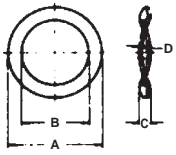


THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1	.065	.085	.177	.197	.015	.035	.005		.002	W-0065-0177-005
1	.070	.090	.135	.155	.007	.027	.006	8.8	.001	W-0070-0135-006
1	.070	.090	.140	.160	.014	.034	.006	9.4	.001	W-0070-0140-006
1	.070	.080	.177	.187	.022	.052	.005	8	.004	W-0070-0177-005
1	.071	.081	.177	.197	.012	.032	.005			W-0071-0177-005
1	.072	.078	.183	.189	.028	.032	.005	8.1	.004	W-0072-0183-005
1	.075	.080	.155	.160	.014	.020	.006			W-0075-0155-006
1	.078	.098	.145	.165	.008	.028	.006	8.2	.002	W-0078-0145-006
1	.083	.088	.165	.170	.015	.021	.006			W-0083-0165-006
1	.083	.103	.195	.215	.020	.040	.004		.004	W-0083-0195-004
1	.086	.106	.177	.197	.015	.035	.005	7	.003	W-0086-0177-005
1	.086	.106	.236	.256	.027	.047	.004		.005	W-0086-0236-004
1	.086	.106	.240	.260	.020	.040	.004	—	.005	W-0086-0240-004
2	.088	.098	.193	.213	.020	.040	.004			W-0088-0193-004
2	.088	.108	.142	.162	.022	.042	.005	4	.002	W-0088-0142-005
2	.090	.100	.177	.197	.012	.032	.005			W-0090-0177-005
2	.090	.110	.191	.211	.008	.028	.006	—	.003	W-0090-0191-006
2	.091	.111	.195	.215	.015	.035	.006	—	.003	W-0091-0195-006
2	.095	.100	.166	.171	.030	.040	.010	20.4	.002	W-0095-0166-010
2	.095	.100	.181	.186	.030	.040	.010	23.4	.002	W-0095-0181-010
2	.095	.100	.211	.216	.015	.021	.006			W-0095-0211-006
2	.100	.120	.186	.206	.023	.043	.012	33.7	.001	W-0100-0186-012
2	.100	.120	.240	.260	.030	.050	.008	—	.003	W-0100-0240-008
2	.101	.111	.230	.250	.027	.047	.006			W-0101-0230-006
2	.101	.121	.200	.220	.008	.028	.006	9.6	.003	W-0101-0200-006
2	.101	.121	.200	.220	.017	.037	.006	9.6	.003	W-0101-0200-006
2	.102	.122	.200	.220	.014	.034	.006	9.4	.003	W-0102-0200-006
2	.106	.111	.220	.225	.015	.021	.006			W-0106-0220-006
3	.108	.111	.177	.180	.051	.061	.025	114.5	.001	W-0108-0177-025
3	.110	.130	.215	.235	.020	.040	.006	9.4	.003	W-0110-0215-006
4	.112	.116	.170	.180	.023	.027	.005	4	.004	W-0112-0170-005
4	.115	.125	.200	.220	.008	.028	.005			W-0115-0200-005
4	.115	.135	.240	.260	.030	.050	.005	7.3	.005	W-0115-0240-005
4	.115	.135	.240	.260	.052	.072	.032	300.6	.001	W-0115-0240-032
4	.118	.138	.240	.260	.005	.025	.003	2.5	.008	W-0118-0240-003
4	.118	.138	.271	.291	.035	.055	.006	—	.005	W-0118-0271-006
4	.118	.138	.392	.412	.025	.045	.007	—	.007	W-0118-0392-007
4	.119	.139	.365	.385	.030	.050	.005	—	.009	W-0119-0365-005
5	.120	.130	.193	.213	.000	.020	.004			W-0120-0193-004
5	.120	.140	.230	.250	.018	.038	.006	9.1	.004	W-0120-0230-006
5	.120	.140	.235	.255	.011	.031	.006	9.5	.004	W-0120-0235-006
5	.120	.130	.240	.260	.015	.035	.003			W-0120-0240-003
5	.120	.130	.240	.260	.015	.035	.005			W-0120-0240-005

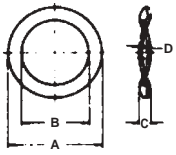
* These theoretical load values are presented only as a guide and may vary as much as 20% in specific applications.



THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
5	.120	.130	.245	.255	.016	.026	.006	9.2	.006	W-0120-0245-006
5	.121	.141	.239	.259	.005	.025	.003	2.4	.008	W-0121-0239-003
5	.122	.142	.212	.232	.022	.042	.005	5.1	.004	W-0122-0212-005
5	.125	.135	.240	.260	.015	.035	.003			W-0125-0240-003
5	.125	.130	.255	.260	.018	.024	.006			W-0125-0255-006
5	.128	.133	.187	.192	.020	.030	.004	2.3	.005	W-0128-0187-004
5	.128	.133	.187	.192	.025	.035	.005	3.5	.004	W-0128-0187-005
5	.129	.149	.250	.270	.011	.031	.006	9.3	.004	W-0129-0250-006
6	.130	.140	.280	.290	.030	.045	.005	6.8	.010	W-0130-0280-005
6	.133	.153	.272	.292	.032	.052	.005	7.2	.006	W-0133-0272-005
6	.134	.139	.270	.275	.018	.024	.006			W-0134-0270-006
6	.143	.163	.285	.305	.021	.041	.008	17.6	.004	W-0143-0285-008
6	.144	.164	.271	.291	.032	.052	.005	6.2	.006	W-0144-0271-005
6	.145	.150	.223	.227	.035	.050	.010	15.9	.003	W-0145-0223-010
6	.145	.150	.240	.245	.035	.050	.006	6.7	.006	W-0145-0240-006
6	.145	.165	.271	.291	.035	.055	.006	8.8	.005	W-0145-0271-006
6	.147	.167	.270	.290	.026	.046	.003	2.1	.011	W-0147-0270-003
6	.147	.167	.285	.305	.018	.038	.008	16.8	.004	W-0147-0285-008
6	.149	.169	.365	.385	.035	.055	.012	44.5	.007	W-0149-0365-012
6	.150	.170	.335	.355	.050	.070	.012	—	.004	W-0150-0335-012
6	.152	.157	.295	.305	.025	.031	.008	15.7	.007	W-0152-0295-008
6	.152	.157	.305	.310	.025	.031	.008			W-0152-0305-008
6	.154	.164	.365	.385	.035	.055	.012			W-0154-0365-012
6	.155	.175	.240	.260	.015	.035	.005	3.7	.006	W-0155-0240-005
6	.157	.177	.365	.385	.030	.050	.006	—	.008	W-0157-0365-006
6	.157	.177	.365	.385	.030	.050	.016	—	.003	W-0157-0365-016
5/32	.158	.161	.245	.255	.040	.060	.004	2.7	.010	W-0158-0245-004
5/32	.158	.161	.245	.255	.040	.060	.006	6.1	.006	W-0158-0245-006
5/32	.158	.161	.245	.255	.040	.060	.008	10.8	.005	W-0158-0245-008
5/32	.158	.161	.245	.255	.040	.060	.010	16.9	.004	W-0158-0245-010
5/32	.158	.178	.320	.340	.034	.054	.016	72.8	.003	W-0158-0320-016
8	.158	.163	.340	.350	.050	.070	.013	47.1	.006	W-0158-0340-013
8	.159	.179	.296	.316	.050	.070	.008	15.5	.005	W-0159-0296-008
8	.159	.179	.490	.510	.040	.060	.016	—	.005	W-0159-0490-016
8	.161	.171	.480	.500	.049	.069	.016			W-0161-0480-016
8	.163	.173	.299	.319	.021	.041	.011			W-0163-0299-011
8	.164	.170	.365	.385	.032	.052	.015	66	.006	W-0164-0365-015
8	.164	.174	.365	.385	.032	.052	.016			W-0164-0365-016
8	.166	.176	.490	.510	.047	.067	.016			W-0166-0490-016
8	.168	.176	.370	.380	.050	.070	.004	4.5	.021	W-0168-0370-004
8	.169	.189	.326	.346	.026	.046	.010	26.1	.004	W-0169-0326-010
8	.170	.190	.333	.353	.020	.040	.010	26.9	.005	W-0170-0333-010
8	.171	.191	.325	.345	.020	.040	.010	25.4	.004	W-0171-0325-010

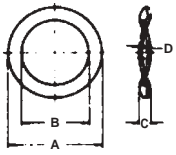
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
8	.173	.183	.333	.353	.021	.041	.010			W-0173-0333-010
8	.175	.185	.240	.260	.030	.050	.016			W-0175-0240-016
8	.175	.185	.255	.275	.060	.080	.020			W-0175-0255-020
8	.175	.185	.280	.300	.050	.070	.010	17.9	.005	W-0175-0280-010
8	.175	.195	.365	.385	.025	.045	.006	—	.009	W-0175-0365-006
8	.175	.185	.390	.410	.050	.070	.010			W-0175-0390-010
8	.176	.181	.345	.350	.027	.033	.011			W-0176-0345-011
8	.177	.197	.255	.275	.050	.070	.008	7.1	.004	W-0177-0255-008
8	.177	.187	.615	.635	.045	.065	.006			W-0177-0615-006
8	.180	.190	.240	.260	.035	.055	.008			W-0180-0240-008
8	.180	.200	.271	.291	.020	.040	.010	13.5	.004	W-0180-0271-010
8	.182	.192	.271	.291	.020	.040	.006			W-0182-0271-006
8	.182	.202	.290	.310	.010	.030	.003	1.5	.014	W-0182-0290-003
8	.183	.203	.270	.290	.030	.050	.016	31.8	.002	W-0183-0270-016
8	.184	.204	.230	.250	.016	.036	.004			W-0184-0230-004
8	.184	.204	.235	.255	.007	.027	.002			W-0184-0235-002
8	.185	.195	.340	.350	.040	.080	.012	31.9	.006	W-0185-0340-012
8	.186	.196	.240	.260	.028	.048	.008			W-0186-0240-008
8	.190	.210	.297	.317	.050	.070	.008	9.9	.005	W-0190-0297-008
10	.190	.208	.365	.385	.030	.050	.006	8.4	.014	W-0190-0365-006
10	.191	.211	.298	.318	.030	.050	.005	3.9	.009	W-0191-0298-005
10	.192	.212	.370	.390	.030	.050	.006			W-0192-0370-006
10	.193	.213	.358	.378	.035	.055	.016	62.3	.003	W-0193-0358-016
10	.193	.213	.365	.385	.021	.041	.005	6.3	.011	W-0193-0365-005
10	.195	.215	.265	.285	.026	.046	.010			W-0195-0265-010
10	.195	.204	.293	.313	.060	.070	.015	35.4	.004	W-0195-0293-015
10	.195	.215	.365	.385	.040	.060	.005	6.2	.011	W-0195-0365-005
10	.196	.216	.350	.370	.050	.070	.010	22.4	.005	W-0196-0350-010
10	.196	.216	.427	.447	.052	.072	.015			W-0196-0427-015
10	.198	.218	.360	.380	.026	.046	.012	33.6	.005	W-0198-0360-012
10	.198	.208	.365	.385	.021	.041	.005	5.7	.017	W-0198-0365-005
10	.198	.208	.365	.385	.050	.070	.010	22.7	.009	W-0198-0365-010
10	.198	.208	.365	.385	.040	.060	.020	91	.004	W-0198-0365-020
10	.199	.219	.258	.278	.025	.045	.006			W-0199-0258-006
10	.200	.220	.302	.322	.030	.050	.010			W-0200-0302-010
10	.203	.208	.380	.385	.029	.035	.012			W-0203-0380-012
10	.204	.224	.240	.260	.030	.050	.008	3.8	.005	W-0204-0240-008
10	.204	.224	.240	.260	.030	.050	.008			W-0204-0240-008
10	.205	.215	.370	.380	.016	.046	.005	5.4	.017	W-0205-0370-005
12	.207	.227	.302	.322	.040	.060	.006			W-0207-0302-006
10	.209	.229	.404	.424	.061	.081	.020	106	.003	W-0209-0404-020
12	.210	.230	.365	.385	.065	.085	.006			W-0210-0365-006
10	.211	.231	.364	.384	.040	.060	.010	20.7	.006	W-0211-0364-010

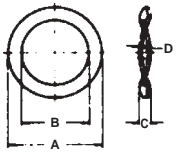
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
10	.211	.231	.365	.385	.037	.057	.012	30.1	.005	W-0211-0365-012
10	.215	.235	.333	.353	.055	.075	.016	38.7	.003	W-0215-0333-016
12	.215	.235	.333	.353	.055	.075	.016			W-0215-0333-016
7/32	.218	.233	.328	.358	.065	.070	.016	40.4	.004	W-0218-0328-016
12	.220	.230	.365	.385	.030	.050	.012	27.5	.007	W-0220-0365-012
12	.222	.242	.290	.310	.040	.060	.008			W-0222-0290-008
12	.222	.228	.325	.330	.030	.050	.006	5.1	.011	W-0222-0325-006
12	.224	.244	.270	.290	.030	.050	.008			W-0224-0270-008
7/32	.228	.248	.319	.339	.035	.055	.008	6.3	.007	W-0228-0319-008
7/32	.229	.239	.325	.335	.038	.043	.004	2.1	.017	W-0229-0325-004
12	.232	.252	.290	.310	.030	.050	.010			W-0232-0290-010
12	.232	.252	.290	.310	.030	.050	.010			W-0232-0290-010
7/32	.236	.256	.393	.413	.035	.055	.005	4.8	.014	W-0236-0393-005
7/32	.237	.243	.398	.408	.040	.050	.005	4.8	.020	W-0237-0398-005
1/4	.240	.250	.303	.307	.092	.100	.012	12	.005	W-0240-0303-012
1/4	.240	.260	.365	.385	.015	.035	.005			W-0240-0365-005
1/4	.242	.262	.365	.385	.040	.060	.010	15	.009	W-0242-0365-010
1/4	.242	.262	.365	.385	.040	.060	.010			W-0242-0365-010
1/4	.242	.262	.740	.760	.076	.096	.012	—	.014	W-0242-0740-012
1/4	.243	.263	.552	.572	.065	.085	.010			W-0243-0552-010
1/4	.245	.265	.335	.355	.020	.040	.008	5.5	.008	W-0245-0335-008
1/4	.245	.265	.335	.355	.029	.049	.012	12.4	.005	W-0245-0335-012
1/4	.245	.255	.340	.350	.025	.045	.005	3.1	.014	W-0245-0340-005
1/4	.246	.266	.318	.338	.046	.066	.018			W-0246-0318-018
1/4	.246	.266	.490	.510	.075	.095	.015			W-0246-0490-015
1/4	.247	.267	.427	.447	.052	.072	.008			W-0247-0427-008
1/4	.249	.269	.427	.447	.052	.072	.010			W-0249-0427-010
1/4	.249	.269	.490	.510	.068	.088	.040			W-0249-0490-040
1/4	.250	.270	.350	.370	.050	.070	.020	39.5	.003	W-0250-0350-020
1/4	.250	.254	.391	.421	.055	.065	.015	40.2	.007	W-0250-0391-015
1/4	.251	.271	.490	.510	.045	.065	.010			W-0251-0490-010
1/4	.252	.272	.456	.476	.075	.095	.020			W-0252-0456-020
1/4	.252	.272	.490	.510	.070	.090	.012			W-0252-0490-012
1/4	.254	.274	.333	.353	.028	.048	.010			W-0254-0333-010
1/4	.254	.265	.490	.510	.075	.085	.005	6.1	.030	W-0254-0490-005
1/4	.255	.275	.355	.375	.020	.040	.006	3.5	.011	W-0255-0355-006
1/4	.255	.275	.357	.377	.023	.043	.004			W-0255-0357-004
1/4	.255	.265	.365	.385	.035	.065	.005	3.5	.017	W-0255-0365-005
1/4	.255	.275	.365	.385	.015	.035	.006			W-0255-0365-006
1/4	.255	.275	.396	.416	.020	.040	.016	39.4	.005	W-0255-0396-016
1/4	.255	.275	.420	.440	.040	.060	.012	26.6	.007	W-0255-0420-012
1/4	.255	.275	.422	.442	.030	.065	.015	41.2	.008	W-0255-0422-015
1/4	.255	.275	.422	.442	.035	.055	.016	48	.005	W-0255-0422-016

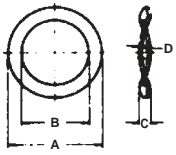
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1/4	.255	.265	.443	.463	.062	.077	.008	13.2	.016	W-0255-0443-008
1/4	.255	.265	.443	.463	.062	.077	.010	20.7	.012	W-0255-0443-010
1/4	.255	.275	.490	.510	.035	.055	.006	9.5	.016	W-0255-0490-006
1/4	.255	.275	.490	.510	.035	.055	.008	16.9	.012	W-0255-0490-008
1/4	.255	.275	.490	.510	.025	.045	.010	26.4	.010	W-0255-0490-010
1/4	.255	.275	.490	.510	.035	.055	.010	26.4	.010	W-0255-0490-010
1/4	.255	.275	.490	.510	.035	.055	.016	676	.006	W-0255-0490-016
1/4	.255	.275	.552	.572	.060	.080	.010	—	.011	W-0255-0552-010
1/4	.255	.275	1.115	1.135	.160	.180	.032			W-0255-1115-032
1/4	.257	.275	.355	.375	.015	.045	.006	4.3	.014	W-0257-0355-006
1/4	.257	.277	.396	.416	.011	.031	.014			W-0257-0396-014
1/4	.260	.280	.325	.345	.060	.080	.012			W-0260-0325-012
1/4	.260	.270	.357	.377	.020	.040	.010	12.3	.008	W-0260-0357-010
1/4	.260	.270	.490	.510	.045	.065	.004	3.8	.038	W-0260-0490-004
1/4	.260	.270	.490	.510	.060	.083	.005	5.9	.030	W-0260-0490-005
1/4	.260	.270	.490	.510	.040	.060	.006	8.5	.025	W-0260-0490-006
1/4	.260	.270	.490	.510	.030	.060	.008	15	.019	W-0260-0490-008
1/4	.260	.270	.490	.510	.035	.065	.010	23.5	.015	W-0260-0490-010
1/4	.260	.270	.490	.510	.045	.065	.015	52.8	.010	W-0260-0490-015
1/4	.260	.270	.490	.510	.055	.075	.022	113.6	.007	W-0260-0490-022
1/4	.260	.270	.547	.562	.031	.041	.012	38.9	.016	W-0260-0547-012
1/4	.261	.281	.347	.367	.022	.042	.006	2.6	.011	W-0261-0347-006
1/4	.261	.281	.485	.505	.035	.055	.016	63.6	.006	W-0261-0485-016
1/4	.263	.283	.321	.341	.060	.080	.012			W-0263-0321-012
1/4	.266	.271	.505	.510	.039	.045	.015			W-0266-0505-015
1/4	.270	.290	.410	.430	.026	.046	.008	9.1	.010	W-0270-0410-008
1/4	.270	.260	.500	.490	.045	.030	.005	5.8	.030	W-0270-0500-005
1/4	.273	.293	.333	.353	.025	.045	.006	2.9	.011	W-0273-0333-006
16	.273	.293	.474	.494	.080	.100	.020			W-0273-0474-020
16	.275	.295	.438	.458	.040	.060	.010			W-0275-0438-010
16	.275	.295	.482	.502	.052	.072	.008			W-0275-0482-008
16	.278	.298	.360	.380	.010	.030	.003			W-0278-0360-003
1/4	.278	.298	.400	.420	.052	.072	.005	2.9	.016	W-0278-0400-005
1/4	.280	.300	.521	.541	.060	.080	.010	24.8	.011	W-0280-0521-010
16	.283	.303	.521	.541	.065	.085	.010			W-0283-0521-010
16	.283	.303	.527	.547	.065	.085	.010			W-0283-0527-010
1/4	.284	.287	.562	.593	.050	.065	.040	413.8	.005	W-0284-0562-040
5/16	.302	.322	.412	.432	.060	.080	.012	12.4	.008	W-0302-0412-012
5/16	.305	.325	.482	.502	.015	.035	.008			W-0305-0482-008
5/16	.310	.330	.424	.444	.060	.080	.015			W-0310-0424-015
5/16	.310	.330	.427	.447	.020	.040	.006	4.3	.019	W-0310-0427-006
5/16	.310	.330	.427	.447	.020	.040	.006			W-0310-0427-006
5/16	.310	.332	.490	.510	.040	.060	.008	10.7	.019	W-0310-0490-008

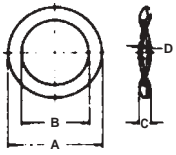
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
5/16	.310	.330	.505	.525	.040	.060	.008			W-0310-0505-008
5/16	.311	.331	.477	.497	.042	.062	.015			W-0311-0477-015
5/16	.311	.331	.482	.502	.025	.045	.007			W-0311-0482-007
5/16	.312	.332	.410	.430	.030	.050	.006	2.4	.015	W-0312-0410-006
5/16	.312	.332	.445	.465	.013	.033	.006	4	.017	W-0312-0445-006
5/16	.312	.322	.510	.530	.075	.095	.012	26.7	.014	W-0312-0510-012
5/16	.312	.322	.510	.530	.080	.100	.012	26.7	.014	W-0312-0510-012
5/16	.313	.320	.745	.755	.062	.072	.010	31.1	.034	W-0313-0745-010
5/16	.315	.325	.432	.442	.055	.065	.010	11.8	.012	W-0315-0432-010
5/16	.315	.335	.490	.510	.045	.065	.016	40	.007	W-0315-0490-016
5/16	.315	.325	.676	.696	.065	.085	.010	27.8	.029	W-0315-0676-010
5/16	.315	.335	.490	.510	.045	.065	.008	10	.014	W-0315-0490-008
5/16	.317	.337	.427	.447	.045	.065	.010			W-0317-0427-010
5/16	.318	.338	.362	.382	.008	.028	.003			W-0318-0362-003
5/16	.318	.338	.630	.650	.080	.100	.014			W-0318-0630-014
5/16	.318	.338	.672	.692	.053	.073	.010	26.8	.028	W-0318-0672-010
5/16	.318	.338	.672	.692	.052	.072	.010	—	.017	W-0318-0672-010
5/16	.318	.338	.672	.692	.052	.072	.010			W-0318-0672-010
5/16	.320	.332	.490	.510	.040	.060	.005	4	.030	W-0320-0490-005
5/16	.320	.332	.490	.510	.040	.060	.008	10.3	.019	W-0320-0490-008
5/16	.320	.332	.490	.510	.045	.065	.015	36.2	.010	W-0320-0490-015
5/16	.320	.332	.490	.510	.075	.095	.015	36.2	.010	W-0320-0490-015
5/16	.320	.330	.525	.535	.040	.060	.010	18.3	.017	W-0320-0525-010
5/16	.320	.340	.550	.590	.090	.130	.018	66	.011	W-0320-0550-018
5/16	.320	.332	.558	.588	.072	.092	.015	47.2	.013	W-0320-0558-015
5/16	.321	.341	.549	.569	.052	.072	.010			W-0321-0549-010
5/16	.321	.350	.615	.625	.075	.105	.017	65.8	.014	W-0321-0615-017
5/16	.322	.332	.490	.510	.055	.075	.022	77.4	.007	W-0322-0490-022
5/16	.323	.343	.547	.567	.070	.090	.015			W-0323-0547-015
5/16	.325	.345	.360	.380	.005	.025	.003			W-0325-0360-003
5/16	.326	.346	.586	.606	.043	.063	.016	59.4	.009	W-0326-0586-016
5/16	.326	.330	.748	.752	.050	.060	.018	96.9	.019	W-0326-0748-018
5/16	.328	.348	.475	.495	.026	.046	.010	11.8	.011	W-0328-0475-010
5/16	.328	.335	.490	.510	.084	.104	.008	9.9	.019	W-0328-0490-008
5/16	.330	.350	.510	.530	.075	.095	.005	3.8	.025	W-0330-0510-005
5/16	.330	.350	.565	.585	.078	.098	.032			W-0330-0565-032
5/16	.332	.337	.600	.605	.049	.055	.015	49.2	.015	W-0332-0600-015
5/16	.334	.354	.457	.477	.055	.075	.012	12.7	.009	W-0334-0457-012
5/16	.336	.356	.552	.572	.070	.090	.003	—	—	W-0336-0552-003
5/16	.336	.356	.552	.572	.070	.090	.005	4.6	.028	W-0336-0552-005
5/16	.336	.356	.552	.572	.070	.090	.010	18.5	.014	W-0336-0552-010
5/16	.336	.356	.818	.838	.105	.125	.040			W-0336-0818-040
5/16	.338	.358	.423	.443	.015	.035	.006			W-0338-0423-006

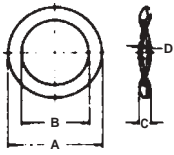
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
5/16	.338	.358	.444	.464	.025	.045	.010			W-0338-0444-010
5/16	.339	.359	.578	.598	.024	.044	.006			W-0339-0578-006
5/16	.340	.360	.482	.502	.025	.045	.008	6.9	.015	W-0340-0482-008
5/16	.340	.360	.483	.503	.020	.040	.007	5.3	.017	W-0340-0483-007
5/16	.340	.360	.740	.760	.063	.093	.015	62.5	.023	W-0340-0740-015
5/16	.342	.362	.462	.482	.006	.026	.005			W-0342-0462-005
5/16	.343	.363	.470	.490	.028	.048	.008	5.7	.015	W-0343-0470-008
5/16	.344	.364	.440	.460	.055	.075	.006			W-0344-0440-006
5/16	.345	.365	.490	.510	.035	.055	.005	2.7	.024	W-0345-0490-005
5/16	.345	.365	.551	.571	.070	.090	.010	17.1	.014	W-0345-0551-010
5/16	.347	.367	.462	.482	.048	.068	.005			W-0347-0462-005
5/16	.348	.368	.455	.475	.060	.080	.006			W-0348-0455-006
5/16	.348	.368	.490	.510	.045	.065	.010			W-0348-0490-010
5/16	.350	.370	.487	.507	.045	.065	.008			W-0350-0487-008
5/16	.350	.360	.495	.505	.040	.060	.007	6.4	.022	W-0350-0495-007
5/16	.350	.360	.495	.505	.040	.060	.009	10.5	.017	W-0350-0495-009
5/16	.350	.360	.495	.505	.040	.060	.010	13	.015	W-0350-0495-010
5/16	.350	.370	.495	.515	.069	.089	.015			W-0350-0495-015
5/16	.353	.363	.490	.510	.040	.060	.005	3.2	.030	W-0353-0490-005
5/16	.353	.363	.490	.510	.045	.065	.008	8.1	.019	W-0353-0490-008
5/16	.353	.363	.490	.510	.035	.065	.010	12.6	.015	W-0353-0490-010
5/16	.353	.363	.490	.510	.045	.065	.010	12.6	.015	W-0353-0490-010
5/16	.353	.363	.490	.510	.052	.065	.015	28.5	.010	W-0353-0490-015
5/16	.353	.363	.490	.510	.040	.070	.015	28.5	.010	W-0353-0490-015
5/16	.355	.375	.475	.495	.050	.070	.006	2.7	.020	W-0355-0475-006
5/16	.356	.376	.482	.502	.004	.024	.004			W-0356-0482-004
5/16	.360	.380	.693	.713	.090	.110	.040			W-0360-0693-040
5/16	.365	.385	.481	.501	.069	.089	.010			W-0365-0481-010
5/16	.365	.385	.482	.502	.065	.085	.005			W-0365-0482-005
5/16	.368	.388	.490	.510	.043	.063	.005	1.8	.026	W-0368-0490-005
5/16	.368	.388	.924	.944	.057	.077	.015			W-0368-0924-015
5/16	.370	.390	.531	.551	.025	.045	.007			W-0370-0531-007
5/16	.370	.376	.590	.600	.060	.080	.015	39.4	.014	W-0370-0590-015
3/8	.371	.391	.521	.541	.025	.045	.010			W-0371-0521-010
3/8	.371	.411	.662	.702	.040	.080	.010	20.7	.028	W-0371-0662-010
3/8	.372	.392	.615	.635	.070	.090	.007	9.3	.024	W-0372-0615-007
3/8	.374	.380	.490	.510	.015	.038	.005	2.7	.030	W-0374-0490-005
3/8	.374	.380	.490	.510	.040	.060	.005	2.7	.030	W-0374-0490-005
3/8	.374	.394	.615	.635	.068	.088	.007			W-0374-0615-007
3/8	.375	.395	.490	.510	.040	.060	.005	1.6	.026	W-0375-0490-005
3/8	.375	.395	.490	.510	.040	.060	.010	6.3	.013	W-0375-0490-010
3/8	.375	.395	.521	.541	.025	.045	.010	9.7	.014	W-0375-0521-010
3/8	.375	.395	.740	.760	.083	.103	.017			W-0375-0740-017

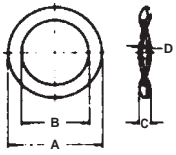
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
3/8	.376	.396	.485	.505	.016	.036	.005			W-0376-0485-005
3/8	.376	.396	.485	.505	.040	.060	.010	10.4	.013	W-0376-0485-010
3/8	.377	.382	.620	.630	.120	.140	.010	18.7	.024	W-0377-0620-010
3/8	.379	.383	.490	.510	.040	.060	.005	2.6	.030	W-0379-0490-005
3/8	.379	.383	.490	.510	.040	.060	.007	5.1	.022	W-0379-0490-007
3/8	.379	.399	.590	.610	.045	.065	.010			W-0379-0590-010
3/8	.380	.390	.490	.510	.040	.055	.005	2.5	.030	W-0380-0490-005
3/8	.380	.390	.490	.510	.045	.055	.006	3.6	.025	W-0380-0490-006
3/8	.380	.390	.490	.510	.045	.060	.010	9.9	.015	W-0380-0490-010
3/8	.380	.390	.490	.510	.045	.060	.010	9.9	.015	W-0380-0490-010
3/8	.380	.400	.552	.572	.050	.070	.010	12.1	.015	W-0380-0552-010
3/8	.380	.400	.552	.572	.100	.120	.020	48.3	.008	W-0380-0552-020
3/8	.380	.390	.558	.568	.040	.060	.005	3.6	.039	W-0380-0558-005
3/8	.380	.400	.590	.610	.052	.072	.010	15.6	.016	W-0380-0590-010
3/8	.380	.400	.615	.635	.070	.090	.016	45.6	.011	W-0380-0615-016
3/8	.380	.385	.620	.630	.068	.088	.007	9	.034	W-0380-0620-007
3/8	.380	.400	.645	.665	.083	.103	.010	20.3	.018	W-0380-0645-010
3/8	.380	.400	.645	.665	.100	.120	.016	52	.011	W-0380-0645-016
3/8	.380	.400	.645	.665	.100	.120	.020	81.3	.009	W-0380-0645-020
3/8	.380	.400	.646	.666	.070	.090	.008			W-0380-0646-008
3/8	.380	.400	.672	.692	.055	.075	.010	22.5	.019	W-0380-0672-010
3/8	.380	.400	.740	.760	.080	.100	.015	54.3	.023	W-0380-0740-015
3/8	.380	.400	.740	.760	.070	.090	.015			W-0380-0740-015
3/8	.382	.402	.615	.635	.070	.090	.015			W-0382-0615-015
3/8	.383	.403	.490	.510	.050	.070	.007	4.5	.022	W-0383-0490-007
3/8	.383	.403	.490	.510	.050	.070	.007			W-0383-0490-007
3/8	.383	.403	.643	.663	.089	.109	.005			W-0383-0643-005
3/8	.383	.403	.646	.666	.073	.093	.005	5	.037	W-0383-0646-005
3/8	.383	.387	.740	.760	.070	.110	.017	71	.020	W-0383-0740-017
3/8	.384	.404	.541	.561	.043	.055	.006	4.6	.031	W-0384-0541-006
3/8	.385	.405	.485	.505	.040	.060	.008	6	.017	W-0385-0485-008
3/8	.385	.395	.577	.597	.073	.103	.005	3.9	.042	W-0385-0577-005
3/8	.385	.395	.577	.597	.073	.113	.015	34.7	.014	W-0385-0577-015
3/8	.385	.395	.620	.630	.070	.090	.015	40.3	.016	W-0385-0620-151
3/8	.385	.395	.645	.665	.083	.103	.010	19.4	.026	W-0385-0645-010
3/8	.385	.395	.645	.665	.100	.120	.022	93.8	.012	W-0385-0645-022
3/8	.385	.395	.651	.661	.078	.103	.005	4.9	.052	W-0385-0651-005
3/8	.385	.395	.651	.881	.082	.102	.009	20.1	.040	W-0385-0651-009
3/8	.385	.395	.651	.661	.084	.104	.010	19.4	.026	W-0385-0651-010
3/8	.385	.395	.651	.661	.078	.103	.010	19.4	.026	W-0385-0651-010
3/8	.385	.395	.651	.661	.084	.104	.012	28	.022	W-0385-0651-012
3/8	.385	.395	.651	.661	.100	.120	.015	43.7	.017	W-0385-0651-015
3/8	.385	.395	.651	.661	.100	.120	.022	94.1	.012	W-0385-0651-022

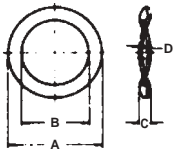
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
3/8	.385	.395	.740	.760	.084	.104	.008	15.4	.043	W-0385-0740-008
3/8	.386	.396	.600	.610	.040	.050	.007	8	.032	W-0386-0600-007
3/8	.387	.393	.490	.510	.015	.035	.005	2.4	.030	W-0387-0490-005
3/8	.387	.407	.671	.691	.045	.065	.005			W-0387-0671-005
3/8	.390	.394	.559	.565	.065	.082	.010	13.6	.019	W-0390-0559-010
3/8	.390	.394	.559	.565	.077	.094	.022	65.9	.009	W-0390-0559-022
3/8	.390	.410	.560	.580	.040	.060	.010	13.4	.020	W-0390-0560-010
3/8	.390	.410	.560	.580	.040	.060	.010			W-0390-0560-010
3/8	.390	.410	.565	.585	.035	.055	.008	7.6	.020	W-0390-0565-008
3/8	.392	.412	.540	.560	.045	.065	.006			W-0392-0540-006
3/8	.394	.414	.485	.505	.024	.044	.005			W-0394-0485-005
3/8	.396	.416	.519	.539	.038	.058	.010			W-0396-0519-010
3/8	.396	.416	.540	.560	.070	.090	.009			W-0396-0540-009
3/8	.396	.416	.640	.660	.075	.095	.010	17.8	.019	W-0396-0640-010
3/8	.396	.416	.740	.760	.195	.215	.125			W-0396-0740-125
3/8	.396	.416	.786	.806	.070	.090	.015			W-0396-0786-015
3/8	.399	.419	.661	.681	.052	.072	.012			W-0399-0661-012
3/8	.400	.420	.485	.505	.020	.040	.005			W-0400-0485-005
3/8	.400	.420	.785	.815	.070	.090	.015	55.4	.026	W-0400-0785-015
3/8	.401	.421	.685	.705	.054	.074	.020	82.7	.010	W-0401-0685-020
3/8	.403	.423	.590	.610	.045	.065	.010			W-0403-0590-010
3/8	.405	.425	.615	.635	.175	.195	.008			W-0405-0615-008
3/8	.406	.411	.705	.710	.061	.067	.022			W-0406-0705-022
3/8	.410	.430	.514	.534	.058	.078	.003	0.8	.050	W-0410-0514-003
3/8	.412	.418	.535	.545	.077	.097	.007	4.9	.025	W-0412-0535-007
3/8	.412	.418	.535	.545	.077	.097	.010	10	.018	W-0412-0535-010
3/8	.419	.429	.521	.531	.068	.088	.012	11.8	.014	W-0419-0521-012
3/8	.420	.440	.600	.620	.075	.095	.009			W-0420-0600-009
7/16	.420	.456	.651	.661	.075	.095	.006	5.5	.044	W-0420-0651-006
7/16	.421	.441	.492	.512	.036	.056	.007			W-0421-0492-007
7/16	.426	.456	.645	.665	.084	.104	.010	14.9	.026	W-0426-0645-010
7/16	.426	.456	.651	.661	.078	.080	.007	7.3	.037	W-0426-0651-007
7/16	.426	.456	.651	.661	.084	.104	.008	9.6	.033	W-0426-0651-008
7/16	.427	.447	.540	.560	.026	.046	.010	9.6	.016	W-0427-0540-010
7/16	.427	.447	.630	.650	.030	.050	.005			W-0427-0630-005
7/16	.430	.450	.608	.628	.030	.050	.004	1.3	.036	W-0430-0608-004
7/16	.430	.450	.608	.628	.030	.050	.008	6.8	.023	W-0430-0608-008
7/16	.431	.451	.644	.664	.065	.085	.010	13.6	.020	W-0431-0644-010
7/16	.431	.451	.645	.665	.084	.104	.010	13.7	.020	W-0431-0645-010
7/16	.431	.451	.645	.665	.084	.104	.016	35.1	.013	W-0431-0645-016
7/16	.431	.451	.740	.760	.070	.090	.015	47.2	.016	W-0431-0740-015
7/16	.432	.442	.698	.708	.078	.109	.010	17.8	.030	W-0432-0698-010
7/16	.432	.442	.698	.708	.078	.109	.012	25.7	.025	W-0432-0698-012

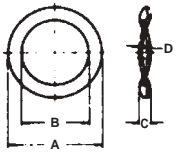
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
7/16	.433	.453	.485	.505	.036	.056	.009			W-0433-0485-009
7/16	.435	.455	.485	.505	.013	.033	.005			W-0435-0485-005
7/16	.435	.455	.600	.620	.084	.104	.004	1.5	.047	W-0435-0600-004
7/16	.435	.455	.600	.620	.084	.104	.006	3.4	.031	W-0435-0600-006
7/16	.435	.455	.600	.620	.030	.050	.008	6	.023	W-0435-0600-008
7/16	.435	.455	.600	.620	.084	.104	.010	9.3	.019	W-0435-0600-010
7/16	.437	.442	.578	.608	.080	.090	.015	25.6	.014	W-0437-0578-015
7/16	.438	.443	.645	.665	.084	.104	.015	33.7	.017	W-0438-0645-015
7/16	.438	.443	.651	.661	.081	.101	.006	5.4	.044	W-0438-0651-006
7/16	.438	.443	.651	.661	.081	.101	.007	7.4	.037	W-0438-0651-007
7/16	.438	.443	.651	.661	.084	.104	.008	9.6	.033	W-0438-0651-008
7/16	.438	.443	.651	.661	.084	.104	.010	15	.026	W-0438-0651-010
7/16	.438	.443	.651	.661	.084	.104	.015	33.8	.017	W-0438-0651-015
7/16	.438	.443	.651	.661	.089	.109	.015	33.8	.017	W-0438-0651-015
7/16	.440	.460	.568	.588	.037	.057	.015			W-0440-0568-015
7/16	.440	.460	.595	.615	.040	.060	.007	4	.027	W-0440-0595-007
7/16	.440	.450	.610	.620	.030	.050	.008	7.8	.029	W-0440-0610-008
7/16	.440	.460	.740	.760	.070	.090	.015	43	.023	W-0440-0740-015
7/16	.440	.460	.740	.760	.050	.070	.030	172	.011	W-0440-0740-030
7/16	.440	.460	.990	1.010	.070	.090	.010	29	.061	W-0440-0990-010
7/16	.443	.463	.740	.760	.070	.090	.015			W-0443-0740-015
7/16	.445	.455	.545	.555	.055	.067	.006	2.8	.031	W-0445-0545-006
7/16	.445	.465	.860	.880	.084	.104	.010	27.1	.029	W-0445-0860-010
7/16	.446	.460	.845	.855	.086	.100	.010	23.3	.044	W-0446-0845-010
7/16	.447	.467	.612	.632	.072	.092	.010			W-0447-0612-010
7/16	.449	.469	.598	.618	.037	.057	.008	4.8	.024	W-0449-0598-008
7/16	.450	.470	.560	.580	.040	.060	.010			W-0450-0560-010
7/16	.450	.456	.651	.661	.084	.104	.010	14	.026	W-0450-0651-010
7/16	.450	.470	.725	.745	.030	.050	.008	11.3	.030	W-0450-0725-008
7/16	.458	.478	.830	.850	.050	.070	.015	48.9	.029	W-0458-0830-015
7/16	.458	.478	.865	.885	.115	.135	.005			W-0458-0865-005
7/16	.460	.480	.533	.553	.052	.072	.008			W-0460-0533-008
7/16	.464	.484	.805	.825	.060	.080	.020	86.3	.014	W-0464-0805-020
7/16	.469	.474	.825	.830	.065	.075	.022			W-0469-0825-022
7/16	.476	.486	.964	.984	.115	.135	.015	58.3	.038	W-0476-0964-015
7/16	.476	.496	.608	.628	.030	.050	.012			W-0476-0608-012
7/16	.477	.497	.740	.760	.058	.078	.007			W-0477-0740-007
7/16	.490	.510	.615	.635	.030	.050	.008			W-0490-0615-008
7/16	.495	.515	.611	.631	.040	.060	.004			W-0495-0611-004
7/16	.495	.515	.740	.760	.035	.055	.010	13.7	.026	W-0495-0740-010
7/16	.495	.515	.802	.822	.055	.075	.020	72	.015	W-0495-0802-020
1/2	.496	.516	.606	.626	.020	.040	.007			W-0496-0606-007
1/2	.496	.500	.651	.661	.083	.109	.015	23.5	.017	W-0496-0651-015

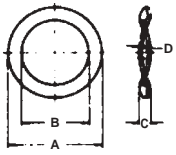
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1/2	.496	.516	1.005	1.025	.115	.135	.010			W-0496-1005-010
1/2	.500	.510	.680	.690	.030	.040	.008	7.4	.036	W-0500-0680-008
1/2	.500	.510	.745	.755	.040	.050	.008	9.5	.043	W-0500-0745-008
1/2	.500	.510	.745	.755	.045	.065	.008	9.5	.043	W-0500-0745-008
1/2	.500	.510	.790	.810	.050	.080	.005	4.3	.078	W-0500-0790-005
1/2	.500	.520	.990	1.010	.070	.090	.006			W-0500-0990-006
1/2	.500	.510	1.000	1.030	.110	.140	.010	25.6	.063	W-0500-1000-010
1/2	.501	.521	.740	.760	.080	.100	.017			W-0501-0740-017
1/2	.503	.523	.802	.822	.070	.090	.015			W-0503-0802-015
1/2	.505	.510	.630	.640	.053	.073	.005	2.1	.049	W-0505-0630-005
1/2	.505	.510	.630	.640	.053	.073	.008	5.5	.031	W-0505-0630-008
1/2	.505	.510	.650	.660	.053	.073	.010	9.7	.026	W-0505-0650-010
1/2	.505	.510	.684	.687	.040	.060	.015	25.7	.019	W-0505-0684-015
1/2	.505	.530	.740	.760	.040	.060	.008	9	.043	W-0505-0740-008
1/2	.505	.525	.849	.869	.083	.103	.010			W-0505-0849-010
1/2	.505	.525	.852	.872	.060	.080	.010			W-0505-0852-010
1/2	.505	.525	.852	.872	.082	.102	.010			W-0505-0852-010
1/2	.505	.525	.855	.875	.083	.103	.010	20.3	.032	W-0505-0855-010
1/2	.508	.528	.738	.758	.052	.072	.010			W-0508-0738-010
1/2	.509	.529	.740	.760	.070	.090	.015			W-0509-0740-015
1/2	.509	.523	.855	.865	.087	.101	.010	19.1	.045	W-0509-0855-010
1/2	.510	.520	.605	.615	.040	.060	.005	1.6	.045	W-0510-0605-005
1/2	.510	.530	.677	.697	.040	.060	.010	7.3	.024	W-0510-0677-010
1/2	.510	.520	.684	.687	.040	.060	.015	24.4	.019	W-0510-0684-015
1/2	.510	.530	.730	.750	.065	.095	.015	30	.022	W-0510-0730-015
1/2	.510	.530	.730	.750	.070	.090	.016	29.1	.017	W-0510-0730-016
1/2	.510	.520	.735	.750	.040	.060	.008	8.8	.042	W-0510-0735-008
1/2	.510	.520	.735	.745	.070	.095	.015	30.8	.022	W-0510-0735-015
1/2	.510	.530	.740	.760	.070	.090	.015	31.1	.023	W-0510-0740-015
1/2	.510	.520	.745	.755	.057	.067	.008	9.1	.043	W-0510-0745-008
1/2	.512	.528	.845	.890	.112	.124	.048	441	.010	W-0512-0845-048
1/2	.518	.538	.606	.626	.020	.040	.007			W-0518-0606-007
1/2	.520	.540	.770	.790	.115	.135	.012	19	.024	W-0520-0770-012
1/2	.520	.540	.786	.806	.070	.090	.015			W-0520-0786-015
1/2	.521	.541	.724	.744	.045	.065	.008	6.3	.034	W-0521-0724-008
1/2	.521	.541	.724	.744	.040	.060	.009			W-0521-0724-009
1/2	.521	.541	.724	.744	.070	.090	.009			W-0521-0724-009
1/2	.521	.541	.735	.755	.112	.132	.010			W-0521-0735-010
1/2	.521	.541	.770	.791	.070	.090	.013	24.6	.029	W-0521-0770-013
1/2	.521	.541	.771	.791	.115	.135	.008	9.3	.046	W-0521-0771-008
1/2	.521	.541	.771	.791	.112	.132	.010	14.6	.037	W-0521-0771-010
1/2	.521	.541	.771	.791	.115	.135	.013	24.6	.029	W-0521-0771-013
1/2	.522	.542	.927	.947	.052	.072	.015			W-0522-0927-015

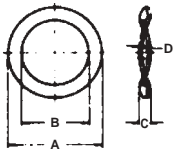
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1/2	.525	.545	.768	.788	.122	.142	.008			W-0525-0768-008
1/2	.525	.545	.990	1.010	.100	.120	.006			W-0525-0990-006
1/2	.526	.546	.714	.734	.041	.061	.010	8.5	.027	W-0526-0714-010
1/2	.526	.536	.729	.739	.030	.050	.009	9.9	.036	W-0526-0729-009
1/2	.527	.547	.990	1.010	.100	.120	.010			W-0527-0990-010
1/2	.528	.548	.934	.954	.063	.083	.020	90.5	.018	W-0528-0934-020
1/2	.530	.540	.690	.700	.070	.090	.010	9.9	.029	W-0530-0690-010
1/2	.530	.540	.690	.700	.070	.090	.012	14.3	.024	W-0530-0690-012
1/2	.531	.541	.632	.672	.040	.060	.007	3.7	.037	W-0531-0632-007
1/2	.531	.536	.955	.960	.071	.081	.022			W-0531-0955-022
1/2	.535	.555	.842	.862	.070	.090	.032	168.9	.010	W-0535-0842-032
1/2	.537	.557	.709	.729	.141	.156	.040	166.1	.008	W-0537-0709-040
1/2	.540	.560	.730	.750	.100	.120	.016	21.2	.017	W-0540-0730-016
1/2	.546	.556	.855	.877	.059	.082	.010	17	.046	W-0546-0855-010
1/2	.550	.570	.740	.760	.035	.055	.010	8	.029	W-0550-0740-010
1/2	.553	.573	.750	.770	.100	.120	.018	27.5	.016	W-0553-0750-018
1/2	.555	.575	.677	.697	.052	.072	.010	8.2	.026	W-0555-0677-010
9/16	.558	.578	.865	.885	.070	.090	.015			W-0558-0865-015
9/16	.560	.580	.740	.760	.090	.110	.010			W-0560-0740-010
9/16	.560	.580	.771	.791	.115	.135	.013	20.2	.029	W-0560-0771-013
9/16	.568	.588	.735	.755	.018	.038	.008			W-0568-0735-008
9/16	.568	.588	.786	.806	.080	.100	.006			W-0568-0786-006
1/2	.568	.588	.985	1.005	.084	.104	.015	45.6	.040	W-0568-0985-015
1/2	.570	.590	.720	.740	.030	.050	.010	9.6	.029	W-0570-0720-010
9/16	.573	.593	.792	.812	.060	.080	.008			W-0573-0792-008
1/2	.578	.602	.854	.878	.078	.098	.013	24.5	.035	W-0578-0854-013
1/2	.580	.600	.700	.720	.052	.072	.010	7.7	.028	W-0580-0700-010
9/16	.590	.610	.735	.755	.110	.130	.013			W-0590-0735-013
19/32	.594	.604	.756	.776	.083	.103	.010	9.4	.036	W-0594-0756-010
19/16	.596	.616	.735	.755	.018	.038	.008			W-0596-0735-008
19/32	.599	.619	.849	.869	.052	.072	.010	10.9	.036	W-0599-0849-010
19/32	.610	.630	.720	.740	.090	.110	.010	6.2	.032	W-0610-0720-010
19/32	.610	.630	.720	.740	.090	.110	.012	9	.027	W-0610-0720-012
19/32	.610	.630	.720	.740	.090	.110	.014	12.2	.023	W-0610-0720-014
19/16	.612	.632	.818	.838	.033	.053	.008			W-0612-0818-008
19/32	.613	.624	.825	.835	.038	.048	.008	7.1	.052	W-0613-0825-008
5/8	.615	.635	1.044	1.064	.196	.216	.008			W-0615-1044-008
5/8	.617	.637	.771	.791	.070	.090	.020			W-0617-0771-020
5/8	.618	.638	.816	.836	.099	.119	.010			W-0618-0816-010
19/32	.620	.625	.771	.791	.115	.135	.013	14.6	.029	W-0620-0771-013
19/32	.622	.638	.948	.960	.106	.126	.016	40	.035	W-0622-0948-016
5/8	.624	.644	.818	.838	.090	.120	.013	17.1	.032	W-0624-0818-013
5/8	.624	.644	.818	.838	.080	.100	.007			W-0624-0818-007

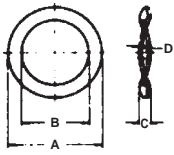
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
5/8	.624	.644	.818	.838	.080	.100	.008			W-0624-0818-008
5/8	.625	.645	.806	.826	.135	.155	.008			W-0625-0806-008
5/8	.625	.640	.865	.885	.040	.070	.015	27.7	.031	W-0625-0865-015
5/8	.625	.640	.865	.885	.040	.070	.020	49.2	.023	W-0625-0865-020
5/8	.625	.645	.875	.895	.057	.077	.032	104.8	.012	W-0625-0875-032
5/8	.627	.647	.974	.994	.056	.076	.008			W-0627-0974-008
5/8	.628	.648	.978	.998	.068	.088	.005	3.3	.073	W-0628-0978-005
5/8	.630	.640	.830	.840	.090	.110	.012	15	.035	W-0630-0830-012
5/8	.630	.650	.856	.876	.035	.055	.020	36	.019	W-0630-0856-020
5/8	.630	.650	1.370	1.390	.180	.200	.017	80.9	.068	W-0630-1370-017
5/8	.631	.651	.865	.885	.115	.135	.008	5.8	.048	W-0631-0865-008
5/8	.632	.652	.990	1.010	.095	.115	.015	37.5	.041	W-0632-0990-015
5/8	.632	.652	.990	1.010	.100	.120	.015			W-0632-0990-015
5/8	.632	.652	.990	1.010	.095	.115	.016	41.7	.028	W-0632-0990-016
5/8	.633	.647	.985	.995	.037	.057	.006	5.9	.099	W-0633-0985-006
5/8	.635	.655	.785	.805	.030	.050	.012	12.2	.028	W-0635-0785-012
5/8	.635	.655	.860	.880	.052	.072	.016	21.6	.024	W-0635-0860-016
5/8	.636	.656	.724	.744	.069	.089	.008			W-0636-0724-008
5/8	.640	.650	.740	.760	.090	.110	.012	8.3	.029	W-0640-0740-012
5/8	.640	.650	.745	.755	.090	.110	.012	8.3	.029	W-0640-0745-012
5/8	.640	.660	.780	.800	.052	.072	.010	8.2	.035	W-0640-0780-010
5/8	.640	.660	.845	.865	.054	.074	.010	7	.038	W-0640-0845-010
5/8	.640	.659	.865	.885	.052	.072	.010	11.3	.047	W-0640-0865-010
5/8	.640	.659	.865	.885	.070	.090	.010	11.3	.047	W-0640-0865-010
5/8	.640	.659	.865	.885	.115	.135	.015	25.4	.031	W-0640-0865-015
5/8	.640	.650	1.000	1.030	.115	.135	.006	6.1	.105	W-0640-1000-006
5/8	.640	.650	1.140	1.160	.120	.140	.012	31	.067	W-0640-1140-012
5/8	.642	.662	.849	.869	.050	.070	.010			W-0642-0849-010
5/8	.642	.662	.850	.870	.055	.075	.010			W-0642-0850-010
5/8	.645	.665	.735	.755	.060	.080	.020			W-0645-0735-020
5/8	.645	.655	.845	.865	.050	.070	.010	10.4	.044	W-0645-0845-010
5/8	.645	.655	.850	.860	.050	.070	.010	10.4	.044	W-0645-0850-010
5/8	.646	.666	.865	.885	.054	.074	.010			W-0646-0865-010
5/8	.649	.669	.736	.756	.014	.034	.008			W-0649-0736-008
5/8	.649	.669	.805	.825	.052	.072	.020	35.5	.018	W-0649-0805-020
5/8	.650	.660	.850	.860	.050	.070	.010	10.1	.044	W-0650-0850-010
5/8	.650	.660	.850	.860	.090	.110	.010	10.1	.044	W-0650-0850-010
5/8	.650	.660	.850	.860	.050	.070	.012	14.6	.037	W-0650-0850-012
5/8	.650	.660	.850	.860	.090	.110	.012	14.6	.037	W-0650-0850-012
5/8	.650	.660	.850	.860	.090	.110	.015	22.8	.030	W-0650-0850-015
5/8	.650	.660	.870	.880	.115	.135	.010	11	.047	W-0650-0870-010
5/8	.650	.670	1.000	1.020	.080	.100	.016	41	.039	W-0650-1000-016
5/8	.651	.671	.737	.757	.095	.115	.006	1.8	.055	W-0651-0737-006

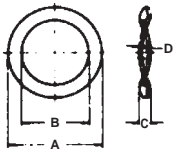
* These theoretical load values are presented only as a guide and may vary as much as 20% in specific applications.



THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
5/8	.651	.671	.835	.855	.052	.072	.010	10.2	.038	W-0651-0835-010
5/8	.651	.671	1.155	1.175	.080	.100	.028	179.3	.020	W-0651-1155-028
5/8	.653	.665	.865	.885	.045	.075	.010	10.8	.047	W-0653-0865-010
5/8	.654	.674	.834	.854	.066	.086	.010			W-0654-0834-010
5/8	.656	.662	.802	.822	.052	.072	.016	20.4	.025	W-0656-0802-016
5/8	.656	.662	.802	.822	.052	.072	.022	38.5	.018	W-0656-0802-022
5/8	.656	.662	.802	.822	.060	.080	.029	66.9	.014	W-0656-0802-029
5/8	.656	.661	1.175	1.180	.085	.095	.028			W-0656-1175-028
5/8	.657	.687	1.100	1.140	.062	.093	.020	76.4	.038	W-0657-1100-020
5/8	.660	.680	.815	.835	.120	.140	.020	34.8	.019	W-0660-0815-020
5/8	.660	.666	.835	.840	.078	.109	.010	8.9	.043	W-0660-0835-010
5/8	.660	.666	.835	.840	.078	.108	.015	20	.028	W-0660-0835-015
5/8	.660	.666	.835	.840	.078	.108	.020	35.6	.021	W-0660-0835-020
5/8	.660	.680	.860	.880	.090	.110	.016	16.2	.025	W-0660-0860-016
5/8	.660	.680	.865	.885	.065	.085	.018			W-0660-0865-018
5/8	.660	.680	1.110	1.130	.095	.115	.010			W-0660-1110-010
5/8	.675	.695	.880	.900	.065	.085	.018			W-0675-0880-018
5/8	.677	.697	.804	.824	.146	.166	.025	44.4	.015	W-0677-0804-025
5/8	.677	.697	.990	1.010	.080	.100	.007			W-0677-0990-007
5/8	.677	.696	.923	.933	.055	.065	.012	16.5	.044	W-0677-0923-012
5/8	.678	.698	.927	.947	.131	.151	.012	12.9	.037	W-0678-0927-012
11/16	.678	.698	.990	1.010	.056	.076	.010			W-0678-0990-010
11/16	.679	.699	1.003	1.023	.137	.157	.080			W-0679-1003-080
11/16	.680	.690	.870	.880	.110	.130	.020	37.2	.023	W-0680-0870-020
11/16	.680	.696	.992	1.008	.110	.140	.046	298.9	.013	W-0680-0992-046
11/16	.681	.701	.990	1.010	.082	.102	.010	12.3	.048	W-0681-0990-010
11/16	.683	.703	1.214	1.234	.126	.146	.013			W-0683-1214-013
11/16	.684	.704	.943	.963	.093	.113	.015			W-0684-0943-015
11/16	.685	.705	.935	.955	.068	.088	.025	55.5	.018	W-0685-0935-025
11/16	.685	.705	.940	.960	.082	.102	.010	9.2	.045	W-0685-0940-010
11/16	.685	.705	1.208	1.228	.120	.140	.013			W-0685-1208-013
11/16	.690	.710	.840	.860	.080	.100	.010	8.1	.040	W-0690-0840-010
11/16	.690	.695	.865	.885	.050	.100	.005	2.2	.093	W-0690-0865-005
11/16	.690	.710	.865	.885	.080	.100	.007	4.6	.059	W-0690-0865-007
11/16	.690	.695	.865	.885	.052	.072	.010	8.9	.047	W-0690-0865-010
11/16	.692	.712	.777	.797	.052	.072	.008			W-0692-0777-008
11/16	.692	.696	.950	.956	.088	.098	.010	12	.055	W-0692-0950-010
11/16	.692	.696	.950	.956	.120	.130	.010	12	.055	W-0692-0950-010
11/16	.693	.713	1.105	1.125	.115	.135	.015			W-0693-1105-015
11/16	.693	.713	1.105	1.125	.115	.135	.016	44.2	.035	W-0693-1105-016
11/16	.693	.713	1.110	1.130	.115	.135	.015	39.3	.051	W-0693-1110-015
11/16	.708	.728	.910	.930	.040	.060	.010	9.2	.040	W-0708-0910-010
11/16	.708	.728	.990	1.010	.077	.097	.010	10.2	.049	W-0708-0990-010

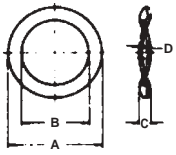
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
11/16	.709	.729	.915	.935	.056	.076	.010	105	.045	W-0709-0915-010
11/16	.710	.726	.992	1.008	.072	.102	.010	12.5	.061	W-0710-0992-010
11/16	.710	.726	.992	1.008	.080	.110	.018	40.6	.034	W-0710-0992-018
11/16	.713	.718	.860	.885	.080	.100	.015	17	.031	W-0713-0860-015
11/16	.713	.718	.865	.885	.100	.120	.015	17.2	.031	W-0713-0865-015
11/16	.713	.733	.955	.975	.118	.138	.015			W-0713-0955-015
11/16	.713	.733	.993	1.013	.110	.130	.009			W-0713-0993-009
11/16	.715	.735	1.110	1.130	.071	.091	.010			W-0715-1110-010
11/16	.715	.735	1.120	1.140	.053	.063	.008	10.7	.097	W-0715-1120-008
11/16	.718	.738	1.108	1.128	.072	.092	.010	15.5	.057	W-0718-1108-010
11/16	.720	.730	.925	.945	.065	.085	.007	4.7	.076	W-0720-0925-007
11/16	.720	.735	.985	1.000	.146	.166	.020	47.1	.030	W-0720-0985-020
11/16	.739	.759	.819	.839	.060	.080	.020	17	.021	W-0739-0819-020
3/4	.740	.760	.802	.822	.049	.069	.005			W-0740-0802-005
3/4	.740	.750	.895	.905	.070	.090	.028	56.5	.018	W-0740-0895-028
3/4	.740	.760	.971	.991	.060	.080	.034			W-0740-0971-034
3/4	.740	.760	.990	1.010	.126	.146	.012	11.2	.043	W-0740-0990-012
3/4	.742	.762	.990	1.010	.190	.210	.016			W-0742-0990-016
3/4	.742	.762	1.052	1.072	.095	.115	.015	29.4	.046	W-0742-1052-015
3/4	.742	.762	1.052	1.072	.095	.115	.015			W-0742-1052-015
3/4	.745	.765	.965	.985	.115	.135	.012			W-0745-0965-012
3/4	.750	.760	.970	.980	.115	.135	.015	21.9	.039	W-0750-0970-015
3/4	.750	.760	1.084	1.104	.090	.110	.020	56.1	.036	W-0750-1084-020
3/4	.750	.770	1.110	1.130	.070	.090	.020	53.2	.030	W-0750-1110-020
3/4	.752	.762	.865	.885	.052	.072	.010	5.5	.047	W-0752-0865-010
3/4	.752	.762	.865	.885	.052	.072	.012	8	.039	W-0752-0865-012
3/4	.755	.775	.956	.976	.065	.085	.017			W-0755-0956-017
3/4	.756	.776	.901	.921	.075	.095	.012	10.4	.039	W-0756-0901-012
3/4	.756	.776	.988	1.008	.062	.082	.022			W-0756-0988-022
3/4	.757	.777	1.115	1.135	.095	.115	.016	33.4	.037	W-0757-1115-016
3/4	.758	.778	.900	.920	.052	.072	.016			W-0758-0900-016
3/4	.758	.778	.900	.920	.072	.092	.016			W-0758-0900-016
3/4	.758	.778	1.036	1.056	.105	.125	.008			W-0758-1036-008
3/4	.760	.770	.905	.915	.071	.091	.015	14.9	.034	W-0760-0905-015
3/4	.760	.770	.905	.915	.050	.070	.017	19.1	.030	W-0760-0905-017
3/4	.760	.770	1.057	1.063	.115	.155	.030	111.2	.023	W-0760-1057-030
3/4	.760	.770	1.200	1.260	.120	.140	.020	71.3	.046	W-0760-1200-020
3/4	.762	.782	1.003	1.023	.130	.150	.013			W-0762-1003-013
3/4	.762	.782	1.003	1.023	.130	.150	.013	17.4	.048	W-0762-1003-013
3/4	.765	.785	.990	1.010	.115	.135	.022	46.9	.028	W-0765-0990-022
3/4	.766	.776	.988	1.008	.062	.082	.022	47.5	.028	W-0766-0988-022
3/4	.770	.780	.995	1.005	.110	.130	.020	38.8	.030	W-0770-0995-020
3/4	.770	.790	1.050	1.070	.110	.130	.008	5.7	.071	W-0770-1050-008

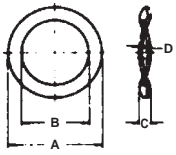
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
3/4	.771	.791	.990	1.010	.070	.090	.012	14.9	.044	W-0771-0990-012
3/4	.771	.791	.990	1.010	.070	.090	.020	41.3	.027	W-0771-0990-020
3/4	.774	.794	1.146	1.166	.040	.060	.022			W-0774-1146-022
3/4	.775	.795	.990	1.010	.099	.119	.016			W-0775-0990-016
3/4	.775	.795	.990	1.010	.099	.119	.017	26.6	.036	W-0775-0990-017
3/4	.775	.783	1.075	1.063	.177	.216	.008	7.7	.087	W-0775-1075-008
3/4	.775	.785	1.095	1.105	.080	.100	.015	29.3	.049	W-0775-1095-015
3/4	.776	.796	1.375	1.395	.085	.105	.028	1792	.028	W-0776-1375-028
3/4	.781	.791	.990	1.000	.060	.080	.015	20.2	.040	W-0781-0990-015
3/4	.781	.786	1.395	1.400	.085	.105	.028			W-0781-1395-028
25/32	.785	.795	1.245	1.255	.182	.212	.015	38.8	.063	W-0785-1245-015
25/32	.790	.810	.890	.910	.080	.100	.018	16	.027	W-0790-0890-018
25/32	.790	.810	.980	1.000	.080	.100	.018	28.8	.030	W-0790-0980-018
25/32	.802	.822	.973	.993	.070	.090	.010	8	.054	W-0802-0973-010
25/32	.802	.822	1.085	1.105	.052	.072	.010	7.2	.052	W-0802-1085-010
25/32	.805	.825	1.008	1.028	.090	.110	.016	23.8	.035	W-0805-1008-016
25/32	.806	.826	1.084	1.104	.135	.155	.005	2	.122	W-0806-1084-005
13/16	.807	.827	1.052	1.072	.068	.088	.012			W-0807-1052-012
25/32	.807	.817	1.090	1.100	.052	.072	.010	11.3	.073	W-0807-1090-010
25/32	.807	.817	1.090	1.100	.203	.223	.014	22.2	.052	W-0807-1090-014
25/32	.807	.817	1.090	1.100	.218	.248	.015	25.5	.049	W-0807-1090-015
13/16	.812	.832	1.110	1.140	.083	.103	.010	11.9	.077	W-0812-1110-010
13/16	.812	.832	1.110	1.140	.083	.103	.012	17.1	.064	W-0812-1110-012
13/16	.812	.832	1.115	1.135	.083	.103	.010			W-0812-1115-010
13/16	.813	.833	.874	.894	.055	.075	.012			W-0813-0874-012
13/16	.818	.838	1.422	1.442	.115	.135	.020	81.7	.062	W-0818-1422-020
13/16	.818	.838	1.422	1.442	.115	.135	.020	87.5	.043	W-0818-1422-020
13/16	.818	.838	.943	.963	.087	.107	.010			W-0818-0943-010
13/16	.818	.838	1.088	1.108	.050	.070	.010			W-0818-1088-010
13/16	.820	.840	.950	.970	.100	.125	.007	2.7	.080	W-0820-0950-007
13/16	.820	.840	.950	.970	.100	.125	.008	3.6	.070	W-0820-0950-008
13/16	.820	.830	.970	.980	.190	.210	.014	12.5	.041	W-0820-0970-014
13/16	.820	.840	1.083	1.103	.052	.072	.010			W-0820-1083-010
13/16	.826	.829	1.100	1.120	.080	.100	.015	25.1	.050	W-0826-1100-015
13/16	.829	.849	1.311	1.331	.063	.083	.012			W-0829-1311-012
13/16	.833	.853	.980	1.000	.023	.043	.012			W-0833-0980-012
13/16	.833	.853	.980	1.000	.031	.051	.012			W-0833-0980-012
13/16	.833	.853	1.083	1.103	.100	.120	.006			W-0833-1083-006
13/16	.834	.844	1.070	1.090	.063	.083	.012	13.8	.059	W-0834-1070-012
13/16	.834	.854	1.084	1.104	.144	.164	.006			W-0834-1084-006
13/16	.834	.854	1.084	1.104	.144	.164	.010			W-0834-1084-010
13/16	.836	.856	1.115	1.135	.115	.135	.030			W-0836-1115-030
13/16	.840	.860	.970	.990	.100	.120	.007	2.7	.084	W-0840-0970-007

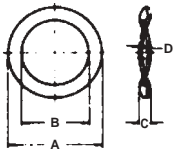
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
13/16	.845	.860	.970	.990	.100	.120	.007	2.6	.084	W-0845-0970-007
13/16	.846	.866	1.092	1.112	.065	.085	.012	8.4	.054	W-0846-1092-012
13/16	.854	.854	1.104	1.114	.085	.065	.005	2.5	.150	W-0854-1104-005
7/8	.865	.895	1.345	1.355	.182	.212	.015	36.2	.074	W-0865-1345-015
7/8	.875	.885	1.095	1.105	.100	.120	.010	8.5	.074	W-0875-1095-010
7/8	.875	.885	1.095	1.100	.100	.120	.015	18.9	.049	W-0875-1095-015
7/8	.875	.885	1.095	1.105	.100	.120	.015	19.1	.049	W-0875-1095-015
7/8	.880	.900	1.490	1.510	.085	.105	.022	94.4	.062	W-0880-1490-022
7/8	.883	.903	1.161	1.181	.100	.120	.008			W-0883-1161-008
7/8	.884	.904	1.193	1.213	.146	.166	.012			W-0884-1193-012
7/8	.884	.904	1.193	1.213	.146	.166	.012	16.2	.073	W-0884-1193-012
7/8	.890	.910	1.080	1.100	.110	.130	.020	32	.033	W-0890-1080-020
7/8	.890	.910	1.140	1.160	.050	.070	.012	12	.048	W-0890-1140-012
7/8	.891	.911	1.149	1.169	.070	.090	.012	15.1	.059	W-0891-1149-012
7/8	.891	.911	1.149	1.169	.050	.070	.015			W-0891-1149-015
7/8	.900	.910	1.020	1.030	.075	.085	.010	4.8	.064	W-0900-1020-010
7/8	.900	.910	1.020	1.030	.075	.085	.011	5.8	.058	W-0900-1020-011
7/8	.900	.910	1.147	1.167	.075	.085	.012	13.5	.068	W-0900-1147-012
7/8	.900	.920	1.400	1.420	.110	.130	.020	64.1	.045	W-0900-1400-020
7/8	.902	.922	1.008	1.028	.096	.116	.012	6.6	.052	W-0902-1008-012
7/8	.904	.924	1.068	1.088	.110	.130	.005	1.5	.115	W-0904-1068-005
7/8	.905	.925	1.100	1.120	.110	.130	.010	8.1	.069	W-0905-1100-010
7/8	.911	.931	1.095	1.115	.122	.142	.020	30.5	.034	W-0911-1095-020
7/8	.913	.933	1.115	1.135	.130	.150	.008			W-0913-1115-008
7/8	.915	.935	1.115	1.135	.130	.150	.008	4.8	.096	W-0915-1115-008
7/8	.916	.936	1.106	1.126	.080	.100	.018	25.3	.039	W-0916-1106-018
7/8	.916	.936	1.116	1.136	.090	.110	.020	32.7	.035	W-0916-1116-020
7/8	.930	.950	1.170	1.190	.062	.082	.009			W-0930-1170-009
7/8	.943	.963	1.547	1.567	.115	.135	.020	73.6	.074	W-0943-1547-020
7/8	.949	.969	1.105	1.125	.045	.065	.020	24.5	.035	W-0949-1105-020
7/8	.950	.970	1.100	1.120	.038	.058	.012	5.3	.036	W-0950-1100-012
7/8	.950	.970	1.100	1.120	.115	.135	.012	8.8	.060	W-0950-1100-012
7/8	.951	.971	1.225	1.245	.077	.097	.016	26.8	.050	W-0951-1225-016
15/16	.954	.974	1.221	1.241	.058	.078	.015			W-0954-1221-015
15/16	.956	.976	1.230	1.250	.083	.103	.014			W-0956-1230-014
31/32	.960	.970	1.240	1.260	.070	.090	.012	14.2	.079	W-0960-1240-012
15/16	.960	.980	1.357	1.377	.100	.120	.009			W-0960-1357-009
15/16	.961	.981	1.159	1.179	.089	.109	.020			W-0961-1159-020
15/16	.974	.994	1.072	1.092	.115	.135	.005			W-0974-1072-005
31/32	.990	1.010	1.672	1.692	.115	.135	.020	77.7	.086	W-0990-1672-020
31/32	.993	1.013	1.146	1.166	.115	.135	.024			W-0993-1146-024
31/32	1.004	1.024	1.235	1.255	.135	.155	.028	67.2	.031	W-1004-1235-028
31/32	1.005	1.025	1.240	1.260	.040	.060	.006	1	.044	W-1005-1240-006

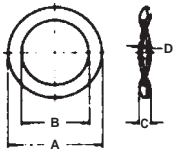
* These theoretical load values are presented only as a guide and may vary as much as 20% in specific applications.



THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1	1.005	1.025	1.240	1.250	.080	.100	.012	11.2	.079	W-1005-1240-012
1	1.005	1.025	1.286	1.306	.100	.120	.010			W-1005-1286-010
1	1.005	1.025	1.312	1.342	.083	.103	.012	14.7	.089	W-1005-1312-012
1	1.005	1.025	1.312	1.342	.058	.078	.012	14.7	.089	W-1005-1312-012
1	1.005	1.025	1.312	1.342	.083	.103	.014	20	.077	W-1005-1312-014
1	1.005	1.025	1.318	1.338	.083	.103	.012			W-1005-1318-012
1	1.005	1.025	1.487	1.507	.090	.110	.021			W-1005-1487-021
1	1.005	1.025	1.490	1.510	.035	.055	.008			W-1005-1490-008
1	1.005	1.025	1.490	1.510	.174	.194	.010			W-1005-1490-010
1	1.005	1.025	1.490	1.510	.164	.184	.015	33.2	.091	W-1005-1490-015
1	1.005	1.025	1.490	1.510	.174	.194	.015			W-1005-1490-015
1	1.005	1.025	1.490	1.510	.055	.075	.020	59	.068	W-1005-1490-020
1	1.005	1.025	1.490	1.510	.055	.075	.028	115.6	.049	W-1005-1490-028
1	1.005	1.025	1.490	1.510	.070	.080	.028	115.6	.049	W-1005-1490-028
1	1.005	1.025	1.490	1.510	.178	.198	.029	124	.047	W-1005-1490-029
1	1.006	1.026	1.427	1.447	.146	.166	.012	15.9	.084	W-1006-1427-012
1	1.006	1.026	1.490	1.510	.075	.095	.016	34.3	.066	W-1006-1490-016
1	1.010	1.030	1.270	1.290	.110	.130	.007			W-1010-1270-007
1	1.015	1.020	1.240	1.250	.048	.068	.025	48	.038	W-1015-1240-025
1	1.022	1.042	1.490	1.510	.068	.088	.012			W-1022-1490-012
1	1.024	1.044	1.253	1.273	.110	.130	.007			W-1024-1253-007
1	1.024	1.044	1.552	1.572	.105	.125	.022			W-1024-1552-022
1	1.027	1.047	1.135	1.155	.100	.120	.025	25.9	.032	W-1027-1135-025
1	1.034	1.054	1.225	1.245	.080	.100	.018	22.8	.048	W-1034-1225-018
1	1.039	1.059	1.346	1.366	.089	.109	.015			W-1039-1346-015
1	1.040	1.060	1.261	1.281	.090	.110	.025	49.9	.036	W-1040-1261-025
1	1.042	1.062	1.343	1.363	.090	.110	.016	26.9	.061	W-1042-1343-016
1	1.048	1.068	1.318	1.338	.177	.197	.020			W-1048-0318-020
1	1.051	1.060	1.341	1.361	.090	.110	.015	21.1	.074	W-1051-1341-015
1	1.052	1.072	1.467	1.487	.115	.135	.010			W-1052-1467-010
1	1.058	1.078	1.358	1.378	.062	.082	.020	41.3	.050	W-1058-1358-020
1	1.060	1.088	1.490	1.510	.084	.104	.010	12.6	.137	W-1060-1490-010
1	1.068	1.088	1.490	1.510	.084	.104	.018	40.5	.076	W-1068-1490-018
1-1/16	1.080	1.100	1.240	1.260	.150	.170	.030			W-1080-1240-030
1-1/16	1.083	1.103	1.271	1.291	.072	.092	.020			W-1083-1271-020
1-1/16	1.083	1.103	1.355	1.375	.083	.103	.012	12.8	.081	W-1083-1355-012
1-1/16	1.085	1.095	1.225	1.235	.146	.166	.020	18.4	.046	W-1085-1225-020
1-1/16	1.088	1.108	1.214	1.234	.097	.117	.025	28.4	.036	W-1088-1214-025
1-1/16	1.090	1.110	1.440	1.460	.146	.166	.010			W-1090-1440-010
1-1/16	1.095	1.115	1.441	1.461	.094	.114	.010			W-1095-1441-010
1-1/16	1.100	1.110	1.190	1.200	.146	.166	.020	12	.043	W-1100-1190-020
1-1/16	1.102	1.122	1.427	1.447	.115	.135	.018			W-1102-1427-018
1-1/16	1.123	1.143	1.293	1.313	.127	.147	.012	8.4	.083	W-1123-1293-012

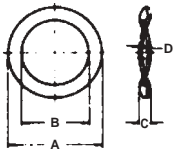
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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1-1/8	1.125	1.145	1.460	1.480	.052	.072	.012	4.7	.050	W-1125-1460-012
1-1/8	1.128	1.148	1.536	1.556	.092	.112	.013			W-1128-1536-013
1-1/8	1.139	1.159	1.427	1.447	.092	.112	.030			W-1139-1427-030
1-1/8	1.140	1.160	1.915	1.935	.102	.122	.010			W-1140-1915-010
1-1/8	1.153	1.168	1.320	1.340	.130	.150	.020	20.8	.054	W-1153-1320-020
1-1/8	1.153	1.158	1.370	1.375	.125	.155	.015	14.8	.076	W-1153-1370-015
1-1/8	1.154	1.174	1.365	1.385	.113	.133	.016	17.8	.068	W-1154-1365-016
1-1/8	1.160	1.180	1.352	1.372	.140	.160	.016	16.3	.067	W-1160-1352-016
1-1/8	1.165	1.185	1.347	1.367	.090	.110	.015			W-1165-1347-015
1-5/32	1.170	1.190	1.362	1.382	.185	.205	.013			W-1170-1362-013
1-5/32	1.175	1.195	1.380	1.440	.185	.215	.017	19.2	.071	W-1175-1380-017
1-5/32	1.175	1.195	1.427	1.447	.065	.085	.020	30.8	.055	W-1175-1427-020
1-5/32	1.190	1.210	1.533	1.553	.105	.125	.018	34	.070	W-1190-1533-018
1-5/32	1.191	1.211	1.533	1.553	.095	.115	.016	26.8	.079	W-1191-1533-016
1-3/16	1.193	1.213	1.536	1.556	.095	.115	.017			W-1193-1536-017
1-3/16	1.210	1.230	1.290	1.310	.051	.071	.025			W-1210-1290-025
1-5/32	1.229	1.249	1.583	1.603	.100	.120	.018	34	.075	W-1229-1583-018
1-3/16	1.239	1.254	1.578	1.593	.095	.125	.018	29.6	.085	W-1239-1578-018
1-3/16	1.240	1.260	1.994	2.014	.130	.150	.032	182.8	.055	W-1240-1994-032
1-3/16	1.251	1.271	1.611	1.631	.102	.122	.018	33.9	.077	W-1251-1611-018
1-1/4	1.251	1.271	1.611	1.631	.132	.152	.024			W-1251-1611-024
1-1/4	1.252	1.262	1.907	1.927	.115	.135	.010	15.9	.224	W-1252-1907-010
1-1/4	1.263	1.283	1.385	1.405	.048	.068	.018	7.5	.040	W-1263-1385-018
1-1/4	1.263	1.283	1.488	1.508	.048	.068	.022			W-1263-1488-022
1-1/4	1.300	1.320	1.546	1.566	.162	.182	.020	28.8	.069	W-1300-1546-020
1-3/16	1.310	1.330	1.552	1.572	.083	.103	.008			W-1310-1552-008
1-5/16	1.321	1.341	1.490	1.510	.075	.095	.007			W-1321-1490-007
1-3/8	1.365	1.385	1.646	1.666	.019	.039	.010			W-1365-1646-010
1-3/8	1.368	1.388	1.521	1.541	.177	.197	.025			W-1368-1521-025
1-3/8	1.381	1.401	1.583	1.603	.146	.166	.030			W-1381-1583-030
1-3/8	1.388	1.408	1.612	1.632	.232	.252	.016			W-1388-1612-016
1-3/8	1.396	1.416	1.755	1.775	.177	.197	.025	59.3	.067	W-1396-1755-025
1-3/8	1.400	1.405	1.817	1.822	.120	.140	.020	39.6	.101	W-1400-1817-020
1-3/8	1.402	1.422	1.505	1.525	.215	.235	.020			W-1402-1505-020
1-3/8	1.420	1.440	1.567	1.587	.185	.205	.015			W-1420-1567-015
1-3/8	1.420	1.440	1.625	1.645	.185	.205	.015			W-1420-1625-015
1-3/8	1.430	1.450	1.790	1.810	.200	.300	.008	5.4	.246	W-1430-1790-008
1-3/8	1.430	1.450	1.790	1.810	.240	.260	.010			W-1430-1790-010
1-3/8	1.462	1.466	1.736	1.740	.160	.195	.025	40.9	.074	W-1462-1736-025
1-3/8	1.465	1.485	1.603	1.623	.093	.113	.032	38.4	.050	W-1465-1603-032
1-1/2	1.494	1.524	1.870	1.900	.300	.320	.008	5.4	.270	W-1494-1870-008
1-1/2	1.494	1.524	1.870	1.900	.300	.320	.012	12.2	.180	W-1494-1870-012
1-1/2	1.500	1.520	1.737	1.757	.115	.135	.023			W-1500-1737-023

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THREE WAVE SPRING WASHERS

Hole Size	Inside Diameter		Outside Diameter		Free Height		Thickness	*Maximum Load at Yield Pt. (lb)	*Maximum Deflection at Yield Pt. (in.)	WCL Product Number
	Min.	Max.	Min.	Max.	Min.	Max.				
1-1/2	1.500	1.520	2.090	2.110	.290	.310	.010	10.1	.218	W-1500-2090-010
1-1/2	1.521	1.541	1.880	1.900	.115	.135	.020	35.2	.098	W-1521-1880-020
1-1/2	1.524	1.544	1.990	2.010	.115	.135	.020			W-1524-1990-020
1-1/2	1.540	1.560	1.940	1.960	.128	.148	.020			W-1540-1940-020
1-1/2	1.555	1.575	2.000	2.020	.140	.160	.032	106.9	.067	W-1555-2000-032
1-1/2	1.570	1.580	2.010	2.020	.120	.160	.022	45.3	.112	W-1570-2010-022
1-1/2	1.587	1.607	1.737	1.757	.177	.197	.018			W-1587-1737-018
1-5/8	1.615	1.635	1.769	1.789	.177	.197	.018			W-1615-1769-018
1-5/8	1.620	1.640	2.120	2.140	.167	.207	.018	32.9	.153	W-1620-2120-018
1-5/8	1.633	1.653	1.990	2.010	.110	.130	.020			W-1633-1990-020
1-5/8	1.635	1.645	1.795	1.805	.115	.135	.031	34.2	.064	W-1635-1795-031
1-5/8	1.635	1.645	1.955	1.965	.115	.135	.031	65.3	.075	W-1635-1955-031
1-5/8	1.645	1.665	1.990	2.010	.115	.135	.020	29.7	.105	W-1645-1990-020
1-5/8	1.648	1.668	2.122	2.142	.138	.158	.025	65.6	.096	W-1648-2122-025
1-5/8	1.665	1.685	1.769	1.789	.050	.070	.020			W-1665-1769-020
1-11/16	1.696	1.716	1.815	1.835	.146	.166	.050			W-1696-1815-050
1-11/16	1.740	1.760	2.090	2.110	.256	.276	.015			W-1740-2090-015
1-11/16	1.740	1.760	2.150	2.170	.256	.276	.014			W-1740-2150-014
1-3/4	1.840	1.860	1.987	2.007	.260	.280	.018			W-1840-1987-018
1-5/8	1.843	1.863	2.386	2.406	.158	.178	.025	38	.121	W-1843-2386-025
1-5/8	1.850	1.870	2.053	2.073	.176	.196	.020	17.4	.129	W-1850-2053-020
1-7/8	1.860	1.890	2.230	2.250	.158	.178	.025	42.4	.122	W-1860-2230-025
1-7/8	1.860	1.890	2.400	2.430	.158	.178	.025	60.1	.142	W-1860-2400-025
1-7/8	1.880	1.900	2.190	2.200	.188	.218	.025	35.7	.117	W-1880-2190-025
1-7/8	1.990	2.010	2.240	2.260	.190	.210	.020	19.7	.151	W-1990-2240-020
2	2.035	2.077	2.750	2.790	.190	.270	.038	163.3	.123	W-2035-2750-038
2	2.047	2.067	2.635	2.655	.174	.194	.028	82.2	.132	W-2047-2635-028
2	2.052	2.072	2.865	2.885	.177	.197	.015			W-2052-2865-015
2	2.052	2.072	2.865	2.885	.182	.202	.020			W-2052-2865-020
2-1/8	2.118	2.138	2.427	2.447	.146	.166	.025			W-2118-2427-025
2-1/8	2.118	2.138	2.427	2.447	.327	.347	.036			W-2118-2427-036
2-1/8	2.150	2.170	2.690	2.700	.188	.218	.022	40.8	.201	W-2150-2690-022
2-1/4	2.255	2.275	2.475	2.495	.070	.090	.018			W-2255-2475-018
2-3/8	2.400	2.420	2.580	2.600	.083	.103	.022	13.3	.186	W-2400-2580-022
2-1/2	2.490	2.510	3.438	3.469	.480	.500	.018	39.7	.403	W-2490-3438-018
2-1/2	2.512	2.532	3.198	3.218	.235	.255	.023			W-2512-3198-023
2-9/16	2.583	2.603	2.790	2.810	.115	.135	.010			W-2583-2790-010
2-5/8	2.630	2.650	3.115	3.135	.240	.260	.010			W-2630-3115-010
2-1/2	2.670	2.690	3.290	3.310	.430	.450	.032	89	.187	W-2670-3290-032
2-3/4	2.740	2.760	2.974	2.994	.226	.246	.025			W-2740-2974-025
2-3/4	2.790	2.810	3.140	3.160	.148	.168	.109			W-2790-3140-109
3	2.990	3.010	3.120	3.140	.168	.188	.047			W-2990-3120-047
3	2.995	3.015	3.193	3.213	.227	.247	.031			W-2995-3193-031

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