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U S A S T A N D A R D

KEYS AND KEYSEATS

USAS B17.1 - 1967

Sponsor

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Foreword

THE individual USA Standards on Keys were first issued in the late 1920's. These were consolidated with the shafting standards in the 1934 publication, Standard Shafting and Stock Keys. A revised issue was published in 1943 and withdrawn in 1955 as it was not being sufficiently supported. However, a separate standard on Woodruff Keys, Keyslots, and Cutters (B17f-1930) was reaffirmed in 1955.

In 1962 the USA Standards Committee B17 was reactivated and a subcommittee developed and established this standard based on current industry standards.

Following approval by the USA Standards Committee B17 and the sponsor, the proposed revision was approved on September 15, 1967 by the USA Standards Institute, and designated B17.1–1967.

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Keys and Keyseats

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USA STANDARD

Keys and Keyseats

1. INTRODUCTION

This standard establishes a uniform relationship between shaft size and key size for parallel and taper keys retaining similar basic sizing as found in the withdrawn B17.1-1943 standard.

This standard covers the size, type and tolerances of parallel and taper keys and keyseats, and their relationship to shaft diameters and bore diameters. The sizes and tolerances contained in this standard are intended for single key applications only.

Key strength and steel analysis entering into the makeup of stock for keys is not within the scope of this standard. Shaft diameters are listed for identification of various key sizes and are not intended to establish shaft dimensions, tolerances or selections.

This standard recognizes that there are two classes of stock for parallel keys presently used by industry. One is a broad negative toleranced bar stock and the other is a close plus toleranced keystock. Each is combined with appropriate keyseat tolerances to establish assemblies, respectively, designated as Classes 1 and 2.

Taper keys are established for Class 2 assembly only.

2. DEFINITIONS

2.1 Key – A demountable machinery part which, when assembled into keyseats, provides a positive means for transmitting torque between the shaft and hub. Tolerances are shown in Table 2.

2.1.1 *Bar Stock* – General purpose, negative toleranced, cold finished steel stock for parallel keys.

2.2.2 *Keystock* – A close plus toleranced, cold finished steel stock for parallel keys.

2.2. Keyseat – An axially located rectangular groove in a shaft or hub. This may also be written as *shaft keyseat* or *hub keyseat* when describing the exact application. Hub keyseat has been sometimes referred to as a keyway.

2.3 Keyseating – The operation of producing keyseats.

3. KEY SIZE VERSUS SHAFT DIAMETER

For a stepped shaft, the size of a key is determined by the diameter of the shaft at the point of location of the key, regardless of the number of different diameters on the shaft.

Square keys are preferred through 6½-inch diameter shafts and rectangular keys for larger shafts. Sizes and dimensions in unshaded area are preferred.

If special considerations dictate the use of a keyseat in the hub shallower than the preferred nominal depth shown in Table 1, it is recommended that the tabulated preferred nominal standard keyseat be used in the shaft in all cases.

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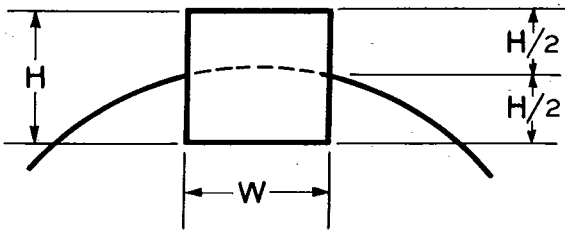

Table 1 Key Size Versus Shaft Diameter

NOMINAL SHAFT DIAMETER		NOMINAL KEY SIZE			NOMINAL KEYSEAT DEPTH	
Over	To (Incl)	Width, *W*	Height, *H*		*H*/2	
			Square	Rectangular	Square	Rectangular
5/16	7/16	3/32	3/32	3/32	3/64	3/64
7/16	9/16	1/8	1/8	1/8	1/16	1/16
9/16	7/8	3/16	3/16	3/16	3/32	3/32
7/8	1-1/4	1/4	1/4	1/4	1/8	1/8
1-1/4	1-3/8	5/16	5/16	5/16	5/32	1/8
1-3/8	1-3/4	3/8	3/8	1/4	3/16	1/8
1-3/4	2-1/4	1/2	1/2	3/8	1/4	3/16
2-1/4	2-3/4	5/8	5/8	7/16	5/16	7/32
2-3/4	3-1/4	3/4	3/4	1/2	3/8	1/4
3-1/4	3-3/4	7/8	7/8	5/8	7/16	5/16
3-3/4	4-1/2	1	1	3/4	1/2	3/8
4-1/2	5-1/2	1-1/4	1-1/4	7/8	5/8	7/16
5-1/2	6-1/2	1-1/2	1-1/2	1	3/4	1/2
6-1/2	7-1/2	1-3/4	1-3/4	1-1/2*	7/8	3/4
7-1/2	9	2	2	1-1/2	1	3/4
9	11	2-1/2	2-1/2	1-3/4	1-1/4	7/8
11	13	3	3	2	1-1/2	1
13	15	3-1/2	3-1/2	2-1/2	1-3/4	1-1/4
15	18	4		3		1-1/2
18	22	5		3-1/2		1-3/4
22	26	6		4		2
26	30	7		5		2-1/2

*Some key standards show 1-1/4 in. Preferred size is 1-1/2 in.
Shaded areas: See Part 3, page 1.
All dimensions given in inches.

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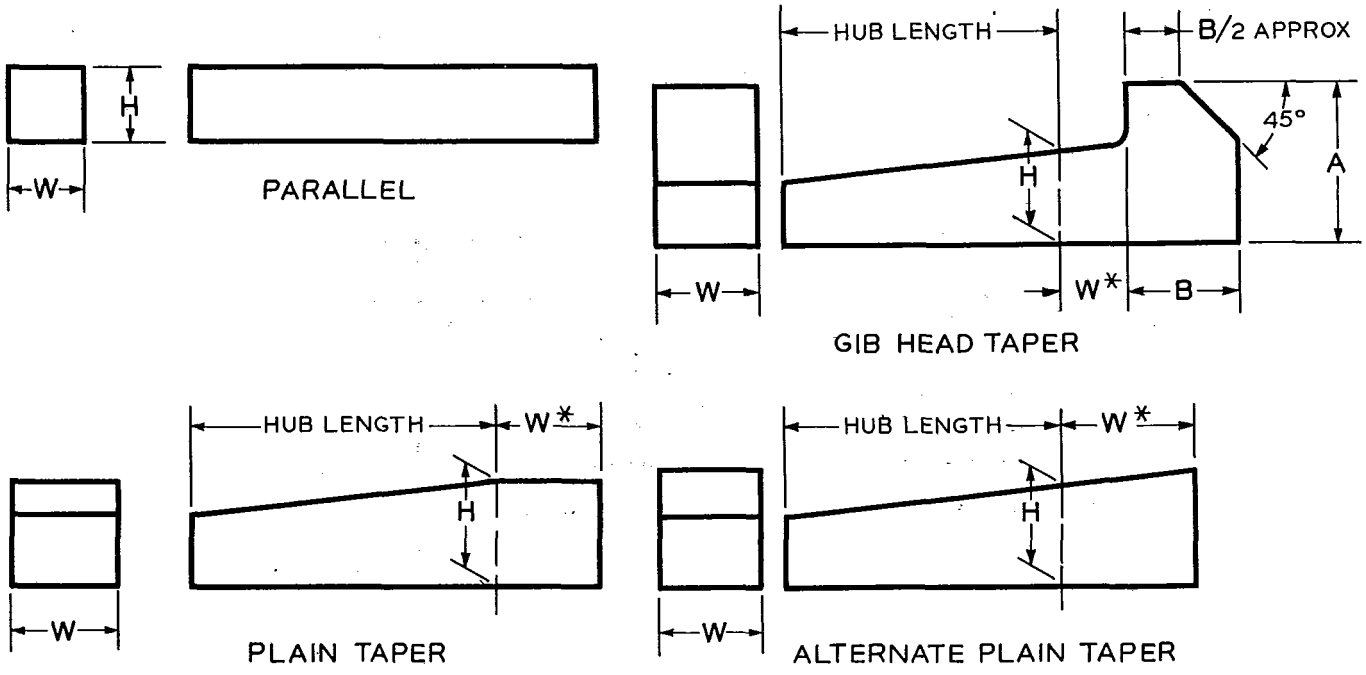
KEYS AND KEYSEATS

4. KEY DIMENSIONS AND TOLERANCES



Plain and Gib Head Taper Keys Have a 1/8" Taper in 12"

Table 2 Key Dimensions and Tolerances

KEY			NOMINAL KEY SIZE Width, W Over	NOMINAL KEY SIZE Width, W To (Incl)	TOLERANCE Width, W	TOLERANCE Height, H
Parallel	Square	Bar Stock	—	3/4	+0.000 −0.002	+0.000 −0.002
			3/4	1-1/2	+0.000 −0.003	+0.000 −0.003
			1-1/2	2-1/2	+0.000 −0.004	+0.000 −0.004
			2-1/2	3-1/2	+0.000 −0.006	+0.000 −0.006
		Keystock	—	1-1/4	+0.001 −0.000	+0.001 −0.000
			1-1/4	3	+0.002 −0.000	+0.002 −0.000
			3	3-1/2	+0.003 −0.000	+0.003 −0.000
	Rectangular	Bar Stock	—	3/4	+0.000 −0.003	+0.000 −0.003
			3/4	1-1/2	+0.000 −0.004	+0.000 −0.004
			1-1/2	3	+0.000 −0.005	+0.000 −0.005
			3	4	+0.000 −0.006	+0.000 −0.006
			4	6	+0.000 −0.008	+0.000 −0.008
			6	7	+0.000 −0.013	+0.000 −0.013
		Keystock	—	1-1/4	+0.001 −0.000	+0.005 −0.005
			1-1/4	3	+0.002 −0.000	+0.005 −0.005
			3	7	+0.003 −0.000	+0.005 −0.005
Taper	Plain or Gib Head Square or Rectangular		—	1-1/4	+0.001 −0.000	+0.005 −0.000
			1-1/4	3	+0.002 −0.000	+0.005 −0.000
			3	7	+0.003 −0.000	+0.005 −0.000

*For locating position of dimension *H*. Tolerance does not apply.
See Table 2A for dimensions on gib heads.
All dimensions given in inches.

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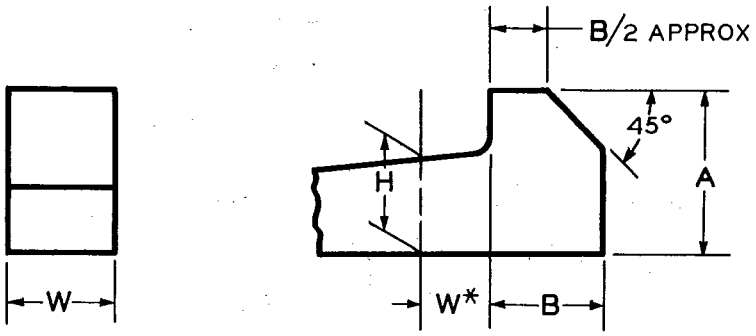

Table 2A Gib Head Nominal Dimensions

Nominal Key Size Width, W	SQUARE			RECTANGULAR		
	H	A	B	H	A	B
1/8	1/8	1/4	1/4	3/32	3/16	1/8
3/16	3/16	5/16	5/16	1/8	1/4	1/4
1/4	1/4	7/16	3/8	3/16	5/16	5/16
5/16	5/16	1/2	7/16	1/4	7/16	3/8
3/8	3/8	5/8	1/2	1/4	7/16	3/8
1/2	1/2	7/8	5/8	3/8	5/8	1/2
5/8	5/8	1	3/4	7/16	3/4	9/16
3/4	3/4	1-1/4	7/8	1/2	7/8	5/8
7/8	7/8	1-3/8	1	5/8	1	3/4
1	1	1-5/8	1-1/8	3/4	1-1/4	7/8
1-1/4	1-1/4	2	1-7/16	7/8	1-3/8	1
1-1/2	1-1/2	2-3/8	1-3/4	1	1-5/8	1-1/8
1-3/4	1-3/4	2-3/4	2	1-1/2	2-3/8	1-3/4
2	2	3-1/2	2-1/4	1-1/2	2-3/8	1-3/4
2-1/2	2-1/2	4	3	1-3/4	2-3/4	2
3	3	5	3-1/2	2	3-1/2	2-1/4
3-1/2	3-1/2	6	4	2-1/2	4	3

*For locating position of dimension H.

For larger sizes the following relationships are suggested as guides for establishing A and B.

$$A = 1.8\,H \qquad B = 1.2\,H$$

All dimensions given in inches.

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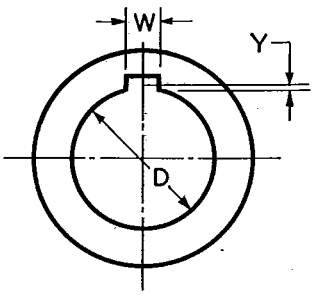
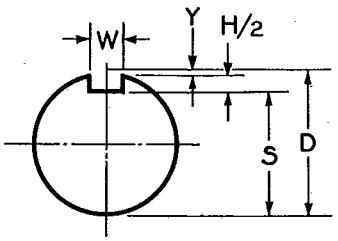
KEYS AND KEYSEATS

5. DEPTH CONTROL FORMULAS

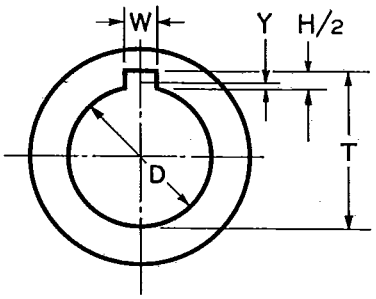
CHORDAL HEIGHT



DEPTH OF SHAFT KEYSEAT



DEPTH OF HUB KEYSEAT



The chordal height Y is determined from the following formula:

$$Y = \frac{D - \sqrt{D^2 - W^2}}{2}$$

The distance from the bottom of the shaft keyseat to the opposite side of the shaft is specified by dimension S. The following formula may be used for calculating this dimension:

$$S = D - Y - \frac{H}{2} = \frac{D - H + \sqrt{D^2 - W^2}}{2}$$

Tabulated values of S for specific shaft diameters are given in Table 3.

The distance from the bottom of the hub keyseat to the opposite side of the hub bore is specified by dimension T. For taper keyseats, T is measured at the deeper end. The following formula may be used for calculating this dimension:

$$T = D - Y + \frac{H}{2} + C = \frac{D + H + \sqrt{D^2 - W^2}}{2} + C$$

Tabulated values of T for parallel and taper keyseats for specific bores are given in Table 3.

Symbols

C = Allowance
- + 0.005 inch clearance for parallel keys
- − 0.020 inch interference for taper keys

D = Nominal shaft or bore diameter, inches
H = Nominal key height, inches
W = Nominal key width, inches
Y = Chordal height, inches

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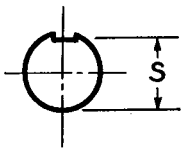
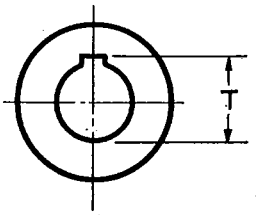
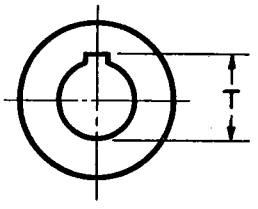
DEPTH CONTROL VALUES

Table 3 Values for *S* and *T*

Nominal Shaft Diameter	 Parallel and Taper		 Parallel		 Taper	
	Square	Rectangular	Square	Rectangular	Square	Rectangular
	S	*S*	*T*	*T*	*T*	*T*
1/2	0.430	0.445	0.560	0.544	0.535	0.519
9/16	0.493	0.509	0.623	0.607	0.598	0.582
5/8	0.517	0.548	0.709	0.678	0.684	0.653
11/16	0.581	0.612	0.773	0.742	0.748	0.717
3/4	0.644	0.676	0.837	0.806	0.812	0.781
13/16	0.708	0.739	0.900	0.869	0.875	0.844
7/8	0.771	0.802	0.964	0.932	0.939	0.907
15/16	0.796	0.827	1.051	1.019	1.026	0.994
1	0.859	0.890	1.114	1.083	1.089	1.058
1-1/16	0.923	0.954	1.178	1.146	1.153	1.121
1-1/8	0.986	1.017	1.241	1.210	1.216	1.185
1-3/16	1.049	1.080	1.304	1.273	1.279	1.248
1-1/4	1.112	1.144	1.367	1.336	1.342	1.311
1-5/16	1.137	1.169	1.455	1.424	1.430	1.399
1-3/8	1.201	1.232	1.518	1.487	1.493	1.462
1-7/16	1.225	1.288	1.605	1.543	1.580	1.518
1-1/2	1.289	1.351	1.669	1.606	1.644	1.581
1-9/16	1.352	1.415	1.732	1.670	1.707	1.645
1-5/8	1.416	1.478	1.796	1.733	1.771	1.708
1-11/16	1.479	1.541	1.859	1.796	1.834	1.771
1-3/4	1.542	1.605	1.922	1.860	1.897	1.835
1-13/16	1.527	1.590	2.032	1.970	2.007	1.945
1-7/8	1.591	1.654	2.096	2.034	2.071	2.009
1-15/16	1.655	1.717	2.160	2.097	2.135	2.072
2	1.718	1.781	2.223	2.161	2.198	2.136
2-1/16	1.782	1.844	2.287	2.224	2.262	2.199
2-1/8	1.845	1.908	2.350	2.288	2.325	2.263
2-3/16	1.909	1.971	2.414	2.351	2.389	2.326
2-1/4	1.972	2.034	2.477	2.414	2.452	2.389
2-5/16	1.957	2.051	2.587	2.493	2.562	2.468
2-3/8	2.021	2.114	2.651	2.557	2.626	2.532
2-7/16	2.084	2.178	2.714	2.621	2.689	2.596
2-1/2	2.148	2.242	2.778	2.684	2.753	2.659
2-9/16	2.211	2.305	2.841	2.748	2.816	2.723
2-5/8	2.275	2.369	2.905	2.811	2.880	2.786
2-11/16	2.338	2.432	2.968	2.874	2.943	2.849
2-3/4	2.402	2.495	3.032	2.938	3.007	2.913
2-13/16	2.387	2.512	3.142	3.017	3.117	2.992
2-7/8	2.450	2.575	3.205	3.080	3.180	3.055
2-15/16	2.514	2.639	3.269	3.144	3.244	3.119
3	2.577	2.702	3.332	3.207	3.307	3.182
3-1/16	2.641	2.766	3.396	3.271	3.371	3.246
3-1/8	2.704	2.829	3.459	3.334	3.434	3.309

S and *T* Values are calculated from the formulas on page 5. See Tables 4 and 5 for tolerances. All dimensions given in inches.

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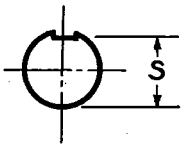
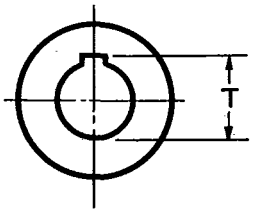
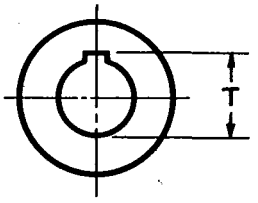
KEYS AND KEYSEATS

Table 3 Values for *S* and *T* – (Continued)

Nominal Shaft Diameter	 Parallel and Taper		 Parallel		 Taper	
	Square	Rectangular	Square	Rectangular	Square	Rectangular
	S	*S*	*T*	*T*	*T*	*T*
3-3/16	2.768	2.893	3.523	3.398	3.498	3.373
3-1/4	2.831	2.956	3.586	3.461	3.561	3.436
3-5/16	2.816	2.941	3.696	3.571	3.671	3.546
3-3/8	2.880	3.005	3.760	3.635	3.735	3.610
3-7/16	2.943	3.068	3.823	3.698	3.798	3.673
3-1/2	3.007	3.132	3.887	3.762	3.862	3.737
3-9/16	3.070	3.195	3.950	3.825	3.925	3.800
3-5/8	3.134	3.259	4.014	3.889	3.989	3.864
3-11/16	3.197	3.322	4.077	3.952	4.052	3.927
3-3/4	3.261	3.386	4.141	4.016	4.116	3.991
3-13/16	3.246	3.371	4.251	4.126	4.226	4.101
3-7/8	3.309	3.434	4.314	4.189	4.289	4.164
3-15/16	3.373	3.498	4.378	4.253	4.353	4.228
4	3.436	3.561	4.441	4.316	4.416	4.291
4-3/16	3.627	3.752	4.632	4.507	4.607	4.482
4-1/4	3.690	3.815	4.695	4.570	4.670	4.545
4-3/8	3.817	3.942	4.822	4.697	4.797	4.672
4-7/16	3.880	4.005	4.885	4.760	4.860	4.735
4-1/2	3.944	4.069	4.949	4.824	4.924	4.799
4-3/4	4.041	4.229	5.296	5.109	5.271	5.084
4-7/8	4.169	4.356	5.424	5.236	5.399	5.211
4-15/16	4.232	4.422	5.487	5.300	5.462	5.275
5	4.296	4.483	5.551	5.363	5.526	5.338
5-3/16	4.486	4.674	5.741	5.554	5.716	5.529
5-1/4	4.550	4.737	5.805	5.617	5.780	5.592
5-7/16	4.740	4.927	5.995	5.807	5.970	5.782
5-1/2	4.803	4.991	6.058	5.871	6.033	5.846
5-3/4	4.900	5.150	6.405	6.155	6.380	6.130
5-15/16	5.091	5.341	6.596	6.346	6.571	6.321
6	5.155	5.405	6.660	6.410	6.635	6.385
6-1/4	5.409	5.659	6.914	6.664	6.889	6.639
6-1/2	5.662	5.912	7.167	6.917	7.142	6.892
6-3/4	5.760	*5.885	7.515	*7.390	7.490	*7.365
7	6.014	*6.139	7.769	*7.644	7.744	*7.619
7-1/4	6.268	*6.393	8.023	*7.898	7.998	*7.873
7-1/2	6.521	*6.646	8.276	*8.151	8.251	*8.126
7-3/4	6.619	6.869	8.624	8.374	8.599	8.349
8	6.873	7.123	8.878	8.628	8.853	8.603
9	7.887	8.137	9.892	9.642	9.867	9.617
10	8.591	8.966	11.096	10.721	11.071	10.696
11	9.606	9.981	12.111	11.736	12.086	11.711
12	10.309	10.809	13.314	12.814	13.289	12.789
13	11.325	11.825	14.330	13.830	14.305	13.805
14	12.028	12.528	15.533	15.033	15.508	15.008
15	13.043	13.543	16.548	16.048	16.523	16.023

S and *T* Values are calculated from formulas on page 5. See Tables 4 and 5 for tolerances.
All dimensions given in inches.
*1-3/4 x 1-1/2 key.

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6. KEY-KEYSEAT ASSEMBLIES

6.1 Class 1 – A clearance or metal to metal side fit obtained by using bar stock keys and keyseat tolerances as shown in Table 4—a relatively free fit. This fit applies only to parallel keys.

6.2 Class 2 – A side fit (possible interference or clearance) obtained by using keystock and keyseat tolerances as shown in Table 5—a relatively tight fit.

6.3 Class 3 – A third type of fit not tabulated is an interference side fit. Since the degree of interference is not readily standardized for these applications, no specific values are included. However, it is suggested that the top and bottom fit range shown for parallel keys in Table 5 be used.

Table 4 Class 1 – Fit for Parallel Keys

Type of Key	KEY WIDTH		SIDE FIT			TOP AND BOTTOM FIT			
	Over	To (Incl)	Width Tolerance		Fit Range*	Depth Tolerance			Fit Range*
			Key	Keyseat		Key	Shaft Keyseat	Hub Keyseat	
Square	–	1/2	+0.000 −0.002	+0.002 −0.000	0.004 CL 0.000	+0.000 −0.002	+0.000 −0.015	+0.010 −0.000	0.032 CL 0.005 CL
	1/2	3/4	+0.000 −0.002	+0.003 −0.000	0.005 CL 0.000	+0.000 −0.002	+0.000 −0.015	+0.010 −0.000	0.032 CL 0.005 CL
	3/4	1	+0.000 −0.003	+0.003 −0.000	0.006 CL 0.000	+0.000 −0.003	+0.000 −0.015	+0.010 −0.000	0.033 CL 0.005 CL
	1	1-1/2	+0.000 −0.003	+0.004 −0.000	0.007 CL 0.000	+0.000 −0.003	+0.000 −0.015	+0.010 −0.000	0.033 CL 0.005 CL
	1-1/2	2-1/2	+0.000 −0.004	+0.004 −0.000	0.008 CL 0.000	+0.000 −0.004	+0.000 −0.015	+0.010 −0.000	0.034 CL 0.005 CL
	2-1/2	3-1/2	+0.000 −0.006	+0.004 −0.000	0.010 CL 0.000	+0.000 −0.006	+0.000 −0.015	+0.010 −0.000	0.036 CL 0.005 CL
Rectangular	–	1/2	+0.000 −0.003	+0.002 −0.000	0.005 CL 0.000	+0.000 −0.003	+0.000 −0.015	+0.010 −0.000	0.033 CL 0.005 CL
	1/2	3/4	+0.000 −0.003	+0.003 −0.000	0.006 CL 0.000	+0.000 −0.003	+0.000 −0.015	+0.010 −0.000	0.033 CL 0.005 CL
	3/4	1	+0.000 −0.004	+0.003 −0.000	0.007 CL 0.000	+0.000 −0.004	+0.000 −0.015	+0.010 −0.000	0.034 CL 0.005 CL
	1	1-1/2	+0.000 −0.004	+0.004 −0.000	0.008 CL 0.000	+0.000 −0.004	+0.000 −0.015	+0.010 −0.000	0.034 CL 0.005 CL
	1-1/2	3	+0.000 −0.005	+0.004 −0.000	0.009 CL 0.000	+0.000 −0.005	+0.000 −0.015	+0.010 −0.000	0.035 CL 0.005 CL
	3	4	+0.000 −0.006	+0.004 −0.000	0.010 CL 0.000	+0.000 −0.006	+0.000 −0.015	+0.010 −0.000	0.036 CL 0.005 CL
	4	6	+0.000 −0.008	+0.004 −0.000	0.012 CL 0.000	+0.000 −0.008	+0.000 −0.015	+0.010 −0.000	0.038 CL 0.005 CL
	6	7	+0.000 −0.013	+0.004 −0.000	0.017 CL 0.000	+0.000 −0.013	+0.000 −0.015	+0.010 −0.000	0.043 CL 0.005 CL

*Limits of variation, CL = Clearance
All dimensions given in inches.

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KEYS AND KEYSEATS

Table 5 Class 2 – Fit for Parallel and Taper Keys

Type of Key	KEY WIDTH		SIDE FIT			TOP AND BOTTOM FIT			
			Width Tolerance		Fit Range*	Depth Tolerance			Fit Range*
	Over	To (Incl)	Key	Keyset		Key	Shaft Keyseat	Hub Keyseat	
Parallel Square	–	1-1/4	+0.001 −0.000	+0.002 −0.000	0.002 CL 0.001 INT	+0.001 −0.000	+0.000 −0.015	+0.010 −0.000	0.030 CL 0.004 CL
	1-1/4	3	+0.002 −0.000	+0.002 −0.000	0.002 CL 0.002 INT	+0.002 −0.000	+0.000 −0.015	+0.010 −0.000	0.030 CL 0.003 CL
	3	3-1/2	+0.003 −0.000	+0.002 −0.000	0.002 CL 0.003 INT	+0.003 −0.000	+0.000 −0.015	+0.010 −0.000	0.030 CL 0.002 CL
Parallel Rectangular	–	1-1/4	+0.001 −0.000	+0.002 −0.000	0.002 CL 0.001 INT	+0.005 −0.005	+0.000 −0.015	+0.010 −0.000	0.035 CL 0.000 CL
	1-1/4	3	+0.002 −0.000	+0.002 −0.000	0.002 CL 0.002 INT	+0.005 −0.005	+0.000 −0.015	+0.010 −0.000	0.035 CL 0.000 CL
	3	7	+0.003 −0.000	+0.002 −0.000	0.002 CL 0.003 INT	+0.005 −0.005	+0.000 −0.015	+0.010 −0.000	0.035 CL 0.000 CL
Taper	–	1-1/4	+0.001 −0.000	+0.002 −0.000	0.002 CL 0.001 INT	+0.005 −0.000	+0.000 −0.015	+0.010 −0.000	0.005 CL 0.025 INT
	1-1/4	3	+0.002 −0.000	+0.002 −0.000	0.002 CL 0.002 INT	+0.005 −0.000	+0.000 −0.015	+0.010 −0.000	0.005 CL 0.025 INT
	3	Δ	+0.003 −0.000	+0.002 −0.000	0.002 CL 0.003 INT	+0.005 −0.000	+0.000 −0.015	+0.010 −0.000	0.005 CL 0.025 INT

*Limits of variation. CL= Clearance; INT = Interference

Δ To (Incl) 3-1/2 Square and 7 Rectangular key widths.

All dimensions given in inches.

Table 6 Keyseat Tolerances for Electric Motor and Generator Shaft Extensions

KEYSEAT WIDTH		Width Tolerance	Depth Tolerance
Over	To (Incl)		
–	1/4	+0.001 −0.001	+0.000 −0.015
1/4	3/4	+0.000 −0.002	+0.000 −0.015
3/4	1-1/4	+0.000 −0.003	+0.000 −0.015

All dimensions given in inches.

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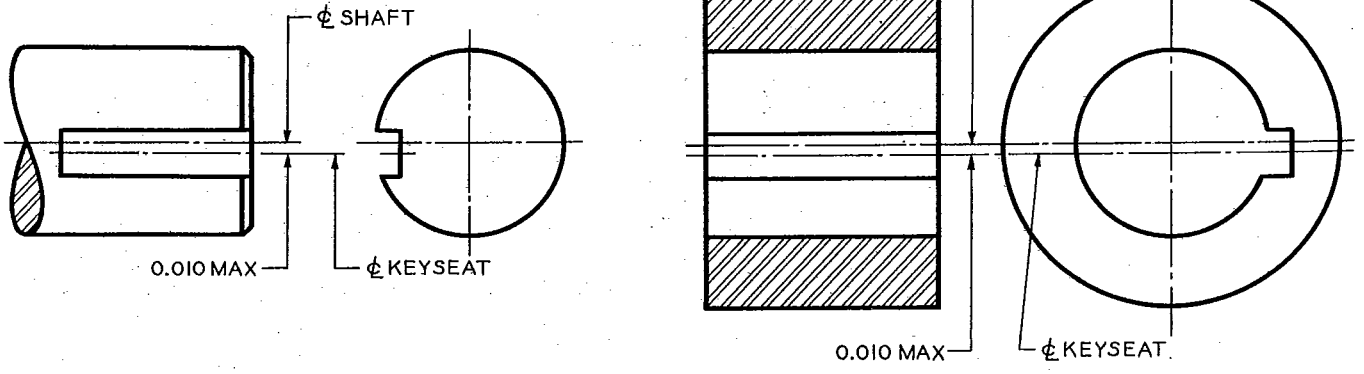
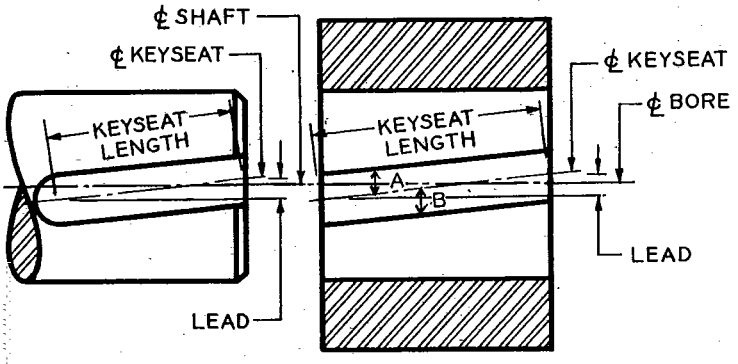
7. ALIGNMENT TOLERANCES

OFFSET

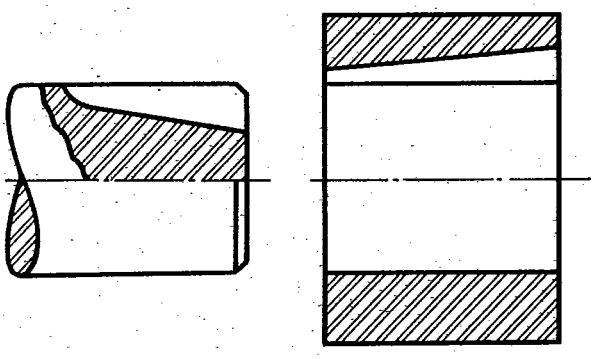


LEAD

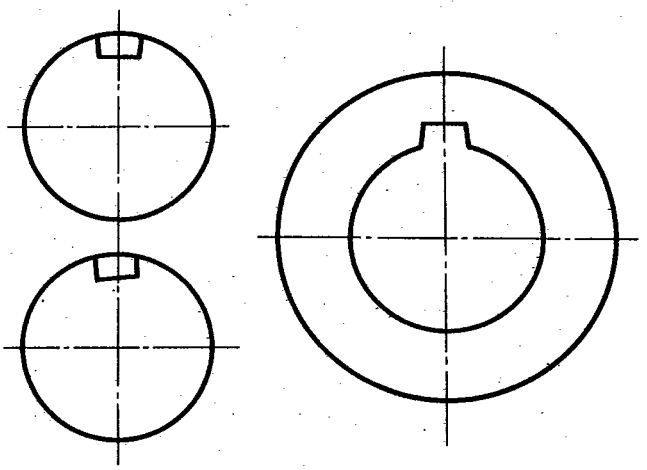


KEYSEAT LENGTH		LEAD MAXIMUM
OVER	TO (INCL)	
	4	0.002
4	10	0.0005 PER INCH
10		0.005

PARALLELISM



AS RESTRICTED BY TOLERANCE ON S AND T DIMENSIONS



AS RESTRICTED BY KEYSEAT WIDTH AND DEPTH TOLERANCE

ALL DIMENSIONS GIVEN IN INCHES

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8. CHAMFERED KEYS AND FILLETED KEYSEATS

In general practice, chamfered keys and filleted keyseats are not used. However, it is recognized that fillets in keyseats decrease stress concentrations at corners. When used, fillet radii should be as large as possible without causing excessive bearing stresses due to reduced contact area between the key and its mating parts. Keys must be chamfered or rounded to clear fillet radii. Values in Table 7 assume general conditions and should be used only as a guide when critical stresses are encountered.

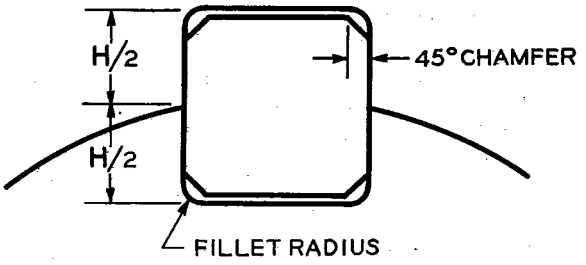

Table 7 Suggested Fillet Radii and Key Chamfer

H/2 KEYSEAT DEPTH		Fillet Radius	45° Chamfer
Over	To (Incl)		
1/8	1/4	1/32	3/64
1/4	1/2	1/16	5/64
1/2	7/8	1/8	5/32
7/8	1-1/4	3/16	7/32
1-1/4	1-3/4	1/4	9/32
1-3/4	2-1/2	3/8	13/32

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9. SET SCREWS FOR USE OVER KEYS

Set screw diameter selections listed below are offered as a guide but their use shall be dependent upon design considerations.

Table 8 Set Screws for Use Over Keys

NOMINAL SHAFT DIAMETER		Nominal Key Width	Set Screw Diameter
Over	To (Incl)		
5/16	7/16	3/32	#10
7/16	9/16	1/8	#10
9/16	7/8	3/16	1/4
7/8	1-1/4	1/4	5/16
1-1/4	1-3/8	5/16	3/8
1-3/8	1-3/4	3/8	3/8
1-3/4	2-1/4	1/2	1/2
2-1/4	2-3/4	5/8	1/2
2-3/4	3-1/4	3/4	5/8
3-1/4	3-3/4	7/8	3/4
3-3/4	4-1/2	1	3/4
4-1/2	5-1/2	1-1/4	7/8
5-1/2	6-1/2	1-1/2	1

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USA Standards for

Machine Tools, Cutting Tools and Related Standards

TITLE OF STANDARD	
Preferred Limits and Fits for Cylindrical Parts	B4.1–1967
T-Slots, Their Bolts, Nuts, Tongues, and Cutters	B5.1–1949
Milling Cutters	B5.3–1960
Rotating Air Cylinders and Adapters	B5.5–1959
Jig Bushings	B5.6–1962
Circular and Dovetailed Forming Tool Blanks	B5.7–1954
Chucks and Chuck Jaws	B5.8–1954 (Reaffirmed 1959)
Spindle Noses for Tool Room Lathes, Engine Lathes, Turret Lathes, and Automatic Lathes	B5.9–1967
Machine Tapers	B5.10–1963
Spindle Noses and Adjustable Adapters for Multiple Spindle Drilling Heads	B5.11–1964
Involute Splines, Serrations and Inspection	B5.15–1960
Accuracy of Engine and Tool Room Lathes	B5.16–1952
Markings for Identifying Grinding Wheels and Other Bonded Abrasives	B5.17–1958
Spindle Noses and Arbors for Milling Machines	B5.18–1960
Life Tests of Single-Point Tools	B5.19–1946 (Reaffirmed 1953)
Machine Pins	B5.20–1958
Single Point Tools and Tool Posts	B5.22–1950
Punch and Die Sets for Two-Post Punch Press Tools	B5.25–1950
Drill Drivers	B5.27–1959
Mounting Dimensions of Lubricating and Coolant Pumps for Machine Tools	B5.28–1958
Designation and Working Ranges of Grinding Machines	B5.32 & 33–1953
Life Tests for Single-Point Tools of Sintered Carbide	B5.34–1956
Machine Mounting Specifications for Abrasive Discs and Plate Mounted Wheels	B5.35–1957
Driving and Spindle Ends for Portable Air and Electric Tools	B5.38–1958
Spindle Flanges for Precision Boring Machines	B5.39–1961
Spindle Noses and Tool Shanks for Horizontal Boring Machines	B5.40–1962
Blanks and Semi-Finished Blanks for Solid Carbide Taps	B94.1–1964
Reamers	B94.2–1964
Straight Cut-Off Blades for Lathes and Screw Machines	B94.3–1965
Identification System for Throw Away Inserts for Cutting Tools	B94.4–1965
Carbide Blanks and Cutting Tools	B94.5–1966
Knurling	B94.6–1966
Hobs	B94.7–1966
Inserted Blade Milling Cutter Bodies	(Rev. B5.23–1958) B94.8–1967
Taps Cut and Ground Threads	(Rev. B5.4 –1959) B94.9–1967
High-Speed Steel and Cast Nonferrous Single-Point Tools and Tool Holders	(Rev. B5.29–1959) B94.10–1967
Twist Drills	(Rev. B5.12–1958) B94.11–1967
Keys and Keyseats	B17.1–1967
Woodruff Keys	B17.2–1967

Binders for holding standards are available.

A complete list of USA Standards published by The American Society of Mechanical Engineers obtainable upon request.

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