



Cone Drive

ACCUDRIVE  
SERIES LE & P

# ACCUDRIVE PRECISION PRODUCTS

Now you can get design flexibility and lasting performance from our complete family of AccuDrive Precision Products.

## Series W Precision Servo Gearhead

Output torque up to 8,500 lb.in.  
Motor adapters to fit servo motors.  
Center distance from 38 to 89 mm.  
Speed range up to 6,000 RPM input.  
Sizes available 38, 51, 64, 76 and 89.  
Universal Mounting with shaft mount and flange mount standard.  
Gear ratios from 5:1 to 60:1, special ratios available.  
Standard backlash, low backlash and ZERO backlash available.



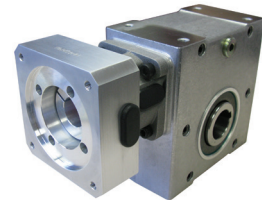
## Model RG Right Angle Gearhead

Output torque capacity up to 8,500 lb.in.  
Motor sizes (standard), adapters to fit servo motors, NEMA and IEC  
Center distance 1.5 to 3.5 inches  
Input power ratings up to 27 H.P, speed range up to 4,000 RPM  
Sizes available 15, 20, 25, 30 and 35  
Universal Mounting with shaft mount and flange mount standard  
in single reduction type  
Gear ratios from 5:1 to 60:1



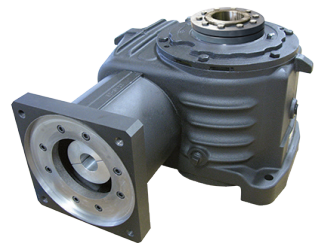
## Series S Servo Gearhead

Economical Servo Solution  
Output torque up to 7,540 lb.in.  
Motor adapters to fit servo motors  
Center distance from 1.33 inch up to 3.54 inch  
Speed range up to 4,000 RPM  
Flexible mounting (hollow output standard with plug in solid shaft)  
Ratios from 5:1 to 60:1



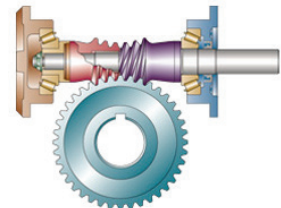
## Model HP Servo Gearhead

Output torque capacity up to 117,120 lb.in.  
Speed range up to 3,000 RPM input.  
Sizes 30, 35, 40, 50, 60, 70 and 80  
Gear ratios from 5:1 to 70:1  
300% Shock load capacity / large hollow bores / Shrink disc  
Backlash as low as four arcminutes.



## ABSOLUTE ZERO Backlash AccuDrive Gearing

Unique design captures both sides of the gear tooth to completely eliminate backlash. Automatically compensates for wear-guaranteed zero backlash for the life of the gearset. Available for single, double and triple reduction types, gear sets, special designs and the Series W.

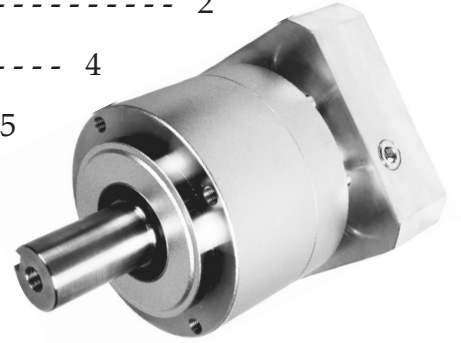


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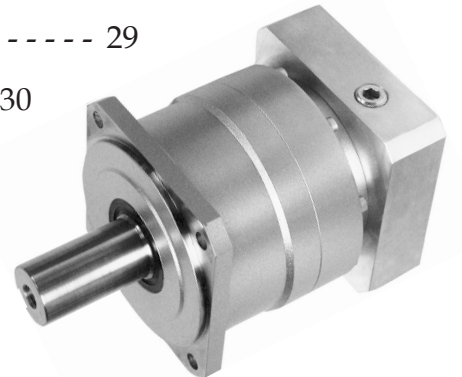
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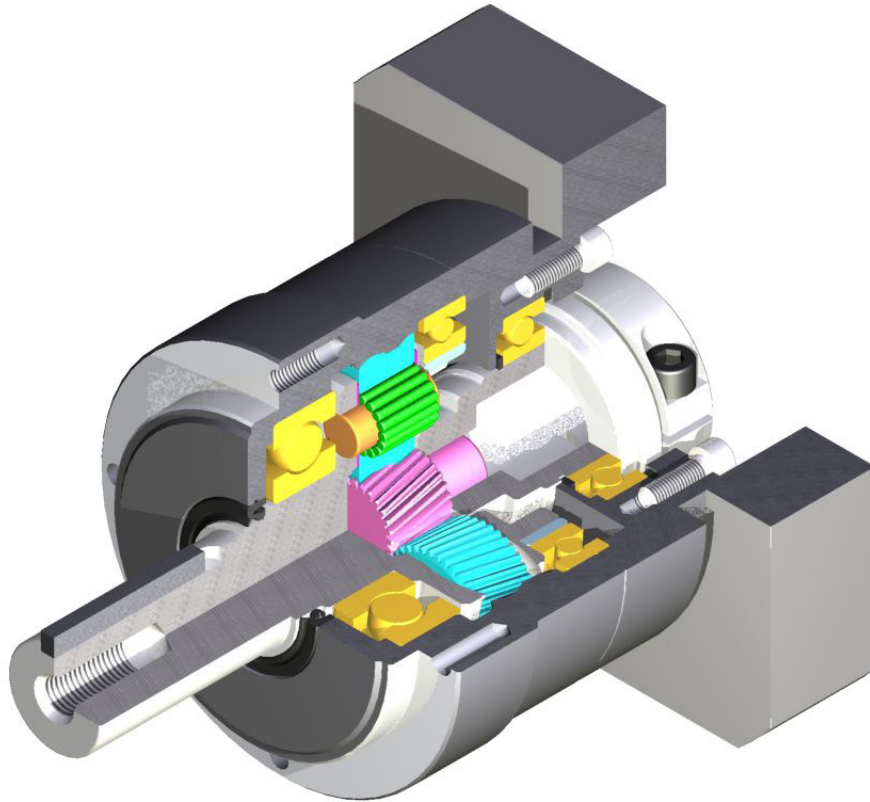


# Accudrive

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## Series LE

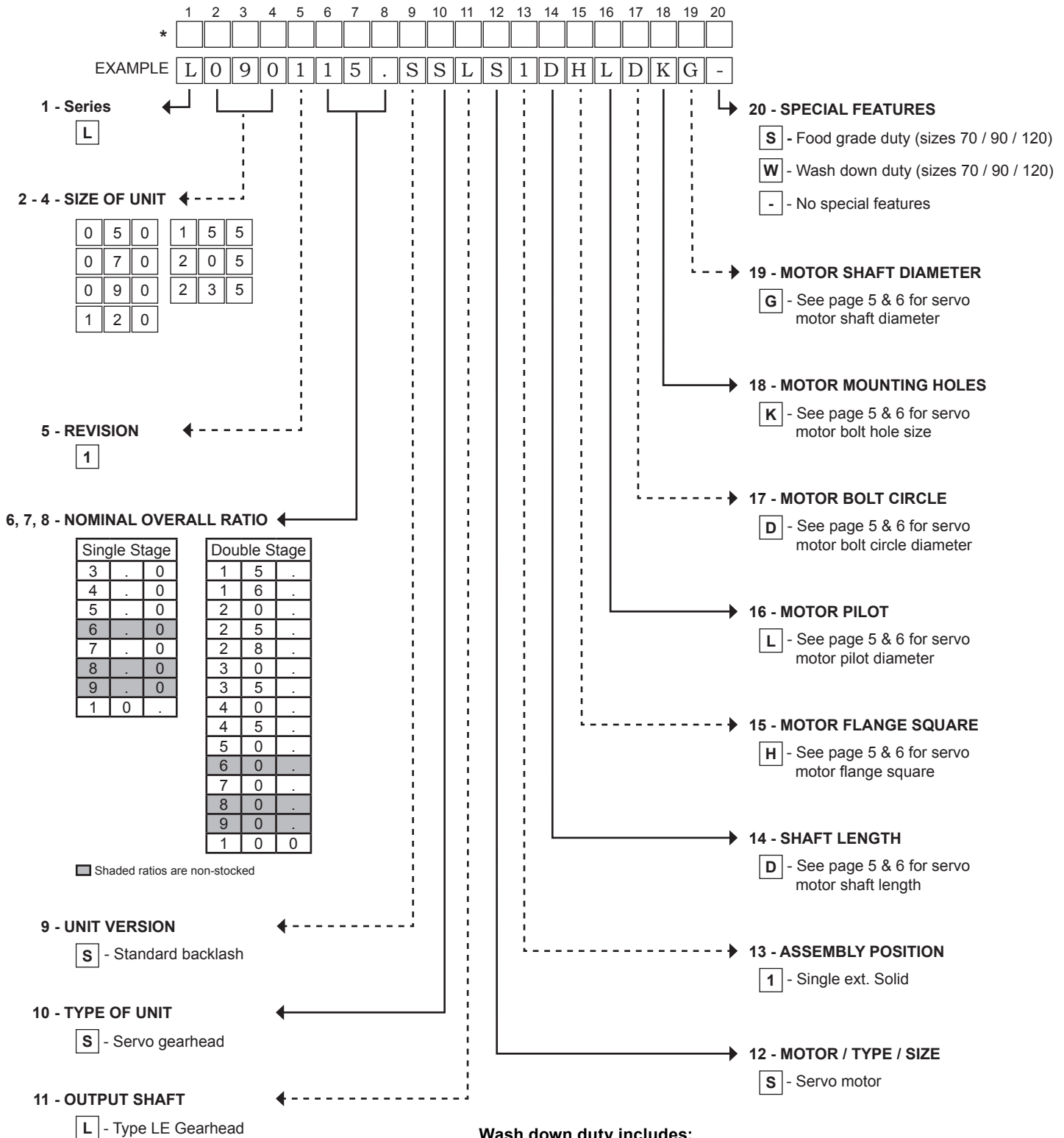




The Series LE has expanded range of sizes now from size 50 up to the size 235.

- Precision clamping system to eliminate motor shaft slipping.
- Improved lower backlash
- Integral output shaft and planet carrier
- Helical cut gears for reduced noise
- Grease lubricated for life.

# AccuDrive Series LE UNIT DESIGNATION



**Wash down duty includes:**

IP65 Ratings / Stainless output shaft and fasteners / Sealed bearing at the input / 2-part epoxy sealant

**Food grade duty includes:**

IP65 Ratings / Stainless output shaft and fasteners / Sealed bearing at the input / 2-part epoxy sealant / White epoxy paint

Wash down and food grade are standard options for sizes 70 / 90 / 120 and as a special for sizes 50 / 155 / 205 / 235.

Cone Drive reserves the right to improve or change product design and specifications without notice.

# AccuDrive Series LE

## MOTOR MOUNTING CODES

LE50 SELECTIONS														
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER													
	MOTOR FLANGE SQ.	42 / 60				65								
	MOTOR SHAFT Ø	≤ Ø 8 mm				≤ Ø 14 mm								
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
COLUMN 15 ENTRY	42	60	65											
COLUMN 16 ENTRY	F	P	L											
COLUMN 17 ENTRY	22	30	36	38.1	40	50	54	60	70	73.025	80	95	115	
COLUMN 18 ENTRY	N	T	P	A	B	C	Q	D	E	F	G	H	V	
COLUMN 19 ENTRY	43.82	46	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	
	B	V	A	C	D	S	E	F	G	H	J	T	K	
	3.4 - 4.4	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	#6 - 32	#8 - 32	M3	M6					
	J	A	B	C	D	K	L	P	Q					
	Single Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	
	Y	Z	A	7	B	C	D	E	F	G	H	J		
	Double Reduction	5	6	6.35	7	8								
	Y	Z	A	7	B									

LE70 SELECTIONS																					
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																				
	MOTOR FLANGE SQ.	52 / 60 / 70				65 / 80 / 90				70				100 / 115				80 / 90 / 100			
	MOTOR SHAFT Ø	≤ Ø 8 mm				≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm							
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
COLUMN 15 ENTRY	52	60	65	70	80	90	100	115													
COLUMN 16 ENTRY	G	P	L	A	B	C	D	E													
COLUMN 17 ENTRY	22	30	36	38.1	40	50	54	55.563	60	70	73.025	80	95	100	110	114.3	115				
COLUMN 18 ENTRY	N	T	P	A	B	C	Q	R	D	E	F	G	H	U	J	K	V				
COLUMN 19 ENTRY	43.82	46	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	165			
	B	V	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	P			
	3.4 - 4.4	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	#6 - 32	#8 - 32	3/8 - 16	M3	M6	M8									
	J	A	B	C	D	E	K	L	M	P	Q	R									
	Single Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19				
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L				
	Double Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19				
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L				

LE90 SELECTIONS																																	
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																
	MOTOR FLANGE SQ.	52 / 60 / 70				65 / 70 / 80 / 90 / 100				115 / 150				80 / 90 / 100 / 115				130 / 150				100 / 115				130				150			
	MOTOR SHAFT Ø	≤ Ø 8 mm				≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 28 mm			
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX				
COLUMN 15 ENTRY	52	60	65	70	80	90	100	115	130	150																							
COLUMN 16 ENTRY	G	P	L	A	B	C	D	E	J	K																							
COLUMN 17 ENTRY	22	30	36	38.1	40	50	54	55.563	60	63.5	70	73.025	80	95	100	110	114.3	115	130	180	200												
COLUMN 18 ENTRY	N	T	P	A	B	C	Q	R	D	S	E	F	G	H	U	J	K	V	L	M	W												
COLUMN 19 ENTRY	43.82	46	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	149.23	165	200	215												
	B	V	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	W	P	Q	R												
	3.4 - 4.4	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	12.5 - 15	#6 - 32	#8 - 32	3/8 - 16	M3	M6	M8																				
	J	A	B	C	D	E	F	K	L	M	P	Q	R																				
	Single Reduction	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28															
	C	D	E	F	G	H	J	K	L	8	9	L	2	M	3	N	4	P															
	Double Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28										
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L	2	M	3	N	4	P										

LE120 SELECTIONS																																									
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																								
	MOTOR FLANGE SQ.	65 / 70 / 80 / 90 / 100				115 / 150				80 / 90 / 100 / 115				130 / 150				100 / 115				130				150				180				130 / 150				180			
	MOTOR SHAFT Ø	≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 38 mm				≤ Ø 38 mm							
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX										
COLUMN 15 ENTRY	65	70	80	90	100	115	130	150	180																																
COLUMN 16 ENTRY	L	A	B	C	D	E	J	K	H																																
COLUMN 17 ENTRY	36	38.1	40	50	54	55.563	60	63.5	70	73.025	80	95	100	110	114.3	115	130	180	200	215.9	230																				
COLUMN 18 ENTRY	P	A	B	C	Q	R	D	S	E	F	G	H	U	J	K	V	L	M	W	X	Y																				
COLUMN 19 ENTRY	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	149.23	165	200	215	235	250	265																			
	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	W	P	Q	R	Z	7	8																			
	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	12.5 - 15	3/8 - 16	1/2 - 13	M6	M8																															
	A	B	C	D	E	F	M	N	Q	R																															
	Single Reduction	15.875	16	17	19	19.05	22	22.225	24	26	28	28.575	32	35	38																										
	8	K	9	L	2	M	3	N	4	P	5	Q	R	S																											
	Double Reduction	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28	28.575	32	35	38																			
	C	D	E	F	G	H	J	K	L	8	K	9	L	2	M	3	N	4	P	5	Q	R	S																		





# AccuDrive Series LE

## OUTPUT TORQUE RATINGS

Ratios	Gear Stages	Units	Output Torque by Gearhead Size													
			LE50		LE70		LE90		LE120		LE155		LE205		LE235	
			T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>
3	1	lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1600
4		lb.In.	80	159	239	443	664	1106	1062	2921	2124	6195	6638	12390	13275	20355
		Nm	9	18	27	50	75	125	120	330	240	700	750	1400	1500	2300
5		lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355
		Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300
6		lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355
		Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300
7		lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355
		Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300
8		lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	19470
		Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2200
9		lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	16815
		Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1900
10		lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1600
15	lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1600	
16	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
20	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
25	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
28	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
30	lb.In.	80	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	9	12	18	35	50	80	120	225	240	470	500	970	1000	1600	
35	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
40	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
45	lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	11505	
	Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1300	
50	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
60	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
70	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	2300	
80	lb.In.	80	159	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	15930	
	Nm	9	18	27	50	75	125	180	330	360	700	750	1400	1500	1800	
90	lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	11505	
	Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1300	
100	lb.In.	53	106	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	10620	
	Nm	6	12	18	35	50	80	120	225	240	470	500	970	1000	1200	

T<sub>2N</sub> - At nominal input speed, service life is 20,000 hours.

T<sub>MAX</sub> - The maximum torque when starting or stopping.

# AccuDrive Series LE

## ADDITIONAL RATINGS

	Gear Stages		Size						
			LE50	LE70	LE90	LE120	LE155	LE205	LE235
Emergency Stop (1)			$2 \times T_{MAX}$						
Degree of Protection			IP55 (IP65 IS OPTIONAL)						
Nominal Input Speed		rpm	4000	3000	3000	3000	2000	1500	1000
Maximum Input Speed		rpm	8000	6000	6000	6000	4000	3000	2000
Efficiency	1	%	95	95	95	95	95	95	97
	2	%	90	90	90	90	90	90	92
Lifetime (at nominal speed)		Hours	20,000						
Gearhead Weight	1	lbs.	1.54	3.30	7.70	17.16	35.20	85.80	121.00
		kg.	0.7	1.5	3.5	7.8	16.0	39.0	55.0
	2	lbs.	1.76	3.74	8.80	19.14	39.60	88.00	125.40
		kg.	0.8	1.7	4.0	8.7	18.0	40.0	57.0
Backlash	1	arcmin	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
	2	arcmin	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Torsional Rigidity (per arcminute)	1	Nm/ arcmin	2	3	10	31	60	175	400
	2	Nm/ arcmin	2	3	10	31	60	175	400
Noise Level		dB	≤ 61	≤ 66	≤ 67	≤ 71	67	67	61
No Load Running Torque (2)	1	Nm	0.03	0.15	0.35	1.30	1.63	2.68	2.92
	2	Nm	0.01	0.04	0.06	0.42	0.56	1.39	1.14
Permitted Housing Temperature		°C	90						

- (1) Permitted 1,000 times during service life.  
(2) Measured at the input at nominal input speed.

# AccuDrive Series LE

## OVERHUNG AND AXIAL LOAD RATINGS

### Permitted Radial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Size						
			LE50	LE70	LE90	LE120	LE155	LE205	LE235
3	1	Lb	54	97	182	292	719	1259	1304
		N	240	430	810	1300	3200	5600	5800
4	1	Lb	61	106	200	337	787	1394	1439
		N	270	470	890	1500	3500	6200	6400
5	1	Lb	65	115	216	360	854	1506	1551
		N	290	510	960	1600	3800	6700	6900
6	1	Lb	70	121	225	382	899	1596	1641
		N	310	540	1000	1700	4000	7100	7300
7	1	Lb	72	128	247	405	944	1664	1731
		N	320	570	1100	1800	4200	7400	7700
8	1	Lb	76	135	247	427	989	1753	1798
		N	340	600	1100	1900	4400	7800	8000
9	1	Lb	79	139	270	427	1034	1821	1888
		N	350	620	1200	1900	4600	8100	8400
10	1	Lb	81	144	270	450	1057	1888	1956
		N	360	640	1200	2000	4700	8400	8700
15	1	Lb	92	166	315	517	1214	2158	2226
		N	410	740	1400	2300	5400	9600	9900
16	1	Lb	94	169	315	517	1236	2203	2248
		N	420	750	1400	2300	5500	9800	10000
20	1	Lb	103	182	337	562	1349	2473	2473
		N	460	810	1500	2500	6000	11000	11000
25	1	Lb	110	196	360	607	1439	2473	2698
		N	490	870	1600	2700	6400	11000	12000
28	1	Lb	115	205	382	629	1506	2698	2698
		N	510	910	1700	2800	6700	12000	12000
30	1	Lb	117	209	382	652	1529	2698	2922
		N	520	930	1700	2900	6800	12000	13000
35	1	Lb	124	220	405	674	1619	2922	2922
		N	550	980	1800	3000	7200	13000	13000
40	2	Lb	128	225	427	719	1686	2922	3147
		N	570	1000	1900	3200	7500	13000	14000
45	2	Lb	135	247	450	742	1753	3147	3147
		N	600	1100	2000	3300	7800	14000	14000
50	2	Lb	139	247	472	764	1821	3147	3372
		N	620	1100	2100	3400	8100	14000	15000
60	2	Lb	148	270	495	809	1933	3372	3372
		N	660	1200	2200	3600	8600	15000	15000
70	2	Lb	155	270	517	854	2046	3372	3372
		N	690	1200	2300	3800	9100	15000	15000
80	2	Lb	160	270	540	899	2046	3372	3372
		N	710	1200	2400	4000	9100	15000	15000
90	2	Lb	160	270	540	944	2046	3372	3372
		N	710	1200	2400	4200	9100	15000	15000
100	2	Lb	160	270	540	967	2046	3372	3372
		N	710	1200	2400	4300	9100	15000	15000

### Permitted Axial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Size						
			LE50	LE70	LE90	LE120	LE155	LE205	LE235
3	1	Lb	61	70	209	337	540	967	1439
		N	270	310	930	1500	2400	4300	6400
4	1	Lb	67	81	247	382	607	1102	1619
		N	300	360	1100	1700	2700	4900	7200
5	1	Lb	74	88	270	427	674	1214	1776
		N	330	390	1200	1900	3000	5400	7900
6	1	Lb	81	97	292	450	742	1304	1933
		N	360	430	1300	2000	3300	5800	8600
7	1	Lb	85	103	292	472	787	1416	2068
		N	380	460	1300	2100	3500	6300	9200
8	1	Lb	92	108	315	517	832	1484	2181
		N	410	480	1400	2300	3700	6600	9700
9	1	Lb	97	115	337	540	877	1574	2248
		N	430	510	1500	2400	3900	7000	10000
10	1	Lb	101	119	360	562	922	1641	2473
		N	450	530	1600	2500	4100	7300	11000
15	1	Lb	121	142	427	674	225	1956	3147
		N	540	630	1900	3000	1000	8700	14000
16	1	Lb	124	146	427	697	281	2001	3147
		N	550	650	1900	3100	1250	8900	14000
20	1	Lb	137	162	472	764	281	2226	3147
		N	610	720	2100	3400	1250	9900	14000
25	1	Lb	144	178	495	832	281	2473	3147
		N	640	790	2200	3700	1250	11000	14000
28	1	Lb	144	187	495	877	281	2473	3147
		N	640	830	2200	3900	1250	11000	14000
30	1	Lb	144	193	495	877	225	2698	3147
		N	640	860	2200	3900	1000	12000	14000
35	1	Lb	144	207	495	877	281	2922	3147
		N	640	920	2200	3900	1250	13000	14000
40	2	Lb	144	218	495	877	281	2922	3147
		N	640	970	2200	3900	1250	13000	14000
45	2	Lb	144	225	495	877	225	3147	3147
		N	640	1000	2200	3900	1000	14000	14000
50	2	Lb	144	247	495	877	281	3147	3147
		N	640	1100	2200	3900	1250	14000	14000
60	2	Lb	144	247	495	877	281	3147	3147
		N	640	1100	2200	3900	1250	14000	14000
70	2	Lb	144	247	495	877	281	3147	3147
		N	640	1100	2200	3900	1250	14000	14000
80	2	Lb	144	247	495	877	281	3147	3147
		N	640	1100	2200	3900	1250	14000	14000
90	2	Lb	144	247	495	877	225	3147	3147
		N	640	1100	2200	3900	1000	14000	14000
100	2	Lb	144	247	495	877	225	3147	3147
		N	640	1100	2200	3900	1000	14000	14000

# AccuDrive Series LE GEARHEAD INERTIA

Ratio	Gear Stages	Motor Shaft Diameter	Size												
			LE50		LE70			LE90				LE120			
			≤ Ø 8mm	≤ Ø 14mm	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm
Inertia (at the input)	1	kgcm2	0.053	0.091	0.14	0.220	0.430	---	0.720	1.200	3.20	---	3.30	5.30	13.0
		lbinsec2	0.469	0.805	1.239	1.947	3.806	---	6.372	10.620	28.32	---	29.21	46.91	115.1
		kgcm2	0.041	0.079	0.095	0.170	0.380	---	0.490	0.950	3.00	---	2.00	4.10	12.0
		lbinsec2	0.363	0.699	0.841	1.505	3.363	---	4.337	8.408	26.55	---	17.70	36.29	106.2
		kgcm2	0.036	0.074	0.077	0.160	0.360	---	0.400	0.860	2.90	---	1.60	3.60	11.0
		lbinsec2	0.319	0.655	0.681	1.416	3.186	---	3.540	7.611	25.67	---	14.16	31.86	97.4
		kgcm2	0.034	0.072	0.068	0.150	0.360	---	0.360	0.820	2.80	---	1.30	3.30	11.0
		lbinsec2	0.301	0.637	0.602	1.328	3.186	---	3.186	7.257	24.78	---	11.51	29.21	97.4
		kgcm2	0.032	0.071	0.062	0.140	0.350	---	0.320	0.790	2.80	---	1.10	3.20	11.0
		lbinsec2	0.283	0.628	0.549	1.239	3.098	---	2.832	6.992	24.78	---	9.74	28.32	97.4
		kgcm2	0.031	0.07	0.059	0.140	0.350	---	0.310	0.770	2.80	---	1.00	3.10	11.0
		lbinsec2	0.274	0.620	0.522	1.239	3.098	---	2.744	6.815	24.78	---	8.85	27.44	97.4
		kgcm2	0.031	0.069	0.057	0.140	0.340	---	0.290	0.760	2.80	---	0.98	3.00	11.0
		lbinsec2	0.274	0.611	0.504	1.239	3.009	---	2.567	6.726	24.78	---	8.67	26.55	97.4
		kgcm2	0.03	0.069	0.056	0.140	0.340	---	0.290	0.750	2.80	---	0.98	3.00	11.0
		lbinsec2	0.266	0.611	0.496	1.239	3.009	---	2.567	6.638	24.78	---	8.67	26.55	97.4
		kgcm2	0.035	---	0.055	0.140	0.350	0.130	0.280	0.720	2.70	0.43	0.86	2.80	11.0
		lbinsec2	0.310	---	0.487	1.239	3.098	1.151	2.478	6.372	23.90	3.81	7.61	24.78	97.4
		kgcm2	0.038	---	0.057	0.140	0.360	0.150	0.300	0.740	2.80	0.48	0.92	2.90	11.0
		lbinsec2	0.336	---	0.504	1.239	3.186	1.328	2.655	6.549	24.78	4.25	8.14	26.67	97.4
kgcm2	0.034	---	0.054	0.130	0.350	0.130	0.280	0.720	2.70	0.40	0.83	2.80	11.0		
lbinsec2	0.301	---	0.478	1.151	3.098	1.151	2.478	6.372	23.90	3.54	7.35	24.78	97.4		
kgcm2	0.034	---	0.053	0.130	0.350	0.120	0.280	0.710	2.70	0.38	0.82	2.80	11.0		
lbinsec2	0.301	---	0.469	1.151	3.098	1.062	2.478	6.284	23.90	3.36	7.26	24.78	97.4		
kgcm2	0.038	---	0.055	0.140	0.360	0.140	0.290	0.730	2.70	0.44	0.88	2.80	11.0		
lbinsec2	0.336	---	0.487	1.239	3.186	1.239	2.567	6.461	23.90	3.89	7.79	24.78	97.4		
kgcm2	0.030	---	0.049	0.130	0.340	0.100	0.250	0.700	2.60	0.29	0.74	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.885	2.213	6.195	23.01	2.57	6.55	23.90	88.5		
kgcm2	0.034	---	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.81	2.70	11.0		
lbinsec2	0.301	---	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.17	23.90	97.4		
kgcm2	0.030	---	0.049	0.130	0.340	0.099	0.250	0.700	2.60	0.28	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.876	2.213	6.195	23.01	2.48	6.46	23.90	88.5		
kgcm2	0.034	---	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.80	2.70	11.0		
lbinsec2	0.301	---	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.08	23.90	97.4		
kgcm2	0.030	---	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5		
kgcm2	0.030	---	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5		
kgcm2	0.030	---	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.28	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.48	6.46	23.90	88.5		
kgcm2	0.030	---	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5		
kgcm2	0.030	---	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0		
lbinsec2	0.266	---	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5		

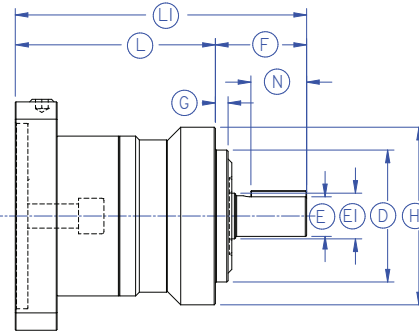
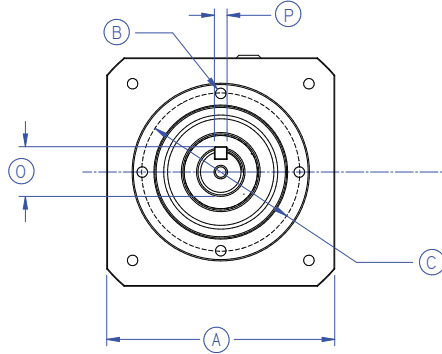
# AccuDrive Series LE

## GEARHEAD INERTIA

Ratio	Gear Stages	Motor Shaft Diameter	Size										
			LE155				LE205				LE235		
			≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm
Inertia (at the input)	1	kgcm2	---	12.00	20.0	42.0	---	44.0	66.0	130.00	---	90.0	150.0
		lbinsec2	---	106.20	177.0	371.7	---	389.4	584.1	1150.5	---	796.5	1327.5
		kgcm2	---	7.50	15.0	37.0	---	28.0	50.0	110.00	---	62.0	120.0
		lbinsec2	---	66.38	132.8	327.5	---	247.8	442.5	973.5	---	548.7	1062.0
		kgcm2	---	5.80	14.0	36.0	---	22.0	44.0	100.00	---	52.0	110.0
		lbinsec2	---	51.33	123.9	318.6	---	194.7	389.4	885.0	---	460.2	973.5
		kgcm2	---	4.90	13.0	35.0	---	18.0	41.0	100.00	---	47.0	110.0
		lbinsec2	---	43.37	115.1	309.8	---	159.3	362.9	885.0	---	416.0	973.5
		kgcm2	---	4.10	12.0	34.0	---	16.0	38.0	99.00	---	42.0	100.0
		lbinsec2	---	36.29	106.2	300.9	---	141.6	336.3	876.2	---	371.7	885.0
	kgcm2	---	3.80	12.0	34.0	---	15.0	37.0	97.00	---	40.0	100.0	
	lbinsec2	---	33.63	106.2	300.9	---	132.8	327.5	858.5	---	354.0	885.0	
	kgcm2	---	3.60	11.0	34.0	---	14.0	36.0	97.00	---	39.0	99.0	
	lbinsec2	---	31.86	97.4	300.9	---	123.9	318.6	858.5	---	345.2	876.2	
	kgcm2	---	3.50	11.0	34.0	---	14.0	36.0	96.00	---	38.0	98.0	
	lbinsec2	---	30.98	97.4	300.9	---	123.9	318.6	849.6	---	336.3	867.3	
	2	kgcm2	1.30	3.20	11.0	34.0	4.70	12.0	34.0	---	14.0	36.0	---
		lbinsec2	11.51	28.32	97.4	300.9	41.60	106.2	300.9	---	123.9	318.6	---
		kgcm2	1.50	3.50	11.0	35.0	5.40	13.0	35.0	---	16.0	37.0	---
		lbinsec2	13.28	30.98	97.4	309.8	47.79	115.1	309.8	---	141.6	327.5	---
kgcm2		1.20	3.10	11.0	34.0	4.40	12.0	34.0	---	14.0	35.0	---	
lbinsec2		10.62	27.44	97.4	300.9	38.94	106.2	300.9	---	123.9	309.8	---	
kgcm2		1.10	3.10	11.0	34.0	4.20	12.0	34.0	---	14.0	35.0	---	
lbinsec2		9.74	27.44	97.4	300.9	37.17	106.2	300.9	---	123.9	309.8	---	
kgcm2		1.40	3.30	11.0	35.0	4.90	13.0	35.0	---	15.0	36.0	---	
lbinsec2		12.39	29.21	97.4	309.8	43.37	115.1	309.8	---	132.8	318.6	---	
kgcm2		0.85	2.80	10.0	33.0	3.20	11.0	33.0	---	12.0	34.0	---	
lbinsec2		7.52	24.78	88.5	292.1	28.32	97.4	292.1	---	106.2	300.9	---	
kgcm2		1.10	3.10	11.0	34.0	4.10	12.0	34.0	---	13.0	35.0	---	
lbinsec2		9.74	27.44	97.4	300.9	36.29	106.2	300.9	---	115.1	309.8	---	
kgcm2		0.83	2.80	10.0	33.0	3.20	11.0	33.0	---	12.0	33.0	---	
lbinsec2		7.35	24.78	88.5	292.1	28.32	97.4	292.1	---	106.2	292.1	---	
kgcm2		1.10	3.00	11.0	34.0	4.00	12.0	34.0	---	13.0	35.0	---	
lbinsec2		9.74	26.55	97.4	300.9	35.40	106.2	300.9	---	115.1	309.8	---	
kgcm2		0.81	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---	
lbinsec2		7.17	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---	
kgcm2	0.81	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
lbinsec2	7.17	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
kgcm2	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
lbinsec2	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
kgcm2	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
lbinsec2	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
kgcm2	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
lbinsec2	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
kgcm2	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
lbinsec2	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		

# AccuDrive Series LE GEARHEAD DIMENSIONS

**Output View**



**Side View**

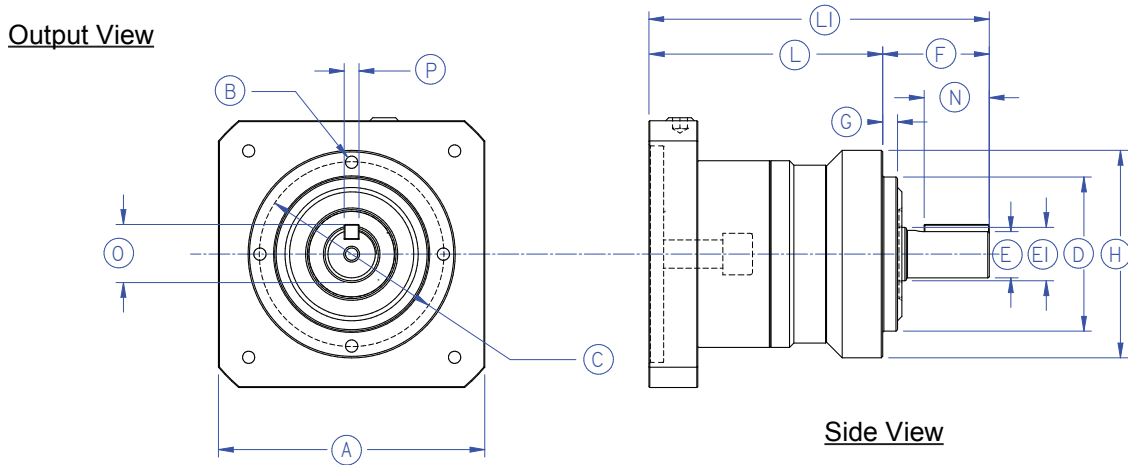
Unit Size	A		B	C		D		E		F		G		H	
	Input Flange Square			Mounting Hole Thread	Bolt Circle Diameter		Pilot Diameter		Shaft Diameter		Output Shaft Length from Flange		Pilot Depth		Housing Diameter
	Inch	mm	Inch		mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
LE50	1.654	42	M4 X 8	1.732	44	1.378	35	0.472	12	0.965	24.5	0.157	4	1.969	50
	2.362	60													
	2.559	65													
LE70	2.047	52	M5 X 8	2.441	62	2.047	52	0.630	16	1.417	36	0.197	5	2.756	70
	2.362	60													
	2.756	70													
	3.150	80													
	3.543	90													
	3.937	100													
LE90	2.047	52	M6 X 9	3.150	80	2.677	68	0.866	22	1.811	46	0.276	7	3.543	90
	2.362	60													
	2.756	70													
	3.150	80													
	3.543	90													
	3.937	100													
LE120	2.559	65	M8 X 16	4.252	108	3.543	90	1.260	32	2.677	68	0.354	9	4.724	120
	2.756	70													
	3.150	80													
	3.543	90													
	3.937	100													
	4.528	115													
	5.118	130													
	5.906	150													
	7.087	180													

Unit Size	Input Shaft Bore (mm)	L				L1		M		N		O		P	
		Body Length				Body Length		Distance from End of Shaft to Key	Keyway Length	Key & Shaft Height		Keyway Width			
		1 stage		2 stage		1 stage	2 stage								
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm		
LE50	≤ Ø 8	2.520	64	3.169	80.5	Gearhead length from motor plate to the end of the output shaft will vary depending on the motor selection. Please contact Cone Drive Engineering if length is critical to application to get exact gearhead length.	0.079	2	0.551	14	0.531	13.5	0.157	4	
	≤ Ø 14	2.638	67	--	--		0.000	0	0.866	22	0.709	18	0.197	5	
LE70	≤ Ø 8	2.992	76	3.740	95		0.000	0	1.102	28	0.965	24.5	0.236	6	
	≤ Ø 14	3.110	79	3.937	100										
	≤ Ø 19	3.701	94	--	--										
LE90	≤ Ø 8	--	--	4.488	114		0.000	0	1.772	45	1.378	35	0.394	10	
	≤ Ø 14	3.819	97	4.685	119										
	≤ Ø 19	4.213	107	5.079	129										
	≤ Ø 28	4.882	124	--	--										
LE120	≤ Ø 14	--	--	5.295	134.5		0.000	0	1.772	45	1.378	35	0.394	10	
	≤ Ø 19	4.606	117	5.689	144.5										
	≤ Ø 28	5.276	134	6.358	161.5										
	≤ Ø 38	6.102	155	--	--										

\*Length will vary depending on motor

# AccuDrive Series LE

## GEARHEAD DIMENSIONS



Unit Size	A		B	C		D		E		F		G		H		
	Input Flange Square			Mounting Hole Thread	Bolt Circle Diameter		Pilot Diameter		Shaft Diameter		Output Shaft Length from Flange		Pilot Depth		Housing Diameter	
	Inch	mm			Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
LE155	3.150	80	M10 X 20	5.512	140	4.724	120	1.575	40	3.819	97	0.472	12	6.102	155	
	3.543	90														
	3.937	100														
	4.528	115														
	5.118	130														
	5.906	150														
	7.087	180														
	7.874	200														
LE205	8.661	220	M12 X 22	7.244	184	6.299	160	2.165	55	3.937	100	0.591	15	8.071	205	
	3.937	100														
	4.528	115														
	5.118	130														
	5.906	150														
	7.087	180														
	7.874	200														
	8.661	220														
LE235	9.843	250	M16 X 28	8.268	210	7.087	180	2.953	75	4.961	126	0.709	18	9.252	235	
	11.024	280														
	5.118	130														
	5.906	150														
	7.087	180														
	7.874	200														
	8.661	220														
	9.843	250														
11.024	280															
12.598	320															

Unit Size	Input Shaft Bore (mm)	L				L1		M		N		O		P	
		Body Length				Body Length		Distance from End of Shaft to Key		Keyway Length		Key & Shaft Height		Keyway Width	
		1 stage		2 stage		1 stage	2 stage	Inch	mm	Inch	mm	Inch	mm	Inch	mm
		Inch	mm	Inch	mm	1 stage	2 stage								
LE155	≤ Ø 14	--	--	6.673	169.5	Gearhead length from motor plate to the end of the output shaft will vary depending on the motor selection. Please contact Cone Drive Engineering if length is critical to application to get exact gearhead length.	0.000	0	2.559	65	1.693	43	0.472	12	
	≤ Ø 19	5.984	152	7.343	186.5										
	≤ Ø 28	6.575	167	7.933	201.5										
	≤ Ø 38	8.189	208	--	--										
LE205	≤ Ø 28	--	--	8.504	216	0.000	0	2.559	65	2.323	59	0.630	16		
	≤ Ø 38	7.343	186.5	9.094	231										
	≤ Ø 48	8.760	222.5	10.512	267										
	≤ Ø 65	9.213	234	--	--										
LE235	≤ Ø 38	--	--	9.469	240.5	0.000	0	3.346	85	3.130	79.5	0.787	20		
	≤ Ø 48	9.508	241.5	10.886	276.5										
	≤ Ø 65	9.665	245.5	--	--										

\*Length will vary depending on motor

### Required Application Data

Motor Continuous Torque	$T_{cont}$
Motor Peak Torque	$T_{peak}$
Motor Rotor Inertia*	$J_{mot}$
Load Inertia*	$J_{load}$
Load Torque (non-dynamic Frictional and/or Gravity Load)	$T_{load}$
Reduction Ratio	<b>Ratio</b>

### Calculated Data

Load torque reflected to input:

$$T_{input} = T_{load} / (\text{Ratio} \times \text{eff.})$$

Load inertia referred to input shaft:

$$J_{ref} = J_{load} / \text{Ratio}^2$$

Eff: Ratios  $\leq$  10:1 = .95  
Ratios  $>$  10:1 = .90

#### data example:

$$T_{cont} = 10.9 \text{ Nm} \quad T_{peak} = 45.7 \text{ Nm} \quad J_{mot} = 1.0$$

$$J_{load} = 10 \quad T_{load} = 15 \text{ Nm} \quad \text{Ratio} = 3$$

\*Any unit can be used for inertia as long as it is used consistently.

### for Cyclical Applications Using Motor Peak Torque

Step one

Calculate the inertia parameter:  $J_{par}$

formula & applied calculation example:

$$J_{par} = J_{mot} / (J_{ref} + J_{mot})$$

Step Two

Calculate the total gearhead required

Output torque:  $T_{output}$

$$J_{ref} = 10 / 3^2 = 1.11$$

$$J_{par} = 1 / (1.11 + 1) = .474$$

Step Three

Calculate service factor: **Sf**

$$T_{output} = ((T_{peak} - T_{input}) \times (1 - J_{par}) + T_{input}) \times \text{Ratio} \times \text{Eff.}$$

Select reducer size and related output torque

$T_{2N}$  from table on page 7. For most applications the calculated service factor should be greater than 1.0.

$$Sf = T_{2N} / T_{output}$$

$$\text{L090 } T_{2N} = 80 \text{ Nm}$$

$$Sf = 80 / 76.2 = 1.05$$

### for Continuous Applications Using Motor Continuous Torque

Calculate service factor : **Sf**

formula & applied calculation example:

Select reducer size and related output torque

$T_{2N}$  from table on page 7. For most applications the calculated service factor should be greater than 1.0.

$$Sf = T_{2N} / (T_{cont} \times \text{Ratio} \times \text{Eff.})$$

$$\text{L090 } T_{2N} = 50 \text{ Nm}$$

$$Sf = 50 / (10.9 \times 3 \times .95) = 1.61$$



# Notes

# Series P

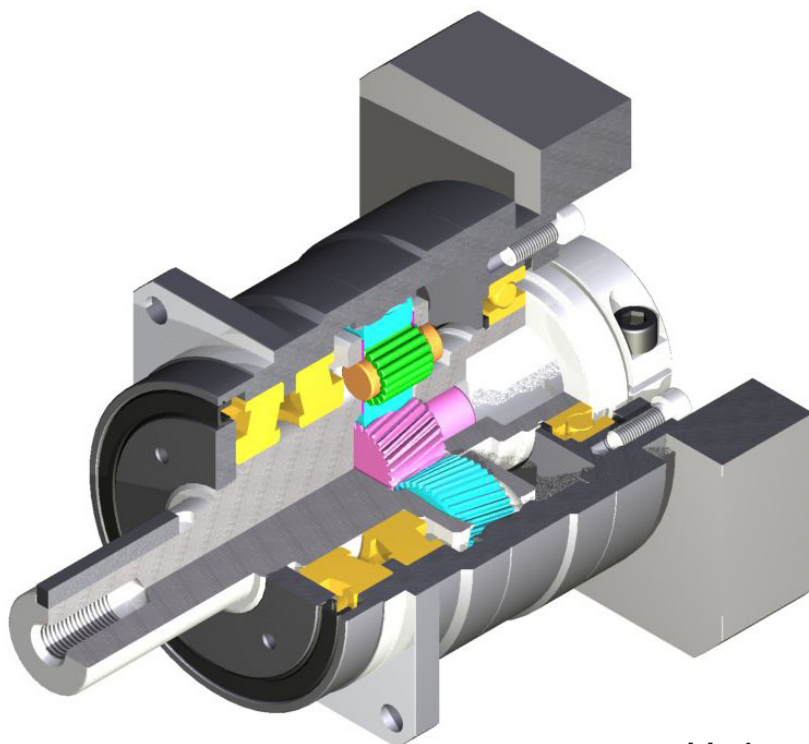
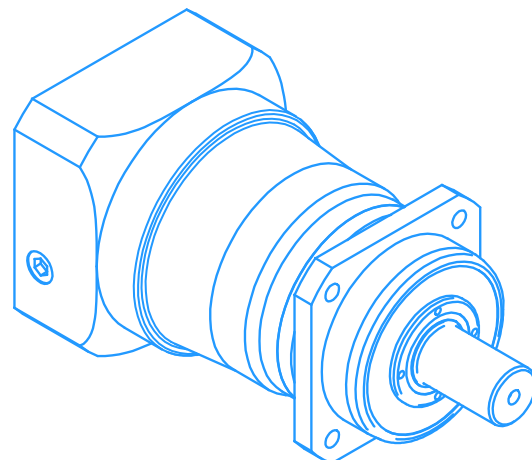
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## N Type



## Design Features

- Case hardened and ground gearing for consistent very low backlash, high load capacity offering the highest levels of precision and lowest noise levels.
- Case hardened steel ring gear integral with housing for highest quality and load capacity.
- Output shaft supported by large tapered roller bearings for higher radial load capacity.



### Universal Housing

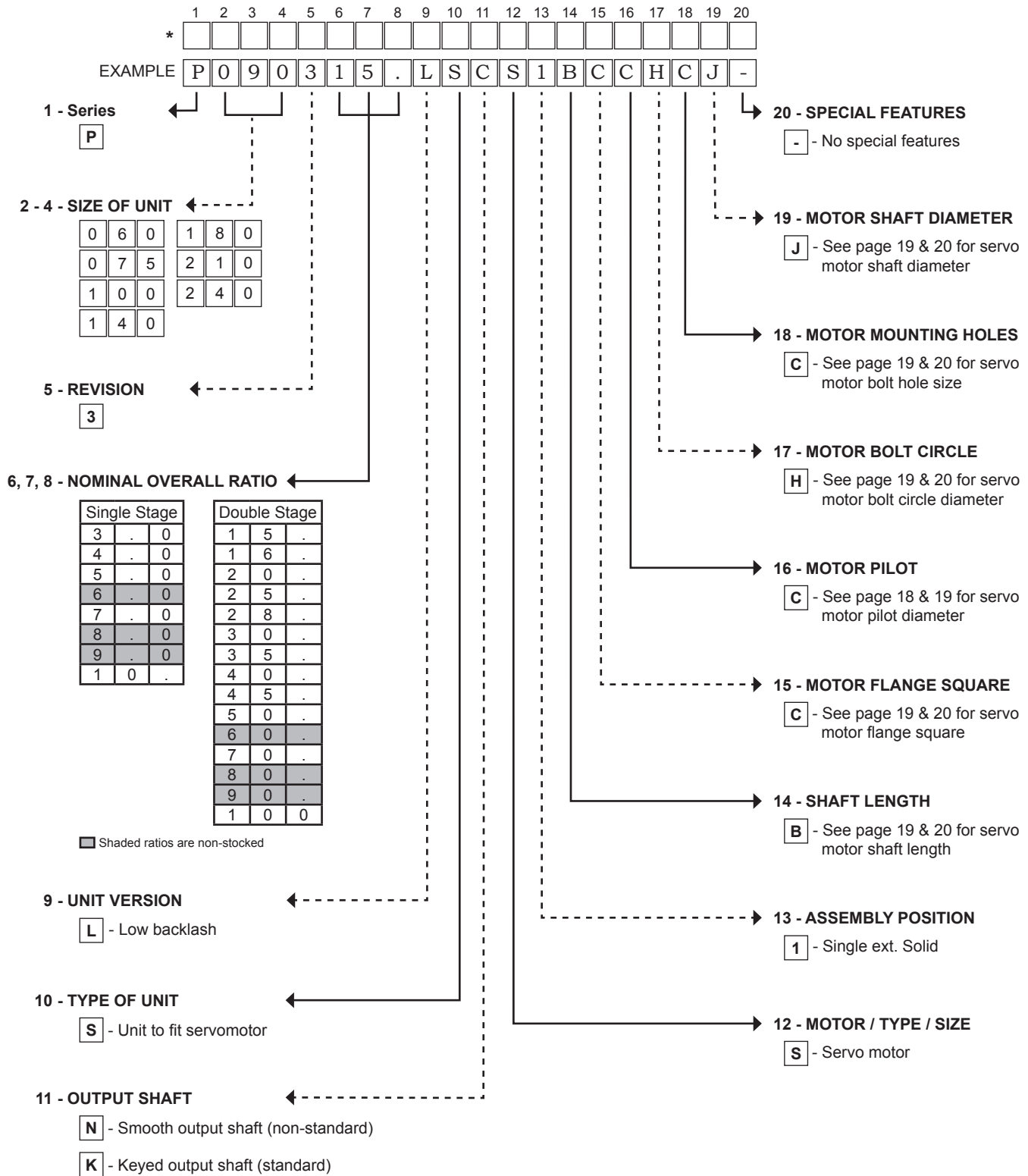
- Mount in any position
- Filled with synthetic grease
- IP55 rated

### Performance

Lifetime up to 20,000 hours  
Backlash  $\leq 3$  arcminutes  
5 Year Warranty

# AccuDrive Series P

## Series P Unit Designations of N Type



Cone Drive reserves the right to improve or change product design and specifications without notice.



# AccuDrive Series P

## Motor Mounting codes

P180 SELECTIONS																																							
COLUMN 14 ENTRY		SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																					
		100 / 115				130				150				180 / 200 / 220				130 / 150				180				200				220				250				180 / 200 / 220 / 250 / 280	
		MOTOR FLANGE SQ.																																					
		MOTOR SHAFT Ø																																					
		MOTOR SHAFT LENGTH RANGE																																					
		COLUMN 14 ENTRY																																					
		MOTOR FLANGE SQ.																																					
		MOTOR SHAFT Ø																																					
		MOTOR SHAFT LENGTH RANGE																																					
		COLUMN 14 ENTRY																																					
COLUMN 15 ENTRY		FLANGE SQUARE																																					
COLUMN 16 ENTRY		PILOT DIAMETER																																					
COLUMN 17 ENTRY		BOLT CIRCLE																																					
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																																					
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																																					

P210 SELECTIONS																																			
COLUMN 14 ENTRY		SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																	
		130 / 150				180				200				220				250				180 / 200 / 220 / 250 / 280				220				250 / 280				320	
		MOTOR FLANGE SQ.																																	
		MOTOR SHAFT Ø																																	
		MOTOR SHAFT LENGTH RANGE																																	
		COLUMN 14 ENTRY																																	
COLUMN 15 ENTRY		FLANGE SQUARE																																	
COLUMN 16 ENTRY		PILOT DIAMETER																																	
COLUMN 17 ENTRY		BOLT CIRCLE																																	
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																																	
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																																	
COLUMN 15 ENTRY		FLANGE SQUARE																																	
COLUMN 16 ENTRY		PILOT DIAMETER																																	
COLUMN 17 ENTRY		BOLT CIRCLE																																	
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																																	
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																																	

P240 SELECTIONS																											
COLUMN 14 ENTRY		SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																									
		180 / 200 / 220 / 250 / 280				220				250 / 280				320													
		MOTOR FLANGE SQ.																									
		MOTOR SHAFT Ø																									
		MOTOR SHAFT LENGTH RANGE																									
		COLUMN 14 ENTRY																									
COLUMN 15 ENTRY		FLANGE SQUARE																									
COLUMN 16 ENTRY		PILOT DIAMETER																									
COLUMN 17 ENTRY		BOLT CIRCLE																									
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																									
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																									
COLUMN 15 ENTRY		FLANGE SQUARE																									
COLUMN 16 ENTRY		PILOT DIAMETER																									
COLUMN 17 ENTRY		BOLT CIRCLE																									
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																									
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																									

1. Use the tables on this page to determine Columns 14-19 of your 20 digit order code.
2. First, choose the appropriate table for the Series P unit size you have selected: P060, P090, P115, P140, P180, P220 and P240.
3. Then select the appropriate codes for Columns 14-19 by matching the dimensions on your servo motor flange to the codes listed in the respective table.
4. If you need assistance, please contact Cone Drive customer service at 888-994-2663.

# AccuDrive Series P

## Output Torque of N type

Ratios	Gear Stages	Units	Output Torque by Gearhead Size													
			P060		P075		P100		P140		P180		P210		P240	
			T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>
3	1	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500
4		lb.In.	239	443	664	1106	1062	2921	2124	6195	6638	12390	13275	20355	21240	32745
		Nm	27	50	75	125	120	330	240	700	750	1400	1500	2300	2400	3700
5		lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745
		Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700
6		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355	21240	32745
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300	2400	3700
7		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355	21240	32745
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300	2400	3700
8		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355	21240	32745
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300	2400	3700
9		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500
10		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500
15		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500
16	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
20	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
25	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
28	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
30	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500	
35	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
40	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
45	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500	
50	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
60	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
70	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
80	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	21240	32745	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	2400	3700	
90	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500	
100	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	14160	22125	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	1600	2500	

T<sub>2N</sub> - At nominal input speed, service life is 20,000 hours.

T<sub>MAX</sub> - The maximum torque when starting or stopping.

Series P Planetary Servo Gearhead Technical Data N Type

			Size						
			P060	P075	P100	P140	P180	P210	P240
Emergency Stop (permitted 1000x)			2 x T <sub>2N</sub>						
Average Lifetime <sup>(1)</sup>	hours		20,000						
Backlash	arcmin.	1-stage	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
	arcmin.	2-stage	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Torsional Stiffness (per arcminute)	lb.in/min	1-stage	27	89	274	531	1549	3540	4868
	(Nm/min.)	1-stage	3	10	31	60	175	400	550
	lb.in/min	2-stage	27	89	274	531	1549	3540	4868
	(Nm/min.)	2-stage	3	10	31	60	175	400	550
Running Noise	dB(A)		≤ 66	≤ 67	≤ 71	≤ 67	≤ 67	≤ 61	≤ 62
Continuous Input Speed <sup>(2)</sup>	min. <sup>-1</sup>		3000	3000	3000	2000	1500	1000	1000
Max. Mechanical Input Speed <sup>(3)</sup>	min. <sup>-1</sup>		6000	6000	6000	4000	3000	2000	2000
Gearhead Weight <sup>(4)</sup>	lbs.	1-stage	3.5	7.5	17.8	37	86	130	187
	kg	1-stage	1.6	3.4	8.1	17	39	59	85
	lbs.	2-stage	4.0	8.4	19.4	42	86	132	196
	kg	2-stage	1.8	3.8	8.8	19	39	60	89
Operating Temperature	°F		-13 to +212						
	°C		-25 to +100						
Degree of Protection			IP 55						
Lubrication			Lifetime grease lubrication						
Mounting Position			any						

\*1) At nominal input speed, service life is 20,000 hours.

\*2) The maximum average input speed.

\*3) The maximum intermittent input speed.

\*4) The weight may vary slightly between models.

Conversion Table :

Metric	Inch
1 mm	0.0394 in.
1 N	0.225 lb.
1 kg	2.205 lb.
1 Nm	8.85 lb.in
1 kgcm2	8.85 x 10 <sup>-4</sup> lb.in s2



# AccuDrive Series P

## Radial and Axial Load Ratings

### Permitted Radial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Gearhead Size						
			P060	P075	P100	P140	P180	P210	P240
3	1	Lb	382	517	764	1506	2698	3822	4721
		N	1700	2300	3400	6700	12000	17000	21000
4	1	Lb	427	562	832	1664	2922	4046	4946
		N	1900	2500	3700	7400	13000	18000	22000
5	1	Lb	450	607	899	1776	3147	4496	5395
		N	2000	2700	4000	7900	14000	20000	24000
6	1	Lb	472	629	944	1866	3372	4721	5620
		N	2100	2800	4200	8300	15000	21000	25000
7	1	Lb	495	674	989	1956	3597	4946	5845
		N	2200	3000	4400	8700	16000	22000	26000
8	1	Lb	517	697	1034	2046	3822	5170	6294
		N	2300	3100	4600	9100	17000	23000	28000
9	1	Lb	540	719	1079	2113	3822	5395	6519
		N	2400	3200	4800	9400	17000	24000	29000
10	1	Lb	540	742	1102	2181	4046	5395	6519
		N	2400	3300	4900	9700	18000	24000	29000
15	1	Lb	629	832	1259	2248	4271	5395	6744
		N	2800	3700	5600	10000	19000	24000	30000
16	1	Lb	629	854	1281	2248	4271	5395	6744
		N	2800	3800	5700	10000	19000	24000	30000
20	1	Lb	674	899	1371	2248	4271	5395	6744
		N	3000	4000	6100	10000	19000	24000	30000
25	1	Lb	674	967	1461	2248	4271	5395	6744
		N	3000	4300	6500	10000	19000	24000	30000
28	1	Lb	674	967	1506	2248	4271	5395	6744
		N	3000	4300	6700	10000	19000	24000	30000
30	1	Lb	674	967	1551	2248	4271	5395	6744
		N	3000	4300	6900	10000	19000	24000	30000
35	1	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
40	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
45	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
50	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
60	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
70	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
80	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
90	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000
100	2	Lb	674	967	1574	2248	4271	5395	6744
		N	3000	4300	7000	10000	19000	24000	30000

### Permitted Axial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Gearhead Size						
			P060	P075	P100	P140	P180	P210	P240
3	1	Lb	517	764	1079	2023	3597	4946	6070
		N	2300	3400	4800	9000	16000	22000	27000
4	1	Lb	562	832	1169	2023	3822	4946	6070
		N	2500	3700	5200	9000	17000	22000	27000
5	1	Lb	607	877	1259	2023	3822	4946	6070
		N	2700	3900	5600	9000	17000	22000	27000
6	1	Lb	607	877	1326	2023	3822	4946	6070
		N	2700	3900	5900	9000	17000	22000	27000
7	1	Lb	607	877	1371	2023	3822	4946	6070
		N	2700	3900	6100	9000	17000	22000	27000
8	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
9	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
10	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
15	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
16	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
20	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
25	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
28	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
30	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
35	1	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
40	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
45	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
50	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
60	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
70	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
80	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
90	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000
100	2	Lb	607	877	1416	2023	3822	4946	6070
		N	2700	3900	6300	9000	17000	22000	27000

# AccuDrive Series P

## Moment of Inertia

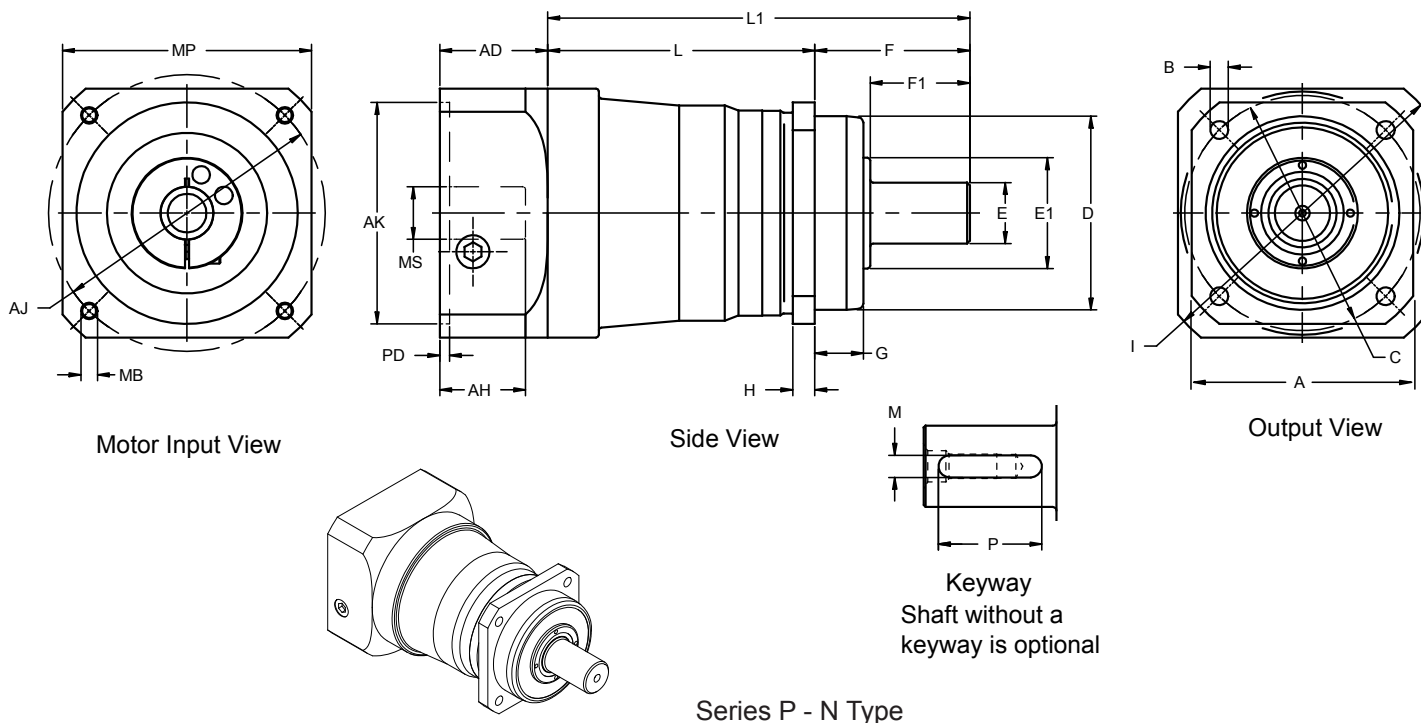
Ratios	Gear Stages	Units	Size															
			P060			P075				P100				P140				
Motor	Shaft	Diameter	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	
3	1	kgcm <sup>2</sup>	0.14	0.220	0.430	---	0.670	1.100	3.20	---	3.20	5.30	13.0	---	12.00	20.0	42.0	
		lbinsec <sup>2</sup>	1.239	1.947	3.806	---	5.930	9.735	28.32	---	28.32	46.91	115.1	---	106.20	177.0	371.7	
4	1	kgcm <sup>2</sup>	0.095	0.170	0.380	---	0.470	0.930	3.00	---	2.00	4.10	12.0	---	7.40	15.0	37.0	
		lbinsec <sup>2</sup>	0.841	1.505	3.363	---	4.160	8.231	26.55	---	17.70	36.29	106.2	---	65.49	132.8	327.5	
5	1	kgcm <sup>2</sup>	0.077	0.160	0.360	---	0.380	0.850	2.90	---	1.50	3.60	11.0	---	5.80	14.0	36.0	
		lbinsec <sup>2</sup>	0.681	1.416	3.186	---	3.363	7.523	25.67	---	13.28	31.86	97.4	---	51.33	123.9	318.6	
6	1	kgcm <sup>2</sup>	0.068	0.150	0.360	---	0.340	0.810	2.80	---	1.30	3.30	11.0	---	4.90	13.0	35.0	
		lbinsec <sup>2</sup>	0.602	1.328	3.186	---	3.009	7.169	24.78	---	11.51	29.21	97.4	---	43.37	115.1	309.8	
7	1	kgcm <sup>2</sup>	0.062	0.140	0.350	---	0.310	0.780	2.80	---	1.10	3.20	11.0	---	4.10	12.0	34.0	
		lbinsec <sup>2</sup>	0.549	1.239	3.098	---	2.744	6.903	24.78	---	9.74	28.32	97.4	---	36.29	106.2	300.9	
8	1	kgcm <sup>2</sup>	0.059	0.140	0.350	---	0.300	0.780	2.80	---	1.00	3.10	11.0	---	3.80	12.0	34.0	
		lbinsec <sup>2</sup>	0.522	1.239	3.098	---	2.655	6.903	24.78	---	8.85	27.44	97.4	---	33.63	106.2	300.9	
9	1	kgcm <sup>2</sup>	0.057	0.140	0.340	---	0.290	0.750	2.80	---	0.96	3.00	11.0	---	3.60	11.0	34.0	
		lbinsec <sup>2</sup>	0.504	1.239	3.009	---	2.567	6.638	24.78	---	8.50	26.55	97.4	---	31.86	97.4	300.9	
10	1	kgcm <sup>2</sup>	0.056	0.140	0.340	---	0.290	0.750	2.80	---	0.93	3.00	11.0	---	3.40	11.0	33.0	
		lbinsec <sup>2</sup>	0.496	1.239	3.009	---	2.567	6.638	24.78	---	8.23	26.55	97.4	---	30.09	97.4	292.1	
15	2	kgcm <sup>2</sup>	0.055	0.140	0.350	0.130	0.280	0.720	2.70	0.42	0.86	2.80	11.0	1.30	3.20	11.0	34.0	
		lbinsec <sup>2</sup>	0.487	1.239	3.098	1.151	2.478	6.372	23.90	3.72	7.61	24.78	97.4	11.51	28.32	97.4	300.9	
16	2	kgcm <sup>2</sup>	0.057	0.140	0.360	0.150	0.300	0.740	2.80	0.48	0.92	2.90	11.0	1.50	3.50	11.0	35.0	
		lbinsec <sup>2</sup>	0.504	1.239	3.186	1.328	2.655	6.549	24.78	4.25	8.14	25.67	97.4	13.28	30.98	97.4	309.8	
20	2	kgcm <sup>2</sup>	0.054	0.130	0.350	0.130	0.280	0.720	2.70	0.40	0.83	2.80	11.0	1.20	3.10	11.0	34.0	
		lbinsec <sup>2</sup>	0.478	1.151	3.098	1.151	2.478	6.372	23.90	3.54	7.35	24.78	97.4	10.62	27.44	97.4	300.9	
25	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.280	0.710	2.70	0.38	0.82	2.80	11.0	1.10	3.10	11.0	34.0	
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.478	6.284	23.90	3.36	7.26	24.78	97.4	9.74	27.44	97.4	300.9	
28	2	kgcm <sup>2</sup>	0.055	0.140	0.360	0.140	0.290	0.730	2.70	0.44	0.88	2.80	11.0	1.40	3.30	11.0	35.0	
		lbinsec <sup>2</sup>	0.487	1.239	3.186	1.239	2.567	6.461	23.90	3.89	7.79	24.78	97.4	12.39	29.21	97.4	309.8	
30	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.100	0.250	0.700	2.60	0.29	0.74	2.70	10.0	0.85	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.885	2.213	6.195	23.01	2.57	6.55	23.90	88.5	7.52	24.78	88.5	292.1	
35	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.81	2.70	11.0	1.10	3.10	11.0	34.0	
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.17	23.90	97.4	9.74	27.44	97.4	300.9	
40	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.099	0.250	0.700	2.60	0.28	0.73	2.70	10.0	0.83	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.876	2.213	6.195	23.01	2.48	6.46	23.90	88.5	7.35	24.78	88.5	292.1	
45	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.80	2.70	11.0	1.10	3.00	11.0	34.0	
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.08	23.90	97.4	9.74	26.55	97.4	300.9	
50	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0	0.81	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5	7.17	24.78	88.5	292.1	
60	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0	0.81	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5	7.17	24.78	88.5	292.1	
70	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.28	0.73	2.70	10.0	0.80	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.48	6.46	23.90	88.5	7.08	24.78	88.5	292.1	
80	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.28	0.73	2.70	10.0	0.80	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.48	6.46	23.90	88.5	7.08	24.78	88.5	292.1	
90	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0	0.80	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5	7.08	24.78	88.5	292.1	
100	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0	0.80	2.80	10.0	33.0	
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5	7.08	24.78	88.5	292.1	

# AccuDrive Series P

## Moment of Inertia

	Ratios	Gear Stages	Units	Size								
				P180				P210			P240	
				Motor	Shaft Diameter	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm
INERTIA (at the input)	3	1	kgcm <sup>2</sup>	---	42.0	64.0	120.0	---	92.0	150.0	---	220.0
			lbinsec <sup>2</sup>	---	371.7	566.4	1062.0	---	814.2	1327.5	---	1947.0
	4	1	kgcm <sup>2</sup>	---	27.0	49.0	110.0	---	63.0	120.0	---	160.0
			lbinsec <sup>2</sup>	---	239.0	433.7	973.5	---	557.6	1062.0	---	1416.0
	5	1	kgcm <sup>2</sup>	---	21.0	43.0	100.0	---	53.0	110.0	---	130.0
			lbinsec <sup>2</sup>	---	185.9	380.6	885.0	---	469.1	973.5	---	1150.5
	6	1	kgcm <sup>2</sup>	---	18.0	40.0	100.0	---	47.0	110.0	---	120.0
			lbinsec <sup>2</sup>	---	159.3	354.0	885.0	---	416.0	973.5	---	1062.0
	7	1	kgcm <sup>2</sup>	---	16.0	38.0	99.0	---	43.0	100.0	---	110.0
			lbinsec <sup>2</sup>	---	141.6	336.3	876.2	---	380.6	885.0	---	973.5
	8	1	kgcm <sup>2</sup>	---	15.0	37.0	97.0	---	40.0	100.0	---	110.0
			lbinsec <sup>2</sup>	---	132.8	327.5	858.5	---	354.0	885.0	---	973.5
	9	1	kgcm <sup>2</sup>	---	14.0	36.0	97.0	---	39.0	99.0	---	110.0
			lbinsec <sup>2</sup>	---	123.9	318.6	858.5	---	345.2	876.2	---	973.5
	10	1	kgcm <sup>2</sup>	---	14.0	36.0	96.0	---	38.0	98.0	---	100.0
			lbinsec <sup>2</sup>	---	123.9	318.6	849.6	---	336.3	867.3	---	885.0
	15	2	kgcm <sup>2</sup>	4.70	12.0	34.0	---	14.0	36.0	---	40.0	---
			lbinsec <sup>2</sup>	41.60	106.2	300.9	---	123.9	318.6	---	354.0	---
	16	2	kgcm <sup>2</sup>	5.40	13.0	35.0	---	16.0	37.0	---	43.0	---
			lbinsec <sup>2</sup>	47.79	115.1	309.8	---	141.6	327.5	---	380.6	---
	20	2	kgcm <sup>2</sup>	4.40	12.0	34.0	---	14.0	35.0	---	39.0	---
			lbinsec <sup>2</sup>	38.94	106.2	300.9	---	123.9	309.8	---	345.2	---
	25	2	kgcm <sup>2</sup>	4.20	12.0	34.0	---	14.0	35.0	---	39.0	---
			lbinsec <sup>2</sup>	37.17	106.2	300.9	---	123.9	309.8	---	345.2	---
	28	2	kgcm <sup>2</sup>	4.90	13.0	35.0	---	15.0	36.0	---	41.0	---
			lbinsec <sup>2</sup>	43.37	115.1	309.8	---	132.8	318.6	---	362.9	---
	30	2	kgcm <sup>2</sup>	3.20	11.0	33.0	---	12.0	34.0	---	35.0	---
			lbinsec <sup>2</sup>	28.32	97.4	292.1	---	106.2	300.9	---	309.8	---
35	2	kgcm <sup>2</sup>	4.10	12.0	34.0	---	13.0	35.0	---	38.0	---	
		lbinsec <sup>2</sup>	36.29	106.2	300.9	---	115.1	309.8	---	336.3	---	
40	2	kgcm <sup>2</sup>	3.20	11.0	33.0	---	12.0	33.0	---	35.0	---	
		lbinsec <sup>2</sup>	28.32	97.4	292.1	---	106.2	292.1	---	309.8	---	
45	2	kgcm <sup>2</sup>	4.00	12.0	34.0	---	13.0	35.0	---	35.0	---	
		lbinsec <sup>2</sup>	35.40	106.2	300.9	---	115.1	309.8	---	309.8	---	
50	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	
60	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	
70	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	
80	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	
90	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	
100	2	kgcm <sup>2</sup>	3.10	11.0	33.0	---	12.0	33.0	---	34.0	---	
		lbinsec <sup>2</sup>	27.44	97.4	292.1	---	106.2	292.1	---	300.9	---	

Series P Planetary Servo Gearhead Technical Data of N Type



Series P - N Type

Unit Size	A		B		C		D		E		F		F1	
	Flange Square		Bolt Hole		Bolt Circle Dia.		Pilot Dia. g6		Shaft Dia. j6		Output Shaft Flange from Housing		Length from Shoulder	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
P060	2.362	60	0.217	5.5	2.677	68	2.362	60	0.630	16	1.890	48	1.102	28
P075	2.953	75	0.26	6.6	3.346	85	2.756	70	0.866	22	2.205	56	1.417	36
P100	3.937	100	0.354	9	4.724	120	3.543	90	1.260	32	3.465	88	2.283	58
P140	5.512	140	0.433	11	6.496	165	5.118	130	1.575	40	4.409	112	3.228	82
P180	7.087	180	0.531	13.5	8.465	215	6.299	160	2.165	55	4.409	112	3.228	82
P210	8.268	210	0.669	17	9.843	250	7.087	180	2.953	75	5.630	143	4.134	105
P240	9.449	240	0.669	17	11.417	290	7.874	200	3.346	85	6.693	170	5.118	130

Unit Size	G		H		I		L		L		L1		L1	
	Pilot Depth		Flange Thickness		Flange Diameter		Body Length Ratio ≤ 10		Body Length Ratio > 10		Overall Length Ratio ≤ 10		Overall Length Ratio > 10	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
P060	0.197	5	0.236	6	3.150	80	3.031	77	3.622	92	4.921	125	5.512	140
P075	0.236	6	0.276	7	3.858	98	3.976	101	4.567	116	6.181	157	6.772	172
P100	0.315	8	0.394	10	5.354	136	4.685	119	5.315	135	8.150	207	8.780	223
P140	0.394	10	0.472	12	7.283	185	5.630	143	6.575	167	10.039	255	10.984	279
P180	0.472	12	0.591	15	9.449	240	6.732	171	8.228	209	11.142	283	12.638	321
P210	0.591	15	0.669	17	11.417	290	7.677	195	9.094	231	13.307	338	14.724	374
P240	0.787	20	0.787	20	12.795	325	8.504	216	10.669	271	15.197	386	17.362	441

Unit Size	AD	AK	PD	AJ	MP	MB	MS	Permissible Motor Shaft Dia.		Keyed Output			
	Adapter							Unit Size	Min. mm	Max. mm	Width Height Length		
	Length mm	Motor Pilot Dia	Pilot Depth	Bolt Circle Dia	Motor Square	Bolt Hole	Shaft Diameter				M mm	N mm	P mm
P060								P060	8	19	5	5	22
P075								P075	8	28	6	6	28
P100								P100	14	38	10	8	45
P140								P140	19	48	12	8	65
P180								P190	28	65	16	10	65
P210								P210	38	65	20	12	85
P240								P240	48	65	22	14	105

\*Motor Plate Dimensions are made to fit your servo motor.

Cone Drive reserves the right to improve or change product design and specifications without notice.

# Notes

# Series P

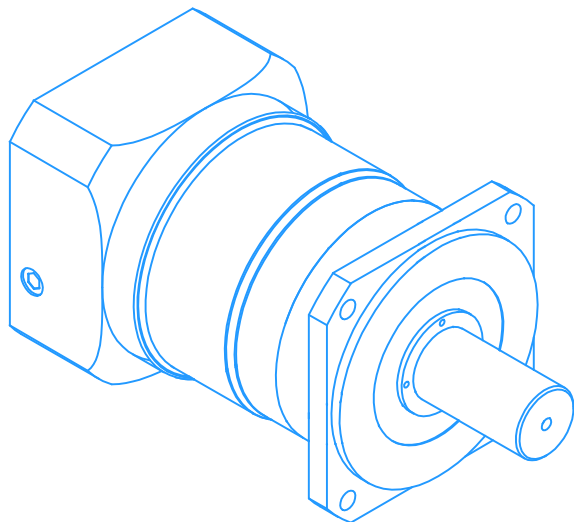
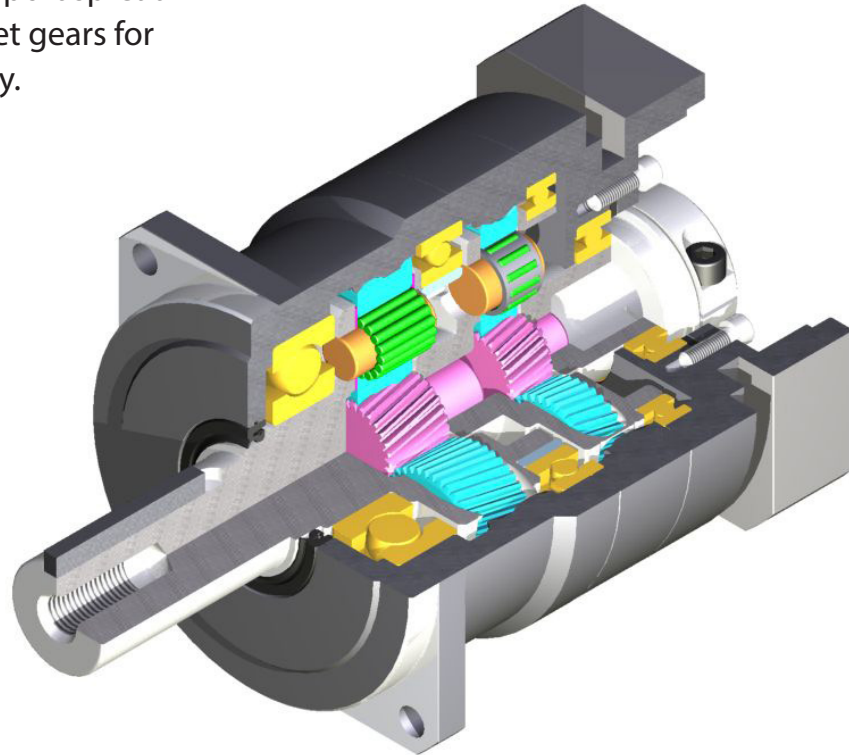
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## S Type



## Design Features

- Case hardened and ground gearing for consistent very low backlash, high load capacity offering the highest levels of precision and lowest noise levels.
- Case hardened steel ring gear integral with housing for highest quality and load capacity.
- Output shaft bearing support spread on both sides of the planet gears for higher radial load capacity.



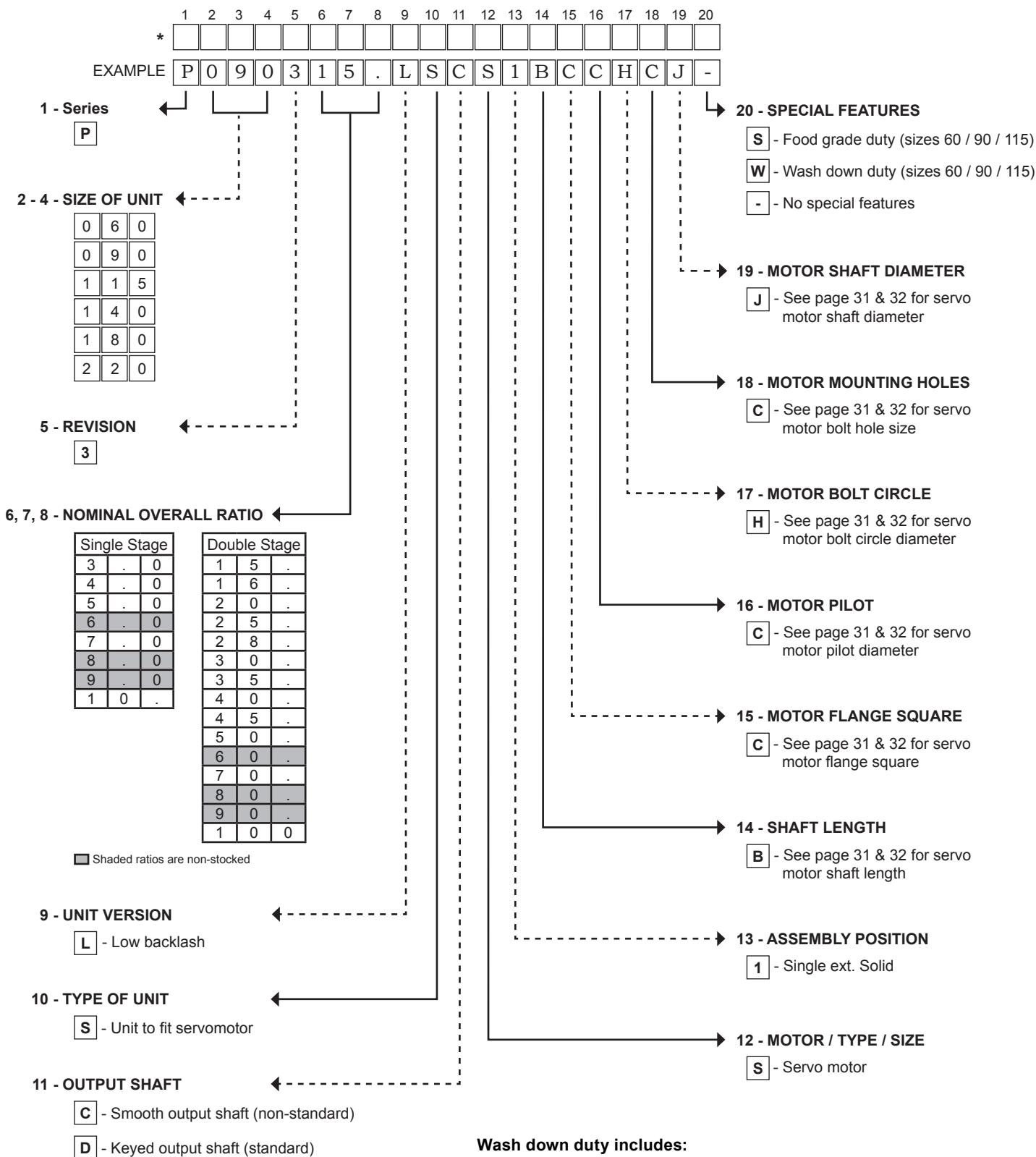
### Universal Housing

- Mount in any position
- Filled with synthetic grease
- IP55 rated (IP65 option available)

### Performance

Lifetime up to 20,000 hours  
Backlash  $\leq 3$  arcminutes  
5 Year Warranty

Series P Unit Designations of S Type



**Wash down duty includes:**

IP65 Ratings / Stainless output shaft and fasteners / Sealed bearing at the input / 2-part epoxy sealant

**Food grade duty includes:**

IP65 Ratings / Stainless output shaft and fasteners / Sealed bearing at the input / 2-part epoxy sealant / White epoxy paint

Wash down and food grade are standard options for sizes 60 / 90 / 115 and as a special for sizes 140 / 180 / 220.

Cone Drive reserves the right to improve or change product design and specifications without notice.



# AccuDrive Series P

## Motor Mounting codes of S type

P060 SELECTIONS																					
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																				
	MOTOR FLANGE SQ.	52 / 60 / 70				65 / 80 / 90				70				100 / 115				80 / 90 / 100			
	MOTOR SHAFT Ø	≤ Ø 8 mm				≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm							
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX				
COLUMN 14 ENTRY	18	35	20	43	20	38	20	33	24	58											
		C		B		E		F		G											
FLANGE SQUARE																					
COLUMN 15 ENTRY	52	60	65	70	80	90	100	115													
	G	P	L	A	B	C	D	E													
PILOT DIAMETER																					
COLUMN 16 ENTRY	22	30	36	38.1	40	50	54	55.563	60	70	73.025	80	95	100	110	114.3	115				
	N	T	P	A	B	C	Q	R	D	E	F	G	H	U	J	K	V				
BOLT CIRCLE																					
COLUMN 17 ENTRY	43.82	46	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	165			
	B	V	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	P			
BOLT HOLE DIAMETER IN MOTOR FLANGE																					
COLUMN 18 ENTRY	3.4 - 4.4	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	#6 - 32	#8 - 32	3/8 - 16	M3	M6	M8									
	J	A	B	C	D	E	K	L	M	P	Q	R									
MOTOR SHAFT DIAMETER																					
COLUMN 19 ENTRY	Single Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19				
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L				
	Double Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19				
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L				

P090 SELECTIONS																																	
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																
	MOTOR FLANGE SQ.	52 / 60 / 70				65 / 70 / 80 / 90 / 100				115 / 150				80 / 90 / 100 / 115				130 / 150				100 / 115				130				150			
	MOTOR SHAFT Ø	≤ Ø 8 mm				≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm				≤ Ø 28 mm				≤ Ø 28 mm											
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX						
COLUMN 14 ENTRY	18	35	20	43	20	48	24	58	24	63	27	65	27	80	32	85	27	80	32	85	32	85											
		C		H		J		L		M		P		R		S																	
FLANGE SQUARE																																	
COLUMN 15 ENTRY	52	60	65	70	80	90	100	115	130	150																							
	G	P	L	A	B	C	D	E	J	K																							
PILOT DIAMETER																																	
COLUMN 16 ENTRY	22	30	36	38.1	40	50	54	55.563	60	63.5	70	73.025	80	95	100	110	114.3	115	130	180	200												
	N	T	P	A	B	C	Q	R	D	S	E	F	G	H	U	J	K	V	L	M	W												
BOLT CIRCLE																																	
COLUMN 17 ENTRY	43.82	46	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	149.23	165	200	215												
	B	V	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	W	P	Q	R												
BOLT HOLE DIAMETER IN MOTOR FLANGE																																	
COLUMN 18 ENTRY	3.4 - 4.4	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	12.5 - 15	#6 - 32	#8 - 32	3/8 - 16	M3	M6	M8																				
	J	A	B	C	D	E	F	K	L	M	P	Q	R																				
MOTOR SHAFT DIAMETER																																	
COLUMN 19 ENTRY	Single Reduction	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28															
	C	D	E	F	G	H	J	K	L	M	N	O	P	3	N	4	P																
	Double Reduction	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28										
	Y	Z	A	7	B	C	D	E	F	G	H	J	K	8	K	9	L	2	M	3	N	4	P										

P115 SELECTIONS																																									
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																								
	MOTOR FLANGE SQ.	65 / 70 / 80 / 90 / 100				115 / 150				80 / 90 / 100 / 115				130 / 150				100 / 115				130				150				180				130 / 150				180			
	MOTOR SHAFT Ø	≤ Ø 14 mm				≤ Ø 19 mm				≤ Ø 19 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 38 mm																			
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX												
COLUMN 14 ENTRY	20	43	20	48	24	58	24	63	27	65	27	80	32	85	32	85	32	85	32	85	37	80	42	115																	
		H		J		L		M		P		R		S		T																									
FLANGE SQUARE																																									
COLUMN 15 ENTRY	65	70	80	90	100	115	130	150	180																																
	L	A	B	C	D	E	J	K	H																																
PILOT DIAMETER																																									
COLUMN 16 ENTRY	36	38.1	40	50	54	55.563	60	63.5	70	73.025	80	95	100	110	114.3	115	130	180	200	215.9	230																				
	P	A	B	C	Q	R	D	S	E	F	G	H	U	J	K	V	L	M	W	X	Y																				
BOLT CIRCLE																																									
COLUMN 17 ENTRY	63	66.68	70	70.71	75	80	90	95	98.43	98.995	100	115	125.73	130	145	149.23	165	200	215	235	250	265																			
	A	C	D	S	E	F	G	H	J	T	K	L	U	M	N	W	P	Q	R	Z	7	8																			
BOLT HOLE DIAMETER IN MOTOR FLANGE																																									
COLUMN 18 ENTRY	4.5 - 5.2	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	12.5 - 15	3/8 - 16	1/2 - 13	M6	M8																															
	A	B	C	D	E	F	M	N	Q	R																															
MOTOR SHAFT DIAMETER																																									
COLUMN 19 ENTRY	Single Reduction	15.875	16	17	19	19.05	22	22.225	24	26	28	28.575	32	35	38																										
	8	K	9	L	2	M	3	N	4	P	5	Q	R	S																											
	Double Reduction	9	9.525	10	11	12	12.7	14	15.875	16	17	19	19.05	22	22.225	24	26	28	28	28.575	32	35	38																		
	C	D	E	F	G	H	J	K	8	K	9	L	2	M	3	N	4	P	P	5	Q	R	S																		

P140 SELECTIONS																																									
COLUMN 14 ENTRY	SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																																								
	MOTOR FLANGE SQ.	80 / 90 / 100 / 115				130 / 150				100 / 115				130				150				180 / 200 / 220				130 / 150				200				220				180 / 200 / 220			
	MOTOR SHAFT Ø	≤ Ø 19 mm				≤ Ø 19 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 28 mm				≤ Ø 38 mm				≤ Ø 48 mm															
	MOTOR SHAFT LENGTH RANGE	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX												
COLUMN 14 ENTRY	24	58	24	63	27	65	27	80	32	85	32	85	32	85	37	80	42	115	145	165	180	200	220	240	260	280	300	320	340	360	380	400	420	440							
		L		M		P		R		S		T		U		V		W		X		Y		Z																	
FLANGE SQUARE																																									
COLUMN 15 ENTRY	80	90	100	115	130	150	180	200	220																																
	B	C	D	E	J	K	H	M	N																																
PILOT DIAMETER																																									
COLUMN 16 ENTRY	55.563	60	63.5	70	73.025	80	95	100	110	114.3	115	130	180	200	215.9	230	250																								
	R	D	S	E	F	G	H	U	J	K	V	L	M	W	X	Y	Z																								
BOLT CIRCLE																																									
COLUMN 17 ENTRY	90	98.43	100	115	125.73	130	145	149.23	165	184.15	200	215	220	235	250	265	300																								
	G	J	K	L	M	N	W	P	X	Q	R	Y	Z	7	8	9																									
BOLT HOLE DIAMETER IN MOTOR FLANGE																																									
COLUMN 18 ENTRY	5.3 - 6.3	6.4 - 8.3	8.4 - 10.3	10.4 - 12.4	12.5 - 15	17 - 20	3/8 - 16	1/2 - 13	M8																																
	B	C	D	E	F	G	M	N	R																																
MOTOR SHAFT DIAMETER																																									
COLUMN 19 ENTRY	Single Reduction	19.05	22	22.225	24	26	28	28.575	32	35	38	42	48																												
	2	M	3	N	4	P	5	Q	R	S	T	V																													
	Double Reduction	15.875	16	17	19	19.05	22	22.225	24	26	28	28.575	32	35	38	42	48																								
	8	K	9	L	2	M	3	N	4	P	5	Q	R	S	T	V																									

# AccuDrive Series P

## Motor Mounting codes of S type

P180 SELECTIONS																									
COLUMN 14 ENTRY		SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																							
		100 / 115		130		150		180 / 200 / 220		130 / 150		180		200		220		250		180 / 200 / 220 / 250 / 280					
		MOTOR FLANGE SQ.																							
		MOTOR SHAFT Ø																							
		MOTOR SHAFT LENGTH RANGE																							
		MOTOR FLANGE SQ.																							
		MOTOR SHAFT Ø																							
		MOTOR SHAFT LENGTH RANGE																							
		COLUMN 14 ENTRY																							
COLUMN 14 ENTRY		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
COLUMN 14 ENTRY		P		R		S		T		U		W		X		Y		Z							
COLUMN 15 ENTRY		100		115		130		150		180		200		220		250		280							
COLUMN 15 ENTRY		D		E		J		K		H		M		N		Q		R							
COLUMN 16 ENTRY		PILOT DIAMETER																							
COLUMN 16 ENTRY		BOLT CIRCLE																							
COLUMN 17 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																							
COLUMN 18 ENTRY		MOTOR SHAFT DIAMETER																							
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																							
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																							

P220 SELECTIONS																									
COLUMN 14 ENTRY		SHAFT LENGTH RANGE BASED ON MOTOR SHAFT DIAMETER																							
		130 / 150		180		200		220		250		180 / 200 / 220 / 250 / 280		220		250 / 280		320							
		MOTOR FLANGE SQ.																							
		MOTOR SHAFT Ø																							
		MOTOR SHAFT LENGTH RANGE																							
		MOTOR FLANGE SQ.																							
		MOTOR SHAFT Ø																							
		MOTOR SHAFT LENGTH RANGE																							
		COLUMN 14 ENTRY																							
COLUMN 14 ENTRY		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
COLUMN 14 ENTRY		U		W		X		Y		Z		2		4		6		8							
COLUMN 15 ENTRY		130		150		180		200		220		250		280		320									
COLUMN 15 ENTRY		J		K		H		M		N		Q		R		T									
COLUMN 16 ENTRY		PILOT DIAMETER																							
COLUMN 17 ENTRY		BOLT CIRCLE																							
COLUMN 18 ENTRY		BOLT HOLE DIAMETER IN MOTOR FLANGE																							
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																							
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																							
COLUMN 19 ENTRY		MOTOR SHAFT DIAMETER																							

1. Use the tables on this page to determine Columns 14-19 of your 20 digit order code.
2. First, choose the appropriate table for the Series P unit size you have selected: P060, P090, P115, P140, P180 and P220.
3. Then select the appropriate codes for Columns 14-19 by matching the dimensions on your servo motor flange to the codes listed in the respective table.
4. If you need assistance, please contact Cone Drive customer service at 888-994-2663.

# AccuDrive Series P

## Output Torque of S type

Ratios	Gear Stages	Units	Output Torque by Gearhead Size											
			P060		P090		P115		P140		P180		P220	
			T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>	T <sub>2N</sub>	T <sub>MAX</sub>
3	1	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600
4		lb.In.	239	443	664	1106	1062	2921	2124	6195	6638	12390	13275	20355
		Nm	27	50	75	125	120	330	240	700	750	1400	1500	2300
5		lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355
		Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300
6		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300
7		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300
8		lb.In.	239	443	664	1106	1593	1106	3186	6195	6638	12390	13275	20355
		Nm	27	50	75	125	180	125	360	700	750	1400	1500	2300
9		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600
10		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600
15		lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160
		Nm	18	35	50	80	120	225	240	470	500	970	1000	1600
16		lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355
		Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300
20	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
25	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
28	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
30	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	
35	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
40	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
45	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	
50	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
60	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
70	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
80	lb.In.	239	443	664	1106	1593	2921	3186	6195	6638	12390	13275	20355	
	Nm	27	50	75	125	180	330	360	700	750	1400	1500	2300	
90	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	
100	lb.In.	159	310	443	708	1062	1991	2124	4160	4425	8585	8850	14160	
	Nm	18	35	50	80	120	225	240	470	500	970	1000	1600	

T<sub>2N</sub> - At nominal input speed, service life is 20,000 hours.

T<sub>MAX</sub> - The maximum torque when starting or stopping.

Series P Planetary Servo Gearhead Technical Data S Type

			Size					
			P060	P090	P115	P140	P180	P220
Emergency Stop (permitted 1000x)			2 x T <sub>2N</sub>					
Average Lifetime <sup>(1)</sup>	hours		20,000					
Backlash	arcmin.	1-stage	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
	arcmin.	2-stage	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Torsional Stiffness (per arcminute)	lb.in/min (Nm/min.)	1-stage	27	89	274	531	1549	3540
		2-stage	3	10	31	60	175	400
	lb.in/min (Nm/min.)	2-stage	27	89	274	531	1549	3540
		2-stage	3	10	31	60	175	400
Running Noise	dB(A)		≤ 66	≤ 67	≤ 71	≤ 67	≤ 67	≤ 61
Continuous Input Speed <sup>(2)</sup>	min. <sup>-1</sup>		3000	3000	3000	2000	1500	1000
Max. Mechanical Input Speed <sup>(3)</sup>	min. <sup>-1</sup>		6000	6000	6000	4000	3000	2000
Gearhead Weight <sup>(4)</sup>	lbs.	1-stage	3.1	8.1	17.6	35	79	117
	kg	1-stage	1.4	3.7	8.0	16	36	53
	lbs.	2-stage	3.5	9.2	19.6	37	81	119
	kg	2-stage	1.6	4.2	8.9	17	37	54
Operating Temperature	°F		-13 to +212					
	°C		-25 to +100					
Degree of Protection			IP 55 (IP 65)					
Lubrication			Lifetime grease lubrication					
Mounting Position			any					

\*1) At nominal input speed, service life is 20,000 hours.

\*2) The maximum average input speed.

\*3) The maximum intermittent input speed.

\*4) The weight may vary slightly between models.

Conversation Table :

Metric	Inch
1 mm	0.0394 in.
1 N	0.225 lb.
1 kg	2.205 lb.
1 Nm	8.85 lb.in
1 kgcm <sup>2</sup>	8.85 x 10 <sup>-4</sup> lb.in s <sup>2</sup>

# AccuDrive Series P

## Radial and Axial Load Ratings

### Permitted Radial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Gearhead Size					
			P060	P090	P115	P140	P180	P220
3	1	Lb	97	182	292	719	1259	1304
		N	430	810	1300	3200	5600	5800
4	1	Lb	106	200	337	787	1394	1439
		N	470	890	1500	3500	6200	6400
5	1	Lb	115	216	360	854	1506	1551
		N	510	960	1600	3800	6700	6900
6	1	Lb	121	225	382	899	1596	1641
		N	540	1000	1700	4000	7100	7300
7	1	Lb	128	247	405	944	1664	1731
		N	570	1100	1800	4200	7400	7700
8	1	Lb	135	247	427	989	1753	1798
		N	600	1100	1900	4400	7800	8000
9	1	Lb	139	270	427	1034	1821	1888
		N	620	1200	1900	4600	8100	8400
10	1	Lb	144	270	450	1057	1888	1956
		N	640	1200	2000	4700	8400	8700
15	1	Lb	166	315	517	1214	2158	2226
		N	740	1400	2300	5400	9600	9900
16	1	Lb	169	315	517	1236	2203	2248
		N	750	1400	2300	5500	9800	10000
20	1	Lb	182	337	562	1349	2473	2473
		N	810	1500	2500	6000	11000	11000
25	1	Lb	196	360	607	1439	2473	2698
		N	870	1600	2700	6400	11000	12000
28	1	Lb	205	382	629	1506	2698	2698
		N	910	1700	2800	6700	12000	12000
30	1	Lb	209	382	652	1529	2698	2922
		N	930	1700	2900	6800	12000	13000
35	1	Lb	220	405	674	1619	2922	2922
		N	980	1800	3000	7200	13000	13000
40	2	Lb	225	427	719	1686	2922	3147
		N	1000	1900	3200	7500	13000	14000
45	2	Lb	247	450	742	1753	3147	3147
		N	1100	2000	3300	7800	14000	14000
50	2	Lb	247	472	764	1821	3147	3372
		N	1100	2100	3400	8100	14000	15000
60	2	Lb	270	495	809	1933	3372	3372
		N	1200	2200	3600	8600	15000	15000
70	2	Lb	270	517	854	2046	3372	3372
		N	1200	2300	3800	9100	15000	15000
80	2	Lb	270	540	899	2046	3372	3372
		N	1200	2400	4000	9100	15000	15000
90	2	Lb	270	540	944	2046	3372	3372
		N	1200	2400	4200	9100	15000	15000
100	2	Lb	270	540	967	2046	3372	3372
		N	1200	2400	4300	9100	15000	15000

### Permitted Axial Loads

At these loads and at the nominal speed, service life will be 20,000 hours

Ratio	Reduction	Units	Gearhead Size					
			P060	P090	P115	P140	P180	P220
3	1	Lb	70	209	337	540	967	1439
		N	310	930	1500	2400	4300	6400
4	1	Lb	81	247	382	607	1102	1619
		N	360	1100	1700	2700	4900	7200
5	1	Lb	88	270	427	674	1214	1776
		N	390	1200	1900	3000	5400	7900
6	1	Lb	97	292	450	742	1304	1933
		N	430	1300	2000	3300	5800	8600
7	1	Lb	103	292	472	787	1416	2068
		N	460	1300	2100	3500	6300	9200
8	1	Lb	108	315	517	832	1484	2181
		N	480	1400	2300	3700	6600	9700
9	1	Lb	115	337	540	877	1574	2248
		N	510	1500	2400	3900	7000	10000
10	1	Lb	119	360	562	922	1641	2473
		N	530	1600	2500	4100	7300	11000
15	1	Lb	142	427	674	225	1956	3147
		N	630	1900	3000	1000	8700	14000
16	1	Lb	146	427	697	281	2001	3147
		N	650	1900	3100	1250	8900	14000
20	1	Lb	162	472	764	281	2226	3147
		N	720	2100	3400	1250	9900	14000
25	1	Lb	178	495	832	281	2473	3147
		N	790	2200	3700	1250	11000	14000
28	1	Lb	187	495	877	281	2473	3147
		N	830	2200	3900	1250	11000	14000
30	1	Lb	193	495	877	225	2698	3147
		N	860	2200	3900	1000	12000	14000
35	1	Lb	207	495	877	281	2922	3147
		N	920	2200	3900	1250	13000	14000
40	2	Lb	218	495	877	281	2922	3147
		N	970	2200	3900	1250	13000	14000
45	2	Lb	225	495	877	225	3147	3147
		N	1000	2200	3900	1000	14000	14000
50	2	Lb	247	495	877	281	3147	3147
		N	1100	2200	3900	1250	14000	14000
60	2	Lb	247	495	877	281	3147	3147
		N	1100	2200	3900	1250	14000	14000
70	2	Lb	247	495	877	281	3147	3147
		N	1100	2200	3900	1250	14000	14000
80	2	Lb	247	495	877	281	3147	3147
		N	1100	2200	3900	1250	14000	14000
90	2	Lb	247	495	877	225	3147	3147
		N	1100	2200	3900	1000	14000	14000
100	2	Lb	247	495	877	225	3147	3147
		N	1100	2200	3900	1000	14000	14000

# AccuDrive Series P

## Moment of Inertia

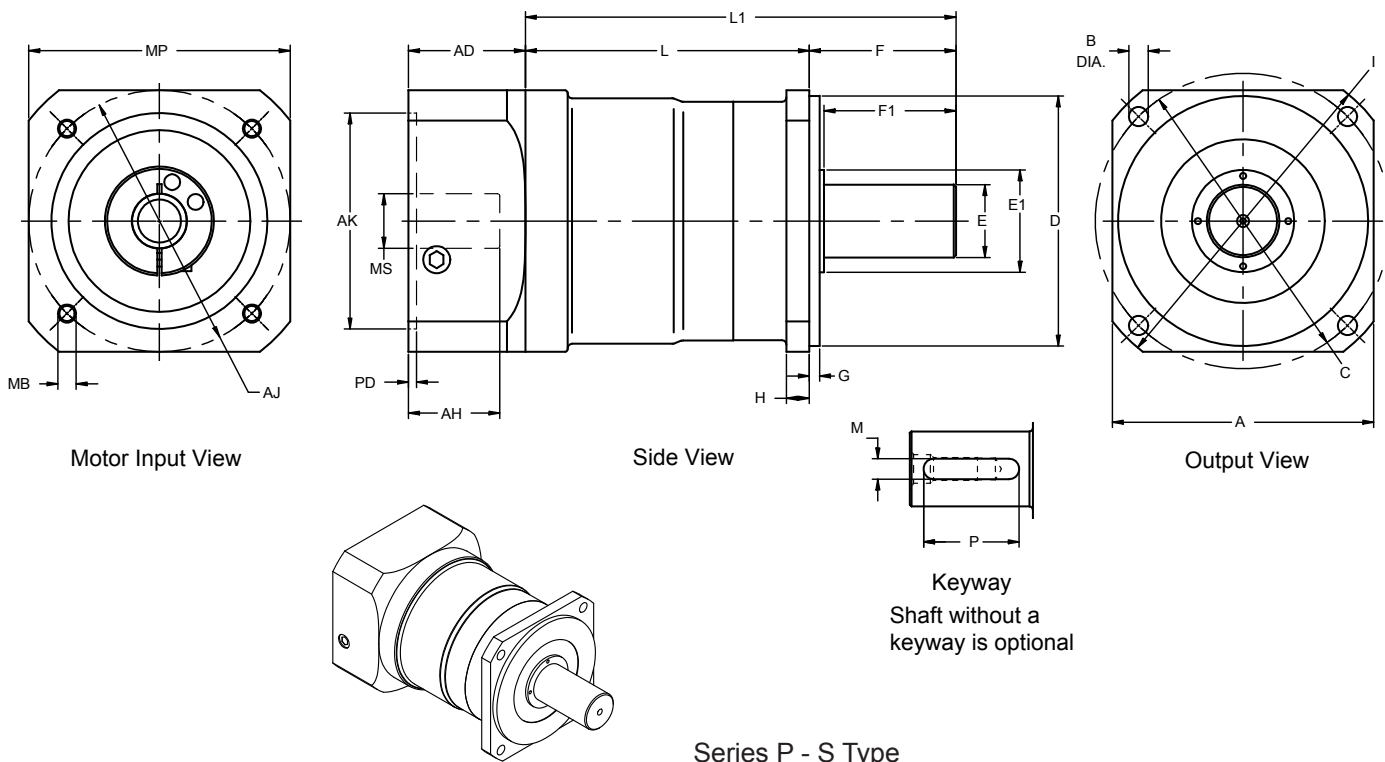
Ratios	Gear Stages	Units	Size										
			P060			P090				P115			
Motor	Shaft	Diameter	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 8mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 14mm	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm
3	1	kgcm <sup>2</sup>	0.14	0.220	0.430	---	0.720	1.200	3.20	---	3.30	5.30	13.0
		lbinsec <sup>2</sup>	1.239	1.947	3.806	---	6.372	10.620	28.32	---	29.21	46.91	115.1
4	1	kgcm <sup>2</sup>	0.095	0.170	0.380	---	0.490	0.950	3.00	---	2.00	4.10	12.0
		lbinsec <sup>2</sup>	0.841	1.505	3.363	---	4.337	8.408	26.55	---	17.70	36.29	106.2
5	1	kgcm <sup>2</sup>	0.077	0.160	0.360	---	0.400	0.860	2.90	---	1.60	3.60	11.0
		lbinsec <sup>2</sup>	0.681	1.416	3.186	---	3.540	7.611	25.67	---	14.16	31.86	97.4
6	1	kgcm <sup>2</sup>	0.068	0.150	0.360	---	0.360	0.820	2.80	---	1.30	3.30	11.0
		lbinsec <sup>2</sup>	0.602	1.328	3.186	---	3.186	7.257	24.78	---	11.51	29.21	97.4
7	1	kgcm <sup>2</sup>	0.062	0.140	0.350	---	0.320	0.790	2.80	---	1.10	3.20	11.0
		lbinsec <sup>2</sup>	0.549	1.239	3.098	---	2.832	6.992	24.78	---	9.74	28.32	97.4
8	1	kgcm <sup>2</sup>	0.059	0.140	0.350	---	0.310	0.770	2.80	---	1.00	3.10	11.0
		lbinsec <sup>2</sup>	0.522	1.239	3.098	---	2.744	6.815	24.78	---	8.85	27.44	97.4
9	1	kgcm <sup>2</sup>	0.057	0.140	0.340	---	0.290	0.760	2.80	---	0.98	3.00	11.0
		lbinsec <sup>2</sup>	0.504	1.239	3.009	---	2.567	6.726	24.78	---	8.67	26.55	97.4
10	1	kgcm <sup>2</sup>	0.056	0.140	0.340	---	0.290	0.750	2.80	---	0.98	3.00	11.0
		lbinsec <sup>2</sup>	0.496	1.239	3.009	---	2.567	6.638	24.78	---	8.67	26.55	97.4
15	2	kgcm <sup>2</sup>	0.055	0.140	0.350	0.130	0.280	0.720	2.70	0.43	0.86	2.80	11.0
		lbinsec <sup>2</sup>	0.487	1.239	3.098	1.151	2.478	6.372	23.90	3.81	7.61	24.78	97.4
16	2	kgcm <sup>2</sup>	0.057	0.140	0.360	0.150	0.300	0.740	2.80	0.48	0.92	2.90	11.0
		lbinsec <sup>2</sup>	0.504	1.239	3.186	1.328	2.655	6.549	24.78	4.25	8.14	25.67	97.4
20	2	kgcm <sup>2</sup>	0.054	0.130	0.350	0.130	0.280	0.720	2.70	0.40	0.83	2.80	11.0
		lbinsec <sup>2</sup>	0.478	1.151	3.098	1.151	2.478	6.372	23.90	3.54	7.35	24.78	97.4
25	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.280	0.710	2.70	0.38	0.82	2.80	11.0
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.478	6.284	23.90	3.36	7.26	24.78	97.4
28	2	kgcm <sup>2</sup>	0.055	0.140	0.360	0.140	0.290	0.730	2.70	0.44	0.88	2.80	11.0
		lbinsec <sup>2</sup>	0.487	1.239	3.186	1.239	2.567	6.461	23.90	3.89	7.79	24.78	97.4
30	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.100	0.250	0.700	2.60	0.29	0.74	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.885	2.213	6.195	23.01	2.57	6.55	23.90	88.5
35	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.81	2.70	11.0
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.17	23.90	97.4
40	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.099	0.250	0.700	2.60	0.28	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.876	2.213	6.195	23.01	2.48	6.46	23.90	88.5
45	2	kgcm <sup>2</sup>	0.053	0.130	0.350	0.120	0.270	0.710	2.70	0.37	0.80	2.70	11.0
		lbinsec <sup>2</sup>	0.469	1.151	3.098	1.062	2.390	6.284	23.90	3.27	7.08	23.90	97.4
50	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5
60	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.098	0.250	0.690	2.60	0.28	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.867	2.213	6.107	23.01	2.48	6.46	23.90	88.5
70	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.28	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.48	6.46	23.90	88.5
80	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.28	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.48	6.46	23.90	88.5
90	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5
100	2	kgcm <sup>2</sup>	0.049	0.130	0.340	0.097	0.250	0.690	2.60	0.27	0.73	2.70	10.0
		lbinsec <sup>2</sup>	0.434	1.151	3.009	0.858	2.213	6.107	23.01	2.39	6.46	23.90	88.5

# AccuDrive Series P

## Moment of Inertia

Ratios	Gear Stages	Units	Size											
			P140				P180				P220			
			Motor Shaft Diameter	≤ Ø 19mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 28mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm	≤ Ø 38mm	≤ Ø 48mm	≤ Ø 65mm
INERTIA (at the input)	1	kgcm <sup>2</sup>	---	12.00	20.0	42.0	---	44.0	66.0	130.00	---	90.0	150.0	
		lbinsec <sup>2</sup>	---	106.20	177.0	371.7	---	389.4	584.1	1150.5	---	796.5	1327.5	
		4	kgcm <sup>2</sup>	---	7.50	15.0	37.0	---	28.0	50.0	110.00	---	62.0	120.0
			lbinsec <sup>2</sup>	---	66.38	132.8	327.5	---	247.8	442.5	973.5	---	548.7	1062.0
		5	kgcm <sup>2</sup>	---	5.80	14.0	36.0	---	22.0	44.0	100.00	---	52.0	110.0
			lbinsec <sup>2</sup>	---	51.33	123.9	318.6	---	194.7	389.4	885.0	---	460.2	973.5
		6	kgcm <sup>2</sup>	---	4.90	13.0	35.0	---	18.0	41.0	100.00	---	47.0	110.0
			lbinsec <sup>2</sup>	---	43.37	115.1	309.8	---	159.3	362.9	885.0	---	416.0	973.5
		7	kgcm <sup>2</sup>	---	4.10	12.0	34.0	---	16.0	38.0	99.00	---	42.0	100.0
			lbinsec <sup>2</sup>	---	36.29	106.2	300.9	---	141.6	336.3	876.2	---	371.7	885.0
	8	kgcm <sup>2</sup>	---	3.80	12.0	34.0	---	15.0	37.0	97.00	---	40.0	100.0	
		lbinsec <sup>2</sup>	---	33.63	106.2	300.9	---	132.8	327.5	858.5	---	354.0	885.0	
	9	kgcm <sup>2</sup>	---	3.60	11.0	34.0	---	14.0	36.0	97.00	---	39.0	99.0	
		lbinsec <sup>2</sup>	---	31.86	97.4	300.9	---	123.9	318.6	858.5	---	345.2	876.2	
	10	kgcm <sup>2</sup>	---	3.50	11.0	34.0	---	14.0	36.0	96.00	---	38.0	98.0	
		lbinsec <sup>2</sup>	---	30.98	97.4	300.9	---	123.9	318.6	849.6	---	336.3	867.3	
	2	15	kgcm <sup>2</sup>	1.30	3.20	11.0	34.0	4.70	12.0	34.0	---	14.0	36.0	---
			lbinsec <sup>2</sup>	11.51	28.32	97.4	300.9	41.60	106.2	300.9	---	123.9	318.6	---
		16	kgcm <sup>2</sup>	1.50	3.50	11.0	35.0	5.40	13.0	35.0	---	16.0	37.0	---
			lbinsec <sup>2</sup>	13.28	30.98	97.4	309.8	47.79	115.1	309.8	---	141.6	327.5	---
20		kgcm <sup>2</sup>	1.20	3.10	11.0	34.0	4.40	12.0	34.0	---	14.0	35.0	---	
		lbinsec <sup>2</sup>	10.62	27.44	97.4	300.9	38.94	106.2	300.9	---	123.9	309.8	---	
25		kgcm <sup>2</sup>	1.10	3.10	11.0	34.0	4.20	12.0	34.0	---	14.0	35.0	---	
		lbinsec <sup>2</sup>	9.74	27.44	97.4	300.9	37.17	106.2	300.9	---	123.9	309.8	---	
28		kgcm <sup>2</sup>	1.40	3.30	11.0	35.0	4.90	13.0	35.0	---	15.0	36.0	---	
		lbinsec <sup>2</sup>	12.39	29.21	97.4	309.8	43.37	115.1	309.8	---	132.8	318.6	---	
30		kgcm <sup>2</sup>	0.85	2.80	10.0	33.0	3.20	11.0	33.0	---	12.0	34.0	---	
		lbinsec <sup>2</sup>	7.52	24.78	88.5	292.1	28.32	97.4	292.1	---	106.2	300.9	---	
35		kgcm <sup>2</sup>	1.10	3.10	11.0	34.0	4.10	12.0	34.0	---	13.0	35.0	---	
		lbinsec <sup>2</sup>	9.74	27.44	97.4	300.9	36.29	106.2	300.9	---	115.1	309.8	---	
40		kgcm <sup>2</sup>	0.83	2.80	10.0	33.0	3.20	11.0	33.0	---	12.0	33.0	---	
		lbinsec <sup>2</sup>	7.35	24.78	88.5	292.1	28.32	97.4	292.1	---	106.2	292.1	---	
45		kgcm <sup>2</sup>	1.10	3.00	11.0	34.0	4.00	12.0	34.0	---	13.0	35.0	---	
		lbinsec <sup>2</sup>	9.74	26.55	97.4	300.9	35.40	106.2	300.9	---	115.1	309.8	---	
50		kgcm <sup>2</sup>	0.81	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---	
		lbinsec <sup>2</sup>	7.17	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---	
60	kgcm <sup>2</sup>	0.81	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
	lbinsec <sup>2</sup>	7.17	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
70	kgcm <sup>2</sup>	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
	lbinsec <sup>2</sup>	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
80	kgcm <sup>2</sup>	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
	lbinsec <sup>2</sup>	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
90	kgcm <sup>2</sup>	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
	lbinsec <sup>2</sup>	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		
100	kgcm <sup>2</sup>	0.80	2.80	10.0	33.0	3.10	11.0	33.0	---	12.0	33.0	---		
	lbinsec <sup>2</sup>	7.08	24.78	88.5	292.1	27.44	97.4	292.1	---	106.2	292.1	---		

Series P Planetary Servo Gearhead Technical Data of S Type



Series P - S Type

Unit Size	A		B		C		D		E		F		F1	
	Flange Square		Bolt Hole		Bolt Circle Dia.		Pilot Dia. g6		Shaft Dia. j6		Output Shaft Flange from Housing		Length from Shoulder	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
P060	2.362	60	0.217	5.5	2.756	70	1.969	50	0.630	16	1.457	37	1.102	28
P090	3.543	90	0.26	6.6	3.937	100	3.150	80	0.866	22	1.890	48	1.417	36
P115	4.528	115	0.354	9	5.118	130	4.331	110	1.260	32	2.559	65	2.283	65
P140	5.512	140	0.433	11	6.496	165	5.118	130	1.575	40	3.819	97	3.228	82
P180	7.087	180	0.531	13.5	8.465	215	6.299	160	2.165	55	4.134	105	3.228	82
P220	8.661	220	0.669	17	9.843	250	7.087	180	2.953	75	5.433	138	4.134	105

Unit Size	G		H		I		L		L		L1		L	
	Pilot Depth		Flange Thickness		Flange Diameter		Body Length Ratio ≤ 10		Body Length Ratio > 10		Overall Length Ratio ≤ 10		Overall Length Ratio > 10	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
P060	0.236	6	0.236	6	3.150	80	2.677	68	3.268	83	4.134	105	4.724	120
P090	0.354	9	0.315	8	4.528	115	3.425	87	4.016	102	5.315	135	5.906	150
P115	0.157	4	0.394	10	5.827	148	4.528	115	5.197	132	7.087	180	7.756	197
P140	0.472	12	0.472	12	7.283	185	5.236	133	6.181	157	9.055	230	10.000	254
P180	0.787	20	0.591	15	9.449	240	5.866	149	7.362	187	10.000	254	11.496	292
P220	1.181	30	0.787	20	11.417	290	6.063	154	7.480	190	11.496	292	12.913	328

Unit Size	AD	AK	PD	AJ	MP	MB	MS	Permissible Motor Shaft Dia.			Keyed Output		
	Adapter								Unit Size	Min.	Max.	Width	Height
	Length	Motor Pilot Dia	Pilot Depth	Bolt Circle Dia	Motor Square	Bolt Hole	Shaft Diameter	Unit Size	mm	mm	M	N	P
P060								P060	8	19	5	5	20
P090								P090	8	28	6	6	28
P115								P115	14	38	10	8	45
P140								P142	19	48	12	8	65
P180								P190	28	65	16	10	65
P220								P220	38	65	20	12	85

Cone Drive reserves the right to improve or change product design and specifications without notice.



# AccuDrive Series P

## Series P Planetary Servo Gearhead Sizing and selection

### Required Application Data

Motor Continuous Torque	$T_{cont}$
Motor Peak Torque	$T_{peak}$
Motor Rotor Inertia*	$J_{mot}$
Load Inertia*	$J_{load}$
Load Torque (non-dynamic Frictional and/or Gravity Load)	$T_{load}$
Reduction Ratio	<b>Ratio</b>

\*Any unit can be used for inertia as long as it is used consistently.

### Calculated Data

Load torque reflected to Input:

$$T_{input} = T_{load} / (\text{Ratio} \times \text{eff.})$$

Load inertia referred to input shaft:

$$J_{ref} = J_{load} / \text{Ratio}^2$$

Eff: Ratios  $\leq$  10:1 = .95  
Ratios  $>$  10:1 = .90

data example:

$$\begin{aligned} T_{cont} &= 10.9 \text{ Nm} & T_{peak} &= 45.7 \text{ Nm} & J_{mot} &= 1.0 \\ J_{load} &= 10 & T_{load} &= 15 \text{ Nm} & \text{Ratio} &= 3 \end{aligned}$$

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### for Cyclical Applications Using Motor Peak Torque

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#### Step One

Calculate the inertia parameter:  $J_{par}$

Formula & applied calculation example:

$$J_{par} = J_{mot} / (J_{ref} + J_{mot})$$

$$J_{ref} = 10 / 3^2 = 1.11$$

$$J_{par} = 1 / (1.11 + 1) = .474$$

#### Step Two

Calculate the total gearhead required output torque:

$$T_{output} = ((T_{peak} - T_{input}) \times (1 - J_{par}) + T_{input}) \times \text{Ratio} \times \text{Eff.}$$

$$T_{input} = 15 / (3 \times .98) = 5.1$$

$$T_{output} = ((45.7 - 5.1) \times (1 - .474) + 5.1) \times 3 \times .98 = 77.8 \text{ Nm}$$

#### Step Three

Calculate service factor: **Sf**

$$Sf = T_{2N} / T_{output}$$

Select reducer size and rated output torque  $T_{2N}$  from table on page 33. For most applications the calculated service factor should be greater than 1.0.

$$\text{P90 } T_{2N} = 80 \text{ Nm}$$

$$Sf = 80 / 75.4 = 1.06$$

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### for Continuous Applications Using Motor Continuous Torque

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Calculate service factor: **Sf**

Formula & applied calculation example:

Select reducer size and rated output torque  $T_{2N}$  from table on page 33. For most applications the calculated service factor should be greater than 1.0.

$$Sf = T_{2N} / (T_{cont} \times \text{Ratio} \times \text{Eff.})$$

$$\text{P90 } T_{2N} = 50 \text{ Nm}$$

$$Sf = 50 / (10.9 \times 3 \times .95) = 1.61$$

Sales Phone: 888-994-2663  
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# Installation, Operation & Maintenance Instructions for Series P Planetary Servo gearhead

## Lubrication

Planetary Servo Gearheads are lubricated with the synthetic type of grease Sumiplex MP No.2. Under normal conditions the gearheads will require no lubrication service throughout the life of the unit. Series P gearheads are built for universal mounting, ready to mount in any position.

## Installation

### Motor on Gearhead:

1. Slide the motor shaft into the hollow bore input shaft until the gearhead and motor flanges are seated together.
2. Use the bolts provided to clamp the gearhead and motor flanges together. Tighten the bolts crosswise.
3. Tighten the clamping screw through the access slot in the gearhead flange to the following torque settings:

Clamp Bolt Size	Torque Tightening	
	(Nm)	(in lbs)
M3	2.0	18
M4	4.5	40
M5	9.0	80
M6	16	142
M8	36	318
M10	72	037
M12	125	1106

4. Push the urethane plug provided into the access slot on the gearhead motor plate.

### Ancillary Components:

1. Couplings, sheaves and sprockets should be mounted on the shaft carefully. Do not pound or hammer them onto the shaft as this will damage bearings and seals.
2. Sprockets and sheaves should be mounted as close to the gearhead as possible and “V” belts and chains adjusted to the proper tension to keep bearing loading and shaft deflection to a minimum. Too much tension in belts and improper location of sheaves and sprockets will lead to excessive overhung load, bearing wear and shaft deflection. For specific information on overhung load capacity, shaft stress and bearing life, please contact us.

## Start-Up

1. After the gearhead has been properly mounted and aligned, it is ready for start-up.
2. Make sure driven machine is clear of all obstructions and all safety guards and covers are in place. If possible, turn motor shaft by hand to confirm drive system is operating freely and in correct direction of rotation.
3. Jog motor to confirm proper rotation.
4. Operate gearhead with minimum load for approximately 15 minutes (in both directions if applicable) to seat gears, bearings, and oil seals.

## Maintenance

1. If a gearhead has to be repaired, contact us for detailed instruction, blueprints, parts lists, etc. If necessary, field service is available.
2. If a gearhead is to be returned, contact us for instructions and a returned material authorization (RMA) number.
3. Please have model number information and serial number from the unit name plate recorded.

# Notes



# GLOBAL LOCATIONS



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