

SM-BEIER

Mechanical Adjustable Speed Drives



THE AVAILABLE
SOLUTION,
WORLDWIDE.



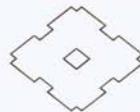
SUMITOMO
MACHINERY CORPORATION OF AMERICA

SM-BEIER

Catalog

06.002.50.003

INTRODUCTION



SM-BEIER

Sumitomo Machinery Corporation of America, a world leader in power transmission, offers the flexibility of mechanical speed variation.

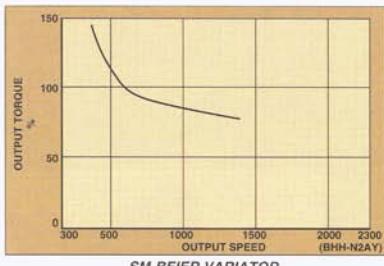


SM-BEIER VARIATOR

The SM-Beier is a premium-featured speed variator that is clearly superior to other mechanical adjustable speed drives. Because it maintains a constant oil film as a tractive force, the Beier Variator experiences no wear or grooving, which increases life with minimal maintenance.

The Beier Variator offers the highest HP capacity of any mechanical drive on the market today. Its unique viscous drag design provides high operating efficiency, heavy shock load capacity and stable rotational speed. It is also easily modifiable for explosion-proof, washdown and both open and closed loop signal following.

The Beier, when combined with the SM-Cyclo in-line, provides a broad speed variation over a low speed range.

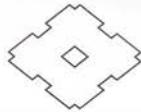


Beier Speed Torque Characteristics

The Beier Variator increases torque as speed is reduced. This drive offers a torque compensating face cam design for efficient, trouble-free operation and it is also backed by Sumitomo's two year warranty.

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SM-BEIER & BEIER CYCLO

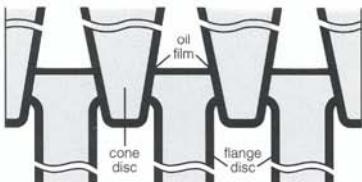


FEATURES

Power Transmission Through Viscous Drag

Power is transmitted through viscous drag or the tractive force of the oil film between the discs at the point of contact, not through friction between the cone and flange discs. The cone discs are relatively thin; thus the radius of curvature is great. This minimizes the contact pressure. Accordingly, at the points of contact, an ideal boundary lubrication nearing fluid film friction is obtained.

Transmission Through Oil Film



Overload Resistance

Excellent overload resistance due to the high multiplicity of contact points.

Durability

Metallic contact is avoided by maintaining a constant oil film between the discs, thus minimizing wear of the discs. This unique design results in long life and low maintenance costs. There is virtually no wear, and no grooving or fretting corrosion.

Ratings

The ratings are based on 24-hour daily service under uniform or low fluctuating load conditions. Service factors above 1.0 are required only for heavy load conditions.

Speed Adjustment

Speeds are infinitely adjustable within the 3.3:1, 4:1, or 10:1 speed ranges, depending on the model. Settings remain stable, even over long periods of time. There is no need to run the Beier through the entire speed range daily as with belt drives.

Minimum Vibration

The rotational parts, including the discs, are completely symmetrized, and the moment of inertia is low. This assures almost vibrationless operation.

Concentric Shafts Arrangement

The concentric shafts arrangement enables easy installation and handling.

Capacity

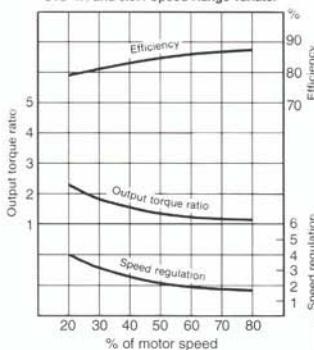
Highest load capacity of any mechanical drive—200 HP.

Space-Saving Compactness

The power transmitting section is composed of thin metallic discs. This feature provides compactness, while transmitting high torque. The Beier takes no more space than an ordinary mechanical speed variator of similar rating.

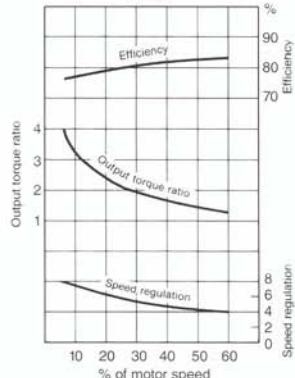
PERFORMANCE CURVES

STD 4:1 and 3.3:1 Speed Range Variator



Full Load
Motor Torque
is 1

Wide Range 10:1 Speed Range Variator
D Type

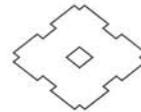


- Face Cam Design on All Models Decreases Wear and Increases Service Life
- Discs Hardened and Ground to 60 Rockwell C

OPTIONS:

- C Face Output to 7½ HP
- Accepts STD C Face Motor to 10 HP Input
- Remote control (electric, pneumatic, hydraulic)
- Explosion Proof Modifications
- Signal Following Remote Control (see Pg. 27)
- Top Mount Assembly (see Pg. 37)
- Washdown Modifications

BENEFITS



The Beier Variator is an adjustable speed traction drive whose design and method of speed variation is truly unique among mechanical drives available today. Power is transmitted through the viscous friction of an oil film that separates multiple thin metal discs. Variations in the depth of engagement between the driver and driven discs provide the means of adjusting speed.

Sumitomo has applied their extensive experience in the design and development of high-quality Cyclo speed reducers to the manufacture of the Beier Variator. The use of special bearing steels, through-hardened and machined to exacting dimensional tolerances, is common to both products. The ultra-compact combination of a Beier Variator and a Cyclo Reducer results in a Beier-Cyclo Variator that provides not only an adjustable speed range, but extremely low output speeds as well. Both units enjoy outstanding reputations where severe working conditions prevail, and in applications that cannot tolerate breakdowns.

High Efficiency

Efficiency of the Beier Variator approaches 90%. High efficiencies are maintained even when combined with Cyclo Speed Reducers, due to inherent efficiency advantages of Cyclo.

Heavy Load Capacity

The contact pressure is relatively low, since power transmission is evenly distributed over many contact points. This results in excellent shock load resistance. The Beier can withstand momentary shock or heavy overload and still not break the oil film that prevents metallic contact. It has the highest load capacity of any mechanical drive—200 HP.

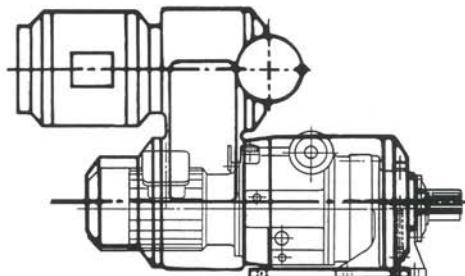
Durability

Virtually no wear and no grooving or fretting corrosion, as exhibited by belt drives.

Versatility

Wide product range covered by standard models and applied products that will meet diversified customer requirements.

Excellent Power Density



Typical motorized Beier Cyclo compared to belt drive. Both units are identical in HP capacity and final output speeds.

Speed Variation at Very Low Speed Area

Wide speed variation even at extremely low speed area is attainable in "BEIER-CYCLO VARIATOR."

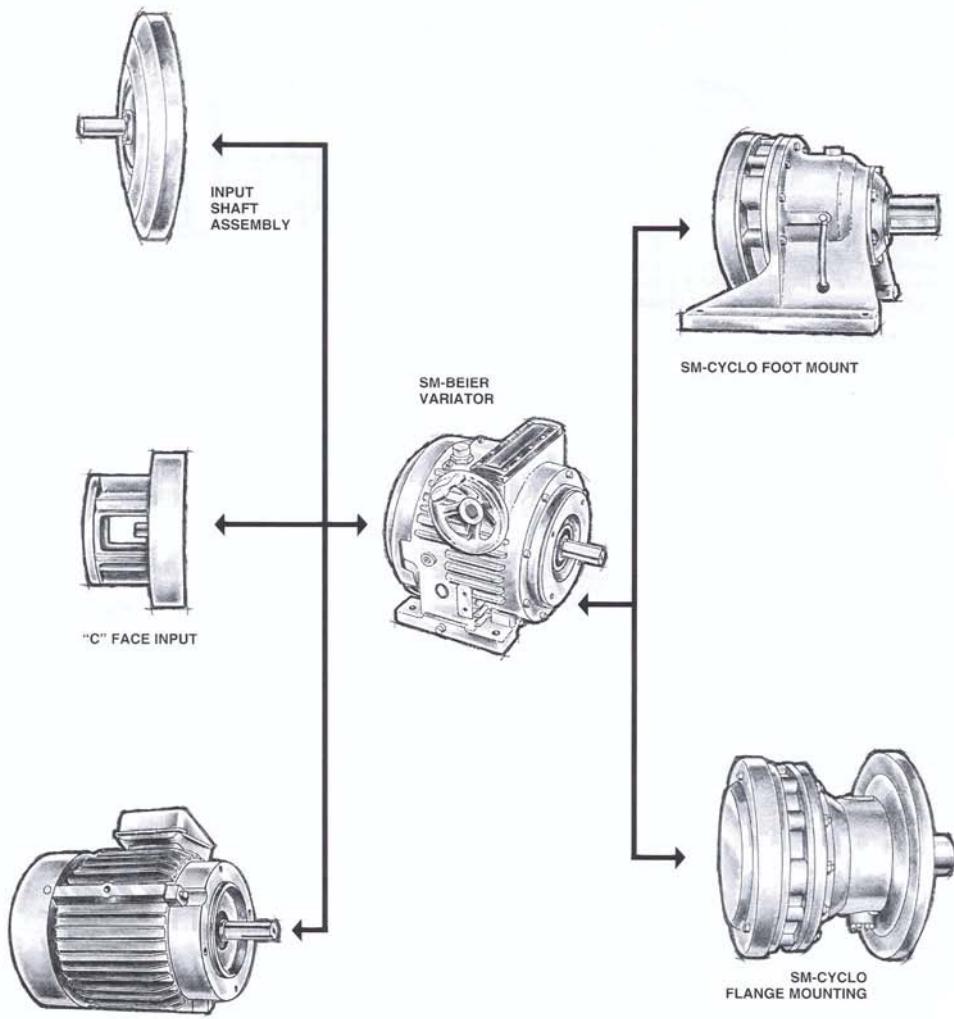
Stable Rotational Speed

There is hardly any fluctuation in the rotational speed of the BEIER VARIATOR, even when shock load is imposed or when the variator is continuously operated for a long time.

Easy Speed Control

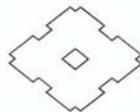
An infinitely variable speed can be obtained rapidly and exactly during operation by easy speed control operation. Various remote control equipment and automatic control systems are available as an option.

THE AVAILABLE MODULAR SOLUTION



"C" FACE MOTOR INPUT

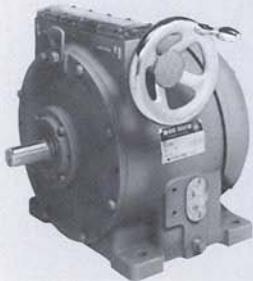
BASIC CONFIGURATIONS



Type A, AX

Input Power Available: $\frac{1}{2}$ ~200 HP
Speed Range Ratio: 4:1 or 3.3:1

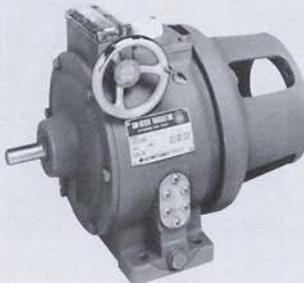
Pgs. 10 thru 17 — Ratings
Pg. 30 — Dimensions



Type AJ, AXJ (C Face Input)

Input Power Available: $\frac{1}{2}$ ~10 HP

Pgs. 10 thru 17 — Ratings
Pgs. 30 and 42 — Dimensions



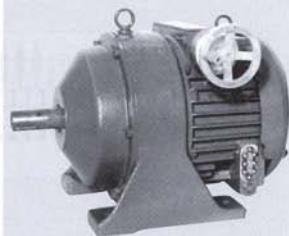
G-Type (Gear)

Input Power Available: $\frac{1}{2}$ ~100 HP

Speed Range Ratio: 4:1

Reduction Ratio: 2:1, 3:1, 4:1, 5:1

Pgs. 10 thru 17 — Ratings
Pg. 31 — Dimensions



Beier-Cyclo (Integral Design)

Input Power Available: $\frac{1}{2}$ ~20 HP
Speed Range Ratio: 4:1
Reduction Ratio: 6:1~infinite



Pgs. 10 thru 17 — Ratings
Pgs. 32 and 33 — Dimensions

Base Plate Model

Input Power Available: 15~200 HP

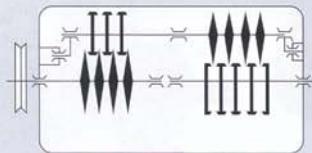
Pgs. 14 thru 17 — Ratings
For Dimensions please consult factory.



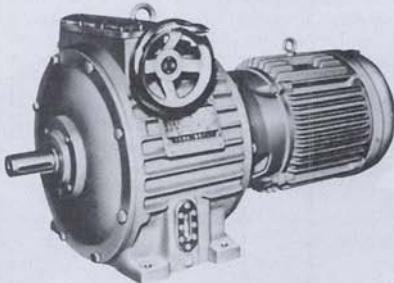
D-Type (Wide Range Type)

Pgs. 18 thru 20 — Ratings Pgs. 35 and 36 — Dimensions
This type consists of a double speed changing mechanism, giving infinitely stepless variable output speed in the speed range ratio of 10:1.

"D" Type available for horizontal operation only.



Input Power Available $\frac{1}{2}$ -10 HP
Speed Range Ratio: 10:1

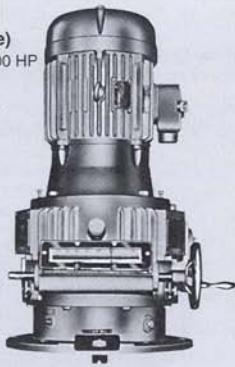


SPECIAL CONFIGURATIONS

AV Type

(Vertical Motorized Type)

Input Power Available: $\frac{1}{2}$ -200 HP
Speed Range Ratio: 4:1
Consult Factory
For Ratings & Dimensions

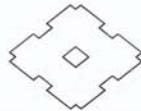


Vertical Beier-Cyclo

Input Power Available: $\frac{1}{2}$ -100 HP
Note: 7.5-100 HP units feature motor driven lubrication system.
Consult Factory
For Ratings & Dimensions



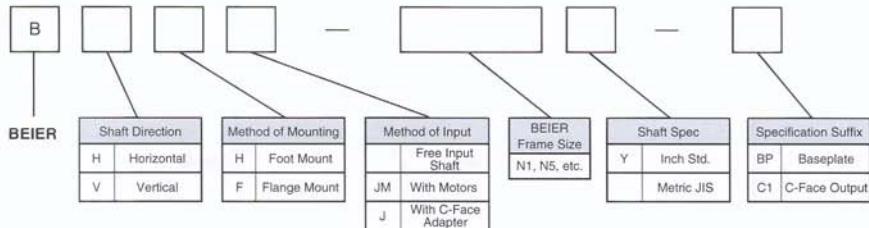
NOMENCLATURE



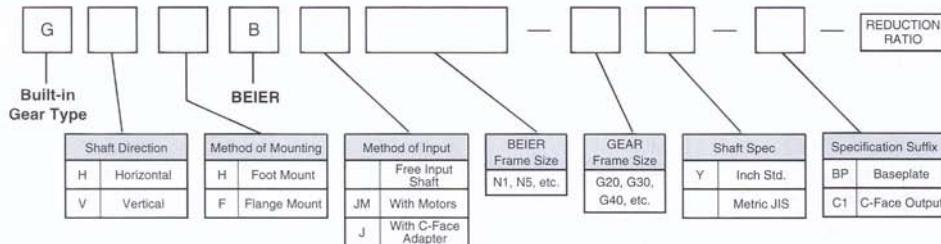
Basic



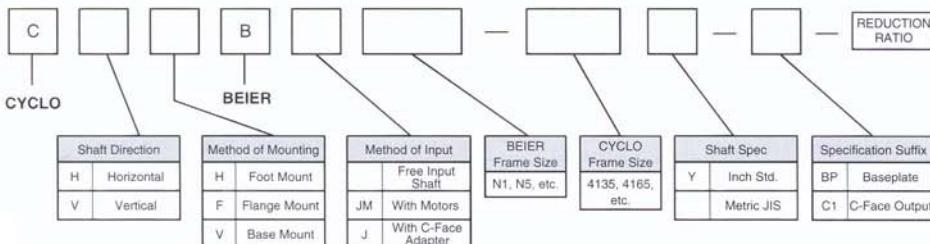
1. Beier Variator – Ex: "BHH-1AXY, BHHJ-5AXY"



2. Beier Variator (Built-in Gear Type) – Ex: "GHHBN5A-G30Y-5, GHHBJN2A-G20Y-3"

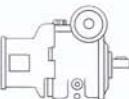
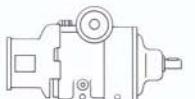
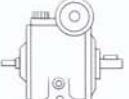
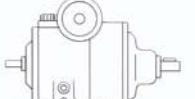
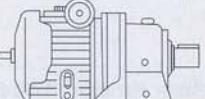
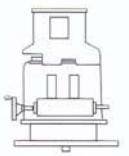
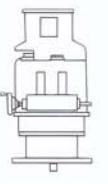
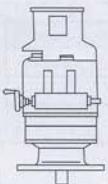


3. Beier-Cyclo Variator – Ex: "CHHBN8A-4165Y-17, CHHBijn8A-4175Y-87"



Note: AX = 1750 RPM rated output.

STANDARD MODEL AND TYPE

Shaft	Variety of output section	Input Mode		
		Basic Type	Built-in Gear Type	BEIER-CYCLO VARIATOR
Horizontal	Motorized	BHHJ 	GHHBJ 	CHHB 
	Free Input Shaft	BHH 	GHHB 	CHHB 
Vertical	Motorized	BVFJ 	GVFB 	CVVB 

Other applied products:

- Remote control equipped
- Inverted vertical type (A TYPE: 7.5 HP or less, B TYPE: 5 HP or less)
- Special vertical type for mixers

SELECTION



Ratings

The ratings (input horsepower) of Beier/Beier-Cyclo Variators are based on 24 hours daily service under uniform or low fluctuating load conditions. The input horsepower ratings of each frame size are shown on Pgs. 10 through 20.

When the application involves frequent start-stop, large shock loads, large load fluctuation or overload, consult the factory for unit selection.

Selection Example I

Conditions:

- 1) Driven machine: Conveyor
- 2) Operating time: 16 hours per day continuous
- 3) Motor specifications: 3 HP, 1800 RPM, 182TC
- 4) Output shaft speed: 32 RPM Max., 9 RPM Min.
- 5) Running load: 4600#
- 6) Input shaft connection: coupling
Output shaft connection: coupling

Selection:

Refer to rating tables Pg. 12. Select Model CHHBJN3A-4135Y (43:1 ratio). Output speed range 32.6 RPM — 8.1 RPM. Rated input power 3.0 HP @ Max. Output RPM. 1.76 HP @ Min. Output RPM.

Selection Example II

Conditions:

- 1) Driven machine: Plunger Pump
- 2) Operating time: 8 hours per day
- 3) Motor Specifications: 10 HP, 1200 RPM
- 4) Output speed: 875 RPM Max., 250 RPM Min.
- 5) Input shaft connection: coupling
Output shaft connection: coupling

Selection:

Determine rated input power requirement
Allowable input HP = Rated input HP x
$$\frac{\text{Operating input speed}}{\text{Standard input speed}}$$

Therefore, the
Rated input HP = Allowable input HP x
$$\frac{\text{Standard input speed}}{\text{Operating input speed}}$$

Allowable input power = 10 HP
Operating input speed = 1200 RPM
Standard input speed = 1800 RPM
Rated input power = $10 \times \frac{1800}{1200}$

Rated input power = 15 HP
Refer to rating tables Pg. 14
Select Model BHH-15AY
Output speed range 932 RPM — 233 RPM (based on 1165 RPM input).
Rated input power:
10.0 HP @ Max. output RPM
7.5 HP @ Min. output RPM

Selection Procedure

All data prepared in this catalog is for proper selection of standard Beier/Beier-Cyclo Variators under uniform load conditions.

The following information is required for proper selection:

- 1) Input RPM
- 2) Output RPM (Max. — Min.)
- 3) Motor Rating
- 4) H.P. (@ Max. RPM — @ Min. RPM)
- 5) Method of connecting input and output shafts
- 6) Operating conditions
- 7) Environmental conditions

Selection Example III

Conditions:

- 1) Driven machine: Mixer
- 2) Operating time: 16 hours per day
- 3) Output speed: 300 RPM Max., 100 RPM Min.
- 4) Running load:
1250# @ 300 RPM
1900# @ 100 RPM
- 5) Input and output shaft connections: coupling

Selection:

Determine HP equivalents
@ 300 RPM HP =
$$\frac{(1250\#)(300 \text{ RPM})}{63025} = 6.0 \text{ HP}$$

@ 100 RPM HP =
$$\frac{(1900\#)(100 \text{ RPM})}{63025} = 3.0 \text{ HP}$$

Refer to rating tables Pg. 13.
Select Model GHBN8A-G30Y with 4:1 reducer ratio. Output speed range 350 RPM — 87.5 RPM (based on 1750 RPM input speed).
Rated input power:
7.5 HP @ Max. output RPM
3.4 HP @ Min. output RPM

BEIER VARIATOR HP RATINGS – A, G TYPE

Standard Input 1/2 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	0.50	0.25	BHHJ-05AXY	42	BHHJ-05AXY	51	BHHJM-05AXY	73	30
700.0	175.0	2:1	0.50	0.25	GHHBN05A-G10Y	53	GHHBJN05A-G10Y	62	GHHBJMN05A-G10Y	84	31
469.0	117.0	3:1	0.50	0.25	GHHBN05A-G10Y	53	GHHBJN05A-G10Y	62	GHHBJMN05A-G10Y	84	31
350.0	87.5	4:1	0.50	0.25	GHHBN05A-G10Y	53	GHHBJN05A-G10Y	62	GHHBJMN05A-G10Y	84	31
280.0	70.0	5:1	0.50	0.25	GHHBN05A-G10Y	53	GHHBJN05A-G10Y	62	GHHBJMN05A-G10Y	84	31
233.0	58.3	6:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
127.0	31.8	11:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
82.3	20.6	17:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
48.3	12.1	29:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
40.0	10.0	35:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
32.6	8.14	43:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
23.7	5.93	59:1	0.50	0.25	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
16.0	4.00	87:1	0.50	0.19	CHHBN05A-4105Y	66	CHHBJN05A-4105Y	75	CHHBJMN05A-4105Y	97	32
13.7	3.43	102:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
11.5	2.89	121:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
8.05	2.01	174:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
7.49	1.87	187:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
6.67	1.67	210:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
5.43	1.36	258:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
4.84	1.21	289:1	0.50	0.25	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
4.39	1.10	319:1	0.50	0.21	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
3.95	0.99	354:1	0.50	0.20	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33
3.64	0.91	385:1	0.50	0.19	CHHBN05A-4135DCY	155	CHHBJN05A-4135DCY	164	CHHBJMN05A-4135DCY	186	33

Standard Input 3/4 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	0.75	0.33	BHHJ-08AXY	42	BHHJ-08AXY	52	BHHJM-08AXY	78	30
700.0	175.0	2:1	0.75	0.33	GHHBN08A-G10Y	53	GHHBJN08A-G10Y	63	GHHBJMN08A-G10Y	89	31
469.0	117.0	3:1	0.75	0.33	GHHBN08A-G10Y	53	GHHBJN08A-G10Y	63	GHHBJMN08A-G10Y	89	31
350.0	87.5	4:1	0.75	0.33	GHHBN08A-G10Y	53	GHHBJN08A-G10Y	63	GHHBJMN08A-G10Y	89	31
280.0	70.0	5:1	0.75	0.33	CHHBN08A-G10Y	53	CHHBJN08A-G10Y	63	CHHBJMN08A-G10Y	89	31
233.0	58.3	6:1	0.75	0.33	CHHBN08A-4105Y	66	CHHBJN08A-4105Y	76	CHHBJMN08A-4105Y	102	32
127.0	31.8	11:1	0.75	0.33	CHHBN08A-4105Y	66	CHHBJN08A-4105Y	76	CHHBJMN08A-4105Y	102	32
82.3	20.6	17:1	0.75	0.33	CHHBN08A-4105Y	66	CHHBJN08A-4105Y	76	CHHBJMN08A-4105Y	102	32
48.3	12.1	29:1	0.75	0.33	CHHBN08A-4105Y	66	CHHBJN08A-4105Y	76	CHHBJMN08A-4105Y	102	32
40.0	10.0	35:1	0.75	0.33	CHHBN08A-4115Y	100	CHHBJN08A-4115Y	110	CHHBJMN08A-4115Y	136	32
32.6	8.14	43:1	0.75	0.33	CHHBN08A-4115Y	100	CHHBJN08A-4115Y	110	CHHBJMN08A-4115Y	136	32
23.7	5.93	59:1	0.75	0.33	CHHBN08A-4115Y	100	CHHBJN08A-4115Y	110	CHHBJMN08A-4115Y	136	32
16.0	4.00	87:1	0.75	0.33	CHHBN08A-4115Y	100	CHHBJN08A-4115Y	110	CHHBJMN08A-4115Y	136	32
13.7	3.43	102:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
11.5	2.89	121:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
8.05	2.01	174:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
7.49	1.87	187:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
6.67	1.67	210:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
5.43	1.36	258:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
4.84	1.21	289:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
4.39	1.10	319:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
3.95	0.99	354:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33
3.64	0.91	385:1	0.75	0.33	CHHBN08A-4165DCY	251	CHHBJN08A-4165DCY	261	CHHBJMN08A-4165DCY	287	33

NOTE: Refer to factory for additional speed ranges.

HP RATINGS – A, G Type



Standard Input 1 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	1.00	0.50	BHH-1AXY	42	BHHJ-1AXY	52	BHHJM-1AXY	85	30
1400.0	350.0	—	1.00	0.50	BHH-N1AY	42	BHHJ-N1AY	52	BHHJM-N1AY	85	30
700.0	175.0	2:1	1.00	0.50	GHHBN1A-G10Y	53	GHHBJN1A-G10Y	63	GHHBJMN1A-G10Y	95	31
469.0	117.0	3:1	1.00	0.50	GHHBN1A-G10Y	53	GHHBJN1A-G10Y	63	GHHBJMN1A-G10Y	95	31
350.0	87.5	4:1	1.00	0.50	GHHBN1A-G10Y	53	GHHBJN1A-G10Y	63	GHHBJMN1A-G10Y	95	31
280.0	70.0	5:1	1.00	0.50	GHHBN1A-G10Y	53	GHHBJN1A-G10Y	63	GHHBJMN1A-G10Y	95	31
233.0	58.3	6:1	1.00	0.50	GHHBN1A-4105Y	66	GHHBJN1A-4105Y	76	GHHBJMN1A-4105Y	108	32
127.0	31.8	11:1	1.00	0.50	GHHBN1A-4105Y	66	GHHBJN1A-4105Y	76	GHHBJMN1A-4105Y	108	32
82.3	20.6	17:1	1.00	0.50	GHHBN1A-4105Y	66	GHHBJN1A-4105Y	76	GHHBJMN1A-4105Y	108	32
48.3	12.1	29:1	1.00	0.50	GHHBN1A-4115Y	100	GHHBJN1A-4115Y	110	GHHBJMN1A-4115Y	142	32
40.0	10.0	35:1	1.00	0.50	GHHBN1A-4115Y	100	GHHBJN1A-4115Y	110	GHHBJMN1A-4115Y	142	32
32.6	8.14	43:1	1.00	0.50	GHHBN1A-4115Y	100	GHHBJN1A-4115Y	110	GHHBJMN1A-4115Y	142	32
23.7	5.93	59:1	1.00	0.50	GHHBN1A-4115Y	100	GHHBJN1A-4115Y	110	GHHBJMN1A-4115Y	142	32
16.0	4.00	87:1	1.00	0.50	GHHBN1A-4115Y	100	GHHBJN1A-4115Y	110	GHHBJMN1A-4115Y	142	32
13.7	3.43	102:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
11.5	2.89	121:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
8.05	2.01	174:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
7.49	1.87	187:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
6.67	1.67	210:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
5.43	1.36	258:1	1.00	0.50	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
4.84	1.21	289:1	1.00	0.47	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
4.39	1.10	319:1	1.00	0.42	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
3.95	0.99	354:1	1.00	0.38	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33
3.64	0.91	385:1	1.00	0.35	GHHBN1A-4165DCY	251	GHHBJN1A-4165DCY	261	GHHBJMN1A-4165DCY	293	33

Standard Input 1 1/2 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	1.50	0.75	BHHJ-1HAXY	86	BHHJM-1HAXY	98	BHHJM-1HAXY	134	30
700.0	175.0	2:1	1.50	0.75	GHHBN1HA-G20Y	112	GHHBJN1HA-G20Y	124	GHHBJMN1HA-G20Y	160	31
469.0	117.0	3:1	1.50	0.75	GHHBN1HA-G20Y	112	GHHBJN1HA-G20Y	124	GHHBJMN1HA-G20Y	160	31
350.0	87.5	4:1	1.50	0.75	GHHBN1HA-G20Y	112	GHHBJN1HA-G20Y	124	GHHBJMN1HA-G20Y	160	31
280.0	70.0	5:1	1.50	0.75	GHHBN1HA-G20Y	112	GHHBJN1HA-G20Y	124	GHHBJMN1HA-G20Y	160	31
233.0	58.3	6:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
127.0	31.8	11:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
82.3	20.6	17:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
48.3	12.1	29:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
40.0	10.0	35:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
32.6	8.14	43:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
23.7	5.93	59:1	1.50	0.75	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
16.0	4.00	87:1	1.50	0.69	GHHBN1HA-4135Y	176	GHHBJN1HA-4135Y	188	GHHBJMN1HA-4135Y	224	32
13.7	3.43	102:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
11.5	2.89	121:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
8.05	2.01	174:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
7.49	1.87	187:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
6.67	1.67	210:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
5.43	1.36	258:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
4.84	1.21	289:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
4.39	1.10	319:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
3.95	0.99	354:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33
3.64	0.91	385:1	1.50	0.75	GHHBN1HA-4185DHY	465	GHHBJN1HA-4185DHY	477	GHHBJMN1HA-4185DHY	513	33

NOTE: Refer to factory for additional speed ranges.

BEIER VARIATOR HP RATINGS – A, G TYPE

Standard Input 2 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) A Type

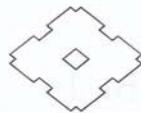
Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	2.00	1.00	BHH-2AXY	86	BHHJ-2AXY	98	BHHJM-2AXY	143	30
1400.0	350.0	—	2.00	1.00	BHH-N2AY	86	BHHJ-N2AY	86	BHHJM-N2AY	143	30
700.0	175.0	2:1	2.00	1.00	GHHBN2A-G20Y	112	GHHBJN2A-G20Y	124	GHHBJMN2A-G20Y	169	31
469.0	117.0	3:1	2.00	1.00	GHHBN2A-G20Y	112	GHHBJN2A-G20Y	124	GHHBJMN2A-G20Y	169	31
350.0	87.5	4:1	2.00	1.00	GHHBN2A-G20Y	112	GHHBJN2A-G20Y	124	GHHBJMN2A-G20Y	169	31
280.0	70.0	5:1	2.00	1.00	GHHBN2A-G20Y	112	GHHBJN2A-G20Y	124	GHHBJMN2A-G20Y	169	31
233.0	58.3	6:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	233	32
127.0	31.8	11:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	233	32
82.3	20.6	17:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	233	32
48.3	12.1	29:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	233	32
40.0	10.0	35:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	522	32
32.6	8.14	43:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	522	32
23.7	5.93	59:1	2.00	1.00	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	522	32
16.0	4.00	87:1	2.00	0.69	CHHBN2A-4135Y	176	CHHBJN2A-4135Y	188	CHHBJM2A-4135Y	522	32
13.7	3.43	102:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
11.5	2.89	121:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
8.05	2.01	174:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
7.49	1.87	187:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
6.67	1.67	210:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
5.43	1.36	258:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
4.84	1.21	289:1	2.00	1.00	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
4.39	1.10	319:1	2.00	0.89	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
3.95	0.99	354:1	2.00	0.85	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33
3.64	0.91	385:1	2.00	0.78	CHHBN2A-4185DBY	465	CHHBJN2A-4185DBY	477	CHHBJM2A-4185DBY	522	33

Standard Input 3 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	3.00	2.00	BHH-3AXY	86	BHHJ-3AXY	112	BHHJM-3AXY	178	30
1400.0	350.0	—	3.00	2.00	BHH-N3AY	86	BHHJ-N3AY	112	BHHJM-N3AY	178	30
700.0	175.0	2:1	3.00	2.00	GHHBN3A-G20Y	112	GHHBJN3A-G20Y	138	GHHBJMN3A-G20Y	204	31
469.0	117.0	3:1	3.00	2.00	GHHBN3A-G20Y	112	GHHBJN3A-G20Y	138	GHHBJMN3A-G20Y	204	31
350.0	87.5	4:1	3.00	2.00	GHHBN3A-G20Y	112	GHHBJN3A-G20Y	138	GHHBJMN3A-G20Y	204	31
280.0	70.0	5:1	3.00	2.00	GHHBN3A-G20Y	112	GHHBJN3A-G20Y	138	GHHBJMN3A-G20Y	204	31
233.0	58.3	6:1	3.00	2.00	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
127.0	31.8	11:1	3.00	2.00	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
82.3	20.6	17:1	3.00	2.00	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
48.3	12.1	29:1	3.00	2.00	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
40.0	10.0	35:1	3.00	1.72	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
32.6	8.14	43:1	3.00	1.40	CHHBN3A-4135Y	176	CHHBJN3A-4135Y	202	CHHBJM3A-4135Y	268	32
23.7	5.93	59:1	3.00	1.25	CHHBN3A-4145Y	179	CHHBJN3A-4145Y	205	CHHBJM3A-4145Y	271	32
16.0	4.00	87:1	3.00	1.38	CHHBN3A-4165Y	267	CHHBJN3A-4165Y	293	CHHBJM3A-4165Y	359	32
13.7	3.43	102:1	3.00	2.00	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
11.5	2.89	121:1	3.00	2.00	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
8.05	2.01	174:1	3.00	1.63	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
7.49	1.87	187:1	3.00	1.51	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
6.67	1.67	210:1	3.00	1.35	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
5.43	1.36	258:1	3.00	1.10	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
4.84	1.21	289:1	3.00	0.98	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
4.39	1.10	319:1	3.00	0.89	CHHBN3A-4185DBY	465	CHHBJN3A-4185DBY	491	CHHBJM3A-4185DBY	556	33
3.95	0.99	354:1	3.00	1.68	CHHBN3A-4205DBY	658	CHHBJN3A-4205DBY	684	CHHBJM3A-4205DBY	750	33
3.64	0.74	473:1	3.00	1.26	CHHBN3A-4205DBY	658	CHHBJN3A-4205DBY	684	CHHBJM3A-4205DBY	750	33

NOTE: Refer to factory for additional speed ranges.

HP RATINGS – A, G Type



Standard Input 5 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	5.00	3.00	BHH-5AXY	143	BHHJ-5AXY	169	BHHJM-5AXY	248	30
1400.0	350.0	—	5.00	3.00	BHH-N5AY	143	BHHJ-N5AY	169	BHHJM-N5AY	248	30
700.0	175.0	2:1	5.00	3.00	GHHBN5A-G30Y	212	GHHBJNSA-G30Y	238	GHHBJMNSA-G30Y	317	31
469.0	117.0	3:1	5.00	3.00	GHHBN5A-G30Y	212	GHHBJNSA-G30Y	238	GHHBJMNSA-G30Y	317	31
350.0	87.5	4:1	5.00	3.00	GHHBN5A-G30Y	212	GHHBJNSA-G30Y	238	GHHBJMNSA-G30Y	317	31
280.0	70.0	5:1	5.00	2.40	GHHBN5A-G30Y	212	GHHBJNSA-G30Y	238	GHHBJMNSA-G30Y	317	31
233.0	58.3	6:1	5.00	3.00	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
127.0	31.8	11:1	5.00	3.00	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
82.3	20.6	17:1	5.00	3.00	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
48.3	12.1	29:1	5.00	3.00	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
40.0	10.0	35:1	5.00	3.00	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
32.6	8.14	43:1	5.00	2.80	CHHBN5A-4165Y	320	CHHBJNSA-4165Y	346	CHHBJMNSA-4165Y	425	32
23.7	5.93	59:1	5.00	3.00	CHHBN5A-4175Y	403	CHHBJNSA-4175Y	429	CHHBJMNSA-4175Y	508	32
16.0	4.00	87:1	5.00	2.08	CHHBN5A-4175Y	403	CHHBJNSA-4175Y	429	CHHBJMNSA-4175Y	508	32
11.5	2.89	121:1	5.00	3.00	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
8.48	2.12	165:1	5.00	3.00	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
8.05	2.01	174:1	5.00	3.00	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
6.06	1.52	231:1	5.00	2.93	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
5.43	1.36	258:1	5.00	2.62	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
4.39	1.10	319:1	5.00	2.12	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33
3.95	0.99	354:1	5.00	1.91	CHHBN5A-4215DBY	927	CHHBJNSA-4215DBY	953	CHHBJMNSA-4215DBY	1032	33

Standard Input 7 1/2 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, AX, G Type		A, AX, G Type w/C-Face Adapter		A, AX, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1750.0	525.0	—	7.50	5.00	BHH-8AXY	143	BHHJ-8AXY	183	BHHJM-8AXY	302	30
1400.0	350.0	—	7.50	5.00	BHH-N8AY	143	BHHJ-N8AY	183	BHHJM-N8AY	302	30
700.0	175.0	2:1	7.50	5.00	GHHBN8A-G30Y	212	GHHBJNSA-G30Y	252	GHHBJMNSA-G30Y	371	31
469.0	117.0	3:1	7.50	4.50	GHHBN8A-G30Y	212	GHHBJNSA-G30Y	252	GHHBJMNSA-G30Y	371	31
350.0	87.5	4:1	7.50	3.40	GHHBN8A-G30Y	212	GHHBJNSA-G30Y	252	GHHBJMNSA-G30Y	371	31
280.0	70.0	5:1	7.50	2.40	GHHBN8A-G30Y	212	GHHBJNSA-G30Y	252	GHHBJMNSA-G30Y	371	31
233.0	58.3	6:1	7.50	5.00	CHHBN8A-4165Y	320	CHHBJNSA-4165Y	360	CHHBJMNSA-4165Y	479	32
127.0	31.8	11:1	7.50	5.00	CHHBN8A-4165Y	320	CHHBJNSA-4165Y	360	CHHBJMNSA-4165Y	479	32
82.3	20.6	17:1	7.50	5.00	CHHBN8A-4165Y	320	CHHBJNSA-4165Y	360	CHHBJMNSA-4165Y	479	32
48.3	12.1	29:1	7.50	4.15	CHHBN8A-4165Y	320	CHHBJNSA-4165Y	360	CHHBJMNSA-4165Y	479	32
40.0	10.0	35:1	7.50	3.44	CHHBN8A-4165Y	320	CHHBJNSA-4165Y	360	CHHBJMNSA-4165Y	479	32
32.6	8.14	43:1	7.50	4.20	CHHBN8A-4175Y	403	CHHBJNSA-4175Y	443	CHHBJMNSA-4175Y	562	32
23.7	5.93	59:1	7.50	3.06	CHHBN8A-4175Y	403	CHHBJNSA-4175Y	443	CHHBJMNSA-4175Y	562	32
16.0	4.00	87:1	7.50	2.08	CHHBN8A-4175Y	403	CHHBJNSA-4175Y	443	CHHBJMNSA-4175Y	562	32
11.5	2.89	121:1	7.50	4.21	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
8.48	2.12	165:1	7.50	3.61	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
8.05	2.01	174:1	7.50	3.42	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
6.06	1.52	231:1	7.50	2.93	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
5.43	1.36	258:1	7.50	2.62	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
4.39	1.10	319:1	7.50	2.12	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33
3.95	0.99	354:1	7.50	1.91	CHHBN8A-4215DBY	927	CHHBJNSA-4215DBY	967	CHHBJMNSA-4215DBY	1086	33

NOTE: Refer to factory for additional speed ranges.

BEIER VARIATOR HP RATINGS – A, G TYPE

Standard Input 10 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/C-Face Adapter		A, G Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1400.0	350.0	—	10.0	7.50	BHH-N10AY	216	BHHJ-N10AY	238	BHHJM-N10AY	366	30
700.0	175.0	2:1	10.0	7.50	GHHBN10A-G40Y	377	GHHBJN10A-G40Y	399	GHHBJMN10A-G40Y	527	31
469.0	117.0	3:1	10.0	7.50	GHHBN10A-G40Y	377	GHHBJN10A-G40Y	399	GHHBJMN10A-G40Y	527	31
350.0	87.5	4:1	10.0	7.50	GHHBN10A-G40Y	377	GHHBJN10A-G40Y	399	GHHBJMN10A-G40Y	527	31
280.0	70.0	5:1	10.0	7.50	GHHBN10A-G40Y	377	GHHBJN10A-G40Y	399	GHHBJMN10A-G40Y	527	31
127.0	31.8	11:1	10.0	7.50	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
82.3	20.6	17:1	10.0	7.50	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
48.3	12.1	29:1	10.0	7.50	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
40.0	10.0	35:1	10.0	7.50	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
32.6	8.14	43:1	10.0	6.22	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
23.7	5.93	59:1	10.0	4.53	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
16.0	4.02	87:1	10.0	3.07	CHHBN10A-4185Y	521	CHHBJN10A-4185Y	543	CHHBJMN10A-4185Y	943	32
11.5	2.89	121:1	10.0	7.50	CHHBN10A-4245DBY	1790	CHHBJN10A-4245DBY	1810	CHHBJMN10A-4245DBY	1940	33
8.48	2.12	165:1	10.0	5.99	CHHBN10A-4245DBY	1790	CHHBJN10A-4245DBY	1810	CHHBJMN10A-4245DBY	1940	33
6.06	1.52	231:1	10.0	6.17	CHHBN10A-4245DBY	1790	CHHBJN10A-4245DBY	1810	CHHBJMN10A-4245DBY	1940	33
4.39	1.10	319:1	10.0	4.47	CHHBN10A-4245DBY	1790	CHHBJN10A-4245DBY	1810	CHHBJMN10A-4245DBY	1940	33
2.96	0.74	473:1	10.0	3.00	CHHBN10A-4245DBY	1790	CHHBJN10A-4245DBY	1810	CHHBJMN10A-4245DBY	1940	33

Standard Input 15 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate & TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1400.0	350.0	—	15.0	10.0	BHH-15AY	360	BHHJ-15AY	660	BHHJM-15AY	890	30
700.0	175.0	2:1	15.0	10.0	GHHB15A-G50Y	570	GHHBJ15A-G50Y	995	GHHBJM15A-G50Y	1225	31
469.0	117.0	3:1	15.0	10.0	GHHB15A-G50Y	570	GHHBJ15A-G50Y	995	GHHBJM15A-G50Y	1225	31
350.0	87.5	4:1	15.0	10.0	GHHB15A-G50Y	570	GHHBJ15A-G50Y	995	GHHBJM15A-G50Y	1225	31
127.0	31.8	11:1	15.0	10.0	CHHB15A-4185Y	660	CHHBJ15A-4185Y	1085	CHHBJM15A-4185Y	1315	32
82.3	20.6	17:1	15.0	10.0	CHHB15A-4185Y	660	CHHBJ15A-4185Y	1085	CHHBJM15A-4185Y	1315	32
48.3	12.1	29:1	15.0	9.22	CHHB15A-4185Y	660	CHHBJ15A-4185Y	1085	CHHBJM15A-4185Y	1315	32
40.0	10.0	35:1	15.0	7.64	CHHB15A-4185Y	660	CHHBJ15A-4185Y	1085	CHHBJM15A-4185Y	1315	32
32.6	8.14	43:1	15.0	6.22	CHHB15A-4185Y	660	CHHBJ15A-4185Y	1085	CHHBJM15A-4185Y	1315	32
23.7	5.93	59:1	15.0	8.16	CHHB15A-4195Y	854	CHHBJ15A-4195Y	1280	CHHBJM15A-4195Y	1410	32
16.0	4.02	87:1	15.0	5.53	CHHB15A-4195Y	854	CHHBJ15A-4195Y	1280	CHHBJM15A-4195Y	1410	32
11.5	2.89	121:1	15.0	10.0	CHHB15A-4255DBY	2565	CHHBJ15A-4255DBY	3580	CHHBJM15A-4255DBY	3810	33
8.48	2.12	165:1	15.0	9.89	CHHB15A-4255DBY	2565	CHHBJ15A-4255DBY	3580	CHHBJM15A-4255DBY	3810	33
6.06	1.52	231:1	15.0	8.02	CHHB15A-4255DBY	2565	CHHBJ15A-4255DBY	3580	CHHBJM15A-4255DBY	3810	33
4.39	1.10	319:1	15.0	5.80	CHHB15A-4255DBY	2565	CHHBJ15A-4255DBY	3580	CHHBJM15A-4255DBY	3810	33
2.96	0.74	473:1	15.0	4.49	CHHB15A-4255DBY	2565	CHHBJ15A-4255DBY	3580	CHHBJM15A-4255DBY	3810	33

NOTE: Refer to factory for additional speed ranges.

HP RATINGS – A, G Type



Standard Input 20 HP at a Maximum of 1165 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1305.0	326.0	—	20.0	15.0	BHH-20AY	420	BHHJ-20AY	845	BHHJM-20AY	1205	30
652.0	163.0	2:1	20.0	15.0	GHHB20A-G60Y	750	GHHBJ20A-G60Y	1175	GHHBJM20A-G60Y	1535	31
435.0	109.0	3:1	20.0	15.0	GHHB20A-G60Y	750	GHHBJ20A-G60Y	1175	GHHBJM20A-G60Y	1535	31
326.0	81.5	4:1	20.0	15.0	GHHB20A-G60Y	750	GHHBJ20A-G60Y	1175	GHHBJM20A-G60Y	1535	31
118.0	29.6	11:1	20.0	15.0	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
87.0	21.7	15:1	20.0	15.0	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
62.0	15.5	21:1	20.0	15.0	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
45.0	11.2	29:1	20.0	15.0	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
30.3	7.58	43:1	20.0	13.0	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
22.1	5.52	59:1	20.0	9.54	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32
15.0	3.74	87:1	17.5	5.51	CHHB20A-4215Y	1285	CHHB20A-4215Y	2035	CHHB20A-4215Y	2395	32

Standard Input 25 HP at a Maximum of 1165 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1258.0	314.0	—	25.0	20.0	BHH-25AY	770	BHH-25AY-BP	1195	BHHM-25AY-BP	1695	30
629.0	157.0	2:1	25.0	20.0	GHHB25A-G70Y	1300	GHHB25A-G70Y-BP	1725	GHHBM25A-G70Y-BP	2225	31
419.0	105.0	3:1	25.0	20.0	GHHB25A-G70Y	1300	GHHB25A-G70Y-BP	1725	GHHBM25A-G70Y-BP	2225	31
314.0	78.6	4:1	25.0	20.0	GHHB25A-G70Y	1300	GHHB25A-G70Y-BP	1725	GHHBM25A-G70Y-BP	2225	31
114.0	28.5	11:1	25.0	20.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
83.9	20.9	15:1	25.0	20.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
59.9	15.0	21:1	25.0	20.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
43.3	10.8	29:1	25.0	20.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
29.2	7.31	43:1	25.0	19.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
21.3	5.33	59:1	25.0	13.0	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34
14.4	3.61	87:1	25.0	8.6	CHHB25A-4235Y	1880	CHHB25A-4235Y-BP	2710	CHHB25A-4235Y-BP	3210	34

Standard Input 30 HP at a Maximum of 1165 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1258.0	314.0	—	30.0	20.0	BHH-30AY	770	BHH-30AY-BP	1195	BHHM-30AY-BP	1735	30
629.0	157.0	2:1	30.0	20.0	GHHB30A-G70Y	1300	GHHB30A-G70Y-BP	1725	GHHBM30A-G70Y-BP	2265	31
419.0	105.0	3:1	30.0	20.0	GHHB30A-G70Y	1300	GHHB30A-G70Y-BP	1725	GHHBM30A-G70Y-BP	2265	31
314.0	78.6	4:1	30.0	20.0	GHHB30A-G70Y	1300	GHHB30A-G70Y-BP	1725	GHHBM30A-G70Y-BP	2265	31
114.0	28.5	11:1	30.0	20.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
83.9	20.9	15:1	30.0	20.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
59.9	15.0	21:1	30.0	20.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
43.3	10.8	29:1	30.0	20.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
29.2	7.31	43:1	30.0	19.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
21.3	5.33	59:1	30.0	13.0	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34
14.4	3.61	87:1	30.0	8.6	CHHB30A-4235Y	1880	CHHB30A-4235Y-BP	2710	CHHB30A-4235Y-BP	3260	34

NOTES: Refer to factory for additional speed ranges.

All Beier-Cyclos 25 HP and larger are non-integral type.

BEIER VARIATOR HP RATINGS – A, G TYPE

Standard Input 40 HP at a Maximum of 1165 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1258.0	314.0	—	40.0	30.0	BHH-40AY	770	BHH-40AY-BP	1460	BHBM-40AY-BP	2080	30
629.0	157.0	2:1	40.0	30.0	GHHB40A-G70Y	1355	GHHB40A-G70Y-BP	2380	GHHBM40A-G70Y-BP	3000	31
419.0	105.0	3:1	40.0	30.0	GHHB40A-G70Y	1355	GHHB40A-G70Y-BP	2380	GHHBM40A-G70Y-BP	3000	31
314.0	78.6	4:1	40.0	30.0	GHHB40A-G70Y	1355	GHHB40A-G70Y-BP	2380	GHHBM40A-G70Y-BP	3000	31
114.0	28.5	11:1	40.0	30.0	CHHB40A-4235Y	1880	CHHB40A-4235Y-BP	2695	CHHB40A-4235Y-BP	3315	34
83.9	20.9	15:1	40.0	30.0	CHHB40A-4235Y	1880	CHHB40A-4235Y-BP	2695	CHHB40A-4235Y-BP	3315	34
59.9	15.0	21:1	40.0	30.0	CHHB40A-4235Y	1880	CHHB40A-4235Y-BP	2695	CHHB40A-4235Y-BP	3315	34
43.3	10.8	29:1	40.0	27.0	CHHB40A-4235Y	1880	CHHB40A-4235Y-BP	2695	CHHB40A-4235Y-BP	3315	34
29.2	7.31	43:1	40.0	19.0	CHHB40A-4235Y	1880	CHHB40A-4235Y-BP	2695	CHHB40A-4235Y-BP	3315	34
21.3	5.33	59:1	40.0	18.0	CHHB40A-4245Y	2115	CHHB40A-4245Y-BP	2845	CHHB40A-4245Y-BP	3465	34
14.4	3.61	87:1	32.0	12.0	CHHB40A-4245Y	2115	CHHB40A-4245Y-BP	2845	CHHB40A-4245Y-BP	3465	34

Standard Input 50 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1085.0	271.0	—	50.0	30.0	BHH-50A	1970	BHH-50AY-BP	2890	BHBM-50AY-BP	3590	30
542.0	136.0	2:1	50.0	30.0	GHHB50A-G80Y	3530	GHHB50A-G80Y-BP	5500	GHHBM50A-G80Y-BP	6200	
361.0	90.4	3:1	50.0	30.0	GHHB50A-G80Y	3530	GHHB50A-G80Y-BP	5500	GHHBM50A-G80Y-BP	6200	
271.0	67.8	4:1	50.0	30.0	GHHB50A-G80Y	3530	GHHB50A-G80Y-BP	5500	GHHBM50A-G80Y-BP	6200	
217.0	54.3	5:1	50.0	30.0	GHHB50A-G80Y	3530	GHHB50A-G80Y-BP	5500	GHHBM50A-G80Y-BP	6200	
98.6	24.6	11:1	50.0	30.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
72.3	18.1	15:1	50.0	30.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
51.7	12.9	21:1	50.0	30.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
37.4	9.3	29:1	50.0	30.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
25.2	6.3	43:1	50.0	30.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
18.3	4.5	59:1	50.0	23.0	CHHB50A-4255Y	4005	CHHB50A-4255Y-BP	4005	CHHB50A-4255Y-BP	6200	
12.4	3.1	87:1	50.0	17.0	CHHB50A-4255Y	4520	CHHB50A-4255Y-BP	4520	CHHB50A-4255Y-BP	6200	

Standard Input 60 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1085.0	271.0	—	60.0	40.0	BHH-60AY	2130	BHH-60AY-BP	3050	BHBM-60AY-BP	3810	30
542.0	136.0	2:1	60.0	40.0	GHHB60A-G80Y	3650	GHHB60A-G80Y-BP	5600	GHHBM60A-G80Y-BP	6360	
361.0	90.4	3:1	60.0	40.0	GHHB60A-G80Y	3650	GHHB60A-G80Y-BP	5600	GHHBM60A-G80Y-BP	6360	
271.0	67.8	4:1	60.0	40.0	GHHB60A-G80Y	3650	GHHB60A-G80Y-BP	5600	GHHBM60A-G80Y-BP	6360	
98.6	24.6	11:1	60.0	40.0	CHHB60A-4255Y	4165	CHHB60A-4255Y-BP	4165	CHHB60A-4255Y-BP	6200	
72.3	18.1	15:1	60.0	40.0	CHHB60A-4255Y	4165	CHHB60A-4255Y-BP	4165	CHHB60A-4255Y-BP	6200	
51.7	12.9	21:1	60.0	40.0	CHHB60A-4255Y	4165	CHHB60A-4255Y-BP	4165	CHHB60A-4255Y-BP	6200	
37.4	9.3	29:1	60.0	40.0	CHHB60A-4255Y	4165	CHHB60A-4255Y-BP	4165	CHHB60A-4255Y-BP	6200	
25.2	6.3	43:1	60.0	30.0	CHHB60A-4255Y	4165	CHHB60A-4255Y-BP	4165	CHHB60A-4255Y-BP	6200	
18.3	4.5	59:1	60.0	31.0	CHHB60A-4265Y	4680	CHHB60A-4265Y-BP	4680	CHHB60A-4265Y-BP	6200	
12.4	3.1	87:1	59.0	17.0	CHHB60A-4265Y	4680	CHHB60A-4265Y-BP	4680	CHHB60A-4265Y-BP	6200	

NOTES: ‡ Consult factory for information.

50HP and larger includes cooling unit.

All Beier-Cyclos 25 HP and larger are non-integral type.

HP RATINGS – A, G Type



Standard Input 75 HP at a Maximum of 875 RPM Input

Normal Duty Type (S.F. 1.0) A Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1085.0	271.0	—	75.0	50.0	BHH-75AY	2150	BHH-75AY-BP	3070	BHHM-75AY-BP	4070	30
542.0	136.0	2:1	75.0	50.0	GHHB75A-G80Y	3680	GHHB75A-G80Y-BP	5630	GHHBM75A-G80Y-BP	6630	‡
361.0	90.4	3:1	75.0	50.0	GHHB75A-G80Y	3680	GHHB75A-G80Y-BP	5630	GHHBM75A-G80Y-BP	6630	
271.0	67.8	4:1	75.0	50.0	GHHB75A-G80Y	3680	GHHB75A-G80Y-BP	5630	GHHBM75A-G80Y-BP	6630	
98.6	24.6	11:1	75.0	50.0	CHHB75A-4255Y	4185	CHHB75A-4255Y-BP		CHHBM75A-4255Y-BP		
72.3	18.1	15:1	75.0	50.0	CHHB75A-4255Y	4185	CHHB75A-4255Y-BP		CHHBM75A-4255Y-BP		‡
51.7	12.9	21:1	75.0	50.0	CHHB75A-4255Y	4185	CHHB75A-4255Y-BP		CHHBM75A-4255Y-BP		‡
37.4	9.3	29:1	75.0	40.0	CHHB75A-4255Y	4185	CHHB75A-4255Y-BP		CHHBM75A-4255Y-BP		
25.2	6.3	43:1	75.0	31.0	CHHB75A-4255Y	4185	CHHB75A-4255Y-BP		CHHBM75A-4255Y-BP		
18.3	4.5	59:1	75.0	31.0	CHHB75A-4265Y	4700	CHHB75A-4265Y-BP	‡	CHHBM75A-4265Y-BP		‡
12.4	3.1	87:1	59.0	17.0	CHHB75A-4265Y	4700	CHHB75A-4265Y-BP	‡	CHHBM75A-4265Y-BP		‡

Standard Input 100 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1085.0	271.0	—	100.0	75.0	BHH-100AY	2200	BHH-100AY-BP	3100	BHHJM-100AY-BP	4200	30
542.0	136.0	2:1	100.0	75.0	GHHB100A-G80Y	3700	GHHB100A-G80Y-BP	5700	GHHBM100A-G80Y-BP	6700	‡
361.0	90.4	3:1	100.0	75.0	GHHB100A-G80Y	3700	GHHB100A-G80Y-BP	5700	GHHBM100A-G80Y-BP	6700	
271.0	67.8	4:1	100.0	75.0	GHHB100A-G80Y	3700	GHHB100A-G80Y-BP	5700	GHHBM100A-G80Y-BP	6700	
98.6	24.6	11:1	100.0	75.0	CHHB100A-4265Y	4750	CHHB100A-4265Y-BP		CHHBM100A-4265Y-BP		
63.8	15.9	17:1	100.0	68.0	CHHB100A-4265Y	4750	CHHB100A-4265Y-BP		CHHBM100A-4265Y-BP		‡
25.2	6.3	43:1	100.0	55.0	CHHB100A-4275Y	7545	CHHB100A-4275Y-BP	‡	CHHBM100A-4275Y-BP		‡
18.3	4.5	59:1	100.0	40.0	CHHB100A-4275Y	7545	CHHB100A-4275Y-BP	‡	CHHBM100A-4275Y-BP		

Standard Input 125 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1120.0	280.0	—	125.0	83.0	BHH-125AY	4420	BHH-125AY-BP	6485	BHHM-125AY-BP		30

Standard Input 150 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1120.0	280.0	—	150.0	100.0	BHH-150AY	4440	BHH-150AY-BP	6610	BHHM-150AY-BP		30

Standard Input 200 HP at a Maximum of 875 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		A, G Type		A, G Type w/Base Plate w/o Motor		A, G Type w/Base Plate &TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1120.0	280.0	—	200.0	150.0	BHH-200AY	4540	BHH-200AY-BP	6600	BHHM-200AY-BP		30

NOTES. ‡ Consult factory for more information.

50HP and larger includes cooling unit. 150 HP and larger includes electric remote control.

All Beier-Cyclos 25 HP and larger are non-integral type.

HP RATINGS – NDY Type – Wide Range

Standard Input 1/2 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) D Type

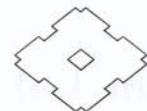
Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor		NDY Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	0.50	0.20	BHH-N05DY	33	BHHJ-N05DY	40	BHHJM-N05DY	62	35
175.0	17.50	6:1	0.50	0.20	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
131.0	13.10	8:1	0.50	0.20	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
95.5	9.55	11:1	0.50	0.20	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
61.8	6.18	17:1	0.50	0.20	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
36.2	3.62	29:1	0.50	0.20	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
30.0	3.00	35:1	0.50	0.19	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
24.4	2.44	43:1	0.50	0.15	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
17.8	1.78	59:1	0.50	0.11	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36
12.1	1.21	87:1	0.50	0.08	CHHB0N05D-4105Y	64	CHHB0N05D-4105Y	71	CHHB0MN05D-4105Y	93	36

Standard Input 1 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor		NDY Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	1.00	0.38	BHH-N1DY	33	BHHJ-N1DY	42	BHHJM-N1DY	75	35
175.0	17.50	6:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
131.0	13.10	8:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
95.5	9.55	11:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
61.8	6.18	17:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
36.2	3.62	29:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
30.0	3.00	35:1	1.00	0.38	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
24.4	2.44	43:1	1.00	0.36	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
17.8	1.78	59:1	1.00	0.27	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36
12.1	1.21	87:1	1.00	0.17	CHHB0N1D-4115Y	88	CHHB0N1D-4115Y	97	CHHB0MN1D-4115Y	130	36

NOTE: Refer to factory for additional speed ranges.

HP RATINGS – NDY Type – Wide Range



Standard Input 2 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) D Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor		NDY Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	2.00	0.76	BHH-N2DY	106	BHHJ-N2DY	119	BHHJM-N2DY	164	35
175.0	17.50	6:1	2.00	0.76	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
131.0	13.10	8:1	2.00	0.76	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
95.5	9.55	11:1	2.00	0.76	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
61.8	6.18	17:1	2.00	0.76	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
36.2	3.62	29:1	2.00	0.76	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
30.0	3.00	35:1	2.00	0.66	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
24.4	2.44	43:1	2.00	0.54	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
17.8	1.78	59:1	2.00	0.39	CHHBN2D-4135Y	198	CHHBGN2D-4135Y	211	CHHBGMN2D-4135Y	256	36
12.1	1.21	87:1	2.00	0.32	CHHBN2D-4145Y	201	CHHBGN2D-4145Y	214	CHHBGMN2D-4145Y	259	36

Standard Input 3 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor		NDY Type w/TEFC Motor		Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	3.00	1.13	BHH-N3DY	106	BHHJ-N3DY	123	BHHJM-N3DY	189	35
175.0	17.50	6:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
131.0	13.10	8:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
95.5	9.55	11:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
61.8	6.18	17:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
36.2	3.62	29:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
30.0	3.00	35:1	3.00	1.13	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
24.4	2.44	43:1	3.00	1.07	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
17.8	1.78	59:1	3.00	0.79	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36
12.1	1.21	87:1	3.00	0.54	CHHBN3D-4165Y	291	CHHBGN3D-4165Y	308	CHHBGMN3D-4165Y	374	36

HP RATINGS – NDY Type – Wide Range

Standard Input 5 HP at a Maximum of 1750 RPM Input

Normal Duty Type (S.F. 1.0) D Type

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor			NDY Type w/TEFC Motor			Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	5.00	1.88	BHH-N5DY	214	BHHJ-N5DY	241	BHHJM-N5DY	320	35		
175.0	17.50	6:1	5.00	1.88	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
95.5	9.55	11:1	5.00	1.88	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
61.8	6.18	17:1	5.00	1.88	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
36.2	3.62	29:1	5.00	1.88	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
30.0	3.00	35:1	5.00	1.88	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
24.4	2.44	43:1	5.00	1.61	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
17.8	1.78	59:1	5.00	1.18	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		
12.1	1.21	87:1	5.00	0.80	CHHBN5D-4175Y	474	CHHBJN5D-4175Y	501	CHHBJMN5D-4175Y	580	36		

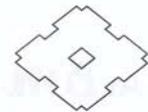
Standard Input 7 1/2 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor			NDY Type w/TEFC Motor			Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	7.50	2.82	BHH-N8DY	214	BHHJ-N8DY	245	BHHJM-N8DY	364	35		
175.0	17.50	6:1	7.50	2.82	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
95.5	9.55	11:1	7.50	2.82	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
61.8	6.18	17:1	7.50	2.82	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
36.2	3.62	29:1	7.50	2.41	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
30.0	3.00	35:1	7.50	2.01	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
24.4	2.44	43:1	7.50	1.61	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
17.8	1.78	59:1	7.50	1.18	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		
12.1	1.21	87:1	6.30	0.80	CHHBN8D-4175Y	474	CHHBJN8D-4175Y	505	CHHBJMN8D-4175Y	624	36		

Standard Input 10 HP at a Maximum of 1750 RPM Input

Output Shaft Speed		Reducer Ratio	Rated Input H.P.		NDY Type		NDY Type w/C-Face Adaptor			NDY Type w/TEFC Motor			Dimension Page
Max	Min		At Max Speed	At Min Speed	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	Size	Net Wt.	
1050.0	105.0	—	10.0	3.75	BHH-N10DY	353	BHHJ-N10DY	391	BHHJM-N10DY	519	35		
95.5	9.55	11:1	10.0	3.75	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
61.8	6.18	17:1	10.0	3.75	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
36.2	3.62	29:1	10.0	3.62	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
30.0	3.00	35:1	10.0	2.95	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
24.4	2.44	43:1	10.0	2.41	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
17.8	1.78	59:1	10.0	1.74	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		
12.1	1.21	87:1	9.38	1.18	CHHBN10D-4185Y	963	CHHBJN10D-4185Y	1001	CHHBJMN10D-4185Y	1129	36		

AGMA LOAD CLASSIFICATIONS



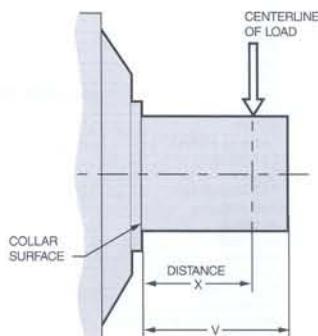
TYPE OF APPLICATION	TYPE OF LOAD	TYPE OF APPLICATION	TYPE OF LOAD	TYPE OF APPLICATION	TYPE OF LOAD
Agitators				Paper Mills	
Pure liquids	U	Large (industrial)	M	Agitators (mixers)	M
Liquids and solids	M	Light (small diameter)	U	Bath, hydraulic	M
Variable-density liquids	M	Feeder	M	Barker, mechanical	M
Blowers		Apron	M	Barking drum	H
Centrifugal	U	Belt	M	Beater and pulper	M
Lobe	M	Disc	U	Bleacher	U
Vane	U	Reciprocating	H	Calenders	M
Brewing and Distilling		Screw	M	Calendlers, super	H
Bottling machinery	U	Food processing	M	Converting machine (except cutters, platters)	M
Brew kettles, cont. duty	U	Best slicer	M	Conveyors	M
Cookers, cont. duty	U	Cereal cooker	U	Couch	M
Mash tubs, cont. duty	U	Dough mixer	M	Cutters, platters	H
Scale hopper, frequent starts	M	Meat grinders	M	Cylinders	M
Can Packing Machines	U	Generators (Not Welding)	U	Dryers	M
Cane Knives	H	Hammer Mills	H	Felt stretcher	M
Car Dumpers	M	Hoist	M	Jordans	H
Car Pullers	M	Heavy duty	H	Log haul	H
Clarifiers	U	Medium duty	M	Presses	U
Classifiers	M	Skip	M	Pulp machine reel	M
Clay Working Machinery	H	Laundry Washers — Reversing	M	Stock nest	M
Brick press	H	Laundry Tumblers	M	Suction roll	U
Briquette machine	H	Lane Saws	M	Washers and thickeners	M
Clay working machinery	M	Drive processing equipment	M	Winders	U
Pug mill	M	Light	U	Printing Presses	S
Compressors		Other line shafts	U	Pullers, Barge Haul	H
Centrifugal	U	Lumber Industry	S	Pump	
Lobe	M	Barkers — hydraulic and mechanical	H	Centrifugal	U
Reciprocating, multi-cylinder	M	Chain Saw and Drag Saw	H	Proportioning	M
Reciprocating, single-cylinder	H	Chain transfer	H	Reciprocating	M
Conveyors — Uniformly Loaded or Fed		Craneway transfer	H	Single acting, 3 or more cylinders	M
Apron	U	De-barking drum	H	Double acting, 2 or more cylinders	M
Assembly	U	Edger feed	H	Pottery-gear type	U
Belt	M	Gang chain	M	Rubber & Plastics Industries	
Bucket	M	Geared chain	M	Crackers	H
Chain	U	Live rolls	H	Laboratory equipment	M
Flight	U	Log haul-lockline	H	Mixing mills	H
Oven	M	Main log conveyor	H	Refiners	M
Screw	U	Off bearing roll	M	Rubber calenders	M
Conveyors — Heavy Duty, Not Uniformly Fed		Pig iron feed chains	M	Pulver mill (2 on line)	M
Apron	M	Planer floor chains	M	Rubber mill (3 on line)	U
Assembly	M	Planer tilting hoist	M	Sheeter	M
Belt	M	Re-saw merry-go-round conveyor	M	Tire building machines	S
Bucket	M	Roll cases	H	Tire and tube press openers	S
Chain	M	Slab conveyor	H	Tubers and strainers	M
Flight	M	Small conveyor-beer	M	Worming mills	M
Lift	M	Small waste-conveyor-chain	M	Sand Muller	M
Log roll over	H	Sorting table	M	Screens	
Reciprocating	H	Tipple hoist conveyor	M	Air washing	U
Screw	M	Tipple hoist drive	M	Rotary, stone or gravel	M
Shaker	H	Traveling conveyors	M	Traveling water intake	U
Cranes (Except for Dry Dock Cranes)		Travelling rolls	M	Sewage Disposal Equipment	
Main hoists	U	Tray drives	M	Boat	U
Bridge travel	S	Trimmer feed	M	Chemical fenders	U
Trolley travel	S	Waste conveyor	M	Collectors, circuline or straightline	U
Crusher	H	Machine Tools	M	Dewatering screws	M
Ore	H	Bending roll	M	Grit collectors	U
Stone	M	Notching press, belt driven	S	Scum breakers	M
Sugar	M	Pipe	H	Spoon end mixers	M
Dredges		Punch press, gear driven	H	Sludge collectors	U
Cable reels	M	Tapping machine	H	Thickeners	M
Conveyors	M	Other machine tools	M	Vacuum filters	M
Cutter head drives	M	Main drives	M	Slab Pushers	M
Jig drives	H	Auxiliary drives	U	Steering Gear	S
Maneuvering winches	H	Draw bench carriage and main drive	M	Stoker	
Pumps	M	Forming machines	H	Cane industry	M
Steel drive	M	Pinch, dryer and scrubber rolls, reversing	S	Crushers	M
Stackers	M	Slitters	M	Mills	H
Utility winches	M	Table conveyors, nonreversing	M	Textile Industry	
Dry Dock Cranes		Individual drives	M	Batchers	M
Elevators	U	Table conveyors, reversing	S	Calenders	M
Bucket, uniform load	M	Wire drawing and flattening machine	M	Cards	M
Bucket, heavy load	M	Wire winding machine	M	Dry cans	M
Bucket, cont.	U	Mills, Rotary Type	M	Dryers	M
Centrifugal discharge	U	Ball	M	Dyeing machinery	M
Escalators	U	Cement kilns	M	Knitting machines	S
Freight	M	Driers and coolers	M	Looms	M
Gravel discharge	U	Kilns	M	Margins	M
Milk lifts	U	Pebble	M	Napier	M
Passenger	S	Rod, plain and wedge bar	M	Pads	M
Extruders (Plastics)	S	Tumbling barrels	H	Range drives	S
Blow molders	M	Mixer	M	Slashers	M
Coating	M	Concrete mixers, cont.	M	Soapers	M
Film	U	Concrete mixers, intermittent	M	Spring	M
Pipe	U	Constant density	M	Tenter frames	M
Plasticizers	M	Variable density	M	Washers	M
Rods	U	Oil Industry	M	Winders	M
Sheet	U	Chillers	S	Windlass	S
Tubing	U	Oil pump pumps	M		
Paris		Paraffin filter press	M		
Centrifugal	U	Rotary kilns	M		
Cooling towers	S				
Forced draft	S				
Induced draft	M				
Large (mine, etc.)	M				

U = Uniform Load
M = Moderate Shock

H = Heavy Shock
S = Contact Sumitomo

ALLOWABLE OVERHUNG LOAD

When a sprocket, sheave, pulley, or gear is mounted on the slow speed shaft, or on the high speed shaft of a Beier Variator, an overhung load is applied on the shaft. It is necessary to check whether the shafts of Beier/Beier-Cyclo allow the overhung load or not.



OVERHUNG LOAD CALCULATION

Calculate the overhung load with the formula below:

Overhung Load =

$$\frac{126,000 \times HP \times Cf \times Lf \times SF}{D \times N}$$

HP: Horsepower transmitted by shaft

Cf: Load connection factor (select Lf from Table 2)

Lf: Load location factor (select Lf from Tables, Pgs. 23, 24 and 25)

SF: Shock load service factor (select from Table 1 and chart on Pg. 22)

D: Pitch dia of sprocket, etc.

N: Shaft speed (rpm)

NOTE1: For uniform load, the Beier is designed for 24-hour duty. SF above is for shock loading/peak loading conditions.

EXAMPLE:

A printing machine requiring 5 HP, SF = 1.0, is to be driven by 5AXY Beier Variator, 1400 rpm output, using 3.5" pitch dia, V-belt pulley on the slow speed shaft. Center line of the load is 1.25" from the output shaft collar surface.

PROCEDURE

- 1) Calculate the overhung load

With Cf = 1.5 from Table 2

With SF = 1.0 from Table 1

With Lf = 0.96 from Table 6

Overhung load =

$$\frac{126,000 \times 5 \times 1.5 \times 0.96 \times 1.0}{3.5 \times 1400} = 185\#$$

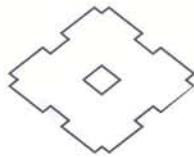
- 2) Check the overhung load capacity of Beier Variator. Size 5AXY Allowable Overhung Load = 375#. Since the allowable overhung load of the 5AXY is larger than the calculated overhung load of 185# the application is satisfactory.

Table 1. Shock Load Service Factor¹ — SF

Load Classification	SF
Uniform	1.0
Moderate	1.2
Heavy	1.6

Table 2. Load Connection Factor — Cf

Type of Connection	Factor
General Purpose Chain	1.0
Machined Gear or Pinion	1.25
V-Belt	1.5
Flat Belt	2.5



"A" Type – Standard Speed Range

Table 3. High Speed Shaft — O.H. Load Capacity — Pounds

MODEL	BHH-05AXY BHH-08AXY BHH-N1AY BHH-1AXY GHHBN05A-GI0Y GHHBN08A-GI0Y GHHBN1A-GI0Y	BHH-1HAXY BHH-N3AY BHH-N2AY BHH-2AXY GHHBN1HA-G10Y GHHBN3A-G20Y GHHBN3A-G20Y GHHBN2A-G20Y	BHH-N5AY BHH-5AXY BHH-N8AY BHH-8AXY GHHBN5A-G30Y GHHBN8A-G30Y	BHH-N10AY GHHBN10A-G40Y	BHH-15AY	BHH-20AY	BHH-25AY BHH-30AY BHH-40AY	BHH-50AY BHH-60AY BHH-75AY BHH-100AY	BHH-125AY BHH-150AY BHH-200AY
1800	50	128	145	153	320	—	—	—	—
1200	—	—	—	—	—	520	905	—	—
900	—	—	—	—	—	—	—	1155	3960

NOTE: For values at input speeds other than those listed consult factory.

Table 4. High Speed Shaft — Load Location Factor — Lf

MODEL	BHH-05AXY BHH-08AXY BHH-N1AY BHH-1AXY GHHBN05A-GI0Y GHHBN08A-GI0Y GHHBN1A-GI0Y	BHH-1HAXY BHH-N3AY BHH-N2AY BHH-2AXY GHHBN1HA-G10Y GHHBN3A-G20Y GHHBN3A-G20Y GHHBN2A-G20Y	BHH-N5AY BHH-5AXY BHH-N8AY BHH-8AXY GHHBN5A-G30Y GHHBN8A-G30Y	BHH-N10AY GHHBN10A-G40Y	BHH-15AY	BHH-20AY	BHH-25AY BHH-30AY BHH-40AY	BHH-50AY BHH-60AY BHH-75AY BHH-100AY	BHH-125AY BHH-150AY BHH-200AY
X (inch)	0.86 0.97 1.12 1.31	0.88 0.93 0.99 1.06	0.87 0.93 1.00 1.08	0.88 0.91 0.97 1.03	— — 0.94 0.97	— — 0.89 0.92	— — — 0.88	— — — 0.88	— — — 0.83
1/4	—	1.14	1.17	1.11	1.01	0.96	0.91	0.91	0.84
1/2	—	—	—	1.19	1.05	0.99	0.95	0.93	0.86
3/4	—	—	—	1.29	1.10	1.03	0.99	0.95	0.87
1	—	—	—	—	1.15	1.07	1.03	0.98	0.89
1 1/4	—	—	—	—	—	1.16	1.13	1.04	0.93
1 1/2	—	—	—	—	—	—	1.25	1.11	0.97
1 3/4	—	—	—	—	—	—	—	1.19	1.01
2	—	—	—	—	—	—	—	1.29	1.06
2 1/2	—	—	—	—	—	—	—	—	1.12
3	—	—	—	—	—	—	—	—	1.18
3 1/2	—	—	—	—	—	—	—	—	1.24
4	—	—	—	—	—	—	—	—	1.31
4 1/2	—	—	—	—	—	—	—	—	—
5	—	—	—	—	—	—	—	—	—
5 1/2	—	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—	—

ALLOWABLE OVERHUNG LOAD

"A" Type – Standard Speed Range

Table 5. Slow Speed Shaft Overhung Load Capacity — Pounds

MODEL	BHH-05AY	BHH-1HAY	BHH-N2AY	BHH-N5AY			BHH-25AY	BHH-50AY	BHH-125AY
Shaft Speed RPM	BHH-08AY	BHH-2AXY	BHH-5AY	BHH-5AY			BHH-30AY	BHH-60AY	BHH-150AY
	BHH-N1AY	BHH-N3AY	BHH-N8AY	BHH-8AY	BHH-N10AY	BHH-15AY	BHH-20AY	BHH-75AY	BHH-200AY
1800	120	255	345	—	—	—	—	—	—
1700	120	260	350	—	—	—	—	—	—
1600	125	265	355	—	—	—	—	—	—
1500	125	270	365	—	—	—	—	—	—
1400	130	275	375	430	660	—	—	—	—
1350	130	275	380	435	660	—	—	—	—
1300	130	280	385	440	675	770	—	—	—
1250	130	280	390	450	675	785	1395	4840	—
1200	135	290	395	460	685	800	1420	4880	—
1100	140	300	405	475	705	820	1470	4950	7670
1000	145	310	420	485	730	840	1520	5600	8250
900	150	320	435	510	750	870	1580	5720	8360
800	155	335	455	530	785	910	1630	5940	8690
700	165	350	475	550	830	950	1705	6200	9020
600	175	370	500	575	870	995	1800	6400	9350
500	185	390	530	610	925	1065	1930	6600	10,120
400	—	—	—	650	990	1150	2045	6600	10,450
300	—	—	—	720	1100	1255	2200	6600	11,660
200	—	—	—	—	—	—	—	6600	12,100
100	—	—	—	—	—	—	—	6600	12,100

NOTE: For values at input speeds other than those listed consult factory.

Table 6. Slow Speed Shaft Overhung Load Factor — Lf

MODEL	BHH-05AY	BHH-1HAY	BHH-N2AY	BHH-N5AY			BHH-25AY	BHH-50AY	BHH-125AY
X (inch)	BHH-08AY	BHH-2AXY	BHH-5AY	BHH-5AY			BHH-30AY	BHH-60AY	BHH-150AY
	BHH-N1AY	BHH-N3AY	BHH-N8AY	BHH-8AY	BHH-N10AY	BHH-15AY	BHH-20AY	BHH-75AY	BHH-200AY
½	0.90	0.88	—	—	—	—	—	—	—
¾	0.94	0.92	0.91	0.94	—	—	—	—	—
1	0.98	0.95	0.93	0.96	0.92	0.89	—	—	—
1 ¼	1.03	0.98	0.96	0.99	0.94	0.91	0.93	0.86	0.87
1 ½	1.16	1.06	0.98	1.01	0.97	0.93	0.94	0.87	0.88
1 ¾	1.28	1.17	1.01	1.04	1.00	0.96	0.96	0.89	0.89
2	1.41	1.28	1.09	1.06	1.02	0.98	0.98	0.90	0.90
2 ½	—	1.50	1.28	1.11	1.08	1.03	1.01	0.92	0.93
3	—	—	1.46	1.17	1.15	1.08	1.04	0.95	0.95
3 ½	—	—	—	—	1.23	1.13	1.08	0.97	0.97
4	—	—	—	—	—	1.20	1.12	1.00	1.00
4 ½	—	—	—	—	—	—	1.17	1.03	1.02
5	—	—	—	—	—	—	—	1.07	1.05
5 ½	—	—	—	—	—	—	—	1.10	1.07
6	—	—	—	—	—	—	—	1.14	1.10
6 ½	—	—	—	—	—	—	—	1.18	1.13
7	—	—	—	—	—	—	—	1.22	1.17



"A" Type – Standard Speed Range

Table 7. Slow Speed Shaft (Type AGY) Overhung Load Capacity — Pounds

MODEL	GHHBN05A-G10Y	GHHBN1HA-G10Y	GHHBN2A-G20Y	GHHBN5A-G30Y	GHHBN8A-G30Y	GHHBN10A-G40Y	GHHB15A-G50Y	GHHB20A-G60Y	GHHB25A-G70Y	GHHB30A-G70Y	GHHB40A-G70Y	GHHB50A-G80Y	GHHB60A-G80Y	GHHB75A-G80Y	GHHB100A-G80Y
Shaft Speed RPM	GHHBN08A-G10Y	GHHBN1A-G10Y	GHHBN3A-G20Y	GHHBN8A-G30Y	GHHBN10A-G40Y	GHHB15A-G50Y	GHHB20A-G60Y	GHHB25A-G70Y	GHHB30A-G70Y	GHHB40A-G70Y	GHHB50A-G80Y	GHHB60A-G80Y	GHHB75A-G80Y	GHHB100A-G80Y	
700	300	400	705	1115	1460	—	—	—	—	—	—	—	—	—	—
650	310	410	720	1145	1500	1410	—	—	—	—	—	—	—	—	—
600	315	420	735	1175	1540	1430	3160	—	—	—	—	—	—	—	—
550	325	430	755	1195	1580	1540	3280	—	—	—	—	7050	—	—	—
500	335	440	780	1215	1630	1560	3400	—	—	—	—	7230	—	—	—
450	345	450	790	1260	1690	1640	3520	—	—	—	—	7410	—	—	—
400	355	465	815	1310	1755	1670	3640	—	—	—	—	7630	—	—	—
300	385	500	870	1410	1920	1795	3900	—	—	—	—	8180	—	—	—
200	435	550	970	1580	2140	1980	4320	—	—	—	—	8930	—	—	—
100	535	650	1140	1825	2600	2235	5320	—	—	—	—	10,070	—	—	—
50	645	815	1180	1985	2640	2420	6200	—	—	—	—	10,540	—	—	—

NOTE: For values at output speeds other than those listed consult factory.

Table 8. Slow Speed Shaft (Type AGY) Load Location Factor — Lf

MODEL	GHHBN05A-G10Y	GHHBN1HA-G10Y	GHHBN2A-G20Y	GHHBN5A-G30Y	GHHBN8A-G30Y	GHHBN10A-G40Y	GHHB15A-G50Y	GHHB20A-G60Y	GHHB25A-G70Y	GHHB30A-G70Y	GHHB40A-G70Y	GHHB50A-G80Y	GHHB60A-G80Y	GHHB75A-G80Y	GHHB100A-G80Y
X (inch)	GHHBN08A-G10Y	GHHBN1A-G10Y	GHHBN3A-G20Y	GHHBN8A-G30Y	GHHBN10A-G40Y	GHHB15A-G50Y	GHHB20A-G60Y	GHHB25A-G70Y	GHHB30A-G70Y	GHHB40A-G70Y	GHHB50A-G80Y	GHHB60A-G80Y	GHHB75A-G80Y	GHHB100A-G80Y	
½	0.90	0.84	—	—	—	—	—	—	—	—	—	—	—	—	—
⅓	0.98	0.90	0.80	0.82	—	—	—	—	—	—	—	—	—	—	—
1	1.06	0.96	0.84	0.86	0.81	0.76	—	—	—	—	—	—	—	—	—
1 ¼	1.13	1.04	0.94	0.89	0.84	0.78	0.87	—	—	—	—	—	—	—	—
1 ½	—	—	1.15	1.06	0.93	0.87	0.81	0.89	0.83	—	—	—	—	—	—
1 ¾	—	—	1.25	1.17	0.97	0.90	0.84	0.91	0.85	—	—	—	—	—	—
2	—	—	1.34	1.29	1.00	0.94	0.87	0.92	0.87	—	—	—	—	—	—
2 ½	—	—	—	1.52	1.08	1.03	0.93	0.95	0.90	—	—	—	—	—	—
3	—	—	—	—	1.15	1.12	1.01	0.98	0.93	—	—	—	—	—	—
3 ½	—	—	—	—	1.23	1.24	1.11	1.03	0.97	—	—	—	—	—	—
4	—	—	—	—	—	1.38	1.22	1.07	1.01	—	—	—	—	—	—
4 ½	—	—	—	—	—	—	1.36	1.11	1.08	—	—	—	—	—	—
5	—	—	—	—	—	—	1.54	1.16	—	—	—	—	—	—	—
5 ½	—	—	—	—	—	—	—	—	—	—	—	1.22	—	—	—
6	—	—	—	—	—	—	—	—	—	—	—	—	1.31	—	—
6 ½	—	—	—	—	—	—	—	—	—	—	—	—	1.39	—	—
7	—	—	—	—	—	—	—	—	—	—	—	—	1.47	—	—
7 ½	—	—	—	—	—	—	—	—	—	—	—	—	1.54	—	—
8	—	—	—	—	—	—	—	—	—	—	—	—	1.61	—	—

NOTE: For slow speed shaft overhung load values and load location factors (Lf) for Beier-Cyclo Variators, refer to Tables 2, 3, 4, and 5 on Pgs. 124, 125 and 126 of SM-Cyclo Reducer Catalog 04.401.50.010.

ALLOWABLE OVERHUNG LOAD

“D” Type – Wide Range

Table 9. High Speed Shaft Overhung Load Capacity — Pounds

MODEL Shaft Speed RPM	BHH-N05DY BHH-N1DY	BHH-N2DY BHH-N3DY	BHH-N5DY BHH-N8DY	BHH-N10DY
1800	154	220	243	287

NOTE: For values at input speeds other than those listed, consult factory.

Table 10. High Speed Shaft Load Location Factor — Lf

MODEL X (Inch)	BHH-N05DY BHH-N1DY	BHH-N2DY BHH-N3DY	BHH-N5DY BHH-N8DY	BHH-N10DY
1/4	0.81	0.92	0.82	0.80
1/2	0.95	0.96	0.91	0.89
3/4	1.09	1.00	0.90	0.96
1	1.24	1.04	1.07	1.03
1 1/4	—	1.08	1.15	1.12
1 1/2	—	1.18	1.24	1.19
1 3/4	—	—	—	1.28

Table 11. Slow Speed Shaft Overhung Load Capacity — Pounds

MODEL Shaft Speed RPM	BHH-N05DY BHH-N1DY	BHH-N2DY BHH-N3DY	BHH-N5DY BHH-N8DY	BHH-N10DY
1100	198	231	518	661
1000	198	242	518	661
900	198	253	518	661
800	198	264	507	661
700	198	275	507	661
600	198	286	507	661
500	187	308	496	661
400	187	330	496	661
300	187	363	496	650
200	187	418	485	617
100	187	418	485	606

Table 12. Slow Speed Shaft Load Location Factor — Lf

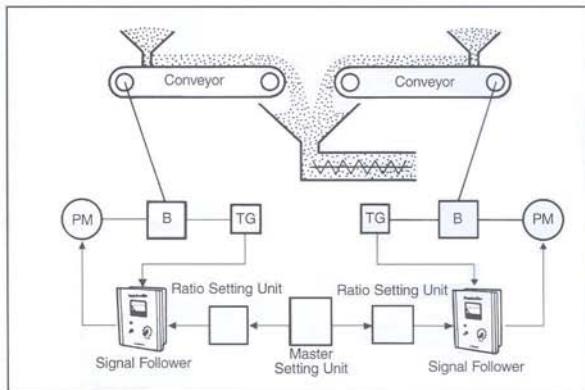
MODEL X (Inch)	BHH-N05DY BHH-N1DY	BHH-N2DY BHH-N3DY	BHH-N5DY BHH-N8DY	BHH-N10DY
1/2	0.96	0.95	0.80	0.95
3/4	1.00	0.98	0.87	0.96
1	1.08	1.00	0.95	0.99
1 1/4	1.18	1.04	1.02	1.00
1 1/2	1.28	1.07	1.10	1.03
1 3/4	—	1.10	1.18	1.10
2	—	—	1.26	1.17
2 1/2	—	—	—	1.31

4000 SERIES BEIER VARIATORS

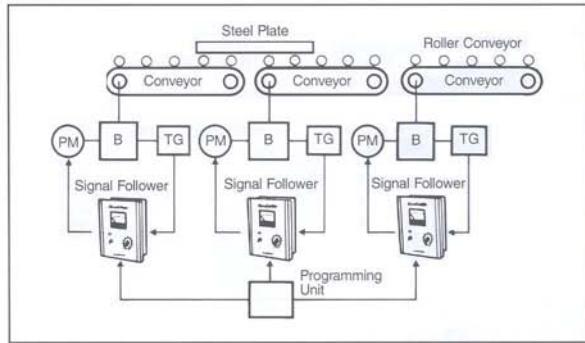
with Optional Process Signal Follower

REMOTE SYSTEMS FOR
VOLTAGE, CURRENT,
PNEUMATIC CONTROL

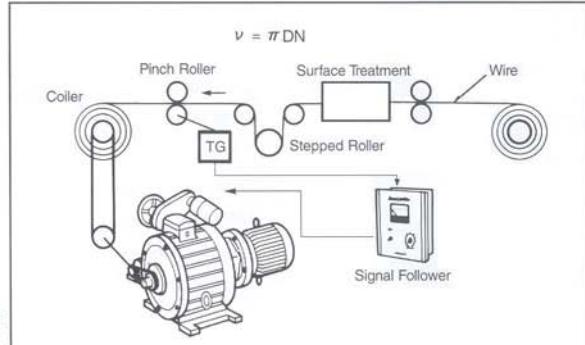
Mixing Ratio Control



Synchronized Control



Constant Speed Control



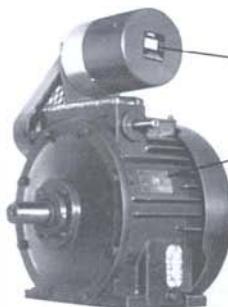
NOTE:

B = Beier Variator
PM = Pilot Motor
TG = Tach Generator

4000 SERIES

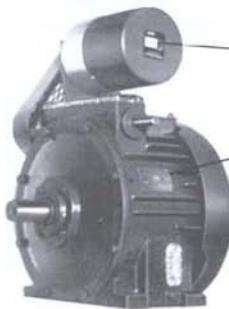
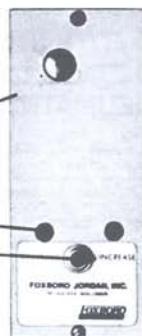
BEIER VARIATORS with Jordan Controls Actuator

Standard Package Systems



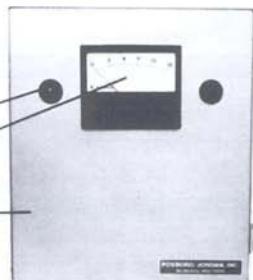
SM-1P

- Jordan Controls Actuator† Travel Limit Switches
- SM-Beier Variator NEMA 12 Enclosure
- Indicator Lights
- Mounted Toggle Switch



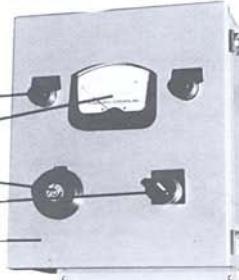
SM-2P

- Jordan Controls Actuator† Travel Limit Switches Built-in Feedback Potentiometer
- SM-Beier Variator
- Indicator Lights
- Position Indication Meter
- NEMA 12 Enclosure
- Amplifier Mounted in Enclosure

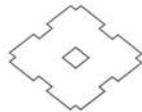


SM-3P

- Jordan Controls Actuator† Travel Limit Switches
- SM-Beier Variator
- Indicator Lights
- RPM Readout Meter
- Amplifier Potentiometer and Dial
- Local Remote Switch
- NEMA 12 Enclosure
- Amplifier Mounted in Enclosure
- Magnetic Pickup and 60 Tooth Sprocket



†Actuator operates on single phase, 60 Hz, 115 volt current.



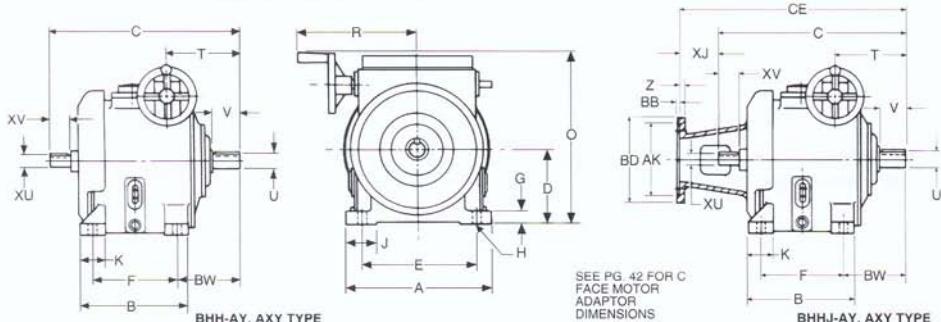
REMOTE CONTROL SYSTEM ACCESSORIES

• = Standard √ = Available Option	Basic Component Systems			Standard Package Systems		
	SM-1	SM-2	SM-3	SM-1P	SM-2P	SM-3P
SM-Beier Variator	•	•	•	•	•	•
Jordan Controls Actuator	•	•	•	•	•	•
Actuator Enclosure:						
NEMA 12 — Inside Industrial	•	•	•	•	•	•
NEMA 4 — Watertight	√	√	√	√	√	√
Actuator Travel Limit Switches	•	•	•	•	•	•
Actuator with Built-in Potentiometer						•
Mounting Items for Jordan Controls Actuator	•	•	•		•	•
Jordan Controls Amplifier		•	•		•	•
Amplifier Enclosures:						
NEMA 12 — Inside Industrial		√	√		•	•
NEMA 4 — Watertight		√	√		√	√
Unmounted Toggle Switch	•	√	√		√	√
Toggle Switch with Enclosure	√	√	√	•	√	√
Unmounted Pushbutton Station	√					
Pushbutton Station Enclosure:						
NEMA 12 — Inside Industrial	√					
NEMA 4 — Watertight	√					
Indicator Lights	√	√	√	•	•	•
Dial Potentiometer			√			•
Meters:						
Position Indicator Type	√	√	√	√	•	√
RPM Readout Type (Min. Speed 5 RPM)	√	√	√	√	√	•
RPM Readout Type (5 RPM & Lower)	√	√	√	√	√	√
Auto/Manual Switch		√	√		√	√
Local/Remote Switch			√			•
Loss of Signal Detector	√	√			√	√
3-15 PSI Pneumatic Signal Convertor	√	√			√	√
Input Feedback Signal:						
4-20 Milliamperes D.C.		•	•		•	•
1-5 Milliamperes D.C.		√	√		√	√
10-50 Milliamperes D.C.		√	√		√	√
0-24 Volts D.C.		√	√		√	√

NOTE: See page 38 for Actuator Dimensions

HORIZONTAL SM-BEIER VARIATOR DIMENSIONS

BHH & BHHJ – AY, AXY Type

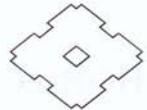


MODEL	A	B	C	D	E	F	G	H	J	K	O	R	BW	T	U	V	O/P KEY	XU	XV	I/P KEY
BHH-05AYX																				
BHHJ-05AYX	7.48	4.45	10.78	3.937	6.50	3.35	.71	.43	1.57	—	9.47	6.00	4.63	4.41	.625	2.19	$\frac{3}{8} \text{in}^2 \times 1.97$.625	1.19	$\frac{3}{8} \text{in}^2 \times 1.00$
BHH-08AYX																				
BHHJ-08AYX																				
BHH-N1AY																				
BHHJ-N1AY																				
BHHJ-1AXY																				
BHH-1AXY																				
BHHJ-1AXY																				
BHH-1HAXY																				
BHHJ-1HAXY																				
BHH-N2AY																				
BHHJ-2AXY																				
BHHJ-N2AY																				
BHHJ-2AXY																				
BHH-N3AY																				
BHHJ-3AXY																				
BHHJ-N3AY																				
BHHJ-3AXY																				
BHH-N5AY																				
BHH-5AYX																				
BHHJ-5AY																				
BHHJ-5AXY																				
BHH-N6AY																				
BHHJ-6AXY																				
BHHJ-N6AY																				
BHHJ-6AXY																				
BHH-N10AY																				
BHHJ-10AY																				
BHH-10AY	13.78	7.87	18.66	7.087	12.21	5.91	.98	.55	2.95	—	16.69	11.73	6.30	7.28	1.625	2.76	$\frac{3}{8} \text{in}^2 \times 2.48$	1.125	1.77	$\frac{3}{8} \text{in}^2 \times 1.38$
BHH-15AY	17.72	12.20	22.84	9.449	15.75	10.24	1.38	.87	3.54	2.76	20.50	9.13	7.16	8.19	1.750	3.63	$\frac{3}{8} \text{in}^2 \times 3.13$	1.500	2.38	$\frac{3}{8} \text{in}^2 \times 2.00$
BHH-20AY	21.65	9.06	24.81	10.629	19.68	7.09	1.57	.87	3.74	1.97	24.53	8.06	8.16	8.23	2.125	4.25	$\frac{1}{2} \text{in}^2 \times 3.50$	1.875	3.13	$\frac{1}{2} \text{in}^2 \times 2.63$
BHH-25AY																				
BHH-30AY	26.77	12.99	30.50	12.992	24.80	11.02	1.97	.87	5.91	3.94	28.22	10.28	8.56	9.13	2.375	4.75	$\frac{5}{8} \text{in}^2 \times 4.00$	2.125	3.63	$\frac{5}{8} \text{in}^2 \times 3.00$
BHH-40AY																				
BHH-50AY																				
BHH-60AY																				
BHH-75AY																				
BHH-100AY																				
BHH-125AY																				
BHH-150AY	38.58	23.22	56.22	19.69	32.69	18.13	2.75	1.31	5.91	4.72	C/F	—	17.50	C/F	4.937	8.28	$1\frac{1}{4} \text{in}^2 \times 8.00$	3.750	6.69	$\frac{7}{8} \text{in}^2 \times 6.00$
BHH-200AY																				

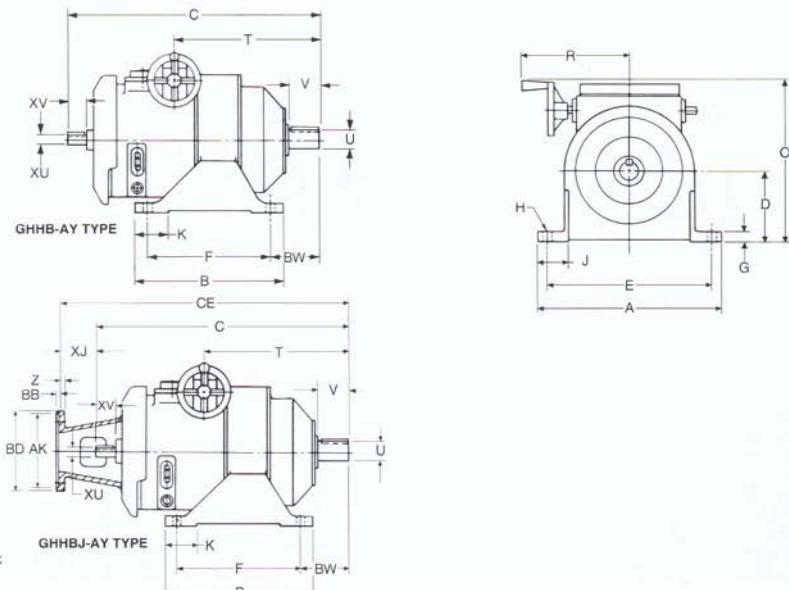
All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.



GHHB & GHHBJ – AY Type



SEE PG. 42 FOR C
FACE MOTOR
ADAPTOR
DIMENSIONS

MODEL	A	B	C	D	E	F	G	H	J	K	O	R	BW	T	U	V	O/P KEY	XU	XV	I/P KEY
GHHBN05A-G10Y																				
GHHBN050AY-G10Y																				
GHHBN08A-G10Y																				
GHHBN08A-G10Y	7.48	4.45	14.34	3.937	6.50	3.35	.71	.43	1.57	—	9.47	6.00	8.19	8.54	.875	1.63	1/2x1/2x1.34	.625	1.19	3/8x3/8x1.00
GHHBN1A-G10Y																				
GHHBN1A-G10Y																				
GHHBN11A-G10Y																				
GHHBN11A-G10Y																				
GHHBN12A-G20Y																				
GHHBN12A-G20Y																				
GHHBN12A-G20Y	10.24	7.48	20.72	5.118	8.86	5.91	.79	.55	2.17	—	11.56	7.56	11.00	11.57	1.125	2.28	1/2x1/2x1.97	.750	1.59	3/8x3/8x1.00
GHHBN12A-G20Y																				
GHHBN12A-G20Y																				
GHHBN5A-G30Y																				
GHHBN5A-G30Y																				
GHHBN8A-G30Y																				
GHHBN8A-G30Y	11.81	9.06	22.50	6.299	10.24	7.09	.98	.55	2.36	—	13.94	10.81	11.53	12.24	1.375	2.75	3/8x3/8x2.38	1.000	1.50	1/2x1/2x1.25
GHHBN10A-G40Y																				
GHHBN10A-G40Y	15.75	13.39	27.20	8.858	11.81	11.02	1.18	.87	3.94	4.33	18.46	11.73	6.93	15.83	1.875	3.94	1/2x1/2x3.54	1.125	1.77	3/8x1x1.38
GHHBN10A-G40Y																				
GHHBN15A-G50Y																				
GHHBN15A-G50Y	22.44	14.17	32.63	9.843	20.47	11.81	1.38	.87	2.44	2.76	21.22	9.13	7.91	18.03	2.125	4.75	1/2x1/2x3.94	1.500	2.38	3/8x3/8x2.00
GHHBN20A-G60Y																				
GHHBN20A-G60Y	27.56	16.93	35.59	12.598	24.41	13.78	1.97	1.10	3.54	3.54	25.91	8.06	8.25	19.29	2.500	5.88	3/8x3/8x5.38	1.875	3.125	1/2x1/2x2.63
GHHBN25A-G70Y																				
GHHBN30A-G70Y																				
GHHBN40A-G70Y																				
GHHBN40A-G70Y	30.71	23.62	46.41	13.779	27.56	20.47	2.36	1.10	3.54	3.94	29.56	10.28	9.13	25.00	3.375	6.38	3/8x3/8x5.50	2.125	3.63	1/2x1/2x3.00

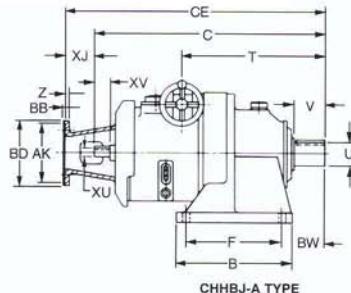
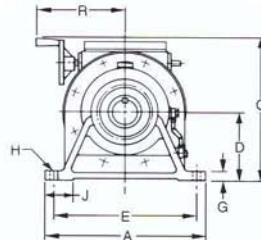
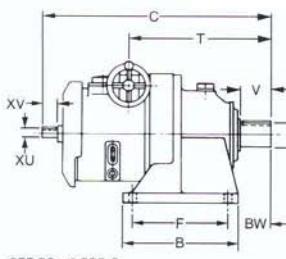
All dimensions are in inches.

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HORIZONTAL SM-BEIER VARIATOR DIMENSIONS

CHHB & CHHBJ – A Type With Single Reduction Cyclo



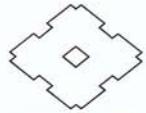
MODEL	A	B	C	D	E	F	G	H	J	O	R	BW	T	U	V	O/P KEY	XU	XV	I/P KEY
CHHB050A-4105Y*																			
CHHB050A-4105Y*	7.48	4.45	15.00	3.937	6.50	3.35	.71	.43	1.57	9.47	6.00	8.82	8.70	1.125	1.38	½x½x1.18	625	1.19	¾x¾x1.00
CHHB050A-4105Y*																			
CHHB080A-4105Y*																			
CHHB080A-4105Y*																			
CHHB110A-4105Y*																			
CHHB110A-4105Y*																			
CHHB110A-4105Y*																			
CHHB080A-4115Y	9.06	6.10	16.06	4.724	7.48	4.53	.59	.55	2.17	10.25	6.00	3.23	10.32	1.500	2.17	¾x¾x1.77	.625	1.19	¾x¾x1.00
CHHB080A-4115Y																			
CHHB110A-4115Y																			
CHHB110A-4115Y																			
CHHB110A-4135Y	13.00	7.68	21.75	5.905	11.42	5.71	.87	.71	2.56	12.35	7.56	3.94	12.68	1.875	2.76	½x½x2.17	.750	1.59	¾x¾x1.00
CHHB110A-4135Y																			
CHHB110A-4135Y																			
CHHB110A-4145Y	13.00	7.68	22.56	5.905	11.42	5.71	.87	.71	2.56	12.35	7.56	4.72	13.46	1.875	3.54	½x½x2.95	.750	1.59	¾x¾x1.00
CHHB110A-4145Y																			
CHHB110A-4165Y	16.14	9.37	25.12	6.299	14.56	5.91	.98	.71	2.95	12.74	7.56	5.47	15.98	2.250	3.54	½x½x2.95	.750	1.59	¾x¾x1.00
CHHB110A-4165Y																			
CHHB110A-4165Y																			
CHHB110A-4175Y	16.14	9.37	26.47	6.299	14.56	5.91	.98	.71	2.95	13.94	10.81	5.47	16.18	2.250	3.54	½x½x2.95	1.000	1.50	½x½x1.25
CHHB110A-4175Y																			
CHHB110A-4175Y																			
CHHB110A-4175Y	16.93	13.19	28.47	7.874	14.96	10.83	1.18	.87	2.52	15.51	10.81	4.92	18.18	2.750	3.54	¾x¾x3.15	1.000	1.50	½x½x1.25
CHHB110A-4175Y																			
CHHB110A-4175Y																			
CHHB110A-4185Y	18.50	14.96	31.85	8.661	16.54	12.60	1.18	.87	2.87	18.26	11.73	5.71	20.47	3.125	4.33	¾x¾x3.74	1.125	1.77	¾x¾x1.38
CHHB110A-4185Y																			
CHHB110A-4185Y																			
CHHB150A-4185Y	18.50	14.96	35.06	8.661	16.54	12.60	1.18	.87	2.87	20.47	9.13	5.71	20.47	3.125	4.33	¾x¾x3.74	1.500	2.38	¾x¾x2.00
CHHB150A-4195Y	20.87	17.32	38.06	9.842	18.90	14.96	1.38	1.02	3.54	21.66	9.13	6.69	23.46	3.625	5.31	¾x¾x4.92	1.500	2.38	¾x¾x2.00
CHHB200A-4215Y	22.83	18.70	42.46	10.433	18.90	15.55	1.57	1.02	4.33	24.33	8.06	8.27	27.09	4.250	6.50	1x1x6.50	1.875	3.13	¾x¾x2.63

*Mounting Dimensions on these Beier-Cyclos are from the Beier portion. Please consult factory for certified drawings.

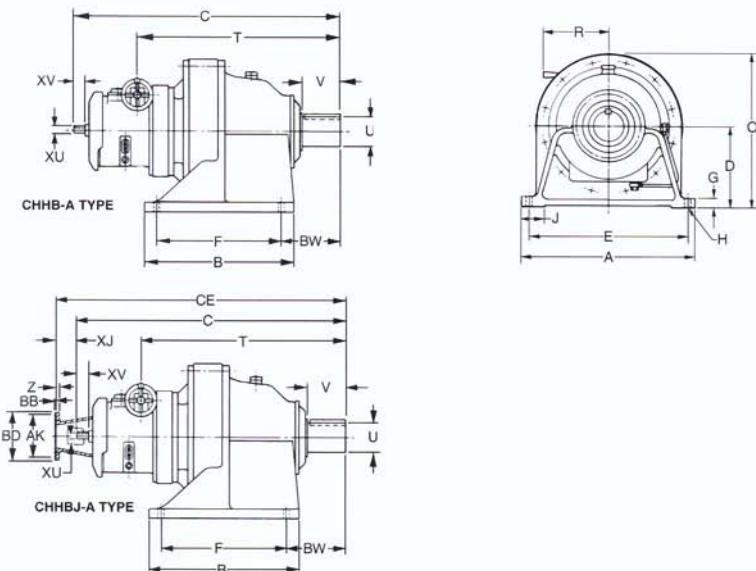
All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

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CHHB & CHHBJ – A Type With Double Reduction Cyclo



MODEL	A	B	C	D	E	F	G	H	J	O	R	SW	T	U	V	O/P KEY	XU	XV	I/P KEY
CHHB05A-4135DCY	13.00	7.68	21.31	5.905	11.42	5.71	.87	.71	2.56	11.63	6.00	3.94	16.38	1.875	2.76	1½x2x2.17	.625	1.19	¾x2x1.00
CHHB05A-4135DCY																			
CHHB08A-4165DCY	16.14	9.37	24.06	6.299	14.56	5.91	.98	.71	2.95	12.00	6.00	5.47	18.43	2.250	3.54	1½x2x2.95	.625	1.19	¾x2x1.00
CHHB08A-4165DCY																			
CHHB11A-4165DCY																			
CHHB11A-4165DCY																			
CHHB11A-4185DBY																			
CHHB11A-4185DBY																			
CHHB2N2A-4185DBY	18.50	14.96	31.88	8.661	16.54	12.60	1.18	.87	2.87	15.25	7.56	5.71	22.76	3.125	4.33	¾x2x3.74	.750	1.59	¾x2x1.00
CHHB2N2A-4185DBY																			
CHHB3N3A-4185DBY																			
CHHB3N3A-4205DBY	20.87	17.32	36.93	9.842	17.32	14.17	1.38	1.02	3.94	16.43	7.56	8.46	27.80	3.875	6.50	1x1x6.50	.750	1.59	¾x2x1.00
CHHB3N3A-4205DBY																			
CHHB05A-4215DBY	22.83	18.70	40.91	10.433	18.90	15.55	1.57	1.02	4.33	18.61	10.81	8.27	30.63	4.250	6.50	1x1x6.50	1.000	1.50	½x2x1.25
CHHB05A-4215DBY																			
CHHB10A-4215DBY																			
CHHB10A-4245DBY	28.35	22.83	49.49	13.189	24.80	18.90	1.77	1.54	5.04	22.79	11.73	10.35	37.28	5.500	7.87	1½x2x7.87	1.125	1.77	½x1x1.38
CHHB10A-4245DBY																			
CHHB15A-4255DBY	30.71	24.80	58.24	14.764	26.38	20.47	1.97	1.54	5.51	28.95	9.13	12.60	43.66	6.250	9.45	1½x1x9.45	1.500	2.38	¾x2x2.00
CHHB15A-4255DBY																			

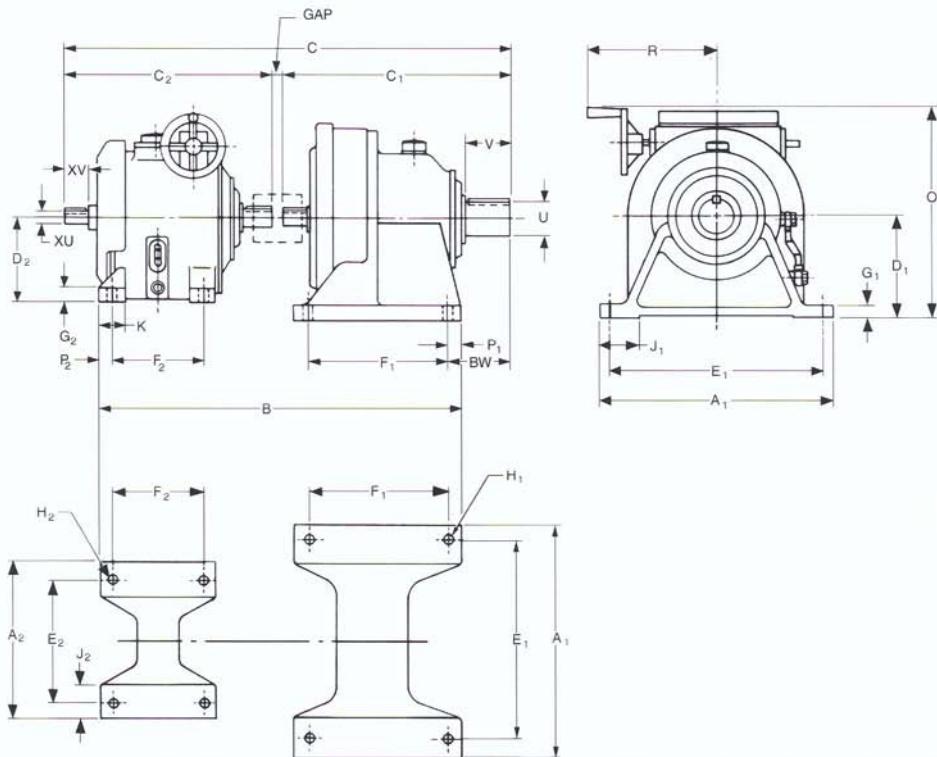
All dimensions are in inches.

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HORIZONTAL SM-BEIER VARIATOR DIMENSIONS

CHHB – A Type Non-Integral Beier Cyclo



MODEL	A ₁	A ₂	B	C	C ₁	C ₂	Gap	D ₁	D ₂	E ₁	E ₂	F ₁	F ₂	G ₁	G ₂	H ₁	H ₂
CHHB25A-4235Y	26.38	26.77	46.95	65.16	33.03	30.50	1.63	11.811	12.992	22.84	24.80	18.11	11.02	1.77	1.97	1.30	.87
CHHB30A-4235Y	26.38	26.77	47.20	65.41	33.03	30.50	1.88	11.811	12.992	22.84	24.80	18.11	11.02	1.77	1.97	1.30	.87
CHHB40A-4235Y	26.38	26.77	47.20	65.41	33.03	30.50	1.88	11.811	12.992	22.84	24.80	18.11	11.02	1.77	1.97	1.30	.87
CHHB40A-4245Y	28.35	26.77	48.59	66.91	34.53	30.50	1.88	13.189	12.992	24.80	18.90	11.02	1.77	1.97	1.54	.87	

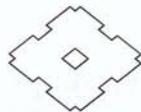
MODEL	J ₁	J ₂	O	K	P ₁	P ₂	R	BW	U	V	KEY	XU	XV	KEY
CHHB25A-4235Y	4.72	5.91	28.22	3.94	1.97	.98	10.28	10.24	5.000	7.87	1 1/4" x 7.87	2.125	3.63	1 1/2" x 3.00
CHHB30A-4235Y	4.72	5.91	28.22	3.94	1.97	.98	10.28	10.24	5.000	7.87	1 1/4" x 7.87	2.125	3.63	1 1/2" x 3.00
CHHB40A-4235Y	4.72	5.91	28.22	3.94	1.97	.98	10.28	10.24	5.000	7.87	1 1/4" x 7.87	2.125	3.63	1 1/2" x 3.00
CHHB40A-4245Y	5.04	5.91	28.42	3.94	1.97	.98	10.28	10.35	5.500	7.87	1 1/4" x 7.87	2.125	3.63	1 1/2" x 3.00

All dimensions are in inches.

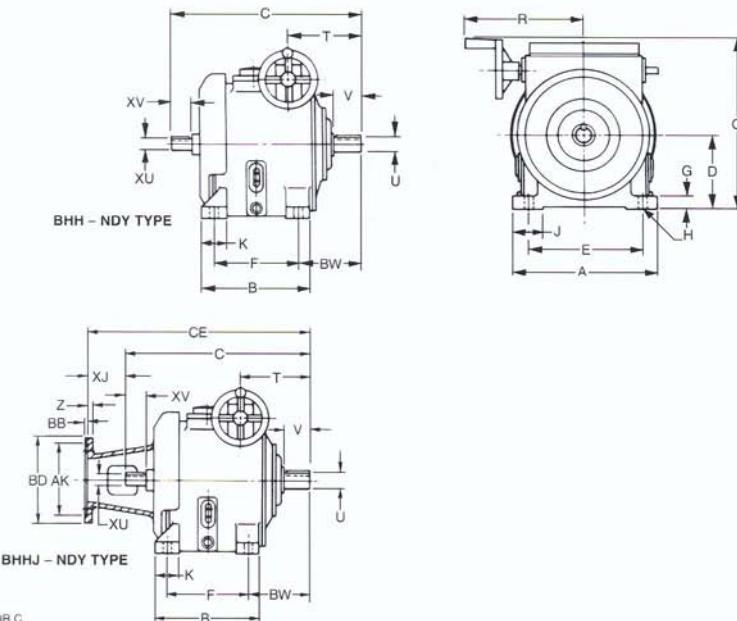
Overall dimensions "C" are based on "Gap" dimensions as shown.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.



BHH & BHHJ – D Type (Wide Range)



SEE PG. 42 FOR C
FACE MOTOR
ADAPTOR
DIMENSIONS

MODEL	A	B	C	D	E	F	G	H	J	O	R	BW	T	U	V	O/P KEY	XU	XV	I/P KEY
BHH-N50Y/BHHJ-N50Y	7.48	7.09	13.11	3.937	6.496	5.512	.708	.433	1.57	9.72	5.70	4.60	4.84	.750	1.57	3/8x3/8x1.38	.625	1.18	3/8x3/8x1.00
BHH-N10Y/BHHJ-N10Y																			
BHH-N20Y/BHHJ-N20Y	10.24	7.48	16.02	5.118	8.858	5.906	.787	.551	2.17	12.50	8.43	5.63	5.47	1.000	1.97	1/2x1/2x1.57	750	1.57	3/8x3/8x1.38
BHH-N30Y/BHHJ-N30Y																			
BHH-N50Y/BHHJ-N50Y																			
BHH-N80Y/BHHJ-N80Y	12.60	11.81	22.76	6.299	11.024	9.843	.984	.551	2.36	14.86	9.96	6.57	7.36	1.250	2.36	1/2x1/2x1.97	1.000	1.57	1/2x1/2x1.26
BHH-N100Y/BHHJ-N100Y	13.78	11.81	26.10	7.087	12.205	8.268	.984	.708	2.60	17.40	10.43	8.54	8.78	1.625	2.76	3/8x3/8x2.48	1.125	1.77	3/8x3/8x1.38

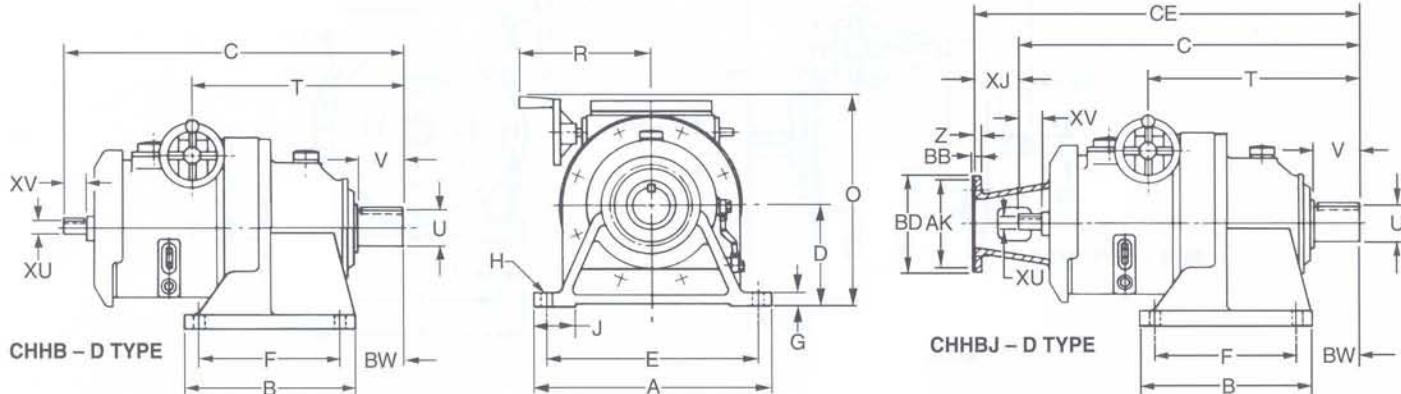
All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.

HORIZONTAL SM-BEIER VARIATOR DIMENSIONS

CHHB & CHHBJ – D Type (Wide Range) With Single Reduction Cyclo



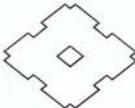
SEE PG. 42 FOR C
FACE MOTOR
ADAPTOR
DIMENSIONS

MODEL	A	B	C	D	E	F	G	H	J	O	R	BW	T	U	V	O/P KEY	XU	XV	I/P KEY
CHHBN05D-4105Y	7.09	5.36	18.19	3.397	5.91	3.54	.47	.433	1.57	9.53	5.70	2.36	9.92	1.125	1.38	1/4x1/4x1.18	.625	1.18	3/16x3/16x1.00
CHHBN05D-4105Y																			
CHHBN1D-4115Y	9.06	6.10	19.72	4.724	7.48	4.53	.59	.551	2.17	10.32	5.70	3.23	11.46	1.500	2.17	3/8x3/8x1.77	.625	1.18	3/16x3/16x1.00
CHHBN1D-4115Y																			
CHHBN2D-4135Y	12.99	7.68	24.45	5.906	11.42	5.71	.87	.709	2.56	13.29	8.43	3.94	13.90	1.875	2.76	1/2x1/2x2.17	.750	1.57	3/16x3/16x1.38
CHHBN2D-4135Y																			
CHHBN2D-4145Y	12.99	7.68	25.24	5.906	11.42	5.71	.87	.709	2.56	13.29	8.43	4.72	14.69	1.875	3.54	1/2x1/2x2.95	.750	1.57	3/16x3/16x1.38
CHHBN2D-4145Y																			
CHHBN3D-4165Y	16.14	9.37	27.52	6.299	14.57	5.91	.98	.709	2.95	13.68	8.43	5.47	16.97	2.250	3.54	1/2x1/2x2.95	.750	1.57	3/16x3/16x1.38
CHHBN3D-4165Y																			
CHHBN5D-4175Y	16.93	13.19	37.75	7.875	14.96	10.83	1.18	.866	2.52	16.44	9.46	4.92	20.35	2.750	3.54	5/8x5/8x3.15	1.000	1.57	1/4x1/4x1.26
CHHBN5D-4175Y																			
CHHBN8D-4175Y	16.93	13.19	37.75	7.875	14.96	10.83	1.18	.866	2.52	16.44	9.46	4.92	20.35	2.750	3.54	5/8x5/8x3.15	1.000	1.57	1/4x1/4x1.26
CHHBN8D-4175Y																			
CHHBN10D-4185Y	18.50	14.96	39.84	8.661	16.54	12.60	1.18	.866	2.87	18.98	10.43	5.71	22.52	3.125	4.33	3/4x3/4x3.74	1.125	1.77	1/4x1/4x1.38
CHHBN10D-4185Y																			

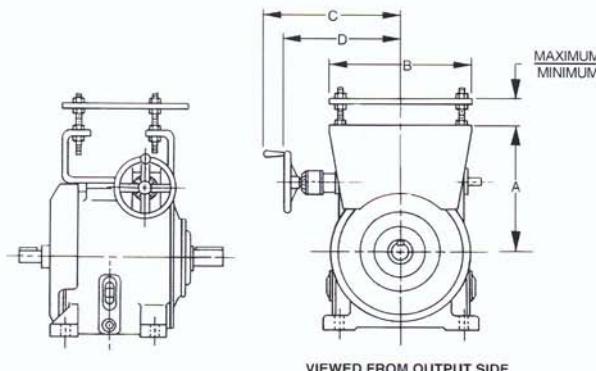
All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.



TM Type – Top Mount Adaptor



MODEL	A	B	C	D	MIN.	MAX.
BHH-N05A					NOT AVAILABLE	
BHH-N1A						
BHH-N2A						
BHH-N3A						
BHH-N5A						
BHH-N8A	15.96	14.00	12.80	10.24	2.25	5.25
BHH-N10A	18.64	16.00	13.78	11.22	2.25	5.25
BHH-N15A	22.44			11.87	2.25	5.25
BHH-N20A	24.90	18.00		11.36	2.50	5.50
BHH-N30A	31.16	20.00		12.38	2.50	5.50
BHH-N40A						

All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

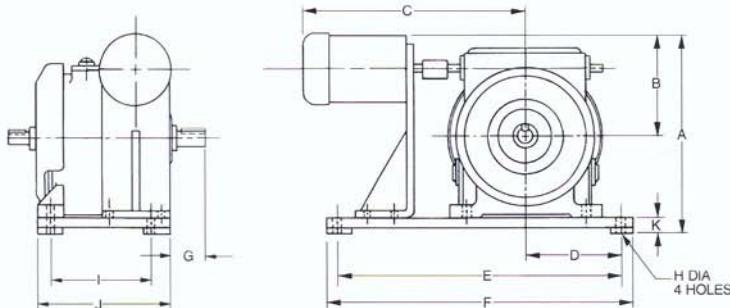
Certified prints are available after receipt of an order; consult factory.

NOTES:

- 1) Minimum total v-belt drive centers = "A" dimension listed above, plus minimum dimension listed above, plus motor "D" dimension.
- 2) Beiers with top mount option include an outdoor duty, speed indicator handwheel as STD. (See Pg. 40.)
- 3) Fabricated steel motor mount bolts directly to Beier.
- 4) Simple adjusting screws for belt tensioning.
- 5) Motor mounts are furnished with pre-drilled holes for ease of motor assembly.

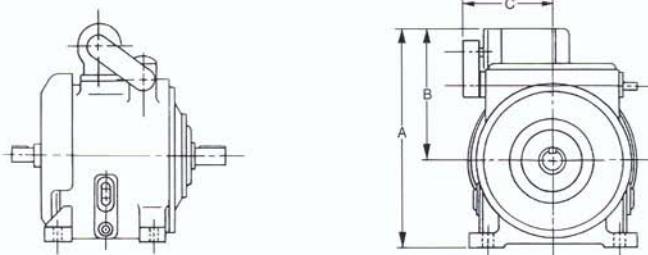
HORIZONTAL SM-BEIER VARIATOR DIMENSIONS

BHH – A Type with Actuator for Jordan Controls Signal Follower



MODEL	A	B	C	D	E	F	G	H	I	J	K
BHH-N05A	13.46	8.27	12.00	6.25	15.38	17.13	2.29	.680	4.75	6.50	1.25
BHH-N1A											
BHH-N2A	15.51	9.13	15.25	6.25	18.13	19.88	3.18	.680	7.25	9.00	1.25
BHH-N3A											

NOTE: BHH-N05A through BHH-N3A require a base plate for mounting of Jordan Controls actuator. Base plate is included with the Jordan Controls option.



MODEL	A	B	C
BHH-N5A	22.04	15.74	7.25
BHH-N8A			
BHH-N10A	24.72	17.64	8.55
BHH-15AY	27.36	17.91	8.49
BHH-20AY	29.09	18.46	8.53
BHH-30AY	35.00	22.00	9.71
BHH-40AY			

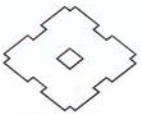
NOTES:

- 1) All actuator dimensions based on NEMA 12 enclosure. Please consult factory for other enclosures.
- 2) Please consult factory for wiring diagrams.

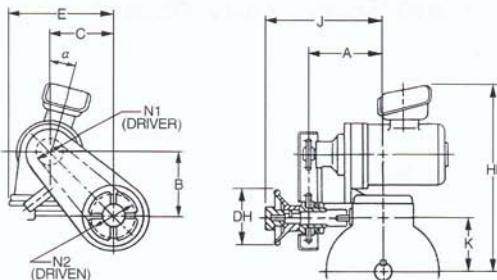
All dimensions are in inches.

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Certified prints are available after receipt of an order; consult factory.



Standard Electric Remote Control Pilot Motor



MODEL	A	B	C	DH	E	J	K	PILOT MOTOR DUTY		PILOT MOTOR		ROLLER CHAIN			NO. OF TEETH					
								H ₁	α	H ₁	α	MODEL	RATIO	HP	MODEL	PITCH	RLR DIA.	N1	N2	
BHH-05/08AY	4.29	3.70	4.33		7.28	7.60	3.86	12.60		14.41										
BHH-1AAY							4.33													
BHH-1HAYX																				
BHH-2AAYX	5.87	5.12	4.61		7.55	9.17	4.72	14.88		16.69		CNHM01-4075Y	43:1	1/8	RF068 ($\frac{1}{8}$ " Pitch)	.38	.25	17	28	
BHH-3AAY										16.38										
BHH-5/8AYX	8.11	4.02	5.31		8.46	11.42	5.51	14.57	15°	17.68										
BHH-10AY	8.66	4.13		6.93	—	11.97	6.69	15.87												
BHH-15AY	9.98	6.89			—	8.35	17.36			19.17										
BHH-20AY	7.28	4.13	5.79		—	10.59	10.43	19.61		21.42										
BHH-30/40AY	8.46	4.02	6.89		—	12.76	12.80	21.85		23.66		CNHM02-4085Y	43:1	1/4	RS40 ($\frac{1}{2}$ " Pitch)	.50	.31	19	31	
BHH-50/75/100AY	10.63	7.56	11.22		9.84	—	14.92	14.17	26.50	0°	28.19	0°	CNHM05-4105Y	43:1	1/2					

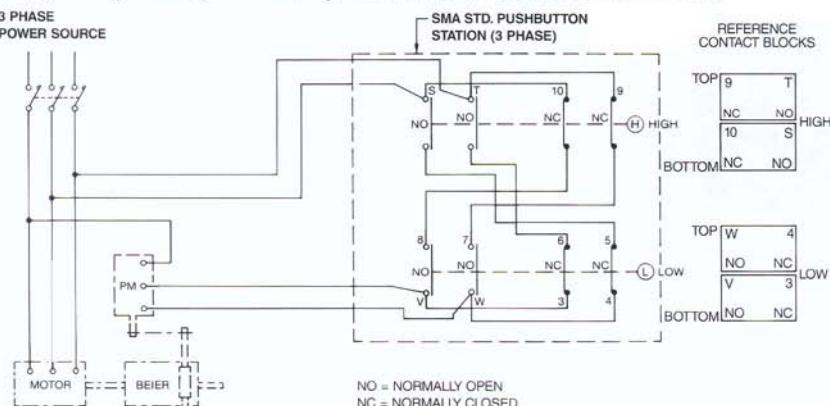
*CONSULT FACTORY FOR EXPLOSION-PROOF ELECTRIC REMOTE CONTROL DIMENSIONS.

All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.

Wiring Diagram (3 Phase) For Standard Electric Remote Control



NOTES: 1) Wire to be size 14 machine tool wire.

2) Do not attempt to operate the speed change mechanism when the unit is not running.

DIMENSIONS

Severe Duty Handwheel Mounted Speed Indicators for Weatherproof and Severe Duty Washdown

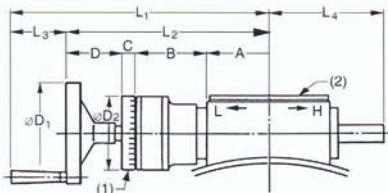


FIGURE 1

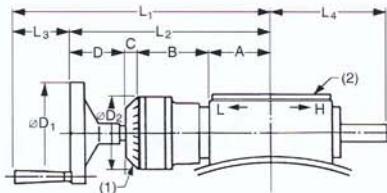


FIGURE 2

FRAME SIZE	D ₁	D ₂	L ₁	L ₂	L ₃	L ₄	A	B	C	D	FIGURE
BHH-15A	6.92	3.94		11.87		7.68	4.84	3.43	.590	3.01	2
BHH-20A	6.92	3.94		11.36		6.50	4.33	3.43	.590	3.01	2
BHH-30A	8.74	3.94		12.38		8.66	5.51	3.35	.590	2.93	2
BHH-40A											

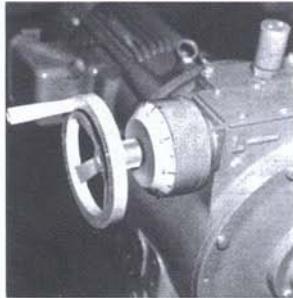
All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.

NOTES:

- 1) Speed indicators are normally mounted while viewing the output shaft on the left-hand side of the indicator.
For assembly on opposite side of STD, please specify upon order entry.
- 2) Dial indicators (1) are calibrated to show percentage of final output speed.
- 3) With this option, the STD indicator is replaced by a blind plate (2).



DIRECT MOUNTED INDICATOR

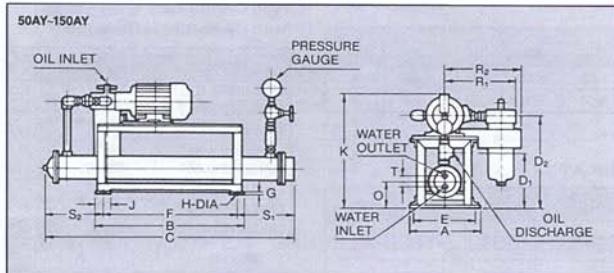
EXTERNAL COOLING UNIT



SM-Beier Variators, model numbers 50AY through 200AY, are equipped with an external cooling unit due to their high power transmitting capacities and their small compact sizes.

COOLING UNIT SIZE		BEIER MODEL SIZES	
BHH-50AY-100AY	BHH-125AY-200AY	1HP 143T	3 HP 213T
MOTOR AC 230/460 V, 60 HZ 3 PHASE	H.P. FRAME TYPE RPM	TEFC 1800	TEFC 1200
"OIL FLOW RATE GPM		6	21
†MINIMUM WATER FLOW RATE GPM		6	10

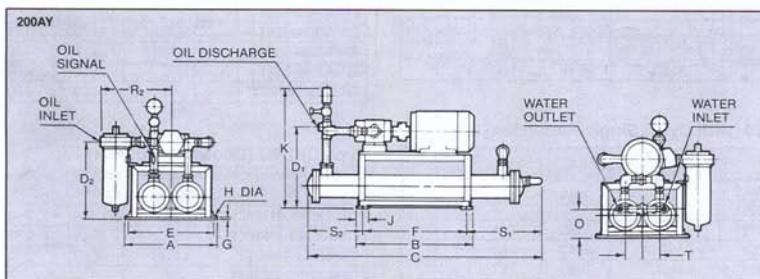
PUMP & COOLER DIMENSIONS



MODEL	A	B	C	D ₁	D ₂	E	F	G	H	J	K	O	R ₁	R ₂	S ₁	S ₂	T
BHH-50AY-100AY	11 $\frac{1}{2}$	23 $\frac{3}{8}$	39 $\frac{3}{8}$	8 $\frac{27}{32}$	15 $\frac{21}{32}$	10 $\frac{1}{4}$	21 $\frac{1}{4}$	1 $\frac{1}{2}$	7 $\frac{1}{16}$	2 $\frac{1}{2}$	16 $\frac{1}{2}$	4 $\frac{1}{4}$	13 $\frac{11}{16}$	9 $\frac{1}{4}$	9 $\frac{1}{16}$	2 $\frac{3}{16}$	
BHH-125AY-150AY	14 $\frac{1}{2}$	28 $\frac{11}{16}$	50 $\frac{13}{16}$	17 $\frac{23}{32}$	16 $\frac{23}{32}$	13 $\frac{1}{8}$	26	1 $\frac{1}{2}$	7 $\frac{1}{16}$	2 $\frac{1}{2}$	26 $\frac{1}{2}$	5 $\frac{1}{2}$	—	15 $\frac{1}{2}$	12	12 $\frac{1}{16}$	

Water connection pipe thread $\frac{3}{4}$ " NPT

All dimensions are in inches.



MODEL	A	B	C	D ₁	D ₂	E	F	G	H	J	K	O	R ₁	R ₂	S ₁	S ₂	T
BHH-200AY	20 $\frac{1}{2}$	28 $\frac{1}{2}$	53 $\frac{1}{2}$	17 $\frac{23}{32}$	17 $\frac{9}{16}$	19 $\frac{1}{16}$	26	3 $\frac{1}{2}$	7 $\frac{1}{16}$	2 $\frac{1}{2}$	26 $\frac{1}{2}$	4 $\frac{1}{2}$	—	15 $\frac{1}{16}$	15 $\frac{1}{16}$	12 $\frac{1}{16}$	3 $\frac{1}{16}$

Water connection pipe thread 1" NPT

All dimensions are in inches.

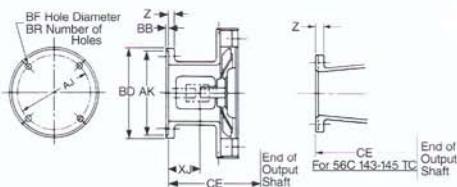
Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.

NOTES:

- 1) Based on standard pump motor speed
- 2) Based on 80°F maximum inlet temperature
- 3) For additional information consult factory.

"C" FACE INPUT MOTOR ADAPTORS



Type BHHJ-NDY Wide Range

MODEL	MOTOR FRAME	CE	XJ	Z
BHHJ-N05DY	56C/143TC	15.74	2.63	.47
BHHJ-N1DY				
BHHJ-N2DY	145TC	18.65	2.63	.47
BHHJ-N3DY	182TC	19.40	3.38	.50
BHHJ-N5DY	184TC	26.14	3.38	.50
BHHJ-N8DY	213TC	26.76	4.00	.75
BHHJ-N10DY	215TC	30.10	4.00	.97

NEMA FRAME	AJ	AK	BD	BB	BF	BR
56C-145TC	5.875	4.50	6.69	—	.43	4
182TC-215TC	7.250	8.50	9.06	.22	.59	4

Type BHHJ-AXY, BHH-AY

MODEL	MOTOR FRAME	CE	XJ	Z
BHHJ-05AXY	56C	13.41	2.63	.47
BHHJ-08AXY				
BHHJ-N1AY	143TC	13.47	2.63	.47
BHHJ-1AXY				
BHHJ-J1AXY	145TC	16.97	2.63	.47
BHHJ-N2AY				
BHHJ-2AXY				
BHHJ-N3AY	182TC	18.22	3.38	.50
BHHJ-3AXY				
BHHJ-N5AY	184TC	20.19	3.38	.50
BHHJ-5AXY				
BHHJ-N8AY	213TC	21.31	4.00	.75
BHHJ-8AXY				
BHHJ-10AXY	215TC	22.66	4.00	.97

Type CHHBJ (with Cyclo Single Reduction)

MODEL	FRAME SIZE	CE	XJ	Z
CHHBJN05A-4105Y	56C	17.63	2.63	.47
CHHBJN08A-4105Y				
CHHBJN08A-4115Y	56C	18.69	2.63	.47
CHHBJN1A-4105Y	143TC	17.63	2.63	.47
CHHBJN1A-4115Y	143TC	18.69	2.63	.47
CHHBJN1HA-4135Y	145TC	24.38	2.63	.47
CHHBJN2A-4135Y				
CHHBJN3A-4135Y	182TC	25.13	3.38	.50
CHHBJN3A-4145Y	182TC	25.94	3.38	.50
CHHBJN3A-4165Y	182TC	28.50	3.38	.50
CHHBJN5A-4165Y	184TC	29.85	3.38	.50
CHHBJN5A-4175Y	184TC	31.85	3.38	.50
CHHBJN8A-4165Y	213TC	30.47	4.00	.75
CHHBJN8A-4175Y	213TC	32.47	4.00	.75
CHHBJN10A-4185Y	215TC	35.85	4.00	.97

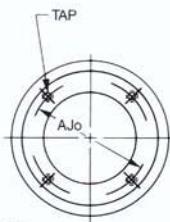
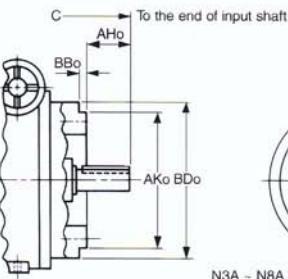
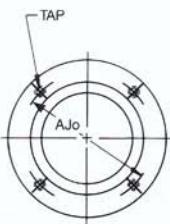
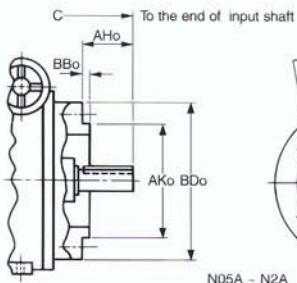
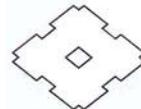
All dimensions are in inches.

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Certified prints are available after receipt of an order; consult factory.

Type CHHBJ (Double Reduction)

MODEL	MOTOR FRAME	CE	XJ	Z
CHHBJN05A-4135DCY	56C	23.94	2.63	.47
CHHBJN08A-4165DCY	56C	26.69	2.63	.47
CHHBJN1A-4165DCY	143TC	26.69	2.63	.47
CHHBJN1HA-4185DBy	145TC	34.50	2.63	.47
CHHBJN2A-4185DBy				
CHHBJN3A-4185DBy	182TC	35.25	3.38	.50
CHHBJN3A-4205DBy	182TC	40.31	3.38	.50
CHHBJN5A-4215DBy	184TC	44.29	3.38	.50
CHHBJN8A-4215DBy	213TC	44.91	4.00	.75
CHHBJN10A-4245DBy	215TC	53.50	4.00	.97

"C" FACE OUTPUT (BHH & BHHJ-05 through 8) AXY TYPE



MODEL	C	AKo	AJo	AHo	BBo	BD0	TAP	NEMA
BHH-05AXY-C1	10 ²⁵ / ₃₂							56C
BHHJ-05AXY-C1				2 ¹ / ₁₆				
BHH-08AXY-C1	10 ³⁷ / ₃₂							143TC
BHHJ-08AXY-C1		4 ¹ / ₂	5 ¹ / ₈		3 ¹ / ₃₂	6 ¹ / ₁₆	3 ¹ / ₈ -16 UNC 1 ¹ / ₁₆ DEEP	
BHH-1AXY-C1				2 ¹ / ₈				
BHHJ-1AXY-C1								145TC
BHH-1HAXY-C1	14 ¹¹ / ₃₂							
BHHJ-1HAXY-C1								
BHH-2AXY-C1								
BHHJ-2AXY-C1								
BHH-3AXY-C1	14 ¹³ / ₁₆							182TC
BHHJ-3AXY-C1		8 ¹ / ₂	7 ¹ / ₄	2 ⁵ / ₈	1 ¹ / ₄	9 ⁷ / ₃₂	1 ¹ / ₂ -13 UNC 1 ¹ / ₁₆ DEEP	
BHH-5AXY-C1	16 ¹³ / ₁₆					8 ³¹ / ₃₂		184TC
BHHJ-5AXY-C1								
BHH-8AXY-C1	17 ⁹ / ₁₆	8 ¹ / ₂	7 ¹ / ₄	3 ¹ / ₈	1 ¹ / ₄	8 ³¹ / ₃₂	1 ¹ / ₂ -13 UNC 1 ¹ / ₁₆ DEEP	213TC
BHHJ-8AXY-C1								

All dimensions are in inches.

Dimensions shown are for reference only and are subject to change without notice, unless certified.

Certified prints are available after receipt of an order; consult factory.

BEIER and BEIER-CYCLO APPLICATION GUIDELINES

General

1. The Beier and Beier-Cyclo Variator is designed and built for long, maintenance-free, 24-hour daily service under uniform or low fluctuating loads.
2. If the application involves frequent start-stops, great load fluctuation, heavy shock load, etc., select a model number that allows the load value obtained by multiplying the actual normal load by service factor of 1.5. When the application involves heavy overload, provide the Beier Variator with a safety device at the output shaft section.
3. Rated input HP of the Beier and Beier-Cyclo Variator is based on the standard input speed listed for each model number. When operating input speeds are lower than standard input speed, allowable input HP varies as follows:

$$\text{Allowable input HP} = \text{Rated input HP} \times \frac{\text{Operating input speed}}{\text{Standard input speed}}$$

*Refer to factory for input speeds less than 500 rpm.

Input Speeds

Standard input speeds vary depending on the model of the Beier Variator. Please refer to the selection tables for standard input speeds.

Operation

1. Speed can be changed only when unit is operating. DO NOT ATTEMPT TO OPERATE THE SPEED CHANGE MECHANISM WHEN THE UNIT IS NOT RUNNING.
2. When operating in ambient temperatures over 120°F, please consult factory.
3. The Beier/Beier-Cyclo Variator may slip under high overload. DO NOT ATTEMPT TO RUN UNIT UNDER HIGH OVERLOAD CONDITIONS as constant slippage of cone discs can result in a breakdown of the viscous oil film and excessive heat build-up.

Allowable Radial and Thrust Loads

The loads imposed on the slow speed shaft vary with the method of connecting the shaft to the driven machine. Frequently, in addition to torsional forces, radial and thrust loads are applied to the slow speed shaft at the same time. For example, coupling connections normally involve torsional forces only. However, when power is transmitted through spur gears, belts, pulleys or chains, both torsional and radial forces may be applied to the slow speed shaft. When driving through helical or bevel gears, all three conditions (torsional, radial and thrust load) may be referred to the slow speed shaft.

The slow speed shaft and bearings must have sufficient strength to withstand these loads, and it is, therefore, necessary to determine the allowable limits for each condition.

Mounting

Horizontal Beier and Beier-Cyclo Variators must be mounted on an exactly horizontal bed. If inclined surface mounting is necessary, please consult factory.

It is best to mount the Beier Variator in such a way that shock, vibration, thrust loads, etc., are not imposed on the output shaft. Consult factory for allowable thrust loads on the output shaft. Mount the Beier/Beier-Cyclo in a position convenient for oil maintenance and ventilation.

Shaft Rotation

On Beier Variators (except D Type) the output shaft rotates in a reverse direction to that of the input shaft.

On Beier-Cyclo Variators with single reduction cyclo drives, both the high speed and slow speed shafts rotate in the same direction. On Beier-Cyclo Variators with double reduction cyclo drives, the slow speed shaft rotates in a reverse direction to that of the high speed shaft. Consult factory for direction of shaft rotation on vertical units.

Warranty

The company warrants that the Beier Variator will deliver its rated capacity, as indicated in this catalog, provided it is properly installed, maintained and operated within the limits of speed, torque or other load conditions under which it was sold. The company further states that all apparatus sold is warranted to be free from defects in material and workmanship and to conform to any applicable drawings and specifications approved by the company for a period of two years from the date of shipment to the buyer.

For construction purposes, be sure to obtain certified dimension sheets or drawings. Although we take every precaution to include accurate data in our catalog, we cannot guarantee such accuracy. If performance guarantees are required, they should be obtained in writing from the factory. Full consideration will be given to such requests when complete details of the proposed installation are given.

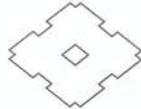
Be sure to install and operate Beier Variators in compliance with applicable local and national safety codes. Appropriate guards for rotating shafts should be used and are available from local stocks.

Tool Kit

Beier Variators are easy to service and maintain. Sumitomo has developed tool kits to enable your own personnel to perform such services in an expedient manner. Consult the factory for details.

Ambient Temperature, Outdoor Duty, Washdown, Dusty Atmosphere

Standard Beier Variators are designed to be used between 17°F to 125°F ambient temperatures. For outdoor duty, washdown or dusty conditions, some consideration or modification is required, consult factory for additional information.

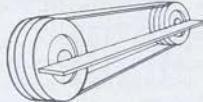


Load Centering

The radial load capacities are calculated with the load concentrated at the midpoint of the slow speed shaft extension. Radial load capacities decrease if the center of the load is moved farther from the reducer, and the values obtained from the charts on Pgs. 23 thru 26 must be adjusted accordingly.

SHAFT CONNECTIONS

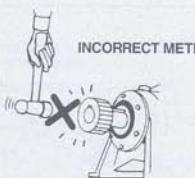
SQUARE AND PARALLEL



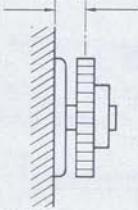
CORRECT METHOD



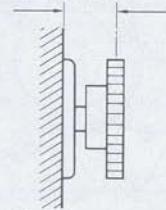
INCORRECT METHOD



CORRECT



INCORRECT



VARIATOR
WALL

VARIATOR
WALL

Pulley, sprocket or sheave connection — Mount any of the above as close to the unit housing as possible. To avoid undue bearing load and shaft deflection, never mount beyond the midpoint of the shaft projection. Never tighten belts or chains more than manufacturer's specifications. Careful and accurate installation is essential for best results and trouble-free operation. Before installing, the shafts should be checked to make sure that they are parallel and level. Perfect alignment after mounting can be checked with a string or straight edge held against the sides of the sprocket or pulley base.

Couplings should be properly aligned to the limits specified by the manufacturer.

Lubrication

1. Beier and Beier-Cyclo Variators are shipped oil-drained. DO NOT OPERATE THE UNIT BEFORE ADDING THE PROPER AMOUNT OF OIL. USE OIL SHIPPED WITH UNIT.
2. Oil level is indicated by two red lines. Fill to upper red line while unit is at a standstill.
3. Initial oil change should be made after the first 500 hours of operation. Subsequent oil changes should be made every 2500 hours.
4. Refer to lubrication tag attached to the unit or maintenance manual for recommended lubricants. Consult factory if any further information is required.
5. Lubrication Systems — Depending on size, type and mounting configuration various lubrication systems are featured.
 - A. Horizontal Type A — Beier & Beier-Cyclo
 - ½ thru 40 HP — Splash lube
 - 50 thru 200 HP — Motor driven external pump & oil to water heat exchanger.
 - B. Horizontal Type D Wide Range Beier & Beier Cyclo
 - All sizes splash lubricated.
 - NOTE: These units are only available in the horizontal configuration.
 - C. Vertical Type AV — Beier & Beier-Cyclo
 - ½ thru 5 HP — Splash lube
 - 7.5 thru 40 HP — External motor driven lube system
 - 50 thru 200 HP — External motor driven lube with oil — water heat exchanger
6. Do not use any oils containing E.P. additives, hydraulic oils or automotive oils.

Oil Quantity (Gallons)

Size	Horizontal Type		Vertical Type	
	Basic	Gear Reduction	Basic	Gear Reduction
BHH-05AX, 1AX	.18	.29	.37	.69
BHH-1HAX, 2AX, 3AX	.48	.58	1.08	1.95
BHH-5AX, 8AX	.98	1.37	2.00	3.96
BHH-N10A	1.14	1.98	1.72	2.64
BHH-15A	2.91	3.43	3.17	5.28
BHH-20A	2.64	5.28	3.43	6.34
BHH-25A, 30A, 40A	5.28	10.04	6.08	10.04
BHH-50A, 75A, 100A	14.79	25.89	25.36	28.53
BHH-150A	22.45	—	22.46	—
BHH-200A	25.10	—	25.10	—

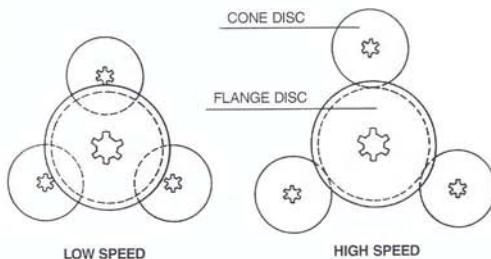
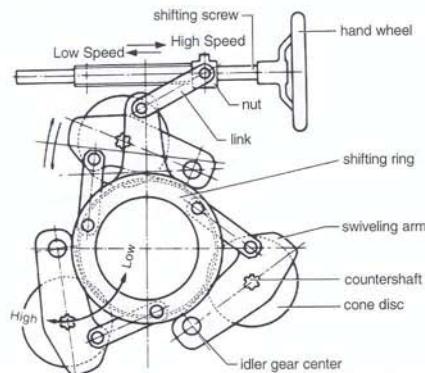
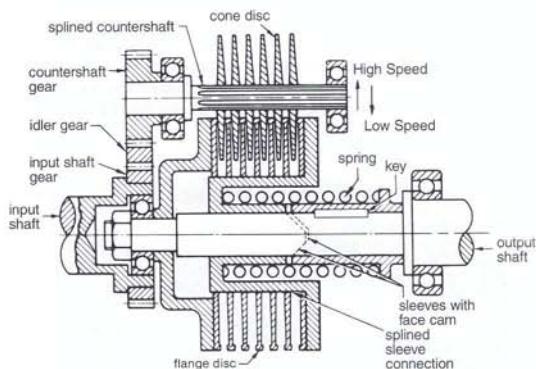
SM-BEIER PRODUCT OPERATION

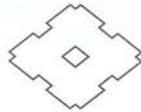
The high speed rotation of the input shaft is transmitted through the idler gear to the cone discs aligned on a multiple set of splined countershafts. These cone discs drive the flange discs. The flange discs are connected to the output shaft through the splined sleeve and then through the face cam and companion sleeve which is keyed to the output shaft.

The torque-sensitive face cam, complemented with spring compression, automatically creates a disc contact pressure corresponding to the load torque for the purpose of preventing slippage due to load, and reducing pressure under light load.

The multiple countershafts, on which the cone discs are mounted, are connected by the swiveling arms. Rotational movement of the swiveling arms around the idler gear forces the centers of the countershafts with the cone discs to move toward or away from the centers of the flange discs. A circular shifting ring connecting these swiveling arms to the shifting screw enables each swiveling arm to move in unison.

When the point of contact of the flange discs is near the periphery of the cone discs, high output speed is attained, and when the point of contact of the flange discs is near the center of the cone discs, low output speed is attained.





OPTIONS

- "C" Face Input
- "C" Face Output
- Top Mount Motor Mounting - page 37
- Base Plate Motor Mounting
- Explosion Proof - consult factory
- Process Signal Following - page 27
- Electrical/Pneumatic/Hydraulic Remote Control - see price list
- Digital Electrical Speed Indicator
- Severe Duty Handwheel Mounted Speed Indicator - page 40
- Vertical Mounting - consult factory
- Constant HP Units - consult factory
- Washdown
- Weather Proof

WASHDOWN FEATURES

PLANT WASHDOWN MODIFICATION CONSISTS OF:

- Double lip seals
- Epoxy paint
- Special speed indicator for sizes BHH-05~N10
- Stainless Steel cover for sizes BHH-15AY and above
- Special washdown breather (expansion chamber type)
- Sealer at joints and bolt heads

SEVERE DUTY MODIFICATION CONSISTS OF:

- Outdoor indicator (see dimensions page 40)
- Double lip seals
- Epoxy paint
- Special washdown breather (expansion chamber type)
- Sealer at joints and bolt heads

WEATHER PROOF MODIFICATION CONSISTS OF:

- Special breather
- Outdoor type indicator
- Double lip seals

NOTES



Headquarters and Manufacturing

Sumitomo Machinery Corporation of America
4200 Holland Boulevard, Chesapeake, VA 23323
(757) 485-3355 • FAX: (757) 485-3075
Toll Free: 1-800-SM-CYCLO (762-9256)
www.smcyculo.com • e-mail: smcamktg@series2000.com



North American Regional Offices Stocking & Assembly Facilities

Mid-West

Sumitomo Machinery Corporation of America
175 West Lake Drive
Glen Ellyn, IL 60139
(630) 752-0200 • FAX: (630) 752-0208

West

Sumitomo Machinery Corporation of America
2375 Railroad Street
Corona, CA 91720
(909) 340-4100 • FAX: (909) 340-4108

Southwest

Sumitomo Machinery Corporation of America
1420 Halsey Way #130
Carrollton, TX 75007
(972) 323-9600 • FAX: (972) 323-9308

Southeast

Sumitomo Machinery Corporation of America
4200 Holland Boulevard
Chesapeake, VA 23323
(757) 485-3355 • FAX: (757) 487-3193

Canadian Stocking & Assembly Facilities

Toronto (East)
SM-Cyclo of Canada, Ltd.
870 A Equestrian Court
Oakville, Ontario, Canada L6L 6L7
(905) 469-1050 • FAX: (905) 469-1055

British Columbia (West)
SM-Cyclo of Canada, Ltd.
740 Chester Road, Annacis Island, Delta
B.C., Canada V3M 6J1
(604) 525-5403 • FAX: (604) 525-0879

Montreal
SM-Cyclo de Canada, Ltd.
226 Migneron Street
St. Laurent, Québec, Canada H4T 1Y7
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Mexico

Monterrey
SM-Cyclo de Mexico, S.A. de C.V.
Calle "C" No. 506A
Parque Industrial Almacenamiento
Apodaca, N.L., Mexico 66600
Tel.: 011-52-8-369-3697/8 • FAX: 011-52-8-369-3699

Central & South America Sales, Engineering, Stocking & Assembly

Brazil
SM-Cyclo Redutores do Brasil Ltda.
Av. Dr. Ulysses Guimarães, 3533
09990-080 Diadema
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Tel.: 011-55-11-454-4388 • FAX: 011-55-11-456-2922
Chile
SM-Cyclo de Chile Ltda.
Avenida Zanartu #1231
Comuna Nueva - Santiago, Chile
Tel.: 011-562-237-2407 • FAX: 011-562-237-0225

Other International Locations

Japan
Sumitomo Heavy Industries
Power Transmission & Controls Group
5-9-11, KITA-Shingawa Shinagawa-Ku
Tokyo 141-8686 Japan
Tel.: 011-613-5488-8363 • FAX: 011-613-5488-8355

United Kingdom

Sumitomo (SHI) Cyclo Drive Europe
Marfleet, Kingston upon Hull
HU9 5RA, United Kingdom
Tel.: 011-44-1482-788022 • FAX: 011-44-1482-713205

Southeast Asia

Sumitomo (SHI) Cyclo Drive Southeast Asia
No. 2 Tuas Link 2
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Canadian Standards Association

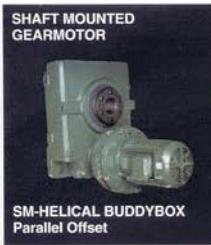




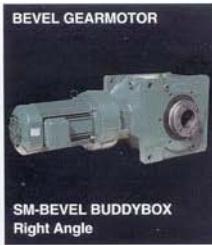
SM-CYCLO
Concentric



SM-CYCLO
Concentric



SM-HELICAL BUDDYBOX
Parallel Offset



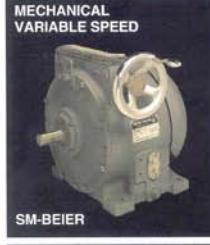
SM-BEVEL BUDDYBOX
Right Angle



SM-CYCLO
Concentric



Concentric



SM-BEIER



AF-3100_c
AC Drive

NTAC-2000
AC Drive



PARAMAX
Parallel Offset
& Right Angle



SM-SHAFT MOUNT
Parallel Offset



SM-HEDCON
Right Angle



SM-HYPONIC
Right Angle

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