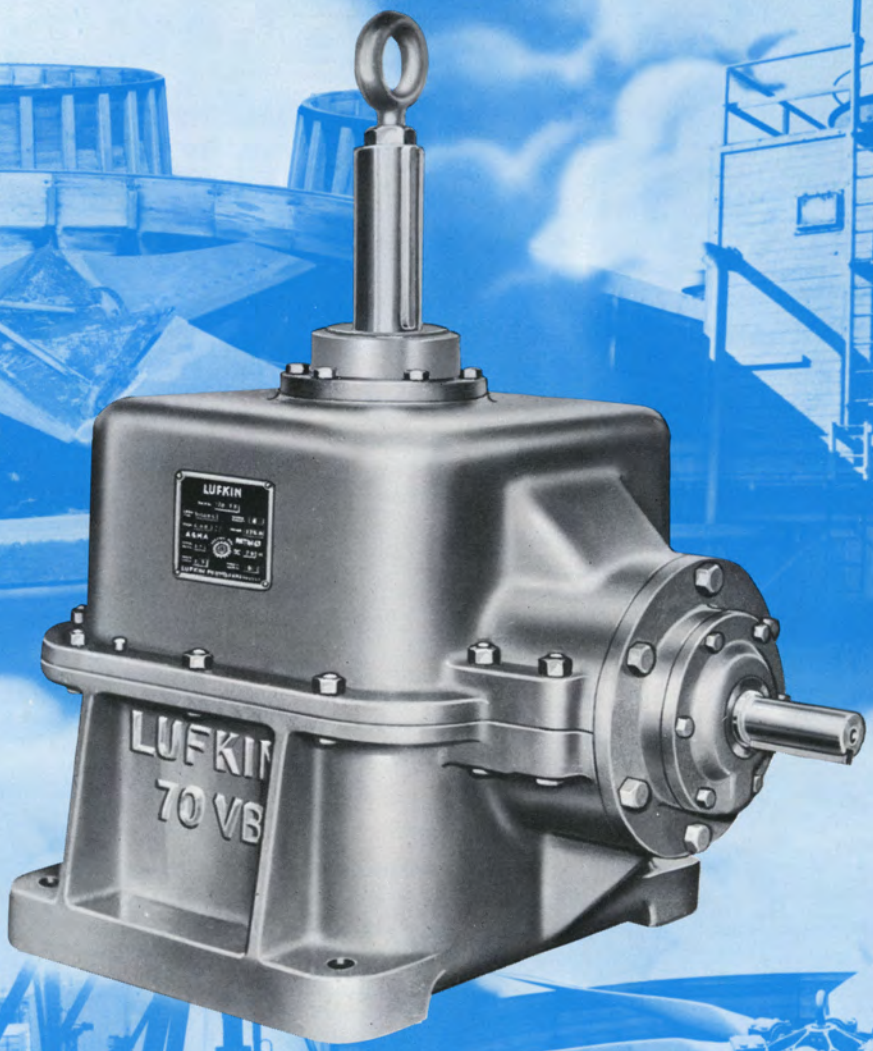
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LUFKIN GEARS

SPIRAL BEVEL GEAR REDUCERS

TYPE VB



for COOLING TOWER FAN DRIVES

Spiral
Bevel
Gear
Bulletin
G-24

MEMBER OF AGMA

LUFKIN FOUNDRY & MACHINE COMPANY LUFKIN, TEXAS

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LUFKIN TYPE VB SPIRAL BEVEL GEAR REDUCERS

Cooling Tower Fan Drives

Horsepower ratings listed in the following tables are mechanical ratings calculated in accordance with the American Gear Manufacturers Association formula using a Service Factor of 1. To make proper selection of size, multiply the actual horsepower load to be transmitted by the applicable Service Factor to obtain Equivalent Horsepower. The smallest unit showing a Catalog Horsepower Rating equal to or greater than this Equivalent Horsepower at the desired speed and ratio is the proper selection.

Conversely, the actual Service Rating for any particular ratio and speed may be obtained by dividing the Catalog Horsepower Rating listed here by the applicable Service Factor.

When Cooling Tower Institute specifications are required for an industrial Cooling Tower Fan driven by electric motor or turbine the Service Factor is 2. If service is less severe a modified service factor may be applied.

The ratings shown in blue cover standard stock sizes which are generally available for immediate delivery.

The ratings shown in bold face type are for standard ratios which are readily available but not necessarily in stock. The other ratios shown are for rating purposes only. Any ratio desired, or a very close approximation, may be obtained when five or more identical units are ordered. Approximate ratings for intermediate ratios and speeds may be found by direct interpolation.

EXAMPLE: Reducer desired to deliver 40 horsepower with 1750 RPM motor; fan speed 242 RPM.

$$\text{Gear Ratio} = \frac{\text{Motor RPM}}{\text{Fan RPM}} = \frac{1750}{242} = 7.23$$

Equivalent HP = HP load $\times$ Service Factor = $40 \times 2 = 80$ HP. By inspection of the Rating Tables it is found that at 1750 RPM input speed the smallest reducer having a rating of at least 80 HP at the desired ratio is the 90VB which rates 86 HP at 7.22 ratio.

The actual Service Rating of the 90VB under these conditions =

$$\frac{\text{Catalog Rating}}{\text{Service Factor}} = \frac{86}{2} = 43 \text{ HP}$$

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 7.5
		1.79	**1.94**	**2.53**	**2.64**	**2.94**	3.0	3.5	4.0	4.5			
	1750	**16.6**	**14.9**	**10.4**	**9.8**	**8.6**	8.4	6.8	5.7	4.9			
20VB	1450	**14.1**	**12.7**	**8.8**	**8.2**	**7.3**	7.2	5.7	4.8	4.1			
	1150	**11.7**	**10.5**	**7.3**	**6.7**	**6.1**	5.9	4.7	3.9	3.3			

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 11
		2.0	2.5	**2.70**	**2.92**	3.5	**3.92**	4.0	4.5	5.0			
	1750	27.0	19.8	**17.7**	**16.0**	12.6	**10.9**	10.6	9.0	7.8			
25VB	1450	22.7	16.7	**15.1**	**13.5**	10.7	**9.2**	9.0	7.6	6.6			
	1150	18.4	13.7	**12.5**	**11.0**	8.8	**7.5**	7.3	6.3	5.5			

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 15
		2.5	**2.92**	**3.18**	**3.5**	**3.81**	**3.90**	**4.5**	5.0	5.5			
	1750	30.3	**25.5**	**24.9**	**19.4**	**17.3**	**16.8**	**13.7**	12.0	10.6			
30VB	1450	25.6	**21.1**	**19.9**	**16.3**	**14.7**	**14.3**	**11.6**	10.2	9.0			
	1150	21.0	**16.8**	**15.0**	**13.3**	**12.2**	**11.8**	**9.6**	8.4	7.4			

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 25
		2.56	**3.07**	**3.42**	**3.60**	**4.00**	**4.55**	**4.86**	**5.12**	5.5			
	1750	**52.0**	**40.0**	**36.0**	**34.0**	**29.0**	**24.0**	**22.6**	**21.1**	18.9			
40VB	1450	**44.4**	**34.0**	**30.3**	**28.7**	**24.5**	**20.5**	**19.1**	**17.9**	16.1			
	1150	**37.0**	**28.0**	**24.6**	**23.5**	**20.1**	**17.0**	**15.7**	**14.8**	13.4			

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 30
		2.47	3.0	**3.50**	**4.11**	**4.62**	**5.12**	5.50	**6.14**				
	1750	**65.0**	51.0	**43.0**	**35.0**	**29.0**	**25.8**	23.3	**20.0**				
50VB	1450	**55.0**	43.5	**36.0**	**29.8**	**25.0**	**22.2**	19.7	**17.5**				
	1150	**45.0**	36.0	**29.0**	**24.6**	**21.0**	**18.7**	16.2	**15.0**				

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SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 45	
		2.5	2.93	3.50	4.0	4.42	4.86	5.22	5.50	5.62	6.00		
60VB	1750	106	85	68	57	51	45	41	39	37	33		
	1450	91.5	74	58	49	43.5	38.5	35	33	32	28.4		
	1150	77	63	48	41	36	32	29	27	27	23.9		

SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 60	
		2.48	3.5	4.0	4.5	5.00	5.50	5.75	6.00	6.50	7.00		
70VB	1750	170	121	102	86	76	67	63	60	53	49		
	1450	150	103	87	73	64	57	53	51	46	42		
	1150	125	85	72	61	53	47	44	43	39	35		

SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 70	
		3.0	3.5	4.10	4.5	5.0	5.50	6.0	6.57	6.86	7.50		
80VB	1750	200	166	138	122	105	93	84	74	69	64		
	1450	171	141	117	104	89	78	70	62	58	54		
	1150	142	117	97	86	73	64	57	51	48	44		

SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 90	
		4.0	4.5	5.0	5.50	6.00	6.50	7.22	7.86	8.29			
90VB	1750	189	154	134	120	108	98	86	80	72			
	1450	159	133	116	103	92	84	73	68	62			
	1150	130	113	98	86	77	70	61	56	52			
	870	105	90	78	70	63	56	49	44	40			

SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 100
		4.0	4.5	5.0	5.5	6.00	6.50	7.13	7.71	7.86	8.29	8.71	
100VB	1750	245	213	184	166	149	133	118	106	104	72	90	
	1450	209	181	158	142	127	113	100	90	88	62	77	
	1150	173	150	133	118	105	93	82	74	72	52	63	

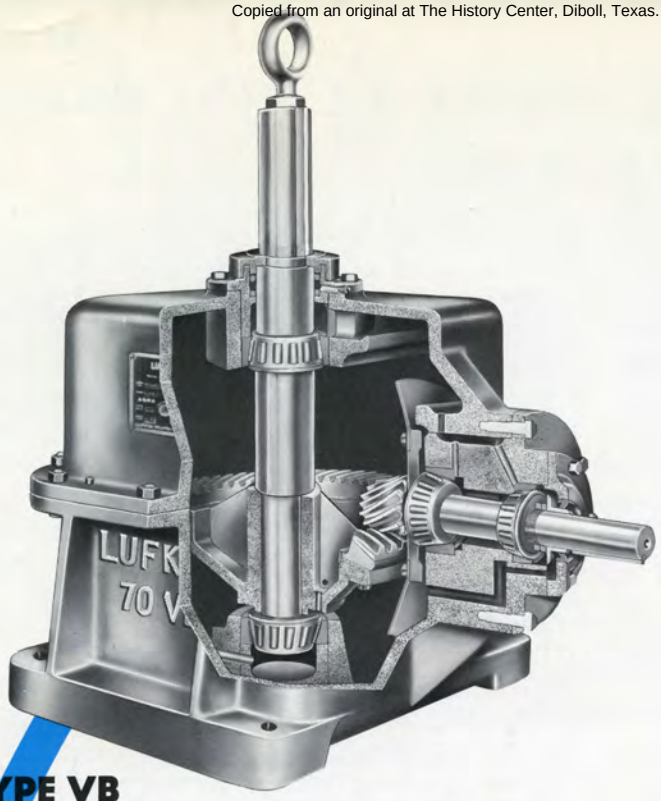
SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 120
		4.5	5.0	5.5	6.0	6.5	7.13	7.50	8.00	8.50	9.17	9.83	
110VB	1750	249	218	194	176	157	140	130	120	110	100	92	
	1450	213	185	166	150	133	119	111	102	94	85	80	
	1150	177	153	138	124	110	98	92	84	78	70	65	

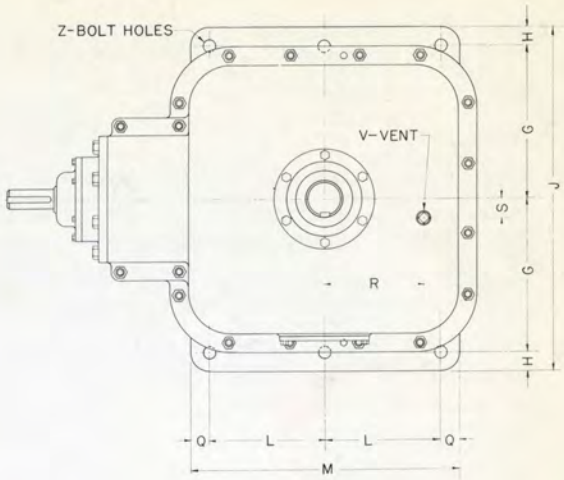
SIZE	Motor R.P.M.	RATIO											Thermal H.P.: 135
		4.5	5.27	5.5	6.11	6.50	6.75	7.5	8.0	8.5	9.17	9.83	
115VB	1750	275	227	214	188	173	166	148	134	126	120	120	
	1450	238	196	185	162	149	143	127	115	107	101	101	
	1150	201	165	156	136	126	121	106	97	89	83	83	

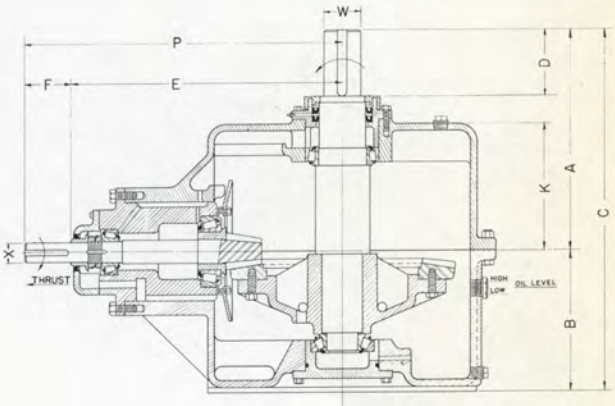
SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 145	
		5.0	5.5	6.00	6.75	7.50	8.14	9.17	9.83	10.1			
120VB	1750	326	287	257	222	196	174	150	150	150			
	1450	277	244	218	189	165	148	127	127	127			
	1150	229	201	180	156	134	122	105	105	105			

SIZE	Motor R.P.M.	RATIO										Thermal H.P.: 200	
		5.0	5.5	6.0	6.5	7.0	7.50	8.00	8.40	9.22	10.1		
150VB	1750	490	440	389	368	347	311	275	255	232	200		
	1450	418	376	333	310	288	260	232	223	198	173		
	1150	346	312	277	253	229	210	190	181	163	141		

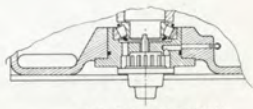
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TYPE VB
SPIRAL BEVEL GEAR REDUCERS
. . for Cooling Tower Fan Drives . .
LUFKIN



OIL PUMP OPTIONAL

GENERAL DIMENSIONS

Dimensions Are Not to Be Used for Installation. Use Certified Installation Print.

Unit	A	B	C	D	E	F	G	H	J	K	L	M	N*	P	Q	R	S	V-Vent Pipe Size	W	W Keyway	X	X Keyway	Z**	Net Weight, Lbs.
20VB	9¼	4½	13¾	4½	6⅞	2⅛	3⅞	⅝	9	†2¼	2½	6¼	1	9	⅝	†3⅛	†0	¼	1¼	¼ x ⅛	11/16	3/16 x 3/32	9/16–4	75
25VB	9¼	4½	13¾	4½	7¾	2¼	4⅜	⅝	10	†2¼	3	7¼	1	10	⅝	†3⅝	†0	¼	1¼	¼ x ⅛	⅞	3/16 x 3/32	9/16–4	80
30VB	14 17/32	6	19 17/32	7	9⅜	2⅞	4⅞	¾	11¼	5¾	3¼	8	1⅛	12¼	¾	2⅞	2⅞	1	1¾	⅜ x 3/16	⅞	3/16 x 3/32	9/16–4	155
40VB	15¼	7	22¼	7	9 11/16	3 1/16	5½	¾	12½	6¾	3⅝	9¼	1⅛	13	1	2 11/16	2 11/16	1	1¾	⅜ x 3/16	1	¼ x ⅛	9/16–4	190
50VB	17⅞	8½	26⅜	8	11 1/16	3 11/16	6¾	1¼	16	8	4½	11½	1½	15	1¼	4½	1⅞	1	2	½ x ¼	1⅛	¼ x ⅛	13/16–4	345
60VB	19⅝	8½	28⅛	9¾	13 11/16	3 11/16	8	1¼	18½	8	5¾	14	1½	17⅝	1¼	5⅛	1½	1	2	½ x ¼	1¼	¼ x ⅛	13/16–4	490
70VB	21¼	10	31¼	9¾	15 11/16	3¼	9	1½	21	9⅛	6½	16	2	19 3/16	1½	6	1½	1	2¼	½ x ¼	1⅜	⅜ x 3/16	13/16–4	635
80VB	18	10	28	6½	18	3½	9¾	1½	22½	9⅛	7¼	17½	2	21½	1½	6	1½	1	2¼	½ x ¼	1⅝	½ x ¼	13/16–4	745
90VB	20¾	12	32¾	7	20⅞	3 3/16	11⅞	1¾	27¼	11⅜	8⅜	20¼	2½	24 3/16	1¾	7	1½	1	2¾	⅝ x 3/16	1⅞	½ x ¼	1 1/16–6	1,190
100VB	20¾	12	32¾	7	22¼	3¼	12½	1¾	28½	11⅜	9	21½	2½	25½	1¾	8	1½	1	2¾	⅝ x 3/16	1⅞	½ x ¼	1 1/16–6	1,295
110VB	22¾	14	36¾	7	24⅛	4⅜	14¼	1¾	32	13⅛	10¾	25	2½	28½	1¾	9½	2	1	3¼	¾ x ⅜	2⅛	½ x ¼	1 1/16–6	1,860
115VB	22¾	14	36¾	7	25⅞	5	15	1¾	33½	13⅛	11½	26½	2½	30⅞	1¾	10½	2	1	3¼	¾ x ⅜	2⅛	½ x ¼	1 1/16–6	2,015
120VB	23½	15	38½	7	28⅝	4⅞	16¼	2	36½	13⅝	12¼	28½	2¾	33½	2	10½	2	1	3⅞	1 x ½	2⅜	⅝ x 5/16	1 5/16–6	2,445
150VB	24 31/32	16	40 31/32	7	31 5/16	5 1/16	15½	1¾	34½	14¾	12	30	2½	36⅝	3	10½	0	1	4	1 x ½	2⅝	⅝ x 5/16	1 5/16–4	2,750

* N—Thickness of Base Flange ** Z—Bolt Hole Size and Quantity Bolts Required † Vent Located on Side of Unit Shaft Tolerances ± .0005

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

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