

HUMIDIN



A.C. Humidin Air Systems Pvt. Ltd. certifies that the model ACI-100 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



World-Class Jet Fans
For World-Class Car Parks.

When Quality Speaks For Itself

As a leading manufacturer of Jet Fan, today Humidin enjoys an enviable position in customer mind-space.

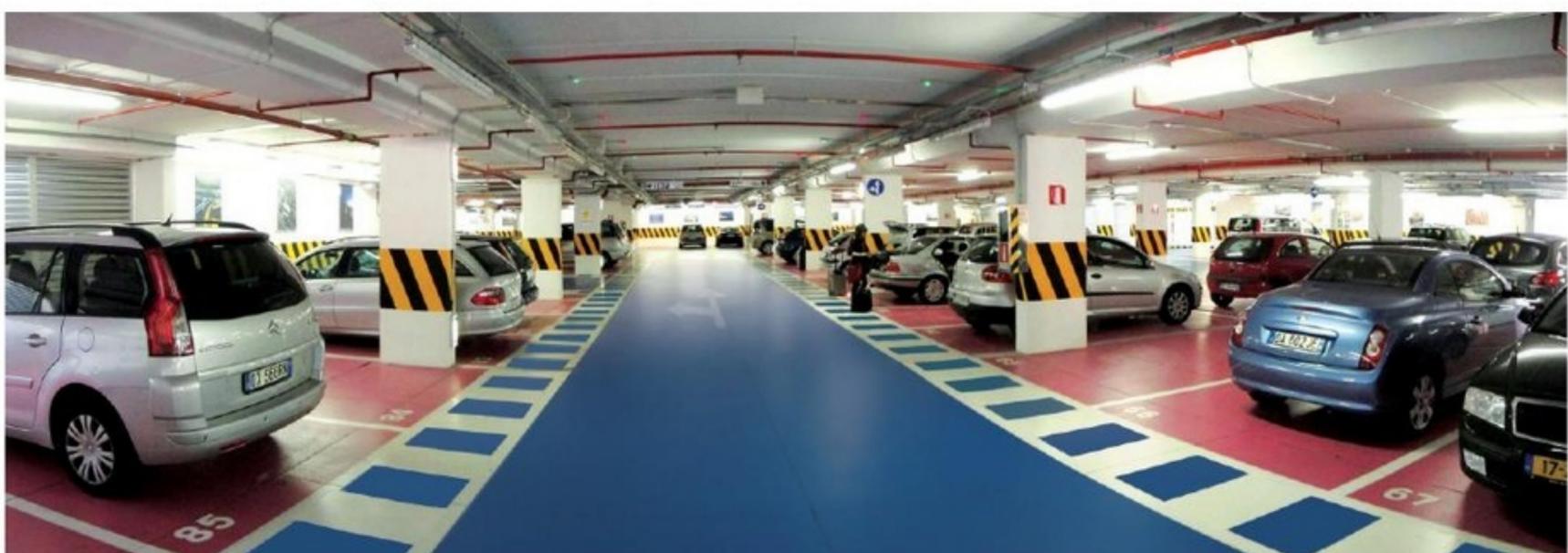
Humidin boasts of a modern plant & a talented team of qualified professionals who sets an exacting standards of quality for themselves.

In sum, Humidin stands for quality & customer satisfaction that are instrumental bringing them on par with what the world calls the world class.



Why Humidin Jet Fans?

1. Humidin jet fans are tested and certified
2. No Ducts are required.
3. CFD (Computational Fluid Dynamics) analysis by HUMIDIN, is utilised to decide the number and location of Jet fans for effective and optimum performance.
4. Only Fresh Air Fans, Exhaust Air Fans and Jet Fans required.
5. Improved air quality and efficient Operation
6. Flexibility and quicker installation
7. Effective smoke management
8. Optimum use of Car Park Space & Optimisation of Head room for Vehicles and Pedestrians.
9. Spun inlet for more efficient and for low noise operation.
10. Designed for almost no swirl zone.



ACI - CENTRIFUGAL JET FAN

ACI Series having centrifugal Backward Curved impellers rated upto 400°C for two hour operation suitable for higher thrust, low height requirement.

CONSTRUCTION

Casing : The Fan casing a ceiling mount bracket is made up of galvanised steel with an externally mounted terminal box, prewired to drive the motor. For enhanced safety, the bird screen is installed at the inlet . The impeller is made up of steel and is balanced to international standards.

Motor : The motor is rated for IP-55 protection, totally enclosed type, manufactured from cast iron. It operates in two speeds. The entire product is tested for operations upto 400degC for 2 hour operation.

Model	Speed (rpm)	Thrust Force (N)	Airflow at free discharge (m3/h)	Current at free discharge (A)	Motor Input Power at free discharge (kW)	Installed Power (kW)	Voltage	Phase	Hz	Lw(A) at free discharge** (dB(A))	Lp(A) at 3m free discharge*** (dB(A))	Outlet Velocity (m/s)	FEI
ACI-100	1427 / 729	88/22.5	13662 / 6908	5.17 / 1.63	3.31 / 0.55	3.0 / 0.5	415	3	50	96 / 78	75 / 55	25.5 / 12.9	0.7/1.22

* The AMCA Certified Ratings Seal applies to thrust at free delivery only. Speed (RPM) shown is nominal. Performance is based on actual speed of test. Performance ratings include the effects of appurtenances on the inlet. Performance ratings include the effect of the inlet guard

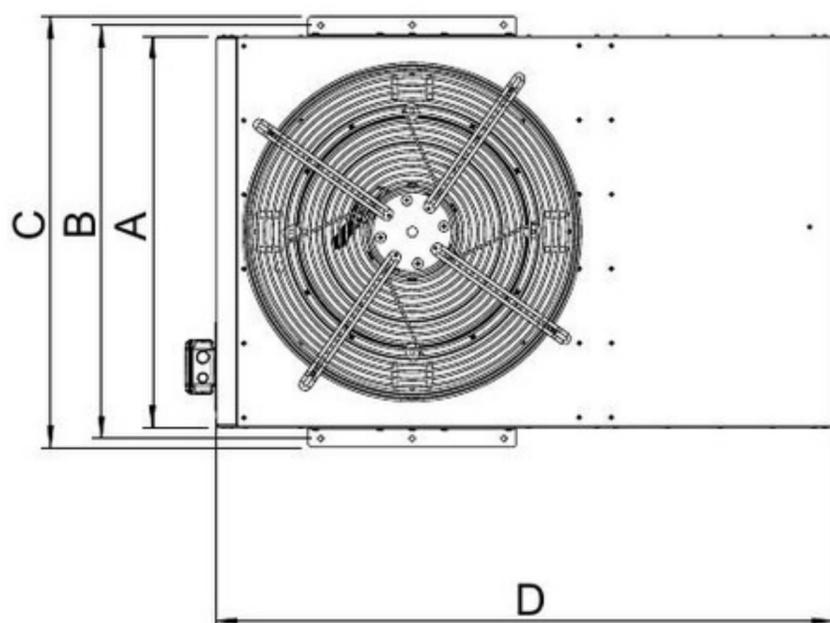
** Values shown are for total LwA sound power levels for installation type E: free inlet, free outlet without partition The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.

*** Inlet Lp(A) sound pressure levels at 3m are measured at free discharge in spherical free field condition, inlet Lp(A) (dB(A)) levels are not licensed by AMCA International.

- Power ratings shown are for Humidin motors.

-Performance certified is for installation type E-Free inlet, Free outlet without partition.

Dimensions



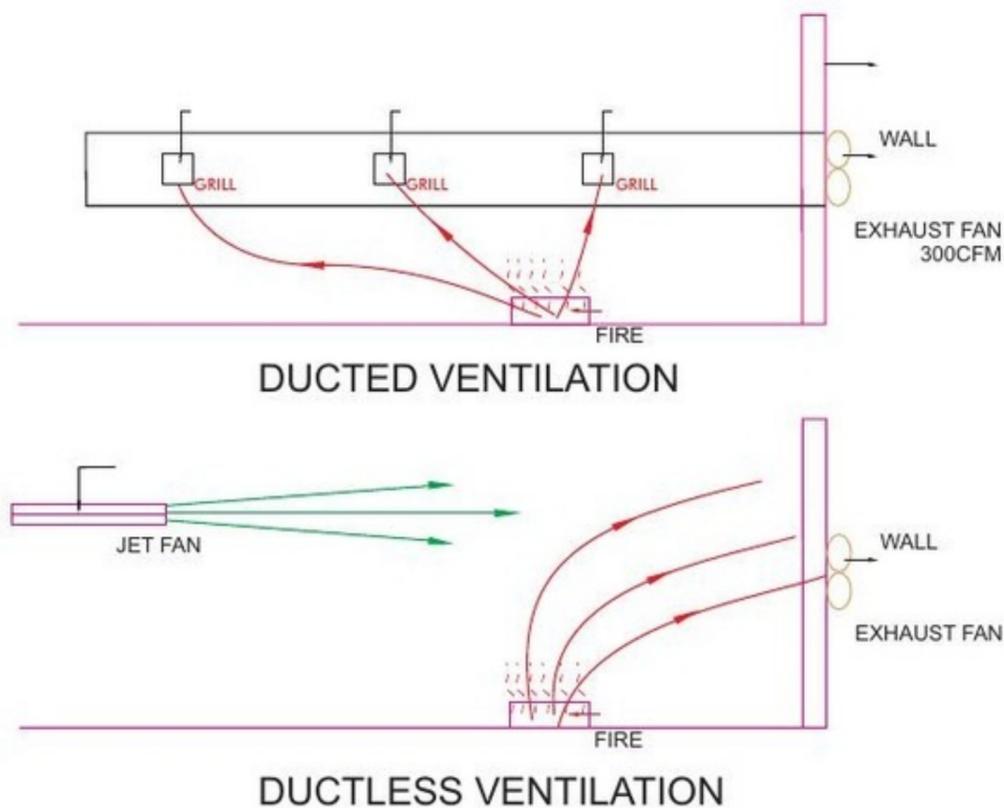
Size	A	B	C	D	E	F
100	1010	1100	1182	1670	355	115

FAN WEIGHT - 140KG

Dimensions in mm.

COMPARISON BETWEEN JET FAN & DUCTED VENTILATION SYSTEM

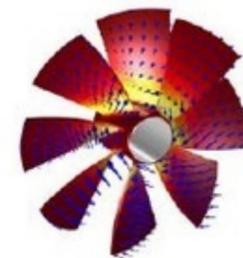
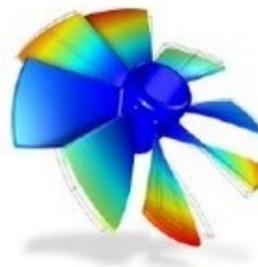
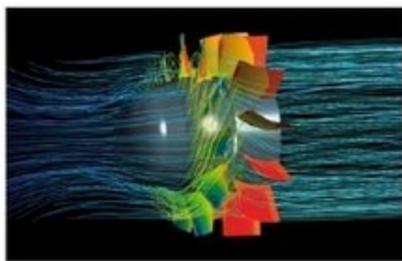
Features	Jet Fan	Ducted System
Power Consumption	Jet Fan system has less running load. High static losses are avoided since systems is ductless	High duct pressure losses results in higher power consumption
Running on partial load	Jet fan system can run in partial load, no need to turn all the fans to disperse CO	Main exhaust and fresh air fans need to be turned on in case to get whole zone functional
Predictably	Jet fan system is easily predicatable in case of flow of air	Ducted system is less predicatable in terms of flow of air. All branching bends needs to be precisely selected to get optimum results
Smoke Control	Smoke control with jet fans is better than ducted system. Smoke is always directed towards exhaust.	In case of ducted system, the smoke is always directed to all grills. To handle large fire, the suction is from multiple grills. This causes dispersion of smoke and relatively unsafe.
Reliability	Jet Fan system is more reliable in long run. Any fault in operation is visible. No clotting of dust.	Reliability of system is less as duct behavior is unpredictable and airflow is affected by duct clotting.
Demand controlled ventilation	Jet Fan system can be easily integrated with BMS to achieve higher power saving by demand controlled ventilation	Demand controlled ventilation is not feasible with ducted system
Modification flexibility	If any modification is required in system can be easily done with addition addition or relocating jet fans.	Modification requires new duct up to extended area or addition of new duct branch
Compact	Space required is less and system is very compact	Require large spaces below ceiling.



ADVANTAGE CFD ANALYSIS

Humidin offers advanced solutions to the customers like, CFD that saves time, cost & offers convenience.

Applying the fundamental laws of mechanics to a fluid, gives the governing equations for a fluid. These Fluid mechanics equations form a set of coupled, nonlinear partial differential equations. It is not possible to solve these equations analytically for most engineering problems. However, it is possible to obtain approximate computer-based solutions to the governing equations for a variety of engineering problems. This is the subject matter of Computational Fluid Dynamics (CFD).

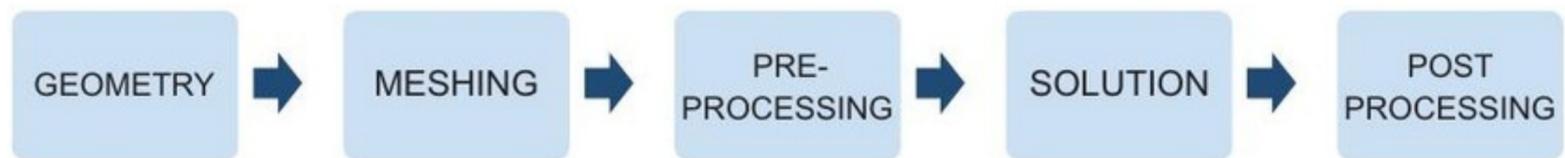


CFD ANALYSIS

1. Computational Fluid Dynamics or CFD is predicting what will happen, quantitatively, in the analysis of systems involving fluid flow, heat transfer and associated phenomena such as chemical reactions by means of computer based simulations.
2. The technique is very powerful and spreads a wide range of industrial and non industrial applications.
3. CFD gives an insight into flow patterns that are difficult, expensive or impossible to study using traditional (Conventional Analysis) techniques.

CFD Simulations	Conventional Analysis
1. CFD simulations are cheaper with the help of computers	1. It is too expensive
2. Simulations can be executed in short period of time.	2. Conventional Analysis are slow.
3. They are parallel in solving	3. They are sequential.
4. They are multi purpose.	4. Experiments are for single purpose.

STRUCTURE OF CFD



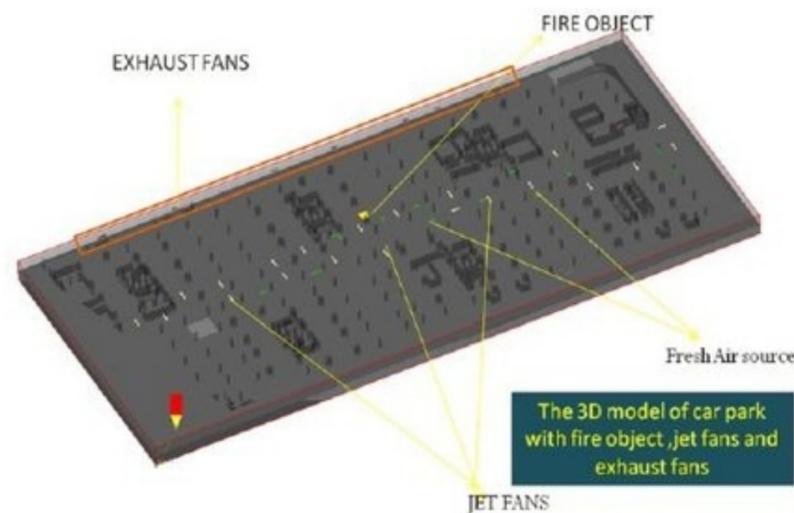
What does CFD do?

1. CFD analysis is used to model and analyze airflow in complex systems such as Underground parking, Mining, Tunnel and so on.
2. It is able to calculate solutions for velocity, pressure and temperature.
3. CFD analysis of a car park design is an effective way of ensuring that the distribution of air is sufficient to effectively ventilate the car park.
4. CFD analysis can be used to model both the general ventilation (pollution) and emergency ventilation (smoke) cases and tunnels for various applications.
5. Rather than simply complying with regulations CFD offers the opportunity to provide an engineered solution to car park, tunnel ventilation, mine and various other applications.

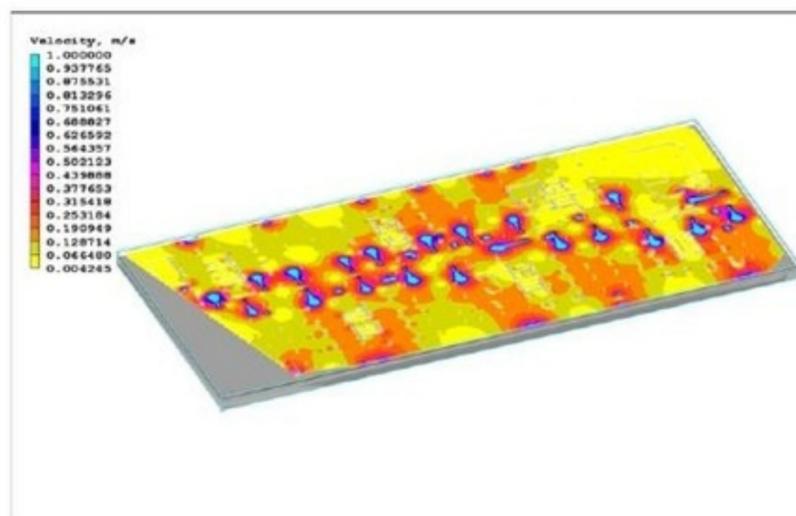


CFD ANALYSIS IN CASE OF FIRE

To check the effectiveness of the ventilations system for fire, so that the fire can be put out and there should be clear visibility for the people to escape at stipulated time as per BS 7346-7; 2006.



CFD Model



Velocity animation in case of fire

CONCLUSIONS

- Humidin's CFD methodology helps to properly locate the fan in such a way so as to remove air stagnation.
- The smoke spread depicts a clear movement of air towards the extract point, confirms that the temperature profile follow the smoke movement as expected.
- Humidin's simulations help in the construction business to:

Optimize the placement of fans, A.C.s, exhaust shafts and other ventilation openings for maximizing occupant's comfort. Ascertain the adequacy of exhaust fan capacity for peak & emergency ventilation requirements.
- Provide the most cost effective layout of jet fans for underground car parks & tunnels.

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.

GUARANTEE

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.

In accordance with our policy of continual improvement in design, we reserve the right to depart from the details given in this brochure.

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