

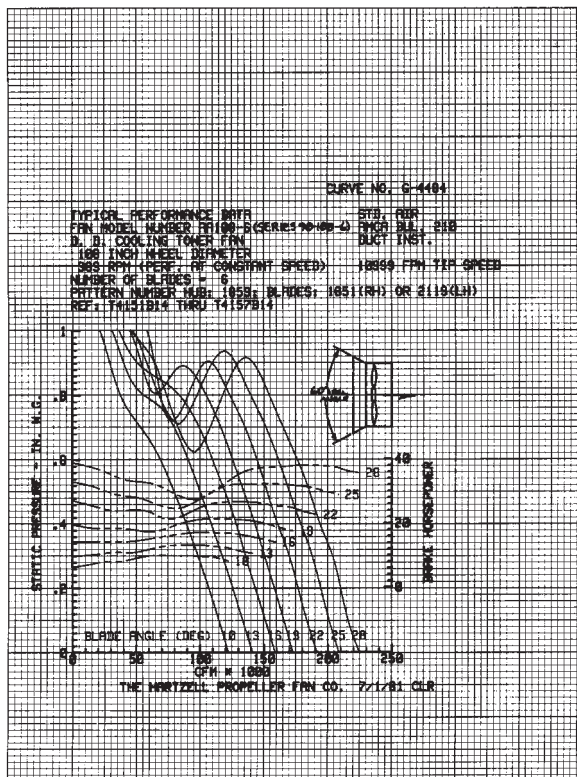
### Construction Features:

- **Airfoil Section** – True effective airfoil designed to move a high volume of air at moderate static pressure.
- **Sizes** – 48" - 144" diameter, 4-blade and 6-blade design.
- **All Aluminum Construction** – Blades are alloy #319 aluminum, sand cast, ground to satin finish for balance. Hubs are cast aluminum and ground to satin finish for balance. U-bolts are S.A.E. Grade 5 U-bolts; cadmium plated with Class 2A thread.
- **Taper Lock Bushing** – Refer to drawing on reverse side for bore and key ranges.
- **Drop-in Blade Retention; Manual Adjustment** – Blades have a retention shoulder which fits into a recess in the hub to ensure proper location. Design does not require accessory port in the fan orifice to assemble the blades.
- **Balance** – Blades are statically balanced against a master. (Dynamic balancing of complete assemblies, through 72" is available upon request.)
- **Maximum Tip Speed** – 15,000 FPM.

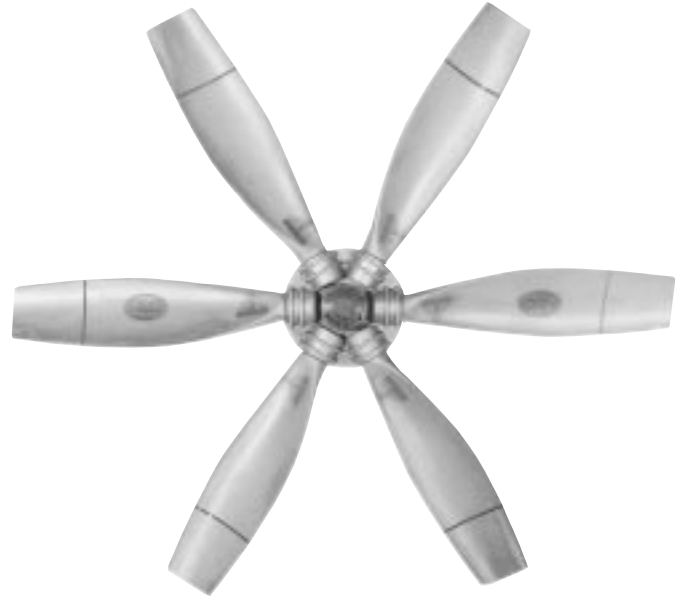
### Performance:

- **Air Flow** – High efficiency for maximum cooling effect.
- **Air Volume** – 10,000 to 500,000 CFM at free air.
- **Static Pressure** – Efficient operation ranges from free air through 1.0" W.G. (at 0.075-lbs./ft.<sup>3</sup> density).
- **Efficiency** – Hartzell Series 90 adjustable pitch fans feature maximum static efficiencies of 58% and maximum total efficiencies of 73%.
- **Testing Methods** – Series 90 adjustable pitch fans are tested for sound and air performances in Hartzell's Research and Development Center in accordance with industry standards.

### Typical Fan Performance



## Series 90 Adjustable Pitch Fans



**AA BLADE**

### Special Design Features:

- **Stable Performance** – Wide range in flow volume from medium to high blade angle settings. Stable performance under varying pressure at low blade angles.
- **Standard Rotation** – Right-hand or left-hand rotation in all sizes.
- **Maximum Temperature** – 300°F.
- **Special Blade Configurations** – Cut offs are available.
- **Coatings** – Special coatings for application of Hartzell blades in corrosive atmospheres are available in a wide variety, which include, but are not limited to, epoxy, bitumastic and inorganic zinc.
- **Shipment** – Series 90 fans are shipped knocked down as standard. Shipment of complete assemblies up to 72" is available upon request.
- **CONTACT YOUR LOCAL HARTZELL REPRESENTATIVE FOR ASSISTANCE. CALL 1-800-336-3267.**

Fan Performance Curves and Complete Sound Data are Available Upon Request

## Principal Dimensions

Fan Size	48	54	60	72	84	96	108	120	132	144
A	48	54	60	72	84	96	108	120	132	144
B	49 1/4	55 1/2	61 7/8	73	85 1/4	97 3/8	109 1/2	121 1/2	133 1/2	145 1/2
C	10 1/2	10 1/2	10 1/2	10 1/2	12 1/4	15 3/4	19 1/4	15 3/4	19 1/4	19 1/4
D	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 3/16	2 3/16	2 3/16
E	13	21	21	21	28 1/8	35	35	35	41 7/8	41 7/8
F	14 1/2	17 1/8	17 1/8	17 1/8	23 7/8	23 7/8	30 3/4	30 3/4	31 1/8	31 1/8
L	21	24	27	33	38 1/8	44 1/8	49	55	59 7/8	65 7/8
Blade Pattern	RH 1820C	1774C	1774C	1774C	1833C	1833C	1851C	1851C	1882C	1882C
LH	2116C	2117C	2117C	2117C	2118C	2118C	2119C	2119C	2120C	2120C
Blade Weight	5.5	7.0	8.0	9.5	18.0	19.0	34.5	37.5	54.0	57.0
Hub Pattern	(4) 1775	1775	1775	1775	1834	1834	1858	1858	1883	1883
Blade	(6) 1776	1776	1776	1776	1835	1835	1859	1859	1884	1884
Blade	(4) 15	15	15	15	22.5	22.5	57	57	92	92
Blade	(6) 17	17	17	17	24	24	61	61	101	101
Bushing	9773-1	9773-1	9773-1	9773-1	9773-1	9773-1	9773-2	9773-2	9773-2	9773-2
Max. Bore	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3 5/8	3 5/8	3 5/8	3 5/8
Ass'y Weight	41.5	43	47	57.5	94.5	103	195	218	308	320
Blade	(6) 54.5	59	65	78.5	132	142.5	268	297	425	443
Blade	(4) 20	33	44	64.3	191	241	633.4	701	1434.2	1648.7
Blade	(6) 30	49.5	66	96.5	286.5	361.5	946.1	964.5	2141.7	2462.9

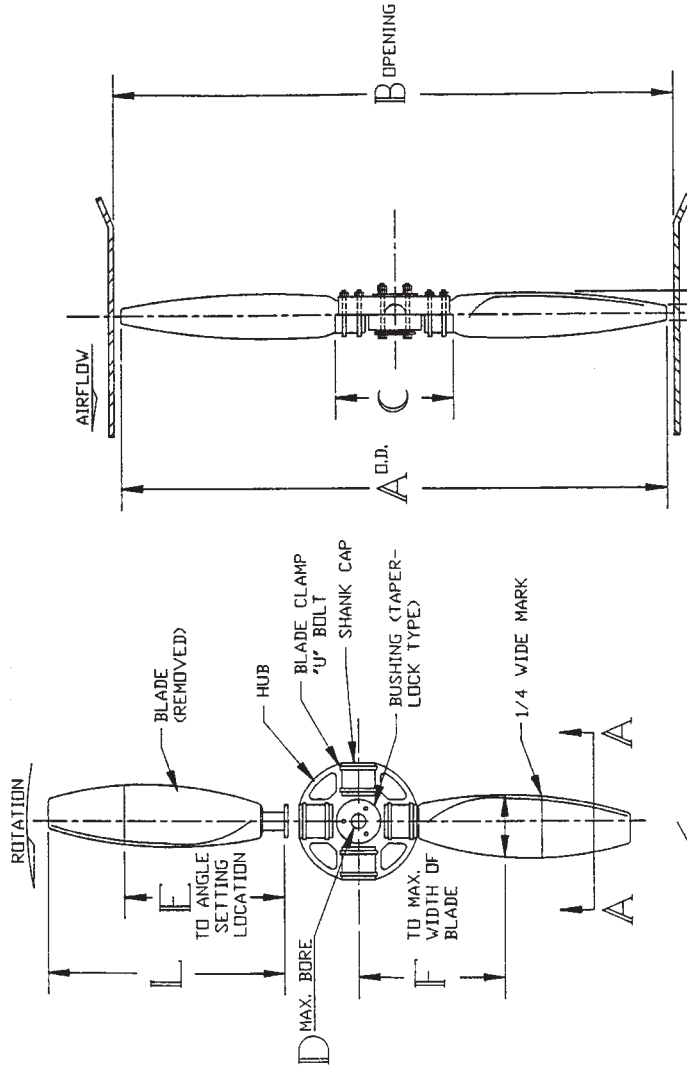
Dimensions and specifications are subject to change.  
Certified prints are available.

### SAFETY ACCESSORIES, APPLICATION AND USE WARNING

The safe application and use of equipment supplied by Hartzell Fan, Inc. is the responsibility of the installer, the user, the owner, and the employer. Since the application and use of its equipment can vary greatly, Hartzell Fan, Inc. offers various product types, optional safety accessories, and sound performance data per laboratory tests. Hartzell Fan, Inc. sells its equipment with and without safety accessories, and accordingly, it can supply such safety accessories only upon receipt of an order. The need for safety accessories will frequently depend upon the type of system, fan location and operating procedures being employed. The proper protective safety accessories to meet company, standards, local codes, and the requirements of the Occupational Safety and Health Act must be determined by the user since safety requirements vary depending on the location and use of the equipment. If applicable local conditions, standards, codes or OSHA rules require the addition of the safety accessories, the user should specify and obtain the required safety accessories from Hartzell Fan, Inc. and should not allow the operation of the equipment without them.

Owners, employers, users and installers should read "RECOMMENDED SAFETY PRACTICES FOR USERS AND INSTALLERS OF INDUSTRIAL AND COMMERCIAL FANS" published by the Air Movement Control Association, Inc., 30 West University Drive, Arlington Heights, Illinois 60004. A copy of this publication is enclosed with each fan shipped from Hartzell Fan, Inc., and is available upon request at Hartzell's office in Piqua, Ohio 45356.

Please contact Hartzell Fan, Inc. or your local Hartzell representative for more information on product types, safety accessories, and sound performance estimates. Remember, the selection of safety accessories and the safe application and use of equipment supplied by Hartzell Fan, Inc. is **your** responsibility.



#### NOTES:

1. 4-blade assembly shown. Available in 4- & 6-blade assembly. Available in right or left hand rotation.
2. B Dimension is Required Opening.

#### SECTION A-A

*Hartzell* SERIES 90