

Model 31

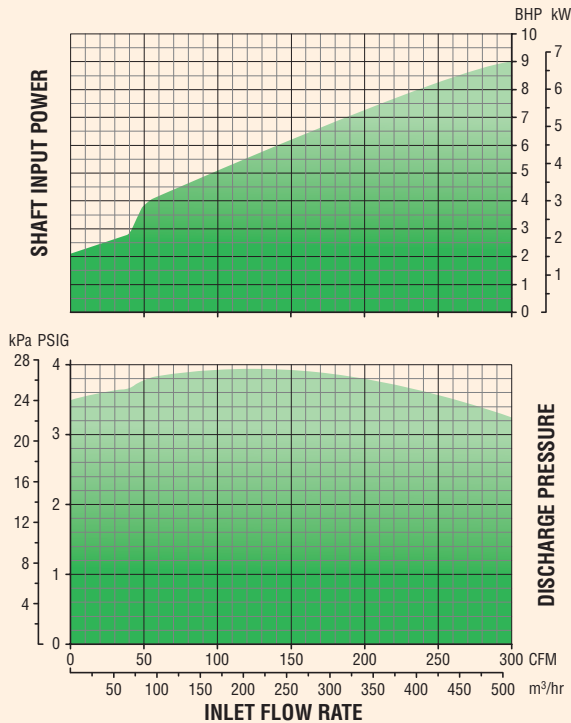
HSI MULTISTAGE
CENTRIFUGAL
BLOWERS



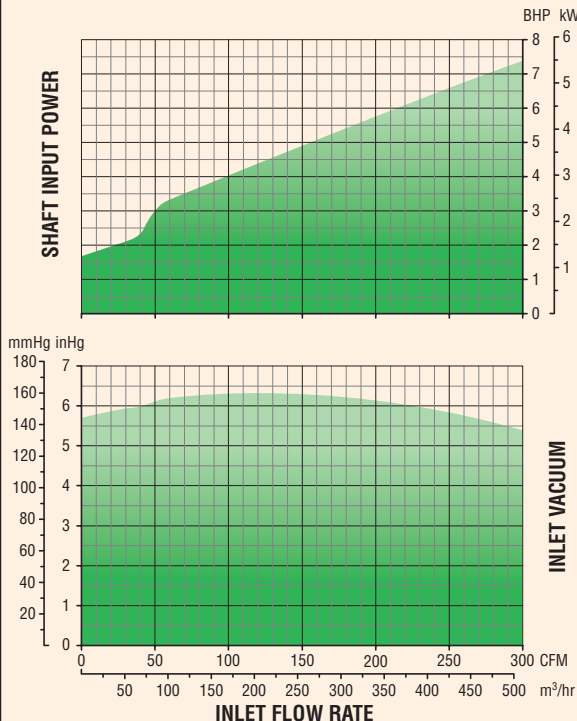
General Performance

Specifications Standard

MODEL 31 BLOWER



MODEL 31 EXHAUSTER



TECHNICAL DATA

Number of Stages	1 through 11
Inlet Connection	3" (76.2 mm) flange, ASA 125# / ANSI 150# drilling
Outlet Connection	3" (76.2 mm) flange, ASA 125# / ANSI 150# drilling
Operating Speed.....	3550 RPM (dierct drive), 5075 RPM (belt drive)
Casing Pressure.....	15 PSIG (1.05 kg/cm ²)
Seals (air).....	Labyrinth type
Seals (gas).....	Stuffing box type/custom available
Bearings.....	Ball, 10-year minimum life per AFBMA L ₁₀ standard
Lubrication.....	Grease (oil available)
Impeller Diameter.....	14.50 in (368.3 mm)
Impeller Tip Speed	225 ft/s (68.5 m/s) direct, 321 ft/s (97.9 m/s) belt
First Critical Speed	6320 RPM (11-stage)
Drive Type	Direct coupled or Belt driven, Inlet driven (standard) or Outlet driven
Shaft End	1.125 in (28.58 mm) diameter at coupling
Vibration Tolerance25 in/s (6.4 mm/s) ISO overall specification, 1.25 mils (0.03 mm) peak to peak
Rotor Balance.....	Military standard 167-1. Individual impellers and rotating assembly dynamically balanced

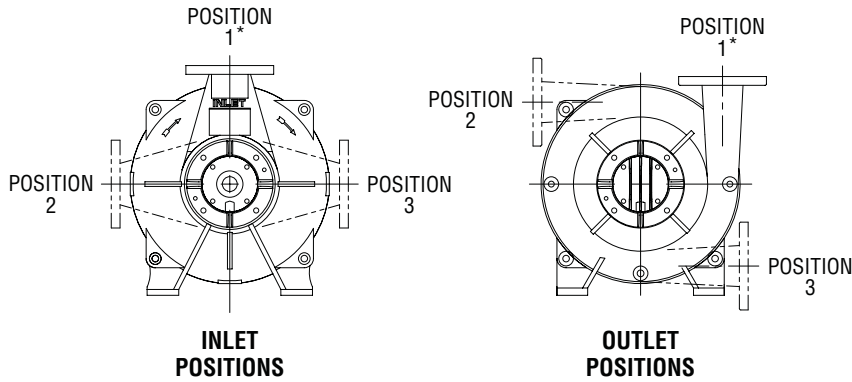
MATERIALS OF CONSTRUCTION

Casing	Cast iron ASTM A48 grade 25/30
Bearing Caps & Housings ...	Cast iron ASTM A48 grade 25/30
Shaft	Carbon steel AISI 4140 (stainless steel available)
Impellers	Cast aluminum ANSI AA319/356 or fabricated aluminum ANSI AA6061 with cast Al AA356 hub stainless steel/custom alloys available
Seals (air).....	Cast iron ASTM A48 grade 30 with lead babbitt insert Zinc-Alloy, ZA-12
Seals (gas).....	Cast aluminum ANSI AA319 stuffing box with braided packing
Interstage Baffle Rings	Stainless steel ASTM A240 304
Tie Rods50 in (12.7 mm) diameter, high strength steel ASTM A193-B7/B7M available
Blower Base	Welded structural steel ASTM A36 ASME/AWS D1.1 WPS's available
Motor Pedestal.....	Welded steel plate ASTM A36
Joint Sealing Compound	RTV silicone
Base Isolation Pads.....	Neoprene rubber
Finish	HSI standard

MODEL 31 MULTISTAGE CENTRIFUGAL BLOWER

Inlet and Outlet Orientation Options

The orientation of the inlet and outlet is selectable from any of three different positions, as viewed when facing the exterior of the part:



*Standard configuration.

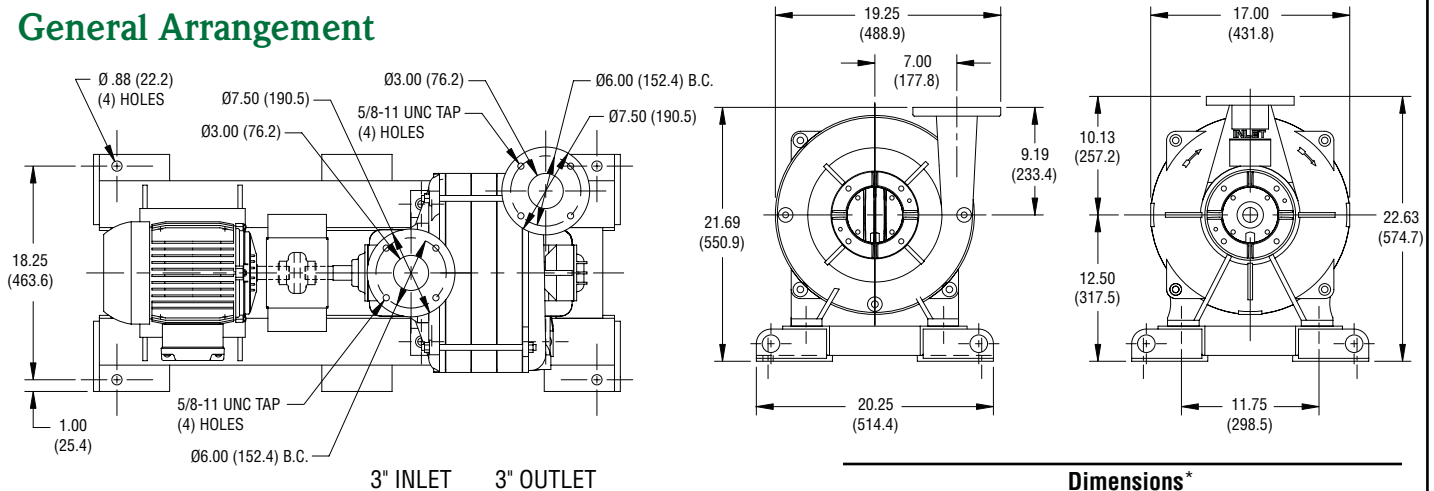
Weight and Inertia

Model	Weight*		Wk ² †	
	lb	kg	lb-ft ²	kg-m ²
3101	140	64	1	0.04
3102	180	82	2	0.08
3103	220	100	3	0.12
3104	260	118	4	0.16
3105	300	136	5	0.20
3106	340	154	6	0.23
3107	380	172	7	0.27
3108	420	191	7	0.31
3109	460	209	8	0.35
3110	500	227	9	0.39
3111	540	245	10	0.43

*Approximate weight for blower only.

† Inertia based on fabricated impellers.

General Arrangement



Model	Dimensions*			
	A	B	F†	L†
3101	4.13 (105)	4.94 (125)	35 (889)	39 (991)
3102	6.31 (160)	7.13 (181)	35 (889)	39 (991)
3103	8.50 (216)	9.31 (237)	41 (1041)	45 (1143)
3104	10.69 (271)	11.50 (292)	41 (1041)	45 (1143)
3105	12.88 (327)	13.69 (348)	46 (1168)	50 (1270)
3106	15.06 (383)	15.88 (403)	46 (1168)	50 (1270)
3107	17.25 (438)	18.06 (459)	53 (1346)	57 (1448)
3108	19.44 (494)	20.25 (514)	53 (1346)	57 (1448)
3109	21.63 (549)	22.44 (570)	56 (1422)	60 (1524)
3110	23.81 (605)	24.63 (625)	56 (1422)	60 (1524)
3111	26.00 (660)	26.81 (681)	61 (1549)	65 (1651)

*Dimensions in inches and (millimeters) and are approximate. Do not use for construction purposes.

† Dimension may vary depending on motor frame size.



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