

## LARGE ADJUSTABLE IMPELLERS HEAT EXCHANGERS & INDUSTRIAL VENTILATION



**Model AHX**  
**All Aluminum**

**MODEL: AHX**





## 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® 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 bulletin, 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.

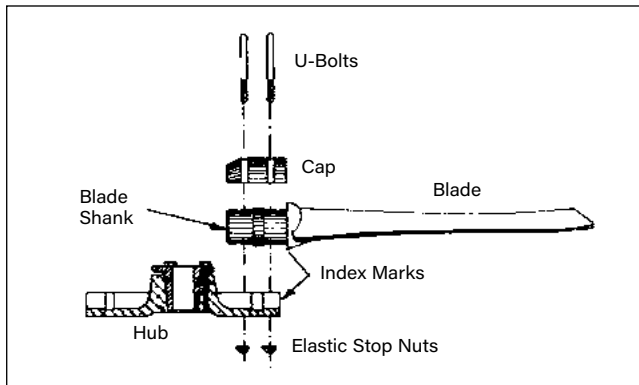
### Impeller Rotation

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.

### 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 ( $\frac{5}{6}$  radius - "M" blade;  $\frac{2}{3}$  radius - "L" blade).

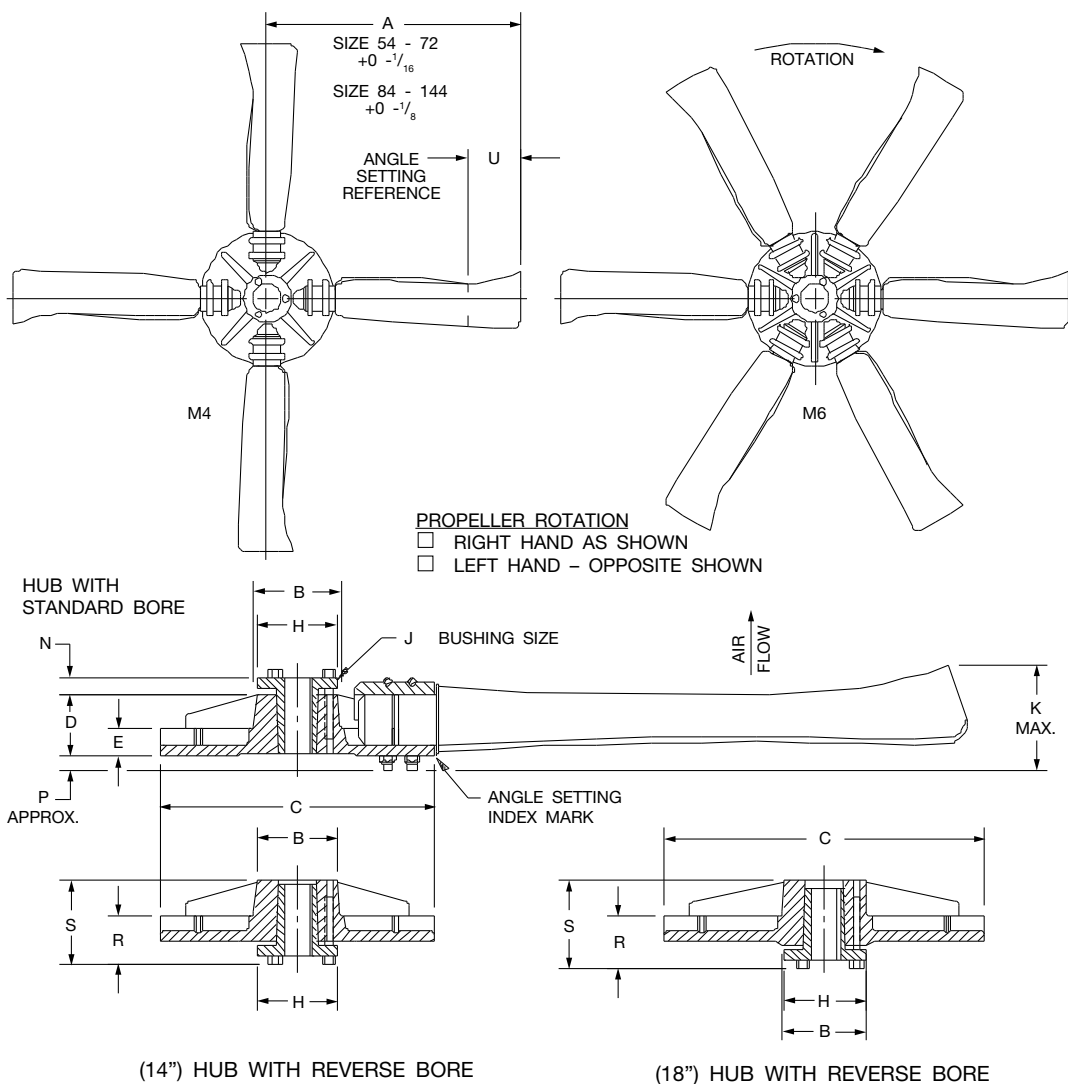


Impeller securely held to drive shaft by means of split taper lock bushings.

### 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.



SIZE	A	B	C	D	E	H	J	K <sup>1</sup>	K <sup>2</sup>	N	P	R	S	U <sup>1</sup>	U <sup>2</sup>	WT. LBS.	
																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

R-9183-00A

\*Complete assembly (hubs and blades)

All dimensions in inches unless otherwise noted.

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

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

## Energy Regulations

Aerovent supports energy efficiency regulations enacted by the Department of Energy (DOE) and energy commissions of 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 efficiency requirements. Aerovent has made significant investments in product testing to assure users will receive the most efficient products available. Developments in the Fan Selector software are in place to help aid in product selection to meet the efficiency requirements as stipulated in the regulations. Visit [aerovent.com](http://aerovent.com) for the latest on fan energy efficiency regulations.

## M4 Blade

FAN DIAMETER (IN.)	AVAILABLE IMPELLER ROTATION	BLADE CASTING	HUB DIAMETER (IN.)	BLADE LENGTH* (IN.)	AVG. BLADE CHORD WIDTH		TOTAL WT. OF BLADES (LB)	TOTAL WT OF ASSY. (LB)	WR <sup>2</sup> (LB-FT <sup>2</sup> )	BLADE FREQUENCY (HZ)
					"M"	"L"				
54	RIGHT	PMRH54	14.00	20.00	4.50	7.31	17	42	22.04	55
	LEFT	PMLH54								
60	RIGHT	PMRH60	14.00	23.00	5.00	8.13	18	43	33.39	36
	LEFT	PMLH60								
72	RIGHT	PMRH72	14.00	29.00	6.00	9.75	30	55	84.82	31
	LEFT	PMLH72								
81	RIGHT	SC81RH	18.00	31.50	6.75	10.97	57	106	130.68	29
	LEFT	PMLH81					55	104		
84	RIGHT	PMRH84	18.00	33.00	7.00	11.38	60	108	175.37	28
	LEFT	PMLH84					54	102		
93	RIGHT	SC93RH	18.00	37.50	7.75	12.97	86	134	275.68	28
	LEFT	SC93LH								
96	RIGHT	PMRH96	18.00	39.00	8.00	13.00	78	126	338.79	21
	LEFT	PMLH96								
108	RIGHT	SC108RH	18.00	45.00	9.00	—	114	162	527.74	20
	LEFT	PMLH108					98	146		
120	RIGHT	SC120RH	18.00	51.00	10.00	—	148	196	813.69	18
	LEFT	PMLH120					132	180		
132	RIGHT	SC132RH	18.00	57.00	11.00	—	189	237	1388.88	14
	LEFT	PMLH132					170	218		
144	RIGHT	PMRH144	18.00	63.00	12.00	—	236	284	2032.71	13.75
	LEFT	PMLH144					223	271		

## M6 Blade

54	RIGHT	PMRH54	14.00	20.00	4.50	7.31	26	56	37.68	55
	LEFT	PMLH54								
60	RIGHT	PMRH60	14.00	23.00	5.00	8.13	28	58	48.75	36
	LEFT	PMLH60								
72	RIGHT	PMRH72	14.00	29.00	6.00	9.75	45	75	125.39	31
	LEFT	PMLH72								
81	RIGHT	SC81RH	18.00	31.50	6.75	10.97	85	140	191.44	29
	LEFT	PMLH81					83	138		
84	RIGHT	PMRH84	18.00	33.00	7.00	11.38	90	145	256.23	28
	LEFT	PMLH84					83	138		
93	RIGHT	SC93RH	18.00	37.50	7.75	12.97	130	185	409.31	28
	LEFT	SC93LH								
96	RIGHT	PMRH96	18.00	39.00	8.00	13.00	118	173	506.26	21
	LEFT	PMLH96								
108	RIGHT	SC108RH	18.00	45.00	9.00	—	172	227	787.35	20
	LEFT	PMLH108					145	200		
120	RIGHT	SC120RH	18.00	51.00	10.00	—	223	278	1224.56	18
	LEFT	PMLH120					196	251		
132	RIGHT	SC132RH	18.00	57.00	11.00	—	284	339	2094.86	14
	LEFT	PMLH132					266	321		
144	RIGHT	PMRH144	18.00	63.00	12.00	—	354	409	3049.22	13.75
	LEFT	PMLH144					335	390		

## 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								
72	RIGHT	SCLS72RH	14.00	29	6.00	9.75	62	87	170.55	34
	LEFT	SCLS72LH								
84	RIGHT	SCLS84RH	18.00	33	7.00	11.38	108	156	424.51	32
	LEFT	SCLS84LH								
96	RIGHT	SCLS96RH	18.00	39	8.00	13.00	136	184	724.73	25
	LEFT	SCLS96LH								

## L6 Blade

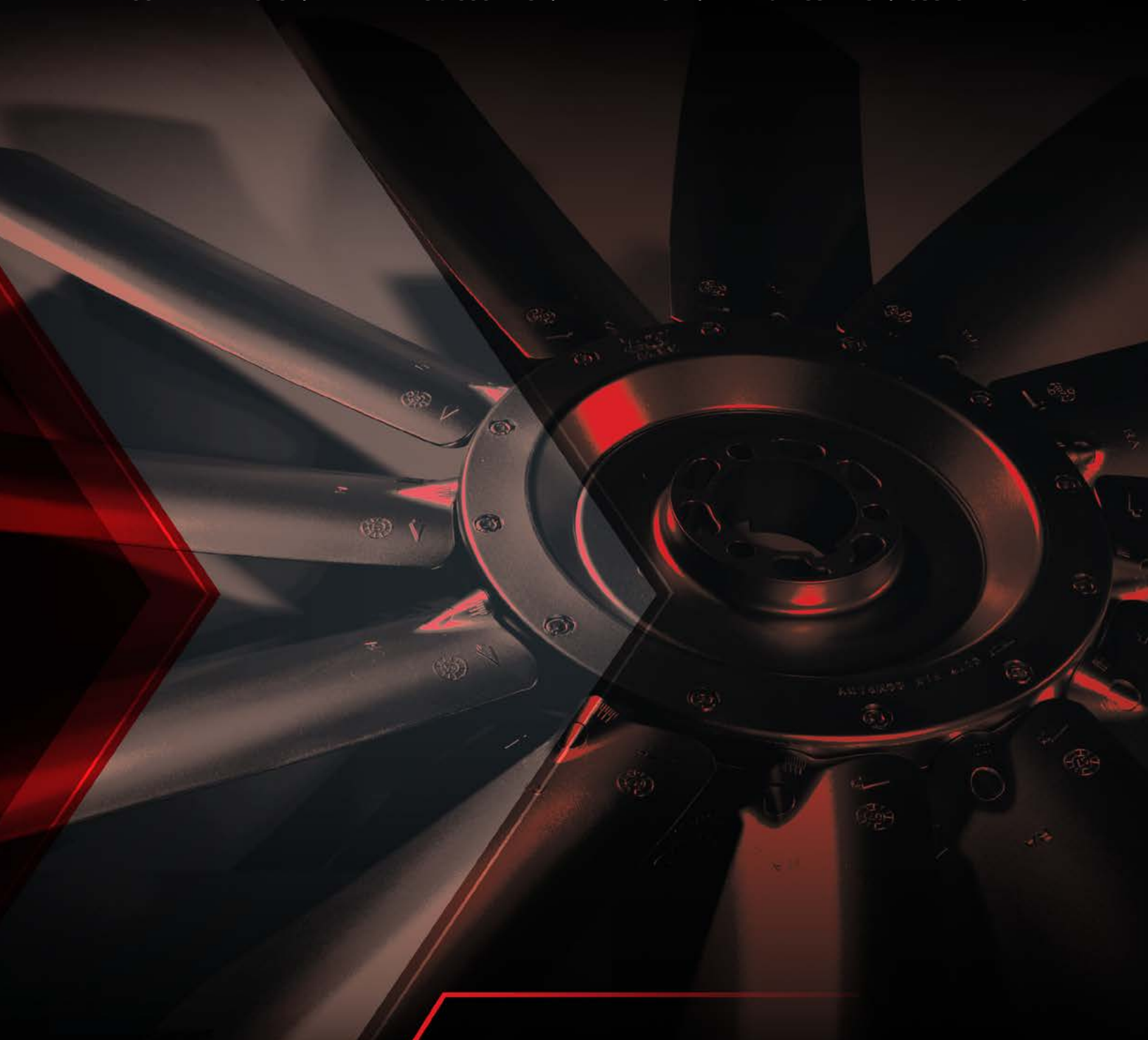
54	RIGHT	SCLS54RH	14.00	20	4.50	7.31	42	72	52.58	67
60	RIGHT	SCLS60RH	14.00	23	5.00	8.13	59	89	162.48	44
	LEFT	SCLS60LH								
72	RIGHT	SCLS72RH	14.00	29	6.00	9.75	93	123	269.72	34
	LEFT	SCLS72LH								
84	RIGHT	SCLS84RH	18.00	33	7.00	11.38	162	217	637.74	35
	LEFT	SCLS84LH								
96	RIGHT	SCLS96RH	18.00	39	8.00	13.00	204	259	1089.77	27
	LEFT	SCLS96LH								

SC — Sand Casting PM — Permanent Mold

All dimensions in inches unless otherwise noted.



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