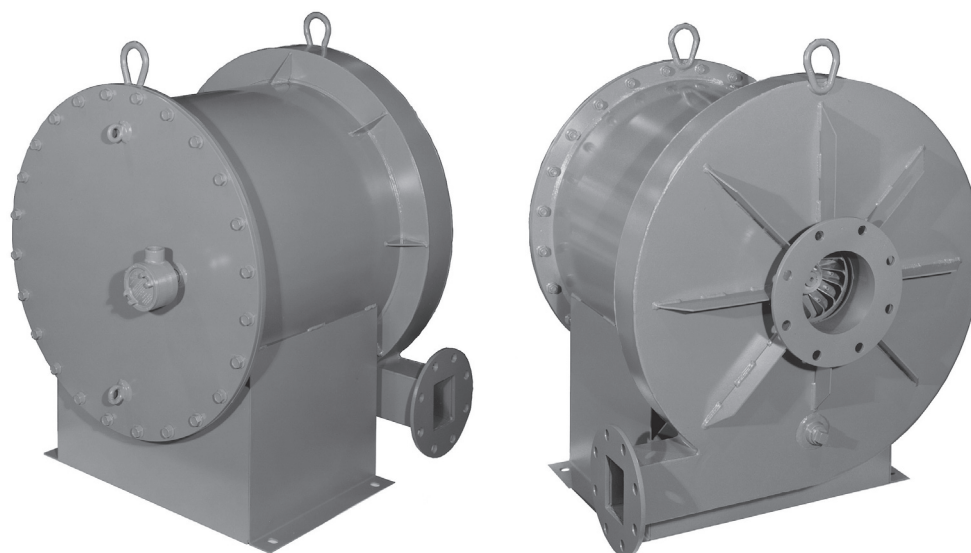


Eclipse Hermetic Gas Boosters

Series HB

Version 1.1



Type Designations

The booster is identified by catalog model, assembly number, and ordering part number.

The catalog model number has the form HB-*oirr-hp*, where

HB = hermetic booster prefix

o = outlet nominal pipe size

i = inlet nominal pipe size

rr = rotor nominal diameter

hp = motor horsepower

The assembly number identifies a related drawing.

The ordering part number gives complete detail that includes the model, the type ("BS" Standard series or "DG" Digester Gas), the motor, rotation (CW or CCW), and outlet position.

Materials of Construction

Steel housing with power coated finish

Aluminum rotor

The internal surfaces of the type "DG" housing are coated with epoxy.

Gas Compatibility

"BS": Air, Natural Gas, Manufactured Gas, Propane/Air or other air/gas mixtures within Class I Group D rating that are not corrosive to aluminum and steel.

"DG": Digester gas, bio-gas, landfill gas, sour gas. Please contact Eclipse with specific fuel composition information to review compatibility.

Maximum Pressure

Maximum inlet, outlet, or test pressure must not exceed 5 PSIG (344 mbar).

Operating Temperature Requirements

The maximum inlet gas temperature is 95°F (35°C). Provide ventilation and ambient air convection around the booster. Shield from direct sunlight or other sources of radiant energy.

Agency Approval

UL listed for use with natural or manufactured gases, File MH10098
Massachusetts Board of Registration of Plumbers and Gas Fitters

Inlet Connection

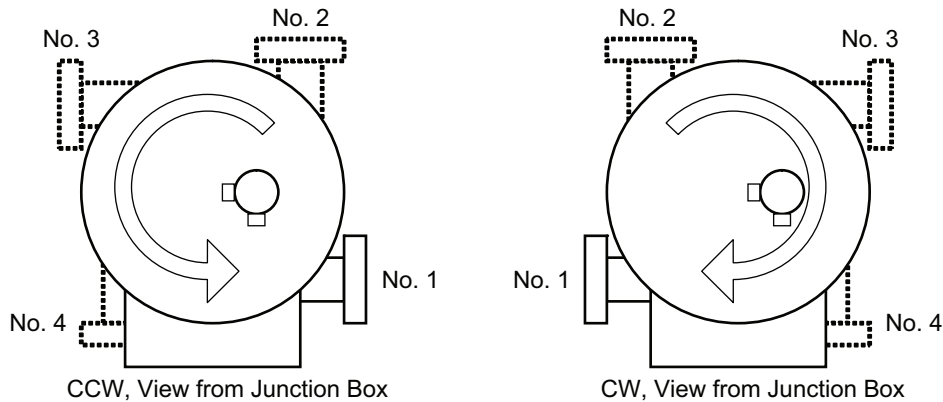
Refer to the table on page 4 to determine the connection for each model. Models 3412, 4412, 3314, and 4414 have NPT threaded coupling and the others have flanges for ANSI Class 125/150 bolt patterns. A companion flange is not included as part of the assembly.

Outlet Connections

Refer to the table on page 4 to determine the connection for each model. Models with 3 and 4 inch (76 to 102 mm) outlet sizes and rotor size 15 or less are NPT threaded. Models with 4 to 8 inch (102 to 203 mm) outlet sizes and rotor size 17 or greater have flanges for ANSI Class 125/150 bolt patterns. A companion flange is not included as part of the assembly.

Outlet Positions

Rotations and positions are shown in the diagram. Rotation is viewed from the side with the electrical junction box. The standard assembly is position #1, CCW.



Flow Capacity and Pressure Boost

The table on page 7 lists typical flow capacity in ft³/h (m³/h) and the added pressure boost of 4 types of gases on each model. For gases other than the specific gravity shown, the performance can be predicted by:

$$\text{Capacity of Gas} = (\text{Capacity with Air}) \div (\text{Specific Gravity of Gas})$$

$$\text{Pressure of Gas} = (\text{Pressure with Air}) \times (\text{Specific Gravity of Gas})$$

The discharge or outlet pressure of the booster is the sum of the inlet pressure and the pressure boost rating:

Example using the rating of HB-4614-1 with Natural Gas:

$$\begin{array}{r} 6" \text{ w.c. inlet gas pressure} \\ + 9" \text{ w.c. pressure boost} \\ \hline 15" \text{ w.c. discharge pressure} \end{array}$$

This means that if the inlet pressure to the booster varies, then the outlet pressure will vary directly by the same amount.

Minimum Flow and Turndown

Turndown is the minimum flow where the booster does not have instability or cavitations. However, some operating conditions may cause the motor temperature to approach its insulation limit of 240°F (116°C). Establishing a minimum flow can provide cooling for the motor and prolong its life.

Another method for cooling uses an outlet to inlet recirculation loop employing either convective cooling or a heat exchanger that is fan forced or liquid cooled. The following conditions can cause excessive motor temperature:

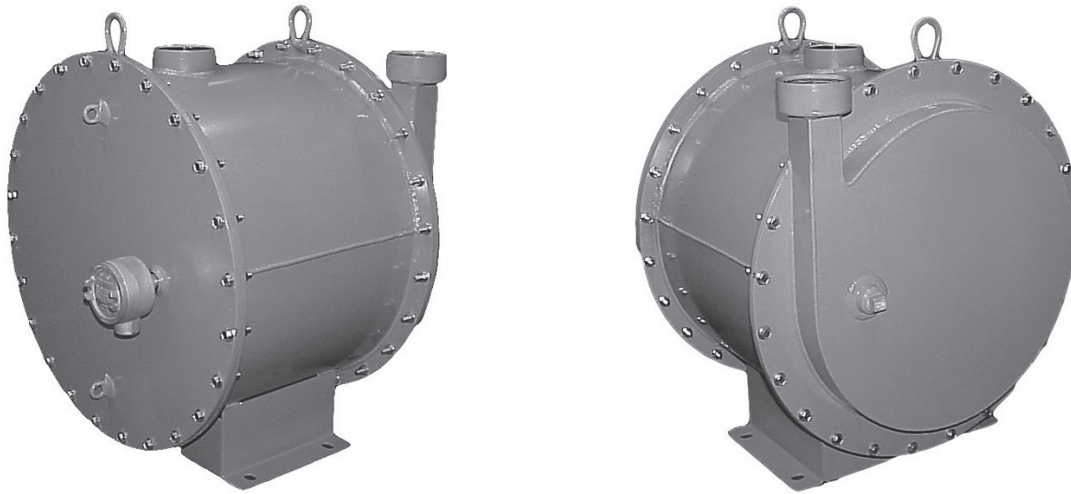
1. Ambient temperature or gas inlet greater than 95°F (35°C)
2. Booster enclosed or restricted air flow around the housing
3. Booster exposed to sunlight
4. Altitude is more than 3000 feet (914m)
5. Under or over voltage greater than 10%
6. Phase voltage unbalance greater than 1%
7. Frequent starts, more than 1 every 15 minutes

Excessive motor temperature may also result if two or more of the above conditions are near the defined limits. When using minimum flow to provide cooling, ensure flows of at least:

- 1000 cfm (28.3 m³/h) for boost pressures under 17" w.c. (42.4 mbar)
- 2500 cfm (70.8 m³/h) for boost pressures at 17" w.c. (42.4 mbar) or more

Exception: The HB-LC-3316-3/4 model is for high turndown applications up to 50:1 and where a low capacity flow may be present for long periods.

HB-LC-3316-3/4



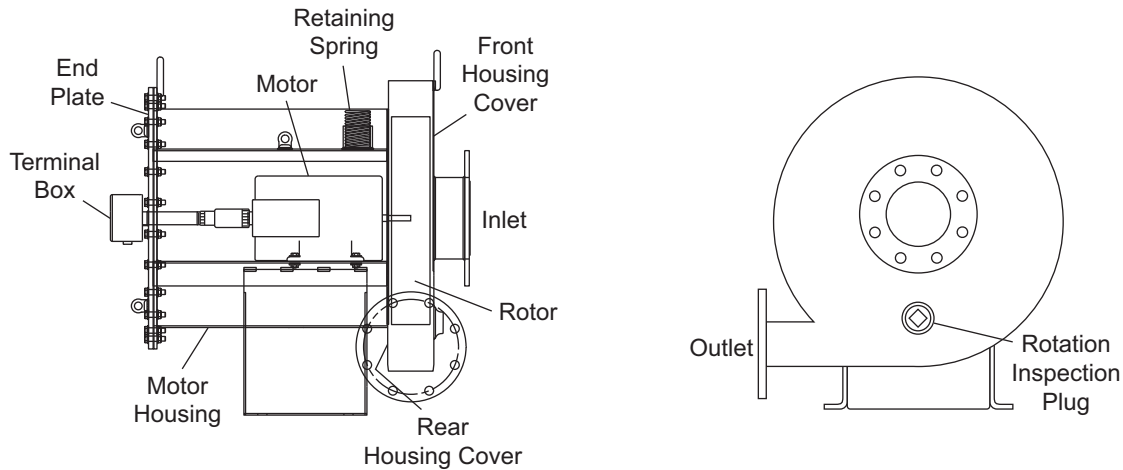
Motor

UL, CSA, Class 1 Group D explosion-proof fan cooled, epoxy coated, with LTI CHRISTO-LUBE® MCG-134, #2 consistency bearing lubrication, with bearings that can be relubricated on 3HP and larger motors.

Part No.	HP	Voltage*	Phase	Frame	F.L. Amps	T-Stat Wires	Bearing Lubrication Ability	Weight lbs (kg)
20993	0.5	115/230	1	56	7.4/3.7	No	Sealed	27 (12.3)
10010600	0.5	208	1	56	3.4	No	Sealed	27 (12.3)
10002176	0.5	208	3	56	3.4	No	Sealed	30 (13.6)
20994	0.5	230/460	3	56	2.2/1.1	No	Sealed	30 (13.6)
20997	0.75	115/230	1	56	9.8/4.9	No	Sealed	41 (18.6)
20997-1	0.75	208	1	56	5.5	No	Sealed	41 (18.6)
10002177	0.75	208	3	56	2.7	No	Sealed	29 (13.2)
20996	0.75	230/460	3	56	2.6/1.3	No	Sealed	29 (13.2)
10002178	1	208	3	56	3.1	Yes	Sealed	35 (15.9)
20995	1	230/460	3	56	3.6/1.8	Yes	Sealed	31 (14.1)
10054758	1.5	208	3	143T	4.5	Yes	Sealed	41 (18.6)
10056099	1.5	230/460	3	143T	4/2	Yes	Sealed	50 (22.7)
10054759	2	208	3	145T	5.5	Yes	Sealed	55 (25.0)
10054746	2	230/460	3	145T	5/2.5	Yes	Sealed	55 (25.0)
10002182	3	208	3	182T	7.8	Yes	Ports	83 (37.7)
10055852	3	230/460	3	182T	7.4/3.7	Yes	Ports	83 (37.7)
10054751	5	208	3	184T	12.7	Yes	Ports	54 (24.5)
10054832	5	230/460	3	184T	12/6.0	Yes	Ports	97 (44.0)
10054839	7.5	208	3	213T	20	Yes	Ports	149 (67.6)
10054749	7.5	230/460	3	213T	17.2/8.6	Yes	Ports	167 (75.8)
10054762	10	208	3	213T	25	Yes	Ports	170 (77.1)
10054752	10	230/460	3	215T	23.2/11.6	Yes	Ports	162 (73.5)
10054750	15	230/460	3	254T	35/17.5	Yes	Ports	292 (132.5)
10054753	15	230/460	3	254T	34/17	Yes	Ports	292 (132.5)
10054836	20	208	3	256T	58	Yes	Ports	371 (168.3)
10054958	20	230/460	3	256T	46/23	Yes	Ports	371 (168.3)

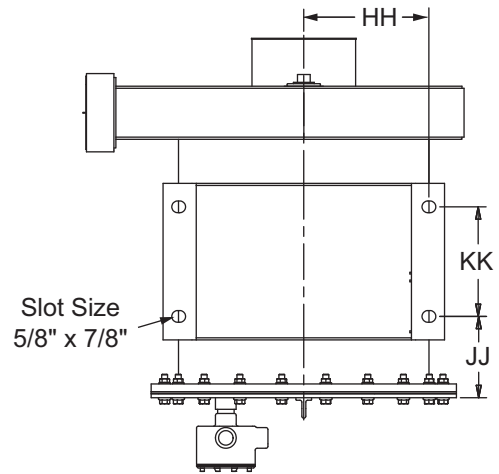
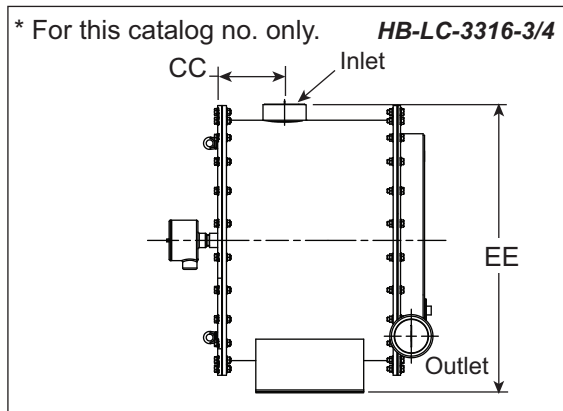
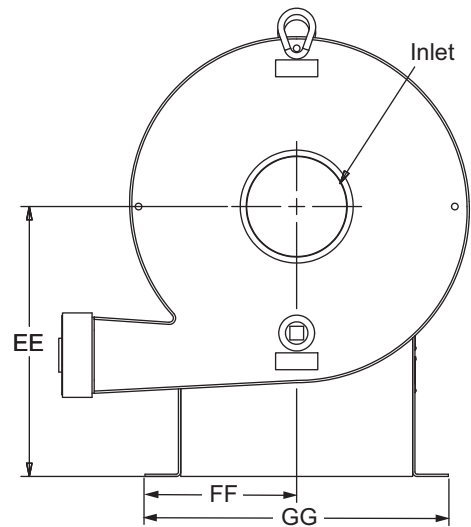
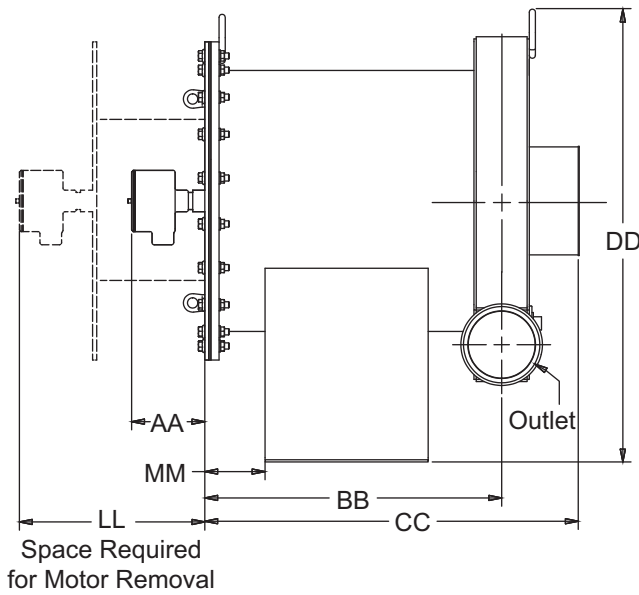
* All motors listed are 60Hz frequency. Please contact factory for alternative requirements.

Dimensions - Assembly View



Catalog Number	Motor HP	Outlet					Inlet				
		Size	O.D., inches	Bolt Circle, in (mm)	Bolt Hole, in (mm)	No of Bolts	Size	O.D., inches	Bolt Circle, in (mm)	Bolt Hole, in (mm)	No of Bolts
HB-LC-3316-3/4	3/4	3 NPT	4	-	-	-	3 NPT	4	-	-	-
HB-3314-1/2	1/2	3 NPT	4	-	-	-	3 NPT	4	-	-	-
HB-3412-1/2	1/2	3 NPT	4	-	-	-	4 NPT	5	-	-	-
HB-4412-1/2	1/2	4 NPT	5	-	-	-	4 NPT	5	-	-	-
HB-4412-1	1	4 NPT	5	-	-	-	4 NPT	5	-	-	-
HB-4414-1	1	4 NPT	5	-	-	-	4 NPT	5	-	-	-
HB-4614-1	1	4 NPT	5	-	-	-	6	11	9-1/2 (241)	7/8 (22)	8
HB-4614-1-1/2	1-1/2	4 NPT	5	-	-	-	6	11	9-1/2 (241)	7/8 (22)	8
HB-4615-1	1	4 NPT	5	-	-	-	6	11	9-1/2 (241)	7/8 (22)	8
HB-4617-1	1	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4617-1-1/2	1-1/2	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4619-1-1/2	1-1/2	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4619-2	2	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4623-3	3	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4623-5	5	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4628-5	5	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4628-7-1/2	7-1/2	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-4628-10	10	4	9	7-1/2 (191)	3/4 (19)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6615-1-1/2	1-1/2	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6615-2	2	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6617-2	2	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6617-3	3	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6619-3	3	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6619-5	5	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6623-7-1/2	7-1/2	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-6623-10	10	6	11	9-1/2 (241)	7/8 (22)	8	6	11	9-1/2 (241)	7/8 (22)	8
HB-8817-5	5	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8819-7-1/2	7-1/2	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8819-10	10	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8823-15	15	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8823-20	20	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8828-10	10	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8828-15	15	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8
HB-8828-20	20	8	13-1/2	11-3/4 (299)	7/8 (22)	8	8	13-1/2	11-3/4 (299)	7/8 (22)	8

Dimensions - Assembly View (Continued)



Catalog No	Dimensions in mm (inches), Position #1, to the nearest 1/8												Approx. Shipping Wt, lbs (kg)
	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	
HB-LC-3316-3/4 (see above)	114 (4.5)	457 (17.9)	158* (6.2)	678 (26.7)	678* (26.7)	190 (7.5)	381 (15.0)	317 (12.5)	128 (5.0)	178 (7.0)	700 (27.6)	90 (3.5)	230 (104)
HB-3314-1/2	114 (4.5)	445 (17.5)	513 (20.2)	635 (25.0)	360 (14.2)	165 (6.5)	330 (13.0)	232 (9.1)	156 (6.1)	127 (5.0)	650 (25.6)	118 (4.6)	175 (79)
HB-3412-1/2	114 (4.5)	460 (18.1)	545 (21.5)	600 (23.6)	332 (12.7)	161 (6.3)	332 (12.7)	232 (9.1)	156 (6.1)	127 (5.0)	650 (25.6)	118 (4.6)	165 (75)
HB-4412-1/2	114 (4.5)	460 (18.1)	545 (21.5)	600 (23.6)	332 (12.7)	161 (6.3)	332 (12.7)	232 (9.1)	156 (6.1)	127 (5.0)	700 (27.6)	118 (4.6)	170 (77)
HB-4412-1	114 (4.5)	445 (17.5)	518 (20.4)	640 (25.2)	360 (14.2)	165 (6.5)	330 (13.0)	232 (9.1)	156 (6.1)	127 (5.0)	700 (27.6)	118 (4.6)	186 (84)
HB-4414-1	114 (4.5)	445 (17.5)	518 (20.4)	640 (25.2)	360 (14.2)	165 (6.5)	330 (13.0)	232 (9.1)	156 (6.1)	127 (5.0)	700 (27.6)	118 (4.6)	185 (84)
HB-4614-1	114 (4.5)	462 (18.2)	582 (22.9)	705 (27.8)	406 (16.0)	203 (8.0)	406 (16.0)	248 (9.8)	132 (5.2)	178 (7.0)	700 (27.6)	94 (3.7)	195 (89)
HB-4614-1-1/2	114 (4.5)	462 (18.2)	582 (22.9)	705 (27.8)	406 (16.0)	203 (8.0)	406 (16.0)	248 (9.8)	132 (5.2)	178 (7.0)	700 (27.6)	94 (3.7)	205 (93)
HB-4615-1	114 (4.5)	462 (18.2)	582 (22.9)	705 (27.8)	406 (16.0)	203 (8.0)	406 (16.0)	260 (10.2)	132 (5.2)	178 (7.0)	700 (27.6)	94 (3.7)	200 (91)

Catalog No	Dimensions in mm (inches), Position #1, to the nearest 1/8												Approx. Shipping Wt, lbs (kg)
	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	
HB-4617-1	114 (4.5)	457 (18.0)	574 (22.6)	720 (28.3)	394 (15.5)	222 (8.7)	444 (17.5)	288 (11.3)	134 (5.3)	178 (7.0)	700 (27.6)	96 (3.8)	220 (100)
HB-4617-1-1/2	114 (4.5)	457 (18.0)	574 (22.6)	720 (28.3)	394 (15.5)	222 (8.7)	444 (17.5)	288 (11.3)	134 (5.3)	178 (7.0)	700 (27.6)	96 (3.8)	265 (120)
HB-4619-1-1/2	114 (4.5)	419 (16.5)	535 (21.1)	885 (34.8)	483 (19.0)	228 (9.0)	457 (18.0)	339 (13.4)	125 (4.9)	152 (6.0)	700 (27.6)	75 (2.9)	260 (118)
HB-4619-2	114 (4.5)	419 (16.5)	535 (21.1)	885 (34.8)	483 (19.0)	228 (9.0)	457 (18.0)	339 (13.4)	125 (4.9)	152 (6.0)	700 (27.6)	75 (2.9)	270 (123)
HB-4623-3	114 (4.5)	574 (22.6)	704 (27.7)	955 (37.6)	508 (20.0)	305 (12.0)	609 (24.0)	392 (15.4)	108 (4.3)	330 (13.0)	700 (27.6)	70 (2.8)	408 (185)
HB-4623-5	114 (4.5)	574 (22.6)	704 (27.7)	955 (37.6)	508 (20.0)	305 (12.0)	609 (24.0)	392 (15.4)	108 (4.3)	330 (13.0)	700 (27.6)	70 (2.8)	492 (223)
HB-4628-5	137 (5.4)	629 (24.8)	745 (29.3)	1095 (43.1)	584 (23.0)	381 (15.0)	762 (30.0)	472 (18.6)	73 (2.9)	467 (18.4)	700 (27.6)	47 (1.9)	640 (290)
HB-4628-7-1/2	137 (5.4)	629 (24.8)	745 (29.3)	1095 (43.1)	584 (23.0)	381 (15.0)	762 (30.0)	472 (18.6)	73 (2.9)	467 (18.4)	700 (27.6)	47 (1.9)	643 (292)
HB-4628-10	137 (5.4)	629 (24.8)	745 (29.3)	1095 (43.1)	584 (23.0)	381 (15.0)	762 (30.0)	472 (18.6)	73 (2.9)	467 (18.4)	700 (27.6)	47 (1.9)	680 (308)
HB-6615-1-1/2	114 (4.5)	487 (19.2)	635 (25.0)	770 (30.3)	406 (16.0)	203 (8.0)	406 (16.0)	298 (11.8)	133 (5.3)	178 (7.0)	750 (29.5)	95 (3.8)	260 (118)
HB-6615-2	114 (4.5)	487 (19.2)	635 (25.0)	770 (30.3)	406 (16.0)	203 (8.0)	406 (16.0)	298 (11.8)	133 (5.3)	178 (7.0)	750 (29.5)	95 (3.8)	260 (118)
HB-6617-2	114 (4.5)	553 (21.8)	688 (27.1)	750 (29.5)	410 (16.1)	222 (8.7)	444 (17.5)	270 (10.6)	173 (6.8)	178 (7.0)	850 (33.5)	135 (5.3)	320 (145)
HB-6617-3	114 (4.5)	543 (21.4)	678 (26.7)	800 (31.5)	406 (16.0)	222 (8.7)	444 (17.5)	324 (12.8)	170 (6.7)	178 (7.0)	850 (33.5)	132 (5.2)	375 (170)
HB-6619-3	114 (4.5)	534 (22.0)	662 (26.1)	880 (34.6)	483 (19.0)	225 (8.9)	451 (17.8)	339 (13.4)	141 (5.6)	222 (8.7)	900 (35.4)	90 (3.5)	352 (160)
HB-6619-5	114 (4.5)	562 (22.1)	710 (28.0)	875 (34.4)	482 (19.0)	267 (10.5)	533 (21.0)	321 (12.6)	151 (5.9)	222 (8.7)	900 (35.4)	100 (3.5)	375 (170)
HB-6623-7-1/2	114 (4.5)	576 (22.7)	714 (28.1)	955 (37.6)	508 (20.0)	305 (12.0)	609 (24.0)	381 (15.0)	105 (4.1)	330 (13.0)	950 (37.4)	67 (3.9)	640 (290)
HB-6623-10	114 (4.5)	576 (22.7)	714 (28.1)	955 (37.6)	508 (20.0)	305 (12.0)	609 (24.0)	381 (15.0)	105 (4.1)	330 (13.0)	950 (37.4)	67 (2.6)	680 (308)
HB-8817-5	114 (4.5)	702 (27.6)	863 (34.0)	1000 (39.4)	572 (22.5)	213 (8.4)	426 (16.8)	352 (13.9)	132 (5.2)	381 (15.0)	1000 (39.4)	94 (2.6)	440 (200)
HB-8819-7-1/2	114 (4.5)	699 (27.5)	853 (33.6)	1050 (41.3)	641 (25.2)	286 (11.3)	572 (22.5)	388 (15.3)	200 (7.9)	254 (10.0)	950 (37.4)	124 (4.9)	550 (250)
HB-8819-10	114 (4.5)	699 (27.5)	853 (33.6)	1050 (41.3)	641 (25.2)	286 (11.3)	572 (22.5)	388 (15.3)	200 (7.9)	254 (10.0)	950 (37.4)	124 (4.9)	575 (261)
HB-8823-15	114 (4.5)	696 (27.4)	848 (33.4)	1060 (41.7)	591 (23.3)	302 (11.9)	604 (23.8)	429 (16.9)	160 (6.3)	330 (13.0)	1000 (39.4)	121 (4.8)	700 (318)
HB-8823-20	114 (4.5)	696 (27.4)	848 (33.4)	1060 (41.7)	591 (23.3)	302 (11.9)	604 (23.8)	429 (16.9)	160 (6.3)	330 (13.0)	1000 (39.4)	121 (4.8)	740 (336)
HB-8828-10	114 (4.5)	635 (25.0)	772 (30.4)	1115 (43.9)	584 (23.0)	381 (15.0)	762 (30.0)	467 (18.4)	71 (2.8)	467 (18.4)	975 (38.4)	46 (1.8)	735 (333)
HB-8828-15	137 (5.4)	635 (25.0)	772 (30.4)	1115 (43.9)	584 (23.0)	381 (15.0)	762 (30.0)	467 (18.4)	71 (2.8)	467 (18.4)	975 (38.4)	46 (1.8)	785 (356)
HB-8828-20	137 (5.4)	635 (25.0)	772 (30.4)	1115 (43.9)	584 (23.0)	381 (15.0)	762 (30.0)	467 (18.4)	71 (2.8)	467 (18.4)	975 (38.4)	46 (1.8)	825 (374)

Flow Capacity & Pressure Boost

Catalog No.	Motor HP	Air - 1.0 Sp Gr		Nat. Gas - 0.65 Sp Gr		Prop./Air - 1.28 Sp Gr		Dig. Gas - 0.82 Sp Gr	
		Flow, CFH (m ³ /h)	Boost, "w.c. (mbar)	Flow, CFH (m ³ /h)	Boost, "w.c. (mbar)	Flow, CFH (m ³ /h)	Boost, "w.c. (mbar)	Flow, CFH (m ³ /h)	Boost, "w.c. (mbar)
HB-LC-3316-3/4	3/4	3,500 (99)	15 (37)	5,500 (156)	10 (25)	2,700 (77)	20 (50)	4,300 (122)	13 (32)
HB-3314-1/2	1/2	3,400 (96)	14 (35)	5,300 (150)	9 (22)	2,700 (77)	18 (45)	4,200 (119)	11 (27)
HB-3412-1/2	1/2	7,600 (215)	10 (25)	11,600 (329)	6 (15)	5,900 (167)	13 (32)	9,200 (261)	8 (20)
HB-4412-1/2	1/2	8,100 (229)	10 (25)	12,500 (354)	7 (17)	6,300 (178)	13 (32)	9,900 (280)	9 (22)
HB-4412-1	1	15,300 (433)	9 (22)	23,600 (668)	6 (15)	12,000 (340)	12 (30)	18,700 (530)	7 (17)
HB-4414-1	1	13,300 (377)	11 (27)	20,400 (578)	7 (17)	10,300 (292)	14 (35)	16,200 (459)	9 (22)
HB-4614-1	1	11,500 (326)	14 (35)	17,800 (504)	9 (22)	9,000 (255)	18 (45)	14,100 (399)	12 (30)
HB-4614-1-1/2	1-1/2	20,100 (569)	14 (35)	30,900 (875)	9 (22)	15,700 (445)	18 (45)	24,500 (694)	11 (27)
HB-4615-1	1	12,600 (357)	16 (40)	19,400 (549)	11 (27)	9,800 (278)	21 (52)	15,400 (436)	13 (32)
HB-4617-1	1	14,900 (422)	20 (50)	23,000 (651)	13 (32)	11,700 (331)	25 (62)	18,200 (515)	16 (40)
HB-4617-1-1/2	1-1/2	17,100 (484)	19 (47)	26,300 (745)	12 (30)	13,300 (377)	24 (60)	20,800 (589)	16 (40)
HB-4619-1-1/2	1-1/2	8,400 (238)	26 (65)	12,900 (365)	17 (42)	6,500 (184)	34 (85)	10,200 (289)	22 (55)
HB-4619-2	2	11,500 (326)	28 (70)	17,800 (504)	18 (45)	9,000 (255)	36 (90)	14,100 (399)	23 (57)
HB-4623-3	3	7,600 (215)	36 (90)	11,600 (329)	23 (57)	5,900 (167)	46 (115)	9,200 (261)	29 (72)
HB-4623-5	5	21,400 (606)	40 (100)	33,000 (935)	26 (65)	16,700 (473)	52 (130)	26,100 (739)	33 (82)
HB-4628-5	5	9,500 (269)	52 (130)	14,600 (413)	34 (85)	7,400 (210)	67 (167)	11,500 (326)	43 (107)
HB-4628-7-1/2	7-1/2	16,800 (476)	54 (135)	25,800 (731)	35 (87)	13,100 (371)	69 (172)	20,500 (581)	44 (110)
HB-4628-10	10	30,000 (850)	54 (135)	46,300 (1311)	35 (87)	23,500 (666)	69 (172)	36,700 (1039)	44 (110)
HB-6615-1-1/2	1-1/2	15,200 (430)	16 (40)	23,300 (660)	10 (25)	11,800 (334)	20 (50)	18,500 (524)	13 (32)
HB-6615-2	2	23,700 (671)	15 (37)	36,500 (1034)	10 (25)	18,500 (524)	19 (45)	28,900 (818)	12 (30)
HB-6617-2	2	18,100 (513)	19 (45)	27,900 (790)	13 (32)	14,100 (399)	25 (62)	22,100 (626)	16 (40)
HB-6617-3	3	30,400 (861)	20 (50)	46,700 (1322)	13 (32)	23,700 (671)	26 (65)	37,000 (1048)	16 (40)
HB-6619-3	3	20,400 (578)	27 (67)	31,400 (889)	18 (45)	15,900 (450)	35 (87)	24,900 (705)	23 (57)
HB-6619-5	5	39,100 (1107)	28 (70)	60,200 (1705)	18 (45)	30,500 (864)	36 (90)	47,700 (1351)	23 (57)
HB-6623-7-1/2	7-1/2	33,700 (954)	38 (95)	51,800 (1467)	25 (62)	26,300 (745)	49 (122)	41,100 (1164)	31 (77)
HB-6623-10	10	39,900 (1130)	38 (95)	61,300 (1736)	25 (62)	31,100 (881)	48 (120)	48,600 (1376)	31 (77)
HB-8817-5	5	52,200 (1478)	21 (52)	80,300 (2274)	13 (32)	40,800 (1155)	26 (65)	63,700 (1804)	17 (42)
HB-8819-7-1/2	7-1/2	54,100 (1532)	27 (67)	83,300 (2359)	18 (45)	42,300 (1198)	35 (87)	66,000 (1869)	22 (55)
HB-8819-10	10	66,500 (1883)	27 (67)	102,300 (2897)	18 (45)	51,900 (1470)	35 (87)	81,000 (2294)	22 (55)
HB-8823-15	15	80,700 (2285)	40 (100)	124,200 (3517)	26 (65)	63,000 (1784)	51 (127)	98,400 (2786)	33 (82)
HB-8823-20	20	96,900 (2744)	38 (95)	149,000 (4219)	25 (62)	75,700 (2144)	48 (120)	118,100 (3344)	31 (77)
HB-8828-10	10	30,400 (861)	54 (135)	46,700 (1322)	35 (87)	23,700 (671)	70 (174)	37,000 (1048)	45 (112)
HB-8828-15	15	50,300 (1424)	57 (142)	77,400 (2192)	37 (92)	39,300 (1113)	73 (182)	61,400 (1739)	47 (117)
HB-8828-20	20	74,100 (2098)	58 (145)	114,000 (3228)	38 (95)	57,800 (1637)	75 (187)	90,300 (2557)	48 (120)

