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.

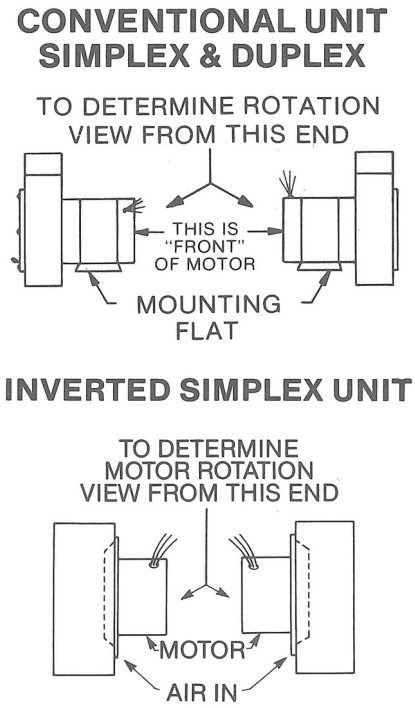
Low Speed Warning Detector (LSWD)

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.

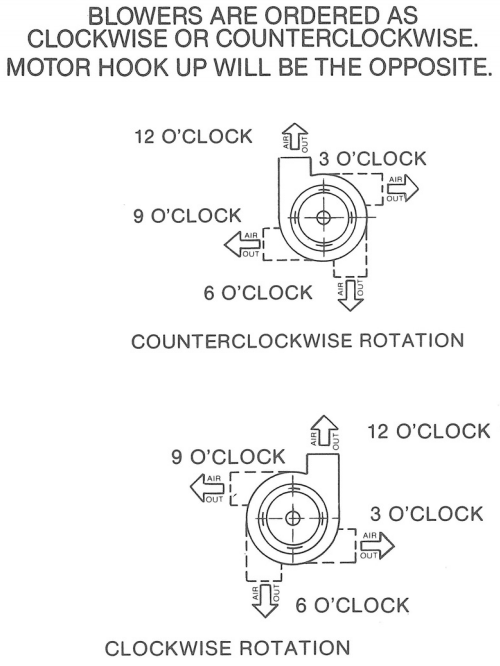
Step 2: Rotate the blower to the left or right. (See view in Figure 1)

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:



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.

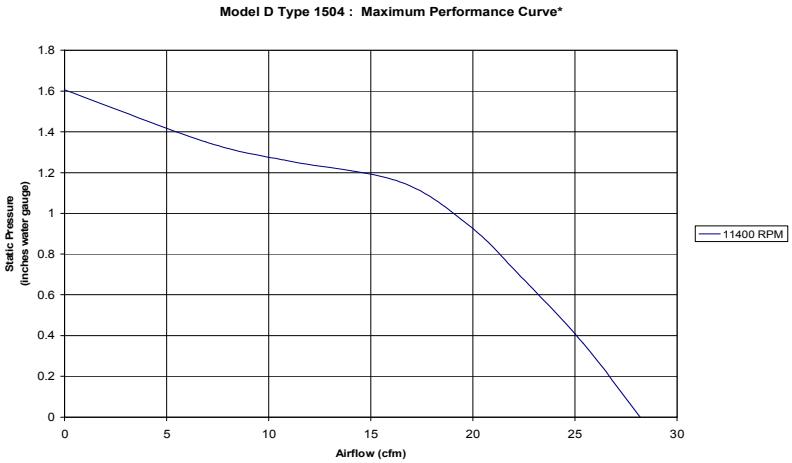
Rotron Model D Type 1504 Centrifugal Blowers

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 D Type 1504



* Individual Performance Curve Characteristics Available Upon Request

General

- Physical envelope: inlet diameter 1.56”; length ranges from 2.00” to 2.44” [1].
- Weight: 1.20 lbs.
- Designed tightly packed electronic equipment where pressure to volume performance is required.
- Used in ground, shipboard, and airborne applications.
- Nominal speeds range from 2,960 and 10,000 RPM.
- Airflows range from 8.6 to 30 CFM.
- Maximum Static Pressure: 1.6 IWG.

Materials and Finishes

- All aluminum components finished with a chemical conversion coating per MIL-C-5541, and a topcoat 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.

[1] See specific part-number drawing for complete product dimensions

Options/Accessories

- Inlet Cones
- Inlet Screen Guards
- Threaded Studs
- Threaded Inserts
- 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 8.6 at 50 Hz, 10.4 at 60 Hz and 30 CFM at 400 Hz.
- Ambient temperature range: -54 °C to 95 °C.

DC Line Powered Units – E.C.D.C.® [1]

- Brushless permanent magnet design (Electronically Commutated DC).
- Speed (performance) fixed by input voltage
- Meets or exceeds the requirements of MIL-B-28873 and other applicable U.S. military and commercial aerospace specifications [2].
- Contact factory for specifications.

[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

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

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.

MODEL D: (33 & 47 FR. MOTOR)

OUTLET SHAPE: R = RECTANGULAR, C = CIRCULAR (TYPES 201 & 301 ONLY)

OUTLET CONFIGURATION: P = PLAIN
F = FLANGE
D = DUCT CLAMPS
C = COLLAR (NO LONGER USED)
B = BEADED

INLET CONFIGURATION: P = PLAIN RING
S = PLAIN RING WITH GUARD
C = CONE (WITH CLAMP)
M = CONE (MOUNTING)
N = NOZZLE
R = RIM (WITH HOSE CLAMP)

I = INVERTED

DRPPI / KS 45 02 CW 94AF ← FOR COMPLETE DESCRIPTION ADD MOTOR DESCRIPTION & BLAST.

BLOWER ROTATION

ROTRON DESIGN NO. (2 DIGITS)

APPROX. WHEEL DIA.: 1 DIGIT = INCHES
2 DIGITS = INCHES & TENTHS (EX. 4.5" DIA.)

S = SIMPLEX, D = DUPLEX

"X" IN ANY POSITION DENOTES SPECIAL FOR THAT FEATURE

EXAMPLE: DRPPI/KS 4502 CW

DUPLEX VARIATIONS:
*1st CALLOUT IS THE STD SIMPLEX
*2nd CALLOUT IS THE DUPLEX END
EX: DRPP/KD4502CW (3:00) CCW (12:00)
EX: DRPP/DRFS/KD4502

	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				

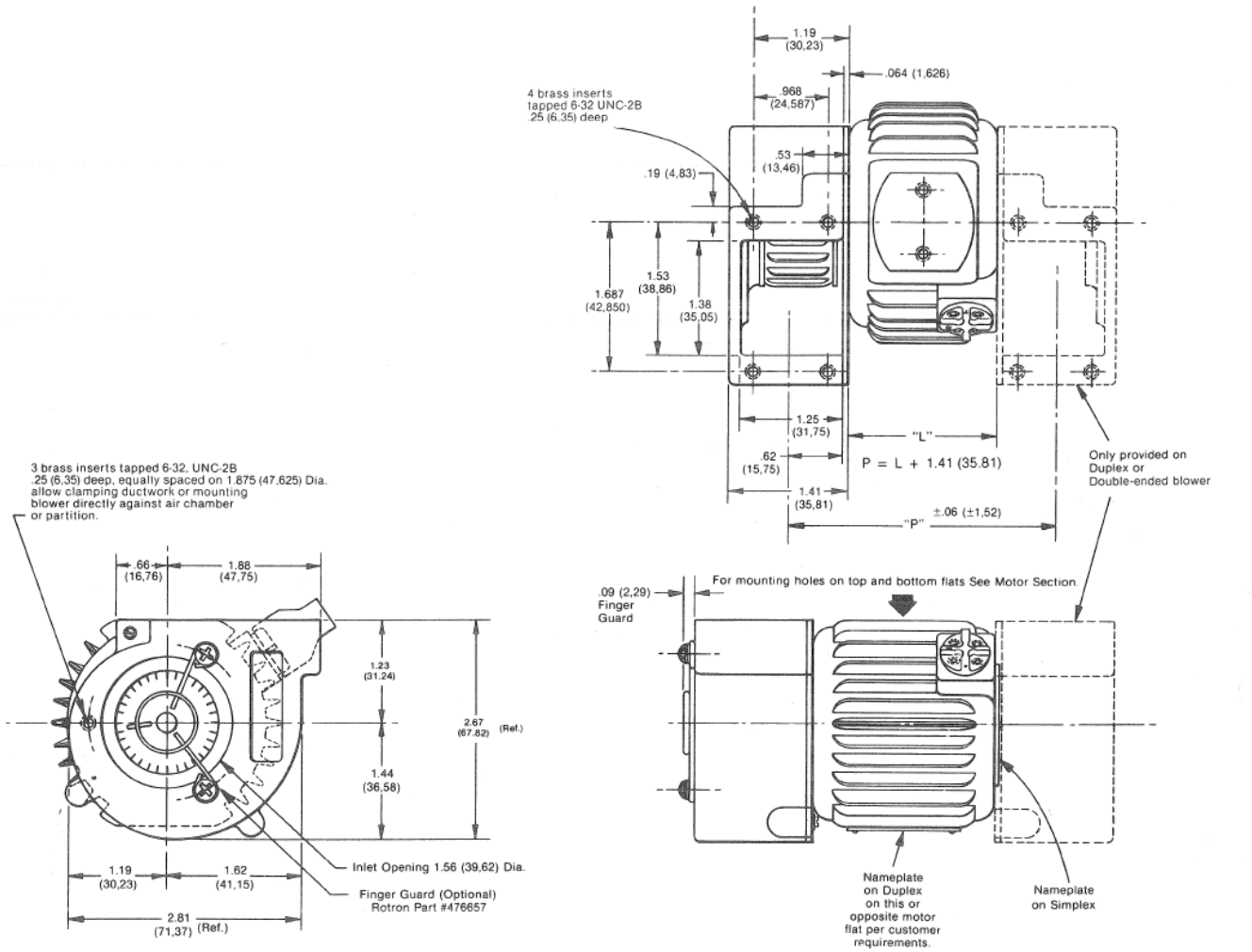
NOTE: DUAL FREQUENCY OR DUAL POLE MOTORS DESIGNATED BY USING 2 DIGITS. EX: KM = (2 POLE 1Φ 50/60 Hz, 6 POLE 1Φ 400 Hz)

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.

CENTRIFUGAL BLOWERS

MODEL D TYPE 1504



NOTE:
STANDARD HOUSING MATERIAL IS BAKELITE
STEEL BLOWER HOUSINGS CAN BE FURNISHED IF REQUIRED.
DIMENSIONS AND CONFIGURATION CAN BE HAD ON REQUEST.

TOLERANCES
.XX ±.03 (0,76)
.XXX ±.010 (0,25)
(Unless otherwise specified)

MODEL D TYPE 1504

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·1504	TA-1	92AF	115	1	50	1.0	2960	9.3	0.09	0.12	8.6	92AH	115*
					60	1.0	3540	9	0.08	0.11	10.4	652CF	230
AS-1504	TA-1	323JF	200	3	50	-	2960	19	0.09	0.11	8.6		
					60		3540	12	0.07	0.1	10.4		
MS-1504	TA-1	227AF	115	1	400	0.2	6500	8	0.07	0.08	20		
QS·1504	TA-1	175DF	115	1	400	0.5	9700	16	0.15	0.23	28		
QS·1504	TA-1	176JF	200	3	400	-	10100	17	0.09	0.22	30	208JF	115
Dual Frequency													
KRS·1504	TA-1	433AF	115	1	60	0.3	3140	8.5	0.09	0.13	9.2		
					400	0.3	4250	14.5	0.13	0.15	12.6		
High Altitude													
RS·1504	TA-1	198AF	115	1	400	0.5	8700	26	0.23	0.24	24		
RS·1504	TA-1	262JF	200	3	400	-	10000	29	0.11	0.17	30		
Duplex													
KD·1504	TA-1	92AF	115	1	50	1.0	2930	9.3	0.09	0.12	17	92AH	115*
					60	1.0	3500	9	0.08	0.11	20.5	652CF	230
AD·1504	TA-1	323JF	200	3	50	-	2960	19	0.09	0.11	17		
					60	-	3530	12	0.07	0.1	20.8		
MD·1504	TA-2	88AF	115	1	400	0.5	6500	26	0.23	0.26	38		
QD·1504	TA-2	201DF	115	1	400	1.0	10230	37	0.33	0.41	61		
MD·1504	TA-2	152WF	200	3	400	-	7830	17	0.14	0.36	45	482WF	115
OD·1504	TA-2	439JF	200	3	400	-	9950	31	0.19	0.44	60	657JF	115
Dual Frequency													
KRD-1504	TA-2	434AF	115	1	60	0.5	3300	21	0.25	0.32	19		
					400	0.5	5250	34	0.29	0.3	30		
High Altitude													
RD·1504	TA-2	336AF	115	1	400	0.8	9400	63	0.58	0.6	54		
RD·1504	TA-1	262JF	200	3	400	-	7900	37	0.13	0.17	46		

MECHANICAL SPECIFICATIONS

Type	Approx. Weight Lbs. (Kg.)	"L" Inches (mm)
Simplex		
KS-1504	1.2 (0,545)	1.94 (49,28)
AS-1504	1.2 (0,545)	1.94 (49,28)
MS-1504	1.2 (0,545)	1.94 (49,28)
OS-1504	1.2 (0,545)	1.94 (49,28)
QS-1504	1.2 (0,545)	1.94 (49,28)
Dual Frequency		
KRS-1504		
High Altitude		
RS-1504	1.2 (0,545)	1.94 (49,28)
Dual Frequency		
KRD-1504	1.8 (0,817)	2.44 (61,98)

Type	Approx. Weight	"L"
High Altitude		
RD-1504	1.8 (8,817)	2.44 (61,98)
RS-1504	1.2 (0,545)	1.94 (49,28)
Duplex		
KD-1504	1.5 (0,681)	1.94 (49,28)
AD-1504	(0,681)	(49,28)
MD-1504	1.8 (0,817)	2.44 (61,98)
QD-1504	1.8 (O,817)	2.44 (61,98)
MD-1504	1.8 (0,817)	2.44 (61,98)
QD-1504	1.8 (0,817)	2 (61,98)
RD-1504	1.5 (0,681)	1.94 (49,28)

† 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
* Class H Insulation

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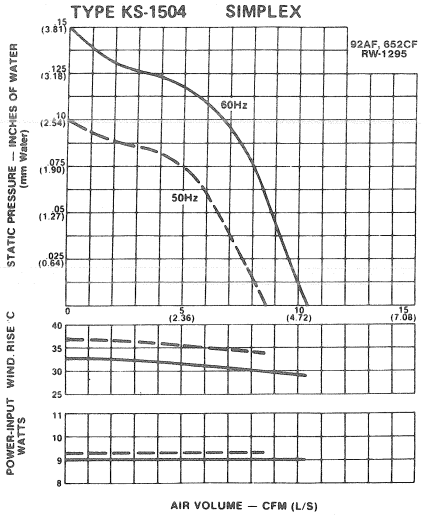
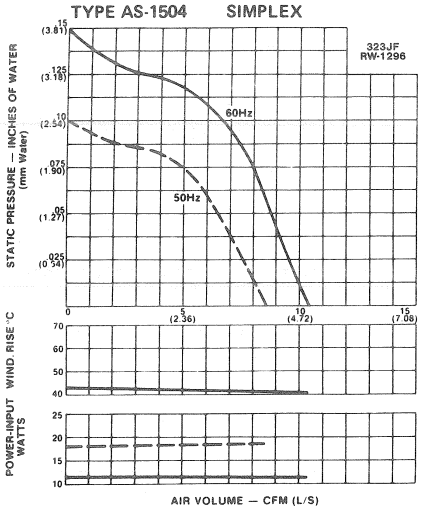
CENTRIFUGAL BLOWERS

MODEL D TYPE 1504

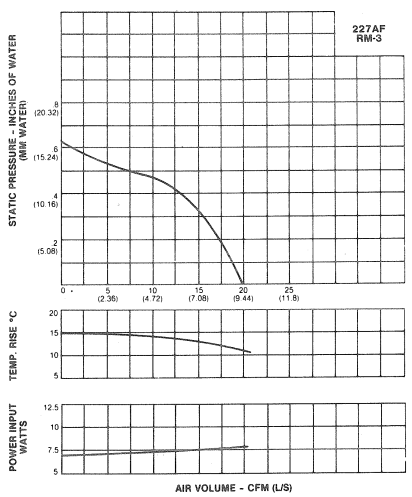
TYPE KS-1504 SIMPLEX



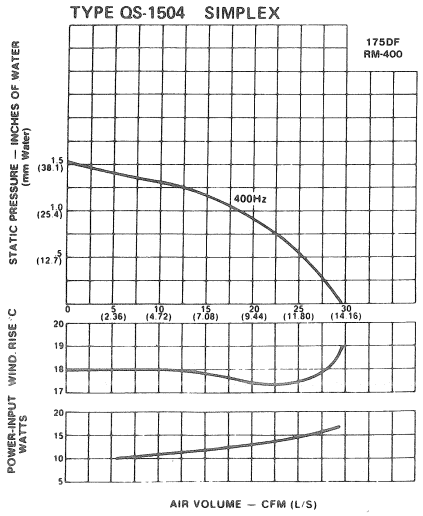
TYPE AS-1504 SIMPLEX



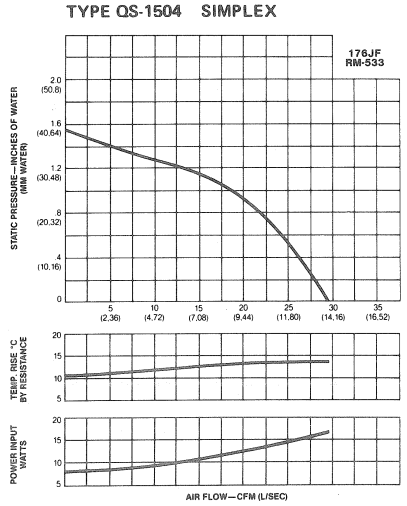
TYPE MS-1504 SIMPLEX



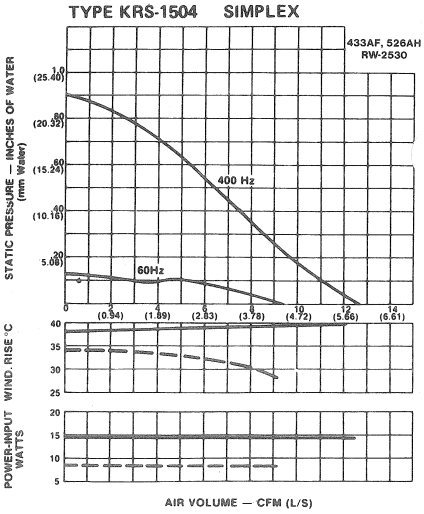
TYPE QS-1504 SIMPLEX



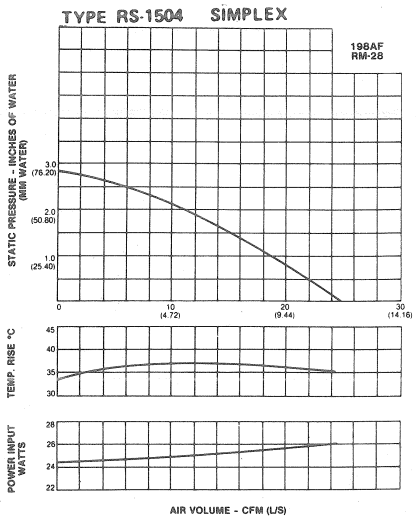
TYPE QS-1504 SIMPLEX



TYPE KRS-1504 SIMPLEX



TYPE RS-1504 SIMPLEX



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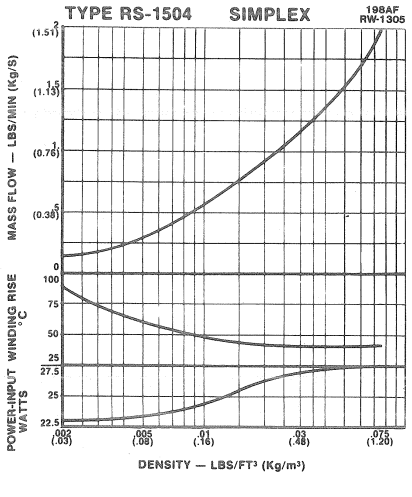
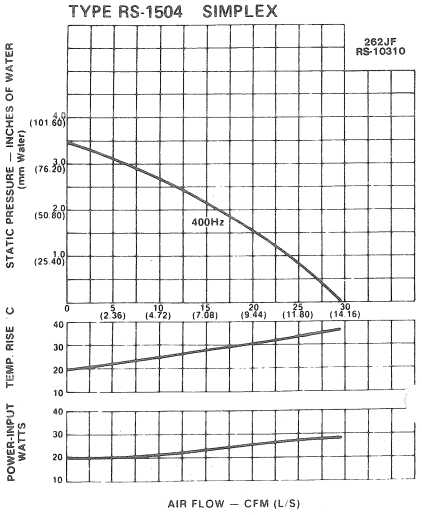


TYPE RS-1504 SIMPLEX



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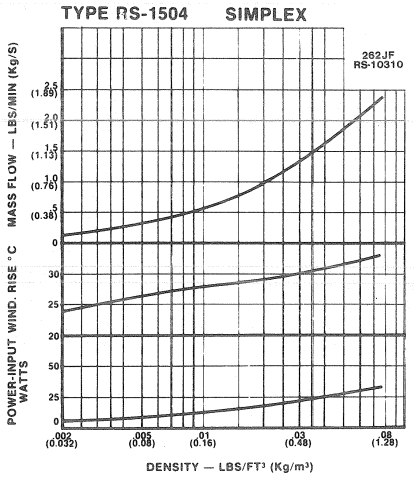
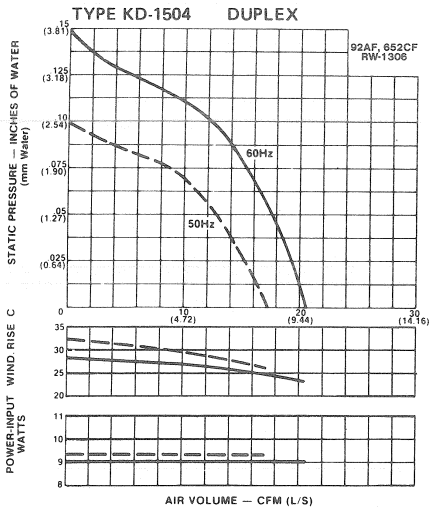
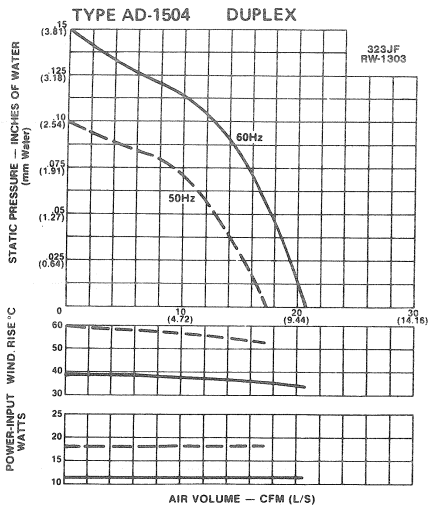


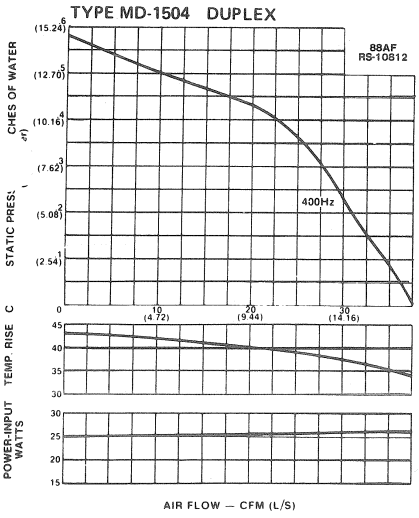
TYPE KD-1504 DUPLEX



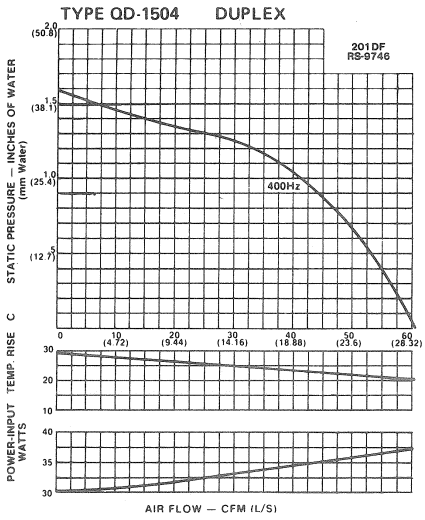
TYPE AD-1504 DUPLEX



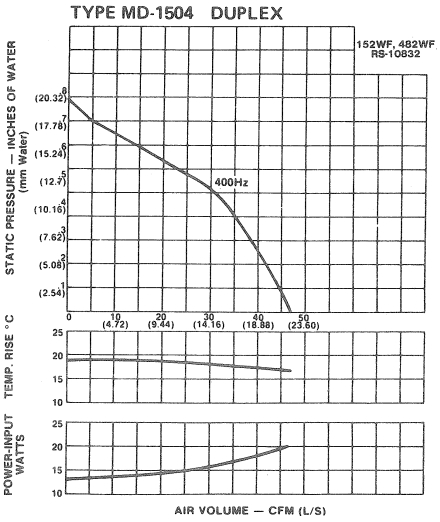
TYPE MD-1504 DUPLEX



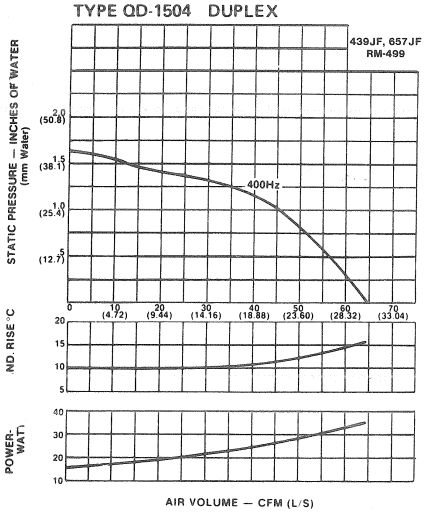
TYPE QD-1504 DUPLEX



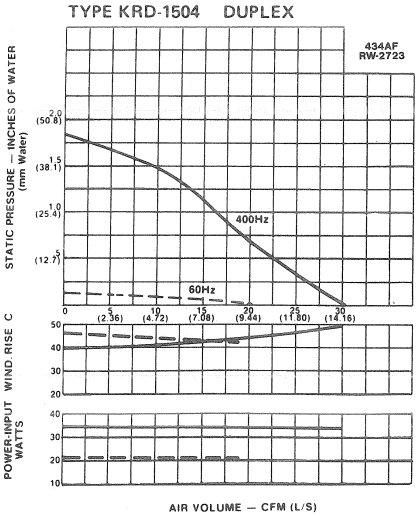
TYPE MD-1504 DUPLEX



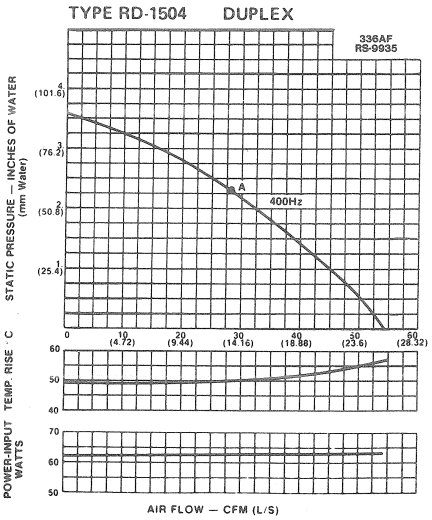
TYPE QD-1504 DUPLEX



TYPE KRD-1504 DUPLEX



TYPE RD-1504 DUPLEX



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