FED-STD-H28/10

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Part II, Section X

FEDERAL STANDARD

SCREW-THREAD STANDARDS FOR FEDERAL SERVICES

SECTION 10

AMERICAN NATIONAL HOSE COUPLING AND FIRE-HOSE COUPLING 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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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All Users of Federal Standards should keep them up to date by inserting revised or new pages as issued and removing superseded and cancelled pages.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 Change Notices should be retained and filed in front of the Standard until such time as they are superseded by a reissue of the entire Standard.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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CONTENTS

The text of this section is reprinted from the NBS HANDBOOK H28 with minor editorial corrections.

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

1. American National Hose Coupling Threads, NPSH.—The purpose of this specification is to provide a standard which will be recognized and adopted at once by a majority of manufacturers and consumers and toward which the minority may be brought, thus eliminating many threads which have been in use and the confusion and misunderstandings that have prevailed.

As in other lines of work, current practice in use and manufacture must be recognized as well as the specific advantages of certain thread proportions for specific uses. This prevents the adoption of a single specification for each one of the nominal sizes.

These standards apply to the threaded parts of hose couplings, valves, nozzles, and all other fittings used in direct connection with hose intended for fire protection or for domestic, industrial, and general service in nominal sizes of ¼, ⅜, ½, 1, 1¼, 1½, and 2 in. In Federal specification ZZ-H-466, Hose; Gasoline, Rubber-Metal, data are given on special hose coupling threads based on American National pipe threads, NPT, in nominal sizes of 2½, 3, 3½, and 4 in., 8 threads per inch.

2. American National Fire-hose Coupling Threads, NH.—Some years ago specifications for American National fire-hose coupling threads were approved by the National Board of Fire Underwriters, National Fire Protection Association, American Society of Mechanical Engineers, American Society of Municipal Improvements, New England Water Works Association, American Water Works Association, the National Bureau of Standards, and other interested organizations. These specifications were published in 1911 as the Specifications of the National Board of Fire Underwriters, recommended by the National Fire Protection Association and approved by the various other organizations. They were also published in 1914 as Circular C50 of the National Bureau of Standards. This circular was revised and republished in 1917.

When the National Screw Thread Commission took up its work on the standardization of screw threads, the specifications for fire-hose coupling threads above referred to were accepted as the basis of its work on fire-hose coupling threads. It was found, however, that the specifications as originally drawn were inadequate in that they specified nominal dimensions only, with no maximum and minimum limits. The limits of size herein specified have met with general approval and correspond in all details with those recommended by the National Fire Protection Association and by the National Bureau of Standards.

3. Threading Tools.—In ordering threading tools[10] for producing American National hose coupling and fire-hose coupling threads, it should be pointed out that new taps should be near the maximum permissible size of the coupling, and new dies near the minimum permissible size of the nipple, in order that reasonable wear may be provided. As the threading tools wear by use, the couplings will become smaller and the nipples larger until the limits of size are reached. These must not be exceeded. When the product reaches, or comes dangerously close to the limiting size, the threading tools should be readjusted or replaced.

2. FORM OF THREAD

Figure 10.1 illustrates the thread form.

1. Angle of Thread.—The basic angle of thread, A, between the sides of the thread measured in an axial plane is 60°. The line bisecting this 60° angle, is perpendicular to the axis of the thread.

2. Flat at Crest and Root.—The flat at the crest and root of the basic thread form is $\frac{1}{8}p$ or $0.125p$.

3. Height of Thread.—The height of the basic thread form is

$$h = 0.649519p, \text{ or } h = \frac{0.649519}{n},$$

where

p = pitch in inches,
n = number of threads per inch,
h = basic height of thread.

3. THREAD SERIES

1. American National Hose Coupling and Fire-Hose Coupling Threads, NPSH and NH.—In table 10.1 are specified the basic dimensions of these threads. In tables 10.2 and 10.3 are specified the limits of size and tolerances. In tables 10.4 and 10.5 are specified the thread lengths and other thread details for these threads.

2. Thread Designation.—These threads are designated by specifying in sequence the nominal size of hose, number of threads per inch, and the thread symbol as shown in the following examples:

¾—8NH
1½—11½NPSH
3—6NH
6—4NH

[10] In the interest of the universal adoption of the American National fire-hose coupling threads throughout the United States, attention is directed to the fact that sets of tools for rethreading existing hydrants and hose couplings are commercially available. Such sets comprise roughing and finishing taps, roughing and finishing dies, expanders for expanding undersize externally threaded fittings preparatory to rethreading, gages, and various accessories. The tools are applicable where existing threaded fittings do not differ so widely from the American National threads as to leave insufficient stock for the new thread. By the use of such tools a considerable number of municipalities have at small expense converted their existing equipment and thus availed themselves of the important advantages which standardization affords.

4. TOLERANCES AND ALLOWANCES

The tolerances and allowances for the American National hose coupling and fire-hose coupling threads are specified in table10.6. The tolerances represent the extreme variations permitted on the threads. Figure 10.1 below, shows the relationship between nipple and coupling dimensions, and thread form.

(*a*) The tolerance on the coupling (internal) thread is plus, and is applied from the minimum coupling dimension to above the minimum coupling dimension.

(*b*) The tolerance on the nipple (external) thread is minus, and is applied from the maximum nipple dimension to below the maximum nipple dimension.

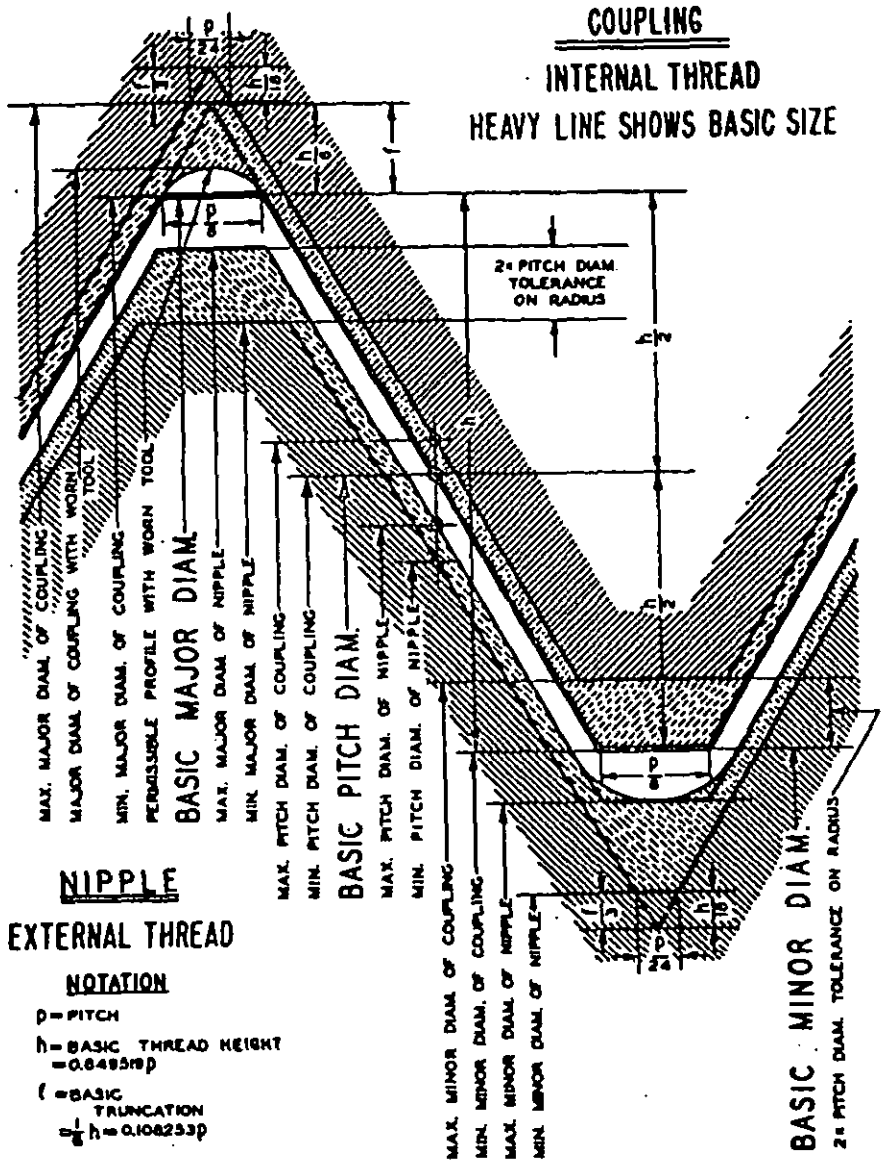


FIGURE 10.1 —*American National hose coupling and fire-hose coupling form of thread, NPSH and NH.*

(c) The pitch diameter tolerances provided for a mating nipple and coupling are the same.

(d) Pitch diameter tolerances include lead and angle variations (see footnote a, table 10.6).

(e) The tolerance on the major diameter is twice the tolerance on the pitch diameter.

(f) The tolerance on the minor diameter of the nipple (external) thread is equal to the tolerance on the pitch diameter plus two-ninths of the basic thread height. The minimum minor diameter of a nipple (external) thread is such as to result in a flat equal to one-third of the basic flat, $p/24$, at the root when the pitch diameter of the nipple (external) thread is at its minimum value. The maximum minor diameter is basic, but may be such as results from the use of a worn or rounded threading tool.

(g) The tolerance on the major diameter of the coupling (internal) thread is equal to the tolerance on the pitch diameter plus two-ninths of the basic thread height. The minimum major diameter of the coupling (internal) thread is such as to result in a basic flat, $p/8$, when the pitch diameter of the coupling is at its minimum value. The maximum major diameter of the coupling is that corresponding to a flat equal to one-third the basic flat, $p/24$.

(h) The tolerance on the minor diameter of the coupling (internal) thread is twice the tolerance on the pitch diameter of the coupling. The minimum minor diameter of a coupling is such as to result in a basic flat, $p/8$, at the crest when the pitch diameter of the coupling is at its minimum value.

5. GAGES

1. GAGES FOR AMERICAN NATIONAL HOSE COUPLING THREADS.—*Limits of size of gages* for American National hose coupling threads are given in table 10.7 and are based on the specifications and tolerances for gages given in FED-STD-H28/6.

2. GAGES FOR AMERICAN NATIONAL FIRE-HOSE COUPLING THREADS.—It is recommended that *American National fire-hose coupling threads be* inspected in the field by means of gages made within the tolerances given in table 10.8. *Limits of size* for these gages are given in tables 10.9 and 10.10.

It is further recommended that American National fire-hose coupling threads be given final inspection by the manufacturer by means of gages made within the limits given in tables 10.9 and 10.10 in order to avoid, as far as possible, disagreements which might otherwise arise as the result of slight differences in the sizes of gages.

6. EXTENT OF USAGE OF THE AMERICAN NATIONAL FIRE-HOSE COUPLING THREADS

In appendix 9 is a listing of the cities in the United States which had a population of 25,000 or more in accordance with the 1950 census, and which have not standardized on the American *National fire-hose coupling threads on hydrants*, couplings, and nipples used with 2½ in. nominal size fire hose.

TABLE 10.1—*Basic dimensions of American National hose coupling and fire-hose coupling threads, NPSH and NH*

Nominal size of hose	Symbol	Service	Thds per inch	Pitch	Height of thread	Maximum nipple dimensions (external thread)				Minimum (basic) coupling dimensions (internal thread)		
						Allowance	Major diameter	Pitch diameter	Minor diameter	Minor diameter	Pitch diameter	Major diameter
1	2	3	4	5	6	7	8	9	10	11	12	13
in.				in.	in.	in.	in.	in.	in.	in.	in.	in.
¼, ⅜, ½	NH	Garden hose	11½	0.08696	0.06648	0.0100	1.0525	1.0000	0.9498	0.9598	1.0160	1.0735
¾, 1	NH	Chemical engine and booster hose.	8	.12500	.08119	.0120	1.3750	1.2938	1.2136	1.2346	1.3068	1.3870
1½	NH	Fire hose	9	.11111	.07217	.0120	1.9000	1.8178	1.8457	1.8677	1.9298	2.0020
¼	NPSH	Steam, air, water, and all other hose connections to be made up with standard pipe threads.	14	.07143	.04639	.0078	.8543	.7784	.7232	.7395	.7859	.8323
⅜	NPSH		14	.07143	.04639	.0078	1.0353	.9859	.9435	.9500	.9964	1.0428
1	NPSH		11½	.08696	.06648	.0100	1.3161	1.2386	1.1821	1.1921	1.2486	1.3051
1¼	NPSH		11½	.08696	.06648	.0100	1.6399	1.5624	1.5269	1.5369	1.5934	1.6499
1½	NPSH		11½	.08696	.06648	.0100	1.8788	1.8223	1.7658	1.7758	1.8323	1.8888
2	NPSH		11½	.08696	.06648	.0100	2.3523	2.2963	2.2398	2.2498	2.3063	2.3628
2½	NH	Fire hose	7½	.13333	.09600	.0180	2.0686	1.9820	1.8954	1.9104	1.9970	2.0836
3	NH		8	.12667	.10825	.0150	2.6299	2.5165	2.4073	2.4223	2.5306	2.6389
3½	NH		8	.12667	.10825	.0200	2.9439	2.8305	2.7278	2.7428	2.8566	2.9687
4 *	NH(8PL)		8	.12667	.10825	.0201	3.2063	3.0929	2.9918	3.0068	3.1207	3.2353
4	NH		4	.25000	.18238	.0250	3.5109	3.3445	3.1781	3.1911	3.3575	3.5239
4½	NH		4	.25000	.18238	.0250	3.7609	3.5945	3.4281	3.4411	3.6075	3.7739
5	NH		4	.25000	.18238	.0250	4.2609	4.0976	3.9342	3.9472	4.1226	4.2980
6	NH		4	.25000	.18238	.0250	5.0250	4.8626	4.7002	4.7353	4.8878	5.0500

* Data on the 4-6NH(8PL) thread are included since this thread is used extensively aboard ship by the Navy Department.

TABLE 10.2 —*Limits of size and tolerances for American National hose coupling and fire-hose coupling external threads, NPSH and NH nipples*

Nominal size of hose	Symbol	Service	Thds per inch	Pitch	Height of thread	Nipple (external) thread						
						Major diameter			Pitch diameter			Minor[a] diameter
						Max	Min	Tol.	Max	Min	Tol.	Max
1	2	3	4	5	6	7	8	9	10	11	12	13
in.				in.	in.	in.	in.	in.	in.	in.	in.	in.
¼, ⅜, ½	NH	Garden hose	11½	0.09696	0.06648	1.0525	1.0455	0.0170	1.0060	0.9975	0.0085	0.9495
¾, 1	NH	Chemical engine and booster hose.	8	.12500	.08119	1.3780	1.3528	.0222	1.3333	1.3227	.0111	1.2126
1¼	NH	Fire hose	9	.11111	.07217	1.9900	1.9678	.0222	1.9178	1.9067	.0111	1.8457
¾	NPSH	Steam, air, water, and all other hose connections to be made up with standard pipe threads.	14	.07143	.04630	.8248	.8108	.0140	.7784	.7714	.0070	.7320
½	NPSH		14	.07143	.04630	1.0353	1.0213	.0140	.9889	.9819	.0070	.9425
1	NPSH		11½	.08696	.05648	1.3951	1.3781	.0170	1.3386	1.3301	.0085	1.1821
1¼	NPSH		11½	.08696	.05648	1.6399	1.6229	.0170	1.5834	1.5749	.0085	1.5269
1½	NPSH		11½	.08696	.05648	1.8788	1.8618	.0170	1.8223	1.8138	.0085	1.7658
2	NPSH		11½	.08696	.05648	2.3528	2.3358	.0170	2.3963	2.2878	.0085	2.2398
2½	NH	Fire hose	7½	.13333	.08660	3.0686	3.0366	.0320	2.9820	2.9660	.0160	2.8984
3	NH		8	.16667	.10825	3.6336	3.5976	.0360	3.5186	3.4976	.0180	3.4072
3½	NH		8	.16667	.10825	4.2439	4.2079	.0360	4.1356	4.1176	.0180	4.0272
4[b]	NH(8PL)		8	.16667	.10825	4.8082	4.8722	.0360	4.7999	4.7819	.0180	4.6916
4	NH		4	.25000	.16238	5.0109	4.9809	.0600	4.8433	4.8233	.0250	4.6861
4½	NH		4	.25000	.16238	5.7009	5.7109	.0600	5.6965	5.6735	.0250	5.4361
5	NH		4	.25000	.16238	6.2000	6.2100	.0600	6.0976	6.0726	.0250	5.9322
6	NH		4	.25000	.16238	7.0250	6.9750	.0500	6.9626	6.9376	.0250	6.7022

[a] Dimensions given for the maximum minor diameter of the nipple are figured to the intersection of the worn tool arc with a centerline through crest and root. The minimum minor diameter of the nipple shall be that corresponding to a flat at the minor diameter of the minimum nipple equal to $\frac{1}{16}Xp$, and may be determined by subtracting $1\frac{1}{4}Xh$ (or 0.7939p) from the minimum pitch diameter of the nipple.

[b] Data on the 4-6NH(8PL) thread are included since this thread is used extensively by the Navy Department.

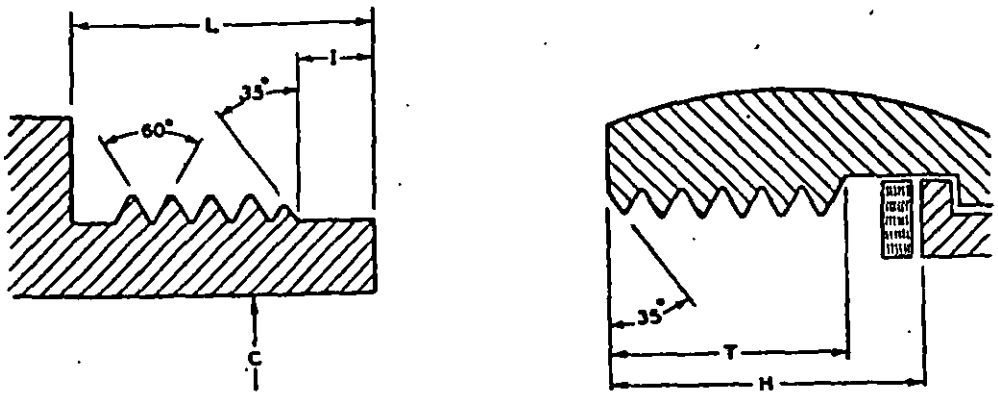
TABLE 10.3 -*Limits of size and tolerances for American National hose coupling and fire-hose coupling internal threads, NPSH and NH couplings*

Nominal size of hose	Symbol	Service	Thds per inch	Pitch	Height of thread	Coupling (internal) thread						
						Minor diameter			Pitch diameter			Major[a] diameter
						Min	Max	Tol.	Min	Max	Tol.	Min
1	2	3	4	5	6	7	8	9	10	11	12	13
in.				in.	in.	in.	in.	in.	in.	in.	in.	in.
¼, ⅜, ½	NH	Garden hose	11½	0.09696	0.06648	0.9396	0.9763	0.0170	1.0160	1.0245	0.0085	1.0725
¾, 1	NH	Chemical engine and booster hose.	8	.12500	.08119	1.2246	1.2468	.0222	1.3058	1.3169	.0111	1.3570
1¼	NH	Fire hose	9	.11111	.07217	1.8577	1.8799	.0222	1.9288	1.9409	.0111	2.0020
¾	NPSH	Steam, air, water, and all other hose connections to be made up with standard pipe threads.	14	.07143	.04630	.7696	.7835	.0140	.7850	.7929	.0070	.8323
½	NPSH		14	.07143	.04630	.9500	.9640	.0140	.9964	1.0034	.0070	1.0428
1	NPSH		11½	.08696	.05648	1.1931	1.2091	.0170	1.2486	1.2571	.0085	1.3081
1¼	NPSH		11½	.08696	.05648	1.5369	1.5539	.0170	1.5934	1.6019	.0085	1.6499
1½	NPSH		11½	.08696	.05648	1.7758	1.7928	.0170	1.8323	1.8408	.0085	1.8888
2	NPSH		11½	.08696	.05648	2.3498	2.3668	.0170	2.3063	2.3148	.0085	2.3628
2½	NH	Fire hose	7½	.13333	.08660	2.9104	2.9434	.0320	2.9970	3.0130	.0160	3.0836
3	NH		8	.16667	.10825	3.4222	3.4582	.0360	3.5308	3.5488	.0180	3.6389
3½	NH		8	.16667	.10825	4.0473	4.0833	.0360	4.1508	4.1726	.0180	4.2639
4[b]	NH(8PL)		8	.16667	.10825	4.7117	4.7477	.0360	4.8200	4.8380	.0180	4.9283
4	NH		4	.25000	.16238	4.7111	4.7611	.0500	4.8738	4.8963	.0250	5.0139
4½	NH		4	.25000	.16238	5.4611	5.5111	.0500	5.6235	5.6485	.0250	5.7859
5	NH		4	.25000	.16238	5.9602	6.0102	.0500	6.1226	6.1476	.0250	6.2836
6	NH		4	.25000	.16238	6.7252	6.7752	.0500	6.8876	6.9126	.0250	7.0500

[a] Dimensions for the minimum major diameter of the coupling correspond to the basic flat ($\frac{1}{16}Xp$), and the profile at the major diameter produced by a worn tool must not fall below the basic outline. The maximum major diameter of the coupling shall be that corresponding to a flat at the major diameter of the maximum coupling equal to $\frac{1}{16}Xp$, and may be determined by adding $1\frac{1}{4}Xh$ (or 0.7939p) to the maximum pitch diameter of the coupling.

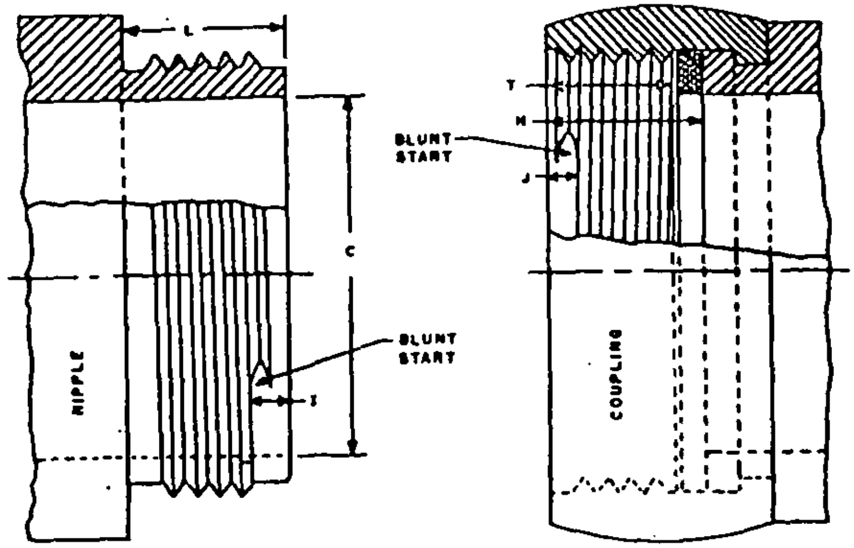
[b] Data on the 4-6NH(8PL) thread are included since this thread is used extensively by the Navy Department.

TABLE 10.4 —*Lengths of threads for American National hose coupling threads, NPSH (all sizes), and for American National fire-hose coupling threads, NH (up to and including the 1 inch size)*



Nominal size of hose	Symbol	Service	Threads per inch, n	Inside diameter of nipple, C	Approximate outside diameter of external thread	Length of nipple, L	Length of pilot, l	Depth of coupling, H	Thread length for coupling, T	Approximate number of threads in length, T
1	2	3	4	5	6	7	8	9	10	11
in.				*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	
½, ¾, ¾	NH	Garden hose	11½	9/32	1 3/16	9/16	3/8	1 3/32	3/8	4¼
¾, 1	NH	Chemical engine and booster hose.	8	1 5/32	1 9/16	⅝	9/32	1 9/32	1 9/32	2¾
¼	NPSH	Steam, air, water, and all other hose connections to be made up with standard pipe threads.	18	1 3/32	1 5/16	⅜	⅜	1 3/32	9/16	4¼
¾	NPSH		14	1 5/32	1 3/32	9/16	⅜	1 3/32	⅝	5½
1	NPSH		11½	1 5/32	1 3/32	9/16	7/16	1 5/32	⅝	4¼
1¼	NPSH		11½	1 5/32	1 3/16	⅝	9/32	1 5/32	1 5/32	6¼
1½	NPSH		11½	1 17/32	1 3/4	⅝	9/32	1 5/32	1 5/32	5½
2	NPSH		11½	2 1/32	2 1 5/32	¾	5/16	1 5/32	1 5/32	6¾

TABLE 10.5—*Lengths of threads for American National fire-hose coupling threads, NH (1½ in. size and larger)*



Nominal size of hose	Symbol	Service	Threads per inch, *n*	Inside diameter of nipple or coupling, *C*	Approximate outside diameter of external thread	Length of nipple, *L*	Length of pilot to start of second thread, *I*	Depth of coupling, *H*	Thread length for coupling, *T*	From face of coupling to start of second thread, *J*
1	2	3	4	5	6	7	8	9	10	11
in.				*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
1½	NH	Fire hose	9	1½	2	⅝	5/32	19/32	15/32	....
2½	NH	Fire hose	7½	2½	3 1/16	1	¼	15/16	11/16	5/16
3	NH	Fire hose	6	3	3⅝	1⅛	5/16	1 1/16	¾	¼
3½	NH	Fire hose	6	3½	4¼	1⅛	5/16	1 1/16	¾	¼
4 *	NH(SPL)	Fire hose	6	4	4 23/32	1⅛	5/16	1 1/16	¾	¼
4	NH	Fire hose	4	4	5	1¼	7/16	1 3/16	⅞	⅜
4½	NH	Fire hose	4	4½	5¾	1¼	7/16	1 3/16	⅞	⅜
5	NH	Fire hose	4	5	6¼	1⅜	7/16	1 5/16	1	⅜
6	NH	Fire hose	4	6	7 1/32	1⅜	7/16	1 5/16	1	⅜

* Data on the 4—6NH(SPL) thread are included since this thread is used extensively by the Navy Department.

TABLE 10.6 —*Tolerances and allowances for American National hose coupling and American National fire-hose coupling threads, NPSH and NH*

Nominal size of hose	Symbol	Service	Threads per inch	Allowance	Tolerance [a] on pitch diameter	Lead [b] deviation consuming one-half of pitch-diameter tolerance	Deviation in *half angle* consuming one-half of pitch-diameter tolerance	
1	2	3	4	5	6	7	8	
in.				in.	in.	in.	deg.	min.
½, ¾, 1	NH	Garden hose	11½	0.0100	0.0085	0.0025	1	52
¾, 1	NH	*Chemical engine* and booster hose	8	.0120	.0111	.0032	1	42
1½	NH	Fire hose	9	.0120	.0111	.0032	1	54
½	NPSH	Steam, air, water, and all other hose connections to be made up with standard pipe threads.	14	.0075	.0070	.0020	1	52
¾	NPSH		14	.0075	.0070	.0020	1	52
1	NPSH		11½	.0100	.0085	.0025	1	52
1¼	NPSH		11½	.0100	.0085	.0025	1	52
1½	NPSH		11½	.0100	.0085	.0025	1	52
2	NPSH		11½	.0100	.0085	.0025	1	52
2½	NH	Fire hose	7½	.0150	.0160	.0046	2	17
3	NH		6	.0150	.0180	.0052	2	4
3½	NH		6	.0200	.0180	.0052	2	4
4 [c]	NH(SPL)		6	.0201	.0180	.0052	2	4
4	NH		4	.0250	.0250	.0072	1	55
4½	NH		4	.0250	.0250	.0072	1	55
5	NH		4	.0250	.0250	.0072	1	55
6	NH		4	.0250	.0250	.0072	1	55

[a] The tolerances specified for *pitch diameter include all deviations* of pitch diameter, lead, and angle. The full tolerance cannot, therefore, be used on pitch diameter unless the lead and angle of the thread are perfect. Columns 7 and 8 give, for information, the deviations in lead (per length of thread engaged) and in angle, each of which can be compensated for by half the tolerance on the pitch diameter given in column 6. If lead and angle *deviations both* exist to the amount tabulated, the pitch diameter of a nipple, for example, must be reduced by the full tolerance or it will not enter the "go" gage.

[b] Between any two threads not farther apart than the length of engagement.

[c] Data on the 4—6NH(SPL) thread are included since this thread is used extensively by the Navy Department.

TABLE 10.7 —*Limits of size of gages for American National hose-coupling threads, NPSH (all sizes), and for American National fire-hose coupling threads, NH (up to and including the 1½ in. size)*

Limits of size	Service								
	Garden hose, NH	Chemical engine and booster hose, NH	Fire protection hose, NH	Steam, air, water, and all other hose connections to be made up with standard pipe threads, NPSH					
	Size								
	⅝, ¾, ⅞	¾, 1	1½	⅛	¼	⅜	½	¾	1
	Threads per inch								
	11½	8	9	14	14	11½	11½	11½	11½
	Limits of size								
Nipple (external) thread									
"Go" Thread Gages for Nipples									
Major diameter of basic-form setting plug, and full portion of truncated setting plug — Max	in. 1.0625	in. 1.3750	in. 1.9000	in. 0.8248	in. 1.0353	in. 1.2951	in. 1.6399	in. 1.8788	in. 2.3528
Major diameter of basic-form setting plug, and full portion of truncated setting plug — Min	1.0619	1.3743	1.9893	.8242	1.0347	1.2945	1.6393	1.8782	2.3522
Major diameter of truncated portion of truncated setting plug — Max	1.0455	1.3528	1.9078	.8108	1.0213	1.2781	1.6229	1.8618	2.3358
Major diameter of truncated portion of truncated setting plug — Min	1.0449	1.3521	1.9071	.8102	1.0207	1.2775	1.6223	1.8612	2.3352
Pitch diameter of setting plug or ring gage — Max X	1.0080	1.2938	1.9178	.7784	.9889	1.2386	1.5834	1.8223	2.2963
Pitch diameter of setting plug or ring gage — Min X	1.0057	1.2934	1.9175	.7781	.9886	1.2383	1.5831	1.8220	2.2959
Pitch diameter of setting plug or ring gage — Max Y	1.0058	1.2936	1.9176	.7782	.9887	1.2384	1.5832	1.8221	2.2961
Pitch diameter of setting plug or ring gage — Min Y	1.0054	1.2931	1.9171	.7778	.9883	1.2380	1.5828	1.8217	2.2955
Minor diameter of ring gage — Max	.9585	1.2246	1.8577	.7395	.9500	1.1971	1.5389	1.7758	2.2498
Minor diameter of ring gage — Min	.9589	1.2239	1.8570	.7389	.9494	1.1915	1.5383	1.7752	2.2492
"Not Go" Thread Gages for Nipples									
Major diameter of basic-form setting plug, and full portion of truncated setting plug — Min	1.0619	1.3743	1.9893	.8243	1.0347	1.2945	1.6393	1.8782	2.3522
Major diameter of basic-form setting plug, and full portion of truncated setting plug — Max	1.0625	1.3750	1.9900	.8248	1.0353	1.2951	1.6399	1.8788	2.3528
Major diameter of truncated portion of truncated setting plug — Min	1.0346	1.3361	1.9341	.8017	1.0122	1.2672	1.6120	1.8509	2.3249
Major diameter of truncated portion of truncated setting plug — Max	1.0352	1.3368	1.9348	.8023	1.0128	1.2678	1.6126	1.8515	2.3255
Pitch diameter of setting plug or ring gage — Min	.9975	1.2827	1.9067	.7714	.9819	1.2301	1.5749	1.8138	2.2878
Pitch diameter of setting plug or ring gage — Max	.9978	1.2831	1.9070	.7717	.9822	1.2304	1.5752	1.8141	2.2882
Minor diameter of ring gage — Min	.9787	1.2556	1.8825	.7559	.9664	1.2113	1.5561	1.7950	2.2690
Minor diameter of ring gage — Max	.9793	1.2563	1.8833	.7565	.9670	1.2119	1.5567	1.7956	2.2696
Plain Gages for Nipples									
"Go" gages for major diameter — Max	1.06250	1.37500	1.99000	.82480	1.03530	1.29510	1.63990	1.87880	2.35280
"Go" gages for major diameter — Min	1.06241	1.37491	1.98988	.82473	1.03521	1.29501	1.63978	1.87868	2.35268
"Not go" gages for major diameter — Min	1.04550	1.35280	1.96780	.81080	1.02130	1.27810	1.62290	1.86180	2.33580
"Not go" gages for major diameter — Max	1.04539	1.35269	1.96792	.81087	1.02139	1.27819	1.62302	1.86192	2.33592
Coupling (internal) thread									
"Go" Thread Gages for Couplings									
Major diameter of plug gage — Min	1.0725	1.3870	2.0020	0.8323	1.0428	1.3031	1.6499	1.8888	2.3628
Major diameter of plug gage — Max	1.0731	1.3877	2.0027	.8329	1.0434	1.3037	1.6505	1.8894	2.3634
Pitch diameter of plug gage — Min	1.0160	1.3058	1.9265	.7859	.9964	1.2486	1.5934	1.8323	2.3063
Pitch diameter of plug gage — Max	1.0163	1.3062	1.9301	.7862	.9967	1.2489	1.5937	1.8326	2.3067
"Not Go" Thread Gages for Couplings									
Major diameter of plug gage — Max	1.0822	1.3710	1.9890	.8238	1.0343	1.2948	1.6396	1.8785	2.3525
Major diameter of plug gage — Min	1.0816	1.3703	1.9883	.8232	1.0337	1.2942	1.6390	1.8779	2.3519
Pitch diameter of plug gage — Max	1.0245	1.3169	1.9409	.7929	1.0034	1.2571	1.6019	1.8408	2.3148
Pitch diameter of plug gage — Min	1.0242	1.3165	1.9406	.7926	1.0031	1.2568	1.6016	1.8405	2.3144
Plain Gages for Couplings									
"Go" gages for minor diameter — Min	.95950	1.22460	1.85770	.78950	.95000	1.19210	1.53690	1.77580	2.24980
"Go" gages for minor diameter — Max	.95959	1.22469	1.85782	.78957	.95009	1.19219	1.53702	1.77592	2.24992
"Not go" gages for minor diameter — Max	.97650	1.24680	1.87990	.75350	.96400	1.20910	1.55390	1.79280	2.26680
"Not go" gages for minor diameter — Min	.97641	1.24671	1.87978	.75343	.96391	1.20901	1.55378	1.79268	2.26668

TABLE 10.8 —*Tolerances on gages for American National fire-hose coupling threads, NH (2½ in. size and larger)*

Allowable variation in lead between any two threads not farther apart than length of engagement	Allowable variation in one half angle of thread	Tolerance on diameter of minimum thread gage	Tolerance on diameter of maximum thread gage
1	2	3	4
in.	deg min	in.	in.
±0.0005	±0 10	−0.000 +.001	+0.000 −.001

TABLE 10.9 -*Limits of size of field inspection thread ring gages for American National fire-hose coupling external threads, NH nipples (2½ in. size and larger)* •

Nominal size of hose	Threads per inch	"Go" or maximum gage				"Not go" or minimum gage			
		Pitch diameter		Minor diameter		Pitch diameter		Minor diameter	
		Max	Min	Max	Min	Max	Min	Max	Min
1	2	3	4	5	6	7	8	9	10
in.		in.	in.	in.	in.	in.	in.	in.	in.
2.500	7½	2.9830	2.9810	2.9104	2.9094	2.9670	2.9660	2.9114	2.9104
3.000	6	3.5156	3.5146	3.4223	3.4213	3.4986	3.4976	3.4233	3.4223
3.500	6	4.1356	4.1346	4.0473	4.0463	4.1186	4.1176	4.0483	4.0473
4.000 •	6	4.7999	4.7989	4.7117	4.7107	4.7829	4.7819	4.7127	4.7117
4.000	4	4.8485	4.8475	4.7111	4.7101	4.8245	4.8235	4.7121	4.7111
4.500	4	5.5985	5.5975	5.4611	5.4601	5.5745	5.5735	5.4621	5.4611
5.000	4	6.0976	6.0966	5.9602	5.9592	6.0738	6.0728	5.9612	5.9602
6.000	4	6.8626	6.8616	6.7252	6.7242	6.8386	6.8376	6.7262	6.7252

• The minor diameters of plug gages and the major diameters of ring gages are undercut beyond the nominal diameters to give clearance for grinding or lapping. The allowable variation in lead between any two threads not farther apart than the length of engagement is ±0.0005 in. The allowable variation in one-half angle of thread is ±10 min.

• Data on the 4—6 thread are included since this thread is used extensively by the Navy Department. It is to be designated: 4—6NH(SPL).

TABLE X.10.—*Limits of size of field inspection thread plug gages for American National fire-hose coupling internal threads, NH couplings (2½ in. size and larger)* •

Nominal size of hose	Threads per inch	"Go" or minimum gage				"Not go" or maximum gage			
		Major diameter		Pitch diameter		Major diameter		Pitch diameter	
		Max	Min	Max	Min	Max	Min	Max	Min
1	2	3	4	5	6	7	8	9	10
in.		in.	in.	in.	in.	in.	in.	in.	in.
2.500	7½	3.0846	3.0836	2.9980	2.9970	3.0836	3.0826	3.0130	3.0120
3.000	6	3.6399	3.6389	3.5316	3.5306	3.6389	3.6379	3.5486	3.5476
3.500	6	4.2649	4.2639	4.1566	4.1556	4.2639	4.2629	4.1736	4.1726
4.000 •	6	4.9283	4.9283	4.8210	4.8200	4.9283	4.9273	4.8380	4.8370
4.000	4	5.0369	5.0359	4.8745	4.8735	5.0350	5.0349	4.8985	4.8975
4.500	4	5.7869	5.7859	5.6245	5.6235	5.7859	5.7849	5.6485	5.6475
5.000	4	6.2860	6.2850	6.1236	6.1226	6.2850	6.2840	6.1476	6.1466
6.000	4	7.0510	7.0500	6.8886	6.8876	7.0500	7.0490	6.9126	6.9116

• The minor diameters of plug gages and the major diameters of ring gages are undercut beyond the nominal diameters to give a clearance for grinding or lapping. The allowable variation in lead between any two threads not farther apart than the length of engagement is ±0.0005 in. The allowable variation in one-half angle of thread is ±10 min.

• Data on the 4—6 thread are included since this thread is used extensively by the Navy Department. It is to be designated: 4—6NH(SPL).

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