

## LARGE ADJUSTABLE IMPELLERS HEAT EXCHANGERS & INDUSTRIAL VENTILATION

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MODEL: AHX

Model AHX All Aluminum

CATALOG 524 MARCH 2025

# **Adjustable Impellers**



#### **Fan Assembly**

Both hub and blades are made by a precision permanent mold process that produces the highest quality aluminum castings. The blades can be assembled into the hub individually, making erection on the job easy. Each blade shank is easily inserted into the socket and retained in the hub with a cap and two U-bolts, providing accurate assembly and ease for setting of the blade angle. The cast aluminum hub is designed to use standard Browning taperlock bushings, and mounting to the shaft is simple and positive.

It is usual practice to assemble the impeller and then mount it onto the shaft, but in tight spaces the hub can be mounted first and blades inserted one at a time.



Each blade has an index mark on the root, which can be matched with an angle setting scale on the blade socket, providing an adequate method of blade angle setting; however, a land is cast in the blade near the tip where a bubble level protractor may be set and aligned for precision angle settings (<sup>5</sup>/<sub>6</sub> radius – "M" blade; <sup>2</sup>/<sub>3</sub> radius – "L" blade).



# Model AHX

**All Aluminum** 

Model AHX is an all-aluminum impeller with adjustable blades, designed particularly for the heat exchanger industry. They are also used in standard fan configurations — tubeaxial, roof ventilators, and ring and panel fans — for industrial ventilation and process exhaust wherever it is necessary to move large volumes of air.

This Aerovent Macheta<sup>®</sup> fan is available in eleven sizes, in either 4 or 6 blade assemblies, and these can be used at angle settings covering a wide range of performances. Shown in this catalog, on pages 5 through 18, are the ratings for angle settings from 10° through 24° at tip speeds of 11,000, 12,000, 13,000, 14,000 and 15,000 FPM. Models of these fans have been laboratory tested and the data computerized. Aerovent will furnish, upon request, typical performance curves, or our computer will select the optimum fan for your performance requirement and supply both the curve and a printout of the data.

#### **Impeller Rotation**

Most impellers in the AHX line are offered in both right- and left-hand rotation. The rotation of the blades is determined by viewing the impeller from the discharge side. Right hand would be clockwise and left-hand counterclockwise. The discharge side of the blade is concave in shape while the inlet side is convex. The Macheta® tip is the trailing edge of the blade.



Impeller securely held to drive shaft by means of split taper lock bushings.

#### Balancing

All AHX adjustable fans are balanced for random assembly. The hub is balanced on a hardened arbor resting between parallel knife edges. Each blade is balanced separately using a machine especially designed for this purpose, which "weighs" the blade at its running radius and compares this to a master balance blade. By this method each blade is statically balanced to a constant moment (weight of the blade times the distance to its center weight). This method assures that a balanced fan can be assembled in the field without the necessity of match marked blades and hub sockets. Opposite blades will always balance each other.

To ensure that the fan will run smoothly, it must have a suitably sized shaft and a rigid support. The angle setting of all blades must be the same and fan RPM should not coincide with an even multiple or submultiple of the blade natural frequency times 60. See table on page 4.

## **Dimensional Data**



(14") HUB WITH REVERSE BORE

(18") HUB WITH REVERSE BORE

SIZE	^	А В			•		P				_	ц			1/2	N	<b>_</b>	Б	6	1 11	112	WT.	LBS.
SIZE	A					П	<b>,</b>	1 K.	<b>∧</b> -			n	3	0.	0-	4 BLADES	8 BLADES						
54	27	4.50	14	3	1.63	4.13	Q2	4.13	5.00	0.75	0.13	2.50	3.88	4.50	9	29	36						
60	30	4.50	14	3	1.63	4.13	Q2	4.13	5.00	0.75	0.13	2.50	3.88	5	10	32	43						
72	36	4.50	14	3	1.63	4.13	Q2	4.63	6.75	0.75	0.13	2.50	3.88	6	12	59	59						
84	42	5.75	18	4	2	5.38	R2	5.13	7.25	0.88	0.38	3.25	5.25	7	14	78	115						
96	48	5.75	18	4	2	5.38	R2	5.63	8.38	0.88	0.38	3.25	5.25	8	16	96	176						
108	54	5.75	18	4	2	5.38	R2	6.50	—	0.88	0.38	3.25	5.25	9	_	122	222						
120	60	5.75	18	4	2	5.38	R2	6.63	-	0.88	0.38	3.25	5.25	10	-	160	246						
132	66	5.75	18	4	2	5.38	R2	7.25	-	0.88	0.38	3.25	5.25	11	-	225	327						
144	72	5.75	18	4	2	5.38	R2	7.50	—	0.88	0.38	3.25	5.25	12	_	264	385						
																	B-9183-00A						

\*Complete assembly (hubs and blades)

<sup>1</sup> Type "M" blade impellers

<sup>2</sup> Type "L" blade impellers

All dimensions in inches unless otherwise noted.

### **Energy Regulations**

Aerovent supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply Aerovent products to their specific applications to meet applicable DOE and state regulatory requirements. Aerovent has made significant investments in product testing and development to provide efficient products. Developments in Aerovent's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

# Hub & Blade Data

#### **M4 Blade**

FAN DIAMETER	AVAILABLE IMPELLER	BLADE	HUB DIAMETER	BLADE LENGTH*	AVG. I CHORD	BLADE WIDTH	TOTAL WT. OF BLADES	TOTAL WT OF ASSY.	WR <sup>2</sup> (LB-FT <sup>2</sup> )	BLADE FREQUENCY (HZ)
(IN.)	ROTATION	CASTING	(IN.)	(IN.)	"M"	"L"	(LB)	(LB)		
54	RIGHT	PMRH54	14.00	20.00	4.50	7.01	17	40	22.04	55
	LEFT	PMLH54	14.00	20.00	4.50	7.51	17	42	22.04	
70	RIGHT	PMRH72	14.00	20.00	6.00	0.75	20	<b>E E</b>	04.00	31
12	LEFT	PMLH72		29.00	0.00	9.75	30	55	04.02	
81	RIGHT	SC81RH	19.00	31.50	6.75	10.97	57	106	130.68	29
	LEFT	PMLH81	18.00				55	104		
84	RIGHT	PMRH84	19.00	33.00	7.00	11.38	60	108	175.37	28
	LEFT	PMLH84	18.00				54	102		
93	RIGHT	SC93RH	18.00	37.50	7.75	12.97	86	134	275.68	28
	LEFT	SC93LH								
06	RIGHT	PMRH96	18.00	20.00	8.00	13.00	78	126	338.79	21
90	LEFT	PMLH96		39.00						
100	RIGHT	SC108RH	19.00	45.00	9.00	_	114	162	527.74	20
100	LEFT	PMLH108	18.00				98	146		
120	RIGHT	SC120RH	10.00	51.00	10.00	-	148	196	813.69	18
120	LEFT	PMLH120	18.00				132	180		
120	RIGHT	SC132RH	19.00	57.00	11.00	_	189	237	1388.88	14
132	LEFT	PMLH132	18.00				170	218		
14.4	RIGHT	PMRH144	18.00	62.00	12.00		236	284	2022 71	12 75
144	LEFT	PMLH144	18.00	03.00		-	223	271	2032.71	13.75

#### M6 Blade

E4	RIGHT	PMRH54	14.00	20.00	4.50	7.31	26	EG	37.68	55
54	LEFT	PMLH54	14.00	20.00			20	50		
72	RIGHT	PMRH72	14.00	29.00	6.00	9.75	45	75	125.39	31
12	LEFT	PMLH72	14.00							
01	RIGHT	SC81RH	19.00	21 5 0	6.75	10.97	85	140	191.44	29
01	LEFT	PMLH81	16.00	31.50			83	138		
04	RIGHT	PMRH84	19.00	33.00	7.00	11.38	90	145	256.23	28
04	LEFT	PMLH84	10.00				83	138		
93	RIGHT	SC93RH	19.00	37.50	7.75	12.97	130	185	409.31	28
	LEFT	SC93LH	18.00							
96	RIGHT	PMRH96	18.00	39.00	8.00	13.00	118	173	506.26	21
90	LEFT	PMLH96								
10.9	RIGHT	SC108RH	18.00	45.00	9.00	_	172	227	787.35	20
100	LEFT	PMLH108					145	200		
120	RIGHT	SC120RH	19.00	51.00	10.00	_	223	278	1224.56	18
120	LEFT	PMLH120	18.00				196	251		
122	RIGHT	SC132RH	10.00	57.00	11.00	_	284	339	2094.86	14
132	LEFT	PMLH132	18.00				266	321		
14.4	RIGHT	PMRH144	19.00	63.00	12.00	_	354	409	2040.22	13.75
144	LEFT	PMLH144	18.00				335	390	3049.22	

#### L4 Blade

54	RIGHT	SCLS54RH	14.00	20	4.50	7.31	28	53	38.51	63
60	RIGHT	SCLS60RH	14.00	23	5.00	8.13	39	64	115.57	40
	LEFT	SCLS60LH	14.00							40
72	RIGHT	SCLS72RH	14.00	29	6.00	9.75	62	87	170.55	24
	LEFT	SCLS72LH	14.00							54
84	RIGHT	SCLS84RH	19.00	33	7.00	11.38	108	156	424.51	32
	LEFT	SCLS84LH	10.00							
96	RIGHT	SCLS96RH	10.00	39	8.00	13.00	136	184	724.73	25
	LEFT	SCLS96LH	16.00							

### L6 Blade

67
07
44
44
24
34
25
35
27
27

SC — Sand Casting

All dimensions in inches unless otherwise noted.

PM — Permanent Mold



WALL MOUNTED FANS | TUBEAXIAL & VANEAXIAL FANS | CENTRIFUGAL FANS & BLOWERS ROOF VENTILATORS | AIR HEATERS & COOLERS | AIR MAKE-UP | FIBERGLASS FANS | CUSTOM FANS

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