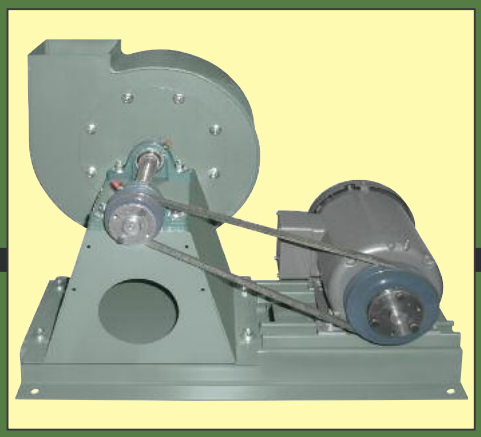
BULLETIN 461
OCTOBER, 2014

COMPACT PRESSURE BLOWERS

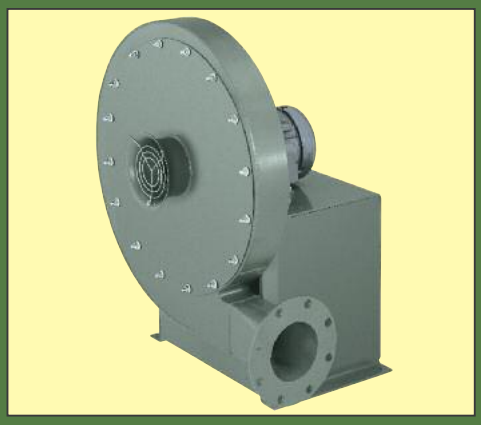
WITH RUGGED RADIAL-BLADE WHEELS

- Capacities to 4,000 CFM
- Static pressures to 23″WG
- Temperatures to 600°F.



COMPACT GI FANS

- Capacities to 2,200 CFM
- Static pressures to 14″WG



PRESSURE BLOWERS

- Static pressures to 58″WG
- Capacities to 5,200 CFM

SERIES 20 GI FANS

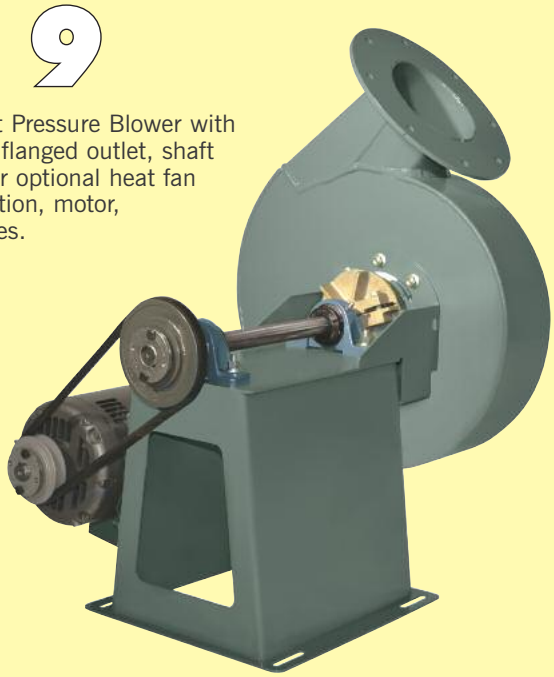
- Capacities to 77,000 CFM
- Static pressures to 22″WG

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

ARRANGEMENT 9

Compact Pressure Blower with optional flanged outlet, shaft cooler for optional heat fan construction, motor, and drives.



ARRANGEMENT 4V/4H

Compact Pressure Blower with standard reinforced inlet for vertical and horizontal mounting applications.

The New York Blower Company certifies that the Compact Pressure Blowers with the maximum wheel per housing shown 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.

COMPACT PRESSURE BLOWER

...for process systems

DESIGN FEATURES

- Pressures to 23″WG.
- Capacities to 4,000 CFM.
- Temperatures to 600°F.
- Compact pressure blower fans offer stable pulsation free performance from wide-open to closed-off.
- Standard radial wheel for optimum efficiency.
- Efficiency . . . advanced wheel and aerodynamic housing design with round outlet combine for air-handling efficiency superior to conventional radial-wheel designs.
- Variable wheel widths/diameters and a choice of four outlet sizes and six inlet sizes enable efficient fan selection across a wide range of volumes and pressures.
- Choice of arrangements . . . direct-drive and belt-drive.
- Wide application range . . . designed for continuous operation in combustion, cooling, conveying, drying, dust collection, grinding booth exhaust, scrubber/absorber exhaust, paper trim systems, sawdust and woodchip conveying.
- Base mounting slots for ease of retrofit applications.

CONSTRUCTION FEATURES

- All-welded steel housings . . . heavy-gauge housings are designed specifically to prevent “flexing” at high pressures.
- Balance . . . all wheels are precision-balanced prior to assembly . . . fans with motors and drives mounted by **nyb** are given a final trim balance check at the specified running speed.
- Shafting . . . straightened to close tolerance to minimize “run-out” and ensure smooth operation.
- Inlet configuration . . . a choice of two inlet types allows units to be tailored to specific application requirements.
- Lifting eyes . . . standard on all units for ease of handling and installation.
- Finish . . . medium-green industrial powder coating over an abrasive mechanical blast.

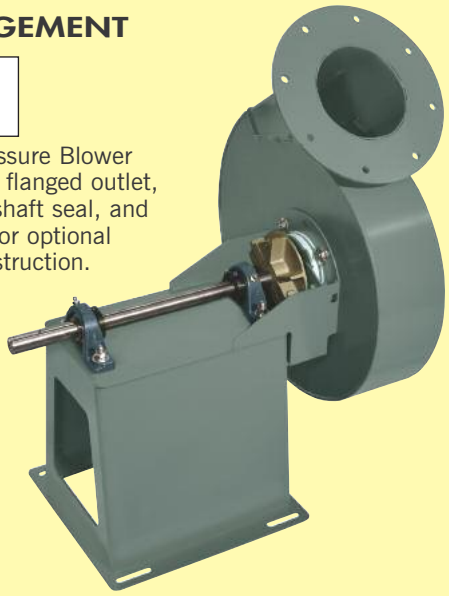
ACCESSORIES/MODIFICATIONS

- **CONTINUOUSLY WELDED FLANGES**
  Available in two flange patterns.
- **COMPANION FLANGES**
  Designed to fit flush with fan inlet and outlet flanges, provided with a matching hole pattern.
- **DRAINS**
  Pipe nipple (sizes 804-1206) or tank flange (sizes 1406-1808) welded to the lowest point of the housing scroll.
- **INLET FILTER**
  Filters are available with a choice of three element types: wire mesh, hi-flow polyester, and ultra-synthetic. High-efficiency filter is flange-mounted. Furnished standard with outboard support bracket and available with or without protective hood.
- **SILENCERS**
  Available to match standard inlet or outlet flange sizes. Heavy-welded construction filled with high-density, acoustical absorption material.
- **INLET/OUTLET DAMPERS**
  Available as either slide gate for fixed damper control (inlet) or as a separate wafer design (inlet or outlet) for variable-flow applications [shown].

- **SHAFT SEALS**
  Ceramic-felt shaft seals consist of compressed ceramic felt elements. Lubricated lip seals [Buna, Teflon®, and Viton®] and gas-purgeable, segmental bushing seals are also available. See your **nyb** representative for availability.
  [Teflon and Viton are registered trademarks of DuPont and DuPont Dow Elastomers, respectively.]
- **ACCESS DOOR**
  Gasketed, flush-bolted door opens to provide access to the wheel.
- **HEAT-FAN CONSTRUCTION**
  Available on Arrangements 1 and 9 steel wheel Compact Pressure Blowers up to 600°F. Modifications include shaft cooler and shaft-cooler guard.
- **LL-1 LOW LEAKAGE CONSTRUCTION**
  Special construction to minimize leakage includes lip-type shaft seal, non-rotatable housing with solid drive side, and neoprene gasketing. Maximum temperature 200°F. due to gasketing limitations. Not available with heat-fan construction. Contact your **nyb** representative for other options.
- **SPECIAL ALLOY CONSTRUCTION**
  Airstream components can be constructed of a wide range of alternate alloys for corrosive applications.
- **UNITARY BASE**
  Fan, motor, and guards can be mounted and shipped on a rugged, structural-steel base. Factory-assembled and run-tested prior to shipment.

ARRANGEMENT 1

Compact Pressure Blower with optional flanged outlet, ceramic felt shaft seal, and shaft cooler for optional heat fan construction.



ARRANGEMENT 4

Compact Pressure Blower with standard slip outlet.

ARRANGEMENT 9

Compact Pressure Blower with optional flanged outlet, and optional weather cover/belt guard.

Wheels

Open Radial Wheel Design

Either welded steel, aluminum or stainless steel wheel construction is available in straight radial wheel design. Open front-plate configuration makes this wheel ideally suited for both clean air and material handling applications.

Wheel Specifications

Fan Size	Maximum* Blade O.D.	Maximum Safe Speed	Maximum*	
			Weight	WR²
804	8	4000	5.1	0.22
904	10 5/8	4000	7.2	0.57
1005	12	4000	8.8	0.92
1206	13	4000	11	1.3
1406	14 3/4	3900	16	2.3
1508	16 1/2	3900	19	3.5
1806	18	3600	21	4.7
1808	18 1/2	3600	29	6.3

* Largest wheel per housing

Spark-Resistant Construction [SRC]

Intended to minimize the potential for any two or more fan components to generate sparks within the airstream by rubbing or striking during operation.

The following types are available:

AMCA A [AIRSTREAM] SRC
To include all airstream parts constructed of a spark-resistant alloy . . . maximum temperature: 200°F.

AMCA B [WHEEL] SRC
To include the fan wheel constructed of a spark-resistant alloy and a buffer plate around the housing shaft-hole opening . . . maximum temperature: 200°F.

AMCA C [BUFFER] SRC
To include buffer rings adjacent to the wheel front and back and a buffer plate around the shaft hole opening. . . maximum temperature: 600°F with heat fan construction.

SAFETY EQUIPMENT

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 a 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.

Performance

Using Performance Curves

Direct-drive performance is shown for the maximum diameter and width wheel available (solid line), and the minimum wheel size available (dashed line) per housing and inlet size. Performance points can be selected in between these curves for a custom wheel size to match specific operating points. These selections can be made in Fan-to-Size to fine-tune the required wheel diameter and width required.

SIZING NOMENCLATURE

8, 9, or 10-digit model number designates the housing size, outlet size, inlet size, and wheel diameter code.

EXAMPLES

9	04	05	1000
14	06	08	932
Housing size	Outlet size [inches]	Inlet size [inches]	Wheel code [percentage of full diameter]

PROCEDURE	STEPS	EXAMPLE
Determine the appropriate outlet size.	1	The 06 outlet is selected for 1000 CFM at 12″SP.
Plot the CFM and SP [standard] and select a performance curve for the fan size that meets or slightly exceeds the required performance.	2	A Size 1406 will provide 1000 CFM at 12.5″SP.
Run selection in Fan-to-Size to find BHP. (Available on nyb.com)	3	A 5 HP motor will be required.

Note: The horsepower coverage of a given motor will increase 15% when a 1.15 service factor motor is utilized.

Correction Factors

Performance is based on actual cubic feet per minute [ACFM] at the blower inlet at standard density [.075 lbs./ft.^{3}] and static pressure at the blower 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. This also occurs when negative static pressure exists [rarefication] on the inlet side of the fan. Multiply the required static pressure at conditions by the appropriate factors in Charts I, II, and III to obtain corrected pressure for blower selection. Pressure and BHP will be reduced at conditions by the inverse of these factors. Multiply one factor by the other if temperature, altitude, and rarefication are non-standard. For example: If the installation is located at an altitude of 4000 feet, the gas temperature is 300°F., and the inlet pressure is –15″WG, the correction factor is 1.73 [1.16 x 1.43 x 1.04].

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
6000	1.25
7000	1.30
8000	1.35
9000	1.40
10000	1.45

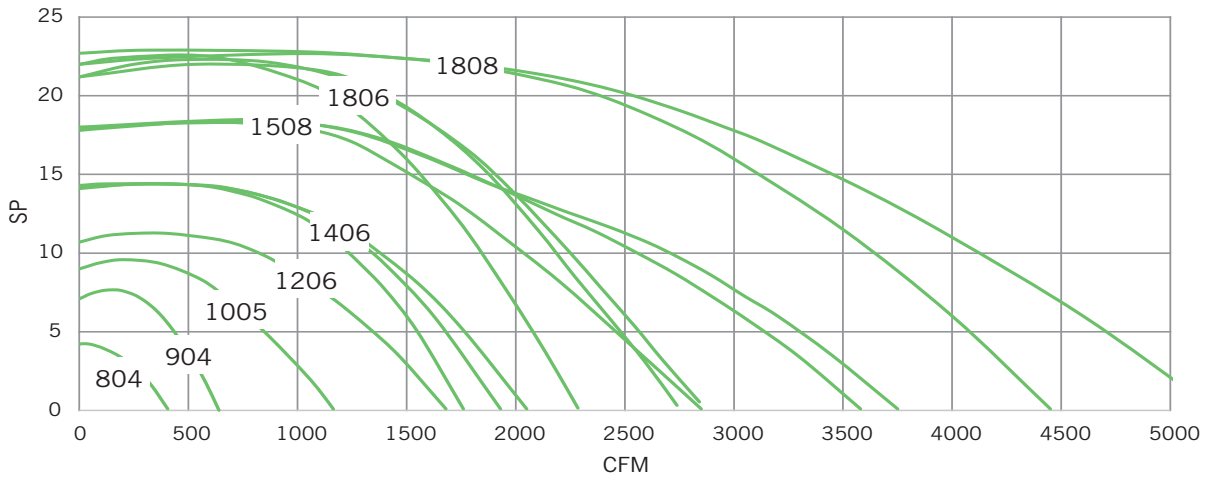
Chart II
TEMPERATURE CORRECTIONS

Temp. ˚F.	Factor
0	.87
20	.91
40	.94
60	.98
70	1.00
80	1.02
100	1.06
120	1.09
140	1.13
160	1.17
180	1.21
200	1.25
300	1.43
400	1.62
500	1.81
600	2.00

Chart III
RAREFICATION CORRECTIONS

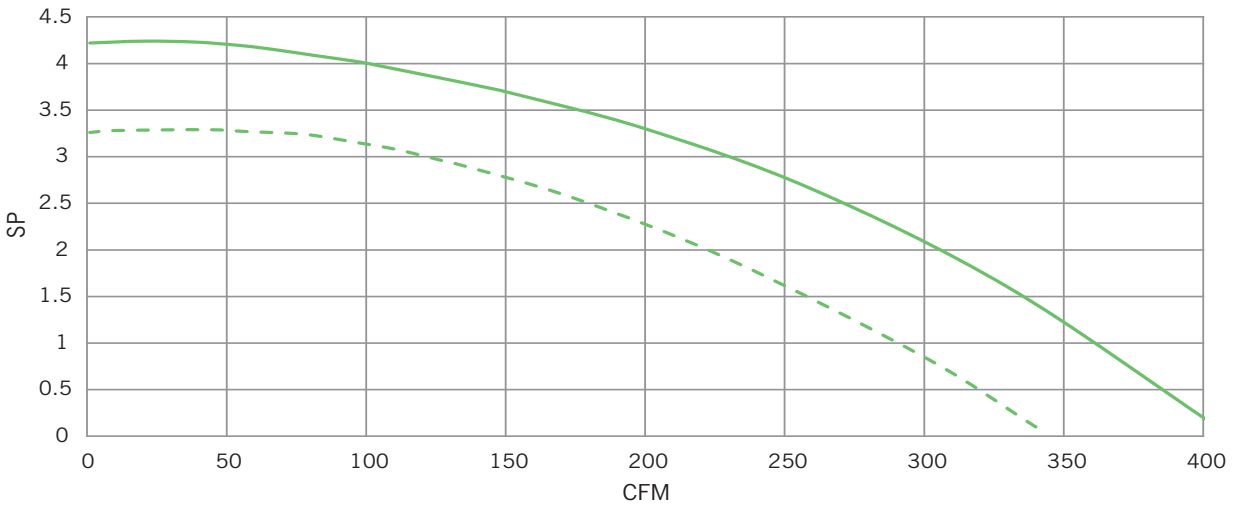
Neg. inlet pressure ″WG	Factor
15	1.04
20	1.05
25	1.07
30	1.08
35	1.09
40	1.11
45	1.12
50	1.14
55	1.16
60	1.17
65	1.19
70	1.21
75	1.23
85	1.26

804-1808 Performance Coverage @3500 RPM With Maximum Wheel

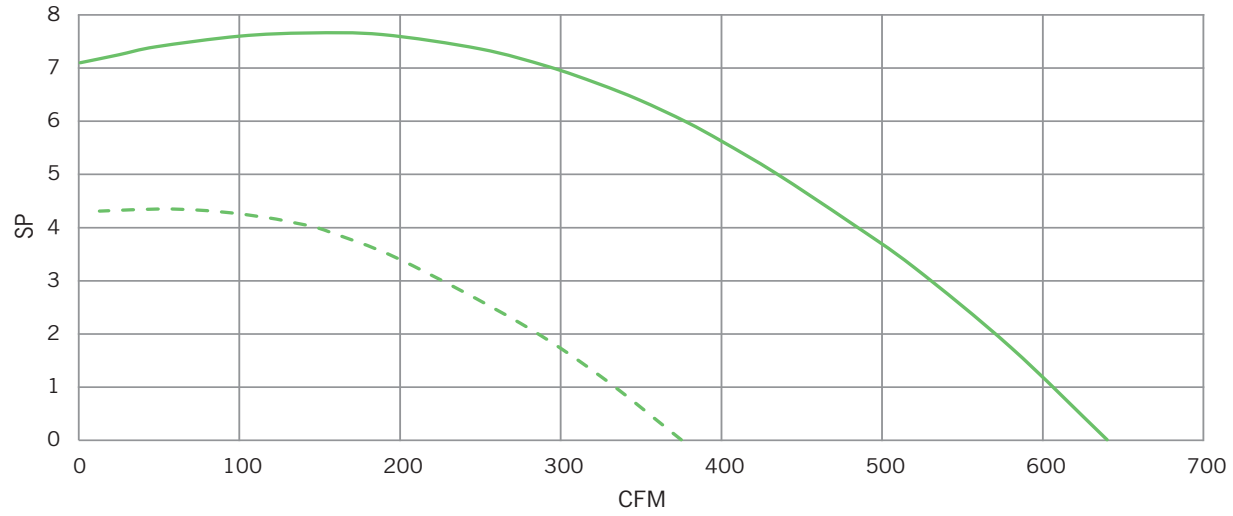


Performance at 3500 RPM

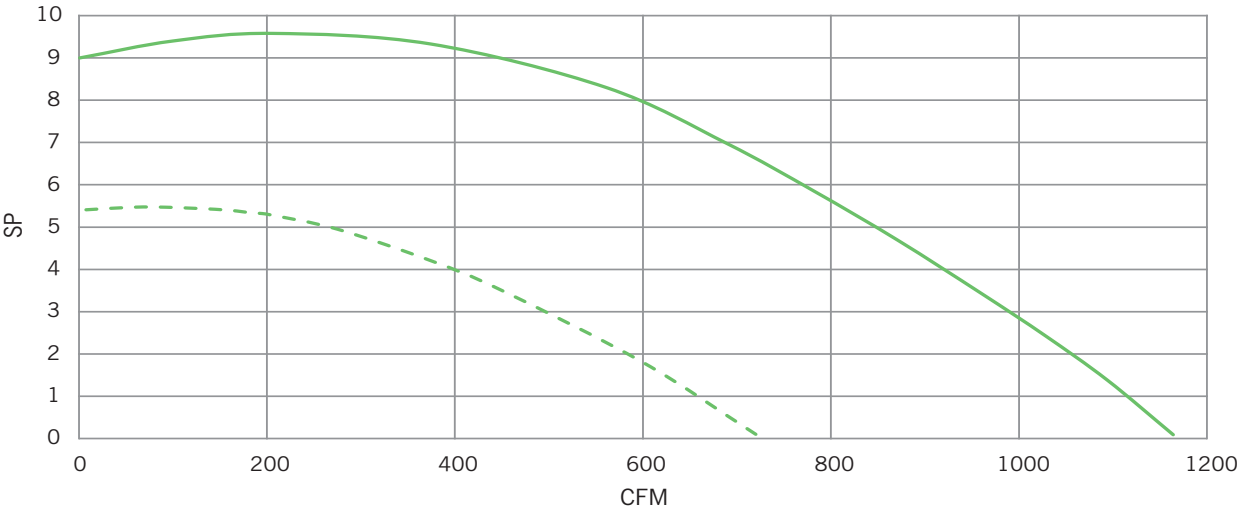
804
4" inlet



904
5" inlet



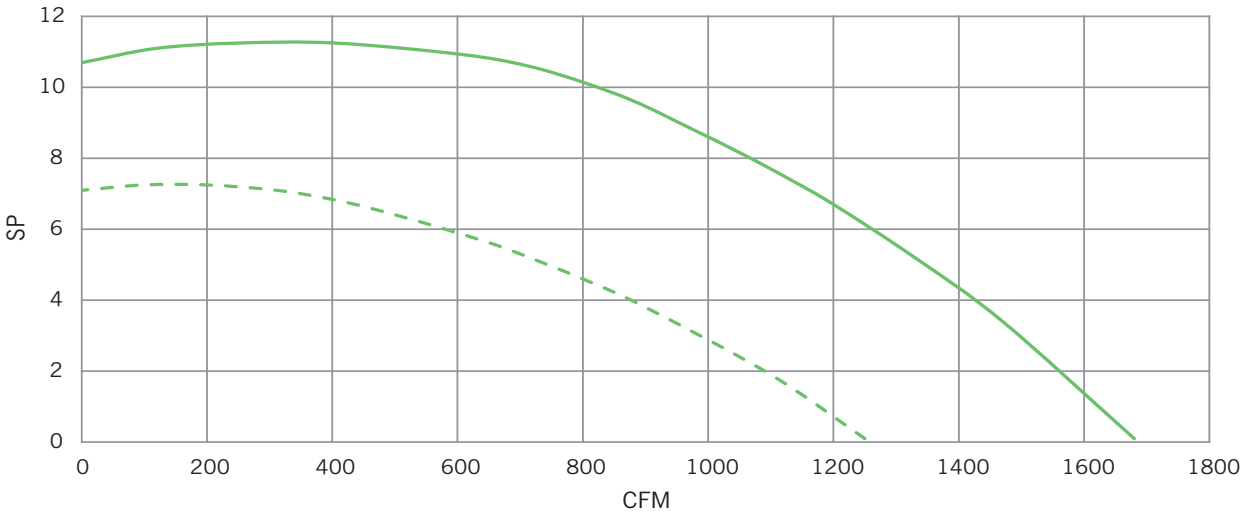
1005
6" inlet



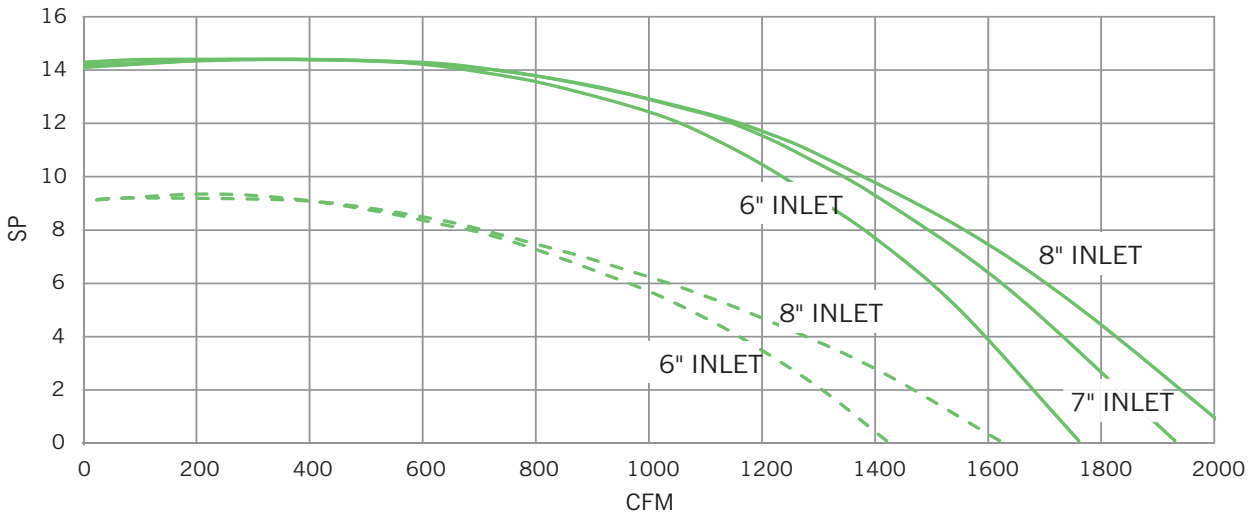
Performance is installation Type B: Free inlet, Ducted outlet.
Performance ratings do not include the effects of appurtenances (accessories).

Performance at 3500 RPM

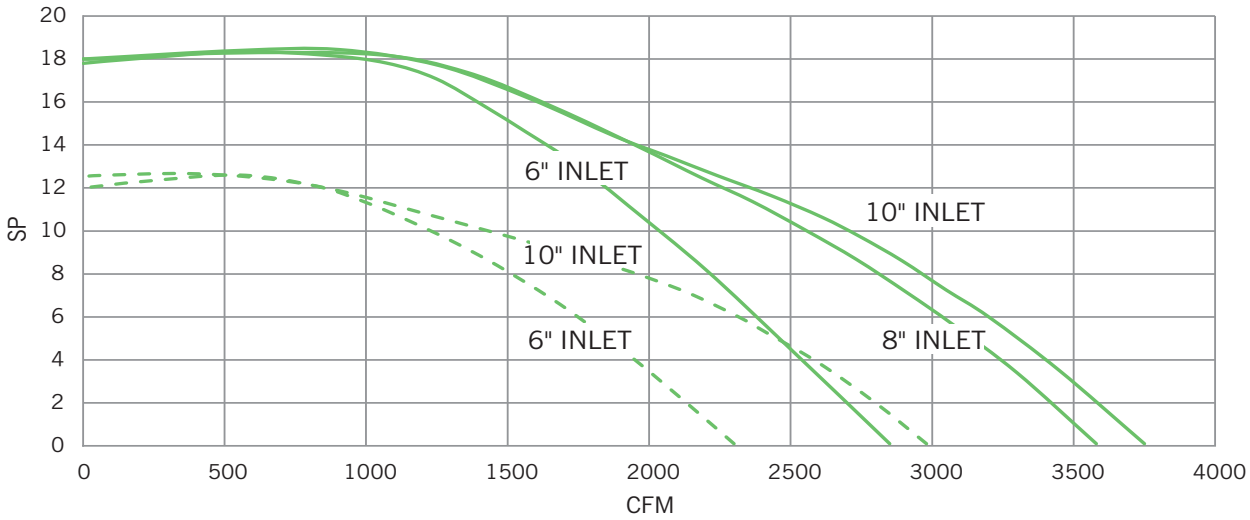
1206
7" inlet



1406
6", 7", 8" inlets



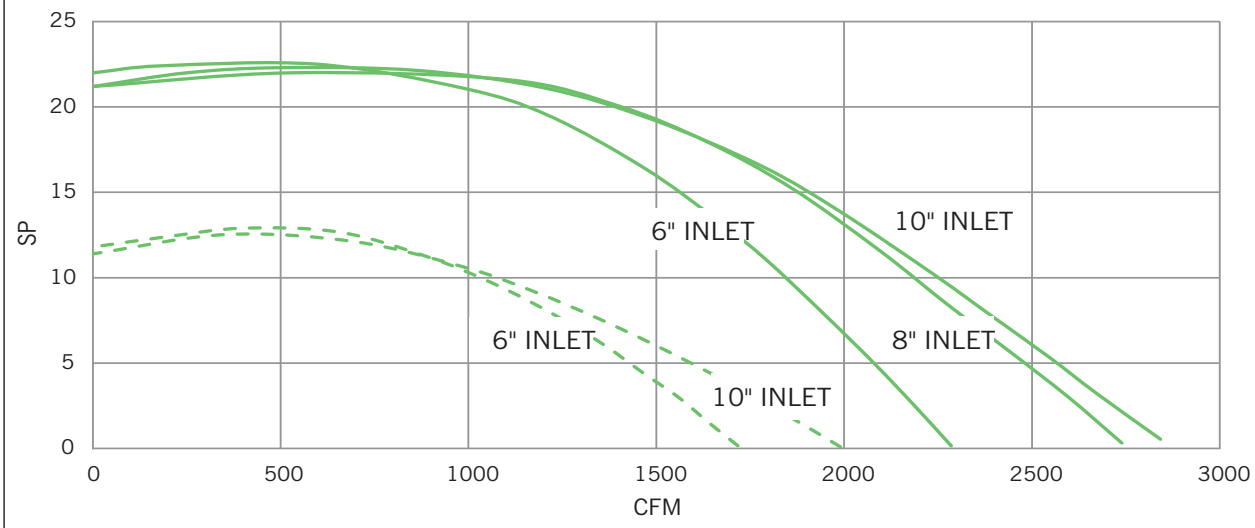
1508
6", 8", 10" inlets



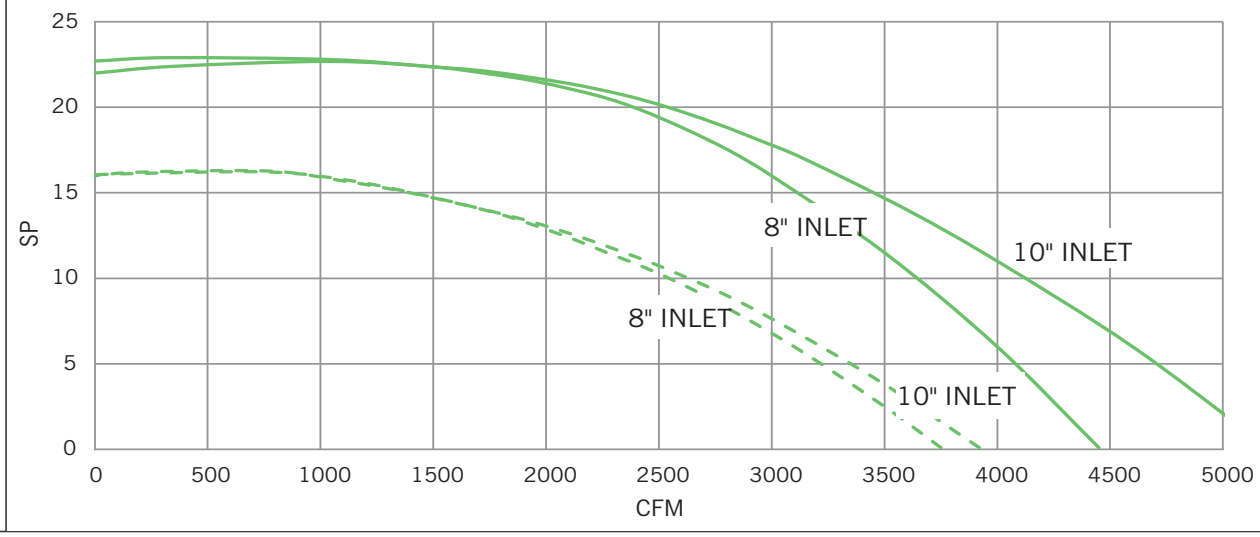
Performance is installation Type B: Free inlet, Ducted outlet.
Performance ratings do not include the effects of appurtenances (accessories).

Performance at 3500 RPM

1806
6", 8", 10"
INLETS



1808
8", 10"
INLETS



Performance is installation Type B: Free inlet, Ducted outlet.
Performance ratings do not include the effects of appurtenances (accessories).

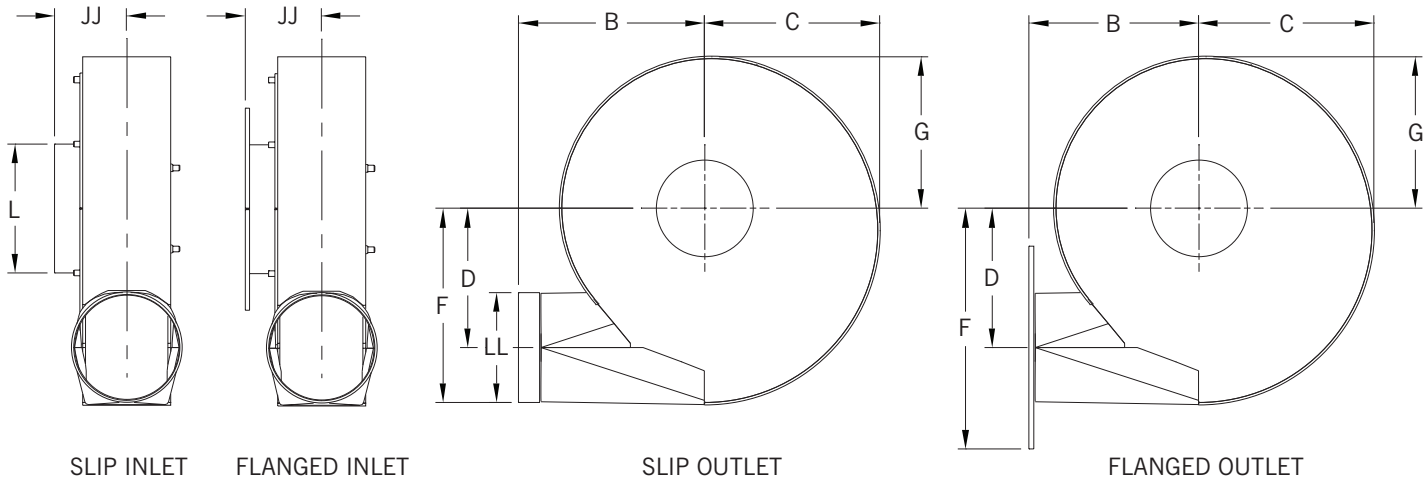
Material Specifications

Size	Housing		Side Plates		Motor Frame	Arr. 1/9	
	Sides/Scroll	Transition	Drive Plate	Inlet Plate		Shaft Dia.	Bearings
804	10	12	10	10	56	1	Standard Duty Ball, Concentric Locking
904	10	12	10	10	56, 143/5T		
1005	10	12	10	10	56, 143/5T		
1206	10	12	10	10	56, 143/5T		
					182/4T, 213/5T	1 3/16	
1406	10	12	10	10	56 - 215T		
1508	10	12	10	10	182/4T, 213/5T		
					254/6T	1 7/16	
1806	10	12	10	10	182/4T, 213/5T	1 3/16	
					254/6T	1 7/16	
1808	10	12	10	10	182/4T, 213/5T	1 3/16	
					254/6T, 284/6T	1 7/16	

Housing Dimensions Arr.1, 4, 4H, 4V, 9

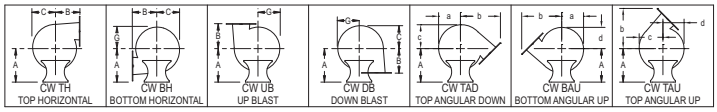
See page 11 for additional dimensional drawings.

Size	B		C	D	F		G	JJ		L	LL	M	a	b		c	d
	Slip	Flange			Slip	Flange		Slip	Flange					Slip	Flange		
804	7	6 1/16	5 11/16	4 1/8	6 1/4	8 9/16	5 1/16	3	3 3/16	4	4	3 9/32	5 1/4	9 3/8	10 3/8	6 1/8	5
904	8 11/16	7 5/8	7 3/8	5 5/8	7 3/4	10 1/16	6 11/16	3 3/16	3 3/8	5	4	3 25/32	7	11 5/8	12 9/16	7 11/16	6 5/16
1005	9 1/8	8 3/16	8 3/8	6 9/16	9 3/16	12 1/16	7 1/2	3 1/2	3 11/16	6	5	4 1/32	7 3/4	12 7/8	14 3/8	9	7 1/8
1206	10 1/16	9 3/16	9 9/16	7 9/16	10 11/16	13 1/16	8 3/8	3 7/8	4 1/8	7	6	4 25/32	8 11/16	14 5/8	15 3/4	10 3/8	8
1406	11	10 1/8	10 1/4	8 1/16	11 3/16	13 9/16	9 1/8	4 1/4	4 1/2	6, 7, 8		5 13/32	9 1/2	15 5/8	16 3/4	11	8 3/4
1508	12	11 1/8	10 7/16	7 7/8	11	14 5/8	9 5/16	4 7/8	5 1/8	6, 8, 10	8	7 1/32	10	17	18 1/4	10 7/8	9 11/16
1806	12 5/8	11 3/4	12 3/4	10 1/2	13 5/8	16	11 3/16	4 3/8	4 5/8	6, 8, 10	6	5 1/32	12 1/16	18 1/2	19 5/8	13 3/8	10 1/4
1808	13 1/16	12 3/16	13 3/16	9 7/8	14	16 5/8	11 11/16	5 5/16	5 9/16	8, 10	8	7 9/32	12 9/16	19 1/8	20 3/8	13 13/16	10 3/4

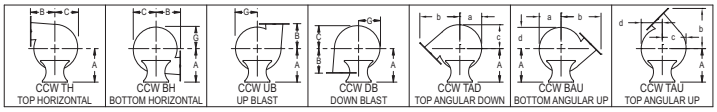


SLIP INLET FLANGED INLET SLIP OUTLET FLANGED OUTLET

FAN DISCHARGES – VIEWED FROM DRIVE SIDE

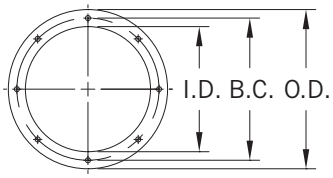


Clockwise—angular discharges at 45°



Counterclockwise—angular discharges at 45°

OPTIONAL INLET AND OUTLET FLANGES



DIMENSIONS [INCHES]

Size	Usage		ID	OD	BC	GA.	Std. Flange Pattern		Optional (ANSI 150LB)	
	Inlet	Outlet					Qty. Holes	Hole Dia.	Qty. Holes	Hole Dia.
4	804	804, 904	4	9	7 1/2	7	12	7/16	8	3/4
5	904	1005	5	10	8 1/2		8			7/8
6	1005	—	6	11	9 1/2					
	1406, 1508, 1806	1206, 1406, 1806				1/4				
7	1206, 1406	—	7		9					
8	1406, 1508, 1806, 1808	1508, 1808	8	13 1/2	11 3/4					
10	1508, 1806, 1808	—	10	16	14 1/4				12	1

Note: Inlet flange holes are on centerline and outlet flange holes straddle centerline.

Arrangements 1/9 Dimensions

Dimensions not to be used for construction unless certified. Note: See page 11 for dimensional drawings.
Bare fan weights in lbs.

Size	Mtr. Frame	A	H		K	N	R	S	T	U	W	X	XX	YY	ZZ	Arr. 9 Belt Centers		Bare Fan Weight
			Slip	Flange												Min.	Max.	
804	56	14	23 1/8	23 5/16	2 1/4	16 1/4	5 15/16	10 5/16	5 11/16	6 7/16	2 5/16	1 11/16	14 1/2	4 3/4	20 3/16	11.2	11.6	59
904	56		23 9/16	23 3/4			6 3/16											66
	143/5T																	69
1005	56		24	24 3/16			6 5/16											72
	143/5T																	75
1206	56		24 3/4	25			6 11/16											82
	143/5T																	85
	182/4T	18	28 7/8	29 1/8	3 3/8	19 1/4	6 5/8	13 3/8	8	8 3/4	2 3/16	1 5/8	19 1/4	8 3/4	24 3/16	13.8	14.3	107
	213/5T															14.4	15.2	109
1406	56		29 9/16	29 13/16			7									11.5	12.0	114
	143/5T															11.6	12.1	117
	182/4T															13.8	14.3	116
	213/5T															14.4	15.2	118
1508	182/4T		31	31 1/4			7 3/4									13.8	14.3	164
	213/5T															14.4	15.2	166
	254/6T	23	38 3/4	39	4 5/8	25 3/4	7 7/8	19 5/8	8 5/8	9 3/8	1 15/16	1 3/4	24 11/16		32 3/16	16.9	18.2	170
1806	182/4T	18	29 1/2	29 3/4	3 3/8	19 1/4	6 3/4	13 3/8	8	8 3/4	2 3/16	1 5/8	19 1/4		24 3/16	13.8	14.3	169
	213/5T															14.4	15.2	171
	254/6T	23	37 1/4	37 1/2	4 5/8	25 3/4	6 7/8	19 5/8	8 5/8	9 3/8	1 15/16	1 3/4	24 11/16		32 3/16	16.9	18.2	175
1808	182/4T	18	31 9/16	31 13/16	3 3/8	19 1/4	7 7/8	13 3/8	8	8 3/4	2 3/16	1 5/8	19 1/4		24 3/16	13.8	14.3	188
	213/5T															14.4	15.2	189
	254/6T	23	39 5/16	39 9/16	4 5/8	25 3/4	8	19 1/2	8 5/8	9 3/8	1 15/16	1 3/4	24 11/16		32 3/16	16.9	18.2	194
	284/6T															17.3	18.9	195

Arrangement 4 Dimensions

Size	Mtr. Frame	A	H		HH		N	NN	O	R	S	T	U	W	X	Base Holes	Bare Fan Weight
			Slip	Flange	Slip	Flange											
804	56	8 9/16	11 3/4	11 15/16	15 3/8	15 9/16	7 1/8	8 15/16	7 3/4	3 3/16	5	2 3/4	3 1/2	12 1/4	3/4	7/16	35
904	56	10 7/16	12 3/16	12 3/8	15 13/16	16	7 1/8	9 7/8	8 3/4	3 3/8	5 3/4			12 1/4			46
	143/5T	11 7/8	13 15/16	14 1/8	18 1/16	18 1/4	8 7/8	10 15/16	9	4 3/16	5	3 3/4	4 1/2	14 1/2	1 3/4		49
1005	56	10 7/16	12 5/8	12 13/16	16 1/4	16 7/16	7 1/8	9 15/16	8 3/4	3 7/16	5 3/4	2 3/4	3 1/2	12 1/4	3/4		56
	143/5T	11 7/8	14 3/8	14 9/16	18 1/2	18 11/16	8 7/8	11	9 1/4	4 1/4	5	3 3/4	4 1/2	14 1/2	1 3/4		59
1206	56		13 3/8	13 5/8	17	17 1/4	7 1/8	10	8 1/2					12 1/4	3/4		70
	143/5T	11 7/8	15 1/8	15 3/8	19 1/4	19 1/2	8 7/8	11 3/8	9 3/4	4 5/8				14 1/2	1 3/4		71
	182/4T		16 1/4	16 1/2	19 3/4	20	10	14 1/2	12 1/4	5	8 3/4	4 15/16	5 11/16	15	3/4		76
1406	56	15 3/16	14 1/16	14 5/16	17 11/16	17 15/16	7 1/8	15	12 3/4	5 1/2				12 1/4			90
	143/5T		15 13/16	16 1/16	19 15/16	20 3/16	8 7/8							14 1/2			91
	182/4T		16 15/16	17 3/16	20 7/16	20 11/16	10							15		7/16	93
1508	182/4T	15 3/16	18 3/8	18 5/8	21 7/8	22 1/8	10	15 5/8	13 1/4	6 1/8				15			111
	213/5T		20 1/2	20 3/4	25 13/16	26 1/16	12 1/8		12 1/2					19			113
	254/6T		24 3/8	24 5/8	30 11/16	30 15/16	16	19 7/8	15 1/2		13			23 7/8			118
1806	182/4T	15 3/16	16 7/8	17 1/8	20 3/8	20 5/8	10	15 1/8	12 3/4	5 5/8	8 3/4			15	3/4		119
	213/5T		19	19 1/4	24 5/16	24 9/16	12 1/8		12					19			121
	254/6T		22 7/8	23 1/8	29 3/16	29 7/16	16	19 3/8	15 1/2		13			23 7/8			126
1808	182/4T	18	18 15/16	19 3/16	22 7/16	22 11/16	10	18	16	6 1/2	10 3/4	6 1/4	7	15			156
	213/5T		21 1/16	21 5/16	26 3/8	26 5/8	12 1/8							19			153
	254/6T		24 15/16	25 3/16	31 1/4	31 1/2	16	23	18 1/4		15 3/4			23 7/8			157
	284/6T		26 3/4	27	33 5/8	33 7/8	17 13/16							26 1/4			158

Arrangements 4H/4V Dimensions

Size	Mtr. Frame	HH	Bare Fan Weight
804	56C	15 9/16	26
904	56C	16	36
	143/5TC	18 1/4	
1005	56C	16 7/16	43
	143/5TC	18 11/16	
1206	56C	17 1/4	58
	143/5TC	19 1/2	
	182/4TC	20	
1406	56C	17 15/16	79
	143/5TC	20 3/16	
	182/4TC	20 11/16	

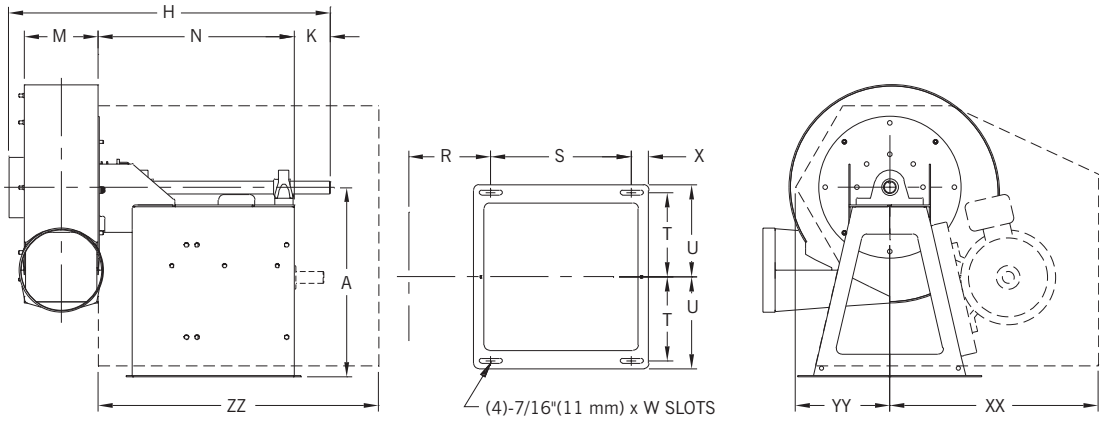
Size	Mtr. Frame	HH	Bare Fan Weight
1508	182/4TC	22 1/8	82
	213/5TC	26 1/16	
	254/6TC	30 15/16	
1806	182/4TC	20 5/8	86
	213/5TC	24 9/16	
	254/6TC	29 7/16	
1808	182/4TC	22 11/16	113
	213/5TC	26 5/8	
	254/6TC	31 1/2	
	284/6TC	33 7/8	

Housings are rotatable in 22 1/2° increments except Bottom Angular Down which requires special construction.

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

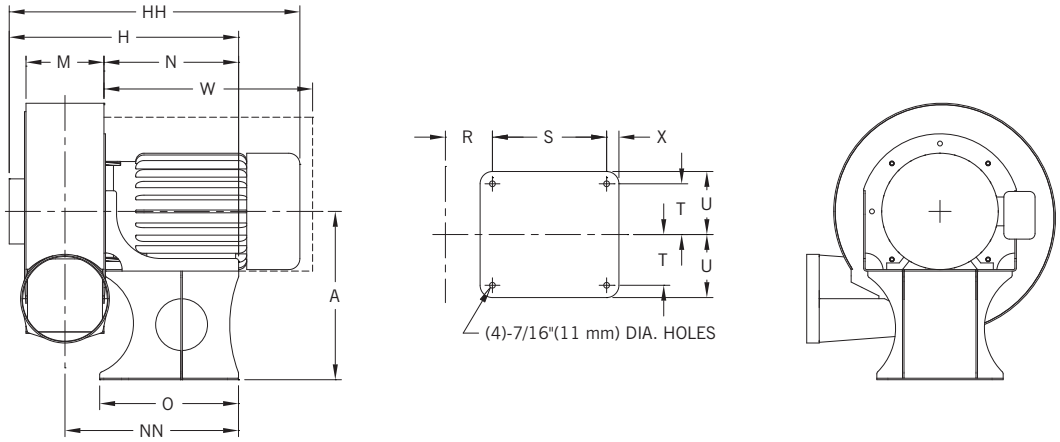
ARRANGEMENTS
1/9
PRESSURE BLOWERS

Maximum Airstream Temperature:
200°F. – aluminum wheel.
300°F. – steel wheel.
600°F. – heat fan.



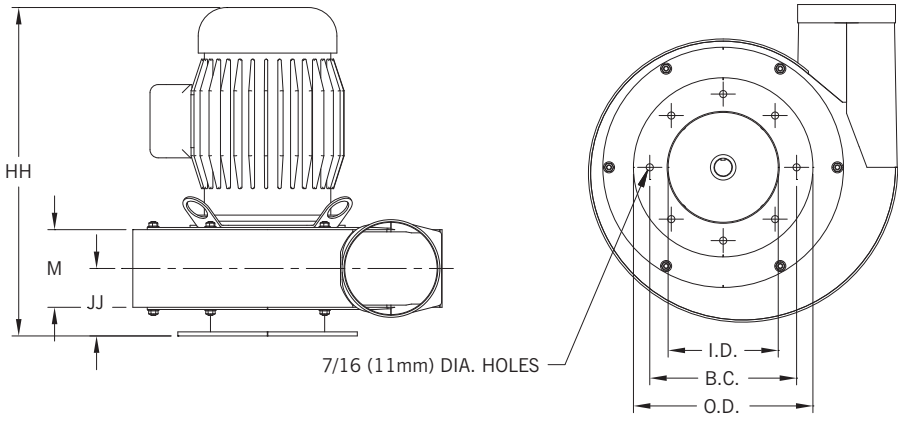
ARRANGEMENT
4
PRESSURE BLOWERS

Maximum Airstream Temperature:
180°F.



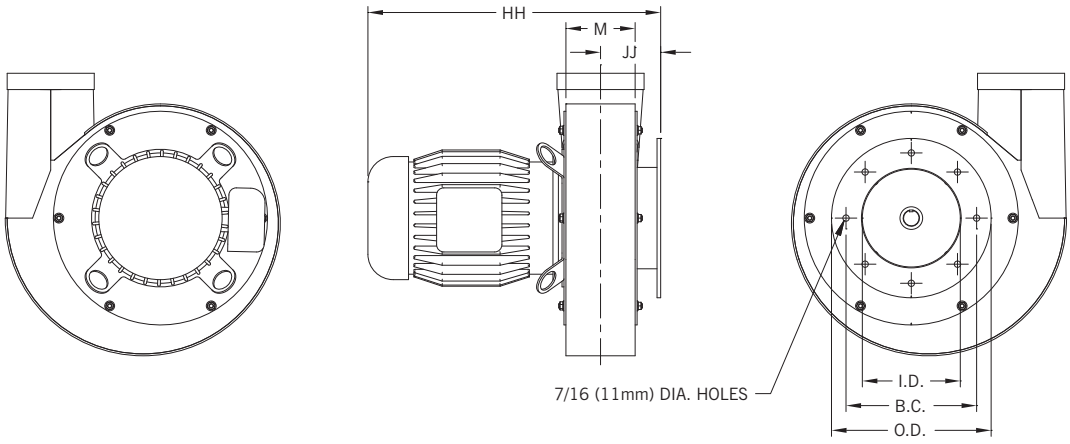
ARRANGEMENT
4-V
PRESSURE BLOWERS

Maximum Airstream Temperature:
120°F.



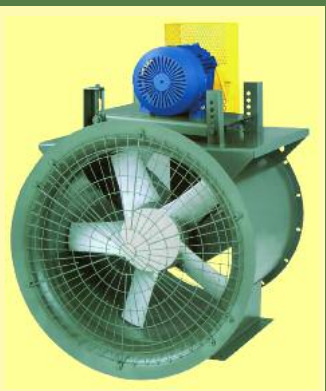
ARRANGEMENT
4-H
PRESSURE BLOWERS

Maximum Airstream Temperature:
120°F.



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.

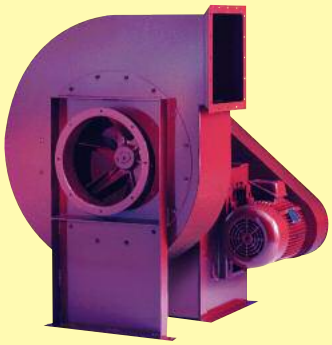


AIR-HANDLING [AXIAL]

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.



DUST/MATERIAL HANDLING

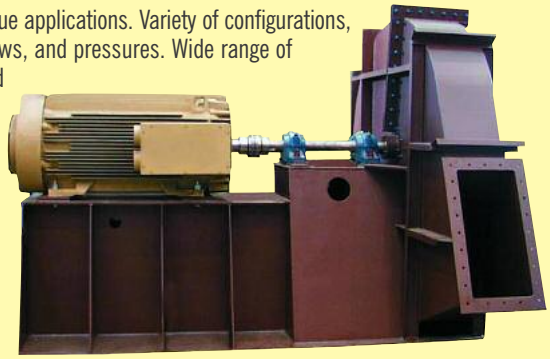
Wide range of duty available with unique fan lines capable of handling light dust to heavy material. Typical applications include dust-collection and high-pressure process along with material-conveying.

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

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.



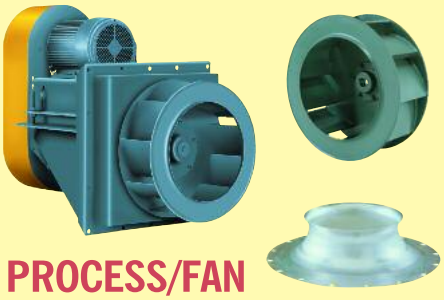
Leading the industry forward since 1889

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.