

# MULTI-BLADE FANS TYPE HP-3

ALUMINIUM  
Diameter – 240" – 264"  
8 Blades



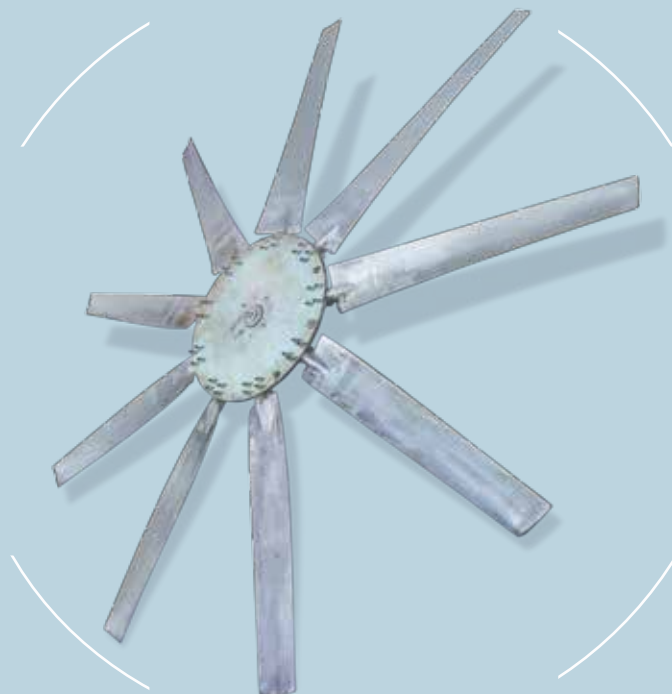
Your Full-Service  
Cooling Technologies Company  
[www.paharpur.com](http://www.paharpur.com)

**PRECISION-MANUFACTURED FAN BLADES**

**PAHARPUR LEADS**

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Each fan blade is factory balanced and precisely measured & matched with accompanying blades before shipping.



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Paharpur designs and produces its own fan blades – these are factory **balanced, tested, measured and matched** to ensure stable operation, high reliability, longevity and operating economy in the rough conditions of the cooling tower.

Precision and uniformity in manufacturing helps significantly improve operating economy by giving better control over fan speed and power consumption

**Precision manufacturing ensures reliable operation:**

When it comes to fan efficiency, every millimetre matters – uniform width blade-tip clearance, pitch balancing and weight are of critical importance. Paharpur manufactures every blade specifically for every order to ensure uniformity among all fan blades supplied. This allows us to improve operating economy and ensure reliable performance.

**Maximum customisation:**

Paharpur has more than 00 fan diameters to choose from, under 00 fan types. Further, we can provide you with 00 types of fan hubs. This variety in material of construction, radius and design helps Paharpur provide the right combination for your cooling tower – giving Paharpur a truly unmatched advantage

while sizing your cooling tower. With maximum prospects for customisation, Paharpur can supply your with an industry-leading solution.

**Corrosion resistance enhances service life:**

Aluminium is naturally highly corrosion resistant and exhibits high durability in the moist conditions inside a cooling tower. Intelligent selection of component raw material affords a long and reliable service life to Paharpur's products.

**Statically balanced fans ensure dependability:**

Every fan blade supplied is statically-balanced at Paharpur's facility to ensure uniform weight distribution – this helps ensure the integrity of your cooling tower, saves fan power and helps maintain the reliability of your cooling operation.

**Variable-pitch provides control over power consumption:**

Paharpur gives you control over your cooling tower's power consumption by providing variable pitch blades for all fans. Control power consumption with varying heat load and wet bulb temperatures.

**Single-piece construction for high structural integrity:**

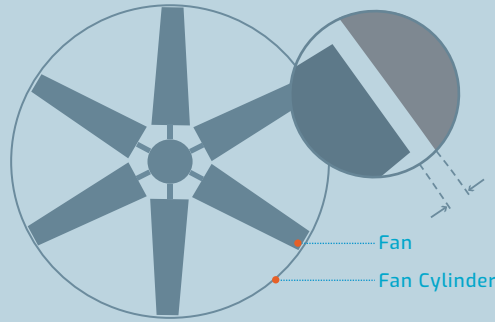
All Paharpur manufactured fan blades are made as single pieces; this helps maintain the structural integrity of the fan as joints can come under severe mechanical stress in rotating equipment. Single-piece construction means that you do not have to worry about the leading edge of the blade coming off during operation and cause damage to your equipment.

## BLADE-TIP CLEARANCE

### PRECISION MANUFACTURING ENSURES RELIABLE PERFORMANCE

UNIFORM BLADE-TIP-CLEARANCE

UNIFORM RADIUS OF ALL BLADES



### MINIMUM BLADE-TIP CLEARANCE

The clearance between the blade-tip and cylinder is minimum for optimum utilisation of fan power.

Type HP-3-8 fans of 240" and 264" diameter standard bores are shown on the back of this page. Special assemblies of other diameters from 217" to 263" and/or with special bores are produced on order. The eight glass reinforced polyester blades are of twisted

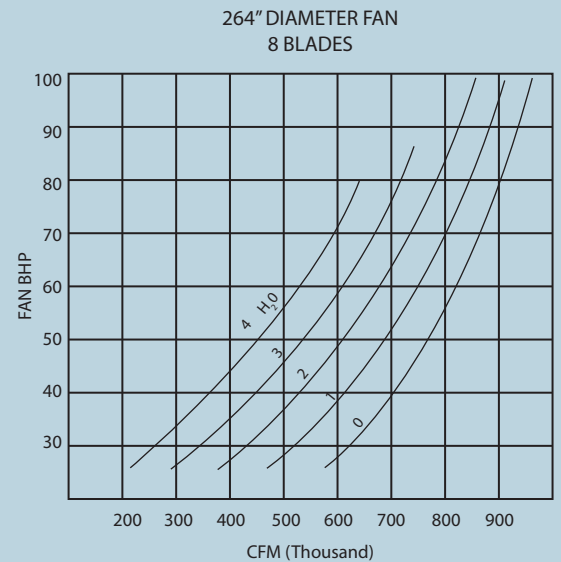
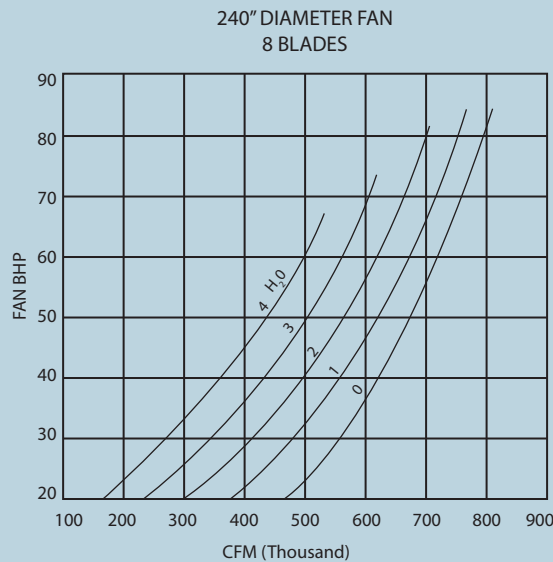
and tapered aerofoil design, produced in matched metal moulds with moulding pressure in excess of 300 PSI. The blade shank is drilled for a through bolt which accurately positions the blade radially. Blade clamps are hot dip galvanized ductile iron

castings, radially positioned by a through bolt and clamped by two U-bolts. All blade clamping hardware is galvanized. The hub is a welded low carbon steel assembly, consisting of a center hub, spokes, spoke braces, and center discs, hot dip galvanized after fabrication.

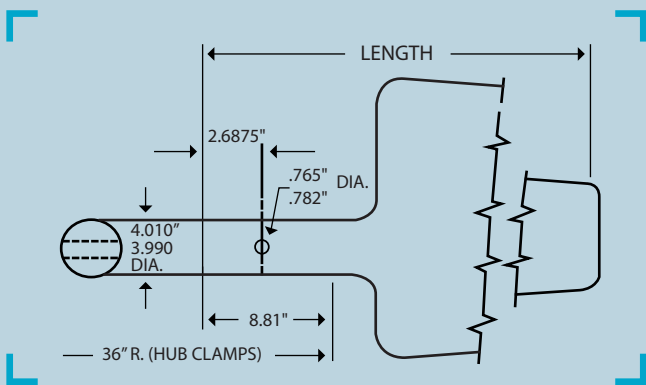
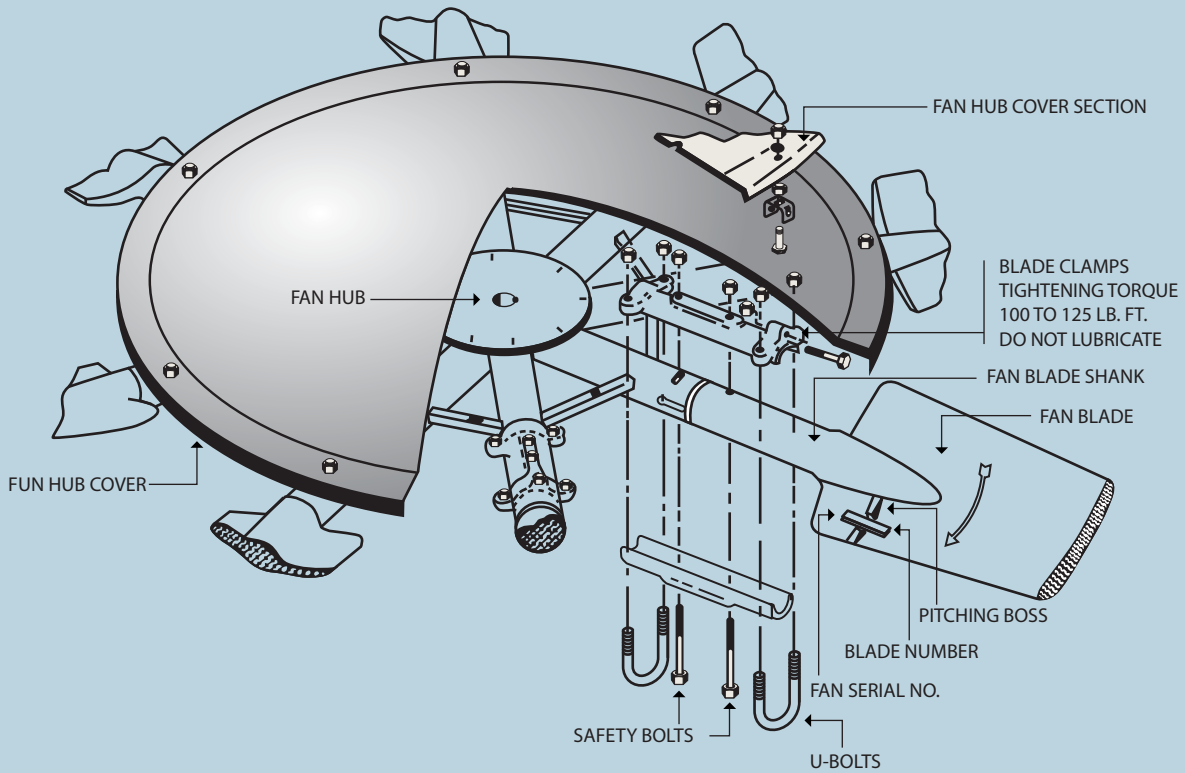
Balance weights, as required, are attached to the spoke brace. The hub cover is dome-shaped glass reinforced polyester and attached near the periphery with stainless steel hardware.

## FAN PERFORMANCE DATA

The CFM shown is standard air : .075 lbs. per cubic foot equivalent to 70° dry air at sea level. Curves are based on model tests, simulating AMCA procedures. The test cylinder was eased inlet with close tip clearance. Tip clearance, fan cylinder and system characteristics can cause variation from the curve shown alongside.



## Fibre Glass Nacelle Hub Cover and Blade Seal



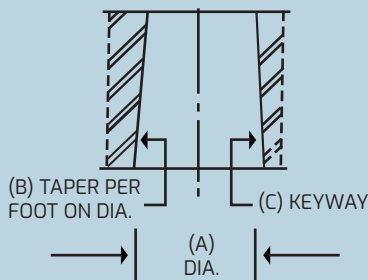
Width and thickness of standard blades for the 240" and 264" fans decrease from inboard end to tip of blade as follows:

FAN DIA.	APPROX WIDTH		MAXIMUM THICKNESS	
	MAX.	MIN.	INBOARD	OUTBOARD
240"	15 1/2"	9 3/4"	1 3/8"	11/16"
264"	15 1/2"	9 5/8"	1 3/8"	11/16"



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## STANDARD CROSS SECTION SHOWING HUB, HUB COVER AND BLADE DIMENSIONS

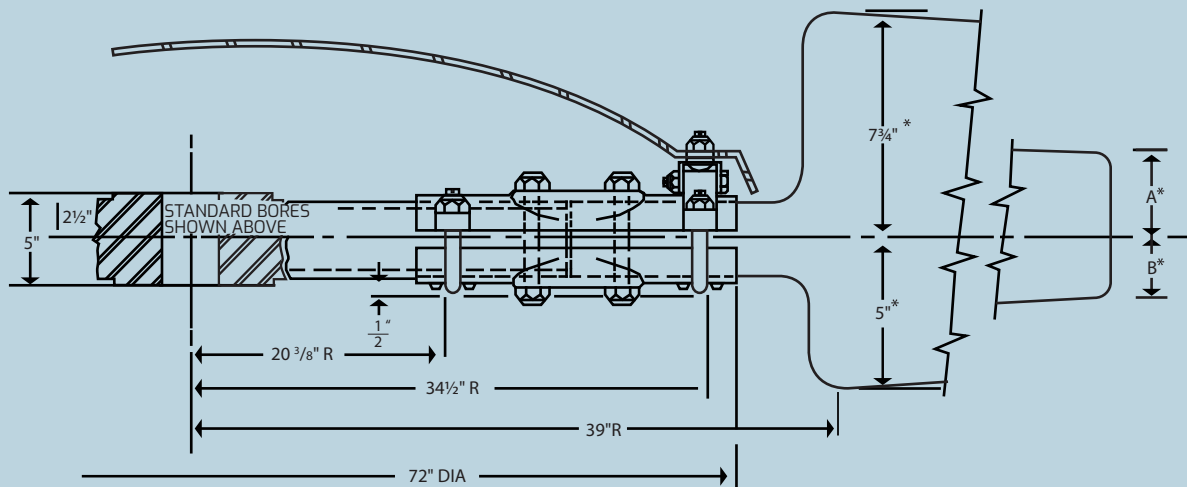


STANDARD HUBS		
A	B	C
DIA.	TAPER	KEYWAY
4.537	.500	1/2 x 1
4.541	.502	
3.705	1.750	3/8 x 3/4
3.710	1.752	
4.412	3.500	1/2 x 1
4.422	3.502	

### HUB COVER AND BLADE DIMENSIONS

FAN DIA.	A*	B*
240"	3-1/8"	1-5/8"
264"	3"	1-1/2"

\*Dimensions of blade above and below fan centre line at maximum pitch of 510 on pitching boss.



DIA.	NO. OF BLADES	BLADE LENGTH	MAX. RPM	MAX. TIP SPEED FPM	MAX. STR. BORE	APPROX. WT. EACH BLADE	APPROX. WT. HUB	APPROX. TOTAL WT.	RADIAL TIP CLEARANCE	
									MIN.*	MAX.
240"	8	92.81"	201	12,630	4 3/16"	93 LBS.	575 LBS.	1445 LBS.	1/2"	1 1/8"
264"	8	104.81"	201	13,900	4"	98 LBS.	575 LBS.	1485 LBS.	1/2"	1 1/4"

Speed Range to Avoid : 240", 130 to 146 RPM. • 264", 137 to 153 RPM.

\*Minimum clearance at tip of trailing edge.

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