

MilSpec. Hex Cap Screws. Why are threads 3a Class after plating? See highlighted information on the following pages.

MILITARY STANDARD  
MS90725

**NOTES:**

1. **MATERIAL:** MEDIUM CARBON STEEL, GRADE 5, IN ACCORDANCE W/ PROCUREMENT SPECIFICATION
2. **PROTECTIVE COATING:** CADMIUM PLATING IN ACCORDANCE WITH PROCUREMENT SPECIFICATION
3. **THREADS:** THE THREADS SHALL BE IN ACCORDANCE WITH SCREW THREAD STANDARDS FOR FEDERAL SERVICES, HANDBOOK H28
4. **THREAD LENGTH:** MINIMUM THREAD LENGTH SHALL BE TWICE THE DIAMETER PLUS ¼ INCH. THE TOLERANCE SHALL BE PLUS 3/16 INCH OR 2-1/2 THREADS, WHICHEVER IS GREATER. ON SCREWS THAT ARE TOO SHORT FOR MINIMUM THREAD LENGTHS, THE DISTANCE FROM THE BEARING SURFACE OF THE HEAD TO THE FIRST COMPLETE THREAD SHALL NOT EXCEED THE LENGTH OF 2-1/2 THREADS FOR SIZES UP TO AND INCLUDING 1 INCH AND 3-1/2 THREADS FOR SIZES LARGER THAN 1 INCH
5. **DIMENSIONS:** ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE SPECIFIED
6. **HEAD MARKING:** HEAD SHALL BE MARKED IN ACCORDANCE WITH MIL-HDBK-131. RAISED MARKINGS ARE PREFERRED, STAMPINGS ARE ACCEPTABLE
7. **PART NUMBER:** THE MS PART NUMBER CONSISTES OF THE MS NUMBER, PLUS THE DASH NUMBER.  
EXAMPLE: MS90725-1
8. \* BASED ON MINIMUM ULTIMATE TENSILE STRENGTH OF 120,000 P.S.I. FOR DIAMETERS THRU 1 INCH; 105,000 P.S.I. FOR 1-1/8 INCH THRU 1-1/2 INCH DIAMETERS; 90,000 P.S.I. FOR DIAMETERS OVER 1-1/2 INCHES. TENSILE STRENGTHS ARE CALCULATED BY THE STRESS AREAS INDICATED IN SCREW-THREAD STANDARDS FOR FEDERAL SERVICES, HANDBOOK H28
9. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATION FOR BID
10. FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN
11. SUPERCEDES: MS35289, MS35291, MS35293, MS35295 IN PART, MS35297 AND MS35299; (BCAX2, 2.1, 3, 3.1, 3.2, 3.3, 4.2) IN PART; BCVX2, 2.1, 4, 4.1, 4.2, 4.3, 4.8, 4.9, 10; (BCVX2.2, 2.3, 2.8, 2.9, 10.2, 10.3) IN PART; BQLX1.2 IN PART, BQLX2, 2.1, 2.2, 3, 3.1, 4, 4.1, 8, 8.1, 9, 9.1, 10, 10.1

P.A. WC	TITLE: SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), STEEL, GRADE 5, CADMIUM PLATED <b>UNC-2A</b>	MILITARY STANDARD MS90725
<b>PROCUREMENT SPECIFICATION FF-S-85</b>	SUPERCEDES SEE NOTE 11	SHEET 2 OP

## **FF-S-85C**

**3.3 DIMENSIONS AND TOLERANCES.** CAP SCREWS SHALL CONFORM TO THE DIMENSIONS AND TOLERANCES OF USAS B18.2.1 AND B18.6.2 EXCEPT AS SPECIFIED HEREIN.

**3.3.1 LENGTHS.** UNLESS OTHERWISE SPECIFIED (SEE 6.2), CAP SCREWS SHALL BE FURNISHED IN THE FOLLOWING LENGTH INCREMENTS:  
LENGTHS UP TO 5/8 INCH INCLUDING - 1/16 INCREMENTS.  
OVER 5/8 TO 1/-1/2 INCHES INCLUDING - 1/8 INCH INCREMENTS.  
OVER 1-1/2 TO 5 INCHES INCLUDING - ¼ IN INCREMENTS.  
OVER 5 INCHES - ½ INCH INCREMENTS.

**3.3.2 THREAD SERIES, CLASS, LENGTHS, AND HAND.** UNLESS OTHERWISE SPECIFIED (SEE 6.2), CAP SCREWS SHALL BE RIGHT - HAND OF THE UNC (COURSE THREAD) OR UNF (FINE THREAD) SERIES, CLASS 2A, IN ACCORDANCE WITH NATIONAL BUREAU OF STANDARDS HANDBOOK H28, PART I.

**3.3.3 THREADS PROTECTIVITY COATED.** UNLESS OTHERWISE SPECIFIED (SEE 6.2), THREADS PRTECTIVELY COATED SHALL MEET THE DIMENSIONS OF NATIONAL BUREAU OF STANDARDS HANDBOOK H28 AFTER THE COATING HAS BEEN APPLIED.

**3.3.4 BEARING SURFACE.** BEARING SURFACE OF CAP SCREW HEADS, EXCEPT FLAT HEAD, SHALL BE AT RIGHT ANGLES TO THE AXIS OF THE BODY WITHIN A TOLERANCE OF 2 DEGREES AND OF HEX HEAD WITHIN A TOLERANCE OF 2 DEGREES FOR 1 INCH SIZE AND SMALLER, AND 1 DEGREE FOR SIZES LARGER THAN 1 INCH. THE AXIS OF THE HEAD SHALL BE CONCENTRIC WITH THE AXIS OF THE BODY (DETERMINED BY ONE DIAMETER LENGTH OF BODY UNDER HEAD) WITHIN A TOLERANCE EQUAL TO 3 PERCENT (6 PERCENT TIR) OF MAXIMUM WIDTH ACROSS FLATS. ANY MUTILATION OF THE BEARING SURFACE SUFFICIENT TO PREVENT PROPER SEATING OF THE SCREW SHALL BE CAUSE FOR REJECTION.

## **3.4 PROTECTIVE COATINGS.**

**3.4.1 COATINGS.** CAP SCREWS SHALL BE FURNISHED UNCOATED, PASSIVATED, OR COATED AS SPECIFIED HEREIN (SEE 6.2).

**3.4.2 PASSIVATION.** CORROSION RESISTANT STEEL CAP SCREWS SHALL BE PASSIVATED IN ACCORDANCE WITH QQ-P-35.

**3.4.3 CADMIUM PLATING.** WHEN SPECIFIED IN THE INVITAION FOR BID, CONTRACT, OR ORDER, CAP SCREWS SHALL BE CADMIUM PLATED AS SPECIFIED IN QQ-P-416, TYPE II, CLASS 2 (SEE 6.2).

**FEDERAL STANDARD  
SCREW-TRHREAD STANDARDS FOR FEDERAL SERVICES  
SECTION 2  
UNIFIED INCH SCREW THREADS- UN AND UNR THREAD FORMS**

THIS STANDARD WAS APPROVED BY THE COMMISSIONER, FEDERAL SUPPLY SERVICE, GENERAL SERVICE ADMINISTRATION, FOR THE USE OF ALL FEDERAL AGENCIES.

**FED-STD-H28/28**

**2.2 OTHER PUBLICATIONS.** THE FOLLOWING DOCUMENTS FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN. UNLESS A SPECIFIC IS IDENTIFIED, THE ISSUE IN EFFECT ON DATE OF INVITAION FOR BIDS OR REQUEST FOR PROPOSAL SHALL APPLY.

**AMERICAN NATIONAL STANDARDS.**

ASME B1.1-1989 – UNIFIED INCH SCREW THREADS (UN AND UNR THREAD FORM)  
ANSI/ASME B46.1 – SURFACE TEXTURE – SURFACE ROUGHNESS, WAVINESS AND LAY

**3. DEFINITIONS.** THE TERMS APPLICABLE TO THIS STANDARD ARE DEFINED IN FED-STD-H28/1.

**4. GENERAL REQUIREMENTS.**

**4.1 SCREW THREADS.** UNIFIED INCH SCREW THREADS SHALL BE IN ACCORDANCE WITH ASME B1.1-1989 AND THIS FEDERAL STANDARD. ONLY STANDARD SERIES UNIFIED SCREW THREADS, LISTED IN TABLE 3A OF ASME-B1.1-1989, SHALL BE USED FOR NEW DESIGN FOR THE FEDERAL SERVICES UNLESS PRIOR APPROVAL HAS BEEN GRANTED BY THE PROCUREMENT AUTHORITY TO DEVIATE FROM THEM. COARSE AND FINE THREAD SERIES ARE PREFERRED.

**4.2 ACCESSIBILITY.** SCREW THREAD INSPECTION METHODS FOR ACCEPTABILITY SHALL BE IN ACCORDANCE WITH FED-STD-H28/20. THE REQUIRED GAGING SYSTEM SHALL BE SPECIFIED IN ACCORDANCE WITH THAT STANDARD.

**4.3 GAGES AND GAGING.** GAGES AND GAGING SHALL BE IN ACCORDANCE WITH FED-STD-H28/6.

## ASME B1.1-1989

**5.9.2 EXTERNAL THREAD.** WHEN MEASUREMENT IS SPECIFIED, THE ROUNDOFF OF THE MAJOR DIAMETER CYLINDER WITH THE PITCH DIAMETER CYLINDER ON THE EXTERNAL THREAD SHALL NOT EXCEED ITS PITCH DIAMETER TOLERANCE.

**5.10 LEAD AND FLANK ANGLE TOLERANCES.** SEE SECTION 9.

**5.11 COATED OR PLATED THREADS.** SEE SECTION 7 FOR DIMENSIONAL ACCOMMODATION AND LIMITS FOR COATED THREADS.

## 6 SCREW THREAD DESIGNATION

**6.1 BASIC METHOD OF DESIGNATING.** THE BASIC METHOD OF DESIGNATING IS USED WHERE THE STANDARD TOLERANCES OR LIMITS OF SIZE BASED ON THE STANDARD LENGTH OF ENGAGEMENT ARE APPLICABLE, AS INDICATED IN SECTION 5. THE DESIGNATION SPECIFIES IN SEQUENCE THE NOMINAL SIZE, NUMBER OF THREADS PER INCH, THREAD SERIES SYMBOL, AND GAGING SYSTEM PER ANSI/ASME B1.3M. THE NOMINAL SIZE IS THE BASIC MAJOR DIAMETER AND IS SPECIFIED AS THE FRACTIONAL DIAMETER, SCREW NUMBER, OR THE DECIMAL EQUIVALENT. WHERE DECIMAL EQUIVALENTS ARE USED FOR SIZE CALLOUT, THEY SHALL BE SHOWN IN FOUR PLACE DECIMALS (OMITTING THE CIPHER IN THE FOURTH PLACE) FOR FRACTIONAL SIZES, AND IN THREE PLACE DECIMALS FOR NUMBER SIZES. THEY SHALL BE INTERPRETED AS BEING NOMINAL SIZE DESIGNATIONS ONLY AND SHALL HAVE NO DIMENSIONAL SIGNIFICANCE BEYOND THE FRACTIONAL SIZE OR NUMBER DESIGNATION. THE THREAD SERIES SYMBOL INDICATES THE THREAD FORM (REFER TO SECTION 2), SERIES, AND TOLERANCE FORMULATION (REFER TO SECTION 3). THE THREAD SERIES SYMBOLS FOR THE UN THREAD FORM ARE UNC, UNF, UNEF, OR UN FOR ONLY THOSE SIZES OF THE VARIOUS SERIES SHOWN IN TABLE 2 AND UNS FOR ANY OTHER INTERMEDIATE AND LARGER SIZE DIAMETER-PITCH COMBINATION HAVING TOLERANCES TO UNIFIED FORMULATION. THE CORRESPONDING THREAD SERIES SYMBOLS FOR THE UNR THREAD FORM ARE UNRC, UNRF, UNREF, OR UNR. THE SYMBOL UNRS CORRESPONDS TO UNS. THE THREAD CLASS SYMBOLS ARE 1A, 1B, 2A, 2B, 3A, OR 3B, WHERE THE SUFFIXES A AND B RELATE TO EXTERNAL AND INTERNAL THREADS, RESPECTIVELY. UNS THREADS AND THREADS HAVING SPECIAL LENGTH OF ENGAGEMENT REQUIRE CERTAIN ADDITIONAL INFORMATION AS SHOWN IN PARAS. 6.4 AND 6.6.

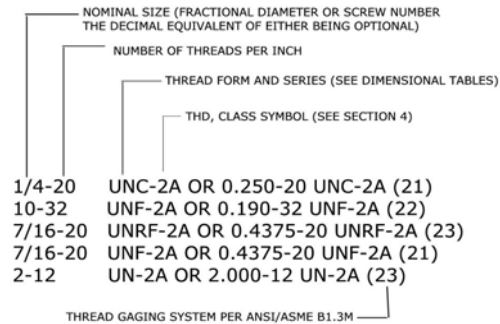


FIGURE 4 SCREW THREAD DESIGNATIONS

**GENERAL NOTE:** THREAD ACCEPTABILITY GAGING SYSTEM REQUIREMENT OF ANSI/ASME B1.3M MAY BE ADDED TO THE THREAD SIZE DESIGNATION AS NOTED ABOVE OR AS SPECIFIED IN PERTINENT DOCUMENTATION, SUCH AS DRAWING OR PROCUREMENT DOCUMENT.

### 6.2 METHOD OF DESIGNATING COATED THREADS.

SPECIFICATIONS ON DRAWINGS OF THE BEFORE AND AFTER COATING DIMENSIONS FOR SCREW THREADS IS SOMETIMES DICTATED BY AN ENGINEERING OR PRODUCTION CONSIDERATION THE SIZE BEFORE AND AFTER COATING BE CONTROLLED. THIS RESULTS FROM COATED SCREW THREADS HAVING TWO STAGES OF DESIGN – THE BEFORE COATING STAGE AND THE AFTER COATING STAGE. THE THREADED PRODUCT MAY BE PRODUCED BY A SUPPLIER AND COATED BY A USER. IN THIS CASE, IT IS NECESSARY THAT A CLEAR UNDERSTANDING OF THE COATING REQUIREMENTS AND THE ALLOWANCE FOR COATING BUILDUP BE AGREED UPON BY BOTH SUPPLIER AND USER (SEE SECTION 7). THE BEFORE COATING (PLATING) DIMENSIONS HAVE A DEFINATE BEARING ON THE STRENGTH OF THE SCREW THREADS. THE BEFORE COATING STAGE IS, THEREFORE, DECIDEDLY AN ENGINEERING CONSIDERATION; IT IS ALSO A PRODUCTION CONSIDERATION IN REQUIRING THAT PROPER ALLOWANCE BE MADE FOR THE SPECIFIED COATING THICKNESS. THE FINISH PARTS SHOULD BE OF A SIZE THAT WILL ALLOW THEM TO BE ASSEMBLED WITH THEIR COATING COMPONENTS AS INTENDED. RECOMMENDED METHODS FOR DESIGNATING COATED THREAD UNDER VARIOUS CONDITIONS ARE DESCRIBED IN THE FOLLOWING PARAGRAPH.

**6.2.1** FOR COATED (OR PLATED) CLASS 2A EXTERNAL THREADS, THE BASIC (MAX) MAJOR AND BASIC (MAX) PITCH DIAMETERS SHALL BE GIVEN, FOLLOWED BY THE WORDS

AFTER COATING. THE MAJOR AND PITCH DIAMETER LIMITS OF SIZE BEFORE COATING SHALL ALSO BE GIVEN FOLLOWED BY THE WORDS BEFORE COATING.

**EXAMPLE:**

$\frac{3}{4}$ -10 UNC-2AG (22) MAJOR DIAM. 0.7482 MAX. PD 0.6832 MAX(4)	AFTER COATING
MAJOR DIAM. 0.7482-0.7353 PD 0.6832-0.6773(4)	BEFORE COATING

CERTAIN APPLICATIONS REQUIRE AN ALLOWANCE FOR RAPID ASSEMBLY TO PERMIT APPLICATION OF THE PROPER LUBRICANT OR FOR RESIDUAL GROWTH DUE TO HIGH-TEMPERATURE EXPANSION. IN THESE APPLICATIONS, WHEN THE THREAD IS COATED AND 2A ALLOWANCE IS NOT PERMITTED TO BE CONSUMED BY SUCH COATING, THE THREAD CLASS SYMBOL IS QUALIFIED BY THE ADDITION OF THE LETTER G (OLD SYMBOL FOR ALLOWANCE) FOLLOWING THE CLASS SYMBOL; THE MAXIMUM MAJOR AND MAXIMUM PITCH DIAMETERS ARE REDUCED BELOW BASIC SIZE BY THE AMOUNT OF THE 2A ALLOWANCE AND FOLLOWED BY THE WORDS AFTER COATING, THEREBY INSURING THAT THE ALLOWANCE IS MAINTAINED. THE THREAD BEFORE COATING MUST HAVE SPECIAL PROVISIONS TO ALLOW FOR COATING THICKNESS. THE MAJOR AND PITCH DIAMETER LIMITS OF SIZE BEFORE COATING (CALCULATED IN ACCORDANCE WITH SECTION 7) SHALL ALSO BE GIVEN, FOLLOWED BY THE LETTERS SPL (SPECIAL) AND BY THE WORDS BEFORE COATING.

**EXAMPLE:**

$\frac{3}{4}$ -10 UNC-2AG (22) MAJOR DIAM. 0.7482 MAX. PD 0.6832 MAX(4)	AFTER COATING
MAJOR DIAM. 0.7464-0.7335 SPL PD 0.6814-0.6755 SPL(5)	BEFORE COATING

**THREADS ACCEPTED TO CLASS 2A LIMITS BEFORE COATING ARE ACCEPTED AFTER COATING BY BASIC SIZE CLASS 3A GO THREAD GAGES.** THE ALLOWANCE GIVEN IN THE DIMENSIONAL TABLES FOR CLASS 2A THREAD IS SUFFICIENT TO ALLOW FOR A LIMITED AMOUNT OF COATING DESCRIBED IN SECTION 7. HOWEVER, IF A GREATER COATING THICKNESS IS REQUIRED, IT WILL BE NECESSARY TO CALCULATE THE BEFORE COATING LIMITS IN ACCORDANCE WITH SECTION 7.

**6.2.2** FOR COATED (OR PLATED) CLASS 3A EXTERNAL THREADS, THE MAXIMUM MAJOR AND MAXIMUM PITCH DIAMETERS MAY OPTIONALLY BE GIVEN, FOLLOWED BY THE WORDS AFTER COATING, THEREBY INDICATING THAT

THE THREAD BEFORE COATING MUST HAVE SPECIAL PROVISIONS TO ALLOW FOR COATING THICKNESS. THE MAJOR AND PITCH DIAMETER LIMITS OF SIZE BEFORE COATING (CALCULATED IN ACCORDANCE WITH PARA. 7.5) SHALL BE GIVEN, FOLLOWED BY THE LETTERS SPL (SPECIAL) AND BY THE WORDS BEFORE COATING.

**EXAMPLE: THICKNESS OF COATING 0.0002 IN. TO 0.0003 IN.**

$\frac{1}{4}$ -28 UNF-3A (21) MAJOR DIAM. 0.2500 MAX. PD 0.2268 MAX (6)	AFTER COATING
MAJOR DIAM. 0.2494-0.2431 SPL PD 0.2256-0.2235 SPL	BEFORE COATING

**6.2.3** FOR COATED (OR PLATED) CLASS 1A EXTERNAL THREADS, THE MAXIMUM MAJOR AND MAXIMUM PITCH DIAMETERS MAY OPTIONALLY BE GIVEN, FOLLOWED BY THE WORDS AFTER COATING, THEREBY INDICATING THAT THE THREAD BEFORE COATING MUST HAVE SPECIAL PROVISIONS TO ALLOW FOR COATING THICKNESS. THE MAJOR AND PITCH DIAMETER LIMITS OF SIZE BEFORE COATING (CALCULATED IN ACCORDANCE WITH PARA. 7.5) SHALL BE GIVEN FOLLOWED BY THE LETTERS SPL (SPECIAL) AND BY THE WORDS BEFORE COATING.

**EXAMPLE: THICKNESS OF COATING 0.0002 IN. TO 0.0003 IN.**

$\frac{1}{4}$ -20 UNC-1A (21) MAJOR DIAM. 0.2489 MAX. PD 0.2164 MAX (7)	AFTER COATING (OPTIONAL)
MAJOR DIAM. 0.2483-0.2363 SPL PD 0.2152-0.2100 SPL (8)	BEFORE COATING

**6.2.4** WHERE AN ALLOWANCE IS REQUIRED TO ACCOMMODATE COATING (OR PLATING) ON CLASS 1B, 2B, OR 3B INTERNAL THREADS, THE MINIMUM MINOR AND MINIMUM PITCH DIAMETERS MAY OPTIONALLY BE GIVEN, FOLLOWED BY THE WORDS AFTER COATING. THE MINOR AND PITCH DIAMETER LIMITS OF SIZE BEFORE COATING (CALCULATED IN ACCORDANCE WITH PARA. 7.6) SHALL BE GIVEN FOLLOWED BY THE LETTERS SPL (SPECIAL) AND BY THE WORDS BEFORE COATING.

**EXAMPLE: THICKNESS OF COATING 0.0002 IN. TO 0.0003 IN.**

$\frac{1}{4}$ -20 UNC-1B (21) MINOR DIAM. 0.196 MIN. PD 0.2175 MIN.	AFTER COATING (OPTIONAL)
MINOR DIAM. 0.197-0.207 SPL PD 0.2187-0.2256 SPL	BEFORE COATING

(3) MAJOR AND PD VALUES ARE EQUAL TO BASIC AND CORRESPOND TO THOSE IN TABLE 3A FOR CLASS 3A.

(4) MAJOR AND PD LIMITS ARE THOSE IN TABLE 3A FOR CLASS 2A.

(5) MAJOR AND PD LIMITS CORRESPOND TO THOSE IN TABLE 3A FOR CLASS 2A MINUS THE COATING ALLOWANCE.

(6) MAJOR AND PD LIMITS ARE THOSE IN TABLE 3A FOR CLASS 3A

(7) MAJOR AND PD LIMITS ARE THOSE IN TABLE 3A FOR CLASS 1A

(8) MAJOR AND PD LIMITS CORRESPOND TO THOSE IN TABLE 3A FOR CLASS 1A MINUS THE COATING ALLOWANCE.

**PLATED AND COATED EXTERNAL THREADS ARE ACCEPTED WITH 3A GO OR 6H GO GAGES**

By: Joe Greenslade

American Fastener Journal Jan/Feb, 1998

BAR FAR THE MOST FREQUENT QUESTION WE RECEIVE REGARDING THREAD GAGING RELATES TO THE CONFUSION OVER BEFORE AND AFTER PLATING THREAD GAGING REQUIREMENTS. THE RULES FOR EXTERNAL THREAD GAGING ARE SHOWN IN **TABLE I**. THESE ARE THE RULES AS STATED IN ASME B1.1 SECTION 6 FOR INCH THREADS AND ISO 965/2, SECTION 3 FOR METRIC THREADS. THE REASON FOR THESE RULES IS SIMPLE. THE SIZE OF THE THREAD'S DIMENSIONS MUST BE LARGER AFTER PLATING OR COATING IS ADDED THAN IT IS BEFORE THE PLATING OR COATING IS ADDED. IN EXTERNAL INCH THREADS 3A GO SIZE IS REFERRED TO AS "BASIC SIZE" AS IS 6H IN METRIC THREADS. THESE CREATE THE DIVIDING LINE BETWEEN THE SIZES OF THE INTERNAL AND EXTERNAL THREADS. AS LONG AS AN EXTERNAL THREAD DOES NOT EXCEED THE MAXIMUM SIZES OF 3A GO FOR INCH THREADS OR 6H GO FOR METRIC THREADS THEY WILL ASSEMBLE WITH MATING INTERNAL THREADS OF ANY SIZE AS LONG AS THEY MEASURE WITHIN THEIR REQUIRED LIMITS OF SIZE. CLASSES 2A AND 6G HAVE WITHIN THEIR SIZE STANDARDS AN AREA REFERRED TO AS "ALLOWANCE". THE "ALLOWANCE" IS THE SIZE RANGE EXACTLY EQUAL TO THE DIFFERENCE BETWEEN 2A GO AND 3A GO FOR INCH THREADS AND BETWEEN 6G GO AND 6H GO FOR METRIC THREADS. THE TERM "ALLOWANCE" IN THESE STANDARDS MEANS "ALLOWANCE FOR THE ADDITION OF PLATING OR COATING". UNFORTUNATELY, THE STANDARDS HAVE NOT SPELLED THAT OUT VERY CLEARLY IN THE PAST. THE THICKNESS OF PLATING OR COATING THAT CAN BE APPLIED TO EITHER 2A OR 6G EXTERNAL THREADS WITHOUT EXCEEDING THE THREAD'S BASIC SIZE IS EQUAL TO ¼ OF THE SIZE OF THE "ALLOWANCE" (DIFFERENCE BETWEEN 2A HIGH LIMIT AND 3A HIGH LIMIT, OR BETWEEN 6G HIGH LIMIT AND 6H HIGH LIMIT). THIS IS GENERALLY IN THE RANGE OF ABOUT .0015 TO .0002 INCHES OF THICKNESS. IF THE USER REQUIRES A PLATING THICKNESS GREATER THAN ¼ THE ALLOWANCE, THE BEFORE PLATING OR COATING THREADS MUST BE MADE UNDERSIZED TO ASSURE THAT THE AFTER PLATED OR COATED THREADS WILL NOT INTERFERE WITH THEIR MATING INTERNAL THREADS. MANY CUSTOMER SUPPLIER CONTROVERSIES REVOLVE AROUND THIS ISSUE OF GAGING THREADS THAT ARE DESIGNATED AS 2A OR 6G ON DRAWINGS OR PURCHASE ORDERS, BUT ARE PLATED AND MUST, THEREFORE, BE INSPECTED USING 3A OR 6H LIMITS FOR ACCEPTANCE. MANY USER SIMPLY DO NOT UNDERSTAND HOW THE STANDARDS ARE DESIGNED AND ARE FEARFUL THAT 3A OR 6H EXTERNAL THREADS ARE GOING TO BIND IN THEIR CORRESPONDING 2B OR 6H NUTS. THIS IS NOT A PROBLEM, BECAUSE THE STANDARDS' AUTHORS HAVE LONG UNDERSTOOD THIS POTENTIAL PROBLEM AND HAVE CREATED STANDARDS SUCH THAT 3A GO SIZE THREADS NEVER ENTER THE SIZES OF 2B GAGING LIMITS, AND CORRESPONDINGLY 6H GO SIZED THREADS NEVER ENTER THE SIZE RANGE OF 6H INTERNAL THREADS. **REMEMBER, THE PROPER GO GAGING FOR ACCEPTANCE FOR PLATED OR COATED EXTERNAL THREADS IS: 2A GO BEFORE PLATING OR COATING AND 3A GO AFTER PLATING OR COATING FOR INCH THREADS AND 6G GO BEFORE PLATING OR COATING AND 6H AFTER PLATING OR COATING FOR METRIC THREADS.**

THREAD CLASS	PLAIN FINISH GAGING	PLATED OR COATED GAGING
INCH: 2A	HIGH LIMIT: 2A GO LOW LIMIT: 2A NO GO	HIGH LIMIT: 3A GO LOW LIMIT: 2A NO GO
METRIC: 6G	HIGH LIMIT: 6G GO LOW LIMIT: 6G NO GO	HIGH LIMIT: 6H GO LOW LIMIT: 6G NO GO