

# FASTENER COMPONENTS INDEX

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# METRIC FASTENER STANDARDS

GLOBAL STANDARD COMPONENTS



Assembly

11/10/10

## A Dimensional and Material Specifications

| Product                                     | Dimensional Specification | Material Specification                  |
|---|---------------------------|---|
| Socket Head Cap Screws                      | ANSI B18.3.1M             | ASTM A574M                              |
| Hex Head Cap Screws                         | ANSI B18.2.3.1M           | ASTM F568M, Class 10.9                  |
| Base Leveling Screw                         | M24 x 2.0 x 150 HHCS      | Property Class 10.9                     |
| Hex Nuts                                    | ANSI B18.2.4.2M           | ASTM A563M, Class 12                    |
| Lock Nuts                                   | ANSI B18.16.3M            | ASTM A563M, Class 12                    |
| Hex Jam Nuts                                | ANSI B18.2.4.5M           | ASTM A563M, Class 04                    |
| Shoulder Screws                             | ANSI B18.3.3M             | ANSI B18.3.3M                           |
| Socket Set Screws                           | ANSI B18.3.6M             | Class 45H                               |
| Flat Head Cap Screws                        | ANSI B18.3.5M             | ASTM F835M                              |
| Button Head Cap Screws                      | ANSI B18.3.4M             | ASTM F835M                              |
| PullOut Dowel Pins                          | ISO 8735A                 | —                                       |
| Flat Washers (M6 – M10)<br>(M12 and Larger) | —<br>ASTM F436M           | Rc 38-45 through hardened<br>ASTM F436M |

### Notes:

All specifications must be to the latest revision

## B Fastener Installation and Assembly Standards

1. All mating nuts for Property Class 12.9 socket head cap screws must be property class 12, in accordance with ASTM A563M, and conform to ANSI B18.2.4.2M. This requirement is in keeping with ASTM guidelines, which recommend that nuts be strength matched to mating screws.
2. Locking nuts, when specified, must meet requirements of ASTM A563M Class 12, and must be of all metal type, meeting prevailing torque requirements for class 10 nuts in ANSI B18.16.1M.
3. Nylon patch thread locking elements, when specified, should be applied to screw threads, and must meet prevailing torque requirements listed with these standards.
4. The use of anaerobic adhesives should be limited to applications in which installation torque values must be low, and where there is little possibility of fastener re-use. Components that might be serviced or adjusted after they are assembled, including torque auditing by quality control personnel, should not utilize such adhesives.
5. All dowel pins, 6mm and larger in diameter, should be pull type and have an air relief mechanism (machined flat or spiral groove).
6. Dowel pins 5mm and smaller in diameter may be standard or pull type at supplier's option.
7. All washers used in assemblies with screws listed in item 1 must be through hardened.

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# METRIC FASTENER STANDARDS

GLOBAL STANDARD COMPONENTS



Assembly

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8. Adherence to recommended cutting tools in this standard is mandated in order to achieve proper preloading of fasteners. These standards provide for the maximum allowable eccentricity of the longest standard screws and for certain deviations in the parts being fastened, such as hole straightness, angularity between the axis of the tapped hole and that of the hole for the shank, differences in the center distances of the mating holes and other deviations.

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# METRIC FASTENER STANDARDS

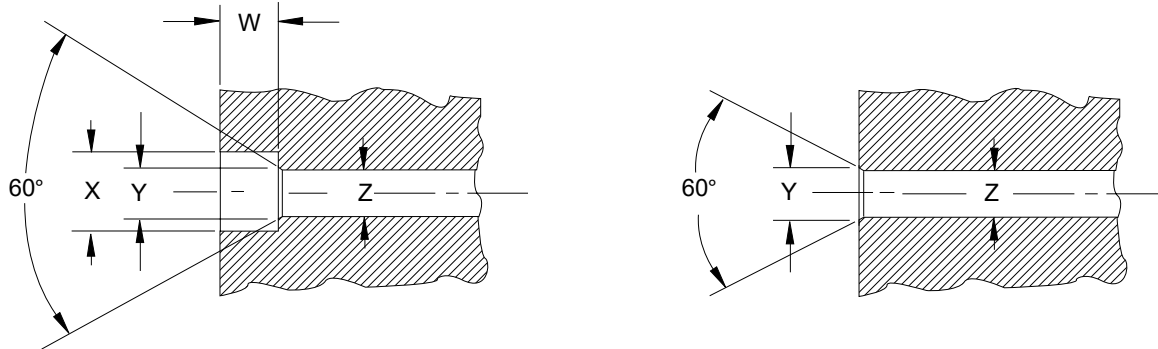
GLOBAL STANDARD COMPONENTS



Assembly

02/22/22

## C Hole Sizes



| Screw Size | Tap Drill Size (class 6H threads) | X Counterbore Dia. | Y Countersink Dia. | Z Body Drill Size for Through Hole | W Counterbore Depth |
|------------|-----------------------------------|--------------------|--------------------|------------------------------------|---------------------|
| M3 x 0.5   | 2.5                               | 6.5                | 3.6                | 3.4                                | 5.0                 |
| M4 x 0.7   | 3.3                               | 8.0                | 4.9                | 4.5                                | 6.0                 |
| M5 x 0.8   | 4.2                               | 10.0               | 5.9                | 5.5                                | 8.0                 |
| M6 x 1.0   | 5.0                               | 11.0               | 7.1                | 6.6                                | 9.0                 |
| M8 x 1.25  | 6.7                               | 15.0               | 9.8                | 9.0                                | 11.0                |
| M10 x 1.5  | 8.5                               | 18.0               | 11.8               | 11.0                               | 14.0                |
| M12 x 1.75 | 10.2                              | 20.0               | 14.7               | 13.5                               | 16.0                |
| M16 x 2.0  | 14.0                              | 26.0               | 18.7               | 17.5                               | 21.0                |
| M20 x 2.5  | 17.5                              | 33.0               | 23.6               | 22.0                               | 26.0                |
| M24 x 3.0  | 21.0                              | 40.0               | 27.6               | 25.0                               | 32.0                |

## D Prevailing Torque requirements for Nylon Patch Screws

| Nominal Thread Diameter And Pitch | Clamp Load (kN) | Prevailing Torque Maximum (Nm) | 1 <sup>st</sup> Removal Prevailing Torque Minimum (Nm) | 5 <sup>th</sup> Removal Prevailing Torque Minimum (Nm) |
|-----------------------------------|-----------------|--------------------------------|--|--|
| M6 x 1.0                          | 15.6            | 3.0                            | 0.45   | 0.30   |
| M8 x 1.25                         | 28.4            | 10                             | 0.90   | 0.58   |
| M10 x 1.5                         | 45.0            | 14                             | 1.8  | 1.1  |
| M12 x 1.75                        | 65.4            | 21                             | 2.6  | 1.5  |
| M16 x 2.0                         | 122             | 40                             | 5.0  | 3.4  |
| M20 x 2.5                         | 190             | 60                             | 8.0  | 5.5  |

Note: these values are in accordance with IFI 524

# PREFERRED METRIC FASTENER SIZES

## SOCKET HEAD CAP AND HEX HEAD SCREWS

| THREAD<br>SIZE &<br>PITCH | CLEARANCE<br>HOLE<br>Ø | PREFERRED LENGTHS |    |    |    |    |    |    |    |     |
|---------------------------|------------------------|-------------------|----|----|----|----|----|----|----|-----|
|                           |                        | 16                | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 150 |
| M6 X 1*                   | 6.6                    | X                 | X  | X  |    |    |    |    |    |     |
| M8 X 1.25*                | 9.0                    |                   | X  | X  | X  |    |    |    |    |     |
| M10 X 1.5*                | 11.0                   |                   |    | X  | X  | X  | X  |    |    |     |
| M12 X 1.75                | 13.5                   |                   |    | X  | X  | X  | X  |    |    |     |
| M16 X 2                   | 17.5                   |                   |    |    | X  | X  | X  | X  |    |     |
| M20 X 2.5                 | 22.0                   |                   |    |    |    | X  | X  | X  | X  |     |
| M24 X 2**                 |                        |                   |    |    |    |    |    |    |    | X   |

\*Socket head cap screws only

\*\*Hex head, leveling screw only

## DOWELS (M6) PULL TYPE

| DIAMETER | PREFERRED LENGTHS |    |    |    |    |    |    |    |    |
|----------|-------------------|----|----|----|----|----|----|----|----|
|          | 16                | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 80 |
| 6        | X                 | X  | X  |    |    |    |    |    |    |
| 8        |                   | X  | X  | X  | X  |    |    |    |    |
| 10       |                   |    | X  | X  | X  | X  |    |    |    |
| 12       |                   |    |    | X  | X  | X  | X  |    |    |
| 16       |                   |    |    |    |    | X  | X  | X  |    |
| 20       |                   |    |    |    |    |    | X  | X  | X  |

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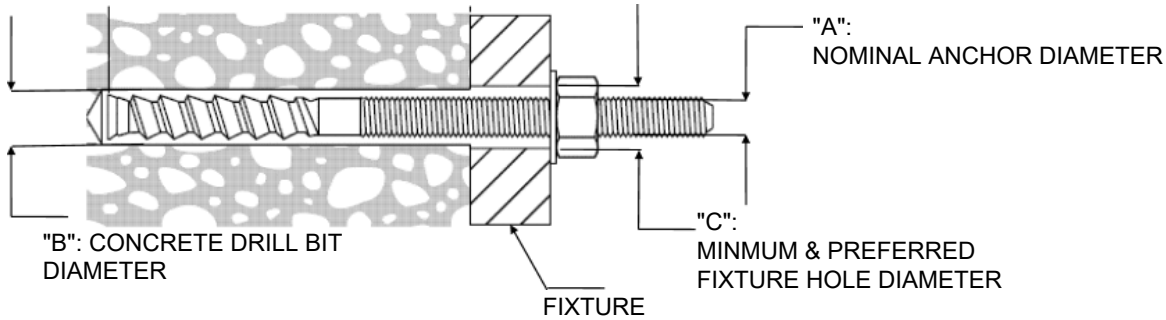
# PREFERRED CONCRETE ANCHOR HOLE SIZES

GLOBAL STANDARD COMPONENTS



Assembly

04/12/24



|  | "A": NOMINAL ANCHOR DIAMETER |       |        |  |
|--|------------------------------|-------|--------|--|
|  | 3/8"                         | 1/2"  | 5/8"   | 3/4"                                   |
| B: Concrete Drill Bit Ø  | 7/16"                        | 9/16" | 3/4"   | 7/8"                                   |
| THROUGH SET<br>C: Preferred Fixture Hole Ø<br>METRIC DRILLS/COMPONENTS | 14mm                         | 16mm  | 21mm   | 24mm if drilled<br>27mm if burned      |
| THROUGH SET<br>C: Preferred Fixture Hole Ø<br>INCH DRILLS/COMPONENTS   | 1/2"                         | 5/8"  | 13/16" | 15/16" if drilled<br>1-1/16" if burned |

\*NOTE: Through set is when the fixture is put in place and the concrete hole is drilled through the fixture hole.

| FIXTURE TYPE                   | *TYPICAL NOMINAL ANCHOR DIAMETER | C: PREFERRED DRILLED FIXTURE HOLE DIAMETER |
|--------------------------------|----------------------------------|--|
| Robot Base Plates              | 3/4"                             | 24MM                                       |
| Angle Brackets for base plates |                                  |  |
| RTU/7th Axis for robots        |                                  |  |
| Turn Table                     |                                  |  |
| Robot Balcony                  |                                  |  |
| Overhead Structures            |                                  |  |
| Tooling Bases/wing bases       |                                  |  |
| Robot Risers                   |                                  |  |
| Frames/Risers for RTU/7th Axis |                                  |  |
| Fence details/Posts            | 3/8"                             | 14MM                                       |
| Pass Tables                    |                                  |  |
| Tip Dress Stands               |                                  |  |
| Weld timer stands              |                                  |  |
| Part Cart Floor Details        |                                  |  |

\*NOTE: MINIMUM ANCHOR SIZE AND QUANTITY ARE TO BE DETERMINED BY CUSTOMER AND ANCHOR MANUFACTURERS SPECIFICATIONS

A

# FASTENER INSTALLATION AND TORQUING PROCEDURE (EXCLUDING SHOULDER SCREWS)

## GENERAL

- This standard applies only to Property Class 10.9 hex head and 12.9 socket head cap screws when used in steel, unlubed and where the head bears against a metal surface. Where the bearing surface is not a metal (e.g. UHMW plastic), the tightening specification for any fastener shall be “snug fit then 1/4 turn”.
- For purposes of uniformity in clamp loading, the calculations for the recommended installation torques listed below are based upon  $K = 0.20$  for uncoated screws and  $K = 0.15$  for blue coated screws.
- Testing by reputable fastener manufacturers has proven that the use of split lockwashers under heads of hardened screws may prevent achieving or retaining the desired preload in bolted joints.

## INSTALLATION PROCEDURE

1. Use only new fasteners for first-time assembly.
2. Before installing the fastener, be sure that it is free of flaws and it is the correct property class. Fasteners with flaws shall be marked with a white line drawn across the threads and discarded.
3. Fasteners may be tightened with any appropriate fastening device. Final torquing shall be done with a calibrated torque wrench to the required value as follows:

| Nominal Diameter and Thread Pitch | Recommended Installation Torque (Nm) |                     |                     |                     |                     |
|-----------------------------------|--------------------------------------|---------------------|---------------------|---------------------|---------------------|
|                                   | Uncoated                             |                     |                     | Coated              |                     |
|                                   | *Property Class 8.8                  | Property Class 10.9 | Property Class 12.9 | Property Class 10.9 | Property Class 12.9 |
| M6 x 1.0                          | 8                                    | 16                  | 19                  | 12                  | 14                  |
| M8 x 1.25                         | 19                                   | 39                  | 45                  | 29                  | 34                  |
| M10 x 1.5                         | 50                                   | 76                  | 89                  | 58                  | 68                  |
| M12 x 1.75                        | 88                                   | 134                 | 156                 | 100                 | 120                 |
| M16 x 2.0                         | 218                                  | 331                 | 387                 | 250                 | 290                 |
| M20 x 2.5                         | 426                                  | 644                 | 760                 | 485                 | 570                 |
| M24 x 3.0                         | 736                                  | 1120                | 1308                | 840                 | 985                 |
| M30 x 3.5                         | 1463                                 | 2226                | 2595                | 1670                | 1960                |

- \* : FOR SERVICING COMMERCIAL COMPONENTS WITH COMPONENT MANUFACTURE’S APPROVAL.
4. After torquing is completed, draw a straight line (match mark) from the wall of the fastener head onto the seating surface using a white steel paint pen. Ensure that the line is easily visible for periodic inspection.
  5. A fastener suspected of being over-torqued shall be marked as described in item 2 and discarded.
  6. Do not torque fasteners at machine break points until final installation.
  7. Where safety wiring is specified, do not safety wire any screws until they have passed the torque audit.
  8. If fasteners are in a position that a torque wrench cannot be used, the following steps shall be used:
    - a) Tighten the fastener until the joint surfaces have established a snug fit.
    - b) Mark the position of the fastener to the surface with a white steel paint pen.
    - c) Tighten the fastener 1/3 of a turn (120).
    - d) After torquing is completed, draw a straight line (match mark) from the wall of the fastener head onto the seating surface using a white steel paint pen. Ensure that the line is easily visible for periodic inspection.

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# TORQUE AUDIT PROCEDURE

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

- Applies only to screws installed per the NAAMS Fastener Installation and Torquing Procedure.
  - The method for checking the fastener torque is the Static Torque Method, which is defined as the torque required to start a previously tightened fastener into motion in the direction of tightening.
1. Audit samples shall be a random selection consisting of thirty (30) fasteners from each type/size property class fastener used. Where a sample of thirty is not obtainable, a 100% audit of that type/size/property class fastener is required.
  2. Do not audit at machine break points.
  3. Record the applicable torque values from each of the samples on the NAAMS Torque Data Sheet.
  4. A fastener shall be deemed to have passed the audit if the torque is within the following limits. High and low auditing torque limits are  $\pm 10\%$  of the recommended installation torque.

| Nominal Diameter and Thread Pitch | Torque Audit range (Nm) |                     |                     |                     |
|-----------------------------------|-------------------------|---------------------|---------------------|---------------------|
|                                   | Uncoated                |                     | Coated              |                     |
|                                   | Property Class 10.9     | Property Class 12.9 | Property Class 10.9 | Property Class 12.9 |
| M6 x 1.0                          | 14.4-17.6               | 16.7-20.5           | 10.8-13.2           | 12.6-15.4           |
| M8 x 1.25                         | 35-43                   | 41-50               | 26-32               | 31-38               |
| M10 x 1.5                         | 69-84                   | 80-100              | 52-64               | 61-74               |
| M12 x 1.75                        | 121-147                 | 140-172             | 90-110              | 106-130             |
| M16 x 2.0                         | 300-365                 | 350-425             | 225-275             | 260-320             |
| M20 x 2.5                         | 580-710                 | 685-835             | 435-535             | 515-630             |
| M24 x 3.0                         | 1010-1230               | 1180-1440           | 760-930             | 890-1090            |
| M30 x 3.5                         | 2000-2450               | 2340-2860           | 1500-1840           | 1760-2160           |

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5. When a fastener fails the audit:
  - a. Due to over-torquing: it shall be marked with a white line drawn across the threads and discarded.
  - b. Due to under-torquing:
    - i) If the fastener is free of flaws it is suitable for re-use.
    - ii) When the fastener is flawed, it shall be marked with a white line drawn across the threads and discarded.
6. When the fastener passes the audit, a straight line (match mark) shall be drawn from the wall of the fastener head onto the seating surface using a green steel paint pen. Ensure that the line is easily visible for periodic inspection.
7. When all of the fasteners in the sample pass the audit, the data sheet shall be marked to so indicate.
8. If one of the fasteners in the audit fails the audit:
  - a. All fasteners of that type/size/property class shall be re-tightened. (Fasteners that passed the audit may be excluded.)
  - b. A new sample shall be selected for re-auditing using the criteria in No. 1. However, fasteners that passed a previous audit shall not be included in the sample for a subsequent audit.
9. Fastener Torque Quality Audit Steps
  - a. Bench Build Audit: Every unit shall pass the audit before it may leave the bench. Multiple units may be combined to achieve the sample size of thirty fasteners.
  - b. Unit-to-Base Audit: Audits shall be performed at periodic stages of the assembly process to ensure that any possible failures are corrected and passing audits are achieved while ensuring accessibility to all fasteners.
  - c. Final Audit: The final audit shall be performed after all engineering changes have been made and all adjustments are complete.



# NAAMS FASTENER INSTALLATION AND TORQUING PROCEDURE

(EXCLUDING SHOULDER SCREWS)

## Torque Data Sheet

**Audit Method: Static**  
**(Updated 07/11/08)**

Auditor's name \_\_\_\_\_ Date \_\_\_\_\_

Assembly Plant \_\_\_\_\_ Program/System \_\_\_\_\_

Builder/Leader \_\_\_\_\_ Tool # \_\_\_\_\_

Unit/Station \_\_\_\_\_ Job # \_\_\_\_\_

Audit Type: Bench \_\_\_\_\_ Unit-to-Base \_\_\_\_\_ Final \_\_\_\_\_

| Pass / Fail      Uncoated / Blue |              |               |              | Pass / Fail      Uncoated / Blue |              |               |              |
|----------------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
| 10.9   12.9                      |              | M____ sh   hh |              | 10.9   12.9                      |              | M____ sh   hh |              |
| Samp.<br>#                       | Torque<br>Nm | Samp.<br>#    | Torque<br>Nm | Samp.<br>#                       | Torque<br>Nm | Samp.<br>#    | Torque<br>Nm |
| 1                                |              | 16            |              | 1                                |              | 16            |              |
| 2                                |              | 17            |              | 2                                |              | 17            |              |
| 3                                |              | 18            |              | 3                                |              | 18            |              |
| 4                                |              | 19            |              | 4                                |              | 19            |              |
| 5                                |              | 20            |              | 5                                |              | 20            |              |
| 6                                |              | 21            |              | 6                                |              | 21            |              |
| 7                                |              | 22            |              | 7                                |              | 22            |              |
| 8                                |              | 23            |              | 8                                |              | 23            |              |
| 9                                |              | 24            |              | 9                                |              | 24            |              |
| 10                               |              | 25            |              | 10                               |              | 25            |              |
| 11                               |              | 26            |              | 11                               |              | 26            |              |
| 12                               |              | 27            |              | 12                               |              | 27            |              |
| 13                               |              | 28            |              | 13                               |              | 28            |              |
| 14                               |              | 29            |              | 14                               |              | 29            |              |
| 15                               |              | 30            |              | 15                               |              | 30            |              |

# FASTENERS IN NON-FERROUS MATERIALS

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

Installation procedure (page F-2.3) and audit procedure (page F-2.4) are applicable.  
Data was developed using uncoated property class 12.9 SHCS.

**A**

| Tapped Material      | Thread |            | F 62 Washer | Torque (Nm)  |             |              |             |
|----------------------|--------|------------|-------------|--------------|-------------|--------------|-------------|
|                      | Size   | Material   |             | Uncoated     |             | Coated       |             |
|                      |        |            |             | Installation | Audit Range | Installation | Audit Range |
| Copper C11000        | M8     | C11000     | Yes         | 31           | 28-34       | 23           | 21-26       |
|                      |        | Steel Wire | Yes         | 37           | 33-41       | 28           | 25-31       |
|                      | M10    | C11000     | Yes         | 47           | 42-52       | 35           | 32-39       |
|                      |        | Steel Wire | Yes         | 56           | 50-62       | 42           | 38-46       |
| Copper C18000        | M8     | C18000     | No          | 34           | 31-37       | 26           | 23-28       |
|                      |        | C18000     | Yes         | 37           | 33-41       | 28           | 25-31       |
|                      | M10    | C18000     | No          | 54           | 49-59       | 41           | 37-45       |
|                      |        | C18000     | Yes         | 56           | 50-62       | 42           | 38-46       |
| Stainless Steel S304 | M8     | S304       | No          | 39           | 35-43       | 29           | 26-32       |
|                      |        | S304       | Yes         | 37           | 33-41       | 28           | 25-31       |
|                      | M10    | S304       | No          | 66           | 59-73       | 50           | 45-55       |
|                      |        | S304       | Yes         | 56           | 50-62       | 42           | 38-46       |
| Aluminum 6061-T6     | M8     | 6060-T6    | Yes         | 37           | 33-41       | 28           | 25-31       |
|                      |        | Steel Wire | Yes         | 37           | 33-41       | 28           | 25-31       |
|                      | M10    | 6060-T6    | Yes         | 56           | 50-62       | 42           | 38-46       |
|                      |        | Steel Wire | Yes         | 56           | 50-62       | 42           | 38-46       |

# SOCKET HEAD CAP SCREW

(F01 SERIES)

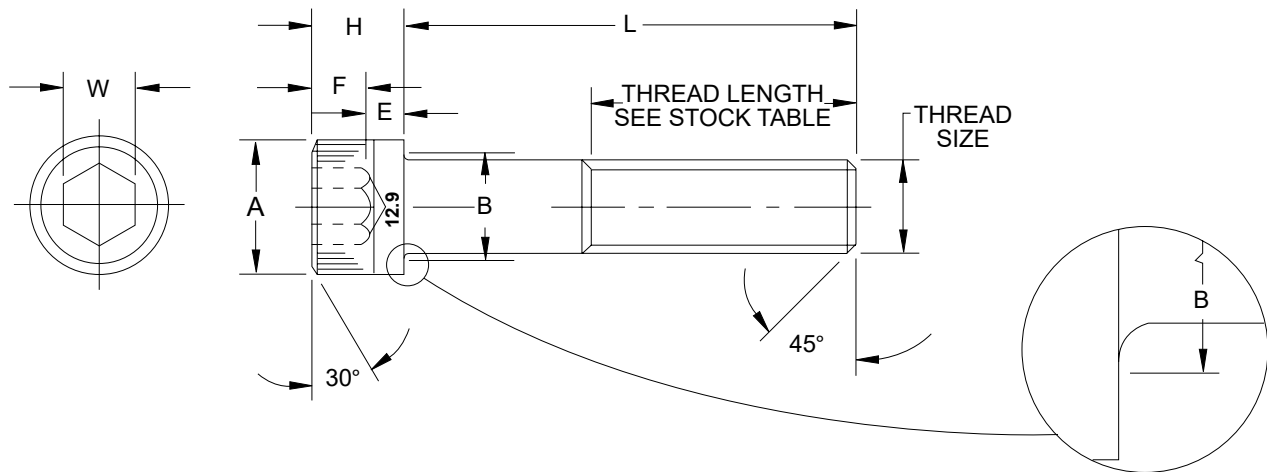
GLOBAL STANDARD COMPONENTS

TM **NAAMS**



Assembly

07/25/08



| DIMENSIONS       |       |        |        |        |        |        |        |
|------------------|-------|--------|--------|--------|--------|--------|--------|
| THREAD SIZE NOM. | PITCH | A MAX. | B MAX. | H MAX. | W NOM. | E MIN. | F MIN. |
| M3               | 0.5   | 5.5    | 3.6    | 3.0    | 2.5    | 1.02   | 1.5    |
| M4               | 0.7   | 7.0    | 4.7    | 4.0    | 3.0    | 1.52   | 2.0    |
| M5               | 0.8   | 8.5    | 5.7    | 5.0    | 4.0    | 1.90   | 2.5    |
| M6               | 1.0   | 10.0   | 6.8    | 6.0    | 5.0    | 2.28   | 3.0    |
| M8               | 1.25  | 13.0   | 9.2    | 8.0    | 6.0    | 3.2    | 4.0    |
| M10              | 1.5   | 16.0   | 11.2   | 10.0   | 8.0    | 4.0    | 5.0    |
| M12              | 1.75  | 18.0   | 14.2   | 12.0   | 10.0   | 4.8    | 6.0    |
| M16              | 2.0   | 24.0   | 18.2   | 16.0   | 14.0   | 6.4    | 8.0    |
| M20              | 2.5   | 30.0   | 22.4   | 20.0   | 17.0   | 8.0    | 10.0   |
| M24              | 3.0   | 36.0   | 26.4   | 24.0   | 19.0   | 9.6    | 12.0   |

\* For hole dimensions see p F-2.1

**NOTES & SPECIFICATIONS:**

Material, class 12.9  
ANSI B18.3.1M  
ASTM A574M

CODING ON FOLLOWING PAGE

D

B

C

A

E

# SOCKET HEAD CAP SCREW CODING

(UNCOATED)  
(F01 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

B

| THREAD<br>SIZE<br>NOM. | STOCK SIZES |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |   |   |   |   |   |   |   |   |
|------------------------|-------------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|---|---|---|
|                        | 5           | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |   |   |   |   |   |   |   |   |
| M3                     | ■           | ■ | ■ | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   |     |     |     |     |     |     |     |     |     |     |   |   |   |   |   |   |   |   |
| M4                     | ■           | ■ | ■ | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ |   |   |
| M5                     |             | ■ | ■ | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ |   |   |
| M6                     |             |   | ■ | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ |   |
| M8                     |             |   |   | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ |   |
| M10                    |             |   |   |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ |   |
| M12                    |             |   |   |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| M16                    |             |   |   |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| M20                    |             |   |   |    |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| M24                    |             |   |   |    |    |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

- Lengths to the left of heavy line (■) threaded to head.
- Lengths to the right of heavy line (■) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010304    | M3x0.5x5                    |
| F010305    | M3x0.5x6                    |
| F010306    | M3x0.5x8                    |
| F010307    | M3x0.5x10                   |
| F010308    | M3x0.5x12                   |
| F010309    | M3x0.5x16                   |
| F010310    | M3x0.5x20                   |
| F010311    | M3x0.5x25                   |
| F010312    | M3x0.5x30                   |
| F010313    | M3x0.5x35                   |
| F010404    | M4x0.7x5                    |
| F010405    | M4x0.7x6                    |
| F010406    | M4x0.7x8                    |
| F010407    | M4x0.7x10                   |
| F010408    | M4x0.7x12                   |
| F010409    | M4x0.7x16                   |
| F010410    | M4x0.7x20                   |
| F010411    | M4x0.7x25                   |
| F010412    | M4x0.7x30                   |
| F010413    | M4x0.7x35                   |
| F010414    | M4x0.7x40                   |
| F010415    | M4x0.7x45                   |
| F010416    | M4x0.7x50                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010505    | M5x0.8x6                    |
| F010506    | M5x0.8x8                    |
| F010507    | M5x0.8x10                   |
| F010508    | M5x0.8x12                   |
| F010509    | M5x0.8x16                   |
| F010510    | M5x0.8x20                   |
| F010511    | M5x0.8x25                   |
| F010512    | M5x0.8x30                   |
| F010513    | M5x0.8x35                   |
| F010514    | M5x0.8x40                   |
| F010515    | M5x0.8x45                   |
| F010516    | M5x0.8x50                   |
| F010517    | M5x0.8x55                   |
| F010518    | M5x0.8x60                   |
| F010519    | M5x0.8x65                   |
| F010520    | M5x0.8x70                   |
| F010606    | M6x1.0x8                    |
| F010607    | M6x1.0x10                   |
| F010608    | M6x1.0x12                   |
| F010609    | M6x1.0x16                   |
| F010610    | M6x1.0x20                   |
| F010611    | M6x1.0x25                   |
| F010612    | M6x1.0x30                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010613    | M6x1.0x35                   |
| F010614    | M6x1.0x40                   |
| F010615    | M6x1.0x45                   |
| F010616    | M6x1.0x50                   |
| F010617    | M6x1.0x55                   |
| F010618    | M6x1.0x60                   |
| F010619    | M6x1.0x65                   |
| F010620    | M6x1.0x70                   |
| F010621    | M6x1.0x75                   |
| F010622    | M6x1.0x80                   |
| F010623    | M6x1.0x90                   |
| F010624    | M6x1.0x100                  |
| F010625    | M6x1.0x110                  |
| F010626    | M6x1.0x120                  |
| F010807    | M8x1.25x10                  |
| F010808    | M8x1.25x12                  |
| F010809    | M8x1.25x16                  |
| F010810    | M8x1.25x20                  |
| F010811    | M8x1.25x25                  |
| F010812    | M8x1.25x30                  |
| F010813    | M8x1.25x35                  |
| F010814    | M8x1.25x40                  |
| F010815    | M8x1.25x45                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010816    | M8x1.25x50                  |
| F010817    | M8x1.25x55                  |
| F010818    | M8x1.25x60                  |
| F010819    | M8x1.25x65                  |
| F010820    | M8x1.25x70                  |
| F010821    | M8x1.25x75                  |
| F010822    | M8x1.25x80                  |
| F010823    | M8x1.25x90                  |
| F010824    | M8x1.25x100                 |
| F010825    | M8x1.25x110                 |
| F010826    | M8x1.25x120                 |
| F010827    | M8x1.25x130                 |
| F010828    | M8x1.25x140                 |
| F010829    | M8x1.25x150                 |
| F010830    | M8x1.25x160                 |
| F010831    | M8x1.25x170                 |
| F010832    | M8x1.25x180                 |
| F010833    | M8x1.25x190                 |
| F010834    | M8x1.25x200                 |
| F011007    | M10x1.5x10                  |
| F011008    | M10x1.5x12                  |
| F011009    | M10x1.5x16                  |
| F011010    | M10x1.5x20                  |

A

CODING CONTINUED ON FOLLOWING PAGE

# SOCKET HEAD CAP SCREW CODING

(UNCOATED)  
(F01 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

B

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F011011    | M10x1.5x25                  |
| F011012    | M10x1.5x30                  |
| F011013    | M10x1.5x35                  |
| F011014    | M10x1.5x40                  |
| F011015    | M10x1.5x45                  |
| F011016    | M10x1.5x50                  |
| F011017    | M10x1.5x55                  |
| F011018    | M10x1.5x60                  |
| F011019    | M10x1.5x65                  |
| F011020    | M10x1.5x70                  |
| F011021    | M10x1.5x75                  |
| F011022    | M10x1.5x80                  |
| F011023    | M10x1.5x90                  |
| F011024    | M10x1.5x100                 |
| F011025    | M10x1.5x110                 |
| F011026    | M10x1.5x120                 |
| F011027    | M10x1.5x130                 |
| F011028    | M10x1.5x140                 |
| F011029    | M10x1.5x150                 |
| F011030    | M10x1.5x160                 |
| F011031    | M10x1.5x170                 |
| F011032    | M10x1.5x180                 |
| F011033    | M10x1.5x190                 |
| F011034    | M10x1.5x200                 |
| F011208    | M12x1.75x12                 |
| F011209    | M12x1.75x16                 |
| F011210    | M12x1.75x20                 |
| F011211    | M12x1.75x25                 |
| F011212    | M12x1.75x30                 |
| F011213    | M12x1.75x35                 |
| F011214    | M12x1.75x40                 |
| F011215    | M12x1.75x45                 |
| F011216    | M12x1.75x50                 |
| F011217    | M12x1.75x55                 |
| F011218    | M12x1.75x60                 |
| F011219    | M12x1.75x65                 |
| F011220    | M12x1.75x70                 |
| F011221    | M12x1.75x75                 |
| F011222    | M12x1.75x80                 |
| F011223    | M12x1.75x90                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F011224    | M12x1.75x100                |
| F011225    | M12x1.75x110                |
| F011226    | M12x1.75x120                |
| F011227    | M12x1.75x130                |
| F011228    | M12x1.75x140                |
| F011229    | M12x1.75x150                |
| F011230    | M12x1.75x160                |
| F011231    | M12x1.75x170                |
| F011232    | M12x1.75x180                |
| F011233    | M12x1.75x190                |
| F011234    | M12x1.75x200                |
| F011613    | M16x2.0x35                  |
| F011614    | M16x2.0x40                  |
| F011615    | M16x2.0x45                  |
| F011616    | M16x2.0x50                  |
| F011617    | M16x2.0x55                  |
| F011618    | M16x2.0x60                  |
| F011619    | M16x2.0x65                  |
| F011620    | M16x2.0x70                  |
| F011621    | M16x2.0x75                  |
| F011622    | M16x2.0x80                  |
| F011623    | M16x2.0x90                  |
| F011624    | M16x2.0x100                 |
| F011625    | M16x2.0x110                 |
| F011626    | M16x2.0x120                 |
| F011627    | M16x2.0x130                 |
| F011628    | M16x2.0x140                 |
| F011629    | M16x2.0x150                 |
| F011630    | M16x2.0x160                 |
| F011631    | M16x2.0x170                 |
| F011632    | M16x2.0x180                 |
| F011633    | M16x2.0x190                 |
| F011634    | M16x2.0x200                 |
| F012013    | M20x2.5x35                  |
| F012014    | M20x2.5x40                  |
| F012015    | M20x2.5x45                  |
| F012016    | M20x2.5x50                  |
| F012017    | M20x2.5x55                  |
| F012018    | M20x2.5x60                  |
| F012 019   | M20x2.5x65                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F012020    | M20x2.5x70                  |
| F012021    | M20x2.5x75                  |
| F012022    | M20x2.5x80                  |
| F012023    | M20x2.5x90                  |
| F012024    | M20x2.5x100                 |
| F012025    | M20x2.5x110                 |
| F012026    | M20x2.5x120                 |
| F012027    | M20x2.5x130                 |
| F012028    | M20x2.5x140                 |
| F012029    | M20x2.5x150                 |
| F012030    | M20x2.5x160                 |
| F012031    | M20x2.5x170                 |
| F012032    | M20x2.5x180                 |
| F012033    | M20x2.5x190                 |
| F012034    | M20x2.5x200                 |
| F012415    | M24x3.0x45                  |
| F012416    | M24x3.0x50                  |
| F012417    | M24x3.0x55                  |
| F012418    | M24x3.0x60                  |
| F012419    | M24x3.0x65                  |
| F012420    | M24x3.0x70                  |
| F012421    | M24x3.0x75                  |
| F012422    | M24x3.0x80                  |
| F012423    | M24x3.0x90                  |
| F012424    | M24x3.0x100                 |
| F012425    | M24x3.0x110                 |
| F012426    | M24x3.0x120                 |
| F012427    | M24x3.0x130                 |
| F012428    | M24x3.0x140                 |
| F012429    | M24x3.0x150                 |
| F012430    | M24x3.0x160                 |
| F012431    | M24x3.0x170                 |
| F012432    | M24x3.0x180                 |
| F012433    | M24x3.0x190                 |
| F012434    | M24x3.0x200                 |

A

# SOCKET HEAD CAP SCREW CODING

(BLUE COATED)  
(F01 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

A

| THREAD<br>SIZE<br>NOM. | STOCK SIZES |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
|------------------------|-------------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                        | 5           | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |
| M3                     | █           | █ | █ | █  | █  | █  | █  | █  |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M4                     | █           | █ | █ | █  | █  | █  | █  | █  | █  |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M5                     |             | █ | █ | █  | █  | █  | █  | █  | █  | █  |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M6                     |             |   | █ | █  | █  | █  | █  | █  | █  | █  | █  | █  |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M8                     |             |   |   | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M10                    |             |   |   |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M12                    |             |   |   |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M16                    |             |   |   |    |    |    |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M20                    |             |   |   |    |    |    |    |    |    |    |    |    | █  | █  | █  | █  | █  | █  |    |    |     |     |     |     |     |     |     |     |     |     |     |
| M24                    |             |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | █  | █  | █   | █   | █   | █   | █   | █   | █   | █   | █   | █   | █   |

- Lengths to the left of heavy line ( █ ) threaded to head.
- Lengths to the right of heavy line ( █ ) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010304B   | M3x0.5x5                    |
| F010305B   | M3x0.5x6                    |
| F010306B   | M3x0.5x8                    |
| F010307B   | M3x0.5x10                   |
| F010308B   | M3x0.5x12                   |
| F010309B   | M3x0.5x16                   |
| F010310B   | M3x0.5x20                   |
| F010311B   | M3x0.5x25                   |
| F010312B   | M3x0.5x30                   |
| F010313B   | M3x0.5x35                   |
| F010404B   | M4x0.7x5                    |
| F010405B   | M4x0.7x6                    |
| F010406B   | M4x0.7x8                    |
| F010407B   | M4x0.7x10                   |
| F010408B   | M4x0.7x12                   |
| F010409B   | M4x0.7x16                   |
| F010410B   | M4x0.7x20                   |
| F010411B   | M4x0.7x25                   |
| F010412B   | M4x0.7x30                   |
| F010413B   | M4x0.7x35                   |
| F010414B   | M4x0.7x40                   |
| F010415B   | M4x0.7x45                   |
| F010416B   | M4x0.7x50                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010505B   | M5x0.8x6                    |
| F010506B   | M5x0.8x8                    |
| F010507B   | M5x0.8x10                   |
| F010508B   | M5x0.8x12                   |
| F010509B   | M5x0.8x16                   |
| F010510B   | M5x0.8x20                   |
| F010511B   | M5x0.8x25                   |
| F010512B   | M5x0.8x30                   |
| F010513B   | M5x0.8x35                   |
| F010514B   | M5x0.8x40                   |
| F010515B   | M5x0.8x45                   |
| F010516B   | M5x0.8x50                   |
| F010517B   | M5x0.8x55                   |
| F010518B   | M5x0.8x60                   |
| F010519B   | M5x0.8x65                   |
| F010520B   | M5x0.8x70                   |
| F010606B   | M6x1.0x8                    |
| F010607B   | M6x1.0x10                   |
| F010608B   | M6x1.0x12                   |
| F010609B   | M6x1.0x16                   |
| F010610B   | M6x1.0x20                   |
| F010611B   | M6x1.0x25                   |
| F010612B   | M6x1.0x30                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010613B   | M6x1.0x35                   |
| F010614B   | M6x1.0x40                   |
| F010615B   | M6x1.0x45                   |
| F010616B   | M6x1.0x50                   |
| F010617B   | M6x1.0x55                   |
| F010618B   | M6x1.0x60                   |
| F010619B   | M6x1.0x65                   |
| F010620B   | M6x1.0x70                   |
| F010621B   | M6x1.0x75                   |
| F010622B   | M6x1.0x80                   |
| F010623B   | M6x1.0x90                   |
| F010624B   | M6x1.0x100                  |
| F010625B   | M6x1.0x110                  |
| F010626B   | M6x1.0x120                  |
| F010807B   | M8x1.25x10                  |
| F010808B   | M8x1.25x12                  |
| F010809B   | M8x1.25x16                  |
| F010810B   | M8x1.25x20                  |
| F010811B   | M8x1.25x25                  |
| F010812B   | M8x1.25x30                  |
| F010813B   | M8x1.25x35                  |
| F010814B   | M8x1.25x40                  |
| F010815B   | M8x1.25x45                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F010816B   | M8x1.25x50                  |
| F010817B   | M8x1.25x55                  |
| F010818B   | M8x1.25x60                  |
| F010819B   | M8x1.25x65                  |
| F010820B   | M8x1.25x70                  |
| F010821B   | M8x1.25x75                  |
| F010822B   | M8x1.25x80                  |
| F010823B   | M8x1.25x90                  |
| F010824B   | M8x1.25x100                 |
| F010825B   | M8x1.25x110                 |
| F010826B   | M8x1.25x120                 |
| F010827B   | M8x1.25x130                 |
| F010828B   | M8x1.25x140                 |
| F010829B   | M8x1.25x150                 |
| F010830B   | M8x1.25x160                 |
| F010831B   | M8x1.25x170                 |
| F010832B   | M8x1.25x180                 |
| F010833B   | M8x1.25x190                 |
| F010834B   | M8x1.25x200                 |
| F011007B   | M10x1.5x10                  |
| F011008B   | M10x1.5x12                  |
| F011009B   | M10x1.5x16                  |
| F011010B   | M10x1.5x20                  |

CODING CONTINUED ON FOLLOWING PAGE

# SOCKET HEAD CAP SCREW CODING

(BLUE COATED)  
(F01 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

A

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F011011B   | M10x1.5x25                  |
| F011012B   | M10x1.5x30                  |
| F011013B   | M10x1.5x35                  |
| F011014B   | M10x1.5x40                  |
| F011015B   | M10x1.5x45                  |
| F011016B   | M10x1.5x50                  |
| F011017B   | M10x1.5x55                  |
| F011018B   | M10x1.5x60                  |
| F011019B   | M10x1.5x65                  |
| F011020B   | M10x1.5x70                  |
| F011021B   | M10x1.5x75                  |
| F011022B   | M10x1.5x80                  |
| F011023B   | M10x1.5x90                  |
| F011024B   | M10x1.5x100                 |
| F011025B   | M10x1.5x110                 |
| F011026B   | M10x1.5x120                 |
| F011027B   | M10x1.5x130                 |
| F011028B   | M10x1.5x140                 |
| F011029B   | M10x1.5x150                 |
| F011030B   | M10x1.5x160                 |
| F011031B   | M10x1.5x170                 |
| F011032B   | M10x1.5x180                 |
| F011033B   | M10x1.5x190                 |
| F011034B   | M10x1.5x200                 |
| F011208B   | M12x1.75x12                 |
| F011209B   | M12x1.75x16                 |
| F011210B   | M12x1.75x20                 |
| F011211B   | M12x1.75x25                 |
| F011212B   | M12x1.75x30                 |
| F011213B   | M12x1.75x35                 |
| F011214B   | M12x1.75x40                 |
| F011215B   | M12x1.75x45                 |
| F011216B   | M12x1.75x50                 |
| F011217B   | M12x1.75x55                 |
| F011218B   | M12x1.75x60                 |
| F011219B   | M12x1.75x65                 |
| F011220B   | M12x1.75x70                 |
| F011221B   | M12x1.75x75                 |
| F011222B   | M12x1.75x80                 |
| F011223B   | M12x1.75x90                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F011224B   | M12x1.75x100                |
| F011225B   | M12x1.75x110                |
| F011226B   | M12x1.75x120                |
| F011227B   | M12x1.75x130                |
| F011228B   | M12x1.75x140                |
| F011229B   | M12x1.75x150                |
| F011230B   | M12x1.75x160                |
| F011231B   | M12x1.75x170                |
| F011232B   | M12x1.75x180                |
| F011233B   | M12x1.75x190                |
| F011234B   | M12x1.75x200                |
| F011613B   | M16x2.0x35                  |
| F011614B   | M16x2.0x40                  |
| F011615B   | M16x2.0x45                  |
| F011616B   | M16x2.0x50                  |
| F011617B   | M16x2.0x55                  |
| F011618B   | M16x2.0x60                  |
| F011619B   | M16x2.0x65                  |
| F011620B   | M16x2.0x70                  |
| F011621B   | M16x2.0x75                  |
| F011622B   | M16x2.0x80                  |
| F011623B   | M16x2.0x90                  |
| F011624B   | M16x2.0x100                 |
| F011625B   | M16x2.0x110                 |
| F011626B   | M16x2.0x120                 |
| F011627B   | M16x2.0x130                 |
| F011628B   | M16x2.0x140                 |
| F011629B   | M16x2.0x150                 |
| F011630B   | M16x2.0x160                 |
| F011631B   | M16x2.0x170                 |
| F011632B   | M16x2.0x180                 |
| F011633B   | M16x2.0x190                 |
| F011634B   | M16x2.0x200                 |
| F012013B   | M20x2.5x35                  |
| F012014B   | M20x2.5x40                  |
| F012015B   | M20x2.5x45                  |
| F012016B   | M20x2.5x50                  |
| F012017B   | M20x2.5x55                  |
| F012018B   | M20x2.5x60                  |
| F012 019B  | M20x2.5x65                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F012020B   | M20x2.5x70                  |
| F012021B   | M20x2.5x75                  |
| F012022B   | M20x2.5x80                  |
| F012023B   | M20x2.5x90                  |
| F012024B   | M20x2.5x100                 |
| F012025B   | M20x2.5x110                 |
| F012026B   | M20x2.5x120                 |
| F012027B   | M20x2.5x130                 |
| F012028B   | M20x2.5x140                 |
| F012029B   | M20x2.5x150                 |
| F012030B   | M20x2.5x160                 |
| F012031B   | M20x2.5x170                 |
| F012032B   | M20x2.5x180                 |
| F012033B   | M20x2.5x190                 |
| F012034B   | M20x2.5x200                 |
| F012415B   | M24x3.0x45                  |
| F012416B   | M24x3.0x50                  |
| F012417B   | M24x3.0x55                  |
| F012418B   | M24x3.0x60                  |
| F012419B   | M24x3.0x65                  |
| F012420B   | M24x3.0x70                  |
| F012421B   | M24x3.0x75                  |
| F012422B   | M24x3.0x80                  |
| F012423B   | M24x3.0x90                  |
| F012424B   | M24x3.0x100                 |
| F012425B   | M24x3.0x110                 |
| F012426B   | M24x3.0x120                 |
| F012427B   | M24x3.0x130                 |
| F012428B   | M24x3.0x140                 |
| F012429B   | M24x3.0x150                 |
| F012430B   | M24x3.0x160                 |
| F012431B   | M24x3.0x170                 |
| F012432B   | M24x3.0x180                 |
| F012433B   | M24x3.0x190                 |
| F012434B   | M24x3.0x200                 |

# LOW PROFILE SOCKET HEAD CAP SCREW

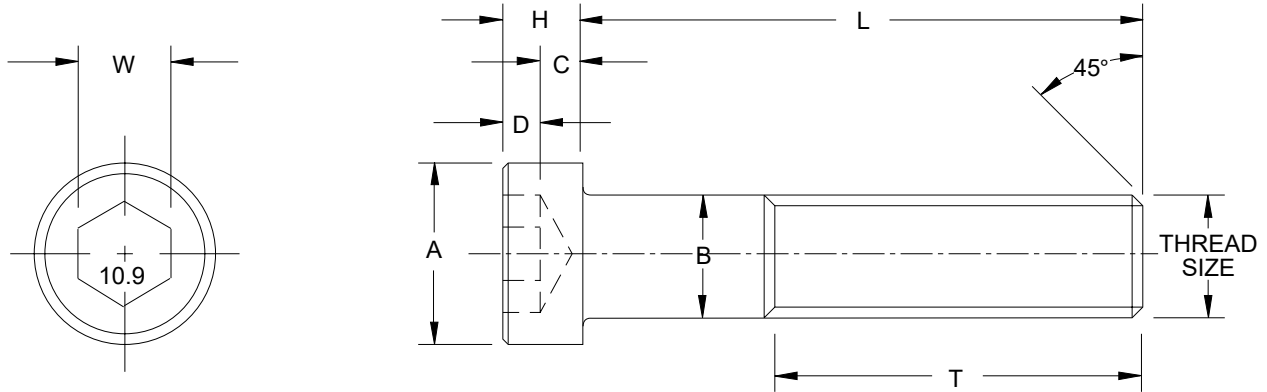
(F02 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08



| DIMENSIONS       |       |      |     |      |      |      |     |     |
|------------------|-------|------|-----|------|------|------|-----|-----|
| NOM. THREAD SIZE | PITCH | A    | B   | C    | D    | H    | T   | W   |
|                  |       | MAX  | MAX | MIN  | MIN  | MAX  | MIN | NOM |
| M4               | 0.7   | 7.0  | 4   | 1.06 | 1.48 | 2.8  | 20  | 3   |
| M5               | 0.8   | 8.5  | 5   | 1.39 | 1.85 | 3.5  | 22  | 4   |
| M6               | 1.0   | 10.0 | 6   | 1.65 | 2.09 | 4.0  | 24  | 5   |
| M8               | 1.25  | 13.0 | 8   | 2.24 | 2.48 | 5.0  | 28  | 6   |
| M10              | 1.5   | 16.0 | 10  | 2.86 | 3.36 | 6.5  | 32  | 8   |
| M12              | 1.75  | 18.0 | 12  | 3.46 | 4.26 | 8.0  | 36  | 10  |
| M16              | 2.0   | 24.0 | 16  | 4.91 | 4.76 | 10.0 | 44  | 12  |
| M20              | 2.5   | 30.0 | 20  | 6.10 | 6.07 | 12.5 | 52  | 14  |

| THREAD SIZE NOM. | STOCK SIZES (L) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
|------------------|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|--|
|                  | 8               | 10 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |  |
| M4               |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M5               |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M6               |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M8               |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M10              |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M12              |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M16              |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| M20              |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |  |

- Lengths to the left of heavy line (█) threaded to head.
- Lengths to the right of heavy line (█) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

**NOTES & SPECIFICATIONS:**

Material, class 10.9

CODING ON FOLLOWING PAGE

B

C

A

D



# LOW PROFILE SOCKET HEAD CAP SCREW CODING

(UNCOATED)  
(F02 SERIES)

GLOBAL STANDARD COMPONENTS

TM **NAAMS** 

Assembly

07/25/08

A

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F020406    | M4x0.7x8                    |
| F020407    | M4x0.7x10                   |
| F020408    | M4x0.7x12                   |
| F020409    | M4x0.7x16                   |
| F020410    | M4x0.7x20                   |
| F020411    | M4x0.7x25                   |
| F020412    | M4x0.7x30                   |
| F020506    | M5x0.8x8                    |
| F020507    | M5x0.8x10                   |
| F020508    | M5x0.8x12                   |
| F020509    | M5x0.8x16                   |
| F020510    | M5x0.8x20                   |
| F020511    | M5x0.8x25                   |
| F020512    | M5x0.8x30                   |
| F020513    | M5x0.8x35                   |
| F020514    | M5x0.8x40                   |
| F020606    | M6x1.0x8                    |
| F020607    | M6x1.0x10                   |
| F020608    | M6x1.0x12                   |
| F020609    | M6x1.0x16                   |
| F020610    | M6x1.0x20                   |
| F020611    | M6x1.0x25                   |
| F020612    | M6x1.0x30                   |
| F020613    | M6x1.0x35                   |
| F020614    | M6x1.0x40                   |
| F020615    | M6x1.0x45                   |
| F020616    | M6x1.0x50                   |
| F020617    | M6x1.0.55                   |
| F020618    | M6x1.0x60                   |
| F020808    | M8x1.25x12                  |
| F020809    | M8x1.25x16                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F020810    | M8x1.25x20                  |
| F020811    | M8x1.25x25                  |
| F020812    | M8x1.25x30                  |
| F020813    | M8x1.25x35                  |
| F020814    | M8x1.25x40                  |
| F020815    | M8x1.25x45                  |
| F020816    | M8x1.25x50                  |
| F020817    | M8x1.25.55                  |
| F020818    | M8x1.25x60                  |
| F020820    | M8x1.25x70                  |
| F021009    | M10x1.5x16                  |
| F021010    | M10x1.5x20                  |
| F021011    | M10x1.5x25                  |
| F021012    | M10x1.5x30                  |
| F021013    | M10x1.5x35                  |
| F021014    | M10x1.5x40                  |
| F021015    | M10x1.5x45                  |
| F021016    | M10x1.5x50                  |
| F021017    | M10x1.5x55                  |
| F021018    | M10x1.5x60                  |
| F021020    | M10x1.5x70                  |
| F021022    | M10x1.5x80                  |
| F021023    | M10x1.5x90                  |
| F021024    | M10x1.5x100                 |
| F021210    | M12x1.75x20                 |
| F021211    | M12x1.75x25                 |
| F021212    | M12x1.75x30                 |
| F021213    | M12x1.75x35                 |
| F021214    | M12x1.75x40                 |
| F021215    | M12x1.75x45                 |
| F021216    | M12x1.75x50                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F021217    | M12x1.75x55                 |
| F021218    | M12x1.75x60                 |
| F021220    | M12x1.75x70                 |
| F021222    | M12x1.75x80                 |
| F021223    | M12x1.75x90                 |
| F021224    | M12x1.75x100                |
| F021612    | M16x2.0x30                  |
| F021613    | M16x2.0x35                  |
| F021614    | M16x2.0x40                  |
| F021615    | M16x2.0x45                  |
| F021616    | M16x2.0x50                  |
| F021617    | M16x2.0x55                  |
| F021618    | M16x2.0x60                  |
| F021620    | M16x2.0x70                  |
| F021622    | M16x2.0x80                  |
| F021623    | M16x2.0x90                  |
| F021624    | M16x2.0x100                 |
| F021625    | M16x2.0x110                 |
| F021626    | M16x2.0x120                 |
| F022014    | M20x2.5x40                  |
| F022015    | M20x2.5x45                  |
| F022016    | M20x2.5x50                  |
| F022017    | M20x2.5x55                  |
| F022018    | M20x2.5x60                  |
| F022020    | M20x2.5x70                  |
| F022022    | M20x2.5x80                  |
| F022023    | M20x2.5x90                  |
| F022024    | M20x2.5x100                 |
| F022025    | M20x2.5x110                 |
| F022026    | M20x2.5x120                 |

# LOW PROFILE SOCKET HEAD CAP SCREW CODING

(BLUE COATED)  
(F02 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

A

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F020406B   | M4x0.7x8                    |
| F020407B   | M4x0.7x10                   |
| F020408B   | M4x0.7x12                   |
| F020409B   | M4x0.7x16                   |
| F020410B   | M4x0.7x20                   |
| F020411B   | M4x0.7x25                   |
| F020412B   | M4x0.7x30                   |
| F020506B   | M5x0.8x8                    |
| F020507B   | M5x0.8x10                   |
| F020508B   | M5x0.8x12                   |
| F020509B   | M5x0.8x16                   |
| F020510B   | M5x0.8x20                   |
| F020511B   | M5x0.8x25                   |
| F020512B   | M5x0.8x30                   |
| F020513B   | M5x0.8x35                   |
| F020514B   | M5x0.8x40                   |
| F020606B   | M6x1.0x8                    |
| F020607B   | M6x1.0x10                   |
| F020608B   | M6x1.0x12                   |
| F020609B   | M6x1.0x16                   |
| F020610B   | M6x1.0x20                   |
| F020611B   | M6x1.0x25                   |
| F020612B   | M6x1.0x30                   |
| F020613B   | M6x1.0x35                   |
| F020614B   | M6x1.0x40                   |
| F020615B   | M6x1.0x45                   |
| F020616B   | M6x1.0x50                   |
| F020617B   | M6x1.0.55                   |
| F020618B   | M6x1.0x60                   |
| F020808B   | M8x1.25x12                  |
| F020809B   | M8x1.25x16                  |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F020810B   | M8x1.25x20                  |
| F020811B   | M8x1.25x25                  |
| F020812B   | M8x1.25x30                  |
| F020813B   | M8x1.25x35                  |
| F020814B   | M8x1.25x40                  |
| F020815B   | M8x1.25x45                  |
| F020816B   | M8x1.25x50                  |
| F020817B   | M8x1.25.55                  |
| F020818B   | M8x1.25x60                  |
| F020820B   | M8x1.25x70                  |
| F021009B   | M10x1.5x16                  |
| F021010B   | M10x1.5x20                  |
| F021011B   | M10x1.5x25                  |
| F021012B   | M10x1.5x30                  |
| F021013B   | M10x1.5x35                  |
| F021014B   | M10x1.5x40                  |
| F021015B   | M10x1.5x45                  |
| F021016B   | M10x1.5x50                  |
| F021017B   | M10x1.5x55                  |
| F021018B   | M10x1.5x60                  |
| F021020B   | M10x1.5x70                  |
| F021022B   | M10x1.5x80                  |
| F021023B   | M10x1.5x90                  |
| F021024B   | M10x1.5x100                 |
| F021210B   | M12x1.75x20                 |
| F021211B   | M12x1.75x25                 |
| F021212B   | M12x1.75x30                 |
| F021213B   | M12x1.75x35                 |
| F021214B   | M12x1.75x40                 |
| F021215B   | M12x1.75x45                 |
| F021216B   | M12x1.75x50                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F021217B   | M12x1.75x55                 |
| F021218B   | M12x1.75x60                 |
| F021220B   | M12x1.75x70                 |
| F021222B   | M12x1.75x80                 |
| F021223B   | M12x1.75x90                 |
| F021224B   | M12x1.75x100                |
| F021612B   | M16x2.0x30                  |
| F021613B   | M16x2.0x35                  |
| F021614B   | M16x2.0x40                  |
| F021615B   | M16x2.0x45                  |
| F021616B   | M16x2.0x50                  |
| F021617B   | M16x2.0x55                  |
| F021618B   | M16x2.0x60                  |
| F021620B   | M16x2.0x70                  |
| F021622B   | M16x2.0x80                  |
| F021623B   | M16x2.0x90                  |
| F021624B   | M16x2.0x100                 |
| F021625B   | M16x2.0x110                 |
| F021626B   | M16x2.0x120                 |
| F022014B   | M20x2.5x40                  |
| F022015B   | M20x2.5x45                  |
| F022016B   | M20x2.5x50                  |
| F022017B   | M20x2.5x55                  |
| F022018B   | M20x2.5x60                  |
| F022020B   | M20x2.5x70                  |
| F022022B   | M20x2.5x80                  |
| F022023B   | M20x2.5x90                  |
| F022024B   | M20x2.5x100                 |
| F022025B   | M20x2.5x110                 |
| F022026B   | M20x2.5x120                 |

# SOCKET FLATHEAD CAP SCREW

(F03 SERIES)

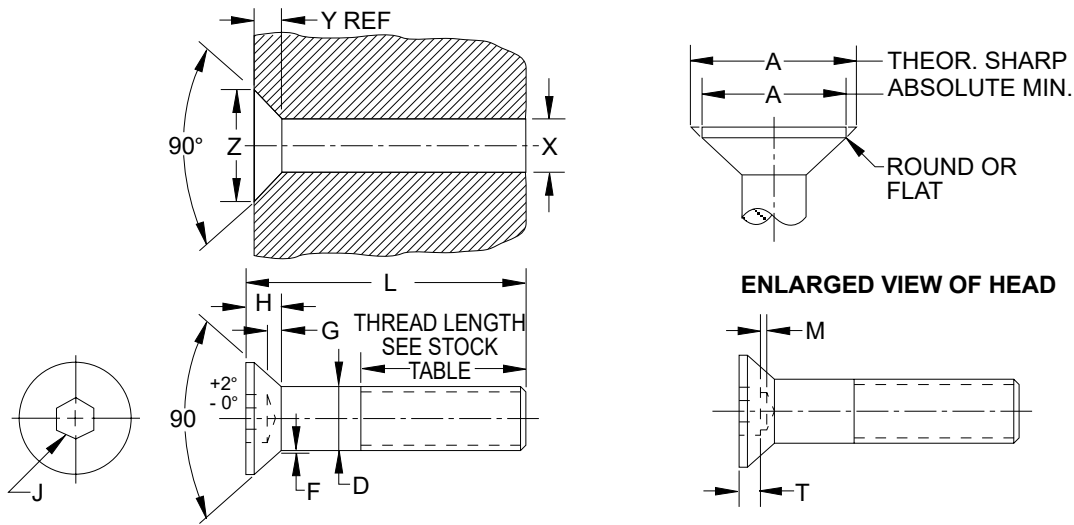
GLOBAL STANDARD COMPONENTS

# NAAMS



Assembly

07/25/08



| NOM. SCR. DIA. AND THREAD PITCH | D             |       | A                |          | H         |                | J              | T              | G         | F                   | M               |
|---------------------------------|---------------|-------|------------------|----------|-----------|----------------|----------------|----------------|-----------|---------------------|-----------------|
|                                 | BODY DIAMETER |       | HEAD DIA.        |          | HEAD HGT. |                | HEX. SOC. SIZE | KEY ENGAGEMENT | WALL THK. | FILLET EXT. ABOVE D | DRILL ALLOWANCE |
|                                 | MAX           | MIN   | THEOR. SHARP MAX | ABS. MIN | REF       | FLUSHNESS TOL. |                |                |           |                     |                 |
| M3 x 0.5                        | 3.00          | 2.86  | 6.72             | 5.35     | 1.86      | 0.30           | 2.0            | 1.1            | 0.25      | 0.25                | 0.3             |
| M4 x 0.7                        | 4.00          | 3.82  | 8.96             | 7.80     | 2.48      | 0.30           | 2.5            | 1.5            | 0.45      | 0.35                | 0.4             |
| M5 x 0.8                        | 5.00          | 4.82  | 11.20            | 9.75     | 3.10      | 0.35           | 3.0            | 1.9            | 0.66      | 0.40                | 0.5             |
| M6 x 1                          | 6.00          | 5.82  | 13.44            | 11.70    | 3.72      | 0.35           | 4.0            | 2.2            | 0.70      | 0.50                | 0.6             |
| M8 x 1.25                       | 8.00          | 7.78  | 17.92            | 15.65    | 4.96      | 0.40           | 5.0            | 3.0            | 1.16      | 0.60                | 0.8             |
| M10 x 1.5                       | 10.00         | 9.78  | 22.40            | 19.50    | 6.20      | 0.50           | 6.0            | 3.6            | 1.62      | 0.80                | 0.9             |
| M12 x 1.75                      | 12.00         | 11.73 | 26.88            | 23.40    | 7.44      | 0.60           | 8.0            | 4.3            | 1.80      | 0.90                | 1.2             |
| M16 x 2                         | 16.00         | 15.73 | 33.60            | 23.76    | 8.80      | 0.80           | 10.0           | 4.8            | 2.20      | 1.00                | 1.5             |
| M20 x 2.5                       | 20.00         | 19.67 | 40.32            | 34.60    | 10.16     | 1.00           | 12.0           | 5.6            | 2.20      | 1.20                | 1.5             |

| THREAD SIZE NOM. | STOCK SIZES (L) |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
|------------------|-----------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
|                  | 6               | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 70 | 80 | 90 | 100 |
| M3               | █               | █ | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M4               |                 | █ | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M5               |                 |   | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M6               |                 |   |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M8               |                 |   |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M10              |                 |   |    |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M12              |                 |   |    |    |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M16              |                 |   |    |    |    |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |
| M20              |                 |   |    |    |    |    |    |    | █  | █  | █  | █  | █  | █  | █  | █  | █  | █   |

| SCREW SIZE NOM. | X               | Y                  | Z              |
|-----------------|-----------------|--------------------|----------------|
|                 | BODY DRILL SIZE | C'SINK DEPTH (REF) | C'SINK DIA MIN |
| M3              | 3.4             | 1.61               | 6.72           |
| M4              | 4.5             | 2.18               | 8.96           |
| M5              | 5.6             | 2.60               | 11.20          |
| M6              | 6.8             | 3.22               | 13.44          |
| M8              | 8.8             | 4.46               | 17.92          |
| M10             | 10.8            | 5.45               | 22.40          |
| M12             | 12.8            | 6.69               | 26.88          |
| M16             | 16.75           | 7.80               | 33.60          |
| M20             | 20.75           | 8.96               | 40.32          |

- Lengths to the left of heavy line (█) threaded to head.
- Lengths to the right of heavy line (█) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

**NOTES & SPECIFICATIONS:**

Material, Class 12.9  
ANSI B18.3.5M  
ASTM F835M

CODING CONTINUED ON FOLLOWING PAGE

A

B

C

D

E

# SOCKET FLATHEAD CAP SCREW CODING

(UNCOATED)  
(F03 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

B

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F030305    | M3x0.5x6                    |
| F030306    | M3x0.5x8                    |
| F030307    | M3x0.5x10                   |
| F030308    | M3x0.5x12                   |
| F030309    | M3x0.5x16                   |
| F030310    | M3x0.5x20                   |
| F030311    | M3x0.5x25                   |
| F030312    | M3x0.5x30                   |
| F030406    | M4x0.7x8                    |
| F030407    | M4x0.7x10                   |
| F030408    | M4x0.7x12                   |
| F030409    | M4x0.7x16                   |
| F030410    | M4x0.7x20                   |
| F030411    | M4x0.7x25                   |
| F030412    | M4x0.7x30                   |
| F030413    | M4x0.7x35                   |
| F030414    | M4x0.7x40                   |
| F030506    | M5x0.8x8                    |
| F030507    | M5x0.8x10                   |
| F030508    | M5x0.8x12                   |
| F030509    | M5x0.8x16                   |
| F030510    | M5x0.8x20                   |
| F030511    | M5x0.8x25                   |
| F030512    | M5x0.8x30                   |
| F030513    | M5x0.8x35                   |
| F030514    | M5x0.8x40                   |
| F030515    | M5x0.8x45                   |
| F030516    | M5x0.8x50                   |
| F030606    | M6x1.0x8                    |
| F030607    | M6x1.0x10                   |
| F030608    | M6x1.0x12                   |
| F030609    | M6x1.0x16                   |
| F030610    | M6x1.0x20                   |
| F030611    | M6x1.0x25                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F030612    | M6x1.0x30                   |
| F030613    | M6x1.0x35                   |
| F030614    | M6x1.0x40                   |
| F030615    | M6x1.0x45                   |
| F030616    | M6x1.0x50                   |
| F030807    | M8x1.25x10                  |
| F030808    | M8x1.25x12                  |
| F030809    | M8x1.25x16                  |
| F030810    | M8x1.25x20                  |
| F030811    | M8x1.25x25                  |
| F030812    | M8x1.25x30                  |
| F030813    | M8x1.25x35                  |
| F030814    | M8x1.25x40                  |
| F030815    | M8x1.25x45                  |
| F030816    | M8x1.25x50                  |
| F030817    | M8x1.25x55                  |
| F030818    | M8x1.25x60                  |
| F030820    | M8x1.25x70                  |
| F031008    | M10x1.5x12                  |
| F031009    | M10x1.5x16                  |
| F031010    | M10x1.5x20                  |
| F031011    | M10x1.5x25                  |
| F031012    | M10x1.5x30                  |
| F031013    | M10x1.5x35                  |
| F031014    | M10x1.5x40                  |
| F031015    | M10x1.5x45                  |
| F031016    | M10x1.5x50                  |
| F031017    | M10x1.5x55                  |
| F031018    | M10x1.5x60                  |
| F031020    | M10x1.5x70                  |
| F031022    | M10x1.5x80                  |
| F031023    | M10x1.5x90                  |
| F031024    | M10x1.5x100                 |
| F031210    | M12x1.75x20                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F031211    | M12x1.75x25                 |
| F031212    | M12x1.75x30                 |
| F031213    | M12x1.75x35                 |
| F031214    | M12x1.75x40                 |
| F031215    | M12x1.75x45                 |
| F031216    | M12x1.75x50                 |
| F031217    | M12x1.75x55                 |
| F031218    | M12x1.75x60                 |
| F031220    | M12x1.75x70                 |
| F031222    | M12x1.75x80                 |
| F031223    | M12x1.75x90                 |
| F031224    | M12x1.75x100                |
| F031612    | M16x2.0x30                  |
| F031613    | M16x2.0x35                  |
| F031614    | M16x2.0x40                  |
| F031615    | M16x2.0x45                  |
| F031616    | M16x2.0x50                  |
| F031617    | M16x2.0x55                  |
| F031618    | M16x2.0x60                  |
| F031620    | M16x2.0x70                  |
| F031622    | M16x2.0x80                  |
| F031623    | M16x2.0x90                  |
| F031624    | M16x2.0x100                 |
| F032013    | M20x2.5x35                  |
| F032014    | M20x2.5x40                  |
| F032015    | M20x2.5x45                  |
| F032016    | M20x2.5x50                  |
| F032017    | M20x2.5x55                  |
| F032018    | M20x2.5x60                  |
| F032020    | M20x2.5x70                  |
| F032022    | M20x2.5x80                  |
| F032023    | M20x2.5x90                  |
| F032024    | M20x2.5x100                 |

A

# SOCKET FLATHEAD CAP SCREW CODING

(BLUE COATED)  
(F03 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F030305B   | M3x0.5x6                    |
| F030306B   | M3x0.5x8                    |
| F030307B   | M3x0.5x10                   |
| F030308B   | M3x0.5x12                   |
| F030309B   | M3x0.5x16                   |
| F030310B   | M3x0.5x20                   |
| F030311B   | M3x0.5x25                   |
| F030312B   | M3x0.5x30                   |
| F030406B   | M4x0.7x8                    |
| F030407B   | M4x0.7x10                   |
| F030408B   | M4x0.7x12                   |
| F030409B   | M4x0.7x16                   |
| F030410B   | M4x0.7x20                   |
| F030411B   | M4x0.7x25                   |
| F030412B   | M4x0.7x30                   |
| F030413B   | M4x0.7x35                   |
| F030414B   | M4x0.7x40                   |
| F030506B   | M5x0.8x8                    |
| F030507B   | M5x0.8x10                   |
| F030508B   | M5x0.8x12                   |
| F030509B   | M5x0.8x16                   |
| F030510B   | M5x0.8x20                   |
| F030511B   | M5x0.8x25                   |
| F030512B   | M5x0.8x30                   |
| F030513B   | M5x0.8x35                   |
| F030514B   | M5x0.8x40                   |
| F030515B   | M5x0.8x45                   |
| F030516B   | M5x0.8x50                   |
| F030606B   | M6x1.0x8                    |
| F030607B   | M6x1.0x10                   |
| F030608B   | M6x1.0x12                   |
| F030609B   | M6x1.0x16                   |
| F030610B   | M6x1.0x20                   |
| F030611B   | M6x1.0x25                   |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F030612B   | M6x1.0x30                   |
| F030613B   | M6x1.0x35                   |
| F030614B   | M6x1.0x40                   |
| F030615B   | M6x1.0x45                   |
| F030616B   | M6x1.0x50                   |
| F030807B   | M8x1.25x10                  |
| F030808B   | M8x1.25x12                  |
| F030809B   | M8x1.25x16                  |
| F030810B   | M8x1.25x20                  |
| F030811B   | M8x1.25x25                  |
| F030812B   | M8x1.25x30                  |
| F030813B   | M8x1.25x35                  |
| F030814B   | M8x1.25x40                  |
| F030815B   | M8x1.25x45                  |
| F030816B   | M8x1.25x50                  |
| F030817B   | M8x1.25x55                  |
| F030818B   | M8x1.25x60                  |
| F030820B   | M8x1.25x70                  |
| F031008B   | M10x1.5x12                  |
| F031009B   | M10x1.5x16                  |
| F031010B   | M10x1.5x20                  |
| F031011B   | M10x1.5x25                  |
| F031012B   | M10x1.5x30                  |
| F031013B   | M10x1.5x35                  |
| F031014B   | M10x1.5x40                  |
| F031015B   | M10x1.5x45                  |
| F031016B   | M10x1.5x50                  |
| F031017B   | M10x1.5x55                  |
| F031018B   | M10x1.5x60                  |
| F031020B   | M10x1.5x70                  |
| F031022B   | M10x1.5x80                  |
| F031023B   | M10x1.5x90                  |
| F031024B   | M10x1.5x100                 |
| F031210B   | M12x1.75x20                 |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F031211B   | M12x1.75x25                 |
| F031212B   | M12x1.75x30                 |
| F031213B   | M12x1.75x35                 |
| F031214B   | M12x1.75x40                 |
| F031215B   | M12x1.75x45                 |
| F031216B   | M12x1.75x50                 |
| F031217B   | M12x1.75x55                 |
| F031218B   | M12x1.75x60                 |
| F031220B   | M12x1.75x70                 |
| F031222B   | M12x1.75x80                 |
| F031223B   | M12x1.75x90                 |
| F031224B   | M12x1.75x100                |
| F031612B   | M16x2.0x30                  |
| F031613B   | M16x2.0x35                  |
| F031614B   | M16x2.0x40                  |
| F031615B   | M16x2.0x45                  |
| F031616B   | M16x2.0x50                  |
| F031617B   | M16x2.0x55                  |
| F031618B   | M16x2.0x60                  |
| F031620B   | M16x2.0x70                  |
| F031622B   | M16x2.0x80                  |
| F031623B   | M16x2.0x90                  |
| F031624B   | M16x2.0x100                 |
| F032013B   | M20x2.5x35                  |
| F032014B   | M20x2.5x40                  |
| F032015B   | M20x2.5x45                  |
| F032016B   | M20x2.5x50                  |
| F032017B   | M20x2.5x55                  |
| F032018B   | M20x2.5x60                  |
| F032020B   | M20x2.5x70                  |
| F032022B   | M20x2.5x80                  |
| F032023B   | M20x2.5x90                  |
| F032024B   | M20x2.5x100                 |

A

# SOCKET HEAD SHOULDER SCREW

(F04 SERIES)

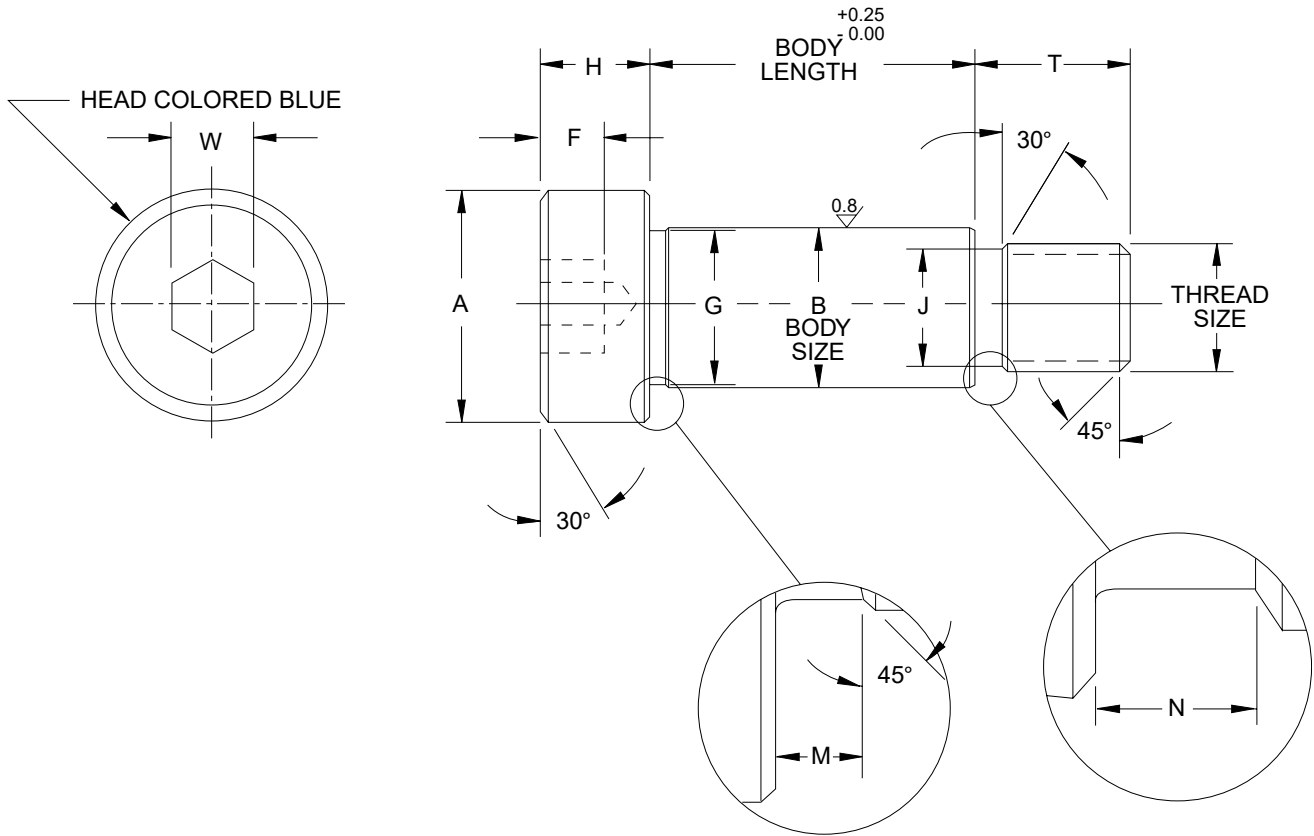
GLOBAL STANDARD COMPONENTS

# NAAMS



Assembly

07/25/08



|      |           | STOCK SIZES  |    |    |    |    |    |    |    |    |    |    |    |     |     |
|------|-----------|--------------|----|----|----|----|----|----|----|----|----|----|----|-----|-----|
| NOM. | BODY SIZE | BODY LENGTHS |    |    |    |    |    |    |    |    |    |    |    |     |     |
|      |           | 10           | 12 | 16 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 120 |
| 6    |           | ✓            | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |    |    |    |    |     |     |
| 8    |           |              | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |    |    |    |     |     |
| 10   |           |              |    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |    |    |     |     |
| 12   |           |              |    |    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |    |     |     |
| 16   |           |              |    |    |    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |     |     |
| 20   |           |              |    |    |    |    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓   |     |
| 24   |           |              |    |    |    |    |    | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓   | ✓   |

### NOTES & SPECIFICATIONS:

Material, heat treated alloy steel. Ultimate min. tensile 1100MPa, single shear strength 660MPa.  
ANSI B18.3.3M

CODING ON FOLLOWING PAGE

C

A

B

D

# SOCKET HEAD SHOULDER SCREW CODING

(UNCOATED)  
(F04 SERIES)

GLOBAL STANDARD COMPONENTS

TM **NAAMS**



Assembly

07/25/08

**B**

| BODY SIZE | NOM. THREAD SIZE | PITCH | A<br>MAX | F<br>MIN | B <sub>h8</sub> |        | G<br>MIN | H<br>MAX |
|-----------|------------------|-------|----------|----------|-----------------|--------|----------|----------|
|           |                  |       |          |          | MAX             | MIN    |          |          |
| 6         | M5               | 0.8   | 10.00    | 2.4      | 6.0             | 5.982  | 5.42     | 4.50     |
| 8         | M6               | 1.0   | 13.00    | 3.3      | 8.0             | 7.978  | 7.42     | 5.50     |
| 10        | M8               | 1.25  | 16.00    | 4.2      | 10.0            | 9.978  | 9.42     | 7.00     |
| 12        | M10              | 1.5   | 18.00    | 4.9      | 12.0            | 11.973 | 11.42    | 8.00     |
| 16        | M12              | 1.75  | 24.00    | 6.6      | 16.0            | 15.973 | 15.42    | 10.00    |
| 20        | M16              | 2.0   | 30.00    | 8.8      | 20.0            | 19.967 | 19.42    | 14.00    |
| 24        | M20              | 2.5   | 36.00    | 10.0     | 24.0            | 23.967 | 23.42    | 16.00    |

| BODY SIZE | J     | M   | N    | T     | W    | RECOMMENDED SEATING TORQUE<br>Nm | TAP DRILL SIZE |
|-----------|-------|-----|------|-------|------|----------------------------------|----------------|
|           | MIN   | MAX | MAX  | MAX   | NOM. |                                  |                |
| 6         | 3.68  | 2.5 | 2.40 | 9.75  | 3    | 7                                | 4.2            |
| 8         | 4.40  | 2.5 | 2.60 | 11.25 | 4    | 12                               | 5.0            |
| 10        | 6.03  | 2.5 | 2.80 | 13.25 | 5    | 29                               | 6.75           |
| 12        | 7.69  | 2.5 | 3.00 | 16.40 | 6    | 57                               | 8.5            |
| 16        | 9.35  | 2.5 | 4.00 | 18.40 | 8    | 100                              | 10.25          |
| 20        | 12.96 | 2.5 | 4.80 | 22.40 | 10   | 240                              | 14             |
| 24        | 16.30 | 3.0 | 5.60 | 27.40 | 12   | 470                              | 17.5           |

| NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH |
|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|
| F040607    | 6 x 10                  | F040820    | 8 x 70                  | F041216    | 12 x 50                 | F042014    | 20 x 40                 |
| F040608    | 6 x 12                  | F041009    | 10 x 16                 | F041218    | 12 x 60                 | F042016    | 20 x 50                 |
| F040609    | 6 x 16                  | F041010    | 10 x 20                 | F041220    | 12 x 70                 | F042018    | 20 x 60                 |
| F040610    | 6 x 20                  | F041011    | 10 x 25                 | F041222    | 12 x 80                 | F042020    | 20 x 70                 |
| F040611    | 6 x 25                  | F041012    | 10 x 30                 | F041223    | 12 x 90                 | F042022    | 20 x 80                 |
| F040612    | 6 x 30                  | F041014    | 10 x 40                 | F041224    | 12 x 100                | F042023    | 20 x 90                 |
| F040614    | 6 x 40                  | F041016    | 10 x 50                 | F041612    | 16 x 30                 | F042024    | 20 x 100                |
| F040616    | 6 x 50                  | F041018    | 10 x 60                 | F041614    | 16 x 40                 | F042026    | 20 x 120                |
| F040808    | 8 x 12                  | F041020    | 10 x 70                 | F041616    | 16 x 50                 | F042416    | 24 x 50                 |
| F040809    | 8 x 16                  | F041022    | 10 x 80                 | F041618    | 16 x 60                 | F042418    | 24 x 60                 |
| F040810    | 8 x 20                  | F041209    | 12 x 16                 | F041620    | 16 x 70                 | F042420    | 24 x 70                 |
| F040811    | 8 x 25                  | F041210    | 12 x 20                 | F041622    | 16 x 80                 | F042422    | 24 x 80                 |
| F040812    | 8 x 30                  | F041211    | 12 x 25                 | F041623    | 16 x 90                 | F042423    | 24 x 90                 |
| F040814    | 8 x 40                  | F041212    | 12 x 30                 | F041624    | 16 x 100                | F042424    | 24 x 100                |
| F040816    | 8 x 50                  | F041214    | 12 x 40                 | F041626    | 16 x 120                | F042426    | 24 x 120                |

**A**

# SOCKET HEAD SHOULDER SCREW CODING

(BLUE COATED)  
(F04 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

| BODY SIZE | NOM. THREAD SIZE | PITCH | A<br>MAX | F<br>MIN | B <sub>h8</sub> |        | G<br>MIN | H<br>MAX |
|-----------|------------------|-------|----------|----------|-----------------|--------|----------|----------|
|           |                  |       |          |          | MAX             | MIN    |          |          |
| 6         | M5               | 0.8   | 10.00    | 2.4      | 6.0             | 5.982  | 5.42     | 4.50     |
| 8         | M6               | 1.0   | 13.00    | 3.3      | 8.0             | 7.978  | 7.42     | 5.50     |
| 10        | M8               | 1.25  | 16.00    | 4.2      | 10.0            | 9.978  | 9.42     | 7.00     |
| 12        | M10              | 1.5   | 18.00    | 4.9      | 12.0            | 11.973 | 11.42    | 8.00     |
| 16        | M12              | 1.75  | 24.00    | 6.6      | 16.0            | 15.973 | 15.42    | 10.00    |
| 20        | M16              | 2.0   | 30.00    | 8.8      | 20.0            | 19.967 | 19.42    | 14.00    |
| 24        | M20              | 2.5   | 36.00    | 10.0     | 24.0            | 23.967 | 23.42    | 16.00    |

| BODY SIZE | J     | M   | N    | T     | W    | RECOMMENDED SEATING TORQUE<br>Nm | TAP DRILL SIZE |
|-----------|-------|-----|------|-------|------|----------------------------------|----------------|
|           | MIN   | MAX | MAX  | MAX   | NOM. |                                  |                |
| 6         | 3.68  | 2.5 | 2.40 | 9.75  | 3    | 7                                | 4.2            |
| 8         | 4.40  | 2.5 | 2.60 | 11.25 | 4    | 12                               | 5.0            |
| 10        | 6.03  | 2.5 | 2.80 | 13.25 | 5    | 29                               | 6.75           |
| 12        | 7.69  | 2.5 | 3.00 | 16.40 | 6    | 57                               | 8.5            |
| 16        | 9.35  | 2.5 | 4.00 | 18.40 | 8    | 100                              | 10.25          |
| 20        | 12.96 | 2.5 | 4.80 | 22.40 | 10   | 240                              | 14             |
| 24        | 16.30 | 3.0 | 5.60 | 27.40 | 12   | 470                              | 17.5           |

| NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH | NAAMS CODE | BODY SIZE x BODY LENGTH |
|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|
| F040607B   | 6 x 10                  | F040820B   | 8 x 70                  | F041216B   | 12 x 50                 | F042014B   | 20 x 40                 |
| F040608B   | 6 x 12                  | F041009B   | 10 x 16                 | F041218B   | 12 x 60                 | F042016B   | 20 x 50                 |
| F040609B   | 6 x 16                  | F041010B   | 10 x 20                 | F041220B   | 12 x 70                 | F042018B   | 20 x 60                 |
| F040610B   | 6 x 20                  | F041011B   | 10 x 25                 | F041222B   | 12 x 80                 | F042020B   | 20 x 70                 |
| F040611B   | 6 x 25                  | F041012B   | 10 x 30                 | F041223B   | 12 x 90                 | F042022B   | 20 x 80                 |
| F040612B   | 6 x 30                  | F041014B   | 10 x 40                 | F041224B   | 12 x 100                | F042023B   | 20 x 90                 |
| F040614B   | 6 x 40                  | F041016B   | 10 x 50                 | F041612B   | 16 x 30                 | F042024B   | 20 x 100                |
| F040616B   | 6 x 50                  | F041018B   | 10 x 60                 | F041614B   | 16 x 40                 | F042026B   | 20 x 120                |
| F040808B   | 8 x 12                  | F041020B   | 10 x 70                 | F041616B   | 16 x 50                 | F042416B   | 24 x 50                 |
| F040809B   | 8 x 16                  | F041022B   | 10 x 80                 | F041618B   | 16 x 60                 | F042418B   | 24 x 60                 |
| F040810B   | 8 x 20                  | F041209B   | 12 x 16                 | F041620B   | 16 x 70                 | F042420B   | 24 x 70                 |
| F040811B   | 8 x 25                  | F041210B   | 12 x 20                 | F041622B   | 16 x 80                 | F042422B   | 24 x 80                 |
| F040812B   | 8 x 30                  | F041211B   | 12 x 25                 | F041623B   | 16 x 90                 | F042423B   | 24 x 90                 |
| F040814B   | 8 x 40                  | F041212B   | 12 x 30                 | F041624B   | 16 x 100                | F042424B   | 24 x 100                |
| F040816B   | 8 x 50                  | F041214B   | 12 x 40                 | F041626B   | 16 x 120                | F042426B   | 24 x 120                |

A

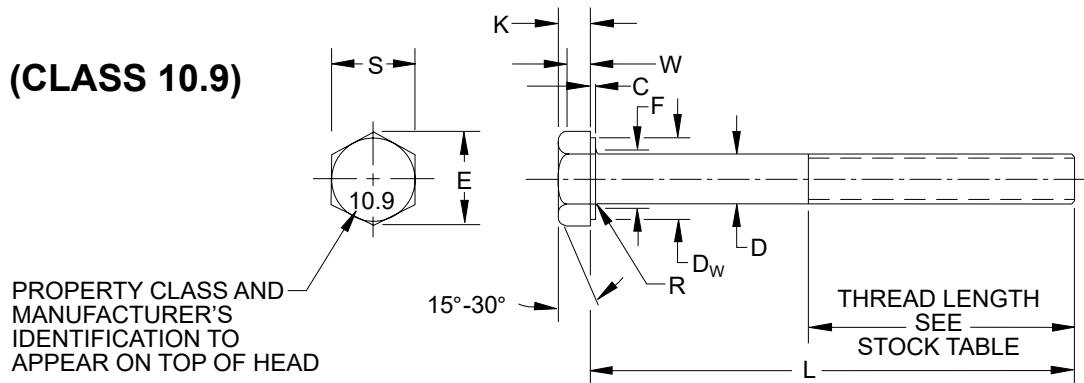


# HEX HEAD SCREW

(F05 SERIES)

A

(CLASS 10.9)



| NOMINAL SCREW DIA. & THREAD PITCH | D BODY DIAMETER |       | S WIDTH ACROSS FLATS |       | E WIDTH ACROSS CORNERS |       | K HEAD HEIGHT |       | W WRENCHING HEIGHT | F FILLET TRANS. DIA. | R RADIUS OF FILLET | C WASHER FACE THICKNESS |     | D <sub>w</sub> WASH FACE DIA. |
|-----------------------------------|-----------------|-------|----------------------|-------|------------------------|-------|---------------|-------|--------------------|----------------------|--------------------|-------------------------|-----|-------------------------------|
|                                   | MAX             | MIN   | MAX                  | MIN   | MAX                    | MIN   | MAX           | MIN   | MIN                | MAX                  | MIN                | MAX                     | MIN | MIN                           |
| M12x1.75                          | 12.00           | 11.73 | 18.00                | 17.73 | 20.78                  | 20.03 | 7.76          | 7.24  | 5.2                | 13.7                 | 0.6                | 0.6                     | 0.3 | 16.6                          |
| M14x2                             | 14.00           | 13.73 | 21.00                | 20.67 | 24.25                  | 23.35 | 9.09          | 8.51  | 6.2                | 15.7                 | 0.6                | 0.6                     | 0.3 | 19.6                          |
| M16x2                             | 16.00           | 15.73 | 24.00                | 23.67 | 27.71                  | 26.75 | 10.32         | 9.68  | 7.0                | 17.7                 | 0.6                | 0.8                     | 0.4 | 22.5                          |
| M20x2.5                           | 20.00           | 19.67 | 30.00                | 29.16 | 34.64                  | 32.95 | 12.88         | 12.12 | 8.8                | 22.4                 | 0.8                | 0.8                     | 0.4 | 27.7                          |
| M24x3                             | 24.00           | 23.67 | 36.00                | 35.00 | 41.57                  | 39.55 | 15.44         | 14.56 | 10.5               | 26.4                 | 0.8                | 0.8                     | 0.4 | 33.2                          |
| M30x3.5                           | 30.00           | 29.67 | 46.00                | 45.00 | 53.12                  | 50.85 | 19.48         | 17.92 | 13.1               | 33.4                 | 1.0                | 0.8                     | 0.4 | 42.7                          |
| M36x4                             | 36.00           | 35.61 | 55.00                | 53.80 | 63.51                  | 60.79 | 23.38         | 21.62 | 15.8               | 39.4                 | 1.0                | 0.8                     | 0.4 | 51.1                          |

| THREAD SIZE NOM | STOCK SIZES (L) |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|-----------------|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|
|                 | 20              | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 240 | 260 | 280 | 300 | 320 | 330 | 340 |  |  |  |  |  |
| M12             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M14             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M16             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M20             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M24             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M30             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| M36             |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |

- Lengths to the left of heavy line (█) threaded to head.
- Lengths to the right of heavy line (█) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

**NOTES & SPECIFICATIONS:**

ANSI B18.2.3.1M  
 ASTM F568M  
 CLASS 10.9

CODING ON FOLLOWING PAGE  
 FOR SCREWS SMALLER THAN M12, SEE PAGES F-11.5 AND F-11.6

D  
 B  
 C

# HEX HEAD SCREW CODING

(UNCOATED)  
(F05 SERIES)

**A**

## (CLASS 10.9)

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F051210    | M12-1.75 x 20               |
| F051211    | M12-1.75 x 25               |
| F051212    | M12-1.75 x 30               |
| F051213    | M12-1.75 x 35               |
| F051214    | M12-1.75 x 40               |
| F051215    | M12-1.75 x 45               |
| F051216    | M12-1.75 x 50               |
| F051217    | M12-1.75 x 55               |
| F051218    | M12-1.75 x 60               |
| F051219    | M12-1.75 x 65               |
| F051220    | M12-1.75 x 70               |
| F051221    | M12-1.75 x 75               |
| F051222    | M12-1.75 x 80               |
| F051223    | M12-1.75 x 90               |
| F051224    | M12-1.75 x 100              |
| F051225    | M12-1.75 x 110              |
| F051226    | M12-1.75 x 120              |
| F051411    | M14-2.0 x 25                |
| F051412    | M14-2.0 x 30                |
| F051413    | M14-2.0 x 35                |
| F051414    | M14-2.0 x 40                |
| F051415    | M14-2.0 x 45                |
| F051416    | M14-2.0 x 50                |
| F051417    | M14-2.0 x 55                |
| F051418    | M14-2.0 x 60                |
| F051420    | M14-2.0 x 70                |
| F051422    | M14-2.0 x 80                |
| F051423    | M14-2.0 x 90                |
| F051424    | M14-2.0 x 100               |
| F051425    | M14-2.0 x 110               |
| F051613    | M16-2.0 x 35                |
| F051614    | M16-2.0 x 40                |
| F051615    | M16-2.0 x 45                |
| F051616    | M16-2.0 x 50                |
| F051617    | M16-2.0 x 55                |
| F051618    | M16-2.0 x 60                |
| F051620    | M16-2.0 x 70                |
| F051621    | M16-2.0 x 75                |
| F051622    | M16-2.0 x 80                |
| F051623    | M16-2.0 x 90                |
| F051624    | M16-2.0 x 100               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F051625    | M16-2.0 x 110               |
| F051626    | M16-2.0 x 120               |
| F052014    | M20-2.5 x 40                |
| F052015    | M20-2.5 x 45                |
| F052016    | M20-2.5 x 50                |
| F052018    | M20-2.5 x 60                |
| F052020    | M20-2.5 x 70                |
| F052022    | M20-2.5 x 80                |
| F052023    | M20-2.5 x 90                |
| F052024    | M20-2.5 x 100               |
| F052025    | M20-2.5 x 110               |
| F052026    | M20-2.5x 120                |
| F052027    | M20-2.5 x 130               |
| F052028    | M20-2.5 x 140               |
| F052029    | M20-2.5 x 150               |
| F052030    | M20-2.5 x 160               |
| F052031    | M20-2.5 x 170               |
| F052032    | M20-2.5 x 180               |
| F052033    | M20-2.5 x 190               |
| F052034    | M20-2.5 x 200               |
| F052036    | M20-2.5 x 220               |
| F052037    | M20-2.5x 240                |
| F052038    | M20-2.5 x 260               |
| F052039    | M20-2.5 x 280               |
| F052040    | M20-2.5 x 300               |
| F052043    | M20-2.5x 340                |
| F052416    | M24-3.0 x 50                |
| F052418    | M24-3.0 x 60                |
| F052420    | M24-3.0 x 70                |
| F052422    | M24-3.0 x 80                |
| F052424    | M24-3.0 x 100               |
| F052425    | M24-3.0 x 110               |
| F052426    | M24-3.0x 120                |
| F052427    | M24-3.0 x 130               |
| F052428    | M24-3.0 x 140               |
| F052429    | M24-3.0x 150                |
| F052430    | M24-3.0 x 160               |
| F052431    | M24-3.0 x 170               |
| F052432    | M24-3.0 x 180               |
| F052433    | M24-3.0 x 190               |
| F052434    | M24-3.0 x 200               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F052436    | M24-3.0 x 220               |
| F052437    | M24-3.0 x 240               |
| F052438    | M24-3.0 x 260               |
| F052439    | M24-3.0 x 280               |
| F052440    | M24-3.0 x 300               |
| F052442    | M24-2.0 x 330               |
| F052443    | M24-3.0 x 340               |
| F053018    | M30-3.5 x 60                |
| F053019    | M30-3.5 x 65                |
| F053020    | M30-3.5 x 70                |
| F053022    | M30-3.5 x 80                |
| F053023    | M30-3.5 x 90                |
| F053024    | M30-3.5 x 100               |
| F053025    | M30-3.5 x 110               |
| F053026    | M30-3.5x 120                |
| F053027    | M30-3.5 x 130               |
| F053028    | M30-3.5x 140                |
| F053029    | M30-3.5x 150                |
| F053030    | M30-3.5 x 160               |
| F053031    | M30-3.5 x 170               |
| F053032    | M30-3.5 x 180               |
| F053033    | M30-3.5 x 190               |
| F053034    | M30-3.5 x 200               |
| F053035    | M30-3.5 x 210               |
| F053036    | M30-3.5 x 220               |
| F053037    | M30-3.5 x 240               |
| F053038    | M30-3.5 x 260               |
| F053040    | M30-3.5 x 300               |
| F053041    | M30-3.5 x 320               |
| F053622    | M36-4.0 x 80                |
| F053623    | M36-4.0 x 90                |
| F053624    | M36-4.0 x 100               |
| F053626    | M36-4.0 x 120               |
| F053627    | M36-4.0 x 130               |
| F053628    | M36-4.0 x 140               |
| F053629    | M36-4.0 x 150               |
| F053630    | M36-4.0 x 160               |
| F053631    | M36-4.0 x 170               |
| F053634    | M36-4.0 x 200               |

**C**  
**B**

FOR SCREWS SMALLER THAN M12, SEE PAGES F-11.5 AND F-11.6

# HEX HEAD SCREW CODING

(BLUE COATED)  
(F05 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

03/31/10

## (CLASS 10.9)

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F051210B   | M12-1.75 x 20               |
| F051211B   | M12-1.75 x 25               |
| F051212B   | M12-1.75 x 30               |
| F051213B   | M12-1.75 x 35               |
| F051214B   | M12-1.75 x 40               |
| F051215B   | M12-1.75 x 45               |
| F051216B   | M12-1.75 x 50               |
| F051217B   | M12-1.75 x 55               |
| F051218B   | M12-1.75 x 60               |
| F051219B   | M12-1.75 x 65               |
| F051220B   | M12-1.75 x 70               |
| F051221B   | M12-1.75 x 75               |
| F051222B   | M12-1.75 x 80               |
| F051223B   | M12-1.75 x 90               |
| F051224B   | M12-1.75 x 100              |
| F051225B   | M12-1.75 x 110              |
| F051226B   | M12-1.75 x 120              |
| F051411B   | M14-2.0 x 25                |
| F051412B   | M14-2.0 x 30                |
| F051413B   | M14-2.0 x 35                |
| F051414B   | M14-2.0 x 40                |
| F051415B   | M14-2.0 x 45                |
| F051416B   | M14-2.0 x 50                |
| F051417B   | M14-2.0 x 55                |
| F051418B   | M14-2.0 x 60                |
| F051420B   | M14-2.0 x 70                |
| F051422B   | M14-2.0 x 80                |
| F051423B   | M14-2.0 x 90                |
| F051424B   | M14-2.0 x 100               |
| F051425B   | M14-2.0 x 110               |
| F051613B   | M16-2.0 x 35                |
| F051614B   | M16-2.0 x 40                |
| F051615B   | M16-2.0 x 45                |
| F051616B   | M16-2.0 x 50                |
| F051617B   | M16-2.0 x 55                |
| F051618B   | M16-2.0 x 60                |
| F051620B   | M16-2.0 x 70                |
| F051621B   | M16-2.0 x 75                |
| F051622B   | M16-2.0 x 80                |
| F051623B   | M16-2.0 x 90                |
| F051624B   | M16-2.0 x 100               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F051625B   | M16-2.0 x 110               |
| F051626B   | M16-2.0 x 120               |
| F052014B   | M20-2.5 x 40                |
| F052015B   | M20-2.5 x 45                |
| F052016B   | M20-2.5 x 50                |
| F052018B   | M20-2.5 x 60                |
| F052020B   | M20-2.5 x 70                |
| F052022B   | M20-2.5 x 80                |
| F052023B   | M20-2.5 x 90                |
| F052024B   | M20-2.5 x 100               |
| F052025B   | M20-2.5 x 110               |
| F052026B   | M20-2.5 x 120               |
| F052027B   | M20-2.5 x 130               |
| F052028B   | M20-2.5 x 140               |
| F052029B   | M20-2.5 x 150               |
| F052030B   | M20-2.5 x 160               |
| F052031B   | M20-2.5 x 170               |
| F052032B   | M20-2.5 x 180               |
| F052033B   | M20-2.5 x 190               |
| F052034B   | M20-2.5 x 200               |
| F052036B   | M20-2.5 x 220               |
| F052037B   | M20-2.5 x 240               |
| F052038B   | M20-2.5 x 260               |
| F052039B   | M20-2.5 x 280               |
| F052040B   | M20-2.5 x 300               |
| F052043B   | M20-2.5 x 340               |
| F052416B   | M24-3.0 x 50                |
| F052418B   | M24-3.0 x 60                |
| F052420B   | M24-3.0 x 70                |
| F052422B   | M24-3.0 x 80                |
| F052424B   | M24-3.0 x 100               |
| F052425B   | M24-3.0 x 110               |
| F052426B   | M24-3.0 x 120               |
| F052427B   | M24-3.0 x 130               |
| F052428B   | M24-3.0 x 140               |
| F052429B   | M24-3.0 x 150               |
| F052430B   | M24-3.0 x 160               |
| F052431B   | M24-3.0 x 170               |
| F052432B   | M24-3.0 x 180               |
| F052433B   | M24-3.0 x 190               |
| F052434B   | M24-3.0 x 200               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F052436B   | M24-3.0 x 220               |
| F052437B   | M24-3.0 x 240               |
| F052438B   | M24-3.0 x 260               |
| F052439B   | M24-3.0 x 280               |
| F052440B   | M24-3.0 x 300               |
| F052442B   | M24-2.0 x 330               |
| F052443B   | M24-3.0 x 340               |
| F053018B   | M30-3.5 x 60                |
| F053019B   | M30-3.5 x 65                |
| F053020B   | M30-3.5 x 70                |
| F053022B   | M30-3.5 x 80                |
| F053023B   | M30-3.5 x 90                |
| F053024B   | M30-3.5 x 100               |
| F053025B   | M30-3.5 x 110               |
| F053026B   | M30-3.5 x 120               |
| F053027B   | M30-3.5 x 130               |
| F053028B   | M30-3.5 x 140               |
| F053029B   | M30-3.5 x 150               |
| F053030B   | M30-3.5 x 160               |
| F053031B   | M30-3.5 x 170               |
| F053032B   | M30-3.5 x 180               |
| F053033B   | M30-3.5 x 190               |
| F053034B   | M30-3.5 x 200               |
| F053035B   | M30-3.5 x 210               |
| F053036B   | M30-3.5 x 220               |
| F053037B   | M30-3.5 x 240               |
| F053038B   | M30-3.5 x 260               |
| F053040B   | M30-3.5 x 300               |
| F053041B   | M30-3.5 x 320               |
| F053622B   | M36-4.0 x 80                |
| F053623B   | M36-4.0 x 90                |
| F053624B   | M36-4.0 x 100               |
| F053626B   | M36-4.0 x 120               |
| F053627B   | M36-4.0 x 130               |
| F053628B   | M36-4.0 x 140               |
| F053629B   | M36-4.0 x 150               |
| F053630B   | M36-4.0 x 160               |
| F053631B   | M36-4.0 x 170               |
| F053634B   | M36-4.0 x 200               |

FOR SCREWS SMALLER THAN M12, SEE PAGES F-11.5 AND F-11.6

A

# HEX HEAD SCREW

(F05 SERIES)

GLOBAL STANDARD COMPONENTS

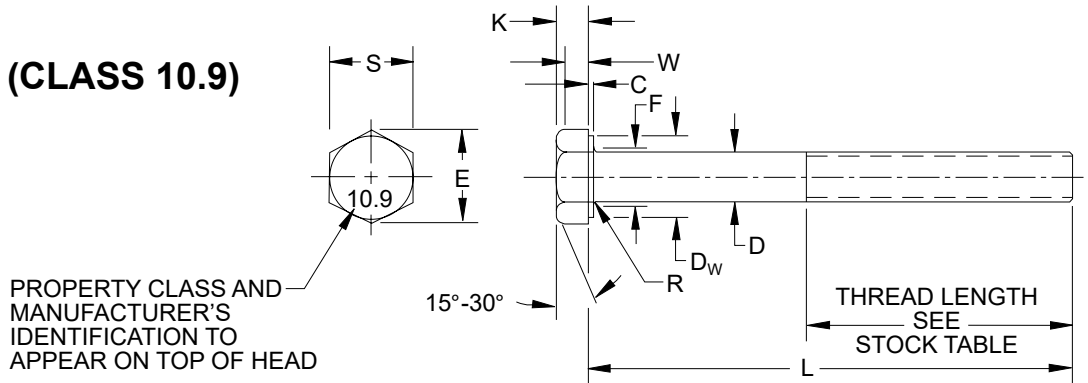
# NAAMS



Assembly

03/31/10

(CLASS 10.9)



| NOMINAL<br>SCREW<br>DIA. &<br>THREAD<br>PITCH | D<br>BODY<br>DIAMETER |      | S<br>WIDTH<br>ACROSS<br>FLATS |       | E<br>WIDTH<br>ACROSS<br>CORNERS |       | K<br>HEAD<br>HEIGHT |      | W<br>WREN-<br>CHING<br>HEIGHT | F<br>FILLET<br>TRANS-<br>TION<br>DIA. | R<br>RADIUS<br>OF<br>FILLET | C<br>WASHER<br>FACE<br>THICKNESS |     | D <sub>w</sub><br>WASH<br>FACE<br>DIA. |
|---|-----------------------|------|-------------------------------|-------|---------------------------------|-------|---------------------|------|-------------------------------|---------------------------------------|-----------------------------|----------------------------------|-----|--|
|   | MAX                   | MIN  | MAX                           | MIN   | MAX                             | MIN   | MAX                 | MIN  | MIN                           | MAX                                   | MIN                         | MAX                              | MIN | MIN                                    |
| M5x0.8  | 5.00                  | 4.82 | 8.00                          | 7.78  | 9.24                            | 8.79  | 3.65                | 3.35 | 2.4                           | 5.7                                   | 0.2                         | 0.5                              | 0.2 | 7.0                                    |
| M6x1.0  | 6.00                  | 5.82 | 10.00                         | 9.78  | 11.55                           | 11.05 | 4.15                | 3.85 | 2.8                           | 6.8                                   | 0.25                        | 0.5                              | 0.2 | 8.9                                    |
| M8x1.2  | 8.00                  | 7.78 | 13.00                         | 12.73 | 15.01                           | 14.38 | 5.50                | 5.10 | 3.7                           | 9.2                                   | 0.4                         | 0.6                              | 0.3 | 11.6                                   |
| M10x1.5                                       | 10.00                 | 9.78 | 16.00                         | 15.73 | 18.48                           | 17.77 | 6.63                | 6.17 | 4.5                           | 11.2                                  | 0.4                         | 0.6                              | 0.3 | 14.6                                   |

| THREAD<br>SIZE<br>NOM | STOCK SIZES (L) |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |
|-----------------------|-----------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|
|                       | 6               | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |  |  |  |  |  |  |  |
| M5x0.8                |                 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | █   |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |
| M6x1.0                |                 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     | █   |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |
| M8x1.25               |                 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     | █   |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |
| M10x1.5               |                 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     | █   |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |

- Lengths to the left of heavy line (█) threaded to head.

**NOTES & SPECIFICATIONS:**

ANSI B18.2.3.1M  
ASTM F568M  
CLASS 10.9

CODING ON FOLLOWING PAGE

FOR SCREWS LARGER THAN M10, SEE PAGES F-11.2 THRU F-11.4

# HEX HEAD SCREW CODING

(UNCOATED)  
(F05 SERIES)

## (CLASS 10.9)

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH | NAAMS CODE | NOM. SIZE, PITCH AND LENGTH | NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|------------|-----------------------------|------------|-----------------------------|
| F050510    | M5-0.8 x 6                  | F050810    | M8-1.25 x 10                | F051010    | M10-1.5 x 10                |
| F050511    | M5-0.8 x 8                  | F050811    | M8-1.25 x 12                | F051011    | M10-1.5 x 12                |
| F050512    | M5-0.8 x 10                 | F050812    | M8-1.25 x 16                | F051012    | M10-1.5 x 16                |
| F050513    | M5-0.8 x 12                 | F050813    | M8-1.25 x 20                | F051013    | M10-1.5 x 20                |
| F050514    | M5-0.8 x 16                 | F050814    | M8-1.25 x 25                | F051014    | M10-1.5 x 25                |
| F050515    | M5-0.8 x 20                 | F050815    | M8-1.25 x 30                | F051015    | M10-1.5 x 30                |
| F050516    | M5-0.8 x 25                 | F050816    | M8-1.25 x 35                | F051016    | M10-1.5 x 35                |
| F050517    | M5-0.8 x 30                 | F050817    | M8-1.25 x 40                | F051017    | M10-1.5 x 40                |
| F050518    | M5-0.8 x 35                 | F050818    | M8-1.25 x 45                | F051018    | M10-1.5 x 45                |
| F050519    | M5-0.8 x 40                 | F050819    | M8-1.25 x 50                | F051019    | M10-1.5 x 50                |
| F050520    | M5-0.8 x 45                 | F050820    | M8-1.25 x 55                | F051020    | M10-1.5 x 55                |
| F050521    | M5-0.8 x 50                 | F050821    | M8-1.25 x 60                | F051021    | M10-1.5 x 60                |
| F050522    | M5-0.8 x 55                 | F050822    | M8-1.25 x 65                | F051022    | M10-1.5 x 65                |
| F050523    | M5-0.8 x 60                 | F050823    | M8-1.25 x 70                | F051023    | M10-1.5 x 70                |
| F050524    | M5-0.8 x 65                 | F050824    | M8-1.25 x 75                | F051024    | M10-1.5 x 75                |
| F050525    | M5-0.8 x 70                 | F050825    | M8-1.25 x 80                | F051025    | M10-1.5 x 80                |
| F050610    | M6-1.0 x 8                  | F050826    | M8-1.25 x 90                | F051026    | M10-1.5 x 90                |
| F050611    | M6-1.0 x 10                 | F050827    | M8-1.25 x 100               | F051027    | M10-1.5 x 100               |
| F050612    | M6-1.0 x 12                 | F050828    | M8-1.25 x 110               | F051028    | M10-1.5 x 110               |
| F050613    | M6-1.0 x 16                 | F050829    | M8-1.25 x 120               | F051029    | M10-1.5 x 120               |
| F050614    | M6-1.0 x 20                 | F050830    | M8-1.25 x 130               | F051030    | M10-1.5 x 130               |
| F050615    | M6-1.0 x 25                 | F050831    | M8-1.25 x 140               | F051031    | M10-1.5 x 140               |
| F050616    | M6-1.0 x 30                 | F050832    | M8-1.25 x 150               | F051032    | M10-1.5 x 150               |
| F050617    | M6-1.0 x 35                 | F050833    | M8-1.25 x 160               | F051033    | M10-1.5 x 160               |
| F050618    | M6-1.0 x 40                 | F050834    | M8-1.25 x 170               | F051034    | M10-1.5 x 170               |
| F050619    | M6-1.0 x 45                 | F050835    | M8-1.25 x 180               | F051035    | M10-1.5 x 180               |
| F050620    | M6-1.0 x 50                 | F050836    | M8-1.25 x 190               | F051036    | M10-1.5 x 190               |
| F050621    | M6-1.0 x 55                 | F050837    | M8-1.25 x 200               | F051037    | M10-1.5 x 200               |
| F050622    | M6-1.0 x 60                 |            |                             |            |                             |
| F050623    | M6-1.0 x 65                 |            |                             |            |                             |
| F050624    | M6-1.0 x 70                 |            |                             |            |                             |
| F050625    | M6-1.0 x 75                 |            |                             |            |                             |
| F050626    | M6-1.0 x 80                 |            |                             |            |                             |
| F050627    | M6-1.0 x 90                 |            |                             |            |                             |
| F050628    | M6-1.0 x 100                |            |                             |            |                             |
| F050629    | M6-1.0 x 110                |            |                             |            |                             |
| F050630    | M6-1.0 x 120                |            |                             |            |                             |

FOR SCREWS LARGER THAN M10, SEE PAGES F-11.2 THRU F-11.4

# HEX HEAD SCREW

(F06 SERIES)

GLOBAL STANDARD COMPONENTS

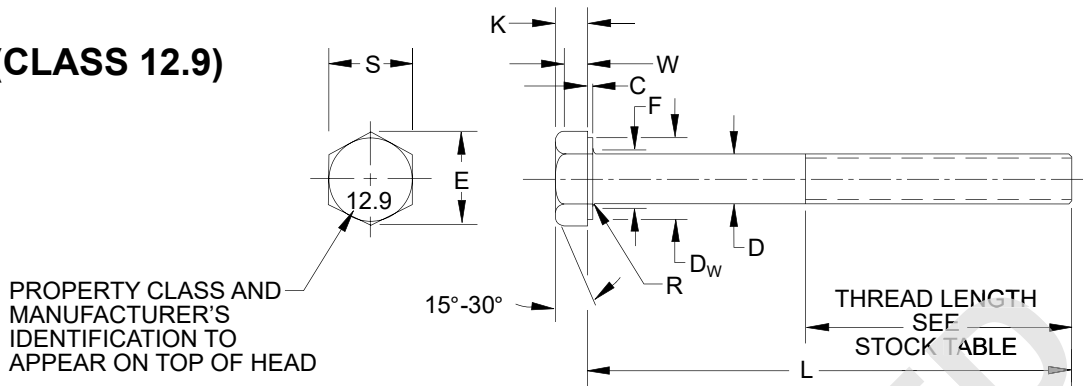
# NAAMS



Assembly

07/25/08

**(CLASS 12.9)**



PROPERTY CLASS AND  
MANUFACTURER'S  
IDENTIFICATION TO  
APPEAR ON TOP OF HEAD

| NOMINAL<br>SCREW<br>DIA. &<br>THREAD<br>PITCH | D<br>BODY<br>DIAMETER |       | S<br>WIDTH<br>ACROSS<br>FLATS |       | E<br>WIDTH<br>ACROSS<br>CORNERS |       | K<br>HEAD<br>HEIGHT |       | W                        | F                               | R                     | C<br>WASHER<br>FACE<br>THICKNESS |     | D <sub>w</sub> |
|---|-----------------------|-------|-------------------------------|-------|---------------------------------|-------|---------------------|-------|--------------------------|---------------------------------|-----------------------|----------------------------------|-----|----------------|
|   | MAX                   | MIN   | MAX                           | MIN   | MAX                             | MIN   | MAX                 | MIN   | WREN-<br>CHING<br>HEIGHT | FILET<br>TRANS-<br>TION<br>DIA. | RADIUS<br>OF<br>FILET | MAX                              | MIN | MIN            |
| M6x1  | 6.00                  | 5.82  | 10.00                         | 9.78  | 11.55                           | 11.05 | 4.15                | 3.85  | 2.8                      | 6.8                             | 0.3                   | 0.5                              | 0.2 | 8.9            |
| M8x1.25                                       | 8.00                  | 7.78  | 13.00                         | 12.73 | 15.01                           | 14.38 | 5.50                | 5.10  | 3.7                      | 9.2                             | 0.4                   | 0.6                              | 0.3 | 11.6           |
| M10x1.5                                       | 10.00                 | 9.78  | 16.00                         | 15.73 | 18.48                           | 17.77 | 6.63                | 6.17  | 4.5                      | 11.2                            | 0.4                   | 0.6                              | 0.3 | 14.6           |
| M12x1.75                                      | 12.00                 | 11.73 | 18.00                         | 17.73 | 20.78                           | 20.03 | 7.76                | 7.24  | 5.2                      | 13.7                            | 0.6                   | 0.6                              | 0.3 | 16.6           |
| M14x2   | 14.00                 | 13.73 | 21.00                         | 20.67 | 24.25                           | 23.35 | 9.09                | 8.51  | 6.2                      | 15.7                            | 0.6                   | 0.6                              | 0.3 | 19.6           |
| M16x2   | 16.00                 | 15.73 | 24.00                         | 23.67 | 27.71                           | 26.75 | 10.32               | 9.68  | 7.0                      | 17.7                            | 0.6                   | 0.8                              | 0.4 | 22.5           |
| M20x2.5                                       | 20.00                 | 19.67 | 30.00                         | 29.16 | 34.64                           | 32.95 | 12.88               | 12.12 | 8.8                      | 22.4                            | 0.8                   | 0.8                              | 0.4 | 27.7           |
| M24x3   | 24.00                 | 23.67 | 36.00                         | 35.00 | 41.57                           | 39.55 | 15.44               | 14.56 | 10.5                     | 26.4                            | 0.8                   | 0.8                              | 0.4 | 33.2           |
| M30x3.5                                       | 30.00                 | 29.67 | 46.00                         | 45.00 | 53.12                           | 50.85 | 19.48               | 17.92 | 13.1                     | 33.4                            | 1.0                   | 0.8                              | 0.4 | 42.7           |
| M36x4   | 36.00                 | 35.61 | 55.00                         | 53.80 | 63.51                           | 60.79 | 23.38               | 21.62 | 15.8                     | 39.4                            | 1.0                   | 0.8                              | 0.4 | 51.1           |

CONTINUED ON FOLLOWING PAGE

# HEX HEAD SCREW

(F06 SERIES CONTINUED)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

(CLASS 12.9 CONTINUED)

| THREAD<br>SIZE<br>NOM | STOCK SIZES |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |   |
|-----------------------|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
|                       | 10          | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 180 | 200 |   |
| M6                    | ■           | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ |
| M8                    |             | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ |
| M10                   |             |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ |

| THREAD<br>SIZE<br>NOM | STOCK SIZES |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |
|-----------------------|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|---|
|                       | 20          | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 240 | 260 | 280 | 300 | 320 | 330 | 340 |   |   |   |
| M12                   | ■           | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ |   |   |
| M14                   |             | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ |   |
| M16                   |             |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ |   |
| M20                   |             |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ |   |
| M24                   |             |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ |
| M30                   |             |    |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ |
| M36                   |             |    |    |    |    |    | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■  | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■ | ■ | ■ |

- Lengths to the left of heavy line (■) threaded to head.
- Lengths to the right of heavy line (■) have standard minimum thread lengths of two times the nominal thread diameter plus 12 mm.

**NOTES & SPECIFICATIONS:**

ANSI B18.2.3.1M  
 ASTM F568M  
 CLASS 12.9  
 Screw to be colored blue.

CODING ON FOLLOWING PAGE

F

A

D

# HEX HEAD SCREW CODING

(F06 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

## (CLASS 12.9)

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F060610    | M6-1 x 10                   |
| F060611    | M6-1 x 12                   |
| F060612    | M6-1 x 16                   |
| F060613    | M6-1 x 20                   |
| F060614    | M6-1 x 25                   |
| F060615    | M6-1 x 30                   |
| F060616    | M6-1 x 35                   |
| F060617    | M6-1 x 40                   |
| F060618    | M6-1 x 45                   |
| F060619    | M6-1 x 50                   |
| F060620    | M6-1 x 55                   |
| F060621    | M6-1 x 60                   |
| F060622    | M6-1 x 65                   |
| F060623    | M6-1 x 70                   |
| F060624    | M6-1 x 75                   |
| F060625    | M6-1 x 80                   |
| F060810    | M8-1.25 x 12                |
| F060811    | M8-1.25 x 16                |
| F060812    | M8-1.25 x 20                |
| F060813    | M8-1.25 x 25                |
| F060814    | M8-1.25 x 30                |
| F060815    | M8-1.25 x 35                |
| F060816    | M8-1.25 x 40                |
| F060817    | M8-1.25 x 45                |
| F060818    | M8-1.25 x 50                |
| F060819    | M8-1.25 x 55                |
| F060820    | M8-1.25 x 60                |
| F060821    | M8-1.25 x 65                |
| F060822    | M8-1.25 x 70                |
| F060823    | M8-1.25 x 75                |
| F060824    | M8-1.25 x 80                |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F061010    | M10-1.5 x 20                |
| F061011    | M10-1.5 x 25                |
| F061012    | M10-1.5 x 30                |
| F061013    | M10-1.5 x 35                |
| F061014    | M10-1.5 x 40                |
| F061015    | M10-1.5 x 45                |
| F061016    | M10-1.5 x 50                |
| F061017    | M10-1.5 x 55                |
| F061018    | M10-1.5 x 60                |
| F061019    | M10-1.5 x 65                |
| F061020    | M10-1.5 x 70                |
| F061021    | M10-1.5 x 75                |
| F061022    | M10-1.5 x 80                |
| F061023    | M10-1.5 x 85                |
| F061024    | M10-1.5 x 90                |
| F061025    | M10-1.5 x 100               |
| F061026    | M10-1.5 x 110               |
| F061027    | M10-1.5 x 120               |
| F061028    | M10-1.5 x 130               |
| F061029    | M10-1.5 x 140               |
| F061030    | M10-1.5 x 150               |
| F061031    | M10-1.5 x 160               |
| F061032    | M10-1.5 x 180               |
| F061033    | M10-1.5 x 200               |

B

CONTINUED ON FOLLOWING PAGE



# HEX HEAD SCREW CODING

(F06 SERIES CONTINUED)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

## (CLASS 12.9 CONTINUED)

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F061210    | M12-1.75 x 20               |
| F061211    | M12-1.75 x 25               |
| F061212    | M12-1.75 x 30               |
| F061213    | M12-1.75 x 35               |
| F061214    | M12-1.75 x 40               |
| F061215    | M12-1.75 x 45               |
| F061216    | M12-1.75 x 50               |
| F061217    | M12-1.75 x 55               |
| F061218    | M12-1.75 x 60               |
| F061219    | M12-1.75 x 65               |
| F061220    | M12-1.75 x 70               |
| F061221    | M12-1.75 x 75               |
| F061222    | M12-1.75 x 80               |
| F061223    | M12-1.75 x 90               |
| F061224    | M12-1.75 x 100              |
| F061225    | M12-1.75 x 110              |
| F061226    | M12-1.75 x 120              |
| F061411    | M14-2.0 x 25                |
| F061412    | M14-2.0 x 30                |
| F061413    | M14-2.0 x 35                |
| F061414    | M14-2.0 x 40                |
| F061415    | M14-2.0 x 45                |
| F061416    | M14-2.0 x 50                |
| F061417    | M14-2.0 x 55                |
| F061418    | M14-2.0 x 60                |
| F061420    | M14-2.0 x 70                |
| F061422    | M14-2.0 x 80                |
| F061423    | M14-2.0 x 90                |
| F061424    | M14-2.0 x 100               |
| F061425    | M14-2.0 x 110               |
| F061613    | M16-2.0 x 35                |
| F061614    | M16-2.0 x 40                |
| F061615    | M16-2.0 x 45                |
| F061616    | M16-2.0 x 50                |
| F061617    | M16-2.0 x 55                |
| F061618    | M16-2.0 x 60                |
| F061620    | M16-2.0 x 70                |
| F061621    | M16-2.0 x 75                |
| F061622    | M16-2.0 x 80                |
| F061623    | M16-2.0 x 90                |
| F061624    | M16-2.0 x 100               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F061625    | M16-2.0 x 110               |
| F061626    | M16-2.0 x 120               |
| F062014    | M20-2.5 x 40                |
| F062015    | M20-2.5 x 45                |
| F062016    | M20-2.5 x 50                |
| F062018    | M20-2.5 x 60                |
| F062020    | M20-2.5 x 70                |
| F062022    | M20-2.5 x 80                |
| F062023    | M20-2.5 x 90                |
| F062024    | M20-2.5 x 100               |
| F062025    | M20-2.5 x 110               |
| F062026    | M20-2.5 x 120               |
| F062027    | M20-2.5 x 130               |
| F062028    | M20-2.5 x 140               |
| F062029    | M20-2.5 x 150               |
| F062030    | M20-2.5 x 160               |
| F062031    | M20-2.5 x 170               |
| F062032    | M20-2.5 x 180               |
| F062033    | M20-2.5 x 190               |
| F062034    | M20-2.5 x 200               |
| F062036    | M20-2.5 x 220               |
| F062037    | M20-2.5 x 240               |
| F062038    | M20-2.5 x 260               |
| F062039    | M20-2.5 x 280               |
| F062040    | M20-2.5 x 300               |
| F062043    | M20-2.5 x 340               |
| F062416    | M24-3.0 x 50                |
| F062418    | M24-3.0 x 60                |
| F062420    | M24-3.0 x 70                |
| F062422    | M24-3.0 x 80                |
| F062424    | M24-3.0 x 100               |
| F062425    | M24-3.0 x 110               |
| F062426    | M24-3.0 x 120               |
| F062427    | M24-3.0 x 130               |
| F062428    | M24-3.0 x 140               |
| F062429    | M24-3.0 x 150               |
| F062430    | M24-3.0 x 160               |
| F062431    | M24-3.0 x 170               |
| F062432    | M24-3.0 x 180               |
| F062433    | M24-3.0 x 190               |
| F062434    | M24-3.0 x 200               |

| NAAMS CODE | NOM. SIZE, PITCH AND LENGTH |
|------------|-----------------------------|
| F062436    | M24-3.0 x 220               |
| F062437    | M24-3.0 x 240               |
| F062438    | M24-3.0 x 260               |
| F062439    | M24-3.0 x 280               |
| F062440    | M24-3.0 x 300               |
| F062442    | M24-2.0 x 330               |
| F062443    | M24-3.0 x 340               |
| F063018    | M30-3.5 x 60                |
| F063019    | M30-3.5 x 65                |
| F063020    | M30-3.5 x 70                |
| F063022    | M30-3.5 x 80                |
| F063023    | M30-3.5 x 90                |
| F063024    | M30-3.5 x 100               |
| F063025    | M30-3.5 x 110               |
| F063026    | M30-3.5 x 120               |
| F063027    | M30-3.5 x 130               |
| F063028    | M30-3.5 x 140               |
| F063029    | M30-3.5 x 150               |
| F063030    | M30-3.5 x 160               |
| F063031    | M30-3.5 x 170               |
| F063032    | M30-3.5 x 180               |
| F063033    | M30-3.5 x 190               |
| F063034    | M30-3.5 x 200               |
| F063035    | M30-3.5 x 210               |
| F063036    | M30-3.5 x 220               |
| F063037    | M30-3.5 x 240               |
| F063038    | M30-3.5 x 260               |
| F063040    | M30-3.5 x 300               |
| F063041    | M30-3.5 x 320               |
| F063622    | M36-4.0 x 80                |
| F063623    | M36-4.0 x 90                |
| F063624    | M36-4.0 x 100               |
| F063626    | M36-4.0 x 120               |
| F063627    | M36-4.0 x 130               |
| F063628    | M36-4.0 x 140               |
| F063629    | M36-4.0 x 150               |
| F063630    | M36-4.0 x 160               |
| F063631    | M36-4.0 x 170               |
| F063634    | M36-4.0 x 200               |

A

B

# SOCKET SET SCREW

(F21, F22 & F23 SERIES)

GLOBAL STANDARD COMPONENTS

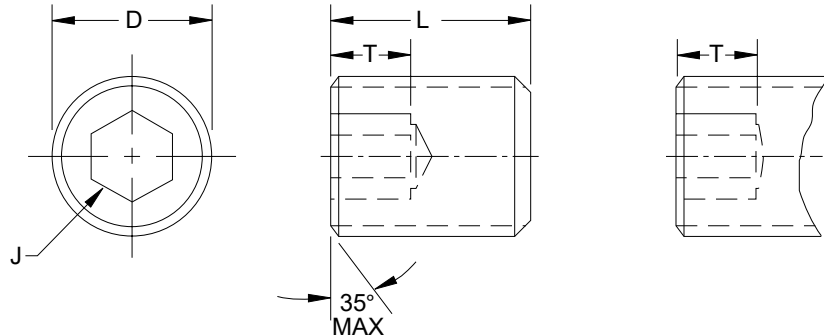


Assembly

05/14/97

## NOTES & SPECIFICATIONS:

ANSI B18.3.6M  
CLASS 45H  
See individual point styles  
for applicable DIN and ISO  
specifications  
(See next page)



| NAAMS CODE<br>FLAT POINT<br>STYLE | NAAMS CODE<br>CONE POINT<br>STYLE | NAAMS CODE<br>CUP POINT<br>(TYPE 1)<br>STYLE | D<br>NOMINAL<br>SIZE OF<br>BASIC<br>SCREW $\phi$<br>x PITCH | J<br>HEXAGON<br>SOCKET<br>SIZE<br>NOM. | L<br>NOMINAL<br>SCREW<br>LENGTHS | T<br>FOR CUP<br>AND FLAT<br>POINTS<br>MIN |
|-----------------------------------|-----------------------------------|--|---|--|----------------------------------|---|
| F210503                           | F220503                           | F230503                                      |   |  | 3                                | 1.2                                       |
| F210504                           | F220504                           | F230504                                      |   |  | 4                                | 2.0                                       |
| F210505                           | F220505                           | F230505                                      | 5 x 0.8   | 2.5                                    | 5                                | 2.7                                       |
| F210506                           | F220506                           | F230506                                      |   |  | 6                                | 2.7                                       |
| F210508                           | F220508                           | F230508                                      |   |  | 8                                | 2.7                                       |
| F210604                           | F220604                           | F230604                                      |   |  | 4                                | 1.8                                       |
| F210605                           | F220605                           | F230605                                      | 6 x 1   | 3                                      | 5                                | 2.5                                       |
| F210606                           | F220606                           | F230606                                      |   |  | 6                                | 3.0                                       |
| F210608                           | F220608                           | F230608                                      |   |  | 8                                | 3.0                                       |
| F210805                           | F220805                           | F230805                                      |   |  | 5                                | 1.8                                       |
| F210806                           | F220806                           | F230806                                      | 8 x 1.25  | 4                                      | 6                                | 2.5                                       |
| F210808                           | F220808                           | F230808                                      |   |  | 8                                | 4.0                                       |
| F210810                           | F220810                           | F230810                                      |   |  | 10                               | 4.0                                       |
| F211006                           | F221006                           | F231006                                      |   |  | 6                                | 2.0                                       |
| F211008                           | F221008                           | F231008                                      | 10 x 1.5  | 5                                      | 8                                | 3.6                                       |
| F211010                           | F221010                           | F231010                                      |   |  | 10                               | 5.0                                       |
| F211012                           | F221012                           | F231012                                      |   |  | 12                               | 5.0                                       |
| F211208                           | F221208                           | F231208                                      |   |  | 8                                | 3.0                                       |
| F211210                           | F221210                           | F231210                                      | 12 x 1.75   | 6                                      | 10                               | 4.5                                       |
| F211212                           | F221212                           | F231212                                      |   |  | 12                               | 6.0                                       |
| F211216                           | F221216                           | F231216                                      |   |  | 16                               | 6.0                                       |
| F211610                           | F221610                           | F231610                                      |   |  | 10                               | 3.0                                       |
| F211612                           | F221612                           | F231612                                      | 16 x 2  | 8                                      | 12                               | 4.8                                       |
| F211616                           | F221616                           | F231616                                      |   |  | 16                               | 8.0                                       |
| F211620                           | F221620                           | F231620                                      |   |  | 20                               | 8.0                                       |
| F212012                           | F222012                           | F232012                                      |   |  | 12                               | —   |
| F212016                           | F222016                           | F232016                                      | 20 x 2.5  | 10                                     | 16                               | 6.0                                       |
| F212020                           | F222020                           | F232020                                      |   |  | 20                               | 9.0                                       |
| F212025                           | F222025                           | F232025                                      |   |  | 25                               | 10.0                                      |
| F212416                           | F222416                           | F232416                                      |   |  | 16                               | 5.0                                       |
| F212420                           | F222420                           | F232420                                      |   |  | 20                               | 8.0                                       |
| F212425                           | F222425                           | F232425                                      | 24 x 3  | 12                                     | 25                               | 12.0                                      |
| F212430                           | F222430                           | F232430                                      |   |  | 30                               | 12.0                                      |

A

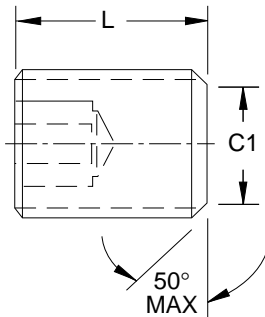
B

# SOCKET SET SCREW POINT STYLES

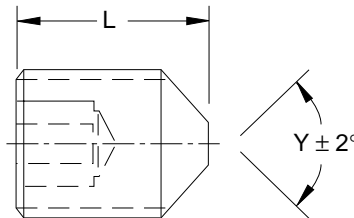
(F21, F22 & F23 SERIES)

Assembly

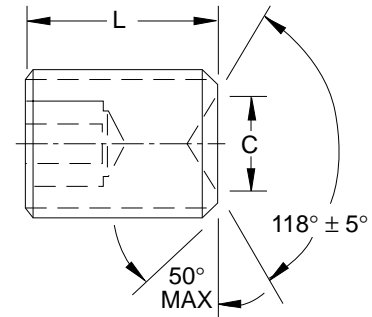
05/14/97



**FLAT POINT  
(F21)**



**CONE POINT  
(F22)**



**CUP POINT  
TYPE 1 (F23)**

| D<br>NOMINAL<br>SIZE OF<br>BASIC<br>SCREW<br>∅ | C<br>CUP<br>POINT<br>∅<br>TYPE 1 |       | C1<br>FLAT<br>POINT<br>∅ |       | Y<br>CONE POINT<br>ANGLE 90° FOR<br>THESE LENGTHS<br>AND OVER; 118°<br>FOR SHORTER<br>LENGTHS |
|--|----------------------------------|-------|--------------------------|-------|---|
|  | MAX                              | MIN   | MAX                      | MIN   |   |
| 5  | 2.50                             | 2.25  | 3.50                     | 3.20  | 6   |
| 6  | 3.00                             | 2.75  | 4.00                     | 3.70  | 8   |
| 8  | 5.00                             | 4.70  | 5.50                     | 5.20  | 10  |
| 10   | 6.00                             | 5.70  | 7.00                     | 6.64  | 12  |
| 12   | 8.00                             | 7.64  | 8.50                     | 8.14  | 16  |
| 16   | 10.00                            | 9.64  | 12.00                    | 11.57 | 20  |
| 20   | 14.00                            | 13.57 | 15.00                    | 14.57 | 25  |
| 24   | 16.00                            | 15.57 | 18.00                    | 17.57 | 30  |

**NOTES & SPECIFICATIONS:**

Material hardness 45H  
Must conform to:  
ANSI B18.3.6M  
Thread class 4g 6g

Cup Point - DIN 916, ISO 4029, ANSI B18.3.6M  
Flat Point - DIN 913, ISO 4026, ANSI B18.3.6M  
Cone Point - DIN 914, ISO 4027, ANSI B18.3.6M

A

B

C

# HEXAGON NUT

(FINE: F39 SERIES)

GLOBAL STANDARD COMPONENTS

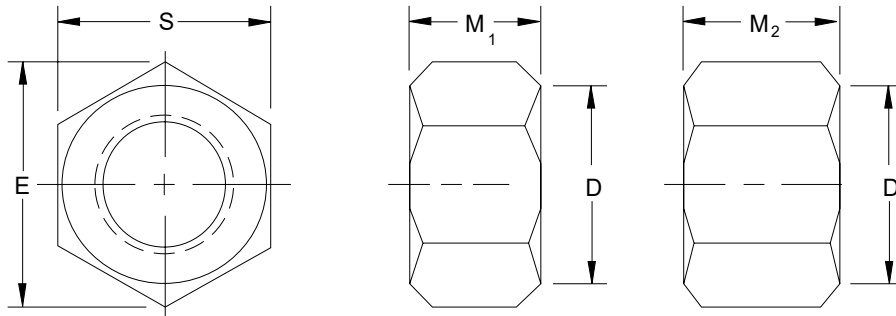


Assembly

07/25/08

B

## FINE THREADS



STYLE 1

STYLE 2

| NAAMS CODE | NOMINAL NUT $\phi$ & THREAD PITCH | S WIDTH ACROSS FLATS |       | E WIDTH ACROSS CORNERS |       | M <sub>1</sub> THICKNESS ANSI B18.2.4.1M |       | M <sub>2</sub> THICKNESS ANSI B18.2.4.2M |       | D BEARING FACE $\phi$ |
|------------|-----------------------------------|----------------------|-------|------------------------|-------|--|-------|--|-------|-----------------------|
|            |                                   | MAX                  | MIN   | MAX                    | MIN   | MAX                                      | MIN   | MAX                                      | MIN   | MIN                   |
| F392436    | M24 x 2                           | 36.00                | 35.00 | 41.57                  | 39.55 | 23.90                                    | 22.60 | 23.90                                    | 22.60 | 33.2                  |

NOTE: F41 SERIES WAS DISCONTINUED 09/18/1998

C

### NOTES & SPECIFICATIONS:

F41 SERIES DISCONTINUED  
 ASTM A563M  
 Class 12

D

# HEXAGON NUT WASHER FACE

(F42 SERIES)

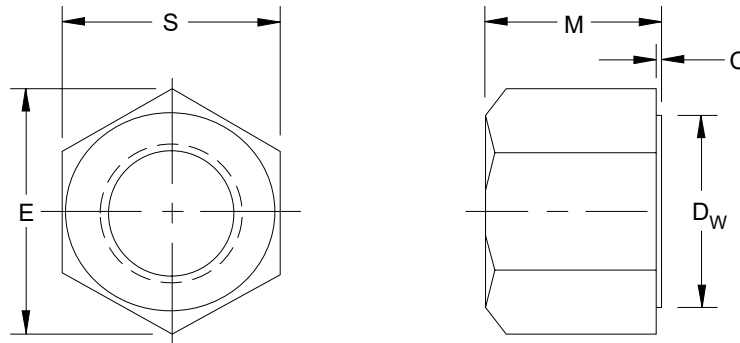
GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

## COARSE THREAD



| NAAMS<br>CODE | NOMINAL<br>NUT $\phi$<br>&<br>THREAD<br>PITCH | S<br>WIDTH<br>ACROSS<br>FLATS |       | E<br>WIDTH<br>ACROSS<br>CORNERS |       | M<br>THICKNESS<br>ANSI<br>B18.2.4.2M |       | D <sub>w</sub><br>BEARING<br>FACE<br>$\phi$ | C<br>WASHER<br>FACE<br>THICKNESS |     |
|---------------|---|-------------------------------|-------|---------------------------------|-------|--------------------------------------|-------|---|----------------------------------|-----|
|               |   | MAX                           | MIN   | MAX                             | MIN   | MAX                                  | MIN   | MIN   | MAX                              | MIN |
| F420508       | M5 x 0.8                                      | 8.00                          | 7.78  | 9.24                            | 8.79  | 5.10                                 | 4.80  | 6.9   | -                                | -   |
| F420610       | M6 x 1  | 10.00                         | 9.78  | 11.55                           | 11.05 | 5.70                                 | 5.40  | 8.9   | -                                | -   |
| F420813       | M8 x 1.25                                     | 13.00                         | 12.73 | 15.01                           | 14.38 | 7.50                                 | 7.14  | 11.6  | -                                | -   |
| F421016       | M10 x 1.5                                     | 16.00                         | 15.73 | 18.48                           | 17.77 | 9.30                                 | 8.94  | 14.6  | -                                | -   |
| F421218       | M12 x 1.75                                    | 18.00                         | 17.73 | 20.78                           | 20.03 | 12.00                                | 11.57 | 16.6  | -                                | -   |
| F421624       | M16 x 2                                       | 24.00                         | 23.67 | 27.71                           | 26.75 | 16.40                                | 15.70 | 22.5  | -                                | -   |
| F422030       | M20 x 2.5                                     | 30.00                         | 29.16 | 34.64                           | 32.95 | 20.30                                | 19.00 | 27.7  | 0.8                              | 0.4 |
| F422436       | M24 x 3                                       | 36.00                         | 35.00 | 41.57                           | 39.55 | 23.90                                | 22.60 | 33.2  | 0.8                              | 0.4 |
| F423046       | M30 x 3.5                                     | 46.00                         | 45.00 | 53.12                           | 50.85 | 28.60                                | 27.30 | 42.7  | 0.8                              | 0.4 |
| F423655       | M36 x 4                                       | 55.00                         | 53.80 | 63.51                           | 60.79 | 34.70                                | 33.10 | 51.1  | 0.8                              | 0.4 |

### NOTES & SPECIFICATIONS:

ANSI B18.2.4.2M  
ASTM A563M  
Class 12

### OPTIONAL NUT SELECTION:

DIMENSIONAL SPEC'S - DIN 934  
MATERIAL SPEC'S.: DIN 267 - PART 4

A

B

C

D

# HEXAGON JAM NUT

(FINE: F45 SERIES, COARSE: F47 SERIES)

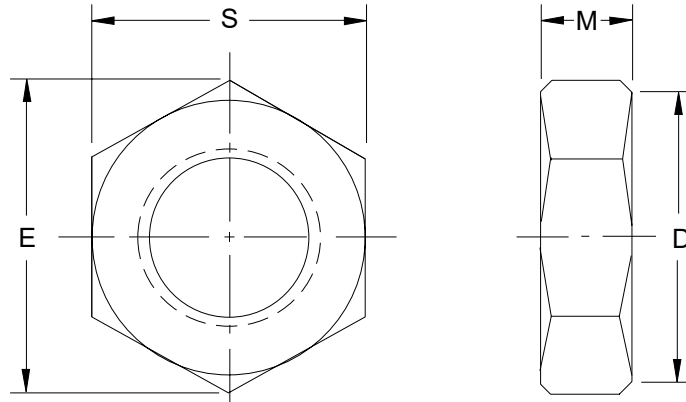
GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

## COARSE & FINE THREADS



| NAAMS<br>CODE | NOMINAL<br>NUT $\phi$<br>&<br>THREAD<br>PITCH | S<br>WIDTH<br>ACROSS<br>FLATS |       | E<br>WIDTH<br>ACROSS<br>CORNERS |       | M<br>THICKNESS |       | D<br>BEARING<br>FACE<br>$\phi$ |
|---------------|---|-------------------------------|-------|---------------------------------|-------|----------------|-------|--------------------------------|
|               |   | MAX                           | MIN   | MAX                             | MIN   | MAX            | MIN   | MIN                            |
| F451017       | M10 x 1.25                                    | 17                            | -     | -                               | -     | 5              | -     | -                              |
| F451219       | M12 x 1.25                                    | 19                            | -     | -                               | -     | 6              | -     | -                              |
| F451624       | M16 x 1.5                                     | 24                            | -     | -                               | -     | 8              | -     | -                              |
| F452030       | M20 x 1.5                                     | 30                            | -     | -                               | -     | 10             | -     | -                              |
| F452436       | M24 x 2                                       | 36                            | -     | -                               | -     | 13.5           | -     | -                              |
| F452741       | M27 x 2                                       | 41                            | -     | -                               | -     | 13.5           | -     | -                              |
| F453650       | M36 x 2                                       | 50                            | -     | -                               | -     | 16             | -     | -                              |
| F470508       | M5 x 0.8                                      | 8.00                          | 7.78  | 9.24                            | 8.79  | 2.70           | 2.45  | 6.9                            |
| F470610       | M6 x 1  | 10.00                         | 9.78  | 11.55                           | 11.05 | 3.20           | 2.90  | 8.9                            |
| F470813       | M8 x 1.25                                     | 13.00                         | 12.73 | 15.01                           | 14.38 | 4.00           | 3.70  | 11.6                           |
| F471016       | M10 x 1.5                                     | 16.00                         | 15.73 | 18.48                           | 17.77 | 5.00           | 4.70  | 14.6                           |
| F471218       | M12 x 1.75                                    | 18.00                         | 17.73 | 20.78                           | 20.03 | 6.00           | 5.70  | 16.6                           |
| F471624       | M16 x 2                                       | 24.00                         | 23.67 | 27.71                           | 26.75 | 8.00           | 7.42  | 22.5                           |
| F472030       | M20 x 2.5                                     | 30.00                         | 29.16 | 34.64                           | 32.95 | 10.00          | 9.10  | 27.7                           |
| F472436       | M24 x 3                                       | 36.00                         | 35.00 | 41.57                           | 39.55 | 12.00          | 10.90 | 33.2                           |
| F473046       | M30 x 3.5                                     | 46.00                         | 45.00 | 53.12                           | 50.85 | 15.00          | 13.90 | 42.7                           |
| F473655       | M36 x 4                                       | 55.00                         | 53.80 | 63.51                           | 60.79 | 18.00          | 16.90 | 51.1                           |

### NOTES & SPECIFICATIONS:

ANSI B18.2.4.5M  
ASTM A563M  
CLASS 04

D

C

B

A

E

# HEXAGON JAM NUT WITH WASHER FACE

(FINE: F46 SERIES COARSE: F48 SERIES)

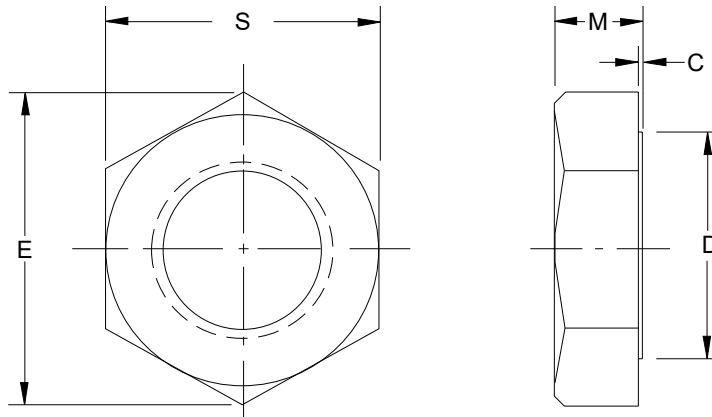
GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

## COARSE & FINE THREADS



| NAAMS<br>CODE | NOMINAL<br>NUT $\phi$<br>&<br>THREAD<br>PITCH | S<br>WIDTH<br>ACROSS<br>FLATS |       | E<br>WIDTH<br>ACROSS<br>CORNERS |       | M<br>THICKNESS |       | D<br>BEARING<br>FACE<br>$\phi$ | C<br>WASHER<br>FACE<br>THICKNESS |     |
|---------------|---|-------------------------------|-------|---------------------------------|-------|----------------|-------|--------------------------------|----------------------------------|-----|
|               |   | MAX                           | MIN   | MAX                             | MIN   | MAX            | MIN   | MIN                            | MAX                              | MIN |
| F480508       | M5 x 0.8                                      | 8.00                          | 7.78  | 9.24                            | 8.79  | 2.70           | 2.45  | 6.9                            | -                                | -   |
| F480610       | M6 x 1  | 10.00                         | 9.78  | 11.55                           | 11.05 | 3.20           | 2.90  | 8.9                            | -                                | -   |
| F480813       | M8 x 1.25                                     | 13.00                         | 12.73 | 15.01                           | 14.38 | 4.00           | 3.70  | 11.6                           | -                                | -   |
| F461017       | *M10 x 1.25                                   | 17                            | -     | -                               | -     | 5              | -     | -                              | -                                | -   |
| F481016       | M10 x 1.5                                     | 16.00                         | 15.73 | 18.48                           | 17.77 | 5.00           | 4.70  | 14.6                           | -                                | -   |
| F461219       | *M12 x 1.25                                   | 19                            | -     | -                               | -     | 6              | -     | -                              | -                                | -   |
| F481218       | M12 x 1.75                                    | 18.00                         | 17.73 | 20.78                           | 20.03 | 6.00           | 5.70  | 16.6                           | -                                | -   |
| F461624       | *M16 x 1.5                                    | 24                            | -     | -                               | -     | 8              | -     | -                              | -                                | -   |
| F481624       | M16 x 2                                       | 24.00                         | 23.67 | 27.71                           | 26.75 | 8.00           | 7.42  | 22.5                           | -                                | -   |
| F462030       | *M20 x 1.5                                    | 30                            | -     | -                               | -     | 10             | -     | -                              | -                                | -   |
| F482030       | M20 x 2.5                                     | 30.00                         | 29.16 | 34.64                           | 32.95 | 10.00          | 9.10  | 27.7                           | 0.8                              | 0.4 |
| F482436       | M24 x 3                                       | 36.00                         | 35.00 | 41.57                           | 39.55 | 12.00          | 10.90 | 33.2                           | 0.8                              | 0.4 |
| F462741       | *M27 x 2                                      | 41                            | -     | -                               | -     | 13.5           | -     | -                              | -                                | -   |
| F483046       | M30 x 3.5                                     | 46.00                         | 45.00 | 53.12                           | 50.85 | 15.00          | 13.90 | 42.7                           | 0.8                              | 0.4 |
| F463650       | *M36 x 2                                      | 50                            | -     | -                               | -     | 16             | -     | -                              | -                                | -   |
| F483655       | M36 x 4                                       | 55.00                         | 53.80 | 63.51                           | 60.79 | 18.00          | 16.90 | 51.1                           | 0.8                              | 0.4 |

\* Fine thread series (F46 Series)

### NOTES & SPECIFICATIONS:

ANSI B18.2.4.5M  
ASTM A563M  
Class 04

A

B

C

# HARDENED WASHER

(F62 SERIES)

GLOBAL STANDARD COMPONENTS

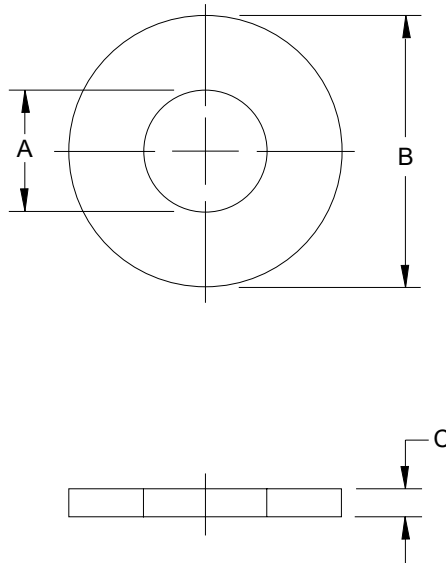
# NAAMS



Assembly

07/25/08

(ASTM F436M)



| NAAMS<br>CODE | NOMINAL<br>WASHER | A<br>INSIDE $\phi$ |      | B<br>OUTSIDE $\phi$ |      | C<br>THICKNESS |     |
|---------------|-------------------|--------------------|------|---------------------|------|----------------|-----|
|               |                   | MAX                | MIN  | MAX                 | MIN  | MAX            | MIN |
| F620614       | 6                 | 7.3                | 7.0  | 13.6                | 12.6 | 4.0            | 2.7 |
| F620818       | 8                 | 9.8                | 9.0  | 18.4                | 17.1 | 4.0            | 2.7 |
| F621022       | 10                | 11.8               | 11.0 | 22.0                | 20.7 | 4.0            | 2.7 |
| F621025*      | 10                | 10.8               | 10.2 | 25.3                | 24.7 | 5.0            | 4.0 |
| F621227       | 12                | 14.4               | 14.0 | 27.0                | 25.7 | 4.6            | 3.1 |
| F621634       | 16                | 18.4               | 18.0 | 34.0                | 32.4 | 4.6            | 3.1 |
| F622042       | 20                | 22.5               | 22.0 | 42.0                | 40.4 | 4.6            | 3.1 |
| F622244       | 22                | 24.5               | 24.0 | 44.0                | 42.4 | 4.6            | 3.4 |
| F622450       | 24                | 26.5               | 26.0 | 50.0                | 48.4 | 4.6            | 3.4 |
| F622756       | 27                | 30.5               | 30.0 | 56.0                | 54.1 | 4.6            | 3.4 |
| F623060       | 30                | 33.6               | 33.0 | 60.0                | 58.1 | 4.6            | 3.4 |
| F623672       | 36                | 39.6               | 39.0 | 72.0                | 70.1 | 4.6            | 3.4 |

\*Special purpose for locating pin retainer assemblies  
1020 H.R.S. carb & harden 1.0 deep 38-45 Rc

### NOTES & SPECIFICATIONS:

M6-M10 – Rc 38-45 through hardened (except as noted)

M12 & larger – ASTM F436M

C

A

B

D



# PULL DOWEL PIN

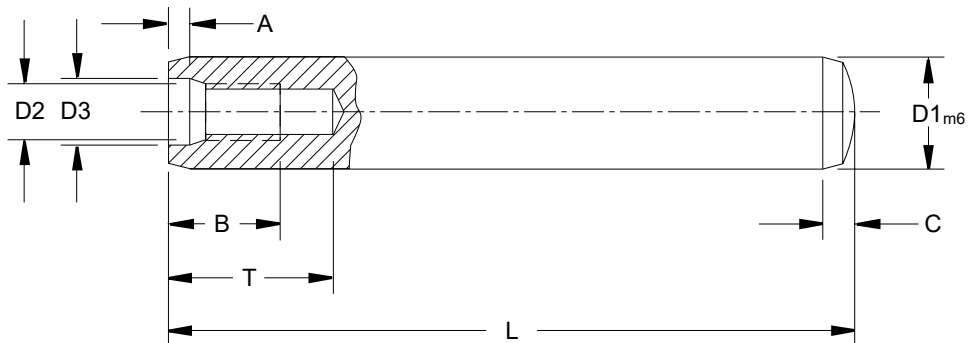
(F91 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08



| D1 Dia.        | 6        | 8        | 10     | 12     | 16        | 20        | 25      |   |
|----------------|----------|----------|--------|--------|-----------|-----------|---------|---|
| <b>C</b>       | 2.1      | 2.6      | 3      | 3.8    | 4.6       | 6         | 6       |   |
| <b>D2 MAX.</b> | M4 X 0.7 | M5 x 0.8 | M6 x 1 | M6 x 1 | M8 x 1.25 | M10 x 1.5 | M16 x 2 |   |
| <b>B</b>       | 6        | 8        | 10     | 12     | 16        | 18        | 24      |   |
| <b>D3</b>      | 4.3      | 5.3      | 6.4    | 6.4    | 8.4       | 10.5      | 17      |   |
| <b>A</b>       | 1        | 1.2      | 1.2    | 1.2    | 1.5       | 1.5       | 2       |   |
| <b>T MIN.</b>  | 10       | 12       | 16     | 20     | 25        | 28        | 35      |   |
| <b>L</b>       | 16       | X        |        |        |           |           |         |   |
|                | 20       | X        | X      |        |           |           |         |   |
|                | 24       | X        | X      | X      |           |           |         |   |
|                | 28       | X        | X      | X      | X         |           |         |   |
|                | 32       | X        | X      | X      | X         | X         |         |   |
|                | 40       | X        | X      | X      | X         | X         | X       |   |
|                | 50       | X        | X      | X      | X         | X         | X       | X |
|                | 60       | X        | X      | X      | X         | X         | X       | X |
|                | 70       |          | X      | X      | X         | X         | X       | X |
|                | 80       |          | X      | X      | X         | X         | X       | X |
|                | 90       |          |        | X      | X         | X         | X       | X |
|                | 100      |          |        | X      | X         | X         | X       | X |
| 120            |          |          |        | X      | X         | X         | X       |   |

## NOTES & SPECIFICATIONS:

- Material, case hardened alloy steel – shear strength: 825 MPa (120ksi)
- ANSI B18.8.5M
- Precision ground
- Provide for air release (e.g., machine a flat, spiral, etc.)

CODING ON FOLLOWING PAGE

A

B

C

# PULL DOWEL PIN CODING

(F91 SERIES)

GLOBAL STANDARD COMPONENTS



Assembly

07/25/08

| NAAMS CODE | NOM. SIZE, AND LENGTH | NOTES        |
|------------|-----------------------|--------------|
| F910616    | 6x16                  |              |
| F910620    | 6x20                  |              |
| F910624    | 6x24                  | DISCONTINUED |
| F910625    | 6x25                  |              |
| F910628    | 6x28                  | DISCONTINUED |
| F910630    | 6x30                  |              |
| F910632    | 6x32                  | DISCONTINUED |
| F910635    | 6x35                  |              |
| F910640    | 6x40                  |              |
| F910650    | 6x50                  |              |
| F910660    | 6x60                  |              |
| F910820    | 8x20                  |              |
| F910824    | 8x24                  | DISCONTINUED |
| F910825    | 8x25                  |              |
| F910828    | 8x28                  | DISCONTINUED |
| F910830    | 8x30                  |              |
| F910832    | 8x32                  | DISCONTINUED |
| F910835    | 8x35                  |              |
| F910840    | 8x40                  |              |
| F910850    | 8x50                  |              |
| F910860    | 8x60                  |              |
| F910870    | 8x70                  |              |
| F910880    | 8x80                  |              |
| F911024    | 10x24                 | DISCONTINUED |
| F911025    | 10x25                 |              |
| F911028    | 10x28                 | DISCONTINUED |
| F911030    | 10x30                 |              |
| F911032    | 10x32                 | DISCONTINUED |
| F911035    | 10x35                 |              |
| F911040    | 10x40                 |              |
| F911050    | 10x50                 |              |
| F911060    | 10x60                 |              |
| F911070    | 10x70                 |              |
| F911080    | 10x80                 |              |
| F911090    | 10x90                 |              |
| F911010    | 10x100                |              |
| F911228    | 12x28                 | DISCONTINUED |
| F911230    | 12x30                 |              |
| F911232    | 12x32                 | DISCONTINUED |
| F911235    | 12x35                 |              |
| F911240    | 12x40                 |              |
| F911250    | 12x50                 |              |

| NAAMS CODE | NOM. SIZE, AND LENGTH | NOTES        |
|------------|-----------------------|--------------|
| F911260    | 12x60                 |              |
| F911270    | 12x70                 |              |
| F911280    | 12x80                 |              |
| F911290    | 12x90                 |              |
| F911210    | 12x100                |              |
| F911212    | 12x120                |              |
| F911632    | 16x32                 | DISCONTINUED |
| F911635    | 16x35                 |              |
| F911640    | 16x40                 |              |
| F911650    | 16x50                 |              |
| F911660    | 16x60                 |              |
| F911670    | 16x70                 |              |
| F911680    | 16x80                 |              |
| F911690    | 16x90                 |              |
| F911610    | 16x100                |              |
| F911612    | 16x120                |              |
| F912040    | 20x40                 |              |
| F912050    | 20x50                 |              |
| F912060    | 20x60                 |              |
| F912070    | 20x70                 |              |
| F912080    | 20x80                 |              |
| F912090    | 20x90                 |              |
| F912010    | 20x100                |              |
| F912012    | 20x120                |              |
| F912550    | 25x50                 |              |
| F912560    | 25x60                 |              |
| F912570    | 25x70                 |              |
| F912580    | 25x80                 |              |
| F912590    | 25x90                 |              |
| F912510    | 25x100                |              |
| F912512    | 25x120                |              |

A  
B

**PREFERRED METRIC  
FASTENER SIZES**

**CHARTS / TEXT MOVED TO PAGE F - 2.3**

C