

Submitted for recognition as an American National Standard

SPRING TYPE STRAIGHT PINS

Foreword—This Document has also changed to comply with the new SAE Technical Standards Board format.

1. **Scope**
2. **References**—There are no referenced publications specified herein.

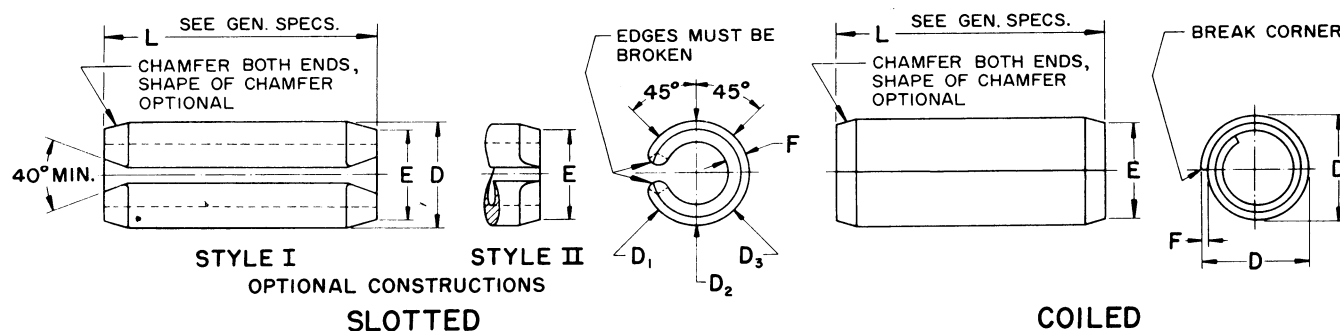


FIGURE 1—

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TABLE 1—PIN DIMENSIONS

Nominal Pin Size	D ^a								E	F						Double Shear Strength (lb) ^e			Recommended Hole Size			
	Slotted		Coiled						Slotted and Coiled	Slotted			Coiled			Slotted and Coiled			Slotted		Coiled	
	Series A ^b and B ^b		Series A		Series B		Series C		Series A, B, and C	Series A	Series B		Series A	Series B	Series C	Series A	Series B	Series C	Series A and B		Series A, B, and C	
	Max	Min ^c	Max	Min	Max	Min	Max	Min	Max	Nominal	Style I Nominal	Style II Nominal	Nominal	Nominal	Nominal	Min	Min	Min	Max	Min	Max	Min
1/32	—	—	—	—	0.035	0.033	—	—	0.029 ^d	—	—	—	—	0.003	—	—	75	—	—	—	0.0325	0.0310
3/64	—	—	—	—	0.052	0.049	—	—	0.045 ^d	—	—	—	—	0.004	—	—	170	—	—	—	0.0485	0.0470
0.052	—	—	—	—	0.057	0.054	—	—	0.050 ^d	—	—	—	—	0.004	—	—	230	—	—	—	0.0535	0.0520
1/16	0.069	0.066	0.070	0.066	0.071	0.067	0.072	0.067	0.059	0.012	—	0.006	0.007	0.005	0.003	425	300	160	0.065	0.062	0.065	0.061
5/64	0.086	0.083	0.086	0.082	0.087	0.083	0.088	0.083	0.075	0.018	—	0.008	0.007	0.005	0.003	650	480	260	0.081	0.078	0.081	0.077
3/32	0.103	0.099	0.103	0.098	0.104	0.099	0.105	0.099	0.091	0.022	0.012	0.012	0.010	0.007	0.005	1000	690	370	0.097	0.094	0.097	0.093
7/64	0.118	0.113	0.118	0.113	0.119	0.114	0.120	0.114	0.106	0.022	—	0.018	0.010	0.007	0.005	1410	940	510	0.112	0.109	0.112	0.108
1/8	0.135	0.131	0.136	0.130	0.137	0.131	0.138	0.131	0.122	0.028	0.012	0.018	0.014	0.010	0.007	1840	1000	660	0.129	0.125	0.129	0.124
9/64	0.149	0.145	0.151	0.145	0.152	0.146	0.153	0.146	0.136	0.028	—	0.022	0.014	0.010	0.007	2200	1550	830	0.141	0.140	0.144	0.139
5/32	0.167	0.162	0.168	0.161	0.170	0.163	0.171	0.163	0.152	0.032	0.018	0.022	0.017	0.011	0.007	2880	1750	1040	0.160	0.156	0.160	0.155
3/16	0.199	0.194	0.202	0.194	0.204	0.196	0.206	0.196	0.182	0.040	0.022	0.028	0.020	0.015	0.010	4140	2500	1500	0.192	0.187	0.192	0.185
7/32	0.232	0.226	0.235	0.226	0.238	0.229	0.240	0.229	0.214	0.048	0.028	0.032	0.024	0.017	0.011	5640	3760	2040	0.224	0.219	0.224	0.217
1/4	0.264	0.258	0.268	0.258	0.270	0.260	0.272	0.260	0.245	0.048	0.028	0.032	0.028	0.020	0.015	7360	4600	2660	0.256	0.250	0.256	0.248
5/16	0.328	0.321	0.340	0.327	0.341	0.327	0.342	0.327	0.306	0.062	—	0.040	0.032	0.024	0.017	11500	7670	4160	0.318	0.312	0.318	0.308
3/8	0.392	0.385	0.407	0.391	0.408	0.391	0.409	0.391	0.368	0.077	—	0.048	0.040	0.028	0.020	16580	11040	6000	0.382	0.375	0.382	0.368
7/16	0.456	0.448	0.475	0.457	0.476	0.457	0.478	0.457	0.430	0.077	—	0.048	0.047	0.036	0.024	20000	15020	8160	0.445	0.437	0.445	0.429
1/2	0.521	0.513	0.542	0.522	0.543	0.522	0.545	0.522	0.490	0.094	—	0.062	0.055	0.040	0.028	25800	19600	10640	0.510	0.500	0.510	0.490

^a Maximum D shall be checked by a "GO" ring gage.

^b Series designation applies to stock thickness, A being heaviest.

^c Minimum D shall be the average of the D₁, D₂, and D₃ diameters.

^d Series B coiled.

^e Applies to pins made from SAE 1070 to 1095 steel and SAE 51410 or AISI 420 corrosion resistant steel. SAE 30302 stainless steel has a minimum shear strength equal to 85% of values shown for coiled pins.

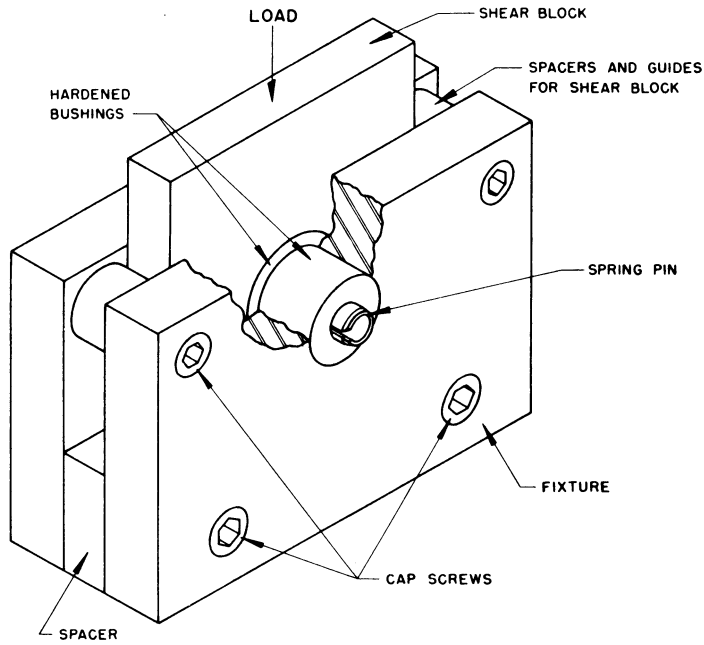
3. **Length and Availability**—Table 3, Practical Length Increments and Ranges, indicates spring pin sizes. Information on availability of individual lengths in the various types, weights, and materials may be obtained from suppliers.

The tolerance on length for coiled type spring pins shall be ± 0.010 in. for sizes up to and including 5/16 in.; and ± 0.015 in. for sizes larger than 5/16 in.

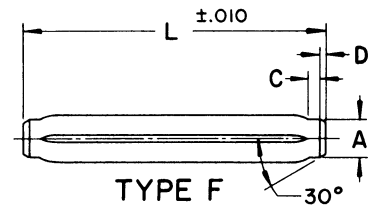
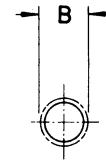
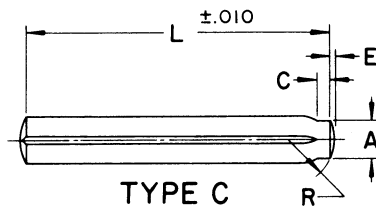
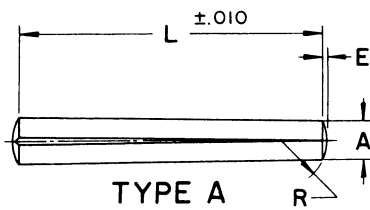
The tolerance on length for slotted type spring pins shall be in accordance with the following tabulation:

Length Range	3/16 to 1 Incl	Over 1 To 2 Incl	Over 2 To 3 Incl	Over 3 to 4 Incl	Over 4 in
Tolerance On Length	± 0.015	± 0.020	± 0.025	± 0.030	± 0.035

4. **Surface Treatment**—Where corrosion preventive treatment applied to carbon steel spring pins is such that it might produce hydrogen embrittlement, the spring pins shall be baked or treated in such a manner as to obviate such embrittlement.
5. **Material and Hardness**—Hardness shall be tested in the following manner: For slotted pins the readings shall be taken near the center of a longitudinal flat ground on the pin at right angles to the slot. Coiled pins shall be ground or cut in half along the longitudinal axis and the hardness readings shall be taken on the inside surface of the outer half coil. Table 2 designates materials and the proper Rockwell scale to be used for the various wall thickness ranges.



TYPICAL SPRING PIN SHEAR TEST FIXTURE



(FOR HOPPER FEEDING)

TABLE 2—TYPES A, C, AND F GROOVED STRAIGHT PINS, IN.

Nominal Size		3/64	1/16	5/64	3/32	7/64	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
A	Diameter, max	0.0469	0.0625	0.0781	0.0938	0.1094	0.1250	0.1563	0.1875	0.2188	0.2500	0.3125	0.3750	0.4375	0.5000
	Diameter, min	0.0459	0.0615	0.0771	0.0928	0.1084	0.1230	0.1543	0.1855	0.2168	0.2480	0.3105	0.3730	0.4355	0.4980
E	Recommended Hole, max	0.0478	0.0640	0.0798	0.0956	0.1113	0.1271	0.1587	0.1903	0.2219	0.2534	0.3166	0.3797	0.4428	0.5060
	Recommended Hole, min	0.0465	0.0625	0.0781	0.0938	0.1094	0.1250	0.1563	0.1875	0.2188	0.2500	0.3125	0.3750	0.4375	0.5000
R	Crown Height, ± 0.005	0.0000	0.0065	0.0087	0.0091	0.0110	0.0130	0.0170	0.0180	0.0220	0.0260	0.0340	0.0390	0.0470	0.0520
C	Radius at Nom Crown Height, ± 0.010	—	0.0781	0.0938	0.1250	0.1406	0.1562	0.1875	0.2500	0.2812	0.3125	0.3750	0.4688	0.5312	0.6250
D ^a	Pilot Length	—	0.0312	0.0312	0.0312	0.0312	0.0312	0.0625	0.0625	0.0625	0.0625	0.0938	0.0938	0.0938	0.0938
D ^a	Chamfer Length (Type F Only)	—	0.0156	0.0156	0.0156	0.0156	0.0156	0.0312	0.0312	0.0312	0.0312	0.0469	0.0469	0.0469	0.0469
Length		B Diameter, Max and Min Limits (Measured with Ring Gages)													
1/8		0.052	—	—	—	—	—	—	—	—	—	—	—	—	—
		0.050	—	—	—	—	—	—	—	—	—	—	—	—	—
3/16		0.052	—	—	—	—	—	—	—	—	—	—	—	—	—
		0.050	—	—	—	—	—	—	—	—	—	—	—	—	—
1/4		0.052	0.069	0.085	0.102	0.118	0.136	—	—	—	—	—	—	—	—
		0.050	0.067	0.083	0.100	0.116	0.132	—	—	—	—	—	—	—	—
3/8		0.052	0.069	0.085	0.102	0.118	0.136	0.168	0.200	—	—	—	—	—	—
		0.050	0.067	0.083	0.100	0.116	0.132	0.164	0.196	—	—	—	—	—	—
1/2		0.052	0.069	0.085	0.102	0.118	0.136	0.168	0.200	0.232	0.265	—	—	—	—
		0.050	0.067	0.083	0.100	0.116	0.132	0.164	0.196	0.228	0.261	—	—	—	—
5/8		0.052	0.069	0.085	0.102	0.118	0.136	0.168	0.200	0.232	0.265	0.331	—	—	—
		0.050	0.067	0.083	0.100	0.116	0.132	0.164	0.196	0.228	0.261	0.327	—	—	—
3/4		—	0.069	0.085	0.102	0.117	0.136	0.168	0.200	0.232	0.265	0.331	0.396	—	—
		—	0.067	0.083	0.100	0.115	0.132	0.164	0.196	0.228	0.261	0.327	0.392	—	—
7/8		—	0.069	0.085	0.102	0.117	0.135	0.167	0.200	0.232	0.265	0.331	0.396	0.461	—
		—	0.067	0.083	0.100	0.115	0.131	0.163	0.196	0.228	0.261	0.327	0.392	0.457	—
1		—	0.069	0.085	0.102	0.116	0.135	0.167	0.200	0.232	0.265	0.331	0.396	0.461	0.527
		—	0.067	0.083	0.100	0.114	0.131	0.163	0.196	0.228	0.261	0.327	0.392	0.457	0.523
1-1/4		—	—	—	0.102	0.116	0.134	0.166	0.199	0.232	0.265	0.331	0.396	0.461	0.527
		—	—	—	0.100	0.114	0.130	0.162	0.195	0.228	0.261	0.327	0.392	0.457	0.523
1-1/2		—	—	—	—	—	0.134	0.166	0.199	0.231	0.264	0.331	0.396	0.461	0.527
		—	—	—	—	—	0.130	0.162	0.195	0.227	0.260	0.327	0.392	0.457	0.523
1-3/4		—	—	—	—	—	—	0.165	0.199	0.231	0.264	0.330	0.395	0.461	0.527
		—	—	—	—	—	—	0.161	0.195	0.227	0.260	0.326	0.391	0.457	0.523
2		—	—	—	—	—	—	0.165	0.198	0.231	0.264	0.330	0.395	0.460	0.527
		—	—	—	—	—	—	0.161	0.194	0.227	0.260	0.326	0.391	0.456	0.523
2-1/4		—	—	—	—	—	—	—	0.198	0.231	0.264	0.330	0.395	0.460	0.526
		—	—	—	—	—	—	—	0.194	0.227	0.260	0.326	0.391	0.456	0.522
2-1/2		—	—	—	—	—	—	—	—	0.230	0.263	0.329	0.395	0.460	0.526
		—	—	—	—	—	—	—	—	0.226	0.259	0.325	0.391	0.456	0.522
2-3/4		—	—	—	—	—	—	—	—	0.230	0.263	0.329	0.395	0.460	0.526
		—	—	—	—	—	—	—	—	0.226	0.259	0.325	0.391	0.456	0.522
3		—	—	—	—	—	—	—	—	0.229	0.262	0.329	0.394	0.459	0.525
		—	—	—	—	—	—	—	—	0.225	0.258	0.325	0.390	0.455	0.521
3-1/4		—	—	—	—	—	—	—	—	—	0.262	0.328	0.394	0.459	0.525
		—	—	—	—	—	—	—	—	—	0.258	0.324	0.390	0.455	0.521
3-1/2		—	—	—	—	—	—	—	—	—	—	0.328	0.393	0.458	0.524
		—	—	—	—	—	—	—	—	—	—	0.324	0.389	0.454	0.520
3-3/4		—	—	—	—	—	—	—	—	—	—	—	0.393	0.458	0.524
		—	—	—	—	—	—	—	—	—	—	—	0.389	0.454	0.520
4		—	—	—	—	—	—	—	—	—	—	—	0.392	0.457	0.523
		—	—	—	—	—	—	—	—	—	—	—	0.388	0.453	0.519
4-1/4		—	—	—	—	—	—	—	—	—	—	—	0.392	0.457	0.523
		—	—	—	—	—	—	—	—	—	—	—	0.388	0.453	0.519
4-1/2		—	—	—	—	—	—	—	—	—	—	—	—	0.456	0.522
		—	—	—	—	—	—	—	—	—	—	—	—	0.452	0.518

^a On agreement between user and supplier a suitable radius may be substituted optionally for the chamfers on the ends of Type F pins for the 1/4 in. size and below.

PREPARED BY THE SAE PARTS AND FITTINGS COMMITTEE

SAE J496 Revised NOV72

Rationale—Not applicable.

Relationship of SAE Standard to ISO Standard—Not applicable.

Application—

Reference Section—There are no referenced publications specified herein.

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