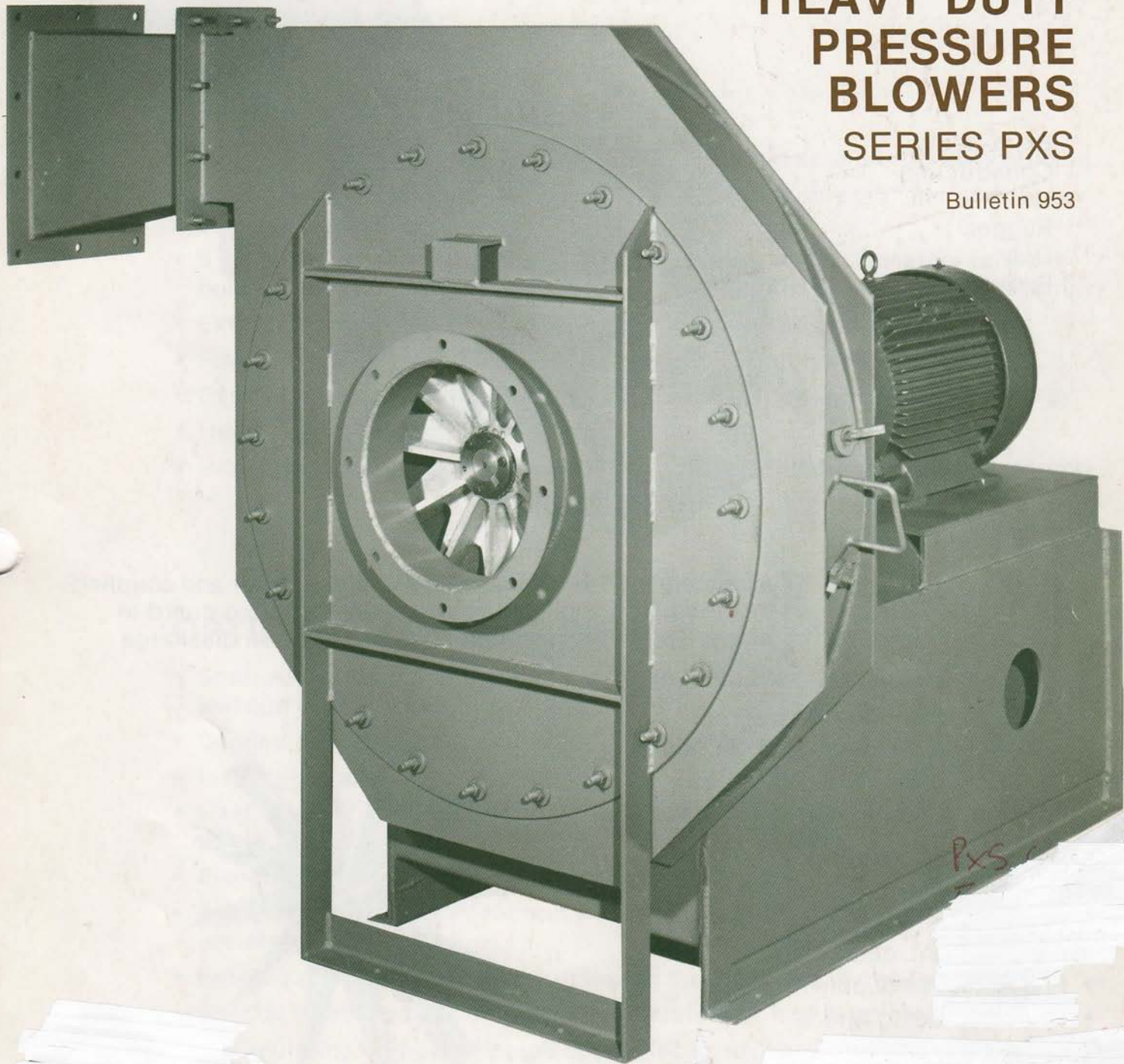


# SHELDONS

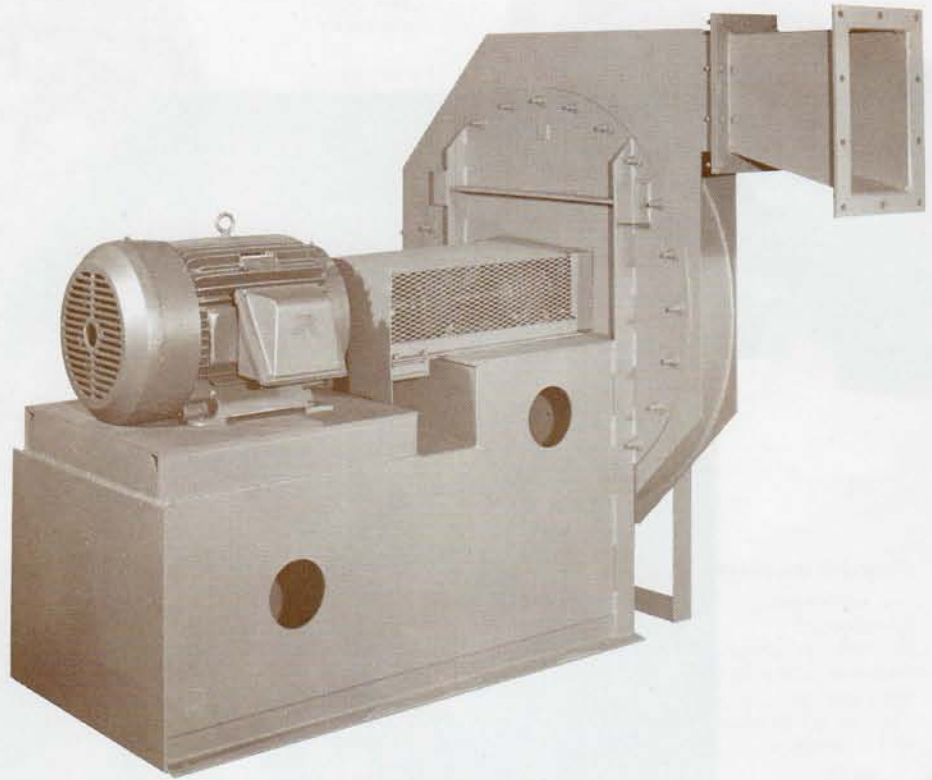
## HEAVY DUTY PRESSURE BLOWERS SERIES PXS

Bulletin 953



# Sheldons Heavy Duty Pressure Blowers

Extra-Heavy  
Construction  
for  
Rugged  
Duty  
Requirements

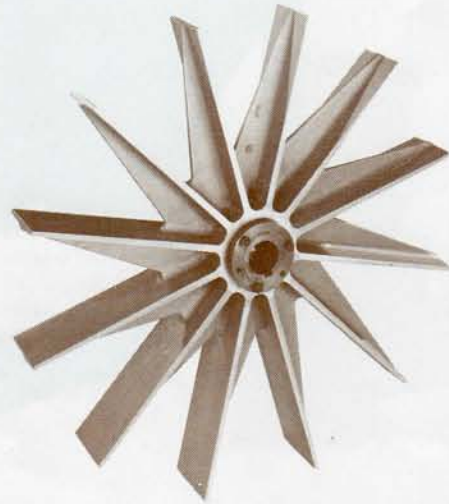


Arrangement 8 Blower shown with drive motor and coupling mounted, and enclosed shaft-bearing-coupling guard in place. Optional evase section is mounted on discharge.

For Low-Medium Flow Rates  
and High Pressure Applications

Such as:

- Pneumatic Conveying
- Combustion Air
- Process Air
- Agitation of Liquids
- Fluidized Bed Supply Air
- Damper Sealing Air
- Gas Booster Duty
- Scrubber Exhaust



Standard wheel is high strength aluminum casting held securely on shaft with a taper-lock bushing. Fabricated wheels of mild or stainless steel also available.



... Available in both Arr. 4 and Arr. 8

### **STANDARD FEATURES:**

- 7 ga. continuously welded housing (sidesheets and scroll) with heavy bracing
- Housing rotatable in 22½° increments by unbolting only (15° increments on sizes 330 & 365)
- 6 basic housing sizes with several intermediate wheel diameters for each housing to meet exact performance conditions with minimum power required
- Extended grease fittings for easy bearing lubrication on Arr. 8 blowers
- Flanged discharge connection with pre-drilled bolt holes
- Expanded metal shaft-bearing-coupling guard mounted on Arr. 8 blowers
- Heavy, continuously-welded motor pedestal
- Wheel attachment by taper-lock bushing for ease of assembly and disassembly

### **OPTIONAL ACCESSORIES**

- Shaft seals, including mechanical or labyrinth type seals for extra-low leakage (Arr. 8 only)
- Capped drain in scroll
- Inspection port
- Heat dissipation disc with guard for elevated temperature gas stream (Arr. 8 only)
- Flanged inlet with circular bolt-hole pattern
- Evase outlet expansion section with either rectangular or circular bolt pattern on discharge
- Flexible gear-type coupling with halves mounted (Arr. 8 only)
- Special wheel materials for high temperature or highly corrosive duty
- Recirculating damper at scroll cut-off for control and partial-load duty
- Motor mounting
- Intake or discharge silencers
- Intake screen



## SIZING CALCULATIONS

Sheldons series PXS pressure blowers are available in six basic housing sizes with several incremental wheel diameters for each housing size to attain exact pressure and flow requirements at direct-connected motor speeds with minimal horsepower consumption. The performance maps on the opposite page yield general size requirements for specific pressure-flow rate combinations with blowers rotating at 3500 RPM. For other speeds or special requirements, contact your local Sheldons' sales representative or call one of eight Sheldons' application engineers directly.

### Procedure:

1. Calculate gas density at blower inlet at required conditions. Remember to correct for rarefaction at inlet under high suction conditions, if appropriate.
2. Calculate equivalent static pressure requirement by use of following formula:
 
$$\text{equiv. S.P.} = \text{actual S.P.} \times \frac{.0750 \text{ \#/Cu. ft.}}{\text{actual gas density at blower inlet}}$$
3. If blower is developing significant negative pressure (suction) at its inlet, as in a negative pressure pneumatic conveying system, and the flow rate specified is at some point in system other than blower inlet, it will be necessary to adjust this flow rate, for blower selection

purposes, by the ratio of the absolute pressure at the point specified to the absolute pressure at the blower inlet.

$$\text{equiv. blower inlet CFM} = \text{CFM specified} \times \frac{\text{abs. pressure at point spec'd}}{\text{abs. pressure at blower inlet}}$$

4. Select fan size from performance map at right using equivalent CFM and equivalent static pressure calculated above.
5. Read equivalent horsepower requirement from corresponding horsepower curve for specific size. Interpolate as necessary.
6. Adjust equivalent horsepower to actual required horsepower using density ratio:

$$\text{actual BHP required} = \text{equiv. BHP} \times \frac{\text{actual gas density at blower inlet}}{.075 \text{ \#/Cu. ft.}}$$

## NOISE CALCULATIONS

Refer to chart below for sound power level spectrum for each blower size when operating at 3500 RPM. Contact factory for noise levels at other speeds.

To calculate expected sound pressure levels from sound power levels, use following procedures.

- A. When both inlet and outlet are ducted, and free field sound pressure level at 3 ft. from blower housing surface is required:

1. Deduct following insertion values from sound power level spectrum:

Octave Band	1	2	3	4	5	6	7	8
Metal Insertion Loss	22	24	23	24	27	24	27	28

2. Results from step 1 will give free field sound pressure level spectrum at 3 ft. from blower housing surface, C scale, referenced to .0002 microbar.

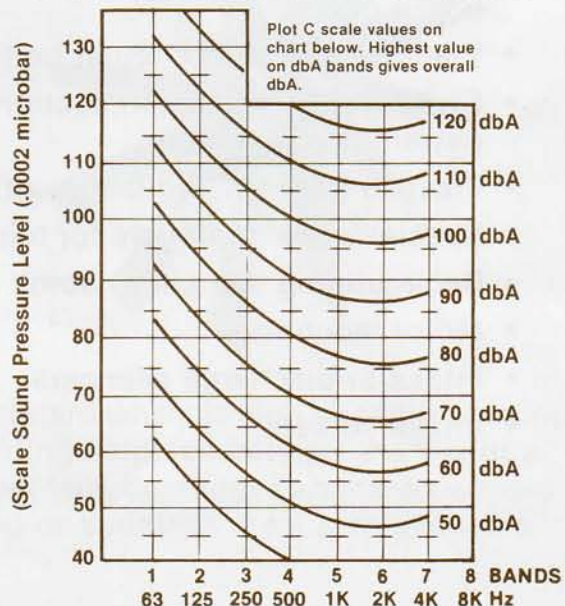
3. To attain combined A scale noise level, plot C scale sound pressure level spectrum on chart below. Highest dbA contour is overall A scale sound pressure level in free field.

- B. When either inlet or outlet is not ducted, and free field sound pressure level at open inlet or open discharge is required:

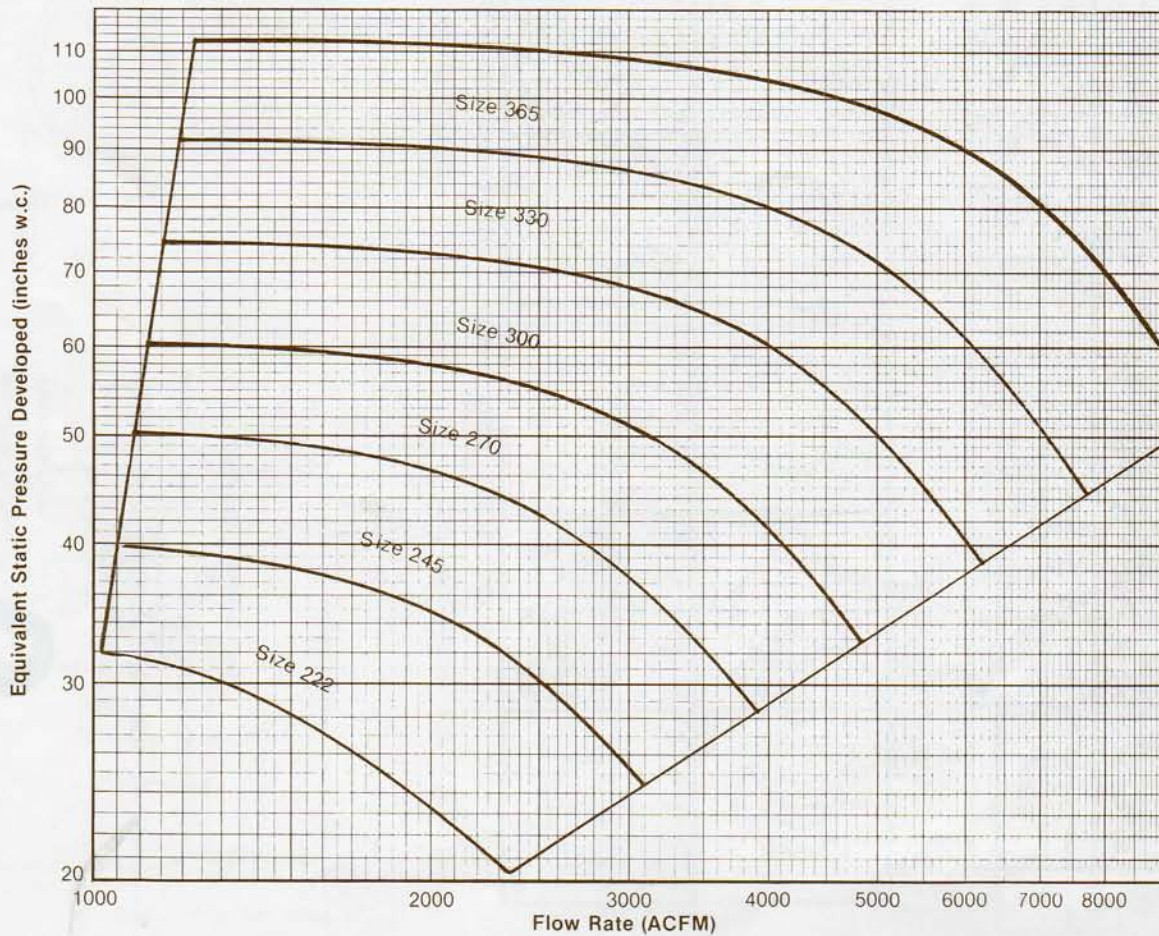
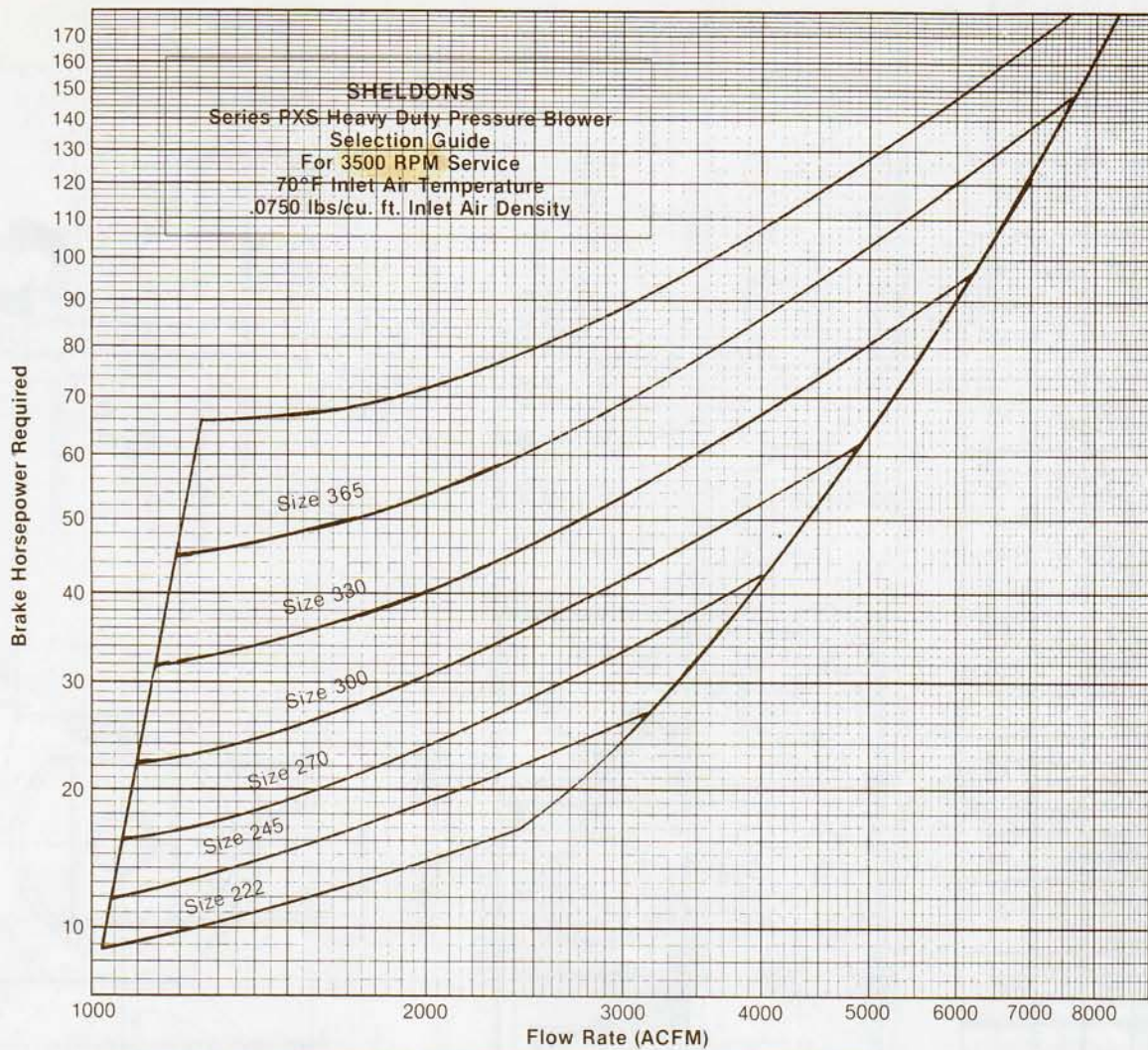
1. Deduct 3 db from each sound power level octave band.
2. Results from step 1 will give free field sound pressure level spectrum at 3 ft. from blower housing surface, C scale, referenced to .0002 microbar.
3. To attain combined A scale noise level, plot C scale sound pressure level spectrum on chart below. Highest dbA contour is overall A scale sound pressure level at open inlet or open discharge. If noise is excessive, contact silencer manufacturer or Sheldons for noise attenuator accessory.

Series PXS Sound Power Levels (Re $10^{-12}$ W.) at 3500 RPM								
Size	Octave Band/Mid-Hz							
	1 63	2 125	3 250	4 500	5 1000	6 2000	7 4000	8 8000
222	128	130	121	115	110	105	99	95
245	131	133	124	118	113	108	102	98
270	133	135	126	120	115	110	104	100
300	136	138	129	123	118	113	107	103
330	138	140	131	125	120	115	109	105
365	141	143	134	128	123	118	112	108

Chart — Conversion to dbA from C Scale Values









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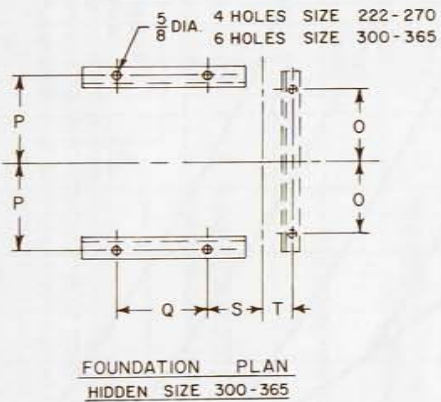
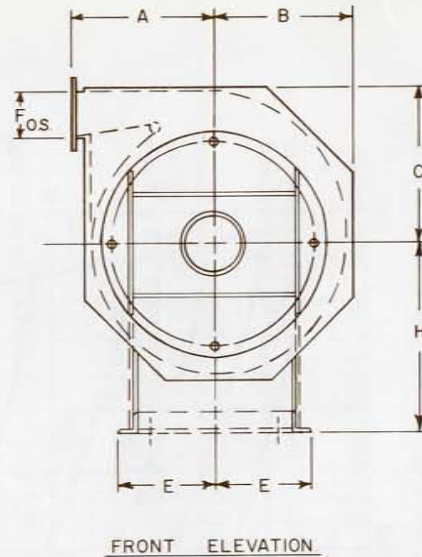
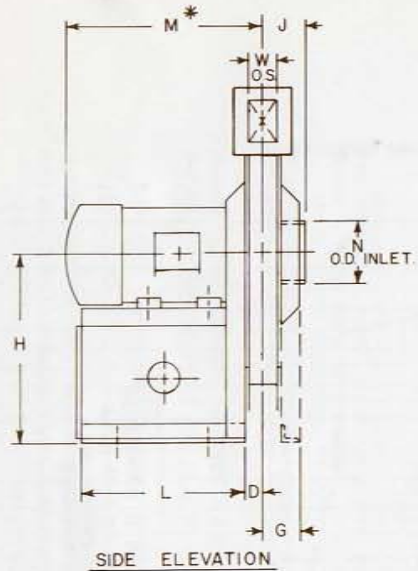


SERIES PXS.

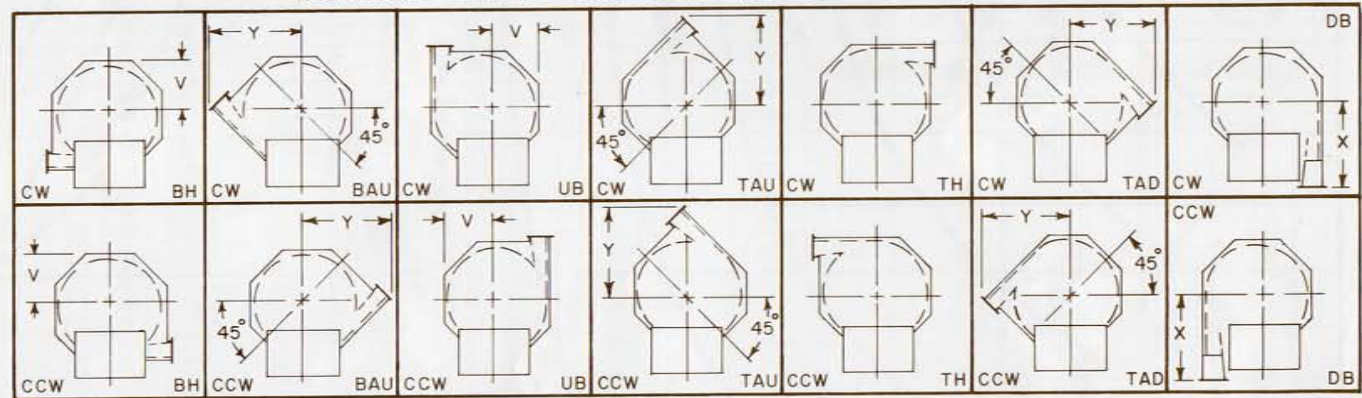
HEAVY DUTY PRESSURE BLOWER.

ARRANGEMENT 4. SIZE 222 - 365.

GENERAL DIMENSIONS.



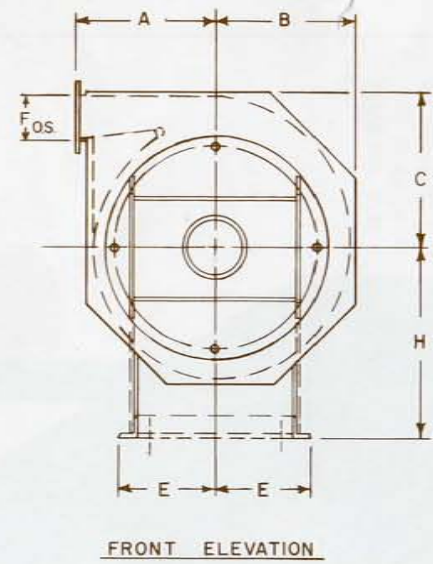
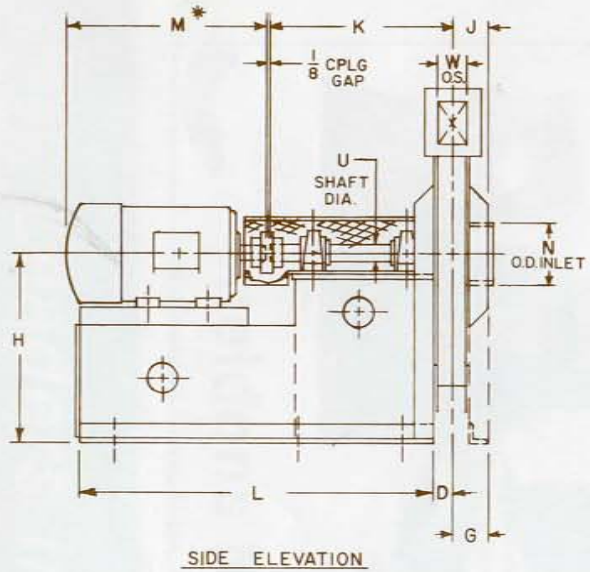
ALTERNATE BLOWER ORIENTATION (VIEWED FROM DRIVE SIDE)




FAN SIZE	A	B	C	D	E	F	G	H	J	L	M	N	O	P	Q	S	T	V	W	X	Y	EST.* WT./LBS	MOTOR FRAME RANGE.
222	18	17 <sup>7</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>8</sub>	2 <sup>11</sup> / <sub>16</sub>	11 <sup>15</sup> / <sub>16</sub>	8	—	26	6 <sup>5</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>	23 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>4</sub>	—	10 <sup>13</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	—	16 <sup>3</sup> / <sub>4</sub>	5	33	27 <sup>3</sup> / <sub>4</sub>	730	213 T - 284 T
245	19 <sup>13</sup> / <sub>16</sub>	19 <sup>5</sup> / <sub>8</sub>	21	2 <sup>23</sup> / <sub>32</sub>	11 <sup>15</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>4</sub>	—	26	6 <sup>11</sup> / <sub>32</sub>	21 <sup>1</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>4</sub>	10 <sup>11</sup> / <sub>16</sub>	—	10 <sup>13</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>16</sub>	6 <sup>7</sup> / <sub>32</sub>	—	18 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>16</sub>	33	30 <sup>5</sup> / <sub>8</sub>	900	213 T - 324 T
270	21 <sup>13</sup> / <sub>16</sub>	21 <sup>9</sup> / <sub>16</sub>	23 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	11 <sup>15</sup> / <sub>16</sub>	9 <sup>5</sup> / <sub>8</sub>	—	26	6 <sup>3</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>	27 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	—	10 <sup>13</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>4</sub>	—	20 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>8</sub>	33	33 <sup>3</sup> / <sub>4</sub>	980	213 T - 326 T
300	24 <sup>3</sup> / <sub>16</sub>	23 <sup>7</sup> / <sub>8</sub>	25 <sup>9</sup> / <sub>16</sub>	2 <sup>25</sup> / <sub>32</sub>	15 <sup>5</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	5 <sup>15</sup> / <sub>32</sub>	34	6 <sup>13</sup> / <sub>32</sub>	27 <sup>5</sup> / <sub>8</sub>	30 <sup>1</sup> / <sub>2</sub>	13	7 <sup>7</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	20 <sup>5</sup> / <sub>8</sub>	6 <sup>9</sup> / <sub>32</sub>	4 <sup>5</sup> / <sub>32</sub>	22 <sup>3</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>16</sub>	41 <sup>1</sup> / <sub>4</sub>	37 <sup>1</sup> / <sub>2</sub>	1570	254 T - 365 T
330	26 <sup>9</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>4</sub>	28 <sup>1</sup> / <sub>8</sub>	2 <sup>15</sup> / <sub>16</sub>	15 <sup>5</sup> / <sub>8</sub>	11 <sup>3</sup> / <sub>4</sub>	5 <sup>11</sup> / <sub>16</sub>	34	6 <sup>7</sup> / <sub>16</sub>	27 <sup>5</sup> / <sub>8</sub>	31	14 <sup>3</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	20 <sup>5</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>16</sub>	4 <sup>5</sup> / <sub>16</sub>	24 <sup>9</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>8</sub>	41 <sup>1</sup> / <sub>4</sub>	41 <sup>1</sup> / <sub>4</sub>	2500	256 T - 445 TS
365	29 <sup>7</sup> / <sub>16</sub>	28 <sup>15</sup> / <sub>16</sub>	31	3	15 <sup>5</sup> / <sub>8</sub>	13	5 <sup>3</sup> / <sub>4</sub>	34	6 <sup>1</sup> / <sub>2</sub>	27 <sup>5</sup> / <sub>8</sub>	31	15 <sup>7</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	20 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	27 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>	41 <sup>1</sup> / <sub>4</sub>	45 <sup>5</sup> / <sub>8</sub>	2635	324 T - 445 TS

\* BASE ON MAXIMUM MOTOR FRAME.

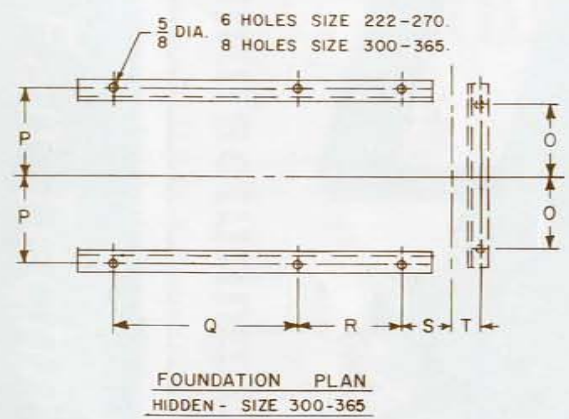




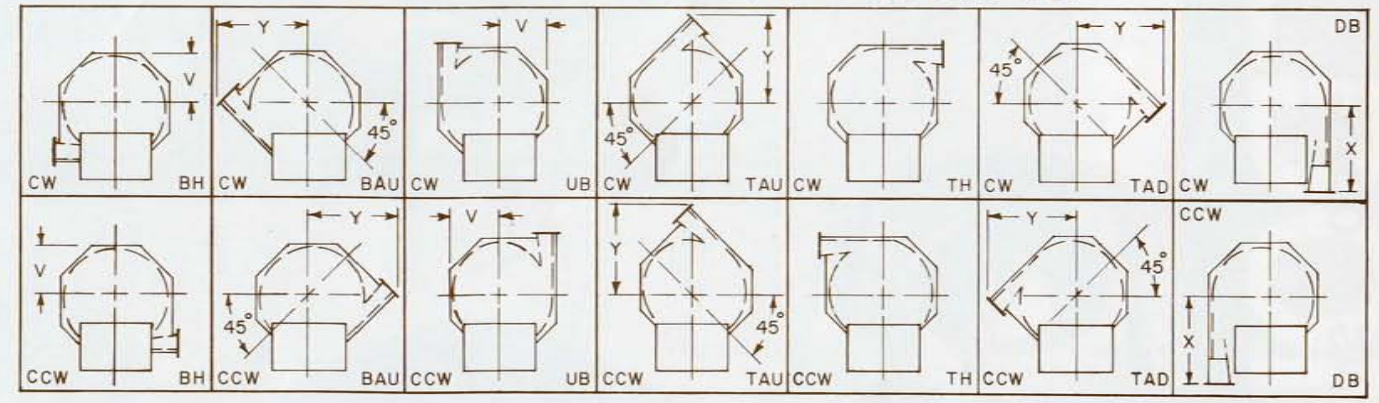
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CORPORATION.



SERIES PXS.  
HEAVY-DUTY PRESSURE BLOWER  
ARRANGEMENT 8. SIZE 222-365  
GENERAL DIMENSIONS.



ALTERNATE BLOWER ORIENTATION. (VIEWED FROM DRIVE SIDE)



FAN SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	EST. WT/LBS*	MTR. FRAME RANGE.
222	18	17 7/8	19 1/8	2 11/16	11 15/16	8	—	26	6 5/16	27	48 1/2	24 9/16	9 3/4	—	10 13/16	25	17	7 3/4	—	1 15/16	16 3/4	5	33	27 3/4	1075	213T-284TS
245	19 13/16	19 5/8	21	2 23/32	11 15/16	8 3/4	—	26	6 11/32	27 1/32	48 1/2	27 7/16	10 11/16	—	10 13/16	25	17	7 7/32	—	1 15/16	18 3/8	5 1/16	33	30 5/8	1255	213T-324TS
270	21 13/16	21 9/16	23 1/16	2 3/4	11 15/16	9 5/8	—	26	6 3/8	27 1/16	48 1/2	28 15/16	11 3/4	—	10 13/16	25	17	7 1/4	—	1 15/16	20 3/16	5 1/8	33	33 3/4	1325	213T-326TS
300	24 3/16	23 7/8	25 9/16	2 25/32	15 5/8	10 5/8	5 15/32	34	6 13/32	27 3/16	55 5/8	31 5/16	13	7 7/8	14 1/2	32 1/8	17	7 9/32	4 5/32	1 15/16	22 3/8	5 3/16	41 1/4	37 1/2	2125	254T-365TS
330	26 9/16	26 1/4	28 1/8	2 15/16	15 5/8	11 3/4	5 11/16	34	6 7/16	28 11/16	57 5/8	40 7/8	14 3/8	7 7/8	14 1/2	33 1/8	18	7 7/16	4 5/16	2 3/16	24 9/16	5 3/8	41 1/4	41 1/4	3090	256T-445TS
365	29 7/16	28 15/16	31	3	15 5/8	13	5 3/4	34	6 1/2	28 3/4	57 5/8	40 7/8	15 7/8	7 7/8	14 1/2	33 1/8	18	7 1/2	4 3/8	2 3/16	27 1/8	5 1/2	41 1/4	45 5/8	3235	324TS-445TS

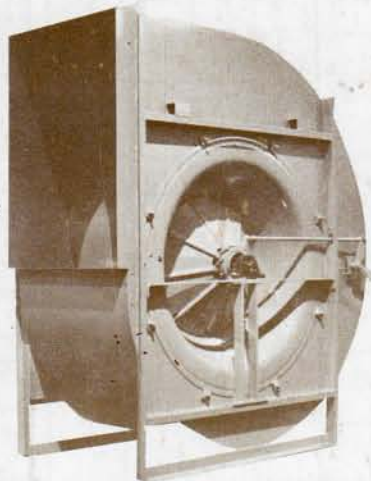
\* BASE ON MAXIMUM MOTOR FRAME.



# OTHER SHELDONS PRODUCTS

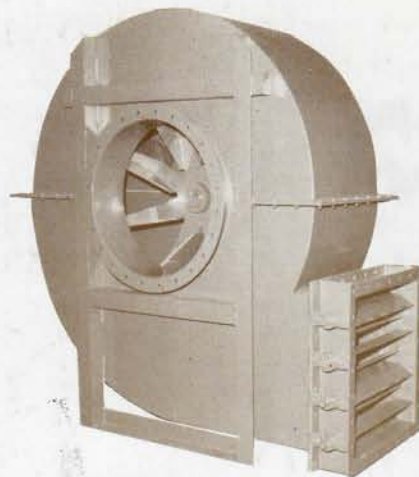
## Airfoil Bladed Fans

High efficiency airfoil-bladed fans require the least horsepower for handling large air volumes in commercial and industrial applications



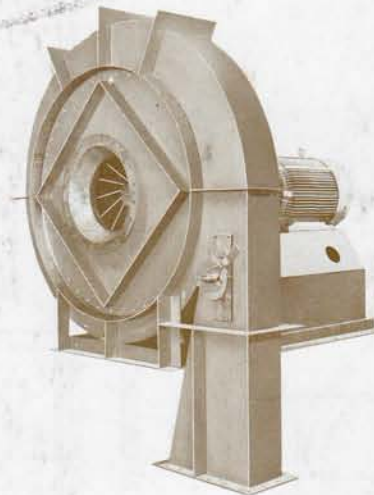
## Industrial Exhausters

Industrial Exhausters are engineered to provide pressures to 40" w.g. for material conveying, pollution control and industrial ventilation



## Radial Tipped Fans

Radial tipped fans are meeting the demands of high temperatures and corrosive environments with impellers constructed of stainless steel and other alloys

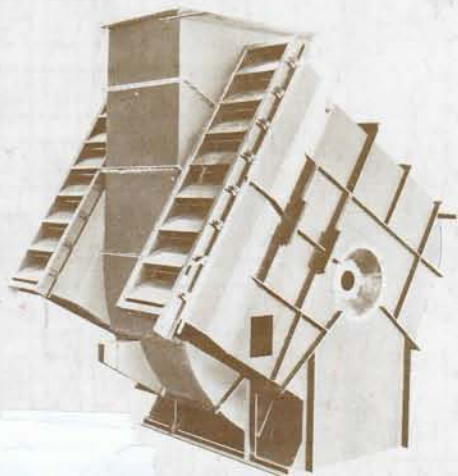


## Pressure Blowers

Experience and engineering capability combine to produce Pressure Blowers for pressures up to 120" w.g. per stage

## Custom Fans

Heavy duty custom fans are designed to meet specific job requirements and applications.



## Custom-Built Dual Intake Blowers

Sheldons has considerable experience in providing dual intake blowers for higher flow rates. Thrust is equalized leading to longer bearing life.

