

To provide the most reliable and user-friendly air movement & control and air conditioning service.

Due to continuing research, Shanghai Nautilus reserves the right to change specifications without notice.



Performance range: Volume up to 150,000m³/h, Total Pressure up to 1,800Pa

COSMOPOLIS Series Principle Product

SHANGHAI NAUTILUS GENERAL EQUIPMENT MANUFACTURING CO LTD

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Http: //www.infinair.com

- Sealed cabinet structure to make effective sound insulation
- Balance up to G2.5 level to reduce noise and vibration
- Aluminum alloy sections, Light weight and good appearance
- Customized configuration suitable for various kinds of working condition
- General exhaust, Smoke removal duty

**G2.5**


SHANGHAI NAUTILUS GENERAL EQUIPMENT MANUFACTURING CO LTD

Company Profile

Shanghai Nautilus General Equipment Manufacturing Co., Ltd. is a middle and high-end solution provider of air supply and gas heating and air cleaning equipment that integrates R&D, production and sales. Established in September, 2003, it is located in the Jiading District of Shanghai. The company is the member of the US Green Building Council (USGBC) and International Air Movement and Control Association (AMCA), the high and new tech enterprise of Shanghai, **INFINAIR®** won the famous trademark in Shanghai.

Vision statement: To become the most trustworthy brand of professional air movement & control and air conditioning.

Mission statement: To provide the most reliable and user-friendly air movement & control and air conditioning service.




国家防爆



高新技术企业








消防认证



上海·嘉定



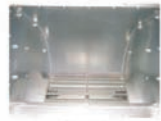





Feature of the forward/backward inclined DWDI fan

The forward inclined DWDI wheel has good ability of low noise and reliable running

- The forward curved wheel has bigger volume comparing with backward curved wheel in the same speed
- The forward curved wheel has lower speed and lower noise comparing with backward curved wheel in the same working condition
- Spinning precisely matched Venturi inlets and wheel cones assuring smooth, which further results well rectification effect and low noise



Forward curved wheel



Reinforcing threaded rod for forward curved wheel



DWDI fan inside: forward curved type

The backward inclined DWDI wheel has good ability of high efficiency and high energy savings

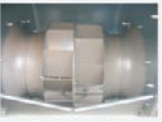
- The backward curved wheel has higher efficiency comparing with axial wheel, mixed flow wheel and forward curved wheel
- Accurately sized V-type performance baffle effectively reduced turbulence which results low noise and high efficiency
- The backward curved wheel has repeatedly optimized performance cures results safer running



DWDI fan inside: backward inclined type



Backward inclined wheel with reinforcing rod



Backward inclined wheel with V-type performance baffle

Advanced technology ensure accuracy

- The fan housing is "Pittsburgh" method joined, which results 0 air leakage
- The two pieces of housing side joint at the same one time procedure to improve the accuracy and reduce the dimension of assembly error
- The blades are made by once punch forming, and dedicated fixture to ensure precise install



"Pittsburgh" method joint panels

More reliable physical design

- The forward curved wheel precisely designed reinforcing threaded rod make sure long time reliable running
- The backward curved wheel reinforcing rod set on exact position to ensure long-term secure operation
- The fan is supported by stable channel steel frame, so that stable running of the fan is ensured

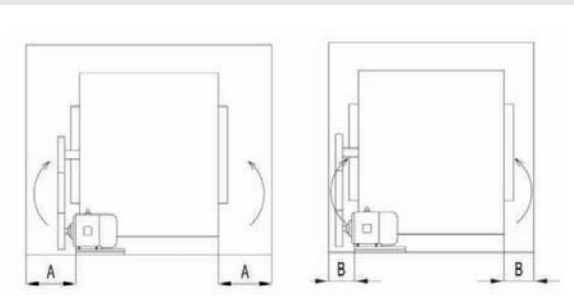
High balancing level

- Balance level up to G2.5 (Typical products are balanced to G6.3 only)
- To reduce the vibration of the fan, to improve reliability
- To reduce the running noise effectively

Product feature

Sealed cabinet structure to reduce the noise


- High-quality and low noise forward/backward inclined DWDI fan inside
- Inlet space inside is following AMCA recommended value to ensure air flow more smoothly
- The air flow pattern of the completed unit are simulated and optimized via CFD hydro-field calculation software
- Aluminum alloy cabinet structure to make effective sound insulation
- Double cabinet structure as optional to reduce noise further



The inlet path width of YFICK(size A) is much wider which is following MACA recommendation, size B is incorrect which generates turbulence as the air is blocked from entering the wheel.

High-quality material selection to ensure long-term secure operation

- High-quality extruded aluminum frame: firm structure without distortion after long time
- Cold rolled steel wall panel (galvanized steel as optional)
- Electrostatic epoxy as optional



Flexible forms suitable for a variety of working conditions

- Various outlet directions available
- Double-speed motor available
- Floor-mounted and over-hanging installation or pipe installation available
- Outdoor installation with weather hood available

Complete functions

- Motor located inside cabinet: HVAC supply and exhaust application
- Motor located outside cabinet: integrated for smoke removal and supply/exhaust
- Certified by national authorities(motor outside)
- Double-speed supply & exhaust, filter supply & exhaust

Belt drive: precise and adjustable

- More precise selection up to the requirements of design conditions
- Easier maintenance and replacement of motor
- Independent bearings to bear the vibration to prolong bearings' life
- With adjustable motor plant for belt tightness
- Flexible adjustment suitable for site design change

Standard accessories

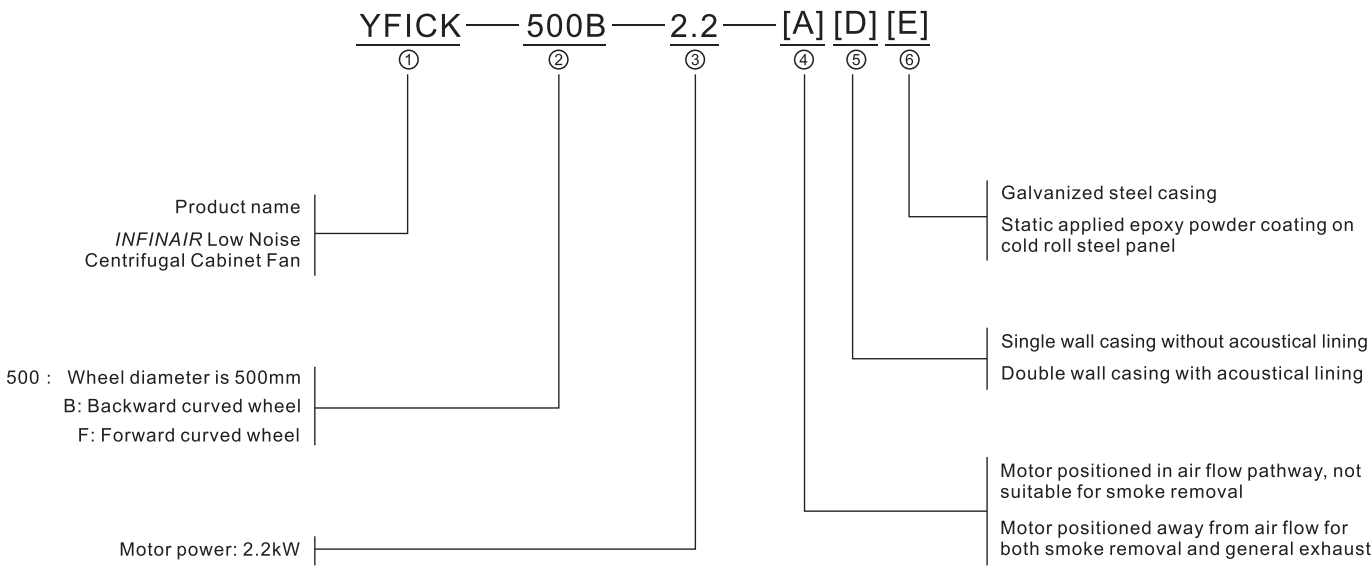
- Extension lubricating oil tube for bearing  
For easy to lubricate the bearing inside, and protect the bearings too hot.
- Access door  
For easy to check the operating condition of the fan inside, and clear attachments on the wheel to ensure the dynamic of the wheel.

Optional accessories

- Flexible joint and companion flange  
Flexible joint and companion flanges used for air inlet and outlet, convenient for field installation.
- Fireproof regulating damper (for fire control)  
Constantly open. When the air temperature reaches 280°C(can be selected according to different temperature requirements), the valve could automatically close and the signal will be sent out to the control system at the same time. Except for fire resisting, it has the function of adjusting air volume.
- Fire damper ( for fire control )  
Constantly close. When the air temperature reaches 70°C, the valve opens and meanwhile, outputs signal to realize smoke exhaust by equipment interlocking. When the smoke temperature reaches 280°C, the vale and the fan will close simultaneously.
- Motor weather hood  
Used in outdoor to prevent the rain and snow into the motor and extend the motor life.
- Vibration isolators  
For discharging dynamic load of the fan, preventing horizontal displacement of the fan, ensuring smooth operation of the fan and reducing operation noise.
- Double wall with acoustical insulation  
To reduce the running noise effectively and improve operating efficiency.
- Epoxy powder coating housing  
To improve the ability of durable and corrosion resistant.
- Housing drain  
Be installed at the bottom of the volute to facilitate discharge of liquid-state waste, such as condensed water etc.
- Inlet/outlet weather hood (outdoor installation only)  
When fan mounted outdoor, it prevents rain into indoor effectively from inlet or outlet.

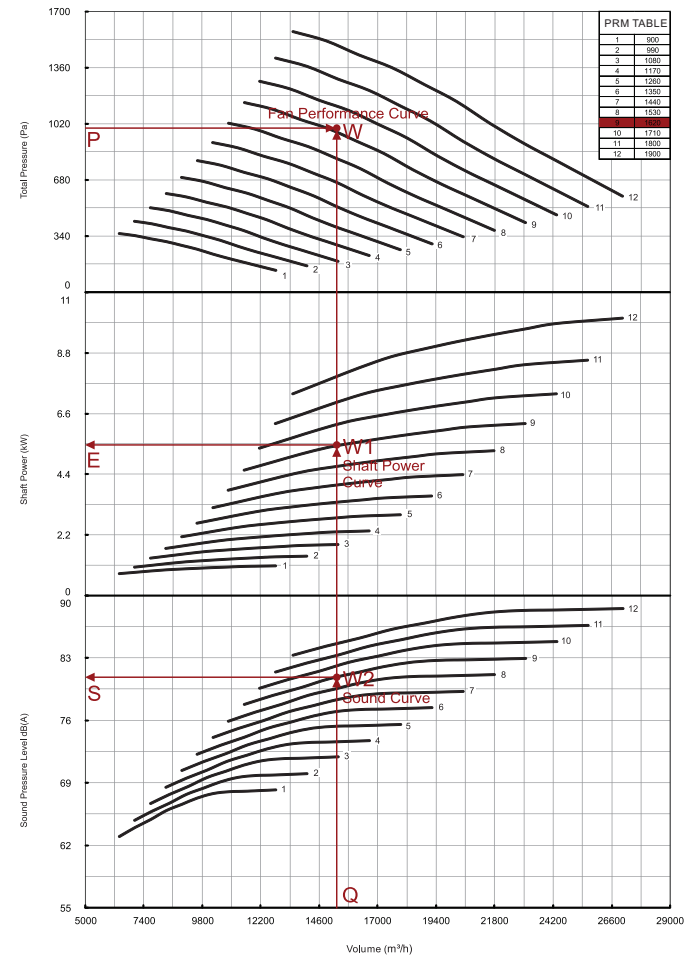


Naming convention



Curve Explanation

- The performances of fan of each model at different speeds are represented by a group of curves.
- Total pressure curve indicates total pressures of the fan at different volumes and speeds.
- Shaft power curve indicates practical power consumption of fan.
- Sound pressure level curve indicated the noise level at 1.5 meter distance.



Curve examples:  
Volume: 15,000m³/h    Total pressure: 1,000Pa

**Step 1:** Preselecting a fan model meeting given volume, drawing a vertical line from given volume (point Q in the figure: 15,000m³/h), drawing a horizontal line from a given total pressure point (point P in the figure: 1,000Pa) and finding a performance curve (No.9 total pressure curve in the figure) closest to the intersection point (point W in the figure) which is positioned between the two lines and is taken as a "operating point". Rotating speed is 1,620 RPM. If the "operating point" is far away from the performance curve, please select another model and repeat "step 1" until a performance curve close to the "operating point" is found.

**Step 2:** drawing a horizontal line from the intersection point (point W1 in the figure) between the vertical line and shaft power curve of corresponding speed in a way of intersecting with the shaft power shaft, calculating needed power 6.48kW according to coefficient of power reserve and selecting motor of 7.5kW according to needed power, wherein the intersection point (point E in the figure: about 5.4kW) is practical power consumption and represents electric energy needed by work.

**Step 3:** drawing a horizontal line from an intersection point (point W2 in the figure) between the vertical line and Sound pressure level of corresponding rotating speed in a way of intersecting with Sound pressure level, wherein the intersection point (point S in the figure: about 82dB(A)) is the noise level of operating point W.

**Step 4:** initially selecting the model of YFICK-500B-7.5, the rotating speed of 1,620RPM according to the steps above. If lower power is required, comparison can be made in reference to fan of large model, but initial investment will be increased.

**Step 5:** further searching according to the arrow. If required parameter change flow is 17,000m³/h and total pressure is 1,200Pa, the distance between point W and 1,800RPM curve is very small.

**Remark:** Coefficient of power reserve is decided according to practical requirement of pattern selection personnel, and is generally 1.15~1.5.

CONFIGURATION	CLASSIFICATION	DESCRIPTION	EXAMPLE
WHEEL TYPE	Forward curved	Lower noise when normal static pressure required.	YFICK-560E-7.5
	Backward inclined	Higher static pressure available for same air volume, and non-overloading.	YFICK-560B-7.5
USAGE	General ventilation	Motor is positioned within airflow.	YFICK-560B-7.5-A
	Smoke removal	Motor is located on the top of the unit and out side the air stream.	YFICK-560B-7.5-B
HOUSING TYPE	Single wall	For general ventilation requirement.	YFICK-560B-7.5-AS
	Double wall with acoustical insulation	For low noise application.	YFICK-560B-7.5-AD
HOUSING MATERIAL	Galvanized steel	Galvanized housing material is more economic.	YFICK-560B-7.5-ADG
	Static electric applied epoxy powder coating	More durable and corrosion resistant.	YFICK-560B-7.5-ADE

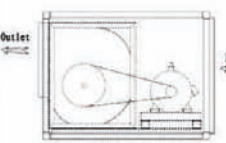
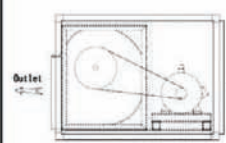
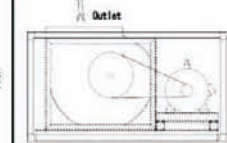
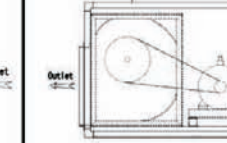
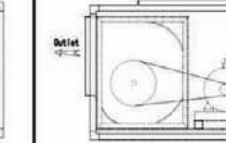
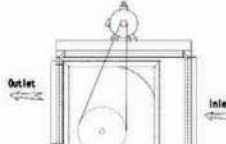
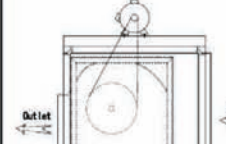
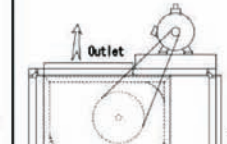
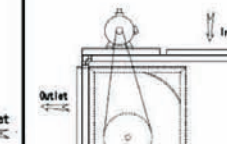
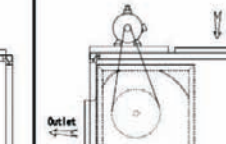


Certificates and regulations

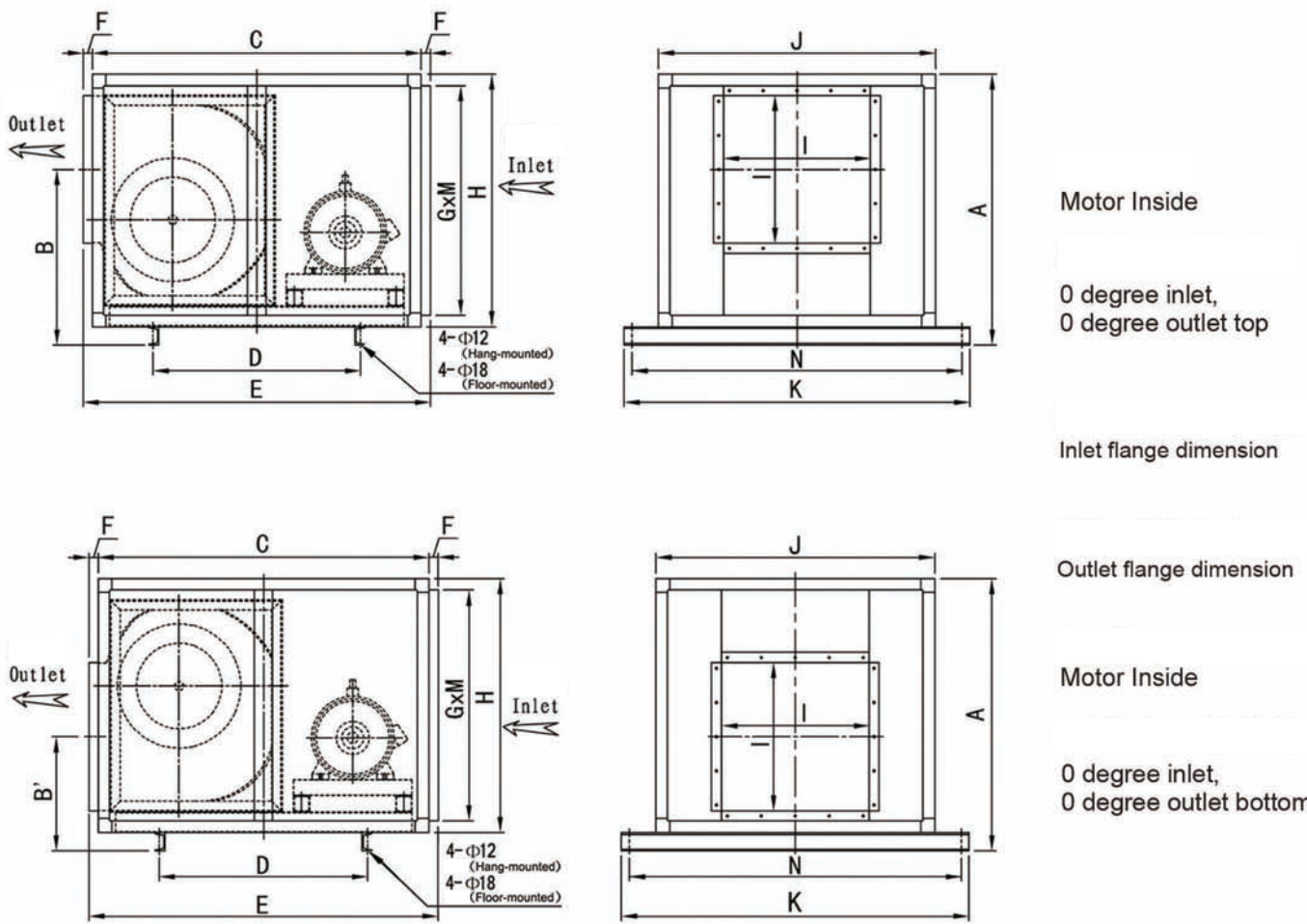
YFICK fans are tested by "China National Fire Fighting Equipment Quality Inspection Center". The fan typical performance is approved complying with the "General Usage Centrifugal Fan Technical Specification" (China Nation Standard JB/T10563-2006). The fans are also tested according to China Standard GA211-2009 "Fire Fighting Smoke Removal Fan High Temperature Testing Method", run continuously over 30 minutes when the main duct air temperature is 280°C. The high temperature resistance character is qualified.

YFICK fans comply with China Nation Standard GB50067-97 ("Codes of Fire Fighting Design of Garage/Car repairing facilities/parking warehouses").

Outlet direction and illustration

motor inside				
				
0 degree inlet 0 degree outlet top	0 degree inlet 0 degree outlet bottom	0 degree inlet 90 degree outlet top	90 degree inlet 0 degree outlet bottom	90 degree inlet 0 degree outlet top
motor ouside				
				
0 degree inlet 0 degree outlet top	0 degree inlet 0 degree outlet bottom	0 degree inlet 90 degree outlet top	90 degree inlet 0 degree outlet top	90 degree inlet 0 degree outlet bottom

Dimension

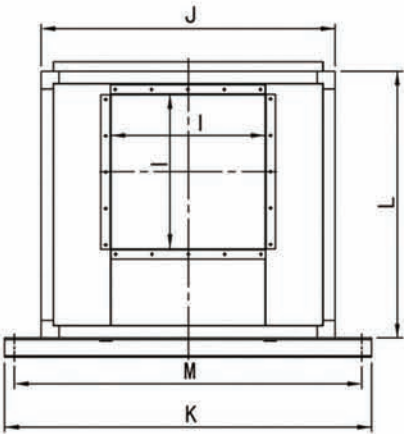
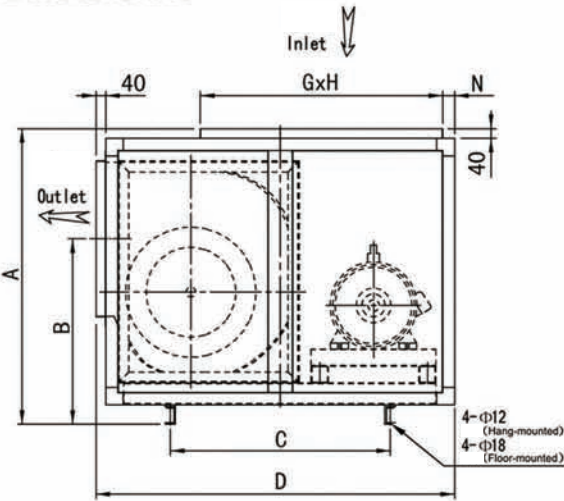


Model	Dimension (mm)													
	A	B	B'	C	D	E	F	G	M	H	J	K*	I	N*
280	760	484	337	1040	620	1120	40	630	690	700	760	980	361	930
315	820	524	356	1130	670	1210	40	690	790	760	860	1080	404	1030
355	897	574	384	1240	740	1320	40	767	890	837	960	1180	453	1130
400	978	629	409	1310	770	1390	40	848	1010	918	1080	1300	507	1250
450	1069	689	440	1380	820	1460	40	939	1150	1009	1220	1440	569	1390
500	1180	765	495	1440	907	1520	40	1000	1113	1100	1213	1513	638	1433
560	1292	836	537	1519	955	1599	40	1112	1259	1212	1359	1659	715	1579
630	1419	921	579	1699	1062	1779	40	1239	1422	1339	1522	1822	801	1742
710	1565	1018	627	1906	1187	1986	40	1385	1607	1485	1707	2007	900	1927
800	1750	1149	702	2125	1323	2205	40	1550	1820	1650	1920	2220	1007	2140
900	1930	1267	763	2349	1485	2429	40	1730	2009	1830	2109	2409	1130	2329
1000	2092	1359	834	2620	1620	2700	40	1892	2270	1992	2370	2670	1267	2590

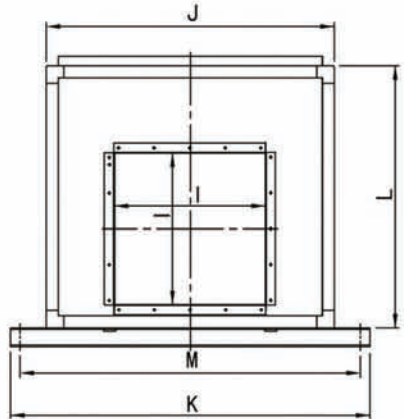
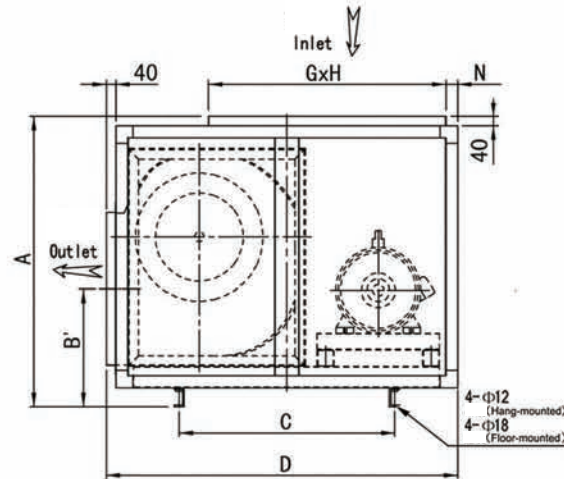
Note: The installation type in the dimension table is floor-mounted acquiescently. When hang-mounted,the value N and K will be added 200mm on the initial basis and the installation hole dimension of vibration isolation – 4- φ18 will be changed into 4- φ12.



Dimension



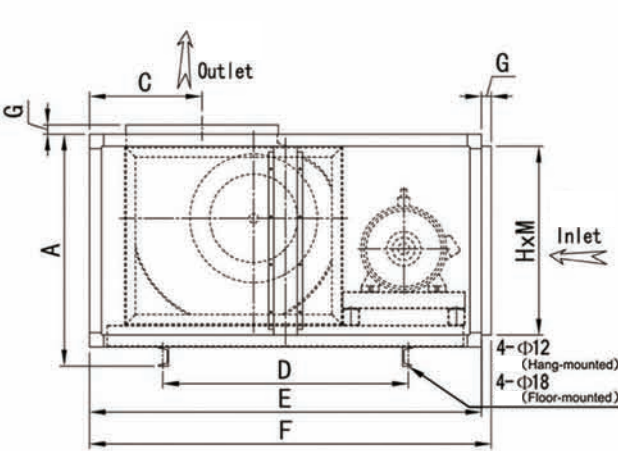
Motor Inside  
90 degree inlet,  
0 degree outlet top



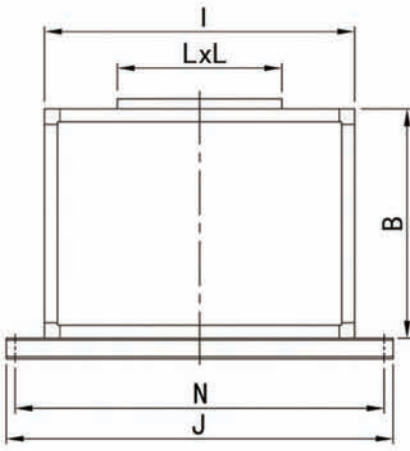
Inlet flange dimension  
Outlet flange dimension  
Motor Inside  
90 degree inlet,  
0 degree outlet bottom

Dimension (mm)													
Model	A	B	B*	C	D	G	H	L	J	K*	I	M*	N
280	800	484	337	620	1080	630	690	700	760	980	361	930	35
315	860	524	356	670	1170	690	790	760	860	1080	404	1030	35
355	937	574	384	740	1280	767	890	837	960	1180	453	1130	35
400	1018	629	409	770	1350	848	1010	918	1080	1300	507	1250	35
450	1109	689	440	820	1420	939	1150	1009	1220	1440	569	1390	35
500	1220	765	495	908	1480	1000	1113	1100	1213	1513	638	1433	50
560	1332	836	537	954	1559	1112	1259	1212	1359	1659	715	1579	50
630	1459	921	579	1062	1739	1239	1422	1339	1522	1822	801	1742	50
710	1605	1018	627	1187	1946	1385	1607	1485	1707	2007	900	1927	50
800	1790	1149	702	1323	2165	1550	1820	1650	1920	2220	1007	2140	50
900	1970	1267	763	1484	2389	1730	2009	1830	2109	2409	1130	2329	50
1000	2132	1359	834	1620	2660	1892	2270	1992	2370	2670	1267	2590	50

Note: The installation type in the dimension table is floor-mounted acquiescently. When hang-mounted,the value M and K will be added 200mm on the initial basis and the installation hole dimension of vibration isolation – 4- φ18 will be changed into 4- φ12.



Inlet flange dimension

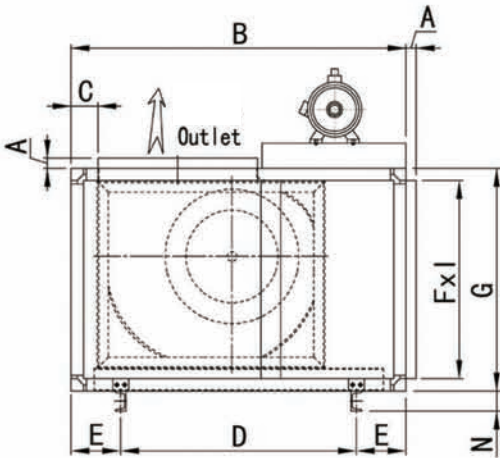


Outlet flange dimension

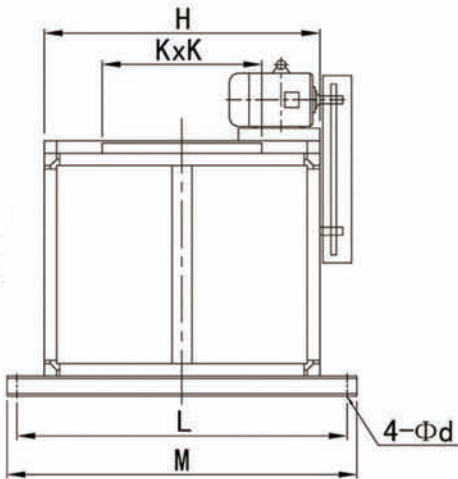
Motor Inside  
0 degree inlet,  
90 degree outlet top

Dimension (mm)													
Model	A	B	C	D	E	F	G	M	H	J*	L	I	N*
280	617	557	256	680	1160	1200	40	690	487	980	361	760	930
315	669	609	277	740	1260	1300	40	790	539	1080	404	860	1030
355	729	669	302	820	1380	1420	40	890	599	1180	453	960	1130
400	802	742	329	860	1460	1500	40	1010	672	1300	507	1080	1250
450	877	817	360	920	1560	1600	40	1150	747	1440	569	1220	1390
500	971	891	474	1035	1653	1693	40	1113	791	1513	638	1213	1433
560	1064	984	516	1156	1854	1894	40	1259	884	1659	715	1359	1579
630	1170	1090	558	1223	1967	2007	40	1422	990	1822	801	1522	1742
710	1292	1212	606	1373	2216	2256	40	1607	1112	2007	900	1707	1927
800	1441	1341	661	1546	2496	2536	40	1820	1241	2220	1007	1920	2140
900	1599	1499	722	1729	2802	2842	40	2009	1399	2409	1130	2109	2329
1000	1732	1632	793	1894	3077	3117	40	2270	1532	2670	1267	2370	2590

Note: The installation type in the dimension table is floor-mounted acquiescently. When hang-mounted,the value N and J will be added 200mm on the initial basis and the installation hole dimension of vibration isolation – 4- φ18 will be changed into 4- φ12.



Inlet flange dimension



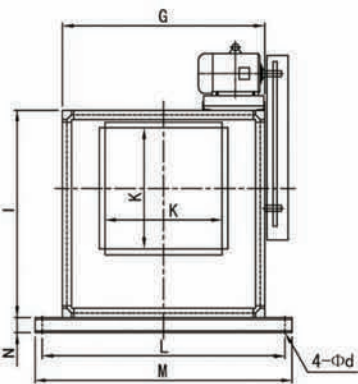
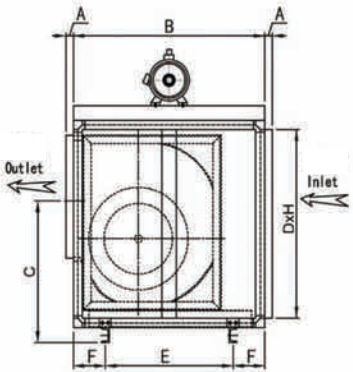
Outlet flange dimension

Motor Outside  
0 degree inlet,  
90 degree outlet top



	Dimension (mm)																
Model	A	B	C	D	d		E	F	G	H	I	K	L		M		N
					floor-mounted	hang-mounted							floor-mounted	hang-mounted	floor-mounted	hang-mounted	
280	40	990	75	590	18	12	200	487	557	640	570	361	990	1190	860	1060	60
315	40	1100	75	660	18	12	220	539	609	710	640	404	1100	1300	930	1130	60
355	40	1250	75	750	18	12	250	599	669	800	730	453	1250	1450	1020	1220	60
400	40	1400	75	840	18	12	280	672	742	880	810	507	1400	1600	1100	1300	60
450	40	1580	75	940	18	12	320	747	817	970	900	569	1580	1780	1190	1390	60
500	40	1350	110	950	18	12	200	792	892	1110	1010	638	1330	1530	1410	1610	80
560	40	1450	110	1000	18	12	225	885	985	1245	1145	715	1465	1665	1545	1745	80
630	40	1600	110	1000	18	12	300	991	1091	1370	1270	801	1590	1790	1670	1870	80
710	40	1750	109	1150	18	12	300	1113	1213	1500	1400	900	1720	1920	1800	2000	80
800	40	1900	110	1300	18	12	300	1242	1342	1920	1820	1007	2140	2340	2220	2420	100
900	40	2050	158	1450	18	12	300	1400	1500	2130	2030	1130	2350	2550	2430	2630	100
1000	40	2200	124	1600	18	12	300	1533	1633	2300	2200	1267	2520	2720	2600	2800	100

Dimension



Motor Outside

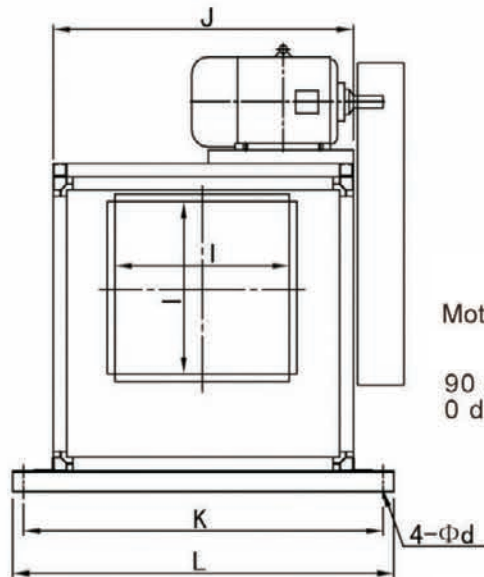
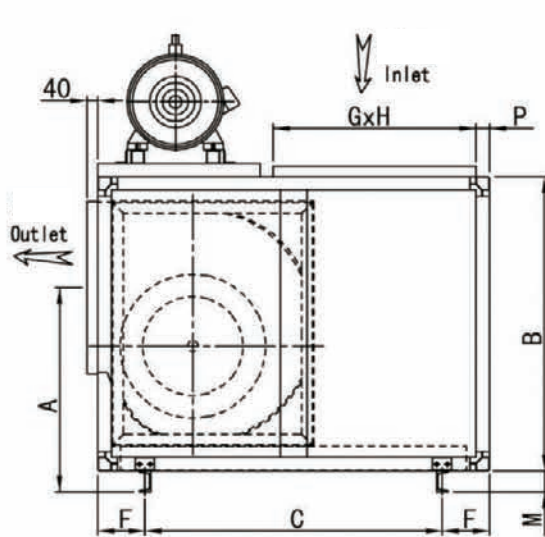
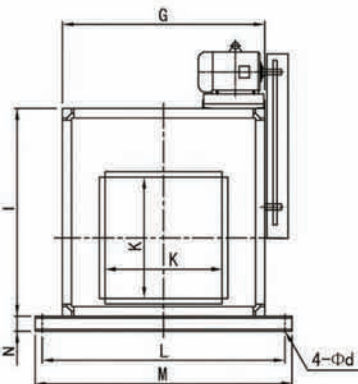
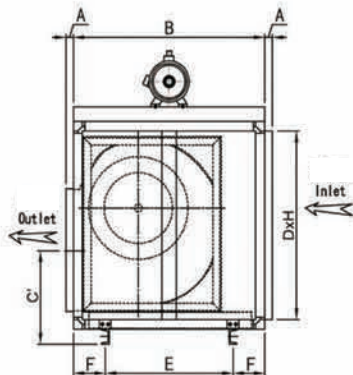
0 degree inlet,  
0 degree outlet top

Inlet flange dimension

Outlet flange dimension

Motor Outside

0 degree inlet,  
0 degree outlet bottom



Motor Outside

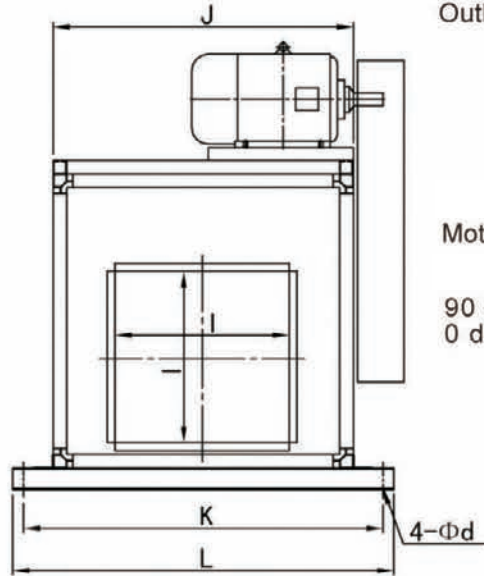
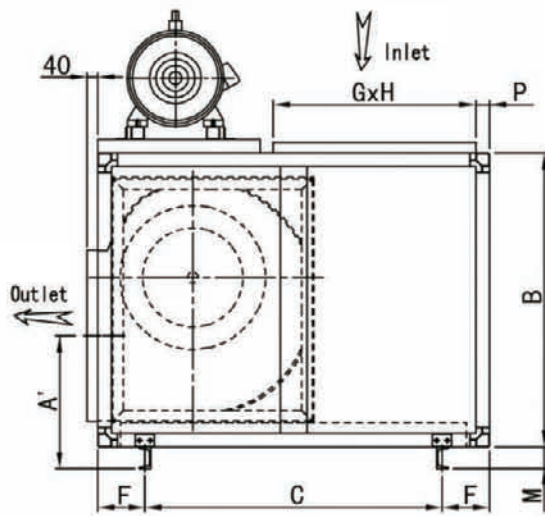
90 degree inlet,  
0 degree outlet top

Inlet flange dimension

Outlet flange dimension

Motor Outside

90 degree inlet,  
0 degree outlet bottom



Model	Dimension (mm)																	
	A	B	C	C'	D	d		E	F	G	H	I	K	L		M		N
						floor-mounted	hang-mounted							floor-mounted	hang-mounted	floor-mounted	hang-mounted	
280	40	680	483.5	336.5	630	18	12	400	140	640	570	700	361	810	1010	860	1060	60
315	40	750	524	356	690	18	12	450	150	710	640	760	404	880	1080	930	1130	60
355	40	840	573.5	383.5	767	18	12	500	170	800	730	837	453	970	1170	1020	1220	60
400	40	930	629	409	848	18	12	550	190	880	810	918	507	1050	1250	1100	1300	60
450	40	1020	689	440	939	18	12	600	210	970	900	1009	569	1140	1340	1190	1390	60
500	40	1050	765	495	1000	18	12	700	175	1110	1010	1100	638	1330	1530	1410	1610	80
560	40	1150	835.5	536.5	1112	18	12	800	175	1245	1145	1212	715	1465	1665	1545	1745	80
630	40	1250	920.5	578.5	1240	18	12	900	175	1370	1270	1340	801	1590	1790	1670	1870	80
710	40	1400	1018	627	1385	18	12	1000	200	1500	1400	1485	900	1720	1920	1800	2000	80
800	40	1550	1149	701.5	1550	18	12	1150	200	1920	1820	1650	1007	2140	2340	2220	2420	100
900	40	1750	1267	763	1730	18	12	1150	300	2130	2030	1830	1130	2350	2550	2430	2630	100
1000	40	1900	1359	833.5	1892	18	12	1300	300	2300	2200	1992	1267	2520	2720	2600	2800	100

Model	Dimension (mm)																
	A	A'	B	C	d		F	G	H	I	J	K		L		M	P
					floor-mounted	hang-mounted						floor-mounted	hang-mounted	floor-mounted	hang-mounted		
280	483.5	336.5	700	560	18	12	190	380	570	361	640	810	1010	860	1060	60	35
315	524	356	760	620	18	12	210	420	640	404	710	880	1080	930	1130	60	35
355	573.5	383.5	837	680	18	12	240	470	730	453	800	970	1170	1020	1220	60	35
400	629	409	918	770	18	12	270	530	810	507	880	1050	1250	1100	1300	60	35
450	689	440	1009	860	18	12	300	590	900	569	970	1140	1340	1190	1390	60	35
500	765	495	1100	1100	18	12	175	750	1010	638	1110	1330	1530	1410	1610	80	50
560	835.5	536.5	1212	1200	18	12	175	800	1145	715	1245	1465	1665	1545	1745	80	50
630	920.5	578.5	1340	1200	18	12	200	850	1270	801	1370	1590	1790	1670	1870	80	50
710	1018	627	1485	1300	18	12	250	1000	1400	900	1500	1720	1920	1800	2000	80	50
800	1149	701.5	1650	1450	18	12	250	1050	1820	1007	1920	2140	2340	2220	2420	100	50
900	1267	763	1830	1600	18	12	300	1300	2030	1130	2130	2350	2550	2430	2630	100	50
1000	1359	833.5	1992	1800	18	12	300	1400	2200	1267	2300	2520	2720	2600	2800	100	50



Technical specification

Section 1: Fan Type

The fan shall be cabinet fan type, which shall have a belt drive double inlet centrifugal fan installed inside a cabinet.The wheel shall be made of steel dynamically balanced to Level G2.5 as per AMCA. Fan type shall be properly selected between forward curved multi-blade wheel and backward inclined wheel to ensure best working performance point is picked. Clapboard shall be used in the outlet area in order to reduce turbulence .

Section 2: Drive system

Motor shall be carefully matched to the fan load, protection class IP54, insulation class F. When used for smoke removal duty, the motor shall be out of air stream.

Bearing service life shall be ABMA L10: 80000 hours, re-lubricapable ball bearings with cast iron pillow block. The fan shaft shall be precisely lathe turned, ground and heat treated through soaking furnace to the hardness level of HB370. The drive power selection shall be 120% of the maximum power under the specified rpm.

Section 3: Fan Housing

[Type S, single wall] Housing shall be constructed of galvanized steel (Optional: statically electric applied epoxy powder coating). The wall thickness shall be adequate to reduce noise and vibration.

[Type D, double wall] The fan cabinet shall be constructed of 2 layers. The exterior layer shall be galvanized steel (Optional: statically electric applied epoxy powder coating), and the inner layer shall be perforated panel. The middle layer shall be made of fiber glass. The fiber glass material shall be certified to Level-A of anti-combustion grade. The width of the air inlet between the DWDI fan and the cabinet shall be designed according to the recommendation of AMCA to reduce turbulence and noise.

Section 4: [Optional] Smoke removal duty with certificate

The centrifugal cabinet fan shall be tested OK in complying with the "General Usage Centrifugal Fan Technical Specification" (China Nation Standard JB/T10563-2006). A test report issued by licensed authorities shall be provided. The fan must be tested according to China Standard GA211-2009 ," Fire Fighting Smoke Removal Fan High Temperature Testing Method", run continuously over 30 minutes when the main duct air temperature is 280℃. The high temperature resistance character must be qualified by presenting an official certificate.

Section 5: Nameplate

Permanently fixed aluminum nameplate shall be riveted on fan body clearly display fan mark, product model and serial number (The serial number shall be a unique ID for each fan), so that the customer can use this number to find out the parts used to build this fan.

Section 6: Acceptable manufacturers

Acceptable manufacturers: **INFINAIR®** or equivalent. Design based on **INFINAIR®** model YFICK.



INFINAIR VENTURI model selection software may help you in the following area:

- ✓ Provide concrete data including dimensional drawing, performance curve and noise,etc.
- ✓ Provide precise data, such as sea level and temperature adjustment.
- ✓ Cross model parameter comparison and optimization.
- ✓ Select motor and accessories accurately.
- ✓ Offer technical specification.

Please contact our local agency if necessary.

Warranty

Shanghai Nautilus General Equipment Manufacturing Co., Ltd warrants the **INFINAIR®** brand products that we produce for a period of eighteen months since the ex-factory date. Should there be any problem about the product manufacturing quality occurs damaged or not working during the guarantee period, you are authorized to demand for free servicing or replacing the damaged components (vulnerable components such as belt, filter, etc. are not included); We don't bear any other costs or losses.

Limitations and exclusions

- The warranty doesn't include maintenance or replacement caused by the following reasons:  
(1)The running conditions of the product deviate from what is defined in the contract (include, but are not limited to temperature, corrosion, contaminants, power supply, system resistance, etc.); (2)Damages caused by improper maintenance, on-site accidents, lack of over-heat protection equipment or long term reversed rotation which severely violate the specifications in the Installation, Operation and Maintenance manual; (3)Unauthorized disassembly and then reorganization or alteration to the product; (4)The serial number of the product has been altered, removed or is incorrect; (5)Damages caused by installation process on-site; (6)Damages caused by the buyer not following the right instructions or human factors.