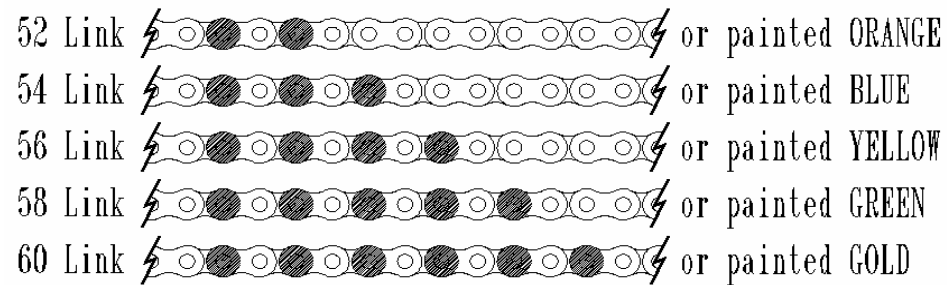


C. J. WINTER MACHINE TECHNOLOGIES, INC. 3/3/2005  
**REFERENCE DATA SHEETS 234 SERIES**

**WEDGE-CHAIN COMBINATIONS 234 SERIES**

Wedge	FCD Max	FCD Power	FCD Min	Spring	Chain
12	1.5676	1.477	1.259	Short-1.50"	52 Link
11	1.6310	1.541	1.322	Short-1.50"	52 Link
10	1.6944	1.604	1.385	Short-1.50"	54 Link
9	1.7578	1.667	1.449	Short-1.50"	54 Link
8	1.8212	1.731	1.512	Short-1.50"	54 Link
7	1.8846	1.794	1.576	Short-1.50"	56 Link
6	1.9480	1.858	1.639	Long-2.00"	56 Link
5	2.0114	1.921	1.702	Long-2.00"	56 Link
4	2.0748	1.984	1.766	Long-2.00"	56 Link
3	2.1382	2.048	1.829	Long-2.00"	58 Link
2	2.2016	2.111	1.893	Long-2.00"	58 Link
1	2.2650	2.175	1.956	Long-2.00"	58 Link
0	2.2650	2.210	1.988	Long-2.00"	60 Link



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## REFERENCE DATA SHEETS 234 SERIES

## UN, UNC, UNF, UNEF, UNS THREAD SIZES

Part Data			Roll Data		Attachment Data				
Size	TPI	Blank Dia	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
#0	- 80	0.050	30	1.394	12	52 Link	Short-1.50"	0.799	0.134
#1	- 64	0.061	25	1.402	12	52 Link	Short-1.50"	0.816	0.126
#1	- 72	0.062	24	1.391	12	52 Link	Short-1.50"	0.807	0.137
#2	- 56	0.072	21	1.400	12	52 Link	Short-1.50"	0.824	0.128
#2	- 64	0.074	20	1.382	12	52 Link	Short-1.50"	0.809	0.146
#3	- 48	0.083	18	1.376	12	52 Link	Short-1.50"	0.809	0.152
#3	- 56	0.086	17	1.354	12	52 Link	Short-1.50"	0.791	0.174
#4	- 40	0.094	16	1.359	12	52 Link	Short-1.50"	0.800	0.169
#4	- 48	0.096	15	1.342	12	52 Link	Short-1.50"	0.788	0.186
#5	- 40	0.107	14	1.371	11	52 Link	Short-1.50"	0.825	0.220
#5	- 44	0.109	14	1.406	11	52 Link	Short-1.50"	0.863	0.185
#6	- 32	0.116	13	1.354	12	52 Link	Short-1.50"	0.814	0.174
#6	- 40	0.120	12	1.331	12	52 Link	Short-1.50"	0.798	0.197
#8	- 32	0.142	10	1.302	12	52 Link	Short-1.50"	0.788	0.226
#8	- 36	0.144	10	1.339	11	52 Link	Short-1.50"	0.829	0.252
#10	- 24	0.161	9	1.304	12	52 Link	Short-1.50"	0.803	0.224
#10	- 28	0.164	8	1.211	12	52 Link	Short-1.50"	0.717	0.317
#10	- 32	0.168	8	1.249	12	52 Link	Short-1.50"	0.761	0.279
#10	- 36	0.170	8	1.279	12	52 Link	Short-1.50"	0.795	0.249
#10	- 40	0.171	8	1.303	12	52 Link	Short-1.50"	0.822	0.225
#10	- 48	0.174	8	1.340	11	52 Link	Short-1.50"	0.864	0.251
#10	- 56	0.176	8	1.365	10	54 Link	Short-1.50"	0.893	0.289
#12	- 24	0.187	7	1.196	12	52 Link	Short-1.50"	0.721	0.332
#12	- 28	0.191	7	1.241	12	52 Link	Short-1.50"	0.773	0.287

## REFERENCE DATA SHEETS 234 SERIES

## UN, UNC, UNF, UNEF, UNS THREAD SIZES

Part Data			Roll Data		Attachment Data				
Size	TPI	Blank Dia	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
#12	- 32	0.194	7	1.275	12	52 Link	Short-1.50"	0.813	0.253
#12	- 36	0.196	7	1.302	11	52 Link	Short-1.50"	0.844	0.289
#12	- 40	0.197	7	1.323	11	52 Link	Short-1.50"	0.868	0.268
#12	- 48	0.200	7	1.354	10	54 Link	Short-1.50"	0.904	0.300
#12	- 56	0.202	7	1.377	10	54 Link	Short-1.50"	0.931	0.277
1/4	- 20	0.216	6	1.175	12	52 Link	Short-1.50"	0.724	0.353
1/4	- 24	0.220	6	1.229	12	52 Link	Short-1.50"	0.788	0.299
1/4	- 27	0.222	6	1.259	11	52 Link	Short-1.50"	0.824	0.332
1/4	- 28	0.225	6	1.268	11	52 Link	Short-1.50"	0.834	0.323
1/4	- 32	0.228	6	1.297	11	52 Link	Short-1.50"	0.869	0.294
1/4	- 36	0.230	6	1.320	10	54 Link	Short-1.50"	0.896	0.334
1/4	- 40	0.231	6	1.338	10	54 Link	Short-1.50"	0.917	0.316
1/4	- 48	0.234	6	1.365	10	54 Link	Short-1.50"	0.949	0.289
1/4	- 56	0.236	6	1.384	9	54 Link	Short-1.50"	0.972	0.334
5/16	- 18	0.274	5	1.262	10	54 Link	Short-1.50"	0.866	0.392
5/16	- 20	0.278	5	1.292	10	54 Link	Short-1.50"	0.903	0.362
5/16	- 24	0.283	5	1.337	9	54 Link	Short-1.50"	0.958	0.381
5/16	- 27	0.285	5	1.362	9	54 Link	Short-1.50"	0.989	0.356
5/16	- 28	0.288	5	1.369	9	54 Link	Short-1.50"	0.998	0.349
5/16	- 32	0.291	4	1.115	12	52 Link	Short-1.50"	0.749	0.413
5/16	- 36	0.292	5	1.412	8	54 Link	Short-1.50"	1.050	0.369
5/16	- 40	0.294	5	1.427	8	54 Link	Short-1.50"	1.069	0.354
5/16	- 48	0.297	4	1.160	12	52 Link	Short-1.50"	0.807	0.368
3/8	- 16	0.332	4	1.229	10	54 Link	Short-1.50"	0.887	0.425
3/8	- 18	0.336	4	1.259	10	54 Link	Short-1.50"	0.926	0.395
3/8	- 20	0.340	4	1.283	9	54 Link	Short-1.50"	0.957	0.435
3/8	- 24	0.346	4	1.320	9	54 Link	Short-1.50"	1.004	0.398
3/8	- 27	0.348	4	1.335	8	54 Link	Short-1.50"	1.024	0.446
3/8	- 28	0.350	4	1.345	8	54 Link	Short-1.50"	1.036	0.436
3/8	- 32	0.353	4	1.365	8	54 Link	Short-1.50"	1.062	0.416
3/8	- 36	0.354	4	1.380	7	56 Link	Short-1.50"	1.081	0.465

## REFERENCE DATA SHEETS 234 SERIES

## UN, UNC, UNF, UNEF, UNS THREAD SIZES

Part Data			Roll Data		Attachment Data				
Size	TPI	Blank Dia	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
3/8	- 40	0.356	4	1.392	7	56 Link	Short-1.50"	1.096	0.453
7/16	- 14	0.389	3	1.081	12	52 Link	Short-1.50"	0.791	0.447
7/16	- 16	0.395	3	1.110	11	52 Link	Short-1.50"	0.831	0.481
7/16	- 18	0.398	3	1.132	11	52 Link	Short-1.50"	0.861	0.459
7/16	- 20	0.403	3	1.150	10	54 Link	Short-1.50"	0.886	0.504
7/16	- 24	0.407	3	1.177	10	54 Link	Short-1.50"	0.923	0.477
7/16	- 27	0.410	3	1.189	10	54 Link	Short-1.50"	0.940	0.465
7/16	- 28	0.412	3	1.197	9	54 Link	Short-1.50"	0.951	0.521
7/16	- 32	0.415	3	1.211	9	54 Link	Short-1.50"	0.970	0.507
1/2	- 12	0.444	3	1.229	8	54 Link	Short-1.50"	0.987	0.552
1/2	- 13	0.448	3	1.250	8	54 Link	Short-1.50"	1.016	0.531
1/2	- 14	0.450	3	1.268	7	56 Link	Short-1.50"	1.040	0.577
1/2	- 16	0.475	3	1.297	7	56 Link	Short-1.50"	1.080	0.548
1/2	- 18	0.461	3	1.320	7	56 Link	Short-1.50"	1.112	0.525
1/2	- 20	0.466	3	1.338	6	56 Link	Long-2.00"	1.137	0.570
1/2	- 24	0.470	3	1.365	6	56 Link	Long-2.00"	1.174	0.543
1/2	- 27	0.473	3	1.376	6	56 Link	Long-2.00"	1.189	0.532
1/2	- 28	0.475	3	1.384	5	56 Link	Long-2.00"	1.200	0.587
1/2	- 32	0.478	3	1.399	5	56 Link	Long-2.00"	1.221	0.572
9/16	- 12	0.506	2	0.945	12	52 Link	Short-1.50"	0.765	0.583
9/16	- 14	0.513	2	0.970	11	52 Link	Short-1.50"	0.805	0.621
9/16	- 16	0.520	2	0.990	11	52 Link	Short-1.50"	0.836	0.601
9/16	- 18	0.524	2	1.005	11	52 Link	Short-1.50"	0.859	0.586
9/16	- 20	0.528	2	1.017	10	54 Link	Short-1.50"	0.878	0.637
9/16	- 24	0.533	2	1.035	10	54 Link	Short-1.50"	0.906	0.619
9/16	- 27	0.535	2	1.043	10	54 Link	Short-1.50"	0.919	0.611
9/16	- 28	0.537	2	1.048	10	54 Link	Short-1.50"	0.927	0.606
9/16	- 32	0.540	2	1.057	10	54 Link	Short-1.50"	0.941	0.597
5/8	- 11	0.564	2	1.053	9	54 Link	Short-1.50"	0.926	0.665

**REFERENCE DATA SHEETS 234 SERIES  
NPT, NPTF TAPERED PIPE THREAD SIZES**

Part Data			Roll Data											
Size - TPI	Form	Major Ø	Blank Dia @ Y	# of Starts	OD	OD	Work Face	Gage Dia	Gage Dim	Gage Setting @ Y	FCD MIN	FCD MAX	Wedge	
1/16 - 27	NPTF	0.305	0.279	5		1.340	0.375	1.328	0.188	0.397	1.577	1.643	9	
1/8 - 27	NPTF	0.398	0.372	4		1.440	0.375	1.428	0.188	0.376	1.770	1.836	6	
1/4 - 18	NPTF	0.324	0.489	3		1.428	0.562	1.411	0.281	0.405	1.883	1.971	5	
3/8 - 18	NPTF		0.625	2		1.229	0.562	1.212	0.281	0.252	1.793	1.881	6	

**REFERENCE DATA SHEETS 234 SERIES  
BSPT TAPERED PIPE THREAD SIZES**

Part Data			Roll Data											
Size - TPI	Form	Major Ø	Blank Dia @ Y	# of Starts	OD	OD	Work Face	Gage Dia	Gage Dim	Gage Setting @ Y	FCD MIN	FCD MAX	Wedge	
1/8 - 28	BSPT	0.385	0.358	4		1.415	0.344	1.404	0.172	0.379	1.733	1.797	7	
1/4 - 19	BSPT	0.52	0.482	3		1.418	0.512	1.402	0.256	0.328	1.842	1.926	5	
3/8 - 19	BSPT		0.622	2		1.259	0.526	1.243	0.263	0.257	1.823	1.907	5	

Y Dimension is shown on Gage Setting Chart for NPT, NPTF, & BSPT Thread Sizes

C. J. Winter Machine Technologies, Inc. 3/3/2005  
**REFERENCE DATA SHEETS 234 SERIES**  
**NPT, NPTF TAPERED PIPE THREAD SIZES**

<b>Attachment Data</b>			
<b>Chain</b>	<b>Spring</b>	<b>Stock Clear.</b>	<b>Shoulder Clear.</b>
54 Link	Short-1.50"	0.937	1.718
56 Link	Long-2.00"	1.130	1.908
56 Link	Long-2.00"	1.013	1.781
56 Link	Long-2.00"	1.153	1.908

<b>Attachment Data</b>			
<b>Chain</b>	<b>Spring</b>	<b>Stock Clear.</b>	<b>Shoulder Clear.</b>
56 Link	Short-1.50"	1.093	1.845
56 Link	Long-2.00"	1.202	1.971
56 Link	Long-2.00"	1.183	1.971

**REFERENCE DATA SHEETS 234 SERIES**

**NPSM STRAIGHT PIPE THREAD SIZES**

Part Data		Roll Data			Attachment Data				
Size	TPI	Blank Dia	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
1/4	- 18	0.488	3	1.389	5	56 Link	Long-2.00"	1.207	0.582
3/8	- 18	0.625	2	1.203	6	56 Link	Long-2.00"	1.157	0.705

**REFERENCE DATA SHEETS 234 SERIES**

**BSPP STRAIGHT PIPE THREAD SIZES**

Part Data		Roll Data			Attachment Data				
Size	TPI	Blank Dia	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
1/8	- 28	0.360	4	1.372	7	56 Link	Short-1.50"	1.071	0.473
1/4	- 19	0.484	3	1.372	5	56 Link	Long-2.00"	1.185	0.599
3/8	- 19	0.620	2	1.161	7	56 Link	Short-1.50"	1.112	0.684

## REFERENCE DATA SHEETS 234 SERIES

## METRIC THREAD SIZES

Part Data				Roll Data		Attachment Data				
Size	X	Pitch	Blank Diameter	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
M1.6	X	0.35	0.051	29	1.394	12	52 Link	Short-1.50"	0.799	0.134
M1.8	X	0.35	0.059	25	1.399	12	52 Link	Short-1.50"	0.812	0.129
M2	X	0.4	0.066	22	1.357	12	52 Link	Short-1.50"	0.776	0.171
M2.2	X	0.45	0.072	21	1.416	11	52 Link	Short-1.50"	0.840	0.175
M2.5	X	0.35	0.087	17	1.420	11	52 Link	Short-1.50"	0.861	0.171
M2.5	X	0.45	0.084	17	1.347	12	52 Link	Short-1.50"	0.783	0.181
M3	X	0.35	0.106	13	1.342	12	52 Link	Short-1.50"	0.802	0.186
M3	X	0.5	0.103	14	1.355	12	52 Link	Short-1.50"	0.808	0.173
M3.5	X	0.35	0.126	11	1.352	11	52 Link	Short-1.50"	0.832	0.239
M3.5	X	0.6	0.120	12	1.347	12	52 Link	Short-1.50"	0.815	0.181
M4	X	0.5	0.142	10	1.362	11	52 Link	Short-1.50"	0.855	0.229
M4	X	0.7	0.137	10	1.276	12	52 Link	Short-1.50"	0.759	0.252
M4.5	X	0.5	0.162	9	1.403	10	54 Link	Short-1.50"	0.915	0.251
M4.5	X	0.7	0.155	9	1.307	12	52 Link	Short-1.50"	0.809	0.221
M5	X	0.5	0.181	8	1.404	10	54 Link	Short-1.50"	0.936	0.250
M5	X	0.8	0.173	8	1.302	12	52 Link	Short-1.50"	0.819	0.226
M5.5	X	0.5	0.201	7	1.367	10	54 Link	Short-1.50"	0.919	0.287
M6	X	0.75	0.214	6	1.226	12	52 Link	Short-1.50"	0.785	0.302
M6	X	1	0.208	7	1.355	10	54 Link	Short-1.50"	0.902	0.299
M7	X	0.75	0.254	5	1.218	12	52 Link	Short-1.50"	0.816	0.310
M7	X	1	0.247	6	1.398	9	54 Link	Short-1.50"	0.984	0.320



## REFERENCE DATA SHEETS 234 SERIES

## METRIC THREAD SIZES

Part Data				Roll Data		Attachment Data				
Size	X	Pitch	Blank Diameter	# of Starts	OD	Wedge	Chain	Spring	Stock Clear.	Shoulder Clear.
M8	X	0.75	0.293	5	1.415	8	54 Link	Short-1.50"	1.053	0.366
M8	X	1	0.286	5	1.362	9	54 Link	Short-1.50"	0.988	0.356
M8	X	1.25	0.280	5	1.308	10	54 Link	Short-1.50"	0.921	0.346
M9	X	0.75	0.332	4	1.289	9	54 Link	Short-1.50"	0.966	0.429
M9	X	1	0.326	4	1.247	10	54 Link	Short-1.50"	0.912	0.407
M9	X	1.25	0.319	4	1.204	11	52 Link	Short-1.50"	0.857	0.387
M10	X	0.75	0.372	3	1.085	12	52 Link	Short-1.50"	0.802	0.443
M10	X	1	0.365	4	1.404	7	56 Link	Short-1.50"	1.108	0.441
M10	X	1.25	0.359	4	1.362	8	54 Link	Short-1.50"	1.054	0.419
M10	X	1.5	0.352	4	1.319	8	54 Link	Short-1.50"	0.999	0.462
M11	X	0.75	0.411	3	1.203	9	54 Link	Short-1.50"	0.959	0.515
M11	X	1	0.405	3	1.171	10	54 Link	Short-1.50"	0.915	0.483
M11	X	1.5	0.392	3	1.107	11	52 Link	Short-1.50"	0.826	0.484
M12	X	1	0.444	3	1.289	7	56 Link	Short-1.50"	1.072	0.556
M12	X	1.25	0.437	3	1.257	8	54 Link	Short-1.50"	1.028	0.524
M12	X	1.5	0.431	3	1.226	9	54 Link	Short-1.50"	0.985	0.492
M12	X	1.75	0.424	3	1.194	9	54 Link	Short-1.50"	0.941	0.524
M14	X	1	0.523	2	1.017	11	52 Link	Short-1.50"	0.879	0.574
M14	X	1.25	0.516	2	0.996	11	52 Link	Short-1.50"	0.846	0.595
M14	X	1.5	0.510	2	0.975	11	52 Link	Short-1.50"	0.812	0.616
M14	X	2	0.497	3	1.398	5	56 Link	Long-2.00"	1.211	0.573
M15	X	1	0.562	2	1.096	9	54 Link	Short-1.50"	0.997	0.622
M15	X	1.5	0.549	2	1.053	9	54 Link	Short-1.50"	0.930	0.665
M16	X	1	0.601	2	1.175	7	56 Link	Short-1.50"	1.116	0.670
M16	X	1.5	0.588	2	1.132	8	54 Link	Short-1.50"	1.048	0.649

### Blank Diameter Chart for NPT, NPTF & BSPT Pipe Threads

BLANK SPECIFICATIONS			
PIPE SIZE NPT & NPTF	Y	L2	B.D. @ Y
1/16-27	.130	.261	.279
1/8-27	.132	.264	.372
1/4-18	.200	.402	.489
3/8-18	.203	.408	.625
1/2-14	.266	.534	.774
3/4-14	.273	.546	.985
1" -11 1/2	.341	.683	1.235
1 1/4-11 1/2	.353	.707	1.579
1 1/2-11 1/2	.362	.724	1.818

BLANK SPECIFICATIONS			
PIPE SIZE BSPT	Y	L2	B.D. @ Y
1/16-28	.1563	.255	.281
1/8-28	.1563	.255	.360
1/4-19	.2367	.381	.484
3/8-19	.2500	.394	.622
1/2-14	.3214	.517	.779
3/4-14	.3750	.571	.995
1" -11	.4091	.659	1.250
1 1/4-11	.5000	.750	1.591
1 1/2-11	.5000	.750	1.823

