

# HYTORC

TORQUE GUIDE FOR ASTM A490 STUD					REQUIRED TORQUE (FtLbs)										THESE TORQUE VALUES ARE BASED ON FRICTION FACTOR IN "CUSTOM" COLUMN		
BOLT TENSION BASED ON				40													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	17,383	118	109	136	152	163	171	217	326	163	49	98	163	
7/8 x 9	1-7/16"	0.461	130,000	23,998	191	175	219	245	262	275	350	525	262	79	157	262	
1x 8	1-5/8"	0.605	130,000	31,483	286	262	328	367	394	412	525	787	394	118	236	394	
1-1/8 x 8	1-13/16"	0.790	130,000	41,083	420	385	481	539	578	605	770	1,155	578	173	347	578	
1-1/4 x 8	2"	0.999	130,000	51,958	590	541	677	758	812	850	1,082	1,624	812	244	487	812	
1-3/8 x 8	2-3/16"	1.233	130,000	64,110	801	735	918	1,028	1,102	1,153	1,469	2,204	1,102	331	661	1102	
1-1/2 x 8	2-3/8"	1.491	130,000	77,536	1,056	969	1,212	1,357	1,454	1,522	1,938	2,908	1,454	436	872	1454	

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<b>Corpus Christi 78408</b>	<b>Odessa, TX 78765</b>	<b>Houston, TX 77013</b>	<b>Beaumont, TX 77705</b>	<b>Mansfield, TX 76063</b>
<b>361-888-5080</b>	<b>432-561-8481</b>	<b>713-453-6677</b>	<b>409-840-9699</b>	<b>682-334-2679</b>

REV 7.31.09

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 To use spread sheet click desired tab for B7 or B16 material  
 Enter the desired percent yield in yellow field at top of form  
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BOLT TENSION BASED ON				50													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	21,729	148	136	170	190	204	213	272	407	204	61	122	204	
7/8 x 9	1-7/16"	0.461	130,000	29,997	238	219	273	306	328	343	437	656	328	98	197	328	
1x 8	1-5/8"	0.605	130,000	39,353	357	328	410	459	492	515	656	984	492	148	295	492	
1-1/8 x 8	1-13/16"	0.790	130,000	51,353	525	481	602	674	722	756	963	1,444	722	217	433	722	
1-1/4 x 8	2"	0.999	130,000	64,948	737	677	846	947	1,015	1,062	1,353	2,030	1,015	304	609	1015	
1-3/8 x 8	2-3/16"	1.233	130,000	80,137	1,001	918	1,148	1,286	1,377	1,442	1,836	2,755	1,377	413	826	1377	
1-1/2 x 8	2-3/8"	1.491	130,000	96,920	1,321	1,212	1,514	1,696	1,817	1,902	2,423	3,635	1,817	545	1090	1817	

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BOLT TENSION BASED ON				60													
				% YIELD													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	26,075	178	163	204	228	244	256	326	489	244	73	147	244	
7/8 x 9	1-7/16"	0.461	130,000	35,997	286	262	328	367	394	412	525	787	394	118	236	394	
1x 8	1-5/8"	0.605	130,000	47,224	429	394	492	551	590	618	787	1,181	590	177	354	590	
1-1/8 x 8	1-13/16"	0.790	130,000	61,624	630	578	722	809	867	907	1,155	1,733	867	260	520	867	
1-1/4 x 8	2"	0.999	130,000	77,937	885	812	1,015	1,137	1,218	1,275	1,624	2,436	1,218	365	731	1,218	
1-3/8 x 8	2-3/16"	1.233	130,000	96,164	1,201	1,102	1,377	1,543	1,653	1,730	2,204	3,306	1,653	496	992	1,653	
1-1/2 x 8	2-3/8"	1.491	130,000	116,305	1,585	1,454	1,817	2,035	2,181	2,282	2,908	4,361	2,181	654	1308	2181	

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BOLT TENSION BASED ON				70													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15 7	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	30,420	207	190	238	266	285	299	380	570	285	86	171	285	
7/8 x 9	1-7/16"	0.461	130,000	41,996	334	306	383	429	459	481	612	919	459	138	276	459	
1x 8	1-5/8"	0.605	130,000	55,095	500	459	574	643	689	721	918	1,377	689	207	413	689	
1-1/8 x 8	1-13/16"	0.790	130,000	71,895	735	674	843	944	1,011	1,058	1,348	2,022	1,011	303	607	1011	
1-1/4 x 8	2"	0.999	130,000	90,927	1,032	947	1,184	1,326	1,421	1,487	1,894	2,841	1,421	426	852	1421	
1-3/8 x 8	2-3/16"	1.233	130,000	112,192	1,401	1,286	1,607	1,800	1,928	2,018	2,571	3,857	1,928	578	1157	1928	
1-1/2 x 8	2-3/8"	1.491	130,000	135,689	1,849	1,696	2,120	2,375	2,544	2,663	3,392	5,088	2,544	763	1526	2544	

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BOLT TENSION BASED ON				80													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	34,766	237	217	272	304	326	341	435	652	326	98	196	326	
7/8 x 9	1-7/16"	0.461	130,000	47,996	381	350	437	490	525	549	700	1,050	525	157	315	525	
1x 8	1-5/8"	0.605	130,000	62,965	572	525	656	735	787	824	1,049	1,574	787	236	472	787	
1-1/8 x 8	1-13/16"	0.790	130,000	82,165	840	770	963	1,078	1,155	1,209	1,541	2,311	1,155	347	693	1155	
1-1/4 x 8	2"	0.999	130,000	103,917	1,180	1,082	1,353	1,515	1,624	1,699	2,165	3,247	1,624	487	974	1624	
1-3/8 x 8	2-3/16"	1.233	130,000	128,219	1,601	1,469	1,836	2,057	2,204	2,307	2,938	4,408	2,204	661	1322	2204	
1-1/2 x 8	2-3/8"	1.491	130,000	155,073	2,113	1,938	2,423	2,714	2,908	3,043	3,877	5,815	2,908	872	1745	2908	

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BOLT TENSION BASED ON				90													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	39,112	266	244	306	342	367	384	489	733	367	110	220	367	
7/8 x 9	1-7/16"	0.461	130,000	53,995	429	394	492	551	591	618	787	1,181	591	177	354	591	
1x 8	1-5/8"	0.605	130,000	70,836	643	590	738	826	885	927	1,181	1,771	885	266	531	885	
1-1/8 x 8	1-13/16"	0.790	130,000	92,436	945	867	1,083	1,213	1,300	1,361	1,733	2,600	1,300	390	780	1300	
1-1/4 x 8	2"	0.999	130,000	116,906	1,327	1,218	1,522	1,705	1,827	1,912	2,436	3,653	1,827	548	1096	1827	
1-3/8 x 8	2-3/16"	1.233	130,000	144,246	1,802	1,653	2,066	2,314	2,479	2,595	3,306	4,958	2,479	744	1488	2479	
1-1/2 x 8	2-3/8"	1.491	130,000	174,457	2,377	2,181	2,726	3,053	3,271	3,424	4,361	6,542	3,271	981	1963	3271	

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BOLT TENSION BASED ON				99													
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN <sup>2</sup> )	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoaDISC TS 801MOLY K=.109	MOLYBDENUM DISULFIDE K=.100	MOLY/LEAD OXIDE/GRAPHITE K=.125	COPPER & GRAPHITE K=.140	NICKEL & GRAPHITE K=.150	API SA2 K=.15	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K) K=.300	First Pass	Second Pass	All Subsequent Passes	
													0.15	30%	60%	100%	
3/4 x 10	1-1/4"	0.334	130,000	43,023	293	269	336	376	403	422	538	807	403	121	242	403	
7/8 x 9	1-7/16"	0.461	130,000	59,395	472	433	541	606	650	680	866	1,299	650	195	390	650	
1x 8	1-5/8"	0.605	130,000	77,920	708	649	812	909	974	1,019	1,299	1,948	974	292	584	974	
1-1/8 x 8	1-13/16"	0.790	130,000	101,680	1,039	953	1,192	1,335	1,430	1,497	1,906	2,860	1,430	429	858	1430	
1-1/4 x 8	2"	0.999	130,000	128,597	1,460	1,340	1,674	1,875	2,009	2,103	2,679	4,019	2,009	603	1206	2009	
1-3/8 x 8	2-3/16"	1.233	130,000	158,671	1,982	1,818	2,273	2,545	2,727	2,854	3,636	5,454	2,727	818	1636	2727	
1-1/2 x 8	2-3/8"	1.491	130,000	191,902	2,615	2,399	2,998	3,358	3,598	3,766	4,798	7,196	3,598	1079	2159	3598	

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