FED-STD-H28/5

31 March 1978

Superseding
NBS Handbook H28 (1969)
Part I Section 5

FEDERAL STANDARD

SCREW-THREAD STANDARDS FOR FEDERAL SERVICES

SECTION 5

UNIFIED MINIATURE SCREW THREADS

This standard was approved by the Commissioner Federal Supply Service, General Services Administration, for the use of all Federal agencies.

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FSC THDS

INFORMATION SHEET ON FEDERAL STANDARDS

This Federal Standard is issued in loose leaf form to permit the insertion or removal of new or revised pages and sections.

All Users of Federal Standards should keep them up to date by inserting revised or new pages as issued and removing superseded and cancelled pages.

New and revised pages will be issued under Change Notices which will be numbered consecutively and will bear the date of issuance. Change Notices should be retained and filed in front of the Standard until such time as they are superseded by a reissue of the entire Standard.

NOTICE

From 1939, the Interdepartmental Screw-Thread Committee (ISTC), under the Chairmanship of the National Bureau of Standards (NBS), Department of Commerce had developed and published NBS Handbook H28, Screw-Thread Standards for Federal Services.

Section 487 of Title 40 of the U.S. Code states that the authority for development of Federal Standards for procurement purposes rests with the General Services Administration (GSA).

In November 1976, the ISTC was terminated, and the General Services Administration (GSA) accepted the responsibility for NBS Handbook H28 and agreed to convert it and maintain it as a Federal Standard.

The standards which had been published as NBS Handbook H28, Part I, Part II and Part III will now be promulgated as a fully coordinated FED-STD-H28, maintaining the existing sections and identifying them with slant lines. For example, NBS Handbook H28, Part I, Section 3 will be detailed standard FED-STD-H28/3 which must be procured individually.

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Preparing Activity

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CONTENTS

The text of this section is reprinted from the NBS HANDBOOK H28 with minor editorial corrections. Pages 1, 2, 3, 4 and 7 contain corrections indicated by an asterisk.

Reorganization of the document from NBS HANDBOOK H28 to FED-STD-H28 creates an editorial inconvenience, when maintaining continuity of cross references amongst the pages, paragraphs, tables and figures of the different sections. For this standard individual sections will be numbered sequentially starting with (1) one. If the reprinted text refers to another page, such as Page 6.3, this will be understood to mean section 6 page 3. All figures and tables will maintain the established designations, prefixed with the section; e.g. Table 3.1 and Figure 2.5 to identify their location in this standard. All appendices will be incorporated in the basic document FED-STD-H28 with other general information and will continue to be identified with the prefix A.

1. INTRODUCTION

This section presents a thread series known as Unified Miniature Screw Threads and is intended for general purpose fastening screws and similar uses in watches, instruments, and miniature mechanisms. The series covers a diameter range from 0.30 to 1.40 mm (0.0118 to 0.0551 in) and thus supplements the Unified thread series that begin at 0.060 in.

The 14 sizes are systematically distributed, providing a uniformly proportioned selection over the entire range. They are alternately separated into two categories. The primary sizes are selections made in the interest of simplification and are those to which it is recommended that usage be confined whenever the circumstances of design permit. For more restrictive conditions, the secondary sizes are available.

The diameter-pitch combinations have been determined to provide both maximum strength against stripping and optimum conditions for manufacture on an interchangeable basis.

The values of all dimensions are supplied in both metric and inch units. The standard being basically metric, only the metric values of the nominal diameters and pitches are rational. Consequently, metric units are stipulated for all formulas and the inch dimensions derived by conversion of the unrounded metric values, using the conversion factor 25.4 mm/in.

Use of this series is recommended on all new products in place of the many improvised and unsystematized sizes now in existence that have never arrived at broad acceptance nor recognition by any standardization bodies.

2. THREAD FORM

2.1. Basic Thread Form—The theoretical profile on which the design forms of the threads covered by this section are based is, except for one element, the Unified basic thread form as specified in section 2 and shown in figure 5.1. In exception is height of thread engagement for which a basic value of 0.48p is used instead of *

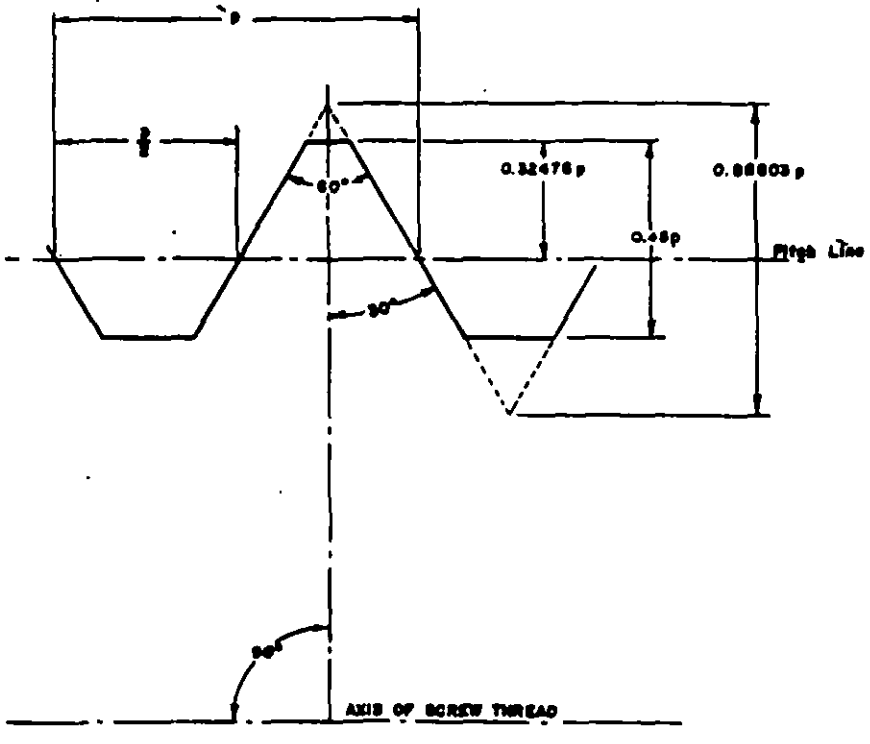


Figure 5.1. *Basic thread form, Unified Miniature threads, UNM.*

$0.54127p$ ($=5H/8$). Selection of this value is based on the extensive simplification that it affords throughout the calculations for this standard. Resulting coefficients in the formulas for many of the other thread dimensions derived from this property thereby become simple, finite multiples of the lowest common denominator (40) of the fractional equivalents of all but two of the metric pitches, thus yielding values for the majority of metric dimensions that are finite within the decimal place limits of the tables. Also, the calculation of inch equivalents from the terminal metric values is thereby simplified and discrepancies between the metric and inch tables kept to a minimum. This modification will not affect interchangeability with product made to any other standards retaining $0.54127p$, as the resulting difference is negligible and completely offset by practical considerations in tapping, full internal thread heights being invariably avoided in these small sizes to escape excessive tap breakage.

2.2. DESIGN FORMS OF THREADS.—The design forms (maximum material condition) of external and internal Unified Miniature threads are shown in figure 5.2.

2.3. BASIC THREAD DATA.—The formulas for the various features of the thread form are as follows:

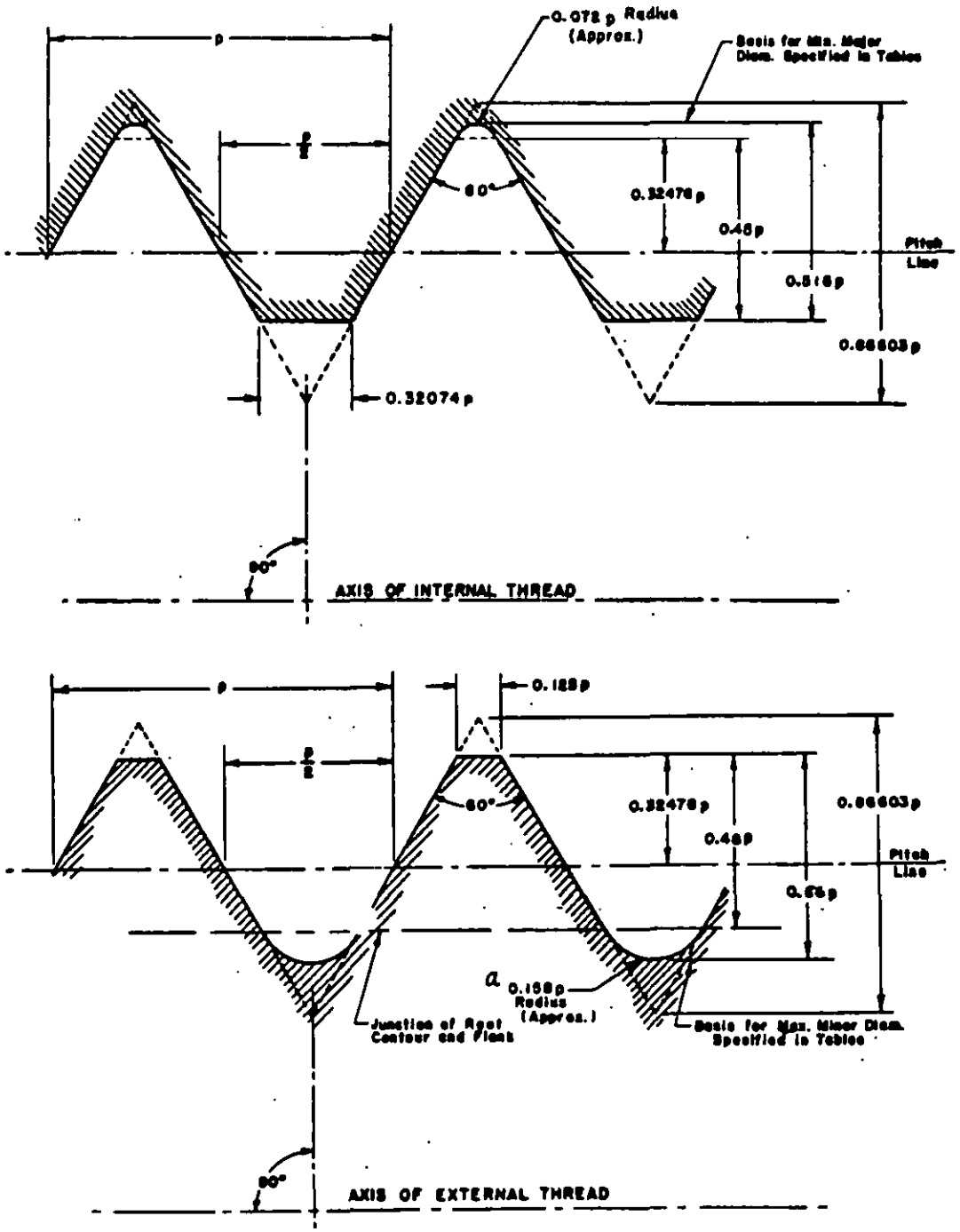
Dimension	Symbol	Formula [a]
Basic thread form		
Angle of thread	2α	60°.
Half angle of thread	α	30°.
Pitch of thread	p	
No. of threads per inch	n	$25.4/p$.
Height of sharp-V thread	H	$0.866025p$.
Addendum of basic thread	h_{ab}	$0.32476p$.
Height of basic thread	h_b	$0.48p$.
Design thread form		
Addendum of external thread	h_{as}	$0.32476p$.
Height of external thread	h_s	$0.56p$.
Flat at crest of external thread	F_{rs}	$0.125p$.
Radius at root of external thread [b]	r_{rs}	$0.158p$ (approx.).
Depth of thread engagement	$h_e = h_b$	$0.48p$.
Height of internal thread	h_n	$0.518p$.
Flat at crest of internal thread	F_{rn}	$0.32074p$.
Radius at root of internal thread	r_{rn}	$0.072p$ (approx.).

[a] The formulas are applied to the metric values of p. Tabulated inch dimensions are derived from the unrounded metric dimensions.

[b] May be combination of radii and flat.

The corresponding thread data for the various standard pitches are shown in table 5.3. The formulas for basic and design thread sizes are as follows:

Dimension	Symbol	Formula
Major diameter, nominal and basic.	D	
Major diameter of external thread.	D_s	D.
Major diameter of internal thread.	D_n	$D - 2h_b + 2h_n = D + 0.072p$.
Pitch diameter, basic	E	$D - 2h_{eb} = D - 0.64952p$.
Pitch diameter of external thread.	E_s	E.
Pitch diameter of internal thread.	E_n	E.
Minor diameter, basic	K	$D - 2h_b = D - 0.96p$.
Minor diameter of external thread.	K_s	$D - 2h_s = D - 1.12p$.
Minor diameter of internal thread.	K_n	K.



[a] May be combination of radii and flat.

FIGURE 3.2. *Unified Miniature internal and external screw thread design forms (maximum-material condition).*

TABLE 5.3. *Thread form data, Unified Miniature screw threads, UNM*

Threads per inch n	Pitch, p	Basic: Height of sharp V thread, $H = 0.866025p$	Basic: Height, $h_b = 0.48p$	Basic: Addendum, $h_{ab} = h_{as} = 0.32476p$	External thread: Height, $h_s = 0.58p$	External thread: Flat at crest, $P_{cs} = 0.125p$	External thread: Radius at root, $r_{rs} = 0.158p$	External thread: Approx. Height of Thread for Stress Calc. 0.66p		Internal thread: Height, $h_n = 0.516p$	Internal thread: Flat at crest, $P_{cn} = 0.32074p$	Internal thread: Radius at root, $r_{rn} = 0.072p$
1	2	3	4	5	6	7	8	9	10	11	12	13
	mm	mm	mm	mm	mm	mm	mm	mm		mm	mm	mm
	0.080	0.0693	0.0384	0.0260	0.045	0.0100	0.0126	0.0512		0.0413	0.0257	0.0058
	.090	.0779	.0432	.0292	.050	.0112	.0142	.0576		.0464	.0289	.0065
	.100	.0866	.0480	.0325	.056	.0125	.0158	.0640		.0516	.0321	.0072
	.125	.1083	.0600	.0406	.070	.0156	.0198	.0800		.0645	.0401	.0090
	.150	.1299	.0720	.0487	.084	.0188	.0237	.0960		.0774	.0481	.0108
	.175	.1516	.0840	.0568	.098	.0219	.0277	.1120		.0903	.0561	.0126
	.200	.1732	.0960	.0650	.112	.0250	.0316	.1280		.1032	.0641	.0144
	.225	.1949	.1080	.0731	.126	.0281	.0356	.1440		.1161	.0722	.0162
	.250	.2165	.1200	.0812	.140	.0313	.0393	.1600		.1290	.0803	.0180
	.300	.2598	.1440	.0974	.168	.0375	.0474	.1920		.1548	.0962	.0216
	in	in	in	in	in	in	in	in		in	in	in
317½	0.003150	0.00273	0.00151	0.00102	0.00176	0.00039	0.00050	0.00202		0.00163	0.00101	0.00023
282½	.003543	.00307	.00170	.00115	.00198	.00044	.00056	.00227		.00183	.00114	.00026
254	.003937	.00341	.00189	.00128	.00220	.00049	.00062	.00252		.00203	.00126	.00028
203½	.004921	.00426	.00236	.00160	.00276	.00062	.00078	.00315		.00254	.00158	.00035
169½	.005906	.00511	.00283	.00192	.00331	.00074	.00093	.00378		.00305	.00189	.00043
145½	.006890	.00597	.00331	.00224	.00386	.00086	.00109	.00441		.00356	.00221	.00050
127	.007874	.00682	.00378	.00256	.00441	.00098	.00124	.00504		.00406	.00253	.00057
112½	.008858	.00767	.00425	.00288	.00496	.00111	.00140	.00567		.00457	.00284	.00064
101½	.009843	.00852	.00472	.00320	.00551	.00123	.00156	.00630		.00508	.00316	.00071
84½	.011811	.01023	.00567	.00384	.00661	.00148	.00187	.00756		.00609	.00379	.00085

* In all subsequent tables these values are rounded to the nearest whole number.

TABLE 5.4. *Basic and design sizes, Unified Miniature thread series, UNM*

Size designation: Primary	Size designation: Secondary	Pitch, p	Basic major diameter, D	Basic pitch diameter, $E = D - 0.64952p$	Minor diameter external threads, $K_s = D - 1.12p$	Minor diameter internal threads, $K_n = K = D - 0.96p$	Major diameter internal threads, $D_n = D + 0.072p$	Lead angle at basic pitch diameter, λ		Approx. Stress Area at Diameter of D-1.28p
1	2	3	4	5	6	7	8	9		10
		mm	mm	mm	mm	mm	mm	deg	min	mm^2
		.080	0.300	0.248	0.210	0.223	0.306	5	52	0.0307
	.35UNM	.090	.350	.292	.250	.264	.358	5	37	.0433
.40UNM		.100	.400	.335	.288	.304	.407	5	28	.0581
	.45UNM	.100	.450	.355	.338	.354	.457	4	44	.0814
.50UNM		.125	.500	.419	.360	.380	.509	5	28	.0908
	.55UNM	.125	.550	.469	.410	.430	.559	4	51	.1195
.60UNM		.150	.600	.503	.432	.456	.611	5	28	.1307
	.70UNM	.175	.700	.586	.504	.532	.713	5	28	.1780
.80UNM		.200	.800	.670	.576	.608	.814	5	28	.232
	.90UNM	.225	.900	.754	.648	.684	.916	5	28	.294
1.00UNM		.250	1.000	.838	.720	.760	1.018	5	28	.363
	1.10UNM	.250	1.100	.938	.820	.860	1.118	4	51	.478
1.20UNM		.250	1.200	1.038	.920	.960	1.218	4	23	.608
	1.40UNM	.300	1.400	1.205	1.081	1.112	1.422	4	32	.811
		threads per inch								
			in	in	in	in	in	deg	min	sq in × 10^{-4}
.30UNM		318	0.0118	0.0098	0.0083	0.0085	0.0120	5	52	0.475
	.35UNM	282	.0138	.0115	.0098	.0104	.0140	5	37	.671
.40UNM		254	.0157	.0132	.0113	.0120	.0160	3	28	.901
	.45UNM	254	.0177	.0152	.0133	.0139	.0180	4	44	1.262
.50UNM		203	.0197	.0165	.0142	.0150	.0200	5	28	1.407
	.55UNM	203	.0217	.0185	.0161	.0169	.0220	4	51	1.852
.60UNM		169	.0236	.0198	.0170	.0180	.0240	5	28	2.03
	.70UNM	145	.0276	.0231	.0198	.0209	.0281	5	28	2.78
.80UNM		127	.0315	.0264	.0227	.0239	.0321	5	28	3.80
	.90UNM	113	.0354	.0297	.0258	.0269	.0361	5	28	4.56
1.00UNM		102	.0394	.0330	.0283	.0299	.0401	5	28	5.63
	1.10UNM	102	.0433	.0369	.0323	.0339	.0440	4	51	7.41
1.20UNM		102	.0472	.0409	.0362	.0378	.0480	4	23	9.43
	1.40UNM	85	.0551	.0474	.0419	.0438	.0560	4	32	12.57

TABLE 5.5. *Limits of size and tolerances, Unified Miniature thread series, UNM*

Size designation		Pitch	External threads								Internal threads							
			Major diameter limits			Pitch diameter limits			Minor diameter limits		Minor diameter limits			Pitch diameter limits			Major diameter limits	
Primary	Secondary		Max.	Min.	Tol.	Max.	Min.	Tol.	Max.[a]	Min.[b]	Min.	Max.	Tol.	Min.	Max.	Tol.	Min.[a]	Max.[b]
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
.30UNM		0.080	0.300	0.264	0.036	0.248	0.234	0.014	0.210	0.189	0.223	0.260	0.037	0.248	0.262	0.014	0.306	0.327
.40UNM	.35UNM	.090	.350	.333	.017	.292	.277	.015	.250	.228	.284	.305	.041	.292	.307	.015	.358	.380
.50UNM	.45UNM	.100	.400	.382	.018	.335	.319	.016	.288	.264	.304	.348	.044	.335	.351	.016	.407	.432
	.55UNM	.125	.450	.422	.028	.385	.369	.016	.338	.314	.354	.398	.044	.385	.401	.016	.457	.482
.60UNM	.70UNM	.125	.500	.479	.021	.419	.401	.018	.380	.332	.380	.432	.052	.419	.437	.018	.509	.534
.80UNM	.90UNM	.150	.550	.529	.021	.469	.451	.018	.410	.383	.430	.482	.052	.469	.487	.018	.559	.584
		.175	.600	.576	.024	.503	.483	.020	.432	.400	.456	.516	.060	.503	.523	.020	.611	.644
		.200	.700	.673	.027	.586	.564	.022	.504	.468	.532	.600	.068	.586	.608	.022	.713	.750
		.225	.800	.770	.030	.670	.646	.024	.576	.536	.608	.684	.076	.670	.694	.024	.814	.856
			.900	.867	.033	.754	.728	.026	.648	.604	.684	.768	.084	.754	.780	.026	.916	.963
1.00UNM		.250	1.000	.964	.036	.838	.810	.028	.720	.672	.760	.852	.092	.838	.866	.028	1.018	1.068
1.20UNM	1.10UNM	.250	1.100	1.061	.038	.938	.910	.028	.820	.772	.860	.952	.092	.938	.966	.028	1.118	1.168
	1.40UNM	.250	1.200	1.161	.038	1.038	1.010	.028	.920	.872	.960	1.052	.092	1.038	1.066	.028	1.218	1.268
		.300	1.400	1.358	.042	1.205	1.173	.032	1.044	1.008	1.112	1.220	.108	1.205	1.237	.032	1.422	1.480
		threads per in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in
.30UNM		318	0.0118	0.0112	0.0006	0.0098	0.0092	0.0006	0.0083	0.0074	0.0088	0.0102	0.0014	0.0098	0.0104	0.0006	0.0120	0.0129
.40UNM	.35UNM	282	.0138	.0131	.0007	.0115	.0109	.0006	.0098	.0090	.0104	.0120	.0016	.0115	.0121	.0006	.0140	.0149
.50UNM	.45UNM	254	.0157	.0150	.0007	.0132	.0126	.0006	.0113	.0104	.0120	.0137	.0017	.0132	.0138	.0006	.0160	.0170
		254	.0177	.0170	.0007	.0152	.0145	.0007	.0133	.0124	.0139	.0157	.0018	.0152	.0158	.0006	.0180	.0190
	.55UNM	203	.0197	.0189	.0008	.0165	.0158	.0007	.0142	.0131	.0150	.0170	.0020	.0165	.0172	.0007	.0200	.0212
.60UNM	.70UNM	203	.0217	.0208	.0009	.0185	.0177	.0008	.0161	.0150	.0169	.0190	.0021	.0185	.0192	.0007	.0220	.0231
.80UNM	.90UNM	169	.0236	.0227	.0009	.0198	.0190	.0008	.0170	.0157	.0180	.0203	.0023	.0198	.0206	.0008	.0240	.0254
		145	.0276	.0265	.0011	.0231	.0222	.0009	.0198	.0181	.0209	.0238	.0027	.0231	.0240	.0009	.0281	.0295
		127	.0315	.0303	.0012	.0264	.0254	.0010	.0227	.0211	.0239	.0269	.0030	.0264	.0273	.0009	.0321	.0337
		113	.0354	.0341	.0013	.0297	.0287	.0010	.0256	.0238	.0269	.0302	.0033	.0297	.0307	.0010	.0361	.0379
1.00UNM	1.10UNM	102	.0394	.0380	.0014	.0330	.0319	.0011	.0283	.0265	.0299	.0335	.0036	.0330	.0341	.0011	.0401	.0420
1.20UNM	1.40UNM	102	.0433	.0419	.0014	.0369	.0358	.0011	.0322	.0304	.0339	.0375	.0036	.0369	.0380	.0011	.0440	.0460
		102	.0472	.0458	.0014	.0409	.0397	.0012	.0362	.0343	.0378	.0414	.0036	.0409	.0420	.0011	.0480	.0499
		85	.0551	.0535	.0016	.0474	.0462	.0012	.0419	.0397	.0438	.0480	.0042	.0472	.0487	.0013	.0560	.0583

[a] This limit, in conjunction with root form shown in figure 5.2, is advocated for use when optical projection methods of gaging are employed. For mechanical gaging the minimum minor diameter of the internal thread is applied.
[b] This limit is provided for reference only. In practice, the form of the threading tool is relied upon for this limit. Control by gaging is not imposed.
[c] This limit is provided for reference only, and is not gaged. For gaging, the maximum major diameter of the external thread is applied.

NOTE.—Inch limits in this table have been determined by direct conversion of corresponding metric dimensions prior to rounding off. Inch tolerances are the differences between the inch limits and, consequently, differ in some instances by 0.0001 inch from the inch equivalent of the metric tolerance.

FED-STD-H28/5
31 March 1978

3. UNIFIED MINIATURE THREAD SERIES

The diameter-pitch combinations which constitute the Unified Miniature thread series, and the design sizes, are those shown in table 5.4. All threads are of the single (single-start) type.

4. CLASSIFICATION AND TOLERANCES

4.1. CLASSIFICATION.—There is established herein only one class of thread, with zero allowance on all diameters.

4.2. TOLERANCES.—All tolerances governing limits of size are based on functions of the pitch only and apply to lengths of engagement from 0.67 to 1.5 times the nominal diameter. (See note, table 5.5.) The limits of size resulting from the application of the specified tolerances are illustrated in figure 5.6. Length of engagement and nominal diameter have not been incorporated in any of the tolerance formulas in view of the following: (1) In the small thread sizes covered by this standard, lengths of engagement appreciably below or above the range covered by the formulas are seldom employed. (2) Functional fitness in these small sizes is dependent principally upon the properties of the thread rather than the size of the threaded member. (3) Total tolerances are too small to permit the imposition of minor order modifications.

Tolerances are tabulated in table 5.5 and are based on the following formulas:

	External thread[a]	Internal thread[b]
Major diameter...	$0.12p + 0.008$	$0.168p + 0.008$[d]
Pitch diameter...	$0.08p + 0.008$	$0.08p + 0.008$
Minor diameter..	$0.16p + 0.008$[c]	$0.32p + 0.012$

NOTE: Metric units (millimeters) apply in these formulas. *Inch tolerances are not derived by direct conversions of the metric values but are the differences between the rounded-off limits of size in inch units.*

[a] Tolerances on external threads are applied to the design sizes in the *minus* direction.

[b] Tolerances on internal threads are applied to the design sizes in the *plus* direction.

[c] This formula is for reference only. In practice, the form of the threading tool is relied upon for controling the minimum minor diameter, and this limit is not gaged, except in confirming new tools.

[d] This formula is for reference only and is comprised of the pitch diameter tolerance and an extension of the thread form of $0.08p$ beyond the basic major diameter. In practice, this limit is applied to the threading tool (tap) and is not gaged on the product.

5. COATED THREADS

It is not within the scope of this standard to make recommendations for thicknesses of, or to specify limits for, coatings. However, it is obvious that in these small sizes any coatings applied must be kept thin because of the smallness of the threads. Generally, the coatings employed in practice are confined to those of the electroplated or oxide types and are limited to a flash thickness. For applications where these coatings are inadequate the product is usually made of a corrosion-resistant material, thereby avoiding the problems attendant to providing for heavier coatings. *However, where coatings of a measurable thickness are required, it is essential that they be included within the maximum-material limits since no allowance is provided between these limits of the external and internal thread. In other words, the maximum material limits given in this standard apply to both uncoated and coated threads.*

6. THREAD DESIGNATIONS

Screw threads of this series shall be designated on engineering drawings, in specifications, and on tools and gages (when space permits) by the size designations shown in columns 1 and 2 of table 5.4 in which the symbol UNM designates the Unified Miniature series. To these designations may be affixed, in parentheses, the inch equivalent of the basic major diameter, but this addition is optional. Thus, for example, the thread size identified by the designation .80UNM may also be designated .80UNM (.0315).

7. LIMITS OF SIZE

The limits of size of both external and internal threads, resulting from the application of the specified tolerances, are given in table 5.5 in both the metric and English systems and are illustrated in figure 5.6. For hole size limits before tapping, see appendix A3.

8. GAGES AND GAGING

The development of a gaging standard for Unified Miniature threads is anticipated after the accumulation of more experience with this standard. The following procedures are at present being successfully used by some producers:

1. GAGING OF EXTERNAL THREADS.—The major diameter of the external thread is inspected by either contact gaging or optical projection. All other dimensions, such as pitch diameter, lead, thread form, and minor diameter are inspected by optical projection methods. There is presented in figure 5.7 an illustration of a chart which has been found very satisfactory for the optical projection method of

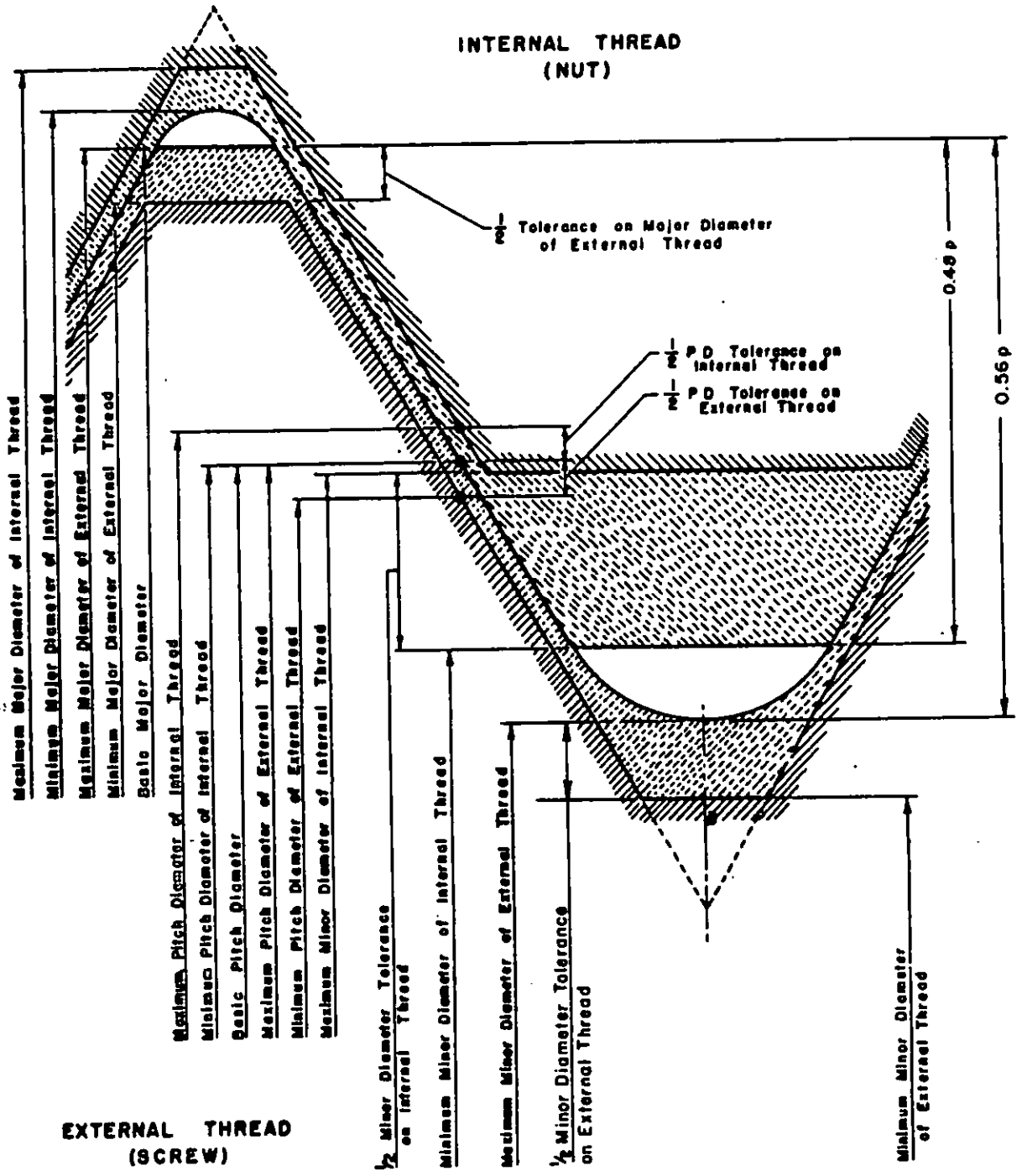


FIGURE 5.6. *Disposition of tolerances and crest clearances, Unified Miniature threads, UNM.*

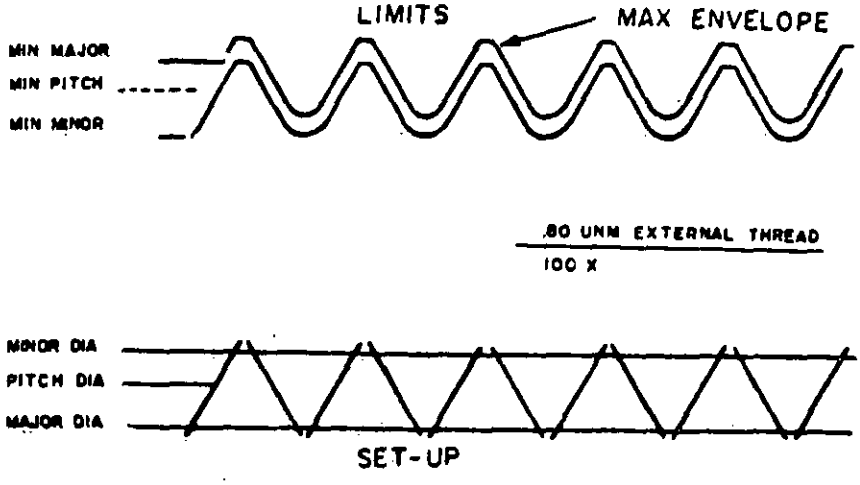


FIGURE 5.7. *Suggested chart for projection inspection of external Unified Miniature threads, UNM.*

inspection of external threads. Inspection at a magnification of 100 is recommended and at this scale the charts should be accurate to within ±0.01 in on all diameters and on pitches cumulatively up to five.

2. GAGING OF INTERNAL THREADS.—The minor diameter of the internal thread is gaged with GO and NOT GO plain cylindrical plug gages. All other elements are checked only for assembleability limits by means of a GO thread plug gage. For the minimum-material limit of the internal thread the accuracy and performance of the tap is relied upon. This implies that the major and pitch diameters of the tap do not exceed the maximum internal thread limits for these elements and disregards overcutting, which is rarely incurred because of the flexibility of these small taps and the manner in which they are generally fluted.

9. WIRE MEASUREMENT OF PITCH DIAMETER

For information concerning the wire measurement of pitch diameter, see appendix A4.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR ☐ USER ☐ MANUFACTURER ☐ OTHER *(Specify)*:
b. ADDRESS *(Street, City, State, ZIP Code)*	

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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