

EVAPORATIVE COOLING UNIT



Quality Speaks For Itself



SINGLE STAGE AIR WASHER

HUMIDIN SINGLE STAGE EVAPORATIVE COOLING UNIT

SINGLE-STAGE EVAPORATIVE COOLING UNIT is a type of air cooling system that uses the natural process of evaporation to reduce the temperature of the air. This system is often employed in environments where air conditioning may be inefficient or too expensive to operate. The basic principle behind evaporative cooling is the process where water evaporates and absorbs heat from the surrounding air, which leads to a reduction in air temperature. In a single-stage evaporative cooling unit, this process occurs in one main cooling stage, typically involving a pad system or cooling media that absorbs water, and air is then passed over it to produce cooler air.

FEATURES:

1. Energy-Efficient

One of the primary advantages of single-stage evaporative cooling units is their low energy consumption. Unlike traditional air conditioners that use compressors and refrigerants, evaporative coolers only require water, a fan, and a pump, making them much more energy-efficient.

2. Environmentally Friendly

These cooling units are environmentally friendly because they do not use harmful refrigerants or chemicals. Instead, they rely on the natural process of water evaporation to cool the air, which has minimal environmental impact.

3. Simple Design and Operation

Single-stage evaporative coolers have a simple design that makes them easy to operate and maintain. With fewer moving parts compared to conventional air conditioners, there is less risk of breakdowns, reducing overall maintenance costs.

4. Effective for Hot and Dry Climates

Evaporative coolers work most effectively in hot, dry climates, where the air has low humidity. In such environments, the process of evaporation can significantly cool the air, providing a comfortable environment without the need for energy-intensive cooling systems.

5. Low Operating Costs

Due to their energy-efficient operation and low maintenance requirements, single-stage evaporative coolers have very low operating costs compared to traditional HVAC systems. This makes them an affordable option for large spaces or buildings that need to be cooled regularly.

6. Improved Indoor Air Quality

These systems help improve air quality by filtering the air as it passes through the cooling pads. The water-saturated pads not only cool the air but also trap dust, dirt, and other particles, which can lead to cleaner and fresher indoor air.

7. Portable or Fixed Systems

Portable evaporative coolers are available, making them flexible for use in smaller spaces or areas that require temporary cooling. Fixed systems, on the other hand, are installed in a specific area or building and are used for larger, permanent applications.

8. Cost-Effective for Large Areas

Single-stage evaporative cooling units are ideal for cooling large, open spaces, such as warehouses, factories, sports arenas, or outdoor areas like patios. These units can cover large areas at a lower cost than traditional air conditioning systems.

9. Flexible Installation

These units come in a variety of sizes and configurations, allowing for flexible installation options. Single-stage evaporative coolers can be installed as window units, rooftop systems, or even integrated into larger air-handling systems.

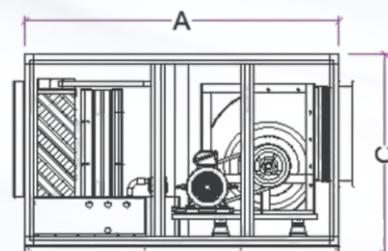
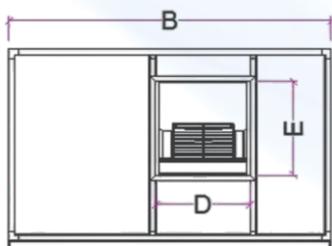
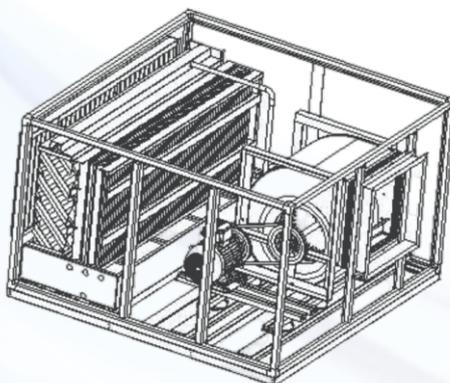
10. Minimal Maintenance

Since the unit operates using basic components such as fans, pumps, and water-saturated pads, maintenance is relatively simple. Routine tasks include cleaning the pads, changing the water, and checking the pump and fan for any wear or tear. There is no need for refrigerant refills or complex system checks.

APPLICATIONS

- **Commercial/Industrial:** Cooling factories, warehouses, and retail spaces where air conditioning may be costly or impractical.
- **Agriculture:** Used in barns, poultry houses, and greenhouses to improve temperature and humidity control for livestock and crops.
- **Data Centers:** Maintaining optimal temperature in server rooms to prevent overheating of electronic equipment.

DIMENSIONS TABLE OF SINGLE STAGE AIR WASHER WITH SINGLE BLOWER

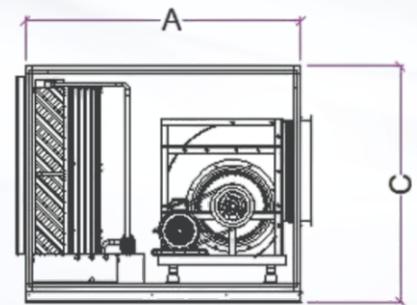
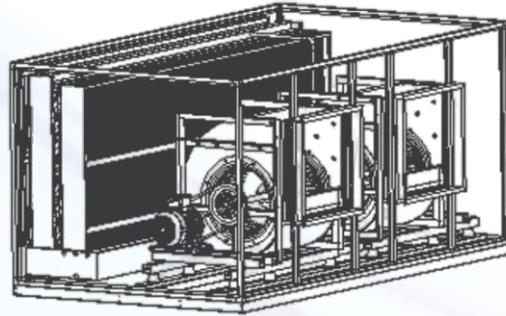


DOUBLE SKIN AIRWASHER WITH SINGLE BLOWER

AIR VOLUME (CFM)	STATIC PRESSURE (mmwg)	FAN TYPE	Outlet Vel. (m/s)	FAN DIA (mm)	MOTOR (HP)	PUMP (HP)	PUMP PHASE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
1000	50	DIDW	8	180	0.75	0.25	1	1650	790	730	245	208
2000	50	DIDW	8.99	250	1.5	0.25	1	1650	790	1030	340	300
3000	50	DIDW	8.69	315	2	0.25	1	1755	1100	1030	402	402
4000	50	DIDW	9.26	355	3	0.25	1	1620	1410	1035	465	415
5000	50	DIDW	9.22	400	5	0.5	1	1685	1720	1080	507	507
6000	50	DIDW	8.77	450	5	0.5	1	1760	1410	1325	568	568
8000	50	DIDW	9.28	500	7.5	0.5	1	2100	1410	1630	634	634
9000	50	DIDW	8.33	560	7.5	0.5	1	1930	2030	1420	710	710
10000	50	DIDW	9.26	560	7.5	0.5	1	1930	1720	1675	710	710
12000	50	DIDW	8.85	630	10	0.5	1	2035	2030	1660	800	800
14000	50	DIDW	8.2	630	10	0.5	1	2035	2340	1655	800	800
15000	50	DIDW	8.79	710	10	0.5	1	2155	2030	1955	898	898
16000	50	DIDW	9.37	710	10	0.5	1	2155	2650	1685	898	898
18000	50	DIDW	8.4	710	15	0.5	1	2155	2030	2250	898	898
20000	50	DIDW	9.33	800	15	0.5	1	2275	2650	1980	1006	1006
24000	50	DIDW	8.85	900	15	1	3	2490	2650	2280	1132	1132
27000	50	DIDW	9.96	900	15	1	3	2495	2960	2280	1132	1132
30000	50	DIDW	8.85	1000	15	1	3	2530	3265	2280	1266	1266
32000	50	DIDW	9.44	1000	15	1	3	2530	2685	2880	1266	1266
35000	50	DIDW	8.35	1000	15	1	3	2530	3265	2600	1266	1266
40000	50	DIDW	9.34	1120	15	1	3	2840	3265	2880	1422	1422
44000	50	DIDW	9.45	1120	15	1.5	3	2840	3575	2880	1422	1422
50000	50	DIDW	9.4	1250	30	1.5	3	3040	3885	3020	1585	1585
55000	50	DIDW	10.3	1250	40	1.5	3	3040	3885	3265	1585	1585
60000	50	DIDW	9	1400	40	1.5	3	3290	3885	3510	1780	1775

NOTE: ALL TECHNICAL & DIMENSIONS ARE ONLY FOR REFERENCE

DIMENSIONS TABLE OF SINGLE STAGE AIR WASHER WITH DOUBLE BLOWER



DOUBLE SKIN AIRWASHER WITH DOUBLE BLOWER

AIR VOLUME (CFM)	STATIC PRESSURE (mmwg)	FAN TYPE	Outlet Vel. (m/s)	FAN DIA (mm)	MOTOR (HP)	PUMP (HP)	PUMP PHASE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
10000X2	50	DIDW	9.26	560X2	7.5X2	1.5	3	1930	3380	1660	710	710
12000X2	50	DIDW	8.85	630X2	10X2	1.5	3	2035	3965	1660	800	800
15000X2	50	DIDW	8.79	710X2	10X2	1.5	3	2155	4000	1955	898	898
18000X2	50	DIDW	8.4	710X2	15X2	1.5	3	2155	4060	2250	898	898
20000X2	50	DIDW	9.33	800X2	15X2	1.5	3	2275	5160	1980	1006	1006
22000X2	50	DIDW	8.11	900X2	15X2	1.5	3	2490	5000	2280	1132	1132
25000X2	50	DIDW	9.22	900X2	15X2	1.5	3	2840	5330	2320	1132	1132
27500X2	50	DIDW	8.11	1000X2	15X2	1.5	3	3060	5125	2595	1132	1132
30000X2	50	DIDW	8.85	1000X2	20X2	1.5	3	2840	6360	2300	1266	1266

NOTE: ALL TECHNICAL & DIMENSIONS ARE ONLY FOR REFERENCE



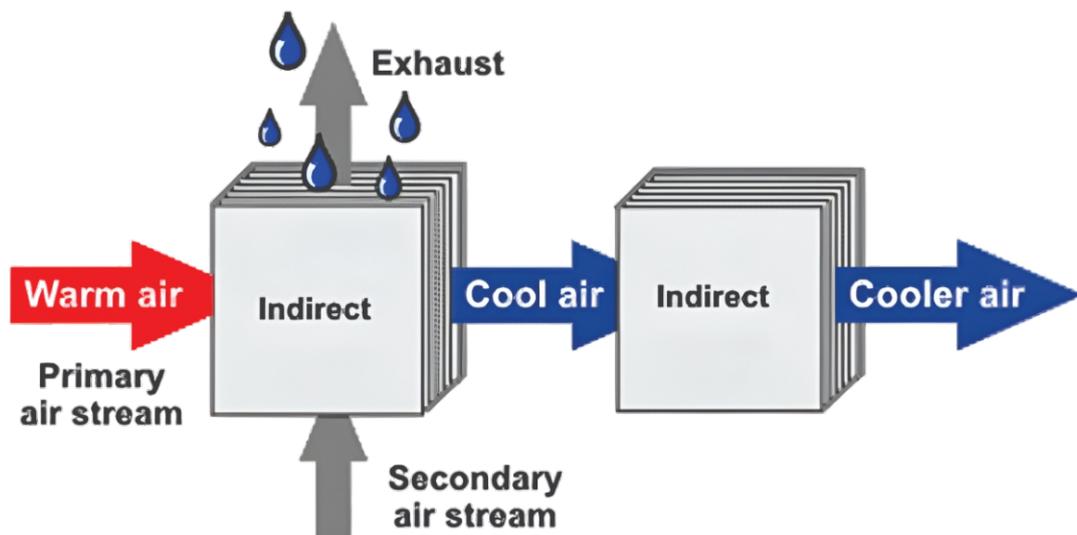
TWO STAGE AIR WASHER

HUMIDIN TWO STAGE EVAPORATIVE COOLING UNIT

Humidin brings a new generation, a new technology in the field of evaporative cooling called IDEC Indirect Direct Cooling System, also called as Two Stage Evaporative Cooling System, works on the same principle as direct evaporative cooling lowering air temperature by causing water to evaporate but the outlet temperature achieved by IDEC is much lower and is less than or equal to ambient wet bulb temperature, hence offering a cooling never met before at almost the same cost of energy.

IDEC, is assisted by another Heat exchanger (IEC) which cools the air sensibly before it reaches the stage of Direct Evaporative Cooling (DEC) or adiabatic cooling process. With indirect evaporative cooling, there are two opposing airstreams that contact a different side of a polymer heat exchanger. The outer wall of the heat exchanger contacts air that needs to be conditioned before it is delivered to the occupied space. The inner wall is in contact with air that comes from the ambient environment or building exhaust.

Indirect evaporative cooling occurs when water sprayed to the interior wall of a heat exchanger evaporates. When the water evaporates, the heat of vaporization imparts a cooling effect to the outer wall of the heat exchanger. This allows the airstream which contacts the outer wall to be sensibly cooled. This sensibly cooled air is then treated adiabatically and then it gains moisture and the temperature cools further.



FEATURES:

1. Enhanced Cooling Efficiency

The two-stage cooling process results in lower temperatures and higher cooling efficiency than single-stage evaporative coolers. By passing air through two separate stages, the unit can achieve better performance, even in hotter environments, offering cooler air at a higher volume.

2. Eco-Friendly Operation

These units operate with water and air, meaning no harmful refrigerants or chemicals are involved. As a result, two-stage evaporative coolers are much more environmentally friendly than conventional air conditioning systems. They contribute to lower carbon footprints and help preserve the environment.

3. Higher Cooling Capacity

The dual-stage design allows for a higher cooling capacity compared to a single-stage cooler. The pre-cooling stage reduces the temperature of the air before it enters the main cooling system, allowing for more effective cooling in the second stage, which results in more effective temperature reduction for large, open spaces.

4. Better Performance in Dry, Hot Climates.

Like single-stage evaporative coolers, two-stage systems are most effective in dry, hot climates. In dry air conditions, evaporation is more efficient, allowing these units to provide better cooling. They are perfect for locations in desert or semi-arid regions where traditional air conditioning might be inefficient due to the excessive outdoor heat.

5. Low Operating Costs

Two-stage evaporative cooling units offer low operating costs compared to traditional air conditioners. They use water as the primary cooling medium and typically only require fans and pumps to circulate air and water, resulting in lower electricity bills and reduced maintenance costs

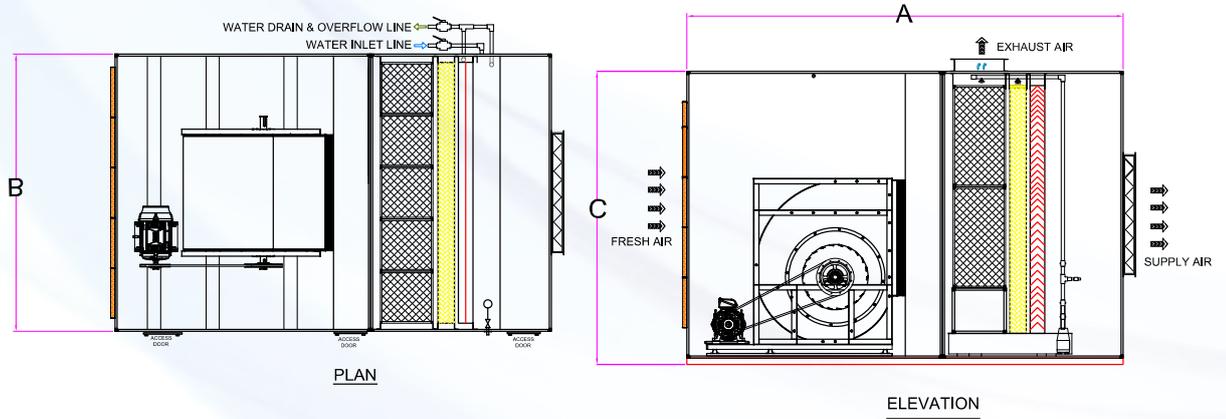
6. Maintenance and Durability

These units are typically low-maintenance, requiring only occasional cleaning of cooling pads and water systems. Their simple design and use of robust materials ensure that they have a long lifespan and can withstand the rigors of continuous operation in demanding environments.

APPLICATIONS

- **Industrial Applications:** Ideal for cooling large factories, manufacturing plants, and warehouses where high-temperature conditions are common.
- **Commercial Spaces:** Effective in cooling shopping malls, office buildings, and open-plan areas where comfort and energy efficiency are key.
- **Greenhouses:** Provides the cooling needed for optimal plant growth, reducing the temperature for both plants and workers in hot climates.

DIMENSIONS TABLE OF TWO STAGE AIR WASHER WITH SINGLE BLOWER

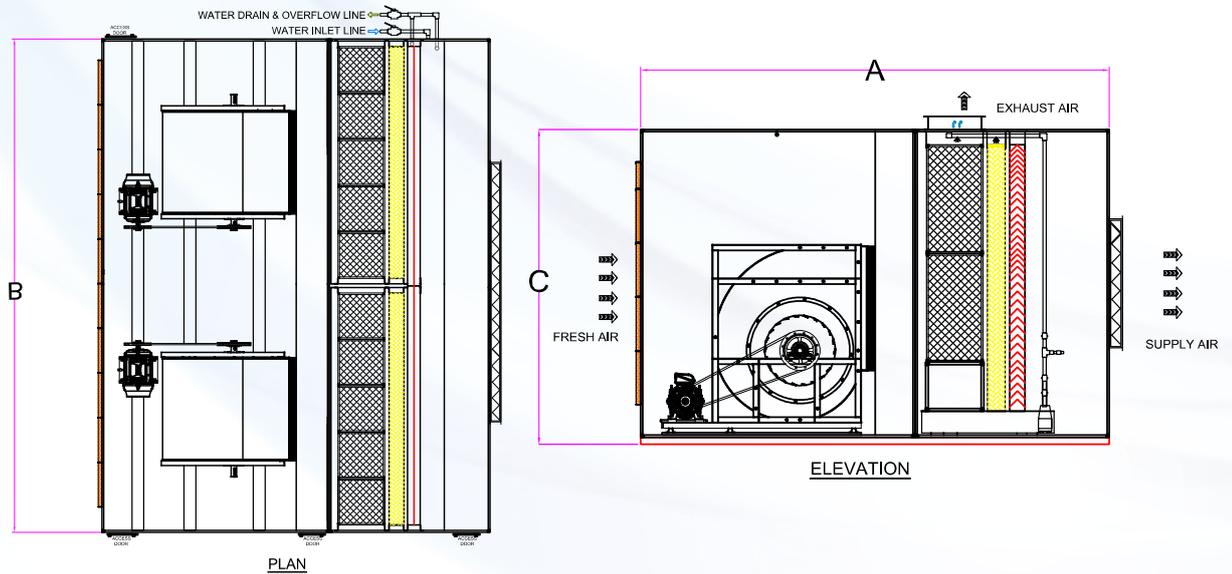


DOUBLE SKIN BLOW THROUGH TWO STAGE AIRWASHER WITH SINGLE BLOWER

Supply Air Volume (CFM)	Exhaust Air Volume (CFM)	Selected Air Volume (CFM)	Static Pressure (mmwg)	Fan Type	Outlet Vel. (m/s)	Fan Dia (mm)	Motor (hp)	Pump (hp)	Pump Phase	Pump Qty.	A (mm)	B (mm)	C (mm)
1000	350	1350	85	DIDW	6.07	250	1.5	0.25	1	2	3800	1000	1600
2000	700	2700	85	DIDW	7.8	315	3	0.25	1	2	3800	1000	1600
3000	1050	4050	85	DIDW	9.37	355	5	0.25	1	2	4000	1450	2400
4000	1400	5400	85	DIDW	7.9	450	5	0.25	1	2	4000	1450	2400
5000	1750	6750	85	DIDW	7.93	500	7.5	0.5	1	2	4000	1450	2400
6000	2100	8100	85	DIDW	7.6	560	7.5	0.5	1	2	4000	1450	2400
8000	2800	10800	85	DIDW	7.97	630	10	0.5	1	2	4200	1450	2400
9000	3150	12150	85	DIDW	8.96	630	15	0.5	1	2	4200	2150	2400
10000	3500	13500	85	DIDW	7.9	710	15	0.5	1	2	4400	2150	2400
12000	4200	16200	85	DIDW	7.56	800	15	0.5	1	2	4800	2150	2400
14000	4900	18900	85	DIDW	8.82	800	20	0.5	1	2	4800	2800	2400
15000	5250	20250	85	DIDW	7.5	900	20	0.5	1	2	5000	2800	2400
16000	5600	21600	85	DIDW	7.96	900	20	0.5	3	2	5000	2800	2400
18000	6300	24300	85	DIDW	8.95	900	20	0.5	3	2	5000	3510	2400
20000	7000	27000	85	DIDW	7.95	1000	25	0.5	3	2	5200	3510	2400
24000	8400	32400	85	DIDW	9.54	1000	30	1	3	2	5200	4050	2400
27000	9450	36450	85	DIDW	8.5	1120	30	1	3	2	5500	2800	3550
30000	10500	40500	85	DIDW	9.46	1120	40	1	3	2	5500	2800	3550
32000	11200	43200	85	DIDW	10.1	1120	40	1	3	2	5500	2800	3550
35000	12250	47250	85	DIDW	11	1120	50	1	3	2	5500	3510	3550

NOTE: ALL TECHNICAL & DIMENSIONS ARE ONLY FOR REFERENCE

DIMENSIONS TABLE OF TWO STAGE AIR WASHER WITH DOUBLE BLOWER



DOUBLE SKIN BLOW THRU TWO STAGE AIRWASHER WITH DOUBLE BLOWER

Supply Air Volume (CFM)	Exhaust Air Volume (CFM)	Selected Air Volume (CFM)	Static Pressure (mmwg)	Fan Type	Outlet Vel. (m/s)	Fan Dia (mm)	Motor (hp)	Pump (hp)	Pump Phase	Pump Qty.	A (mm)	B (mm)	C (mm)
40000	14000	54000	85	DIDW	7.95	1000X2	25X2	1.5	3	2	5200	6650	2400
44000	15400	59400	85	DIDW	8.75	1000X2	25X2	1.5	3	2	5200	7250	2400
50000	17500	67500	85	DIDW	9.9	1000X2	30X2	1.5	3	2	5200	4700	3550
55000	19250	74250	85	DIDW	8.67	1120X2	30X2	1.5	3	2	5500	4700	3550
60000	21000	81000	85	DIDW	9.46	1120X2	40X2	1.5	3	2	5500	5350	3550

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THREE STAGE AIR WASHER

HUMIDIN THREE STAGE EVAPORATIVE COOLING UNIT

The three-stage evaporative cooling unit from HUMIDIN uses a combination of indirect evaporation/polymer based heat exchange, cellulose pad/direct evaporation, and a mechanical cooling coil.

The principle is to cool incoming warm air by passing it through water-saturated media (pads), causing part of the water to evaporate, which takes away heat.

This is especially effective in low-humidity environments, where evaporative cooling is most efficient.

FEATURES:

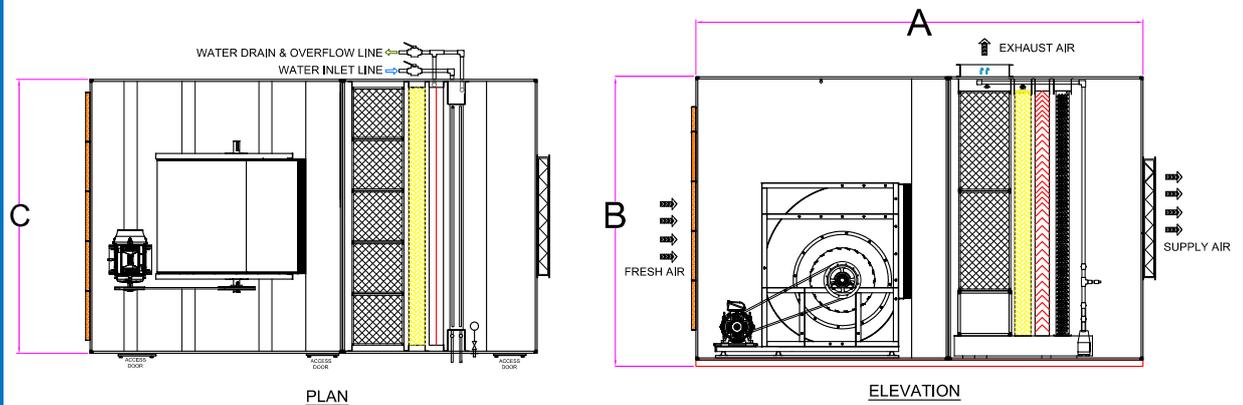
1. **Panels designed by special software** — optimized metal/carrier design for strength, efficiency, or insulation.
2. **Standard pre-filters & good accessibility** — **pre-filters** likely help protect pads and reduce maintenance; the design ensures maintenance access is convenient.
3. **Imported cellulose pads** — the evaporative media are cellulose, imported, probably for better water retention and evaporation efficiency.
4. **Water Tank (SS-304)** — increases durability, especially since water is constantly recirculating.
5. **AMCA-certified HUMIDIN-made fans** — meaning the fans meet certain standards for air movement and efficiency.
6. **Cooling Coil-AHRI-certified**
7. **Standard and optional accessories** — indicates modularity or flexibility in configuration.

APPLICATION:

1. **Low-humidity / arid regions:**
Because evaporative cooling is most effective in dry climates.

2. **Industrial / Commercial HVAC:**
Suitable for large ventilation / air-handling systems, like factories, ware houses, or large halls, where you need a lot of fresh air.
3. **Energy-efficient buildings:**
For green buildings / sustainable design, as this uses less power versus standard compressor-based cooling.
4. **Seasonal variation climates:**
When humidity changes by season — e.g., in dry seasons, direct evaporation dominates; in humid or monsoon seasons, the mechanical coil stage helps manage moisture.

DIMENSIONS TABLE OF THREE STAGE AIR WASHER WITH SINGLE BLOWER

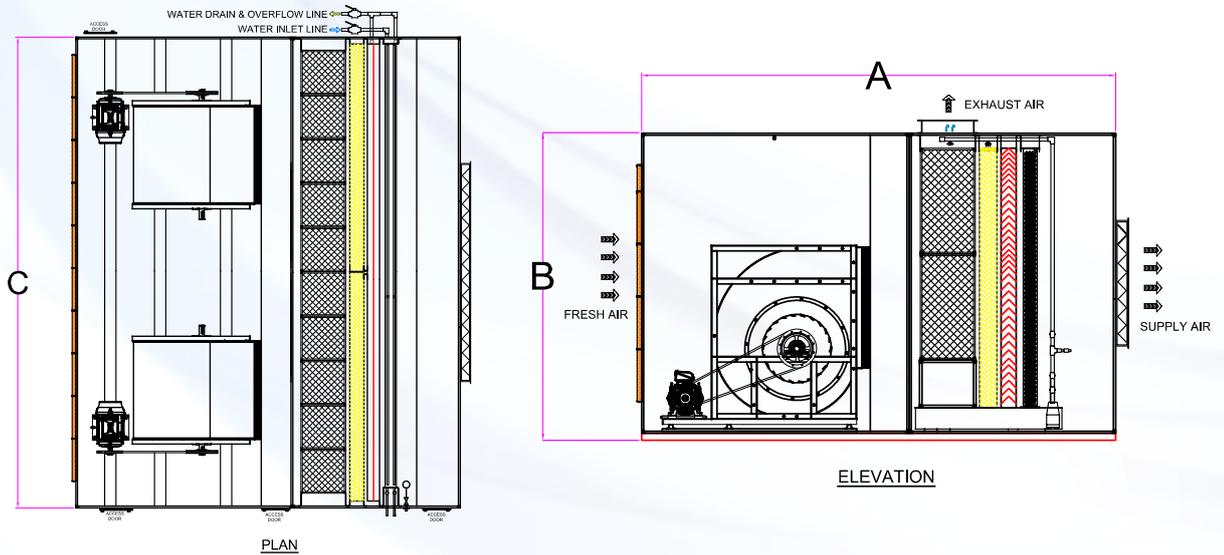


DOUBLE SKIN BLOW THROUGH THREE STAGE AIRWASHER WITH SINGLE BLOWER

Supply Air Volume (CFM)	Exhaust Air Volume (CFM)	Selected Air Volume (CFM)	Static Pressure (mmwg)	Fan Type	Outlet Vel. (m/s)	Fan Dia (mm)	Motor (hp)	Pump (hp)	Pump Phase	Pump Qty.	A (mm)	B (mm)	C (mm)
1000	350	1350	85	DIDW	6.07	250	1.5	0.25	1	2	4600	1000	1600
2000	700	2700	85	DIDW	7.8	315	3	0.25	1	2	4600	1000	1600
3000	1050	4050	85	DIDW	9.37	355	5	0.25	1	2	4800	1450	2400
4000	1400	5400	85	DIDW	7.9	450	5	0.25	1	2	4800	1450	2400
5000	1750	6750	85	DIDW	7.93	500	7.5	0.5	1	2	4800	1450	2400
6000	2100	8100	85	DIDW	7.6	560	7.5	0.5	1	2	4800	1450	2400
8000	2800	10800	85	DIDW	7.97	630	10	0.5	1	2	5000	1450	2400
9000	3150	12150	85	DIDW	8.96	630	15	0.5	1	2	5000	2150	2400
10000	3500	13500	85	DIDW	7.9	710	15	0.5	1	2	5200	2150	2400
12000	4200	16200	85	DIDW	7.56	800	15	0.5	1	2	5600	2150	2400
14000	4900	18900	85	DIDW	8.82	800	20	0.5	1	2	5600	2800	2400
15000	5250	20250	85	DIDW	7.5	900	20	0.5	1	2	5800	2800	2400
16000	5600	21600	85	DIDW	7.96	900	20	0.5	3	2	5800	2800	2400
18000	6300	24300	85	DIDW	8.95	900	20	0.5	3	2	5800	3510	2400
20000	7000	27000	85	DIDW	7.95	1000	25	0.5	3	2	6000	3510	2400
24000	8400	32400	85	DIDW	9.54	1000	30	1	3	2	6000	4050	2400
27000	9450	36450	85	DIDW	8.5	1120	30	1	3	2	6300	2800	3550
30000	10500	40500	85	DIDW	9.46	1120	40	1	3	2	6300	2800	3550
32000	11200	43200	85	DIDW	10.1	1120	40	1	3	2	6300	2800	3550
35000	12250	47250	85	DIDW	11	1120	50	1	3	2	6300	3510	3550

NOTE: ALL TECHNICAL & DIMENSIONS ARE ONLY FOR REFERENCE

DIMENSIONS TABLE OF THREE STAGE AIR WASHER WITH DOUBLE BLOWER



DOUBLE SKIN BLOW THRU THREE STAGE AIRWASHER WITH DOUBLE BLOWER

Supply Air Volume (CFM)	Exhaust Air Volume (CFM)	Selected Air Volume (CFM)	Static Pressure (mmwg)	Fan Type	Outlet Vel. (m/s)	Fan Dia (mm)	Motor (hp)	Pump (hp)	Pump Phase	Pump Qty.	A (mm)	B (mm)	C (mm)
40000	14000	54000	85	DIDW	7.95	1000X2	25X2	1.5	3	2	6000	6650	2400
44000	15400	59400	85	DIDW	8.75	1000X2	25X2	1.5	3	2	6000	7250	2400
50000	17500	67500	85	DIDW	9.9	1000X2	30X2	1.5	3	2	6000	4700	3550
55000	19250	74250	85	DIDW	8.67	1120X2	30X2	1.5	3	2	6300	4700	3550
60000	21000	81000	85	DIDW	9.46	1120X2	40X2	1.5	3	2	6300	5350	3550

NOTE: ALL TECHNICAL & DIMENSIONS ARE ONLY FOR REFERENCE

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The intention of this brochure is to introduce you to, and acquaint you with the capabilities of the HUMIDIN organization in the offered product areas. It will not answer all your immediate questions, and indeed, it will no doubt raise others. We welcome your interest in our products and shall be very pleased to provide further information.

GUARANTEES

HUMIDIN guarantees its products to be free of defects in materials and workmanship for a period of one year from the date of delivery from the factory, provided motors are properly installed with overload protector. Humidin agrees to repair or replace defective parts or part to be returned to the factory, all transportation charges prepaid. Humidin does not guarantee against abrasion, corrosion or erosion. Humidin shall not be held responsible for any charges in connection with the removal or replacement of alleged defective equipment nor for incidental consequential damages

A.C HUMIDIN AIR SYSTEMS PVT.LTD.

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