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StandardGuide for Selection of Committee F16 Fastener Specifications¹

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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 1-7** 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	4	4
Quality Provisions and Test Methods	5	5
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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:²

- A31** Specification for Steel Rivets and Bars for Rivets, Pressure Vessels
- A307** Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
- A325** Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- A325M** Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric)

- A354** Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
- A394** Specification for Steel Transmission Tower Bolts, Zinc-Coated and Bare
- A449** Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
- A489** Specification for Carbon Steel Lifting Eyes
- A490** Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
- A490M** Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric)³
- A502** Specification for Rivets, Steel, Structural
- A563** Specification for Carbon and Alloy Steel Nuts
- A563M** Specification for Carbon and Alloy Steel Nuts (Metric)
- A574** Specification for Alloy Steel Socket-Head Cap Screws
- A574M** Specification for Alloy Steel Socket-Head Cap Screws (Metric)
- C514** Specification for Nails for the Application of Gypsum Board
- F432** Specification for Roof and Rock Bolts and Accessories
- F436** Specification for Hardened Steel Washers
- F436M** Specification for Hardened Steel Washers (Metric)
- F467** Specification for Nonferrous Nuts for General Use
- F467M** Specification for Nonferrous Nuts for General Use (Metric)
- F468** Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use
- F468M** Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use (Metric)
- F541** Specification for Alloy Steel Eyebolts
- F547** Terminology of Nails for Use with Wood and Wood-Base Materials
- F568M** Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners (Metric) (Withdrawn 2012)⁴
- F592** Terminology of Collated and Cohered Fasteners and Their Application Tools
- F593** Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

¹ 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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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Withdrawn.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

***A Summary of Changes section appears at the end of this standard**

TABLE 1 Alloy, Carbon, and Weathering Steels, Inch

Product ^A	Alloy Steel	Carbon Steel		Weathering Steels
		Low	Medium	
<i>Bolts^B :</i>				
Anchor	F1554 Grade 105	F1554 Grade 36	F1554 Grade 55	
Eye	F541		A489	
General purpose:				
UTS 60K		A307 Gr A, B		
UTS 120, 105, 90K			A449 Type 1	
UTS 125, 115K	A354 Gr BC			
UTS 150, 140K	A354 Gr BD			
Roof and Rock			F432	
Structural:				
UTS 120, 105K			A325 Type 1 ^C	A325 Type 3
UTS 150K	A490 Type 1			A490 Type 3
Tension Control, Twist Off			F1852 Type 1	F1852 Type 3
Transmission tower		A394 Type 0	A394 Type 1	A394 Type 3
<i>Nails:</i>				
Gypsum wallboard		C514		
<i>Nuts^B :</i>				
PL 69K		A563 Gr 0		
PL 100, 90K		A563 Gr A		
PL 133, 120, 116, 105K			A563 Gr B	
PL 144K			A563 Gr C	A563 Gr C3
PL 150, 135K			A563 Gr D	
PL 175, 150K	A563 Gr DH			
PL 175K				A563 Gr DH3
<i>Rivets:</i>				
General purpose		A502 Gr 1		
Pressure vessel		A31 Gr A	A31 Gr B	
Structural		A502 Gr 1	A502 Gr 2	A502 Gr 3
<i>Screws:</i>				
Hex cap			A449 Type 1	
Socket head	A574			
Socket button and flat CSK	F835			
Socket set	F912			
<i>Studs:</i>				
UTS 58-80K		A307 Gr C		
UTS 60K		A307 Gr A, B		
UTS 120, 105, 90K			A449 Type 1	
UTS 125, 115K	A354 Gr BC			
UTS 150, 140K	A354 Gr BD			
<i>Washers:</i>				
General Purpose, Soft		F844		
General Purpose, Hard			F436 Type 1	F436 Type 3
Load Indicating			F959 Type 325	
			F959 Type 490	
Structural, Hard			F436 Type 1	F436 Type 3

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

^B For bolt/nut suitability guide, see (A563 Table X 1.1.).

^C May be furnished as carbon, alloy, or carbon boron steel.

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

Product	Aluminum ^A	Copper ^A	Nickel ^A	Titanium ^A	Stainless ^A
<i>Bolts:</i>					
General purpose	F468	F468	F468	F468	F593
Transmission tower	F901				
<i>Nuts:</i>					
General purpose	F467	F467	F467	F467	F594
Transmission tower	F901				
<i>Rivets</i>					
<i>Screws:</i>					
Hex cap	F468	F468	F468	F468	F593
High temperature					F2281
Hex bolts					
<i>Socket Head:</i>					
Socket button and Flat CSK					F879
Socket set					F880
<i>Studs</i>	F468	F468	F468	F468	F593

^A See product specification for available alloys.

TABLE 3 Ferrous, Nonferrous, and Stainless Steel (Metric)

Product	Ferrous ^A			Nonferrous ^A	Stainless Steel ^A
	Alloy Steel	Carbon Steel	Weathering Steel	Al, Cu, Ni, Ti	
<i>Bolts:</i>					
General purpose	F568M CI 12.9	F568M CI 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F568M CI 8.8.3, 10.9.3	F468M	F738M
Structural: 8.8, 8.8.3 10.9, 10.9.3		A325M Type 1, 2 A490M Type 1, 2	A325M Type 3 A490M Type 3		
Transmission tower					
<i>Nuts</i>		A563M CI 5.9, 8S, 10, 10S, 12	A563M CI 8S3, 10S3	F467M	F836M
<i>Rivets</i>					
<i>Screws:</i>					
Hex cap	F568M CI 12.9	F568M CI 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F568M CI 8.8.3, 10.9.3	F468M	F738M
Heavy hex	F568M CI 12.9	F568M CI 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F568M CI 8.8.3, 10.9.3		
Hex flange		F568M CI 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F568M CI 8.8.3, 10.9.3		
Socket head	A574M				F837M
Socket button and Flat	F835M				F879M
<i>CSK</i>					
Socket set	F912M				F880M
<i>Studs</i>	F568M CI 12.9	F568M CI 4.6, 4.8, 5.8, 8.8, 9.8, 10.9	F568M CI 8.8.3, 10.9.3	F468M	F738M
<i>Washers:</i>					
Hard		F436M Type 1	F436M Type 3		
Load Indicating			F959M Type 10.9 F959M Type 8.8		

^A See product specifications for available alloys.

TABLE 4 Coatings

Products	Coatings
Bolts	F1135, F1136, F1137 F1941, F1941M
Collated and cohered fasteners	
Nails	A153, A641/A641M, B695
Nuts	F1135, F1136, F1137 F1941, F1941M
Rivets	
Screws	F1135, F1136, F1137 F1941, F1941M
Studs	F1135, F1136, F1137 F1941, F1941M
Washers	B695, A153

TABLE 5 Quality Provisions and Test Methods

Products	Quality Provisions	Test Methods	Surface Discontinuities
Bolts	F1469, F1470, F1503	F606/F606M F1940	F788/F788M
Collated and cohered fasteners			
Nails		F680, F1575	
Nuts	F1469, F1470, F1503	F606/F606M, F1940	F812/F812M
Rivets		F606/F606M, F1940	
Screws	F1469, F1470, F1503	F606/F606M, F1940	F788/F788M
Studs	F1469, F1470, F1503	F606/F606M, F1940	F788/F788M
Washers	F1469, F1470, F1503	F606/F606M, F1940	

[F594](#) Specification for Stainless Steel Nuts

[F606](#) Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets

[F606M](#) Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric)

[F680](#) Test Methods for Nails

[F738M](#) Specification for Stainless Steel Metric Bolts, Screws, and Studs

[F788/F788M](#) Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series

[F812/F812M](#) Specification for Surface Discontinuities of Nuts, Inch and Metric Series

[F835](#) Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws

[F835M](#) Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws (Metric)