

CURVED SPRINGS WASHERS 曲线状弹簧垫圈

Precision engineered curved washers are available from

Spring Henry in many stock sizes. These washers are made of finely tempered spring steel with some sizes being made of stainless steel. They come deburred and we have had all set removed during manufacture. Curved washers exert relatively light thrust loads and are often used to absorb axial end play.

The rate is approximately linear between 10% and 80% of available deflection.

Finish

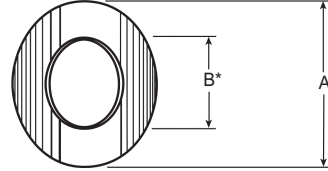
Standard finish for high carbon steel is plan finish. Stainless steel is supplied in plain finish. On special order, high carbon steel washers may be mechanically plated, a process which substantially reduces the possibility of hydrogen embrittlement. Recommendations for specific applications will be made on request.

Material

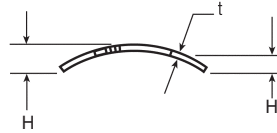
Standard Steel (Parts with suffix "s")
Commercial - Type 301 per ASTM-A666 (chemical only)

High Carbon Steel

Commercial-1074-1095 per ASTM-A684
Certificate of compliance available upon request - Certificate of chemical analysis available at extra cost.



*This is the long axis of the hole in the free position, providing a free fit on the nominal size screw or rod.



A = Outside Diameter(max)
B = Inside Diameter
t = Thickness
H = Free Height(ref)
H₁ = Loaded Height
P₁ = Load at H₁

HENRY 提供多种规格的工程用精密曲线状弹簧垫圈。这些垫圈由经高温回火的弹簧钢制成，其中一些规格的垫圈由不锈钢制成。在制造这些垫圈时，除去了毛刺。曲线状弹簧垫圈有较小的推力，通常用于吸收轴向末端的晃动。

这个曲率在最大偏转的10%至80%之间接近线性。

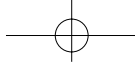
未道漆层

高碳钢材质的部件为光面，不锈钢材质的部件也为光面，适合各种未道漆层。根据客户的特殊要求，这种垫圈也可以采用电镀或机械镀层，以降低氢引起的脆性。需要特殊或者指定应用场合的部件，请联系我们。

HENRY® www.hlspring.com

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Tel +86-0511-8803-6999



材料

不锈钢 (带“S”后缀的部件)

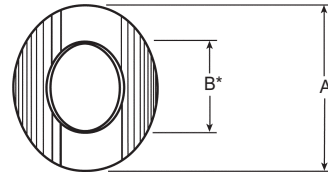
符合ASTM-A666的商用301型 (仅化学方面)

高碳钢

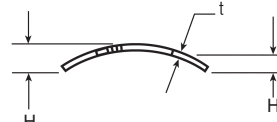
工业用 - 1074-1095钢, 符合ASTM-A684

根据客户要求提供产品合格证书。

客户要求化学分析证书, 需支付额外费用。



* 这是自由配合公称尺寸的帽螺丝或杆时, 自由位置的孔的长轴。



A = 外径 (最大)

B = 内径

t = 垫圈厚度

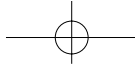
H = 自由高度 (参考)

H₁ = 负载高度

P₁ = H₁下的载荷

CURVED SPRINGS WASHERS
曲线状弹簧垫圈

Catalog Number* 编号*	Free Fit Screw or Rod Size 帽螺丝或杆配合直径			Min B 最小内径		Max A 最大外径		Free fit in hole dia. 孔配合直径		H (ref.) 自由高度 (参考)		H ₁ 负载高度		Load at H ₁ ± 20% (P ₁) H ₁ 下的载荷 ± 20% (P ₁)		Thickness (t) 垫圈厚度 (t)	
	in	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	in	mm
U093-0045-S	3/32	0.093	2.36	0.100	2.54	0.215	5.46	0.219	5.55	0.028	0.71	0.015	0.38	1.5	6.67	0.0045	0.11
U093-0056-S	3/32	0.093	2.36	0.100	2.54	0.215	5.46	0.219	5.55	0.025	0.64	0.015	0.38	2.25	10.01	0.0056	0.14
U125-0040-S	5	0.125	3.18	0.135	3.43	0.245	6.22	0.25	6.35	0.049	1.24	0.026	0.66	1.0	4.45	0.004	0.10
U125-0060-S	5	0.125	3.18	0.135	3.43	0.245	6.22	0.25	6.35	0.034	0.86	0.020	0.51	2.00	8.90	0.006	0.15
U125-0050-S	5	0.125	3.18	0.135	3.43	0.270	6.86	0.281	7.14	0.038	0.97	0.020	0.51	1.5	6.67	0.005	0.13
U125-0075-S	5	0.125	3.18	0.135	3.43	0.270	6.86	0.281	7.14	0.029	0.74	0.018	0.46	3.0	13.34	0.0075	0.19
U125-0072-S	5	0.125	3.18	0.135	3.43	0.307	7.80	0.313	7.94	0.037	0.94	0.020	0.51	4.0	17.80	0.0072	0.18
U125-0088-S	5	0.125	3.18	0.135	3.43	0.307	7.80	0.313	7.94	0.034	0.86	0.020	0.51	6.0	26.7	0.0088	0.22
U138-0045-S	6	0.138	3.51	0.148	3.76	0.270	6.89	0.281	7.14	0.052	1.32	0.028	0.71	1.25	5.56	0.0045	0.11
U138-0070-S	6	0.138	3.51	0.148	3.76	0.270	6.89	0.281	7.14	0.035	0.89	0.022	0.56	2.5	11.12	0.007	0.18
U138-0082-S	6	0.138	3.51	0.148	3.76	0.322	8.18	0.344	8.73	0.037	0.94	0.021	0.53	5.0	22.2	0.0082	0.21
U138-0100-S	6	0.138	3.51	0.148	3.76	0.322	8.18	0.344	8.73	0.034	0.86	0.021	0.53	7.5	33.4	0.01	0.25
U164-0050-S	8	0.164	4.17	0.174	4.42	0.322	8.18	0.344	8.73	0.064	1.63	0.034	0.86	1.5	6.67	0.005	0.13
U164-0075-S	8	0.164	4.17	0.174	4.42	0.322	8.18	0.344	8.73	0.042	1.07	0.025	0.64	3.0	13.34	0.0075	0.19
U164-0090-S	8	0.164	4.17	0.174	4.42	0.370	9.40	0.375	9.53	0.044	1.12	0.024	0.61	6.0	26.7	0.009	0.23
U164-0113	8	0.164	4.17	0.174	4.42	0.370	9.40	0.375	9.53	0.039	0.99	0.024	0.61	9.0	40.0	0.0113	0.29
U164-0113-S	8	0.164	4.17	0.174	4.42	0.370	9.40	0.375	9.53	0.039	0.99	0.024	0.61	9.0	40.0	0.0113	0.29
U190-0050-S	10	0.190	4.83	0.203	5.16	0.322	8.18	0.344	8.73	0.053	1.35	0.026	0.66	1.12	4.98	0.005	0.13
U190-0065-S	10	0.190	4.83	0.203	5.16	0.322	8.18	0.344	8.73	0.043	1.09	0.025	0.64	1.75	7.79	0.0065	0.17
U190-0060-S	10	0.190	4.83	0.200	5.08	0.370	9.40	0.375	9.53	0.069	1.75	0.035	0.89	2.25	10.01	0.006	0.15
U190-0090-S	10	0.190	4.83	0.200	5.08	0.370	9.40	0.375	9.53	0.047	1.19	0.028	0.71	4.5	20.0	0.009	0.23
U190-0113	10	0.190	4.83	0.200	5.08	0.423	10.74	0.438	11.11	0.047	1.19	0.027	0.69	9.0	40.0	0.0113	0.29
U190-0113-S	10	0.190	4.83	0.200	5.08	0.423	10.74	0.438	11.11	0.047	1.19	0.027	0.69	9.0	40.0	0.0113	0.29
U190-0140	10	0.190	4.83	0.200	5.08	0.423	10.74	0.438	11.11	0.043	1.09	0.027	0.69	13.5	60.1	0.014	0.36
U216-0065-S	12	0.216	5.49	0.231	5.87	0.423	10.74	0.438	11.11	0.081	2.06	0.042	1.07	2.5	11.12	0.0065	0.17
U216-0100-S	12	0.216	5.49	0.231	5.87	0.423	10.74	0.438	11.11	0.053	1.35	0.032	0.81	5.0	22.2	0.01	0.25
U216-0120	12	0.216	5.49	0.231	5.87	0.490	12.45	0.500	12.70	0.057	1.45	0.032	0.81	10.0	44.5	0.012	0.30
U216-0150	12	0.216	5.49	0.231	5.87	0.490	12.45	0.500	12.70	0.050	1.27	0.032	0.81	15.0	66.7	0.015	0.38
U250-0065-S	1/4	0.250	6.35	0.269	6.83	0.423	10.74	0.438	11.11	0.070	1.78	0.037	0.94	1.75	7.78	0.0065	0.17
U250-0082-S	1/4	0.250	6.35	0.269	6.83	0.423	10.74	0.438	11.11	0.055	1.40	0.032	0.81	2.5	11.12	0.0082	0.21
U250-0075-S	1/4	0.250	6.35	0.265	6.73	0.490	12.45	0.500	12.70	0.091	2.31	0.046	1.17	3.5	15.57	0.0075	0.19
U250-0110	1/4	0.250	6.35	0.265	6.73	0.490	12.45	0.500	12.70	0.063	1.60	0.034	0.86	7.0	31.1	0.011	0.28
U250-0110-S	1/4	0.250	6.35	0.265	6.73	0.490	12.45	0.500	12.70	0.063	1.60	0.034	0.86	7.0	31.1	0.011	0.28
U250-0145	1/4	0.250	6.35	0.265	6.73	0.551	14.00	0.563	14.29	0.060	1.52	0.034	0.86	14.0	62.3	0.0145	0.37



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Catalog Number* 编号*	Free Fit Screw or Rod Size 帽螺丝或杆配合直径			Min B 最小内径		Max A 最大外径		Free fit in hole dia. 孔配合直径			H (ref.) 自由高度 (参考)		H ₁ 负载高度		Load at H ₁ ± 20% (P ₁) H ₁ 下的载荷 ± 20% (P ₁)		Thickness (t) 垫圈厚度 (t)	
	in	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	N	in	mm	
	U250-0185	1/4	0.250	6.35	0.265	6.73	0.551	14.00	0.563	14.29	0.052	1.32	0.034	0.86	21.0	93.4	0.0185	0.47
U250-0185-S	1/4	0.250	6.35	0.265	6.73	0.551	14.00	0.563	14.29	0.052	1.32	0.034	0.86	21.0	93.4	0.0185	0.47	
U281-0085-S	9/32	0.281	7.14	0.296	7.52	0.551	14.00	0.563	14.29	0.101	2.57	0.055	1.40	4.0	17.80	0.0085	0.22	
U281-0120	9/32	0.281	7.14	0.296	7.52	0.551	14.00	0.563	14.29	0.070	1.78	0.038	0.97	8.0	35.6	0.012	0.30	
U312-0075-S	5/16	0.312	7.92	0.331	8.41	0.490	12.45	0.500	12.70	0.077	1.96	0.041	1.04	2.25	10.01	0.0075	0.19	
U312-0110	5/16	0.312	7.92	0.331	8.41	0.490	12.45	0.500	12.70	0.062	1.57	0.035	0.89	4.5	20.0	0.011	0.28	
U312-0110-S	5/16	0.312	7.92	0.331	8.41	0.490	12.45	0.500	12.70	0.062	1.57	0.035	0.89	4.5	20.0	0.011	0.28	
U312-0090-S	5/16	0.312	7.92	0.327	8.31	0.612	15.54	0.625	15.88	0.113	2.87	0.060	1.52	4.5	20.0	0.009	0.23	
U312-0130	5/16	0.312	7.92	0.327	8.31	0.612	15.54	0.625	15.88	0.077	1.96	0.042	1.07	9.0	40.0	0.013	0.33	
U312-0130-S	5/16	0.312	7.92	0.327	8.31	0.612	15.54	0.625	15.88	0.077	1.96	0.042	1.07	9.0	40.0	0.013	0.33	
U312-0170	5/16	0.312	7.92	0.327	8.31	0.735	18.67	0.750	19.05	0.076	1.93	0.046	1.17	15.0	66.7	0.017	0.43	
U312-0210	5/16	0.312	7.92	0.327	8.31	0.735	18.67	0.750	19.05	0.070	1.78	0.045	1.14	22.5	100.1	0.021	0.53	
U343-0100-S	11/32	0.343	8.71	0.363	9.22	0.672	17.07	0.688	17.46	0.120	3.05	0.063	1.60	5.5	24.5	0.01	0.25	
U343-0150	11/32	0.343	8.71	0.363	9.22	0.672	17.07	0.688	17.46	0.081	2.06	0.047	1.19	11.0	48.9	0.015	0.38	
U375-0090-S	3/8	0.375	9.53	0.400	10.16	0.612	15.45	0.625	15.88	0.098	2.49	0.056	1.42	3.0	13.34	0.009	0.23	
U375-0130	3/8	0.375	9.53	0.400	10.16	0.612	15.45	0.625	15.88	0.074	1.88	0.043	1.09	6.0	26.7	0.013	0.33	
U375-0100-S	3/8	0.375	9.53	0.400	10.16	0.672	17.07	0.688	17.46	0.115	2.92	0.059	1.50	4.5	20.0	0.01	0.25	
U375-0150	3/8	0.375	9.53	0.400	10.16	0.672	17.07	0.688	17.46	0.079	2.01	0.046	1.17	9.0	40.0	0.015	0.38	
U375-0110	3/8	0.375	9.53	0.395	10.03	0.735	18.67	0.750	19.05	0.129	3.28	0.073	1.85	6.0	26.7	0.011	0.28	
U375-0110-S	3/8	0.375	9.53	0.395	10.03	0.735	18.67	0.750	19.05	0.129	3.28	0.073	1.85	6.0	26.7	0.011	0.28	
U375-0160	3/8	0.375	9.53	0.395	10.03	0.735	18.67	0.750	19.05	0.086	2.18	0.050	1.27	12.0	53.4	0.016	0.41	
U375-0160-S	3/8	0.375	9.53	0.395	10.03	0.735	18.67	0.750	19.05	0.086	2.18	0.050	1.27	12.0	53.4	0.016	0.41	
U437-0100-S	7/16	0.437	11.10	0.467	11.86	0.672	17.07	0.688	17.46	0.115	2.92	0.060	1.52	3.75	16.68	0.01	0.25	
U437-0150	7/16	0.437	11.10	0.467	11.86	0.672	17.07	0.688	17.46	0.084	2.13	0.045	1.14	7.5	33.4	0.015	0.38	
U437-0150-S	7/16	0.437	11.10	0.467	11.86	0.672	17.07	0.688	17.46	0.084	2.13	0.045	1.14	7.5	33.4	0.015	0.38	
U437-0120	7/16	0.437	11.10	0.462	11.73	0.857	21.77	0.875	22.23	0.152	3.86	0.079	2.01	7.5	33.4	0.012	0.30	
U437-0180	7/16	0.437	11.10	0.462	11.73	0.857	21.77	0.875	22.23	0.100	2.54	0.057	1.45	15.0	66.7	0.018	0.46	
U437-0180-S	7/16	0.437	11.10	0.462	11.73	0.857	21.77	0.875	22.23	0.100	2.54	0.057	1.45	15.0	66.7	0.018	0.46	
U437-0210	7/16	0.437	11.10	0.462	11.73	0.980	24.89	0.980	24.89	0.107	2.72	0.061	1.55	22.5	100.1	0.021	0.53	
U500-0113	1/2	0.500	12.70	0.531	13.48	0.795	20.20	0.813	20.64	0.129	3.28	0.069	1.75	5.0	22.2	0.0113	0.29	
U500-0170	1/2	0.500	12.70	0.531	13.48	0.795	20.20	0.813	20.64	0.098	2.49	0.054	1.37	10.0	44.5	0.017	0.43	
U500-0140	1/2	0.500	12.70	0.525	13.34	0.980	24.89	0.980	24.89	0.164	4.17	0.083	2.11	10.0	44.5	0.014	0.36	
U500-0180	1/2	0.500	12.70	0.525	13.34	0.980	24.89	0.980	24.89	0.131	3.33	0.073	1.85	15.0	66.7	0.018	0.46	
U500-0210	1/2	0.500	12.70	0.525	13.34	0.980	24.89	0.980	24.89	0.110	2.79	0.063	1.60	20.0	89.0	0.021	0.53	
U500-0210-S	1/2	0.500	12.70	0.525	13.34	0.980	24.89	0.980	24.89	0.110	2.79	0.063	1.60	20.0	89.0	0.021	0.53	
U500-0211	1/2	0.500	12.70	0.525	13.34	1.225	31.12	1.225	31.12	0.151	3.84	0.085	2.16	25.0	111.2	0.021	0.53	
U562-0120-S	9/16	0.562	14.27	0.598	15.19	0.857	21.77	0.875	22.23	0.145	3.68	0.074	1.88	5.5	24.5	0.012	0.30	
U562-0180	9/16	0.562	14.27	0.598	15.19	0.857	21.77	0.875	22.23	0.110	2.79	0.059	1.50	11.0	48.9	0.018	0.46	
U562-0180-S	9/16	0.562	14.27	0.598	15.19	0.857	21.77	0.875	22.23	0.110	2.79	0.059	1.50	11.0	48.9	0.018	0.46	
U625-0140	5/8	0.625	15.88	0.663	16.84	0.980	24.89	0.980	24.89	0.169	4.29	0.092	2.34	7.0	31.1	0.014	0.36	
U625-0210	5/8	0.625	15.88	0.663	16.84	0.980	24.89	0.980	24.89	0.118	3.00	0.067	1.70	14.0	62.3	0.021	0.53	
U750-0160	3/4	0.750	19.05	0.800	20.32	1.103	28.02	1.125	28.58	0.185	4.70	0.098	2.49	8.0	35.6	0.016	0.41	
U750-0210	3/4	0.750	19.05	0.800	20.32	1.103	28.02	1.125	28.58	0.138	3.51	0.069	1.75	12.0	53.4	0.021	0.53	
U750-0210-S	3/4	0.750	19.05	0.800	20.32	1.103	28.02	1.125	28.58	0.138	3.51	0.069	1.75	12.0	53.4	0.021	0.53	

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