

Detailed Elastic Buckling Results

Basic Data from original source		Centerline Dimensions in mm					Nondimensional Param.				fy	Finite Strip Analysis Results (mm -- MPa)				Hand Calculations (MPa):					dist.	dist.	
Group	Member	θ	h	b	d	t	h/t	b/t	d/t	h/b	(MPa)	Llocal	fclocal	Ldist	ferdist	flange	web	lip	flange/lip	flange/web	AISI	Schafer	Hancock
Schafer (1997) Members	C1	90	30	30	2.50	1.00	30	30	3	1	345.00			100	245	815	815	12623	867	815	169	283	269
Schafer (1997) Members	C2	90	30	30	5.00	1.00	30	30	5	1	345.00	30	819	150	398	815	815	3156	887	815	318	444	402
Schafer (1997) Members	C3	45	30	30	2.50	1.00	30	30	3	1	345.00			90	206	815	815	12623	867	815	145	243	233
Schafer (1997) Members	C4	45	30	30	5.00	1.00	30	30	5	1	345.00			150	292	815	815	3156	887	815	251	327	302
Schafer (1997) Members	C5	90	60	30	2.50	1.00	60	30	3	2	345.00			100	186	815	204	12623	867	253	169	174	188
Schafer (1997) Members	C6	90	60	30	5.00	1.00	60	30	5	2	345.00	50	274	200	278	815	204	3156	887	253	318	272	279
Schafer (1997) Members	C7	45	60	30	2.50	1.00	60	30	3	2	345.00			100	160	815	204	12623	867	253	145	152	166
Schafer (1997) Members	C8	45	60	30	5.00	1.00	60	30	5	2	345.00	50	270	150	212	815	204	3156	887	253	251	205	213
Schafer (1997) Members	C9	90	60	60	2.50	1.00	60	60	3	1	345.00			200	59	204	204	12623	211	204	54	69	66
Schafer (1997) Members	C10	90	60	60	5.00	1.00	60	60	5	1	345.00	70	196	300	97	204	204	3156	217	204	87	108	99
Schafer (1997) Members	C11	90	60	60	10.00	1.00	60	60	10	1	345.00	60	211	450	177	204	204	789	222	204	152	200	173
Schafer (1997) Members	C12	45	60	60	2.50	1.00	60	60	3	1	345.00			150	52	204	204	12623	211	204	48	62	60
Schafer (1997) Members	C13	45	60	60	5.00	1.00	60	60	5	1	345.00			250	75	204	204	3156	217	204	74	84	79
Schafer (1997) Members	C14	45	60	60	10.00	1.00	60	60	10	1	345.00	60	210	400	124	204	204	789	222	204	125	140	124
Schafer (1997) Members	C15	90	90	30	2.50	1.00	90	30	3	3	345.00	100	109			815	91	12623	867	123	169	97	118
Schafer (1997) Members	C16	90	90	30	5.00	1.00	90	30	5	3	345.00	70	126			815	91	3156	887	123	318	155	166
Schafer (1997) Members	C17	45	90	30	2.50	1.00	90	30	3	3	345.00	100	101			815	91	12623	867	123	145	86	111
Schafer (1997) Members	C18	45	90	30	5.00	1.00	90	30	5	3	345.00	80	123			815	91	3156	887	123	251	119	135
Schafer (1997) Members	C19	90	90	60	2.50	1.00	90	60	3	2	345.00			200	51	204	91	12623	211	104	54	54	55
Schafer (1997) Members	C20	90	90	60	5.00	1.00	90	60	5	2	345.00	80	116	300	82	204	91	3156	217	104	87	84	82
Schafer (1997) Members	C21	90	90	60	10.00	1.00	90	60	10	2	345.00	80	118	500	147	204	91	789	222	104	152	155	144
Schafer (1997) Members	C22	45	90	60	2.50	1.00	90	60	3	2	345.00			200	47	204	91	12623	211	104	48	49	50
Schafer (1997) Members	C23	45	90	60	5.00	1.00	90	60	5	2	345.00			250	65	204	91	3156	217	104	74	66	65
Schafer (1997) Members	C24	45	90	60	10.00	1.00	90	60	10	2	345.00	80	118	400	105	204	91	789	222	104	125	109	103
Schafer (1997) Members	C25	90	90	90	2.50	1.00	90	90	3	1	345.00			250	25	91	91	12623	93	91	22	30	29
Schafer (1997) Members	C26	90	90	90	5.00	1.00	90	90	5	1	345.00			400	40	91	91	3156	95	91	35	45	42
Schafer (1997) Members	C27	90	90	90	10.00	1.00	90	90	10	1	345.00	90	93	650	78	91	91	789	97	91	60	87	77
Schafer (1997) Members	C28	90	90	90	15.00	1.00	90	90	15	1	345.00	90	94	850	114	91	91	351	99	91	86	129	108
Schafer (1997) Members	C29	45	90	90	2.50	1.00	90	90	3	1	345.00			250	22	91	91	12623	93	91	20	28	27
Schafer (1997) Members	C30	45	90	90	5.00	1.00	90	90	5	1	345.00			350	32	91	91	3156	95	91	30	36	34
Schafer (1997) Members	C31	45	90	90	10.00	1.00	90	90	10	1	345.00	90	92	550	56	91	91	789	97	91	50	63	56
Schafer (1997) Members	C32	45	90	90	15.00	1.00	90	90	15	1	345.00	90	94	700	78	91	91	351	99	91	70	89	76
Commercial Drywall Studs	158ST25	90	41	33	8.09	0.48	85	70	17	1	345.00	40	125	400	189	151	101	275	163	108	151	209	176
Commercial Drywall Studs	212ST25	90	63	33	8.09	0.48	132	70	17	2	345.00	50	57	400	142	151	42	275	163	52	151	150	140
Commercial Drywall Studs	358ST25	90	92	33	8.09	0.48	192	70	17	3	345.00	70	28	400	87	151	20	275	163	27	151	95	97
Commercial Drywall Studs	400ST25	90	101	33	8.09	0.48	212	70	17	3	345.00	80	23			151	16	275	163	22	151	80	81
Commercial Drywall Studs	600ST25	90	152	33	8.09	0.48	318	70	17	5	345.00	100	11			151	7	275	163	11	151	33	0
Commercial Drywall Studs	158ST22	90	41	33	7.97	0.72	56	46	11	1	345.00	40	288	300	293	350	232	646	377	251	308	325	283
Commercial Drywall Studs	212ST22	90	63	33	7.97	0.72	87	46	11	2	345.00	50	131	300	225	350	97	646	377	119	308	235	225
Commercial Drywall Studs	358ST22	90	91	33	7.97	0.72	127	46	11	3	345.00	70	64			350	46	646	377	61	308	148	155
Commercial Drywall Studs	400ST22	90	101	33	7.97	0.72	140	46	11	3	345.00	80	53			350	38	646	377	51	308	126	129
Commercial Drywall Studs	600ST22	90	152	33	7.97	0.72	210	46	11	5	345.00	100	25			350	17	646	377	24	308	51	0
Commercial Drywall Studs	158ST20	90	40	33	7.91	0.84	48	39	9	1	345.00	40	388	300	351	474	313	880	510	338	379	382	337
Commercial Drywall Studs	212ST20	90	63	33	7.91	0.84	75	39	9	2	345.00	50	176	300	265	474	131	880	510	160	379	276	267
Commercial Drywall Studs	358ST20	90	91	33	7.91	0.84	109	39	9	3	345.00	70	86	300	165	474	62	880	510	82	379	175	183
Commercial Drywall Studs	400ST20	90	101	33	7.91	0.84	121	39	9	3	345.00	80	71			474	50	880	510	69	379	148	153
Commercial Drywall Studs	600ST20	90	152	33	7.91	0.84	181	39	9	5	345.00	100	33			474	22	880	510	33	379	60	0
AISI Manual C's	16CS3.75x135	90	403	92	10.99	3.43	118	27	3	4	345.00	400	67			1023	53	7687	1104	77	304	61	14
AISI Manual C's	16CS3.75x105	90	404	93	11.37	2.67	151	35	4	4	345.00	400	43			609	32	4343	657	46	263	43	0
AISI Manual C's	16CS3.75x090	90	404	93	11.56	2.29	177	41	5	4	345.00	400	33			444	23	3087	479	34	210	36	0
AISI Manual C's	16CS3.75x075	90	404	93	11.75	1.91	212	49	6	4	345.00	300	23			306	16	2075	330	24	161	28	0
AISI Manual C's	14CS3.75x135	90	352	92	10.99	3.43	103	27	3	4	345.00	400	90			1023	70	7687	1104	99	304	85	73
AISI Manual C's	14CS3.75x105	90	353	93	11.37	2.67	132	35	4	4	345.00	300	57			609	42	4343	657	59	263	60	41
AISI Manual C's	14CS3.75x090	90	353	93	11.56	2.29	155	41	5	4	345.00	300	43			444	31	3087	479	43	210	50	29
AISI Manual C's	14CS3.75x075	90	354	93	11.75	1.91	186	49	6	4	345.00	300	30			306	21	2075	330	30	161	40	19
AISI Manual C's	14CS3.75x060	90	354	94	11.94	1.52	232	62	8	4	345.00	300	20			194	14	1286	210	19	117	30	12
AISI Manual C's	12CS3.75x135	90	301	92	10.99	3.43	88	27	3	3	345.00	300	124			1023	95	7687	1104	131	304	119	132
AISI Manual C's	12CS3.75x105	90	302	93	11.37	2.67	113	35	4	3	345.00	300	80			609	57	4343	657	79	263	85	87

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Basic Data from original source		Centerline Dimensions in mm					Nondimensional Param.				fy	Finite Strip Analysis Results (mm -- MPa)				Hand Calculations (MPa):					dist.	dist.	
Group	Member	θ	h	b	d	t	h/t	b/t	d/t	h/b	(MPa)	Llocal	fclocal	Ldist	ferdist	flange	web	lip	flange/lip	flange/web	AISI	Schafer	Hancock
AISI Manual C's	12CS3.75xO90	90	303	93	11.56	2.29	132	41	5	3	345.00	300	60			444	42	3087	479	58	210	70	69
AISI Manual C's	12CS3.75xO75	90	303	93	11.75	1.91	159	49	6	3	345.00	200	42			306	29	2075	330	40	161	56	53
AISI Manual C's	12CS3.75xO6D	90	303	94	11.94	1.52	199	62	8	3	345.00	200	27			194	19	1286	210	25	117	43	39
AISI Manual C's	12CS1.625xIO2	90	302	39	11.40	2.59	117	15	4	8	345.00	300	66			3292	54	4071	3458	84	3107	53	0
AISI Manual C's	12CS1.625xO7I	90	303	39	11.80	1.80	168	22	7	8	345.00	300	35			1532	26	1843	1605	40	1438	34	0
AISI Manual C's	11CS3.75xI35	90	276	92	10.99	3.43	80	27	3	3	345.00	300	149			1023	113	7687	1104	154	304	141	161
AISI Manual C's	11CS3.75xIO5	90	277	93	11.37	2.67	104	35	4	3	345.00	200	95			609	68	4343	657	92	263	101	109
AISI Manual C's	11CS3.75xO90	90	277	93	11.56	2.29	121	41	5	3	345.00	200	70			444	50	3087	479	68	210	83	88
AISI Manual C's	11CS3.75xO75	90	277	93	11.75	1.91	146	49	6	3	345.00	200	49			306	35	2075	330	47	161	66	69
AISI Manual C's	11CS3.75xO6O	90	278	94	11.94	1.52	182	62	8	3	345.00	200	31			194	22	1286	210	30	117	51	52
AISI Manual C's	10CS3xI35	90	251	73	10.99	3.43	73	21	3	3	345.00	300	181			1629	137	7687	1770	191	743	177	189
AISI Manual C's	10CS3xIO5	90	251	74	11.37	2.67	94	28	4	3	345.00	200	114			965	83	4343	1049	115	365	127	125
AISI Manual C's	10CS3xO9O	90	252	74	11.56	2.29	110	32	5	3	345.00	200	84			702	61	3087	763	84	352	104	99
AISI Manual C's	1 OCS3xO75	90	252	74	11.75	1.91	132	39	6	3	345.00	200	59			483	42	2075	524	58	270	84	76
AISI Manual C's	1 OCS3xo6O	90	252	75	11.94	1.52	166	49	8	3	345.00	200	38			306	27	1286	332	37	196	64	56
AISI Manual C's	10CS1.625xIO2	90	251	39	11.40	2.59	97	15	4	6	345.00	300	100			3292	78	4071	3458	119	3107	93	0
AISI Manual C's	10CS1.625xO7I	90	252	39	11.80	1.80	140	22	7	6	345.00	200	53			1532	38	1843	1605	57	1438	60	0
AISI Manual C's	10CS1.625xO57	90	253	40	11.98	1.45	174	28	8	6	345.00	200	35			970	24	1153	1015	37	767	47	0
AISI Manual C's	9CS3xI35	90	225	73	10.99	3.43	66	21	3	3	345.00	200	226			1629	170	7687	1770	232	743	218	246
AISI Manual C's	9CS3xIO5	90	226	74	11.37	2.67	85	28	4	3	345.00	200	141			965	102	4343	1049	139	365	156	169
AISI Manual C's	9CS3xO9O	90	226	74	11.56	2.29	99	32	5	3	345.00	200	105			702	75	3087	763	102	352	129	136
AISI Manual C's	9CS3xO75	90	227	74	11.75	1.91	119	39	6	3	345.00	200	73			483	52	2075	524	70	270	103	106
AISI Manual C's	9CS3xO6O	90	227	75	11.94	1.52	149	49	8	3	345.00	200	47			306	33	1286	332	45	196	79	80
AISI Manual C's	BCSL625xIO2	90	201	39	11.40	2.59	77	15	4	5	345.00	200	164			3292	122	4071	3458	181	3107	177	0
AISI Manual C's	SCSL625XO7I	90	201	39	11.80	1.80	112	22	7	5	345.00	150	85			1532	59	1843	1605	87	1438	114	0
AISI Manual C's	8CSL625xO57	90	202	40	11.98	1.45	139	28	8	5	345.00	150	55			970	38	1153	1015	56	767	89	0
AISI Manual C's	BCSL625xO45	90	202	40	12.13	1.14	177	35	11	5	345.00	150	35			595	23	701	622	35	509	68	0
AISI Manual C's	5.SCSL625xIO2	90	137	39	11.40	2.59	53	15	4	4	345.00	100	366			3292	262	4071	3458	366	3107	431	452
AISI Manual C's	5.SCSL625xO7I	90	138	39	11.80	1.80	76	22	7	3	345.00	100	178			1532	126	1843	1605	175	1438	278	281
AISI Manual C's	5.SCSL625xO57	90	138	40	11.98	1.45	95	28	8	3	345.00	100	115			970	80	1153	1015	112	767	215	215
AISI Manual C's	5.5CSL625xO45	90	139	40	12.13	1.14	121	35	11	3	345.00	100	72			595	50	701	622	69	509	165	163
AISI Manual C's	5.5CSL625xO35	90	139	40	12.26	0.89	156	45	14	3	345.00	100	43			356	30	415	372	42	332	125	123
AISI Manual C's	4CS4xI35	90	98	98	10.99	3.43	29	29	3	1	345.00					895	895	7687	963	895	241	357	334
AISI Manual C's	4CS4xIO5	90	99	99	11.37	2.67	37	37	4	1	345.00					533	533	4343	574	533	227	257	238
AISI Manual C's	4CS4xO9O	90	99	99	11.56	2.29	43	43	5	1	345.00	100	385			389	389	3087	419	389	181	213	195
AISI Manual C's	4CS4xO75	90	100	100	11.75	1.91	52	52	6	1	345.00	100	270			268	268	2075	289	268	139	172	155
AISI Manual C's	4CS4xO6O	90	100	100	11.94	1.52	66	66	8	1	345.00	100	174			170	170	1286	184	170	101	133	119
AISI Manual C's	4CSL625xO7I	90	100	39	8.62	1.80	55	22	5	3	345.00	80	328			1532	240	3450	1660	314	1057	374	401
AISI Manual C's	4CSL625xO57	90	100	40	8.80	1.45	69	28	6	3	345.00	80	211			970	153	2135	1050	201	554	286	303
AISI Manual C's	4CSL625xO45	90	100	40	8.95	1.14	88	35	8	3	345.00	80	132			595	95	1286	644	124	418	217	227
AISI Manual C's	4CSL625xO35	90	101	40	9.08	0.89	113	45	10	2	345.00	80	79			356	57	756	385	75	292	164	169
AISI Manual C's	3.5CSL625xO7I	90	87	39	11.80	1.80	48	22	7	2	345.00	70	429			1532	315	1843	1605	400	1438	546	550
AISI Manual C's	3.5CSL625xO57	90	87	40	11.98	1.45	60	28	8	2	345.00	70	275			970	201	1153	1015	255	767	423	421
AISI Manual C's	3.5CSL625xO45I	90	88	40	12.13	1.14	77	35	11	2	345.00	70	171			595	124	701	622	158	509	324	318
AISI Manual C's	3.5CSL625xO35	90	88	40	12.26	0.89	99	45	14	2	345.00	70	103			356	75	415	372	95	332	246	238
AISI Manual C's	3CS3xI35	90	73	73	10.99	3.43	21	21	3	1	345.00					1629	1629	7687	1770	1629	743	646	601
AISI Manual C's	3CS3xIO5	90	74	74	11.37	2.67	28	28	4	1	345.00					965	965	4343	1049	965	365	467	427
AISI Manual C's	3CS3xO9O	90	74	74	11.56	2.29	32	32	5	1	345.00	80	700			702	702	3087	763	702	352	386	351
AISI Manual C's	3CS3xO75	90	74	74	11.75	1.91	39	39	6	1	345.00	80	490			483	483	2075	524	483	270	312	279
AISI Manual C's	3CS3xO6O	90	75	75	11.94	1.52	49	49	8	1	345.00	80	315			306	306	1286	332	306	196	242	213
AISI Manual C's	3CSL625xO7I	90	74	39	8.62	1.80	41	22	5	2	345.00	60	574			1532	431	3450	1660	528	1057	519	519
AISI Manual C's	3CSL625xO57	90	75	40	8.80	1.45	52	28	6	2	345.00	60	368			970	275	2135	1050	337	554	397	393
AISI Manual C's	3CSL625xO45	90	75	40	8.95	1.14	66	35	8	2	345.00	60	229			595	170	1286	644	208	418	302	294
AISI Manual C's	3CSL625xO35	90	75	40	9.08	0.89	85	45	10	2	345.00	60	138			356	102	756	385	125	292	227	219
AISI Manual C's	2.5CSL625xO7I	90	62	39	8.62	1.80	34	22	5	2	345.00	50	813			1532	627	3450	1660	730	1057	602	579
AISI Manual C's	2.5CSL625xO57	90	62	40	8.80	1.45	43	28	6	2	345.00	50	521			970	400	2135	1050	464	554	462	439
AISI Manual C's	2.5CSL625xO45	90	62	40	8.95	1.14	55	35	8	2	345.00	50	323			595	247	1286	644	286	418	351	329
AISI Manual C's	2.5CSL625xO35	90	63	40	9.08	0.89	70	45	10	2	345.00	50	194			356	148	756	385	172	292	265	244

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Group	Member	θ	h	b	d	t	h/t	b/t	d/t	h/b	(MPa)	Llocal	fclocal	Ldist	ferdist	flange	web	lip	flange/lip	flange/web	AISI	Schafer	Hancock
AISI Manual C's	1.5CSI.625xO71	90	36	39	8.62	1.80	20	22	5	1	345.00	40	1602	200	718	1532	1812	3450	1660	1557	1057	819	730
AISI Manual C's	1.5CSI.625xO57	90	37	40	8.80	1.45	25	28	6	1	345.00	40	1037	300	578	970	1145	2135	1050	986	554	631	553
AISI Manual C's	1.5CSI.625xO45	90	37	40	8.95	1.14	32	35	8	1	345.00	40	645	300	418	595	702	1286	644	605	418	482	414
AISI Manual C's	11.5CSI.625xO351	90	37	40	9.08	0.89	42	45	10	1	345.00	40	388	300	318	356	419	756	385	361	292	365	307
AISI Manual Z's	12ZS3.25xI35	50	301	79	17.34	3.43	88	23	5	4	345.00			271	129	1378	95	3087	1494	134	727	135	130
AISI Manual Z's	12ZS3.25xI05	50	302	80	17.72	2.67	113	30	7	4	345.00	242	80			818	57	1788	886	81	360	98	87
AISI Manual Z's	12ZS3.25xO90	50	303	80	17.91	2.29	132	35	8	4	345.00	242	59			595	42	1286	644	59	361	81	70
AISI Manual Z's	12ZS3.25xO75	50	303	81	18.10	1.91	159	42	10	4	345.00	242	41			410	29	874	443	41	277	65	54
AISI Manual Z's	12ZS3.25xO60	50	303	81	18.29	1.52	199	53	12	4	345.00	243	27			260	19	548	281	26	201	50	41
AISI Manual Z's	10ZS3xi35	50	251	73	17.49	3.43	73	21	5	3	345.00			226	188	1629	137	3033	1756	191	1050	198	217
AISI Manual Z's	10ZS3xi05	50	251	74	17.72	2.67	94	28	7	3	345.00	201	115			965	83	1788	1040	115	493	143	151
AISI Manual Z's	10ZS3xO90	50	252	74	17.91	2.29	110	32	8	3	345.00	200	85			702	61	1286	756	84	435	118	123
AISI Manual Z's	1 OZS3xO75	50	252	74	18.10	1.91	132	39	10	3	345.00	200	59			483	42	874	519	58	334	95	97
AISI Manual Z's	iOZS3xO60	50	252	75	18.29	1.52	166	49	12	3	345.00	200	38			306	27	548	329	37	242	73	74
AISI Manual Z's	9ZS3xi35	50	225	73	17.34	3.43	66	21	5	3	345.00	180	232	400	241	1629	170	3087	1757	232	1038	239	268
AISI Manual Z's	9ZS3xi05	50	226	74	17.72	2.67	85	28	7	3	345.00	181	142			965	102	1788	1040	139	493	173	190
AISI Manual Z's	9ZS3xO90	50	226	74	17.91	2.29	99	32	8	3	345.00	181	105			702	75	1286	756	102	435	143	156
AISI Manual Z's	9ZS3xO75	50	227	74	18.10	1.91	119	39	10	3	345.00	181	73			483	52	874	519	70	334	115	124
AISI Manual Z's	9ZS3xO60	50	227	75	18.29	1.52	149	49	12	3	345.00	182	47			306	33	548	329	45	242	89	95
AISI Manual Z's	8ZS2.5xi05	50	201	61	17.72	2.67	75	23	7	3	345.00	160	181			1411	130	1788	1485	179	1018	221	243
AISI Manual Z's	8ZS2.5xO90	50	201	61	17.91	2.29	88	27	8	3	345.00	161	133			1023	95	1286	1077	131	644	182	199
AISI Manual Z's	8ZS2.5xO75	50	201	62	18.10	1.91	106	32	10	3	345.00	161	93			702	66	874	738	91	484	147	158
AISI Manual Z's	8ZS2.5xO60	50	202	62	18.29	1.52	132	41	12	3	345.00	161	60			444	42	548	466	58	350	113	121
AISI Manual Z's	8ZS2.5xO48	50	202	62	18.44	1.22	166	51	15	3	345.00	162	38			281	27	345	295	37	254	88	93
AISI Manual Z's	BZS2xi05	50	201	48	17.72	2.67	75	18	7	4	345.00	160	181			2253	130	1788	2227	186	1921	218	211
AISI Manual Z's	8ZS2xO90	50	201	49	17.91	2.29	88	21	8	4	345.00	161	134			1629	95	1286	1609	136	1387	181	171
AISI Manual Z's	8ZS2x075	50	201	49	18.10	1.91	106	26	10	4	345.00	161	94			1114	66	874	1099	94	881	145	136
AISI Manual Z's	8ZS2xO60	50	202	49	18.29	1.52	132	32	12	4	345.00	161	61			702	42	548	692	60	532	112	104
AISI Manual Z's	BZS2xO48	50	202	50	18.44	1.22	166	41	15	4	345.00	162	39			444	27	345	437	38	376	87	80
AISI Manual Z's	7ZS2xi05	50	175	48	17.72	2.67	66	18	7	4	345.00	140	237			2253	170	1788	2227	239	1921	286	315
AISI Manual Z's	7ZS2xO90	50	176	49	17.91	2.29	77	21	8	4	345.00	140	175			1629	124	1286	1609	175	1387	237	258
AISI Manual Z's	7ZS2x075	50	176	49	18.10	1.91	92	26	10	4	345.00	141	122			1114	86	874	1099	121	881	190	205
AISI Manual Z's	7ZS2xO60	50	176	49	18.29	1.52	116	32	12	4	345.00	141	79			702	55	548	692	77	532	147	157
AISI Manual Z's	7ZS2xO48	50	177	50	18.44	1.22	145	41	15	4	345.00	141	50			444	35	345	437	49	376	114	121
AISI Manual Z's	6ZS2xi05	50	150	48	17.72	2.67	56	18	7	3	345.00	120	322	300	353	2253	233	1788	2227	318	1921	373	413
AISI Manual Z's	6ZS2xG90	50	150	49	17.91	2.29	66	21	8	3	345.00	120	238	400	287	1629	170	1286	1609	232	1387	308	338
AISI Manual Z's	6ZS2x075	50	150	49	18.10	1.91	79	26	10	3	345.00	120	165	400	225	1114	118	874	1099	160	881	247	269
AISI Manual Z's	6ZS2xO60	50	151	49	18.29	1.52	99	32	12	3	345.00	121	106	500	172	702	75	548	692	102	532	191	206
AISI Manual Z's	6ZS2xO48	50	151	50	18.44	1.22	124	41	15	3	345.00	121	68	500	131	444	48	345	437	65	376	148	158
AISI Manual Z's	5ZS2xO90	50	125	49	17.91	2.29	55	21	8	3	345.00	100	340	400	374	1629	247	1286	1609	324	1387	394	414
AISI Manual Z's	5ZS2x075	50	125	49	18.10	1.91	66	26	10	3	345.00	100	236	400	294	1114	170	874	1099	224	881	316	330
AISI Manual Z's	5ZS2xO60	50	125	49	18.29	1.52	82	32	12	3	345.00	100	150	500	226	702	108	548	692	142	532	244	251
AISI Manual Z's	5ZS2xO48	50	126	50	18.44	1.22	103	41	15	3	345.00	100	96	500	172	444	69	345	437	90	376	190	193
AISI Manual Z's	5ZS2xO36	50	126	50	18.59	0.91	138	55	20	3	345.00	100	54	600	124	247	39	191	243	51	209	138	138
AISI Manual Z's	4ZS2xO90	50	99	49	17.91	2.29	43	21	8	2	345.00	80	524	400	473	1629	389	1286	1609	486	1387	495	488
AISI Manual Z's	4ZS2x075	50	100	49	18.10	1.91	52	26	10	2	345.00	80	363	400	369	1114	268	874	1099	334	881	397	388
AISI Manual Z's	4ZS2xO60	50	100	49	18.29	1.52	66	32	12	2	345.00	80	231	400	287	702	170	548	692	212	532	307	296
AISI Manual Z's	4ZS2xO48	50	100	50	18.44	1.22	82	41	15	2	345.00	80	147	500	217	444	108	345	437	135	376	238	226
AISI Manual Z's	4ZS2xO36	50	101	50	18.59	0.91	110	55	20	2	345.00	80	82	600	157	247	61	191	243	75	209	174	162
AISI Manual Z's	3ZS1.75xO90	50	74	42	17.91	2.29	32	18	8	2	345.00	60	927	300	623	2157	702	1286	1985	843	1686	687	649
AISI Manual Z's	3ZS1.75xO75	50	74	43	18.10	1.91	39	22	10	2	345.00	60	640	300	506	1471	483	874	1353	579	1149	551	515
AISI Manual Z's	3ZS1.75xO60	50	75	43	18.29	1.52	49	28	12	2	345.00	60	406	400	379	925	306	548	850	366	721	425	391
AISI Manual Z's	3ZS1.75xO48	50	75	43	18.44	1.22	62	35	15	2	345.00	60	258	400	294	584	194	345	536	232	455	330	299
AISI Manual Z's	3ZS1.75xO36	50	75	44	18.59	0.91	82	48	20	2	345.00	60	144	500	210	324	108	191	297	130	252	241	213