AEROSPACE STANDARD

AS7454™	REV. C

Issued 1991-02
Revised 2018-05
Reaffirmed 2023-05

Superseding AS7454B

(R) Bolts and Screws, Steel, Low Alloy, Heat Resistant, 135000 psi Tensile Strength, Normalized and Tempered, Roll Threaded

FSC 5306

RATIONALE

AS6416 added; specs updated throughout document; 3.3.4, 3.6, 3.7.1.1, and 3.7.2.2 updated; 3.7.2 magnification changed from 100X to 200X; 3.6.1.2 altered to show tensile strength of 135000 psi; Figures 1A, 1B, and 1C deleted; figures updated; Table 1 load values rounded; Table 2 edited; 1.4 added.

AS7454C has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

1.1 Type

This procurement specification covers aircraft quality bolts and screws made from a low alloy, heat resistant steel of the type identified under the Unified Numbering System as UNS K14675.

AS7454 135000 psi ultimate tensile strength at room temperature.

AS7454-1 135000 psi ultimate tensile strength at room temperature, nickel-cadmium plated.

1.2 Application

Primarily for aerospace propulsion system applications where good strength at temperatures up to approximately 900 °F is required and the part is protected against corrosion.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

For more information on this standard, visit
https://www.sae.org/standards/content/AS7454C/

1.4 Usage of Existing Manufactured Stock.

Unless otherwise specified, part inventory manufactured to previous revisions of this specification may be procured and used until stock is depleted.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2416 Plating, Nickel-Cadmium, Diffused

AMS2750 Pyrometry

AMS6304 Low-Alloy Steel, Heat Resistant, Bars, Forgings, and Tubing 0.95Cr - 0.55Mo - 0.30V (0.40 - 0.50C)

AS1132 Bolts, Screws and Nuts - External Wrenching UNJ Thread, Inch - Design Standard

AS3062 Bolts, Screws, and Studs, Screw Thread Requirements

AS3063 Bolts, Screws, and Studs, Geometric Control Requirements

AS6416 Bolts, Screws, Studs and Nuts, Definitions for Design, Testing and Procurement

AS8879 Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E140 Standard Hardness Tables for Metals

ASTM E1444/E1444M Magnetic Particle Examination

2.1.3 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)

2.1.4 AIA Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, www.aia-aerospace.org.

NASM1312-6 Fastener Test Methods, Method 6, Hardness

NASM1312-8 Fastener Test Methods, Method 8, Tensile Testing

NASM1312-12 Fastener Test Methods, Method 12, Plating Thickness

2.1.5 U.S. Government Publications

Copies of these documents are available online at http://quicksearch.dla.mil.

MIL-STD-2073-1 Military Packaging, Standard Practice for

2.2 Definitions

Refer to AS6416

2.3 Unit Symbols

A - ampere
°F - degree Fahrenheit
% - percent (1% = 1/100)
lbf - pounds force
psi - pounds force per square inch
sp gr - specific gravity

3. TECHNICAL REQUIREMENTS

3.1 Material

Shall be AMS6304 steel, unless otherwise specified on the part drawing.

3.2 Design

Finished (completely manufactured) parts shall conform to the following requirements:

3.2.1 Dimensions

The dimensions of finished parts, after all processing, including plating, shall conform to the part drawing. Dimensions apply after plating but before coating with solid film lubricants.

3.2.2 Surface Texture

Surface texture of finished parts, prior to plating or coating, shall conform to the requirements as specified on the part drawing, determined in accordance with ASME B46.1.

3.2.3 Threads

Screw thread UNJ profile and dimensions shall be in accordance with AS8879, unless otherwise specified on the part drawing.

3.2.3.1 Incomplete Threads

Incomplete threads are permissible at the chamfered end and the juncture of the unthreaded portion of the shank or adjacent to the head as specified in AS3062.

3.2.3.2 Chamfer

The entering end of the thread shall be chamfered as specified on the part drawing.

3.2.4 Geometric Tolerances

Part features shall be within the geometric tolerances specified on the part drawing and, where applicable, controlled in accordance with AS3063.

3.3 Fabrication

3.3.1 Blanks

Heads shall be formed by hot forging, cold forging, or machining. Lightening holes may be produced by any suitable method. Wrenching recesses may be forged or machined. Flash or chip clearance in machined recesses shall not cause recess dimensions to exceed the specified limits.

3.3.2 Heat Treatment

Headed and machined blanks shall, before finishing the shank and the bearing surface of the head, cold working the head-to-shank fillet radius when specified, and rolling the threads, be heat treated as follows:

3.3.2.1 Heating Equipment

Furnaces may be any type ensuring uniform temperature throughout the parts being heated and shall be equipped with, and operated by, automatic controllers and data recorders conforming to AMS2750. The heating medium or atmosphere shall cause neither surface hardening nor decarburization other than that permitted by 3.7.2.2 and 3.7.2.3.

3.3.2.2 Normalizing

Blanks of AMS6304 shall be uniformly heated to 1750 °F ± 25 °F, held at heat for 60 to 90 minutes, and cooled in still air or in a cooling chamber of the furnace.

3.3.2.3 Tempering

Normalized blanks of AMS6304 shall be tempered by heating uniformly to the temperature necessary to produce the specified hardness and microstructure but not lower than 1100 °F, holding at heat for not less than 6 hours, and cooling in air.

3.3.2.4 For steels other than AMS6304, heat treatment shall be as agreed upon by purchaser and manufacture.

3.3.3 Oxide and Decarburization Removal

Surface oxide, oxide penetration, and decarburization except as permitted in 3.7.2.3, resulting from prior heat treatment, shall be removed from the full body diameter and bearing surface of the head of the heat-treated blanks prior to cold working the under-head fillet radius when specified and rolling the threads. The oxide removal process shall produce no intergranular attack or corrosion of the blanks. The metal removed from the bearing surface of the head and the full body diameter of the shank shall be as little as practicable to obtain a clean, smooth surface.

3.3.4 Cold Working of Fillet Radius

After removal of oxide and decarburization as in 3.3.3 when specified, the head-to-shank fillet radius of headed parts having the radius complete throughout the circumference of the part shall be cold rolled. The cold rolling shall be sufficient to remove all visual evidence of grinding or tool marks. Distortion due to cold working shall conform to Figure 1, unless otherwise specified on the part drawing. It shall not raise metal more than 0.002 inch above the contour at "A" or depress metal more than 0.002 inch below the contour at "B" as shown in Figure 1; distorted areas shall not extend beyond "C" as shown in Figure 1. In configurations having an undercut associated with the fillet radius, the cold working will be required only for 90 degrees of fillet arc, starting at the point of tangency of the fillet radius and the bearing surface of the head. In addition to cold working the head-to-shank fillet radius, shouldered bolts having an unthreaded shank diameter larger than the thread major diameter and having an undercut associated with a fillet between the threaded shank and the shoulder of the unthreaded shank, the cold working will be required only for 90 degrees of fillet arc, starting at the point of tangency of the fillet radius and the shouldered surface of the unthreaded shank. For parts with compound fillet radii between head and shank, cold work only the radius that blends with the head.

3.3.5 Thread Rolling

Threads shall be formed on the heat treated and finished blanks by a single rolling process after removal of oxide and decarburization as in 3.3.3.

3.4 Product Marking

Each part shall be identification marked as specified by the part drawing. The markings may be formed by forging or stamping, raised or depressed not more than 0.010 inch maximum, with rounded root form on depressed characters.

3.5 Plating

Where AS7454 is specified, any protective treatment shall be as specified on the part drawing. Where AS7454-1 is specified, parts shall be nickel-cadmium plated in accordance with AMS2416.

3.6 Mechanical Properties

Parts shall conform to the requirements of Ultimate Tensile Strength at Room Temperature and Hardness Tests. Threaded members of gripping fixtures for tensile test shall be of sufficient size and strength to develop the full strength of the part without stripping the thread. The loaded portion of the shank shall have two to three full turns from the thread runout exposed between the loading fixtures during the tensile test. Finished parts shall be tested in accordance with the following applicable test methods:

a. Hardness: MIL-STD-1312-6 in accordance with NASM1312-6.

b. Room Temperature Ultimate Tensile Strength: MIL-STD-1312-8 in accordance with NASM1312-8.

3.6.1 Ultimate Tensile Strength at Room Temperature

3.6.1.1 Finished Parts

Parts having hardness as in 3.6.2 shall have an ultimate tensile load not lower than that specified in Table 2 and shall be tested to failure, first measuring and recording the maximum tensile load achieved. If the size or shape of the part is such that failure would occur outside the threaded section but the part can be tested satisfactorily, such as parts having a shank diameter equal to or less than the thread root diameter or having an undercut, parts shall conform to only the tensile requirements of 3.6.1.2; for such parts, the diameter of the area on which stress is based shall be the actual measured minimum diameter of the part. Tension fasteners with either standard double hexagon or hexagon-type heads having a minimum metal condition in the head equal to the design parameters specified in AS1132 shall not fracture in the head-to-shank fillet radius except when this radius is associated with an undercut or with a shank diameter less than the minimum pitch diameter of the thread.

3.6.1.2 Machined Test Specimens

If the size or shape of the part is such that a tensile test cannot be made on the part, tensile tests shall be conducted in accordance with ASTM E8/E8M on specimens prepared as in 4.5. Such specimens shall meet the following requirements:

a. Ultimate Tensile Strength, minimum: 135000 psi

b. Yield Strength at 0.2% Offset, minimum: 115000 psi

c. Elongation in 2 inches or 4D, minimum: 15%

d. Reduction of Area, minimum: 40%

3.6.1.2.1 When permitted by purchaser, hardness tests on the end of parts may be substituted for tensile tests of machined specimens.

3.6.2 Hardness

Shall be uniform and within the range 30 to 38 HRC, unless otherwise specified on the part drawing, but hardness of the threaded section, and of the head-to-shank fillet area when cold working of this area is specified, may be higher as a result of the cold working operations.

3.7 Quality

Parts shall be uniform in quality and condition, clean, sound, smooth, and free from burrs and foreign materials, and from imperfections detrimental to usage of the parts.

3.7.1 Macroscopic Examination

Parts or sections of parts as applicable, shall be etched in a solution consisting of approximately 50% hydrochloric acid (sp gr 1.19), and 50% water for sufficient time to reveal flow lines but not longer than 15 minutes, and then be examined at a magnification of approximately 20X to determine conformance to the requirements of 3.7.1.1, 3.7.1.2, and 3.7.1.3, except that examination for the thread imperfections as specified in 3.7.1.3 should be made by microscopic examination of specimens polished and etched as in 3.7.2.

3.7.1.1 Flow Lines

3.7.1.1.1 Head-to-Shank

If parts have forged heads, examination of a longitudinal section through the part shall show flow lines in the shank, head-to-shank fillet, and bearing surface which are representative of a forging process and shall follow the head contour Flow lines in upset heads on parts having special heads, such as Dee- or Tee-shaped heads or thinner than AS1132 standard heads, shall be as agreed upon by purchaser and vendor.

3.7.1.1.2 Threads

Flow lines in threads shall be continuous, shall follow the general thread contour, and shall be of maximum density at root of thread (see Figure 2).

3.7.1.2 Internal Defects

Examination of longitudinal sections of the head and shank and of the threads shall reveal no cracks, laps, or porosity except laps in threads as permitted in 3.7.1.3.3 and 3.7.1.3.4. The head and shank section shall extend not less than D/2 from the bearing surface of the head and the threaded section shall extend not less than D/2 beyond the thread runout where "D" is the nominal diameter of the shank after heading. If the two sections would overlap, the entire length of the part shall be sectioned and examined as a whole.

3.7.1.3 Threads

3.7.1.3.1 Root defects such as laps, seams, notches, slivers, folds, roughness, and oxide scale are not permissible (see Figure 3).

3.7.1.3.2 Multiple laps on the flanks of threads are not permissible regardless of location. Single laps on the flanks of threads that extend toward the root are not permissible (see Figures 4 and 5).

3.7.1.3.3 There shall be no laps along the flank of the thread below the pitch diameter (see Figure 6). A single lap is permissible along the flank of the thread above the pitch diameter on either the pressure or non-pressure flank (one lap at any cross-section through the thread) provided it extends toward the crest and generally parallel to the flank (see Figure 6).

3.7.1.3.4 Crest craters, crest laps, or a crest lap in combination with a crest crater are permissible provided that the imperfections do not extend deeper than 20% of the basic thread height (see Table 1) as measured from the thread crest when the thread major diameter is at minimum size (see Figure 7). The major diameter of the thread shall be measured prior to sectioning. As the major diameter of the thread approaches maximum size.

3.7.1.3.5 Values for depth of crest crater and crest lap imperfections listed in Table 1 may be increased by one-half of the difference between the minimum major diameter and the actual major diameter as measured on the part.

3.7.2 Microscopic Examination

Specimens cut from parts shall be polished, etched in 2% Nital, and examined at a magnification not lower than 200X to determine conformance to the requirements of 3.7.1.3, 3.7.2.1, and 3.7.2.2.

3.7.2.1 Microstructure

Parts shall have normalized and tempered structure with finely divided carbides. Ferrite may be in a typical Widmanstatten pattern or randomly dispersed. Presence of tempered martensite, particularly in small diameter parts, will be acceptable.

3.7.2.2 Surface Hardening

Parts shall have no change in hardness from core to surface of the fastener except as produced during cold working of the head-to-shank fillet radius when specified and during rolling of threads. There shall be no evidence of carburization, recarburization, or nitriding. In case of dispute over results of the microscopic examination, microhardness testing shall be used as a referee method; a Vickers hardness reading within 0.003 inch of an unrolled surface which exceeds the reading in the core by more than 30 points shall be evidence of nonconformance to this requirement. An equivalent Knoop hardness test may be used

3.7.2.3 Decarburization

3.7.2.3.1 The bearing surface of the head, the head-to-shank fillet radius, the shank, and the threads shall be free from decarburization.

3.7.2.3.2 Depth of decarburization on those surfaces of the head which are the original surfaces of the bar shall be not greater than that permitted by the applicable material specification for the size of stock used to make the part.

3.7.2.3.3 Depth of decarburization on the OD of the head of cylindrical head parts is not restricted.

3.7.2.3.4 Depth of decarburization at any point on the surface not covered by 3.7.2.3.1, 3.7.2.3.2, or 3.7.2.3.3 shall not exceed 0.002 inch.

3.7.3 Magnetic Particle Inspection

Parts shall be subject to magnetic particle inspection in accordance with ASTM E1444/E1444M; any method may be used but resolution of disputed rejections shall be based upon wet, continuous, fluorescent suspension method using amperages shown in 3.7.3.3.

3.7.3.1 The following conditions shall be cause for rejection of parts inspected.

3.7.3.1.1 Discontinuities transverse to grain flow (i.e., at an angle of more than 10 degrees to the axis of the shank), such as grinding checks and quench cracks.

3.7.3.1.2 Longitudinal indications (i.e., at an angle of 10 degrees or less to the axis of the shank) due to imperfections other than seams, forming laps, and nonmetallic inclusions.

3.7.3.2 The following conditions shall be considered acceptable on parts inspected.

3.7.3.2.1 Parts having longitudinal indications (i.e., at an angle of 10 degrees or less to the axis of the shank) of seams, forming laps, and nonmetallic inclusions parallel to the grain flow that are within the limits specified in 3.7.3.2.2 through 3.7.3.2.5 provided the separation between indications in all directions is not less than 0.062 inch.

3.7.3.2.2 Sides of Head

There shall be not more than six indications or subsurface indications per head. The length of each indication may be the full height of the surface but no indication shall break over either edge to a depth greater than 0.031 inch or the equivalent of the basic thread height (see Table 1), whichever is less.

3.7.3.2.3 Shank or Stem

There shall be not more than 10 subsurface and hairline surface indications. The length of any indication may be the full length of the surface but the total length of all indications shall not exceed twice the length of the surface. No indication shall break into a fillet or over an edge.

3.7.3.2.4 Threads

There shall be no indications, except as permitted in 3.7.1.3.

3.7.3.2.5 Top of Head and End of Stem

The number of indications is not restricted but the depth of any individual indication shall not exceed 0.010 inch, as shown by sectioning representative samples. No indication, except those of 3.7.3.2.2, shall break over an edge.

3.7.3.3 Procedures

3.7.3.3.1 Circular Magnetization

800 to 1000 A/square inch of contact area passed through the part longitudinally.

3.7.3.3.2 Longitudinal Magnetization

Sufficient to provide 5000 A-turns per inch of shank diameter with the part placed in a standard solenoid of appropriate size.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The manufacturer of parts shall supply all samples and shall be responsible for performing all required tests. Purchaser reserves the right to perform such confirmatory testing as deemed necessary to ensure that the parts conform to the requirements of this specification.

4.2 Responsibility for compliance

The manufacturer's system for parts production shall be based on preventing product defects, rather than detecting the defects at final inspection and then requiring corrective action to be invoked. An effective manufacturing in-process control system shall be established, subject to the approval of the purchaser, and used during production of parts.

4.3 Production Acceptance Tests

The purpose of production acceptance tests is to check, as simply as possible, using a method which is inexpensive and representative of the part usage, with the uncertainty inherent in random sampling, that the parts comprising a production inspection lot satisfy the requirements of this specification.

4.3.1 Tests for all technical requirements are acceptance tests and shall be performed on each production inspection lot. A summary of acceptance tests is specified in Table 3.

4.4 Acceptance Test Sampling

4.4.1 Nondestructive Test - Visual and Dimensional

A random sample of parts shall be taken from each production inspection lot; the size of the sample shall be as specified in Table 4. The classification of dimensional characteristics shall be as specified in Table 5. All dimensional characteristics are considered defective when out of tolerance.

4.4.2 Hardness Test (see 3.6.2)

A random sample shall be selected from each production inspection lot; the size of the sample shall be as specified in Table 6. The sample units may be selected from those that have been subjected to and passed the visual and dimensional inspection, with additional units selected at random from the production inspection lot as necessary.

4.4.3 Magnetic Particle Inspection

A random sample shall be selected from each production inspection lot; the size of the sample shall be as specified in Table 4 and as classified in Table 5. The sample units may be selected from those that have been subjected to and passed the visual and dimensional inspection, with additional units selected at random from the production inspection lot as necessary.

4.4.4 Destructive Tests

A random sample shall be selected from each production inspection lot; the size of the sample shall be as specified in Table 6. The sample units may be selected from those that have been subjected to and passed the nondestructive tests and the magnetic particle inspection, with additional units selected at random from the production inspection lot as necessary.

4.4.5 Acceptance Quality

Of random samples tested, acceptance quality shall be based on zero defects.

4.5 Test Specimens

Specimens for tensile testing of machined test specimens shall be of standard proportions in accordance with ASTM E8/E8M with either 0.250 inch diameter at the reduced parallel gage section or smaller specimens proportional to the standard when required. Specimens shall be machined from finished parts or coupons of the same lot of alloy and be processed together with the parts they represent. Specimens shall be machined from the center of parts 0.750 inch and under in nominal diameter, from the center of coupons 0.800 inch and under in nominal diameter or distance between parallel sides, and from mid-radius of larger parts or coupons.

4.6 Reports

The manufacturer of parts shall furnish with each shipment a report stating that the chemical composition of the parts conforms to the applicable material specification, showing the results of tests to determine conformance to the hardness and room temperature tensile strength requirements, and stating that the parts conform to the other technical requirements of this specification. This report shall include the purchase order number, AS7454C, lot number, contractor or other direct supplier of material, part number, nominal size, and quantity.

4.7 Rejected Lots

If a production inspection lot is rejected, the vendor of parts may perform corrective action to screen out or rework the defective parts and resubmit for acceptance tests inspection as in Table 3 or scrap the entire lot. Resubmitted lots shall be clearly identified as re-inspected lots.

5. PREPARATION FOR DELIVERY

5.1 Packaging and Identification

5.1.1 Parts having different part numbers shall be packed in separate containers.

5.1.2 Each container of parts shall be marked to show not less than the following information:

FASTENERS, STEEL, LOW ALLOY, HEAT RESISTANT
AS7454C
PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY
MANUFACTURER'S IDENTIFICATION

5.1.3 Threaded fasteners shall be suitably protected from abrasion and chafing during handling, transportation, and storage.

5.1.4 Containers of parts shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery.

5.1.5 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-2073-1, industrial packaging, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT

A manufacture shall mention this specification number in all quotations and when acknowledging purchase orders.

7. REJECTIONS

Parts not conforming to this specification shall be subject to rejection.

8. NOTES

NOTICE

This document references a part which contains cadmium as a plating material. Consult local officials if you have questions concerning cadmium's use.

8.1 Direct U.S. Military Procurement

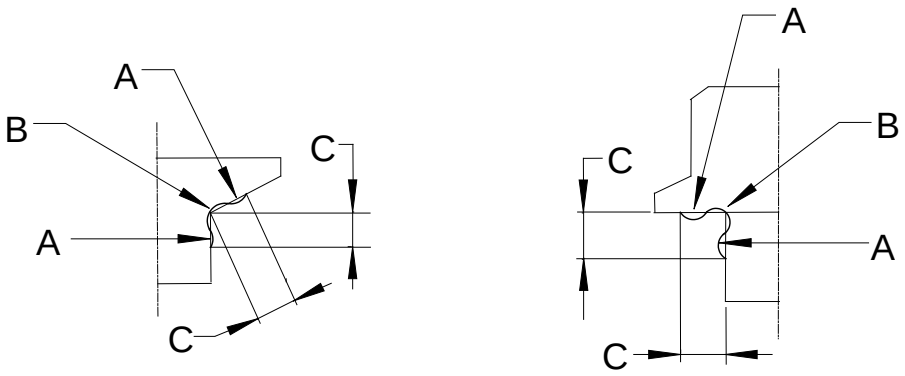
Purchase documents should specify the following:

Title, number, and date of this specification
Part number of parts desired
Quantity of parts desired
Level A packaging, if required (see 5.1.5)

8.2 Hardness conversion tables for metal are presented in ASTM E140.

8.3 Revision Indicator

A change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications nor in documents that contain editorial changes only.



Nominal Bolt Diameter	C Max
Up to 0.3125	0.062
0.3125 and 0.375	0.094
0.4375 to 0.625	0.125
0.750 to 1.000	0.156
Over 1.000	0.188

Figure 1 - Permissible distortion from fillet working

Figure 2 - Flow lines, rolled thread

Figure 3 - Root defects, rolled thread

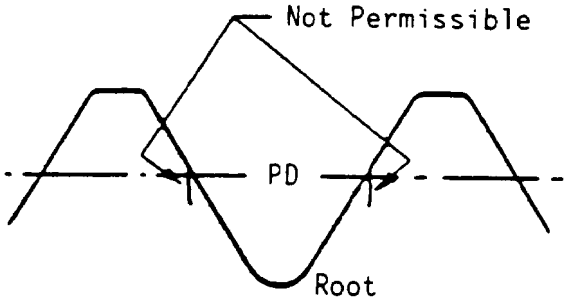


Figure 4 - Laps below PD extending toward root, rolled thread

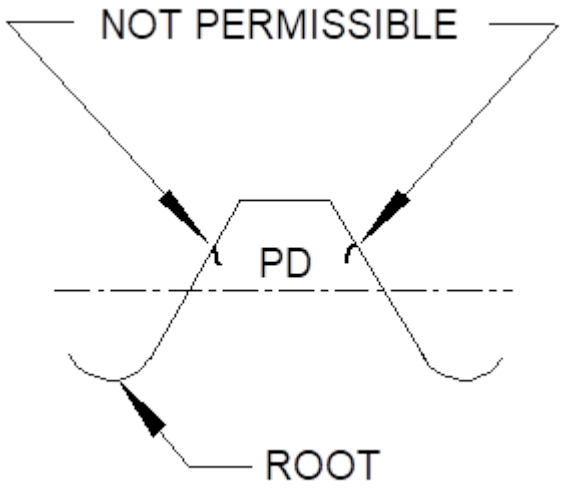


Figure 5 - Laps above PD extending toward root, rolled thread

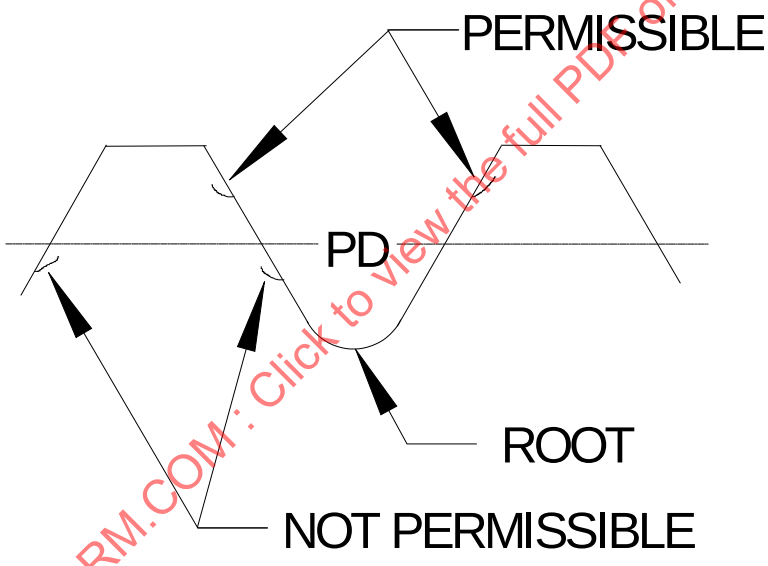
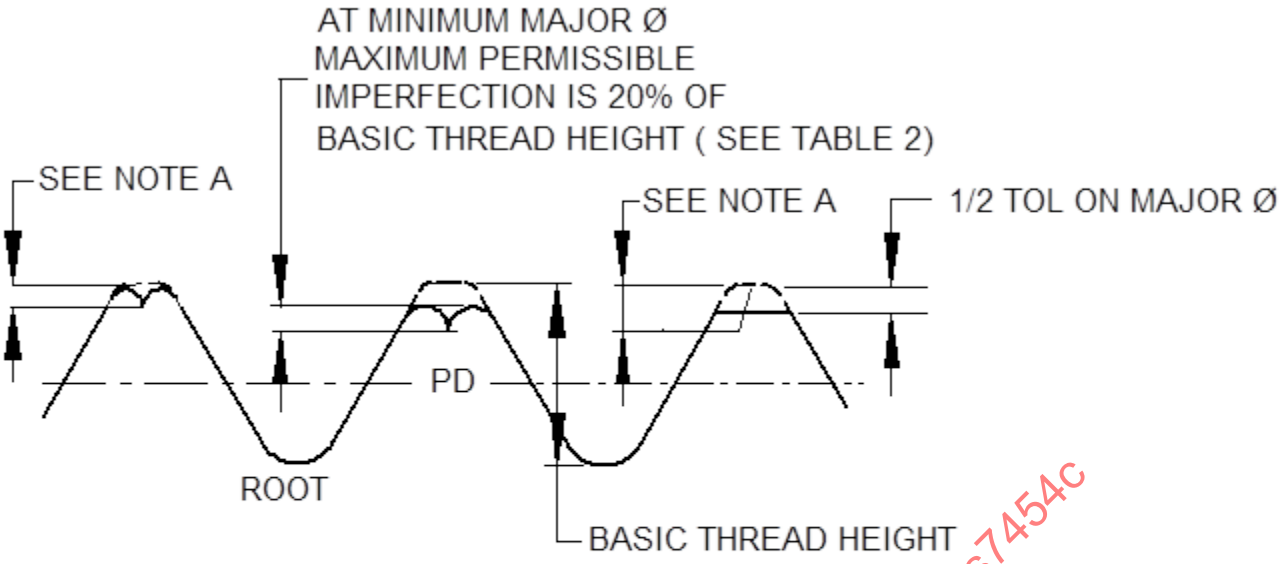


Figure 6 - Laps extending towards crest, rolled thread



NOTE A
MAXIMUM DEPTH OF IMPERFECTION EQUALS 20% OF 2H/3 BASIC THREAD DEPTH PLUS 1/2 THE DIFFERENCE OF THE ACTUAL MAJOR DIAMETER AND MINIMUM MAJOR DIAMETER

Figure 7 - Crest craters and crest laps, rolled thread

Table 1 - Thread height

Thread Pitches Per Inch n	Basic Thread Height /1/ Inch	20% Basic Thread Height Inch
80	0.0081	0.0016
72	0.0090	0.0018
64	0.0102	0.0020
56	0.0116	0.0023
48	0.0135	0.0027
44	0.0148	0.0030
40	0.0163	0.0033
36	0.0181	0.0036
32	0.0203	0.0041
28	0.0232	0.0046
24	0.0271	0.0054
20	0.0325	0.0065
18	0.0361	0.0072
16	0.0406	0.0081
14	0.0464	0.0093
13	0.0500	0.0100
12	0.0542	0.0108
11	0.0591	0.0118
10	0.0650	0.0130
9	0.0722	0.0144
8	0.0813	0.0163

/1/ Basic thread height is defined as being equivalent to 0.650 times the pitch, where pitch equals 1/n.