

FED-STD-H28/1A
28 August 1985
SUPERSEDING
FED-STD-H28/1
31 March 1978

FEDERAL STANDARD

SCREW-THREAD STANDARDS FOR FEDERAL SERVICES

SECTION 1

NOMENCLATURE, DEFINITIONS AND LETTER SYMBOLS FOR SCREW THREADS

This standard was approved by the Assistant Administrator,
Office of Federal Supply and Services, General Services
Administration, for the use of all Federal Agencies.

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. Single copies of this standard are available at the GSA Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA; or from the General Services Administration, Specification Unit (WFSIS), Room 6039, 7th and D Streets, S.W., Washington, DC 20407.

NO DELIVERABLE DATA REQUIRED BY THIS DOCUMENT.

THIS

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

FED-STD-H28/1A

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All users of Federal Standards should keep them up to date by inserting revised or new pages as issued and removing superseded and cancelled pages.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 Change Notices should be retained and filed in front of the standard until such time as they are superseded by a reissue of the entire standard.

FOREWORD

This section was developed in order to provide screw thread nomenclature and symbols for the Federal Services. The present issue is a complete revision of FED-STD-H28/1 dated 31 March 1978.

FED-STD-H28/1A was prepared by the Defense Industrial Supply Center (DLA-IS) and incorporates the American National Standard for Nomenclature, Definitions, and Letter Symbols for Screw Threads, ANSI/ASME B1.7M-1984. Significant changes from the previous issue include the following:

- (1) Updating and reformatting.
- (2) Added International ISO standard metric terms.
- (3) Replaced thread diameter symbols with ISO standard symbols.

SECTION 1 - NOMENCLATURE, DEFINITIONS AND LETTER SYMBOLS FOR SCREW THREADS

1. Scope. This section establishes uniform practices with regard to screw thread nomenclature and letter symbols for designating characteristics of screw threads. These are for use on drawings, in tables of dimensions which set forth dimensional standards and in other records, and for expressing mathematical relationships.

2. Referenced documents.

2.1 Government publications. The issue of the following document in effect on the date of invitation for bids or request for proposal forms a part of this standard to the extent specified herein.

Military standard.

MIL-STD-12 - Abbreviations for Use on Drawings, and in Specifications.
Standards and Technical Documents

(Copies of Military specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American National Standard.

ANSI/ASME B1.7M-1984 - Nomenclature, Definitions, and Letter Symbols
for Screw Threads

ANSI Y1.1 - Abbreviations for Use on Drawings and in Text

(Application for copies should be addressed to the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017 or the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

3. Definitions. See below.

4. General requirements. Not applicable.

5. Detailed requirements.

5.1 Screw thread nomenclature, definitions and symbols shall be in accordance with ANSI/ASME B1.7M-1984. A compilation of thread series designations is also included in the ANSI standard for information.

FED-STD-H28/1A

5.2 Abbreviations for screw thread related information used on drawings and other documents are included in MIL-STD-12 and ANSI Y1.1.

5.3 Specialized nomenclature and symbols are not necessarily included in this section. See applicable sections of FED-STD-H28 as required.

5.4. Obsolete symbols used in previous editions of FED-STD-H28/1 appear in Table 1.1 for information only.

MILITARY INTERESTS:**CIVIL AGENCY COORDINATING ACTIVITY:****Custodians:**

GSA - PSS

Army - AR

Navy - AS

Air Force - 11

Review Activities:**PREPARING ACTIVITY:**

Army - AT, AV, ER, GL, ME, MI

DLA - IS

(DoD Project THDS-0056)

TABLE I.1 OBSOLETE SYMBOLS (For information only)

OBSOLETE SYMBOL	REPLACEMENT SYMBOL	CHARACTERISTIC
D_s	d	Major diameter, external thread
B	$d_{\text{bac}}, D_{\text{bac}}$	Basic major diameter when different from nominal size
D_n	D, D_3	Major diameter, internal thread
E_s	d_2	Pitch diameter, external thread
E_n	D_2	Pitch diameter, internal thread
K_s	d_1, d_3	Minor diameter, external thread
K_n	D_1	Minor diameter, internal thread
P	P	Pitch
n	$1/P$	Number of threads per inch
N	$1/L$	Number of turns per inch
h_s/h_n	—	Height of external/internal thread
h_{as}/h_{an}	—	Addendum of external/internal thread
h_{ds}/h_{dn}	—	Dedendum of external/internal thread
h_b	—	Height of thread with equal addendum and dedendum
h_e	—	Depth of thread engagement
ψ	—	Helix angle
r_{cs}	—	Crest radius, external thread
r_{rs}	r	Root radius, external thread
r_{cn}	—	Crest radius, internal thread
r_{rn}	R	Root radius, internal thread
$s_{cs}, s_{rs}, s_{cn}, s_{rn}$	—	Radial distance from apex of fundamental triangle to rounded crest of external, root of external, crest of internal, root of internal threads, respectively

FEI-STD-H28/1A

TABLE I.1 OBSOLETE SYMBOLS (For information only) - Con't

OBSOLETE SYMBOL	REPLACEMENT SYMBOL	CHARACTERISTIC
$f_{cs}, f_{rs},$ f_{cn}, f_{rn}	—	Radial distance from apex of fundamental triangle to flat crest of external, root of external, crest of internal, root of internal threads, respectively
$P_{cs}, P_{rs},$ P_{cn}, P_{rn}	—	Flat width at crest of external, root of external, crest of internal, root of internal threads, respectively
G	es	Allowance at major, pitch and minor diameters of external thread
L_e	LE	Length of thread engagement
L_{ts}	—	Length of complete external thread
L_{tn}	—	Length of complete internal thread including chamfer
δ	Δ	Variation in any dimension
ΔE_a	$\Delta d_{2a}, \Delta D_{2a}$	Pitch diameter equivalent of flank angle variation
ΔE_p	$\Delta d_{2\lambda}, \Delta D_{2\lambda}$	Pitch diameter equivalent of pitch variation

NOTE: Symbols related to measuring wires are no longer considered within the scope of this section.