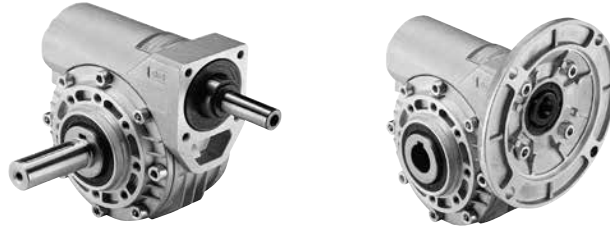


# Hub City Spartan™ Aluminum Worm Gear Drives



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**For Cast Iron  
Worm Gear Drives**

See  
Section B



# Hub City Spartan™ Aluminum Worm Gear Drives

## Compact, Rugged and Lightweight Alternatives for Design Flexibility

### Basic Specifications

- Power Ratings from 1/4 to 8.2 hp
- Output Torque to 3,900 in-lbs
- Ratios from 7:1 through 4020:1
- Output Speeds 25 rpm to 250 rpm

### Standard Features

- Vent free design, factory lubricated with premium synthetic PAG460 gear lubricant with an operating temperature range of -25°F to 225°F (-32°C to 104°C)
- Precision machined single-piece aluminum alloy housing designed for light weight with high tensile strength
- Resinol RT (MIL-STD 276) vacuum impregnated housings and caps for protection and sealing
- Alloy shafting for greater strength
- Hardened and ground worm and alloy bronze gear for greater wear life
- Oversized bearings for higher shock and radial load capacity
- Worm-worm and Helical-worm double reduction available

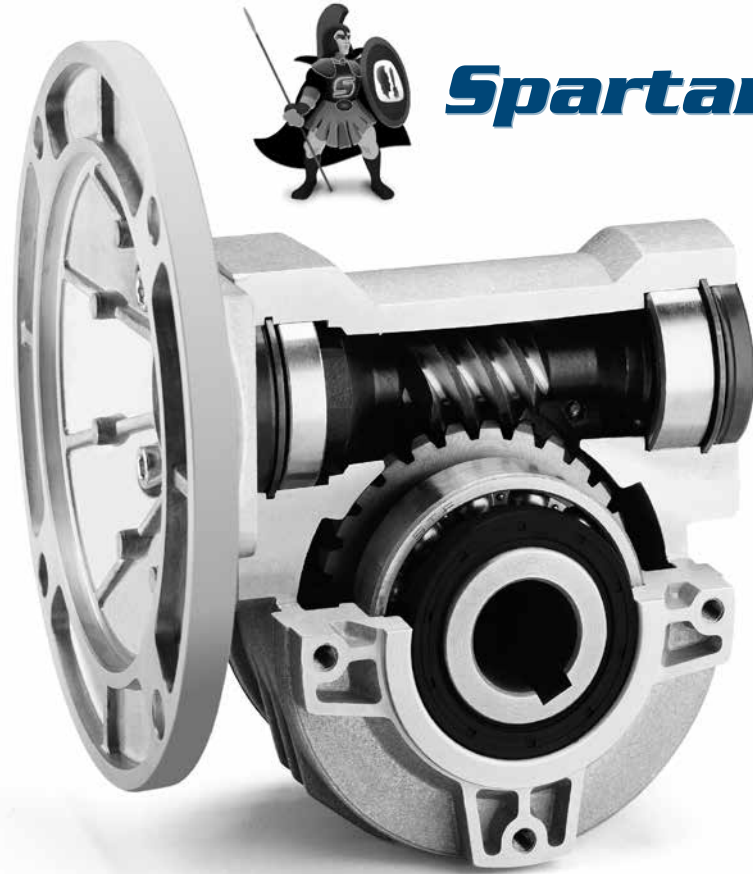
### Optional Features

- Modified Standard and Custom Designs
- Zinc plated steel mounting feet and torque arms
- Long and short output mounting flanges
- Unique or Harsh Environment Adaptations

### Motorized Worm Gear Drives

- Motors produced by Marathon Electric for high efficiency, reliability and durability
- General or Definite Purpose Motors
- Brake or inverter duty motors, DC or washdown motors
- Motor/Gear Drive Package Incentives Available, consult factory
- See Section E for Available Motors

**Spartan™**



Spartan™ is up to two-thirds lighter and one-third smaller than comparable cast iron units!

# Hub City Spartan™ Aluminum Worm Gear Drives

## Selection Instructions



The ratings for gear drives in this manual are based on a service factor of 1.00, for uniform load and uniform power source, up to 10 hours of operation per day. For other operating conditions, the application horsepower or torque must be multiplied by the appropriate service factor, to determine the equivalent gear drive power rating. A gear drive should be selected with a rated capacity equal to or greater than the equivalent load.

Table 1 designates recommended service factors for various conditions of load, power source, and duration of service.

AGMA Service Factors for Worm and Helical Worm Gearmotors and Reducers are listed in Section A. Refer to page A-2 for further information and cautions on the selection of proper service factors.

Input Rotation to Hub City Spartan Worm Gear Reducers can be either clockwise or counter-clockwise. Consult factory for operation at input speeds above 1750 rpm.

Maximum momentary or starting torque is limited to 300% of rated capacity.

### START WITH ONE OF FOUR BASIC UNITS...

Shaft Input  
Shaft Output



Shaft Input  
Hollow Bore Output



C-face Input  
Shaft Output



C-face Input  
Hollow Bore Output



### AND ADD MOUNTING ACCESSORY KITS...

Horizontal Base Kit



Torque Arm Kit



Side Mounting  
Flange Kit



Long Side Mounting  
Flange Kit



### TO BUILD MULTIPLE CONFIGURATIONS.

TABLE 1 — SERVICE FACTORS

PRIME MOVER	DURATION OF SERVICE PER DAY (1)	DRIVEN MACHINE LOAD CLASSIFICATION		
		UNIFORM	MEDIUM SHOCK	HEAVY SHOCK
Electric Motor	Occasional 1/2 hr.	*	*	1.00
	Intermittent 3 hrs.	*	1.00	1.25
	3 - 10 hours	1.00	1.25	1.50
	Over 10 hours	1.25	1.50	1.75
Electric Motor With Frequent Starts and Stops (2)	Occasional 1/2 hr.	*	1.00	1.25
	Intermittent 3 hrs.	1.00	1.25	1.50
	3 - 10 hours	1.25	1.50	1.75
	Over 10 hours	1.50	1.75	2.00
Multi-Cylinder Internal Combustion Engine	Occasional 1/2 hr.	*	1.00	1.25
	Intermittent 3 hrs.	1.00	1.25	1.50
	3 - 10 hours	1.25	1.50	1.75
	Over 10 hours	1.50	1.75	2.00
Single Cylinder Internal Combustion Engine	Occasional 1/2 hr.	1.00	1.25	1.50
	Intermittent 3 hrs.	1.25	1.50	1.75
	3 - 10 hours	1.50	1.75	2.00
	Over 10 hours	1.75	2.00	2.25
Reversing Service Application		Consult Factory		

\* UNSPECIFIED SERVICE FACTORS SHOULD BE 1.0 OR AS AGREED UPON BY USER AND MANUFACTURER.

#### Explanatory Notes

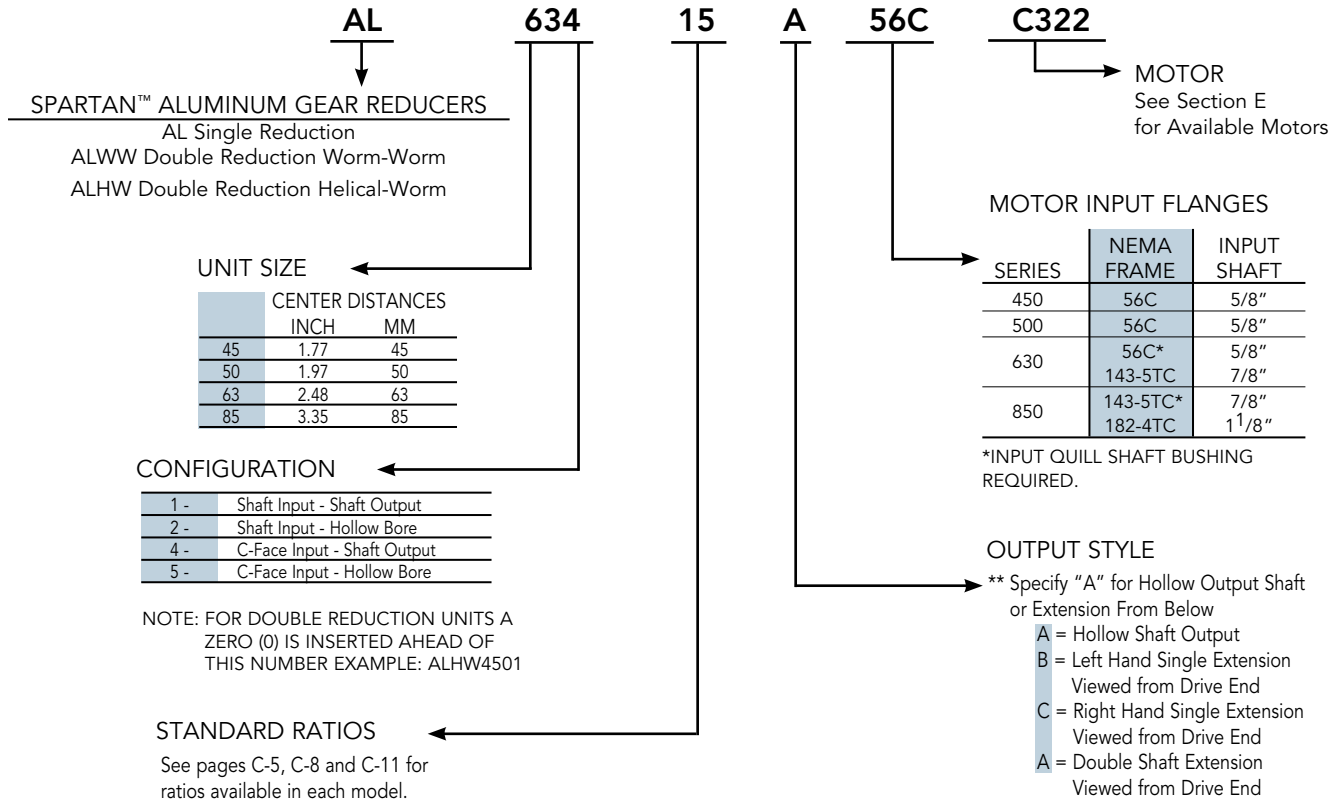
1. Time specified for intermittent and occasional service refers to total operating time per day.
2. Term "frequent starts and stops" refers to more than 10 starts per hour.

# Hub City Spartan™ Aluminum Worm Gear Drives

## Descriptions

### Descriptions for Ordering Spartan™ Gear Reducers

To specify a Spartan™ gear reducer, specify the Mounting Style, Unit Size/Series, Ratio, and Output Shaft Style, Hollow or Solid and Motor Input Flange. See pages C-5, C-8 and C-11 for torque ratings. To order motorized reducers, specify the reducer as shown, indicate the motor description and specify "motorized assembly."



# Hub City Spartan™ Aluminum Worm Gear Drives

## Single Reduction Ratings

FOR MOTOR SELECTION  
REFER TO SECTION E

SERIES AL450				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
7/1	250	1.378	278	80.0%
10/1	175	0.981	279	79.0%
14/1	125	0.871	338	76.9%
21/1	83	0.796	405	67.0%
28/1	63	0.631	410	65.0%
37/1	47	0.490	414	63.1%
46/1	38	0.397	388	58.9%
60/1	29	0.363	442	55.9%
70/1	25	0.204	278	53.9%
102/1	17.2	0.144	261	48.6%
1150 RPM INPUT SPEED				
7/1	164	0.950	292	80.0%
10/1	115	0.679	294	78.9%
14/1	82	0.602	356	76.9%
21/1	55	0.555	426	67.0%
28/1	47	0.494	431	65.0%
37/1	31	0.340	436	62.9%
46/1	25	0.274	408	59.1%
60/1	19.2	0.250	465	56.0%
70/1	16.4	0.137	292	54.0%
102/1	11.3	0.098	275	49.0%

SERIES AL500				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
7/1	250	2.472	511	82.0%
10/1	175	1.961	565	80.0%
14/1	125	1.494	595	79.0%
18/1	97	1.196	583	75.0%
26/1	67	0.889	577	69.0%
36/1	49	0.684	607	69.0%
43/1	41	0.604	613	66.1%
60/1	29	0.486	613	58.0%
68/1	25.7	0.420	580	56.9%
80/1	21.9	0.368	569	54.1%
100/1	17.5	0.295	516	49.8%
1150 RPM INPUT SPEED				
7/1	164	1.707	538	82.0%
10/1	115	1.355	594	80.0%
14/1	82	1.031	626	79.0%
18/1	64	0.830	613	74.9%
26/1	44	0.614	607	69.1%
36/1	32	0.470	639	68.9%
43/1	27	0.419	645	65.9%
60/1	19.2	0.335	645	57.9%
68/1	16.9	0.289	610	57.1%
80/1	14.4	0.246	599	54.1%
100/1	11.5	0.207	543	49.8%

SERIES AL630				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
7/1	250	5.24	1097	83.0%
10/1	175	4.19	1222	80.9%
15/1	117	2.85	1214	78.9%
19/1	92	2.24	1197	78.1%
24/1	73	1.92	1246	75.0%
30/1	58	1.58	1274	74.1%
36/1	49	1.46	1281	68.5%
45/1	39	1.11	1182	65.8%
67/1	26.1	0.73	1069	60.3%
80/1	21.9	0.63	1034	57.1%
94/1	18.6	0.51	878	51.0%
1150 RPM INPUT SPEED				
7/1	164	3.62	1155	83.1%
10/1	115	2.90	1287	81.0%
15/1	77	1.98	1278	78.8%
19/1	61	1.56	1260	78.2%
24/1	48	1.33	1312	75.2%
30/1	38	1.09	1341	74.3%
36/1	32	1.01	1349	67.3%
45/1	25.6	0.78	1244	65.4%
67/1	17.2	0.51	1125	58.8%
80/1	14.4	0.42	1089	57.1%
94/1	12.2	0.34	924	52.9%

SERIES AL850				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
7/1	250	8.26	1832	88.0%
10/1	175	7.62	2196	80.1%
14/1	125	5.91	2323	78.0%
20/1	88	3.91	2212	79.0%
28/1	63	3.37	2528	75.1%
38/1	46	2.34	2279	70.9%
52/1	34	1.82	2229	65.9%
67/1	26.1	1.56	2458	64.7%
96/1	18.2	0.99	1735	52.5%
1150 RPM INPUT SPEED				
7/1	164	5.70	1929	88.1%
10/1	115	5.27	2312	80.1%
14/1	82	4.08	2446	77.9%
20/1	58	2.71	2329	79.0%
28/1	41	2.31	2661	74.9%
38/1	30	1.61	2399	70.8%
52/1	22.1	1.24	2347	66.1%
67/1	17.2	1.07	2588	65.4%
96/1	12.0	0.66	1827	53.0%

### IN THIS CATALOG

RPM = Revolutions Per Minute

HP = Horsepower

TQ = Torque In Inch-Pounds

OHL = Overhung Load In Pounds At Centerline  
Of Output Shaft With No Thrust Load.

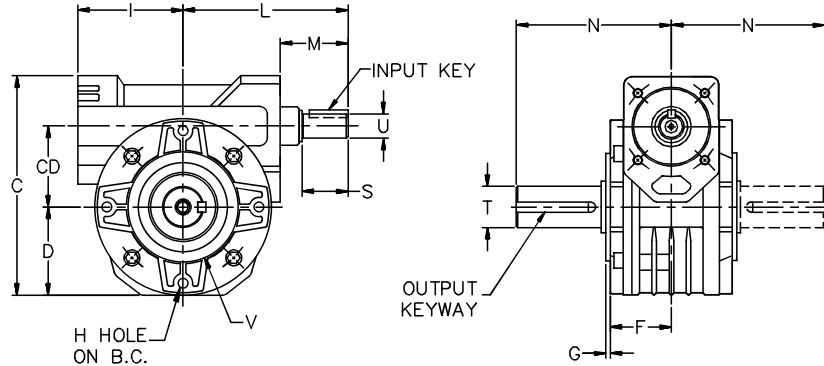
TL = Thrust Load In Pounds

SEE PAGE C-18 FOR OVERHUNG LOAD AND THRUST LOAD RATINGS

# Hub City Spartan™ Aluminum Worm Gear Drives

## Single Reduction Dimensions

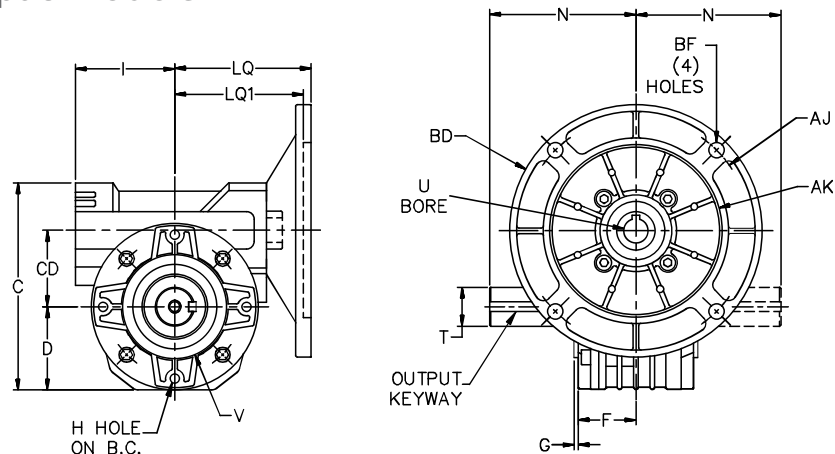
### Shaft Input, Shaft Output Models



MODELS AL451, AL501, AL631 & AL851

MODEL	C	CD	D	F	G	H (mm)	B.C.	I	L	M	N	S	T	U	V	INPUT KEY	OUTPUT KEYWAY	WT LBS.
AL451	4.76	1.77	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	3.88	1.69	2.97	1.18	0.750	0.625	1.969	3/16 SQ. x 1.00	3/16 SQ.	6
AL501	5.33	1.97	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	4.13	1.76	3.94	1.18	1.000	0.625	2.677	3/16 SQ. x 1.00	1/4 SQ.	8
AL631	6.69	2.48	2.76	1.77	0.20	8-M8x 17	3.54	3.11	5.45	2.34	4.85	1.77	1.125	0.750	2.953	3/16 SQ. x 1.50	1/4 SQ.	15
AL851	9.13	3.35	3.72	2.52	0.14	4-M10x 8	5.12	3.94	6.40	2.54	5.55	1.75	1.500	0.875	4.331	3/16 SQ. x 1.50	3/8 SQ.	39

### C-Face Input, Shaft Output Models



MODELS AL454, AL504, AL634 & AL854

MODEL	C	CD	D	F	G	H (mm)	B.C.	I	LQ*	LQ1	N	T	V	OUTPUT KEYWAY	WEIGHT LBS.
AL454	4.76	1.77	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	56C/140TC	3.34	2.97	0.750	1.969	3/16 SQ.	7
AL504	5.33	1.97	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	3.51	—	3.94	1.000	2.677	1/4 SQ.	9
AL634	6.69	2.48	2.76	1.77	0.20	8-M8x 17	3.54	3.11	4.07	—	4.85	1.125	2.953	1/4 SQ.	16
AL854	9.13	3.35	3.72	2.52	0.14	4-M10x 8	5.12	3.94	4.83	5.35	5.55	1.500	4.331	3/8 SQ.	40

\*MODELS AL454 AND AL504 AVAILABLE WITH 56C ONLY

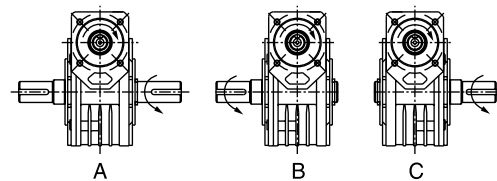
### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
AL454	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
AL504	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
AL634	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32
AL854	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32
	180TC	7.250	8.500	9.00	0.531	1.125	1/4 x 1/8

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
 DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)  
 METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

### STANDARD STYLES AVAILABLE

(Input Shaft can be Rotated in Either Direction)

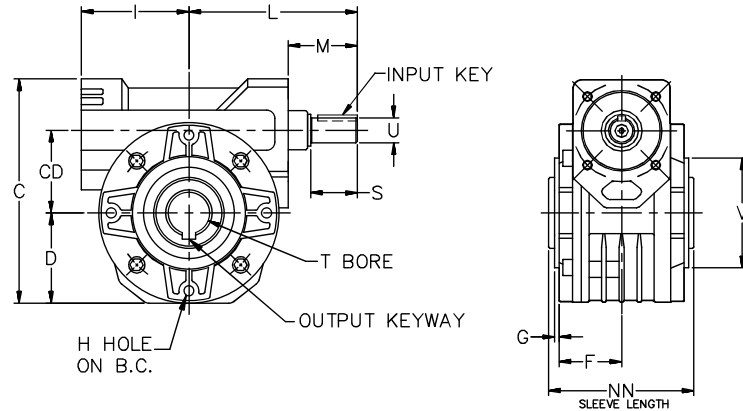


UNITS ARE FACTORY FILLED WITH LUBRICANT.  
 FOR IMPORTANT INSTALLATION INFORMATION  
 REFER TO SECTION S

# Hub City Spartan™ Aluminum Worm Gear Drives

## Single Reduction Dimensions

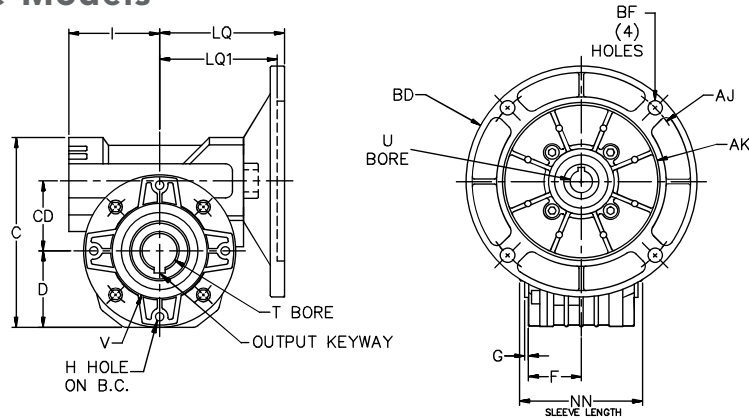
### Shaft Input, Hollow Bore Models



MODELS AL452, AL502, AL632 & AL852

MODEL	C	CD	D	F	G	H (mm)	B.C.	I	L	M	NN	S	T	U	V	INPUT KEY	OUTPUT KEYWAY	WT. LBS.
AL452	4.76	1.77	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	3.88	1.69	2.56	1.18	0.750	0.625	1.969	3/16 SQ. x 1.00	3/16 SQ.	5
AL502	5.33	1.97	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	4.13	1.76	3.19	1.18	1.000	0.625	2.677	3/16 SQ. x 1.00	1/4 SQ.	7
AL632	6.69	2.48	2.76	1.77	0.20	8-M8x 17	3.54	3.11	5.45	2.34	4.73	1.77	1.125	0.750	2.953	3/16 SQ. x 1.50	1/4 SQ.	13
AL852	9.13	3.35	3.72	2.52	0.14	4-M10x 8	5.12	3.94	6.40	2.54	5.31	1.75	1.500	0.875	4.331	3/16 SQ. x 1.50	3/8 SQ.	36

### C-Face Input, Hollow Bore Models



MODELS AL455, AL505, AL635 & AL855

MODEL	C	CD	D	F	G	H (mm)	B.C.	I	LQ*	LQ1	NN	T	V	OUTPUT KEYWAY	WEIGHT LBS.
AL455	4.76	1.77	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	56C/140TC	180TC	2.56	0.750	1.969	3/16 SQ.	6
AL505	5.33	1.97	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	3.51	—	3.19	1.000	2.677	1/4 SQ.	8
AL635	6.69	2.48	2.76	1.77	0.20	8-M8x 17	3.54	3.11	4.07	—	4.73	1.125	2.953	1/4 SQ.	14
AL855	9.13	3.35	3.72	2.52	0.14	4-M10x 8	5.12	3.94	4.83	5.35	5.31	1.500	4.331	3/8 SQ.	37

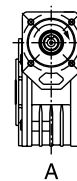
\*MODELS AL455 AND AL505 AVAILABLE WITH 56C ONLY

### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
AL455	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
AL505	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
AL635	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32
AL855	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32
	180TC	7.250	8.500	9.00	0.531	1.125	1/4 x 1/8

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
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 METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

STANDARD STYLES AVAILABLE  
 (Input Shaft can be Rotated in Either Direction)



UNITS ARE FACTORY FILLED WITH LUBRICANT.  
 FOR IMPORTANT INSTALLATION INFORMATION  
 REFER TO SECTION 5

SHAFT MOUNT UNITS REQUIRE TORQUE ARMS,  
 TORQUE ARM KITS ARE AVAILABLE, SEE PAGE C-14

# Hub City Spartan™ Aluminum Worm Gear Drives

## Double Reduction Worm-Worm Ratings

SERIES ALWW4500				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
70	25.00	0.332	460	54.8%
98	17.86	0.246	460	52.8%
147	11.90	0.190	504	50.0%
210	8.33	0.139	504	48.2%
294	5.95	0.106	504	45.3%
441	3.97	0.088	504	36.4%
588	2.98	0.072	504	33.3%
777	2.25	0.060	504	30.0%
966	1.81	0.054	504	25.9%
1288	1.36	0.045	504	24.4%
1702	1.03	0.037	504	21.6%
2220	0.788	0.030	504	20.0%
3600	0.486	0.018	460	22.2%
1150 RPM INPUT SPEED				
70	16.43	0.230	485	54.8%
98	11.73	0.170	485	52.9%
147	7.82	0.132	531	50.0%
210	5.48	0.096	531	47.9%
294	3.91	0.073	531	45.2%
441	2.61	0.061	531	36.1%
588	1.96	0.050	531	34.0%
777	1.48	0.042	531	28.6%
966	1.19	0.037	531	27.0%
1288	0.893	0.031	531	25.8%
1702	0.676	0.026	531	23.1%
2220	0.518	0.021	531	19.0%
3600	0.319	0.012	485	16.7%

SERIES ALWW5000				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
70	25.00	0.573	780	53.9%
98	17.86	0.425	780	52.0%
140	12.50	0.305	799	51.8%
182	9.62	0.259	799	47.1%
260	6.73	0.198	799	42.9%
364	4.81	0.145	799	42.1%
546	3.21	0.107	799	38.3%
676	2.59	0.091	799	36.3%
962	1.82	0.072	799	31.9%
1260	1.39	0.065	799	27.7%
1591	1.10	0.056	799	25.0%
2220	0.788	0.045	757	20.0%
3600	0.486	0.028	757	21.4%
1150 RPM INPUT SPEED				
70	16.43	0.396	821	54.0%
98	11.73	0.294	821	52.0%
140	8.21	0.211	841	52.1%
182	6.32	0.179	841	46.9%
260	4.42	0.137	841	43.1%
364	3.16	0.100	841	42.0%
546	2.11	0.074	841	37.8%
676	1.70	0.063	841	36.5%
962	1.20	0.050	841	32.0%
1260	0.913	0.045	841	26.7%
1591	0.723	0.039	841	25.6%
2220	0.518	0.031	797	22.6%
3600	0.319	0.019	797	21.1%

FOR MOTOR SELECTION  
REFER TO SECTION E

SERIES ALWW6300				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
70	25.00	1.396	1935	55.0%
105	16.67	0.948	1935	54.0%
150	11.67	0.689	1935	52.0%
210	8.33	0.556	1935	46.0%
300	5.83	0.426	1935	42.0%
420	4.17	0.328	1935	39.0%
630	2.78	0.259	1935	32.8%
840	2.08	0.206	1935	31.1%
1110	1.58	0.162	1935	30.2%
1380	1.27	0.139	1935	28.1%
1800	0.972	0.115	1935	26.1%
2160	0.810	0.096	1935	26.0%
4020	0.435	0.064	1935	20.3%
1150 RPM INPUT SPEED				
70	16.43	0.966	2037	55.0%
105	10.95	0.655	2037	54.0%
150	7.67	0.477	2037	52.0%
210	5.48	0.385	2037	46.0%
300	3.83	0.295	2037	42.0%
420	2.74	0.227	2037	39.2%
630	1.83	0.179	2037	33.0%
840	1.37	0.143	2037	30.8%
1110	1.04	0.112	2037	30.4%
1380	0.833	0.096	2037	28.1%
1800	0.639	0.079	2037	26.6%
2160	0.532	0.066	2037	25.8%
4020	0.286	0.044	2037	20.5%

SERIES ALWW8500				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
70	25.00	1.577	2266	57.0%
98	17.86	1.127	2266	57.0%
140	12.50	0.920	2690	58.0%
196	8.93	0.733	2690	52.0%
280	6.25	0.798	3784	47.0%
392	4.46	0.609	3784	44.0%
588	2.98	0.484	3784	37.0%
784	2.23	0.394	3784	34.0%
1036	1.69	0.307	3784	32.9%
1288	1.36	0.272	3784	30.1%
1680	1.040	0.181	3186	29.3%
2280	0.768	0.144	3186	27.1%
3120	0.561	0.113	3186	24.8%
1150 RPM INPUT SPEED				
70	16.43	1.091	2386	5.7%
98	11.73	0.779	2386	57.0%
140	8.21	0.636	2832	58.0%
196	5.87	0.507	2832	52.1%
280	4.11	0.553	3983	47.0%
392	2.93	0.421	3983	43.9%
588	1.96	0.335	3983	37.0%
784	1.47	0.273	3983	34.1%
1036	1.11	0.213	3983	32.9%
1288	0.893	0.188	3983	29.8%
1680	0.685	0.126	3354	28.6%
2280	0.504	0.099	3354	27.3%
3120	0.369	0.079	3354	25.3%

SEE PAGE C-18 FOR OVERHUNG LOAD AND THRUST LOAD RATINGS

### IN THIS CATALOG

- RPM = Revolutions Per Minute
- HP = Horsepower
- TQ = Torque In Inch-Pounds
- OHL = Overhung Load In Pounds At Centerline Of Output Shaft With No Thrust Load.
- TL = Thrust Load In Pounds

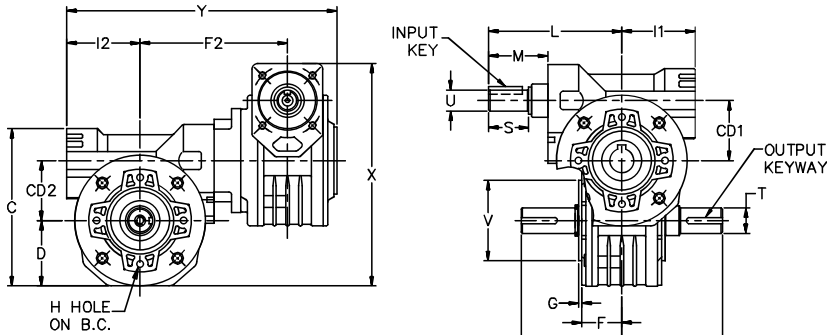




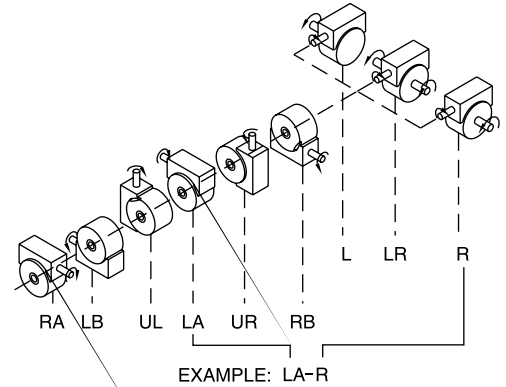
# Hub City Spartan™ Aluminum Worm Gear Drives

## Double Reduction Worm-Worm Dimensions

### Shaft Input, Shaft Output Models



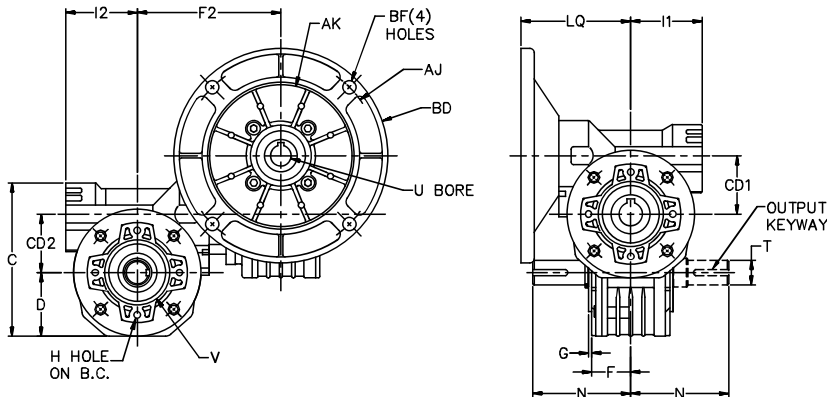
STANDARD STYLES AVAILABLE  
(INPUT SHAFT CAN BE ROTATED IN EITHER DIRECTION)



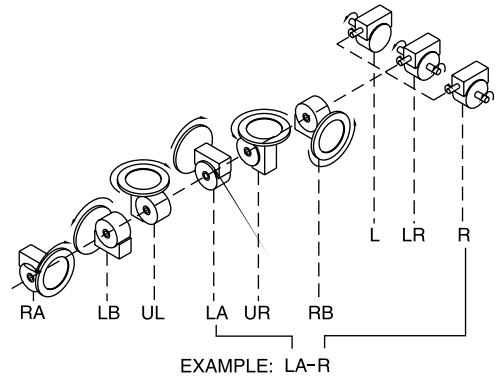
MODELS ALWW4501, ALWW5001, ALWW6301 & ALWW8501

MODEL	C	CD1	CD2	D	F2	F	G	H (mm)	B.C.	I1	I2	L	M	N	S	T	U	V	X	Y	INPUT KEYWAY	OUTPUT KEYWAY	WT LBS.
ALWW4501	4.76	1.77	1.77	1.93	4.35	1.38	0.08	4-M6 x 14	2.56	2.16	2.16	3.88	1.69	2.97	1.18	0.750	0.625	1.969	6.42	7.97	3/16 SQ. x 1.00	3/16 SQ.	12
ALWW5001	5.33	1.77	1.97	2.15	4.53	1.50	0.12	4-M6 x 9	3.70	2.16	2.56	3.88	1.69	3.94	1.18	1.000	0.625	2.677	6.83	8.54	3/16 SQ. x 1.00	1/4 SQ.	13
ALWW6301	6.69	1.77	2.48	2.76	5.74	1.77	0.20	8-M8 x 17	3.54	2.16	3.11	3.88	1.69	4.85	1.18	1.125	0.625	2.953	7.95	10.30	3/16 SQ. x 1.00	1/4 SQ.	21
ALWW8501	9.13	1.77	3.35	3.72	6.76	2.52	0.14	4-M10 x 8	5.12	2.16	3.94	3.88	1.69	5.55	1.18	1.500	0.625	4.331	9.78	12.08	3/16 SQ. x 1.00	3/8 SQ.	46

### C-Face Input, Shaft Output Models



STANDARD STYLES AVAILABLE  
(INPUT SHAFT CAN BE ROTATED IN EITHER DIRECTION)



MODELS AL4504, AL5004, AL6304 & AL8504

MODEL	C	CD1	CD2	D	F2	F	G	H(mm)	B.C.	I1	I2	LQ 56C ONLY	N	T	V	OUTPUT KEYWAY	WT LBS.
ALWW4504	4.76	1.77	1.77	1.93	4.35	1.38	0.08	4-M6 x 14	2.56	2.16	2.16	3.34	2.97	0.750	1.969	3/16 SQ.	13
ALWW5004	5.33	1.77	1.97	2.15	4.53	1.50	0.12	4-M6 x 9	3.70	2.16	2.56	3.34	3.94	1.000	2.677	1/4 SQ.	14
ALWW6304	6.69	1.77	2.48	2.76	5.74	1.77	0.20	8-M8x 17	3.54	2.16	3.11	3.34	4.85	1.125	2.953	1/4 SQ.	22
ALWW8504	9.13	1.77	3.35	3.72	6.76	2.52	0.14	4-M10x 8	5.12	2.16	3.94	3.34	5.55	1.500	4.331	3/8 SQ.	47

### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
ALWW4504, ALWW5004, ALWW6304, ALWW8504	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32

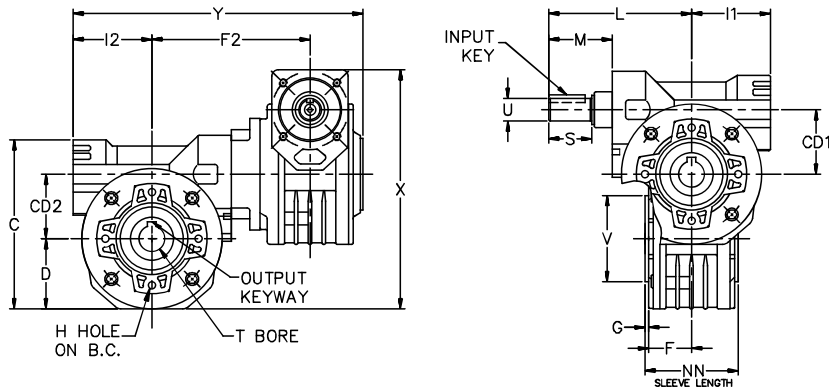
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)  
METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

UNITS ARE FACTORY FILLED WITH LUBRICANT.  
FOR IMPORTANT INSTALLATION INFORMATION  
REFER TO SECTION S

# Hub City Spartan™ Aluminum Worm Gear Drives

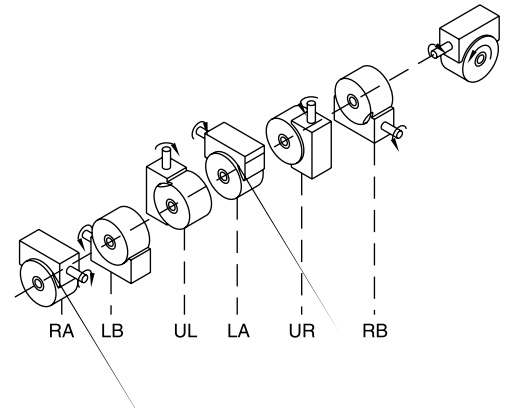
## Double Reduction Worm-Worm Dimensions

### Shaft Input, Hollow Bore Models



STANDARD STYLES AVAILABLE

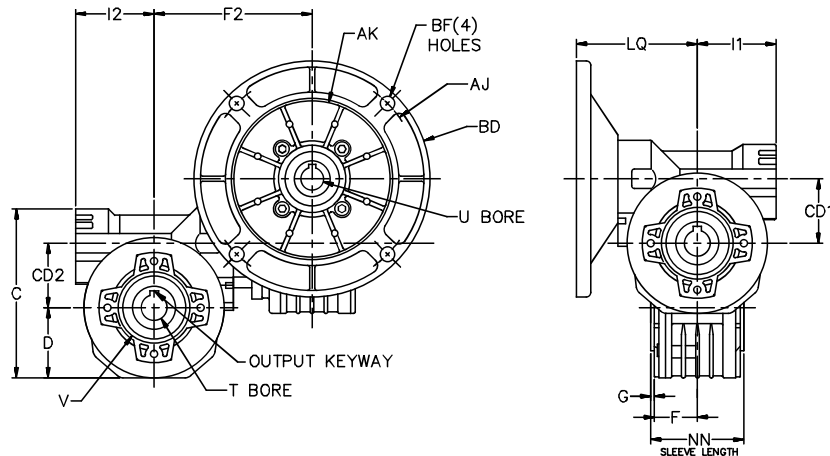
(Input Shaft can be Rotated in Either Direction)



MODELS ALWW4502, ALWW5002, ALWW6302 & ALWW8502

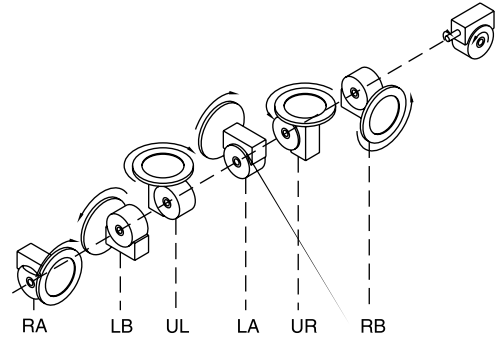
MODEL	C	CD1	CD2	D	F2	F	G	H (mm)	B.C.	I1	I2	L	M	NN	S	T	U	V	X	Y	INPUT KEY	OUTPUT KEYWAY	WT LBS.
ALWW4502	4.76	1.77	1.77	1.93	4.35	1.38	0.08	4-M6 x 14	2.56	2.16	2.16	3.88	1.69	2.56	1.18	0.750	0.625	1.969	6.42	7.97	3/16 SQ. x 1.00	3/16 SQ.	11
ALWW5002	5.33	1.77	1.97	2.15	4.53	1.50	0.12	4-M6 x 9	3.70	2.16	2.56	3.88	1.69	3.19	1.18	1.000	0.625	2.677	6.83	8.54	3/16 SQ. x 1.00	1/4 SQ.	12
ALWW6302	6.69	1.77	2.48	2.76	5.74	1.77	0.20	8-M8x 17	3.54	2.16	3.11	3.88	1.69	4.73	1.18	1.125	0.625	2.953	7.95	10.30	3/16 SQ. x 1.50	1/4 SQ.	19
ALWW8502	9.13	1.77	3.35	3.72	6.76	2.52	0.14	4-M10x 8	5.12	2.16	3.94	3.88	1.69	5.31	1.18	1.500	0.625	4.331	9.78	12.08	3/16 SQ. x 1.50	3/8 SQ.	43

### C-Face Input, Hollow Bore Models



STANDARD STYLES AVAILABLE

(Input Shaft can be Rotated in Either Direction)



MODELS AL4505, AL5005, AL6305 & AL8505

MODEL	C	CD1	CD2	D	F2	F	G	H(mm)	B.C.	I1	I2	LQ 56C ONLY	N	T	V	OUTPUT KEYWAY	WT LBS.
ALWW4505	4.76	1.77	1.77	1.93	4.35	1.38	0.08	4-M6 x 14	2.56	2.16	2.16	3.34	2.56	0.750	1.969	3/16 SQ.	12
ALWW5005	5.33	1.77	1.97	2.15	4.53	1.50	0.12	4-M6 x 9	3.70	2.16	2.56	3.34	3.19	1.000	2.677	1/4 SQ.	13
ALWW6305	6.69	1.77	2.48	2.76	5.74	1.77	0.20	8-M8x 17	3.54	2.16	3.11	3.34	4.73	1.125	2.953	1/4 SQ.	20
ALWW8505	9.13	1.77	3.35	3.72	6.76	2.52	0.14	4-M10x 8	5.12	2.16	3.94	3.34	5.31	1.500	4.331	3/8 SQ.	44

### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
ALWW4505, ALWW5005, ALWW6305, ALWW8505	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)  
METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

UNITS ARE FACTORY FILLED WITH LUBRICANT.  
FOR IMPORTANT INSTALLATION INFORMATION  
REFER TO SECTION S

SHAFT MOUNT UNITS REQUIRE TORQUE ARMS, TORQUE ARM  
KITS ARE AVAILABLE, SEE PAGE C-14

# Hub City Spartan™ Aluminum Worm Gear Drives

## Double Reduction Helical-Worm Ratings

FOR MOTOR SELECTION  
REFER TO SECTION E



SERIES ALHW4500				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
30.1	58.14	0.523	420	74.0%
43.0	40.70	0.377	420	71.6%
60.2	29.07	0.323	420	60.1%
90.3	19.38	0.227	420	56.8%
120.4	14.53	0.183	420	53.0%
159.1	11.00	0.150	420	48.7%
197.8	8.85	0.013	420	47.2%
258.0	6.78	0.100	420	45.0%
301.0	5.81	0.068	294	39.7%
438.6	3.99	0.052	294	36.5%
1150 RPM INPUT SPEED				
30.1	38.2	0.363	443	74.1%
43.0	26.7	0.261	443	72.0%
60.2	19.1	0.224	443	59.8%
90.3	12.74	0.157	443	57.3%
120.4	9.55	0.127	443	52.8%
159.1	7.23	0.104	443	49.0%
197.8	5.81	0.087	443	47.1%
258.0	4.46	0.070	443	44.3%
301.0	3.82	0.047	310	40.4%
438.6	2.62	0.036	310	36.1%

SERIES ALHW5000				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
30.1	58.10	0.714	589	76.1%
43.0	40.70	0.507	589	75.0%
60.2	29.10	0.394	589	69.0%
77.4	22.61	0.396	673	60.9%
111.8	15.65	0.274	673	60.9%
154.8	11.30	0.215	673	54.0%
184.9	9.46	0.180	589	46.1%
258.0	6.78	0.135	589	45.2%
292.4	5.98	0.109	504	44.0%
344	5.09	0.068	336	39.7%
430	4.07	0.060	336	36.7%
1150 RPM INPUT SPEED				
30.1	38.2	0.494	620	76.1%
43.0	26.7	0.350	620	75.1%
60.2	19.1	0.272	620	69.1%
77.4	14.86	0.274	708	60.9%
111.8	10.29	0.189	708	61.4%
154.8	7.43	0.149	708	55.7%
184.9	6.22	0.125	620	48.8%
258.0	4.46	0.093	620	47.3%
292.4	3.93	0.075	531	44.0%
344	3.34	0.068	354	27.9%
430	2.67	0.042	354	35.7%

SERIES ALHW6300				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
29.5	59.4	1.767	1387	74.0%
37.2	47	1.417	1387	73.0%
46.5	37.6	1.340	1572	70.0%
55.8	31.4	1.224	1572	64.0%
69.8	25.09	1.026	1572	61.0%
87.8	19.94	0.731	1664	72.0%
110.9	15.78	0.595	1664	70.1%
138.6	12.63	0.505	1664	65.9%
166.3	10.52	0.463	1664	60.0%
207.9	8.42	0.359	1480	55.2%
309.5	5.65	0.260	1480	51.2%
369.6	4.73	0.236	1480	47.0%
434.3	4.03	0.166	1093	42.2%
1150 RPM INPUT SPEED				
29.5	39.0	1.221	1460	74.0%
37.2	30.9	0.981	1460	73.0%
46.5	24.7	0.927	1655	70.0%
55.8	20.6	0.845	1655	64.0%
69.8	16.5	0.710	1655	61.0%
87.8	13.10	0.506	1752	71.9%
110.9	10.37	0.412	1752	69.9%
138.6	8.30	0.350	1752	66.0%
166.3	6.91	0.320	1752	60.0%
207.9	5.53	0.249	1558	55.0%
309.5	3.72	0.180	1558	51.1%
369.6	3.11	0.164	1558	47.0%
434.3	2.65	0.115	1151	41.7%

SERIES ALHW8500				
MECHANICAL RATING (1.0 SERVICE FACTOR)				
RATIO TO 1	OUTPUT RPM	INPUT HP	OUTPUT TORQUE	EFFICIENCY
1750 RPM INPUT SPEED				
32.3	54.1	3.207	2690	72.0%
46.2	37.9	2.311	2690	70.0%
58.9	29.7	2.247	3195	67.0%
80.6	21.71	1.804	3195	61.0%
103.9	16.85	1.311	2943	60.0%
129.4	13.53	1.053	2943	60.0%
175.6	9.97	0.844	3363	63.0%
240.2	7.28	0.696	3195	53.0%
309.5	5.65	0.551	3195	51.9%
422.1	4.15	0.373	2943	52.0%
443.5	3.95	0.351	2522	45.0%
604.8	2.89	0.289	2522	40.1%
1150 RPM INPUT SPEED				
32.3	35.6	2.221	2831	72.0%
46.2	24.9	1.598	2831	70.0%
58.9	19.5	1.553	3363	67.0%
80.6	14.27	1.248	3363	61.0%
103.9	11.07	0.907	3098	60.0%
129.4	8.89	0.728	3098	60.0%
175.6	6.55	0.584	3540	63.0%
240.2	4.79	0.482	3363	53.1%
309.5	3.72	0.382	3363	51.8%
422.1	2.72	0.257	3098	52.1%
443.5	2.59	0.242	2653	45.0%
604.8	1.9	0.200	2653	40.0%

SEE PAGE C-18 FOR OVERHUNG LOAD AND THRUST LOAD RATINGS

### IN THIS CATALOG

RPM = Revolutions Per Minute

HP = Horsepower

TQ = Torque In Inch-Pounds

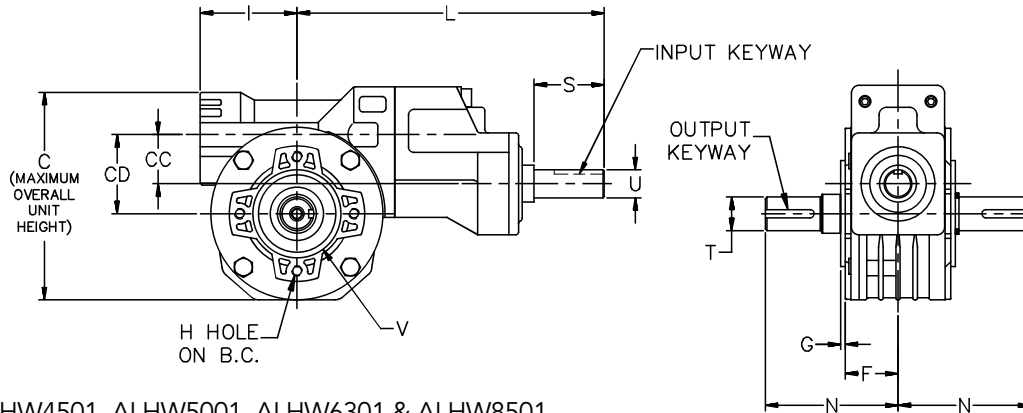
OHL = Overhung Load In Pounds At Centerline Of Output Shaft With No Thrust Load.

TL = Thrust Load In Pounds

# Hub City Spartan™ Aluminum Worm Gear Drives

## Double Reduction Helical-Worm Dimensions

### Shaft Input, Shaft Output Models

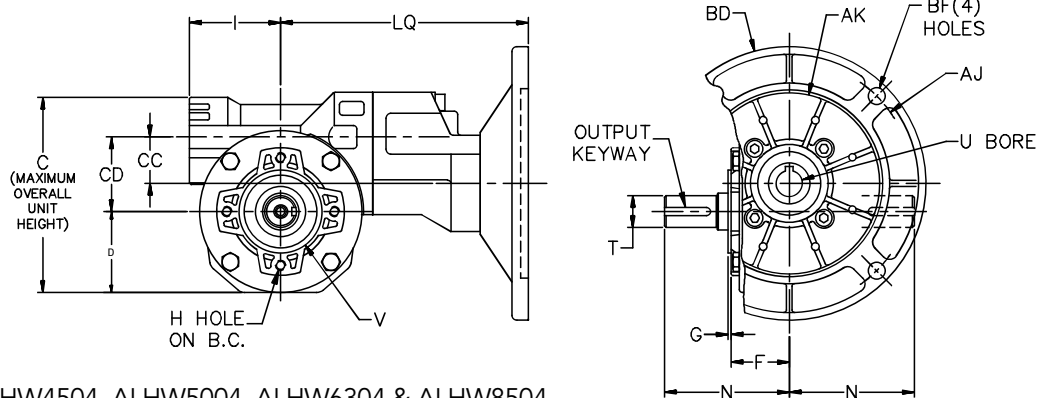


MODELS ALHW4501, ALHW5001, ALHW6301 & ALHW8501

MODEL	C	CD	CC	D	F	G	H (mm)	B.C.	I	L	N	S	T	U	V	INPUT KEY	OUTPUT KEYWAY	WT LBS.
ALHW4501	4.92	1.77	1.10	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	6.68	2.97	1.57	0.750	0.625	1.969	3/16 SQ. x 1.00	3/16 SQ.	8
ALHW5001	5.34	1.97	1.10	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	6.86	3.94	1.57	1.000	0.625	2.677	3/16 SQ. x 1.00	1/4 SQ.	10
ALHW6301	6.69	2.48	1.50	2.76	1.77	0.20	8-M8x 17	3.54	3.11	8.69*	4.85	1.97	1.125	0.750	2.953	3/16 SQ. x 1.00	1/4 SQ.	19
ALHW8501	9.13	3.35	1.50	3.72	2.52	0.14	4-M10x 8	5.12	3.94	9.35	5.55	1.97	1.500	0.750	4.331	3/16 SQ. x 1.00	3/8 SQ.	46

\*L DIM IS 8.69 FOR 29.5 THRU 69.8 RATIOS, AND 7.96 FOR 87.8 THRU 434.3 RATIOS.

### C-Face Input, Shaft Output Models



MODELS ALHW4504, ALHW5004, ALHW6304 & ALHW8504

MODEL	C	CD	CC	D	F	G	H (mm)	B.C.	I	LQ	N	T	V	OUTPUT KEYWAY	WT LBS.
ALHW4504	4.92	1.77	1.10	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	6.24	2.97	0.750	1.969	3/16 SQ.	9
ALHW5004	5.34	1.97	1.10	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	6.41	3.94	1.000	2.677	1/4 SQ.	11
ALHW6304	6.69	2.48	1.50	2.76	1.77	0.20	8-M8x 17	3.54	3.11	7.23	4.85	1.125	2.953	1/4 SQ.	20
ALHW8504	9.13	3.35	1.50	3.72	2.52	0.14	4-M10x 8	5.12	3.94	7.89	5.55	1.500	4.331	3/8 SQ.	47

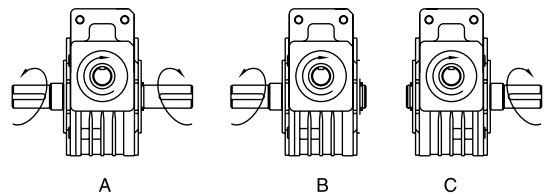
### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
ALHW4504, ALHW5004, ALHW6304, ALHW8504	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
ALHW8504	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
 DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)  
 METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

### STANDARD STYLES AVAILABLE

(Input Shaft can be Rotated in Either Direction)

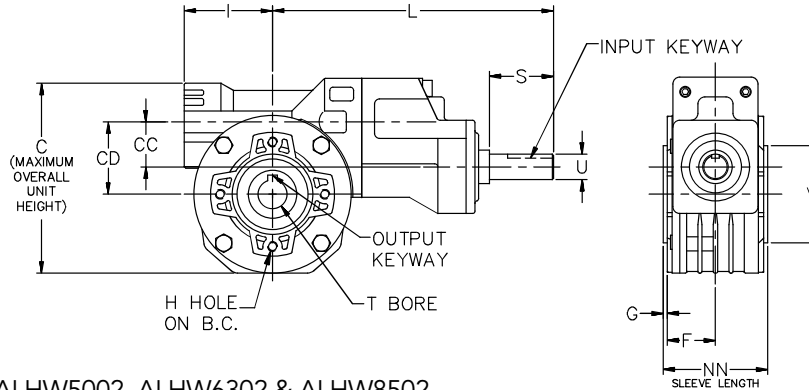


UNITS ARE FACTORY FILLED WITH LUBRICANT.  
 FOR IMPORTANT INSTALLATION INFORMATION  
 REFER TO SECTION S

# Hub City Spartan™ Aluminum Worm Gear Drives

## Double Reduction Helical-Worm Dimensions

### Shaft Input, Hollow Bore Models

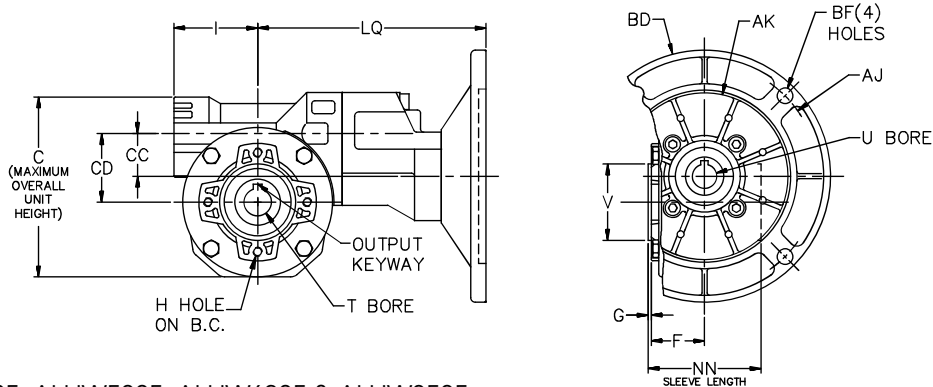


MODELS ALHW4502, ALHW5002, ALHW6302 & ALHW8502

MODEL	C	CD	CC	D	F	G	H(mm)	B.C.	I	L	NN	S	T	U	V	INPUT KEY	OUTPUT KEYWAY	WT LBS.
ALHW4502	4.92	1.77	1.10	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	6.68	2.560	1.57	0.750	0.625	1.969	3/16 SQ. x 1.00	3/16 SQ.	7
ALHW5002	5.34	1.97	1.10	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	6.86	3.188	1.57	1.000	0.625	2.677	3/16 SQ. x 1.00	1/4 SQ.	8
ALHW6302	6.69	2.48	1.50	2.76	1.77	0.20	8-M8x 17	3.54	3.11	8.69*	4.724	1.97	1.125	0.750	2.953	3/16 SQ. x 1.50	1/4 SQ.	17
ALHW8502	9.13	3.35	1.50	3.72	2.52	0.14	4-M10x 8	5.12	3.94	9.35	5.315	1.97	1.500	0.750	4.331	3/16 SQ. x 1.50	3/8 SQ.	43

\*L DIM IS 8.69 FOR 29.5 THRU 69.8 RATIOS, AND 7.96 FOR 87.8 THRU 434.3 RATIOS.

### C-Face Input, Hollow Bore Models



MODELS ALHW4505, ALHW5005, ALHW6305 & ALHW8505

MODEL	C	CD	CC	D	F	G	H(mm)	B.C.	I	LQ	NN	T	V	OUTPUT KEYWAY	WT LBS.
ALHW4505	4.92	1.77	1.10	1.93	1.38	0.08	4-M6 x 14	2.56	2.16	6.24	2.560	0.750	1.969	3/16 SQ.	8
ALHW5005	5.34	1.97	1.10	2.15	1.50	0.12	4-M6 x 9	3.70	2.56	6.41	3.188	1.000	2.677	1/4 SQ.	9
ALHW6305	6.69	2.48	1.50	2.76	1.77	0.20	8-M8x 17	3.54	3.11	7.23	4.724	1.125	2.953	1/4 SQ.	18
ALHW8505	9.13	3.35	1.50	3.72	2.52	0.14	4-M10x 8	5.12	3.94	7.89	5.315	1.500	4.331	3/8 SQ.	44

### MOTOR DATA (INCHES)

MODEL	MOTOR FRAME	AJ	AK	BD	BF	U BORE	KEYWAY
ALHW4505, ALHW5005, ALHW6305, ALHW8505	56C	5.875	4.500	6.50	0.405	0.625	3/16 x 3/32
ALHW8505	140TC	5.875	4.500	6.50	0.405	0.875	3/16 x 3/32

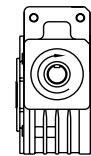
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
 DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)  
 METRIC VERSIONS ARE AVAILABLE. PLEASE REFER TO PAGE C-17

SHAFT MOUNT UNITS REQUIRE TORQUE  
 ARMS, TORQUE ARM KITS ARE AVAILABLE,  
 SEE PAGE C-14

EMAIL: [hubsales@regalbeloit.com](mailto:hubsales@regalbeloit.com) • [www.hubcityinc.com](http://www.hubcityinc.com)

### STANDARD STYLES AVAILABLE

(Input Shaft can be Rotated in Either Direction)



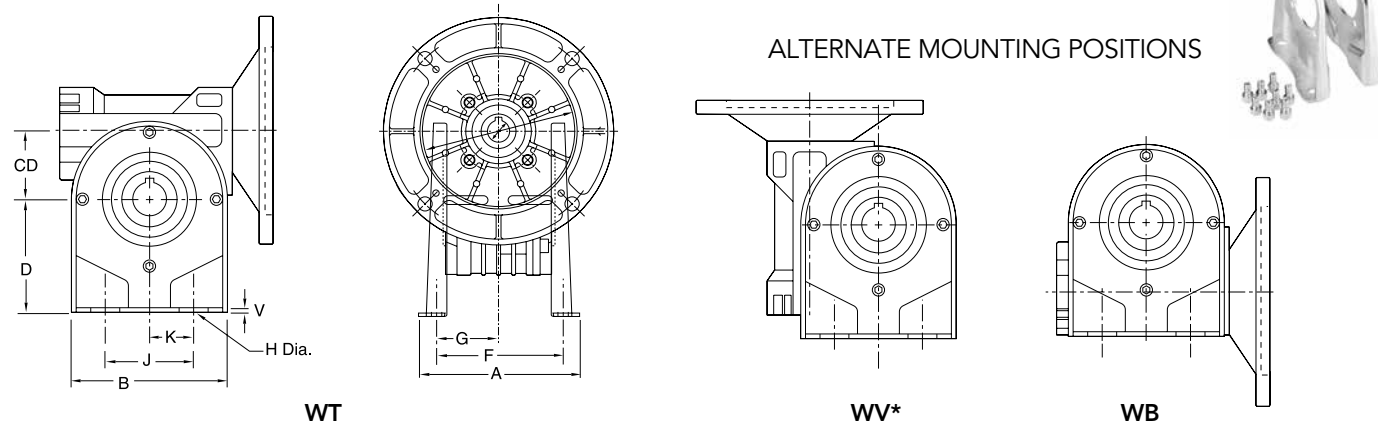
A

UNITS ARE FACTORY FILLED WITH LUBRICANT.  
 FOR IMPORTANT INSTALLATION INFORMATION  
 REFER TO SECTION 5

# Hub City Spartan™ Aluminum Worm Gear Drives

## Spartan™ Accessories

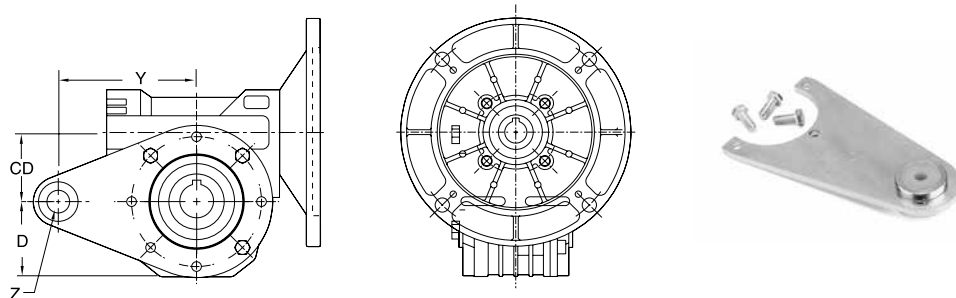
### Horizontal Base Kits



SERIES	A	B	CD	D	F	G	H	J	K	V	PART NUMBER	WEIGHT LBS.
AL450	3.94	3.86	1.77	2.83	3.17	1.59	0.413	2.01	1.01	0.12	0279-00501	1.5
AL500	4.84	4.49	1.97	3.23	3.90	1.95	0.413	2.52	1.26	0.16	0279-00502	2
AL630	5.67	5.24	2.48	3.93	4.35	2.18	0.413	3.74	1.87	0.16	0279-00503	3
AL850	7.17	7.09	3.35	5.59	5.71	2.86	0.413	5.51	2.76	0.20	0279-00504	8

HORIZONTAL BASE KITS ARE DESIGNED TO BE INSTALLED BY THE CUSTOMER. IF HORIZONTAL BASE KIT IS TO BE FACTORY ASSEMBLED, SPECIFY MOUNTING POSITION WT, WV OR WB AS SHOWN ABOVE. \* CONSULT FACTORY FOR VERTICAL SHAFT APPLICATIONS

### Torque Arm Kits



SERIES	CD	D	Y	Z	PART NUMBER	WEIGHT LBS.
AL450	1.77	1.93	3.94	0.315	0279-00505	0.5
AL500	1.97	2.15	3.94	0.315	0279-00506	0.5
AL630	2.48	2.76	5.91	0.394	0279-00507	1
AL850	3.35	3.72	7.87	0.787	0279-00508	2.5

TORQUE ARM KITS ARE DESIGNED TO BE INSTALLED BY THE CUSTOMER. IF TORQUE ARM KIT IS TO BE FACTORY ASSEMBLED, SPECIFY L (LEFT) OR R (RIGHT) WHEN VIEWED FROM INPUT END. (ILLUSTRATION SHOWS TORQUE ARM KIT MOUNTED ON LEFT.)

### Shaft Cover Kits



SERIES	PART NUMBER	WEIGHT LBS.
AL450	0279-00517	1
AL500	0279-00518	1
AL630	0279-00519	1
AL850	0279-00520	1

SHAFT COVERS ARE DESIGNED TO COVER THE NON-PROTRUDING END OF THE OUTPUT SHAFT OR SLEEVE.

NOTE: ACCESSORY KITS ARE ILLUSTRATED WITH SINGLE REDUCTION UNITS BUT WILL ALSO FIT DOUBLE REDUCTION WORM-WORM AND DOUBLE REDUCTION HELICAL-WORM UNITS.

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY. DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)

### Output Shaft Kits



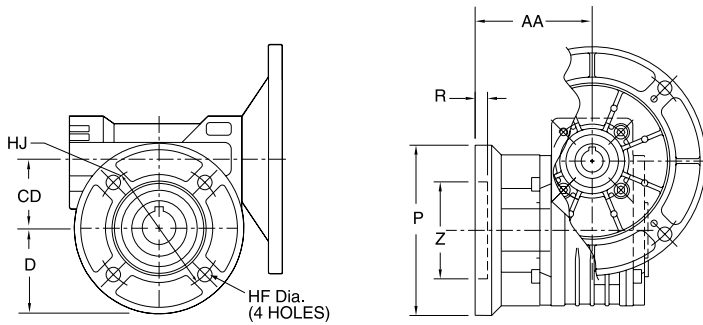
SERIES	SINGLE EXTENSION		DOUBLE EXTENSION	
	SHAFT KIT NO.	SHIPPING WT. LBS.	SHAFT KIT NO.	SHIPPING WT. LBS.
AL450	0279-00521	2	0279-00525	3
AL500	0279-00522	3	0279-00526	4
AL630	0279-00523	3	0279-00527	4
AL850	0279-00524	6	0279-00528	7

SHAFT KITS ARE FOR USE IN "INCH" OUTPUT BORE UNITS. REFER TO PAGE C-6 FOR OUTPUT SHAFT DIMENSIONS. METRIC OUTPUT SHAFTS ALSO AVAILABLE (FOR USE IN METRIC OUTPUT BORES). CONSULT FACTORY.

# Hub City Spartan™ Aluminum Worm Gear Drives

## Spartan™ Accessories

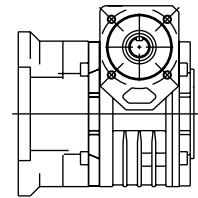
### Side Mounting Flange Kit



SIDE MOUNTING FLANGE KITS (INCLUDING LONG) ARE DESIGNED TO BE INSTALLED BY THE CUSTOMER. IF SIDE MOUNTING FLANGE KIT (INCLUDING LONG) IS TO BE FACTORY ASSEMBLED, A MOUNTING LOCATION MUST BE SPECIFIED AS SHOWN.

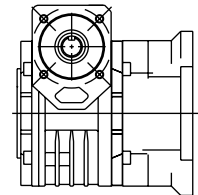
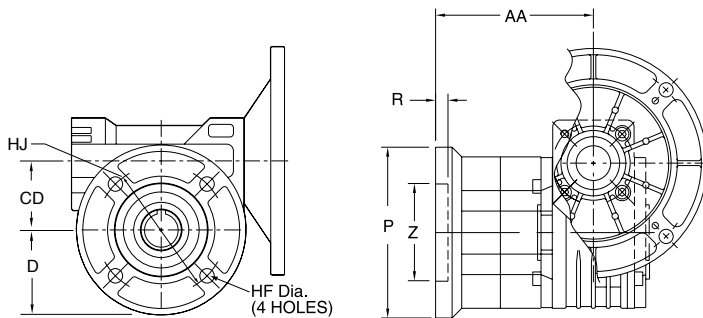


SERIES	AA	CD	D	HF	HJ	P	R	T	Z	PART NUMBER	WEIGHT LBS.
AL450	2.38	1.77	2.16	0.335	3.43	4.33	0.354	0.750	2.362	0279-00509	0.75
AL500	3.35	1.97	2.42	0.413	3.54	4.84	0.354	1.000	2.756	0279-00510	1
AL630	3.39	2.48	3.44	0.413	5.91	6.89	0.276	1.125	4.528	0279-00511	1.5
AL850	4.25	3.35	4.04	0.512	6.93	8.07	0.197	1.500	5.984	0279-00512	4



FL

### Long Side Mounting Flange Kit



FR

SERIES	AA	CD	D	HF	HJ	P	R	T	Z	PART NUMBER	WEIGHT LBS.
AL450	3.56	1.77	2.16	0.335	3.43	4.33	0.354	0.750	2.362	0279-00513	1
AL500	4.51	1.97	2.42	0.413	3.54	4.84	0.354	1.000	2.756	0279-00514	1.5
AL630	4.57	2.48	3.44	0.413	5.91	6.89	0.276	1.125	4.528	0279-00515	2.5
AL850	5.85	3.35	4.04	0.512	6.93	8.07	0.197	1.500	5.984	0279-00516	5.5

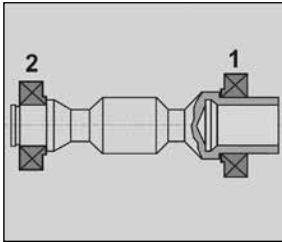
NOTE: ACCESSORY KITS ARE ILLUSTRATED WITH SINGLE REDUCTION UNITS BUT WILL ALSO FIT DOUBLE REDUCTION WORM-WORM AND DOUBLE REDUCTION HELICAL-WORM UNITS.

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.  
 DOWNLOAD AVAILABLE CAD MODELS AT: [WWW.HUBCITYINC.COM](http://WWW.HUBCITYINC.COM)

# Hub City Spartan™ Aluminum Worm Gear Drives

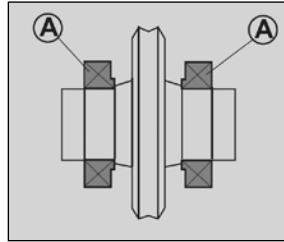
## Factory Options

Hub City Spartan™ reducers can be specified with factory options on request. Select from the options below or contact Hub City with specific application requests. Contact Hub City for availability of reducers with special features.



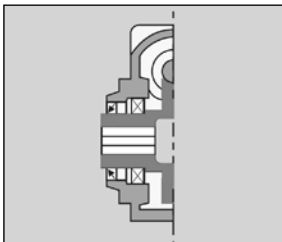
Tapered roller bearings on input worm shaft

SERIES	A	B
AL450	N/A	N/A
AL500	✓	✓
AL630	✓	✓
AL850	✓	✓



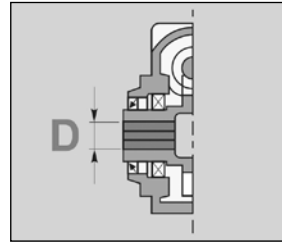
Tapered roller bearings on output shaft

SERIES	A
AL450	N/A
AL500	✓
AL630	✓
AL850	✓



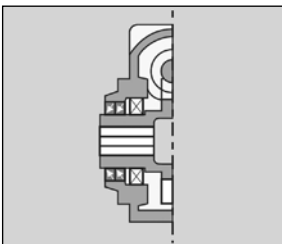
Stainless steel (AISI 303) or bronze output bore

SERIES	MAX DIA. IN. (MM)
AL450	0.875 (22.2)
AL500	1.1875 (30.16)
AL630	1.3125 (33.33)
AL850	1.625 (41.27)



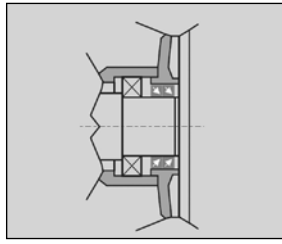
Non-standard output bore

SERIES	MAX DIA. IN. (MM)
AL450	0.875 (22.2)
AL500	1.1875 (30.16)
AL630	1.3125 (33.33)
AL850	1.625 (41.27)



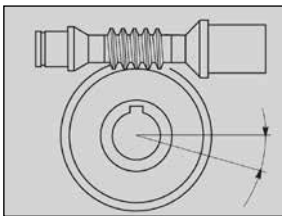
Double output seals

SERIES	SEAL SIZE (MM)
AL450	—
AL500	—
AL630	45/62/7
AL850	55/80/8



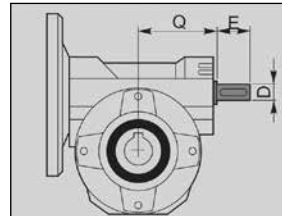
Double input seals

SERIES	SEAL SIZE (MM)
AL450	25/40/7
AL500	25/40/7 or 30/40/7
AL630	35/47/7
AL850	45/62/7



Minimum backlash gearing

AVAILABLE ON ALL SIZES. CONTACT HUB CITY WITH REQUIREMENTS.



Double input worm shaft extension

AVAILABLE ON ALL SIZES. CONTACT HUB CITY WITH REQUIREMENTS.

### SPECIAL OPTIONS NOT PICTURED INCLUDE:

- Epoxy paint
- Custom mounting accessories
- Custom ratios
- NEMA input flange/ metric dimensioned output shaft combinations (See Page C-17)
- IEC input flange/ inch dimensioned output shaft combinations (See Page C-17)
- Special solid output shaft extensions



# Hub City Spartan™ Aluminum Worm Gear Drives

## Factory Options Optional Metric Mounting Dimensions

### Single Reduction (REFER TO DIMENSIONAL DRAWINGS ON PAGES C-6 & C-7)

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

MODEL	LQ1 <sup>⬆</sup>						T ✓ (standard for metric units)	N	OUTPUT KEYWAY
	IEC B5 & B14 OPTIONS								
	D56D	D63D	D71D	D80D	D90D	D100LD <sup>■</sup>			
AL450	74 <sup>⬆</sup> □	74 <sup>⬆</sup>	74	N/A	N/A	N/A	18	75	6
AL500	81.5 <sup>⬆</sup> □	81.5 <sup>⬆</sup>	81.5	81.5	N/A	N/A	25	100	8
AL630	N/A	99.5 <sup>⬆</sup>	99.5 <sup>⬆</sup>	99.5 <sup>⬆</sup>	99.5 <sup>⬆</sup>	N/A	25	123	8
AL850	N/A	N/A	124 <sup>⬆</sup>	124	124	124	35	141	10

⊖ CONTACT FACTORY FOR AVAILABILITY OF METRIC INPUT OPTIONS. THE OUTPUT BORE AND/OR SOLID OUTPUT SHAFT EXTENSION WILL BE METRIC AS STANDARD WITH METRIC INPUT OPTIONS.

▲ KEYWAY WIDTH BY DEPTH

⬥ AJ MOUNTING HOLES ARE ROTATED 45° FROM POSITIONS SHOWN ON B14 INPUT OPTIONS AS FOLLOWS: D56D(ALL), D63D(MODELS AL450 & AL500), D71D & D80D(MODELS AL630)

◆ DIMENSIONS ARE MAXIMUM (B5 AND B14 OPTIONS)

⬆ B14 OPTION NOT AVAILABLE

□ B5 OPTION NOT AVAILABLE

■ ALSO APPLIES TO FRAME SIZE D112MD

✓ SOLID METRIC OUTPUT SHAFT DIAMETER TOLERANCE IS -0.005/-0.020.  
HOLLOW BORE TOLERANCE IS H7.

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

IEC FRAME	B5					B14 <sup>⬆</sup>					INPUT BORE DIA	INPUT KEYWAY <sup>▲</sup>
	AJ	AK	BD	BE	BF	AJ	AK	BD	BE	BF <sup>⬆</sup>		
D56D	100	80	120	10	7	65 <sup>⬆</sup>	50	80	7	6.5	9	3 x 1.5
D63D	115	95	140	11	9	75 <sup>⬆</sup>	60	90	5.5	5.5	11	4 x 2
D71D	130	110	160	10	9	85 <sup>⬆</sup>	70	105	8	6.5	14	5 x 2.5
D80D	165	130	200	12	11	100 <sup>⬆</sup>	80	120	10	7	19	6 x 3
D90D	165	130	200	12	11	115	95	140	11	9	24	8 x 3.5
D100LD <sup>■</sup>	215	180	250	13	14	130	110	160	10	9	28	8 x 3.5

### Worm-Worm Double Reduction (REFER TO DIMENSIONAL DRAWINGS ON PAGES C-9 & C-10)

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

MODELS	LQ <sup>⬆</sup>			T H7 (standard for metric units)	N	OUTPUT KEYWAY
	IEC B5 & B14 OPTIONS					
	D56D <sup>■</sup>	D63D	D71D			
ALWW4500	74 <sup>⬆</sup>	74 <sup>⬆</sup>	74	18	75	6
ALWW5000	74 <sup>⬆</sup>	74 <sup>⬆</sup>	74	25	100	8
ALWW6300	74 <sup>⬆</sup>	74 <sup>⬆</sup>	74	25	123	8
ALWW8500	74 <sup>⬆</sup>	74 <sup>⬆</sup>	74	35	141	10

□ CONTACT FACTORY FOR AVAILABILITY OF METRIC INPUT OPTIONS. THE OUTPUT BORE AND/OR SOLID OUTPUT SHAFT EXTENSION WILL BE METRIC AS STANDARD WITH METRIC INPUT OPTIONS.

▲ KEYWAY WIDTH BY DEPTH

⬥ AJ MOUNTING HOLES ARE ROTATED 45° FROM POSITIONS SHOWN ON B14 INPUT OPTIONS AS FOLLOWS: D56D(ALL), D63D(ALL)

◆ DIMENSIONS ARE MAXIMUM (B5 AND B14 OPTIONS)

■ B5 OPTION NOT AVAILABLE

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

IEC FRAME	B5					B14 <sup>⬆</sup>					INPUT BORE DIA	INPUT KEYWAYS
	AJ	AK	BD	BE	BF	AJ	AK	BD	BE	BF <sup>⬆</sup>		
D56D	N/A	N/A	N/A	N/A	N/A	65 <sup>⬆</sup>	50	80	7	6.5	9	3 x 1.5
D63D	115	95	140	11	9	75 <sup>⬆</sup>	60	90	5.5	5.5	11	4 x 2
D71D	130	110	160	10	9	85 <sup>⬆</sup>	70	105	8	6.5	14	5 x 2.5

### Helical Worm Double Reduction (REFER TO DIMENSIONAL DRAWINGS ON PAGE C-12 & C-13)

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

MODEL	LQ <sup>⬆</sup>				T H7 (standard for metric units)	N	OUTPUT KEYWAY
	IEC B5 & B14 OPTIONS						
	D63D	D71D	D80D	D90D			
ALHW4500	136 <sup>⬆</sup>	136	N/A	N/A	18	75	6
ALHW5000	141 <sup>⬆</sup>	141	N/A	N/A	25	100	8
ALHW6300	179 <sup>⬆</sup>	179 <sup>⬆</sup>	179 <sup>⬆</sup>	179	25	123	8
ALHW8500	197 <sup>■</sup>	197 <sup>⬆</sup>	197 <sup>⬆</sup>	197	35	141	10

□ CONTACT FACTORY FOR AVAILABILITY OF METRIC INPUT OPTIONS. THE OUTPUT BORE AND/OR SOLID OUTPUT SHAFT EXTENSION WILL BE METRIC AS STANDARD WITH METRIC INPUT OPTIONS.

▲ KEYWAY WIDTH BY DEPTH

⬥ AJ MOUNTING HOLES ARE ROTATED 45° FROM POSITIONS SHOWN ON B14 INPUT OPTIONS AS FOLLOWS:

D63D(ALL), D71D & D80D(MODELS ALHW6300 & ALHW 8500)

◆ DIMENSIONS ARE MAXIMUM (B5 AND B14 OPTIONS)

■ B14 OPTION NOT AVAILABLE

#### OPTIONAL METRIC DIMENSIONS<sup>⊖</sup> - MM

IEC FRAME	B5					B14 <sup>⬆</sup>					INPUT BORE DIA	INPUT KEYWAY <sup>▲</sup>
	AJ	AK	BD	BE	BF	AJ	AK	BD	BE	BF <sup>⬆</sup>		
D63D	115	95	140	11	9	75 <sup>⬆</sup>	60	90	5.5	5.5	11	4 x 2
D71D	130	110	160	10	9	85 <sup>⬆</sup>	70	105	8	6.5	14	5 x 2.5
D80D	165	130	200	12	11	100 <sup>⬆</sup>	80	120	10	7	19	6 x 3
D90D	165	130	200	12	11	115	95	140	11	9	24	8 x 3.5

NOTE: "T" DIMENSION APPLIES TO BOTH SOLID AND HOLLOW OUTPUT MODELS.

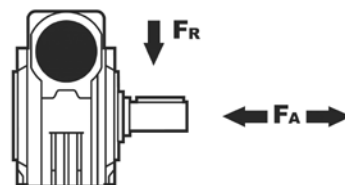
# Hub City Spartan™ Aluminum Worm Gear Drives

## Technical Information

### Maximum Overhung Load‡ and Thrust Load Ratings (lbs.)

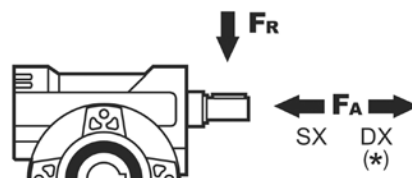
#### SINGLE REDUCTION OUTPUT SHAFT RATINGS‡

OUTPUT RPM	MODELS							
	AL450		AL500		AL630		AL850	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
200	40	200	54	270	81	405	112	562
150	45	225	63	315	90	450	130	652
100	50	248	68	338	104	518	135	675
75	54	270	76	382	112	562	157	787
50	58	315	86	428	135	675	180	900
25	68	405	108	562	158	855	225	1125
15	90	450	126	629	180	899	261	1304



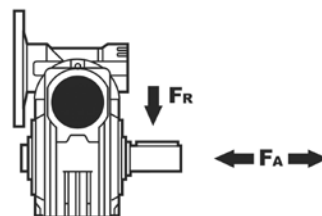
#### SINGLE REDUCTION INPUT SHAFT RATINGS‡

INPUT RPM	MODELS							
	AL450		AL500		AL630		AL850	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
1750	9	43	16	79	19	93	33	167



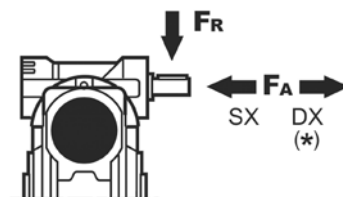
#### DOUBLE REDUCTION WORM-WORM OUTPUT SHAFT RATINGS‡

OUTPUT RPM	MODELS							
	ALWW4500		ALWW5000		ALWW6300		ALWW8500	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
25	68	405	108	562	158	855	225	1125
15	90	450	126	629	180	899	261	1304



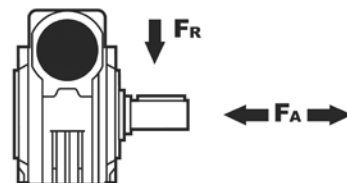
#### DOUBLE REDUCTION WORM-WORM INPUT SHAFT RATINGS‡

INPUT RPM	MODELS							
	ALWW4500		ALWW5000		ALWW6300		ALWW8500	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
1750	9	43	9	43	9	43	9	43



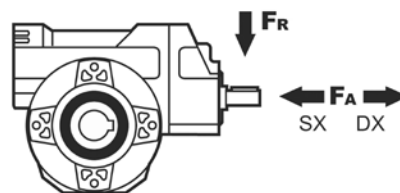
#### DOUBLE REDUCTION HELICAL/WORM OUTPUT SHAFT RATINGS‡

OUTPUT RPM	MODELS							
	ALHW4500		ALHW5000		ALHW6300		ALHW8500	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
75	54	270	76	382	112	562	157	787
50	58	315	86	428	135	675	180	900
25	68	405	108	562	158	855	225	1125
15	90	450	126	629	180	899	261	1304



#### DOUBLE REDUCTION HELICAL/WORM INPUT SHAFT RATINGS‡

INPUT RPM	MODELS							
	ALHW4500		ALHW5000		ALHW6300		ALHW8500	
	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>	F <sub>A</sub>	F <sub>R</sub>
1750	9	46	9	46	13	63	22	112



$F_R$  = RADIAL LOAD RATING = OVERHUNG LOAD (LBS)

$F_A$  = AXIAL LOAD RATING = THRUST RATING (LBS)

\* AXIAL LOADS IN THE DX DIRECTION SHOULD BE AVOIDED.

‡ OVERHUNG LOAD IS LOCATED AT CENTERLINE OF SHAFT EXTENSION FOR SOLID INPUT OUTPUT SHAFT STYLE