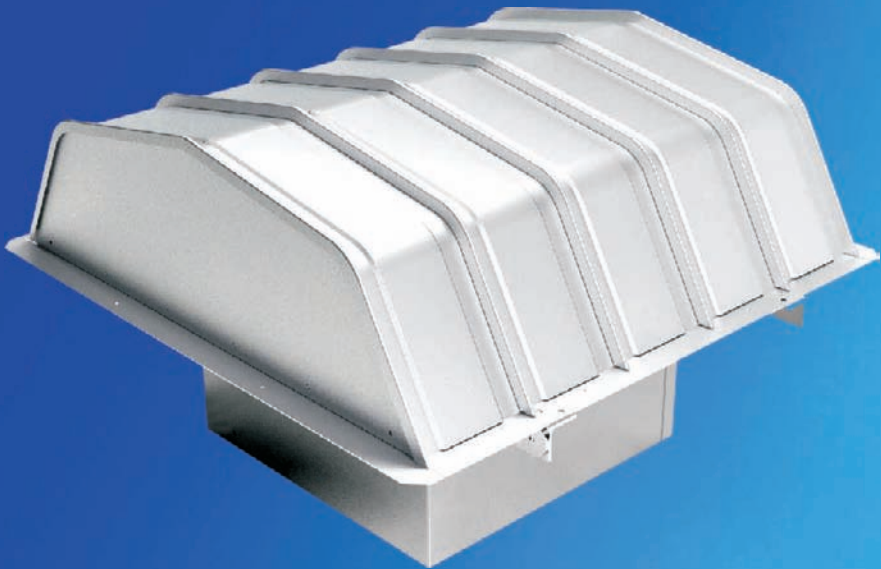


To provide the most reliable and user-friendly air movement & control and air conditioning service.



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

SHANGHAI NAUTILUS GENERAL EQUIPMENT MANUFACTURING CO LTD

Add: No. 55 Qingneng Road, Waigang Town, Jiading District, Shanghai
P.C: 201806
Tel: 86 21 39185688
Toll free number: 400 821 3316
Fax: 86 21 69168759
Http: //www.infinair.com

Formula Series Principle Product

- Performance: Volume: 152000m³/h, Static Pressure: 700Pa
- Balance quality grade up to G2.5
- Patented propeller type axial wheel design
- Patented low streamline wind band
- Direct drive, no easily damaged parts, no maintenance need
- Rooftop supply & exhaust, explosion-proof supply & exhaust, smoke removal duty

G2.5

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.



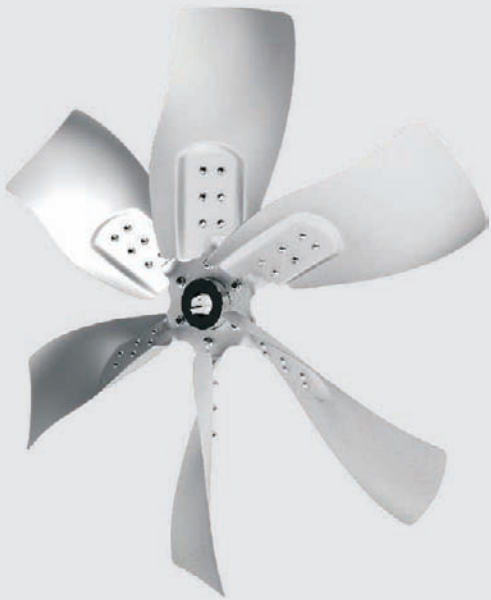
FLY-YOUNG series propeller-type axial wheel

Air performance design

- Optimized design of CFD flow field simulation, repeatedly validated
- Wheel cutting the air flow asymptotically, air flow direction is stable and high in consistence
- 3D curved blade design: Guide air to flow smoothly and reduce turbulent current

Structure performance design

- Computer aided design of CAE for optimizing structure performance
- The connection technology of hub and blade is highly reliable
- Blade end vibration effectively reduced by aided design, prevent blade distortion or breaking after long time running



Advanced process

- The 3D curved blades are formed by mould pressing to ensure precision
- Special tooling is adopted for hub to ensure precision
- Special tooling is adopted for the installation of blade to ensure performance

High balancing level

- Balance quality grade up to G2.5 (Typical products are balanced to G6.3 only)
- Keep running safely and steadily for a long time
- Extend service life of the fan

Diverse selection

- 16 kinds of specifications, the maximum wheel diameter is 1800mm
- Wheel material: carbon steel, stainless steel, alloy aluminum, FRP coated

Product features

Performance characteristics: Smooth airflow and saving energy

- Patented propeller-type axial wheel: Excellent aerodynamic characteristics and sound characteristic
- Fan internal with well organized airflow and the pressure loss is small
- The clearance between the impeller and tube wall is limited. To be reduced the energy loss caused by the secondary flow and more efficiency
- High efficient area width without overloading

Full optional accessories available: Humanization

- Wind band support stands: To prevent it from being blown away and cause accident during maintenance
- Wind anchor point (optional) shall be applied to strong wind area
- Insect screen is fot supply fan and bird screen is for exhaust fan
- Safety guard: Eliminate security risk completely

Appearance design : Strong wind resistance, Novel and practical

- Low streamline wind band: reduces wind load
- Pitched wind band baffle: drains snow rapidly by gravity
- Suitable for strong winds
- Modernize buildings with enhanced taste



High reliable design: safe and long life

- FEA aided design, distributed evenly of stress for making operation reliable
- Performance loss caused by working point change
- Multi-reinforced ribs: greatly increase rigidity and reduce weight

Complete functions

- Rooftop supply & exhaust
- Smoke removal duty, positive pressure air supply
- Explosion-proof supply & exhaust
- Two-speed ventilation




Advantages of direct drive: efficient, maintenance-free

- Higher transmission efficiency
- No wearing parts, low maintenance
- Easier and more effective of maintenance
- Sealed self-lubricating bearing for motor, increasing service life
- Motor located the airflow: active cooling

Patent and certification

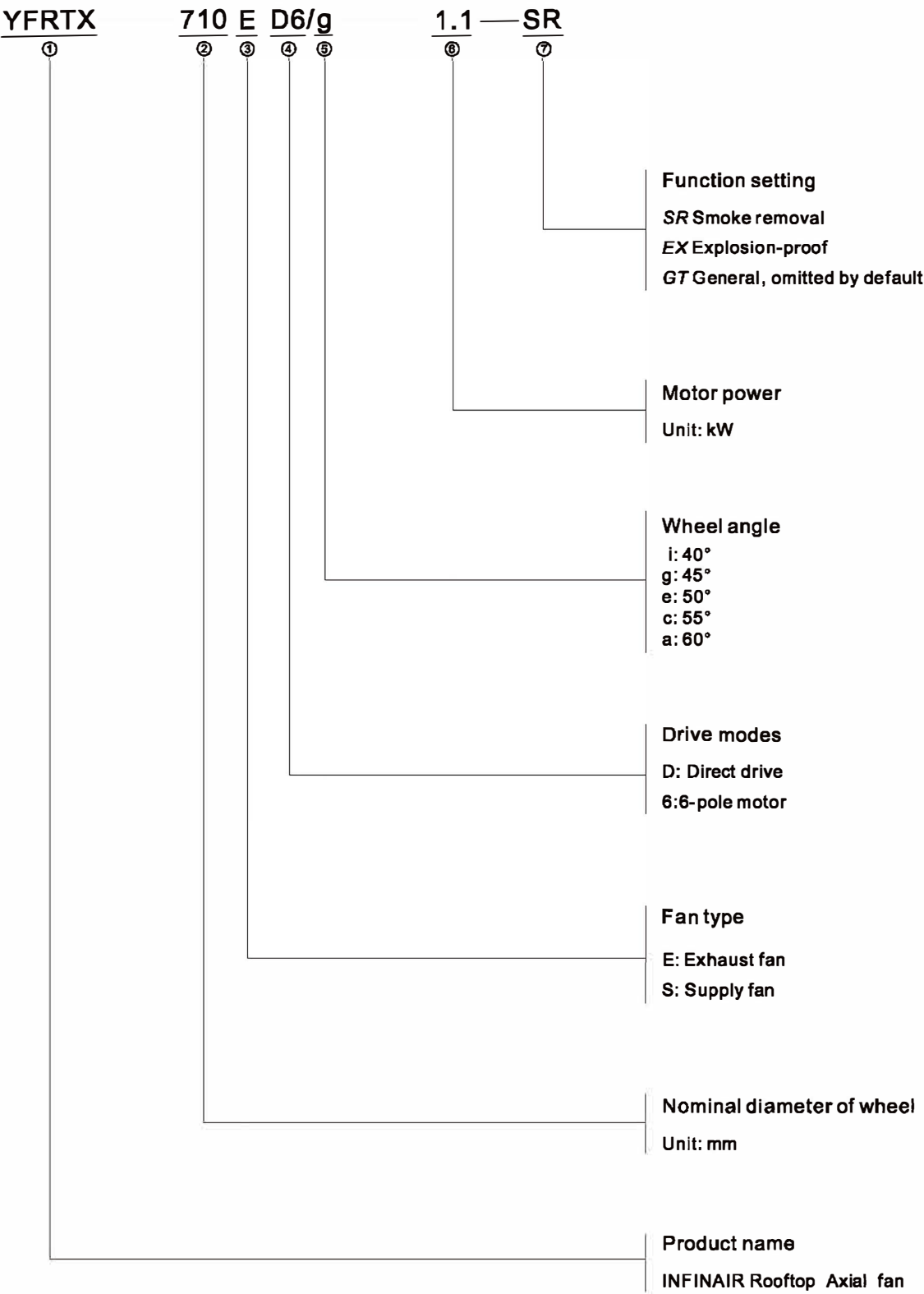
- National patented technology
- National fire safety certification

Options

- Gravity back-draft damper (only for exhaust fan)
Back-draft damper with a linkage of multi-blade of aluminum can effectively prevent the outdoor air flowing backwards and condensing
- Gravity back-draft damper (only for supply fan)
Air-supply draft should be square and multi-blade, and facilitated with gravity balancing block. Once the fan is started up, the air conquers the gravity of the balancing block and opens the gravity back-draft , when shut off, the back-draft closes down by the gravity of the balancing block
- Aluminum net filtration (only for supply fan)
Inlet with aluminum net filtration can effectively prevent eye winkers such as flying bugs into the building, thus protecting the impeller and improving its quality
- Wheel material option
Carbon Steel by default, optional: Alloy Aluminum (AL), Stainless Steel, FRP Coated to meet different applications
- Introduction about blade material

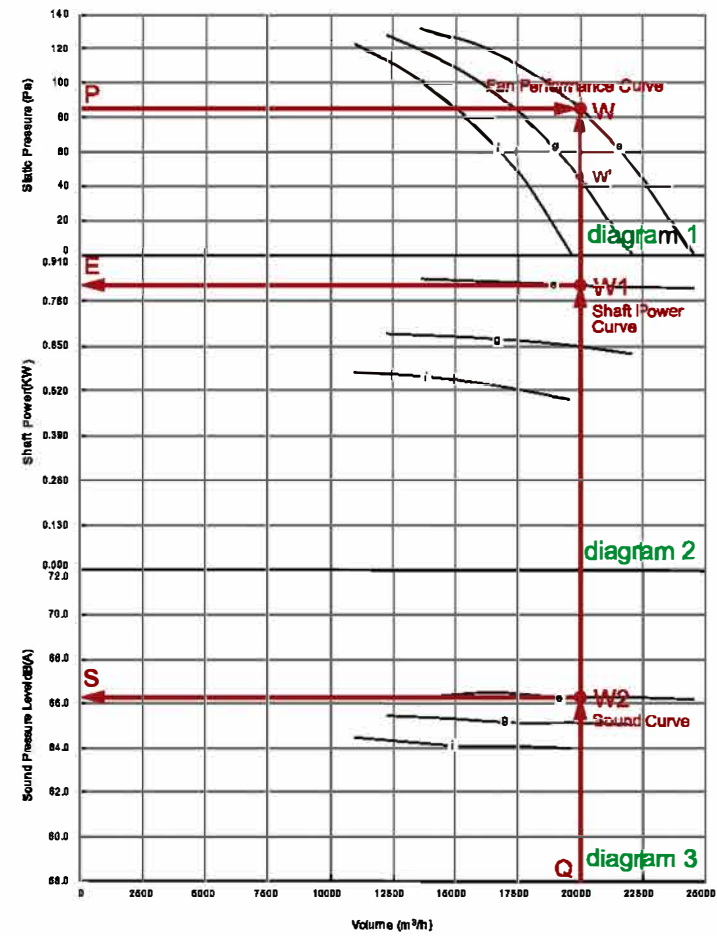
	Full name of blade material	Application
CS	Carbon steel blade (for static applied epoxy powder coating surface treatment)	Standard blade
AL	(Alloy aluminum blade)	For explosive or special process application
SS	(Stainless steel blade)	Apply to corrosion resistant conditions
FRP	(FRP coated blade)	Apply to strong corrosion resistant conditions
- Stainless steel flag cloud wind band
Patented low streamline wind band, the material can be selected SS304 or SS316 to prolong life of the fan
- Wind anchor point
To be applied to strong wind area, to promote the reliability of the wind band.
- Rubber isolation pad
The rubber isolation pad is located between curb and curb cap. Which is water sealed and sealed and can effectively reduce vibration, lower noise and extend performance life of fan.

Naming convention



Catalogue introduction

- A group of curves represents the performance of each model with different blade angles running at same speed.
- Fan performance curve display the volume under different pressure.
- Shaft Power Curve displays the fan actual powermption
- The sound pressure level curve indicated the noise level at 1.5 meter distance.



Example: 20000m³/h Volume, 85Pa Static Pressure, Exhaust fan

Step1: From given volume (Point Q: 20000 m³/h) draw a vertical line upwards. From given static pressure (Point P: 85Pa) draw a horizontal line to the right, the intersection point W is the working point. Find a fan curve close to the point, which would be curve NO.e. As highlighted in the RPM table, it is 720RPM.

Step2: The intersection point between the vertical line and the curve NO.e in diagram 2 is marked as point W1, Draw a horizontal line from point W1 to the left coordinate, which makes point E. The point E(about 0.82Kw) is the shaft power, according to the shaft power, a 1.1kW motor shall be equipped.

Step3: The intersection point between the vertical line and the curve NO.e in diagram 3 is marked as point W2. Draw a horizontal line from point W2 to be left coordinate, which makes point S (about 66dB(A)). It is the fan sound pressure level.

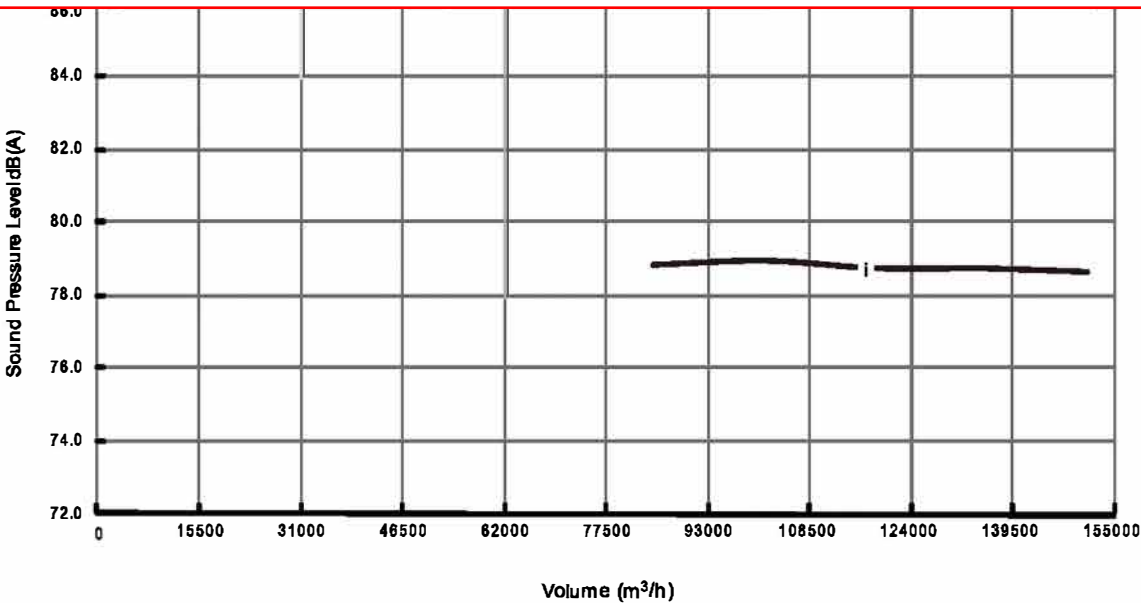
Step4: According to above steps, the primary model selection would be YFRTX-800ED8/e-1.1, direct drive, and factory set to 720RPM. If lower shaft power or noise is expected. You may compare with another larger fan. However a larger fan would increase primary investment.

Step5: Furthermore, if customer needs 20000 m³/h at 45Pa static pressure. You would find point W' is close to curve NO.g (direct , 720RPM, 8poles, blade angles g) .Then a drive fan (YFRTX-800ED8/g-0.75) can be selected which would be more economic.

Model: YFRTX-1800E/SD12

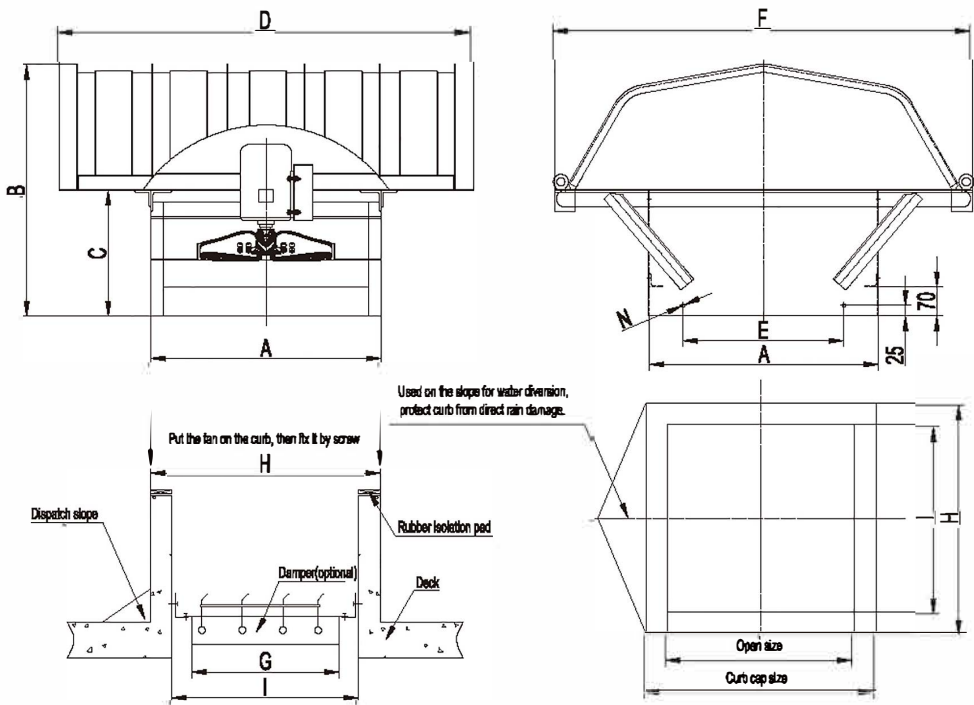


Due to the resolution of the graphs, please contact one of our sales representatives for high quality version if required. The email address is intservice@infinair.com.



Performance certified is for installation type A - free inlet, free outlet. Power rating (kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories) . Values shown are for inlet LwA sound power levels for Installation type A: free inlet, free outlet. The sound power level ratings shown are in decibels, referred to as 10⁻¹² watts, calculated per AMCA International Standard 301. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. dB(A) A-weighted sound pressure level is based on 11.5dB sound attenuation per octave band at 1.5m. Note that dB(A) levels are not licensed by AMCA International.

Fan size and weight



- Installation instruction
- 1. The roof curb height shall be defined by design engineer. We suggest the height shall be 400mm-600mm according to local rainfall.
 - 2. Isolation pads, steel angels and screws for roof fans in this drawing are not included in the material lists of standard products by "INFINAIR."
 - 3. The rubber isolation pads should be chosen according to the maximum weight of the fan they can bear without any deformation. Typically, the thickness of pad is 5-8mm.

The below dimensions apply to all YFRTX types.

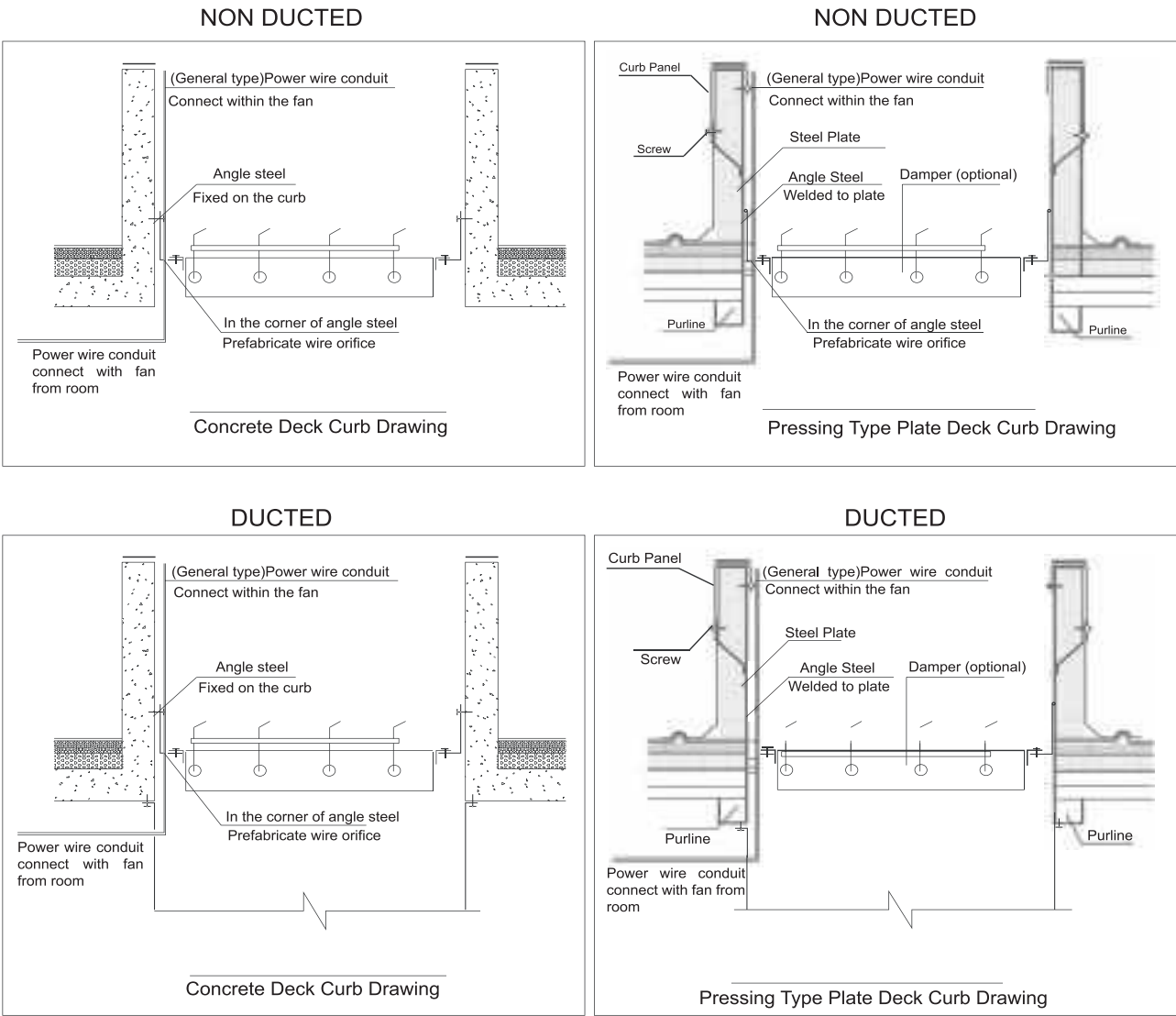
Model	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	N	重量(Kg)
315	550	700	300	992	385	1000	8-Φ9	83
355	550	700	300	992	385	1000	8-Φ9	85
400	650	730	330	992	455	1000	8-Φ9	85
450	650	730	330	992	455	1000	8-Φ9	90
500	750	750	350	1170	525	1180	8-Φ9	110
560	750	750	350	1170	525	1180	8-Φ9	115
630	850	830	430	1350	595	1360	8-Φ9	133
710	900	890	440	1530	630	1540	8-Φ9	158
800	1000	900	500	1712	700	1720	12-Φ9	215
900	1100	1050	550	1890	770	1802	12-Φ9	260
1000	1200	1150	600	2070	840	2080	12-Φ9	300
1120	1300	1150	600	2250	910	2262	12-Φ9	340
1250	1450	1250	650	2430	1015	2442	12-Φ9	380
1400	1600	1265	655	2622	1120	2600	12-Φ16	570
1600	1800	1265	655	2800	1280	2860	12-Φ16	660
1800	2000	1550	850	3160	1400	3340	12-Φ16	720

The weight in the above table does not include that of motor. Refer motor weight to Page 53.

The below dimensions apply to all YFRTX types.

Model	Curb Edge Size	Roof Opening Size	Damper Size	Fire Resistant Damper Size
315	535	375	300*300	425*425
355	535	375	300*300	425*425
400	635	475	400*400	525*525
450	635	475	400*400	525*525
500	735	575	500*500	625*625
560	735	575	500*500	625*625
630	835	655	550*550	705*705
710	885	705	600*600	755*755
800	985	805	700*700	855*855
900	1085	905	800*800	955*955
1000	1185	1005	900*900	1055*1055
1120	1285	1105	1000*1000	1155*1155
1250	1435	1255	1150*1150	1305*1305
1400	1585	1405	1300*1300	1455*1455
1600	1780	1580	1500*1500	1630*1630
1800	1980	1780	1700*1700	1830*1830

Roof Curb Fabrication Detail



Installation

● Fan sizes and the structure sizes for ceiling installation

Please see page50 for fan size and opening hole size on the roof. The opening hole size on the roof shall be provided to the contractor at early stage when the roof is under construction.

● Roof curb fabrication

Roof curb is a kind of structure on the roof, that is, a water proof collar on the outside of roofholes. The contractor is the only party who is responsible for the fabrication and procedure of the roof curb. The thickness of curb wall shall be different according to the model. The thickness shall be between 80-100mm.

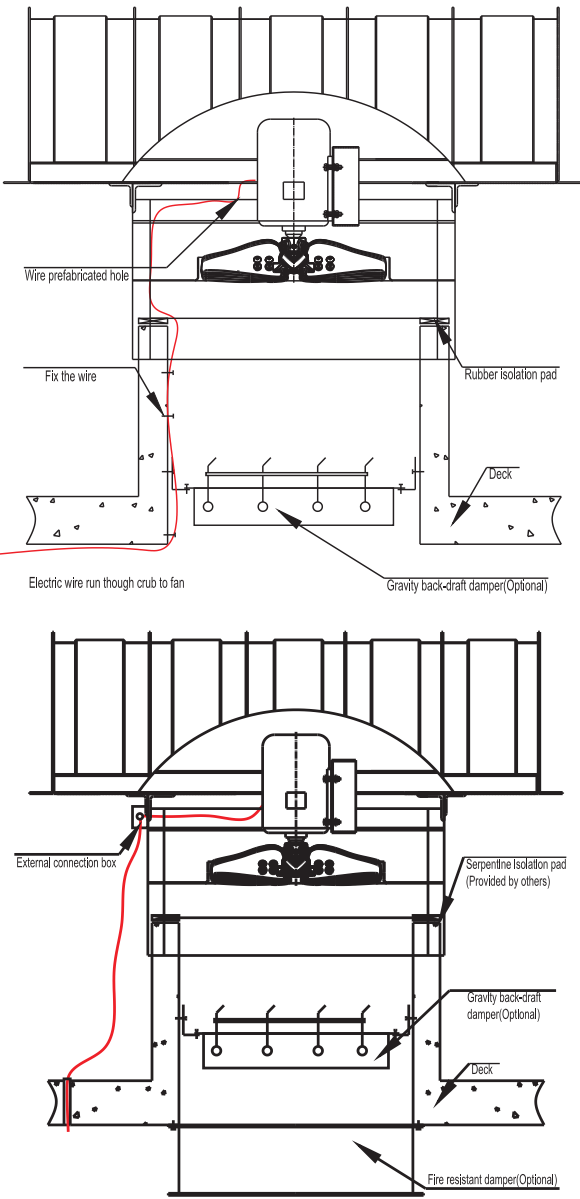
As to the isolation pad where the fan contacts the curb in the top, one with proper thickness shall be applied, it alsoplays as seal. If it still keeps good elasticity after the fan is pushed down, the thickness is proper. It can be cut fromthe isolation pad sold in the market or supplied by the contractor.

● How to mount the fan

Pull the fan curb cap on the curb, and fix it at all four sides by screw. The fan must be kept level.

● Wiring

- A. Power connecting wire is connected to motor from outside the house through the wire-connection box on the shell.
- B. It is prohibited to drill holes on any part of the fan body for wiring.
- C. The rotation must be checked by connecting the electric power according to the direction marked on the machine after the wiring is done. If reversed, inter-change any 2 of the 3 phase lines. Fan reversed rotation is forbidden.



Refer motor weight to the table below.

(kW) (poles)	Motor Weight (Kg)							
	2P	4P	6P	8P	10P	12P	14P	16P
0.09	5.5	5		10				
0.12	5.5	6		10	11	13	15	18
0.18	14	13.5	14	16	10	15	17	21
0.25	14.5	14	14.5	17	14	16	20	23
0.37	15.5	14.5	16	24	17	18	21	30
0.55	15.5	15	17	28	33	33	30	37
0.75	16	18	23	33	35	35	36	41
1.1	17	22	25	38	41	41	42	48
1.5	22	27	33	45	72	72	35	68
2.2	25	34	45	63	62	80	52	98
3	33	38	63	79	62	112	62	125
4	45	43	73	110	115	125	85	182
5.5	64	68	84	121	135	135	135	182
7.5	70	81	121	147	165	182	200	280
11	118	124	146	182	230	230	280	280
15	128	147	186	290	280	280	-	-

Technical specifications

Section I: Quality standards

Roof top axial fan shall be tested according to the NO.210 and NO.300 Standards of AMCA International, Fan performance parameters should be based on the date obtained by testing the complete machine. The manufacturer must own the ISO9001-2008 certification

Section II: Fan types

The fan shall be the axial fan which adopts propeller-type axial wheel. The drive type shall be direct-drive.

Section III: Wheel

Wheel shall be propeller-type axial wheel with the blade of carbon steel(CS) (static applied epoxy powder coating surface treatment) [optional: aluminum blade(AL)/ stainless steel blade/ FRP blade] material. The wheel shall be balanced to meet G2.5 (according to ISO1940) dynamically. The fan shall keep stable airflow and low noise at maximum speed. The fan shall effectively avoid performance degradation caused by slide of operating point.

Section IV: Wind band

The wind band shall be constructed of heavy gauge galvanized steel with [or: stainless steel] a rigid internal support structure. The wind band profile shall be of the streamline type; the structure shall be of the multi reinforced rib type to protect the fan from wind overload; and the external surface shall be pitched to quickly drain rain and snow by gravity.

Section V: Motor

Motor shall be carefully matched to the fan load and its protection grade shall be IP54, while insulation class F and temperature rise B. The motor bearing shall be self-lubricating ball bearing. And TEFC, 2-SPD, EXP, VFD, 60Hz and other correct motor types must be selected according to the specific working conditions.

Section VI: Fire protection and smoke exhaust fans and certification (for smoke removal duty only)

The fire protection and smoke exhaust fans shall pass the inspection according to JB/T10562-2006 “Technical Specification for General Purposes Axial Fans”, their general performance shall meet the requirements of such standard, and relevant test report issued by an institution with corresponding qualification shall be provided. Meanwhile, such type of fans must also pass the inspection performed by a national recognized fire safety testing institution according to the GA211-2009 “High Temperature-resistant Test Methods for Fire Fan in Smoke-venting System”, ensuring that the fan can continuously run for over 30 minutes and the high temperature resistance can meet the requirements of such standard when the medium temperature in the main air duct is 280℃, and relevant test report issued by an institution with corresponding qualification shall be provided

Section VII: Nameplate

Aluminum nameplate shall be permanently fixed and clearly indicate legible fan number, model and product serial number (i.e. unique identification of each machine), ensuring that the customers can conveniently query the historical records of the accessories

Section VIII: Qualified suppliers

Providing **INFINAIR®** or similar products, design based on YFRTX of **INFINAIR®**

What is USGBC?

USGBC is widely known as the United States Green Building Council, the only non-profit (NPO) institution on behalf of the environmental protection construction in the whole construction industry. Its members are made up of leading enterprises from various sectors. Its purpose is to integrate the construction industry agencies, promote sustainable development of green building and construction, guide market mechanism of green building, promote and educate building owners, architects green practice.

What is LEED certificate?

United States Green Building Committee (USGBC) established a set of voluntary national standards LEED (Leadership in Energy and Environmental Design) in 1995. The system is applied to develop sustainable construction of high performance for green building ratings. The entire project includes training, professional recognition, resources support, the third-party certification of construction performance.

Certification Value of LEED

LEED is a rating system certified by third party, maintaining a high degree of authority on technology and management. LEED certification system is a kind of in-depth quantitative analysis based on such as ASHRAE (American Society of Heating Air Conditioning Engineers) standard, which makes design and construction production process tend to be more controllable and practical. That increases green buildings' reputation in the local market and gain excellent valuation of property quality, thus promoting market transition and forming a virtuous circle.