

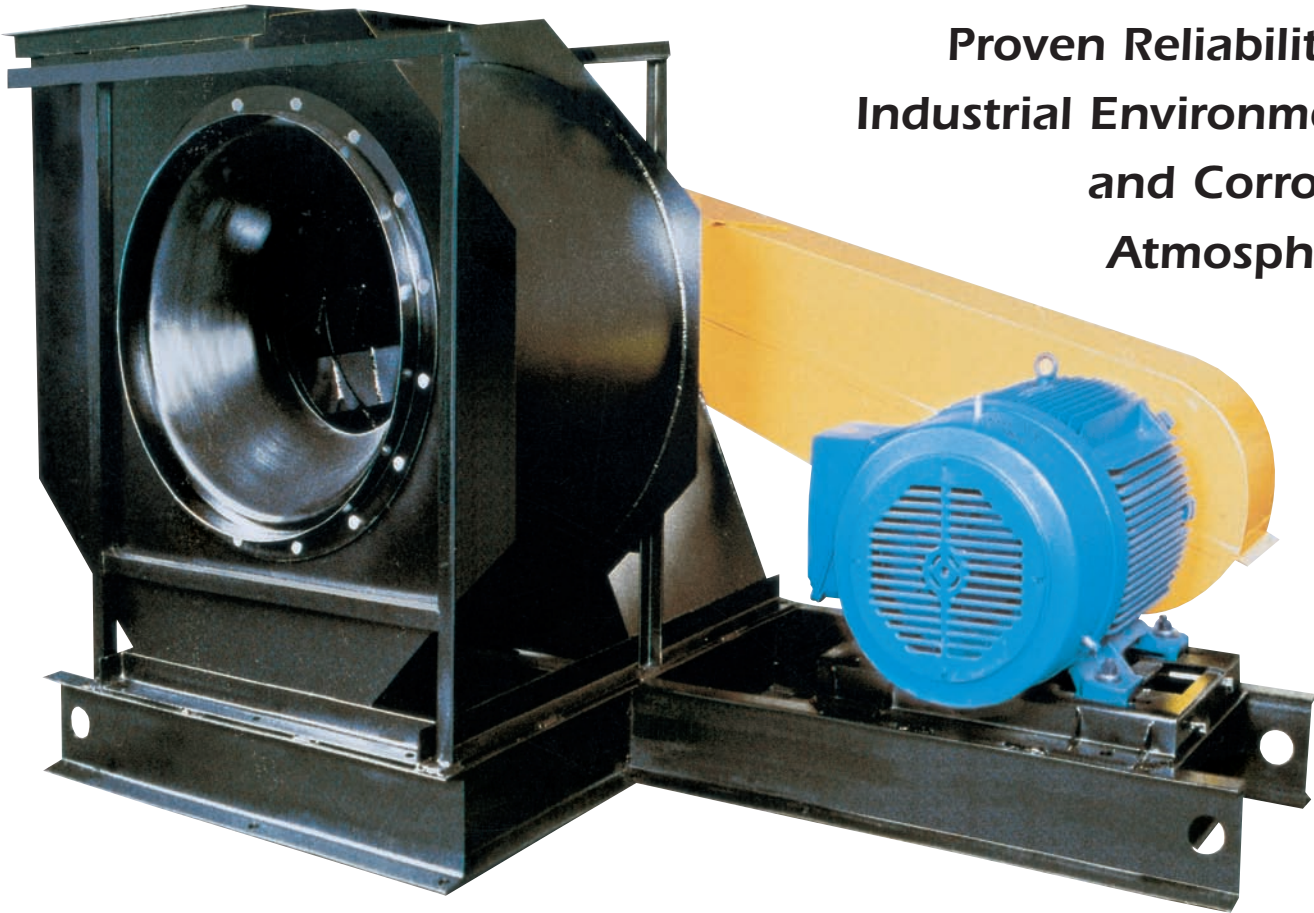


DESIGN 10A

**BACKWARD
INCLINED
WHEELS**



Proven Reliability in Industrial Environments and Corrosive Atmospheres



Design 10A Fans with Backward Inclined Wheels



Chicago's Design 10A is a rugged multi-purpose centrifugal fan equipped with Backward Inclined wheels suited for harsh duty applications. With heavier blades to resist erosion and corrosion, the Design 10A fan provides reliable operation in contaminated air with minimal maintenance. Similar BI wheels are used in Chicago's SOB fans for alternate duty applications. For clean airstreams, Chicago's airfoil bladed fans are recommended.

Thirteen Sizes to 73"

Volumes to 125,000 CFM

Pressures to 30" WG

Arrangements 1, 8, 9, 9H

Construction Classes II, III, IV

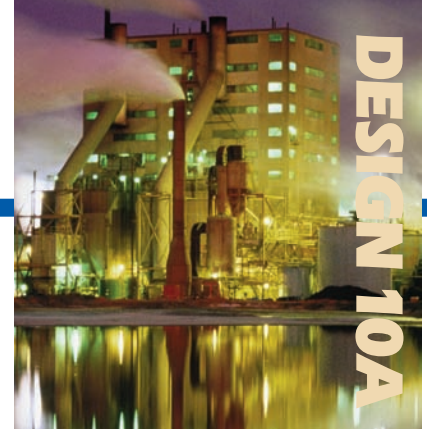
Temperatures to 800°F

APPLICATIONS

Chicago's backward inclined blades are designed to handle corrosive or dusty airstreams. Typical applications include oven circulators, dust collectors, fume exhausters and emission control systems. The Design 10A is also suited for high temperature airstreams to 800°F. The solid steel blades are ideal for custom applied corrosion resistant coatings.

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. For application assistance, Chicago Blower representatives are located throughout North America and around the world.



Chicago Blower's wheels feature backward inclined solid steel blades continuously welded to a streamlined wheel cone and heavy steel backplate. The fans can withstand temperatures to 800° when used in conjunction with a shaft cooler and shaft seal. These 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, delivered volume of the Design 10A would be typically reduced by only 10%.

Chicago's D/10A performs reliably in many installations that traditionally use radial bladed fans. Backward inclined blades are more efficient than radial blades, allowing the use of smaller, lower horsepower motors properly sized for the fan's operating horsepower. All classes of Chicago's BI fans exceed AMCA performance standards.

Greater Efficiency
More Economical



CLASS II

Meets specifications for most general industrial applications. Features heavy gauge housings with continuously welded scroll. Sizes 49 to 73 for pressures through 12". Refer to Chicago's SOB fan for smaller sizes.

CLASS III

Same rugged construction as Class II with additional housing bracing and wheels reinforced with a stiffener ring. Fans are equipped with heavier shafts and bearings. Sizes 49 to 60 for pressures through 14". Refer to Chicago's SOB for smaller sizes.

CLASS IV

Still heavier gauge housings, shafts, bearings and two wheel stiffener rings. Class IV D/10A fans are practical alternatives for installations where less efficient radial blades were considered necessary. Sizes 22-1/4 to 49 for pressures through 24".



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.

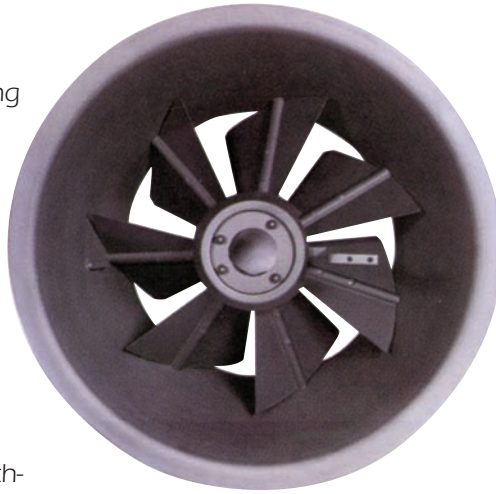


INLET VOLUME CONTROL

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.



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.



INLET COLLAR

Inlet connection collar is available for slip connection to ductwork or a flexible joint.

INLET SCREEN

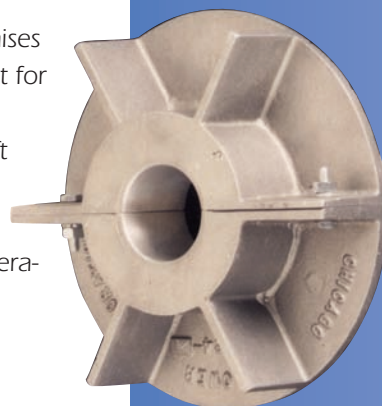
The welded steel wire protective screen mounts within the inlet cone or outside the Inlet Volume Control, when furnished.

SHAFT SEAL

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

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.



OUTLET DAMPERS

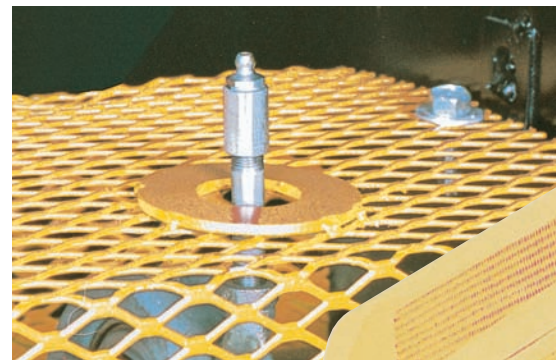
Dampers offer an economical alternative to IVCs. However, they require substantially more horsepower at reduced air volume.

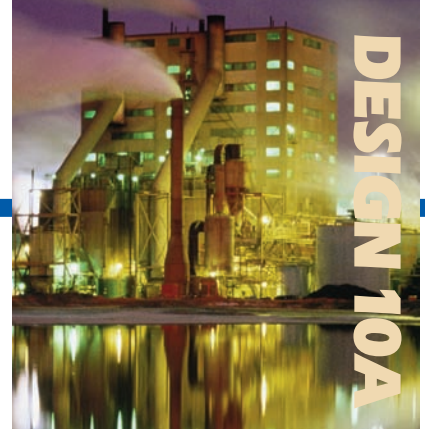
Dampers for all fan classes have double thickness airfoil blades, and are available with parallel or opposed blade rotating louvers.

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.

EXTENDED GREASE FITTINGS

Grease fittings allow for external lubrication without removal of shaft and bearing guard.





SHAFT AND BEARING GUARD

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

BELT GUARD

Three sides are fully enclosed with expanded metal on the fourth side for ventilation and visual inspection. Easily removed for drive servicing.

ACCESS DOOR

The flush mounted door features quick opening tension clamps with neoprene gasket to 300°F and asbestos-free gasket to 800°F.

PLUG TYPE ACCESS DOOR

Bolted, round door is raised 4" off the scroll to provide clearance for insulation and includes an asbestos-free gasket.

HOUSING DRAIN

A half coupling is welded to the lowest point of the housing. Available with or without drain plug.

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.

Performance and Convenience Options

SPLIT HOUSINGS

To facilitate wheel removal, fans can be furnished with horizontal split housings. Housing splits are caulked and bolted when the fan is shipped assembled. Split housings are standard on Sizes 66 and above.

SPARK RESISTANT CONSTRUCTION

AMCA Type C spark resistant construction substitutes an aluminum inlet cone and adds a drive side aluminum buffing tube between the wheel, shaft and housing. Available with all classes and sizes, arrangement 1 and 9, Maximum temperature is 600°F. Not available when the fan is equipped with an IVC. Requires customer to electrically ground fan.

UNITARY BASE

Fan and adjustable motor base are welded onto a unitary base of continuously welded structural steel channel. (Refer to page 17 for dimensions.)

SPECIAL PAINT AND CORROSION RESISTANT COATINGS

Numerous coatings are available to meet the most stringent specifications.





High Temperature and Altitude Fan Selection

Chicago Design 10A Type B Centrifugal Fans are perfectly suited for handling hot gases for air at high temperature applications such as induced draft and industrial ovens. Fans in arrangements 1, 8, and 9H are capable of temperatures up to 800°F with the addition of a shaft seal and shaft cooler, while arrangement 9 (L or R) fans have a maximum temperature of 650°F. All fans should be operated within the maximum RPM limits for each class and these limits should be derated per maximum allowable speed, Table III.

Fan capacity tables are based on the fan handling standard air at 70°F and sea level. For operating conditions other than standard, correct the HP of the fan and check the speed derating limits.

EXAMPLE:

Select a fan to handle 45,000 CFM at 5.5" SP at 700°F and at 2000 feet altitude.

1. Refer to Table I. At 700° F and 2000 feet altitude, the correction factor is 2.35
2. Corrected SP is $2.35 \times 5.5" = 13"$ SP at 70°F and sea level.
3. Using the fan rating tables, selection of the proper size fan is now based on 45,000 CFM at 13" SP. These specifications indicate that one selection available is the size 40-1/4 Class IV fan which shows a performance of 45,000 CFM at 13" SP, requiring 130.7 BHP at 1495 RPM.
4. To correct the BHP, divide 130.7 by $2.35 = 55.61$ BHP, which is the corrected BHP at 700°F and 2000 feet altitude.
5. Verify the wheel and shaft maximum speeds using Table II and Table III.
 - a. Multiply the class maximum wheel speed from Table II by the Class IV Wheel Deration Factor from Table III. The wheel maximum speed @ 700°F is $2088 \text{ RPM} \times .86 = 1796 \text{ RPM}$. Then multiply the maximum shaft speed from Table II by the Shaft Deration Factor from Table III. The shaft maximum speed @ 700°F is $2088 \times .94 = 1963$. Thus, the maximum allowable fan speed is 1796 RPM.
 - b. Check the above maximum allowable fan speed against the selected fan RPM. Since the fan operating speed of 1495 RPM is within safe limits of the maximum allowable of 1796 RPM, the 40-1/4 Class IV fan will deliver 45,000 CFM at 5.5" SP, 700°F and 2000 feet altitude requiring 55.61 HP.

TABLE I – TEMPERATURE AND ALTITUDE CORRECTION

AIR TEMP (F°)	ALTITUDE (feet) with BAROMETRIC PRESSURE (HG)									
	0'	500'	1000'	1500'	2000'	2500'	3000'	3500'	4000'	5000'
	29.92	29.38	28.86	28.33	27.82	27.31	26.82	26.32	25.84	24.90
-15	.79	.81	.82	.84	.85	.87	.88	.90	.96	1.00
0	.87	.88	.90	.92	.93	.95	.97	.99	1.00	1.04
70	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.20
100	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.27
150	1.15	1.17	1.19	1.22	1.24	1.26	1.28	1.31	1.33	1.38
200	1.25	1.27	1.29	1.32	1.34	1.36	1.39	1.42	1.44	1.50
250	1.34	1.36	1.39	1.41	1.44	1.47	1.49	1.52	1.55	1.61
300	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63	1.66	1.72
350	1.53	1.56	1.58	1.61	1.64	1.67	1.70	1.74	1.77	1.84
400	1.62	1.65	1.68	1.71	1.75	1.78	1.81	1.84	1.88	1.95
500	1.81	1.84	1.88	1.91	1.95	1.98	2.02	2.06	2.10	2.18
600	2.00	2.04	2.07	2.11	2.15	2.19	2.23	2.27	2.32	2.40
650	2.09	2.13	2.17	2.21	2.25	2.29	2.34	2.38	2.43	2.52
700	2.19	2.23	2.27	2.31	2.35	2.40	2.44	2.49	2.53	2.63
800	2.38	2.42	2.48	2.51	2.56	2.60	2.65	2.70	2.75	2.86

Correction factors for temperature (F) and altitude (above sea level): standard air = .075 lbs. per cubic foot at sea level, 29.92" barometric pressure and 70° F

TABLE II – MAXIMUM RPM AT 70° F

Note: For temperature deration only, not for air performance.

FAN SIZE	CLASS II		CLASS III		CLASS IV	
	Shaft	Wheel	Shaft	Wheel	Shaft	Wheel
22-1/4	•	•	•	•	3800	3963
24-1/2	•	•	•	•	2920	3398
27	•	•	•	•	2964	3263
30	•	•	•	•	2771	2831
33	•	•	•	•	2529	2673
36-1/2	•	•	•	•	2271	2271
40-1/4	•	•	•	•	2088	2088
44-1/2	•	•	•	•	1687	1820
49	925	1035	1165	1165	1682	1705
54-1/4	836	836	1052	1052	N.A.	N.A.
60	756	866	951	995	N.A.	N.A.
66	687	749	N.A.	N.A.	N.A.	N.A.
73	621	649	N.A.	N.A.	N.A.	N.A.

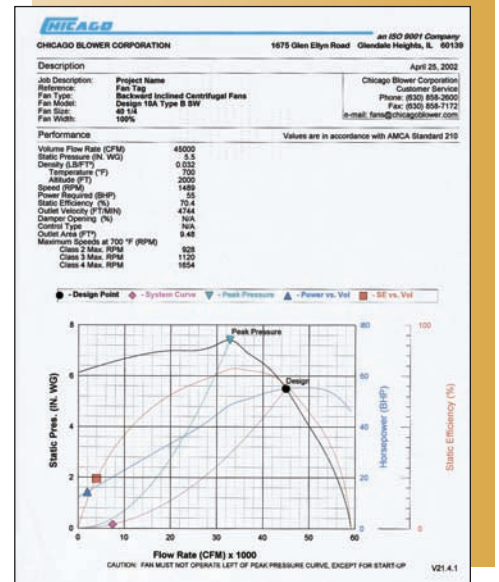
TABLE III – TEMPERATURE/ SPEED DERATION

Temp. (F°)	Temperature Deration Factors		
	Standard Wheel	Shaft	
		C/2,C/3	C/4
70	1.00	1.00	1.00
100	.99	.99	1.00
200	.93	.96	1.00
300	.89	.95	.99
350	.88	.95	.98
400	.86	.94	.98
450	.84	.93	.97
500	.82	.92	.97
550	.81	.90	.96
600	.79	.88	.96
650	.78	.87	.95
700	.77	.86	.94
800	.68	.83	.93

• For these sizes and classes consult Chicago's SQB Fan Bulletin

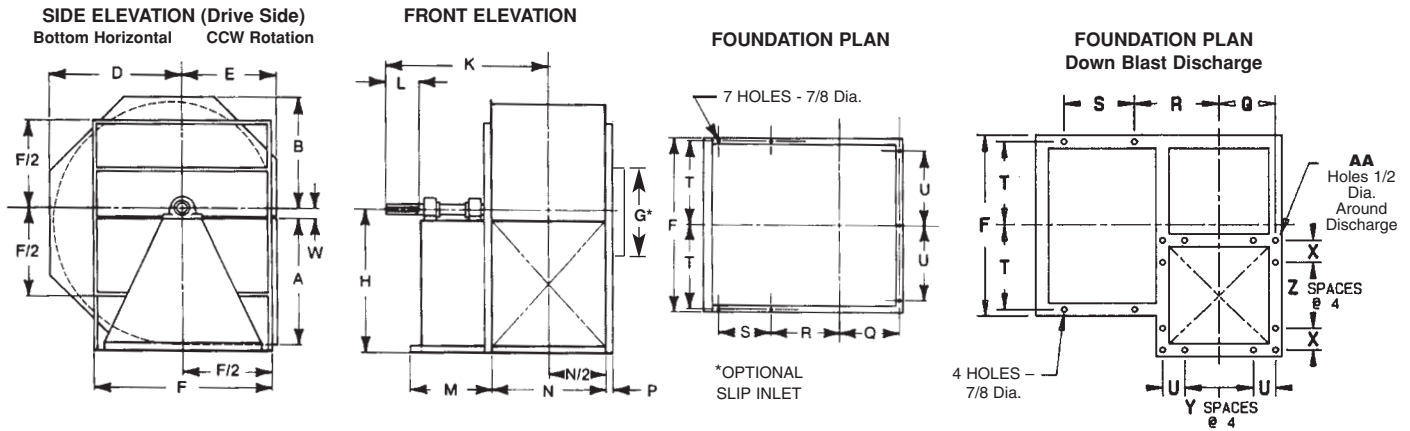
Refer to **Chicago Blower's fan.net** for performance, fan curves and sound data.

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



CHICAGO BLOWER BACKWARD INCLINED FAN

CLASS II - Arrangements 1 and 9

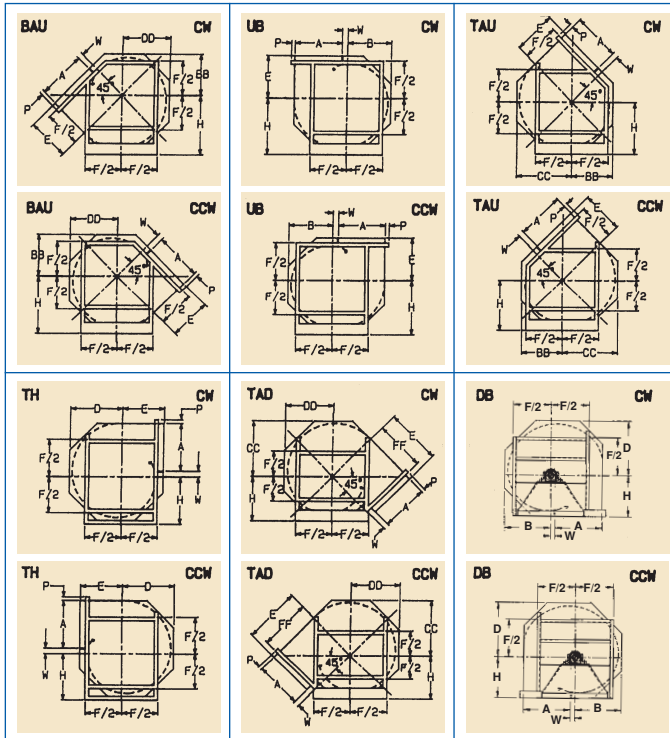


Arrangement 1 Shown - All Dimensions in Inches. Do Not Use for Construction Unless Certified.

Fan Size	Wheel Dia.	Shaft at Bearings	Keyway	A	B	D	E		F	G*	H							K	L
							BH, BAU UB, TAU TH	TAD only			BH	BAU	UB	TAU	TH	TAD	DB		
49	52-7/8	2-15/16	3/4 x 3/8	47-7/8	42-13/32	50-3/8	36-1/4	46-1/2	67-1/4	53-5/8	54-7/8	54-3/8	50-7/8	46-1/4	42-15/16	39	38-1/8	63	8
54-1/4	58-1/2	3-7/16	7/8 x 7/16	53	46-9/16	55-1/2	40	51-3/8	74-1/4	59-3/8	60-3/8	59-13/16	56	50-13/16	47-1/16	42-3/4	41-5/8	67	8
60	64-3/4	3-7/16	7/8 x 7/16	58-1/2	51-5/16	61-1/8	44-1/4	56-7/8	82	65-7/8	66-7/16	65-15/16	61-5/8	56	51-13/16	47-1/16	45-1/2	74-1/2	9
66	71-3/16	3-15/16	1 x 1/2	64-3/8	56-5/16	67-1/16	48-1/4	62	90-1/4	71-7/8	72-13/16	72-1/4	67-9/16	61-3/8	56-13/16	51-9/16	49-5/8	79	10
73	78-3/4	3-15/16	1 x 1/2	71-1/8	63-1/16	74-15/16	53	68-1/8	103-3/4	79-1/2	81-3/16	80-11/16	75-7/16	68-9/16	63-9/16	57-3/4	54-3/8	84	10

Fan Size	M	N	P	Q	R	S	T	U		W	X DB only	Y DB only	Z DB only	AA DB only	BB	CC	DD	FF	Min. Fan Sheave Dia.
								BH, BAU UB, TAU TH, TAD	DB only										
49	31-7/16	42-7/8	3	23-3/16	27-7/16	22-3/16	32-3/8	29-3/8	5-3/16	4	3-11/16	9	11	48	38-1/2	53-7/8	45-3/4	43-7/8	15
54-1/4	32-15/16	47-7/16	3	25-1/2	29-3/4	23-11/16	35-7/8	32-3/8	5-15/32	4-3/8	4-1/4	10	12	52	42-1/4	59-9/32	50-5/16	48-1/2	16
60	36-7/8	52-9/16	3	28	34-5/16	24-11/16	38-3/4	36-1/2	4-1/32	4-15/16	3	12	14	60	46-9/16	65-13/32	55-1/2	53-5/8	19.3
66	38-3/8	57-3/4	3	30-5/8	36-7/8	26-3/16	43-7/8	40-5/8	4-5/8	5-7/16	3-15/16	13	15	64	51-1/16	71-25/32	60-7/8	58-7/8	20.3
73	39-7/8	63-7/8	4	34-7/16	39-15/16	27-11/16	50-3/8	45-3/8	6-7/16	6-1/16	4-1/16	14	17	70	57-1/4	80-3/16	68-1/16	65	21.1

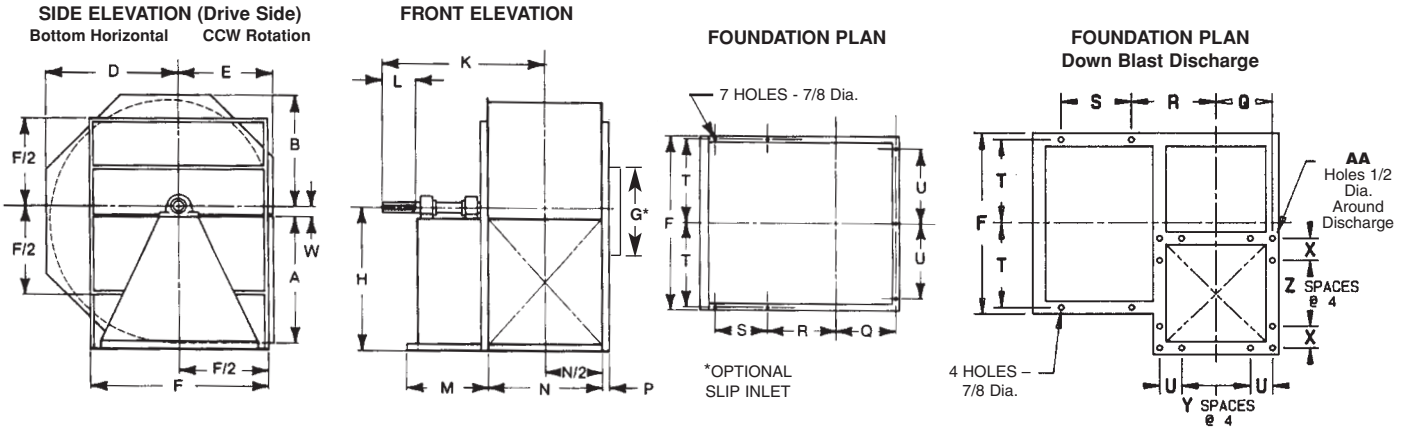
Positions of Discharge and Rotation as Viewed From the Drive Side



Arrangement 9 - Mean Drive Centers for Frames Shown

Fan Size	Motor Frame	BH	BAU	UB	TAU	TH	TAD	DB
49	56	36-7/8	36-7/8	35	33-1/8	31-7/8	30-3/8	30
	143-145	36-7/8	36-7/8	35	33-1/8	31-7/8	30-3/8	30
	182-184	37-1/4	37-1/4	35-3/8	33-3/8	32-1/4	30-7/8	30-3/8
	213-215	37-5/8	37-5/8	35-7/8	33-7/8	32-5/8	31-1/8	30-3/4
	254-256	38-1/8	38-1/8	36-1/4	34-1/4	33	31-3/8	31
	284-286	38-3/8	38-3/8	36-1/2	34-3/8	33-3/8	31-7/8	31-1/2
	324-326	38-7/8	38-7/8	37-1/8	35-1/8	33-7/8	32-3/8	32
	364-365	39-3/8	39-3/8	37-5/8	35-5/8	34-3/8	33	32-5/8
	404-405	40-5/8	40-5/8	38-7/8	36-7/8	35-5/8	34	33-5/8

CHICAGO BLOWER BACKWARD INCLINED FAN CLASS III - Arrangements 1 and 9

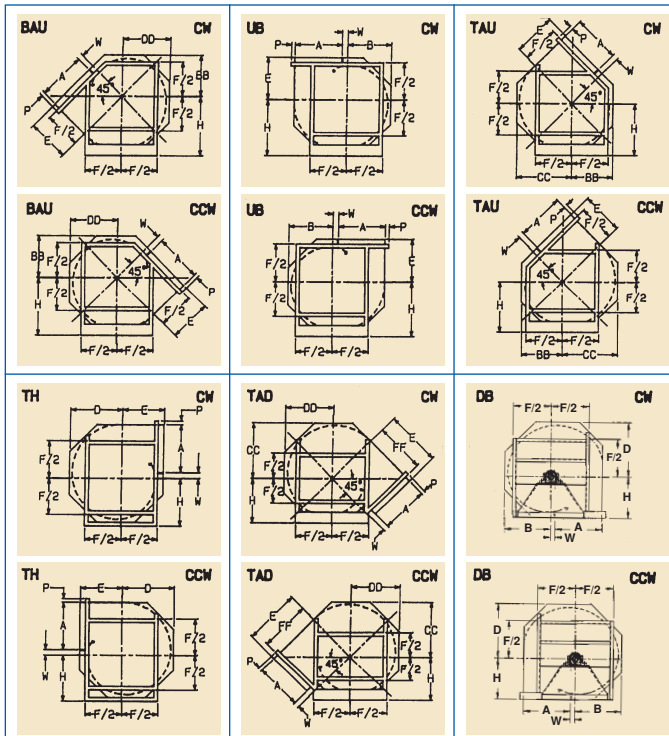


Arrangement 1 Shown - All Dimensions in Inches. Do Not Use for Construction Unless Certified.

Fan Size	Wheel Dia.	Shaft at Bearings	Keyway	A	B	D	E		F	G	H						K	L	
							BH, BAU UB, TAU TH	TAD only			BH	BAU	UB	TAU	TH	TAD			DB
49	52-7/8	3-3/16	3/4 x 3/8	47-7/8	42-13/32	50-3/8	36-1/4	46-1/2	67-1/4	53-5/8	54-7/8	54-3/8	50-7/8	46-1/4	42-15/16	39	38-1/8	64-1/4	9
54-1/4	58-1/2	3-7/16	7/8 x 7/16	53	46-9/16	55-1/2	40	51-3/8	74-1/4	59-3/8	60-3/8	59-13/16	56	50-13/16	47-1/16	42-3/4	41-5/8	66-3/4	9
60	64-3/4	3-11/16	7/8 x 7/16	58-9/16	51-5/16	61-1/8	44-1/4	56-7/8	82	65-7/8	66-1/2	65-15/16	61-5/8	56	51-13/16	47-1/16	45-1/2	74-1/2	9

Fan Size	M	N	P	Q	R	S	T	U		W	X	Y	Z	AA	BB	CC	DD	FF	Min. Fan Sheave Dia.
								BH, BAU UB, TAU TH, TAD	DB only		DB only	DB only	DB only						
49	35-3/4	43	3	23-1/4	27-7/16	28-3/4	32-3/8	29-3/8	5-1/4	4	3-11/16	9	11	48	38-1/2	53-7/8	45-3/4	43-7/8	12.5
54-1/4	35-7/8	47-9/16	3	25-17/32	29-9/32	28-7/8	35-7/8	32-3/8	5-17/32	4-3/8	4-1/4	10	12	52	42-1/4	59-9/32	50-5/16	48-1/2	13.9
60	39-7/8	52-11/16	3	28-3/32	35-3/32	28-5/8	39-3/4	36-1/2	4-3/32	4-15/16	3-1/32	12	14	60	46-9/16	65-13/32	55-1/2	53-5/8	15.3

Positions of Discharge and Rotation as Viewed from the Drive Side



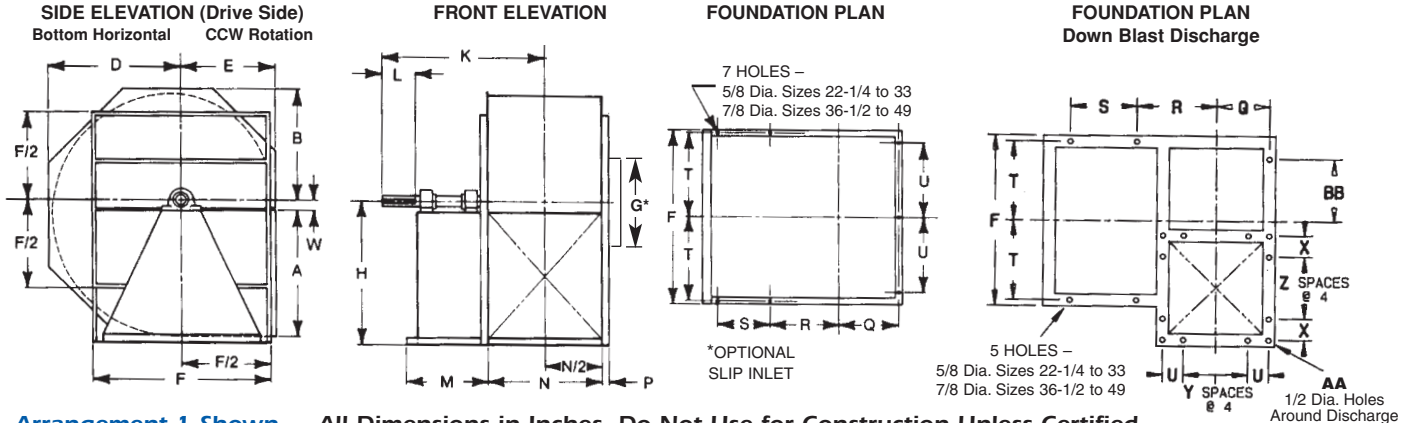
Arrangement 9 - Mean Drive Centers for Frames Shown

Fan Size	Motor Frame	BH	BAU	UB	TAU	TH	TAD	DB
49	56	36-7/8	36-7/8	35	33-1/8	31-7/8	30-3/8	30
	143-145	36-7/8	36-7/8	35	33-1/8	31-7/8	30-3/8	30
	182-184	37-1/4	37-1/4	35-3/8	33-3/8	32-1/4	30-7/8	30-3/8
	213-215	37-5/8	37-5/8	35-7/8	33-7/8	32-5/8	31-1/8	30-3/4
	254-256	38-1/8	38-1/8	36-1/4	34-1/4	33	31-3/8	31
	284-286	38-3/8	38-3/8	36-1/2	34-3/8	33-3/8	31-7/8	31-1/2
	324-326	38-7/8	38-7/8	37-1/8	35-1/8	33-7/8	32-3/8	32
	364-365	39-3/8	39-3/8	37-5/8	35-5/8	34-3/8	33	32-5/8
	404-405	40-5/8	40-5/8	38-7/8	36-7/8	35-5/8	34	33-5/8



CHICAGO BLOWER BACKWARD INCLINED FAN

CLASS IV - Arrangements 1 and 9

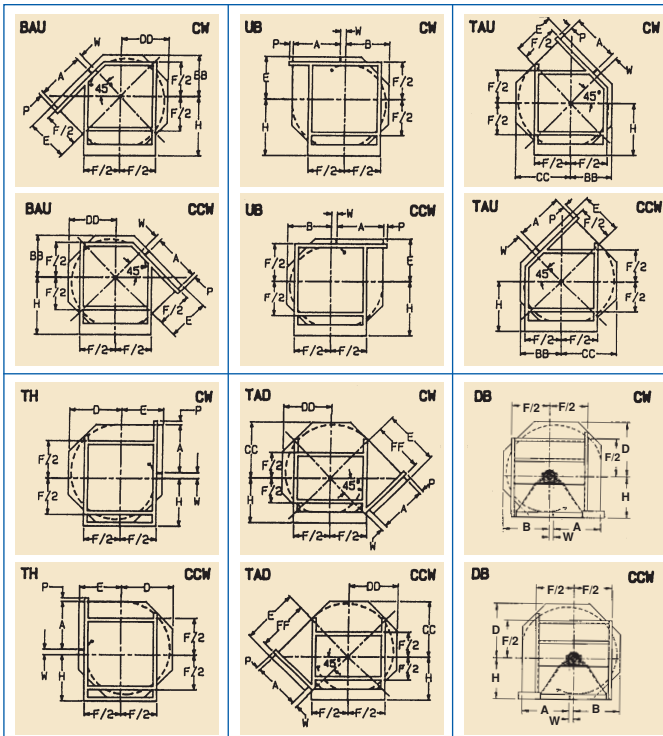


Arrangement 1 Shown - All Dimensions in Inches. Do Not Use for Construction Unless Certified.

Fan Size	Wheel Dia.	Shaft at Bearings	Keyway	E					H										
				A	B	D	BH, BAU UB, TAU TH	TAD only	F	G	BH	BAU	UB	TAU	TH	TAD	DB	K	L
22-1/4	24-1/4	2-3/16	1/2 x 1/4	21-7/8	19	22-11/16	18-1/4	24-1/4	33-1/4	24-9/16	26-5/8	25-1/8	23-1/4	21-1/8	20	19	20	37	6
24-1/2	26-7/16	2-3/16	1/2 x 1/4	24	21-3/4	25-3/4	19-1/2	26-3/4	35-3/4	28-1/2	27-3/4	26-1/4	26-1/4	25-1/16	22-1/4	22-3/8	22-3/8	40-1/4	7
27	29-1/8	2-7/16	5/8 x 5/16	26-1/2	23-7/8	28-1/4	22	30-1/8	39-7/16	30-9/16	31-3/16	30-3/8	28-3/4	26-9/16	24-3/8	24-7/32	24-7/32	43-3/4	8
30	32-3/8	2-7/16	5/8 x 5/16	29-1/8	26-13/16	31-11/16	23-1/2	31-3/8	42-5/8	33-9/16	34-13/16	34-5/16	32-3/16	29-3/8	27-5/16	25-5/16	25-5/16	47-3/4	8
33	35-9/16	2-15/16	3/4 x 3/8	32	29-7/32	34-3/8	25	33-1/4	46	36-9/16	38	37-1/2	35-1/8	32-1/16	29-3/4	27-1/8	27	51-3/8	8
36-1/2	39-3/8	2-15/16	3/4 x 3/8	35-21/32	32-3/32	38	27-1/2	35-1/4	50-1/4	41-9/16	41-21/32	41-3/16	38-1/2	35-1/8	32-5/8	29-11/16	29-1/8	51-5/8	8
40-1/4	43-7/16	3-7/16	7/8 x 7/16	39-9/32	35-5/32	41-11/16	30-1/4	38-3/4	55-1/4	44-9/16	45-19/32	45-1/8	42-1/4	38-7/16	35-11/16	32-7/16	31-5/8	57-3/8	8
44-1/2	48	3-11/16	7/8 x 7/16	43-13/32	38-21/32	45-7/8	33	42-1/4	61	49-9/16	50-3/32	49-9/16	46-3/8	42-3/16	39-3/16	35-5/8	34-1/2	61-1/8	8
49	52-7/8	3-15/16	1 x 1/2	47-29/32	42-13/32	50-3/8	36-1/4	46-1/2	67-1/4	53-5/8	54-29/32	54-3/8	50-7/8	46-1/4	42-15/16	39	38-1/8	69-3/8	10

Fan Size	M	N	P	Q	R	S	T	U		W	X	Y	Z	AA	BB		CC	DD	FF	Min. Fan Sheave Dia.
								BH, BAU UB, TAU TH, TAD	DB only						DB only	DB only				
22-1/4	22-3/4	19-5/8	2-1/2	11-3/16	14-9/16	16-5/8	15-1/2	12-5/8	3-3/16	1-3/4	4-5/16	4	4	24	17-1/4	12-5/8	24-1/8	20-9/16	22-1/4	3.0
24-1/2	24-1/16	21-9/16	2-1/2	12-5/32	14-27/32	18-5/8	16-3/4	13-7/8	4-5/32	2	5-5/16	4	4	24	19-13/16	13-7/8	27-9/16	23-7/16	24-1/4	5.2
27	25-3/8	23-3/4	2-1/2	13-1/4	15-1/4	20-5/8	18-19/32	15-23/32	3-1/4	2-3/16	2-9/16	5	6	30	21-11/16	15-23/32	29-7/8	26-1/16	27-5/8	6.3
30	28	26-1/2	2-1/2	14-5/8	17-1/4	22-5/8	20-3/16	17-5/16	2-5/8	2-23/32	3-7/8	6	6	32	24-7/16	17-5/16	33-13/16	28-7/8	28-11/16	6.3
33	30-1/4	29-1/8	2-1/2	15-15/16	17-13/16	25-5/8	21-7/8	19	3-15/16	3-1/64	5-5/16	6	6	32	26-5/8	19	36-13/16	31-3/8	30-3/4	6.5
36-1/2	29-5/8	32	3	17-3/4	19-5/8	24-1/4	23-7/8	20-5/8	3-3/4	3	3-1/2	7	8	38	29-3/16	20-5/8	40-21/32	34-5/8	32-7/8	8.0
40-1/4	34-3/8	35-1/4	3	19-3/8	24	26-1/4	26-1/2	23-1/8	3-3/8	3-5/16	5-5/16	8	8	40	31-15/16	23-1/8	44-9/16	37-15/16	36-1/8	8.5
44-1/2	35-7/8	38-15/16	3	21-3/32	24-11/32	29-1/4	29-1/4	26	3-7/32	3-11/16	3-3/8	9	10	46	35-1/8	26	49-1/16	41-11/16	39-3/4	9.4
49	40-1/8	42-7/8	3	23-3/16	25-9/16	34-1/4	32-3/8	29-1/8	3-3/16	4	5-5/8	10	10	48	38-1/2	29-1/8	53-7/8	45-3/4	43-7/8	10.2

Positions of Discharge and Rotation as Viewed From the Drive Side



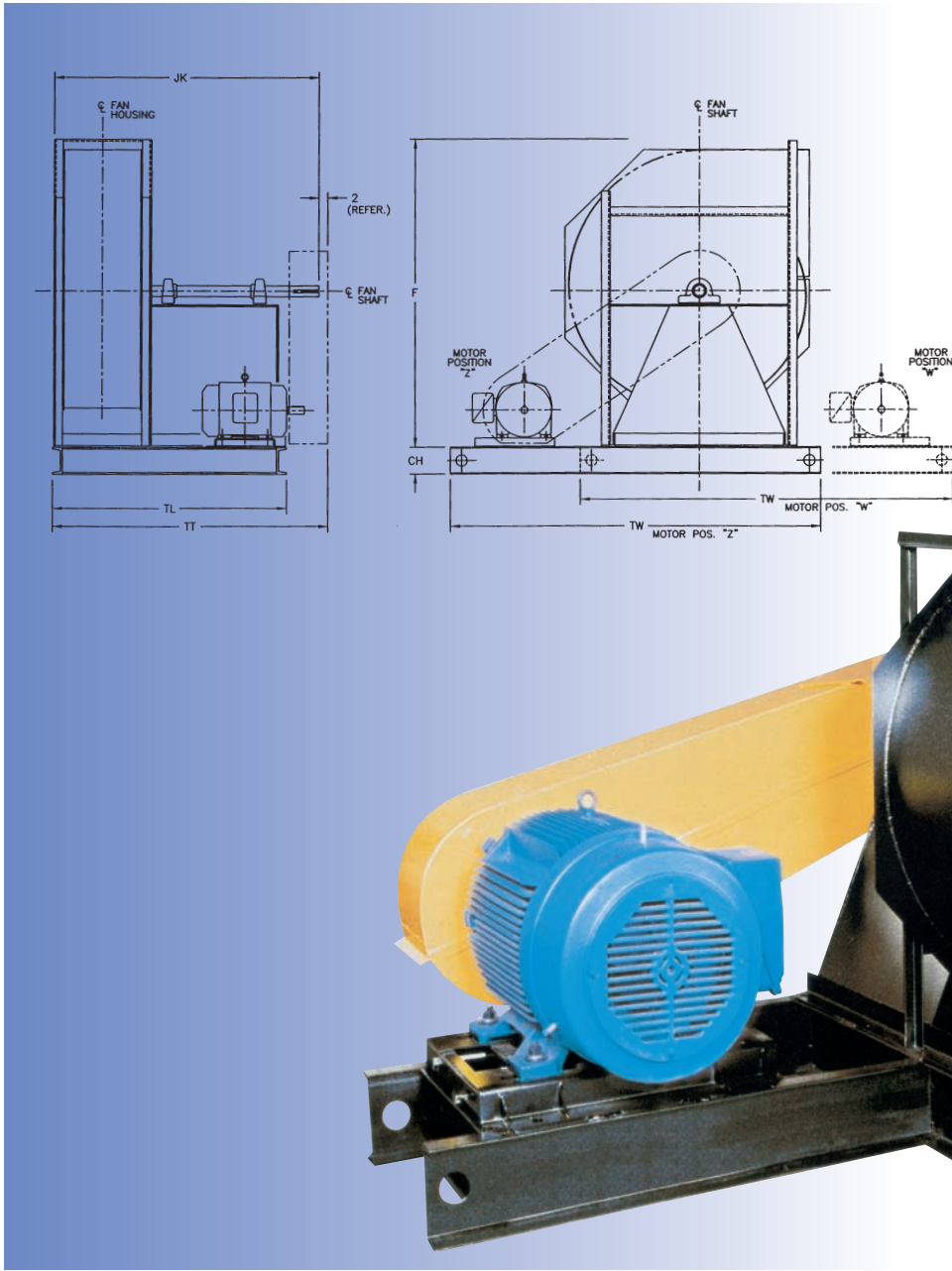
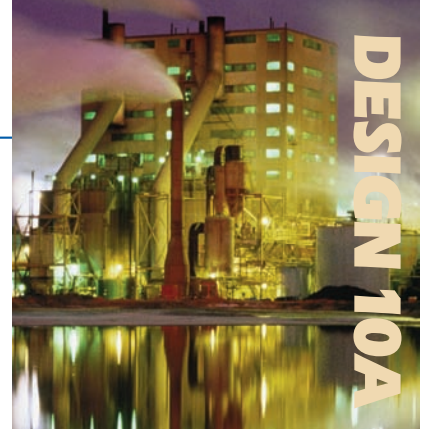
Arrangement 9 - Mean Drive Centers for Frames Shown

Fan Size	Motor Frame	BH	BAU	UB	TAU	TH	TAD	DB
	RF	RF	RF	RF	RF	RF	RF	RF
22-1/4	RF	RF	RF	RF	RF	RF	RF	RF
24-1/2	182-184	24-3/4	24-1/4	23	21-1/2	19-7/8	20	20
	213-215	24-1/4	23-3/4	22-1/2	21	19-1/2	19-1/2	19-1/2
	254-256	23-3/4	23-1/8	22	20-1/2	NA	NA	NA
	284	23-3/8	22-3/4	21-5/8	NA	NA	NA	NA
27	182-184	27-7/8	27-1/8	25-3/4	24	22-3/8	22-1/4	22-1/4
	213-215	27-1/4	26-5/8	25-1/4	23-1/2	21-7/8	21-3/4	21-1/4
	254-256	26-1/2	25-7/8	24-5/8	23	21-3/8	21-1/4	21-1/4
	284-286	26	25-3/8	24-1/8	22-1/2	NA	NA	NA
30	213-215	30-7/8	30-1/2	28-3/4	26-1/2	24-7/8	23-1/4	23-1/4
	254-256	30-1/8	29-5/8	28	25-3/4	24-1/4	22-5/8	22-5/8
	284-286	29-1/2	29-1/8	27-1/2	25-1/4	23-3/4	22-1/4	22-1/4
	324-326	29	28-1/2	26-7/8	24-7/8	23-3/8	NA	NA
33	254-256	33-5/8	33-1/8	31-1/4	28-7/8	27	25	25
	284-286	33	32-1/2	30-5/8	28-1/4	26-1/2	24-1/2	24-1/2
	324-326	32-3/8	32	30-1/8	27-3/4	26	24-1/8	24
	364-365	31-5/8	31-1/4	29-1/2	27-1/4	NA	NA	NA
36-1/2	254-256	36-7/8	36-1/2	34-1/4	31-1/2	29-1/2	27-3/8	28-1/4
	284-286	36-1/4	35-7/8	33-5/8	31	29	26-3/4	27-5/8
	324-326	35-3/8	35-1/8	33	30-3/8	28-3/8	26-1/4	26-7/8
	284-286	40-3/4	40-3/8	38	34-7/8	32-3/4	30-1/4	29-5/8
40-1/4	324-326	39-7/8	39-1/2	37-1/4	34-1/8	32	29-1/2	29
	364-365	39-1/8	38-3/4	36-3/8	33-3/8	31-1/4	28-7/8	28-1/4
	404-405	38-1/4	38	35-3/4	32-3/4	30-3/4	NA	NA
	284-286	46	45-1/2	42-7/8	39-1/2	37-1/8	34-3/8	33-1/2
44-1/2	324-326	45	44-1/2	42	38-5/8	36-3/8	32-5/8	32-3/4
	364-365	44-1/8	43-3/4	41-1/8	37-7/8	35-1/2	32-7/8	32
	404-405	43-3/8	42-7/8	40-3/8	37-1/8	34-7/8	32-1/4	31-3/8
	444-445	47-3/4	47-3/8	44-1/2	41	38-3/8	35-1/2	34-7/8
49	324-326	50-3/8	50	47-1/8	43-3/8	40-3/4	37-3/4	37-1/8
	364-365	49-1/2	49	46-1/8	42-1/2	39-7/8	36-7/8	36-1/4
	404-405	48-1/2	48-1/8	45-1/4	41-1/2	39	36-1/8	35-1/2
	444-445	47-3/4	47-3/8	44-1/2	41	38-3/8	35-1/2	34-7/8

RF = Refer to Factory

NA = Not Available

CHICAGO BLOWER BACKWARD INCLINED FAN



Unitary Base

Class	Fan Size	F	JK	TT	CH	TL	TW	Weight (lbs.)	Ref. Max. Motor Frame
II	49	108-7/8	93-13/16	96-1/16	8	86-1/2	150	4260	404T
	54-1/4	119-3/4	93-9/16	95-13/16	8	86-15/16	160	4918	404T
	60	132-1/4	103-7/8	106-1/8	8	96-1/16	171	6292	405T
	66	146-1/4*	107-7/8	110-3/8	8	99-5/8	180	7794	444T
	73	162-3/4*	115-15/16	118-7/16	8	108-1/4	189	9166	445T
	III	49	108-7/8	93-13/16	96-1/16	8	86-1/2	151-13/16	6353
54-1/4		119-3/4	93-9/16	95-13/16	8	86-15/16	161-7/16	7028	447T
60		132-1/4	103-7/8	106-1/8	8	96-1/16	172-5/16	7837	447T
IV	22-1/4	56-7/16	49-5/16	51-9/16	6	45-7/8	91-3/4	1901	365T
	24-1/2	56-1/2	53-9/16	55-13/16	6	48-5/8	96-3/4	1995	365T
	27	62-7/16	58-1/2	60-3/8	6	52-1/8	104-7/16	2506	405T
	30	68-1/2	63-1/2	65-3/4	6	57-1/2	110-9/16	2797	405T
	33	74-1/2	68-7/16	70-11/16	6	62-3/8	121-7/16	3787	444T
	36-1/2	81-7/8	70-5/8	72-7/8	8	65-1/8	128-1/4	4615	445T
	40-1/4	90-3/16	78	80-1/4	8	73-1/8	135-1/4	5239	445T
	44-1/2	99-3/16	83-5/8	85-7/8	8	78-5/16	143-1/4	5769	445T
	49	108-7/8	93-13/16	96-1/16	8	86-1/2	151-13/16	6786	447T

* Shipped as a split housed fan. Maximum dimension to top of wheel; Size 66 - 110", Size 73 - 120".

NOTES:

Dimensions shown (in inches) are the maximum values per fan size regardless of rotation, discharge or motor frame/position.

For precise rotation, discharge and motor position dimensions, consult your Chicago Sales Engineer. Dimensions are not for construction unless certified.

Approximate weights include fan, base, motor, V-belt drive, and belt guard. For belt drive centers, see charts on dimensional pages.



Engineering Specifications

Design 10A Fans with Backward Inclined Wheels

GENERAL:

Provide a high performance, low maintenance, centrifugal fan with backward inclined 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. Blades must be single sheet, high strength low alloy steel, 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 Industrial Fans for Every Application

SOB FANS

The SOB version of Chicago's Square Fans has a backward inclined wheel to handle corrosive or dusty airstreams. It is also suited for high temperature airstreams to 650°F. Sizes range from 12-1/4 to 44-1/2 with volumes to 55,600 CFM and pressures to 15" WG. Ask for Bulletin SOB.

SOI FANS

Using industrial duty radial blades that resist material build-up, the SOI fan is especially suited for sticky, heavy or abrasive applications. With welded heavy steel plate housing, steel wheels and oversize bearings, the SOI is a hard working industrial fan designed for pressures to 18" WG. Inlet diameters from 5" to 17". Options include alternate finishes to meet customer specifications. Ask for Bulletin SOI.

INDUSTRIAL CENTRIFUGAL FANS

The flat radial blades of Chicago's Design 16A wheels are designed to handle dirty air without material build-up. Welded housing of heavy steel plate stands up to demanding industrial applications and temperatures to 800°F. Wheel diameters to 71", with volumes to 70,000 CFM and pressures to 40" WG. Ask for Bulletin ICF.



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