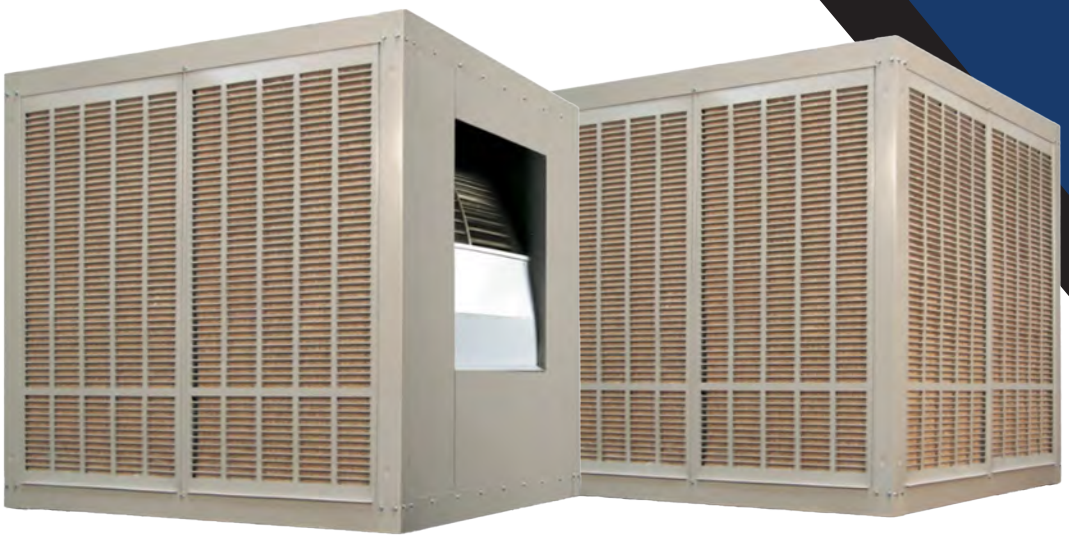
FRIGIKING
EVAPORATIVE AIR COOLER

2024

COMMERCIAL



EVAPORATIVE AIR COOLERS

ECONOMICAL, DEPENDABLE AND ENERGY EFFICIENT AIR AND WATER EVAPORATIVE COOLING SYSTEMS

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www.phoenixmanufacturing.com

CLASSIFIED UL

UL LISTED

PHOENIX MANUFACTURING

THE IMPORTANCE OF FRESH AIR

Induction of fresh air into the workplace is often a crucial requirement that must be met in order to comply with various federal, state and local codes. The simple concept of mixing air and water produces powerful, energy efficient cooling that is both economical and environmentally friendly.

PMI coolers deliver optimally fresh air using motors ranging from 3/4 to 7 1/2 HP to meet industry requirements. Evaporative coolers provide an economic means of cooling diverse environments while substantially reducing the associated operating and maintenance costs compared to mechanical refrigeration.

Frigiking coolers are ideally suited as a cost effective and energy efficient way to provide fresh make-up air to meet the rigorous demands of commercial / industrial applications in work area environments such as restaurant kitchens, factories and manufacturing facilities, and the work areas typically found in the dry cleaning industries.

For engineers, contractors, and building owners who are addressing value engineering issues, Frigiking coolers are the perfect cooling solution.

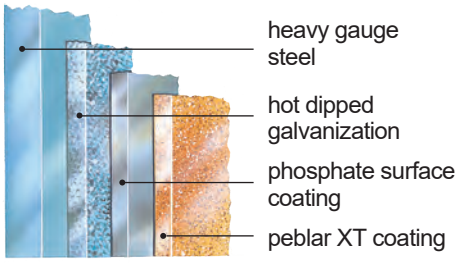
ENVIRONMENTALLY FRIENDLY

Evaporative coolers like the Frigiking Commercial Aspen series utilize environmentally friendly aspen cooling pads which contain no ozone damaging CFC's typically found in mechanical refrigeration processes.

These units also contribute to a substantial savings up to 75% of the cost incurred with air conditioning by reducing the electrical demand on utilities and ultimately reduce operating costs and increasing efficiencies.

QUALITY & DURABILITY

All stages of our manufacturing process emphasize rigid quality and efficiency standards to maintain quality top of the line products with subsequent performance. The cabinet is constructed of hot dipped galvanized steel and treated with our 5-stage, durable Peblar XT appliance type finishing process.



RELIABLE PERFORMANCE & PROLONGED LIFE

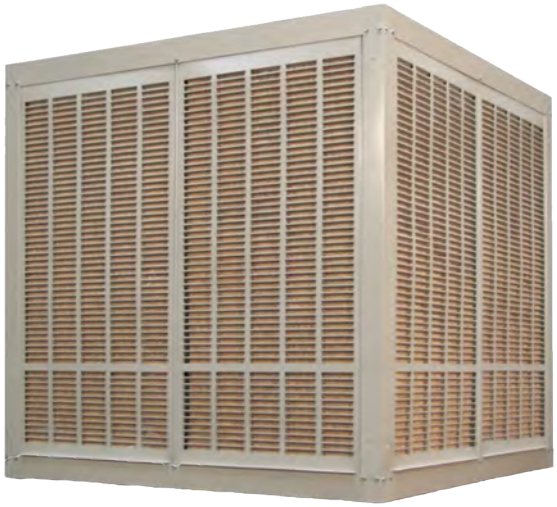
Our blower wheels use plane separation technology. with computerized dynamic wheel balancing to provide the smoothest running, vibration free wheel.

Engineered and designed for reliable performance and long life, these commercial units will last through the years with minimum maintenance and optimum cooling capacity.

CHOOSING THE RIGHT MODEL

Choosing the right Frigiking Industrial Cooler is important for proper operation. For maximum performance, choose the model with the proper rating and motor along with the correct duct configuration.

Ask your qualified contractor to help you choose the correct Commercial Cooler Series model to best suit your needs.



DOWN DISCHARGE

SIDE DISCHARGE

SIZING BLOWER MODELS

ENERGY EFFICIENCY AND PERFORMANCE

Specification of critical components is vital in obtaining the required discharge. Motor horsepower, voltage, blower pulley outside diameter and motor sheave outside diameter all directly relate to the revolutions per minute (RPM) of the blower wheel. Equally important is the reduction in electrical usage and water required for operation.

ALL MODELS INCLUDE:

· AMCA licensed ratings

· 70% less energy costs than mechanical A/C

· Heavy gauge galvanized steel used in construction

· Multilayer bottom pan finish

· Peblar XT™ architectural finish, protects against rust

· Up to 18,700 CFM capacity

· Solid shaft for strength & durability

· Dynamically balanced blower wheels

· Heavy duty UL recognized motor & pump available

· Belt and bleed-off included

· Water knockout accommodates 3/8” incoming line.

· 5 Year cabinet warranty

CLASSIFIED UL

See complete marking on product

UL CLASSIFIED MODELS

The AeroCool Commercial models are UL Classified. In order to maintain this U.L. Classified designation, these models **must be used** in conjunction with PMI supplied Motors, Sheaves, Pumps and Junction Box kits (JBK).

UL LISTED

UL LISTED MODELS

U.L. listed models also available. To specify and order a U.L. Listed model, add a “U” prefix to the front of the appropriate model number.

Example: UH2231 & UD2231

SIZING INSTRUCTIONS

Use the performance tables below and the adjacent procedure to properly size Commercial Cooler units. The performance or Sensible Heat Capacity of any evaporative cooler is a function of both the CFM and the efficiency (air discharge temperature). Both of these specifications should be considered to properly size the units.

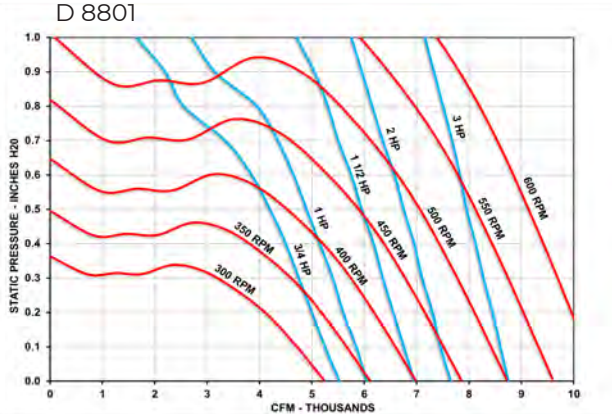
Static pressure, or duct system resistance, also impacts air delivery. Once the model number, CFM air delivery required and static pressure are known, identify the blower wheel RPM in the column to the right of that CFM air delivery. This will ensure a properly sized sheave.

1. Determine design conditions
   - Outside Dry-Bulb (DB)
   - Outside Wet-Bulb (WB)
   - Inside Dry-Bulb (TI)
2. Determine the design Sensible Heat Load. (Btuh)
3. Determine the Cooler Leaving Air Temperature (LAT) LAT = DB — [(DB — WB)EFF]
   Where EFF ≈ .80 for Aspen media
4. Determine the CFM required

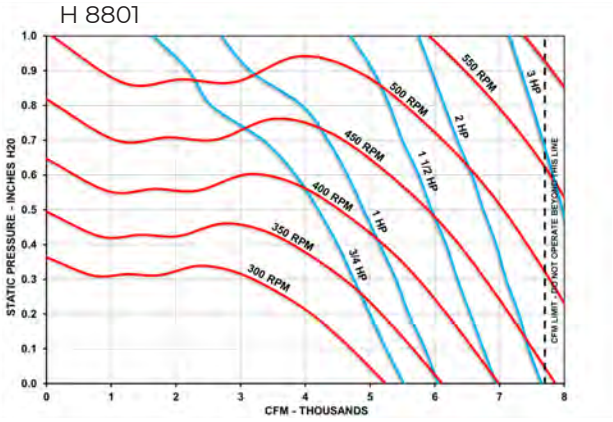
$$\text{CFM} = \frac{0.925 \times \text{Sensible Heat Load}}{(\text{TI} - \text{LAT})}$$

5. Determine the cooler(s) required by referring to the air flow charts below.

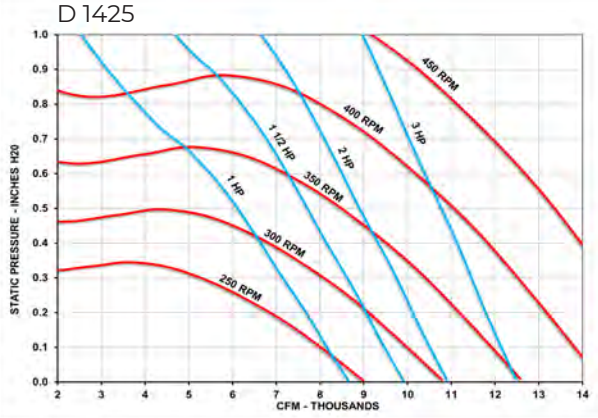
D 8801



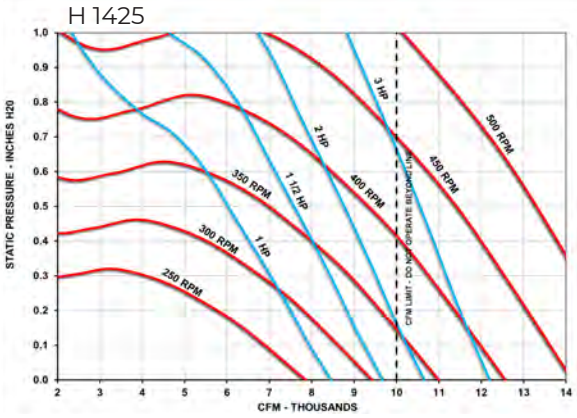
H 8801



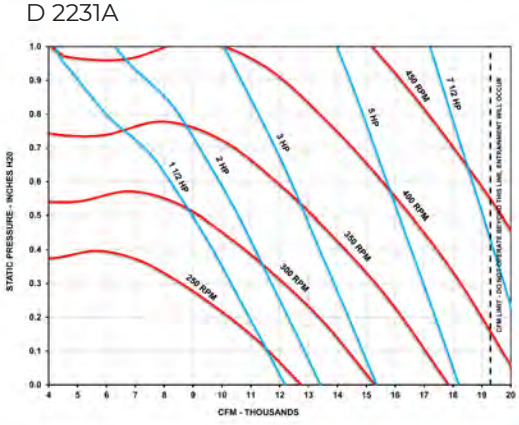
D 1425



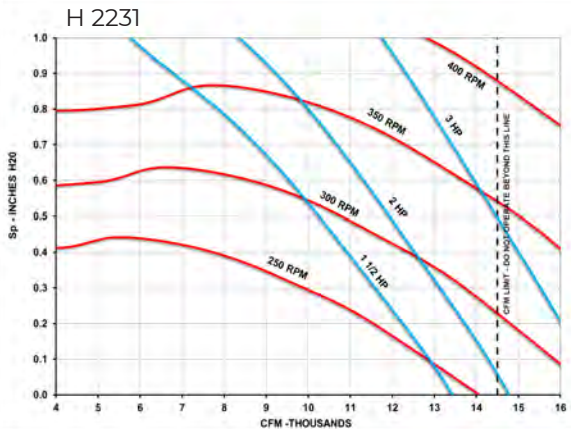
H 1425



D 2231A



H 2231



CERTIFIED AIR DELIVERY AT VARIOUS EXTERNAL STATIC PRESSURES

Performance certified is for installation Type B - free inlet, ducted outlet. Power Rating (B.H.P.) includes transmission losses. Performance ratings include the effects of evaporative media. Blower RPM Values based on motor RPM 1725

Phoenix Manufacturing, Inc. certifies that the evaporative coolers shown below are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

MODEL NUMBER	STATIC PRESSURE / MAX HP REQUIRED	.0"		.1"		.2"		.3"		.4"		.5"		.6"		.7"		.8"		.9"		1.0"	
		CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM	CFM	RPM
D 8801	3/4	5525	318	5250	329	5000	342	4750	357	4500	373	4200	390	3850	407	3350	430	2550	457	2200	509	1650	540
D 8801	1	6050	349	5850	360	5600	371	5400	384	5150	399	4900	413	4650	428	4350	444	3950	461	3150	507	2700	537
D 8801	1 ½	6950	400	6750	409	6550	419	6350	430	6150	440	5950	453	5750	466	5500	479	5300	486	5050	506	4700	521
D 8801	2	7650	440	7450	448	7300	456	7100	467	6950	476	6750	486	6575	496	6350	510	6150	513	5950	533	5750	545
D 8801	3	8750	502	8600	510	8450	518	8275	525	8125	535	7950	543	7825	552	7875	561	7500	561	7325	562	7150	591
H 8801	3/4	5525	318	5250	329	5000	342	4750	357	4500	373	4200	390	3850	407	3350	430	2550	457	2200	509	1650	540
H 8801	1	6050	349	5850	360	5600	371	5400	384	5150	399	4900	413	4650	428	4350	444	3950	461	3150	507	2700	537
H 8801	1 ½	6950	400	6750	409	6550	419	6350	430	6150	440	5950	453	5750	466	5500	479	5300	486	5050	506	4700	521
H 8801	2	7650	440	7450	448	7300	456	7100	468	6950	476	6750	486	6575	496	6350	510	6150	513	5950	533	5750	545
H 8801	3	OPERATION NOT RECOMMENDED IN THIS AREA, WATER ENTRAINMENT WILL OCCUR.						7700	500	7700	520	7700	538	7700	550	7875	561	7500	561	7325	562	7150	591
D 1425	1	8675	240	8153	255	7679	267	7144	282	6636	297	6111	312	5505	332	4685	357	3774	394	3080	420	2552	439
D 1425	1 ½	9930	275	9462	286	9053	299	8618	311	8146	323	7701	337	7257	350	6771	365	6218	383	5506	404	4777	434
D 1425	2	10930	302	10497	313	10120	324	9744	335	9329	347	8901	358	8499	370	8099	382	7671	394	7205	410	6666	427
D 1425	3	12511	346	12126	356	11785	365	11462	375	11131	384	10770	395	10393	404	10029	414	9681	425	9333	436	8966	446
H 1425	1	8450	270	7950	280	7500	292	7025	305	6500	318	6000	332	5500	350	4800	370	3675	408	2975	437	2325	453
H 1425	1 ½	9675	308	9250	318	8825	328	8425	340	8000	350	7575	362	7125	374	6700	388	6250	402	5625	419	4625	450
H 1425	2	10000	319	10000	352	9875	357	9500	366	9150	376	8750	385	8350	398	7950	408	7575	420	7175	434	6725	458
H 1425	3	OPERATION NOT RECOMMENDED IN THIS AREA, WATER ENTRAINMENT WILL OCCUR.						10000	380	10000	397	10000	415	10000	432	9875	447	9525	456	9175	465	8825	477
D 2231	1 ½	12200	240	11550	249	10950	260	10300	273	9700	286	8950	298	8200	312	7300	332	6000	365	5000	386	4000	403
D 2231	2	13400	263	12850	272	12300	282	11700	298	11200	305	10550	316	9800	327	9200	340	8500	356	7400	381	6300	409
D 2231	3	15300	300	14850	310	14400	318	13900	327	13400	336	12900	346	12400	356	11850	366	11300	375	10700	386	10100	400
D 2231	5	18200	358	17800	365	17400	370	16950	378	16550	385	16100	394	15700	402	15300	410	14850	419	14400	427	14000	435
D 2231	7 ½	19300	378	19300	392	19300	405	19300	418	19300	430	19000	440	18700	446	18300	454	17900	461	17600	468	17200	476
H 2231	1 ½	13466	239	12747	249	12361	262	11672	271	10769	281	10316	295	9637	308	8651	320	7902	336	6851	361	5664	392
H 2231	2	14500	260	14121	271	13756	284	13325	294	12514	301	11770	311	11376	324	10830	336	9931	346	9157	360	8462	376
H 2231	3	OPERATION NOT RECOMMENDED IN THIS AREA, WATER ENTRAINMENT WILL OCCUR.						14500	310	14500	325	14500	342	13766	350	13299	361	12976	373	12510	383	11762	392
H 2231	5	OPERATION NOT RECOMMENDED IN THIS AREA, WATER ENTRAINMENT WILL OCCUR.														14500	374	14500	385	14500	402	14500	415

Do not exceed listed RPM, motor current draw (FLA) will be less than nameplate. Water entrainment may occur if operated at higher RPM's.

NOT RECOMMENDED - Operation in high static pressure - low CFM conditions can lead to unstable operation.

SHEAVE SELECTION

All sheaves listed are adjustable to meet the blower speed RPM requirements for your application. Using the model number combined with the motor horse power and blower RPM, use this chart to locate the corresponding part number in the far right column. Motors of varying and identical horse power may have different motor shaft sizes. Be certain the motor shaft diameter and motor sheave bore size are the same size.

Blower RPM Values based on motor RPM 1725

MODEL NUMBER	MOTOR H. P.	I. D.	BLOWER RPM - SHEAVE TURNS OPEN						PMI PART	BROWNING
			5	4	3	2	1	0		
D/H 8801	¾, 1, 1 ½, 2	5/8	234	259	283	308	333	357	S1	1 VL 34
D/H 8801	¾, 1, 1 ½, 2	7/8	234	259	283	308	333	357	S1A	1 VL 34
D/H 8801	¾, 1, 1 ½, 2	5/8	296	320	345	370	394	419	S2	1 VP 40
D/H 8801	¾, 1, 1 ½, 2	7/8	296	320	345	370	394	419	S2A	1 VP 40
D/H 8801	¾, 1, 1 ½, 2	5/8	345	370	394	419	444	468	S3	1 VL 44
D/H 8801	¾, 1, 1 ½, 2	7/8	345	370	394	419	444	468	S3A	1 VL 44
D/H 8801	¾, 1, 1 ½, 2	5/8	419	444	468	493	518	542	S4A	1 VM 50
D/H 8801	¾, 1, 1 ½, 2	7/8	419	444	468	493	518	542	S4	1 VM 50
D/H 8801	3	1 ⅛	419	444	468	493	518	542	S4B	1 VP 50
D/H 8801	3	1 ⅛	492	518	542	567	592	616	S11B	1 VP 56
D/H 1425	1, 1 ½, 2	5/8	230	249	268	288	307	326	S2	1 VP 40
D/H 1425	1, 1 ½, 2	7/8	230	249	268	288	307	326	S2A	1 Vl 40
D/H 1425	1, 1 ½, 2	5/8	268	288	307	326	345	364	S3	1 VL 44
D/H 1425	1, 1 ½, 2	7/8	268	288	307	326	345	364	S3A	1 VP 44
D/H 1425	1, 1 ½, 2	5/8	326	345	364	383	403	422	S4A	1 VM 50
D/H 1425	1, 1 ½, 2	7/8	326	345	364	383	403	422	S4	1 VM 50
D/H 1425	1, 1 ½, 2	5/8	383	403	422	441	460	479	S11	1 VP 56
D/H 1425	1, 1 ½, 2	7/8	383	403	422	441	460	479	S11A	1 VP 56
D/H 1425	3	1 ⅛	326	345	364	383	403	422	S4B	1 VP 50
D/H 1425	3	1 ⅛	383	403	422	441	460	479	S11B	1 VP 56
D/H 2231	1 ½, 2	5/8	192	211	230	249	268	288	S5A	2 VP 36
D/H 2231	1 ½, 2	7/8	192	211	230	249	268	288	S5	2 VP 36
D/H 2231	1 ½, 2	5/8	249	268	288	307	326	345	S6A	2 VP 42
D/H 2231	1 ½, 2	7/8	249	268	288	307	326	345	S6	2 VP 42
D/H 2231	1 ½, 2	5/8	326	345	364	383	403	422	S8A	2 VP 50
D/H 2231	1 ½, 2	7/8	326	345	364	383	403	422	S8B	2 VP 50
D/H 2231	3.5	1 ⅛	249	268	288	307	326	345	S7	2 VP 42
D/H 2231	3.5	1 ⅛	326	345	364	383	403	422	S8	2 VP 50
D/H 2231	5	1 ⅛	403	422	441	460	479	498	S9	2 VP 60
D 2231	7 ½	1 ⅜	355	374	393	413	431	452	S8C	_
D 2231	7 ½	1 ⅜	403	422	441	460	479	498	S9C	2 VP 68

REQUIRED BELT CHANGE

MODEL	MOTOR H. P.	BELT # / PART #
H 8801	3	A79 / 5-3-98
D 8801	1 ½ HP & UP	A76 / 5-3-135
D/H 1425	3 HP w / S11 sheave only	A96 / 5-3-224
D 2231	7 ½	A105 / 5-3-151

PUMP SPECIFICATIONS

PUMP MODEL	VOLTS	AMPS	WATTS	GPM at 5' HEAD
PK60LA	120	1.7	105	7.3
PK62LA	240	1.1	105	7.3

FLOAT VALVE KIT

- FVK7

PROGRAMMBLE DUMP PUMP (PDP12-1) IS **NOT** INCLUDED, BUT IS OPTIONAL

WATER BLEED OFF RATE

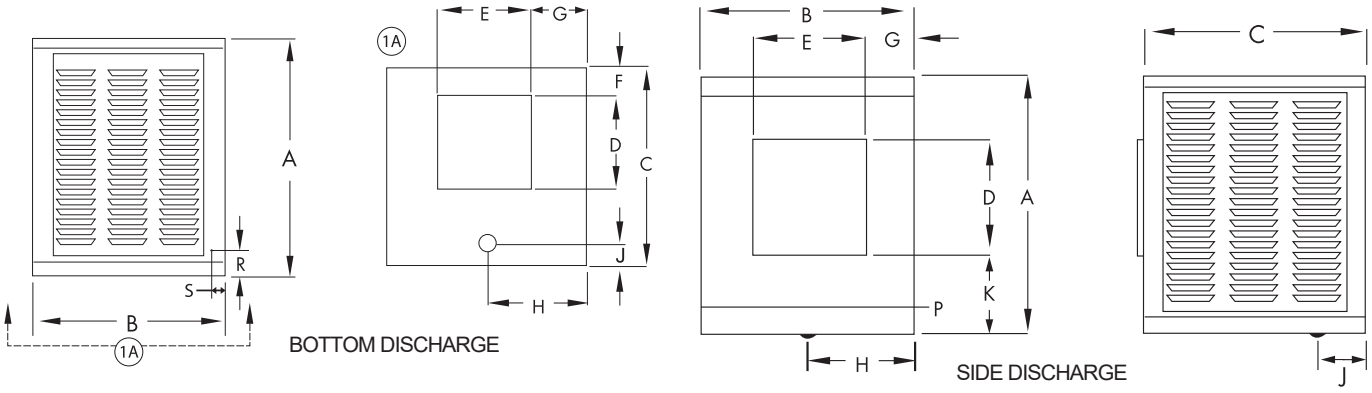
MODEL	MOTOR H. P.	MAX (GPH) USAGE INCLUDING BLEED OFF	BLEED OFF (GPH)
D/H 8801	3/4	25	3.8
D/H 8801	1	28	3.8
D/H 8801	1 ½	34	6.2
D/H 8801	2	37	6.2
D/H 8801	3	43	6.2
D/H 1425	1	41	6.2
D/H 1425	1 ½	47	6.2
D/H 1425	2	51	6.2
D/H 1425	3	59	6.2
D/H 2231	1 ½	56	6.2
D/H 2231	2	61	6.2
D/H 2231	3	70	6.2
D/H 2231	5	82	6.2
D/H 2231	7 ½	90	6.2

TECHNICAL MOTOR SPECIFICATIONS

MODEL NUMBER	H. P.	PHASE	VOLT	AMPERAGE	SHIPPING WEIGHT (LBS)	BASE	FRAME	SHAFT O.D.
*M180	3/4 (2 spd)	1	120	11.5 - 6.4	27	Resilient	56	5/8
*M161	3/4	1	120 / 208-240	7.0 / 3.5	29	Resilient	56	5/8
M163B	3/4	3	208-240 / 480	2.8 - 2.8 / 1.4	26	Resilient	56	5/8
*M181A	1 (2 spd)	1	120	11.8 / 6.1	32	Resilient	56	5/8
*M165	1	1	120 / 208-240	14.0 / 7.0 - 7.0	34	Resilient	56	5/8
M166C	1	3	208-240 / 480	3.2 - 3.1 / 1.6	30	Rigid	143T	7/8
M167C	1	3	200	3.6	30	Rigid	143T	7/8
*M168	1 (2 spd)	1	240	7.0 / 3.7	30	Resilient	56	5/8
*M169A	1 ½	1	120 / 240	13.4 / 7.6	41	Resilient	56	5/8
M170C	1 ½	3	208-240 / 480	4.4 - 4.2 / 2.1	35	Rigid	143T	7/8
M171C	1 ½	3	200	4.9	35	Rigid	145T	7/8
*M172A	2	1	120 / 240	17.0 / 8.5	46	Rigid	56	5/8
M173C	2	3	208-240 / 480	5.9 - 5.6 / 2.8	35	Rigid	145T	7/8
M174C	2	3	200	6.4	35	Rigid	145T	7/8
M176C	3	3	208-240 / 480	8.3 - 7.6 / 3.8	50	Rigid	182T	1 ⅛
M177C	3	3	200	9.5	70	Rigid	182T	1 ⅛
M178C	5	3	208-240 / 480	13.7 - 13.0 / 6.5	70	Rigid	184T	1 ⅛
M179C	5	3	200	14.2	70	Rigid	184T	1 ⅛
M182B	7 ½	3	208-240 / 480	20.2 - 18.5 / 9.3	105	Rigid	213T	1 ⅜

Motors comply with US DOE Efficiency regulation 10 CFR Section 431 Subpart B or Subpart X

* All single phase motors are internally thermally protected, eliminating the need for external starting devices.



COMMERCIAL / INDUSTRIAL ENGINEERING DATA

MODEL NUMBER	BLOWER WHEEL		BELT SIZE D/H	BLOWER PULLEY PITCH DIAMETER	CABINET DIMENSIONS (INCHES)														APROX. OPE R.WT.	APROX. CAB. SHIP WT.	PAD FILLER DIMENSIONS		
					CABINET			DUCT OPENING				DRAIN				WATER INLET					NO.	HT.	WIDTH
	DIA.	WIDTH			A	B	C	D	E	F	G	H	J	K	*P	R	S					
D/H 8801	21	20	A74 / A76	14 SINGLE	52	41	41	21 ¾	21 ¾	4 ⅜	9 ⅝	20 ½	4 ½	15 ⅞	3 ½	7 ⅛	1 ½	476	280	4/3	45	35
D/H 1425A	24	24	A94 / A94	18 SINGLE	52	50	52	26 ¾	26 ¾	4 ½	12 ⅝	26	4 ½	21 ¼	3 ½	7 ⅛	1 ½	721	415	8/6	45	22
D/H 2231	28	28	A102 / A98	18 DUAL	60	62	62	31 ¾	31 ¾	8 ⅛	15 ⅛	31	4 ½	23 ¾	3 ½	7 ⅛	1 ½	1006	550	8/6	54	26

Phoenix Evaporative Coolers and components are designed and tested in accordance with one or more of the following standards or agencies: **AIR DELIVERY** - data published derived from tests conducted in accordance with Air Movement and Control Assoc. standard 210. **ASPEN PADS** - built to federal specification PP-E-911 for Type 1, Class A. Grade 4. **SEALANT** - water immersion per ASTM D870. FLEXIBILITY - per ASTM D756. **CORROSION RESISTANCE** - per ASTM B117. **PENCIL HARDNESS** - per ASTM D3363. **IMPACT RESISTANCE** - per D2794. **FLEXIBILITY** - per ASTM D522. **SPECULAR GLOSS** - per ASTM D523. **SURFACE BURNING CHARACTERISTICS** of building materials (best rating per UL 723 and ASTM E-84. **PUMPS** recognized under the UL standard #778 for operating water pumps with thermal overload and locked rotor protection. **POLYMERIC MATERIALS** listed in accordance with UL 94 and UL746C. **MOTORS** recognized under UL component standard #1004 for motor construction. **SINGLE PHASE MOTORS** tested under UL standard 507 for locked rotor and heat rise protection.

SPECIAL SERVICE SOLUTIONS

SVSPC - SINGLE VOLTAGE - SINGLE POINT CONNECTION

Factory pre-wire service includes installation and wiring of the motor, motor sheave, float valve, pump and pump junction box. The control box for the SVSPC is for simplistic wiring especially designed for the desired motor voltage required.

(Optional)

EISA MOTOR

SWITCH BOX

PUMP J-BOX

120V. PUMP

NEMA 3R BOX

ROTARY SWITCH

(Optional)

PDP12-1

Value & Commitment

Phoenix Manufacturing, Inc. (PMI) is a designer, manufacturer, and distributor that primarily produces evaporative cooling products designed for the comfort of the home or business.

Values at PMI begin with our employees, customers, and suppliers. We strive each day to treat those involved with PMI with respect while performing our duties with integrity. We put a premium on those values to best serve our industry in a manner that will deliver quality in everything we do. The phone calls, e-mails and meetings, along with our products and services, are designed to deliver these values as no one else does and to do it consistently each day.

WARNING: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www. P65Warnings.ca.gov

DESIGNED & ASSEMBLED IN THE USA SINCE 1975