

"H" Series Wheel/Housing

Product Specification Sheet Number: 304

Notes:

- Shaded areas indicate Lau preferred product. Selections in non-shaded areas and optional features may affect price and availability.
- Product weights may vary with bore size and hub style.
- STD type hubs available for most diameters.
- Clamplok type hubs for 2.25", 3.00". 4.00", 4.50" & 5.00 Tubular shafts
- See specification sheet #50 for available bore sizes.
- Wheel moment of inertia may vary with bore size and hub style.

$$\frac{wk^2}{32.2} = (\mathbf{L}\mathbf{b} - \mathbf{F}\mathbf{t} - \mathbf{S}\mathbf{e}\mathbf{c}^2)$$

Blast area:

$$BA = \frac{M}{E} X (Outlet Area)$$

Dimensions shown are for reference only. For certified product dinensions contact Lau Engineering.

- Contact Lau for application assistance
- Outlet Velocity:

$$FPM = \frac{CFM}{O.A.}$$



DIMENSIONS IN INCHES

Model	A	В	С	D	E	н	J	к	L	м	N	w	x	Y	z	Outlet Area Sq.ft.	Max. Wheel RPM	Wheel Wt. (Ibs.)	Moment of Inertia (LbFt²)
A20-15H	35.75	32.34	14.44	20.00	24.75	16.25	20.53	19.75	6.86	15.00	15.69	15.00	20.50	4.35	16.90	3.34	1330	47	19.27
A20-18H	35.75	32.34	14.44	20.00	24.75	16.25	20.53	22.75	6.86	15.00	18.69	18.00	20.50	4.35	16.90	3.88	1330	51	21.78
A20-20H	35.75	32.34	14.44	20.00	24.75	16.25	20.53	24.75	6.86	15.00	20.69	20.22	20.50	4.35	16.90	4.20	1310	53	23.44
A22-15H	39.38	35.41	15.69	22.38	27.25	18.06	22.59	20.25	6.86	16.75	15.81	15.00	22.88	4.35	18.95	3.78	1190	52	27.60
A22-20H	39.38	35.41	15.69	22.38	27.25	18.06	22.59	25.25	6.86	16.75	20.81	20.22	22.88	4.35	18.95	4.78	1200	60	33.42
A22-22H	39.38	35.41	15.69	22.38	27.25	18.06	22.59	27.25	6.86	16.75	22.81	20.00	22.88	4.35	18.95	5.10	1200	63	35.74
A25-20H	44.62	39.53	17.25	25.00	31.25	21.31	25.66	26.25	6.86	19.50	20.94	20.00	25.50	5.00	21.17	5.64	1050	73	47.60
A25-22H	44.62	39.53	17.25	25.00	31.25	21.31	25.66	28.25	6.86	19.50	22.94	22.00	25.50	5.00	21.17	6.17	1030	76	50.83
A25-25H	44.62	39.53	17.25	25.00	31.25	21.31	25.66	31.25	6.86	19.50	25.94	25.00	25.50	5.00	21.17	6.71	1030	81	55.66
A27-20H	49.31	43.78	19.12	27.62	34.25	23.94	28.28	26.75	8.11	21.88	20.94	20.00	28.12	5.00	23.41	6.29	930	97	75.54
A27-22H	49.31	43.78	19.12	27.62	34.25	23.94	28.28	28.75	8.11	21.88	22.94	22.00	28.12	5.00	23.41	6.84	940	101	79.87
A27-25H	49.31	43.78	19.12	27.62	34.25	23.94	28.28	31.75	8.11	21.88	25.94	25.00	28.12	5.00	23.41	7.55	930	107	86.36
A27-27H	49.31	43.78	19.12	27.62	34.25	23.94	28.28	34.25	8.11	21.88	28.44	27.50	28.12	5.00	23.41	8.07	910	111	91.77
A30-22H	53.25	47.03	20.31	30.25	36.75	26.38	30.56	28.75	8.11	23.75	22.94	22.00	30.75	5.00	25.64	7.26	860	112	107.74
A30-25H	53.25	47.03	20.31	30.25	36.75	26.38	30.56	31.75	8.11	23.75	25.94	25.00	30.75	5.00	25.64	8.10	850	118	116.35
A30-27H	53.25	47.03	20.31	30.25	36.75	26.38	30.56	34.25	8.11	23.75	28.44	27.50	30.75	5.00	25.64	8.66	850	123	123.53
A30-30H	53.25	47.03	20.31	30.25	36.75	26.38	30.56	36.75	8.11	23.75	30.94	30.00	30.75	5.00	25.64	9.30	850	128	130.71
A33-27H	57.48	53.36	24.59	33.00	42.94	29.38	32.25	34.25	8.11	25.62	28.50	27.50	33.50	5.00	27.99	10.21	770	136	163.01
A33-33H	57.48	53.36	24.59	33.00	42.94	29.38	32.25	39.75	8.11	25.62	34.00	33.00	33.50	5.00	27.99	12.05	780	148	183.24
A36-27H	57.48	53.36	24.59	36.00	42.94	32.00	32.25	34.25	8.11	25.62	29.00	27.50	36.50	5.00	30.54	10.21	720	150	217.62
A36-30H	57.48	53.36	24.59	36.00	42.94	32.00	32.25	36.75	8.11	25.62	31.50	30.00	36.50	5.00	30.54	10.88	720	157	229.58
A36-36H	57.48	53.36	24.59	36.00	42.94	32.00	32.25	42.75	8.11	25.62	37.50	36.00	36.50	5.00	30.54	12.80	730	171	258.29





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WHEEL SELECTION PROCEDURE:

There are a number of factors that need to be considered for specification of the proper "H" Series Wheel and Housing for your application. The following procedures outline the various factors that need to be considered in the wheel selection process.

PERFORMANCE:

Using the multispeed catalog or ELEMENT selection software performance curves for the "H" Series Wheel and Housing, select the wheel diameter and width that provide the performance required. The selection should be made in the efficient operating range shown on the curves. From the curve determine the fan speed and brake horsepower required. Required fan speed should not exceed MAXIMUM CAGE RPM as shown in table for the wheel size selected. Performance curves are based on tests in the Lau standard housing with outlet duct. Brake horsepower does not include drive losses.

HUB BORE SIZE:

The hub bore size and type must be selected so that the starling torque experienced by the wheel does not exceed the maximum torque capability of the hub.

Based on the nominal motor horsepower selected for the application calculate the fan starting torque at the hub by the following equation:

Starting Torque (lb. ft.) =
$$\frac{\text{Motor Horsepower}}{\text{Fan RPM}} \times K$$

K = 3 for one wheel on shaftK = 1.8 for two wheels on shaftK = 1.2 for three wheels on shaft

Note: K in above equation is based on NEMA Design B motors. Contact Lau if other than design B motor is used. Based on calculated starting torque, select hub type and bore from hub selection table that has torque capability that equals or exceeds calculated torque.

ROTOR CRITICAL SPEED:

The shaft size selected from the starting torque procedures needs to be checked to ensure that the shaft natural frequency occurs at an RPM that is a minimum of 20% greater than the fan running RPM. The rotor critical speed is dependent on the wheel weight, shaft weight, driven pulley weight, the shaft length, span between bearings and location of the wheel(s) and pulley on the shaft. See the Miscellaneous Section' of the Lau Engineering Manual for "Calculating Blower Shaft Diameter."

When two or more wheels are used on a common shaft, the torsional stiffness and torsional natural frequency should also be determined to select shaft size. The actual shaft size required for the application is the larger of the shaft sizes determined from the starting torque or natural frequency calculations.



BEARING LIFE:

Bearing Life calculations should be made to ensure that required bearing life expectancy is obtained. Contact your bearing manufacturer for assistance in

Determining bearing life. Quite often stepped or tubular shafts should be considered since shaft size determined from previous steps may be substantially larger than that required for adequate bearing life.

FEATURES:

BALANCE

Lau's "H" Series wheels are statically and dynamically balanced in accordance with 1989 ARI Guideline G and ANSI S2.19 - 1986.

FINISH

Lau's "H" blowers are finished with medium grey enamel paint. Contact Lau for other finishes.

MAXIMUM TEMPERATURES:

"H" wheels are suitable for operation up to 200°F. Contact Lau Engineering regarding operation at higher temperatures.

ASSISTANCE:

Please feel free to contact the Lau Engineering Department for assistance in this wheel selection procedure.