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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.

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**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.

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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:**

Custodians:

Army - AR  
Navy - AS  
Air Force - 11

Review Activities:

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

**CIVIL AGENCY COORDINATING ACTIVITY:**

GSA - FSS

**PREPARING ACTIVITY:**

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
$\psi$	—	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

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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
$F_{cs}, F_{rs}, F_{cn}, F_{rn}$	—	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
$\delta$	$\Delta$	Variation in any dimension
$\Delta E_a$	$\Delta d_{2a}, \Delta D_{2a}$	Pitch diameter equivalent of flank angle variation
$\Delta E_p$	$\Delta d_{2\lambda}, \Delta D_{2\lambda}$	Pitch diameter equivalent of pitch variation

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