BOLT LOAD (METRIC) SOCKET HEAD CAP SCREWS B7

40% - 99% YIELD

HYTORC

Southwest Texas	West Texas	Main Office	Southeast Texas	Central & East Texas
4802 Baldwin Blvd.	3508 S County Rd 1290	12420 Texaco Rd	2484 W Cardinal #4	7900 Rodeo Trl. #500
Corpus Christi 78408	Odessa, TX 78765	Houston, TX 77013	Beaumont, TX 77705	Mansfield, TX 76063
361-888-5080	432-561-8481	713-453-6677	409-840-9699	682-334-2679

BOLT LOADS

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 40 PERCENT YIELD

				REQUIRED TORQUE (N-m)								
BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	70.90	155	142	177	199	213	223	284	624	155
M22x2.5	32	303	87.87	211	193	242	271	290	303	387	851	211
M24x3	36	353	102.09	267	245	306	343	368	385	490	1,078	267
M27x3	41	459	133.05	392	359	449	503	539	564	718	1,581	392
M30x3.5	46	561	162.35	531	487	609	682	731	765	974	2,143	531
M33x3.5	50	694	200.86	723	663	829	928	994	1,041	1,326	2,917	723
M36x4	55	817	236.53	928	852	1,064	1,192	1,277	1,337	1,703	3,747	928
M39x4	60	976	282.59	1,201	1,102	1,378	1,543	1,653	1,730	2,204	4,849	1,201
M42x4.5	65	1121	324.63	1,486	1,363	1,704	1,909	2,045	2,141	2,727	5,999	1,486
M45x4.5	70	1306	378.24	1,855	1,702	2,128	2,383	2,553	2,672	3,404	7,489	1,855
M48x5	75	1473	426.64	2,232	2,048	2,560	2,867	3,072	3,215	4,096	9,011	2,232
M52x5	80	1758	509.09	2,886	2,647	3,309	3,706	3,971	4,156	5,295	11,648	2,886
M56x5.5	85	2030	587.92	3,589	3,292	4,115	4,609	4,939	5,169	6,585	14,486	3,589
M60x5.5	90	2362	684.07	4,474	4,104	5,131	5,746	6,157	6,444	8,209	18,059	4,474
M64x6	95	2676	701.13	4,891	4,487	5,609	6,282	6,731	7,045	8,975	19,744	4,891
M68x6	100	3055	800.52	5,933	5,444	6,804	7,621	8,165	8,546	10,887	23,952	5,933
M72x6	105	3460	906.49	7,114	6,527	8,158	9,137	9,790	10,247	13,053	28,718	7,114
M76x6	110	3889	1,019.04	8,442	7,745	9,681	10,843	11,617	12,159	15,489	34,077	8,442
M80x6	115	4344	1,138.18	9,925	9,105	11,382	12,748	13,658	14,296	18,211	40,064	9,925
M90x6	130	5591	1,464.84	14,370	13,184	16,479	18,457	19,775	20,698	26,367	58,007	14,370
M100x6	145	6995	1,832.65	19,976	18,326	22,908	25,657	27,490	28,773	36,653	80,636	19,976
M110x6	155	8556	1,769.33	21,214	19,463	24,328	27,248	29,194	30,556	38,925	85,636	21,214
M125x6	180	11192	2,314.44	31,534	28,931	36,163	40,503	43,396	45,421	57,861	127,294	31,534

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 50 PERCENT YIELD

				REQUIRED TORQUE (N-m)								
BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	88.62	193	177	222	248	266	278	354	780	193
M22x2.5	32	303	109.84	263	242	302	338	362	379	483	1,063	263
M24x3	36	353	127.61	334	306	383	429	459	481	613	1,348	334
M27x3	41	459	166.31	489	449	561	629	674	705	898	1,976	489
M30x3.5	46	561	202.94	664	609	761	852	913	956	1,218	2,679	664
M33x3.5	50	694	251.08	903	829	1,036	1,160	1,243	1,301	1,657	3,646	903
M36x4	55	817	295.67	1,160	1,064	1,331	1,490	1,597	1,671	2,129	4,683	1,160
M39x4	60	976	353.24	1,502	1,378	1,722	1,929	2,066	2,163	2,755	6,062	1,502
M42x4.5	65	1121	405.79	1,858	1,704	2,130	2,386	2,556	2,676	3,409	7,499	1,858
M45x4.5	70	1306	472.79	2,319	2,128	2,659	2,979	3,191	3,340	4,255	9,361	2,319
M48x5	75	1473	533.31	2,790	2,560	3,200	3,584	3,840	4,019	5,120	11,263	2,790
M52x5	80	1758	636.36	3,607	3,309	4,136	4,633	4,964	5,195	6,618	14,560	3,607
M56x5.5	85	2030	734.90	4,486	4,115	5,144	5,762	6,173	6,461	8,231	18,108	4,486
M60x5.5	90	2362	855.09	5,592	5,131	6,413	7,183	7,696	8,055	10,261	22,574	5,592
M64x6	95	2676	876.42	6,114	5,609	7,011	7,853	8,414	8,806	11,218	24,680	6,114
M68x6	100	3055	1,000.65	7,417	6,804	8,506	9,526	10,207	10,683	13,609	29,939	7,417
M72x6	105	3460	1,133.11	8,893	8,158	10,198	11,422	12,238	12,809	16,317	35,897	8,893
M76x6	110	3889	1,273.80	10,552	9,681	12,101	13,553	14,521	15,199	19,362	42,596	10,552
M80x6	115	4344	1,422.73	12,406	11,382	14,227	15,935	17,073	17,869	22,764	50,080	12,406
M90x6	130	5591	1,831.04	17,963	16,479	20,599	23,071	24,719	25,873	32,959	72,509	17,963
M100x6	145	6995	2,290.81	24,970	22,908	28,635	32,071	34,362	35,966	45,816	100,796	24,970
M110x6	155	8556	2,211.67	26,518	24,328	30,410	34,060	36,492	38,195	48,657	107,045	26,518
M125x6	180	11192	2,893.05	39,418	36,163	45,204	50,628	54,245	56,776	72,326	159,118	39,418

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 60 PERCENT YIELD

BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	**REQUIRED TORQUE** (N-m)								
				LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	106.34	232	213	266	298	319	334	425	936	232
M22x2.5	32	303	131.80	316	290	362	406	435	455	580	1,276	316
M24x3	36	353	153.14	401	368	459	515	551	577	735	1,617	401
M27x3	41	459	199.58	587	539	674	754	808	846	1,078	2,371	587
M30x3.5	46	561	243.53	796	731	913	1,023	1,096	1,147	1,461	3,215	796
M33x3.5	50	694	301.29	1,084	994	1,243	1,392	1,491	1,561	1,989	4,375	1,084
M36x4	55	817	354.80	1,392	1,277	1,597	1,788	1,916	2,005	2,555	5,620	1,392
M39x4	60	976	423.89	1,802	1,653	2,066	2,314	2,480	2,595	3,306	7,274	1,802
M42x4.5	65	1121	486.95	2,229	2,045	2,556	2,863	3,068	3,211	4,090	8,999	2,229
M45x4.5	70	1306	567.35	2,783	2,553	3,191	3,574	3,830	4,008	5,106	11,234	2,783
M48x5	75	1473	639.97	3,348	3,072	3,840	4,301	4,608	4,823	6,144	13,516	3,348
M52x5	80	1758	763.64	4,328	3,971	4,964	5,559	5,956	6,234	7,942	17,472	4,328
M56x5.5	85	2030	881.88	5,383	4,939	6,173	6,914	7,408	7,753	9,877	21,729	5,383
M60x5.5	90	2362	1,026.10	6,711	6,157	7,696	8,619	9,235	9,666	12,313	27,089	6,711
M64x6	95	2676	1,051.70	7,337	6,731	8,414	9,423	10,096	10,567	13,462	29,616	7,337
M68x6	100	3055	1,200.78	8,900	8,165	10,207	11,431	12,248	12,820	16,331	35,927	8,900
M72x6	105	3460	1,359.73	10,671	9,790	12,238	13,706	14,685	15,370	19,580	43,076	10,671
M76x6	110	3889	1,528.56	12,663	11,617	14,521	16,264	17,426	18,239	23,234	51,115	12,663
M80x6	115	4344	1,707.27	14,887	13,658	17,073	19,121	20,487	21,443	27,316	60,096	14,887
M90x6	130	5591	2,197.25	21,555	19,775	24,719	27,685	29,663	31,047	39,551	87,011	21,555
M100x6	145	6995	2,748.97	29,964	27,490	34,362	38,486	41,235	43,159	54,979	120,955	29,964
M110x6	155	8556	2,654.00	31,821	29,194	36,492	40,872	43,791	45,835	58,388	128,454	31,821
M125x6	180	11192	3,471.66	47,301	43,396	54,245	60,754	65,094	68,131	86,792	190,941	47,301

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 70 PERCENT YIELD

BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	**REQUIRED TORQUE** (N-m)								
				LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	124.07	270	248	310	347	372	390	496	1,092	270
M22x2.5	32	303	153.77	369	338	423	474	507	531	677	1,489	369
M24x3	36	353	178.66	467	429	536	600	643	673	858	1,887	467
M27x3	41	459	232.84	685	629	786	880	943	987	1,257	2,766	685
M30x3.5	46	561	284.12	929	852	1,065	1,193	1,279	1,338	1,705	3,750	929
M33x3.5	50	694	351.51	1,264	1,160	1,450	1,624	1,740	1,821	2,320	5,104	1,264
M36x4	55	817	413.94	1,624	1,490	1,863	2,086	2,235	2,340	2,980	6,557	1,624
M39x4	60	976	494.53	2,102	1,929	2,411	2,700	2,893	3,028	3,857	8,486	2,102
M42x4.5	65	1121	568.10	2,601	2,386	2,983	3,340	3,579	3,746	4,772	10,499	2,601
M45x4.5	70	1306	661.91	3,247	2,979	3,723	4,170	4,468	4,676	5,957	13,106	3,247
M48x5	75	1473	746.63	3,906	3,584	4,480	5,017	5,376	5,627	7,168	15,769	3,906
M52x5	80	1758	890.91	5,050	4,633	5,791	6,486	6,949	7,273	9,265	20,384	5,050
M56x5.5	85	2030	1,028.86	6,280	5,762	7,202	8,066	8,642	9,046	11,523	25,351	6,280
M60x5.5	90	2362	1,197.12	7,829	7,183	8,978	10,056	10,774	11,277	14,365	31,604	7,829
M64x6	95	2676	1,226.99	8,559	7,853	9,816	10,994	11,779	12,329	15,705	34,552	8,559
M68x6	100	3055	1,400.91	10,384	9,526	11,908	13,337	14,289	14,956	19,052	41,915	10,384
M72x6	105	3460	1,586.35	12,450	11,422	14,277	15,990	17,133	17,932	22,843	50,256	12,450
M76x6	110	3889	1,783.32	14,773	13,553	16,942	18,975	20,330	21,279	27,107	59,634	14,773
M80x6	115	4344	1,991.82	17,369	15,935	19,918	22,308	23,902	25,017	31,869	70,112	17,369
M90x6	130	5591	2,563.46	25,148	23,071	28,839	32,300	34,607	36,222	46,142	101,513	25,148
M100x6	145	6995	3,207.13	34,958	32,071	40,089	44,900	48,107	50,352	64,143	141,114	34,958
M110x6	155	8556	3,096.33	37,125	34,060	42,575	47,684	51,089	53,474	68,119	149,862	37,125
M125x6	180	11192	4,050.27	55,185	50,628	63,286	70,880	75,943	79,487	101,257	222,765	55,185

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 80 PERCENT YIELD

BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	**REQUIRED TORQUE** (N-m)								
				LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	141.79	309	284	354	397	425	445	567	1,248	309
M22x2.5	32	303	175.74	421	387	483	541	580	607	773	1,701	421
M24x3	36	353	204.18	534	490	613	686	735	769	980	2,156	534
M27x3	41	459	266.10	783	718	898	1,006	1,078	1,128	1,437	3,161	783
M30x3.5	46	561	324.71	1,062	974	1,218	1,364	1,461	1,529	1,948	4,286	1,062
M33x3.5	50	694	401.73	1,445	1,326	1,657	1,856	1,989	2,081	2,651	5,833	1,445
M36x4	55	817	473.07	1,856	1,703	2,129	2,384	2,555	2,674	3,406	7,493	1,856
M39x4	60	976	565.18	2,403	2,204	2,755	3,086	3,306	3,461	4,408	9,699	2,403
M42x4.5	65	1121	649.26	2,972	2,727	3,409	3,818	4,090	4,281	5,454	11,998	2,972
M45x4.5	70	1306	756.47	3,710	3,404	4,255	4,766	5,106	5,344	6,808	14,978	3,710
M48x5	75	1473	853.29	4,464	4,096	5,120	5,734	6,144	6,430	8,192	18,021	4,464
M52x5	80	1758	1,018.18	5,771	5,295	6,618	7,412	7,942	8,312	10,589	23,296	5,771
M56x5.5	85	2030	1,175.84	7,177	6,585	8,231	9,219	9,877	10,338	13,169	28,973	7,177
M60x5.5	90	2362	1,368.14	8,948	8,209	10,261	11,492	12,313	12,888	16,418	36,119	8,948
M64x6	95	2676	1,402.27	9,782	8,975	11,218	12,564	13,462	14,090	17,949	39,488	9,782
M68x6	100	3055	1,601.04	11,867	10,887	13,609	15,242	16,331	17,093	21,774	47,903	11,867
M72x6	105	3460	1,812.98	14,228	13,053	16,317	18,275	19,580	20,494	26,107	57,435	14,228
M76x6	110	3889	2,038.08	16,883	15,489	19,362	21,685	23,234	24,318	30,979	68,154	16,883
M80x6	115	4344	2,276.36	19,850	18,211	22,764	25,495	27,316	28,591	36,422	80,128	19,850
M90x6	130	5591	2,929.67	28,740	26,367	32,959	36,914	39,551	41,396	52,734	116,015	28,740
M100x6	145	6995	3,665.29	39,952	36,653	45,816	51,314	54,979	57,545	73,306	161,273	39,952
M110x6	155	8556	3,538.66	42,429	38,925	48,657	54,495	58,388	61,113	77,851	171,271	42,429
M125x6	180	11192	4,628.88	63,069	57,861	72,326	81,005	86,792	90,842	115,722	254,589	63,069

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 90 PERCENT YIELD

BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	**REQUIRED TORQUE** (N-m)								
				LoaDISC TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	159.52	348	319	399	447	479	501	638	1,404	348
M22x2.5	32	303	197.71	474	435	544	609	652	683	870	1,914	474
M24x3	36	353	229.70	601	551	689	772	827	866	1,103	2,426	601
M27x3	41	459	299.36	881	808	1,010	1,132	1,212	1,269	1,617	3,556	881
M30x3.5	46	561	365.30	1,195	1,096	1,370	1,534	1,644	1,721	2,192	4,822	1,195
M33x3.5	50	694	451.94	1,626	1,491	1,864	2,088	2,237	2,342	2,983	6,562	1,626
M36x4	55	817	532.20	2,088	1,916	2,395	2,682	2,874	3,008	3,832	8,430	2,088
M39x4	60	976	635.83	2,703	2,480	3,100	3,472	3,720	3,893	4,959	10,911	2,703
M42x4.5	65	1121	730.42	3,344	3,068	3,835	4,295	4,602	4,816	6,136	13,498	3,344
M45x4.5	70	1306	851.03	4,174	3,830	4,787	5,361	5,744	6,013	7,659	16,850	4,174
M48x5	75	1473	959.95	5,022	4,608	5,760	6,451	6,912	7,234	9,216	20,274	5,022
M52x5	80	1758	1,145.45	6,492	5,956	7,445	8,339	8,935	9,351	11,913	26,208	6,492
M56x5.5	85	2030	1,322.82	8,074	7,408	9,260	10,371	11,112	11,630	14,816	32,594	8,074
M60x5.5	90	2362	1,539.16	10,066	9,235	11,544	12,929	13,852	14,499	18,470	40,634	10,066
M64x6	95	2676	1,577.55	11,005	10,096	12,620	14,135	15,145	15,851	20,193	44,424	11,005
M68x6	100	3055	1,801.17	13,350	12,248	15,310	17,147	18,372	19,229	24,496	53,891	13,350
M72x6	105	3460	2,039.60	16,007	14,685	18,356	20,559	22,028	23,056	29,370	64,614	16,007
M76x6	110	3889	2,292.84	18,994	17,426	21,782	24,396	26,138	27,358	34,851	76,673	18,994
M80x6	115	4344	2,560.91	22,331	20,487	25,609	28,682	30,731	32,165	40,974	90,144	22,331
M90x6	130	5591	3,295.88	32,333	29,663	37,079	41,528	44,494	46,571	59,326	130,517	32,333
M100x6	145	6995	4,123.45	44,946	41,235	51,543	57,728	61,852	64,738	82,469	181,432	44,946
M110x6	155	8556	3,981.00	47,732	43,791	54,739	61,307	65,686	68,752	87,582	192,680	47,732
M125x6	180	11192	5,207.50	70,952	65,094	81,367	91,131	97,641	102,197	130,187	286,412	70,952

TORQUE GUIDE FOR ASTM **A193** GRADE **B7**

BOLT LOAD BASED ON 99 PERCENT YIELD

REQUIRED TORQUE (N-m)

BOLT SIZE DIA. x P	HEX NUT ACROSS FLAT (mm)	STRESS AREA $(mm)^2$	BOLT LOAD (kN)	**LoaDISC** TS 801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL& GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.200	DRY STEEL K=.440 K=.300	CUSTOM 0.109
M20x2.5	30	245	175.47	383	351	439	491	526	551	702	1,544	383
M22x2.5	32	303	217.48	522	478	598	670	718	751	957	2,105	522
M24x3	36	353	252.68	661	606	758	849	910	952	1,213	2,668	661
M27x3	41	459	329.30	969	889	1,111	1,245	1,334	1,396	1,778	3,912	969
M30x3.5	46	561	401.83	1,314	1,205	1,507	1,688	1,808	1,893	2,411	5,304	1,314
M33x3.5	50	694	497.14	1,788	1,641	2,051	2,297	2,461	2,576	3,281	7,218	1,788
M36x4	55	817	585.42	2,297	2,108	2,634	2,951	3,161	3,309	4,215	9,273	2,297
M39x4	60	976	699.41	2,973	2,728	3,410	3,819	4,092	4,283	5,455	12,002	2,973
M42x4.5	65	1121	803.46	3,678	3,375	4,218	4,724	5,062	5,298	6,749	14,848	3,678
M45x4.5	70	1306	936.13	4,592	4,213	5,266	5,898	6,319	6,614	8,425	18,535	4,592
M48x5	75	1473	1,055.94	5,525	5,069	6,336	7,096	7,603	7,958	10,137	22,302	5,525
M52x5	80	1758	1,260.00	7,142	6,552	8,190	9,173	9,828	10,287	13,104	28,829	7,142
M56x5.5	85	2030	1,455.10	8,882	8,149	10,186	11,408	12,223	12,793	16,297	35,854	8,882
M60x5.5	90	2362	1,693.07	11,073	10,158	12,698	14,222	15,238	15,949	20,317	44,697	11,073
M64x6	95	2676	1,735.31	12,106	11,106	13,882	15,548	16,659	17,436	22,212	48,866	12,106
M68x6	100	3055	1,981.28	14,685	13,473	16,841	18,862	20,209	21,152	26,945	59,280	14,685
M72x6	105	3460	2,243.56	17,607	16,154	20,192	22,615	24,230	25,361	32,307	71,076	17,607
M76x6	110	3889	2,522.13	20,893	19,168	23,960	26,835	28,752	30,094	38,336	84,340	20,893
M80x6	115	4344	2,817.00	24,564	22,536	28,170	31,550	33,804	35,381	45,072	99,158	24,564
M90x6	130	5591	3,625.47	35,566	32,629	40,787	45,681	48,944	51,228	65,258	143,569	35,566
M100x6	145	6995	4,535.80	49,440	45,358	56,697	63,501	68,037	71,212	90,716	199,575	49,440
M110x6	155	8556	4,379.10	52,505	48,170	60,213	67,438	72,255	75,627	96,340	211,948	52,505
M125x6	180	11192	5,728.24	78,047	71,603	89,504	100,244	107,405	112,417	143,206	315,053	78,047

TORQUE GUIDE FOR **SOCKET HEAD CAP SCREWS (INCH)**

MATERI **ASTM A547** ALLOY STEEL

BOLT TENSION BASED ON **99** PERCENT YIELD

REQUIRED TORQUE (FtLbs)

BOLT SIZE	THREADS PER INCH	HEX A.F.	STRESS AREA $(in)^2$	MIN YIELD STRENGTH	BOLT TENSION	LoaDISC TS801 MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.157	MACHINE OIL K=.20	DRY STEEL K=.440	CUSTOM INSERT 0.125
5/8	11	0.500	0.226	155,000	34,662	197	181	226	253	271	283	361	794	226
3/4	10	0.625	0.334	155,000	51,297	349	321	401	449	481	503	641	1,411	401
7/8	9	0.750	0.461	155,000	70,817	563	516	645	723	775	811	1,033	2,272	645
1	8	0.750	0.605	155,000	92,904	844	774	968	1,084	1,161	1,215	1,548	3,406	968
1 1/8	7	0.875	0.763	155,000	117,065	1,196	1,097	1,372	1,536	1,646	1,723	2,195	4,829	1,372
1 1/4	7	0.875	0.969	155,000	148,634	1,688	1,548	1,935	2,168	2,322	2,431	3,097	6,812	1,935
1 3/8	6	1.000	1.154	155,000	177,127	2,212	2,030	2,537	2,841	3,044	3,186	4,059	8,930	2,537
1 1/2	6	1.000	1.405	155,000	215,526	2,937	2,694	3,368	3,772	4,041	4,230	5,388	11,854	3,368
1 3/4	5	1.250	1.898	155,000	291,324	4,631	4,248	5,311	5,948	6,373	6,670	8,497	18,693	5,311
2	4.5	1.500	2.497	155,000	383,158	6,961	6,386	7,982	8,940	9,579	10,026	12,772	28,098	7,982
2 1/4	4.5	1.750	3.246	155,000	498,104	10,180	9,339	11,674	13,075	14,009	14,663	18,679	41,094	11,674
2 1/2	4	1.750	3.997	155,000	613,308	13,927	12,777	15,972	17,888	19,166	20,060	25,554	56,220	15,972
2 3/4	4	2.000	4.932	155,000	756,739	18,903	17,342	21,677	24,279	26,013	27,227	34,684	76,304	21,677
3	4	2.250	5.964	155,000	915,227	24,940	22,881	28,601	32,033	34,321	35,923	45,761	100,675	28,601