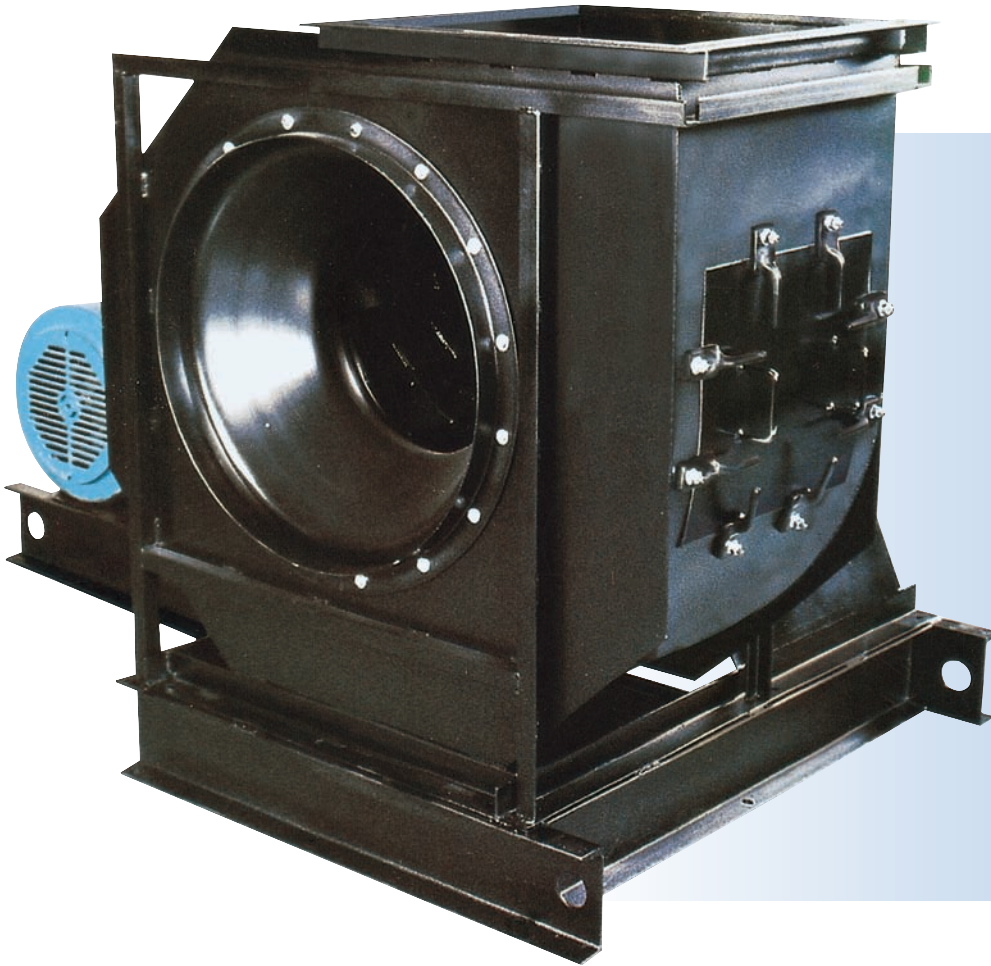


AIRFOIL CENTRIFUGAL FANS



DESIGN 10A



**Quieter,
More Efficient
Airfoil Fans for
Commercial and
Light Industrial
Applications**

Design 10A Fans with Airfoil Wheels

Fourteen Sizes to 80"

Volumes to 284,000 CFM

Pressures to 13" WG

Arrangements 1, 3, 9

Construction Classes I, II, III

Single and Double Width

Chicago's Design 10A is a rugged multi-purpose centrifugal fan equipped with an airfoil wheel suited for supply and exhaust air and light duty industrial applications. With energy efficient airfoil blades, the Design 10A fan provides reliable and quiet operation, even in mildly contaminated air. The fan is also suited for high temperature airstreams.

Chicago Blower representatives are located throughout North America and around the world. For application assistance, the Chicago representatives will help evaluate your needs and provide recommendations. We want you to enjoy doing business with Chicago Blower.



CHICAGO QUALITY

Design 10A fans are built under Chicago Blower's strict "Industrial Quality" standards, the same standards as those used on Chicago's custom engineered fans, to assure exceptional performance and reliability. Design 10A airfoil fans feature rugged heavy gauge housings and continuously welded scrolls. From material inspection to plasma cutting to assembly, every step is governed by stringent quality procedures.



Exceptional Airfoil Performance



Chicago Blower's wheels feature airfoil blades continuously welded to a streamlined wheel cone and heavy steel backplate. The hollow blades have weep holes to prevent moisture build-up inside the blade.

Airfoil wheels have true non-overloading horsepower characteristics, mechanical efficiency over 80% and a steep stable pressure curve, ideal for applications with pressure variations. Should actual system pressure

reach 30% higher than the pressure anticipated, the Design 10A would still deliver 90% of the original design volume.

Chicago's airfoil is not only the most energy efficient wheel type, it provides the quietest operation. Fans are rated for temperatures to 800° when used with a shaft cooler and shaft seal. All of Chicago's D/10A fans exceed AMCA performance standards.

D/10A Fans for Every Duty



Chicago's D/10A airfoil fans are available standard in three construction classes to meet every application requirement. All classes feature heavy gauge housings and continuously welded scroll. Class II adds additional bracing in the larger sizes. Class III adds heavier shafts and bearings, and wheels reinforced with a stiffener ring to withstand higher pressure.

Wide Fan Selection

Chicago's D10A airfoil fans are offered in Single Inlet Single Width arrangements 1, 3 and 9; Double Inlet Double Width in arrangement 3. Sizes 60 and larger are standard with septagonal housings for additional strength and stability.

		CLASS I & II FAN SIZES	CLASS III FAN SIZES
SISW	Arrangement 1	40" - 80"	22" - 66"
	Arrangement 3	40" - 80"	30" - 60"
	Arrangement 9	40" - 80"	22" - 49"
DIDW	Arrangement 3	40" - 80"	30" - 60"



Chicago Blower Corporation certifies that the Design 10A Fans shown or herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Performance Options



INLET VOLUME CONTROL

When the fan is used for varying or partial load applications, the Inlet Volume Control (IVC) provides precise air control and more efficient operation. Adjustable guide vanes pre-spin the incoming air in the same rotation as the wheel to produce the desired volume of air at the exact pressure.

Vanes are mounted entirely within the inlet cone. Automatic control is achieved by adding an electric or pneumatic actuator. The IVC is suitable for manual operation to 650°F and automatic operation to 350°F.

OUTLET DAMPERS

Dampers offer an economical alternative to IVCs. However, they require substantially more horsepower at reduced air volume.

Dampers for all fan classes have double thickness airfoil blades, and are available with parallel or opposed blade rotating louvers.

Dampers have punched flanges on both ends and are suitable for manual or automatic operation. A matching punched flanged outlet is required for mounting. Alternate construction is available for dirty or high temperature applications.

PUNCHED FLANGED INLET/OUTLET

Formed ring inlet is punched for inlet duct connection. Heavy angle flange can be welded to the outlet, either punched or unpunched.

SHAFT AND BEARING GUARD

The expanded metal guard encloses the shaft and bearings. For easier lubrication, extended grease fittings are recommended.

SHAFT COOLER AND GUARD

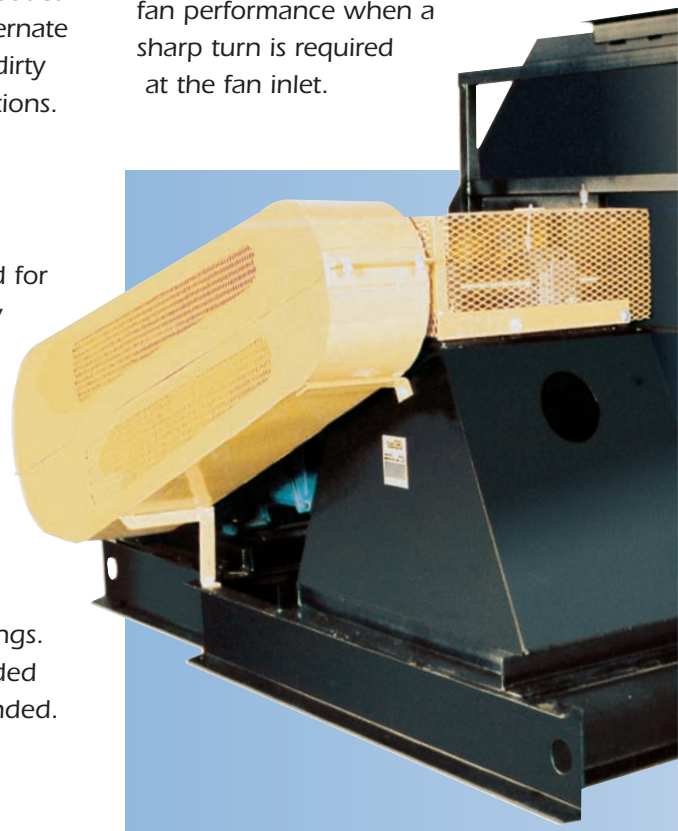
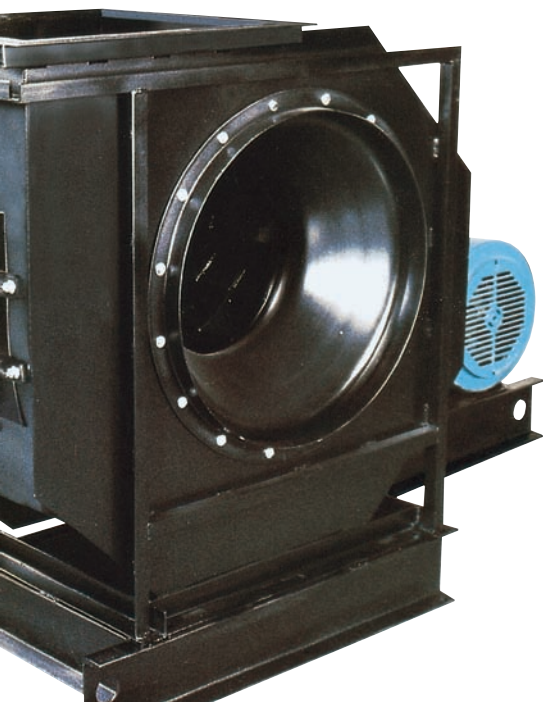
Cast aluminum cooling wheel with expanded metal guard raises the allowable temperature limit for arrangement 1 or 9 fans from 300°F to 650°F. Adding a shaft seal on arrangement 1 fans extends the limit to 800°F. Refer to page 6 for high temperature/RPM deration factors.

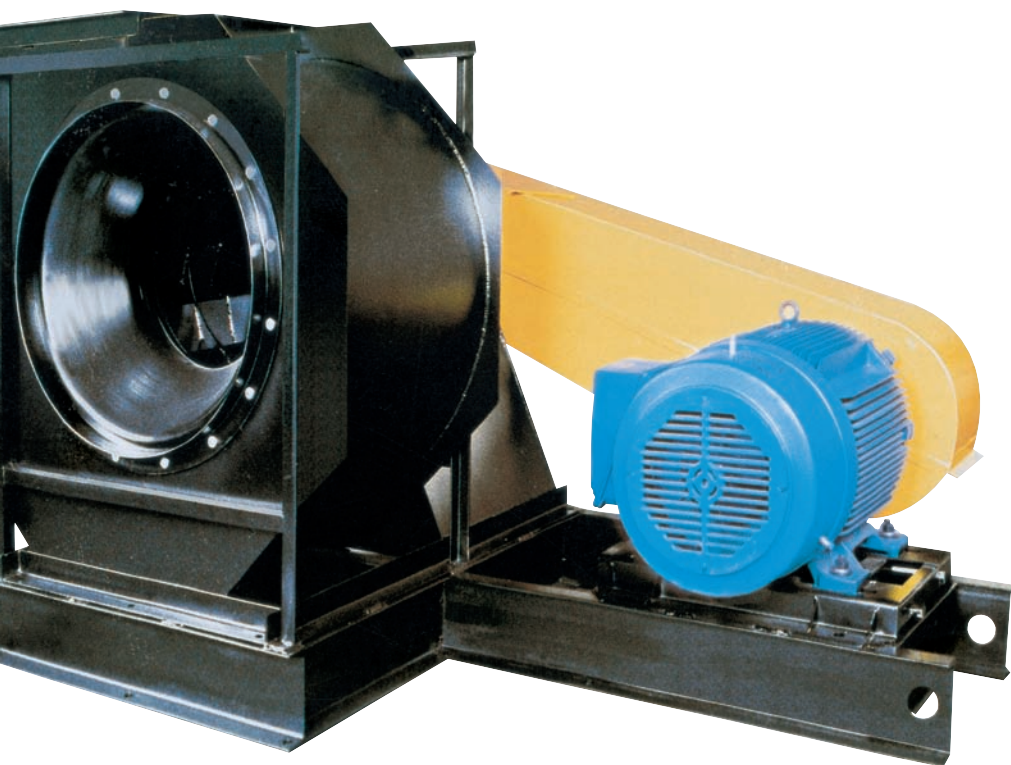
SHAFT SEAL

A non-contact seal mounted between steel plates reduces leakage through the shaft opening in the housing.

INLET BOX

The bolt-on inlet box simplifies ductwork connection when a straight horizontal connection is not feasible. Assures dependable fan performance when a sharp turn is required at the fan inlet.





Chicago's fan.net Computer Selection Program



For performance, fan curves and sound data, refer to Chicago Blower's fan.net computer selection program.

For software and assistance, contact your local Chicago Blower sales engineer.

UNITARY BASE

Fan and adjustable motor base are welded onto a unitary base of continuously welded structural steel channel.

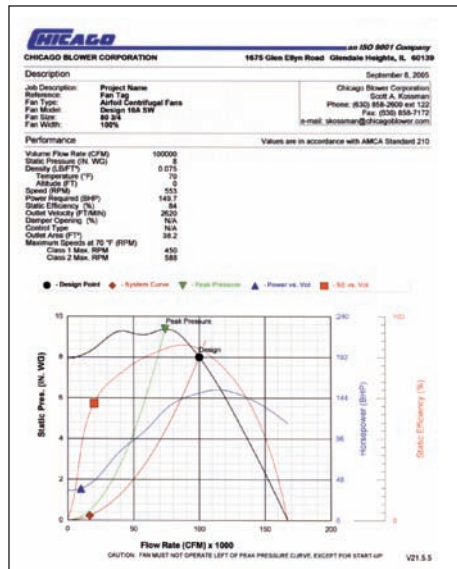
SPARK RESISTANT CONSTRUCTION

AMCA Type C spark resistant construction substitutes an aluminum inlet cone and adds a drive side aluminum buffering tube between the wheel, shaft and housing. Maximum temperature is 600°F. Not available when the fan is equipped with an IVC.



Additional Options

- INLET COLLAR
- HOUSING DRAIN
- INLET SCREEN
- CORROSION RESISTANT COATING
- BELT GUARD
- SPLIT HOUSINGS
- FLUSH MOUNT & PLUG TYPE ACCESS DOORS
- EXTENDED GREASE FITTINGS



Engineering Specifications

Design 10A Fans with Airfoil Wheels

GENERAL:

Provide a high performance, low maintenance, centrifugal fan with airfoil wheel and hyperbolic wheel cone. Fan shall be licensed to bear the AMCA Certified Ratings Seal for Air Performance based on tests and procedures in accordance with AMCA standard 211. Fans must be manufactured and assembled in the U.S.A. Acceptable vendors: Chicago Blower Corporation

PERFORMANCE:

Performance shall include steep pressure and non-overloading horsepower characteristics. Mechanical efficiency shall be no less than 80%. Wheel inlet cone to be designed to ensure smooth, stable air flow across the entire operating range. System static pressure changes of 30% shall result in an approximate 10% volume reduction.

HOUSING:

Fan housing shall be of welded, heavy gauge construction with seven common discharge positions. Scroll is to be continuously welded.

ROTOR:

Wheel shall have cast iron hub (steel hub on sizes 40-1/4, 44-1/2 and 49) lock bolted to a heavy backplate. Airfoil blades continuously welded to the backplate and hyperbolic wheel cone. Wheels to be statically and dynamically balanced to G 6.3 standards in accordance with ISO 1940 and ANSI S2.19 specifications. Shaft shall be turned, ground and polished 1045 hot rolled steel straightened to a maximum T.I.R. of .002 inches and mounted using heavy duty ball or roller pillow block bearings. Shaft critical speed shall not be less than 1.25 times maximum RPM.

MOUNTING:

Housing and base assembly complete with integral mounting angles for connection to foundation. Adjustable motor base to be welded to base or channel.

FACTORY MOUNTED MOTORS AND DRIVES (Accessory)

Motors and drives to be factory mounted. Unit to be tested at running speed for vibration and balance. Filtered vibration readings, taken at bearings, are not to exceed 0.15 inches per second.

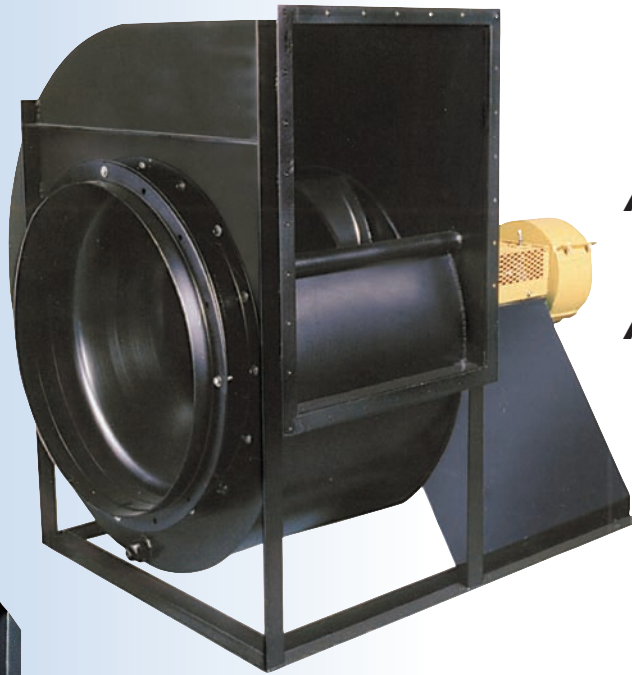
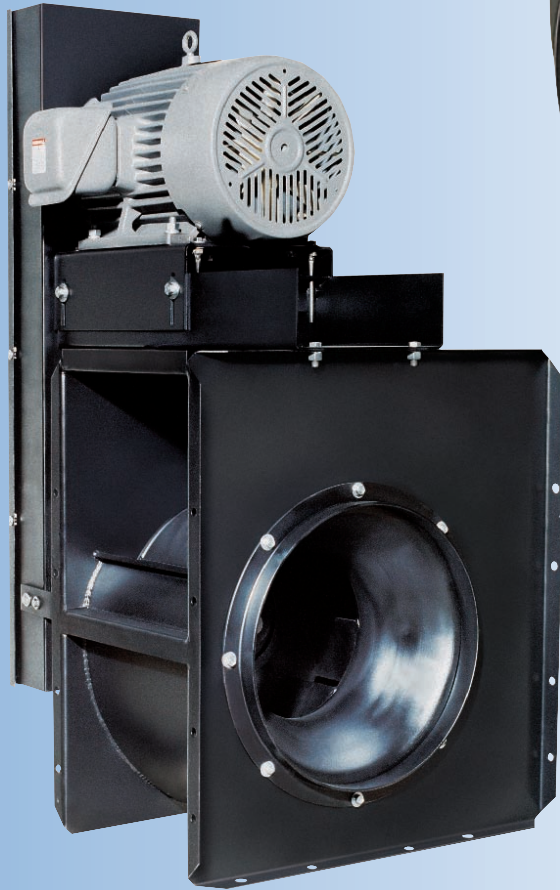
INLET VOLUME CONTROL (Accessory)

Inlet volume control (IVC) device shall be totally enclosed within the inlet cone. IVC device shall be 7-bladed, and pre-spin the incoming air to control volume and pressure.

ACCESSORIES (Choose from the following)

- Slip-fit Inlet
- Flanged Inlet or Outlet - Punched Holes
- Companion Flange - Punched or Unpunched - Inlet, Outlet or Both
- Type "C" AMCA Spark Resistant Construction
- 1-1/2" NPT Housing Drain
- Shaft Seal
- Quick Clamp or Raised Bolted Access Door
- Inlet Screen
- Shaft Cooling Wheel with Guard (Required from 300 - 800°F)
- Adjustable Motor Base
- Shaft and Bearing Guard with Extended Grease Fittings
- Totally Enclosed Belt Guard with Ventilation Panel
- Constant or Adjustable Speed V-Belt Drives - minimum 1.2 S.F.
- Outlet Damper - Parallel or Opposed Blades. Manual Operation with Locking Quadrant.
- Unitary Base: Heavy channel construction, continuously welded, with fan and motor base welded to insure vibration-free service.
- Inlet Box: Bolt-on with access door and options for support leg mounting and shop assembly.

Chicago Airfoil Fans for Every Application



SQA FANS

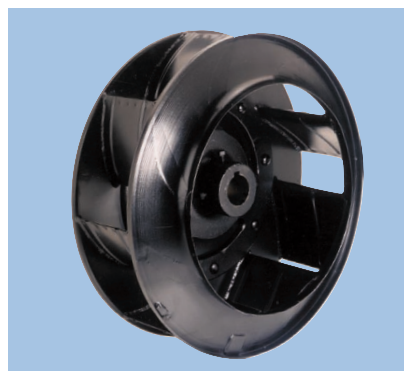
The SQA is the airfoil version of Chicago's square fan family. The fan is suited for supply air, clean exhaust and high temperature gasses to 650°. It is available as a "packaged" fan ready to install. Sizes range from 8-3/4 to 44-1/2 with volumes to 55,600 CFM and pressures to 15". Ask for Bulletin SOA.

DESIGN 51 AIRFOIL FANS

The D/51 fan is especially suited for variable air volume systems. Wide selection of sizes from 135 to 890, in four AMCA arrangements and three construction classes. Available in single width and double width configurations plus alternate RA Design 51 for low pressure, high volume applications. Ask for Bulletin DFOP.

COMPONENTS

Many system builders and OEMs specify Chicago airfoil components for their packaged equipment. Components offered include single and double width airfoil wheels and housings, inlet cones in 100% and 72% widths and Inlet Volume Controls for variable volume systems. Special finishes and alternate materials are available to suit specific installation requirements.



*Setting the
Standard
For Quality*

CHICAGO

*Innovative Engineering
Through Application Analysis*



*Quality Fans
Shaped With
Skill and Pride*



*Global Service Only a
Click Away*

**Sales Offices
Throughout
North America**

*Chicago Blower Fans
are also manufactured
worldwide:*

Argentina, Australia, Brazil,
Chile, China, Colombia,
Denmark, Germany, Greece,
Holland, Hong Kong, India,
Indonesia, Israel, Italy,
Japan, Korea, Malaysia,
New Zealand, Norway,
Philippines, Portugal,
Saudi Arabia, Singapore,
South Africa, Spain, Sweden,
Thailand, Taiwan, Turkey,
Venezuela.



Your Primary Source For Every Fan Requirement

General Duty -

*Airfoil and vane axial
fans for clean exhaust
or supply air*

Industrial Duty -

*Fans to handle
dirty and corrosive
environments*

Heavy Duty -

*Custom engineered
fans for specific
applications*

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