



# Standard Guide for Selection of Committee F16 Fastener Specifications<sup>1</sup>

This standard is issued under the fixed designation F 1077; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide is intended to provide a rapid, easy to use method for identifying Committee F16 fastener specifications and their applicable marking requirements. Selection is made by product type (bolts, nuts, washers, etc.) and material (alloy steel, carbon steel, stainless steel, etc.) from Tables 1-5 as follows:

	Table Number	
	Inch	Metric
Ferrous Metals		
Alloy Steel	1	3
Carbon Steel	1	3
Weathering Steel	1	3
Non Ferrous		
Aluminum, Copper	2	3
Nickel, Titanium		
Stainless Steels	2	3
Others		
Coatings, Definitions, Test Methods, Surface Discontinuities	4	4
Marking	5	5

1.2 Table size limitations and the need for simplicity prohibit identifying the exact grade, type, condition, etc., for all product/material combinations. The product specification must be reviewed prior to specifying fasteners on drawings or ordering to properly and completely identify the fastener, and its available variations.

## 2. Referenced Documents

### 2.1 ASTM Standards:

- A 31 Specification for Steel Rivets and Bars for Rivets, Pressure Vessels<sup>2</sup>
- A 307 Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength<sup>2</sup>
- A 325 Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength<sup>2</sup>
- A 325M Specification for High-Strength Bolts for Structural Steel Joints [Metric]<sup>2</sup>

- A 354 Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners<sup>2</sup>
- A 394 Specification for Steel Transmission Tower Bolts, Zinc-Coated and Bare<sup>2</sup>
- A 449 Specification for Quenched and Tempered Steel Bolts and Studs<sup>2</sup>
- A 489 Specification for Carbon Steel Lifting Eyes<sup>2</sup>
- A 490 Specification for Structural Bolts, Alloy Steel, Heat Treatment, 150 ksi Minimum Tensile Strength<sup>2</sup>
- A 490M Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints [Metric]<sup>2</sup>
- A 502 Specification for Steel Structural Rivets<sup>3</sup>
- A 563 Specification for Carbon and Alloy Steel Nuts<sup>2</sup>
- A 563M Specification for Carbon and Alloy Steel Nuts [Metric]<sup>2</sup>
- A 574 Specification for Alloy Steel Socket-Head Cap Screws<sup>2</sup>
- A 574M Specification for Alloy Steel Socket-Head Cap Screws [Metric]<sup>2</sup>
- A 687 Specification for High-Strength Nonheaded Steel Bolts and Studs<sup>2</sup>
- C 514 Specification for Nails for the Application of Gypsum Board<sup>4</sup>
- F 432 Specification for Roof and Rock Bolts and Accessories<sup>2</sup>
- F 436 Specification for Hardened Steel Washers<sup>2</sup>
- F 436M Specification for Hardened Steel Washers [Metric]<sup>2</sup>
- F 467 Specification for Nonferrous Nuts for General Use<sup>2</sup>
- F 467M Specification for Nonferrous Nuts for General Use [Metric]<sup>2</sup>
- F 468 Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use<sup>2</sup>
- F 468M Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use [Metric]<sup>2</sup>
- F 541 Specification for Alloy Steel Eyebolts<sup>2</sup>
- F 547 Terminology of Nails for Use with Wood and Wood-Base Materials<sup>2</sup>
- F 568M Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners [Metric]<sup>2</sup>

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.91 on Editorial.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 01.08.

<sup>3</sup> Discontinued—see 1998 Annual Book of ASTM Standards, Vol 01.08.

<sup>4</sup> Annual Book of ASTM Standards, Vol 04.01.

**TABLE 1 Alloy, Carbon, and Weathering Steels, Inch**

Product <sup>A</sup>	Alloy Steel	Carbon Steel			Weathering Steels
		Low	Medium	Martensitic	
<b>Bolts<sup>B</sup>:</b>					
Eye	F 541		A 489		
General purpose:					
UTS 60K		A 307 Gr A, B			
UTS 120, 105, 90K			A 449 Type 1	A 449 Type 2	
UTS 125, 115K	A 354 Gr BC				
UTS 150, 140K	A 354 Gr BD				
Non Headed	A 687				
Roof and Rock			F 432		
Structural:					
UTS 120, 105K			A 325 Type 1 <sup>C</sup>		A 325 Type 3
UTS 150K	A 490 Type 1			A 490 Type 2	A 490 Type 3
Transmission tower		A 394 Type 0	A 394 Type 1	A 394 Type 2	A 394 Type 3
<b>Nails:</b>					
Gypsum wallboard		C 514			
<b>Nuts<sup>B</sup>:</b>					
PL 69K		A 563 Gr 0			
PL 100, 90K		A 563 Gr A			
PL 133, 120, 116, 105K			A 563 Gr B		
PL 144K			A 563 Gr C		A 563 Gr C 3
PL 150, 135K			A 563 Gr D		
PL 175, 150K	A 563 Gr DH				
PL 175K					A 563 Gr DH3
<b>Rivets:</b>					
General purpose		A 502 Gr 1			
Pressure vessel		A 31 Gr A	A 31 Gr B		
Structural		A 502 Gr 1	A 502 Gr 2		A 502 Gr 3
<b>Screws:</b>					
Hex cap			A 449 Type 1	A 449 Type 2	
Socket head	A 574				
Socket button and flat CSK	F 835				
Socket set	F 912				
<b>Studs:</b>					
UTS 58-80K		A 307 Gr C			
UTS 60K		A 307 Gr A, B			
UTS 120, 105, 90K			A 449 Type 1	A 449 Type 2	
UTS 125, 115K	A 354 Gr BC				
UTS 150, 140K	A 354 Gr BD				
UTS 150K	A 687				
<b>Washers:</b>					
General Purpose, Soft		F 844			
General Purpose, Hard			F 436		F 436
Load Indicating	F 959 Type 490		F 959 Type 325		
Structural, Hard			F 436		F 436

<sup>A</sup>Ultimate tensile strengths (UTS) and proof loads (PL) where shown are approximations and vary with size. For break points, see applicable product specification.

<sup>B</sup> For bolt/nut suitability guide, see (A 563 Table X 1.1.).

<sup>C</sup>May be furnished as carbon, alloy, or carbon boron steel.

**TABLE 2 Aluminum, Copper, Nickel, Titanium, and Stainless Steels (Inch)**

Product	Aluminum <sup>A</sup>	Copper <sup>A</sup>	Nickel <sup>A</sup>	Titanium <sup>A</sup>	Stainless <sup>A</sup>
<b>Bolts:</b>					
General purpose	F 468	F 468	F 468	F 468	F 593
Transmission tower	F 901				
<b>Nuts:</b>					
General purpose	F 467	F 467	F 467	F 467	F 594
Transmission tower	F 901				
<b>Rivets</b>					
<b>Screws:</b>					
Hex cap	F 468	F 468	F 468	F 468	F 593
Socket head					
Socket button and Flat CSK					F 879
Socket set					F 880
<b>Studs</b>	F 468	F 468	F 468	F 468	F 593
<b>Washers</b>					

<sup>A</sup>See product specification for available alloys.

 F 592 Terminology of Collated and Cohered Fasteners and Their Application Tools<sup>2</sup>

 F 593 Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs<sup>2</sup>

**TABLE 3 Ferrous, Nonferrous, and Stainless Steel, Metric**

Product	Ferrous <sup>A</sup>			Nonferrous <sup>A</sup>	Stainless Steel <sup>A</sup>
	Alloy Steel	Carbon Steel	Weathering Steel	Al, Cu, Ni, Ti	
<b>Bolts:</b>					
General purpose	A 568 Cl 12.9	F 568 Cl 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F 568 Cl 8.8.3, 10.9.3	F 468M	F 738M
Structural:					
8.8, 8.8.3		A 325M Type 1, 2	A 325M Type 3		
10.9, 10.9.3		A 490M Type 1, 2	A 490M Type 3		
Transmission tower					
<b>Nuts</b>		A 563M Cl 5.9, 8S, 10, 10S, 12	A 563M Cl 8S3, 10S3	F 467M	F 836M
<b>Rivets</b>					
<b>Screws:</b>					
Hex cap	F 568 Cl 12.9	F 568 Cl 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F 568 Cl 8.8.3, 10.9.3	F 468M	F 738M
Heavy hex	F 568 Cl 12.9	F 568 Cl 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F 568 Cl 8.8.3, 10.9.3		
Hex flange		F 568 Cl 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F 568 Cl 8.8.3, 10.9.3		
Socket head	A 574M				F 837M
Socket button and Flat	F 835M				F 879M
<b>CSK</b>					
Socket set	F 912M				F 880M
<b>Studs</b>	F 568 Cl 12.9	F 568 Cl 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F 568 Cl 8.8.3, 10.9.3	F 468M	F 738M
<b>Washers:</b>					
Hard		F 436M Type 1	F 436M Type 3		

<sup>A</sup>See product specifications for available alloys.

**TABLE 4 Coatings, Test Methods, Definitions, and Surface Discontinuities**







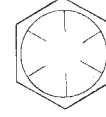


Products	Coatings	Definitions	Test Methods	Surface Discontinuities
Bolts	F 871M, F 1135, F 1136, F 1137		F 606	F 788
Collated and cohered fasteners		F 592		
Nails		F 547	F 680	
Nuts	F 871M, F 1135, F 1136, F 1137		F 606	F 812
Rivets			F 606	
Screws	F 871M, F 1135, F 1136, F 1137		F 606	F 788
Studs	F 871M, F 1135, F 1136, F 1137		F 606	F 788
Washers			F 606	


F 594 Specification for Stainless Steel Nuts<sup>2</sup>  
 F 606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets<sup>2</sup>  
 F 680 Test Methods for Nails<sup>2</sup>  
 F 738M Specification for Stainless Steel Metric Bolts, Screws, and Studs<sup>2</sup>  
 F 788/F 788M Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series<sup>2</sup>  
 F 812/F 812M Specification for Surface Discontinuities of Nuts, Inch and Metric Series<sup>2</sup>  
 F 835 Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws<sup>2</sup>  
 F 835M Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws [Metric]<sup>2</sup>




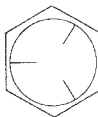
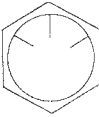




F 836M Specification for Style 1 Stainless Steel Metric Nuts<sup>2</sup>  
 F 837M Specification for Stainless Steel Socket Head Cap Screws [Metric]<sup>2</sup>  
 F 844 Specification for Washers, Steel, Plain (Flat), Unhardened for General Use<sup>2</sup>  
 F 871M Specification for Electrodeposited Coatings on Threaded Components [Metric]<sup>5</sup>  
 F 879 Specification for Stainless Steel Socket Button and Flat Countersunk Head Cap Screws<sup>2</sup>  
 F 879M Specification for Stainless Steel Socket Button and Flat Countersunk Head Cap Screws [Metric]<sup>2</sup>  
 F 880 Specification for Stainless Steel Socket-Set Screws<sup>2</sup>  
 F 880M Specification for Stainless Steel Socket-Set Screws [Metric]<sup>2</sup>  
 F 901 Specification for Aluminum Transmission Tower Bolts and Nuts<sup>2</sup>  
 F 912 Specification for Alloy Steel Socket Set Screws<sup>2</sup>  
 F 912M Specification for Alloy Steel Socket Set Screws [Metric]<sup>2</sup>  
 F 959 Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners<sup>2</sup>  
 F 1135 Specification for Cadmium or Zinc Chromate Organic Corrosion Protective Coating for Fasteners<sup>2</sup>  
 F 1136 Specification for Chromium/Zinc Corrosion Protective Coatings for Fasteners<sup>2</sup>  
 F 1137 Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners<sup>2</sup>

<sup>5</sup> Discontinued—see 2000 *Annual Book of ASTM Standards*, Vol 01.08. Replaced by F 1941M.



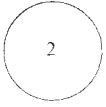
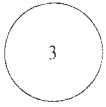
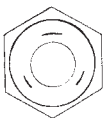



**TABLE 5 Product Marking Requirements**


ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
A 31	A and B		rivets	no	not required	
A 307	A		bolts and studs	yes	"307A"	Stud grade marking applicable to sizes 3/8 in. and larger only.
	B		bolts and studs	yes	"307B"	Stud grade marking applicable to sizes 3/8 in. and larger only.
	C		studs	yes	"307C"	Stud grade marking applicable to sizes 3/8 in. and larger only.
A 325	1		bolts	yes		In addition may have 3 radial lines 120° apart.
	3		bolts	yes		In addition may have other distinguishing marks indicating weathering type steel.
A 325M	1		bolts	yes		
	2		bolts	yes		
	3		bolts	yes		In addition may have other distinguishing marks indicating weathering type steel.
A 354	BC		bolts and studs	yes		
	BD		bolts 0.25 through 2.5 in.	yes		In addition to the six radial lines, bolts may also be marked with the Grade Symbol "BD."
	BD		bolts over 2.5 in. and all sizes of all other Grade BD products	yes		
A 394	0		bolts	yes		In addition to the product identification, all types are marked with nominal length (Nom Lg).


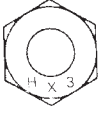
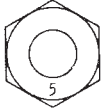
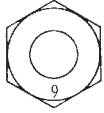

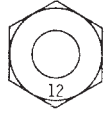
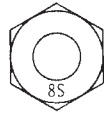

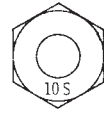

 **F 1077 – 95a (2002)**


ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
	1		bolts	yes		
	2		bolts	yes		
	3		bolts	yes		
A 449	1		bolts	yes		
	2		studs bolts	no yes	not required 	See Supplemental Requirement S1.
A 489	1 and 2		eyebolts	yes	not required	
A 490	1		bolts	yes		
	2		bolts	yes		
	3		bolts	yes		In addition may have other distinguishing marks indicating weathering type steel.
A 490M	1		bolts	yes		






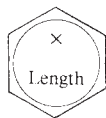
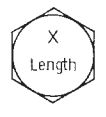
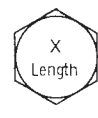
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ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
	2		bolts	yes		
	3		bolts	yes		In addition may have other distinguishing marks indicating weathering type steel.
A 502	1		rivets	yes	Not required but "1" may be used at manufacturers option	
	2		rivets	yes		
	3		rivets	yes		
A 563	0, A, B		all nuts	no	not required	When specified on Purchase Order, mark with Grade Symbol.
	C		heavy hex nuts	yes		A 194 Grade 2 and 2H are acceptable alternatives. Such nuts are marked 2, 2B, 2H, or 2HB instead of the 3 circumferential marks.
			other than heavy hex	yes	not required	
	C3		heavy hex nuts	yes		In addition may have other distinguishing marks indicating weathering type steel. The numeral 3 may appear more than once.
			other than heavy hex	yes	not required	
	D		all nuts	yes		A 194 Grade 2 and 2H are acceptable alternatives. Such nuts are marked 2, 2B, 2H, or 2HB instead of the Grade Symbol "D".
A 563	DH		all nuts	yes		A 194 Grade 2H is an acceptable alternative. Such nuts are marked 2H or 2HB instead of the Grade Symbol "DH".


 **F 1077 – 95a (2002)**

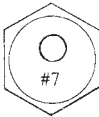
ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
A 563M	DH3		heavy hex nuts	yes		In addition may have other distinguishing marks indicating weathering type steel.
	DH3		hex nuts	yes		In addition may have other distinguishing marks indicating weathering type steel.
	DH3		other than heavy hex and hex	yes	not required	
	All		M4 and less	no	not required	
	5		nuts M5 and larger	no		Marking may also appear on bearing surface, top of flange, or wrenching flats.
	9		nuts M5 and larger	no		See note for Class 1.5. Class 1.9 nuts marked on wrenching flats have the numeral <u>9</u> .
	10		nuts M5 and larger	yes		See note for Class 1.5.
	12		nuts M5 and larger	yes		See note for Class 1.5.
	8S		nuts M5 and larger	yes		See note for Class 1.5.
	8S3		nuts M5 and larger	yes		See note for Class 1.5. In addition may have other distinguishing marks indicating weathering type steel.
	10S		nuts M5 and larger	yes		See note for Class 1.5.
	10S3		nuts M5 and larger	yes		See note for Class 1.5. In addition may have other distinguishing marks indicating weathering type steel.

 **F 1077 – 95a (2002)**

ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
A 574	...		socket head cap screws	Manufacturers use knurl patterns for identification.	not required	
A 574M	12.9		socket head cap screws M4 and less	no	not required	
			socket head cap screws M5 and larger	yes		Marking may also appear on side of head.
A 687	...		non-headed bolts and studs	yes		See A 687 for marking location.
F 432	30		bolts 0.25 and larger	yes	length	
	55		bolts 0.625 in.	yes		Length is in ordered units.
			bolts 0.75 in.	yes		Length is in ordered units.
			bolts, all other sizes	yes		Length is in ordered units.
	75		bolts 0.625 in.	yes		Length is in ordered units.
			bolts 0.875 in.	yes		Length is in ordered units.
			bolts 1.000 in.	yes		Length is in ordered units.
F 432	all		nuts	...	...	Marked per specification to which nuts are manufactured.
	40		headed deformed bars	yes	not required	Mark numeric value of deformed bar size, that is "No. 7".




 **F 1077 – 95a (2002)**


ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
	50		headed deformed bars	yes		No. 7 denotes numeric value of deformed bar size.
	...		expansion shells	yes	not required	Mark hole size for which shell is intended.
	...		hardened washers	yes	not required	
	...		deformed bearing and header plates	yes	not required	
			all other products	no	not required	
F 436	Carbon steel Weathering steel		hardened washers hardened washers	yes yes	not required Symbol "3"	
F 436M	Type 1 Type 3		hardened washers hardened washers	yes yes	Symbol "3"	"M" to denote metric. "M" to denote metric.
F 467 and F 467M	Cu 110 Cu 270 Cu 462 Cu 464 Cu 510 Cu 613 Cu 614 Cu 630 Cu 642 Cu 651 Cu 655 Cu 661 Cu 675 Cu 710 Cu 715	nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts nuts	yes yes yes yes yes yes yes yes yes yes yes yes yes yes yes yes	for F 467: F 467A for F 467M: F 467MA F 467B F 467MB F 467C F 467MC F 467D F 467MD F 467E F 467ME F 467F N/A F 467G F 467MG F 467H F 467MH F 467J F 467MJ F 467K F 467MK F 467L F 467ML F 467M F 467MM F 467N F 467MN F 467P F 467MP F 467R F 467MR		
	Ni 335 Ni 336 Ni 400 Ni 400 HF Ni 405 Ni 500	nuts nuts nuts nuts nuts nuts	yes yes yes yes yes yes	F 467S F 467T F 467U n/a F 467V F 467W	F 467MS F 467MT F 467MU n/a F 467MV F 467MW	
	Al 2024-T4 Al 6061-T6 Al 6262-T9	nuts nuts nuts	yes yes yes	F 467X F 467Y F 467Z	F 467MX F 467MY F 467MZ	
	Ti 1 Ti 2 Ti 4 Ti 5 Ti 7 Ti-38-6-44 Ti 5 ELI	nuts nuts nuts nuts nuts nuts nuts	yes yes yes yes yes yes yes	F 467AT F 467BT F 467CT F 467DT F 467ET F 467FT F 467GT	F 467MAT F 467MBT F 467MCT F 467MDT F 467MET F 467MFT F 467MGT	
F 468 and F 468M	Cu 110 Cu 270	Bolts, hex cap screws, and studs Bolts, hex cap screws, and studs	yes yes	for F 468: F 468A for F 468M: F 468MA F 468B F 468MB		


**F 1077 – 95a (2002)**


ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification		Notes
	Cu 462		bolts, hex cap screws, and studs	yes	F 468C	F 468MC	
	Cu 464		bolts, hex cap screws, and studs	yes	F 468D	F 468MD	
	Cu 510		bolts, hex cap screws, and studs	yes	F 468E	F 468ME	
	Cu 613		bolts, hex cap screws, and studs	yes	F 468F	F 468MF	
	Cu 614		bolts, hex cap screws, and studs	yes	F 468G	F 468MG	
	Cu 630		bolts, hex cap screws, and studs	yes	F 468H	F 468MH	
	Cu 642		bolts, hex cap screws, and studs	yes	F 468J	F 468MJ	
	Cu 651		bolts, hex cap screws, and studs	yes	F 468K	F 468MK	
	Cu 655		bolts, hex cap screws, and studs	yes	F 468L	F 468ML	
	Cu 661		bolts, hex cap screws, and studs	yes	F 468M	F 468MM	
	Cu 675		bolts, hex cap screws, and studs	yes	F 468N	F 468MN	
	Cu 710		bolts, hex cap screws, and studs	yes	F 468P	F 468MP	
	Cu 715		bolts, hex cap screws, and studs	yes	F 468R	F 468MR	
	Ni 335		bolts, hex cap screws, and studs	yes	F 468S	F 468MS	
	Ni 336		bolts, hex cap screws, and studs	yes	F 468T	F 468MT	
	Ni 400		bolts, hex cap screws, and studs	yes	F 468U	F 468MU	
	Ni 400 HF		bolts, hex cap screws, and studs	yes	F 468HF	F 468MHF	
	Ni 405		bolts, hex cap screws, and studs	yes	F 468V	F 468MV	
	Ni 500		bolts, hex cap screws, and studs	yes	F 468W	F 468MW	
	Al 2024-T4		bolts, hex cap screws, and studs	yes	F 468X	F 468MX	
	Al 6061-T6		bolts, hex cap screws, and studs	yes	F 468Y	F 468MY	
	Al 6262-T9		bolts, hex cap screws, and studs	yes	F 468Z	F 468MZ	
	Ti 1		bolts, hex cap screws, and studs	yes	F 468AT	F 468MAT	

 **F 1077 – 95a (2002)**


ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
	Ti 2		bolts, hex cap screws, and studs	yes	F 468BT F 468MBT	
	Ti 4		bolts, hex cap screws, and studs	yes	F 468CT F 468MCT	
	Ti 5		bolts, hex cap screws, and studs	yes	F 468DT F 468MDT	
	Ti 7		bolts, hex cap screws, and studs	yes	F 468ET F 468MET	
	Ti-38-6-44		screws, and studs	yes	F 468FT F 468MFT	
	Ti 5 ELI		studs	yes	F 468GT F 468MGT	
F 541	...		eyebolts	yes	"A" to denote alloy steel	
F 568 bolts and screws	all		slotted and recessed screws	no	not required	
	all		bolts and screws M4 and less	no	not required	
	all		bolts and screws M5 and larger	yes	Property Class 4.6, 4.8, 5.8, 8.8, 8.8.3, 9.8, 10.9, 10.9.3, or 12.9 as applicable	Class 8.8.3 and 10.9.3 may have other distinguishing marks indicating weathering steel. Low carbon martensitic steel is indicated by underlining the property class.
F 568 studs	4.6, 4.8, and 5.8		studs M10 and less	no	not required	
			studs M12 and larger	no	Property Class 4.6, 4.8, or 5.8 as applicable.	
	8.8 and 8.8.3		studs M10 and less	no	not required	For Class 8.8. Low carbon martensitic steel is indicated by underlining the property class.
			studs M12 and larger	no	Property Class 8.8 or 8.8.3 as applicable	
	9.8		studs M4 and less	no	not required	
			studs M5 through M10	no	Symbol "+"	
			studs M12 and larger	no	9.8	
	10.9		studs M4 and less	no	not required	Low carbon margensitic steel is indicated by the underlining the property class symbol.
			studs M5 through M10	no	symbol □	
			studs M12 and larger	no	10.9	
	10.9.3		studs M10 and less	no	not required	
			studs M12 and larger	no	10.9.3	
	12.9		studs M4 and less	no	not required	
			studs M5 through M10	no	symbol △	
			studs M12 and larger	no	12.9	
F 593 and F 594	1(303,304, 305,384, XM1, XM7, 303Se)	→ ←	AF A CW1 CW2 SH1 SH2 SH3 SH4	bolts, hex cap screws, studs, and nuts	yes	for F 593: F 593A F 594A
yes					F 593B F 594B	
yes					F 593C F 594C	
yes					F 593D F 594D	
yes					F 593A F 594A	
yes					<u>F 593B</u> <u>F 594B</u>	
yes					<u>F 593C</u> <u>F 594C</u>	
yes					<u>F 593D</u> <u>F 594D</u>	

 **F 1077 – 95a (2002)**

ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification		Notes
2 (316)	AF	A	bolts, hex cap screws, studs, and nuts	yes	F 593E	F 594E	
				yes	F 593F	F 594F	
				yes	F 593G	F 594G	
				yes	F 593H	F 594H	
				yes	F 593E	F 594E	
				yes	F 593F	F 594F	
				yes	F 593G	F 594G	
				yes	F 593H	F 594H	
	3 (321, 347)	A	bolts, hex cap screws, studs, and nuts	yes	F 593J	F 594J	
				yes	F 593K	F 594K	
				yes	F 593L	F 594L	
				yes	F 593M	F 594M	
				yes	F 593J	F 594J	
				yes	F 593K	F 594K	
				yes	F 593L	F 594L	
				yes	F 593M	F 594M	
4 (430, 430F)	A		bolts, hex cap screws, studs, and nuts	yes	F 593N	F 594N	
5 (410, 416, 416Se)	H		bolts, hex cap screws, studs, and nuts	yes	F 593P	F 594P	
	HT		bolts, hex cap screws, studs, and nuts	yes	F 593R	F 594R	
6 (431)	H		bolts, hex cap screws, studs, and nuts	yes	F 593S	F 594S	
	HT		bolts, hex cap screws, studs, and nuts	yes	F 593T	F 594T	
7 (630)	AH		bolts, hex cap screws, studs, and nuts	yes	F 593U	F 594U	
F 738M	all	all	bolts screws and studs M4 and smaller	no	not required		
A1-50 A2-50 A4-50	AF	M5 and larger	M5 and larger	yes	F 738A		
			M5 and larger	yes	F 738B		
			M5 and larger	yes	F 738C		
A1-70 A2-70 A4-70	CW	M5 and larger	M5 and larger	yes	F 738D		
			M5 and larger	yes	F 738E		
			M5 and larger	yes	F 738F		
A1-80 A2-80 A4-80	SH	M5 and larger	M5 and larger	yes	F 738G		
			M5 and larger	yes	F 738H		
			M5 and larger	yes	F 738J		
F1-45	AF	M5 and larger		yes	F 738K		
F1-60	CW	M5 and larger		yes	F 738L		
C1-50 C4-50	A	M5 and larger	M5 and larger	yes	F 738M		
			M5 and larger	yes	F 738N		
C1-70 C4-70	H	M5 and larger	M5 and larger	yes	F 738P		
			M5 and larger	yes	F 738R		
C1-110 C4-110	HT	M5 and larger	M5 and larger	yes	F 738S		
			M5 and larger	yes	F 738T		
C3-80	H	M5 and larger		yes	F 738U		
C3-120	HT	M5 and larger		yes	F 738V		
P1-90	AH	M5 and larger		yes	F 738W		
F 835 and F 835M	all		socket button and flat CSK head cap screws	no	not required		
F 836M	all	all	nuts M4 and smaller	no	not required		


**F 1077 – 95a (2002)**

ASTM Number	Grade, Type, or Alloy	Condition	Product and Size	Manufacturers Identification Required	Product Identification	Notes
	A1-50 A2-50 A4-50	→ AF	M5 and larger M5 and larger M5 and larger	yes yes yes	F 836A F 836B F 836C	
	A1-70 A2-70 A4-70	→ CW	M5 and larger M5 and larger M5 and larger	yes yes yes	F 836D F 836E F 836F	
	A1-80 A2-80 A4-80	SH	M5 and larger M5 and larger M5 and larger	yes yes yes	F 836G F 836H F 836J	
	F1-45	AF	M5 and larger	yes	F 836K	
	C1-70 C4-70	→ H	M5 and larger M5 and larger	yes yes	F 836P F 836R	
	C1-110 C4-110	→ HT	M5 and larger M5 and larger	yes yes	F 836S F 836T	
	C3-80	H	M5 and larger	yes	F 836U	
	C3-120	HT	M5 and larger	yes	F 836V	
	P1-90	AH	M5 and larger	yes	F 836W	
F 837M	all		socket head cap screws M4 and less socket head cap screws M5 and larger	no yes	not required Property Class A1-50, A1-70, or C1-110 as applicable	
F 844	all		washers	no	not required	
F 879	all		socket button head cap screws and socket flange head cap screws	no	not required	
F 879M	all		socket button head cap screws and socket flange head cap screws M4 and less socket button head cap screws and socket flange head cap screws M5 and larger	no no	not required Property Class A1-50 or A1-70 as applicable	
F 880 and F 880M	all		socket set screws	no	not required	
F 901	all		bolts nuts	yes no	not required not required	
F 912 and F 912M	all		socket set screws	no	not required	
F 959	all		tension indicators	yes	"325" or "490" as applicable	

 **F 1077 – 95a (2002)**

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