



Rotron / Airscrew



Rotron CENTRIFUGAL BLOWERS



Model D



Duplex



Model B



Model A

DESCRIPTION

Rotron Centrifugal Blowers are compact, sturdy, and relatively light in weight. They are designed for a long, maintenance-free life. Most models are available for either clockwise or counterclockwise rotation, and in either simplex or duplex types. Duplex blowers simplify ductwork and allow greater volume performance in tight locations. Models are available for AC or DC power.

APPLICATIONS

Model D

Model D Blowers are specifically suited for use in tightly packed electronic equipment, or, in the case of inverted blowers, in situations where high pressure-to-volume performance is required, as in the cooling of many small forced-air-cooled radio transmitting tubes. These blowers are designed for continuous duty in ground, shipboard, and air born electronics equipment, and are operable under a variety of environmental conditions.

Model B

Model B Blowers are designed with a larger flow capacity than Model D Blowers, and are suitable for delivering large volumes of air at moderate static pressures into equipment where dissipation needs are high and space is limited (such as computer main frames, transmitter tubes, and disc and drum memories).

Model A

Model A Blowers are designed with a higher capacity than Model B and Model D Blowers. Model A Blowers are suitable for applications where utmost reliability is essential, particularly in the wire and radio communication services (including broadcasting, TV, and point-to-point radio and radar stations), as well as for use in unattended locations under extreme climactic conditions.

Model A blowers are also suitable for use in ground and shipboard installations.

All models are built to applicable military specifications.

PERFORMANCE CHARACTERISTICS

Blower Type Charts and Air Performance

See charts that follow for various blower types. Charts also present typical performance data for each type listed. These data are subject to tolerances to allow for slight blower-to-blower differences. Consult Application Engineering for applicable differences.

Brushless DC Operation and Frequency Converters

Centrifugal Blowers are available for single or multiple operations from DC power sources. Rotron also provides Frequency Converters to allow higher or lower motor speeds, where required, than are possible with a 50/60 or 400 Hz sources. Converters are also available to operate single or multiple units. See Power Conversion section for notes.

Performance Sensors

All Models equipped with optional performance sensors send out a tachometer-type signal generated from a hall sensor activated by a small permanent magnet mounted on the rotor of the fan motor. The signal depends on the fan type:

Fan Type	Signal	Output V nominal
AC	10% on 90% off sq. wave pulse	10 V
E.C.D.C.	50% on 50% off sq. wave pulse	10 V

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Various electronic circuits can be designed to count the pulse train and send out appropriate alarms if pulse rate follows below the acceptable level. Contact Rotron's Application Engineering Department for specific circuit designs.

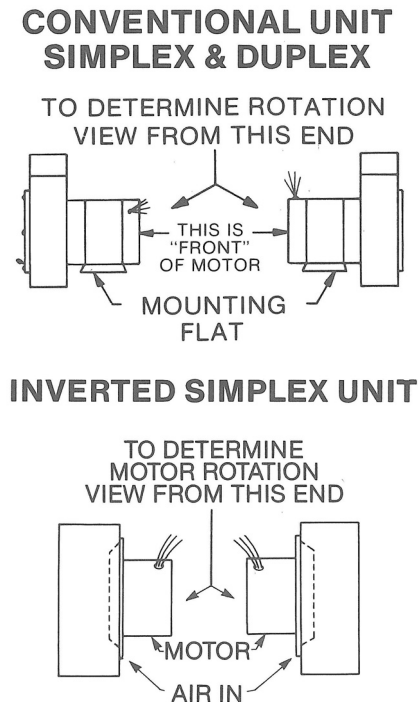
Low Speed Warning Detector (LSWD)

The Low Speed Warning Detector (LSWD) utilizes a programmable frequency switch capable of turning "on" or "off" a load such as an LED, audible alarm, back-up fan, etc, at a pre-determined motor RPM. If fan speed falls below the present value, the back-up or warning device is activated. Once the fan speed exceeds the present value, it is deactivated. The RPM value is preset at the factory between 2,000 and 20,000 RPM (actual value is determined by the specific fan performance and customer requirements).

Materials and Finishes

Standard Blower housings are steel and are primed and black enameled. Impellers are zinc-plated steel.

Figure 1:



Determination of Rotation and Blast

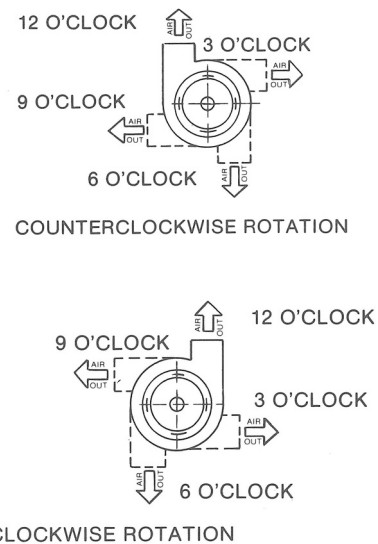
- Step 1: Point the name plate/ lead wires/ terminal block towards you.
- Step 2: Rotate the blower to the left or right.
(See view in Figure 1)
- Step 3: Rotate the blower to the left or right.
(Figure 2 shows the view of the inlet)

Please refer to Figure 2 to determine the direction of rotation.

Motor Rotation for Centrifugal Blowers is determined by viewing the motor from the lead wire or terminal block end. Blower rotation is determined by viewing the blower housing from the side opposite the inlet. Wiring hook-up is dependent upon motor rotation only. Opposite blower housings of duplex units have opposite blower rotation, and correct blower rotation identification is important when specifying blast directions. For simplex units, blower and motor rotation are identical. For inverted blowers, blower and motor rotation are opposite to each other. Blast direction is determined by viewing the inlet of the blower housing with the motor flat adjacent to the lead wires or terminal block at the 12 O'clock position. See Figure 2 below.

Figure 2:

**BLOWERS ARE ORDERED AS
CLOCKWISE OR COUNTERCLOCKWISE.
MOTOR HOOK UP WILL BE THE OPPOSITE.**



Inverted Blowers

Inverted Blowers have their driving motor located inside the squirrel cage wheel. This results in unusual compactness and excellent motor cooling. Such an arrangement is only feasible whenever the wheel diameter is large in proportion to the volume of air moved. This situation may be obtained in slow volume of air moved. This situation may be obtained in slow running blowers as well as in tight scroll squirrel cage blowers that have a high pressure-to-volume ration performance.



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Rotron Model A Types 4502-3-4-5 Centrifugal Blowers

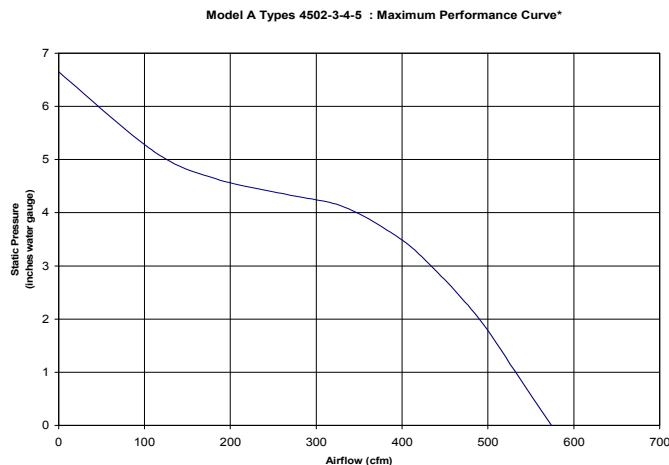
General Centrifugal Blower Information

Rotron Centrifugal Blowers are compact, sturdy, and relatively light in weight. They are designed for a long, maintenance-free life. Most models are available in either clockwise or counter-clockwise rotation, and in either simplex or duplex configurations. Duplex blowers simplify ductwork and allow greater volume performance in tight locations.

These blowers come in a variety of frequencies and

voltages, and are available with a variety of inlet and outlet configurations. Inlet configurations include: plain ring, round with guard, cone with clamp, cone for mounting and rim with hose clamp. Outlet configurations include rectangular, round, plain, flange, and duct clamps. Most units are available with an optional internal Fan Performance Sensor (FPS) or external Low Speed Warning Device (LSWD).

Rotron Model A Types 4502-3-4-5



*Max. Centrifugal Blower Performance curve shown. Individual Performance Curve Characteristics Available Upon Request

General

- Physical envelope: inlet diameter 5.00"; length ranges from 6.06" to 7.06" ¹.
- Weight: varies— between 28 and 35 lbs.
- Offers higher capacity than Rotron Models D and B.
- Model A Blowers are designed for applications where high reliability is a major issue in extreme climates
- Used in ground, shipboard, and airborne applications.
- Nom. speeds range from 2,860 and 5,890 RPM.
- Airflows range from 250 to 650 CFM.
- Maximum Static Pressure: 6.4 IWG.

¹ See specific part-number drawing for complete product dimensions

Materials and Finishes

- All aluminum components finished with a chemical conversion coating per MIL-C-5541, top coat of lusterless black enamel, color #37038, per Federal Standard 595 conforming to TT-E-489 Type B.
- Painted or epoxy powder coat on steel housing.
- Corrosion-resistant stainless steel shaft and hardware.
- Zinc-plated impeller runs on two high-precision, double-shielded, stainless steel ball bearings (ABEC Class 1) for a long, maintenance-free life.
- Motors have stator winding insulation which is rated for continuous duty for Class F.

Options/Accessories

- Inlet Screen Guards
- LSWD (Low Speed Warning Device)
- FPS (Fan Performance Sensor)

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AC Line Powered Units ¹

- 3-phase and 1-phase permanent-split capacitor motor designs.
- Fixed speeds (performance) based on input frequency.
- Meets or exceeds the requirements of MIL-B-23071 and other applicable U.S. military and commercial aerospace specifications ².
- Max free delivery airflow of 435 at 50 Hz, 515 at 60 Hz and 650 CFM at 400 Hz.
- Ambient temperature range: -54 °C to 125 °C.
- Acoustic levels as low as 75.2 dBA.

¹ Airflow, maximum ambient and acoustic levels will vary depending on design parameters

² Please call for further information concerning applicable U.S. military and commercial aerospace specifications

DC Line Powered Units – E.C.D.C.® ¹

- Not available with this model blower.

Optional DC-AC Inverters and AC-AC Converters for AC Powered Models ¹

BATAC® Inverter Driven Units

- AC square wave fans driven from a DC power source through a BATAC® Inverter.

DELTAC® Converter Driven Units

- DELTAC® converters allow high frequency (typically 400 Hz) fans to be driven by variable frequency (typically 360-800 Hz) power or low frequency 50/60 Hz power to obtain the higher frequency performance.

¹ See Accessories: Power Conversion

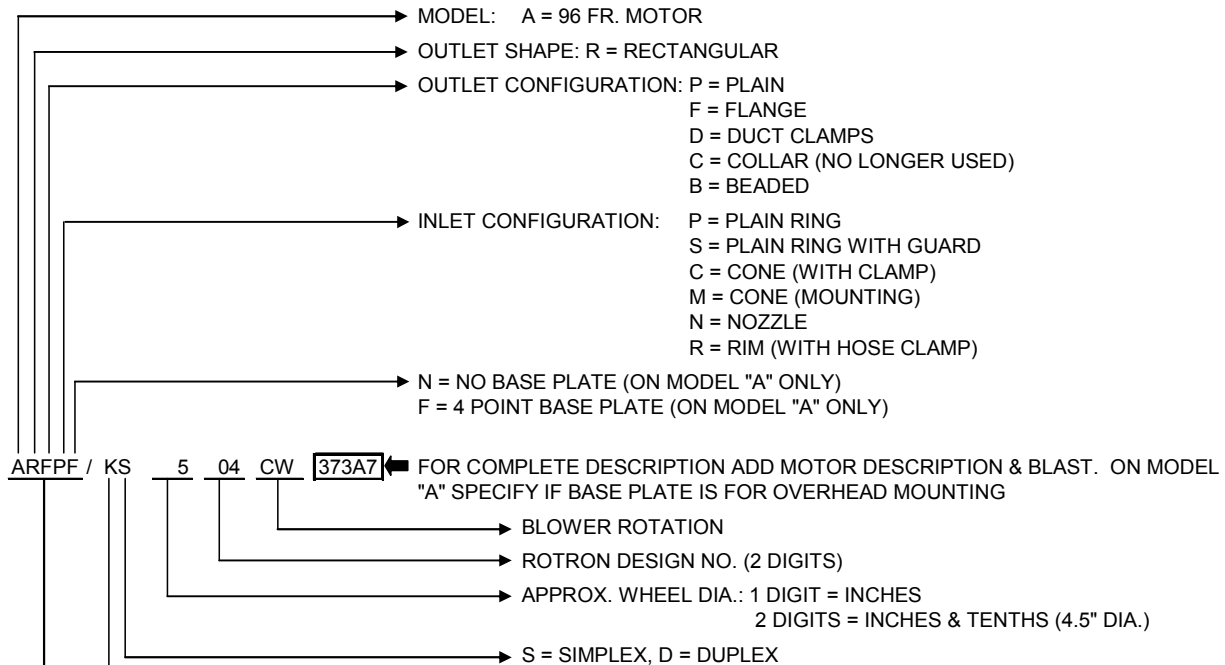


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Unit Description Key

The unit description key is for reference only and should not be confused with a part number. While most units are custom configurations, not all variations of the key shown below are possible. Please contact the Application Engineering department for more information regarding possible custom configurations.



"X" IN ANY POSITION
DENOTES SPECIAL
FOR THAT FEATURE

EX: ARFPF/KS 504 CW

DUPLEX VARIATIONS:

*1st CALLOUT IS THE STD SIMPLEX

*2nd CALLOUT IS THE DUPLEX END

EX: ARFPN / AD502CW

EX: ARFPN / AD502CW , LB3B

	NO. POLES	NO. PHASES	APPROX. SPEED- NO LOAD (REF.)		
			50 Hz	60 Hz	400 Hz
A	2	3	2900	3400	-
B	4	3	1450	1750	-
E	6	1 OR 3	950	1150	-
F	8	1 OR 3	700	850	-
K	2	1	2900	3500	-
L	4	1	1450	1750	-
M	6	1 OR 3	-	-	7500
N	8	1 OR 3	-	-	5500
P	12	1 OR 3	-	-	3900
Q	4	1 OR 3	-	-	11000
R	2	1 OR 3	-	-	23000
V	ECDC				

NOTE: DUAL FREQUENCY OR DUAL POLE MOTORS DESIGNATED BY
USING 2 DIGITS. EX: KM = (2 POLE 1Φ 50/60 Hz, 6 POLE 1Φ 400 Hz)

Ordering Information

When ordering, please specify the specific Rotron part number listed on the model tables below. Further ordering information, based on the configuration and motor series, may be obtained by contacting customer service. Please refer to the Unit Description Key explanation above.



A collage of various modes of transport including a helicopter, a fighter jet, a train, a car, and an airplane.

*Part Number Specific Drawings Available Upon Request



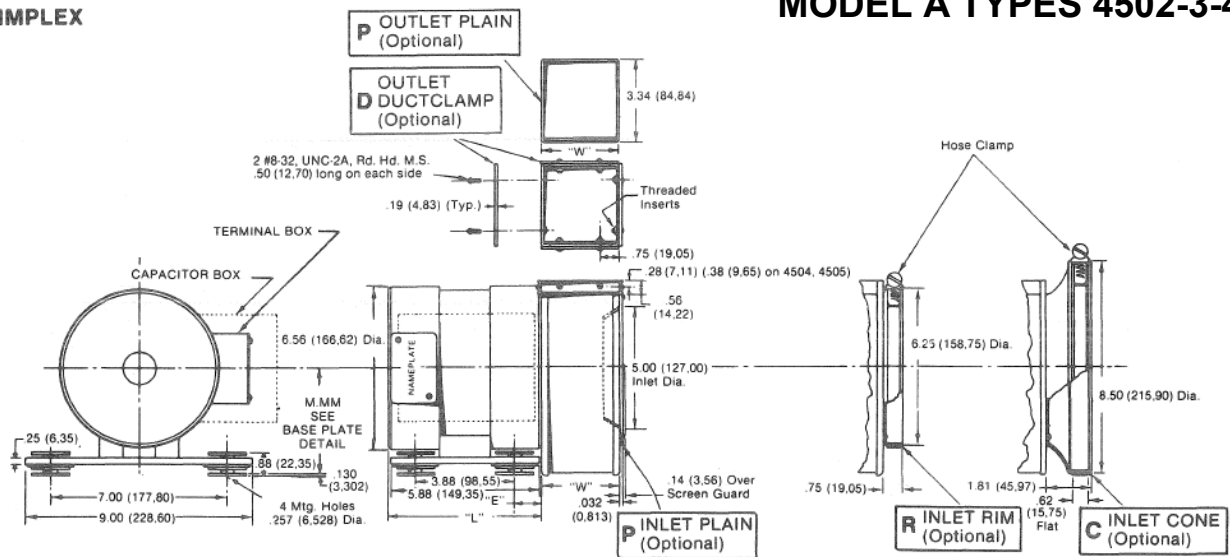
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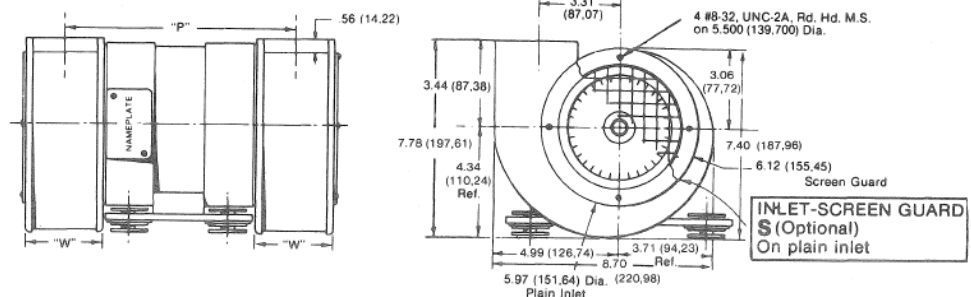
CENTRIFUGAL BLOWERS

SIMPLEX

MODEL A TYPES 4502-3-4-5

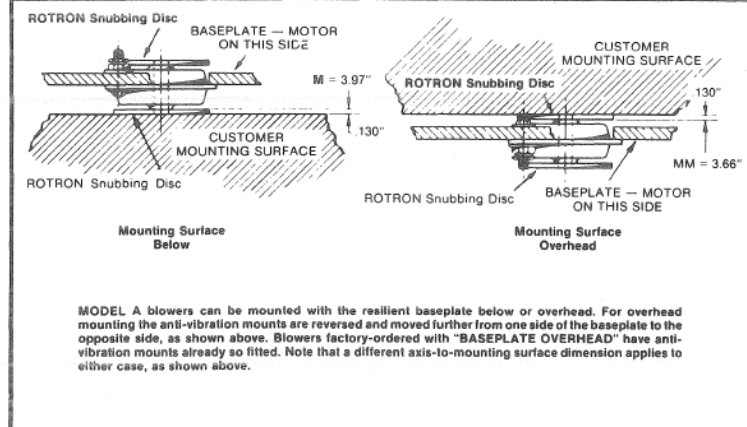


DUPLEX



$$P = L + W$$

BASEPLATE DETAIL MODEL A



TOLERANCES
.XX ±.06 (1.5)
.XXX ±.010 (0.25)
(Unless otherwise specified)

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MODEL A TYPES 4502-3-4-5

ELECTRICAL SPECIFICATIONS

See Hookup Section for Motor Wiring

Type	Frame	Series	Volts	Phase	Hz	Cap. † Mfd.	Nom. RPM	Full Load Watts	Line Amps	Lock. Rotor Amps	Air CFM at Free Del.	Motor Motor Series	Variants Line Voltage
Simplex													
KS-4502	LB-1	250AF	115	1	50	8.0	2890	230	3.2	12.5	250	236AF	230
					60	8.0	3410	275	2.6	11.6	300		
AS-4502	LB-1	280JF	220	3	50	-	2950	190	1.03		268	285JF	115
					60	-	3500	245	.67	6.3	310		
PS-4502	LB-1	358AF	115	1	400	6.0	3900	420	3.8	6.2	336		
PS-4502	LB-2	209JF	115	3	400	-	3940	330	5.0	14.5	342	325JF 203JF	200 420
NS-4502	LB-2	311JF	200	3	400	-	5890	730	2.8	9.5	455		
KS-4503	LB-1	250AF	115	1	50	8.0	2870	250	3.2	12.5	295	236AF	230
					60	8.0	3400	280	2.6	11.6	355		
AS-4503	LB-1	280JF	220	3	50	-	2950	200	1.04		314	285JF	115
					60	-	3500	245	.76	6.3	370		
PS-4503	LB-1	358AF	115	1	400	6.0	3870	470	4.3	6.2	405		
PS-4503	LB-2	209JF	115	3	400	-	3925	485	5.2	14.5	410	325JF 203JF	200 420
NS-4503	LB-2	311JF	200	3	400	-	5840	880	3.4	9.5	525		
KS-4504	LB-1	250AF	115	1	50	8.0	2860	270	3.1	12.5	345	236AF	230
					60	8.0	3340	330	3.0	11.6	410		
AS-4504	LB-1	280JF	220	3	50	-	2930	237	1.1		360	285JF	115
					60	-	3475	285	.85	6.3	425		
PS-4504	LB-1	358AF	115	1	400	6.0	3840	550	4.8	6.2	465		
PS-4504	LB-2	209JF	115	3	400	-	3920	396	5.3	14.5	450	325JF 203JF	200 420
NS-4504	LB-2	311JF	200	3	400	-	5830	950	3.6	9.5	570		
KS-4505	LB-1	250AF	115	1	50	8.0	2880	279	3.5	12.5	400	236AF	230
					60	8.0	3339	351	3.2	11.6	472		
AS-4505	LB-1	280JF	220	3	50	-	2910	270	1.1		435	285JF	115
					60	-	3440	365	1.0	6.3	515		

MECHANICAL SPECIFICATIONS

Type	Approx. Weight	"L"	Lbs. (Kg.)	Inches (mm)
Simplex				
KS-4502	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.09 (78.49)
AS-4502	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.09 (78.49)
PS-4502	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.09 (78.49)
PS-4502	35 (15.89)	7.06 (179.32)	1.59 (40.37)	3.09 (78.49)
NS-4502	35 (15.89)	7.06 (179.32)	1.59 (40.37)	3.09 (78.49)
K5-4503	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.66 (92.96)
AS-4503	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.66 (92.96)
PS-4503	28 (12.71)	6.06 (153.92)	1.09 (27.67)	3.66 (92.96)
PS-4503	35 (15.89)	7.06 (179.32)	1.59 (40.37)	3.66 (92.96)
NS-4503	35 (15.89)	7.06 (179.32)	1.59 (40.37)	3.66 (92.96)
KS-4504	28 (12.71)	6.06 (153.92)	1.09 (27.67)	4.16 (105.66)
AS-4504	28 (12.71)	6.06 (153.92)	1.09 (27.67)	4.16 (105.66)
PS-4504	28 (12.71)	6.06 (153.92)	1.09 (27.67)	4.16 (105.66)
PS-4504	35 (15.89)	7.06 (179.32)	1.59 (40.37)	4.16 (105.66)
NS-4504	35 (15.89)	7.06 (179.32)	1.59 (40.37)	4.16 (105.66)
KS-4505	28 (12.71)	6.06 (153.92)	1.09 (27.67)	4.84 (122.94)

† Running capacitors not normally supplied by Rotron
For 3-phase motors all voltages are phase-to-phase
Capacitor voltage rating are 220 VAC unless otherwise specified

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MODEL A TYPES 4502-3-4-5

ELECTRICAL SPECIFICATIONS

See Hookup Section for Motor Wiring

Type	Frame	Series	Volts	Phase	Hz	Cap.† Mfd.	Nom. RPM	Full Load Watts	Line Amps	Lock. Rotor Amps	Air CFM Free Del.	Motor Series	Variants Line Voltage
PS-4505	LB-1	358AF	115	1	400	6.0	3820	590	5.3	6.2	542		
PS-4505	LB-2	209JF	115	3	400	-	3900	545	5A	14.5	565	325JF 203JF	200 420
NS-4505	LB-2	311JF	200	3	400	-	5825	1060	4	9.5	650		
Duplex													
KD-4502	LB-I	250AF	115	1	50 60	8.0 8.0	2830 3260	307 400	3A 3.5	12.5 11.6	502 583	236AF	230
AD-4502	LB-I	280JF	220	3	50 60	- -	2910 3430	270 370	1.2 1.1	6.3 6.3	524 629	285JF	115
PD-4502	LB-1	358AF	115	1	400	6.0	3800	600	5.7	6.2	675		
PD-4502	LB-2	209JF	115	3	400	-	3900	495	5.9	14.5	670	325JF 203JF	200 420
KD-4503	LB-I	373AF	115	1	50 60	12.0 12.0	2875 3400	350 540	3.7 5	13.3	658 775	373BF	115/230
AD-4503	LB-1	280JF	220	3	50 60	- -	2880 3350	350 475	1.2 1.3	6.3 6.3	653 760	285JF	115
PD-4503	LB-2	209JF	115	3	400	-	3850	720	6	14.5	865	325JF 203JF	200 420
KD-4504	LB-1	373AF	115	1	50 60	12.0 12.0	2870 3300	400 650	4 6.1	13.3	765 880	373BF	115/230
AD-4504	LB-I	280JF	220	3	400 60	- -	2870 3290	420 580	1.3 1.6	6.3 6.3	763 876	285JF	115
PD-4504	LB-2	313JF	200	3	400	-	3890	774	3.9	9.9	960		
KD-4505	LB-I	373AF	115	1	50 60	12.0 12.0	2830 3150	475 810	4.5 7.8	13.3	880 980	373BF	115/230
AD-4505	LB-I	280JF	220	3	50 60	- -	2830 3200	470 680	1.4 1.8	6.3	880 1000	285JF	115
PD-4505	LB-2	313JF	200	3	400	-	3750	1040	4.7	9.9	1170		

MECHANICAL SPECIFICATIONS

Type	Approx. Weight	"L"	Lbs. (Kg.)	Inches (mm)
"E"				
AS-4505	28 (12,71)	6.06 (153,92)	1.09 (27,67)	4.84 (122,94)
PS-4505	28 (12,71)	6.06 (153,92)	1.09 (27,67)	4.84 (122,94)
PS-4505	35 (15,89)	7.06 (179,32)	1.59 (40,37)	4.84 (122,94)
NS-4505	35 (15,89)	7.06 (179,32)	1.59 (40,37)	4.84 (122,94)
Duplex				
KD-4502	31 (14,07)	6.06 (153,92)	1.09 (27,67)	3.09 (78,49)
AD-4502	31 (14,07)	6.06 (153,92)	1.09 (27,67)	3.09 (78,49)
PD-4502	31 (14,07)	6.06 (153,92)	1.09 (27,67)	3.09 (78,49)
PD-4502	37 (16,80)	7.06 (179,32)	1.59 (40,37)	3.09 (78,49)
KD-4503	31 (14,07)	6.06 (153,92)	1.09 (27,67)	3.66 (92,96)
AD-4503	31 (14,07)	6.06 (153,92)	1.09 (27,67)	3.66 (92,96)
PD-4503	38 (17,25)	7.06 (179,32)	1.59 (40,37)	3.66 (92,96)
KD-4504	32 (14,53)	6.06 (153,92)	1.09 (27,67)	4.16 (105,66)
AD-4504	32 (14,53)	6.06 (153,92)	1.09 (27,67)	4.16 (105,66)
PD-4504	39 (17,71)	7.06 (179,32)	1.59 (40,37)	4.16 (105,66)
KD-4505	32 (14,53)	6.06 (153,92)	1.09 (27,67)	4.84 (122,94)
AD-4505	32 (14,53)	6.06 (153,92)	1.09 (27,67)	4.84 (122,94)

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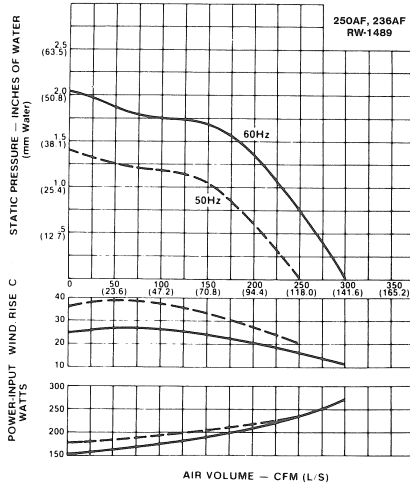
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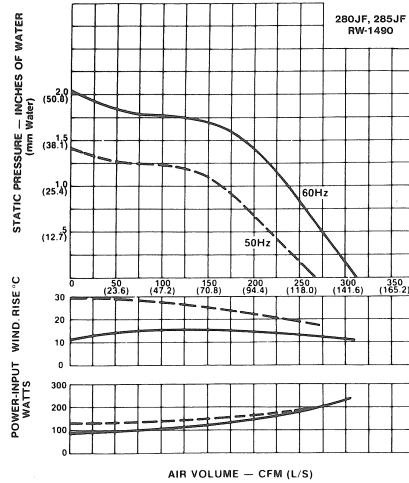
CENTRIFUGAL BLOWERS

MODEL A TYPES 4502-3-4-5

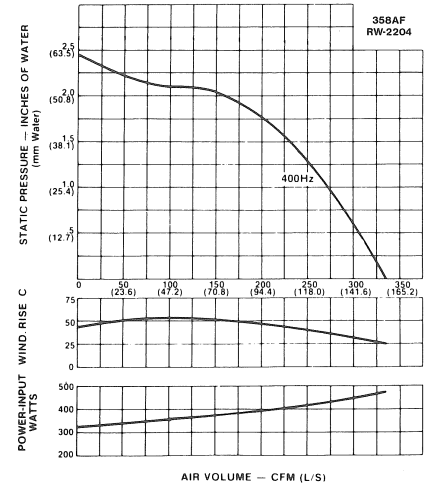
TYPE KS-4502 SIMPLEX



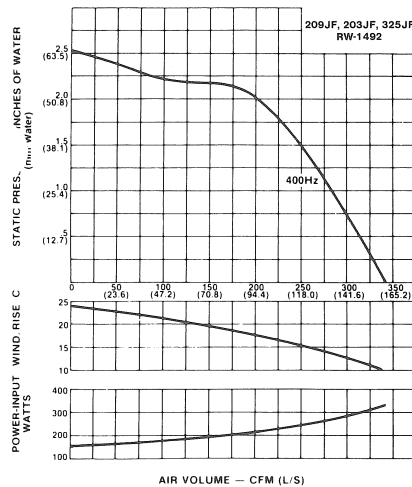
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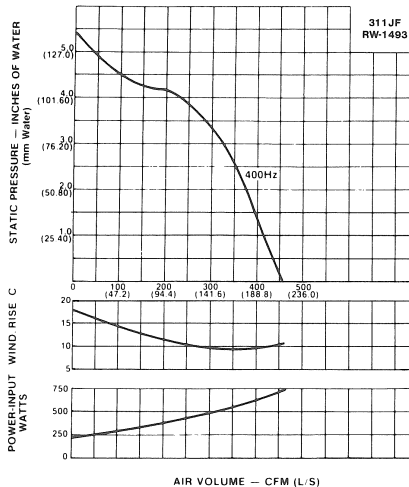
TYPE PS-4502 SIMPLEX



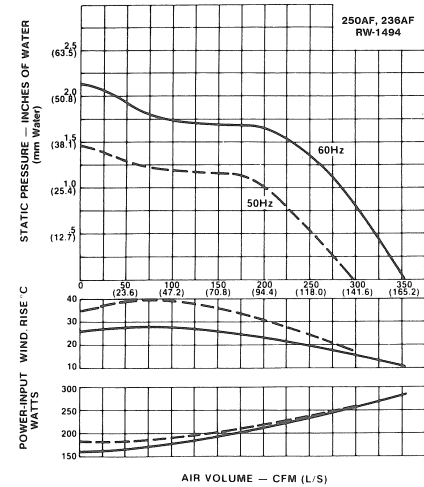
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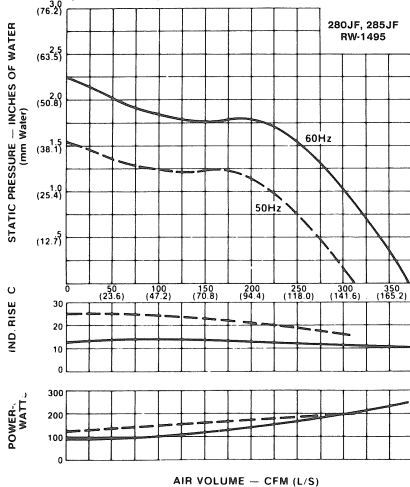
TYPE NS-4502 SIMPLEX



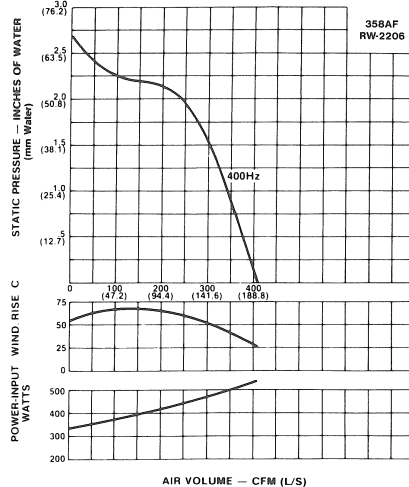
TYPE KS-4503 SIMPLEX



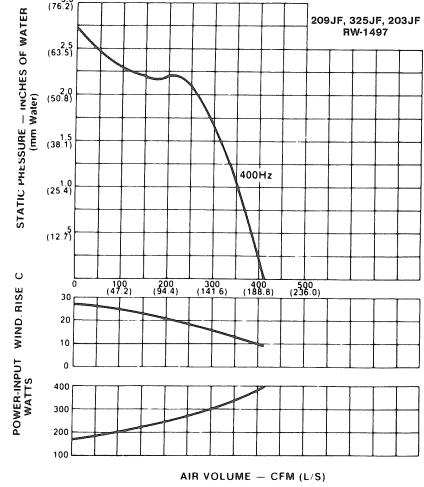
TYPE AS-4503 SIMPLEX



TYPE PS-4503 SIMPLEX



TYPE PS-4503 SIMPLEX



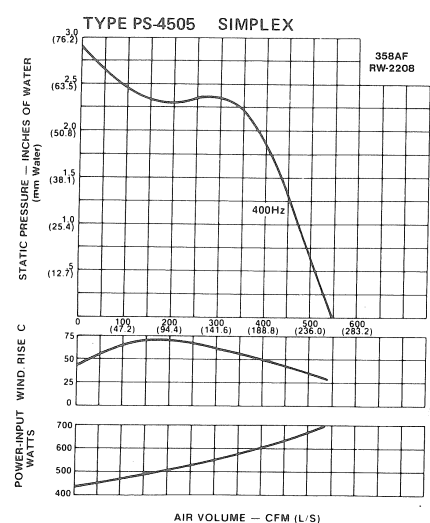
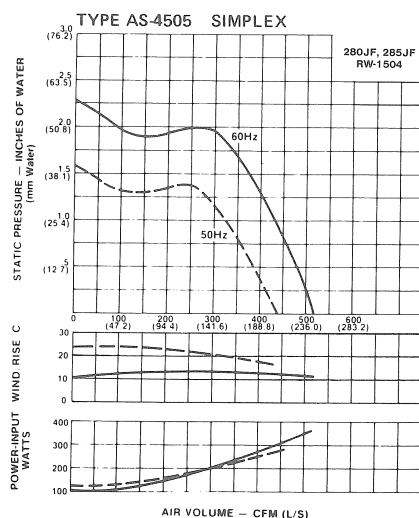
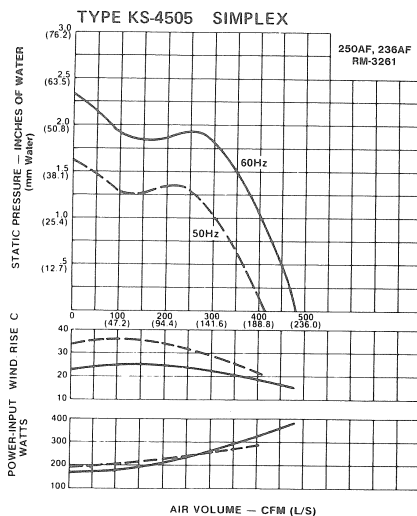
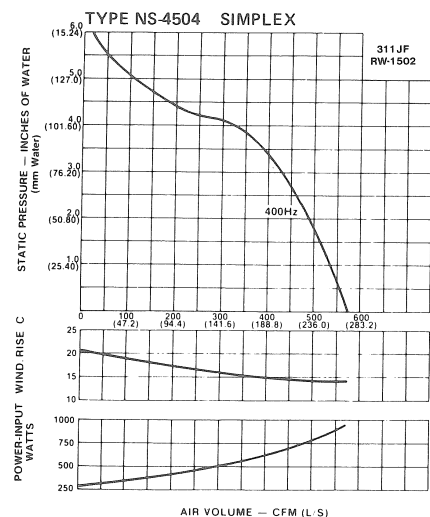
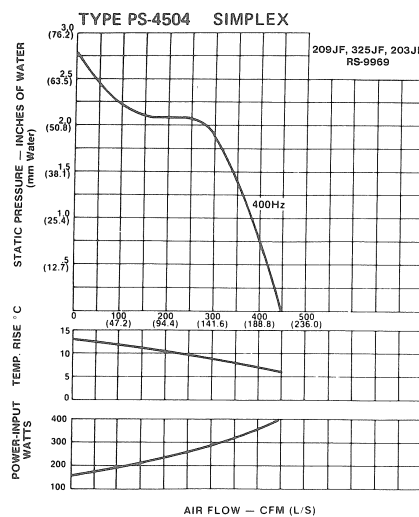
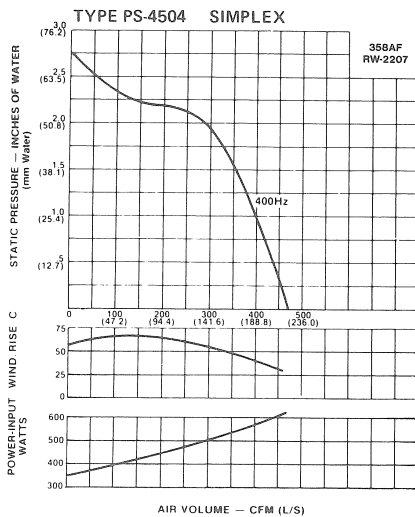
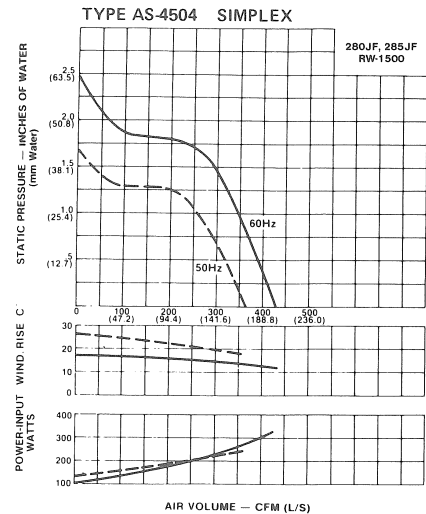
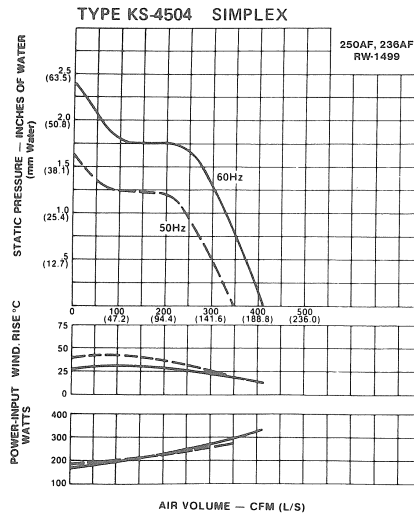
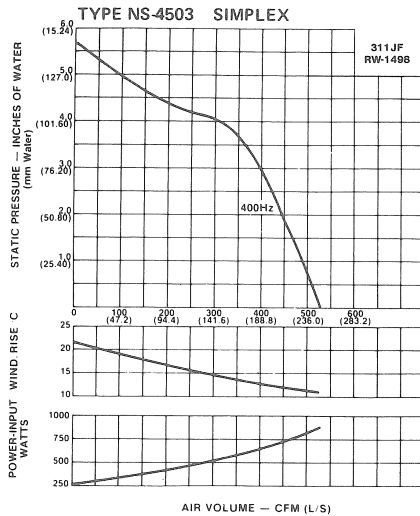


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CENTRIFUGAL BLOWERS

MODEL A TYPES 4502-3-4-5



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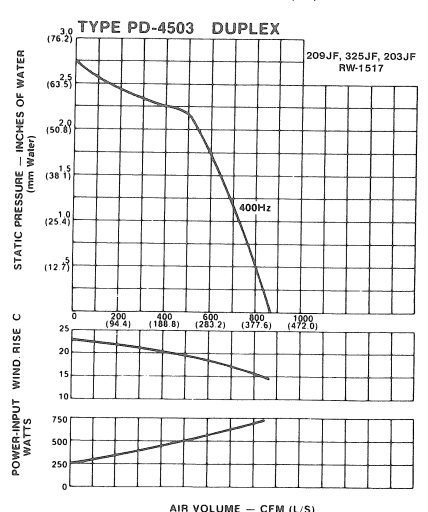
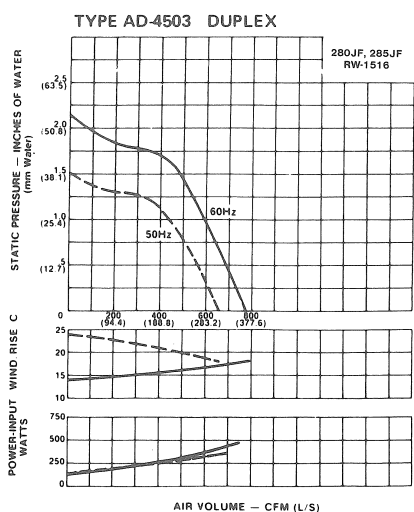
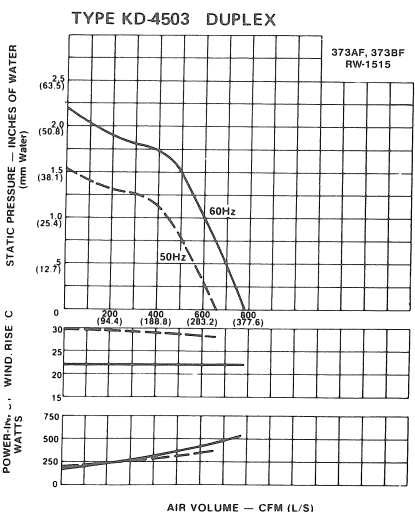
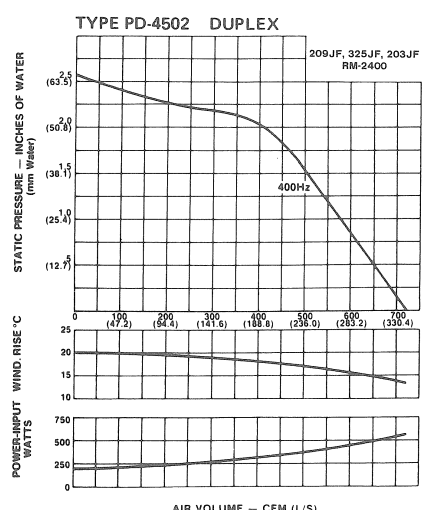
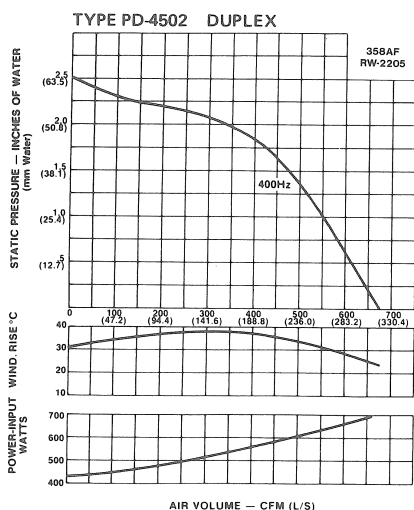
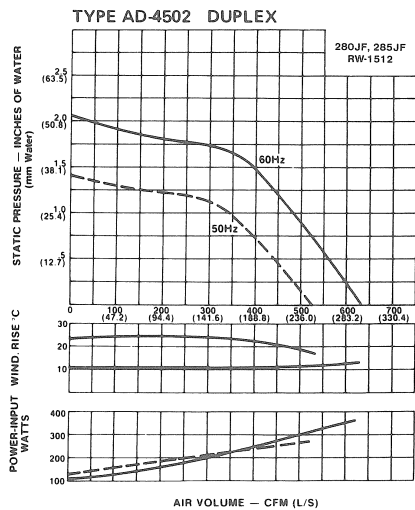
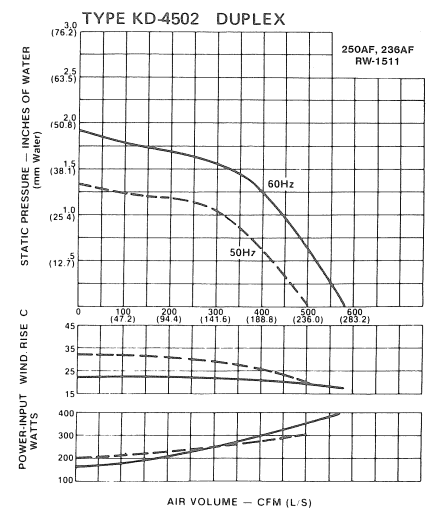
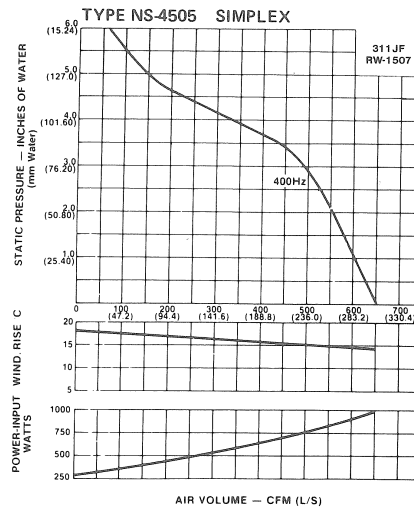
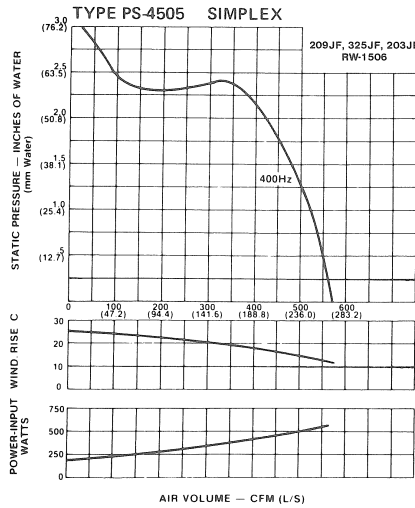


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MODEL A TYPES 4502-3-4-5





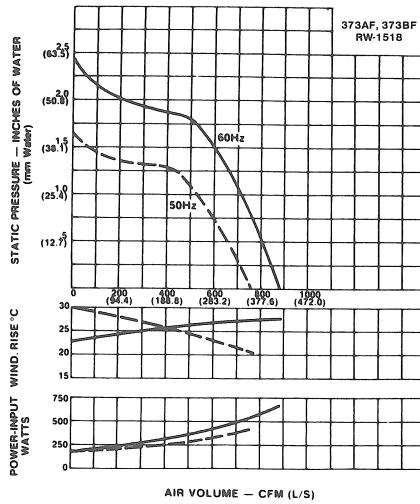
Rotron / Airscrew



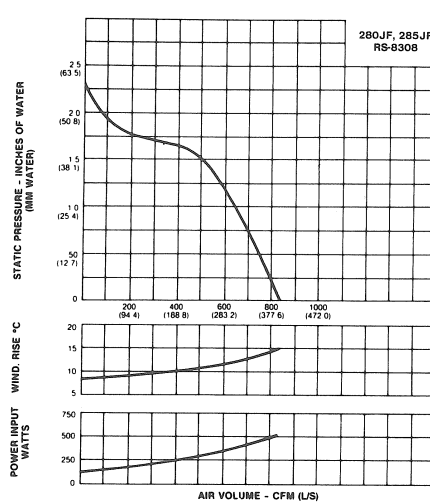
CENTRIFUGAL BLOWERS

MODEL A TYPES 4502-3-4-5

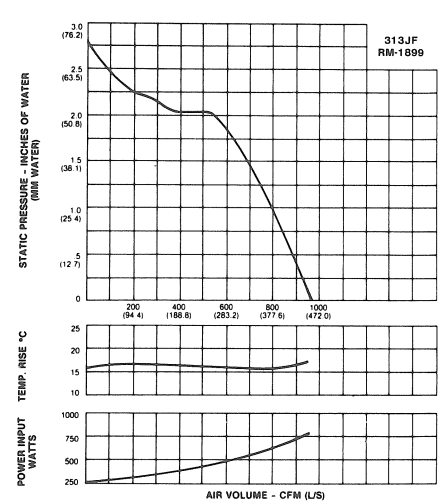
TYPE KD-4504 DUPLEX



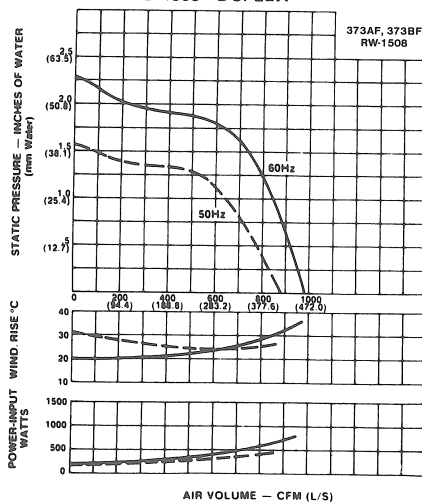
TYPE AD-4504 DUPLEX



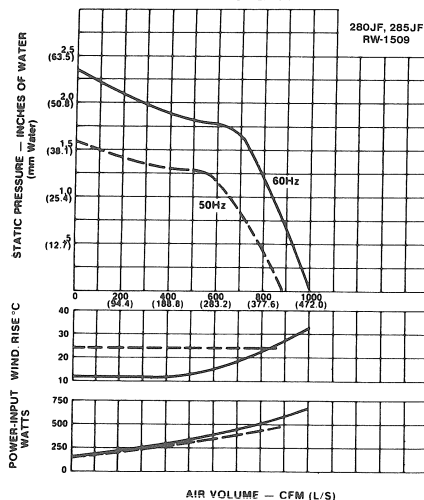
TYPE PD-4504 DUPLEX



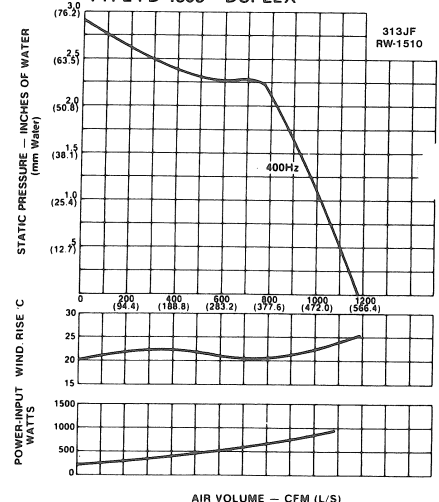
TYPE KD-4505 DUPLEX



TYPE AD-4505 DUPLEX



TYPE PD-4505 DUPLEX





Rotron / Airscrew



NOTES:
