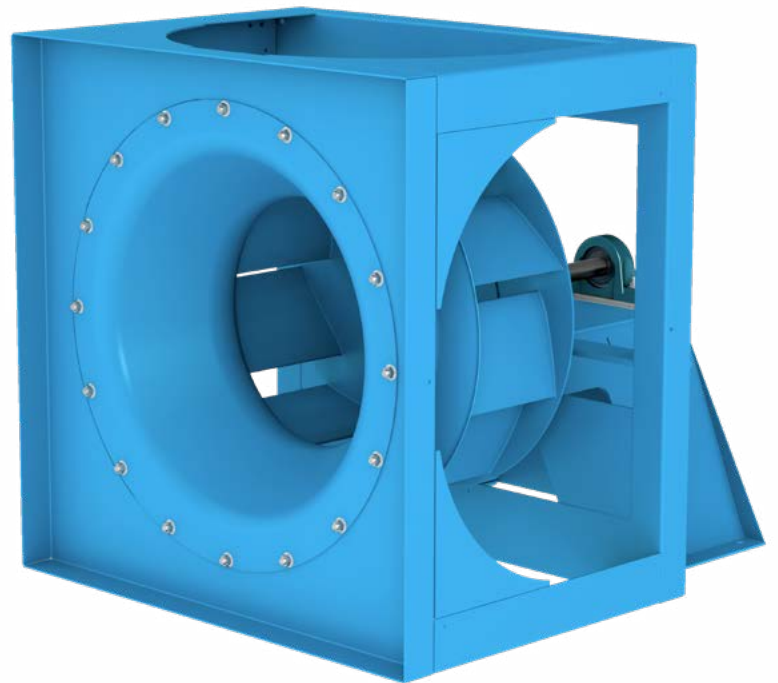




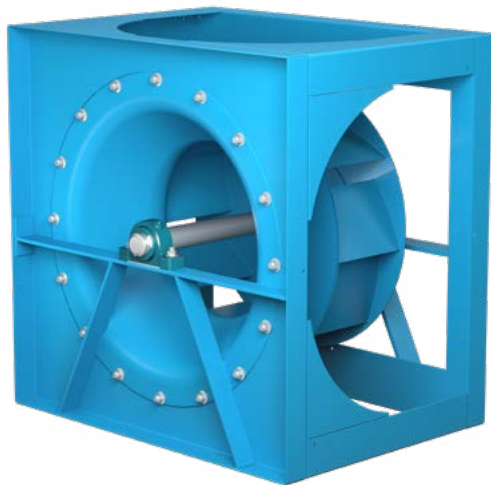
INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

E-SERIES PLENUM FANS

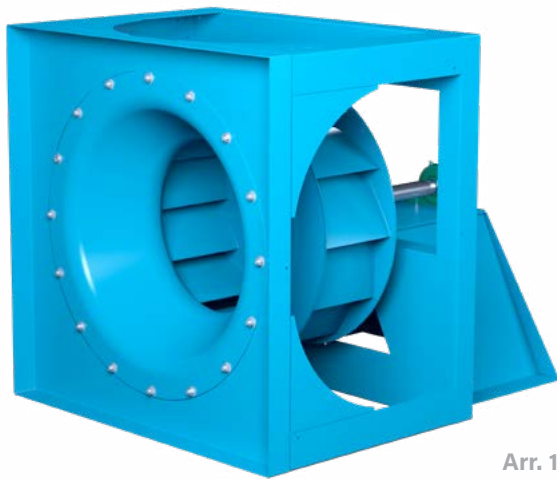
EPF | EPFN | EPQ | EPQN



PLENUM FANS



Arr. 3 EPF
Plenum Fan



Arr. 1 EPQN
Plenum Fan



Twin City Fan & Blower certifies that the Model EPF, EPFN, EPQ and EPQN Plenum Fans shown herein are licensed to bear the AMCA Seal. Certified performance data may be found in Twin City Fan & Blower's Fan Selector software.



Scan the QR code to search Twin City Fan & Blower's AMCA-certified products.

Overview

EPF | EPFN | EPQ | EPQN

Twin City Fan & Blower, the world's largest supplier of plenum fans, now offers the completely redesigned E-Series, the first plenum fan to be AMCA licensed for sound and air in both an Arrangement 1 and 3 configuration.

The E-Series offers the flexibility of two plenum fan designs, with each model offering its own unique performance characteristics. While every E-Series fan is highly efficient and quiet, you can choose an E-Series design option that optimizes the performance requirements most important to your application.

Typical Applications Include

Air Handling Units, General HVAC, Make-Up Air Units, Elevator Shaft Exhaust/Pressurization, Hospital Exhaust, Stairwell Pressurization, School Exhaust, Air Filtration, Generator Room Ventilation, Kitchen Exhaust, Dishwasher Exhaust

Arrangements

Available in Horizontal Arrangements 1, 3, 3HS, 3HA, 3SM and 4 and Vertical Arrangements 3VS, 3VA and 4

Drive Configurations

Available in Both Direct and Belt Driven Configurations

Impeller Types

9-Bladed and 12-Bladed

Standard Construction

Class I, II and III

Optional Construction

Aluminum Construction

Certifications

AMCA Sound/Air and FEI

Energy Regulations

Twin City Fan & Blower supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply TCF products to their specific applications to meet applicable DOE and state regulatory requirements. Twin City Fan & Blower has made significant investments in product testing and development to provide efficient products. Developments in Twin City Fan & Blower's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

Overview

EPF | EPFN | EPQ | EPQN

Application

The fan impeller pressurizes the entire surrounding air plenum in which the fan is installed, allowing air ducts from any direction to be directly connected to the air handling unit enclosure. This design generally saves space by eliminating the fan housing, transitions and diffusers within the air handling unit.

Plenum fans have found a ready acceptance in the air conditioning industry. In addition, the construction versatility, adaptability in the direction of the discharges, suitability for internal isolation and application of sound panels and generally lower cost makes it a very popular fan arrangement.

Benefits of a Plenum Fan

Saves Space – There are no housings, transitions or diffusers within the air handling unit.

Efficiency – Plenum fans can be as efficient or more efficient than scroll type fans at specific operating points towards the bottom of the fan curve.

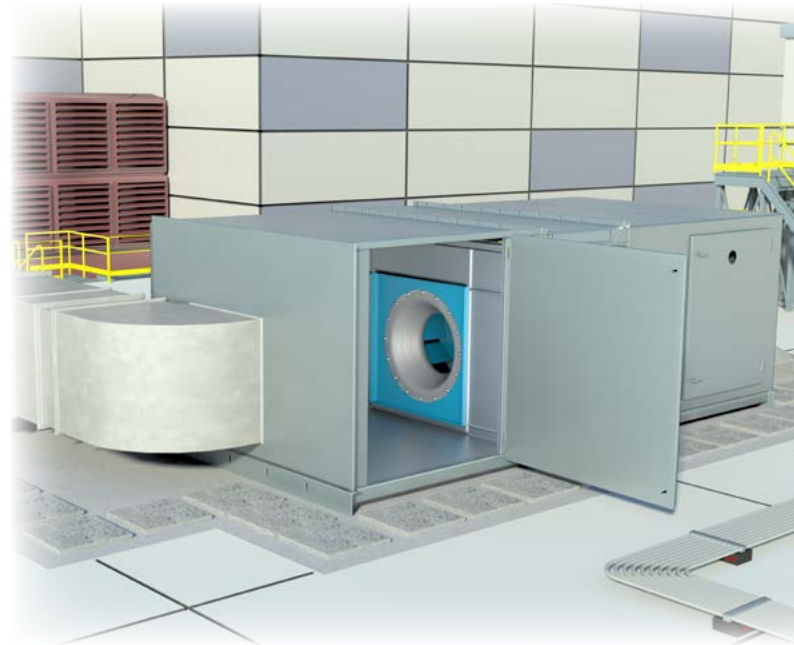
Lower cost – Plenum fans are less expensive than scroll type fans.

Compact Designs with Performance Assurance

Space is often a key consideration in the selection of plenum fans, making the compact Arrangement 3 configuration very popular.

The Arrangement 3 configuration is constructed with a bearing and bearing bar in the inlet, which will affect fan performance. These performance affects should be taken into account to ensure that your system functions as designed.

Plenum fans are unshoused fans designed to operate inside of field-fabricated or factory-built air handling units.



Plenum Unit in Rooftop Air Handler

9-Bladed Impellers

EPF (Arr. 3)

12.25" to 89" impeller diameters (315 mm to 2,265 mm)

Airflow to 280,000 CFM (475,700 m³/hour)
Static pressure to 10" w.g. (2,490 Pa)



EPFN (Arr. 1 and 4)

12.25" to 89" impeller diameters (315 mm to 2,265 mm)

Airflow to 280,000 CFM (475,700 m³/hour)
Static pressure to 10" w.g. (2,490 Pa)

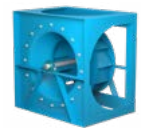


12-Bladed Impellers

EPQ (Arr. 3)

12.25" to 89" impeller diameters (315 mm to 2,265 mm)

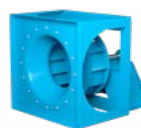
Airflow to 280,000 CFM (475,700 m³/hour)
Static pressure to 12" w.g. (2,980 Pa)



EPQN (Arr. 1 and 4)

12.25" to 89" impeller diameters (315 mm to 2,265 mm)

Airflow to 280,000 CFM (475,700 m³/hour)
Static pressure to 12" w.g. (2,980 Pa)



For complete product performance, drawings and available accessories, download our Fan Selector software at tcf.com.



Impellers

High efficiency, non-overloading airfoil impellers are provided on all sizes and arrangements.

Arr. 1 and 3 – Aluminum impellers using extruded aluminum blades are standard to size 245 on arrangement 1 and 3 fans, and available as an option on larger sizes. Steel impellers are standard on sizes 270 and larger.

Arr. 4 – Aluminum impellers using extruded aluminum blades are standard to size 600 on direct drive arrangement 4 fans, a popular choice for applications requiring precision balance and improved reliability.

Inlet Cones

Heavy-gauge, spun steel inlet cones are closely matched to the impeller intake rim to ensure efficient and quiet operation.

Structural Frame

Frames are constructed of heavy-gauge steel, welded at all connections for maximum strength and rigidity. The “cross frame” bearing support is designed for maximum stability and load distribution.

Shafts

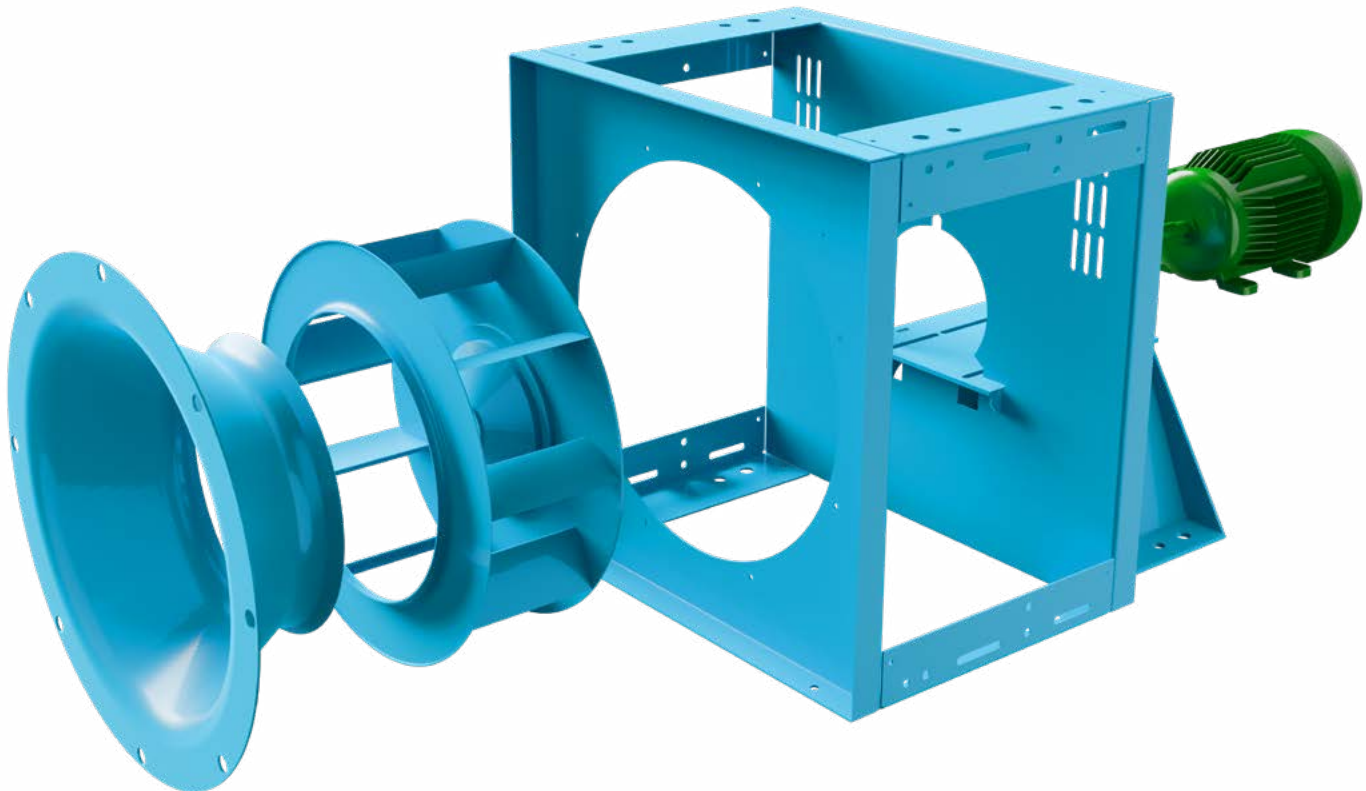
Shafts are AISI Grade 1045 hot-rolled steel accurately turned, ground, polished and ring-gauged for verification. Shafts are generously sized for a first critical speed of at least 1.43 times the maximum speed for the class.

Fan Bearings

Bearings are heavy-duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type, selected for minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM. Considering the long life offered with our standard bearing selections, we do not recommend upgrades to split-roller bearings due to their large size, especially on Arrangement 3 fans.

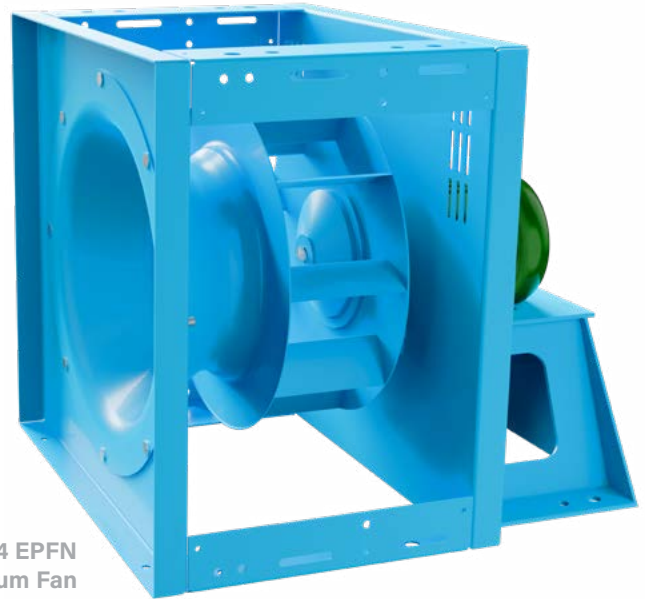
Inlet Collar

Horizontal configurations are designed to be flex-connected to the perimeter of the square panel without the addition of an inlet collar.



Aluminum Construction

Models EPF, EPFN, EPQ and EPQN can be made out of aluminum when corrosion resistance is required.



Arr. 4 EPFN
Plenum Fan

IMPELLER DESIGN

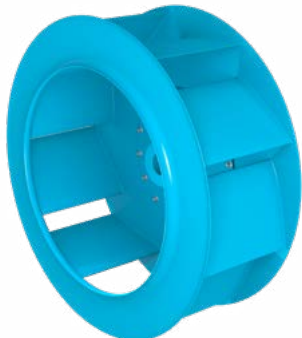
9-Bladed Impellers

EPF (Arr. 3)

The Model EPF features a highly efficient and cost effective, nine-bladed airfoil impeller design. The high efficiency of the EPF will often allow the use of smaller fans without increasing power requirements. The EPF is an Arrangement 3 design.

EPFN (Arr. 1 and 4)

The Model EPFN features the same highly efficient, nine-bladed airfoil impeller design as the EPF, but is available in Arrangement 1 or 4 designs without inlet obstructions.



EPF/EPFN
9-Bladed Impeller

12-Bladed Impellers

EPQ (Arr. 3)

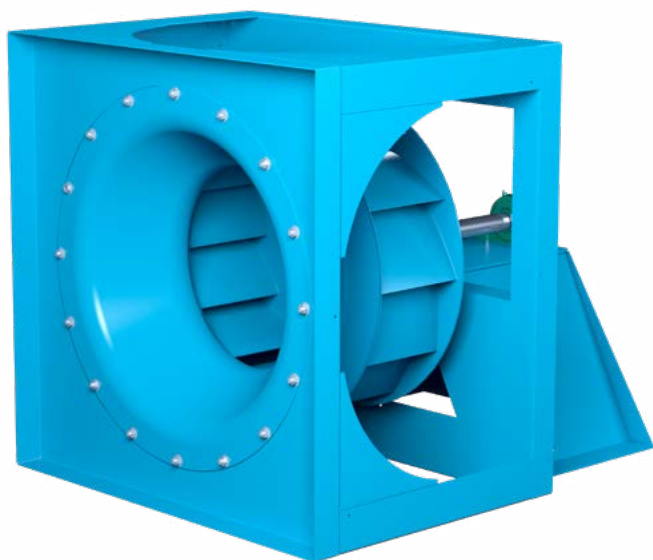
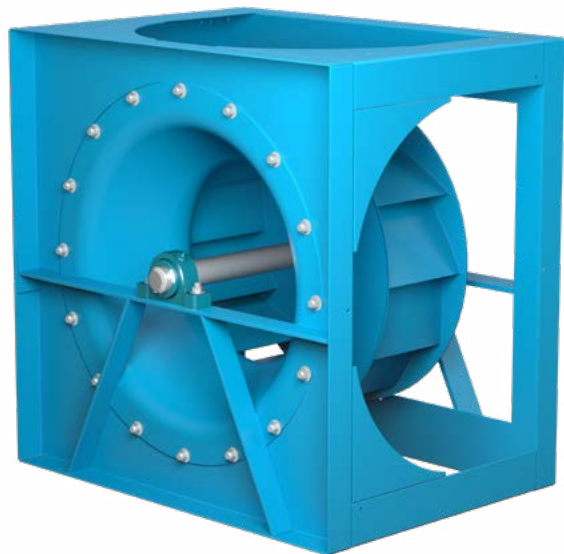
The Better Sound Quality Model EPQ features a twelve-bladed airfoil impeller design that flattens the sound spectrum and reduces the dominance of pure tones. The EPQ is an Arrangement 3 design.

EPQN (Arr. 1 and 4)

The Model EPQN features the same Better Sound Quality, twelve-bladed airfoil impeller design as the EPQ, but is available in Arrangement 1 or 4 without inlet obstructions.



EPQ/EPQN
12-Bladed Impeller



The EPQ/EPQN plenum fans offers unique performance features that are beneficial for many sound sensitive and higher pressure applications.

The EPQ/EPQN features a twelve-bladed airfoil impeller versus the nine-bladed impeller of our type EPF/EPFN plenum fans or eight- to ten-bladed impellers with most other competition. The "Q" in the EPQ/EPQN designation stands for Better Noise Quality. Noise quality is a subjective description for noise that is less objectionable.

Looking at the sound comparison, you will notice that the type EPQ/EPQN offers noise (SPL) that is more equally distributed across all frequencies. This can be more pleasant to hear than the sound characteristics of a nine-bladed design. Fans are often dominated in noise by the noise occurring at the blade pass frequency. (Blade pass frequency = RPM x Number of blades/60.) Noise quality is improved by reducing the difference in amplitude between the blade pass amplitudes and the neighboring frequency amplitudes. The increased higher frequency sound power levels on the twelve-bladed impellers mask the blade pass frequency offering a better sounding fan. Although the overall A-weighted sound power levels of the nine-bladed EPF/EPFN fans are slightly lower, the sound "quality" of the twelve-bladed EPQ/EPQN fans may be desirable for the application.

A higher blade pass frequency allows for easier attenuation of the noise, especially when installed inside an air handler cabinet. In many applications, the use of the EPQ/EPQN design will move the blade pass frequency from the second octave band to the third octave band. Acoustic silencers will normally perform about 10 dB better in the third band.

In addition to sound considerations, there are also additional benefits to using the EPQ/EPQN at higher pressures. Selections over 8" wg static pressure are often near the peak pressure of the fan. The additional blades give a higher peak pressure and also add stability to the fan. Twelve smaller passages through the fan impeller are more resistant to flow disturbances on the inlet than nine larger passages. The EPQ/EPQN is thus more resistant to system effects when operating at high pressures and the higher inlet velocities that accompany these selections.

MODEL	CFM	SP	FREQUENCY, HZ								L _w A
			63	125	250	500	1000	2000	4000	8000	
EPQN - 12 Blades	20,000	3	86	89	(90)	83	81	77	69	64	87
EPFN - 9 Blades	20,000	3	89	(94)	87	79	80	74	67	63	85

NOTE: Circled figures indicate blade pass frequency.

Piezometer Ring (Airflow Measuring System)

A piezometer ring is available on plenum fans, as well as other Twin City Fan & Blower housed fans, as part of an airflow measuring system, based on the principle of a flow nozzle. The inlet cone of the fan is used as the flow nozzle. The flow can be calculated by measuring the pressure drop through the inlet cone. No tubes or sensors are inserted in the high velocity airstream, which could obstruct airflow.

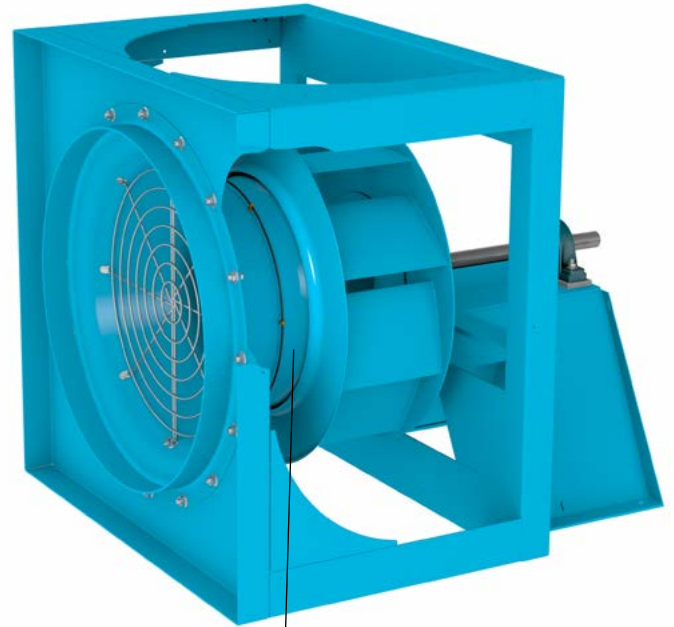
The system consists of a piezometer ring mounted at the throat and a static pressure tap mounted on the face of the inlet cone. A differential pressure transducer and digital display can also be provided.

The pressure drop is measured from the tap located on the face of the inlet cone to the piezometer ring in the throat. The inlet tap is connected to the high-pressure side of the transducer and the piezometer ring is connected to the low-pressure side. See diagram on right.

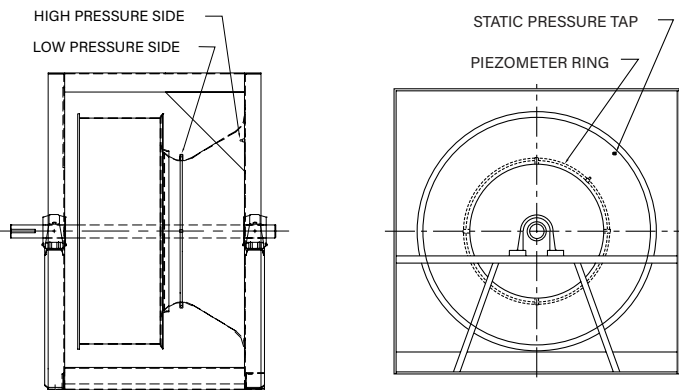
Based on Twin City Fan & Blower laboratory tests, the system was determined to be accurate within +/-5%.

Refer to Twin City Fan & Blower Installation, Operation and Maintenance Manual IM-105.

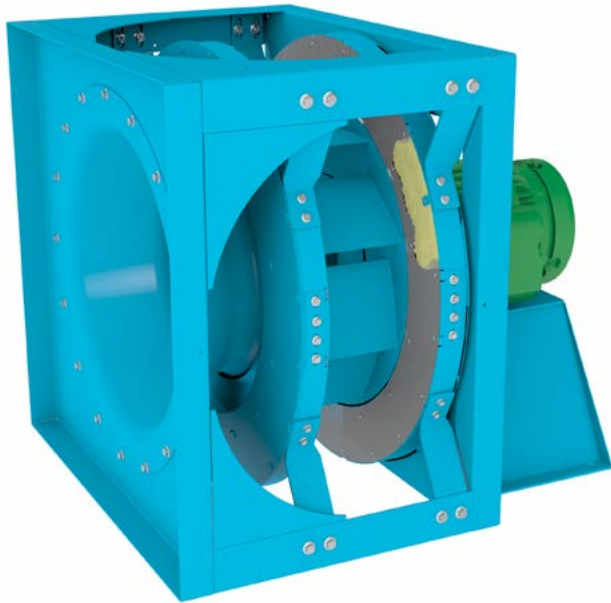
NOTE: Twin City Fan & Blower does not recommend placement of flow measuring probes inside the fan inlet cone in the path of airflow. These devices create disturbances and unpredictable performance losses. Twin City Fan & Blower will not be responsible for loss of performance due to such devices.



Piezometer Ring Mounted at Throat of Inlet Cone



AERO ACOUSTIC DIFFUSER™



PATENTED



Aero Acoustic Diffuser™
(US Patent 8025477)

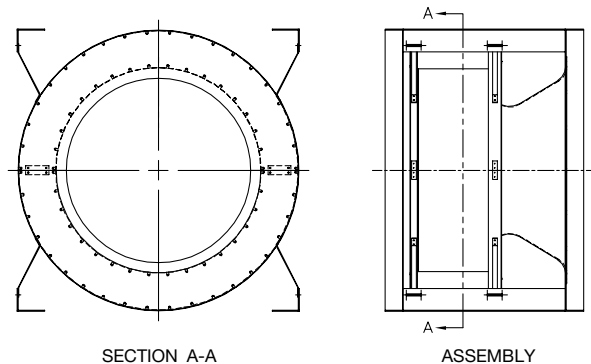
The Aero Acoustic Diffuser™ is exclusively available on the Twin City Fan & Blower E-Series plenum fans. The patented design allows the plenum fan to discharge sound power reductions by up to 3dBA while increasing aerodynamic static efficiency by up to 4%.

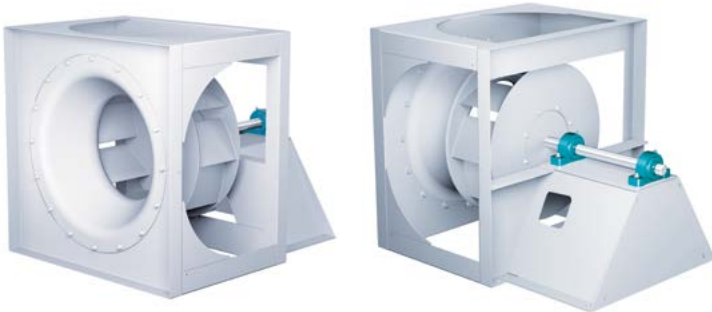
The Aero Acoustic Diffuser™ features a fully galvanized construction that mount at the front and back of the fan impeller. The acoustic attenuating material is inserted within a solid housing and a perforated frontplate that directs airflow across the diffuser reducing fan noise and increasing static efficiency.

Mounting brackets constructed of galvanized steel mount directly to the framework allowing for mounting within the existing fan framework.

The Aero Acoustic Diffuser™ is available on all E-Series plenum fan sizes, both direct drive and belt driven. The diffuser is available on fans direct from the factory or as a retrofit kit to existing fans.

For more information on the Aero Acoustic Diffuser™ refer to the Aero Acoustic Diffuser™ for E-Series Plenum Fans catalog (Catalog 471).





Models EPFN & EPQN

Arrangement 1

Arrangement 1 features an overhung impeller design suitable for V-belt drive and requires mounting of motor independent of the fan.

- Class I and II available in sizes 122A to 890. See dimensional drawing on page 18 for sizes 122A through 807.
- Class III available in sizes 165A to 890. Contact factory for dimensional drawings of size 890.

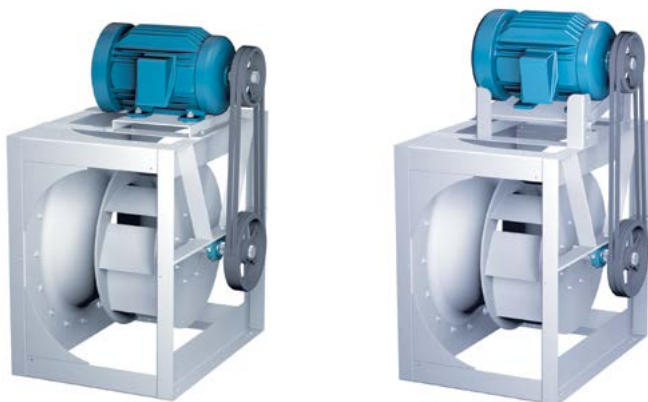


Models EPF & EPQ

Arrangement 3 (Horizontal)

This is the most common plenum fan arrangement for use in OEM and site-built air plenum handlers. Arrangement 3 is suitable for V-belt drive and requires mounting of the motor independently of the fan. Twin City Fan & Blower offers common unitary bases and isolation bases for the fan and motor as accessories.

- Class I and II available in sizes 122A to 890. Class III available in sizes 165A to 890. See dimensional drawing on page 19. Contact factory for dimensional drawing of Size 890.



3HS

3HA

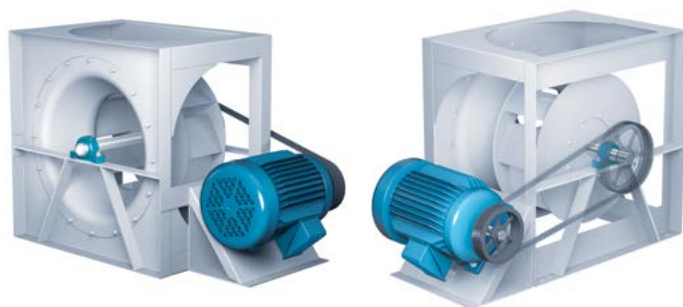
Models EPF & EPQ

**Arrangements 3HS / 3HA
(Horizontal with Top Mounted Motor)**

Arrangements 3HS and 3HA provide a means for mounting the motor on top of the unit. This design is often desirable when floor space is limited.

Available with two different motor mounting options: slide base type (Arrangement 3HS) and adjustable motor base (Arrangement 3HA). Due to limited belt center range, NEMA "slide base" option is available on sizes 182 and larger only. A heavy-duty Twin City Fan & Blower designed "adjustable motor base" is available for all fan sizes.

- Arrangement 3HS is available in Class I and II with motor slide base for sizes 182 to 542. See dimensional drawing on page 21.
- Arrangement 3HA with pivot motor base is available in Class I and II for sizes 122A to 542. See dimensional drawing on page 21.



Models EPF & EPQ

**Arrangement 3SM
(Horizontal With Side Mounted Motor)**

Arrangement 3SM is designed to provide an economical and space-saving means to supply plenum fans with motors mounted to the side of the fan frame. A motor slide base allows for quick and easy belt adjustments.

- Class I and II available in sizes 165A to 600. Motor limited to maximum frame size shown on drawing. See dimensional drawing on page 20.

Arrangements 3VS and 3VA (Vertical with Side Mounted Motor)

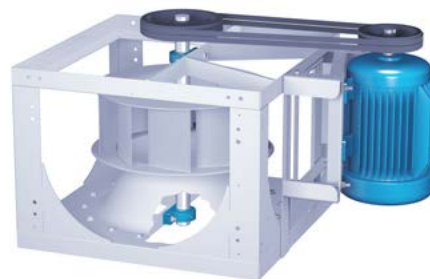
Vertical Arrangement 3 is available with two different motor mounting options: slide base type (Arrangement 3VS) and adjustable motor base (Arrangement 3VA). Due to limited belt center range, NEMA "slide base" option is available on sizes 182 and larger only. A heavy-duty Twin City Fan & Blower designed "adjustable motor base" is available for all fan sizes.

- Models EPF and EPQ.
- Arrangement 3VS is available in Class I and II with motor slide base for sizes 182 to 542. See dimensional drawing on page 22.
- Arrangement 3VA with pivot motor base is available in Class I and II for sizes 122A to 542. See dimensional drawing on page 22.
- Unless specified otherwise, units will be built for vertical up airflow.



3VS

Models EPF & EPQ



3VA

Arrangement 4 (Horizontal)

Direct drive Arrangement 4 mounts the fan impeller directly onto the motor shaft. This arrangement provides a compact fan/motor unit, which eliminates belt residue and requires less maintenance than other arrangements.

For these reasons, Arrangement 4 plenum fans are widely used in cleanroom, pharmaceutical and other critical applications.

Fans can be selected with varying impeller widths to provide desired performance at direct drive motor speeds. Performance changes in the field are usually achieved by means of variable inlet vanes or VFD.

- Aluminum impellers using extruded aluminum blades are standard.
- Class I and II available in sizes 122A to 660. See dimensional drawing on pages 23-24.
- Class III available in sizes 165A to 660. See dimensional drawing on pages 25-26.



Models EPFN & EPQN

Arrangement 4 (Vertical)

Vertical Arrangement 4 is available for mounting with either vertical up airflow (inlet under the motor) or vertical down airflow (inlet above the motor).

- Aluminum impellers using extruded aluminum blades are standard.
- Class I and II available in sizes 182 to 490.
- Inlet flange available.
- See dimensional drawing on page 27.

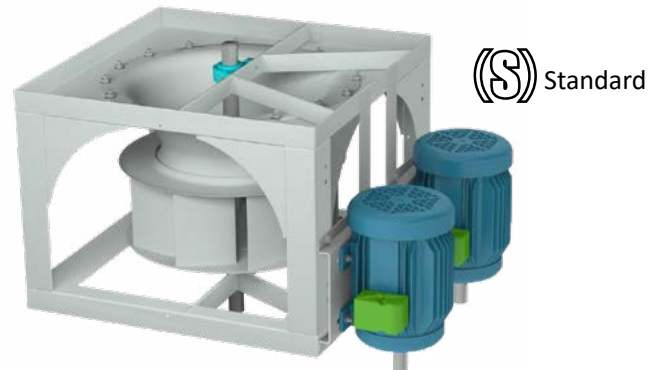


Models EPFN & EPQN



Arrangement 3SM

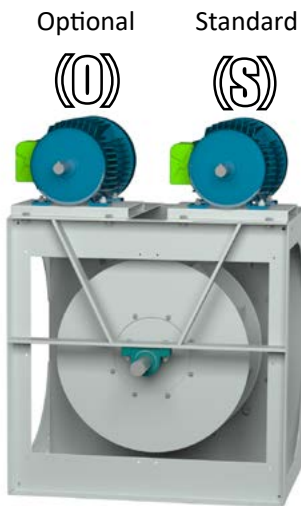
* Motor Position (L) is normally ordered with F1 Conduit Box. *Select F2 if clearance issues.*



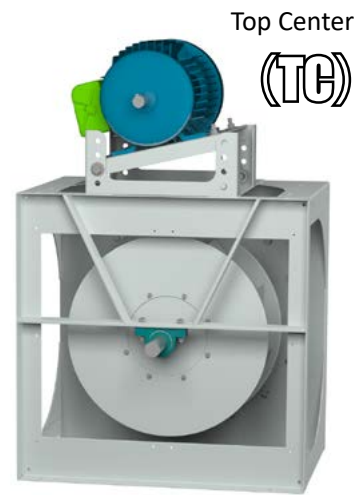
Arrangement 3VS

(S) Standard

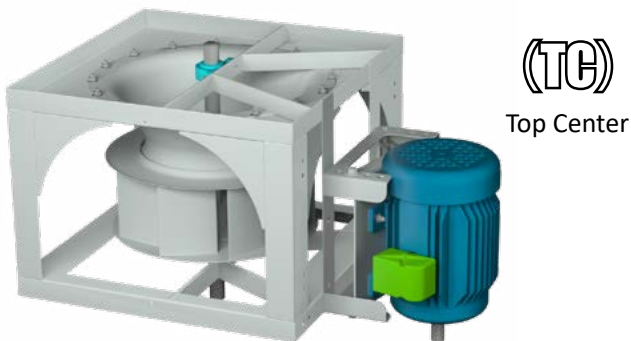
(O) Optional



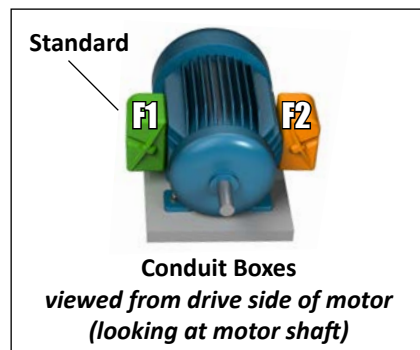
Arrangement 3HS

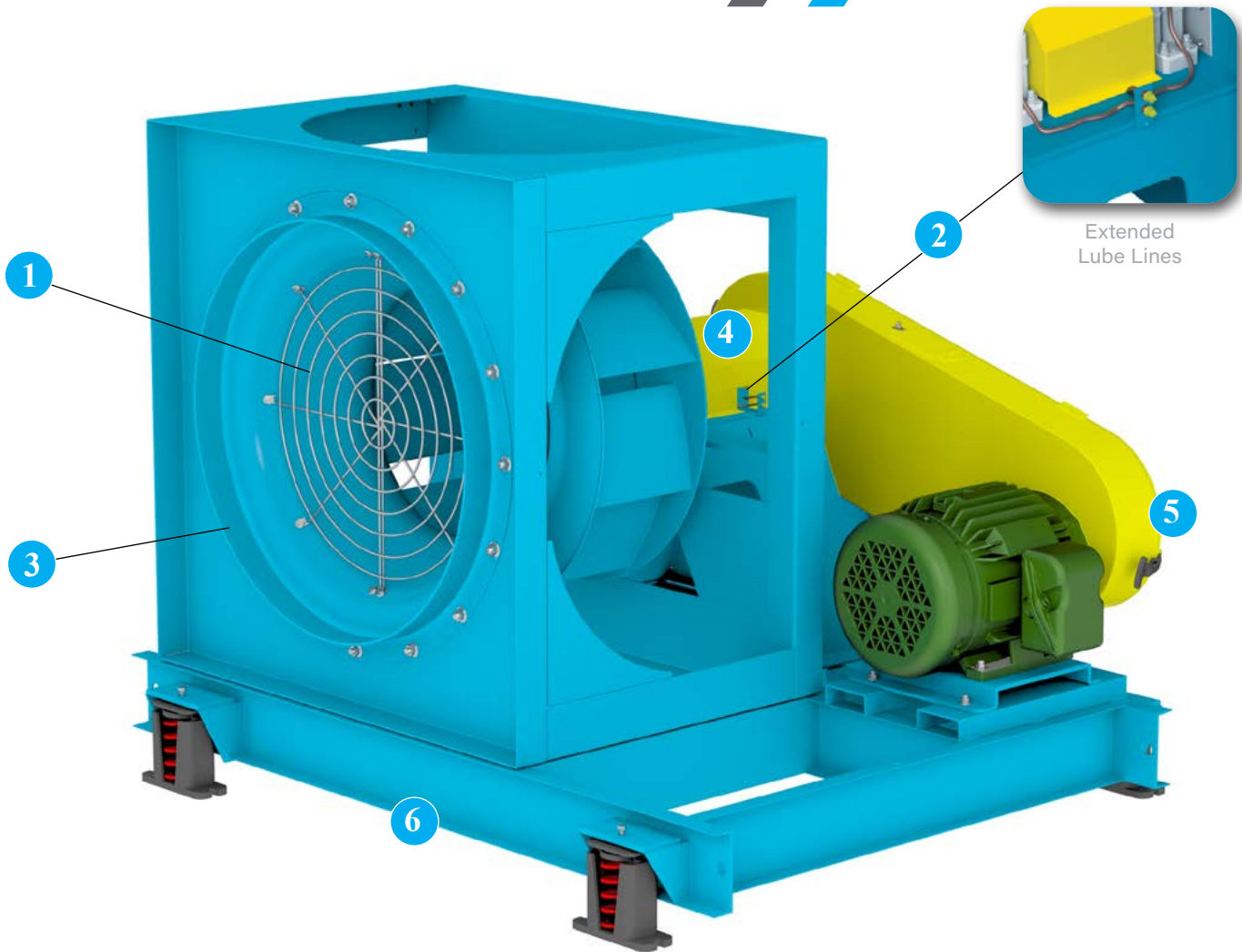


Arrangement 3HA

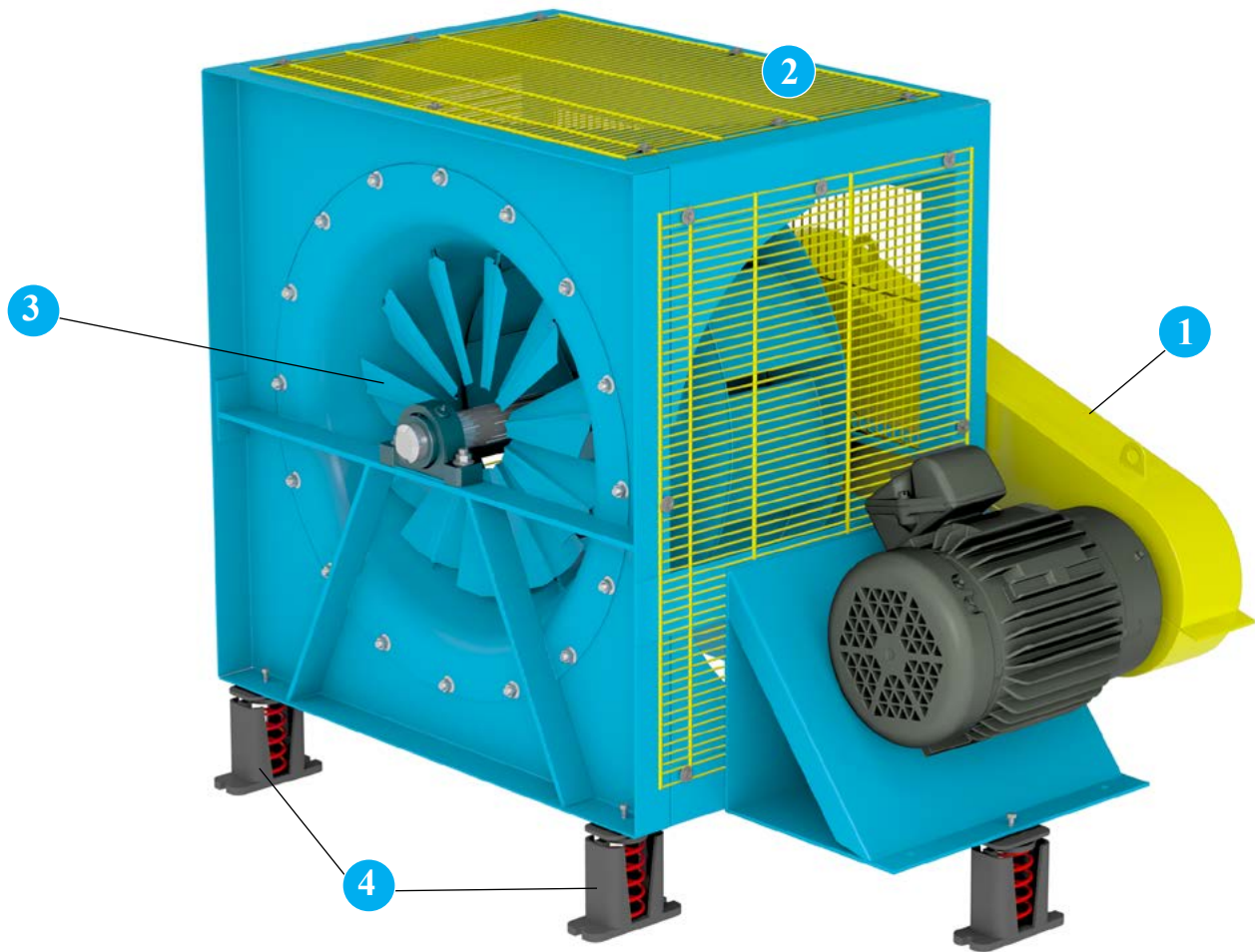


Arrangement 3VA





- 1 Inlet Screen** Safety screens are available for mounting in the fan inlet in non-ducted applications.
- 2 Extended Lube Lines** allow for easy lubrication of bearings on belt driven units without disassembly by extending polyethylene lines from fan bearings to outside of guards or weather covers.
- 3 Round Inlet Collar** allows for slip-joint connections to mount ductwork to the inlet when needed.
- 4 Bearing Guard** Sheet metal guards cover shaft and bearings and come with extended lube lines to a common point outside of the guard. A guard spanning the shaft between the bearings is available to provide open access to bearings for lubrication and vibration monitoring.
- 5 Quick Access Belt Guard** Belt guard protects personnel from the moving drive parts. OSHA and quick access guards are available. Arrangement 10 offers a standard belt guard.
- 6 Spring Isolator Base** provides a common support to fan, motor and drive including guards and utilize heavy-duty structural channel. Vibration isolation bases require spring or rubber-in-shear type isolators that are designed to limit forces transmitted to the support structure of an operating fan.



1 Belt Guard provides protection to personnel from the moving drive parts. Both standard and OSHA totally enclosed types are available.

2 Protective Enclosure Grill style protective enclosure completely encloses all sides and the back of the fan impeller. Side panels are individually removable to provide access to the impeller.

3 Nested Inlet Vanes Variable inlet vanes cause the entering air to spin in the direction of impeller rotation, resulting in reduction in volume, static pressure and brake horsepower and thus providing an infinite number of fan curves approximately parallel to the original fan curve. Variable inlet vanes cost about 50% to 80% more than outlet dampers but offer significant savings in energy. Both types are available to 600°F construction.

4 Vibration Isolators Spring type vibration isolation mounts are available to reduce the transmission of fan vibration in 1" or 2" deflection. Rubber-in-shear isolators are also available as an option.

Other Accessories Include:

- Unitary Base
- Exposed Bearing Guard
- Pressure Transducers
- Roller Bearings in Split Pillow Block Housing



Fan Selection Recommendations

1. System effect losses (see AMCA 201) and plenum losses should be estimated and added to the required static pressure, prior to making selections. Refer to AMCA Publication 201 at www.amca.org and Twin City Fan Engineering Data Letter "Fan Performance Troubleshooting Guide" (FE-100) at www.tcf.com.
2. Fans should be selected so that the point of operation is approximately between 55% and 90% of the free delivery point on the fan curve.
3. Avoid selections over 4000 RPM. A narrow width, larger size impeller can be used to avoid this.
4. Arrangements 1 and 4 will offer the best efficiency and lowest noise as there are no inlet obstructions.
5. Where space is available, mount the fan and motor on a sub-base. The motor can be mounted on the fan on Arrangements 3HS, 3HA, 3SM, 3VS and 3VA.
6. Use inertia-type isolation bases or rigid mounting for lowest fan vibration. Rigid mounting requires dynamic analysis (by others) of the support structure to avoid resonance.
7. Applications exceeding 10" SP are prone to high system effect losses. Use of housed fans (BAE-DWDI) should be considered.
8. Where static pressures over 8" wg are required, Model EPQ or EPQN are preferred because of lower operating speeds and improved stability. Select the fan so the design pressure is at least 10% below the peak pressure.
9. Where flow monitoring is required, use a piezometer ring or externally mounted flow measurement station. Fan performance may be substantially affected by flow measurement probes mounted directly in the fan inlet cone. Refer to page 7.
10. For direct drive fans without speed control (or where speed control cannot exceed 60 Hz), select fans at 3 – 5% below the nominal speed of the motor. This will normally cover the uncertainties associated with the system and air balancer's measurements. Select motors loaded no closer than 90% of the maximum loading of the motor.
11. For multiple fans in a plenum, alternate CW and CCW rotation fans to minimize losses. If fans are not counter-rotating, install walls between each fan to create cells in the outlet plenum.
12. Add losses for duct take-offs per the chart above to pressure requirements of the fan. Bellmouth entries will always reduce losses and are recommended.
13. For highest reliability, specify the required bearing life. For example, the statement "minimum L-10 bearing life = 100,000 hours" allows for the best bearing to be put on the fan without creating other problems. Some specifications state "use split roller bearings." This can cause a number of problems, such as:
 1. On smaller fans, there may not be enough radial load to prevent roller skidding. This is especially a problem for Arrangement 3 fans.
 2. Split roller bearings are not offered in sizes smaller than 1⁷/₁₆" bore. Smaller fans use shafts smaller than this.
 3. The oversized bearing in the inlet will block some air in smaller fans (above the losses that are already included in the EPF/EPQ ratings).

Location and Placement of Fans in Air Handlers

1. Center the fan inlets in both the horizontal and vertical planes.
2. For inlet clearance, see Figure 1. The flow should converge at an angle not greater than 45° when approaching the opening for the fan inlet. A minimum of one fan impeller diameter clearance is recommended.
3. In the fan outlet plenum, a minimum wall clearance of one-half fan impeller diameter to the periphery of the fan impeller is recommended.
4. Figure 1 shows that the minimum clearance between the back of the fan impeller and the nearest component downstream (Dim. E) should be one impeller diameter. Small clearances do not allow the flow to equalize behind the fan impeller and the pressure drop of the downstream component is increased.
5. When the flow enters the inlet plenum perpendicular to the fan shaft, large system effect losses can occur. See Figure 2 for a recommended flow baffle or a vortex breaker that may help preserve rated fan performance.
6. When two or more fans are installed in a plenum, divide the plenum into imaginary cells of equal area. Center the fan inlets on each cell. See Figure 3.

Installation Recommendations

1. Install the fan so the flexible connector on the inlet remains uncollapsed during operation.
2. Install thrust restraints (snubbers) to maintain the axial position of the fan when it is generating pressure.
3. Peripheral equipment, such as electrical components, inverters, control panels, etc., should be positioned away from the high velocity air entering or leaving the fan.
4. Adjust springs on the isolation base so that spring deflection is approximately equal for all isolators.
5. Follow safety, installation, start-up and maintenance instructions supplied with each fan.

Figure 1. Recommended Location of Fan in Plenum

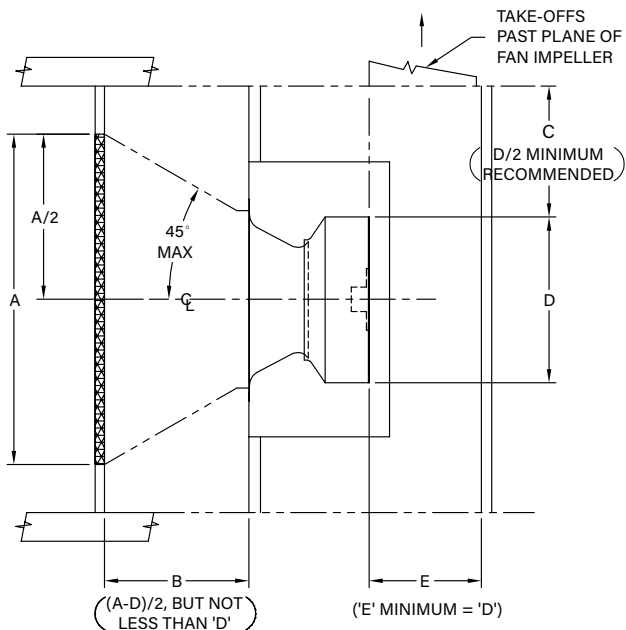


Figure 2. Flow Baffle and Vortex Spin Breaker Location

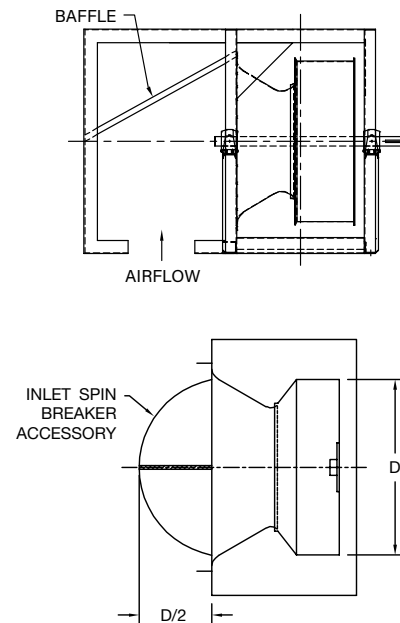
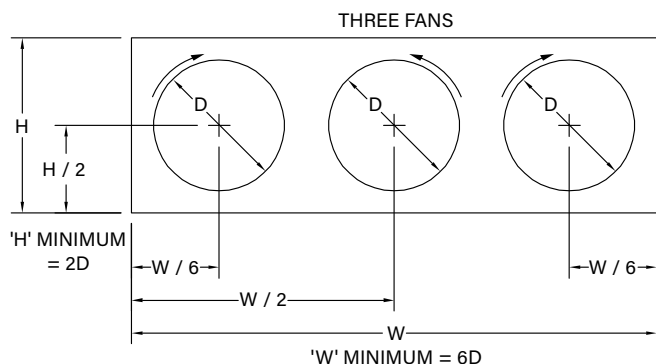
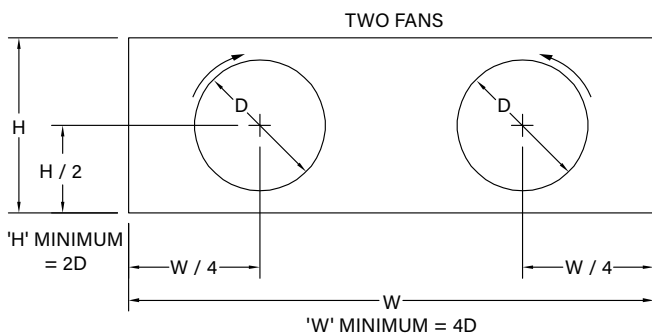


Figure 3. Location of Counter-Rotating Fans



NOTE: 'D' = Impeller diameter



DUCT ENTRANCE LOSSES FROM PLENUM CABINET

To achieve the air velocity in the discharge duct and overcome the loss associated with the air entering the ductwork, additional resistance must be added to the external static pressure (ESP) requirements of the fan. Different types of duct entrances and locations will require varying correction factors. Therefore, prior to selecting a fan, make the following correction, depending upon the type of duct and its location.

ADDITIONAL DUCT ENTRANCE LOSS TO BE ADDED TO FAN ESP	
DISCHARGE TYPE	CORRECTION FACTOR
• Radial and ducted with bellmouth	1.1 x Duct Velocity Pressure
• Radial and ducted without bellmouth	1.4 x Duct Velocity Pressure
• Radial without duct or bellmouth	1.8 x Duct Velocity Pressure
• Flow parallel to shaft and ducted with bellmouth	1.6 x Duct Velocity Pressure
• Flow parallel to shaft and ducted without bellmouth	1.9 x Duct Velocity Pressure
• Flow parallel to shaft without duct or bellmouth	2.4 x Duct Velocity Pressure

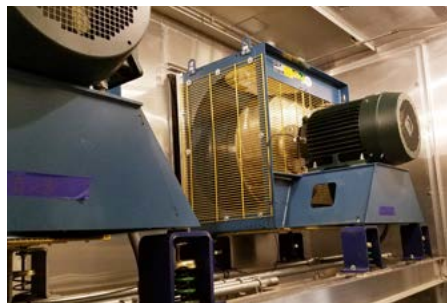
Example: A system requires 30,000 CFM at 5" SP at standard air density with one 4 ft diameter duct with bell-mouth placed in a radial discharge. Determine RPM and brake horsepower:

Duct area = $(4^2 \times \pi) \div 4 = 12.57 \text{ ft}^2$
 Duct velocity = $30,000 \div 12.57 = 2387 \text{ FPM}$
 Duct velocity pressure = $(2387 \div 4005)^2 = 0.355 \text{ @ std. cond.}$

Entrance loss correction factor = $1.1 \times \text{duct velocity pressure}$
 $= 1.1 \times 0.355 = 0.39$
 Thus, select the fan for = $5" + 0.39" = 5.39" \text{ SP}$



INSTALLATION PHOTOS



Maximum RPM, Impeller Weights & WR² - EPF and EPFN

EPF EPFN	IMPELLER DIA. (IN.)	CLASS I						CLASS II				CLASS III				
		MAX. RPM (70°F)	ALUMINUM		STEEL		MAX. RPM (70°F)	ALUMINUM		STEEL		MAX. RPM (70°F)	ALUMINUM		STEEL	
			WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)		WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)		WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)
122A	12.25	3388	9	0.9	N/A	N/A	4000	9	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150A	15.00	3006	12	1.7	N/A	N/A	3909	12	1.7	N/A	N/A	4000	20	5.1	N/A	N/A
165A	16.50	2668	15	2.9	N/A	N/A	3468	15	2.9	N/A	N/A	4000	20	5.1	N/A	N/A
182	18.25	2302	17	6.1	N/A	N/A	2930	18	6.1	N/A	N/A	3767	21	6.2	N/A	N/A
200	20.00	2101	21	6.4	N/A	N/A	2674	21	7.4	N/A	N/A	3438	24	9.3	N/A	N/A
222	22.25	1888	30	12	N/A	N/A	2403	30	12	N/A	N/A	3090	34	15	N/A	N/A
245	24.50	1715	35	21	N/A	N/A	2183	35	21	N/A	N/A	2806	38	22	N/A	N/A
270	27.00	1556	40	29	85	84	1981	40	29	97	93	2546	47	32	131	125
300	30.00	1401	49	46	103	120	1783	54	51	111	128	2291	58	52	153	178
330	33.00	1273	62	70	136	194	1620	67	76	154	215	2083	72	77	206	294
365	36.50	1151	73	103	157	273	1465	79	112	179	306	1884	84	114	237	409
402	40.25	1044	85	151	180	376	1329	93	165	209	429	1708	98	166	310	647
445	44.50	944	126	233	327	880	1202	135	253	351	932	1545	142	256	470	1255
490	49.00	857	164	391	366	1171	1091	164	391	395	1249	1403	174	535	535	1708
542	54.25	775	227	632	513	2048	986	227	632	653	2562	1267	239	673	696	2778
600	60.00	700	255	931	662	3224	891	255	931	750	3542	1146	270	991	801	3838
660	66.00	637	346	1377	953	5621	810	346	1377	1099	6510	1041	371	1478	1016	5910
730	73.00	576	412	2049	1076	7630	733	499	2671	1153	8058	942	550	2985	1318	9290
807	80.75	488	499	3008	1288	7766	637	574	3474	1397	8451	802	N/A	N/A	1617	10610
890	89.00	443	774	5652	1935	14129	578	884	6438	1940	14130	728	N/A	N/A	2353	18160

Maximum RPM, Impeller Weights & WR² - EPQ and EPQN

EPQ EPQN	IMPELLER DIA. (IN.)	CLASS I						CLASS II				CLASS III				
		MAX. RPM (70°F)	ALUMINUM		STEEL		MAX. RPM (70°F)	ALUMINUM		STEEL		MAX. RPM (70°F)	ALUMINUM		STEEL	
			WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)		WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)		WT. (LB)	WR ² (LB-FT ²)	WT. (LB)	WR ² (LB-FT ²)
122A	12.25	3388	10	2.1	N/A	N/A	4000	10	2.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150A	15.00	3006	13	3.3	N/A	N/A	3909	13	3.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
165A	16.50	2668	17	5.2	N/A	N/A	3468	17	5.2	N/A	N/A	4000	22	5.6	N/A	N/A
182	18.25	2302	20	7.2	N/A	N/A	2930	20	7.2	N/A	N/A	3767	23	7.4	N/A	N/A
200	20.00	2101	24	10	N/A	N/A	2674	24	8.4	N/A	N/A	3438	27	10	N/A	N/A
222	22.25	1888	34	14	N/A	N/A	2403	34	14	N/A	N/A	3090	38	17	N/A	N/A
245	24.50	1715	39	24	N/A	N/A	2183	39	24	N/A	N/A	2806	43	24	N/A	N/A
270	27.00	1556	46	35	96	94	1981	46	35	107	104	2546	53	38	142	135
300	30.00	1401	57	55	116	135	1783	61	59	124	144	2291	65	59	166	193
330	33.00	1273	72	81	151	216	1620	77	87	169	237	2083	82	88	222	316
365	36.50	1151	85	120	176	307	1465	91	129	199	340	1884	96	130	257	443
402	40.25	1044	99	176	203	425	1329	107	190	232	479	1708	112	190	345	721
445	44.50	944	141	274	356	955	1202	150	294	379	1007	1545	157	297	512	1367
490	49.00	857	183	451	400	1281	1091	183	451	429	1359	1403	200	481	586	1872
542	54.25	775	250	722	551	2213	986	250	722	716	2808	1267	262	763	759	3024
600	60.00	700	290	1058	740	3573	891	290	1058	824	3891	1146	305	1118	874	4188
660	66.00	637	380	1574	1047	6161	810	380	1574	1110	6450	1041	405	1675	1193	7050
730	73.00	576	454	2342	1191	8438	733	541	2964	1267	8865	942	592	3278	1433	10097
807	80.45	488	546	3415	1413	8837	637	645	4038	1521	9522	802	N/A	N/A	1784	12071
890	89.00	443	844	6395	2120	16062	578	989	7476	2125	16063	728	N/A	N/A	2556	20320

*Consult factory for fans over 4000 RPM.

Contact factory for belt driven fans above 150 HP.

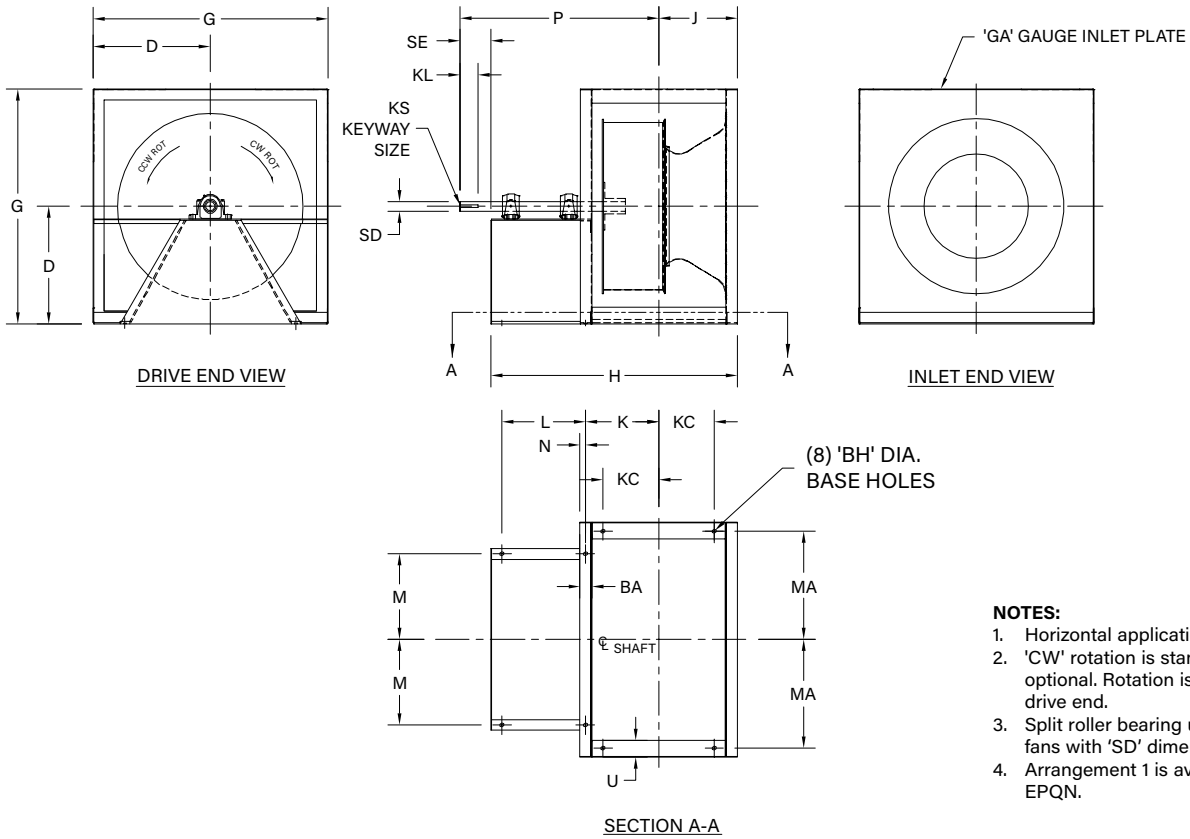
Bare Fan Weights

SIZE	IMPELLER DIA. (IN.)	ARR. 1 (EPQN)			ARR. 3 (EPQ)			ARR. 4 (EPQN)		
		CL I	CL II	CL III	CL I	CL II	CL III	CL I	CL II	CL III
122A	12.25	93	94	N/A	79	79	N/A	83	83	N/A
150A	15.00	115	117	N/A	99	101	N/A	102	102	N/A
165A	16.50	133	135	N/A	114	116	N/A	120	120	N/A
182	18.25	165	169	188	143	147	164	149	150	166
200	20.00	192	192	213	167	167	186	172	172	190
222	22.25	242	246	272	209	209	238	221	221	243
245	24.50	283	288	317	245	251	277	254	254	279
270	27.00	395	412	478	342	359	429	362	374	436
300	30.00	498	506	587	432	448	524	452	461	538
330	33.00	607	633	732	526	561	654	559	578	673
365	36.50	764	804	923	670	714	811	709	732	845
402	40.25	876	915	1096	762	814	986	808	838	1016
445	44.50	1291	1326	1551	1132	1183	1431	1204	1229	1452
490	49.00	1485	1527	1776	1289	1347	1633	1383	1413	1674
542	54.25	1834	2031	2183	1628	1813	1987	1725	1899	2059
600	60.00	2086	2204	2365	1904	2036	2231	1942	2030	2200
660	66.00	2619	2724	2932	2433	2558	2810	2085	2135	2343
730	73.00	2996	3117	3428	2848	2924	3283	N/A	N/A	N/A

NOTES:

1. Arrangement 1 and 3 weights include an aluminum impeller on size 122A through 245 and a steel impeller on size 270 through 730.
2. Arrangement 4 weights include an aluminum impeller on all sizes.
3. Weights are for the 12-bladed impeller design (EPQ and EPQN). 9-bladed designs (EPF and EPFN) are slightly less and can be reduced by the difference between the impeller weights shown above.
4. Weights do not include motor, drive, motor base or slide base.

Horizontal, Arr. 1 – Class I and II



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 1.44"
4. Arrangement 1 is available on Models EPFN and EPQN.

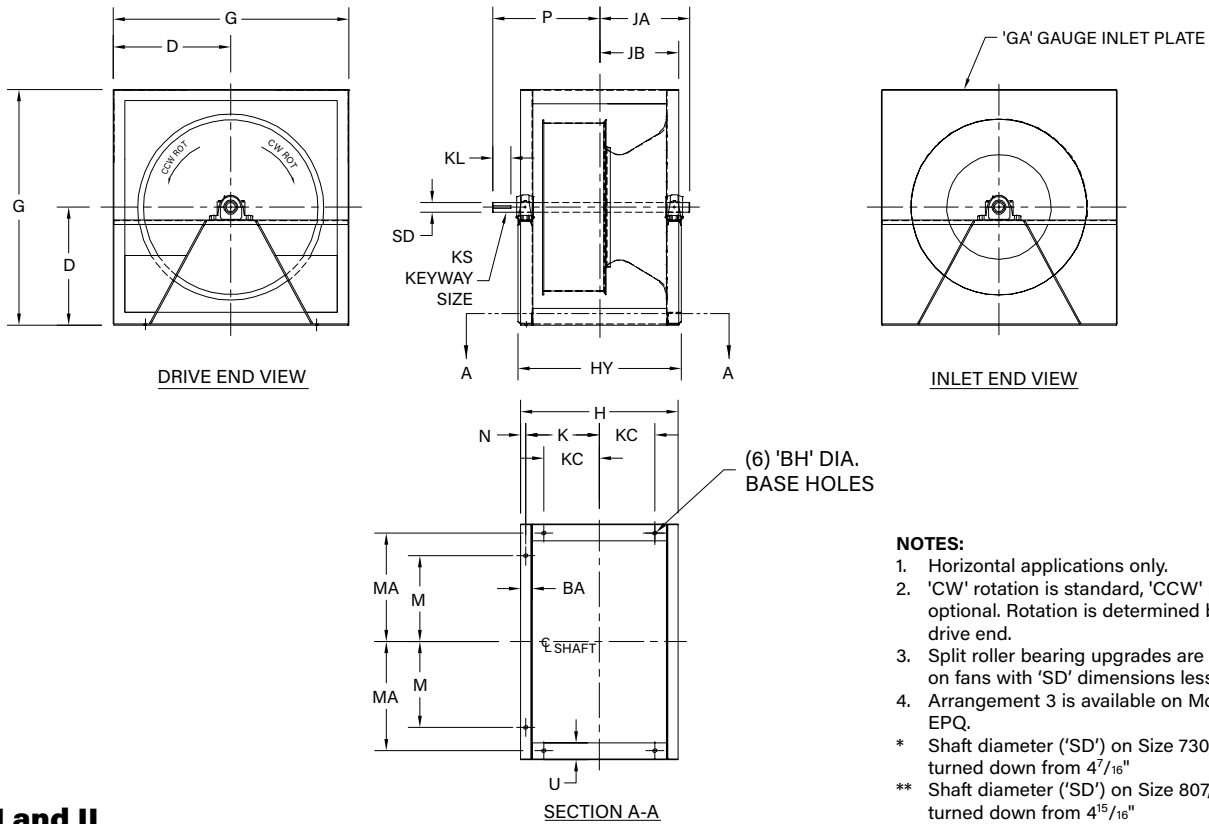
SIZE	BA	BH	D	G	GA	H	J	K	KC	KL	KS		L	M	MA	N	P	SD		SE	U
											CL I	CL II						CL I	CL II		
122A	1.50	0.81	10.00	20.00	12	22.88	6.88	6.25	4.00	3.25	.25 x .13	.25 x .13	7.88	6.75	9.13	0.63	20.38	1.00	1.19	4.38	1.50
150A	1.50	0.81	11.00	22.00	12	26.88	7.88	7.25	5.00	3.25	.25 x .13	.25 x .13	9.88	8.25	10.13	0.63	23.38	1.00	1.19	4.38	1.50
165A	1.50	0.81	12.00	24.00	12	28.13	8.50	7.88	5.50	3.25	.25 x .13	.25 x .13	9.88	8.75	11.13	0.63	24.00	1.00	1.19	4.38	1.50
182	1.75	0.81	13.00	26.00	12	30.88	9.50	8.75	5.25	3.88	.25 x .13	.38 x .19	10.75	9.63	11.50	0.75	26.38	1.19	1.44	5.00	4.00
200	2.25	0.81	14.50	29.00	12	33.75	10.69	9.69	7.50	3.63	.38 x .19	.38 x .19	11.50	10.63	13.00	1.00	28.06	1.44	1.44	5.00	4.00
222	2.25	0.81	16.00	32.00	10	37.88	11.50	10.50	8.00	4.25	.38 x .19	.38 x .19	14.00	11.75	14.50	1.00	32.00	1.44	1.69	5.63	4.00
245	2.50	0.81	17.00	34.00	10	41.38	12.63	11.50	7.50	4.25	.38 x .19	.38 x .19	15.38	12.88	14.50	1.13	34.38	1.44	1.69	5.63	4.00
270	2.50	0.81	19.00	38.00	10	45.38	13.63	12.50	8.00	5.63	.38 x .19	.50 x .25	17.38	14.13	16.50	1.13	38.75	1.69	1.94	7.00	4.00
300	3.00	0.81	21.00	42.00	10	50.13	15.25	13.88	9.00	5.50	.50 x .25	.50 x .25	19.13	15.88	17.50	1.38	41.88	1.94	1.94	7.00	4.75
330	3.50	0.81	23.00	46.00	10	54.88	16.88	15.25	10.75	6.75	.50 x .25	.50 x .25	20.88	17.38	19.50	1.63	46.25	1.94	2.19	8.25	4.75
365	3.50	0.81	25.50	51.00	7	59.31	18.31	16.69	12.00	6.75	.50 x .25	.63 x .31	22.44	18.88	22.00	1.63	49.25	1.94	2.44	8.25	4.75
402	3.50	0.81	28.00	56.00	7	64.19	19.75	18.13	13.50	6.75	.50 x .25	.63 x .31	24.44	20.88	24.50	1.63	52.69	2.19	2.44	8.25	4.75
445	4.00	0.81	31.00	62.00	7	70.81	21.81	19.94	15.81	6.50	.63 x .31	.63 x .31	27.19	22.88	26.50	1.88	57.25	2.44	2.69	8.25	6.00
490	4.00	0.81	34.00	68.00	7	76.31	23.56	21.69	17.56	6.50	.63 x .31	.75 x .38	29.19	25.38	29.50	1.88	61.00	2.69	2.94	8.25	6.00
542	4.00	0.81	38.00	76.00	7	81.31	25.56	23.69	19.56	6.38	.75 x .38	.88 x .44	30.19	27.63	33.50	1.88	64.00	2.94	3.44	8.25	6.00
600	5.00	0.81	38.00	76.00	.25	89.88	28.81	26.44	21.81	6.63	.75 x .38	.88 x .44	32.75	30.63	33.50	2.38	69.56	2.94	3.44	8.50	6.00
660	5.00	0.81	40.75	81.50	.25	97.50	31.13	28.75	24.13	6.63	.88 x .44	1.00 x .50	35.75	33.13	36.25	2.38	75.00	3.44	3.94	8.63	6.00
730	5.00	0.81	46.00	92.00	.25	105.75	33.75	31.38	26.75	6.63	.88 x .44	1.00 x .50	38.75	37.13	41.50	2.38	80.63	3.44	3.94	8.63	6.00
807	5.00	0.81	51.00	102.00	.25	114.63	36.69	34.31	29.69	6.13	1.00 x .50	1.00 x .50	41.75	40.88	46.50	2.38	86.19	3.94	4.44	8.25	6.00

AC1001287

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.



Horizontal, Arr. 3 – Class I, II and III



Class I and II

SIZE	BA	BH	D	G	GA	H	HY		JA		JB	K	KC	KL	KS		M	MA	N	P		SD		U
							CL I	CL II	CL I	CL II					CL I	CL II				CL I	CL II	CL I	CL II	
122A	1.50	0.81	10.00	20.00	12	13.75	16.00	16.00	7.75	7.88	6.88	6.25	4.00	2.38	.25x.13	.25x.13	6.75	9.13	0.63	11.13	11.13	1.00	1.19	1.50
150A	1.50	0.81	11.00	22.00	12	15.75	18.00	18.00	8.75	8.88	7.88	7.25	5.00	3.38	.25x.13	.25x.13	8.25	10.13	0.63	13.13	13.13	1.00	1.19	1.50
165A	1.50	0.81	12.00	24.00	12	17.00	19.25	19.25	9.38	9.50	8.50	7.88	5.50	3.38	.25x.13	.25x.13	8.75	11.13	0.63	13.75	13.75	1.00	1.19	1.50
182	1.75	0.81	13.00	26.00	12	19.00	20.75	20.75	10.25	10.31	9.50	8.75	5.25	3.00	.25x.13	.38x.19	9.63	11.50	0.75	14.13	15.06	1.19	1.44	4.00
200	2.25	0.81	14.50	29.00	12	21.38	22.13	23.13	10.94	11.25	10.69	9.69	7.50	3.00	.25x.13	.38x.19	10.63	13.00	1.00	14.81	15.75	1.19	1.44	4.00
222	2.25	0.81	16.00	32.00	10	23.00	23.75	24.75	11.88	12.19	11.50	10.50	8.00	4.00	.38x.19	.38x.19	11.75	14.50	1.00	17.56	17.69	1.44	1.69	4.00
245	2.50	0.81	17.00	34.00	10	25.25	25.50	26.50	12.75	13.06	12.63	11.50	7.50	3.50	.38x.19	.50x.25	12.88	14.50	1.13	17.94	18.06	1.44	1.94	4.00
270	2.50	0.81	19.00	38.00	10	27.25	27.50	28.50	13.75	14.06	13.63	12.50	8.00	3.50	.38x.19	.50x.25	14.13	16.50	1.13	18.94	19.06	1.44	1.94	4.00
300	3.00	0.81	21.00	42.00	10	30.50	30.75	30.75	15.19	15.31	15.25	13.88	9.00	4.50	.38x.19	.50x.25	15.88	17.50	1.38	21.19	21.50	1.69	1.94	4.75
330	3.50	0.81	23.00	46.00	10	33.75	34.00	34.00	16.56	16.69	16.88	15.25	10.75	4.50	.38x.19	.50x.25	17.38	19.50	1.63	22.44	22.63	1.69	1.94	4.75
365	3.50	0.81	25.50	51.00	7	36.63	37.00	38.00	18.06	18.56	18.31	16.69	12.00	4.75	.50x.25	.50x.25	18.88	22.00	1.63	24.13	24.75	1.94	2.19	4.75
402	3.50	0.81	28.00	56.00	7	39.50	39.88	40.88	19.56	20.00	19.75	18.13	13.50	5.50	.50x.25	.50x.25	20.88	24.50	1.63	26.56	26.94	1.94	2.19	4.75
445	4.00	0.81	31.00	62.00	7	43.63	44.00	44.00	21.56	21.75	21.81	19.94	15.81	5.50	.50x.25	.63x.31	22.88	26.50	1.88	28.50	28.81	2.19	2.44	6.00
490	4.00	0.81	34.00	68.00	7	47.13	47.50	47.50	23.31	23.56	23.56	21.69	17.56	5.50	.50x.25	.63x.31	25.38	29.50	1.88	30.25	30.88	2.19	2.69	6.00
542	4.00	0.81	38.00	76.00	7	51.13	51.50	53.50	25.31	26.06	25.56	23.69	19.56	6.63	.63x.31	.75x.38	27.63	33.50	1.88	33.69	34.63	2.44	2.94	6.00
600	5.00	0.81	38.00	76.00	.25	57.63	58.13	58.13	28.44	28.56	28.81	26.44	21.81	6.81	.63x.31	.88x.44	30.63	33.50	2.38	37.00	38.19	2.69	3.44	6.00
660	5.00	0.81	40.75	81.50	.25	62.25	62.75	64.75	30.75	31.38	31.13	28.75	24.13	7.38	.75x.38	.88x.44	33.13	36.25	2.38	40.00	42.06	2.94	3.44	6.00
730	5.00	0.81	46.00	92.00	.25	67.50	68.00	70.00	33.50	34.00	33.75	31.38	26.75	7.38	.88x.44	.88x.44	37.13	41.50	2.38	43.69	44.69	3.44	3.44	6.00
807	5.00	0.81	51.00	102.00	.25	73.38	73.88	77.88	36.63	39.25	36.69	34.31	29.69	6.31	1.00x.50	1.00x.50	40.88	46.50	2.38	45.75	47.88	3.94	4.44	6.00

AC1001285B

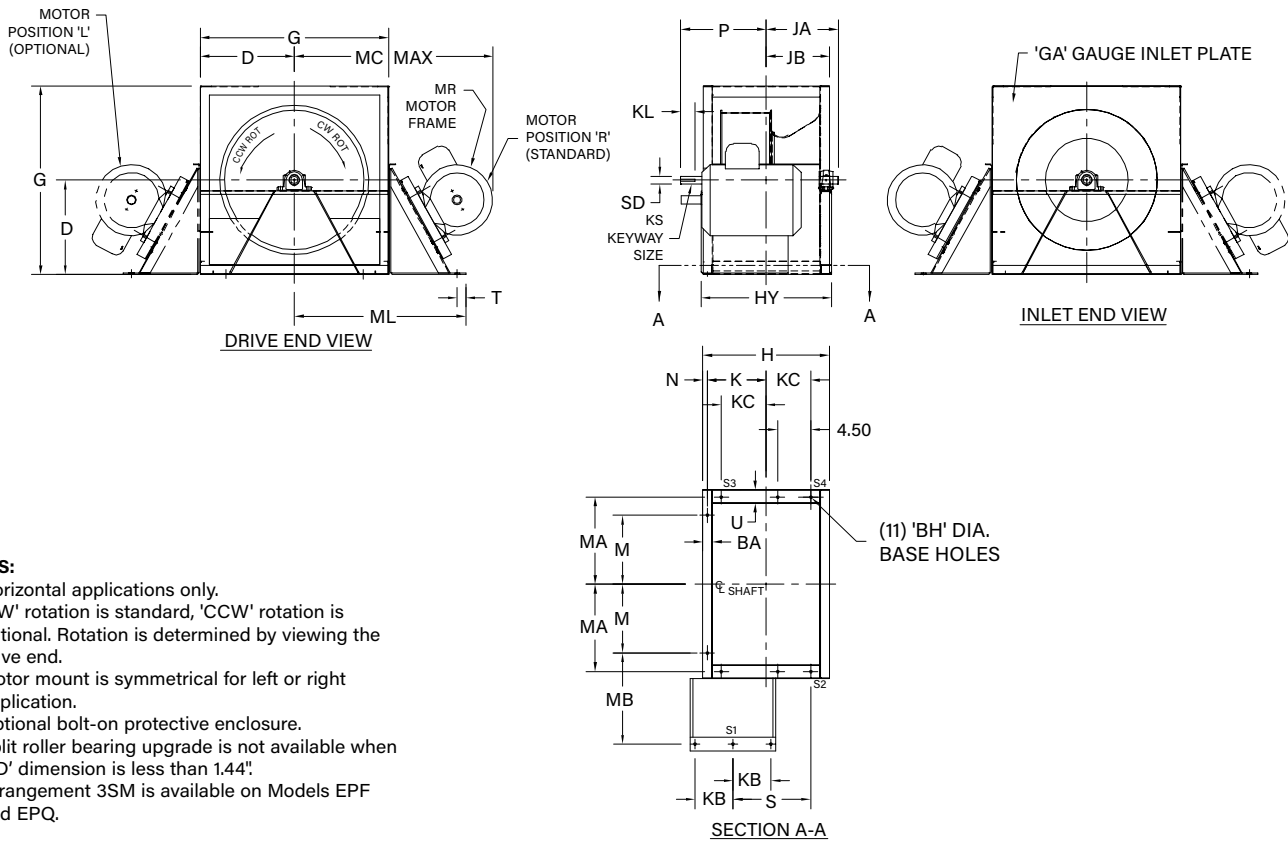
Class III

SIZE	BA	BH	D	G	GA	H	HY	JA	JB	K	KC	KL	KS	M	MA	N	P	SD	U
182	1.75	0.81	13.00	26.00	10	19.00	21.75	10.69	9.50	8.75	5.25	2.94	.38x.19	9.63	11.50	0.75	15.19	1.69	4.00
200	2.25	0.81	14.50	29.00	10	21.38	23.13	11.38	10.69	9.69	7.50	2.94	.38x.19	10.63	13.00	1.00	15.88	1.69	4.00
222	2.25	0.81	16.00	32.00	7	23.00	24.88	12.31	11.50	10.50	8.00	3.94	.50x.25	11.75	14.50	1.00	18.06	1.94	4.00
245	2.50	0.81	17.00	34.00	7	25.25	26.63	13.19	12.63	11.50	7.50	3.50	.50x.25	12.88	14.50	1.13	18.50	1.94	4.00
270	2.50	0.81	19.00	38.00	7	27.25	28.63	14.38	13.63	12.50	8.00	3.44	.50x.25	14.13	16.50	1.13	19.56	2.19	4.00
300	3.00	0.81	21.00	42.00	7	30.50	30.88	15.38	15.25	13.88	9.00	4.44	.50x.25	15.88	17.50	1.38	21.69	2.19	4.75
330	3.50	0.81	23.00	46.00	7	33.75	35.13	17.13	16.88	15.25	10.75	4.56	.63x.31	17.38	19.50	1.63	23.63	2.44	4.75
365	3.50	0.81	25.50	51.00	.25	36.63	38.13	18.69	18.31	16.69	12.00	4.56	.63x.31	18.88	22.00	1.63	24.94	2.44	4.75
402	3.50	0.81	28.00	56.00	.25	39.50	43.00	20.88	19.75	18.13	13.50	5.50	.63x.31	20.88	24.50	1.63	28.13	2.69	4.75
445	4.00	0.81	31.00	62.00	.25	43.63	46.13	22.44	21.81	19.94	15.81	6.63	.75x.38	22.88	26.50	1.88	31.06	2.94	6.00
490	4.00	0.81	34.00	68.00	.25	47.13	51.63	24.69	23.56	21.69	17.56	6.63	.75x.38	25.38	29.50	1.88	33.75	2.94	6.00
542	4.00	0.81	38.00	76.00	.25	51.13	55.63	26.81	25.56	23.69	19.56	6.38	.88x.44	27.63	33.50	1.88	36.56	3.44	6.00
600	5.00	0.81	38.00	76.00	.31	57.63	60.25	29.31	28.81	26.44	21.81	6.88	1.00x.50	30.63	33.50	2.38	39.56	3.94	6.00
660	5.00	0.81	40.75	81.50	.31	62.25	66.88	32.13	31.13	28.75	24.13	8.25	1.00x.50	33.13	36.25	2.38	44.19	3.94	6.00
730	5.00	0.81	46.00	92.00	.31	67.50	72.13	34.56	33.75	31.38	26.75	8.69	.88x.44	37.13	41.50	2.38	47.06	3.44*	6.00
807	5.00	0.81	51.00	102.00	.31	73.38	78.00	37.69	36.69	34.31	29.69	8.31	1.00x.50	40.88	46.50	2.38	49.81	3.94**	6.00

AC1001320B

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 3SM - Class I and II



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Motor mount is symmetrical for left or right application.
4. Optional bolt-on protective enclosure.
5. Split roller bearing upgrade is not available when 'SD' dimension is less than 1.44".
6. Arrangement 3SM is available on Models EPF and EPQ.

SIZE	BA	BH	D	G	GA	H	HY		JA		JB	K	KB	KC	KL	KS	
							CL I	CL II	CL I	CL II						CL I	CL II
165A	1.50	0.81	12.00	24.00	12	17.00	19.25	19.25	9.63	11.06	8.50	7.88	5.00	5.50	3.38	.25 x .13	.25 x .13
182	1.75	0.81	13.00	26.00	12	19.00	20.75	22.75	10.81	12.06	9.50	8.75	5.63	5.25	3.00	.25 x .13	.38 x .19
200	2.25	0.81	14.50	29.00	12	21.38	22.13	24.13	11.50	12.75	10.69	9.69	5.63	7.50	3.00	.25 x .13	.38 x .19
222	2.25	0.81	16.00	32.00	10	23.00	25.75	25.75	13.56	13.56	11.50	10.50	5.63	8.00	4.00	.38 x .19	.38 x .19
245	2.50	0.81	17.00	34.00	10	25.25	27.50	27.50	14.44	14.44	12.63	11.50	6.50	7.50	3.50	.38 x .19	.50 x .25
270	2.50	0.81	19.00	38.00	10	27.25	29.50	29.50	15.44	15.44	13.63	12.50	6.50	8.00	3.50	.38 x .19	.50 x .25
300	3.00	0.81	21.00	42.00	10	30.50	31.75	32.75	16.56	16.75	15.25	13.88	8.75	9.00	4.50	.38 x .19	.50 x .25
330	3.50	0.81	23.00	46.00	10	33.75	34.00	35.00	17.69	17.88	16.88	15.25	8.75	10.75	4.50	.38 x .19	.50 x .25
365	3.50	0.81	25.50	51.00	7	36.63	37.00	38.00	19.19	20.00	18.31	16.69	10.44	12.00	4.75	.50 x .25	.50 x .25
402	3.50	0.81	28.00	56.00	7	39.50	40.88	40.88	20.81	21.44	19.75	18.13	9.69	13.50	5.50	.50 x .25	.50 x .25
445	4.00	0.81	31.00	62.00	7	43.63	44.00	44.00	23.00	23.25	21.81	19.94	9.69	15.81	5.50	.50 x .25	.63 x .31
490	4.00	0.81	34.00	68.00	7	47.13	47.50	49.50	24.75	25.56	23.56	21.69	9.69	17.56	5.50	.50 x .25	.63 x .31
542	4.00	0.81	38.00	76.00	7	51.13	51.50	53.50	27.00	27.25	25.56	23.69	10.19	19.56	6.63	.63 x .31	.75 x .38
600	5.00	0.81	38.00	76.00	.25	57.63	58.13	60.13	29.88	30.69	28.81	26.44	9.19	21.81	6.81	.63 x .31	.88 x .44

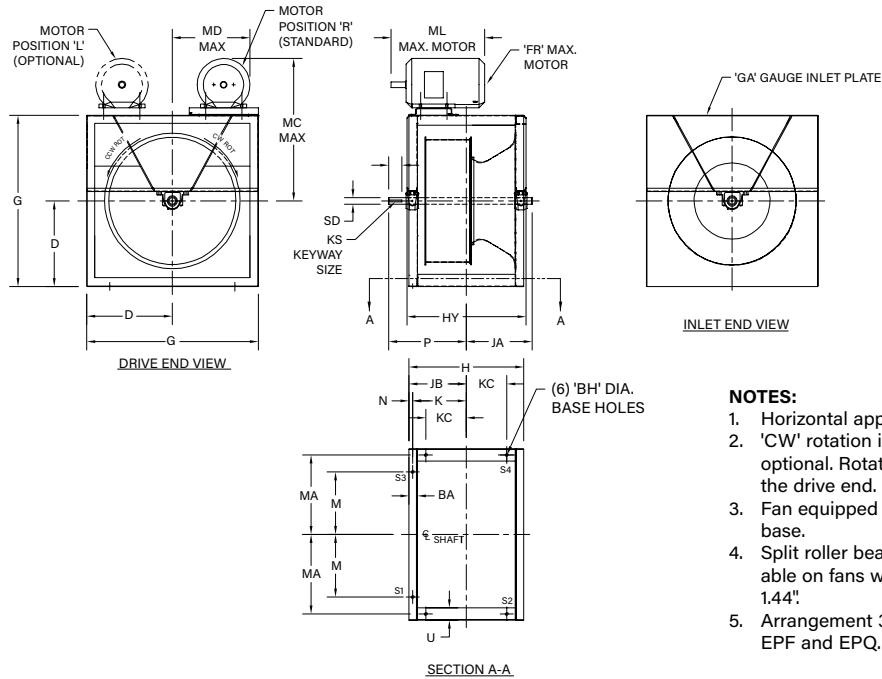
SIZE	M	MA	MB	MC	ML	MR	N	P		S		SD		T	U
								CL I	CL II	CL I	CL II	CL I	CL II		
165A	8.75	11.13	13.50	26.75	23.25	56 - 215T	0.63	13.63	13.94	8.38	8.69	1.00	1.19	1.00	1.50
182	9.63	11.50	13.69	27.50	24.31	143T - 215T	0.75	14.69	15.69	8.75	8.94	1.19	1.44	1.00	4.00
200	10.63	13.00	14.19	31.00	25.81	143T - 254T	1.00	16.38	16.38	12.50	12.50	1.19	1.44	1.00	4.00
222	11.75	14.50	14.94	37.50	27.69	143T - 254T	1.00	18.25	18.25	14.75	14.75	1.44	1.69	1.00	4.00
245	12.88	14.50	15.69	32.00	29.56	143T - 256T	1.13	18.63	18.63	13.25	13.25	1.44	1.94	1.00	4.00
270	14.13	16.50	17.75	37.75	32.88	145T - 256T	1.13	19.63	19.63	14.81	14.81	1.44	1.94	1.00	4.00
300	15.88	17.50	18.88	42.00	36.00	145T - 284T	1.38	21.75	22.00	15.44	15.69	1.69	1.94	1.25	4.75
330	17.38	19.50	21.13	48.25	39.75	145T - 286T	1.63	22.88	23.75	17.81	18.06	1.69	1.94	1.25	4.75
365	18.88	22.00	23.38	53.25	43.50	182T - 324T	1.63	24.63	25.75	18.88	19.13	1.94	2.19	1.25	4.75
402	20.88	24.50	25.63	49.50	48.00	182T - 326T	1.63	27.06	28.19	23.31	23.56	1.94	2.19	1.50	4.75
445	22.88	26.50	27.63	53.25	52.00	184T - 326T	1.88	29.25	30.31	27.69	26.50	2.19	2.44	1.50	6.00
490	25.38	29.50	30.31	62.50	57.19	213T - 326T	1.88	31.00	32.06	30.25	31.31	2.19	2.69	1.50	6.00
542	27.63	33.50	33.75	66.50	62.88	213T - 364T	1.88	35.06	34.88	34.94	34.75	2.44	2.94	1.50	6.00
600	30.63	33.50	33.06	70.75	65.19	213T - 365T	2.38	37.63	38.69	40.94	40.63	2.69	3.44	1.50	6.00

AC1001294C

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 3HS/3HA - Class I and II

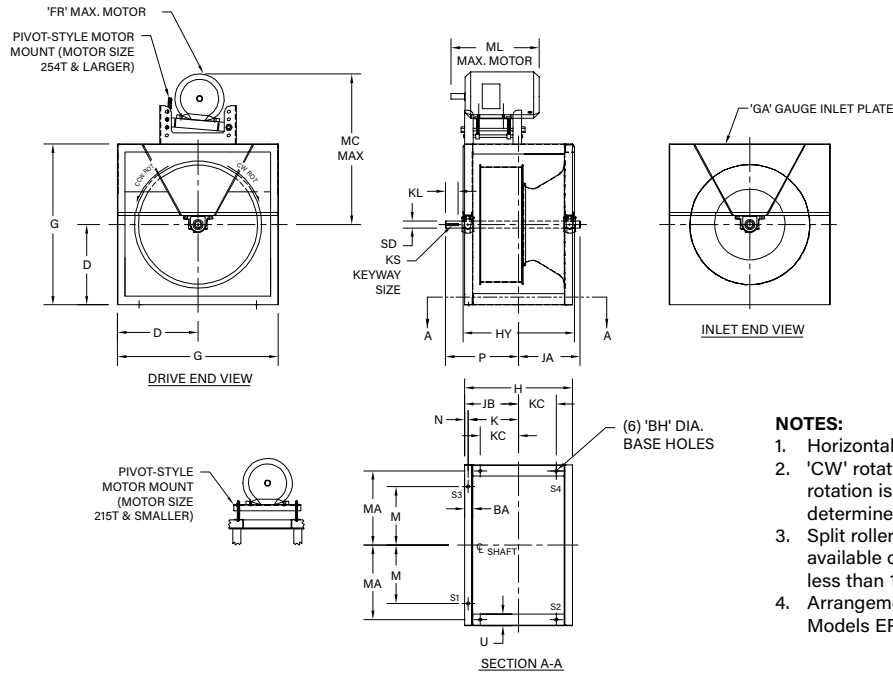
Arr. 3HS



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Fan equipped with standard NEMA slide base.
4. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 1.44".
5. Arrangement 3HS is available on Models EPF and EPQ.

Arr. 3HA



NOTES:

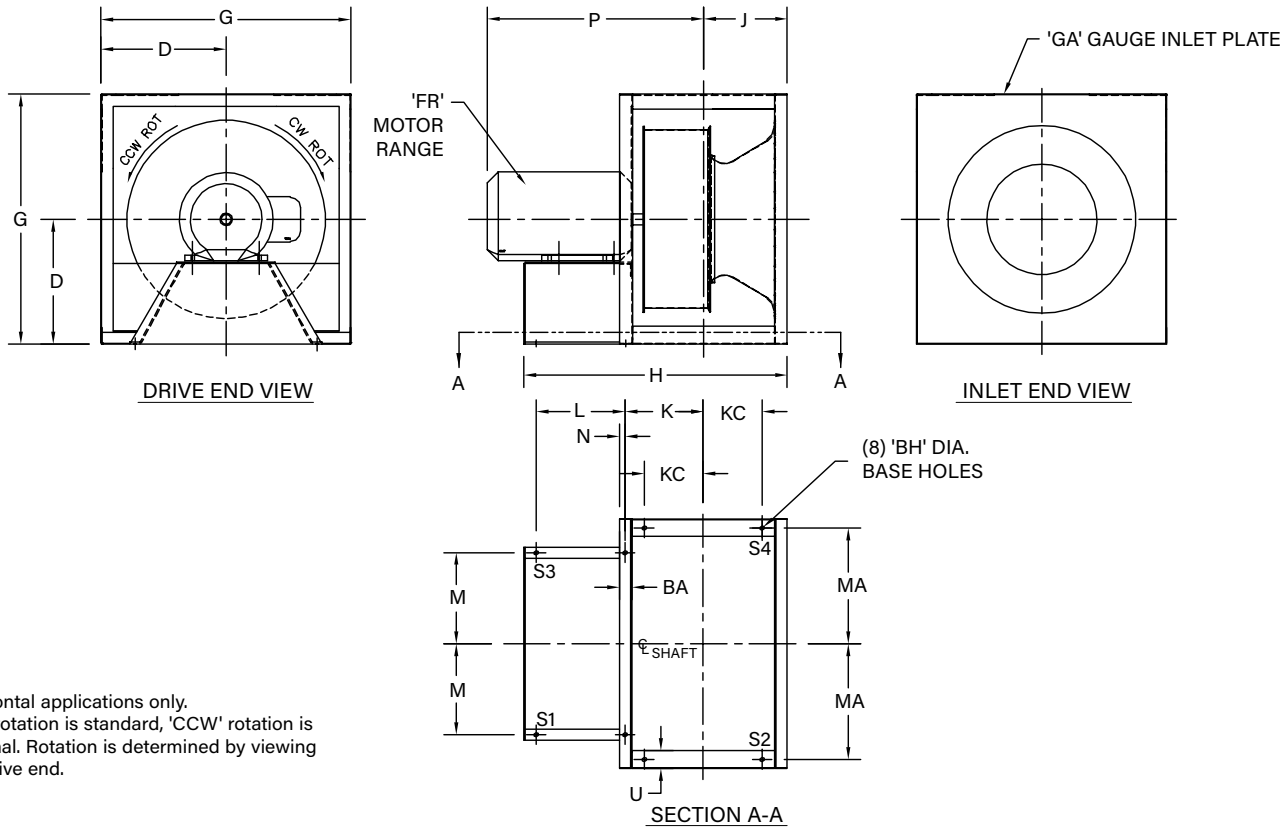
1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Split roller bearing upgrades are not available on fans with 'SD' dimensions less than 1.44".
4. Arrangement 3HA is available on Models EPF and EPQ.

SIZE	3HA	3HS	BA	BH	D	FR	G	GA	H	HY		JA		JB	K	KC	KL	KS		M	MA	MC		MD	ML	N	P		SD		U
										CL I	CL II	CL I	CL II					CL I	CL II			CL I	CL II				CL I	CL II			
122A	---	1.50	0.81	10.00	215T	20.00	12	13.75	16.00	16.00	7.75	7.88	6.88	6.25	4.00	2.38	.25x.13	.25x.13	6.75	9.13	26.81	---	---	20.25	0.63	11.13	11.13	1.00	1.19	1.50	
150A	---	1.50	0.81	11.00	215T	22.00	12	15.75	18.00	18.00	8.75	8.88	7.88	7.25	5.00	3.38	.25x.13	.25x.13	8.25	10.13	27.81	---	---	20.25	0.63	13.13	13.31	1.00	1.19	1.50	
165A	---	1.50	0.81	12.00	215T	24.00	12	17.00	19.25	19.25	9.38	9.50	8.50	7.88	5.50	3.38	.25x.13	.25x.13	8.75	11.13	28.81	---	---	20.25	0.63	13.75	13.75	1.00	1.19	1.50	
182	182	1.75	0.81	13.00	215T	26.00	12	19.00	20.75	20.75	10.25	10.31	9.50	8.75	5.25	3.00	.25x.13	.38x.19	9.63	11.50	29.88	27.50	13.00	20.25	0.75	14.13	15.06	1.19	1.44	4.00	
200	200	2.25	0.81	14.50	215T	29.00	12	21.38	22.13	23.13	10.94	11.25	10.69	9.69	7.50	3.00	.25x.13	.38x.19	10.63	13.00	31.38	29.00	14.50	20.25	1.00	14.81	15.75	1.19	1.44	4.00	
222	222	2.25	0.81	16.00	256T	32.00	10	23.00	23.75	24.75	11.88	12.19	11.50	10.50	8.00	4.00	.38x.19	.38x.19	11.75	14.50	39.38	33.25	16.13	25.75	1.00	17.56	17.69	1.44	1.69	4.00	
245	245	2.50	0.81	17.00	256T	34.00	10	25.25	25.50	26.50	12.75	13.06	12.63	11.50	7.50	3.50	.38x.19	.50x.25	12.88	14.50	40.38	34.25	17.13	25.75	1.13	17.94	18.06	1.44	1.94	4.00	
270	270	2.50	0.81	19.00	286T	38.00	10	27.25	27.50	28.50	13.75	14.06	13.63	12.50	8.00	3.50	.38x.19	.50x.25	14.13	16.50	43.88	37.75	19.13	28.88	1.13	18.94	19.06	1.44	1.94	4.00	
300	300	3.00	0.81	21.00	286T	42.00	10	30.50	30.75	30.75	15.19	15.31	15.25	13.88	9.00	4.50	.38x.19	.50x.25	15.88	17.50	45.88	39.75	21.13	28.88	1.38	21.19	21.50	1.69	1.94	4.75	
330	330	3.50	0.81	23.00	326T	46.00	10	33.75	34.00	34.50	17.69	17.88	16.88	15.25	10.75	4.50	.38x.19	.50x.25	17.38	19.50	52.38	44.25	23.00	32.00	1.63	22.44	22.63	1.69	1.94	4.75	
365	365	3.50	0.81	25.50	326T	51.00	7	36.63	37.00	38.00	18.06	18.56	18.31	16.69	12.00	4.75	.50x.25	.50x.25	18.88	22.00	54.88	46.75	25.50	32.00	1.63	24.13	24.75	1.94	2.19	4.75	
402	402	3.50	0.81	28.00	326T	56.00	7	39.50	39.88	40.88	19.56	20.00	19.75	18.13	13.50	5.50	.50x.25	.50x.25	20.88	24.50	57.50	49.25	28.00	32.00	1.63	26.56	26.94	1.94	2.19	4.75	
445	445	4.00	0.81	31.00	365T	62.00	7	43.63	44.00	44.00	21.56	21.75	21.81	19.94	15.81	5.50	.50x.25	.63x.31	22.88	26.50	62.38	54.25	31.25	34.38	1.88	28.50	28.81	2.19	2.44	6.00	
490	490	4.00	0.81	34.00	365T	68.00	7	47.13	47.50	47.50	23.31	23.56	23.56	21.69	17.56	5.50	.50x.25	.63x.31	25.38	29.50	65.38	57.25	34.25	34.38	1.88	30.25	30.88	2.19	2.69	6.00	
542	542	4.00	0.81	38.00	365T	76.00	7	51.13	51.50	53.50	25.31	26.06	25.56	23.69	19.56	6.63	.63x.31	.75x.38	27.63	33.50	69.38	61.25	38.25	34.38	1.88	33.69	34.63	2.44	2.94	6.00	

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

AC1001288D AC1001289B

Horizontal, Arr. 4 - Class I and II



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.

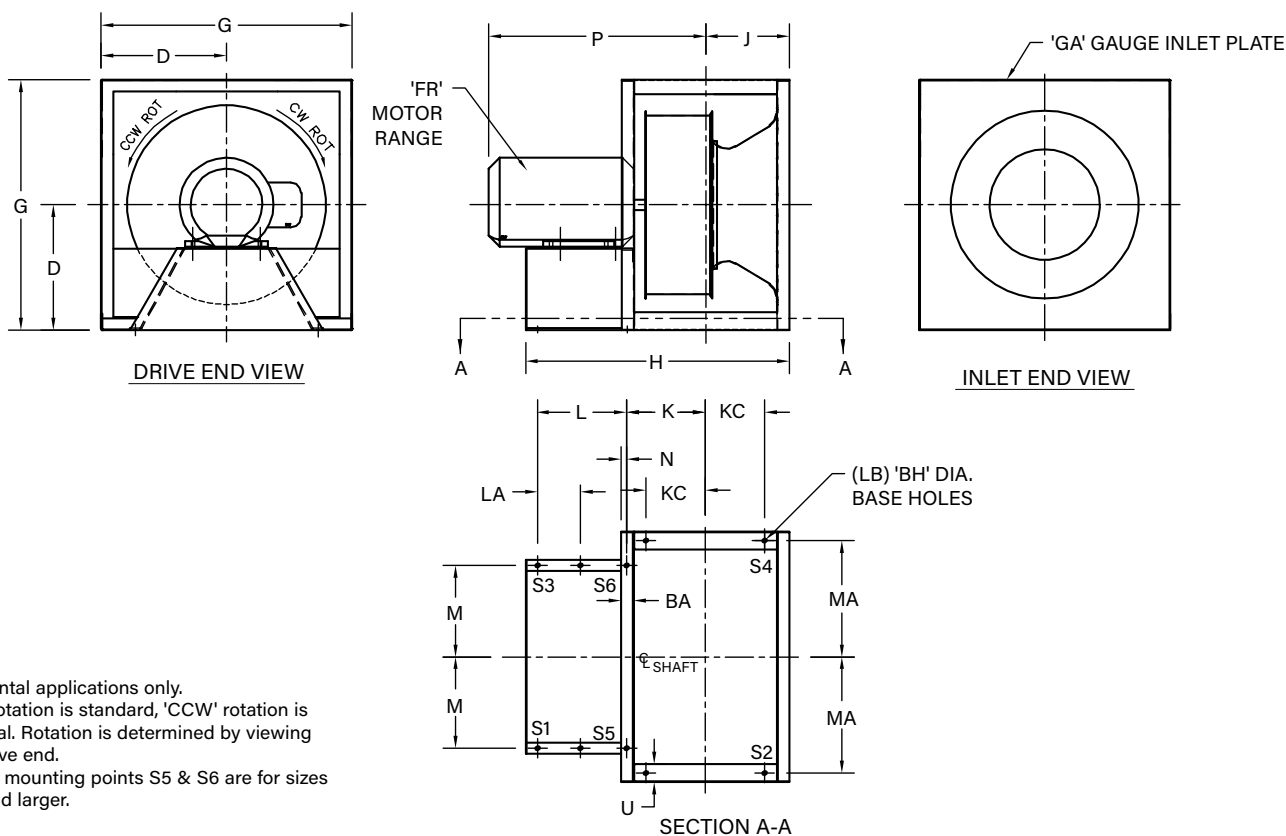
Class I and II, Size 122A - 270

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width					50-77% Width	78-105% Width	
122A	1.50	0.81	10.00	56	20.00	12	19.56	20.56	6.38	6.88	5.75	6.25	3.50	4.00	5.38	6.75	9.13	0.63	17.06	17.44	1.50
				143T-145T			21.63	22.63							7.44				17.19	17.69	
				182T-184T			23.06	24.06							8.88				18.56	19.06	
150A	1.50	0.81	11.00	56	22.00	12	21.44	22.56	7.31	7.88	6.69	7.25	4.44	5.00	5.38	8.25	10.13	0.63	18.00	18.56	1.50
				143T-145T			23.31	24.44							7.25				18.13	18.69	
				182T-184T			24.69	25.81							8.63				19.50	20.06	
165A	1.50	0.81	12.00	56	24.00	12	22.88	24.13	7.88	8.50	7.25	7.88	4.88	5.50	5.69	8.75	11.13	0.63	18.56	19.19	1.50
				143T-145T			25.19	26.44							8.00				18.69	19.31	
				182T-184T			26.44	27.69							9.25				20.06	20.69	
182	1.75	0.81	13.00	56	26.00	12	27.56	29.06	8.75	9.50	8.00	8.75	4.50	5.25	8.75	9.63	11.50	0.75	19.31	20.56	4.00
				143T-145T			29.06	30.69							8.25				19.94	21.13	
				182T-184T			30.56	32.06							11.75				24.06	25.31	
200	2.25	0.81	14.50	56	29.00	12	29.06	30.69	9.88	10.69	8.88	9.69	6.69	7.50	8.25	10.63	13.00	1.00	19.94	21.13	4.00
				143T-145T			30.44	32.06							9.63				21.31	22.50	
				182T-184T			32.31	33.94							11.75				24.69	25.88	
222	2.25	0.81	16.00	56	32.00	10	32.75	34.63	10.56	11.50	9.56	10.50	7.06	8.00	10.56	11.75	14.50	1.00	22.00	24.00	4.00
				143T-145T			34.56	36.44							12.38				25.38	27.38	
				182T-184T			38.50	40.38							16.31				30.25	32.25	
245	2.50	0.81	17.00	56	34.00	10	34.56	36.56	11.63	12.63	10.50	11.50	6.50	7.50	10.38	12.88	14.50	1.13	22.81	27.75	4.00
				143T-145T			36.31	38.31							12.13				26.19	28.13	
				182T-184T			40.31	42.31							16.13				31.06	33.00	
270	2.50	0.81	19.00	56	38.00	10	37.75	40.00	12.50	13.63	11.38	12.50	6.88	8.00	11.81	14.13	16.50	1.13	27.06	28.88	4.00
				143T-145T			41.69	43.94							15.75				31.94	33.75	
				182T-184T			43.44	45.69							17.50				34.44	36.25	

AC1004817

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 4 - Class I and II



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring mounting points S5 & S6 are for sizes 542 and larger.

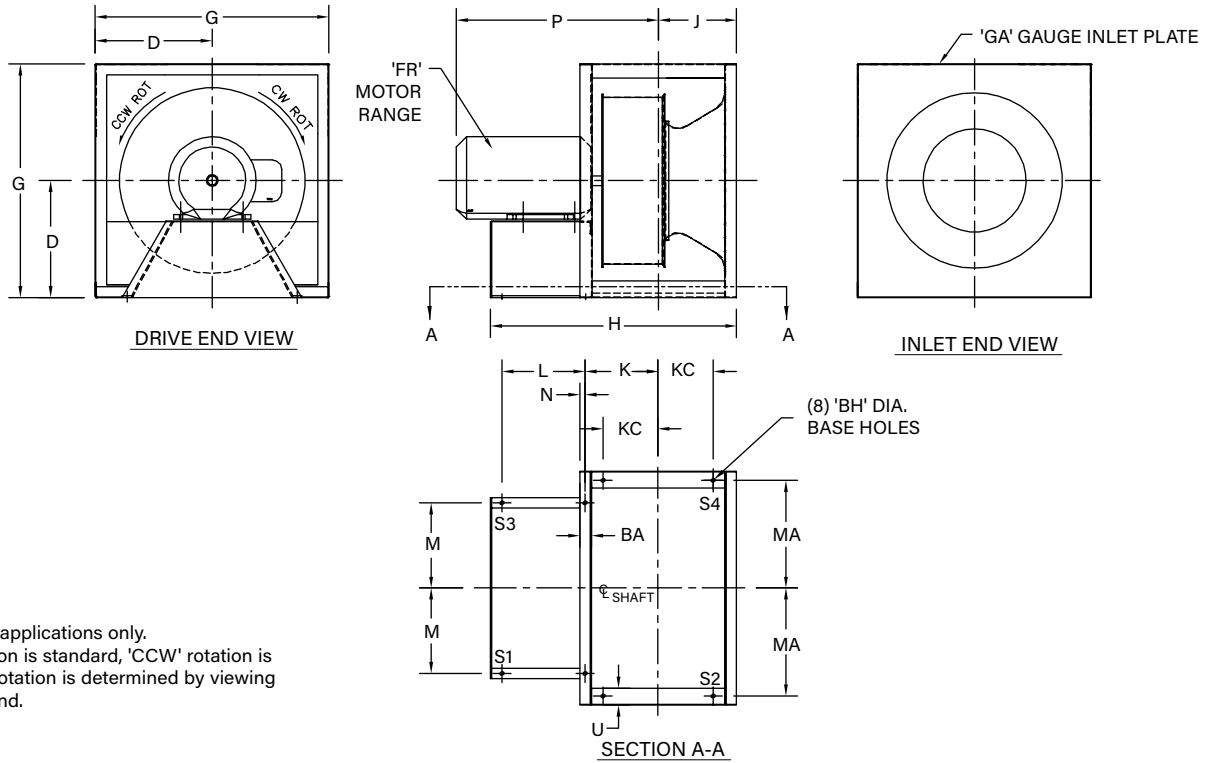
Class I and II, Size 300 - 660

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	LA	LB	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width							50-77% Width	78-105% Width	
300	3.00	0.81	21.00	213T-215T	42.00	10	40.31	42.81	14.00	15.25	12.63	13.88	7.75	9.00	11.63	—	8	15.88	17.50	1.38	28.06	29.94	4.75
				254T-256T			44.31	46.81							15.63	—	8				32.94	34.81	
				284T-286T			45.94	48.44							17.25	—	8				35.44	37.31	
330	3.50	0.81	23.00	254T-256T	46.00	10	46.31	49.06	15.50	16.88	13.88	15.25	9.38	10.75	14.88	—	8	17.38	19.50	1.63	33.94	35.88	4.75
				284T-286T			48.06	50.81							16.63	—	8				36.44	38.38	
				324T-326T			49.81	52.56							9.19	9.19	10				38.94	40.88	
365	3.50	0.81	25.50	284T-286T	51.00	7	50.38	53.38	16.81	18.31	15.19	16.69	10.50	12.00	16.31	—	8	18.88	22.00	1.63	37.81	39.31	4.75
				324T-326T			51.25	54.25							17.19	—	8				40.31	41.81	
				364T-365T			51.94	54.94							17.88	—	8				42.06	43.56	
402	3.50	0.81	28.00	404T-405T	56.00	7	54.25	57.25	18.13	19.75	16.50	18.13	11.88	13.50	10.09	10.09	10	20.88	24.50	1.63	47.56	49.06	4.75
				284T-286T			53.13	56.38							16.44	—	8				39.13	40.75	
				324T-326T			54.38	57.63							17.69	—	8				41.63	43.25	
445	4.00	0.81	31.00	364T-365T	62.00	7	54.38	57.63	20.00	21.81	18.13	19.94	14.00	15.81	17.69	—	8	22.88	26.50	1.88	43.38	45.00	6.00
				404T-405T			46.50	59.75							9.91	9.91	10				48.88	50.50	
				324T-326T			60.00	63.63							9.91	9.91	10				43.00	46.50	
490	4.00	0.81	34.00	364T-365T	68.00	7	61.13	64.75	21.56	23.56	19.69	21.69	15.56	17.56	10.47	10.47	10	25.38	29.50	1.88	44.75	48.25	6.00
				404T-405T			61.00	64.63							10.22	10.22	10				51.81	53.81	
				324T-326T			62.94	66.88							10.41	10.41	10				50.25	52.06	
542	4.00	0.81	38.00	404T-405T	76.00	7	67.25	71.69	23.31	25.56	21.44	23.69	17.31	19.56	9.78	9.78	10	27.63	33.50	1.88	44.56	48.00	6.00
				444T-445T			64.06	68.00							10.34	10.34	10				46.31	49.75	
				364T-365T			63.81	67.75							10.22	10.22	10				51.81	53.81	
600	5.00	0.81	38.00	404T-405T	76.00	0.25	67.56	72.00	26.38	28.81	24.00	26.44	19.38	21.81	10.34	10.34	10	30.63	33.50	2.38	48.06	51.63	6.00
				444T-445T			73.56	78.44							10.56	10.56	10				55.69	58.13	
				364T-365T			75.50	80.38							11.53	11.53	10				62.19	64.63	
660	5.00	0.81	40.75	404T-405T	81.50	0.25	76.38	81.75	28.38	31.13	26.00	28.75	21.44	24.13	9.69	9.69	10	33.13	36.25	2.38	52.25	56.19	6.00
				444T-445T			77.44	82.81							10.44	10.44	10				57.75	60.44	
				444T-445T			80.19	85.56							11.81	11.81	10				64.25	66.94	

AC1004818A

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Horizontal, Arr. 4 - Class III



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.

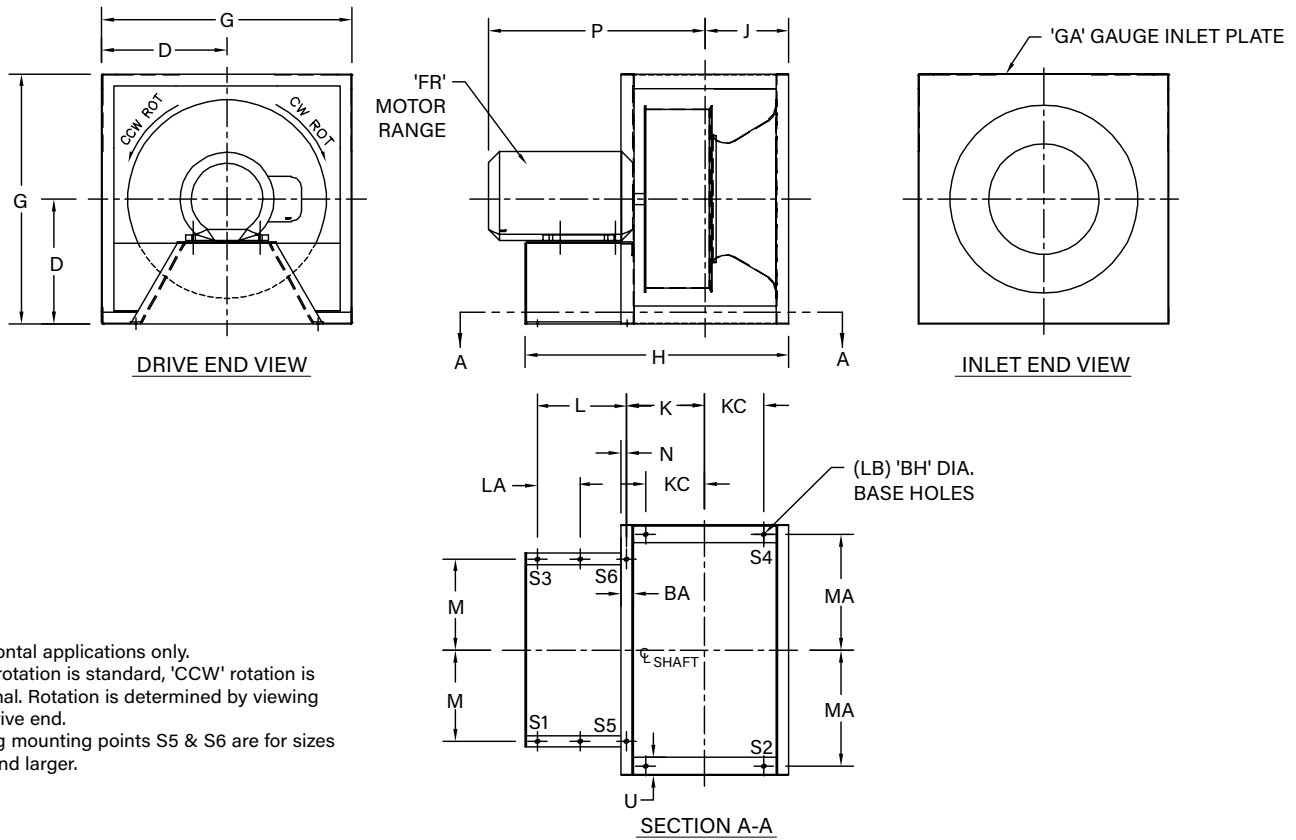
Class III, Size 182 - 330

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width					50-77% Width	78-105% Width	
165A	1.50	0.81	12.00	143T-145T	24.00	12	26.61	27.86	7.88	8.50	7.25	7.88	4.88	5.50	9.40	8.75	11.13	0.63	17.06	18.31	1.50
				182T-184T			26.61	27.86							14.53				19.00	20.25	
				213T-215T			31.75	33.00							14.53				22.06	23.31	
				254T-256T			31.75	33.00							14.53				27.44	28.69	
182	1.75	0.81	13.00	143T-145T	26.00	10	27.00	28.44	8.75	9.50	8.00	8.75	4.50	5.25	8.13	9.63	11.50	0.75	19.38	20.13	4.00
				182T-184T			28.25	29.69							9.38				20.75	21.50	
				213T-215T			29.75	31.19							10.88				24.13	24.88	
				254T-256T			33.86	35.38							15.00				29.06	29.75	
				284T/TS-286T/TS			36.63	38.13							17.82				32.33	33.45	
200	2.25	0.81	14.50	143T-145T	29.00	10	29.13	30.69	9.88	10.69	8.88	9.69	6.69	7.50	8.25	10.63	13.00	1.00	20.00	20.81	4.00
				182T-184T			30.50	32.06							9.63				21.38	22.19	
				213T-215T			31.63	33.19							10.75				24.75	25.56	
				254T-256T			35.83	37.25							14.75				29.89	30.44	
				284T/TS-286T/TS			38.33	39.95							17.53				32.85	34.00	
				324T/TS-326T/TS			40.08	41.71							22.28				34.14	35.38	
222	2.25	0.81	16.00	182T-184T	32.00	7	32.56	34.38	10.56	11.50	9.56	10.50	7.06	8.00	10.31	11.75	14.50	1.00	22.13	23.06	4.00
				213T-215T			33.44	35.25							11.19				25.50	26.44	
				254T-256T			37.44	39.25							15.19				30.38	31.31	
				284T/TS-286T/TS			40.43	42.31							18.25				34.33	35.64	
				324T/TS-326T/TS			42.19	44.06							20.01				35.82	35.83	
245	2.50	0.81	17.00	182T-184T	34.00	7	34.94	36.88	11.63	12.63	10.50	11.50	6.50	7.50	10.69	12.88	14.50	1.13	22.94	23.94	4.00
				213T-215T			35.56	37.50							11.31				26.31	27.31	
				254T-256T			39.31	41.25							15.06				31.19	32.19	
				284T/TS-286T/TS			42.26	44.25							16.08				34.90	35.45	
				324T/TS-326T/TS			43.98	45.98							18.50				36.19	37.75	
270	2.50	0.81	19.00	213T-215T	38.00	7	37.56	39.75	12.50	13.63	11.38	12.50	6.88	8.00	11.56	14.13	16.50	1.13	27.19	28.31	4.00
				254T-256T			40.69	42.88							14.69				32.06	33.19	
				284T-286T			42.44	44.63							16.44				34.56	35.69	
				324T/TS-326T/TS			45.60	47.85							19.67				36.89	38.58	
				364T/TS-365T/TS			46.45	48.73							20.55				39.02	40.71	
300	3.00	0.81	21.00	213T-215T	42.00	7	40.50	42.94	14.00	15.25	12.63	13.88	7.75	9.00	11.75	15.88	17.50	1.38	28.19	29.44	4.75
				254T-256T			43.44	45.88							14.69				33.06	34.31	
				284T-286T			44.94	47.38							16.19				35.56	36.81	
				324T-326T			47.48	49.98							18.80				38.06	39.31	
				364T/TS-365T/TS			49.17	51.57							20.49				39.94	41.81	
330	3.50	0.81	23.00	254T-256T	46.00	7	44.94	47.63	15.50	16.88	13.88	15.25	9.38	10.75	13.44	17.38	19.50	1.63	34.06	35.44	4.75
				284T-286T			46.44	49.13							14.94				36.56	37.94	
				324T-326T			48.75	51.44							17.25				39.06	40.44	
				364T/TS-365T/TS			51.80	54.55							20.37				41.09	43.07	
				404T/TS-405T/TS			54.05	56.30							22.82				43.95	45.95	

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

AC1004819H

Horizontal, Arr. 4 - Class III



NOTES:

1. Horizontal applications only.
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring mounting points S5 & S6 are for sizes 445 and larger.

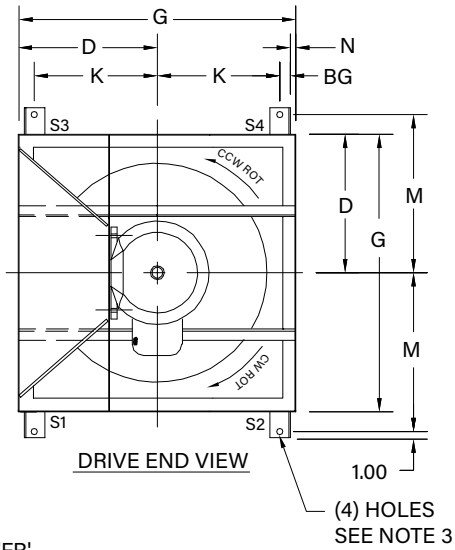
Class III, Size 365 - 660

SIZE	BA	BH	D	FR	G	GA	H		J		K		KC		L	LA	LB	M	MA	N	P Max.		U
							50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width	50-77% Width	78-105% Width							50-77% Width	78-105% Width	
365	3.50	0.81	25.50	284T-286T	51.00	0.25	48.25	51.19	16.81	18.31	15.19	19.69	10.50	12.00	14.13	—	8	18.88	22.00	1.63	38.00	39.44	4.75
				324T-326T			49.38	52.31							15.25	—	8				40.50	41.94	
				364T-365T			50.63	53.56							16.50	—	8				42.25	43.69	
				404T-405T			53.63	56.56							9.75	9.75	10				47.75	49.19	
402	3.50	0.81	28.00	284T-286T	56.00	0.25	52.50	55.69	18.13	19.75	16.50	18.13	11.88	13.50	15.75	—	8	20.88	24.50	1.63	39.31	40.88	4.75
				324T-326T			53.75	56.94							17.00	—	8				41.81	43.38	
				364T-365T			53.25	56.44							16.50	—	8				43.56	45.13	
				404T-405T			56.25	59.44							9.75	9.75	10				49.06	50.63	
445	4.00	0.81	31.00	324T-326T	62.00	0.25	56.25	59.81	20.00	21.81	18.13	19.94	14.00	15.81	16.00	—	8	22.88	26.50	1.88	43.19	44.94	6.00
				404T-405T			59.63	63.19							9.69	9.69	10				50.44	52.19	
				444T-445T			63.38	66.94							11.56	11.56	10				56.94	58.69	
				324T-326T			60.06	63.94							16.63	—	8				44.75	46.69	
490	4.00	0.81	34.00	364T-365T	68.00	0.25	60.44	64.31	21.56	23.56	19.69	21.69	15.56	17.56	17.00	—	8	25.38	29.50	1.88	46.50	48.44	6.00
				404T-405T			61.44	65.31							18.00	—	8				52.00	53.94	
				444T-445T			66.19	70.06							11.38	11.38	10				58.50	60.44	
				364T-365T			63.56	67.94							16.63	—	8				48.25	50.44	
542	4.00	0.81	38.00	404T-405T	76.00	0.25	65.44	69.81	23.31	25.56	21.44	23.69	17.31	19.56	9.25	9.25	10	27.63	33.50	1.88	53.75	55.94	6.00
				444T-445T			69.13	73.50							11.09	11.09	10				60.25	62.44	
				364T-365T			71.56	76.38							9.53	9.53	10				50.38	52.81	
				404T-405T			71.31	76.13							9.41	9.41	10				55.88	58.31	
600	5.00	0.81	38.00	444T-445T	76.00	0.31	74.06	78.88	26.38	28.81	24.00	26.44	19.38	21.81	10.78	10.78	10	30.63	33.50	2.38	62.38	64.81	6.00
				364T-365T			78.06	83.38							10.71	10.71	10				52.50	55.44	
				404T-405T			77.69	83.00							10.53	10.53	10				58.00	60.63	
				444T-445T			76.44	84.75							11.41	11.41	10				64.50	67.13	
660	5.00	0.81	40.75	364T-365T	81.50	0.31	78.06	83.38	28.38	31.13	26.00	28.75	21.44	24.13	10.71	10.71	10	33.13	36.25	2.38	52.50	55.44	6.00
				404T-405T			77.69	83.00							10.53	10.53	10				58.00	60.63	
				444T-445T			76.44	84.75							11.41	11.41	10				64.50	67.13	

AC1004820A

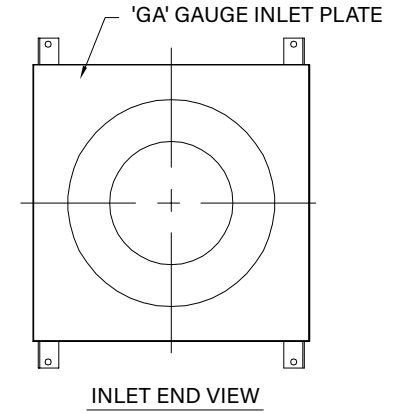
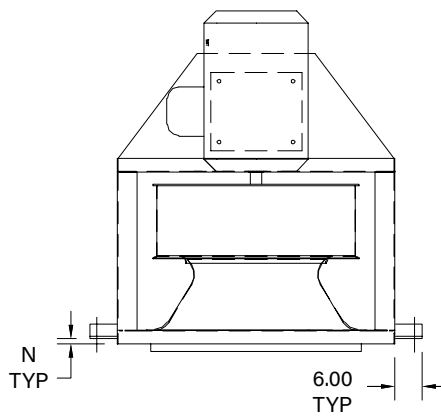
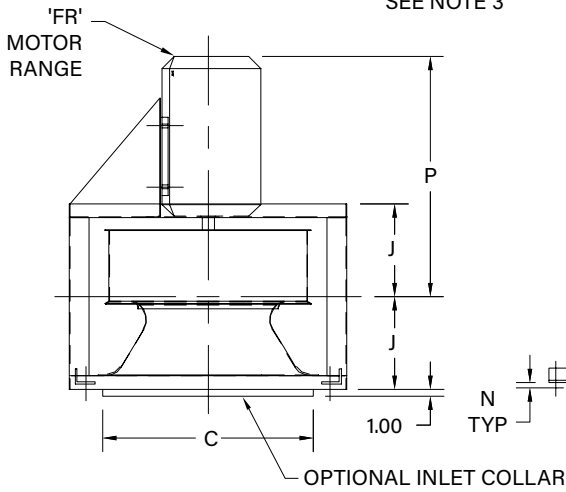
DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Vertical, Arr. 4V – Class I and II



NOTES:

1. Vertical applications only. (Vertical up airflow shown.)
2. 'CW' rotation is standard, 'CCW' rotation is optional. Rotation is determined by viewing the drive end.
3. Spring bracket holes are sized per spring type. Hole diameters when bracket is used as a mounting foot are as follows:
Size 182-365: 0.56
Size 402-490: 0.81
4. Spring bracket location for Vertical Up airflow only. See AC1001428 for Vertical Down airflow.



SIZE	BG	C	D	FR	G	GA	J		K	M	N	P MAX.	
							50-70%	71-105%				50-70%	71-105%
							WIDTH	WIDTH				WIDTH	WIDTH
182	1.63	19.50	13.00	143T - 215T	26.00	12	8.75	9.50	10.38	18.00	1.00	25.13	26.00
200	1.63	21.38	14.50	143T - 215T	29.00	12	9.88	10.69	11.38	19.50	1.50	25.63	26.75
222	1.63	23.75	16.00	182T - 256T	32.00	10	10.56	11.50	12.88	21.00	1.50	31.88	33.00
245	1.63	26.06	17.00	182T - 256T	34.00	10	11.63	12.63	13.88	22.00	1.50	32.63	33.75
270	1.63	28.50	19.00	213T - 286T	38.00	10	12.50	13.63	15.88	24.00	1.50	35.88	37.00
300	1.63	31.63	21.00	213T - 286T	42.00	10	14.00	15.25	17.88	26.00	1.50	36.88	38.00
330	1.63	34.75	23.00	254T - 326T	46.00	10	15.50	16.88	19.88	28.00	1.50	40.25	42.13
365	2.13	38.50	25.50	284T - 405T	51.00	7	16.81	18.31	21.88	30.50	1.50	48.50	51.25
402	2.13	42.44	28.00	284T - 405T	56.00	7	18.13	19.75	24.38	33.00	1.50	49.88	52.63
445	2.13	46.88	31.00	324T - 405T	62.00	7	20.00	21.81	27.38	36.00	1.50	52.88	54.88
490	2.13	51.63	34.00	324T - 405T	68.00	7	21.56	23.56	30.38	39.00	1.50	54.19	56.50

AC1001426
AC1001427
AC1001428

DIMENSIONS ARE SUBJECT TO CHANGE. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.



Model EPF

Fans shall be Model EPF centrifugal plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Performance ratings shall conform to AMCA Standard 208 (fan energy index), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan energy index (FEI). Arrangement 3 fans shall be tested and rated with shaft, bearings and bearing bar in the inlet. Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA Standard 99.

CONSTRUCTION — Fans shall be designed without a scroll type housing and shall incorporate a non-overloading type backward inclined airfoil blade impeller, heavy-gauge reinforced steel inlet plate, structural steel frame, and shaft and bearings.

FRAME AND INLET PANEL — Inlet panels shall be of heavy-gauge reinforced steel construction. The inlet panel incorporates a removable spun inlet cone designed for smooth airflow into the accompanying inlet retaining ring of the fan impeller. A square, formed lip suitable for attachment of a boot connector shall surround the unit.

IMPELLER — Impellers shall have a spun non-tapered style blade retaining ring on the inlet side to allow higher efficiencies over the performance range of the fan. Sizes 245 and smaller shall have airfoil-shaped extruded aluminum blades. Sizes 270 and larger shall have die-formed airfoil steel blades with the option of extruded aluminum blades. All impellers on direct drive arrangement 4 fans shall have airfoil-shaped extruded aluminum blades. EPF impellers shall have nine blades for high efficiencies.

SHAFT — Shafts shall be AISI 1045 hot rolled steel, accurately turned, ground, polished and ring-gauged for verification. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed. All shafts must be dial indicated for straightness after the keyways are cut and straightened as required.

FAN BEARINGS — Bearings shall be heavy-duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum bearing life (AFBMA L-10) in excess of 80,000 hours at the maximum fan RPM. All bearings shall be equipped with greasable zerk fittings and, where necessary, extended lube lines for easy access for lubrication.

DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger. Drives and belts shall be rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

VARIABLE INLET VANES — When specified, the variable inlet vanes shall be internal "nested" type. Each assembly is to have eleven vanes on sizes 245 and larger, and eight vanes on sizes 182 through 222. Each vane assembly shall be complete with quadrant and handle, suitable for manual or automatic operation. Construction shall be heavy-gauge and shall be of the cantilever design. Vanes are lubricated for life with a high quality moisture-resistant lubricant.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Maximum vibration shall be within the limits of ANSI/AMCA 204 Fan Application Category BV-3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.



Model EPFN

Fans shall be Model EPFN centrifugal plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Performance ratings shall conform to AMCA Standard 208 (fan energy index), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan energy index (FEI). Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA Standard 99.

CONSTRUCTION — Fans shall be designed without a scroll type housing and shall incorporate a non-overloading type backward inclined airfoil blade impeller, heavy-gauge reinforced steel inlet plate, structural steel frame, and shaft and bearings.

FRAME AND INLET PANEL — Inlet panels shall be of heavy-gauge reinforced steel construction. The inlet panel incorporates a removable spun inlet cone designed for smooth airflow into the accompanying inlet retaining ring of the fan impeller. A square, formed lip suitable for attachment of a boot connector shall surround the unit.

IMPELLER — Impellers shall have a spun non-tapered style blade retaining ring on the inlet side to allow higher efficiencies over the performance range of the fan. Sizes 245 and smaller shall have airfoil-shaped extruded aluminum blades. Sizes 270 and larger shall have die-formed airfoil steel blades with the option of extruded aluminum blades. All impellers on direct drive arrangement 4 fans shall have airfoil-shaped extruded aluminum blades. EPFN impellers shall have nine blades for high efficiencies.

SHAFT — Shafts shall be AISI 1045 hot rolled steel, accurately turned, ground, polished and ring-gauged for verification. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed. All shafts must be dial indicated for straightness after the keyways are cut and straightened as required.

FAN BEARINGS — Bearings shall be heavy-duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum bearing life (AFBMA L-10) in excess of 80,000 hours at the maximum fan RPM. All bearings shall be equipped with greasable zerker fittings and, where necessary, extended lube lines for easy access for lubrication.

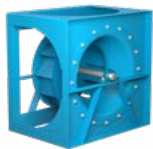
DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger. Drives and belts shall be rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

VARIABLE INLET VANES — When specified, the variable inlet vanes shall be internal "nested" type. Each assembly is to have eleven vanes on sizes 245 and larger, and eight vanes on sizes 182 through 222. Each vane assembly shall be complete with quadrant and handle, suitable for manual or automatic operation. Construction shall be heavy-gauge and shall be of the cantilever design. Vanes are lubricated for life with a high quality moisture-resistant lubricant.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Maximum vibration shall be within the limits of ANSI/AMCA 204 Fan Application Category BV-3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.



Model EPQ

Fans shall be Model EPQ centrifugal plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Performance ratings shall conform to AMCA Standard 208 (fan energy index), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan energy index (FEI). Arrangement 3 fans shall be tested and rated with shaft, bearings and bearing bar in the inlet. Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA Standard 99.

CONSTRUCTION — Fans shall be designed without a scroll type housing and shall incorporate a non-overloading type backward inclined airfoil blade impeller, heavy-gauge reinforced steel inlet plate, structural steel frame, and shaft and bearings.

FRAME AND INLET PANEL — Inlet panels shall be of heavy-gauge reinforced steel construction. The inlet panel incorporates a removable spun inlet cone designed for smooth airflow into the accompanying inlet retaining ring of the fan impeller. A square, formed lip suitable for attachment of a boot connector shall surround the unit.

IMPELLER — Impellers shall have a spun non-tapered style blade retaining ring on the inlet side to allow higher efficiencies over the performance range of the fan. Sizes 245 and smaller shall have airfoil-shaped extruded aluminum blades. Sizes 270 and larger shall have die-formed airfoil steel blades with the option of extruded aluminum blades. All impellers on direct drive arrangement 4 fans shall have airfoil-shaped extruded aluminum blades. EPQ impellers shall have twelve blades for better sound quality. All impellers shall be statically and dynamically balanced on precision electronic balancers to a Balance Quality Grade G6.3 per ANSI/AMCA 204 or better.

SHAFT — Shafts shall be AISI 1045 hot rolled steel, accurately turned, ground, polished and ring-gauged for verification. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed. All shafts must be dial indicated for straightness after the keyways are cut and straightened as required.

FAN BEARINGS — Bearings shall be heavy-duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum bearing life (AFBMA L-10) in excess of 80,000 hours at the maximum fan RPM. All bearings shall be equipped with greasable zerkl fittings and, where necessary, extended lube lines for easy access for lubrication.

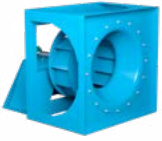
DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger. Drives and belts shall be rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

VARIABLE INLET VANES — When specified, the variable inlet vanes shall be internal "nested" type. Each assembly is to have eleven vanes on sizes 245 and larger, and eight vanes on sizes 182 through 222. Each vane assembly shall be complete with quadrant and handle, suitable for manual or automatic operation. Construction shall be heavy-gauge and shall be of the cantilever design. Vanes are lubricated for life with a high quality moisture-resistant lubricant.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Maximum vibration shall be within the limits of ANSI/AMCA 204 Fan Application Category BV-3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.



Model EPQN

Fans shall be Model EPQN centrifugal plenum (plug) type, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Performance ratings shall conform to AMCA Standard 208 (fan energy index), 211 (air performance) and 311 (sound performance). Fans shall be tested in accordance with ANSI/AMCA Standard 210 (air performance) and 300 (sound performance) in an AMCA accredited laboratory. Fans shall be licensed to bear the AMCA certified ratings seal for both sound and air, and fan energy index (FEI). Sound certification shall apply to both inlet and outlet sound power levels.

Fans shall have a sharply rising pressure characteristic extending through the operating range and continuing to rise beyond the peak efficiency to ensure quiet and stable operation. Fans shall have a non-overloading design with self-limiting horsepower characteristics and shall reach a peak in the normal selection area. All fans shall be capable of operating over the minimum pressure class limits as specified in AMCA Standard 99.

CONSTRUCTION — Fans shall be designed without a scroll type housing and shall incorporate a non-overloading type backward inclined airfoil blade impeller, heavy-gauge reinforced steel inlet plate, structural steel frame, and shaft and bearings.

FRAME AND INLET PANEL — Inlet panels shall be of heavy-gauge reinforced steel construction. The inlet panel incorporates a removable spun inlet cone designed for smooth airflow into the accompanying inlet retaining ring of the fan impeller. A square, formed lip suitable for attachment of a boot connector shall surround the unit.

IMPELLER — Impellers shall have a spun non-tapered style blade retaining ring on the inlet side to allow higher efficiencies over the performance range of the fan. Sizes 245 and smaller shall have airfoil-shaped extruded aluminum blades. Sizes 270 and larger shall have die-formed airfoil steel blades with the option of extruded aluminum blades. All impellers on direct drive arrangement 4 fans shall have airfoil-shaped extruded aluminum blades. EPQN impellers shall have twelve blades for better sound quality. All impellers shall be statically and dynamically balanced on precision electronic balancers to a Balance Quality Grade G6.3 per ANSI/AMCA 204 or better.

SHAFT — Shafts shall be AISI 1045 hot rolled steel, accurately turned, ground, polished and ring-gauged for verification. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed. All shafts must be dial indicated for straightness after the keyways are cut and straightened as required.

FAN BEARINGS — Bearings shall be heavy-duty, grease lubricated, spherical roller or adapter mounted anti-friction ball, self-aligning, pillow block type and selected for a minimum bearing life (AFBMA L-10) in excess of 80,000 hours at the maximum fan RPM. All bearings shall be equipped with greasable zerk fittings and, where necessary, extended lube lines for easy access for lubrication.

DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 10 HP and smaller, and fixed pitch on 15 HP and larger. Drives and belts shall be rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be properly washed and pretreated before application of a rust-preventative primer, if called out on the order. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly, if called out on the order. The fan shaft shall be coated with a petroleum-based rust protectant.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

VARIABLE INLET VANES — When specified, the variable inlet vanes shall be internal "nested" type. Each assembly is to have eleven vanes on sizes 245 and larger, and eight vanes on sizes 182 through 222. Each vane assembly shall be complete with quadrant and handle, suitable for manual or automatic operation. Construction shall be heavy-gauge and shall be of the cantilever design. Vanes are lubricated for life with a high quality moisture-resistant lubricant.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Maximum vibration shall be within the limits of ANSI/AMCA 204 Fan Application Category BV-3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

INDUSTRIAL PROCESS AND COMMERCIAL VENTILATION SYSTEMS

CENTRIFUGAL FANS | UTILITY SETS | PLENUM & PLUG FANS | INLINE CENTRIFUGAL FANS
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CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS
RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
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