

BOLT LOAD IMPERIAL (CLASS L7 GRADE M)

40% - 99% YIELD



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 A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)									
BOLT TENSION BASED ON 40 PERCENT YIELD														
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)	
3/4 x 10	1-1/4"	0.334	80,000	10,697	73	67	84	94	100	105	134	201	84	
7/8 x 9	1-7/16"	0.461	80,000	14,768	117	108	135	151	162	169	215	323	135	
1x 8	1-5/8"	0.605	80,000	19,374	176	161	202	226	242	253	323	484	202	
1-1/8 x 8	1-13/16"	0.790	80,000	25,282	258	237	296	332	356	372	474	711	296	
1-1/4 x 8	2"	0.999	80,000	31,974	363	333	416	466	500	523	666	999	416	
1-3/8 x 8	2-3/16"	1.233	80,000	39,452	493	452	565	633	678	710	904	1,356	565	
1-1/2 x 8	2-3/8"	1.491	80,000	47,715	650	596	746	835	895	936	1,193	1,789	746	
1-5/8 x 8	2-9/16"	1.774	80,000	56,762	838	769	961	1,076	1,153	1,207	1,537	2,306	961	
1-3/4 x 8	2-3/4"	2.081	80,000	66,595	1,059	971	1,214	1,360	1,457	1,525	1,942	2,914	1,214	
1-7/8 x 8	2-15/16"	2.413	80,000	77,213	1,315	1,206	1,508	1,689	1,810	1,894	2,413	3,619	1,508	
2 x 8	3-1/8"	2.769	80,000	88,615	1,610	1,477	1,846	2,068	2,215	2,319	2,954	4,431	1,846	
2-1/8 x 8	3-5/16"	3.150	80,000	100,803	1,946	1,785	2,231	2,499	2,678	2,803	3,570	5,355	2,231	
2-1/4 x 8	3-1/2"	3.555	80,000	113,776	2,325	2,133	2,667	2,987	3,200	3,349	4,267	6,400	2,667	
2-3/8 x 8	3-11/16"	3.985	80,000	127,533	2,751	2,524	3,155	3,534	3,786	3,963	5,048	7,572	3,155	
2-1/2 x 8	3-7/8"	4.440	80,000	142,076	3,226	2,960	3,700	4,144	4,440	4,647	5,920	8,880	3,700	
2-3/4 x 8	4-1/4"	5.422	80,000	173,516	4,334	3,976	4,971	5,567	5,965	6,243	7,953	11,929	4,971	
3 x 8	4-5/8"	6.503	80,000	208,097	5,671	5,202	6,503	7,283	7,804	8,168	10,405	15,607	6,503	
3-1/4 x 8	5"	7.682	80,000	245,817	7,257	6,658	8,322	9,321	9,986	10,452	13,315	19,973	8,322	
3-1/2 x 8	5-3/8"	8.959	80,000	286,677	9,114	8,361	10,452	11,706	12,542	13,127	16,723	25,084	10,452	

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)									
BOLT TENSION BASED ON 50 PERCENT YIELD														
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)	
3/4 x 10	1-1/4"	0.334	80,000	13,372	91	84	104	117	125	131	167	251	104	
7/8 x 9	1-7/16"	0.461	80,000	18,460	147	135	168	188	202	211	269	404	168	
1x 8	1-5/8"	0.605	80,000	24,217	220	202	252	283	303	317	404	605	252	
1-1/8 x 8	1-13/16"	0.790	80,000	31,602	323	296	370	415	444	465	593	889	370	
1-1/4 x 8	2"	0.999	80,000	39,968	454	416	520	583	624	654	833	1,249	520	
1-3/8 x 8	2-3/16"	1.233	80,000	49,315	616	565	706	791	848	887	1,130	1,695	706	
1-1/2 x 8	2-3/8"	1.491	80,000	59,643	813	746	932	1,044	1,118	1,171	1,491	2,237	932	
1-5/8 x 8	2-9/16"	1.774	80,000	70,953	1,047	961	1,201	1,345	1,441	1,508	1,922	2,882	1,201	
1-3/4 x 8	2-3/4"	2.081	80,000	83,244	1,323	1,214	1,517	1,700	1,821	1,906	2,428	3,642	1,517	
1-7/8 x 8	2-15/16"	2.413	80,000	96,516	1,644	1,508	1,885	2,111	2,262	2,368	3,016	4,524	1,885	
2 x 8	3-1/8"	2.769	80,000	110,769	2,012	1,846	2,308	2,585	2,769	2,898	3,692	5,538	2,308	
2-1/8 x 8	3-5/16"	3.150	80,000	126,004	2,432	2,231	2,789	3,124	3,347	3,503	4,463	6,694	2,789	
2-1/4 x 8	3-1/2"	3.555	80,000	142,220	2,907	2,667	3,333	3,733	4,000	4,187	5,333	8,000	3,333	
2-3/8 x 8	3-11/16"	3.985	80,000	159,417	3,439	3,155	3,944	4,417	4,733	4,954	6,310	9,465	3,944	
2-1/2 x 8	3-7/8"	4.440	80,000	177,595	4,033	3,700	4,625	5,180	5,550	5,809	7,400	11,100	4,625	
2-3/4 x 8	4-1/4"	5.422	80,000	216,896	5,418	4,971	6,213	6,959	7,456	7,804	9,941	14,912	6,213	
3 x 8	4-5/8"	6.503	80,000	260,121	7,088	6,503	8,129	9,104	9,755	10,210	13,006	19,509	8,129	
3-1/4 x 8	5"	7.682	80,000	307,271	9,071	8,322	10,402	11,651	12,483	13,065	16,644	24,966	10,402	
3-1/2 x 8	5-3/8"	8.959	80,000	358,347	11,392	10,452	13,065	14,632	15,678	16,409	20,904	31,355	13,065	

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)										
BOLT TENSION BASED ON				60	PERCENT YIELD										
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoadDISC 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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)		
3/4 x 10	1-1/4"	0.334	80,000	16,046	109	100	125	140	150	157	201	301	0.125		
7/8 x 9	1-7/16"	0.461	80,000	22,152	176	162	202	226	242	254	323	485	202		
1x 8	1-5/8"	0.605	80,000	29,061	264	242	303	339	363	380	484	727	303		
1-1/8 x 8	1-13/16"	0.790	80,000	37,922	388	356	444	498	533	558	711	1,067	444		
1-1/4 x 8	2"	0.999	80,000	47,961	545	500	624	699	749	784	999	1,499	624		
1-3/8 x 8	2-3/16"	1.233	80,000	59,178	739	678	848	949	1,017	1,065	1,356	2,034	848		
1-1/2 x 8	2-3/8"	1.491	80,000	71,572	975	895	1,118	1,253	1,342	1,405	1,789	2,684	1,118		
1-5/8 x 8	2-9/16"	1.774	80,000	85,144	1,257	1,153	1,441	1,614	1,729	1,810	2,306	3,459	1,441		
1-3/4 x 8	2-3/4"	2.081	80,000	99,893	1,588	1,457	1,821	2,039	2,185	2,287	2,914	4,370	1,821		
1-7/8 x 8	2-15/16"	2.413	80,000	115,819	1,973	1,810	2,262	2,534	2,715	2,841	3,619	5,429	2,262		
2 x 8	3-1/8"	2.769	80,000	132,923	2,415	2,215	2,769	3,102	3,323	3,478	4,431	6,646	2,769		
2-1/8 x 8	3-5/16"	3.150	80,000	151,205	2,919	2,678	3,347	3,749	4,016	4,204	5,355	8,033	3,347		
2-1/4 x 8	3-1/2"	3.555	80,000	170,664	3,488	3,200	4,000	4,480	4,800	5,024	6,400	9,600	4,000		
2-3/8 x 8	3-11/16"	3.985	80,000	191,300	4,127	3,786	4,733	5,301	5,679	5,944	7,572	11,358	4,733		
2-1/2 x 8	3-7/8"	4.440	80,000	213,114	4,839	4,440	5,550	6,216	6,660	6,971	8,880	13,320	5,550		
2-3/4 x 8	4-1/4"	5.422	80,000	260,275	6,501	5,965	7,456	8,350	8,947	9,364	11,929	17,894	7,456		
3 x 8	4-5/8"	6.503	80,000	312,145	8,506	7,804	9,755	10,925	11,705	12,252	15,607	23,411	9,755		
3-1/4 x 8	5"	7.682	80,000	368,726	10,885	9,986	12,483	13,981	14,979	15,679	19,973	29,959	12,483		
3-1/2 x 8	5-3/8"	8.959	80,000	430,016	13,671	12,542	15,678	17,559	18,813	19,691	25,084	37,626	15,678		

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)										
BOLT TENSION BASED ON				70	PERCENT YIELD										
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoadDISC 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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)		
3/4 x 10	1-1/4"	0.334	80,000	18,720	128	117	146	164	176	184	234	351	0.125		
7/8 x 9	1-7/16"	0.461	80,000	25,844	205	188	236	264	283	296	377	565	236		
1x 8	1-5/8"	0.605	80,000	33,904	308	283	353	396	424	444	565	848	353		
1-1/8 x 8	1-13/16"	0.790	80,000	44,243	452	415	518	581	622	651	830	1,244	518		
1-1/4 x 8	2"	0.999	80,000	55,955	635	583	729	816	874	915	1,166	1,749	729		
1-3/8 x 8	2-3/16"	1.233	80,000	69,041	862	791	989	1,108	1,187	1,242	1,582	2,373	989		
1-1/2 x 8	2-3/8"	1.491	80,000	83,501	1,138	1,044	1,305	1,461	1,566	1,639	2,088	3,131	1,305		
1-5/8 x 8	2-9/16"	1.774	80,000	99,334	1,466	1,345	1,681	1,883	2,018	2,112	2,690	4,035	1,681		
1-3/4 x 8	2-3/4"	2.081	80,000	116,541	1,853	1,700	2,124	2,379	2,549	2,668	3,399	5,099	2,124		
1-7/8 x 8	2-15/16"	2.413	80,000	135,122	2,301	2,111	2,639	2,956	3,167	3,315	4,223	6,334	2,639		
2 x 8	3-1/8"	2.769	80,000	155,077	2,817	2,585	3,231	3,618	3,877	4,058	5,169	7,754	3,231		
2-1/8 x 8	3-5/16"	3.150	80,000	176,405	3,405	3,124	3,905	4,373	4,686	4,904	6,248	9,372	3,905		
2-1/4 x 8	3-1/2"	3.555	80,000	199,108	4,069	3,733	4,667	5,227	5,600	5,861	7,467	11,200	4,667		
2-3/8 x 8	3-11/16"	3.985	80,000	223,183	4,815	4,417	5,521	6,184	6,626	6,935	8,834	13,252	5,521		
2-1/2 x 8	3-7/8"	4.440	80,000	248,633	5,646	5,180	6,475	7,252	7,770	8,132	10,360	15,540	6,475		
2-3/4 x 8	4-1/4"	5.422	80,000	303,654	7,585	6,959	8,698	9,742	10,438	10,925	13,917	20,876	8,698		
3 x 8	4-5/8"	6.503	80,000	364,169	9,924	9,104	11,380	12,746	13,656	14,294	18,208	27,313	11,380		
3-1/4 x 8	5"	7.682	80,000	430,180	12,699	11,651	14,563	16,311	17,476	18,292	23,301	34,952	14,563		
3-1/2 x 8	5-3/8"	8.959	80,000	501,686	15,949	14,632	18,291	20,485	21,949	22,973	29,265	43,897	18,291		

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)										
BOLT TENSION BASED ON				80	PERCENT YIELD										
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	MIN YIELD STRENGTH (PSI)	BOLT TENSION (LBS)	LoadDISC 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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)		
3/4 x 10	1-1/4"	0.334	80,000	21,395	146	134	167	187	201	210	267	401	0.125		
7/8 x 9	1-7/16"	0.461	80,000	29,536	235	215	269	302	323	338	431	646	269		
1x 8	1-5/8"	0.605	80,000	38,748	352	323	404	452	484	507	646	969	404		
1-1/8 x 8	1-13/16"	0.790	80,000	50,563	517	474	593	664	711	744	948	1,422	593		
1-1/4 x 8	2"	0.999	80,000	63,949	726	666	833	933	999	1,046	1,332	1,998	833		
1-3/8 x 8	2-3/16"	1.233	80,000	78,904	985	904	1,130	1,266	1,356	1,419	1,808	2,712	1,130		
1-1/2 x 8	2-3/8"	1.491	80,000	95,429	1,300	1,193	1,491	1,670	1,789	1,873	2,386	3,579	1,491		
1-5/8 x 8	2-9/16"	1.774	80,000	113,525	1,676	1,537	1,922	2,152	2,306	2,414	3,075	4,612	1,922		
1-3/4 x 8	2-3/4"	2.081	80,000	133,190	2,117	1,942	2,428	2,719	2,914	3,049	3,885	5,827	2,428		
1-7/8 x 8	2-15/16"	2.413	80,000	154,425	2,630	2,413	3,016	3,378	3,619	3,788	4,826	7,239	3,016		
2 x 8	3-1/8"	2.769	80,000	177,231	3,220	2,954	3,692	4,135	4,431	4,638	5,908	8,862	3,692		
2-1/8 x 8	3-5/16"	3.150	80,000	201,606	3,891	3,570	4,463	4,998	5,355	5,605	7,140	10,710	4,463		
2-1/4 x 8	3-1/2"	3.555	80,000	227,551	4,651	4,267	5,333	5,973	6,400	6,699	8,533	12,800	5,333		
2-3/8 x 8	3-11/16"	3.985	80,000	255,067	5,503	5,048	6,310	7,067	7,572	7,926	10,096	15,145	6,310		
2-1/2 x 8	3-7/8"	4.440	80,000	284,152	6,453	5,920	7,400	8,288	8,880	9,294	11,840	17,760	7,400		
2-3/4 x 8	4-1/4"	5.422	80,000	347,033	8,669	7,953	9,941	11,134	11,929	12,486	15,906	23,859	9,941		
3 x 8	4-5/8"	6.503	80,000	416,194	11,341	10,405	13,006	14,567	15,607	16,336	20,810	31,215	13,006		
3-1/4 x 8	5"	7.682	80,000	491,634	14,513	13,315	16,644	18,641	19,973	20,905	26,630	39,945	16,644		
3-1/2 x 8	5-3/8"	8.959	80,000	573,355	18,228	16,723	20,904	23,412	25,084	26,255	33,446	50,169	20,904		

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)									
BOLT TENSION BASED ON 90 PERCENT YIELD														
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)	
													0.125	
3/4 x 10	1-1/4"	0.334	80,000	24,069	164	150	188	211	226	236	301	451	188	
7/8 x 9	1-7/16"	0.461	80,000	33,228	264	242	303	339	363	380	485	727	303	
1x 8	1-5/8"	0.605	80,000	43,591	396	363	454	509	545	570	727	1,090	454	
1-1/8 x 8	1-13/16"	0.790	80,000	56,884	581	533	667	747	800	837	1,067	1,600	667	
1-1/4 x 8	2"	0.999	80,000	71,942	817	749	937	1,049	1,124	1,177	1,499	2,248	937	
1-3/8 x 8	2-3/16"	1.233	80,000	88,767	1,109	1,017	1,271	1,424	1,526	1,597	2,034	3,051	1,271	
1-1/2 x 8	2-3/8"	1.491	80,000	107,358	1,463	1,342	1,677	1,879	2,013	2,107	2,684	4,026	1,677	
1-5/8 x 8	2-9/16"	1.774	80,000	127,715	1,885	1,729	2,162	2,421	2,594	2,715	3,459	5,188	2,162	
1-3/4 x 8	2-3/4"	2.081	80,000	149,839	2,382	2,185	2,731	3,059	3,278	3,431	4,370	6,555	2,731	
1-7/8 x 8	2-15/16"	2.413	80,000	173,729	2,959	2,715	3,393	3,800	4,072	4,262	5,429	8,144	3,393	
2 x 8	3-1/8"	2.769	80,000	199,385	3,622	3,323	4,154	4,652	4,985	5,217	6,646	9,969	4,154	
2-1/8 x 8	3-5/16"	3.150	80,000	226,807	4,378	4,016	5,020	5,623	6,025	6,306	8,033	12,049	5,020	
2-1/4 x 8	3-1/2"	3.555	80,000	255,995	5,232	4,800	6,000	6,720	7,200	7,536	9,600	14,400	6,000	
2-3/8 x 8	3-11/16"	3.985	80,000	286,950	6,190	5,679	7,099	7,951	8,519	8,916	11,358	17,038	7,099	
2-1/2 x 8	3-7/8"	4.440	80,000	319,671	7,259	6,660	8,325	9,324	9,990	10,456	13,320	19,979	8,325	
2-3/4 x 8	4-1/4"	5.422	80,000	390,412	9,752	8,947	11,184	12,526	13,420	14,047	17,894	26,841	11,184	
3 x 8	4-5/8"	6.503	80,000	468,218	12,759	11,705	14,632	16,388	17,558	18,378	23,411	35,116	14,632	
3-1/4 x 8	5"	7.682	80,000	553,089	16,328	14,979	18,724	20,971	22,469	23,518	29,959	44,938	18,724	
3-1/2 x 8	5-3/8"	8.959	80,000	645,024	20,506	18,813	23,517	26,338	28,220	29,537	37,626	56,440	23,517	

TORQUE GUIDE FOR ASTM A320 CLASS L7 GRADE M					REQUIRED TORQUE (FtLbs)									
BOLT TENSION BASED ON 99 PERCENT YIELD														
BOLT SIZE DIA. x TPI	HEX NUT ACROSS FLAT	STRESS AREA (IN ²)	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=.157	MACHINE OIL K=.200	DRY STEEL K=.440	CUSTOM (INSERT K)	
													0.125	
3/4 x 10	1-1/4"	0.334	80,000	26,476	180	165	207	232	248	260	331	496	207	
7/8 x 9	1-7/16"	0.461	80,000	36,551	291	267	333	373	400	418	533	800	333	
1x 8	1-5/8"	0.605	80,000	47,951	436	400	499	559	599	627	799	1,199	499	
1-1/8 x 8	1-13/16"	0.790	80,000	62,572	639	587	733	821	880	921	1,173	1,760	733	
1-1/4 x 8	2"	0.999	80,000	79,136	899	824	1,030	1,154	1,237	1,294	1,649	2,473	1,030	
1-3/8 x 8	2-3/16"	1.233	80,000	97,644	1,220	1,119	1,399	1,566	1,678	1,757	2,238	3,357	1,399	
1-1/2 x 8	2-3/8"	1.491	80,000	118,094	1,609	1,476	1,845	2,067	2,214	2,318	2,952	4,429	1,845	
1-5/8 x 8	2-9/16"	1.774	80,000	140,487	2,074	1,902	2,378	2,663	2,854	2,987	3,805	5,707	2,378	
1-3/4 x 8	2-3/4"	2.081	80,000	164,823	2,620	2,404	3,005	3,365	3,605	3,774	4,807	7,211	3,005	
1-7/8 x 8	2-15/16"	2.413	80,000	191,101	3,255	2,986	3,732	4,180	4,479	4,688	5,972	8,958	3,732	
2 x 8	3-1/8"	2.769	80,000	219,323	3,984	3,655	4,569	5,118	5,483	5,739	7,311	10,966	4,569	
2-1/8 x 8	3-5/16"	3.150	80,000	249,488	4,816	4,418	5,523	6,185	6,627	6,936	8,836	13,254	5,523	
2-1/4 x 8	3-1/2"	3.555	80,000	281,595	5,755	5,280	6,600	7,392	7,920	8,289	10,560	15,840	6,600	
2-3/8 x 8	3-11/16"	3.985	80,000	315,645	6,809	6,247	7,809	8,746	9,371	9,808	12,494	18,741	7,809	
2-1/2 x 8	3-7/8"	4.440	80,000	351,638	7,985	7,326	9,157	10,256	10,989	11,502	14,652	21,977	9,157	
2-3/4 x 8	4-1/4"	5.422	80,000	429,453	10,727	9,842	12,302	13,778	14,762	15,451	19,683	29,525	12,302	
3 x 8	4-5/8"	6.503	80,000	515,040	14,035	12,876	16,095	18,026	19,314	20,215	25,752	38,628	16,095	
3-1/4 x 8	5"	7.682	80,000	608,397	17,960	16,477	20,597	23,068	24,716	25,870	32,955	49,432	20,597	
3-1/2 x 8	5-3/8"	8.959	80,000	709,527	22,557	20,695	25,868	28,972	31,042	32,490	41,389	62,084	25,868	

