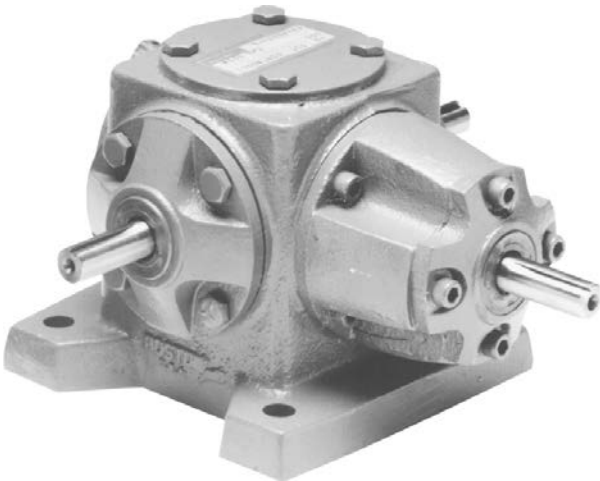
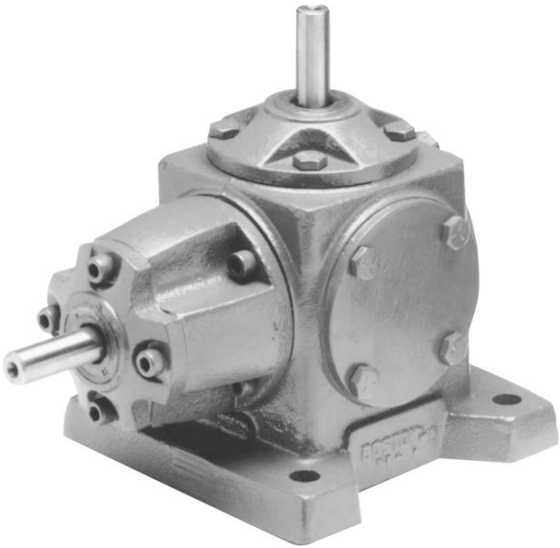


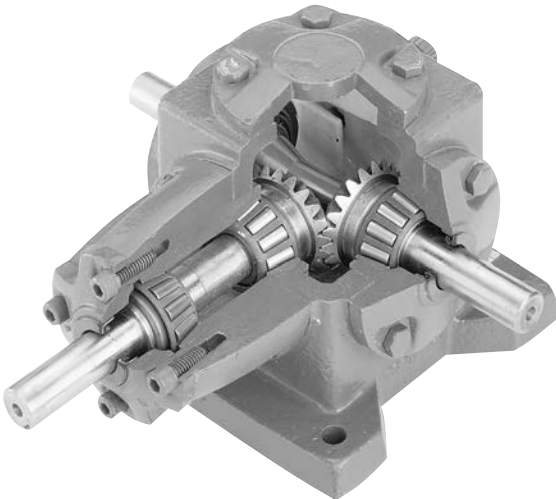
R100/R200 Series & VR100/VR200 Series Spiral Bevel Gear Drives



R100/R200



VR100/VR200



SPIRAL BEVEL GEAR

Boston “R” and “VR” 100 and 200 Series Spiral Bevel Gear Boxes are available in four sizes with horsepower ranging from 2.19 to 50.92.

Features

- Spiral Bevel Gear Drives are designed for high efficiency, quiet operation and long service life. Gears are made of case-hardened alloy steel
- Shafts are heat treated, alloy steel mounted on heavy duty, tapered roller bearings
- Housings are made of cast iron, precision machined to assure accurate, permanent alignment of the gears

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Selection Charts	312
Dimensions	313
Parts List	314



R100/R200 Series & VR100/VR200 Series Spiral Bevel Gear Drives

Selection Procedure

Catalog ratings are based on Class I service (uniform load, operating no more than 10 hours/day). For applications meeting these conditions selection may be made by comparing the actual load to be transmitted with the appropriate catalog rating. For other conditions selection must be made, based on an equivalent horsepower or torque, obtained by multiplying actual load by the proper service factor.

Selection Procedure:

1. Determine the correct service factor using the Applications Classification Chart—Pages 348 & 349. If the application is

not listed, obtain service factor from Service Factor Chart, Page 349.

2. Multiply the actual output horsepower or torque by the service factor to obtain the equivalent rating required.
3. Establish input and output speed and/or gear ratio required for the enclosed drive.
4. Selection of all bevel gear drives should be based on Steps 1 through 3 using Selection Chart for desired input and output speeds (including speed increasing drives) that satisfy the required equivalent horsepower or torque.

How to Order

R/VR Series Catalog Number

EXAMPLE: R137-BM1 (40346)

SBK	VR	1	37	K	-	N	0	-	M5												
Reducer Material/ Paint (Cast Iron) Blank—Standard Paint BK — White <i>BostKleen</i> Paint SBK—Stainless <i>Bost- Kleen</i> Paint	Ratio 1 – 1:1 2 – 2:1/1:2	Housing Type R – Horizontal VR – Vertical	Frame Size 31 – Size 31 37 – Size 37 46 – Size 46 58 – Size 58	Lubrication Blank—No Lubrication K – Klubersynth UH1 6-460 S – Mobil SHC 634	Assembly Type A – R G – VR B – R H – VR Standard C – R J – VR D – VR N – VR E – VR Standard F – VR Q – VR P – VR See catalog for details	Rotation Blank—Standard Rotation 0 – Opposite Relative Rotation See catalog for details	Mounting Position <table border="1"> <tr> <th>Horizontal (R)</th> <th>Vertical (VR)</th> </tr> <tr> <td>M1 V1</td> <td>M1 M7</td> </tr> <tr> <td>M2 V2</td> <td>M2 M8</td> </tr> <tr> <td>M3</td> <td>M3 V1</td> </tr> <tr> <td>M4</td> <td>M4 V3</td> </tr> <tr> <td></td> <td>M5 V4</td> </tr> <tr> <td></td> <td>M6</td> </tr> </table> See catalog for details	Horizontal (R)	Vertical (VR)	M1 V1	M1 M7	M2 V2	M2 M8	M3	M3 V1	M4	M4 V3		M5 V4		M6
Horizontal (R)	Vertical (VR)																				
M1 V1	M1 M7																				
M2 V2	M2 M8																				
M3	M3 V1																				
M4	M4 V3																				
	M5 V4																				
	M6																				

TO ORDER: Specify Catalog Number and or Item Code, Assembly Type and Mounting Position. (Ref. Page 314 for Item Code, Order Information)

Lubrication

Lubrication and maintenance instructions are provided with each speed reducer. These instructions should be followed for best results. It is important that the proper type of oil be used since many oils are not suitable for the lubrication of gears. Various types of gearing require different types of lubricants.

The lubricant must remain free from oxidation and contamination by water or debris since only a very thin film of oil stands between efficient operation and failure. To assure long service life, the reducer should be periodically drained (preferably while warm) and refilled to the proper level with a recommended gear oil. Under normal environmental conditions oil changes are suggested after the initial 250 hours of operation, and therefore, at regular intervals of 2500 hours or every 6 months. Synthetic lubricants will allow extended lubrication intervals due to its increased resistance to thermal and oxidation degradation. It is suggested that the initial oil change be made at 1500 hours and, thereafter, at 5000 hour intervals.

During the initial period of operation, higher than normal operating temperatures may be seen. This is due to the initial break-in of the gear set. The temperature of Bevel Gear Reducers may reach approximately 225°F.

Recommended Lubricant	Boston Gear Item Code
	Quart
Klubersynth UH1 6-460	65159
Mobil SHC634	51493

Bevel Gear Reducers

Recommended Oil (or equivalent)	Viscosity Range S&S @ 100°F	Lubricant AGMA No.	ISO Viscosity Grade No.
Klubersynth* UH1 6-460	1950/2500	-----	460
Mobil SHC634	1950/2500	-----	320/460

Ambient temperature range of -20F to +125F is suitable for standard configured products and ratings. Contact technical support for operating conditions beyond this range.

Model No.		Quantity Per Unit
R131/R231	VR131/VR231	1/2 Pint
R137/R237	VR137/VR237	1/2 Pint
R146/R246	VR146/VR246	1-1/2 Pints
R158/R258	VR158/VR258	2-1/2 Pints

CAUTION: Relubricate more frequently if drive is operated in high ambient temperatures or unusually contaminated atmospheres. High loads and operating temperatures will also require more frequent relubrication.

* Synthetic recommendation is exclusively for Klubersynth UH1 6-460.

‡The Synthetic lubricant will perform at temperatures considerably higher than 225°F. However, the factory should always be consulted prior to operating at higher temperatures, as damage may occur to oil seals and other components.

R100/R200 Series & VR100/VR200 Series Spiral Bevel Gear Drives

R100/R200 Series Mountings

Mountings are designated by combining identification for Assembly Type and Mounting Position.

Example: Mtg. AM1.

Assembly B is standard for Type R and Assembly N is standard for Type VR and will be furnished unless otherwise specified.

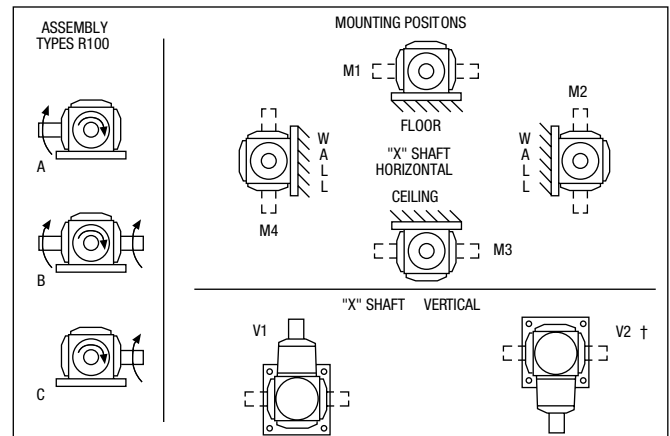
All assemblies can be mounted in any position shown with "X" Shaft horizontal by re-locating Oil Plugs in proper position.

Mountings with "X" Shaft vertical available at a slight extra charge.

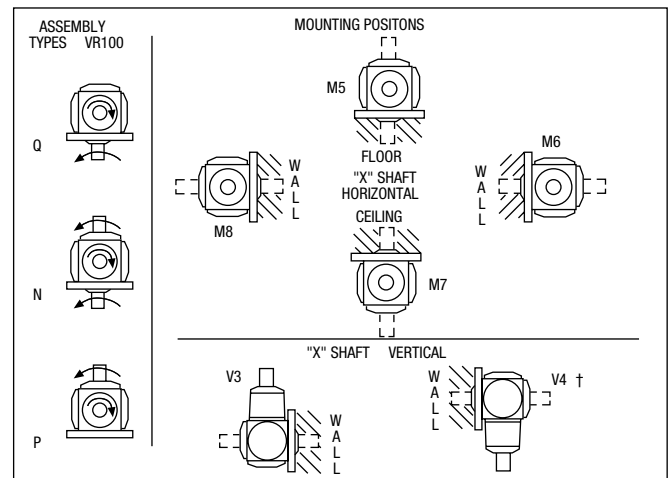
Shafts can rotate in either direction, arrows show standard relative rotation. Opposite relative rotation available at no additional charge.

To order with opposite relative rotation, insert letter "O" between Assembly and Mounting code.

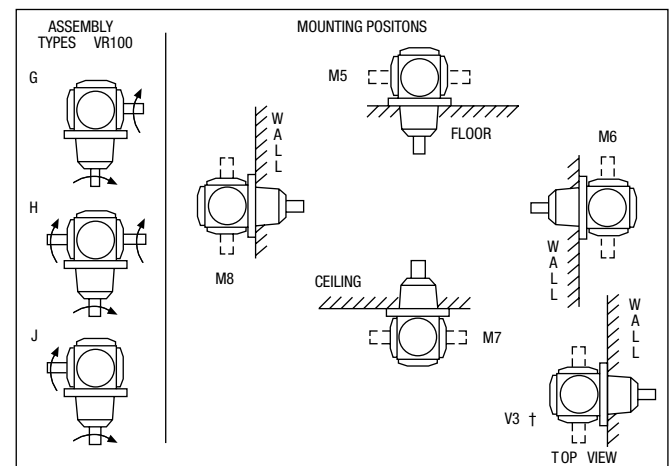
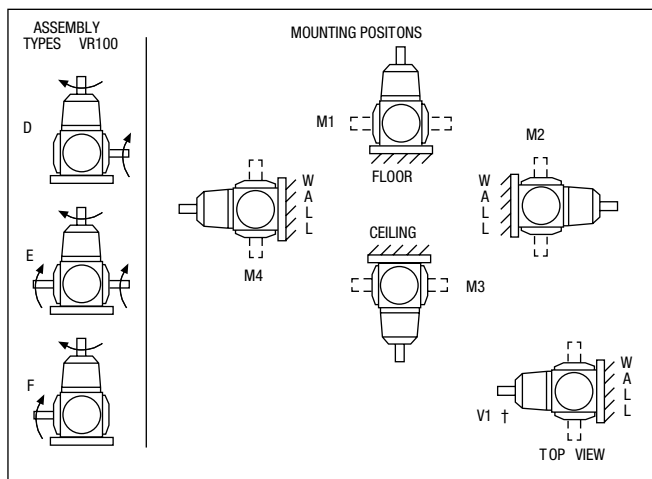
Example: AOM1.



VR100/VR200 Series



Mountings shown below are available on an assembled to order basis.



Filler, level and drain plugs are located on the back side of views shown.

† Special filler, level and drain plugs provided.

R100/R200 Series & VR100/VR200 Series Spiral Bevel Gear Drives

R100/R200, VR100/VR200 Series

Selection Charts

	Ratio	Input RPM	Output RPM	R/VR131		R/VR137		R/VR146		R/VR158	
				Output		Output		Output		Output	
				HP	Torque†	HP	Torque†	HP	Torque†	HP	Torque†
	1:1	1750	1750	4.2	151	8.8	318	25.1	905	50.9	1834
		1150	1150	3.1	164	5.8	318	18.5	1012	40.9	2242
		690	690	1.9	174	3.5	318	11.4	1044	25.4	2324
		100	100	.40	252	.60	378	1.8	1145	4.0	2546
Reducer	2:1	1750	875	R/VR231		R/VR237		R/VR246		R/VR258	
		1150	575	2.2	158	3.7	267	12.2	878	22.6	1620
		690	345	1.5	161	2.5	272	8.2	900	15.2	1670
		100	50	.90	164	1.5	280	5.1	924	9.4	1717
Increaser*	1:2	1750	3500	.15	189	.23	290	.77	970	1.5	1870
		1150	2300	2.2	39.5	3.7	67	12.2	220	—	—
		690	1380	1.5	40.2	2.5	68	8.2	225	15.2	418
		100	200	.90	41.0	1.5	70	5.1	231	9.4	429
				.15	47.2	.23	72	.77	242	1.5	468

* **NOTE:** On 2:1 or 1:2 ratios, pinion will always be on X shaft.

† Torque (LB-INS)

I/P H.P. approx. 5% higher.

Suggested Maximum Input Speeds**

R & VR131, R & VR231	4000 RPM
R & VR137, R & VR237, R & VR246	3600 RPM
R & VR146, R & VR158, R & VR258	2500 RPM

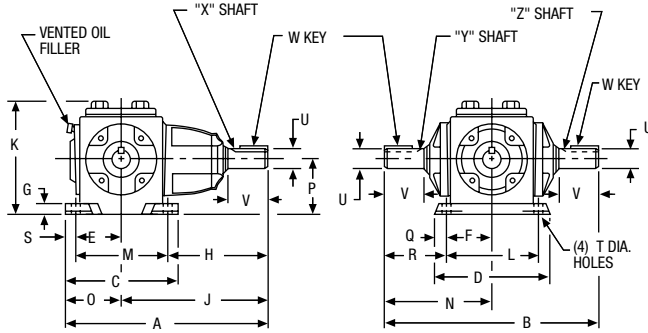
** Sound level, operating temperature and venting are usually affected at high operating speeds.

ORDER BY CATALOG NUMBER OR ITEM CODE

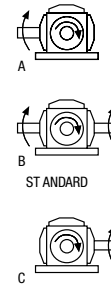
Horizontal Model R100/200					Vertical Model VR100/200				
Series	Ratio	Item Code			Series	Ratio	Item Code		
		Assembly Type					Assembly Type		
		AM1	BM1	CM1			QM5	NM5	PM5
R131	1:1	40328	40332	40336	VR131	1:1	42220	42212	42216
R231	2:1	42860	42864	42868	VR231	2:1	42928	42920	42924
R137	1:1	40342	40346	40350	VR137	1:1	42238	42230	42234
R237	2:1	42874	42878	42882	VR237	2:1	42946	42938	42942
R146	1:1	40356	40360	40364	VR146	1:1	42256	42248	42252
R246	2:1	42888	42892	42896	VR246	2:1	42964	42956	42960
R158	1:1	40370	40374	40378	VR158	1:1	42274	42266	42270
R258	2:1	42902	42906	42910	VR258	2:1	42982	42974	42978

R100/R200 Series & VR100/VR200 Series Spiral Bevel Gear Drives

R100/R200, VR100/VR200 Series Dimensions – Horizontal Base Models



ASSEMBLY TYPES

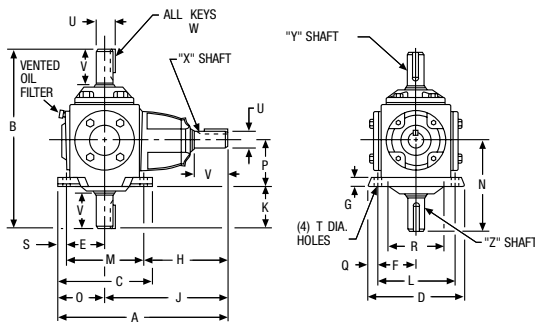


For mounting positions see page 311.

ALL DIMENSIONS IN INCHES

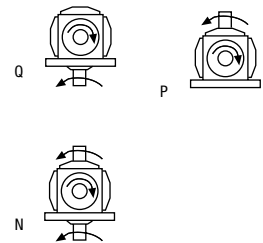
Model No.	A	B	C	D	E	F	G	H	J	K	L	M
R131/231	8.16	7.81	5.31	5.25	2.03	2.03	.63	3.47	5.50	4.78	4.06	4.06
R137/237	10.16	9.28	6.19	6.13	2.44	2.44	.63	4.63	7.06	5.72	4.88	4.88
R146/246	12.50	11.66	7.50	7.38	3.00	3.00	.75	5.75	8.75	6.75	6.00	6.00
R158/258	16.47	16.84	9.25	9.00	3.75	3.75	.88	8.09	11.84	8.56	7.50	7.50

Model No.	N	O	P	Q	R	S	T Holes	U +0.000 -0.001	V	W-Key		Approx. Weight (Lbs.)
										Sq.	Lgth.	
R131/231	3.91	2.66	2.63	.59	1.88	.63	.44	.500	1.31	1/8	7/8	14
R137/237	4.64	3.09	3.00	.63	2.20	.66	.44	.750	1.69	3/16	1	27
R146/246	5.83	3.75	3.50	.69	2.83	.75	.53	1.000	1.94	1/4	1-1/4	51
R158/258	8.42	4.63	4.50	.75	4.67	.88	.56	1.500	3.44	3/8	2-1/4	104



Dimensions – Vertical Base Models

ASSEMBLY TYPES



For mounting positions see page 311.

ALL DIMENSIONS IN INCHES

Model No.	A	B	C	D	E	F	G	H	J	K	L	M
VR131/231	8.16	7.81	5.31	5.25	2.03	2.03	.63	3.47	5.50	1.28	4.06	4.06
VR137/237	10.16	9.28	6.19	6.13	2.44	2.44	.63	4.63	7.06	1.64	4.88	4.88
VR146/246	12.50	11.66	7.50	7.38	3.00	3.00	.75	5.75	8.75	2.33	6.00	6.00
VR158/258	16.47	16.84	9.25	9.00	3.75	3.75	.88	8.09	11.84	3.92	7.50	7.50

Model No.	N	O	P	Q	R	S	T Holes	U +0.000 -0.001	V	W-Key		Approx. Weight (Lbs.)
										Sq.	Lgth.	
VR131/231	3.91	2.66	2.63	.59	—	.63	.44	.500	1.31	1/8	7/8	14
VR137/237	4.64	3.09	3.00	.63	—	.66	.44	.750	1.69	3/16	1	27
VR146/246	5.83	3.75	3.50	.69	3.75	.75	.53	1.000	1.94	1/4	1-1/4	51
VR158/258	8.42	4.63	4.50	.75	4.50	.88	.56	1.500	3.44	3/8	2-1/4	104

The letters X, Y and Z are used to designate specific shaft projections when ordering units with special shaft requirements.