

Amarillo® Gear Company



**For agriculture and industry**

# **RIGHT ANGLE PUMP DRIVE**



## SELECTION OF THE PROPER DRIVE

MODEL DESIGNATION: The model number designates the basic horsepower rating at 1760 RPM pump speed. The number is preceded by one of the following letter designations to define the type of drive:

- SL Standard Hollow Shaft Drive with Opposed Thrust Capacity
- S Standard Hollow Shaft Drive with Standard Thrust Capacity
- SH Standard Hollow Shaft Drive with Heavy Thrust Capacity

EFFICIENCY: Through the use of high quality gears and bearings, transmission efficiency ranges from 94% to 98% varying with speed, horsepower and thrust. Actual efficiency values will be furnished upon request.

GEARS: All drives are furnished with spiral bevel gears, designed in accordance with AGMA (American Gear Manufacturers Association) standards for both strength and surface durability, employing a minimum service factor of 1.50 at rated horsepower.

## RATIO SELECTION

VERTICAL SHAFT RPM	RATIO AND INPUT SPEED											
	1:1	10:11	5:6	4:5	3:4	2:3	5:8	4:7	1:2	4:9	2:5	1:3
720	720	655	600	576	540	480	450	411	360	320	288	240
870	870	791	725	696	653	580	544	497	435	387	348	290
960	960	873	800	768	720	640	600	549	480	427	384	320
1160	1160	1055	967	928	870	773	725	663	580	516	464	387
1460	1460	1327	1217	1168	1095	973	913	834	730	649	584	487
1760	1760	1600	1467	1408	1320	1173	1100	1006	880	682	704	587
3460	3460	3145	2883	2768	2595	2307	2163	1977	1730	1538	1384	1153

## ALL RATIOS ARE NOT AVAILABLE ON SOME MODELS

VERTICAL SHAFT RPM	RATIO AND INPUT SPEED										
	11:10	6:5	5:4	4:3	3:2	8:5	7:4	2:1	9:4	5:2	3:1
720	792	864	900	960	1080	1152	1260	1440	1620	1800	2160
870	957	1044	1088	1160	1305	1392	1523	1740	1958	2175	2610
960	1056	1152	1200	1280	1440	1536	1680	1920	2160	2400	2880
1160	1276	1392	1450	1547	1740	1856	2030	2320	2610	2900	3480
1460	1606	1752	1825	1947	2190	2336	2555	2920	3285	3650	----
1760	1936	2112	2200	2347	2640	2816	3080	3520	---	----	----

## HORSEPOWER AND THRUST RATINGS

MODEL	Vertical Shaft Speed (RPM)	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS						MODEL	Vertical Shaft Speed (RPM)	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS					
			Type SL		Type S		Type SH					Type SL		Type S		Type SH	
			Min.	Max.	Min.	Max.	Min.	Max.				Min.	Max.	Min.	Max.	Min.	Max.
30	1160	22	0	978	797	2358	797	3680	250	720	134		0	17500	0	22275	
	1460	26	0	901	759	2173	759	3392		960	164		0	15860	0	20130	
	1760	30	0	850	700	2050	700	3200		1160	187		0	14950	0	18975	
40	1160	30	0	1495	1138	4600	1138	6900	300	1460	219		0	13780	0	17490	
	1460	35	0	1378	1055	4240	1055	6360		1760	250		0	13000	0	16500	
	1760	40	0	1300	1000	4000	1000	6000		350	720	162		0	17550	0	22275
60A	960	39	0	2074	1490	6222	1490	8540	960		195		0	15860	0	20130	
	1160	45	0	1955	1422	5865	1422	8050	1160		225		0	14950	0	18975	
	1460	53	0	1802	1331	5406	1331	7420	1460	264		0	13780	0	17490		
80A	1760	60	0	1700	1250	5100	1250	7000	1760	300		0	13000	0	16500		
	960	52	0	3904	2085	7564	2085	11224	450A	720	187		0	17550	0	22275	
	1160	60	0	3680	1991	7130	1991	10580		960	229		0	15860	0	20130	
1460	70	0	3392	1846	6572	1846	9752	1160		261		0	14950	0	18975		
100A	1760	80	0	3200	1750	6200	1750	9200	1460	307		0	13780	0	17490		
	960	65	0	3904	2085	7564	2085	11224	1760	350		0	13000	0	16500		
	1160	75	0	3680	1991	7130	1991	10580	500A	720	241	0	8100	4631	25650	4631	33750
1460	88	0	3392	1856	6572	1856	9752	960		294	0	7320	4175	23180	4175	30500	
1760	100	0	3200	1750	6200	1750	9200	1160		336	0	6900	3979	21850	3979	28750	
125A	960	82	0	5002	2673	8174	2673	12688	1460	395	0	6360	3713	20140	3713	26500	
	1160	93	0	4715	2567	7705	2567	11960	1760	450	0	6000	3500	19000	3500	25000	
	1460	110	0	4346	2387	7102	2387	11024	600A	720	267	0	8100	5544	28350	5544	36450
1760	125	0	4100	2250	6700	2250	10400	960		327	0	7320	5005	25620	5005	32940	
150A	720	80	0	6750	3564	11070	3564	17010		1160	373	0	6900	4779	24150	4779	31050
	960	98	0	6100	3234	10004	3234	15372	1460	439	0	6360	4455	22260	4455	28620	
	1160	112	0	5750	3086	9430	3086	14490	1760	500	0	6000	4200	21000	4200	27000	
200A	1460	132	0	5300	2864	8692	2864	13356	750A	720	321	0	10800	5940	36450	5940	43200
	1760	150	0	5000	2700	8200	2700	12600		960	393	0	9760	5363	32940	5363	39040
	720	108	0	6750	3564	12150	3564	18225		1160	448	0	9200	5121	31050	5121	36800
200	960	130	0	6100	3218	10980	3218	16470	1460	526	0	8480	4774	28620	4774	33920	
	1160	150	0	5750	3072	10350	3072	15525	1760	600	0	8000	4500	27000	4500	32000	
	1460	176	0	5300	2864	8692	2864	14310	1000G	720	401	0	10800	6600	36450	6600	45225
1760	200	0	5000	2700	8200	2700	13500	870		458	0	10080	6177	34020	6177	42210	
720	108			3564	15490	3564	20880	960		491	0	9760	5964	32940	5964	40870	
200	960	130			3218	14070	3218	18970	1160	560	0	9200	5695	31050	5695	38525	
	1160	150			3072	13210	3072	17810	1460	658	0	8480	5304	28620	5304	35510	
	1460	176			2864	12240	2864	16500	1760	750	0	8000	5000	27000	5000	33500	
200	1760	200			2700	11500	2700	15500	1000G	720	535	0	10800	6600	36450	6600	45225
	960	130			3218	14070	3218	18970		870	458	0	10080	6177	34020	6177	42210
	1160	150			3072	13210	3072	17810		960	654	0	9760	5964	32940	5964	40870
200	1460	176			2864	12240	2864	16500	1160	747	0	9200	5695	31050	5695	38525	
	1760	200			2700	11500	2700	15500	1460	877	0	8480	5304	28620	5304	35510	
	720	108			3564	15490	3564	20880	1760	1000	0	8000	5000	27000	5000	33500	

**STANDARD COUPLING DIMENSIONS (INCH)**

NOM-INAL	ACTUAL	GIB KEYWAY	BY	BZ	XL
3/4	.751	3/16 X 3/32	10-32	1 3/8	9/32
7/8	.876	1/4 X 1/8	10-32	1 3/8	9/32
1	1.001	1/4 X 1/8	10-32	1 3/8	9/32
1 3/16	1.188	1/4 X 1/8	1/4 -20	1 3/4	9/32
1 1/4	1.251	1/4 X 1/8	1/4 -20	1 3/4	9/32
1 1/4	1.251	3/8 X 3/16	1/4 -20	1 3/4	9/32
1 7/16	1.438	3/8 X 3/16	1/4 -20	2 1/8	9/32
1 1/2	1.501	3/8 X 3/16	1/4 -20	2 1/8	9/32
1 11/16	1.688	3/8 X 3/16	1/4 -20	2 1/2	9/32
1 3/4	1.751	3/8 X 3/16	1/4 -20	2 1/2	9/32
1 15/16	1.938	1/2 X 1/4	1/4 -20	2 1/2	9/32
2	2.001	1/2 X 1/4	1/4 -20	2 1/2	9/32
2 3/16	2.188	1/2 X 1/4	3/8 -16	3 1/4	9/32
2 1/4	2.251	1/2 X 1/4	3/8 -16	3 1/4	9/32
2 7/16	2.438	5/8 X 5/16	3/8 -16	3 1/4	9/32
2 1/2	2.501	5/8 X 5/16	3/8 -16	3 1/4	9/32
2 11/16	2.688	5/8 X 5/16	3/8 -16	3 3/4	9/32
2 3/4	2.751	5/8 X 5/16	3/8 -16	3 3/4	9/32
2 15/16	2.938	3/4 X 3/8	3/8 -16	3 3/4	7/16

**TABLE OF DIMENSIONS STANDARD DRIVE (INCH)**

Model	D	** N	Horizontal Shaft U			Type SL		Type S		Type SH		AJ	AK	BB	BD	BE	BF	** XA	XB	XC	XD	XE	XF	XG	XH	XJ	XK	XV	XW	*** BX MAX.
			Nom-inal	Actual	Keyway	AG	CD	AG	CD	AG	CD																			
30	6 3/4	2 3/8	1 1/4	1.249	3/8 X 5/32	16 1/4	13 3/4	16 1/4	13 3/4	17 1/4	14 3/4	9 1/8	8.250	3/16	10	5/8	7/16	10 7/8	-	--	1 5/16	3/8	3/8	5/16	--	--	--	--	--	1
40A	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	21 3/4	18	21 3/4	18	23	19 1/4	9 1/8	8.250	1/4	12	13/16	7/16	15 5/8	-	--	1 3/4	1/2	1/2	1 1/4	2	2 1/4	3/8	0	6 3/8	1 1/4
40B	8 1/2	4 3/8	1 1/2	1.499	3/8 X 3/16	21 3/4	18	21 3/4	18	23	19 1/4	14 3/4	13.500	1/4	16 1/2	13/16	1 1/4	15 5/8	-	--	1 3/4	1/2	1/2	1 1/4	2	2 1/4	3/8	0	6 3/8	1 1/4
60A	11 1/2	4 3/4	1 1/2	1.499	3/8 X 3/16	28	23 3/16	28	23 3/16	29 3/4	24 9/16	14 3/4	13.500	1/4	16 1/2	3/4	1 1/4	16 3/4	-	--	2	3/4	3/4	1 5/8	3	2	3/8	3 7/8	4 1/4	1 1/2
80A	11 1/2	4 3/4	1 7/8	1.874	3/8 X 3/16	29 3/4	24 9/16	28	23 3/16	29 3/8	24 1 1/16	14 3/4	13.500	1/4	16 1/2	3/4	1 1/4	16 3/4	-	--	2	3/4	3/4	1 5/8	3	2	3/8	3 7/8	4 1/4	1 1/2
100A	11 1/2	4 3/4	1 7/8	1.874	3/8 X 3/16	29 3/4	24 9/16	28	23 3/16	29 3/8	24 1 1/16	14 3/4	13.500	1/4	16 1/2	3/4	1 1/4	16 3/4	-	--	2	3/4	3/4	1 5/8	3	2	3/8	3 7/8	4 1/4	1 1/2
125A	11 1/2	4 3/4	1 7/8	1.874	3/8 X 3/16	29 3/4	24 9/16	29 1/4	24 9/16	29 3/8	24 1 1/16	14 3/4	13.500	1/4	16 1/2	3/4	1 1/4	16 3/4	-	--	2	3/4	3/4	1 5/8	3	2	3/8	3 7/8	4 1/4	1 1/2
150A	11 1/2	4 1/2	2 7/16	2.436	5/8 X 5/16	29 3/8	25 1/8	29 3/8	25 1/8	31 1/8	26	14 3/4	13.500	1/4	16 1/2	3/4	1 1/4	18 3/4	-	--	2 1/4	3/4	3/4	1 5/8	3	2	3/8	3 7/8	4 1/4	1 1/16
200A	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	34 1 1/16	30 3/16	34 1 1/16	30 3/16	35 5/16	30 3/16	18 3/4	13.500	1/4	20	1 1/8	1 1/4	20 3/4	14 3/4	5/8-11-NC	3	3/4	3/4	2 1/8	4 1/2	2 5/8	1/2	5	5	2
200	13 3/4	5 1/4	2 7/16	2.436	5/8 X 5/16	-	-	33 3/4	29 1/4	35 5/8	31 1/8	18 3/4	13.500	1/4	20	1 1/8	1 1/4	20 3/4	14 3/4	5/8-11-NC	3	3/4	3/4	2 1/8	4 1/2	2 5/8	1/2	5	5	2
250	13 3/4	5 1/4	2 15/16	2.936	3/4 X 3/8	-	-	34 1 1/16	30 3/16	36 5/16	31 13/16	18 1 1/4	13.500	1/4	20	1 1/8	1 1/4	22 3/8	14 3/4	5/8-11-NC	3	3/4	3/4	2 1/8	4 1/2	2 5/8	1/2	5	5	2 3/16
* 300	13 3/4	5 1/4	2 15/16	2.936	3/4 X 3/8	-	-	34 1 1/16	30 3/16	36 5/16	31 13/16	18 1 1/4	13.500	1/4	20	1 1/8	1 1/4	22 3/8	14 3/4	5/8-11-NC	3	3/4	3/4	2 1/8	4 1/2	2 5/8	*	*	*	2 3/16
* 350	13 3/4	5 1/4	2 15/16	2.936	3/4 X 3/8	-	-	34 1 1/16	30 3/16	36 5/16	31 13/16	18 1 1/4	13.500	1/4	20	1 1/8	1 1/4	22 3/8	14 3/4	5/8-11-NC	3	3/4	3/4	2 1/8	4 1/2	2 5/8	*	*	*	2 3/16
450A	16	6	2 15/16	2.936	3/4 X 3/8	42 7/8	36 7/8	43 1/4	38	45 3/4	38 3/4	23	13.500	1/4	24 1/2	1 1/8	1 3/16	+25 1/2	14 3/4	5/8-11-NC	3	3/4	3/4	1 13/16	4 1/2	2 3/4	3/4	7 3/4	7 3/4	2 7/16
500A	16	6	3 3/8	3.124	3/4 X 3/8	42 7/8	36 7/8	43 1/4	38	45 3/4	38 3/4	23	13.500	1/4	24 1/2	1 1/8	1 3/16	+25 1/2	14 3/4	5/8-11-NC	3	3/4	3/4	1 13/16	4 1/2	2 3/4	3/4	7 3/4	7 3/4	2 7/16
600A	16	6	3 3/4	3.749	7/8 X 7/16	42 7/8	36 7/8	43 1/4	38	45 3/4	38 3/4	23	13.500	1/4	24 1/2	1 1/8	1 3/16	+25 1/2	14 3/4	5/8-11-NC	3	3/4	3/4	1 13/16	4 1/2	2 3/4	3/4	7 3/4	7 3/4	2 7/16
750A	18	6	3 3/4	3.749	7/8 X 7/16	48	41 3/8	50	42	50	42 9/16	23	13.500	1/4	24 1/2	1 1/8	1 3/16	+26 3/4	14 3/4	5/8-11-NC	3	1	1	1 13/16	6	2 7/8	3/4	8 1/4	8 1/4	2 7/16
1000G	21	8	4	3.998	1 X 1/2	62 1/4	50 1/4	62 1/4	50 1/4	62 1/4	50 1/4	28 3/4	22.000	1/4	30 1/2	1 1/4	1 3/16	36 7/8	26	3/4-10-NC	3 3/4	3/4	3/4	2 5/16	6 1/4	3 3/8	3/4	8	8 1/2	2 15/16

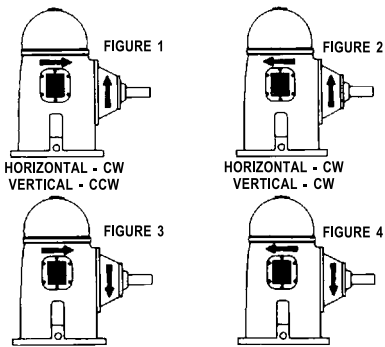
†"XA" dimensions shown apply to 1:1 and speed increasing ratios only. Request certified drawing for others.

\*Models 300 and 350 furnished with heat exchanger.

\*\*\*"XA" and "N" dimensions change when using the sprag type non-reverse. Contact factory for these dimensions when using the sprag type non-reverse.

\*\*\*Contact factory for maximum coupling bore for Fig. 2 or Fig. 3 rotation with 1:2, 2:5 or 1:3 ratio.

RATIOS AND ROTATIONS: The ratio of a drive is defined as the ratio of the horizontal input speed to vertical output speed. For example, a 2:1 ratio would have a horizontal speed of twice the vertical speed. There are four rotational schemes available as shown in figures 1, 2, 3, and 4. Figure 1 is denoted as standard rotation. Figures 2, 3, and 4 are special rotation, being manufactured only on order, and are not subject to cancellation without charge for completed parts.



**HORSEPOWER AND THRUST BEARING RATINGS**

Vertical Shaft R.P.M.	Percent of Rated Horsepower	Percent of Thrust Capacity	Vertical Shaft R.P.M.	Percent of Rated Horsepower	Percent of Thrust Capacity
430	37%	160%	*2000	107%	96%
580	46%	145%	*2200	112%	93%
690	52%	137%	*2400	117%	90%
720	53%	135%	*2600	122%	88%
870	61%	126%	*2800	128%	86%
960	65%	122%	*3000	134%	84%
1160	75%	115%	*3460	146%	80%
1460	88%	106%	*3600	150%	79%
1760	100%	100%			

\* Cooling coils should be specified for models 40, 60A, and 80A operating at speeds above 1760 rpm. Consult with the factory on all applications when the vertical speeds exceed 1760 rpm. Maximum allowable cooling water pressure for cooling coils is 100 psi and heat exchanger is 150 psi.

CW - Clockwise; CCW - Counterclockwise.

## An Introduction To Our Company

In 1934, Amarillo Gear Company began designing and manufacturing Spiral Bevel Right Angle Gear Drives primarily for the irrigation industry. Because of the reliable, efficient and economic operation of these drives, they met with widespread acceptance.

Today, we manufacture the largest selections of Right Angle Gear Drives available. Our standard models include a large assortment of drives in a wide range of ratios and various configurations. They are highly adaptable to many applications in many different industries.

One reason for the continued growth and acceptance of Amarillo Gear Drives is their consistent quality - not only in the materials used, but in their workmanship as well.

We would welcome the opportunity to supply our product for your requirements.

### FEATURES:

Cooling coils are available on Models 40, 60A, and 80A, at additional cost, and are standard on Model 100A and above. Non-reverse clutches are standard on all drives. Marine options are available upon request.

Inquire about higher rpm's, both input and output. Our rigid castings are designed to insure correct alignment. Gears are case hardened alloy steel, lapped in pairs. All drives have positive pressure oil distribution systems, and bearings exceed AGMA recommendations.



All standard hollow shaft gear drives through Model 1200 are approved by FACTORY MUTUAL for use with vertical fire pumps.

### SPECIAL DRIVES

Drives listed in this catalog are also available with solid vertical shafts and with manual or automatic combination. Amarillo Gear Company's industrial pump drive catalog lists drives rated from 1,000 to over 3,000 HP. Propeller pump drives are also listed in a separate bulletin.

Amarillo Gear Company reserves the right to make improvement modifications to our gear drives that may change the given dimensions. The dimensions shown in this brochure may not exactly reflect the dimensions of gear drives currently being offered. Request a Certified Dimensional Print for construction use.

### WEIGHTS AND BOX DIMENSIONS

MODEL	NET WEIGHT (lbs.)	DOMESTIC SKID (lbs.)	EXPORT BOX		EXPORT BOX Length	DIMENSIONS (inches)		VOLUME CUBIC FEET
			Pounds	Kilograms		Width	Height	
30	92	110	125	57	22	14	21	4
40A	220	240	275	125	27	15	27	6
40B	230	260	310	141	29	18	27	8
60A	325	350	390	177	29	19	34	11
80A	345	370	410	186	29	19	34	11
100A	365	390	430	195	29	19	34	11
125A	365	390	430	195	29	19	34	11
150A	430	450	505	229	31	19	36	12
200A	630	675	810	368	35	24	42	20
200	665	690	830	377	35	24	40	21
250	760	805	900	408	38	24	40	21
300	760	805	900	408	38	24	40	21
350	760	805	900	408	38	24	40	21
450A	1340	1420	1620	735	44	32	52	42
500A	1370	1450	1650	748	44	32	52	42
600A	1385	1465	1665	755	44	32	52	42
750A	1800	1890	2165	982	45	32	57	48
1000G	2650	3055	3310	1501	58	37	74	92

### LIMITED WARRANTY

The Amarillo Right Angle Pump Drive is guaranteed against defects in workmanship and material for a period of 2 years after installation when operated under normal service at rated capacity. Within the above stated period the manufacturer will replace defective parts returned transportation prepaid. The buyer shall not be entitled to incidental or consequential damages, losses, or expenses. The guarantee will not apply to repairs made outside the factory without consent of the manufacturer, or to drives that have been subject to abuse, accident, neglect, or improper installation. No warranty is made in regards to bearings, trade accessories, machinery, or other articles of merchandise not manufactured by us. No responsibility will be assumed for overloading the rated capacity of the thrust bearing. (The thrust capacity of the drive should be verified by the pump manufacturer with whose equipment the drive is used.) This warranty is expressly made in lieu of any warranties otherwise expressed or implied by law.

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