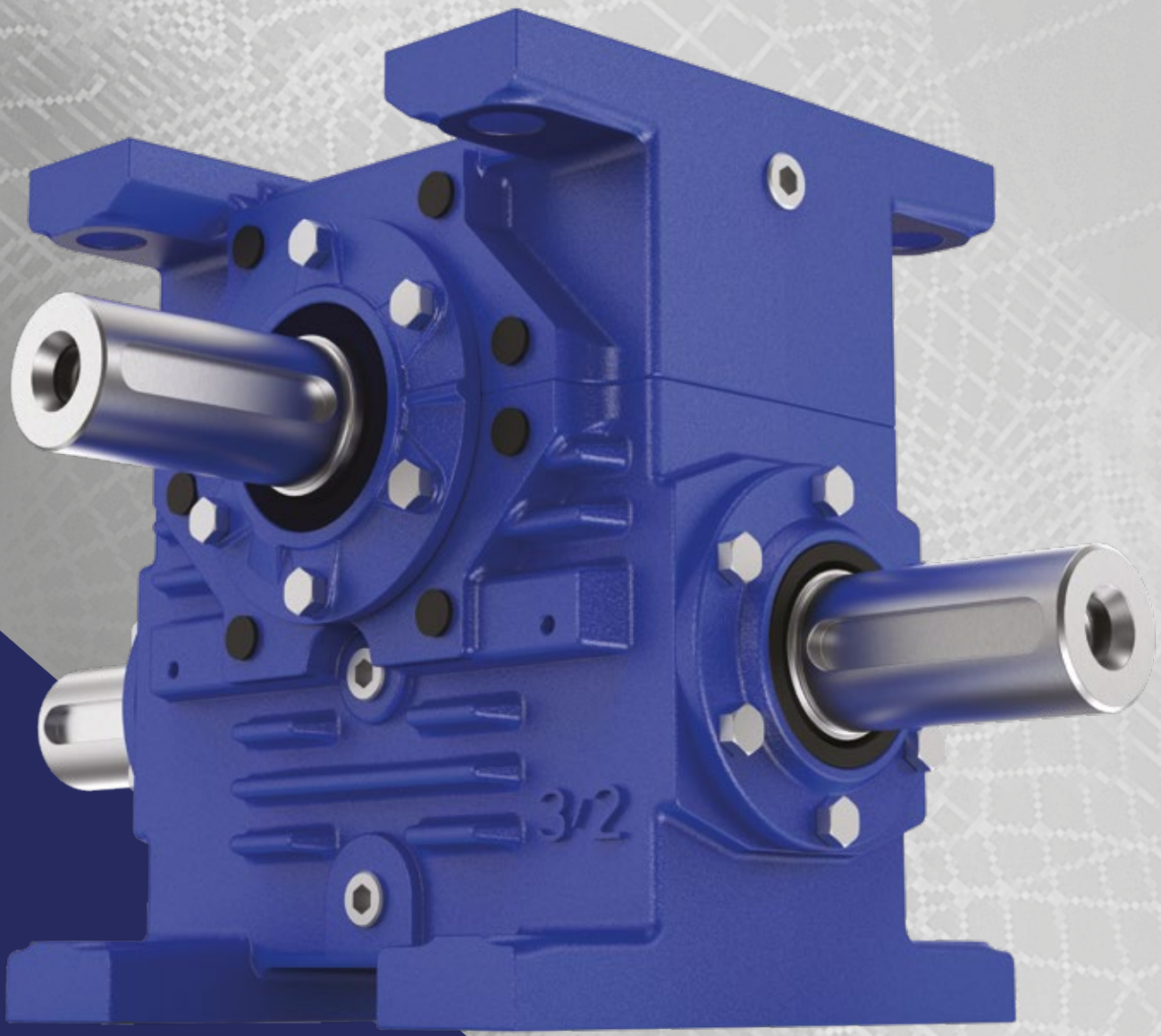


WM Series

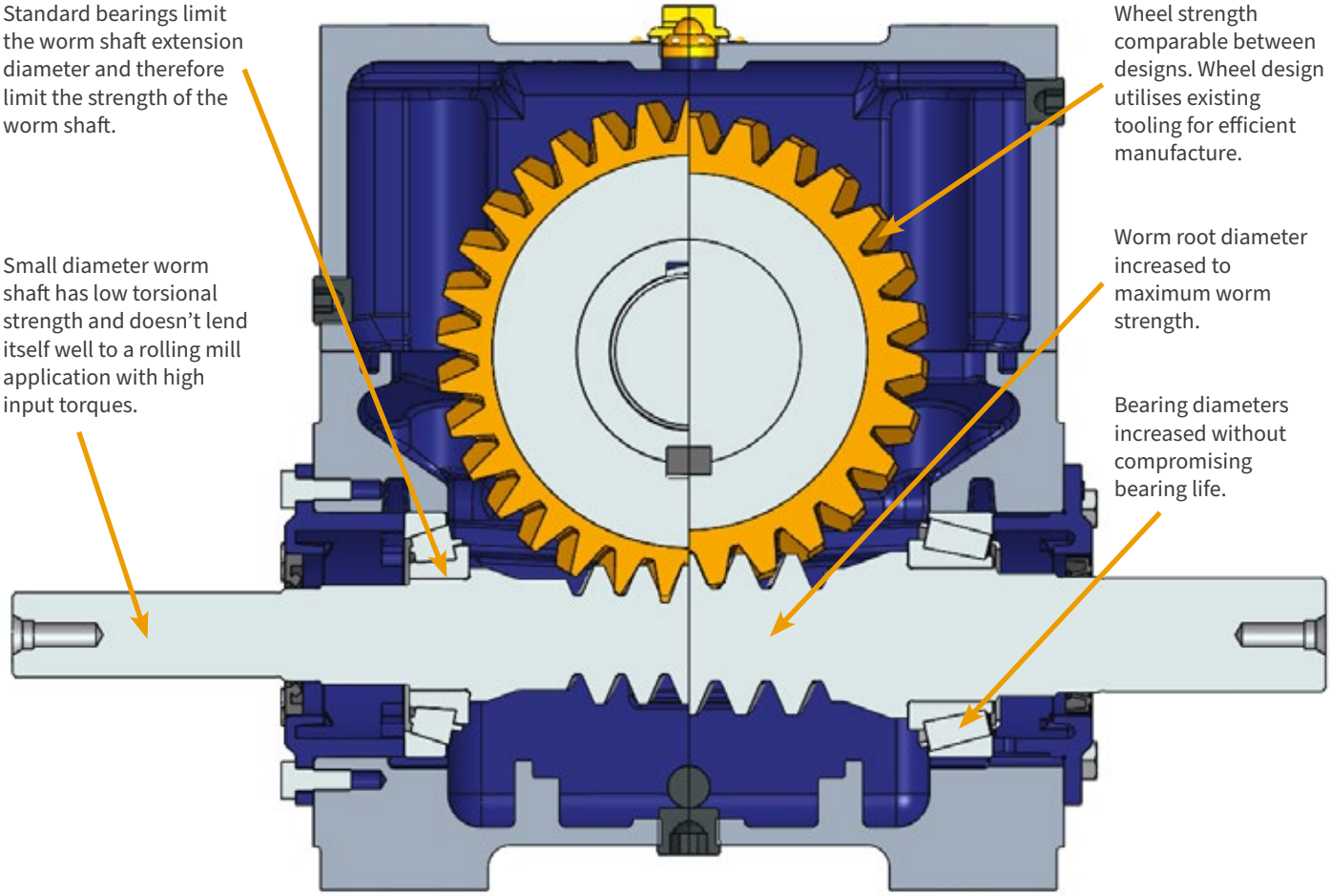
Worm Gear Units
Rolling Mill Drives

RENOLD | Gears

WM Series
Rolling Mill Drives

Standard bearings limit the worm shaft extension diameter and therefore limit the strength of the worm shaft.

Small diameter worm shaft has low torsional strength and doesn't lend itself well to a rolling mill application with high input torques.



Wheel strength comparable between designs. Wheel design utilises existing tooling for efficient manufacture.

Worm root diameter increased to maximum worm strength.

Bearing diameters increased without compromising bearing life.

Proven Reliability:
Built on the industry-trusted WM Series platform for guaranteed performance.

Compact Powerhouse:
Enhanced worm root diameters with larger shafts and bearings allow for a frame size reduction of up to two sizes, significantly lowering the unit price.

Maximum Versatility:
Available in both underdriven and overdriven configurations within the same casing, drastically reducing necessary inventory variants.

Optimised Efficiency:
A reduced worm wheel size lowers material costs without compromising torque.

Precision Alignment:
Integrated machined datums in the feet ensure effortless installation and lower assembly costs.

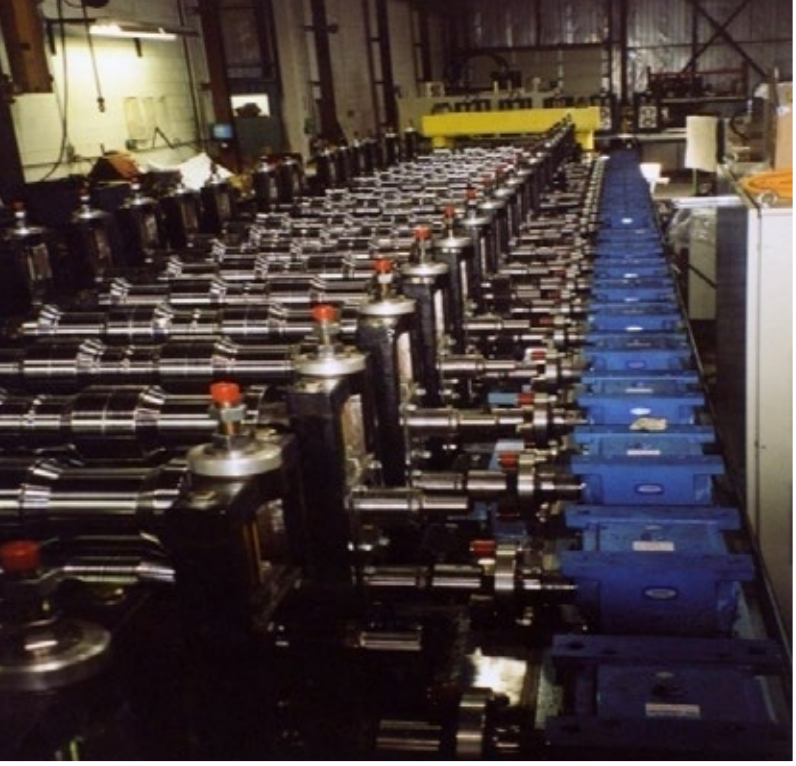
Seamless Branding:
Custom paint colours and private labelling are available at no extra cost, eliminating repainting needs and strengthening your brand identity.

Cool-Running Technology:
High-efficiency, low-friction gearing eliminates the need for bulky, expensive fan cooling systems.

Maximum Load Capacity:
Fitted with premium heavy-duty taper roller bearings to ensure an extended service life even under high-stress conditions.

Vibration & Noise Dampening:
Housings are cast from high-grade, close-grain iron, specifically engineered to absorb vibration and maintain ultra-low noise levels.

High-Efficiency Gearing:
Features case-hardened and profile-ground gears for peak power transmission, whisper-quiet operation, and maximum mechanical efficiency.



Contents

RENOLD | Gears

Rolling Mill Ratings
Metric 5:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	5.25	4.75	5.5	4.5	4.666667
500RPM input speed	Efficiency		91.4%	92.9%	93.3%	94.5%	94.7%
	Output speed	RPM	95.2	105.3	90.9	111.1	107.1
	Max input power	kW	66.82	81.41	99.91	145.30	182.90
	Max input torque	Nm	1276	1555	1908	2775	3493
	Max output power	kW	5.28	8.95	16.46	31.52	39.19
	Max output torque	Nm	530	812	1729	2709	3493
600RPM input speed	Efficiency		92.0%	93.4%	93.8%	94.9%	95.1%
	Output speed	RPM	114.3	126.3	109.1	133.3	128.6
	Max input power	kW	80.51	97.69	119.89	174.36	219.48
	Max input torque	Nm	1281	1555	1908	2775	3493
	Max output power	kW	6.01	10.17	18.85	35.84	47.03
	Max output torque	Nm	502	769	1650	2567	3493
750RPM input speed	Efficiency		92.7%	94.0%	94.4%	95.3%	95.5%
	Output speed	RPM	142.9	157.9	136.4	166.7	160.7
	Max input power	kW	101.28	122.11	149.86	217.96	274.35
	Max input torque	Nm	1290	1555	1908	2775	3493
	Max output power	kW	6.88	11.90	21.42	41.93	55.22
	Max output torque	Nm	460	720	1500	2402	3281
900RPM input speed	Efficiency		93.2%	94.5%	94.8%	95.6%	95.8%
	Output speed	RPM	171.4	189.5	163.6	200.0	192.9
	Max input power	kW	121.98	146.53	179.83	261.55	329.22
	Max input torque	Nm	1294	1555	1908	2775	3493
	Max output power	kW	7.73	13.53	24.24	47.66	62.77
	Max output torque	Nm	430	682	1415	2276	3108
1000RPM input speed	Efficiency		93.5%	94.7%	95.0%	95.8%	95.9%
	Output speed	RPM	190.5	210.5	181.8	222.2	214.3
	Max input power	kW	135.76	162.81	199.81	290.61	365.80
	Max input torque	Nm	1296	1555	1908	2775	3493
	Max output power	kW	8.29	14.57	25.80	51.32	67.59
	Max output torque	Nm	416	661	1355	2205	3012
1200RPM input speed	Efficiency		94.0%	95.0%	95.3%	96.0%	96.1%
	Output speed	RPM	228.6	252.6	218.2	266.7	257.1
	Max input power	kW	163.48	195.37	239.77	348.73	438.96
	Max input torque	Nm	1301	1555	1908	2775	3493
	Max output power	kW	9.17	16.56	28.03	58.33	76.82
	Max output torque	Nm	383	626	1227	2089	2853
1500RPM input speed	Efficiency		94.5%	95.4%	95.6%	96.3%	96.3%
	Output speed	RPM	285.7	315.8	272.7	333.3	321.4
	Max input power	kW	205.11	244.22	299.72	435.91	548.70
	Max input torque	Nm	1306	1555	1908	2775	3493
	Max output power	kW	10.29	19.36	31.79	68.22	89.84
	Max output torque	Nm	344	586	1113	1954	2669
1800RPM input speed	Efficiency		94.8%	95.7%	95.8%	96.4%	96.5%
	Output speed	RPM	342.9	378.9	327.3	400.0	385.7
	Max input power	kW	246.72	293.06	359.66	523.09	658.44
	Max input torque	Nm	1309	1555	1908	2775	3493
	Max output power	kW	11.34	21.62	35.19	75.71	101.29
	Max output torque	Nm	316	545	1027	1807	2508

Rolling Mill Ratings
Metric 10:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	10.5	10.5	9.666667	10.5	9.333333
500RPM input speed	Efficiency		85.5%	87.7%	90.7%	89.3%	92.0%
	Output speed	RPM	47.6	47.6	51.7	47.6	53.6
	Max input power	kW	69.38	81.41	99.91	145.30	182.90
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	2.65	4.20	9.36	13.84	19.60
	Max output torque	Nm	531	842	1729	2775	3493
600RPM input speed	Efficiency		86.3%	88.5%	91.4%	90.1%	92.6%
	Output speed	RPM	57.1	57.1	62.1	57.1	64.3
	Max input power	kW	83.26	97.69	119.89	174.36	219.48
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	3.03	4.77	11.24	16.06	23.52
	Max output torque	Nm	506	798	1729	2684	3493
750RPM input speed	Efficiency		87.5%	89.6%	92.2%	90.9%	93.2%
	Output speed	RPM	71.4	71.4	77.6	71.4	80.4
	Max input power	kW	104.07	122.11	149.86	217.96	274.35
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	3.45	5.58	13.91	18.78	29.39
	Max output torque	Nm	461	746	1712	2511	3493
900RPM input speed	Efficiency		88.4%	90.3%	92.7%	91.5%	93.7%
	Output speed	RPM	85.7	85.7	93.1	85.7	96.4
	Max input power	kW	124.88	146.53	179.83	261.55	329.22
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	3.92	6.35	15.81	21.35	34.43
	Max output torque	Nm	437	707	1622	2378	3410
1000RPM input speed	Efficiency		88.9%	90.7%	93.0%	91.7%	93.9%
	Output speed	RPM	95.2	95.2	103.4	95.2	107.1
	Max input power	kW	138.76	162.81	199.81	290.61	365.80
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	4.19	6.83	17.03	22.98	37.07
	Max output torque	Nm	420	685	1572	2304	3304
1200RPM input speed	Efficiency		89.6%	91.3%	93.5%	92.2%	94.2%
	Output speed	RPM	114.3	114.3	124.1	114.3	128.6
	Max input power	kW	166.51	195.37	239.77	348.73	438.96
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	4.60	7.76	19.35	26.12	42.14
	Max output torque	Nm	384	649	1489	2182	3130
1500RPM input speed	Efficiency		90.4%	91.9%	94.0%	92.7%	94.6%
	Output speed	RPM	142.9	142.9	155.2	142.9	160.7
	Max input power	kW	208.14	244.22	299.72	435.91	548.70
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	5.39	9.08	22.63	29.94	49.28
	Max output torque	Nm	360	607	1393	2002	2928
1800RPM input speed	Efficiency		91.0%	92.3%	94.3%	93.0%	94.8%
	Output speed	RPM	171.4	171.4	186.2	171.4	192.9
	Max input power	kW	249.77	293.06	359.66	523.09	658.44
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	5.99	10.32	25.72	32.80	56.00
	Max output torque	Nm	334	575	1319	1827	2773

Rolling Mill Ratings
Metric 12:1

	Description		Unit Size				
			3	4	5	6	7
	Actual ratio		12.5	12.5	12.5	12.5	12.5
500RPM input speed	Efficiency		84.5%	86.0%	86.6%	87.5%	89.3%
	Output speed	RPM	40.0	40.0	40.0	40.0	40.0
	Max input power	kW	41.64	81.41	99.91	145.30	182.90
	Max input torque	Nm	795	1555	1908	2775	3493
	Max output power	kW	2.42	3.62	7.24	11.62	14.63
	Max output torque	Nm	577	865	1729	2775	3493
600RPM input speed	Efficiency		85.3%	86.9%	87.5%	88.4%	90.1%
	Output speed	RPM	48.0	48.0	48.0	48.0	48.0
	Max input power	kW	50.43	97.69	119.89	174.36	219.48
	Max input torque	Nm	803	1555	1908	2775	3493
	Max output power	kW	2.74	4.12	8.61	13.30	17.56
	Max output torque	Nm	545	820	1713	2646	3493
750RPM input speed	Efficiency		86.4%	88.1%	88.6%	89.3%	90.9%
	Output speed	RPM	60.0	60.0	60.0	60.0	60.0
	Max input power	kW	63.60	122.11	149.86	217.96	274.35
	Max input torque	Nm	810	1555	1908	2775	3493
	Max output power	kW	3.21	4.82	10.07	15.55	21.95
	Max output torque	Nm	511	767	1603	2476	3493
900RPM input speed	Efficiency		87.4%	88.9%	89.3%	89.9%	91.5%
	Output speed	RPM	72.0	72.0	72.0	72.0	72.0
	Max input power	kW	77.02	146.53	179.83	261.55	329.22
	Max input torque	Nm	817	1555	1908	2775	3493
	Max output power	kW	3.56	5.48	11.44	17.62	25.89
	Max output torque	Nm	472	726	1518	2337	3434
1000RPM input speed	Efficiency		87.9%	89.3%	89.7%	90.3%	91.7%
	Output speed	RPM	80.0	80.0	80.0	80.0	80.0
	Max input power	kW	85.84	162.81	199.81	290.61	365.80
	Max input torque	Nm	820	1555	1908	2775	3493
	Max output power	kW	3.84	5.90	12.32	18.62	27.88
	Max output torque	Nm	458	704	1471	2223	3328
1200RPM input speed	Efficiency		88.8%	90.0%	90.3%	90.8%	92.2%
	Output speed	RPM	96.0	96.0	96.0	96.0	96.0
	Max input power	kW	103.61	195.37	239.77	348.73	438.96
	Max input torque	Nm	824	1555	1908	2775	3493
	Max output power	kW	4.33	6.70	14.00	21.31	31.68
	Max output torque	Nm	430	667	1393	2120	3152
1500RPM input speed	Efficiency		89.7%	90.8%	90.9%	91.3%	92.7%
	Output speed	RPM	120.0	120.0	120.0	120.0	120.0
	Max input power	kW	130.49	244.22	299.72	435.91	548.70
	Max input torque	Nm	831	1555	1908	2775	3493
	Max output power	kW	4.90	7.84	16.37	24.40	37.05
	Max output torque	Nm	390	624	1303	1942	2948
1800RPM input speed	Efficiency		90.3%	91.3%	91.3%	91.6%	93.0%
	Output speed	RPM	144.0	144.0	144.0	144.0	144.0
	Max input power	kW	157.16	293.06	359.66	523.09	658.44
	Max input torque	Nm	834	1555	1908	2775	3493
	Max output power	kW	5.56	8.91	18.14	26.42	42.10
	Max output torque	Nm	369	591	1203	1752	2792

Rolling Mill Ratings
Metric 15:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	14.5	14.5	14.5	15.5	15.5
500RPM input speed	Efficiency		84.9%	84.7%	86.8%	86.6%	88.0%
	Output speed	RPM	34.5	34.5	34.5	32.3	32.3
	Max input power	kW	20.02	81.41	99.91	145.30	182.90
	Max input torque	Nm	382	1555	1908	2775	3493
	Max output power	kW	2.17	3.19	6.24	9.37	11.80
	Max output torque	Nm	601	884	1729	2775	3493
600RPM input speed	Efficiency		85.8%	85.6%	87.8%	87.5%	88.9%
	Output speed	RPM	41.4	41.4	41.4	38.7	38.7
	Max input power	kW	24.97	97.69	119.89	174.36	219.48
	Max input torque	Nm	397	1555	1908	2775	3493
	Max output power	kW	2.44	3.63	7.49	11.25	14.16
	Max output torque	Nm	563	837	1729	2775	3493
750RPM input speed	Efficiency		86.8%	86.8%	88.9%	88.6%	89.8%
	Output speed	RPM	51.7	51.7	51.7	48.4	48.4
	Max input power	kW	32.22	122.11	149.86	217.96	274.35
	Max input torque	Nm	410	1555	1908	2775	3493
	Max output power	kW	2.86	4.24	9.19	13.40	17.70
	Max output torque	Nm	528	783	1696	2644	3493
900RPM input speed	Efficiency		87.6%	87.8%	89.6%	89.3%	90.4%
	Output speed	RPM	62.1	62.1	62.1	58.1	58.1
	Max input power	kW	39.59	146.53	179.83	261.55	329.22
	Max input torque	Nm	420	1555	1908	2775	3493
	Max output power	kW	3.24	4.82	10.44	15.23	21.24
	Max output torque	Nm	498	742	1606	2504	3493
1000RPM input speed	Efficiency		88.1%	88.3%	90.0%	89.7%	90.7%
	Output speed	RPM	69.0	69.0	69.0	64.5	64.5
	Max input power	kW	44.71	162.81	199.81	290.61	365.80
	Max input torque	Nm	427	1555	1908	2775	3493
	Max output power	kW	3.43	5.19	11.24	16.40	23.00
	Max output torque	Nm	475	719	1557	2427	3405
1200RPM input speed	Efficiency		89.0%	89.0%	90.6%	90.3%	91.3%
	Output speed	RPM	82.8	82.8	82.8	77.4	77.4
	Max input power	kW	54.63	195.37	239.77	348.73	438.96
	Max input torque	Nm	435	1555	1908	2775	3493
	Max output power	kW	3.88	5.90	12.78	18.63	26.14
	Max output torque	Nm	448	681	1474	2298	3225
1500RPM input speed	Efficiency		89.9%	89.8%	91.3%	90.9%	91.8%
	Output speed	RPM	103.4	103.4	103.4	96.8	96.8
	Max input power	kW	69.76	244.22	299.72	435.91	548.70
	Max input torque	Nm	444	1555	1908	2775	3493
	Max output power	kW	4.46	6.90	14.94	21.79	30.57
	Max output torque	Nm	412	637	1379	2150	3017
1800RPM input speed	Efficiency		90.6%	90.4%	91.7%	91.3%	92.1%
	Output speed	RPM	124.1	124.1	124.1	116.1	116.1
	Max input power	kW	85.00	293.06	359.66	523.09	658.44
	Max input torque	Nm	451	1555	1908	2775	3493
	Max output power	kW	4.96	7.84	16.98	24.76	34.74
	Max output torque	Nm	382	603	1306	2036	2857

Rolling Mill Ratings
Metric 20:1

			Unit Size				
	Description		3	4	5	6	7
	Actual ratio		20	20	20	21	20
500RPM input speed	Efficiency		74.9%	79.8%	79.9%	82.3%	83.5%
	Output speed	RPM	25.0	25.0	25.0	23.8	25.0
	Max input power	kW	69.38	81.41	99.91	145.30	182.90
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.44	2.29	4.53	6.92	9.14
	Max output torque	Nm	551	873	1729	2775	3493
600RPM input speed	Efficiency		76.2%	81.0%	81.3%	83.5%	84.5%
	Output speed	RPM	30.0	30.0	30.0	28.6	30.0
	Max input power	kW	83.26	97.69	119.89	174.36	219.48
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.64	2.60	5.43	8.30	10.97
	Max output torque	Nm	522	827	1729	2775	3493
750RPM input speed	Efficiency		78.0%	82.6%	82.8%	84.8%	85.7%
	Output speed	RPM	37.5	37.5	37.5	35.7	37.5
	Max input power	kW	104.07	122.11	149.86	217.96	274.35
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.91	3.04	6.58	9.81	13.72
	Max output torque	Nm	486	773	1676	2622	3493
900RPM input speed	Efficiency		79.4%	83.7%	83.8%	85.7%	86.5%
	Output speed	RPM	45.0	45.0	45.0	42.9	45.0
	Max input power	kW	124.88	146.53	179.83	261.55	329.22
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	2.17	3.45	7.48	11.14	15.91
	Max output torque	Nm	460	732	1587	2483	3375
1000RPM input speed	Efficiency		80.2%	84.3%	84.4%	86.2%	86.9%
	Output speed	RPM	50.0	50.0	50.0	47.6	50.0
	Max input power	kW	138.76	162.81	199.81	290.61	365.80
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	2.31	3.72	8.05	12.00	17.13
	Max output torque	Nm	441	710	1538	2406	3271
1200RPM input speed	Efficiency		81.4%	85.3%	85.2%	86.9%	87.5%
	Output speed	RPM	60.0	60.0	60.0	57.1	60.0
	Max input power	kW	166.51	195.37	239.77	348.73	438.96
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	2.61	4.22	9.15	13.63	19.46
	Max output torque	Nm	415	672	1457	2278	3097
1500RPM input speed	Efficiency		82.7%	86.3%	86.2%	87.7%	88.2%
	Output speed	RPM	75.0	75.0	75.0	71.4	75.0
	Max input power	kW	208.14	244.22	299.72	435.91	548.70
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	2.99	4.94	10.70	15.94	22.76
	Max output torque	Nm	381	629	1363	2131	2898
1800RPM input speed	Efficiency		83.7%	87.0%	86.8%	88.2%	88.6%
	Output speed	RPM	90.0	90.0	90.0	85.7	90.0
	Max input power	kW	249.77	293.06	359.66	523.09	658.44
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	3.26	5.61	12.16	18.11	25.81
	Max output torque	Nm	345	595	1290	2018	2738

Rolling Mill Ratings
Metric 25:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	25	25	25	25	25
500RPM input speed	Efficiency		72.7%	76.1%	78.7%	78.9%	82.3%
	Output speed	RPM	20.0	20.0	20.0	20.0	20.0
	Max input power	kW	65.80	81.41	99.91	145.30	182.90
	Max input torque	Nm	1257	1555	1908	2775	3493
	Max output power	kW	1.18	1.84	3.62	5.81	7.32
	Max output torque	Nm	564	876	1729	2775	3493
600RPM input speed	Efficiency		74.0%	77.4%	80.1%	80.3%	83.5%
	Output speed	RPM	24.0	24.0	24.0	24.0	24.0
	Max input power	kW	79.18	97.69	119.89	174.36	219.48
	Max input torque	Nm	1260	1555	1908	2775	3493
	Max output power	kW	1.35	2.09	4.35	6.97	8.78
	Max output torque	Nm	539	830	1729	2775	3493
750RPM input speed	Efficiency		75.7%	79.3%	81.7%	81.8%	84.8%
	Output speed	RPM	30.0	30.0	30.0	30.0	30.0
	Max input power	kW	99.41	122.11	149.86	217.96	274.35
	Max input torque	Nm	1266	1555	1908	2775	3493
	Max output power	kW	1.56	2.44	5.43	8.26	10.97
	Max output torque	Nm	497	776	1729	2631	3493
900RPM input speed	Efficiency		77.3%	80.6%	82.9%	82.8%	85.7%
	Output speed	RPM	36.0	36.0	36.0	36.0	36.0
	Max input power	kW	119.59	146.53	179.83	261.55	329.22
	Max input torque	Nm	1269	1555	1908	2775	3493
	Max output power	kW	1.78	2.77	6.21	9.39	13.17
	Max output torque	Nm	471	735	1648	2491	3493
1000RPM input speed	Efficiency		78.1%	81.3%	83.5%	83.4%	86.2%
	Output speed	RPM	40.0	40.0	40.0	40.0	40.0
	Max input power	kW	133.04	162.81	199.81	290.61	365.80
	Max input torque	Nm	1270	1555	1908	2775	3493
	Max output power	kW	1.92	2.98	6.69	10.11	14.53
	Max output torque	Nm	457	713	1597	2414	3470
1200RPM input speed	Efficiency		79.5%	82.4%	84.4%	84.2%	86.9%
	Output speed	RPM	48.0	48.0	48.0	48.0	48.0
	Max input power	kW	160.10	195.37	239.77	348.73	438.96
	Max input torque	Nm	1274	1555	1908	2775	3493
	Max output power	kW	2.14	3.39	7.60	11.49	16.52
	Max output torque	Nm	425	675	1513	2286	3286
1500RPM input speed	Efficiency		81.0%	83.6%	85.4%	85.1%	87.7%
	Output speed	RPM	60.0	60.0	60.0	60.0	60.0
	Max input power	kW	200.86	244.22	299.72	435.91	548.70
	Max input torque	Nm	1279	1555	1908	2775	3493
	Max output power	kW	2.37	3.97	8.89	13.44	19.31
	Max output torque	Nm	378	631	1415	2139	3074
1800RPM input speed	Efficiency		82.0%	84.4%	86.1%	85.8%	88.2%
	Output speed	RPM	72.0	72.0	72.0	72.0	72.0
	Max input power	kW	241.61	293.06	359.66	523.09	658.44
	Max input torque	Nm	1282	1555	1908	2775	3493
	Max output power	kW	2.58	4.51	10.10	15.27	21.95
	Max output torque	Nm	343	598	1340	2025	2911

Rolling Mill Ratings
Metric 30:1

		Description	Unit Size				
			3	4	5	6	7
		Actual ratio	29	30	30	30	29
500RPM input speed	Efficiency		68.0%	73.8%	77.2%	78.1%	80.8%
	Output speed	RPM	17.2	16.7	16.7	16.7	17.2
	Max input power	kW	69.38	81.41	99.91	145.30	182.90
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	0.89	1.57	3.02	4.84	6.31
	Max output torque	Nm	494	900	1729	2775	3493
600RPM input speed	Efficiency		69.6%	75.2%	78.5%	79.5%	82.1%
	Output speed	RPM	20.7	20.0	20.0	20.0	20.7
	Max input power	kW	83.26	97.69	119.89	174.36	219.48
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.02	1.79	3.62	5.81	7.57
	Max output torque	Nm	470	852	1729	2775	3493
750RPM input speed	Efficiency		71.6%	77.1%	80.3%	81.1%	83.4%
	Output speed	RPM	25.9	25.0	25.0	25.0	25.9
	Max input power	kW	104.07	122.11	149.86	217.96	274.35
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.18	2.09	4.53	7.14	9.46
	Max output torque	Nm	435	798	1729	2726	3493
900RPM input speed	Efficiency		73.3%	78.5%	81.5%	82.2%	84.4%
	Output speed	RPM	31.0	30.0	30.0	30.0	31.0
	Max input power	kW	124.88	146.53	179.83	261.55	329.22
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.34	2.37	5.32	8.11	11.35
	Max output torque	Nm	412	755	1695	2581	3493
1000RPM input speed	Efficiency		74.3%	79.3%	82.2%	82.8%	84.9%
	Output speed	RPM	34.5	33.3	33.3	33.3	34.5
	Max input power	kW	138.76	162.81	199.81	290.61	365.80
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.42	2.55	5.73	8.73	12.61
	Max output torque	Nm	394	732	1642	2501	3493
1200RPM input speed	Efficiency		75.7%	80.5%	83.2%	83.8%	85.7%
	Output speed	RPM	41.4	40.0	40.0	40.0	41.4
	Max input power	kW	166.51	195.37	239.77	348.73	438.96
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.58	2.90	6.52	9.92	14.48
	Max output torque	Nm	364	693	1555	2369	3341
1500RPM input speed	Efficiency		77.3%	81.8%	84.3%	84.8%	86.6%
	Output speed	RPM	51.7	50.0	50.0	50.0	51.7
	Max input power	kW	208.14	244.22	299.72	435.91	548.70
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.75	3.39	7.62	11.60	16.93
	Max output torque	Nm	322	648	1455	2216	3126
1800RPM input speed	Efficiency		78.5%	82.8%	85.1%	85.4%	87.1%
	Output speed	RPM	62.1	60.0	60.0	60.0	62.1
	Max input power	kW	249.77	293.06	359.66	523.09	658.44
	Max input torque	Nm	1325	1555	1908	2775	3493
	Max output power	kW	1.90	3.86	8.66	13.18	19.24
	Max output torque	Nm	292	614	1378	2098	2960

All ratings assume that there is no overhung load on the input/output shafts.

Rolling Mill Ratings
Imperial 5:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	5.25	4.75	5.5	4.5	4.666667
500RPM input speed	Efficiency		91.4%	92.9%	93.3%	94.5%	94.7%
	Output speed	RPM	95.2	105.3	90.9	111.1	107.1
	Max input power	HP	89.61	109.17	133.98	194.86	245.27
	Max input torque	lb.in	11296	13760	16888	24562	30917
	Max output power	HP	7.08	8.95	16.46	31.52	39.19
	Max output torque	lb.in	4688	7184	15302	23977	30917
600RPM input speed	Efficiency		92.0%	93.4%	93.8%	94.9%	95.1%
	Output speed	RPM	114.3	126.3	109.1	133.3	128.6
	Max input power	HP	107.97	131.00	160.77	233.83	294.33
	Max input torque	lb.in	11341	13760	16888	24562	30917
	Max output power	HP	8.05	10.17	18.85	35.84	47.03
	Max output torque	lb.in	4442	6806	14601	22717	30917
750RPM input speed	Efficiency		92.7%	94.0%	94.4%	95.3%	95.5%
	Output speed	RPM	142.9	157.9	136.4	166.7	160.7
	Max input power	HP	135.82	163.75	200.96	292.28	367.91
	Max input torque	lb.in	11414	13760	16888	24562	30917
	Max output power	HP	9.23	11.90	21.42	41.93	55.22
	Max output torque	lb.in	4072	6370	13277	21262	29038
900RPM input speed	Efficiency		93.2%	94.5%	94.8%	95.6%	95.8%
	Output speed	RPM	171.4	189.5	163.6	200.0	192.9
	Max input power	HP	163.58	196.50	241.16	350.74	441.49
	Max input torque	lb.in	11455	13760	16888	24562	30917
	Max output power	HP	10.36	13.53	24.24	47.66	62.77
	Max output torque	lb.in	3810	6034	12521	20141	27507
1000RPM input speed	Efficiency		93.5%	94.7%	95.0%	95.8%	95.9%
	Output speed	RPM	190.5	210.5	181.8	222.2	214.3
	Max input power	HP	182.06	218.33	267.95	389.71	490.54
	Max input torque	lb.in	11474	13760	16888	24562	30917
	Max output power	HP	11.12	14.57	25.80	51.32	67.59
	Max output torque	lb.in	3679	5848	11995	19520	26658
1200RPM input speed	Efficiency		94.0%	95.0%	95.3%	96.0%	96.1%
	Output speed	RPM	228.6	252.6	218.2	266.7	257.1
	Max input power	HP	219.23	262.00	321.54	467.65	588.65
	Max input torque	lb.in	11514	13760	16888	24562	30917
	Max output power	HP	12.30	16.56	28.03	58.33	76.82
	Max output torque	lb.in	3391	5539	10860	18488	25249
1500RPM input speed	Efficiency		94.5%	95.4%	95.6%	96.3%	96.3%
	Output speed	RPM	285.7	315.8	272.7	333.3	321.4
	Max input power	HP	275.06	327.50	401.93	584.57	735.82
	Max input torque	lb.in	11557	13760	16888	24562	30917
	Max output power	HP	13.80	19.36	31.79	68.22	89.84
	Max output torque	lb.in	3043	5183	9851	17298	23624
1800RPM input speed	Efficiency		94.8%	95.7%	95.8%	96.4%	96.5%
	Output speed	RPM	342.9	378.9	327.3	400.0	385.7
	Max input power	HP	330.86	393.00	482.32	701.48	882.98
	Max input torque	lb.in	11585	13760	16888	24562	30917
	Max output power	HP	15.21	21.62	35.19	75.71	101.29
	Max output torque	lb.in	2797	4821	9088	15998	22195

Rolling Mill Ratings
Imperial 10:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	10.5	10.5	9.666667	10.5	9.333333
500RPM input speed	Efficiency		85.5%	87.7%	90.7%	89.3%	92.0%
	Output speed	RPM	47.6	47.6	51.7	47.6	53.6
	Max input power	HP	93.04	109.17	133.98	194.86	245.27
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	3.55	5.63	12.56	18.56	26.28
	Max output torque	lb.in	4703	7454	15302	24562	30917
600RPM input speed	Efficiency		86.3%	88.5%	91.4%	90.1%	92.6%
	Output speed	RPM	57.1	57.1	62.1	57.1	64.3
	Max input power	HP	111.65	131.00	160.77	233.83	294.33
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	4.06	6.40	15.07	21.53	31.54
	Max output torque	lb.in	4476	7061	15302	23752	30917
750RPM input speed	Efficiency		87.5%	89.6%	92.2%	90.9%	93.2%
	Output speed	RPM	71.4	71.4	77.6	71.4	80.4
	Max input power	HP	139.56	163.75	200.96	292.28	367.91
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	4.62	7.49	18.65	25.19	39.42
	Max output torque	lb.in	4077	6607	15152	22224	30917
900RPM input speed	Efficiency		88.4%	90.3%	92.7%	91.5%	93.7%
	Output speed	RPM	85.7	85.7	93.1	85.7	96.4
	Max input power	HP	167.47	196.50	241.16	350.74	441.49
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	5.26	8.51	21.20	28.62	46.17
	Max output torque	lb.in	3868	6257	14353	21047	30179
1000RPM input speed	Efficiency		88.9%	90.7%	93.0%	91.7%	93.9%
	Output speed	RPM	95.2	95.2	103.4	95.2	107.1
	Max input power	HP	186.08	218.33	267.95	389.71	490.54
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	5.62	9.16	22.83	30.82	49.72
	Max output torque	lb.in	3722	6063	13910	20396	29246
1200RPM input speed	Efficiency		89.6%	91.3%	93.5%	92.2%	94.2%
	Output speed	RPM	114.3	114.3	124.1	114.3	128.6
	Max input power	HP	223.29	262.00	321.54	467.65	588.65
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	6.17	10.41	25.95	35.02	56.50
	Max output torque	lb.in	3401	5742	13175	19315	27698
1500RPM input speed	Efficiency		90.4%	91.9%	94.0%	92.7%	94.6%
	Output speed	RPM	142.9	142.9	155.2	142.9	160.7
	Max input power	HP	279.12	327.50	401.93	584.57	735.82
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	7.22	12.18	30.35	40.16	66.08
	Max output torque	lb.in	3187	5372	12327	17716	25914
1800RPM input speed	Efficiency		91.0%	92.3%	94.3%	93.0%	94.8%
	Output speed	RPM	171.4	171.4	186.2	171.4	192.9
	Max input power	HP	334.94	393.00	482.32	701.48	882.98
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	8.03	13.84	34.49	43.98	75.09
	Max output torque	lb.in	2953	5087	11674	16170	24540

Rolling Mill Ratings
Imperial 12:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	12.5	12.5	12.5	12.5	12.5
500RPM input speed	Efficiency		84.5%	86.0%	86.6%	87.5%	89.3%
	Output speed	RPM	40.0	40.0	40.0	40.0	40.0
	Max input power	HP	55.84	109.17	133.98	194.86	245.27
	Max input torque	lb.in	7038	13760	16888	24562	30917
	Max output power	HP	3.24	4.86	9.71	15.59	19.62
	Max output torque	lb.in	5109	7659	15302	24562	30917
600RPM input speed	Efficiency		85.3%	86.9%	87.5%	88.4%	90.1%
	Output speed	RPM	48.0	48.0	48.0	48.0	48.0
	Max input power	HP	67.63	131.00	160.77	233.83	294.33
	Max input torque	lb.in	7104	13760	16888	24562	30917
	Max output power	HP	3.67	5.52	11.55	17.84	23.55
	Max output torque	lb.in	4823	7254	15159	23418	30917
750RPM input speed	Efficiency		86.4%	88.1%	88.6%	89.3%	90.9%
	Output speed	RPM	60.0	60.0	60.0	60.0	60.0
	Max input power	HP	85.29	163.75	200.96	292.28	367.91
	Max input torque	lb.in	7167	13760	16888	24562	30917
	Max output power	HP	4.30	6.46	13.50	20.86	29.43
	Max output torque	lb.in	4519	6788	14184	21910	30917
900RPM input speed	Efficiency		87.4%	88.9%	89.3%	89.9%	91.5%
	Output speed	RPM	72.0	72.0	72.0	72.0	72.0
	Max input power	HP	103.28	196.50	241.16	350.74	441.49
	Max input torque	lb.in	7233	13760	16888	24562	30917
	Max output power	HP	4.77	7.34	15.35	23.63	34.72
	Max output torque	lb.in	4179	6429	13434	20682	30394
1000RPM input speed	Efficiency		87.9%	89.3%	89.7%	90.3%	91.7%
	Output speed	RPM	80.0	80.0	80.0	80.0	80.0
	Max input power	HP	115.11	218.33	267.95	389.71	490.54
	Max input torque	lb.in	7255	13760	16888	24562	30917
	Max output power	HP	5.15	7.91	16.52	24.97	37.39
	Max output torque	lb.in	4058	6230	13018	19671	29454
1200RPM input speed	Efficiency		88.8%	90.0%	90.3%	90.8%	92.2%
	Output speed	RPM	96.0	96.0	96.0	96.0	96.0
	Max input power	HP	138.94	262.00	321.54	467.65	588.65
	Max input torque	lb.in	7297	13760	16888	24562	30917
	Max output power	HP	5.80	8.99	18.78	28.58	42.49
	Max output torque	lb.in	3809	5900	12328	18766	27894
1500RPM input speed	Efficiency		89.7%	90.8%	90.9%	91.3%	92.7%
	Output speed	RPM	120.0	120.0	120.0	120.0	120.0
	Max input power	HP	174.99	327.50	401.93	584.57	735.82
	Max input torque	lb.in	7353	13760	16888	24562	30917
	Max output power	HP	6.57	10.51	21.96	32.72	49.69
	Max output torque	lb.in	3452	5519	11533	17186	26095
1800RPM input speed	Efficiency		90.3%	91.3%	91.3%	91.6%	93.0%
	Output speed	RPM	144.0	144.0	144.0	144.0	144.0
	Max input power	HP	210.76	393.00	482.32	701.48	882.98
	Max input torque	lb.in	7380	13760	16888	24562	30917
	Max output power	HP	7.46	11.94	24.32	35.43	56.46
	Max output torque	lb.in	3264	5227	10646	15505	24711

Rolling Mill Ratings
Imperial 15:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	14.5	14.5	14.5	15.5	15.5
500RPM input speed	Efficiency		84.9%	84.7%	86.8%	86.6%	88.0%
	Output speed	RPM	34.5	34.5	34.5	32.3	32.3
	Max input power	HP	26.85	109.17	133.98	194.86	245.27
	Max input torque	lb.in	3384	13760	16888	24562	30917
	Max output power	HP	2.91	4.28	8.37	12.57	15.82
	Max output torque	lb.in	5320	7822	15302	24562	30917
600RPM input speed	Efficiency		85.8%	85.6%	87.8%	87.5%	88.9%
	Output speed	RPM	41.4	41.4	41.4	38.7	38.7
	Max input power	HP	33.49	131.00	160.77	233.83	294.33
	Max input torque	lb.in	3518	13760	16888	24562	30917
	Max output power	HP	3.27	4.86	10.05	15.09	18.99
	Max output torque	lb.in	4986	7409	15302	24562	30917
750RPM input speed	Efficiency		86.8%	86.8%	88.9%	88.6%	89.8%
	Output speed	RPM	51.7	51.7	51.7	48.4	48.4
	Max input power	HP	43.21	163.75	200.96	292.28	367.91
	Max input torque	lb.in	3631	13760	16888	24562	30917
	Max output power	HP	3.84	5.69	12.32	17.97	23.74
	Max output torque	lb.in	4674	6932	15012	23405	30917
900RPM input speed	Efficiency		87.6%	87.8%	89.6%	89.3%	90.4%
	Output speed	RPM	62.1	62.1	62.1	58.1	58.1
	Max input power	HP	53.09	196.50	241.16	350.74	441.49
	Max input torque	lb.in	3718	13760	16888	24562	30917
	Max output power	HP	4.34	6.47	14.00	20.42	28.48
	Max output torque	lb.in	4410	6566	14218	22166	30917
1000RPM input speed	Efficiency		88.1%	88.3%	90.0%	89.7%	90.7%
	Output speed	RPM	69.0	69.0	69.0	64.5	64.5
	Max input power	HP	59.96	218.33	267.95	389.71	490.54
	Max input torque	lb.in	3779	13760	16888	24562	30917
	Max output power	HP	4.60	6.96	15.08	21.99	30.85
	Max output torque	lb.in	4208	6363	13778	21480	30137
1200RPM input speed	Efficiency		89.0%	89.0%	90.6%	90.3%	91.3%
	Output speed	RPM	82.8	82.8	82.8	77.4	77.4
	Max input power	HP	73.25	262.00	321.54	467.65	588.65
	Max input torque	lb.in	3847	13760	16888	24562	30917
	Max output power	HP	5.21	7.91	17.13	24.99	35.06
	Max output torque	lb.in	3967	6026	13048	20342	28541
1500RPM input speed	Efficiency		89.9%	89.8%	91.3%	90.9%	91.8%
	Output speed	RPM	103.4	103.4	103.4	96.8	96.8
	Max input power	HP	93.54	327.50	401.93	584.57	735.82
	Max input torque	lb.in	3930	13760	16888	24562	30917
	Max output power	HP	5.98	9.25	20.04	29.22	41.00
	Max output torque	lb.in	3642	5637	12207	19030	26700
1800RPM input speed	Efficiency		90.6%	90.4%	91.7%	91.3%	92.1%
	Output speed	RPM	124.1	124.1	124.1	116.1	116.1
	Max input power	HP	113.99	393.00	482.32	701.48	882.98
	Max input torque	lb.in	3991	13760	16888	24562	30917
	Max output power	HP	6.65	10.51	22.77	33.20	46.59
	Max output torque	lb.in	3377	5338	11559	18020	25284

Rolling Mill Ratings
Imperial 20:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	20	20	20	21	20
500RPM input speed	Efficiency		74.9%	79.8%	79.9%	82.3%	83.5%
	Output speed	RPM	25.0	25.0	25.0	23.8	25.0
	Max input power	HP	93.04	109.17	133.98	194.86	245.27
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.94	3.06	6.07	9.28	12.26
	Max output torque	lb.in	4879	7725	15302	24562	30917
600RPM input speed	Efficiency		76.2%	81.0%	81.3%	83.5%	84.5%
	Output speed	RPM	30.0	30.0	30.0	28.6	30.0
	Max input power	HP	111.65	131.00	160.77	233.83	294.33
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.20	3.48	7.28	11.13	14.72
	Max output torque	lb.in	4621	7316	15302	24562	30917
750RPM input speed	Efficiency		78.0%	82.6%	82.8%	84.8%	85.7%
	Output speed	RPM	37.5	37.5	37.5	35.7	37.5
	Max input power	HP	139.56	163.75	200.96	292.28	367.91
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.56	4.07	8.83	13.15	18.40
	Max output torque	lb.in	4306	6845	14832	23204	30917
900RPM input speed	Efficiency		79.4%	83.7%	83.8%	85.7%	86.5%
	Output speed	RPM	45.0	45.0	45.0	42.9	45.0
	Max input power	HP	167.47	196.50	241.16	350.74	441.49
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.90	4.63	10.03	14.94	21.33
	Max output torque	lb.in	4068	6483	14048	21975	29876
1000RPM input speed	Efficiency		80.2%	84.3%	84.4%	86.2%	86.9%
	Output speed	RPM	50.0	50.0	50.0	47.6	50.0
	Max input power	HP	186.08	218.33	267.95	389.71	490.54
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	3.09	4.98	10.80	16.09	22.97
	Max output torque	lb.in	3900	6282	13613	21294	28950
1200RPM input speed	Efficiency		81.4%	85.3%	85.2%	86.9%	87.5%
	Output speed	RPM	60.0	60.0	60.0	57.1	60.0
	Max input power	HP	223.29	262.00	321.54	467.65	588.65
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	3.49	5.66	12.27	18.28	26.10
	Max output torque	lb.in	3671	5949	12892	20165	27415
1500RPM input speed	Efficiency		82.7%	86.3%	86.2%	87.7%	88.2%
	Output speed	RPM	75.0	75.0	75.0	71.4	75.0
	Max input power	HP	279.12	327.50	401.93	584.57	735.82
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	4.01	6.62	14.35	21.38	30.52
	Max output torque	lb.in	3372	5565	12061	18863	25645
1800RPM input speed	Efficiency		83.7%	87.0%	86.8%	88.2%	88.6%
	Output speed	RPM	90.0	90.0	90.0	85.7	90.0
	Max input power	HP	334.94	393.00	482.32	701.48	882.98
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	4.37	7.52	16.31	24.29	34.61
	Max output torque	lb.in	3058	5270	11421	17862	24236

Rolling Mill Ratings
Imperial 25:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	25	25	25	25	25
500RPM input speed	Efficiency		72.7%	76.1%	78.7%	78.9%	82.3%
	Output speed	RPM	20.0	20.0	20.0	20.0	20.0
	Max input power	HP	88.24	109.17	133.98	194.86	245.27
	Max input torque	lb.in	11123	13760	16888	24562	30917
	Max output power	HP	1.58	2.46	4.86	7.79	9.81
	Max output torque	lb.in	4991	7756	15302	24562	30917
600RPM input speed	Efficiency		74.0%	77.4%	80.1%	80.3%	83.5%
	Output speed	RPM	24.0	24.0	24.0	24.0	24.0
	Max input power	HP	106.19	131.00	160.77	233.83	294.33
	Max input torque	lb.in	11154	13760	16888	24562	30917
	Max output power	HP	1.82	2.80	5.83	9.35	11.77
	Max output torque	lb.in	4768	7345	15302	24562	30917
750RPM input speed	Efficiency		75.7%	79.3%	81.7%	81.8%	84.8%
	Output speed	RPM	30.0	30.0	30.0	30.0	30.0
	Max input power	HP	133.31	163.75	200.96	292.28	367.91
	Max input torque	lb.in	11202	13760	16888	24562	30917
	Max output power	HP	2.09	3.27	7.28	11.08	14.72
	Max output torque	lb.in	4398	6872	15302	23284	30917
900RPM input speed	Efficiency		77.3%	80.6%	82.9%	82.8%	85.7%
	Output speed	RPM	36.0	36.0	36.0	36.0	36.0
	Max input power	HP	160.37	196.50	241.16	350.74	441.49
	Max input torque	lb.in	11230	13760	16888	24562	30917
	Max output power	HP	2.38	3.72	8.33	12.60	17.66
	Max output torque	lb.in	4169	6508	14587	22051	30917
1000RPM input speed	Efficiency		78.1%	81.3%	83.5%	83.4%	86.2%
	Output speed	RPM	40.0	40.0	40.0	40.0	40.0
	Max input power	HP	178.41	218.33	267.95	389.71	490.54
	Max input torque	lb.in	11244	13760	16888	24562	30917
	Max output power	HP	2.57	4.00	8.97	13.56	19.49
	Max output torque	lb.in	4048	6306	14136	21368	30710
1200RPM input speed	Efficiency		79.5%	82.4%	84.4%	84.2%	86.9%
	Output speed	RPM	48.0	48.0	48.0	48.0	48.0
	Max input power	HP	214.69	262.00	321.54	467.65	588.65
	Max input torque	lb.in	11276	13760	16888	24562	30917
	Max output power	HP	2.86	4.55	10.20	15.41	22.15
	Max output torque	lb.in	3761	5972	13387	20234	29082
1500RPM input speed	Efficiency		81.0%	83.6%	85.4%	85.1%	87.7%
	Output speed	RPM	60.0	60.0	60.0	60.0	60.0
	Max input power	HP	269.35	327.50	401.93	584.57	735.82
	Max input torque	lb.in	11317	13760	16888	24562	30917
	Max output power	HP	3.18	5.32	11.92	18.02	25.90
	Max output torque	lb.in	3341	5586	12524	18928	27205
1800RPM input speed	Efficiency		82.0%	84.4%	86.1%	85.8%	88.2%
	Output speed	RPM	72.0	72.0	72.0	72.0	72.0
	Max input power	HP	324.00	393.00	482.32	701.48	882.98
	Max input torque	lb.in	11345	13760	16888	24562	30917
	Max output power	HP	3.47	6.04	13.55	20.48	29.43
	Max output torque	lb.in	3033	5290	11859	17923	25761

Rolling Mill Ratings
Imperial 30:1

	Description		Unit Size				
			3	4	5	6	7
		Actual ratio	29	30	30	30	29
500RPM input speed	Efficiency		68.0%	73.8%	77.2%	78.1%	80.8%
	Output speed	RPM	17.2	16.7	16.7	16.7	17.2
	Max input power	HP	93.04	109.17	133.98	194.86	245.27
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.20	2.11	4.05	6.50	8.46
	Max output torque	lb.in	4375	7967	15302	24562	30917
600RPM input speed	Efficiency		69.6%	75.2%	78.5%	79.5%	82.1%
	Output speed	RPM	20.7	20.0	20.0	20.0	20.7
	Max input power	HP	111.65	131.00	160.77	233.83	294.33
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.37	2.39	4.86	7.79	10.15
	Max output torque	lb.in	4164	7545	15302	24562	30917
750RPM input speed	Efficiency		71.6%	77.1%	80.3%	81.1%	83.4%
	Output speed	RPM	25.9	25.0	25.0	25.0	25.9
	Max input power	HP	139.56	163.75	200.96	292.28	367.91
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.58	2.80	6.07	9.57	12.69
	Max output torque	lb.in	3847	7059	15302	24126	30917
900RPM input speed	Efficiency		73.3%	78.5%	81.5%	82.2%	84.4%
	Output speed	RPM	31.0	30.0	30.0	30.0	31.0
	Max input power	HP	167.47	196.50	241.16	350.74	441.49
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.80	3.18	7.14	10.88	15.22
	Max output torque	lb.in	3649	6685	15001	22848	30917
1000RPM input speed	Efficiency		74.3%	79.3%	82.2%	82.8%	84.9%
	Output speed	RPM	34.5	33.3	33.3	33.3	34.5
	Max input power	HP	186.08	218.33	267.95	389.71	490.54
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	1.91	3.43	7.69	11.71	16.92
	Max output torque	lb.in	3491	6478	14537	22140	30917
1200RPM input speed	Efficiency		75.7%	80.5%	83.2%	83.8%	85.7%
	Output speed	RPM	41.4	40.0	40.0	40.0	41.4
	Max input power	HP	223.29	262.00	321.54	467.65	588.65
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.11	3.89	8.74	13.31	19.42
	Max output torque	lb.in	3219	6134	13767	20966	29573
1500RPM input speed	Efficiency		77.3%	81.8%	84.3%	84.8%	86.6%
	Output speed	RPM	51.7	50.0	50.0	50.0	51.7
	Max input power	HP	279.12	327.50	401.93	584.57	735.82
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.34	4.55	10.22	15.56	22.70
	Max output torque	lb.in	2854	5738	12879	19612	27665
1800RPM input speed	Efficiency		78.5%	82.8%	85.1%	85.4%	87.1%
	Output speed	RPM	62.1	60.0	60.0	60.0	62.1
	Max input power	HP	334.94	393.00	482.32	701.48	882.98
	Max input torque	lb.in	11728	13760	16888	24562	30917
	Max output power	HP	2.55	5.17	11.61	17.68	25.80
	Max output torque	lb.in	2587	5434	12196	18570	26197

All ratings assume that there is no overhung load on the input/output shafts

RENOLD | Gears

Dimensions
Main Gear Unit Dimensions

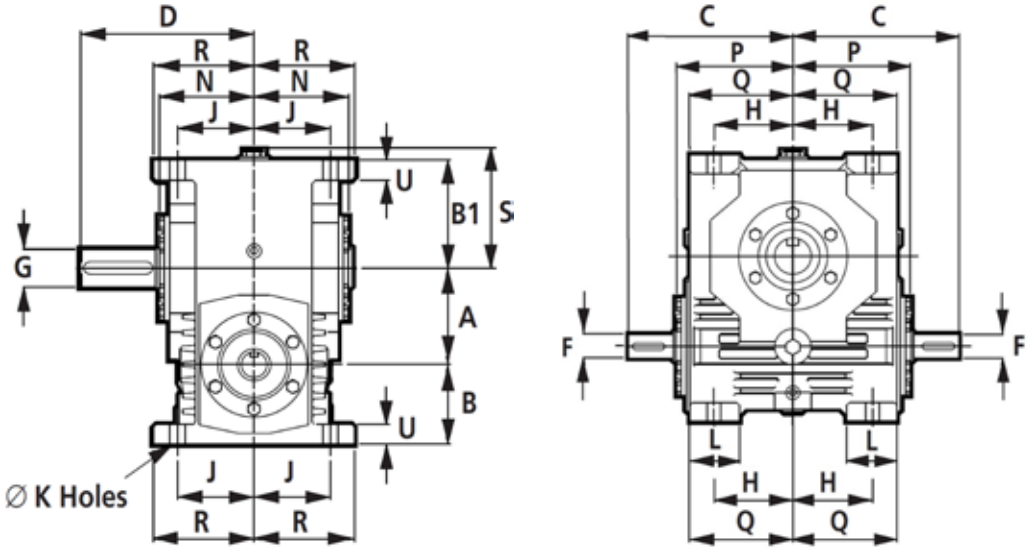


Figure 1 – Main gear unit dimensions

	3		4		5		6		7	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	76.2	3.000	101.6	4.000	127	5.000	152.4	6.000	177.8	7.000
B	105	4.134	108	4.252	114.3	4.500	127	5.000	146.1	5.752
B1	95	3.740	120.7	4.752	146.1	5.752	171.5	6.752	196.9	7.752
C (Metric)	226	8.898	255	10.039	286	11.260	301	11.850	328	12.913
C (ANSI)	224.9	8.854	255.25	10.049	285.6	11.244	300.6	11.835	327.6	12.898
D (Metric)	178	7.008	203	7.992	230	9.055	255	10.039	273	10.748
D (ANSI)	176.9	6.965	203.25	8.002	229.6	9.039	254.6	10.024	272.6	10.732
H	92	3.622	108	4.252	123.8	4.874	133.4	5.252	152.4	6.000
J	92	3.622	101.6	4.000	111.1	4.374	120.7	4.752	133.4	5.252
K	22	0.866	22	0.866	22	0.866	22	0.866	22	0.866
L	55	2.165	65	2.559	75	2.953	85	3.346	95	3.740
N	85	3.346	108	4.252	128	5.039	153	6.024	171	6.732
P	136	5.354	160	6.299	184	7.244	199	7.835	226	8.898
Q	115	4.528	140	5.512	165	6.496	175	6.890	205	8.071
R	110	4.331	120	4.724	135	5.315	150	5.906	155	6.102
S	103	4.055	128	5.039	154	6.063	181	7.126	206	8.110
U	25	0.984	25	0.984	32	1.260	32	1.260	38	1.496

Table 15 – Main gear unit dimensions

Dimensions
Input / Output Shaft Dimensions (Metric)

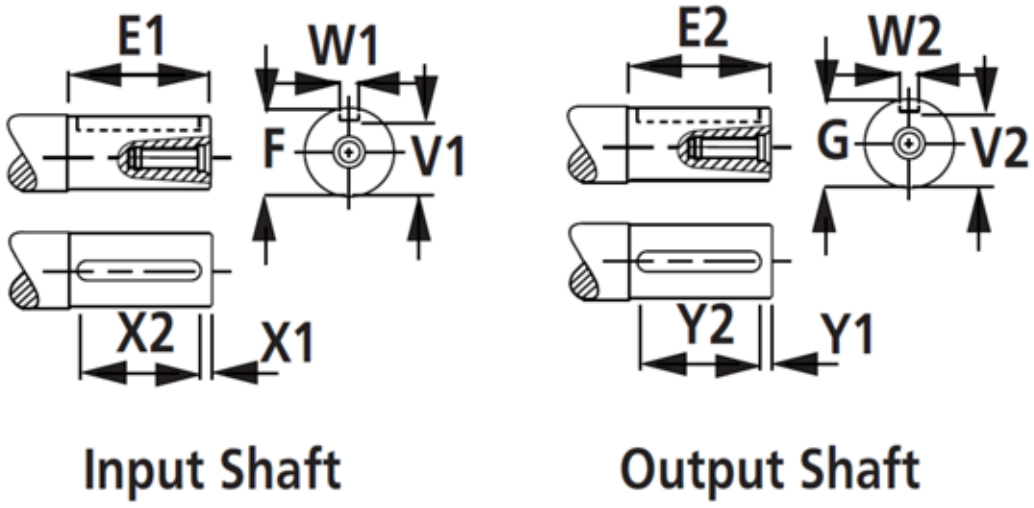


Figure 2 – Input / output shaft dimensions (metric)

		3		4		5		6		7	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Input	E1	90	3.543	95	3.740	102	4.016	102	4.016	102	4.016
	F	45	1.772	50	1.969	55	2.165	65	2.559	75	2.953
	V1	39.5	1.555	44.5	1.752	49	1.929	58	2.283	67.5	2.657
	W1	14	0.551	14	0.551	16	0.630	18	0.709	20	0.787
	X1	5.5	0.217	5.5	0.217	5.5	0.217	4.5	0.177	3.5	0.138
	X2	79	3.110	84	3.307	91	3.583	93	3.661	95	3.740
	Tapped Hole	M16x36		M16x36		M20x42		M20x42		M20x42	
Output	E2	90	3.543	95	3.740	102	4.016	102	4.016	102	4.016
	G	45	1.772	50	1.969	55	2.165	65	2.559	75	2.953
	V2	39.5	1.555	44.5	1.752	49	1.929	58	2.283	67.5	2.657
	W2	14	0.551	14	0.551	16	0.630	18	0.709	20	0.787
	Y1	5.5	0.217	5.5	0.217	5.5	0.217	4.5	0.177	3.5	0.138
	Y2	79	3.110	84	3.307	91	3.583	93	3.661	95	3.740
	Tapped Hole	M16x36		M16x36		M20x42		M20x42		M20x42	

Table 16 – Input / output shaft dimensions (metric)

Dimensions
Input / Output Shaft Dimensions (ANSI)

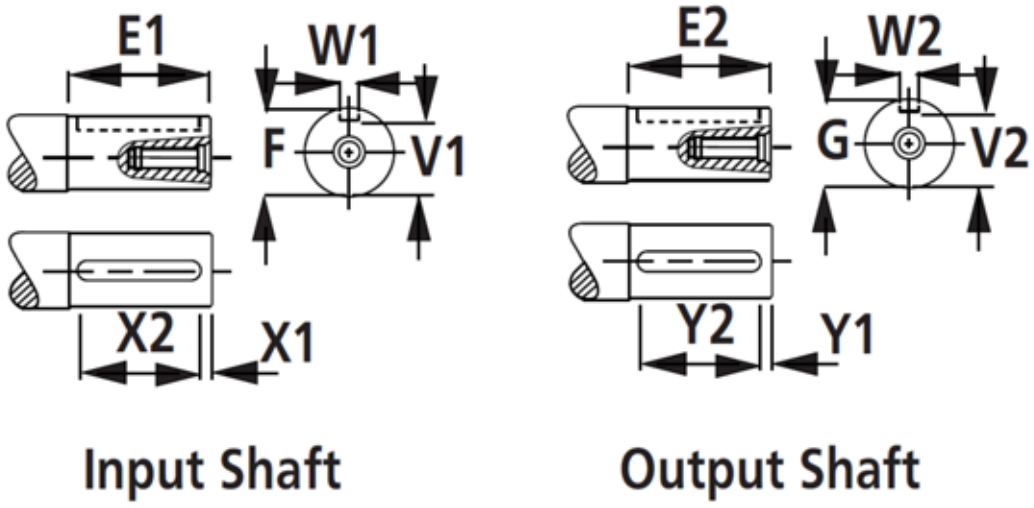


Figure 3 – Input / output shaft dimensions (ANSI)

		3		4		5		6		7	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Input	E1	88.9	3.500	95.25	3.750	101.6	4.000	101.6	4.000	101.6	4.000
	F	47.62	1.875	50.8	2.000	57.15	2.250	66.67	2.625	76.2	3.000
	V1	40.25	1.585	43.48	1.712	49.93	1.966	57.63	2.269	65.30	2.571
	W1	12.7	0.500	12.7	0.500	12.7	0.500	15.87	0.625	19.05	0.750
	X1	6.35	0.250	6.35	0.250	6.35	0.250	4.762	0.188	3.175	0.125
	X2	76.2	3.000	82.55	3.250	88.9	3.500	92.07	3.625	95.25	3.750
	Tapped Hole	5/8-11 UNC x1.5"		5/8-11 UNC x1.5”		3/4-10 UNC x 1.75”		3/4-10 UNC x 1.75”		3/4-10 UNC x 1.75”	
Output	E2	88.9	3.5	95.25	3.75	101.6	4	101.6	4	101.6	4
	G	47.62	1.875	50.8	2	57.15	2.25	66.67	2.625	76.2	3
	V2	40.25	1.585	43.48	1.712	49.93	1.966	57.63	2.269	65.30	2.571
	W2	12.7	0.5	12.7	0.5	12.7	0.5	15.87	0.625	19.05	0.75
	Y1	6.35	0.25	6.35	0.25	6.35	0.25	4.762	0.188	3.175	0.125
	Y2	76.2	3	82.55	3.25	88.9	3.5	92.07	3.625	95.25	3.75
	Tapped Hole	5/8-11 UNC x1.5"		5/8-11 UNC x1.5”		3/4-10 UNC x 1.75”		3/4-10 UNC x 1.75”		3/4-10 UNC x 1.75”	

Table 17 – Input / output shaft dimensions (ANSI)

WM Series
Installation, Maintenance & Storage

Initial Running
All units are supplied without oil.

First Filling
When installed and before running, the unit should be filled with new lubricant to the correct level as follows.

With the gear stationary, remove the filler and breather plug and oil level plug. Fill until the lubricant level is visable at the indicator (if fitted) or until lubricant overflows from oil level aperture. Replace and secure both plugs. Care should be taken to avoid overfilling, as this may cause subsequent leakage.

Starting Up
All units have been subjected to a short test before despatch to the customer but it takes many hours running under full load for the gear to attain its highest efficiency. The gear may if necessary be put to work immediately on full load, but if circumstances permit it is better for the ultimate life of the gear to run it in under gradually increasing load attaining the full load after about 20 to 40 hours. Reasonable precautions should however, be taken to avoid overloads in the early stage of running. Temperature rise on the initial run will be higher than that eventually attained after the gear is fully run in.

Routine Maintenance
The oil level in the unit should be regularly maintained, and should be checked at least once a month. To avoid false readings, examination of the oil level should be made with the gear stationary, and to maintain free ventilation of the unit under all conditions, the breather hole in the filler plug should be kept clear at all times.

Changing Oil
The oil should be changed completely at intervals depending upon the working conditions.

Grease Lubrication of Bearings
Where this feature is included, the bearing caps are fitted with a grease nipple or stauffer lubricator, which should be used to lubricate the bearings.

When mounted with wormshafts vertical, the top bearing requires grease lubrication. Standard units, therefore, need to be modified by the inclusion of a grease nipple and Nilos ring adjacent to the top bearing. Customers must advise us of this requirement when placing enquiries and orders.

Couplings and Bedplates
All couplings should be carefully fitted and shafts accurately aligned. To prevent damage to the bearings, coupling half-bodies should not be hammered onto shafts.

Worm gear units and other drive components should be rigidly mounted on firm foundations to prevent movement and vibration which may affect the alignment of the shafts. Suitable bedplates can be supplied if required.

Abnormal Ambient Temperatures
If the gear unit is to be operated under extremes of temperature or humidity, special oils may be required and recommendations will be made on request.

Storage
All worm gear units stored or left inactive for long periods should be adequately protected, particularly those on exposed sites and those operating in corrosive atmospheres.

The following precautions will generally be adequate, but advice on the protection of particular units will be given, if required.
If empty of oil: spray the gear case interior with rust preventative oil; compatible with lubricant recommended for service conditions.
If filled with oil: operate at full speed once per month for not less than 10minutes to ensure liberal coating of all internal parts with oil.

For indefinite storage: completely fill unit with oil ensuring complete submersion of all internal components and shafts should be occasionally turned by hand. When unit is returned to service, drain and refill with new oil to correct level.

External shaft extensions and oil seals can be protected by the use of grease impregnated tape. Full long term storage specification details can be obtained from Renold on request.

Spare Parts
Information relating to spare parts is available on request.

WM Series
Lubrication Information

Oil Lubrication
The correct fill of oil for the unit size and mounting position can be found in either the appropriate catalogue or the Installation and Maintenance Guide. Only good quality oils should be used, such as those listed below, as the use of inferior or unsuitable products may cause rapid wear and possible damage to the gearbox. Some EP additives such as Sulphur can attack Bronze especially at operating temperatures above 80°C and therefore should be avoided.

Oils with three viscosity ranges (Light, medium and heavy) are listed below, the correct choice depends on the application, operating speed, load and temperature. Temperature and speed can often be the main factor as it effects the operating viscosity. If the unit runs below the catalogue rating and operates at a temperature below 60°C then a light grade oil should be used. Operating at catalogue rating with temperatures up to 100°C require a medium grade, with higher temperatures and loading heavy grade oils should be used.

If the unit is operating with gear speeds below 2.5 m/s (500ft/min) then the next higher grade should be used. Using too heavy a grade than required will result in reduced efficiency, too light a grade will result in premature wear, if in doubt ask Renold Gears Technical Department.

Which oil to select
There are three main oils: Mineral, Synthetic (Polyalphaolefin) and Synthetic (Polyglycol). Mineral oils tend to be cheaper, have a lower life and are less efficient. Synthetic (Polyalphaolefin) can operate over a higher temperature range, are more efficient, give higher ratings and have a longer life and as such are preferred.

The use of Synthetic (Polyglycol) are not recommended without prior discussion with Renold as special paints and seals are required.

If necessary a list of recommended food grade oils is available on request.

Mineral Oil	Light		Medium		Heavy	
		Temp °C		Temp °C		Temp °C
Mobil Gear	630	-13 to 90	632	-13 to 90	634	-1 to 90
Mobil DTE	BB	-7 to 90	AA	2 to 90	HH	2 to 90
Castrol Alpha ZN	220	-9 to 120	320	-9 to 120	460	-9 to 120
Castrol AlphaMax	220	-24 to 80	320	-18 to 80	460	-15 to 80
Shell Vitrea	220	-24 to 120	320	-18 to 120	460	-15 to 120
Shell Omala	220	-9 to 80	320	-9 to 80	460	-9 to 80
Esso Teresso	220	-18 to 120	320	-12 to 120	460	-9 to 120
Esso Spartan EP	220	-30 to 80	320	-27 to 80	460	-18 to 80
Kluber Gem	220	-18 to 100	320	0 to 100	460	0 to 100

Synthetic (Polyalphaolefin)	Light		Medium		Heavy	
		Temp °C		Temp °C		Temp °C
Mobil Gear SHC	630	-42 to 160	632	-42 to 160	634	-39 to 160
Castrol Alpha T	220	-36 to 80	320	-33 to 80	460	-33 to 80
Shell Omala RL	220	-40 to 80	320	-40 to 80	460	-40 to 80
Esso Teresso SHP	220	-42 to 150	320	-36 to 150	460	-30 to 150

Get in touch

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