



DOUBLE REDUCTION • HELICAL / WORM “HOW TO USE” MAXIMUM RATING TABLES



OHIO GEAR™

How To Use Maximum Rating Tables

Maximum Rating Tables for Double Reduction Gear Reducers are shown on pages 111-113. Selection of the appropriate gear reducer can be made using these tables or the Quick Selection Tables (page 114).

BEFORE YOU START:

Identify the Service Factor of the application (see page 174).

Determine the actual input horsepower of the motor by multiplying the motor's nameplate horsepower by the Service Factor.

Determine the output speed (RPM) required at output shaft of reducer.

Identify the mounting style required by your application from the style charts shown on page 108.

To select the proper gear reducer size, use the Maximum Rating Tables as shown:

Double Reduction
Helical/Worm Gear Reducers

1 Locate the **Input RPM and Output RPM columns** in the charts beginning on page 111. Scroll down the Input RPM column to locate a listing where the desired input speed corresponds to the output speed required in your application. This will establish your overall gear ratio. (Input RPM listings are rounded to the nearest hundred. Your actual input speed of 1750 can be correlated to 1800 with no material change in performance.)

Input RPM	813 Series			815 Series			818 Series			821 Series									
	Output RPM	Input HP	Output HP	Output RPM	Input HP	Output HP	Output RPM	Input HP	Output HP	Output RPM	Input HP	Output HP							
10	1750	175	0.850	0.880	212	10.28	1.120	0.880	207	10.28	1.880	1.200	486	10.28	1.780	1.840	273	10.28	
15	1750	117	0.540	0.480	248	15.42	0.850	0.710	25	15.42	1.280	1.020	342	15.42	1.810	1.410	752	15.42	
20	1750	88	0.400	0.360	272	20.56	0.710	0.600	428	20.56	0.940	0.790	372	20.56	1.380	1.190	847	20.56	
25	1750	75	0.320	0.270	341	25.56	0.550	0.450	408	25.56	0.770	0.640	588	25.56	0.910	0.790	628	25.56	
30	1750	66	0.280	0.230	390	30.56	0.480	0.400	432	30.56	0.670	0.56	628	30.56	0.800	0.680	661	30.56	
40	1750	44	0.200	0.170	397	40.56	0.400	0.320	482	40.56	0.480	0.41							
45	1750	38	0.260	0.180	327	43.83	0.420	0.290	471	43.83	0.480	0.39							
50	1750	35	0.215	0.165	302	51.31	0.350	0.260	474	51.31	0.480	0.37							
60	1750	28	0.200	0.146	318	60.56	0.320	0.230	491	60.56	0.380	0.32							
75	1750	23.52	0.166	0.118	321	76.57	0.280	0.190	504	76.57	0.320	0.24							
					15	80.28	0.280	0.190	522	80.00	0.280	0.200	624	80.00	0.480	0.300	628	80.00	
					25	100.56	0.270	0.184	518	100.00	0.280	0.190	648	100.00	0.380	0.260	642	100.00	
125	1750	14.00	0.119	0.075	328	127.78	0.280	0.115	518	127.78	0.280	0.180	628	127.78	0.270	0.200	1004	127.78	
150	1750	11.67	0.106	0.061	328	153.23	0.180	0.090	518	153.23	0.180	0.124	567	153.23	0.280	0.200	1028	153.23	
200	1750	8.75	0.084	0.044	318	204.44	0.118	0.071	514	204.44	0.121	0.080	541	204.44	0.240	0.152	1041	204.44	
250	1750	7.00	0.068	0.033	299	256.96	0.114	0.056	496	256.96	0.122	0.087	623	256.96	0.188	0.127	964	256.96	
					0.027	287	288.46	0.115	0.049	321	288.46	0.108	0.061	628	288.46	0.172	0.100	1008	288.46
					0.016	278	413.23	0.117	0.034	472	413.23	0.086	0.051	481	413.23	0.700	0.048	713	413.23
					0.010	160	516.67	0.083	0.017	308	516.67	0.046	0.019	348	516.67	0.081	0.022	541	516.67
					0.011	332	666.92	0.089	0.019	422	666.92	0.048	0.021	438	666.92	0.075	0.026	724	666.92

3 Identify the **model number** of the reducer by consulting page 109.

4 Check **load capacities** against the needs of your application. Do not exceed the overhung load (OHL) capacity or the thrust load (TL). Detailed instructions for calculating the actual overhung load are shown on page 175. If overhung and thrust loads will be applied simultaneously or if the load exceeds listed capacities, contact LEESON.

2 Move across the table to the **Input HP columns** until you find a rating that is equal to or greater than the actual input horsepower required. Once located, check the top of the table to identify the correct gear reducer size (818, 821, 824, etc.).

5 Verify **physical dimensions** using the dimensional drawings shown on pages 116-119.



813, 815, 818 and 821 Series • 1.0 S.F.

Nominal Ratio	Input RPM	Nominal Output RPM	813 Series				815 Series				818 Series				821 Series			
			Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio
10	1750	175	0.650	0.590	212	10.28	1.120	0.960	347	10.28	1.560	1.350	499	10.28	1.780	1.540	574	10.28
15	1750	117	0.540	0.460	248	15.42	0.850	0.710	383	15.42	1.200	1.030	542	14.64	1.610	1.410	762	15.42
20	1750	88	0.460	0.380	272	20.56	0.710	0.560	406	20.56	0.940	0.790	570	20.00	1.360	1.180	847	20.56
25	1750	70	0.320	0.270	241	25.56	0.550	0.450	409	25.56	0.770	0.640	588	25.56	0.910	0.750	699	25.56
30	1750	58	0.350	0.270	290	30.83	0.550	0.400	432	30.83	0.670	0.540	578	30.83	1.000	0.840	911	29.29
40	1750	44	0.260	0.210	297	40.00	0.430	0.320	462	40.00	0.490	0.410	584	40.00	0.790	0.660	944	40.00
45	1750	39	0.260	0.190	307	43.93	0.420	0.290	471	43.93	0.490	0.380	618	43.93	0.750	0.600	973	43.93
50	1750	35	0.216	0.168	302	51.11	0.350	0.260	474	51.11	0.400	0.330	595	51.11	0.650	0.540	965	51.11
60	1750	29	0.202	0.146	316	60.00	0.330	0.230	491	60.00	0.390	0.300	638	60.00	0.590	0.470	1007	60.00
75	1750	23.33	0.166	0.119	321	76.67	0.280	0.190	504	76.67	0.320	0.240	651	76.67	0.490	0.380	1028	76.67
80	1750	21.88	0.160	0.109	315	80.00	0.280	0.180	505	80.00	0.300	0.220	634	80.00	0.480	0.360	1026	80.00
100	1750	17.50	0.143	0.090	323	100.00	0.232	0.144	518	100.00	0.250	0.180	646	100.00	0.390	0.290	1047	100.00
125	1750	14.00	0.119	0.073	329	127.78	0.200	0.115	519	127.78	0.200	0.140	629	127.78	0.310	0.220	1004	127.78
150	1750	11.67	0.106	0.061	329	153.33	0.185	0.096	516	153.33	0.198	0.124	667	153.33	0.290	0.200	1053	153.33
200	1750	8.75	0.084	0.044	318	204.44	0.156	0.071	514	204.44	0.151	0.089	641	204.44	0.240	0.150	1041	204.44
250	1750	7.00	0.068	0.033	299	255.56	0.134	0.055	498	255.56	0.122	0.067	603	255.56	0.188	0.107	964	255.56
300	1750	5.83	0.060	0.027	287	298.46	0.115	0.049	531	298.46	0.108	0.061	656	298.46	0.172	0.100	1069	298.46
400	1750	4.38	0.040	0.015	228	413.33	0.117	0.044	472	413.33	0.068	0.031	451	413.33	0.100	0.048	710	413.33
500	1750	3.50	0.030	0.010	180	516.67	0.063	0.017	308	516.67	0.046	0.019	348	516.67	0.081	0.032	590	516.67
600	1750	2.92	0.029	0.011	232	596.92	0.065	0.019	403	596.92	0.049	0.021	459	596.92	0.073	0.034	724	596.92

Double Reduction
Helical/Worm Gear Reducers



DOUBLE REDUCTION • HELICAL / WORM MAXIMUM RATING TABLES

800 SERIES • ALL STOCK STYLES



OHIO GEAR™



824, 826, 830 and 832 Series • 1.0 S.F.

Double Reduction
Helical/Worm Gear Reducers

Nominal Ratio	Input RPM	Nominal Output RPM	824 Series				826 Series				830 Series				832 Series			
			Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio
10	1750	175	2.92	2.60	935	10.00	3.57	3.30	1187	10.33	5.08	4.57	1645	10.00	6.99	6.30	2343	10.33
15	1750	117	2.46	2.16	1166	15.00	3.09	2.73	1474	15.00	4.56	4.03	2180	15.00	5.92	5.26	2839	15.00
20	1750	88	2.11	1.82	1309	20.00	2.73	2.37	1707	20.00	3.97	3.45	2488	20.00	5.19	4.56	3287	20.00
25	1750	70	1.49	1.29	1160	25.00	1.86	1.66	1495	25.83	2.75	2.40	2157	25.00	3.83	3.35	3117	25.83
30	1750	58	1.52	1.32	1427	29.13	1.99	1.74	1876	29.13	2.93	2.56	2771	29.13	3.85	3.41	3680	29.13
40	1750	44	1.23	1.03	1490	40.00	1.61	1.36	1966	40.00	2.39	2.03	2924	40.00	3.14	2.70	3894	40.00
45	1750	39	1.14	0.940	1525	43.70	1.40	1.19	1925	43.7	2.23	1.87	3026	43.7	2.97	2.50	4044	43.7
50	1750	35	1.02	0.850	1529	50.00	1.34	1.12	2023	50.00	2.00	1.68	3020	50.00	2.64	2.24	4028	50.00
60	1750	29	0.920	0.740	1589	60.00	1.18	0.950	2048	58.26	1.82	1.47	3181	60.00	2.44	1.98	4284	60.00
75	1750	23.33	0.770	0.600	1629	75.00	0.940	0.760	2047	75.00	1.52	1.21	3279	75.00	2.06	1.64	4434	75.00
80	1750	21.88	0.740	0.560	1611	80.00	0.950	0.740	2133	80.00	1.43	1.10	3186	80.00	1.89	1.47	4247	80.00
100	1750	17.50	0.620	0.460	1650	100.00	0.800	0.610	2186	100.00	1.21	0.910	3284	100.00	1.59	1.22	4385	100.00
125	1750	14.00	0.510	0.360	1627	125.00	0.650	0.480	2139	125.00	1.03	0.750	3359	125.00	1.30	0.960	4312	125.00
150	1750	11.67	0.470	0.310	1669	150.00	0.550	0.390	2100	150.00	0.900	0.620	3362	150.00	1.23	0.840	4547	150.00
200	1750	8.75	0.380	0.230	1640	200.00	0.480	0.300	2174	200.00	0.730	0.450	3266	200.00	0.950	0.610	4361	200.00
250	1750	7.00	0.310	0.170	1562	250.00	0.390	0.230	2054	250.00	0.620	0.360	3226	250.00	0.770	0.460	4141	250.00
300	1750	5.83	0.280	0.160	1688	287.27	0.320	0.180	1912	300.00	0.530	0.280	3062	300.00	0.640	0.360	3868	300.00
400	1750	4.38	0.176	0.092	1428	430.91	0.240	0.130	1964	430.91	0.400	0.200	3172	430.91	0.480	0.260	4006	430.91
500	1750	3.50	0.110	0.049	0.877	500.00	0.137	0.064	1157	500.00	0.240	0.110	1157	500.00	0.270	0.130	2326	500.00
600	1750	2.92	0.122	0.056	1164	574.55	0.154	0.075	1542	574.55	0.270	0.130	2618	574.55	0.310	0.150	3112	574.55



842, 852 and 860 Series • 1.0 S.F.

Overall Ratio	Input RPM	Output RPM	842 Series				852 Series				860 Series			
			Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio	Input HP	Output HP	Output TQ (lb-in)	Exact Ratio
10	1750	175	11.89	10.89	4051	10.33	20.00	18.39	6789	10.25	20.00	18.46	6649	10.00
15	1750	117	10.79	9.74	5263	15.00	18.26	16.59	8961	15.00	20.00	18.25	9858	15.00
20	1750	88	9.80	8.74	6295	20.00	14.87	13.25	9542	20.00	18.05	16.18	11653	20.00
25	1750	70	6.99	6.17	5933	26.69	10.07	8.97	8550	26.48	10.07	8.80	8187	25.83
30	1750	58	7.14	6.13	6620	30.00	11.35	10.01	10818	30.00	13.43	11.61	12544	30.00
40	1750	44	6.26	5.42	7896	40.45	10.63	9.16	13343	40.45	11.35	9.83	14316	40.45
50	1750	35	5.19	4.38	8156	51.67	9.04	7.69	14312	51.67	10.07	8.60	16001	51.67
60	1750	29	4.62	3.81	8319	60.68	7.98	6.54	14282	60.68	10.06	8.32	18176	60.68
75	1750	23.33	3.84	3.24	8788	75.38	6.69	5.49	15334	77.50	8.68	7.06	19700	77.50
80	1750	21.88	3.75	2.97	8642	80.90	6.42	5.00	14569	80.86	8.10	6.40	18647	80.90
100	1750	17.50	3.12	2.43	9034	103.33	5.50	4.19	15597	103.33	6.70	5.41	20122	103.33
125	1750	14.00	2.55	1.91	8879	129.17	4.65	3.37	15677	129.17	5.91	4.35	20229	129.17
150	1750	11.67	2.31	1.75	9510	150.77	4.21	3.10	16856	150.77	5.41	4.05	21969	150.77
200	1750	8.75	1.85	1.21	8989	206.67	3.32	2.09	15515	206.67	4.19	2.69	20026	206.67
250	1750	7.00	1.50	0.920	8530	258.33	2.80	1.62	15057	258.33	3.53	2.09	19434	258.33
300	1750	5.83	1.40	0.870	9456	301.54	2.59	1.54	16757	301.54	3.30	2.01	21844	301.54
400	1750	4.38	0.780	0.420	6210	413.33	1.72	0.797	11864	413.33	2.19	1.08	16037	413.33
500	1750	3.50	0.530	0.260	4782	516.67	1.21	0.522	9707	516.67	1.56	0.692	12884	516.67
600	1750	2.92	0.590	0.300	6488	603.08	1.37	0.590	12810	603.08	1.75	0.801	17397	603.08

Double Reduction Helical/Worm Gear Reducers