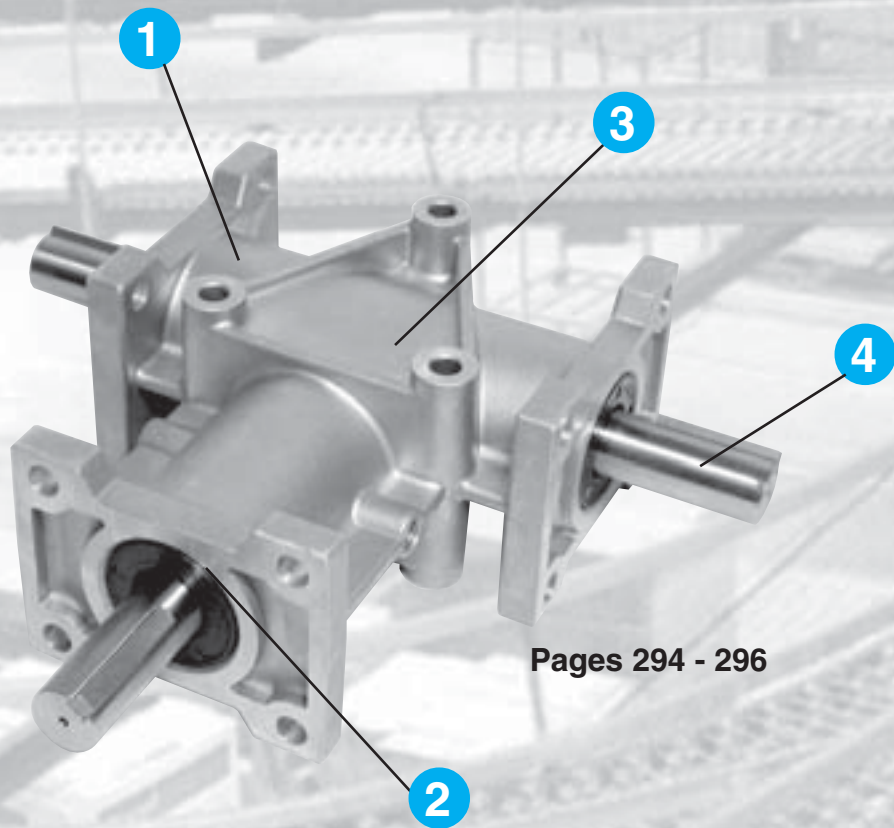


(ARA) ALUMINUM RIGHT ANGLE BEVEL GEAR REDUCER FEATURES...

*All BROWNING Bevel
Gear reducers come
with a generous 2 year
warranty*



Pages 294 - 296

Design Features

1. Light weight, corrosion resistant aluminum housings.
2. Double sealed bearings for long life and leak free operation.
3. Alloy steel case hardened spiral bevel gears provide quiet operation.
4. Corrosion resistant stainless steel shafts.
5. Grease filled from the factory.

Browning® Aluminum Right Angle Bevel Gear Reducers Bevel

Selection and Rating Information

SELECTION EXAMPLE

A 3/4 HP, 1750 RPM electric motor is to drive a uniformly fed belt conveyor 16 hours per day. The output drive is a V-belt drive with a 3.4" P.D. driver sheave mounted on the gear box output shaft. Gear box input rotates clockwise and output rotates counter clockwise with output on the right side of the gear box. Gear box ratio is 1:1.

1. Determine the Service Factor.

From Table No. 2, page 287, note that the load class for uniformly fed conveyor is "U". From Table No. 1, page 286, note that the service factor is 1.25 for class "U" load 16 hours per day.

2. Determine the Normal Horsepower.

Multiply the motor HP by the service factor

$$3/4 \times 1.25 = .9375 \text{ Normal HP}$$

3. Select the Aluminum Right Angle Gear Box.

Refer to Table No. 5, page 295, and read down the input RPM column to 1750, then read to the right to an input HP equal to or greater than the .9375 determined in Step 2, which in this case is 1.85 HP. Reading upward note that the Gear Box is 5ARA2. (This is the Basic Part Number and must be completed later.)

4. Check the Overhung Load.

Solve the Overhung Load formula from page 295.

$$OL = \frac{2TK}{D}$$

$$T = \frac{63025 \times \text{HP}}{\text{RPM}}$$

$$= \frac{63025 \times 3/4}{1750}$$

$$= 27 \text{ in lbs.}$$

$$K = 1.50$$

$$D = 3.4$$

$$OL = \frac{2 \times 27 \times 1.50}{3.4} = 23.8$$

Since this is less than the overhung load capacity from Table No. 6, page 295, the 5ARA2 Gear Box meets the requirements of the application.

6. Complete the Gear Box Part Number.

Refer to the type sketch on page 296 and note that a Type SN Gear Box is needed for output right with input rotating Clockwise and output rotating Counter-Clockwise (Fig. 5).

Find the Basic Part No. 5ARA2 in Table No. 8, page 296, and reading to the right note that the complete part number for a Type SN Gear Box with 1:1 ratio is **5ARA2-SN10**.

NOTE: If a chain drive or the other drive has been specified for either or both input or output shafts, the overhung loads would have to be checked from the formula above and from the table on page 290.

CAUTION — Install guards according to applicable local and national codes for rotating shafts.

Input H.P. and Output Torque

Table No. 5

Basic Part No.			3ARA2		5ARA2		6ARA2	
Input RPM	Ratio	Output RPM	Input H.P.	Output Torque In.-Lbs.	Input H.P.	Output Torque In.-Lbs.	Input H.P.	Output Torque In.-Lbs.
3600	1:1	3600	1.60	28	3.60	63	7.80	136
3600	2:1	1800	.48	17	1.95	68	3.25	112
2800	1:1	2800	1.25	28	2.85	64	6.20	139
2800	2:1	1400	.38	17	1.55	69	2.55	114
1750	1:1	1750	.80	29	1.85	66	4.00	143
1750	2:1	875	.24	17	.98	70	1.65	118
1150	1:1	1150	.53	29	1.22	67	2.70	147
1150	2:1	575	.16	17	.65	71	1.09	119
850	1:1	850	.40	30	.90	67	2.00	148
850	2:1	425	.12	17	.48	71	.80	119
690	1:1	690	.33	30	.75	68	1.65	150
690	2:1	345	.10	18	.40	73	.65	119
400	1:1	400	.20	31	.45	71	.96	151
400	2:1	200	.06	18	.24	75	.40	125
200	1:1	200	.10	32	.23	72	.50	157
200	2:1	100	.03	18	.12	74	.20	125
100	1:1	100	.05	34	.12	75	.25	157
100	2:1	50	.01	19	.06	76	.10	125

OVERHUNG LOADS

When a gear box is driven by any belt, chain, or gear drive, or when the gear box drives a driven unit through a belt, chain or gear drive, overhung loads must not exceed those shown in the Table No. 6 below. Use the following formula to calculate the overhung load.

$$OL = \frac{2TK}{D}$$

Where:

OL = Overhung Load (pounds)

T = Actual Shaft Torque (Inch-Pounds)

D = P.D. of Sprocket, Sheave, Pulley or Gear

K = 1.0 for Chain Drives

1.25 for Gear Drives

1.25 for Gearbelt Drives

1.50 for V-Belt Drives

2.50 for Flat Belt Drives

No overhung loads are encountered when the gear box is coupling connected to the driver and/or driven machine. However, care should be taken in aligning the shafts to avoid pre-loading bearings by misalignment.

Table No. 6

Gear Box	Max. Overhung Load
3ARA2	25 Lbs.
5ARA2	50 Lbs.
6ARA2	100 Lbs.

Browning® Aluminum Right Angle Bevel Gear Reducers Bevel

Dimensions and Part Numbers

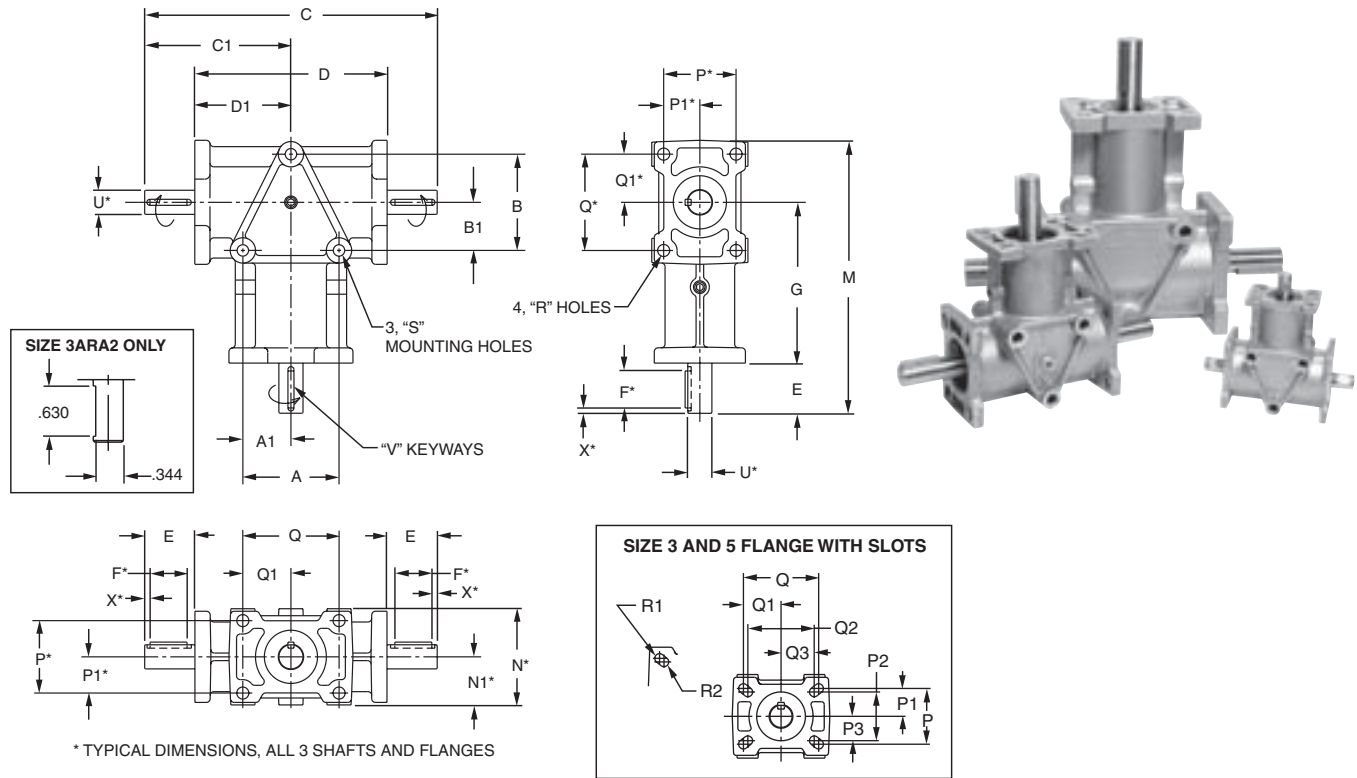


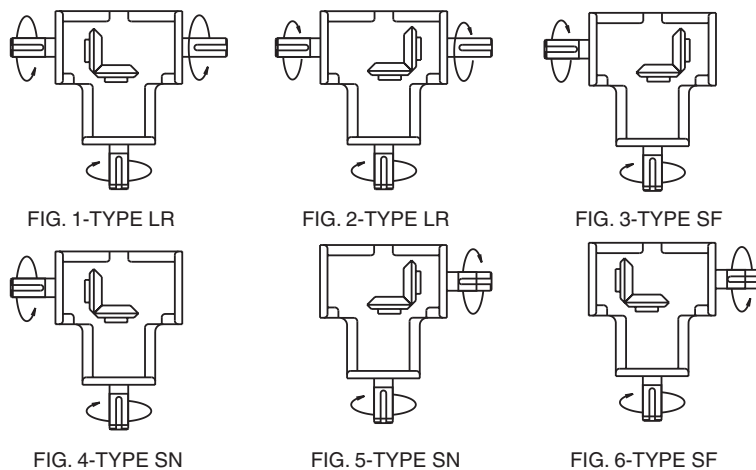
Table No. 7 Specifications

Basic★ Part No.	Wt. Lbs.	A	A ₁	B	B ₁	C	C ₁	D	D ₁	E	F	G	M	N	N ₁
3ARA2	.8	1.326	.663	1.326	.663	4.310	2.155	2.756	1.378	.780	-	2.165	3.890	1.575	.7875
5ARA2	3.5	1.890	.945	1.890	.945	7.370	3.685	4.250	2.125	1.560	1.150	3.250	6.180	2.362	1.181
6ARA2	7.5	2.992	1.496	2.992	1.496	9.100	4.550	5.984	2.992	1.560	1.150	5.000	8.480	2.992	1.496

Basic★ Part No.	P	P ₁	P ₂	P ₃	Q	Q ₁	Q ₂	Q ₃	R	R ₁	R ₂	S	U	V	X
3ARA2	1.100	.550	.880	.440	1.500	.750	1.190	.595	-	.108	.094	.230	.375	-	-
5ARA2	1.570	.785	1.380	.690	2.130	1.065	1.880	.940	-	.130	.130	.270	.625	.187 x .093	.160
6ARA2	2.250	1.125	-	-	3.000	1.500	-	-	.370	-	-	.350	.750	.187 x .093	.160

★ Basic Part No. means — 3 = 3/8" Shaft, 5 = 5/8" Shaft, 6 = 6/8 or 3/4" Shaft
 ARA = Aluminum Right Angle
 2 = Input Shaft one end only.
 Select Complete Part No. from Table No. 8 below after determining the ratio, type and relative shaft rotation from Figs. 1-6 below.

Table No. 8 Part Numbers, Types and Ratios



Basic Part No.	Fig.	Type ▲	Ratio ■	Part No.
3ARA2	1 and 2	LR	1:1	3ARA2 - LR10
	1 and 2	LR	2:1	3ARA2 - LR20
	3 and 6	SF	1:1	3ARA2 - SF10
	3 and 6	SF	2:1	3ARA2 - SF20
	4 and 5	SN	1:1	3ARA2 - SN10
	4 and 5	SN	2:1	3ARA2 - SN20
5ARA2	1 and 2	LR	1:1	5ARA2 - LR10
	1 and 2	LR	2:1	5ARA2 - LR20
	3 and 6	SF	1:1	5ARA2 - SF10
	3 and 6	SF	2:1	5ARA2 - SF20
	4 and 5	SN	1:1	5ARA2 - SN10
	4 and 5	SN	2:1	5ARA2 - SN20
6ARA2	1 and 2	LR	1:1	6ARA2 - LR10
	1 and 2	LR	2:1	6ARA2 - LR20
	3 and 6	SF	1:1	6ARA2 - SF10
	3 and 6	SF	2:1	6ARA2 - SF20
	4 and 5	SN	1:1	6ARA2 - SN10
	4 and 5	SN	2:1	6ARA2 - SN20

▲ LR means Output Shaft Extension Left and Right Sides, SF means Single Output Extension with Gear mounted on Far Side from Extension, and SN means Single Output Extension with Gear mounted on Side Near to Extension.

■ 10 = 1:1 Ratio, 20 = 2:1 Ratio