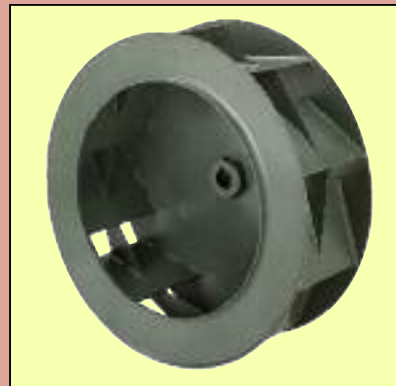


PLUG FANS



ACOUSTAFOIL®

- Space-efficient, plug design
- Capacities to 125,000 CFM
- Static pressures to 20"WG
- Temperatures to 1300°F.



PLR



ECF-9



THE NEW YORK BLOWER COMPANY
7660 Quincy Street
Willowbrook, IL 60527-5530

Visit us on the Web: <http://www.nyb.com>
Phone: (800) 208-7918 Email: nyb@nyb.com

PLUG FANS

...for a wide variety of OEM applications.

DESIGN FEATURES

- **Capacities**—to 125,000 CFM.
- **Pressures**—Class 3 to 14" WG, Class 4 to 20" WG.
- **Sizes**—unhoused AcoustaFoil wheels available in diameters of 12" through 60"...PLR wheels in diameters of 12" through 60"...ECF-9 wheels in diameters of 12" through 60".
- **Temperature**—four standard temperature ranges available; 200/450°F., 800°F., 1000°F., and 1300°F.
- **Wheel design**—choice of AcoustaFoil, PLR or ECF-9 wheels.

CONSTRUCTION FEATURES

- **Construction**—heavy-gauge welded components provide structural strength and durability.
- **Bearings**—selected to provide long service life through the entire operating range of the fan.
- **Standard coating**—high-temperature paint system on all mild-steel surfaces...stainless-steel components are not painted.
- **Installation and maintenance**—mounting panel allows assembled unit installation in horizontal or vertical shaft positions. Unit construction provides access to motor, drive, and bearings.
- **Positive screw-type adjustment**—for ease in adjusting motor and setting proper belt tension.
- **Shaft cooler with guard**—standard on all sizes (450°F. and above).
- **Balance**—all wheels are dynamically balanced to specification before assembly in the fan. After assembly, all fans are test-run. If motor and drive are mounted by **nyb**, the test run includes a final "trim balance" of the total assembly.

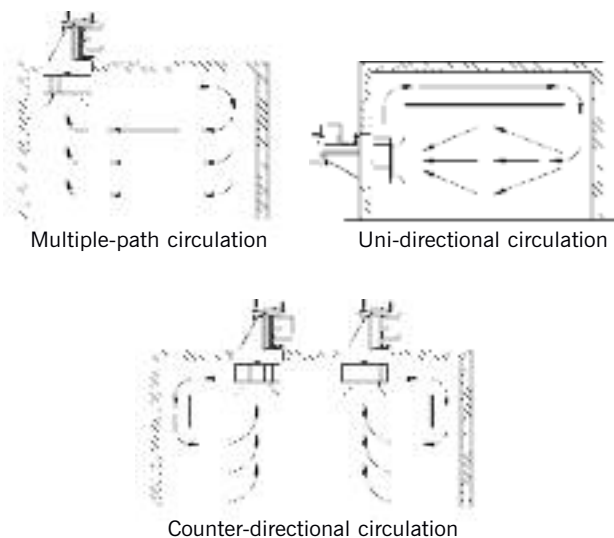
If motor and drive are NOT mounted by **nyb**, it is not trim-balanced at the factory. In those cases, it is recommended that after motor and drive are mounted, the total assembly be trim-balanced to provide smoothest operation. For additional information, see **nyb** Engineering Letter 13—Fan Balance and Vibration.



Size 228 PLR Plug Fan, with motor, drives, and belt guard.

TYPICAL APPLICATIONS

Plug Fans, used in applications where the system plenum acts as the fan housing, combine versatility with compact design to reduce overall system costs. This is achieved while maintaining operating efficiencies nearly equal to conventional housed fan equipment. The Plug Fan eliminates the need for connecting ductwork; its mounting panel permits assembled-unit installation to any well-supported plenum wall. These fans, which are literally plugged into a system, are a natural for supply, exhaust, or recirculating-air applications such as those shown below.



CHOICE OF THREE WHEEL DESIGNS

Designs feature a non-overloading horsepower curve...horsepower reaches a peak and then decreases as flow increases...allows calculation of the maximum brake horsepower at a given fan speed so a motor can be selected that will not overload if system pressure changes.



ACOUSTAFOIL AND ECF-9

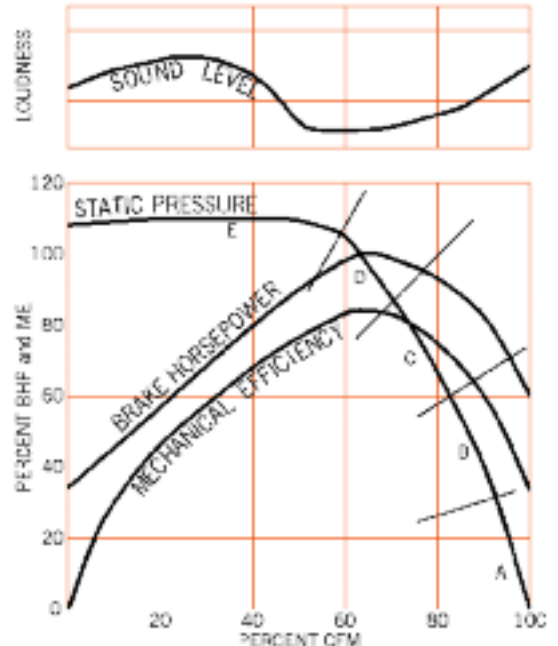
Design—the airfoil-blade design is the most efficient and quiet selection for clean, dry airstreams. The AcustaFoil wheel has a completely stable pressure curve from wide-open to closed-off.

Efficiency—the mechanical efficiency curve offers a broad selection range with little horsepower variation.

Sound—the superior efficiency of the AcustaFoil and ECF-9 wheel provides a low sound level over a wide performance range.

Construction—AcF available in Sizes 12" through 60" and ECF-9 available in Sizes 12" through 60" in mild-steel construction for temperatures to 800°F. and stainless-steel construction for temperatures to 1000°F (AcF only).

TYPICAL ACOUSTAFOIL PERFORMANCE



NOTE: Five regions (A,B,C,D,E) shown above correspond to points of operation on capacity tables.



PLR

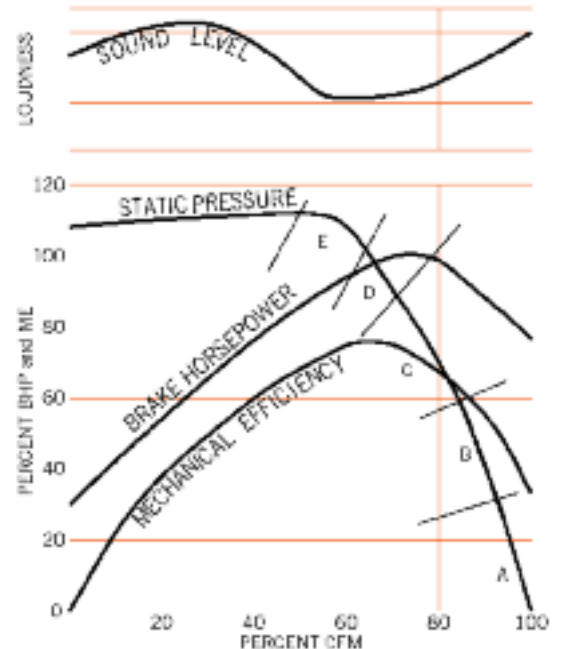
Design—a flat, backwardly inclined blade is best-suited for the efficient movement of moist or mildly contaminated airstreams. The PLR wheel's single-thickness blades handle airstreams not suited to hollow airfoil shapes.

Efficiency—area of peak mechanical efficiency is on the steeply rising portion of the static pressure curve, the best selection range.

Sound—the sound levels are lowest with the most efficient fan selections.

Construction—available in Sizes 12" through 60" in mild-steel construction for temperatures to 800°F. and in Sizes 18" through 49" in stainless-steel construction for temperatures to 1300°F.

TYPICAL PLR PERFORMANCE



NOTE: Five regions (A,B,C,D,E) shown above correspond to points of operation on capacity tables.

ACCESSORIES

- **SHAFT SEAL**

Ceramic felt seal element located by mounting/insulation panel...insert may be easily split for field installation and maintenance...standard on all 800°F, 1000°F, and 1300°F. Plug Fans.

- **AMCA C [BUFFER] SRC**

To include a spark-resistant alloy inlet cone, ring-welded to drive-side plate and buffer at shaft-hole opening...maximum temperature: 650°F.

- **REDUCED DEPTH INLET CONE**

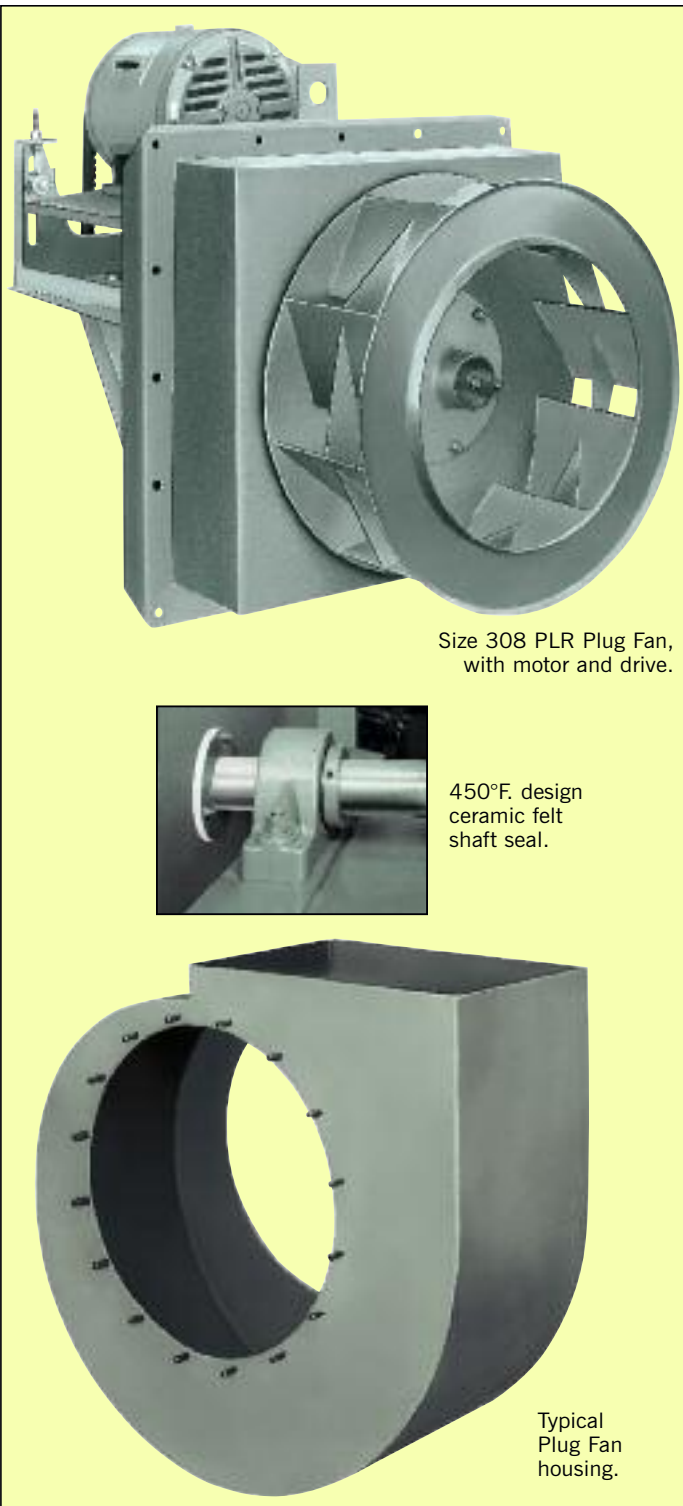
Reduced depth inlet cones are available for applications where space is restricted. From 2" on the smaller sizes to 6" on the larger sizes.

- **HOUSINGS**

Housings are designed to maximize performance with AcoustaFoil, PLR, or ECF wheels and to direct the airflow to a specific location in the system. Housings are continuously welded and furnished with mounting studs on inlet side, large cutouts on both sides for wheel removal, and flat surface on drive side for easy installation. Housings are rotatable and available in clockwise or counterclockwise design. For selection use SWSI capacity tables. Housing widths are modified to accommodate the standard 1½" "Y" dimension for Plug Fans.

- **OTHER ACCESSORIES**

Also available from **nyb** are drive components such as motors and v-belt drives as well as a variety of preventative-maintenance products including vibration detectors, bearing-temperature detectors, and zero-speed switches.



Size 308 PLR Plug Fan, with motor and drive.

450°F. design ceramic felt shaft seal.

Typical Plug Fan housing.

SAFETY EQUIPMENT

Belt guards, inlet guards, and shaft and bearing guards are available from The New York Blower Company. Contact your **nyb** representative for further information.

Safety accessories are available from **nyb**, but selection of the appropriate devices is the responsibility of the system-designer who is familiar with the particular installation, or application, and can provide for guards for all exposed moving parts as well as protection from access to high-velocity airstreams. Neither **nyb** nor its sales representatives is in a position to make such determination. Users and/or installers should read "Recommended Safety Practices for Air Moving Devices" as published by the Air Movement and Control Association International, Arlington Heights, Illinois.

MODIFICATIONS

- **INTEGRAL INLET-CONE ASSEMBLY**

Factory located and set inlet-cone assembly to assure proper wheel-to-cone fit for optimum performance. See page 22 and 25 for additional information.

- **STAINLESS STEEL**

Stainless steel and other special alloys are available for performance at temperature and to combat corrosion problems. 1000°F. Plug Fans utilize stainless-steel wheels and shafts as standard. 1300°F. Plug Fans use 1000°F. designs with PLR wheels and the addition of a stainless-steel insulation panel and inlet cone.

- **WHEEL BACK PRESSURE BLADES**

Radial fins can be welded to the backplate to generate a negative pressure at the shaft hole.

- **BREATHER PORT**

Pipe nipple with vent cap can be specified to relieve pressure build-up in insulation panel due to heat.

- **CUSTOM PLUG FANS**

nyb can make numerous modifications to its Plug Fan designs to meet the space and performance needs of OEM customers, including special mounting, panel dimensions, or insulate panel dimensions and depths. For capacities beyond 125,000 CFM, nyb can modify conventional Arrangement 1 and 9 fans with plug-style panels with or without housings.

- **TECHNICAL SUPPORT**

nyb has developed numerous engineering and application support tools for system designers and operators. For further information, contact your local nyb sales representative or visit our web site at www.nyb.com.



Size 187
AcustaFoil Plug Fan,
800°F. insulated design
with integral inlet-cone
assembly and motor.

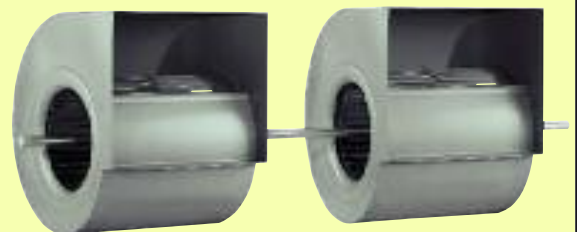


Size 278 PLR Plug Fan,
800°F. insulated design, with motor,
belt guard, and shaft and bearing guard.

AIR KITS

Capacities to 100,000 CFM, 6"WG.

Forward-curve wheels in one-fan or two-fan designs...preselected housing, shaft, and bearing combinationsto suit a wide range of air performance, temperature,and dimensional requirements. Ideal for use in ovens, dryers, air handlers, and built-up plenum systems...static pressures to 6"WG...temperatures to 1000°F.



PLUG FAN ENGINEERING AND SELECTION

GENERAL

Plug Fans are an integral part of the ovens and dryers in which they are applied. As such, New York Blower sales representatives work closely with OEM project engineers in assessing requirements and meeting critical performance and dimensional specifications. Because of a wide variety of choices available, it is recommended that final selection be made using New York Blower's Electronic Catalog software and that a New York Blower sales representative assist in optimizing the selection.

CORRECTION FACTORS

Fan performance is based on actual cubic feet per minute [ACFM] at the fan inlet at standard density [.075 lbs./ft.³] and static pressure at the fan outlet. Static pressure capabilities are shown in inches water gauge ["WG].

Air-density corrections are necessary for proper selection when air density varies from the standard .075 lbs./ft.³ at 70°F. at sea level. Multiply the required static pressure at operating conditions by the appropriate factors in Charts I and II to obtain the corrected static pressure for standard conditions. Pressure and BHP will be reduced at conditions by the inverse of these factors. Multiply one factor by the other if temperature and altitude are non-standard. For example: if the installation is located at an altitude of 4000 feet and the gas temperature is 300°F. the correction factor is 1.66 [1.16 x 1.43].

CHART I ALTITUDE [ft.] CORRECTIONS	
Alt.	Factor
0	1.00
500	1.02
1000	1.04
1500	1.06
2000	1.08
2500	1.10
3000	1.12
3500	1.14
4000	1.16
4500	1.18
5000	1.20
5500	1.23
6000	1.25
7000	1.30
8000	1.35

CHART II TEMPERATURE CORRECTIONS			
Temp. °F.	Factor	Temp. °F.	Factor
0	.87	450	1.72
20	.91	500	1.81
40	.94	550	1.91
60	.98	600	2.00
70	1.00	650	2.10
100	1.06	700	2.19
120	1.09	750	2.28
140	1.13	800	2.38
160	1.17	850	2.47
180	1.21	900	2.56
200	1.25	950	2.66
250	1.34	1000	2.76
300	1.43	1100	2.94
350	1.53	1200	3.13
400	1.62	1300	3.32

HEAT FANS

Fans handling hot airstreams must be kept in operation after system shutdown until the airstream cools below 200°F. to prevent damage to the fan. The fan wheel or shaft might otherwise distort due to "heat-soaking". The shaft cooler is only effective while rotating. Burners should be located so that the air is thoroughly mixed before entering the fan inlet. Improper placement could cause hot spots on the fan wheel which exceed maximum design temperatures. Contact **nyb** when the application involves temperature changes greater than 20°F. per minute.

Refer to the selection example on page 7 for the effect of temperature on the maximum safe speed of wheels and the temperature derate factors in Chart IV.

MAXIMUM SAFE SPEEDS

Plug Fan operation at temperatures above 70°F. primarily affects the strength of rotating components, which declines as temperature increases. Chart III provides maximum safe speeds for Class 2, 3 and 4 AcoustaFoil, PLR and ECF-9 wheels at 70°F. When alloy construction is specified or when temperatures are involved, multiply the appropriate wheel safe speed shown in Chart III by the factor shown in Chart IV.

Chart V provides maximum safe speeds for Class 2 and Class 3 Plug Fans at 70°F. In no case should these unit safe speeds be exceeded. The final unit safe speed at temperature is the lesser of the unit safe speed at 70°F. and the wheel safe speed calculated at operating temperature and with the correct materials of construction.

CAPACITY CONTROL

The rising cost of energy requires that air-handling systems be operated efficiently at less than maximum design airflow. The high efficiency and inherent stability of the AcoustaFoil wheel is particularly well-suited to variable airflow systems. The AcoustaFoil wheel design ensures not only maximum operating efficiency at design CFM but also at reduced airflow regardless of the control method applied. This higher efficiency allows quieter operation throughout the modulation range.

The New York Blower Company's nationwide network of trained sales representatives is familiar with each of these control alternatives and can offer further assistance in selecting the best control for a particular application.

DETERMINING MAXIMUM SAFE SPEED		
PROCEDURES	STEPS	EXAMPLE
Select fan.	1	Using a Model 187 AcoustaFoil Plug Fan operating at 2688 RPM and 600°F. from the example on page 8, the 800°F. design is required and a 4" panel is assumed.
Determine wheel safe speed at temperature.	2	The maximum wheel safe speed for a Model 187 Class 2 AcoustaFoil wheel at 70°F. is 3005 RPM [Chart III]. The maximum wheel safe speed at 600°F. is $[3005 \times .92] = 2764$ RPM, above the required 2688 RPM.
Determine unit safe speed at temperature.	3	The unit safe speed at 70°F. is 3005 RPM [Chart V]. The unit safe speed at 600°F. is the lesser of wheel safe speed and unit safe speed. 2688 RPM selection is acceptable.

MAXIMUM UNIT OPERATING SPEEDS [RPM] AT 70°F. FOR CLASS 4 PLUG FANS

Size	450°F. AcF/PLR	800°F. AcF/PLR 4" panel	800°F. AcF/PLR 5" panel	800°F. AcF/PLR 6" panel	1000°F. PLR 6" panel
18	4290	4295	3935	4295	3700
20	3580	3580	3280	3600	3535
22	3520	3520	3365	3520	3080
24	3185	3170	2920	3205	3115
27	2905	2825	2615	2905	2905
30	2610	2610	2610	2545	2155

CHART III MAXIMUM WHEEL OPERATING SPEEDS [RPM]* ACOUSTAFOIL AND PLR AT 70°F.											
Size	AcoustaFoil				PLR		AcF/PLR	ECF-9			
	Class 2		Class 3		Class 2	Class 3	Class 4	Class 2		Class 3	
	Carbon steel	SST	Carbon steel	SST				Carbon steel	SST	Carbon steel	SST
12	4900†	NA	NA	NA	4270	NA	NA	4730+	NA	NA	NA
15	3800†	NA	NA	NA	3360	NA	NA	3670+	NA	NA	NA
18	3005	3005	3790	3600	2735	3525	4300	2900	2380	3660	3010
20	2780	2780	3510	3160	2510	3200	3895	2685	2225	3390	2810
22	2570	2570	3240	2945	2305	2900	3520	2480	2065	3130	2610
24	2335	2335	2940	2685	2090	2635	3205	2255	1885	2840	2375
27	2010	2010	2530	2430	1850	2325	2905	1940	1700	2440	2140
30	1805	1805	2275	1995	1665	2095	2610	1770	1590	2195	1975
33	1650	1650	2080	1815	1515	1905	2375	1590	1430	2010	1810
36	1450	1395	1825	1640	1360	1715	NA	1400	1300	1770	1645
40	1315	1265	1655	1490	1235	1555	NA	1270	1170	1600	1480
44	1190	1145	1495	1375	1120	1410	NA	1170	1065	1440	1315
49	1105	1065	1395	1225	1020	1280	NA	1065	910	1345	1150
54	975	940	1230	1105	920	1178	NA	940	830	1190	1050
60	880	850	1110	1000	830	1045	NA	880	785	1070	960

*Maximum safe speeds apply only to wheels operated at or below stated temperature and free of material build-up, corrosion, or wear. NA—Not Available.

† Aluminum Wheel for 200°F. Maximum Operation.

CHART IV TEMPERATURE CORRECTION FACTORS FOR WHEEL OPERATING SPEEDS * SST derates are for PLR wheels only. Consult ES-135 for AcoustaFoil derates. AcoustaFoil and ECF-9 wheels are only available to 1000°F.	Temp. °F.	Wheel material				Temp. °F.	Wheel material			
		Steel	Stainless 304*	Stainless 316*	Stainless 347*		Steel	Stainless 304*	Stainless 316*	Stainless 347*
		70	1.00	1.00	1.00	1.00	800	.80	—	.79
	200	.97	.88	.95	.95	850	—	—	.77	.85
	300	.95	.82	.92	.93	900	—	—	.76	.84
	400	.94	.78	.89	.90	1000	—	—	.75	.83
	500	.93	.75	.86	.90	1100	—	—	.63	.66
	600	.92	.73	.84	.90	1200	—	—	.53	.54
	700	.87	.68	.80	.87	1300	—	—	.42	.39

CHART V MAXIMUM UNIT SAFE SPEEDS [RPM] AT 70°F.

CLASS 2 AND 3 PLUG FANS WITH ACOUSTAFOIL WHEELS

Size	200°F./450°F. design		800°F. design				1000°F. design			
			4" panel		6" panel		6" panel		8" panel	
	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3
127*	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA
157*	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
187	3005	3790	3005	3790	3005	3790	3005	3600	2565	3090
207	2780	3510	2780	3510	2780	3060	2780	3005	2780	2530z
227	2570	3240	2570	3000	2570	3000	2570	2945	2570	2945
247	2335	2940	2335	2940	2335	2940	2315	2685	1955	2460
277	2010	2530	2010	2530	2010	2530	2010	2430	1780	2225
307	1805	2275	1805	2275	1805	2275	1700	1995	1455	1995
337	1650	2080	1650	2080	1650	2080	1500	1815	1280	1815
367	1450	1825	1450	1825	1450	1825	1395	1640	1215	1450
407	1315	1655	1315	1655	1315	1620	1265	1490	1120	1335
447	1190	1495	1190	1495	1190	1495	1145	1375	1145	1375
497	1105	1395	1105	1395	1105	1310	1065	1225	1065	1110
547	975	1230	975	1230	975	1230	975	1230	975	‡
607	880	1110	880	1110	880	1110	880	1110	880	‡

* 200°F. Only.

NA-Not Available.

‡ - See bottom of page

CLASS 2 AND 3 PLUG FANS WITH PLR WHEELS

Size	200°F./450°F. design		800°F. design				1000°F. design				1300°F. design	
			4" panel		6" panel		6" panel		8" panel		6" panel	8" panel
	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3	Class 3	Class 3
128	4270	NA	4270	NA	3900	NA	NA	NA	NA	NA	NA	NA
158	3360	NA	3360	NA	3160	NA	NA	NA	NA	NA	NA	NA
188	2735	3525	2735	3525	2735	3525	2735	3525	2705	3320	3525	3320
208	2510	3200	2510	3200	2510	3060	2510	3005	2510	2530	3005	2530
228	2305	2900	2305	2900	2305	2900	2305	2900	2305	2900	2900	2900
248	2090	2635	2090	2635	2090	2635	2090	2635	2015	2520	2635	2520
278	1850	2325	1850	2325	1850	2325	1850	2325	1850	2300	2325	2300
308	1665	2095	1665	2095	1665	2095	1665	2095	1540	2095	2095	2095
338	1515	1905	1515	1905	1515	1905	1515	1905	1385	1905	1905	1905
368	1360	1715	1360	1715	1360	1715	1360	1715	1285	1490	1715	1490
408	1235	1555	1235	1555	1235	1555	1235	1540	1150	1330	1540	1330
448	1120	1410	1120	1410	1120	1410	1120	1410	1120	1240	1410	1240
498	1020	1280	1020	1280	1020	1280	1020	1230	1020	1085	1230	1085
548	920	1175	920	1175	920	1175	920	1175	920	‡	1175	‡
648	830	1045	830	1045	830	1045	830	1045	830	‡	1045	‡

‡ - See bottom of page

CLASS 2 AND 3 PLUG FANS WITH ECF WHEELS

Size	200°F./450°F. design		800°F. design			
			4" panel		6" panel	
	Class 2	Class 3	Class 2	Class 3	Class 2	Class 3
18	2900	3660	2900	3660	2900	3460
20	2685	3390	2685	3390	2685	3290
22	2480	3130	2480	3130	2480	3130
24	2255	2840	2255	2840	2255	2840
27	1940	2440	1940	2440	1940	2440
30	1770	2195	1770	2195	1770	2195
33	1590	2010	1590	2010	1590	2010
36	1375	1770	1400	1770	1400	1670
40	1270	1600	1270	1600	1270	1460
44	1170	1440	1170	1440	1170	1440
49	1065	1345	1065	1330	1065	1170
54	940	1190	940	1190	940	‡
60	880	1070	880	1070	880	‡

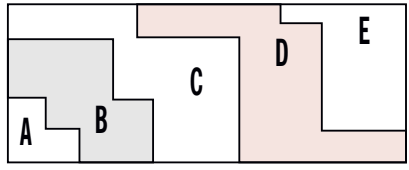
‡ CLASS 3 PLUG FANS SIZES 54 AND 60

Size	Motor Frame	Class 3			
		800°F.	1000°F.	1000°F.	1300°F.
		6" panel	8" panel	8" panel	8" panel
		ECF	AcF	PLR	PLR
54	≤405T	1160	1190	1175	1175
	444T/445T	1160	1120	1175	1120
	447T	1160	1230	1175	1175
60	≤405T	1070	1110	1045	1045
	444T/445T	1070	1110	1045	1045
	447T/449T	1070	1050	1045	1045

PLENUM PERFORMANCE FACTORS

Plug Fan selection and performance has been greatly simplified. By illustrating regions corresponding to required points of operation in the capacity tables and on the typical performance curves shown on page 3, selection can be made in three simple steps.

LEGEND



In the capacity tables, for pages 9 through 18:

- Region A = white area, lower left.
- Region B = gray area.
- Region C = white area, middle.
- Region D = colored area.
- Region E = white area, top right.

Make sure to review additional speed corrections for wheel class, unit design, and temperature.

PLENUM CORRECTION		
PROCEDURES	STEPS	EXAMPLE
Select fan size, model, RPM, and BHP from tables.	1	Design is 7000 CFM at 4.0" WG, at standard conditions. A Model 187 Plug Fan is selected at 2610 RPM at 6.66 BHP. Selection is in Region C.
Determine the plenum performance factors.	2	The plenum is two walls perpendicular with a d/D of .15. RPM factor = 1.03, BHP factor = 1.08.
Determine the required RPM and BHP for operation in the plenum.	3	RPM = 2610 x 1.03 = 2688 RPM, BHP = 6.66 x 1.08 = 7.19 BHP, at 70°F. and sea level.

CHART VI CORRECTION FACTORS FOR PLENUM TYPE

PLENUM TYPE		ONE WALL		TWO WALLS Parallel		TWO WALLS Perpendicular		THREE WALLS Wheel centered		THREE WALLS With 3/2d and 1/2d spacing	
		d/D ratio	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
A	.1 to .2	1.01	1.04	1.01	1.10	1.03	1.14	1.10	1.67	1.11	1.70
	.2 to .3	1.01	1.01	1.00	1.00	1.01	1.02	1.06	1.33	1.06	1.33
	.3 to .5	1.00	.97	1.00	.97	1.00	.97	1.02	1.10	1.02	1.10
	.5 to .7	1.00	1.00	.99	.94	1.01	.99	1.02	1.10	1.01	1.03
	more than .7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
B	.1 to .2	1.01	1.03	1.02	1.10	1.03	1.10	1.09	1.47	1.09	1.44
	.2 to .3	1.01	1.01	1.00	1.00	1.00	.96	1.05	1.22	1.04	1.18
	.3 to .5	1.00	.99	1.00	1.00	1.00	.96	1.02	1.07	1.02	1.07
	.5 to .7	1.00	1.00	1.00	1.00	1.00	.96	1.02	1.07	1.01	1.03
	more than .7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C	.1 to .2	1.01	1.02	1.01	1.03	1.03	1.08	1.07	1.28	1.07	1.27
	.2 to .3	1.01	1.01	1.01	1.02	1.01	1.01	1.04	1.15	1.03	1.09
	.3 to .5	1.00	.99	1.00	.99	1.01	.97	1.01	1.02	1.01	1.02
	.5 to .7	1.00	1.00	1.00	.99	1.00	.98	1.02	1.04	1.01	1.01
	more than .7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
D	.1 to .2	1.01	1.02	1.01	1.03	1.02	1.06	1.07	1.23	1.05	1.16
	.2 to .3	1.01	1.00	1.01	1.03	1.01	1.03	1.04	1.12	1.03	1.08
	.3 to .5	1.00	1.00	1.00	.99	1.00	.99	1.02	1.05	1.01	1.02
	.5 to .7	1.00	1.00	1.00	.98	1.00	.98	1.02	1.05	1.00	.99
	more than .7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E	.1 to .2	1.01	1.02	1.00	.99	1.01	1.01	1.03	1.08	1.01	1.02
	.2 to .3	1.00	1.00	1.00	.99	.99	.95	1.00	1.00	1.00	.98
	.3 to .5	1.00	1.00	.99	.97	.98	.93	.99	.98	.99	.95
	.5 to .7	1.00	1.00	.99	.97	.99	.95	1.00	1.00	.99	.95
	more than .7	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

PLUG FAN SELECTION

HOW TO SELECT A PLUG FAN

PROCEDURES	STEPS	EXAMPLE
For a given CFM and static pressure, capacity tables can be used to obtain fan size, wheel RPM, and BHP. If capacities are at conditions other than 70°F., sea level, or standard density [.075 lbs./cu.ft.], correction factors must be applied to static pressure and BHP.	1	An oven application requires 25,000 CFM, at 4.0"SP operating at 600°F. and sea level. Oven design is three walls, wheel centered with a d/D ratio of 0.6. Oven wall is 4" thick.
If temperature, altitude, or density corrections are required, determine the correction factor using Charts I and II from page 6.	2	Correction factor for 600°F. is 2.0 from Chart II.
Multiply the required operating SP by the correction factor[s]. This gives the equivalent SP at .075 lb./cu.ft. density.	3	The required fan SP at standard air is 4.0" x 2.0 = 8.0" at 0.75 lbs./cu.ft.
Select the Fan size, RPM and BHP from the capacity tables. Note: For a given performance, larger fans are generally more efficient and have lower operating cost over the life of the fan.	4	A Model 367 AcoustaFoil Plug Fan is selected for 25,000 CFM at 8"SP, 1461 RPM, 39.94 BHP at [standard air] .075 lbs./cu.ft. density. Performance is in Region D.
Determine the plenum performance factors for actual plenum design.	5	For plenum design of three walls with wheel centered at d/D of 0.6 the RPM factor = 1.02 and the BHP factor = 1.05.
Calculate the required RPM and BHP for operation in the plenum.	6	RPM = 1461 x 1.02 = 1490 RPM BHP = 39.94 x 1.05 = 41.94 BHP
Confirm the maximum wheel safe speed at operating [or design] temperature from Charts III and IV. Confirm maximum unit safe speed from Chart V. The Plug Fan's maximum safe speed is the lesser of the wheel and unit safe speeds.	7	A 367 AcoustaFoil Class 3 wheel has a maximum safe speed of 1825. Assuming steel construction and 600°F. the wheel correction factor is .91. The maximum safe wheel speed at 600°F. is 1660 [1825 x .91]. from Chart V the unit safe speed for a 800°F. [4" panel] Class 3 367 fan is also 1825. The wheel is the limiting factor at 1679, well above the required speed of 1490 RPM.
Determine operating BHP by dividing the BHP from the capacity tables by the correction factor[s] used in step 3.	8	Operating BHP is 41.94 BHP ÷ 2.0 = 20.97 BHP.
Final selection.	9	A Model 367, Class 3 AcoustaFoil Plug Fan, 800°F. design operating at 20.97 BHP and 25,000 CFM.

MODEL 127 ACOUSTAFOIL												REGION A	REGION B	REGION C	REGION D	REGION E						
CFM	1"SP		2"SP		3"SP		4"SP		5"SP		6"SP		7"SP		8"SP		9"SP		10"SP		11"SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	1848	0.31	2299	0.59	2680	0.91	3031	1.27	3337	1.65	3634	2.07	3899	2.50	4164	2.97	4399	3.44	4637	3.96	4874	3.52
1500	2079	0.42	2477	0.75	2830	1.11	3148	1.50	3449	1.93	3716	2.36	3972	2.83	4220	3.32	4465	3.86	4683	4.38		
1800	2335	0.56	2692	0.94	3007	1.34	3306	1.78	3583	2.24	3841	2.72	4082	3.21	4318	3.75	4541	4.29	4758	4.86		
2100	2605	0.74	2923	1.16	3215	1.61	3486	2.08	3748	2.59	3984	3.10	4214	3.64	4441	4.21	4648	4.77	4862	5.40		
2400	2890	0.96	3174	1.43	3445	1.93	3697	2.45	3935	2.99	4170	3.57	4385	4.15	4588	4.73	4791	5.35				
2700	3183	1.24	3438	1.75	3686	2.29	3920	2.86	4145	3.45	4358	4.06	4573	4.71	4765	5.33						
3000	3483	1.57	3715	2.13	3941	2.72	4159	3.33	4366	3.96	4571	4.62	4760	5.27								
3300	3786	1.97	3997	2.57	4204	3.20	4405	3.85	4608	4.55	4800	5.26										
3600	4093	2.43	4286	3.07	4477	3.75	4671	4.47	4858	5.21												
3900	4402	2.97	4583	3.67	4760	4.39																
4200	4715	3.60	4884	4.34																		

MODEL 128 PLR												REGION A	REGION B	REGION C	REGION D	REGION E						
CFM	1"SP		1.5"SP		2"SP		2.5"SP		3"SP		3.5"SP		4"SP		5"SP		6"SP		7"SP		8"SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	1622	0.30	1855	0.45	2072	0.62	2281	0.79	2475	0.98	2667	1.17	2844	1.38								
1500	1818	0.41	2008	0.58	2191	0.75	2369	0.94	2544	1.15	2716	1.37	2878	1.59	3194	2.06	3482	2.56	3754	3.08		
1800	2036	0.55	2199	0.73	2359	0.93	2513	1.14	2671	1.37	2818	1.59	2967	1.84	3248	2.34	3527	2.89	3787	3.46	4035	4.05
2100	2273	0.74	2416	0.94	2556	1.15	2690	1.37	2828	1.61	2959	1.86	3089	2.11	3344	2.65	3593	3.23	3844	3.85	4068	4.46
2400	2522	0.97	2649	1.19	2773	1.42	2891	1.65	3010	1.91	3130	2.17	3247	2.44	3480	3.02	3704	3.62	3934	4.29	4140	4.92
2700	2776	1.27	2889	1.50	3002	1.74	3111	2.00	3219	2.27	3325	2.55	3434	2.84	3639	3.44	3845	4.08	4047	4.74	4256	5.47
3000	3037	1.62	3139	1.87	3240	2.13	3341	2.41	3439	2.69	3535	2.98	3635	3.30	3824	3.93	4010	4.59	4202	5.32		
3300	3301	2.06	3395	2.32	3486	2.59	3578	2.88	3671	3.19	3760	3.50	3850	3.83	4023	4.49	4202	5.22				
3600	3567	2.56	3656	2.85	3742	3.14	3825	3.44	3909	3.76	3992	4.09	4075	4.43	4235	5.12						
3900	3836	3.15	3917	3.45	3998	3.77	4076	4.09	4153	4.42	4230	4.76										
4200	4107	3.84	4184	4.16	4257	4.48																

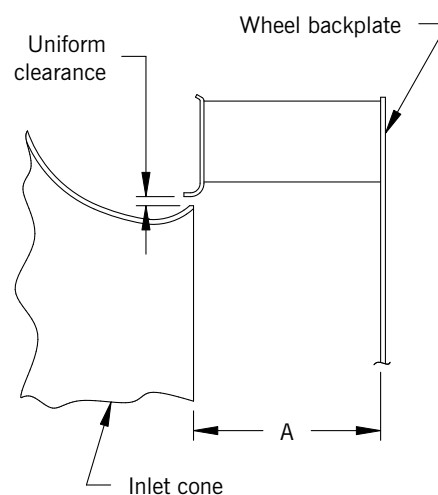
MODEL 60 ECF-9						REGION A		REGION B		REGION C		REGION D		REGION E								
						1"SP		2"SP		3"SP		4"SP		6"SP		7"SP		8"SP		9"SP		10"SP
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
25000	331	5.64	434	11.7	531	19.1	614	27.5	743	45.4	801	55.5	854	66.0	903	76.7	953	88.7	995	99.5	1040	112
33500	376	7.97	460	15.1	536	23.0	615	32.2	751	52.5	812	64.1	865	75.5	914	87.1	961	99.6	1006	113	1048	125
42000	427	11.0	502	19.4	566	28.3	629	38.0	752	59.9	811	71.9	867	84.4	921	98.1	972	112	1017	126	1060	140
50500	477	14.6	550	24.6	610	34.9	665	45.7	767	68.6	816	80.8	869	94.6	922	109	972	124	1018	139	1063	154
59000	531	19.3	601	30.7	657	42.2	708	54.5	799	79.5	845	93.1	886	106	931	121	974	136	1017	151	1064	169
67500	588	25.1	651	37.8	708	51.1	755	64.3	842	92.3	882	107	921	121	960	137	999	153	1034	168		
76000	646	32.2	703	46.1	758	60.8	805	75.7	888	107	925	122	962	138	997	154	1034	172	1067	188		
84500	706	40.7	758	55.8	809	72.1	855	88.1	935	122	971	139	1008	157	1041	174						
93000	767	50.8	815	67.4	862	84.9	907	103	985	139	1021	158	1055	177								
101500	829	62.7	872	80.4	916	99.2	958	118	1035	157												
110000	892	76.4	931	95.4	972	115	1011	136														

INSTALLATION

WHEEL-INLET CONE CLEARANCES

For optimum Plug Fan performance the wheel-to-inlet cone positioning must be uniform around the wheel inlet and conform to the dimensions listed here. Use of the integral inlet cone assembly as described on pages 5 and 20 will ensure that this spacing is maintained.

Size	DIMENSIONS [INCHES]	
	A	
	AcF/PLR	ECF-9
12	4 1/2	NA
15	5 1/2	NA
18	7	7 7/16
20	7 7/16	8 1/8
22	8 1/4	9
24	9 5/16	9 15/16
27	10 3/16	10 7/8
30	11 1/4	12
33	12 1/4	13 3/16
36	13 3/8	14 1/4
40	14 13/16	15 13/16
44	16 1/4	17 3/8
49	17 15/16	19 3/16
54	19 13/16	21 1/8
60	21 13/16	23 7/16

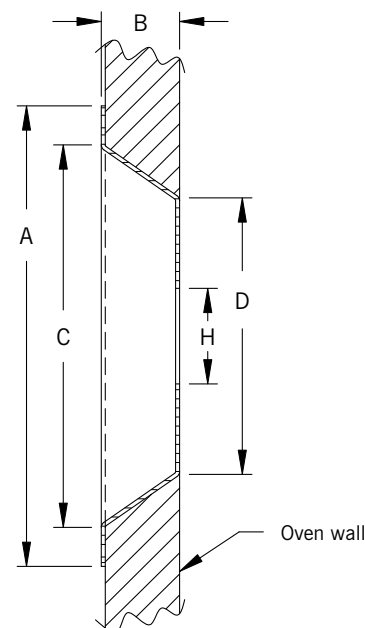


SHAFT-SEAL CONE

800°F. Plug Fans* are available without insulation panels but in all cases are furnished with recessed shaft-seal cone assemblies. In order to operate correctly, the shaft-seal operates in a recessed cone. Customer's oven wall must provide sufficient space for insertion of the recessed cone. The assembly is an integral part of Plug Fans furnished with insulated panels.

*Option for Sizes 44 and 49 450°F.

DIMENSIONS [INCHES]						
Size	Shaft Seal Size	A	B	C	D	H
18-40	All	18 3/4	3 1/8	15 1/4	11	3 3/4
44-49	All	12 1/4	5/8	10 1/4	9	4
54,60	2 15/16	16 5/8	1 3/4	14 1/4	11	3 1/2
	3 7/16					4
	3 15/16					4 1/2
	4 7/16					5



MATERIAL SPECIFICATIONS [POUNDS, WR² IN LB.-FT.²]

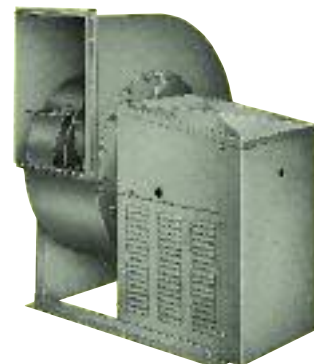
WHEEL WEIGHTS												
Size	Acoustafoil					PLR			ECF-9			
	Class 2		Class 3		Class 4	Class 2	Class 3	Class 4	Class 2	Class 3	Class 3	Class 3
	Carbon Steel	SST	Carbon Steel	SST	Carbon Steel				Carbon Steel	SST	Carbon Steel	SST
12	7	NA	NA	NA	NA	15	NA	NA	NA	NA	NA	NA
15	12	NA	NA	NA	NA	21	NA	NA	NA	NA	NA	NA
18	31	47	44	50	49	32	43	48	32	47	44	46
20	47	57	56	64	61	50	58	61	37	55	49	54
22	54	64	63	74	73	59	63	67	54	70	57	69
24	71	101	95	101	100	74	87	100	70	97	79	98
27	91	116	114	116	115	91	103	117	82	114	91	115
30	103	153	142	153	151	115	127	152	98	139	121	140
33	117	175	157	182	180	137	147	173	115	161	140	162
36	174	263	251	271	268	206	268	261	178	240	256	241
40	194	305	304	313	310	214	325	339	188	294	310	295
44	252	391	349	414	410	289	372	438	258	358	356	359
49	347	621	551	638	631	377	589	661	347	563	556	564
54	415	691	727	745	788	517	825	824	416	759	698	760
60	529	897	877	906	916	647	978	953	538	911	851	912

WHEEL WR ²												
Size	Acoustafoil					PLR			ECF-9			
	Class 2		Class 3		Class 4	Class 2	Class 3	Class 4	Class 2	Class 3	Class 3	Class 3
	Carbon Steel	SST	Carbon Steel	SST	Carbon Steel				Carbon Steel	SST	Carbon Steel	SST
12	1	NA	NA	NA	NA	2	NA	NA	NA	NA	NA	NA
15	3	NA	NA	NA	NA	4	NA	NA	NA	NA	NA	NA
18	10	13	12	14	14	10	11	12	10	14	12	16
20	17	21	21	26	26	19	24	27	15	20	17	22
22	22	29	26	36	36	26	28	32	23	33	25	35
24	38	55	43	55	54	43	46	53	38	53	42	55
27	63	79	65	79	78	64	69	78	56	98	59	100
30	91	121	115	121	120	104	110	120	86	122	104	124
33	121	174	154	187	185	146	155	170	117	175	149	177
36	232	304	259	319	316	278	275	298	233	298	262	300
40	306	446	407	508	503	355	461	514	308	457	412	459
44	501	755	597	823	814	568	628	860	504	703	604	705
49	833	1251	976	1321	1307	903	1059	1362	842	1165	990	1167
54	1240	1777	1782	2003	2125	1608	2138	2200	1252	2036	1781	2038
60	1910	2972	2777	3121	3103	2433	3238	3205	1930	3148	2790	3150

COMBUSTION AIR CHOICES

Sizes 12 and 15 General Purpose Fans with aluminum Acoustafoil wheels have a maximum operating temperature of 200°F. Sizes 18 through 36 General Purpose Fans with Acoustafoil wheels and all General Purpose Fans with BC and PLR wheels can be modified to handle airstream temperatures to 650°F. . . . air temperature surrounding the bearings must not exceed 120°F. or the motor's rated ambient temperature.

Heat-fan construction includes a shaft cooler with guards, an insulating motor heat shield, and an industrial-grade coating capable of withstanding temperatures from 201°F. to 650°F.



MATERIAL SPECIFICATIONS [INCHES, POUNDS, WR² IN LB.-FT.²]

CLASS 2 PLUG FANS														
Size	Motor Frame Size	Bare Fan Weight (Less Motor and Shaft)						B†	Shaft diameter					
		200°F./450°F.	800°F. Uninsulated (4")	800°F. Uninsulated (6")	800°F. Insulated (4")	800°F. Insulated (6")	800°F./1000°F. Insulated (8")		200°F./450°F.		800°F.		1000°F.	
									at wheel	at bearings	at wheel	at bearings	at wheel & at bearings	
12	All	127	144	146	167	--	--	A	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	—	
15		127	144	146	167	--	--	A	1 ¹¹ / ₁₆	1 ¹¹ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	—	
18		202	223	225	260	277	279	A	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	2 ³ / ₁₆	2 ³ / ₁₆	
20		206	241	244	278	286	289	A	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
22		206	241	244	278	286	289	A	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
24		315	342	345	392	415	418	B	2 ³ / ₁₆	2 ³ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
27		315	342	345	392	415	418	B	2 ³ / ₁₆	2 ³ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
30		390	426	429	493	523	526	B	2 ³ / ₁₆	2 ³ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
33		390	426	429	493	523	526	B	2 ³ / ₁₆	2 ³ / ₁₆	2 ³ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	
36		482	513	516	604	867	870	B	2 ³ / ₁₆	2 ³ / ₁₆	2 ³ / ₁₆	2 ¹¹ / ₁₆	2 ¹¹ / ₁₆	
40		482	513	516	604	867	870	B	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ⁷ / ₁₆	2 ¹¹ / ₁₆	2 ¹¹ / ₁₆	
44		993	1073	1078	1133	1223	1228	D	2 ¹¹ / ₁₆	3 ⁷ / ₁₆	2 ¹¹ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	
49		993	1073	1078	1133	1223	1228	D	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	
54		405T	1660	1730	1740	1830	1860	1890	D	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆
54		444T/445T	1830	1910	1910	2010	2040	2060	D	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆
60	405T	1840	1910	1910	2030	2060	2100	D	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	
60	444T/445T	2020	2090	2100	2210	2250	2290	D	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	

Bearing Type: A- Standard Duty Ball, Concentric Lock B- Medium Duty Ball, Concentric Lock D-Spherical Roller, 2 Bolt

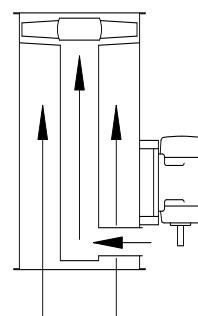
CLASS 3 PLUG FANS													
Size	Motor Frame Size	Bare Fan Weight (Less Motor and Shaft)						Bearing Type†			Shaft diameter		
		200°F./450°F.	800°F. Uninsulated (4")	800°F. Uninsulated (6")	800°F. Insulated (4")	800°F./1000°F./1300°F. Insulated (8")	800°F./1000°F. Insulated (8")	200°F./450°F.	800°F./1000°F.	1300°F.*	200°F./450°F.	800°F./1000°F./1300°F.	
											at wheel & at bearings	at wheel & at bearings	
18	All	262	286	288	323	356	359	A	A	C	2 ³ / ₁₆	2 ⁷ / ₁₆	
20		262	286	288	323	356	359	A	A	C	2 ³ / ₁₆	2 ⁷ / ₁₆	
22		268	329	332	366	428	431	A	B	C	2 ⁷ / ₁₆	2 ¹¹ / ₁₆	
24		420	454	457	503	537	540	B	B	C	2 ⁷ / ₁₆	2 ¹¹ / ₁₆	
27		420	454	457	503	537	540	B	B	C	2 ⁷ / ₁₆	2 ¹¹ / ₁₆	
30		589	622	625	708	808	812	C	C	C	2 ¹¹ / ₁₆	2 ¹⁵ / ₁₆	
33		589	622	625	708	808	812	C	C	C	2 ¹¹ / ₁₆	2 ¹⁵ / ₁₆	
36		650	680	683	771	817	821	C	C	C	2 ¹¹ / ₁₆	2 ¹⁵ / ₁₆	
40		650	680	683	771	817	821	C	C	C	2 ¹¹ / ₁₆	2 ¹⁵ / ₁₆	
44		968	1013	1018	1053	1128	1133	D	D	D	3 ⁷ / ₁₆	3 ⁷ / ₁₆	
49		968	1013	1018	1053	1128	1133	D	D	D	3 ⁷ / ₁₆	3 ⁷ / ₁₆	
54		405T	1730	1810	1810	1910	1940	1970	D	D	D	3 ⁷ / ₁₆	3 ¹⁵ / ₁₆
54		444T/445T	1910	1990	2000	2090	2120	2150	D	D	D	3 ⁷ / ₁₆	3 ¹⁵ / ₁₆
54		447T	2040	2250	2250	2350	2380	2410	D	E	E	3 ⁷ / ₁₆	4 ⁷ / ₁₆
60		405T	1910	2100	2110	2220	2260	2300	D	E	E	3 ⁷ / ₁₆	4 ⁷ / ₁₆
60	444T/445T	2090	2300	2310	2420	2460	2500	D	E	E	3 ⁷ / ₁₆	4 ⁷ / ₁₆	
60	447T/449T	2470	2600	2610	2720	2760	2800	D	E	E	3 ¹⁵ / ₁₆	4 ⁷ / ₁₆	

Bearing Type: A- Standard Duty Ball, Concentric Lock B- Medium Duty Ball, Concentric Lock C-Heavy Duty Ball, Concentric Lock D-Spherical Roller, 2 Bolt E- Spherical Roller, 4 Bolt

EXHAUST FAN CHOICES

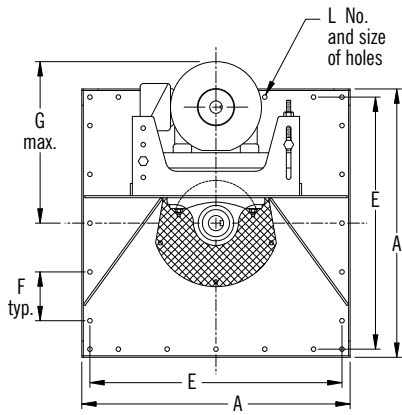
New York Blower Duct Fans, with heat-fan construction, are ideal for industrial oven and dryer exhaust systems where pressure requirements are minimal and compact, light-weight designs are advantageous. With heat-fan construction, Duct Fans are capable of handling airstream temperatures to 350°F in ambient environments up to 120°F.

For higher temperature applications, the Duct Fan, with heat-fan construction, induces a flow of cooler, ambient air through the belt well and inner tube, cooling the fan's internal components. Depending on temperature requirements, modifications include high-temperature fan wheel, special drive components, and modifications to provide internal ambient air cooling.

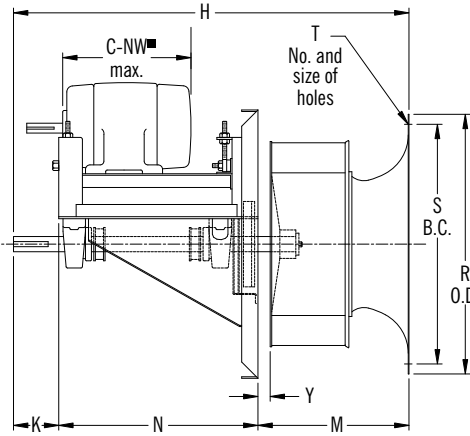


■ Plug Fan motors are mounted as space permits as measured by dimension C-NW. To determine fit, compare the desired motor's frame size with the frame size listed below. If the frame size and C-NW dimension are no larger than that shown, the combination is satisfactory. If the C-NW dimension is larger than that shown, a different motor or fan must be selected.

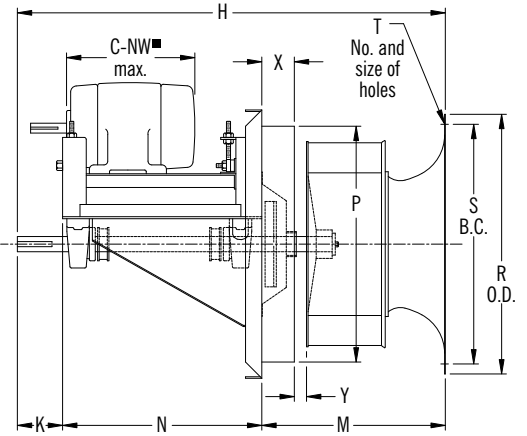
CLASS 2 SIZES 12-40



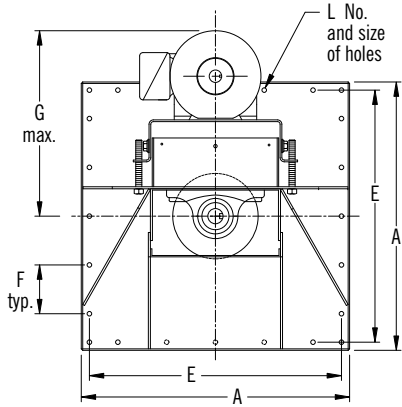
200°F./450°F.



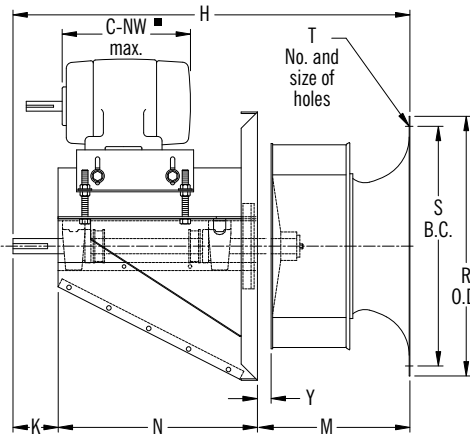
800°F.-1000°F.



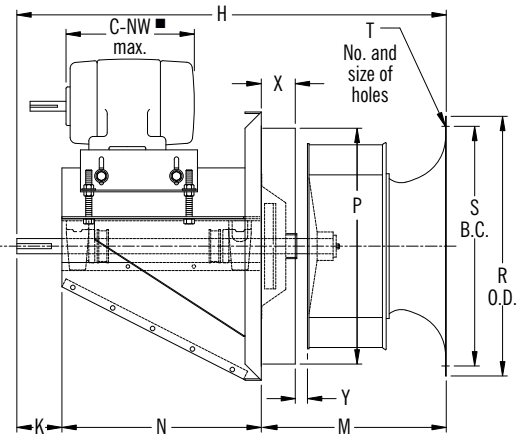
CLASS 3 SIZES 18-40



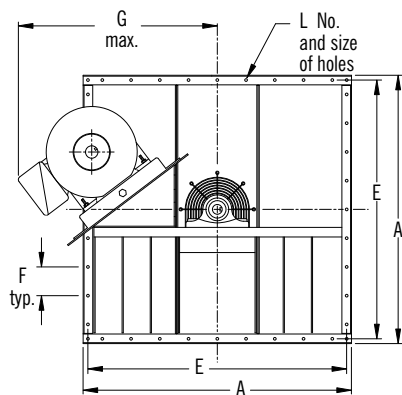
200°F./450°F.



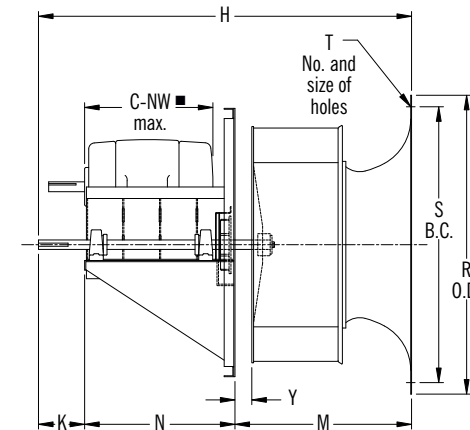
800°F.-1000°F.-1300°F.



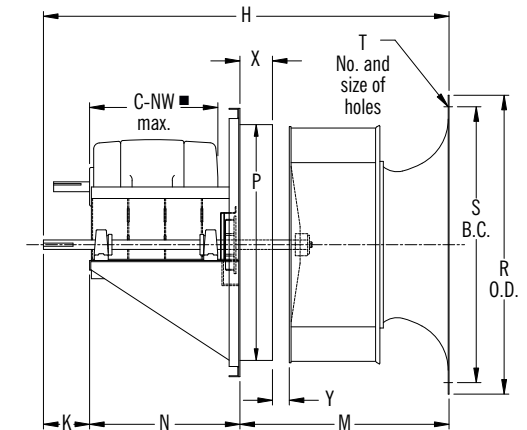
CLASS 2*/3 SIZES 44-60



200°F./450°F.



800°F.-1000°F.-1300°F.



*Class 2 Sizes 44-60 Plug Fans are only available to 1000°F.
 Y = 1½" on sizes 12-49. Y = 2½" on sizes 54-60. X = 4" or 6" on 800°F. fans, 6" or 8" on 1000°F./1300°F. fans.
 Dimensions not to be used for construction unless certified.
 L = All holes 9/16" diameter and on centerline. Sizes 12-27, 24 holes; Sizes 30-40, 32 holes; Sizes 44-54, 40 holes. Size 60, 48 holes.

The New York Blower Company has a policy of continual product improvement and reserves the right to change designs and specifications without notice.

DIMENSIONS AND SPECIFICATIONS [INCHES, POUNDS, WR² IN LB.-FT.²]

DIMENSIONS [INCHES]—for drawings on page 24																									
Size	Wheel dia.*	A	E	F	G max.		H (AcF, PLR Wheels)				K	M (AcF, PLR Wheels)				N	P†	R	S	T	Wheel cone clear.	Class 2		Class 3	
					Class		200°F./450°F.	800°F.	1000°F./1300°F.			200°F./450°F.	800°F.	800°F.±, 1000°F./1300°F.								C-NW max.	Max. motor frame	C-NW max.	Max. motor frame
					2	3	6" panel	8" panel	4" panel	6" panel		8" panel													
12	12¼	21	19	4	18	—	34¼	38¼	—	—	3	10	14	—	—	21¼	17	15¾	14½	8-11/16	4½	17	215T	—	—
15	15	21	19	4	18	—	35¾	39¾	—	—	3	11½	15½	—	—	21¼	17	18½	17½	8-11/16	5½	17	215T	—	—
18	18¼	28	26	6	26¾	25¼	42½	46½	48½	50½	4	14	18	20	22	24½	24	22¾	21¾	16-7/8	7	22¾	284T	22¾	284T
20	20½	28	26	6	26¾	26	43¼	47¼	49¼	51¼	4	15½	19½	21½	23½	24½	24	24½	23½	16-7/8	7½	22¾	284T	22¾	284T
22	22¼	28	26	6	26¾	26	44¾	48¾	50¾	52¾	4	16½	20½	22½	24½	24½	24	27½	26½	16-7/8	8¼	22¾	284T	22¾	284T
24	24½	33	31	6	29¼	27½	50	54	56	58	5	18¼	22¼	24¼	26¼	26¾	29	30½	29½	16-1	9¼	25¼	324T	25¼	324T
27	27	33	31	6	29¼	28¼	51½	55½	57½	59½	5	19¾	23¾	25¾	27¾	26¾	29	33½	31¾	16-1	10½	25¼	324T	25¼	324T
30	30	39	37	5½	30½	30¼	57½	61½	63½	65½	6	21½	25½	27½	29½	29¼	34	36½	35½	16-1	11¼	27¾	364T	27¾	364T
33	33	39	37	5½	30½	30¼	59½	63½	65½	67½	6	23½	27½	29½	31½	29¼	34	39¾	38¾	16-1	12¼	27¾	364T	27¾	364T
36	36½	46	44	6	31¾	31¾	63¾	67¾	69¾	71¾	7	26¾	30¾	32¾	34¾	30½	41	44½	42¾	16-1	13¾	29	365T	29	365T
40	40¼	46	44	6	31¾	31¾	66¾	70¾	72¾	74¾	7	28¾	32¾	34¾	36¾	30½	41	47½	46½	24-1	14¾	29	365T	29	365T
44	44½	56	54	6	52	52	73¾	77¾	79¾	81¾	8	31¾	35¾	37¾	39¾	34½	51	52½	51½	24-1	16¼	31½	405T	31½	405T
49	49	56	54	6	52	52	77	81	83	85	8	34¾	38¾	40¾	42¾	34½	51	57½	56½	24-1	17¾	31½	405T	31½	405T
54	54¼	62	59	6	NA	NA					8	39¼	43¼	45¼	47¼	See below.	56	63	61½	24-1	19¼/16				
60	60	69	66	6	NA	NA	See below.				8½	43½	47½	49½	51½	See below.	63	69¾	68¾	24-1	21¼/16	See below.			

*O.D. of blades. ●Plus corner holes. †800° for 6" panel only. †P is square dimension of panel. Tolerance: ±1/8"
 Mounting panel thickness: Sizes 12-22, 10 gauge; Sizes 24-40, 7 gauge; Sizes 44/60, 1/4". Sizes 54/60, 3/8".
 ■In some cases, larger frame motors may fit. In all cases, maximum motor frame size is limited to C-NW maximum dimension.

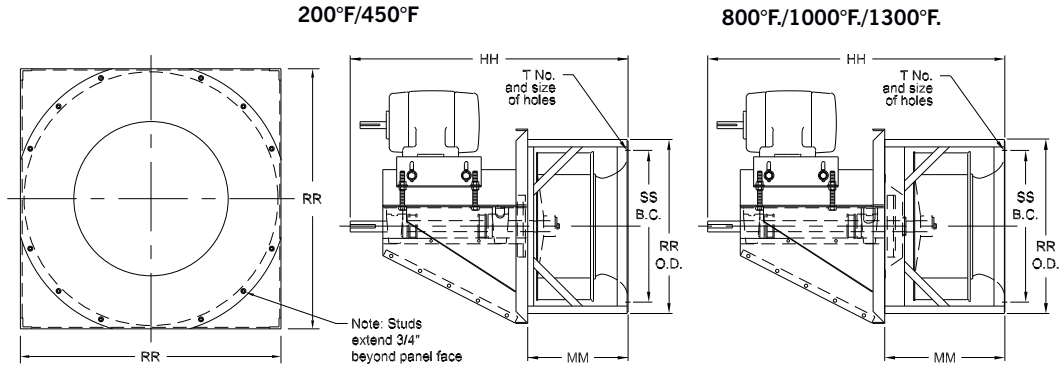
SIZE 54 AND 60 DIMENSIONS AND SPECIFICATIONS													
Size	Motor Frame	H					HH					N	Max C-NW
		200°F./450°F.	800°F.		1000°F. & 1300°F.		200°F./450°F.	800°F.		1000°F. & 1300°F.			
			4"	6"	6"	8"		4"	6"	6"	8"		
54	≤405T	84¾	88¾	90¾	90¾	92¾	78	82	84	84	86	37½	34¾
54	444T/445T	91½	95½	97½	97½	99½	84¾	88¾	90¾	90¾	92¾	44¼	41¾
54	447T	96¾	100¾	102¾	102¾	104¾	89¾	93¾	95¾	95¾	97¾	49½	46¾
60	≤405T	89½	93½	95½	95½	97½	81½	85½	87½	87½	89½	37½	34¾
60	444T/445T	95¾	99¾	101¾	101¾	103¾	88¾	92¾	94¾	94¾	96¾	44¼	41¾
60	447T/449T	106¼	110¼	112¼	112¼	114¼	98¾	102¾	104¾	104¾	106¾	54½	51¾

SIZE 54/60 PLUG FANS WITH INTEGRAL INLET CONE ASSEMBLY - BARE FAN WEIGHTS											
Size	Class	Motor Frame Size	Uninsulated				Insulated				
			200°F./450°F.	800°F		800°F		1000°F		1300°F	
				6"	8"	6"	8"	6"	8"	6"	8"
54	2	405T	1760	1890	1900	1990	2020	2020	2050	-	-
54	2	444T/445T	1930	2070	2070	2170	2200	2200	2230	-	-
60	2	405T	1950	2100	2100	2220	2250	2250	2290	-	-
60	2	444T/445T	2130	2280	2290	2400	2440	2440	2480	-	-
54	3	405T	1820	1970	1980	2070	2100	2100	2130	2100	2130
54	3	444T/445T	2000	2150	2160	2250	2280	2280	2320	2280	2320
54	3	447T	2130	2410	2420	2510	2540	2540	2570	2540	2570
60	3	405T	2020	2290	2300	2410	2450	2450	2490	2450	2490
60	3	444T/445T	2210	2480	2490	2610	2650	2650	2690	2650	2690
60	3	447T/449T	2590	2790	2800	2910	2950	2950	2990	2950	2990

PLUG FANS WITH INTEGRAL INLET-CONE ASSEMBLIES

DERATES

The integral inlet-cone assembly incorporates reduced-depth inlet cones in Sizes 18 through 49 (not available Size 20) for substantial reduction in fan depths ranging from 2" on the Size 18 to 6" on the Size 49. Due to the shorter-length cone, air performance derates are required as follows: Size 18-8%, Size 22-4 1/2%, and Size 24-3%. Size 20 and Sizes 27 and larger do not require a derate.



DIMENSIONS [INCHES] PLUG FANS WITH ACF AND PLR WHEELS

Size	HH Class 2				HH Class 3				MM						RR	SS	T
	200°F/ 450°F.	800°F.	1000°F.		200°F/ 450°F.	800°F.	1000°F./1300°F.		200°F/ 450°F.	800°F.	800°F./1000°F.	1000°F.	1300°F.	1300°F.			
			6" panel	8" panel			6" panel	8" panel									
12	34 1/4	38 1/4	NA	NA	NA	NA	NA	NA	10 1/16	14 1/16	16 1/16	NA	NA	NA	17	14 5/8	8-11/16
15	35 3/8	39 3/8	NA	NA	NA	NA	NA	NA	11 3/16	15 3/16	17 3/16	NA	NA	NA	17	17 7/8	14-11/16
18	40 1/8	44 1/8	46 1/8	48 1/8	40 1/8	44 1/8	46 1/8	48 1/8	12 1/16	16 1/16	18 1/16	20 1/16	18 1/16	20 1/16	24	19 3/4	16-7/8
20	43 1/4	47 1/4	49 1/4	51 1/4	43 1/4	47 1/4	49 1/4	51 1/4	15 1/8	19 1/8	21 1/8	23 1/8	21 1/8	23 1/8	24	23 1/2	12-7/8
22	42 1/8	46 1/8	48 1/8	50 1/8	42 1/8	46 1/8	48 1/8	50 1/8	14 1/16	18 1/16	20 1/16	22 1/16	20 1/16	22 1/16	24	24	12-7/8
24	47 1/4	51 1/4	53 1/4	55 1/4	47 1/4	51 1/4	53 1/4	55 1/4	15 9/16	19 9/16	21 9/16	23 9/16	21 9/16	23 9/16	29	26 1/8	16-7/8
27	48 1/2	52 1/2	54 1/2	56 1/2	48 1/2	52 1/2	54 1/2	56 1/2	16 13/16	20 13/16	22 13/16	24 13/16	22 13/16	24 13/16	29	29 1/8	12-1
30	53 3/4	57 3/4	59 3/4	61 3/4	53 3/4	57 3/4	59 3/4	61 3/4	18 1/2	22 1/2	24 1/2	26 1/2	24 1/2	26 1/2	34	31 3/4	16-1
33	55 3/8	59 3/8	61 3/8	63 3/8	55 3/8	59 3/8	61 3/8	63 3/8	20 1/8	24 1/8	26 1/8	28 1/8	26 1/8	28 1/8	35	35 1/8	12-1
36	59 3/8	63 3/8	65 3/8	67 3/8	59 3/8	63 3/8	65 3/8	67 3/8	21 7/8	25 7/8	27 7/8	29 7/8	27 7/8	29 7/8	41	38 3/8	16-1
40	61 1/2	65 1/2	67 1/2	69 1/2	61 1/2	65 1/2	67 1/2	69 1/2	24	28	30	32	30	32	42	42 3/8	12-1
44	68 3/8	72 3/8	74 3/8	76 3/8	68 3/8	72 3/8	74 3/8	76 3/8	26 1/4	30 1/4	32 1/4	34 1/4	32 1/4	34 1/4	51	46 5/8	24-1
49	71	75	77	79	71	75	77	79	28 7/8	32 7/8	34 7/8	36 7/8	34 7/8	36 7/8	51	51 1/8	20-1
54	See page 25.								32 1/2	36 1/2	38 1/2	40 1/2	38 1/2	40 1/2	56 3/8	56 1/8	24-1
60	See page 25.								35 5/8	39 5/8	41 5/8	43 5/8	41 5/8	43 5/8	63 3/8	61 5/8	24-1

NA=Not available

Tolerance: ±1/8"

DIMENSIONS [INCHES] PLUG FANS WITH ECF WHEELS

Size	H	HH (Class 2 & 3)				M ▲	MM (Class 2 & 3)				RR	SS	T
		200°F/ 450°F.	800°F		200°F/ 450°F.		800°F	800/1000°F	1000°F				
			4"	6"						4"			
18	42 5/8	40 5/8	44 5/8	46 5/8	14 1/2	12 1/2	16 1/2	18 1/2	20 1/2	24	19 3/4	16-7/8	
20	43 7/8	43 7/8	47 7/8	49 7/8	15 3/4	15 3/4	19 3/4	21 3/4	23 3/4	24	23 1/2	12-7/8	
22	45 1/2	42 7/8	46 7/8	48 7/8	17 3/8	14 13/16	18 13/16	20 13/16	22 13/16	24	24	12-7/8	
24	50 3/4	48	52	54	19	16 1/2	20 1/4	22 1/4	24 1/4	29	26 1/8	16-7/8	
27	52 1/4	49 1/4	53 1/4	55 1/4	20 1/2	17 9/16	21 9/16	23 9/16	25 9/16	29	29 1/8	12-1	
30	57 7/8	54 1/2	58 1/2	60 1/2	22 5/8	19 1/4	23 1/4	25 1/4	27 1/4	34	31 3/4	16-1	
33	60 1/8	56 3/8	60 3/8	62 3/8	24 7/8	21 1/16	25 1/16	27 1/16	29 1/16	35	35 1/8	12-1	
36	64 7/8	60 3/8	64 3/8	66 3/8	27 3/8	22 13/16	26 13/16	28 13/16	30 13/16	41	38 3/8	16-1	
40	67 3/8	62 1/2	66 1/2	68 1/2	29 7/8	25	29	31	33	42	42 3/8	12-1	
44	75	69 1/2	73 1/2	75 1/2	32 7/8	27 3/8	31 3/8	33 3/8	35 3/8	51	46 5/8	24-1	
49	78 1/4	72 1/2	76 1/2	78 1/2	36 1/8	30 1/8	34 1/8	36 1/8	38 1/8	51	51 1/8	20-1	
54*	86 1/8	79 3/8	83 3/8	85 3/8	40 5/8	33 13/16	37 13/16	39 13/16	41 13/16	56 3/8	56 1/8	24-1	
54†	92 7/8	86 1/8	90 1/8	92 1/8	40 5/8	33 13/16	37 13/16	39 13/16	41 13/16	56 3/8	56 1/8	24-1	
54‡	97 3/4	91	95	97	40 5/8	33 13/16	37 13/16	39 13/16	41 13/16	56 3/8	56 1/8	24-1	
60*	90 3/4	83 1/4	87 1/4	89 1/4	44 3/4	37 1/4	41 1/4	43 1/4	45 1/4	63 3/8	61 5/8	24-1	
60†	97 1/2	90	94	96	44 3/4	37 1/4	41 1/4	43 1/4	45 1/4	63 3/8	61 5/8	24-1	
60‡	107 7/8	100 3/8	104 3/8	106 3/8	44 3/4	37 1/4	41 1/4	43 1/4	45 1/4	63 3/8	61 5/8	24-1	

Motor Sizes: *≤405T motor, † 444T/445T motor, ‡ 447T/449T motor.▲ Dimensions shown are for 200°F/450°F plug fans. For higher temp. fans add PAGE 26 4", 6" or 8" per dimension "x" on pg.24 to accommodate panel/wall thickness

DIMENSIONS AND SPECIFICATIONS [INCHES, POUNDS, WR² IN LB.-FT.²]

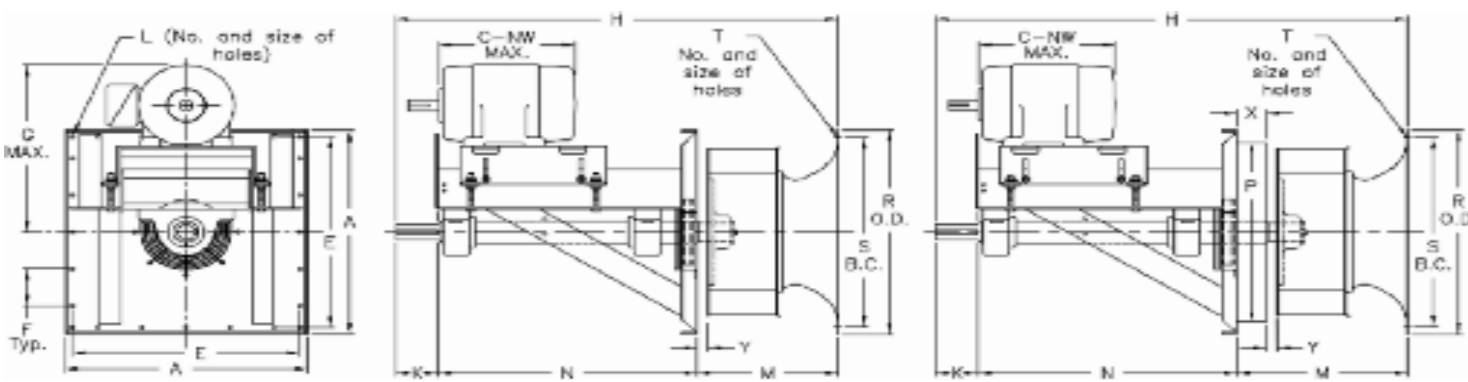
CLASS 4 DIMENSIONS [INCHES]																					
Size	Wheel dia.*	A	E	F [•]	G max.			H			K	M			N	P†	R	S	Wheel cone clear.	C-NW [■] max.	Max. motor frame [■]
					200°F./450°F.	800°F.	800°F./1000°F.	200°F./450°F.	800°F.	800°F./1000°F.		200°F./450°F.	800°F.	800°F./1000°F.							
					18	18¼	28	26	6	28¾		29¼	29½	43½							
20	20⅞	28	26	6	28¾	29¼	29½	44⅞	48⅞	50⅞	4½	15⅞	19⅞	21⅞	25	24	24½	23½	7⅞	24	286T
22	22¼	28	26	6	28¾	29¼	29½	46⅞	50⅞	52⅞	4½	16⅞	20⅞	22⅞	25	24	27⅞	26⅞	8¼	24	286T
24	24½	33	31	6	33	33⅞	34½	54½	58½	60½	6	18¼	22¼	24¼	30¼	29	30½	29⅞	9⅞	29¼	365T
27	27	33	31	6	33¼	33½	34⅞	56	60	62	6	19¾	23¾	25¾	30¼	29	33⅞	31¾	10⅞	29¼	365T
30	30	39	37	5½	36	36⅞	36⅞	64⅞	68⅞	70⅞	7	21⅞	25⅞	27⅞	35¼	34	36½	35⅞	11¼	34¼	405T
33	33	39	37	5½	36	36⅞	36⅞	66⅞	70⅞	72⅞	7	23⅞	27⅞	29⅞	35¼	34	39¾	38⅞	12¼	34¼	405T

*O.D. of blades. •Plus corner holes. †P is square dimension of panel. Tolerance: ±1/8"
 Mounting panel thickness is 1/4" for all sizes.
 ■In all cases, maximum motor frame size is limited to C-NW maximum dimension.

CLASS 4 PLUG FANS																	
Size	Bare Fan Weights				Wheel WR ²			Shaft diameter									
	AcF/PLR				AcF	PLR	SST PLR	200°F./450°F.			800°F. Uninsulated			800°F. Insulated/1000°F.			
	200°F./450°F.	800°F. Uninsulated	800°F. Insulated	1000°F.				at wheel	at bearings	at drive	at wheel	at bearings	at drive	at wheel	at bearings	at drive	
	18	435	525	550	555	14	12	15	1½/16	2³/16	1½/16	27/16	2¹¹/16	27/16	27/16	27/16	2¹⁵/16
20	448	538	532	567	26	27	27	1½/16	2³/16	1½/16	27/16	2¹¹/16	27/16	27/16	27/16	2¹⁵/16	27/16
22	460	550	570	575	36	32	32	1½/16	2³/16	1½/16	27/16	2¹¹/16	27/16	27/16	27/16	2¹⁵/16	27/16
24	615	710	830	835	54	53	53	2³/16	27/16	2³/16	27/16	2¹⁵/16	27/16	27/16	2¹⁵/16	37/16	27/16
27	675	730	845	850	78	78	76	27/16	2¹¹/16	27/16	27/16	2¹⁵/16	27/16	27/16	2¹⁵/16	37/16	27/16
30	880	1030	1050	1055	120	120	132	27/16	2¹⁵/16	27/16	2¹⁵/16	37/16	27/16	27/16	2¹⁵/16	37/16	27/16
33	910	1055	1070	1075	185	170	189	27/16	2¹⁵/16	27/16	2¹⁵/16	37/16	27/16	27/16	2¹⁵/16	37/16	27/16

Bearings: Heavy Duty Ball, Concentric Lock. **nyb** reserves the right to substitute bearings of equal ratings.

CLASS 4	200°F./450°F. and 800°F. Uninsulated	800°F. and 1000°F. Insulated
----------------	---	-------------------------------------



Y = 1½" on all models. X = 4" on 800°F. fans, 6" on 1000°F. fans. Dimensions not to be used for construction unless certified.
 L = All holes 9/16" diameter and on centerline. Sizes 18-27, 24 holes; Sizes 30-33, 32 holes.
 T dimensions are the same as Class 2/3.

COMPLETE SELECTION OF AIR-MOVING EQUIPMENT

The New York Blower Company offers thousands of different types, models, and sizes of air-moving equipment. Contact your nyb representative for assistance in identifying the best fan for your application.



DUST/MATERIAL HANDLING

Wide range of duty available with unique fan lines capable of handling light dust to heavy material. Typical applications include dust-collection and high-pressure process along with material-conveying.



AIR-HANDLING [CENTRIFUGAL]

Designed for clean to moderately dirty gas streams. Commercial and industrial HVAC, process cooling, light material-conveying, heat removal, and dryer exhaust are just a few of the numerous sample applications



AIR-HANDLING [AXIAL]

For the ideal handling of clean to moderately dirty airstreams. Commercial and industrial HVAC, drying and cooling systems, fume extraction, and process-heat removal are typical applications.



FIBERGLASS REINFORCED PLASTIC [FRP]

Choice of performance and duty for corrosive gas streams. Applications include chemical process, wastewater treatment, laboratory hood exhaust, and tank aeration.

CUSTOM PRODUCTS

Designed for unique applications. Variety of configurations, temperatures, flows, and pressures. Wide range of modifications and accessories are available to meet the most demanding specifications.



Leading the industry forward since 1889



ROOF VENTILATORS

Including both hooded and upblast ventilators, propeller fans, and centrifugal roof exhausters. These units are ideal for industrial, commercial, and institutional applications.



HEATING PRODUCTS

Industrial-duty steam unit heaters with steam heating coils are available for facility heating and process-heat transfer.



PROCESS/FAN COMPONENTS

Plug fans, plenum fans, wheels, inlet cones, and housings for a wide variety of OEM applications. Process/fan components are used in air-handling units, ovens, dryers, freezer tunnels, and filtration systems.