

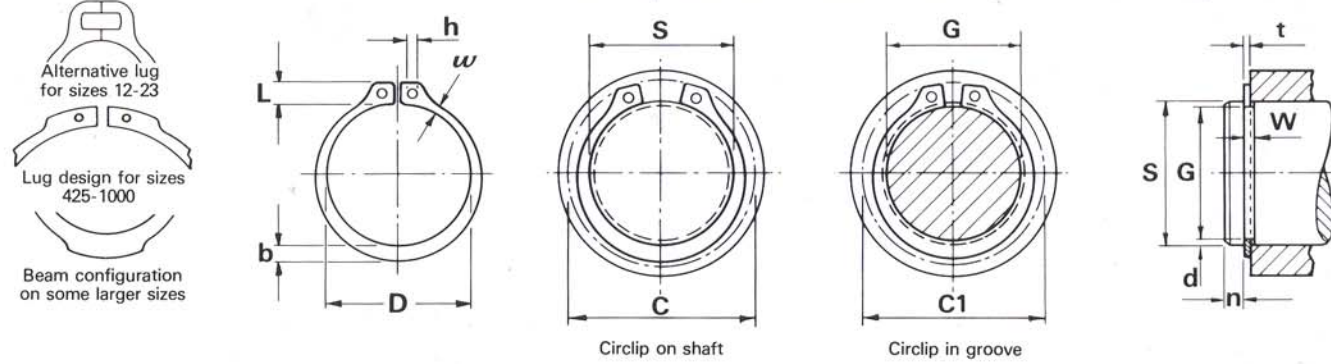
STANDARD EXTERNAL CIRCLIPS AMERICAN SPECIFICATION \*

N1400 EQUIVALENT TO MIL-R-21248/MS 16624



All dimensions in inches

\*These circlips should not be used as direct substitutes for British Standard Imperial sizes



\*Sizes 12-23 Beryllium copper only

† Thrust load calculations see pages 9 & 10

SIZE CODE	Shaft (S)		Groove (G)						Circlip (F)										Wt. (lb/k)	Tc† (lb.f)	Tg† (lb.f)
	(frac)	(dec)	G	Tol.	W	Tol.	n (min)	d ~	t	Tol.	D	Tol.	C	C1	L (max)	b ~	w ~	h (min)			
*0012	1/8	.125	.117	.012	.014	.004	.010	±.001	.112	.22	.214	.048	.018	.011	.024	0.018	110	28			
*0015	5/32	.156	.146	.012	.017	.005	.010	.012	.142	.27	.260	.056	.026	.016	.024	0.037	130	44			
*0018	3/16	.188	.175	.018	.022	.007	.015	.016	.168	.30	.286	.052	.025	.016	.023	0.059	240	69			
*0019	—	.197	.185	±.0015	.018	-.000	.020	.015	.179	.32	.307	.058	.026	.016	.024	0.063	250	67			
*0021	7/32	.219	.205	.018	.023	.007	.015	.015	.196	.34	.324	.058	.028	.017	.024	0.074	280	87			
*0023	15/64	.236	.222	.018	.023	.007	.015	.015	.215	.36	.341	.058	.030	.019	.024	0.086	310	93			
0025	1/4	.250	.230	.029	.032	.010	.025	.025	.225	.45	.43	.083	.035	.025	.039	0.21	880	141			
0027	—	.276	.255	.029	.035	.010	.025	.025	.250	.48	.46	.084	.035	.024	.039	0.25	980	164			
0028	9/32	.281	.261	.029	.033	.010	.025	±.002	.256	.49	.47	.083	.038	.025	.039	0.24	990	160			
0031	5/16	.312	.290	.029	.036	.011	.025	.025	.281	.54	.52	.090	.040	.026	.039	0.27	1100	194			
0034	11/32	.344	.321	.029	.038	.012	.025	.025	.309	.57	.55	.090	.042	.026	.039	0.31	1210	224			
0035	—	.354	.330	±.002	.029	-.000	.038	.025	.320	.59	.57	.090	.046	.029	.039	0.35	1250	240			
0037	3/8	.375	.352	.029	.038	.012	.025	.025	.338	.61	.59	.091	.050	.030	.039	0.39	1320	244			
0039	—	.394	.369	.029	.041	.013	.025	.025	.354	.62	.60	.090	.052	.031	.039	0.42	1390	278			
0040	13/32	.406	.382	.029	.039	.012	.025	.025	.366	.63	.61	.090	.054	.033	.039	0.43	1430	275			

Standard material - carbon spring steel. Standard finish - phosphate and oil.

N1400 (continued)



SIZE CODE	Shaft (S)		Groove (G)						Circlip (F)										Wt. (lb/k)	Tc† (lb.f)	Tg† (lb.f)
	(frac)	(dec)	G	Tol.	W	Tol.	n (min)	d ~	t	Tol.	D	Tol.	C	C1	L (max)	b ~	w ~	h (min)			
0043	7/16	.438	.412	.029	.029	.042	.013	.025	.395	±.002	.66	.64	.091	.055	.033	.039	0.50	1550	322		
0046	15/32	.469	.443	.029	.029	.042	.013	.025	.428	±.002	.68	.66	.091	.060	.035	.039	0.54	1660	345		
0050	1/2	.500	.468	±.002	.039	.051	.016	.035	.461	±.005	.77	.74	.111	.065	.040	.045	0.91	2470	452		
0055	—	.551	.519	.039	.039	.051	.016	.035	.509	±.005	.81	.78	.111	.053	.036	.045	0.90	2730	500		
0056	9/16	.562	.530	.039	.039	.051	.016	.035	.521	±.010	.82	.79	.111	.072	.041	.045	1.10	2780	508		
0059	19/32	.594	.559	.039	.039	.057	.017	.035	.550	±.005	.86	.83	.112	.076	.043	.045	1.20	2940	588		
0062	5/8	.625	.588	.039	.039	.060	.018	.035	.579	±.005	.90	.87	.113	.080	.045	.045	1.30	3090	654		
0066	43/64	.672	.631	.039	.039	.066	.020	.035	.621	±.002	.93	.89	.113	.082	.043	.045	1.40	3320	780		
0068	11/16	.688	.646	.046	.046	.068	.021	.042	.635	±.005	1.01	.97	.140	.084	.048	.050	1.80	4080	817		
0075	3/4	.750	.704	.046	.046	.074	.023	.042	.693	±.010	1.09	1.05	.140	.092	.051	.050	2.10	4450	975		
0078	25/32	.781	.733	±.003	.046	.076	.024	.042	.722	±.002	1.12	1.08	.140	.094	.052	.050	2.2	4600	1060		
0081	13/16	.812	.762	.046	.046	.080	.025	.042	.751	±.002	1.15	1.10	.140	.096	.054	.050	2.5	4800	1150		
0087	7/8	.875	.821	.046	.046	.085	.027	.042	.810	±.002	1.21	1.16	.141	.104	.057	.050	2.8	5200	1340		
0093	15/16	.938	.882	.046	.046	.088	.028	.042	.867	±.002	1.34	1.29	.170	.110	.063	.076	3.1	5600	1480		
0098	63/64	.984	.926	.046	.046	.091	.029	.042	.910	±.002	1.39	1.34	.171	.114	.065	.076	3.5	5800	1610		
0100	1	1.000	.940	.046	.046	.094	.030	.042	.925	±.002	1.41	1.35	.171	.116	.065	.076	3.6	5900	1700		
0102	—	1.023	.961	.046	.046	.097	.031	.042	.946	±.002	1.43	1.37	.172	.118	.066	.076	3.9	6100	1790		
0106	1.1/16	1.062	.998	.056	.056	.102	.032	.050	.982	±.002	1.50	1.44	.185	.122	.069	.076	4.8	7500	1920		
0112	1.1/8	1.125	1.059	.056	.056	.105	.033	.050	1.041	±.010	1.55	1.49	.186	.128	.071	.076	5.1	7900	2100		
0118	1.3/16	1.188	1.118	.056	.056	.111	.035	.050	1.098	±.015	1.61	1.54	.186	.132	.072	.076	5.6	8400	2350		
0125	1.1/4	1.250	1.176	±.004	.056	.117	.037	.050	1.156	±.015	1.69	1.62	.187	.140	.076	.076	5.9	8800	2610		
0131	1.5/16	1.312	1.232	.056	.056	.126	.040	.050	1.214	±.015	1.75	1.67	.187	.146	.077	.076	6.8	9300	2970		
0137	1.3/8	1.375	1.291	.056	.056	.132	.042	.050	1.272	±.015	1.80	1.72	.188	.152	.082	.076	7.2	9700	3270		
0143	1.7/16	1.438	1.350	.056	.056	.138	.044	.050	1.333	±.015	1.87	1.79	.188	.160	.086	.076	8.1	10200	3580		
0150	1.1/2	1.500	1.406	.056	.056	.147	.047	.050	1.387	±.015	1.99	1.90	.218	.168	.091	.118	9.0	10600	3990		
0156	1.9/16	1.562	1.468	±.005	.068	.148	.047	.062	1.446	±.013	1.95	1.85	.189	.180	.098	.100	11.7	10700	4150		
0162	1.5/8	1.625	1.529	.068	.068	.151	.048	.062	1.503	±.020	2.17	2.08	.189	.180	.097	.100	12.8	11100	4410		
0168	1.11/16	1.688	1.589	.068	.068	.156	.049	.062	1.560	±.020	2.04	1.95	.205	.197	.099	.100	13.2	11500	4720		
0175	1.3/4	1.750	1.650	.068	.068	.157	.050	.062	1.618	±.020	2.11	2.01	.205	.197	.101	.100	13.8	11900	4950		
0177	—	1.772	1.669	.068	.068	.162	.051	.062	1.618	±.020	2.19	2.09	.205	.197	.102	.100	14.1	12100	5160		
0181	1.13/16	1.812	1.708	.068	.068	.163	.052	.062	1.675	±.020	2.23	2.13	.205	.197	.095	.100	14.7	12400	5330		
0187	1.7/8	1.875	1.769	.068	.068	.166	.053	.062	1.735	±.020	2.29	2.19	.205	.197	.104	.100	15.5	12800	5620		
0196	—	1.968	1.857	.068	.068	.174	.055	.062	1.819	±.020	2.39	2.27	.205	.197	.106	.123	18.2	13400	5170		
0200	2	2.000	1.886	.068	.068	.178	.057	.062	1.850	±.020	2.48	2.36	.232	.224	.108	.123	19.2	13600	6450		
0206	2.1/16	2.062	1.946	.086	.086	.183	.058	.078	1.906	±.020	2.52	2.40	.225	.217	.111	.123	22.6	17700	6760		
0212	2.1/8	2.125	2.003	.086	.086	.192	.061	.078	1.964	±.025	2.61	2.48	.236	.228	.112	.123	24.4	18200	7330		
0215	2.5/32	2.156	2.032	.086	.086	.195	.062	.078	1.993	±.025	2.62	2.49	.225	.217	.113	.123	26.6	18500	7560		
0225	2.1/4	2.250	2.120	.086	.086	.204	.065	.078	2.081	±.025	2.87	2.74	.225	.217	.116	.123	26.0	19300	8270		
0231	2.5/16	2.312	2.178	.086	.086	.210	.067	.078	2.139	±.025	2.94	2.81	.225	.217	.118	.123	28.4	19800	8760		
0237	2.3/8	2.375	2.239	.086	.086	.213	.068	.078	2.197	±.025	2.86	2.72	.236	.228	.119	.123	27.9	20400	9130		
0243	2.7/16	2.438	2.299	.086	.086	.217	.069	.078	2.255	±.003	2.92	2.78	.236	.228	.120	.123	29.4	20900	9580		
0250	2.1/2	2.500	2.360	.086	.086	.219	.070	.078	2.313	±.003	2.98	2.84	.236	.228	.122	.123	29.7	21400	9900		
0255	—	2.559	2.419	.086	.086	.219	.070	.078	2.377	±.003	3.09	2.94	.258	.250	.130	.123	31.7	21900	10100		
0262	2.5/8	2.625	2.481	.086	.086	.225	.072	.078	2.428	±.003	3.11	2.96	.236	.228	.120	.123	35.0	22500	10700		
0268	2.11/16	2.688	2.541	.086	.086	.230	.073	.078	2.485	±.003	3.32	3.18	.273	.246	.129	.123	36.0	23000	11200		
0275	2.3/4	2.750	2.602	.103	.103	.231	.074	.093	2.543	±.003	3.33	3.18	.284	.276	.145	.123	47.0	28100	11500		
0287	2.7/8	2.875	2.721	.103	.103	.240	.077	.093	2.659	±.003	3.42	3.26	.268	.260	.133	.123	48.4	29400	12500		
0293	2.15/16	2.938	2.779	.103	.103	.247	.079	.093	2.717	±.003	3.49	3.32	.268	.260	.125	.123	50.0	30000	13200		
0300	3	3.000	2.838	.103	.103	.252	.081	.093	2.775	±.003	3.55	3.38	.268	.260	.138	.123	51.5	30700	13700		
0306	3.1/16	3.062	2.898	.103	.103	.255	.														