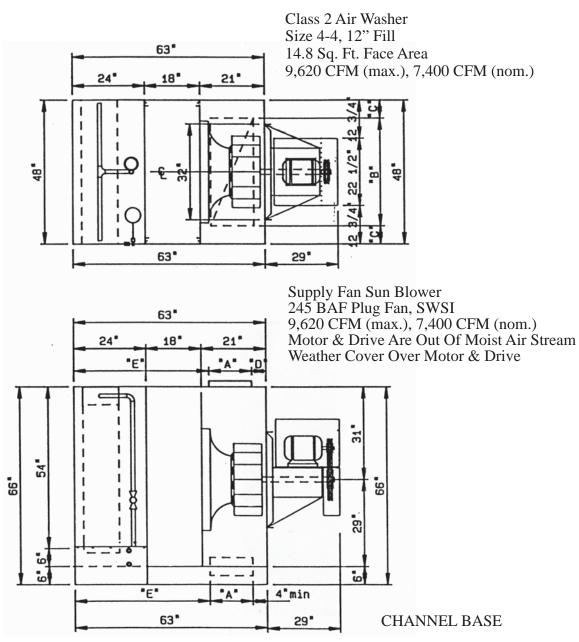


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-222-4-3.5





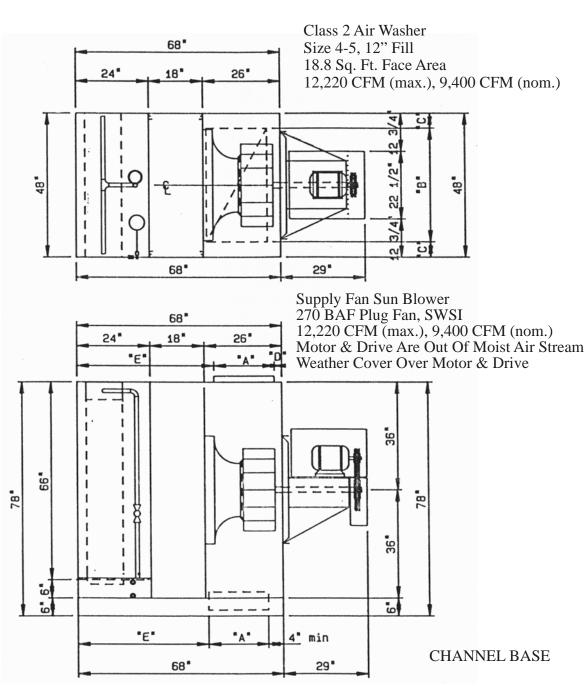


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-245-4-4



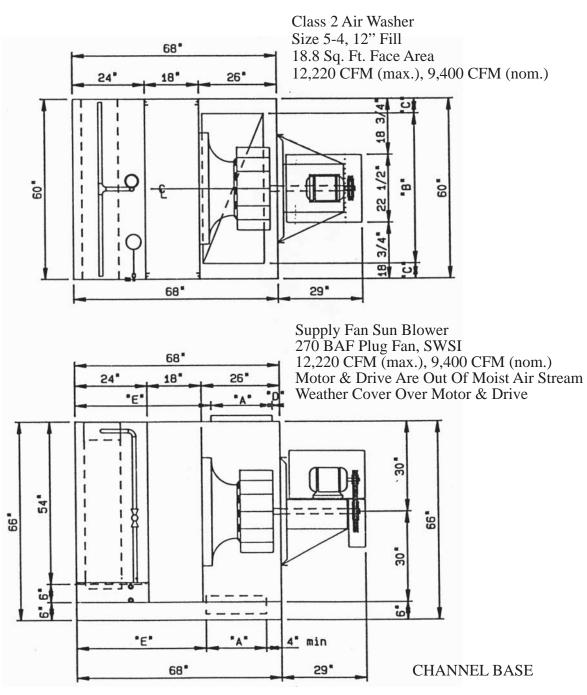




MODEL: 1-270-4-5





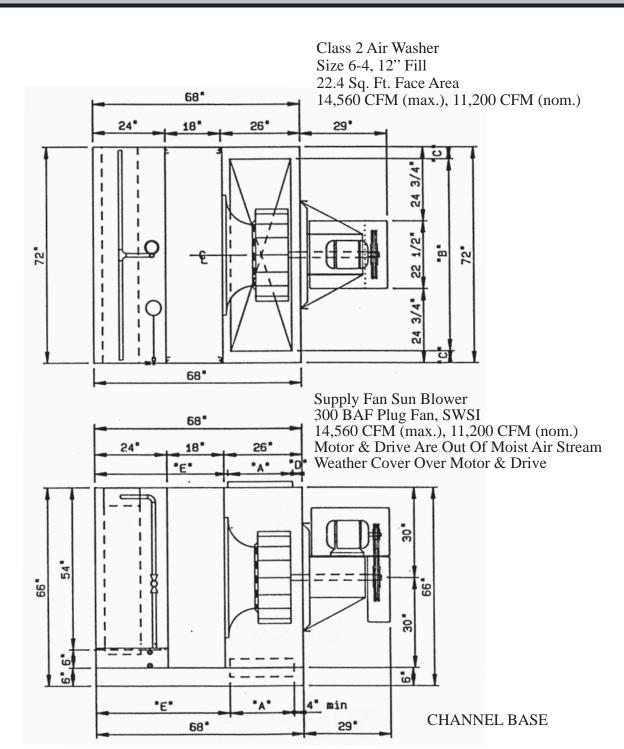


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-270-5-4







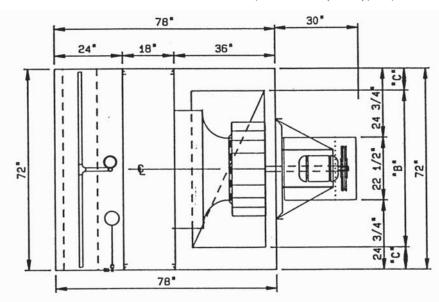
Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

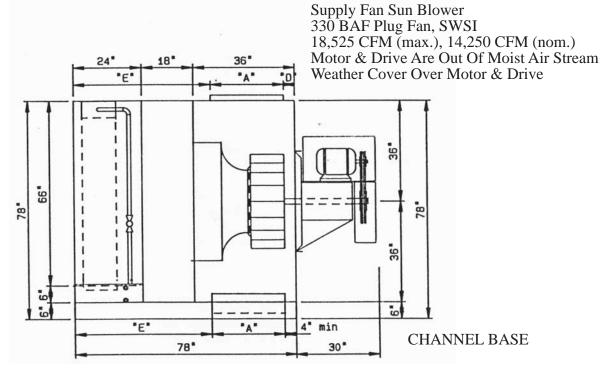
MODEL: 1-300-6-4





Class 2 Air Washer Size 6-5, 12" Fill 28.5 Sq. Ft. Face Area 18,525 CFM (max.), 14,250 CFM (nom.)



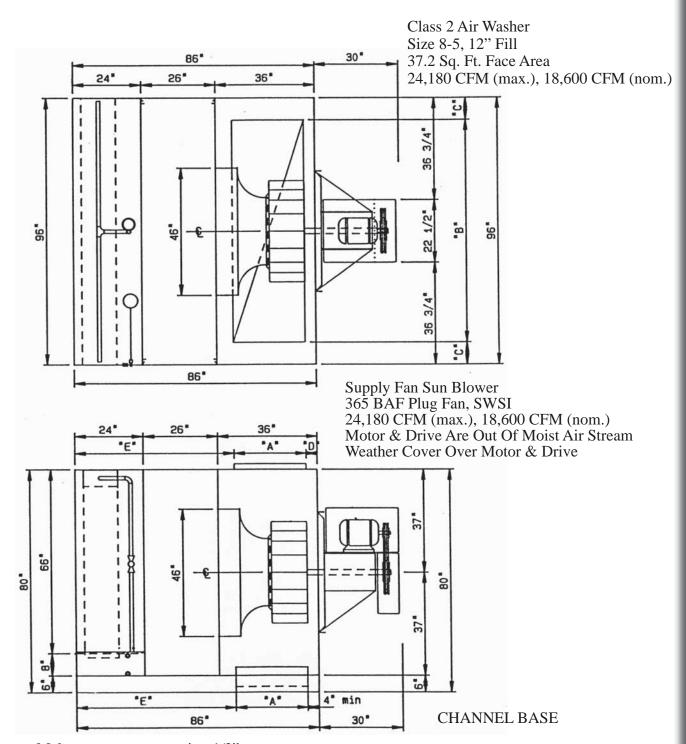


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-330-6-5





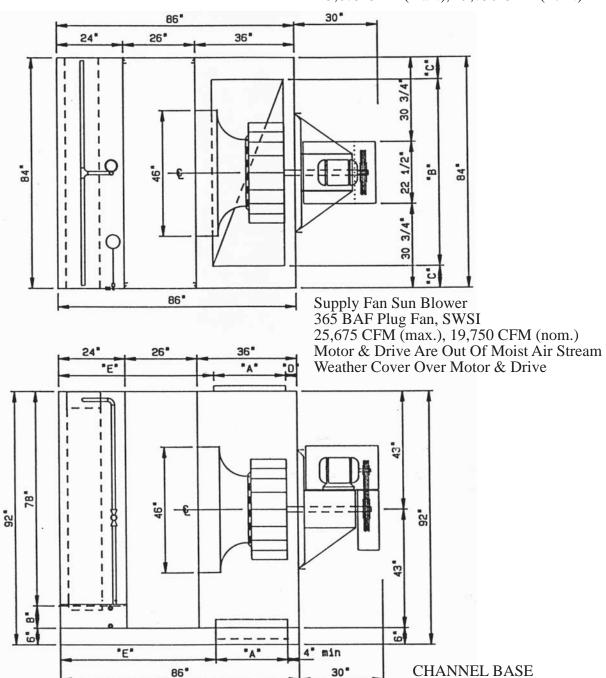


MODEL: 1-365-8-5





Class 2 Air Washer Size 7-6, 12" Fill 39.5 Sq. Ft. Face Area 25,675 CFM (max.), 19,750 CFM (nom.)



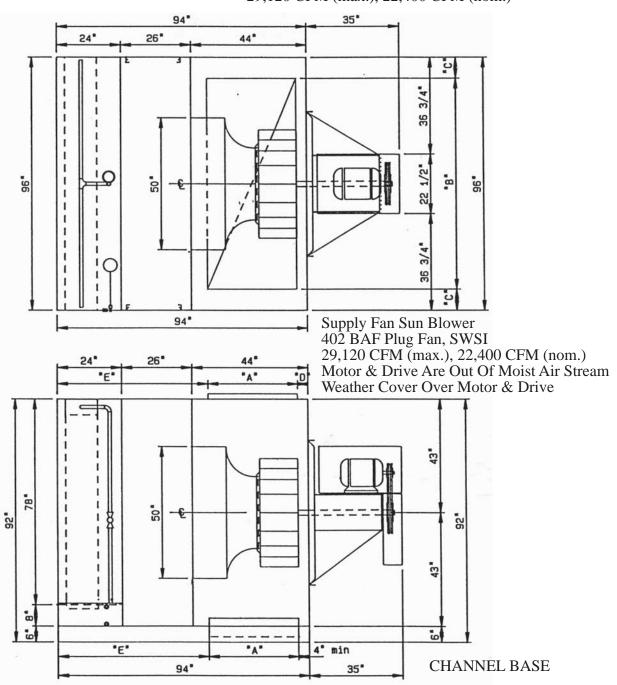
Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-365-7-6





Class 2 Air Washer Size 8-6, 12" Fill 44.8 Sq. Ft. Face Area 29,120 CFM (max.), 22,400 CFM (nom.)

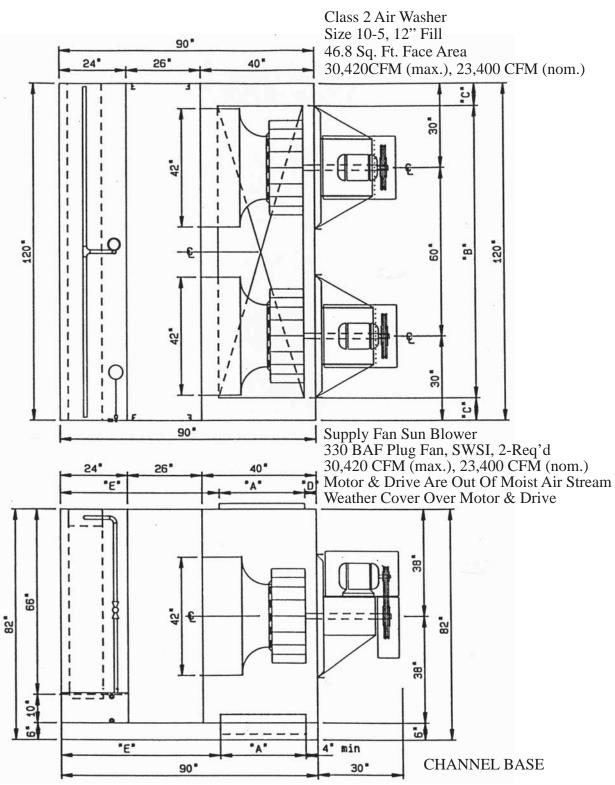


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 1-402-8-6





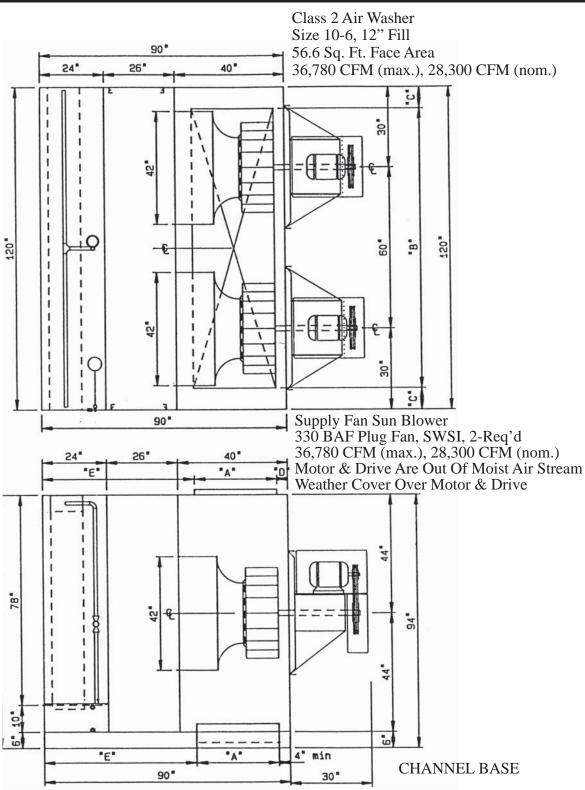


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 2-330-10-5



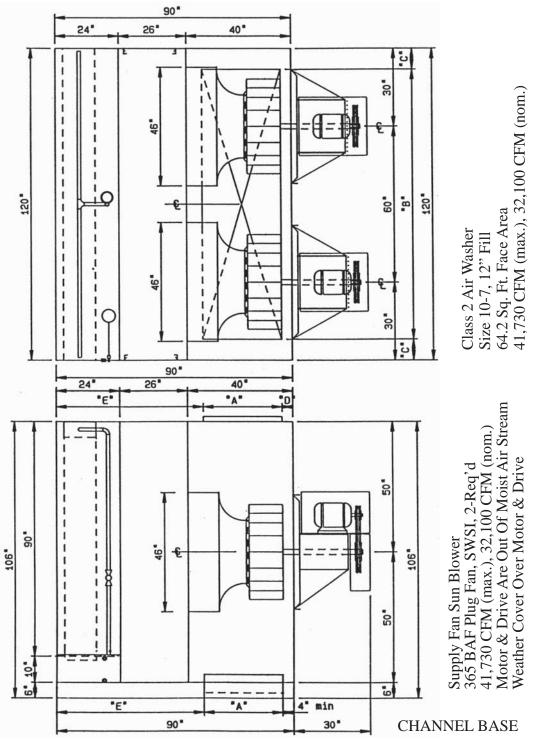




MODEL: 2-330-10-6





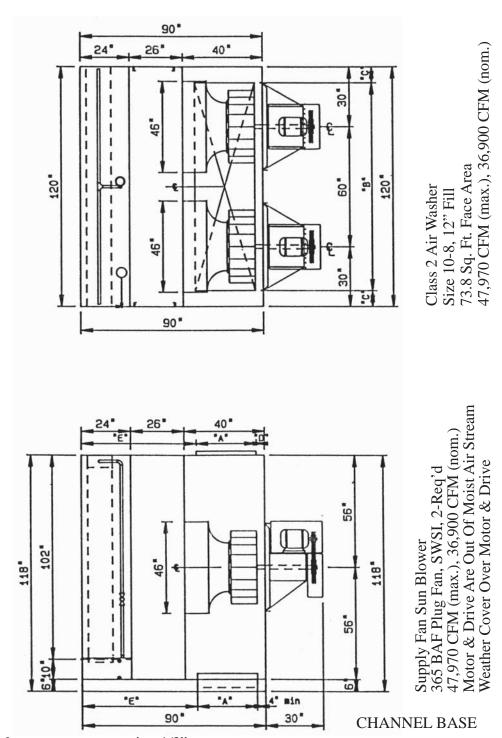


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 2-330-10-7





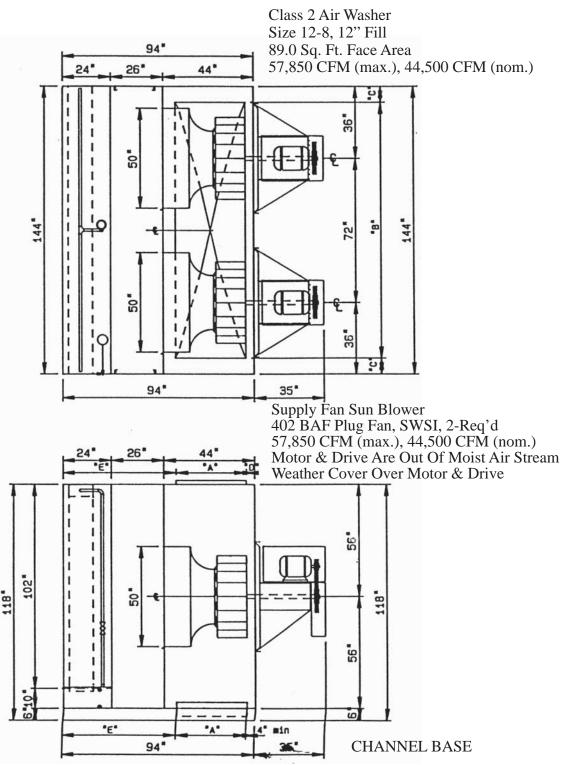


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 2-365-10-8



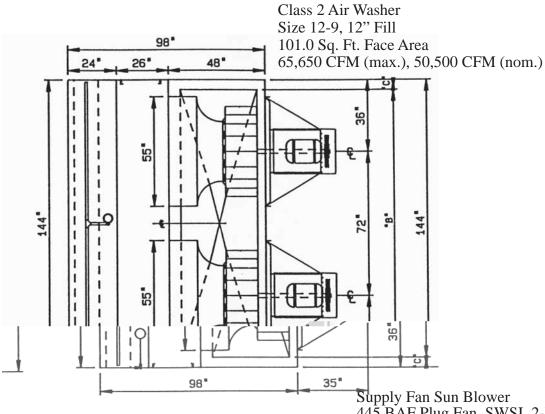




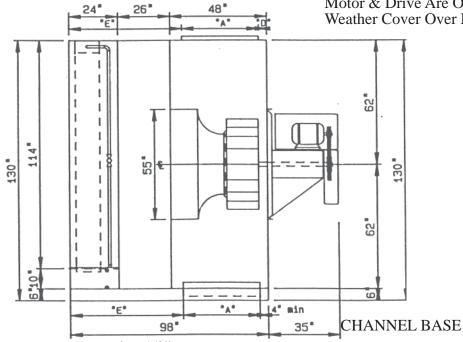
MODEL: 2-402-12-8







445 BAF Plug Fan, SWSI, 2-Req'd 65,650 CFM (max.), 50,500 CFM (nom.) Motor & Drive Are Out Of Moist Air Stream Weather Cover Over Motor & Drive

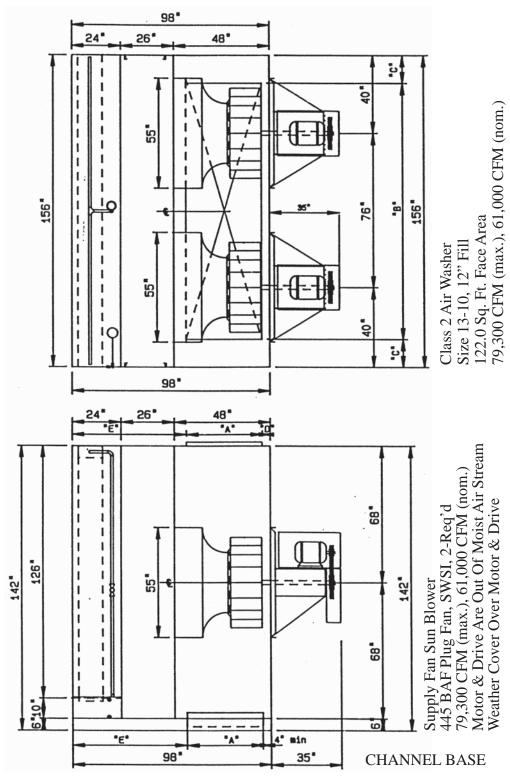


Make-up water connection 1/2"
Drain and Overflow connection 1" NPT

MODEL: 2-445-12-9







MODEL: 2-445-13-10





800 Effectiveness 12" Cell Effectiveness 8" Cell Effectiveness 6" Cell LEGEND 700 CLASS 3 AIR WASHER CELLULOSE FILL OR FIBERGLASS FILL MEDIA 009 Air Velocity FPM 500 400 300 Cell Effectiveness 24" Cell Effectiveness 18" Cell Effectiveness 16" LEGEND 200 100 100% Evaporative Cooling Effectiveness $(e_{\mathbf{c}})$







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Mallory Manufacturing Company is the choice to make when superior quality and precision count. We pride ourselves in assuring our customers the best quality product, with the least amount of lead time.

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