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AN AMERICAN NATIONAL STANDARD

Metric Round Head Square Neck Bolts

ANSI/ASME B18.5.2.2M - 1982

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FOREWORD

ASME Committee B18 for the standardization of bolts, screws, nuts, rivets, and similar fasteners was organized in March 1922 as Sectional Committee B18 under the aegis of the American Engineering Standards Committee (later the American Standards Association, the United States of America Standards Institute and, as of October 6, 1969, the American National Standards Institute, Incorporated), with the Society of Automotive Engineers and the American Society of Mechanical Engineers as joint sponsors. Subcommittee 5 was subsequently established and charged with the responsibility for technical content of standards covering round, unslotted head bolts.

At its meeting on December 4, 1974, Committee B18 authorized preparation of a series of standards for metric fasteners. Subcommittee 5 was assigned responsibility for developing standards for metric round head bolts, including plow bolts.

In December 1979, drafting of this Standard was started. The draft was circulated for letter ballot of Subcommittee 5 and Committee B18 in February, 1982. Following approval by Subcommittee 5 and Committee B18, this Standard was approved by the sponsor and submitted to the American National Standards Institute for designation as an American National Standard. This was granted on August 24, 1982.

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AN AMERICAN NATIONAL STANDARD

METRIC ROUND HEAD SQUARE NECK BOLTS

GENERAL DATA

1 SCOPE

1.1 This Standard covers the complete general and dimensional data for metric series round head square neck bolts recognized as American National Standard, and intended for general applications.

1.2 The inclusion of dimensional data in this Standard is not intended to imply that all sizes described are production stock items. Consumers should consult with manufacturers concerning lists of stock production items.

1.3 Metric round head square neck bolts purchased for government use shall conform to this Standard and additionally to the requirements of Appendix III.

2 COMPARISON WITH ISO STANDARDS

There is no ISO product standard for metric round head square neck bolts.

3 DIMENSIONS

3.1 All dimensions in this Standard are in millimeters, unless stated otherwise.

3.2 Symbols specifying geometric characteristics are in accord with American National Standard, Dimensioning and Tolerancing, ANSI Y14.5.

4 TERMINOLOGY

For definitions of terms relating to fasteners or component features thereof used in this Standard, refer to American National Standard, Glossary of Terms for Mechanical Fasteners, ANSI B18.12 – 1962 (R1981).

5 TOP OF HEAD

The spherical top surface of the head may be underfilled within a circle equal to the nominal bolt diameter D, concentric to the bolt axis, providing the head height K is maintained.

6 HEAD HEIGHT

The head height is the distance, measured parallel to the axis of the bolt, from the top of the head to the under head bearing surface.

7 HEAD PERIPHERY

The head periphery shall be round within the specified maximum head Diameter Dc and the minimum bearing surface diameter Dw, and may be somewhat irregular. The edge may be rounded or flat, providing the limits for head diameter Dc, bearing surface diameter Dw, and head edge thickness C (measured at the minimum bearing surface diameter) are maintained.

8 BEARING SURFACE

The bearing surface shall be reasonably flat and perpendicular to the axis of the bolt. However, a 0.5 mm maximum height die seam fin across the bearing surface shall be permissible.

9 DEPTH OF SQUARE NECK

The depth of the square neck is the distance, measured parallel to the axis of the bolt, from the bearing surface to the plane where the corner chamfer would intersect the nominal bolt diameter.

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10 CORNER DEPTH

The corner depth is the distance, measured at a corner of the square, from the plane of the bearing surface to the last plane at which the width across corners E is within its specified limits.

11 CORNER FILL

The width across corners of the square neck, measured at the minimum corner depth F1 shall be: equal to or greater than E min, tabulated in Table 1, across at least two opposite corners, and equal to or greater than E min minus the following across any two opposite corners:

0.3 mm for sizes M5 and M6
0.4 mm for sizes M8 thru M14
0.5 mm for sizes M16 thru M24

There may be a fin or die seam on the corners of the square not to exceed the maximum width across corners.

12 FILLETS

The radius of fillets at the junction of head and square neck and at the junction of square neck and shank shall be within the specified limits, except for bolts produced from nonferrous and corrosion resistant materials, on which maximum fillets shall be subject to agreement between manufacturer and purchaser.

13 BODY DIAMETER

13.1 Unless otherwise specified, round head square neck bolts may be furnished with either the full or reduced body diameters specified in Tables 1 and 5, respectively.

13.2 There may be a reasonable swell, fin, or die seam on the body adjacent to the square neck not to exceed the nominal bolt diameter by the following:

0.50 mm for M5
0.65 mm for M6
0.75 mm for M8 thru M14
1.25 mm for M16
1.50 mm for M20 and M24

14 LENGTH

The length of the bolt shall be measured parallel to the axis of the bolt from the underside of head to the extreme end of the shank. Tolerances for bolt lengths are given in Table 4.

15 POINT

Bolts need not be pointed.

16 STRAIGHTNESS

Shanks of bolts shall be straight within a maximum camber at maximum material condition of 0.006 mm/mm of bolt length for bolts having nominal lengths of 300 mm or shorter and within 0.008 mm/mm of bolt length for bolts having nominal lengths over 300 mm to 600 mm. A gage and gaging procedure for checking bolt straightness is given in Appendix I.

17 THREAD LENGTH

17.1 The length of thread on bolts shall be controlled by the grip gaging length Lg max as set forth in 17.2 through 17.4.

17.2 Grip gaging length Lg is the distance measured parallel to the axis of the bolt from the bearing surface to the face of a noncounterbored or noncountersunk standard GO-thread ring gage assembled by hand as far as the thread will permit. Lg max shall be used as a criterion for inspection.

17.2.1 For standard diameter-length combinations the values for Lg max are specified in Table 2.

17.2.2 For diameter-length combinations not listed in Table 2, the maximum grip gaging length shall be determined from Table 3 as follows.

All bolts of nominal lengths equal to or shorter than L1, specified in Table 3, shall be threaded full length. For bolts which are threaded full length, Lg max shall be as specified in Table 3.

For bolts of nominal lengths longer than L1, specified in Table 3, the maximum grip gaging length, as calculated and rounded to one decimal place, shall be equal to the nominal bolt length L minus the basic thread length B specified in Table 3 (Lg max = L–B).

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17.3 Basic thread length B, as specified in Table 3, is a reference dimension, intended for calculation purposes only, and is the distance, measured parallel to the axis of the bolt, from the extreme end of the bolt to the last complete (full form) thread.

17.4 Incomplete Thread Diameter. The major diameter of incomplete thread shall not exceed the actual major diameter of the full form thread.

18 THREADS

18.1 Threads shall be coarse series general purpose external metric threads conforming to ANSI B1.13M, unless otherwise specified by the purchaser. Tolerance Class 6g shall apply to plain finish (unplated or uncoated) bolts, and to plated or coated bolts before plating or coating. As specified in ANSI B1.13M, for bolts with additive finish the thread profile after coating or plating shall not exceed the maximum material limits for tolerance position h.

18.2 Acceptability of threads shall be based on System 21, ANSI B1.3M, unless otherwise specified by the purchaser.

19 MATERIAL AND MECHANICAL PROPERTIES

19.1 Unless otherwise specified, steel bolts shall conform to the requirements specified in SAE J1199 or ASTM F568.

19.2 Properties of bolts of several grades of nonferrous materials are covered in ASTM F468M and stainless steel materials in ASTM F738.

20 IDENTIFICATION SYMBOLS

Steel bolts shall be marked with the property class symbol and with the manufacturer's identification symbol. Minimum height of property class symbols shall be 1.5 mm for M5 and M6 bolts, 2.3 mm for M8 and M10 bolts, 3.2 mm for M12 and M14 bolts, and 4.0 mm for M16 and larger bolts. Markings shall be located on the top of the head and may be raised or recessed unless otherwise ordered by the purchaser. When raised, markings shall project not less than 0.1 mm for M14 and smaller bolts, and 0.3 mm for M16 and larger bolts above the surface of the head, and total head height (head plus markings) shall not exceed the specified maximum head height plus 0.1 mm for M5 and M6 bolts, 0.2 mm for M8 and M10 bolts, 0.3 mm for M12 and M14 bolts, and 0.4 mm for M16 and larger bolts.

21 SURFACE CONDITION

Bolts need not be finished on any surface except the threads.

22 FINISH

Unless otherwise specified, bolts shall be supplied with a natural (as processed) finish, unplated or uncoated.

23 OPTIONS

Options, where specified, shall be at the discretion of the manufacturer unless otherwise agreed upon by the manufacturer and the purchaser.

24 WORKMANSHIP

Bolts shall be free from defects which might affect their serviceability, such as excessive burrs, seams, laps, loose scale, and other irregularities.

25 DESIGNATION

25.1 Round head square neck bolts are designated by the following data, preferably in the sequence shown: product name, nominal diameter and thread pitch, nominal length, steel property class or material identification, and protective coating, if required.

Examples:

Round Head Square Neck Bolt,
M10 x 1.5 x 50, Class 5.8 zinc plated

Round Head Square Neck Bolt with reduced diameter body,
M10 x 1.5 x 80, Class 9.8 zinc plated

Round Head Square Neck Bolt,
M16 x 2 x 80, Class C4-50, ASTM F738

GENERAL NOTE: It is common practice in ISO standards to omit thread pitch from the product size designation when screw threads are the metric coarse thread series; e.g., M10 is M10 x 1.5.

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25.2 The government part numbering system for metric round head square neck bolts is given in Appendix III. This system may be used by any user needing a definitive part numbering system.

26 CLEARANCE HOLES

The recommended sizes of clearance holes in material to be assembled using round head square neck bolts are the normal series given in Appendix II.

27 REFERENCED STANDARDS

Copies of referenced ASTM standards may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

Copies of referenced SAE standards may be obtained from the Society of Automotive Engineers, Incorporated, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.

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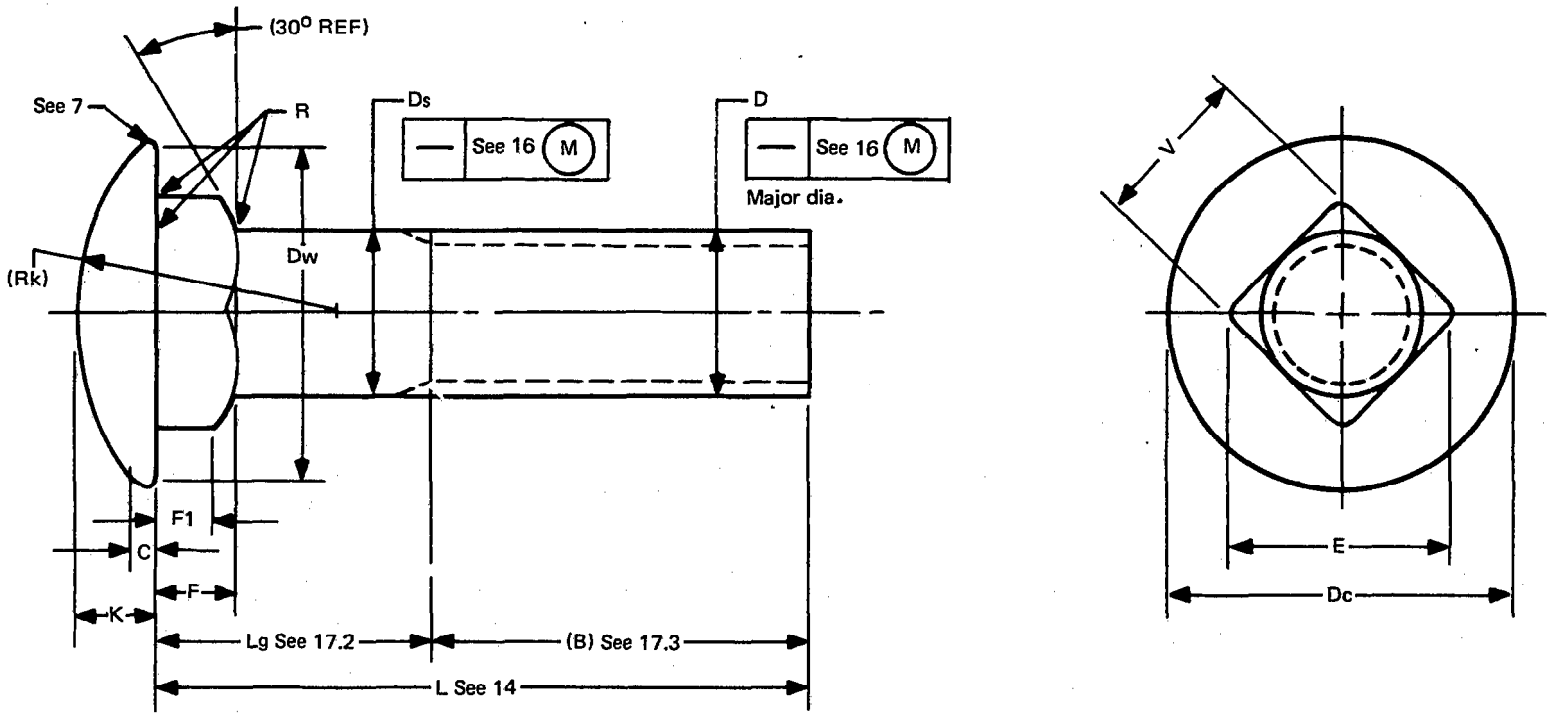


TABLE 1 DIMENSIONS OF ROUND HEAD SQUARE NECK BOLTS

D	Ds		(Rk)	K		C		Dc	Dw	F		F1	V		E		R	
Nominal Bolt Size and Thread Pitch	Dia. of Full Body		Head Radius	Head Height		Head Edge Thickness		Head Dia.	Bearing Surface Dia.	Square Depth		Square Corner Depth	Square Width Across Flats		Square Width Across Corners		Fillet Radius	
	Max.	Min.	Ref.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
M5 x 0.8	5.48	4.52	8.8	3.1	2.5	1.8	1.0	11.8	9.8	3.1	2.5	1.6	5.48	4.88	7.75	6.34	0.4	0.2
M6 x 1	6.48	5.52	10.7	3.6	3.0	1.9	1.1	14.2	12.2	3.6	3.0	1.9	6.48	5.88	9.16	7.64	0.5	0.2
M8 x 1.25	8.58	7.42	12.5	4.8	4.0	2.2	1.2	18.0	15.8	4.8	4.0	2.5	8.58	7.85	12.13	10.20	0.8	0.4
M10 x 1.5	10.58	9.42	15.5	5.8	5.0	2.5	1.5	22.3	19.6	5.8	5.0	3.2	10.58	9.85	14.96	12.80	0.8	0.4
M12 x 1.75	12.70	11.30	19.0	6.8	6.0	2.8	1.8	26.6	23.8	6.8	6.0	3.8	12.70	11.82	17.96	15.37	0.8	0.4
M14 x 2	14.70	13.30	21.9	7.9	7.0	3.3	2.1	30.5	27.6	7.9	7.0	4.4	14.70	13.82	20.79	17.97	1.2	0.6
M16 x 2	16.70	15.30	25.5	8.9	8.0	3.6	2.4	35.0	31.9	8.9	8.0	5.0	16.70	15.82	23.62	20.57	1.2	0.6
M20 x 2.5	20.84	19.16	31.9	10.9	10.0	4.2	3.0	43.0	39.9	10.9	10.0	6.3	20.84	19.79	29.47	25.73	1.6	0.8
M24 x 3	24.84	23.16	37.9	13.1	12.0	5.1	3.6	51.0	47.6	13.1	12.0	7.6	24.84	23.79	35.13	30.93	1.6	0.8
See Par.	13		5	6 & 20		7		7	7 & 8	9		10 & 11			10 & 11		12	

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TABLE 2 MAXIMUM GRIP GAGING LENGTHS

Nom. Dia. and Thd. Pitch	M5 x 0.8	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M14 x 2	M16 x 2	M20 x 2.5	M24 x 3
L Nominal Length	Lg Max.	Lg Max.	Lg Max.	Lg Max.	Lg Max.	Lg Max.	Lg Max.	Lg Max.	Lg Max.
10	5.5								
12	5.5	6.6							
(14)	5.5	6.6							
16	5.5	6.6	8.5						
20	5.5	6.6	8.5	10.3					
25	5.5	6.6	8.5	10.3	12.0				
30	5.5	6.6	8.5	10.3	12.0	13.9	14.9		
35	5.5	6.6	8.5	10.3	12.0	13.9	14.9		
40	5.5	6.6	8.5	10.3	12.0	13.9	14.9	18.4	
45	5.5	6.6	8.5	10.3	12.0	13.9	14.9	18.4	22.1
50	5.5	6.6	8.5	10.3	12.0	13.9	14.9	18.4	22.1
(55)		37.0	33.0	29.0	25.0	13.9	14.9	18.4	22.1
60		42.0	38.0	34.0	30.0	26.0	14.9	18.4	22.1
(65)			43.0	39.0	35.0	31.0	27.0	18.4	22.1
70			48.0	44.0	40.0	36.0	32.0	18.4	22.1
(75)			53.0	49.0	45.0	41.0	37.0	29.0	22.1
80			58.0	54.0	50.0	46.0	42.0	34.0	22.1
(85)				59.0	55.0	51.0	47.0	39.0	22.1
90				64.0	60.0	56.0	52.0	44.0	36.0
100				74.0	70.0	66.0	62.0	54.0	46.0
110					80.0	76.0	72.0	64.0	56.0
120					90.0	86.0	82.0	74.0	66.0
130						90.0	86.0	78.0	70.0
140						100.0	96.0	88.0	80.0
150							106.0	98.0	90.0
160							116.0	108.0	100.0
(170)								118.0	110.0
180								128.0	120.0
(190)								138.0	130.0
200								148.0	140.0
220									147.0
240									167.0

GENERAL NOTES:

(1) Lg is grip gaging length. See 17.2.
(2) Diameter-length combinations between the dashed lines are recommended. Lengths in parentheses are not recommended.
(3) Bolts with lengths above the heavy solid line are threaded full length.
(4) For bolts with lengths not shown, or below the lower dashed line, see 17.2.2.

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TABLE 3 THREAD LENGTHS

Nominal Bolt Dia. and Thread Pitch	(B) Basic Thread Length (Ref)			Bolts Threaded Full Length	
	Bolt Lengths ⩽ 125	Bolt Lengths > 125 and ⩽ 200	Bolt Lengths > 200	L1 Bolt Lengths to and Incl.	Lg Grip Gaging Length Max.
M5 x 0.8	16	22	35	50	5.5
M6 x 1	18	24	37	50	6.6
M8 x 1.25	22	28	41	50	8.5
M10 x 1.5	26	32	45	50	10.3
M12 x 1.75	30	36	49	50	12.0
M14 x 2	34	40	53	55	13.9
M16 x 2	38	44	57	60	14.9
M20 x 2.5	46	52	65	70	18.4
M24 x 3	54	60	73	85	22.1

TABLE 4 LENGTH TOLERANCES

Nominal Length (mm)	Nominal Bolt Dia.		
	M5 thru M8	M10 thru M16	M20 and M24
to 50	0.8	1.3	2.0
over 50 to 80	1.0	1.5	2.5
over 80 to 120	1.1	1.8	3.0
over 120 to 180	2.0	2.0	3.5
over 180 to 240	4.0	4.0	4.0
over 240	5.0	5.0	5.0

Length tolerances are plus and minus.

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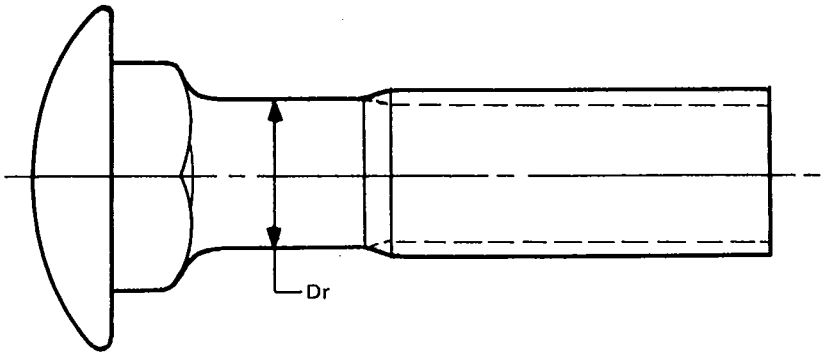


TABLE 5 REDUCED DIAMETER BODY

Nominal Bolt Dia. and Thread Pitch	Dr	
	Dia. of Reduced Body	
	Max.	Min.
M5 x 0.8	5.00	4.36
M6 x 1	6.00	5.21
M8 x 1.25	8.00	7.04
M10 x 1.5	10.00	8.86
M12 x 1.75	12.00	10.68
M14 x 2	14.00	12.50
M16 x 2	16.00	14.50
M20 x 2.5	20.00	18.16
M24 x 3	24.00	21.80

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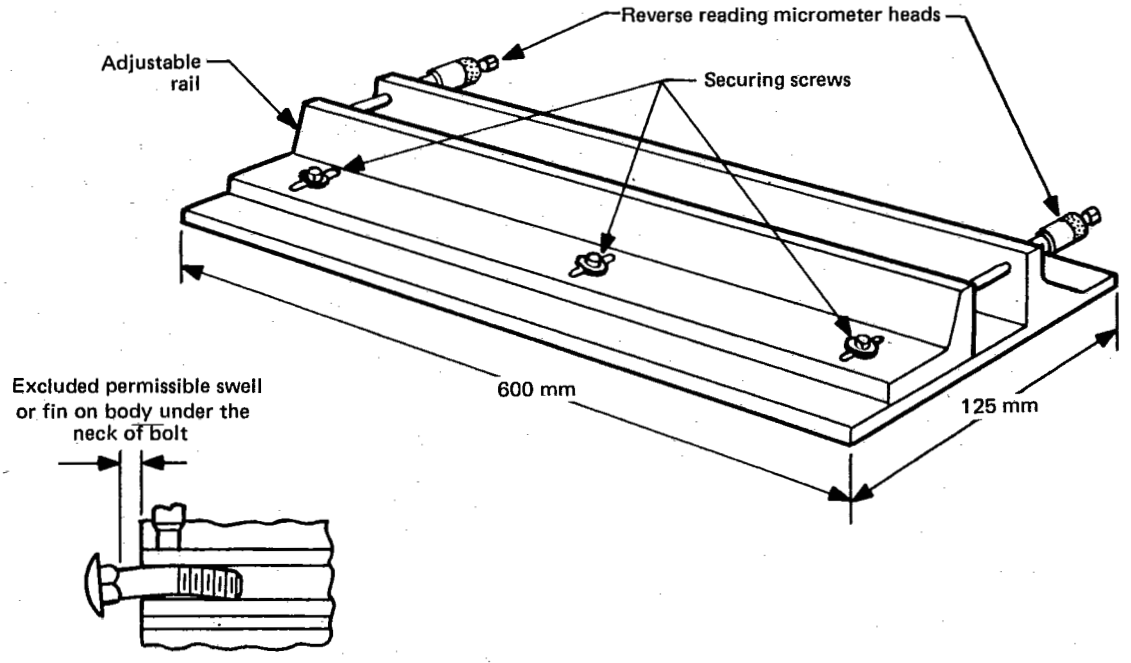
APPENDIX I

GAGE AND GAGING FOR CHECKING BOLT STRAIGHTNESS

The conformance of bolts to shank straightness or camber limitations set forth in the bolt specifications may be checked by use of the typical gage illustrated below in accordance with the following procedure:

Allowable total camber on bolt to be inspected shall be calculated by multiplying the specified permissible camber per millimeter of length by the nominal bolt length expressed as a two-place decimal. The total camber thus derived shall be added to the specified maximum body diameter and the movable rail of gage shall be adjusted to provide a parallel space between the rails equal to this distance by obtaining common readings on both micrometer heads. The movable rail shall then be locked in place by tightening securing screws.

Bolt shall then be inserted between rails, excluding from the gage any permissible length of swell or fin under the head or neck. Bolt shall next be rotated by hand through full 360 deg. Any interference occurring between the bolt and the gage which is sufficient to prevent rotation shall indicate excessive camber.



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APPENDIX II

RECOMMENDED CLEARANCE HOLES FOR METRIC ROUND HEAD SQUARE NECK BOLTS

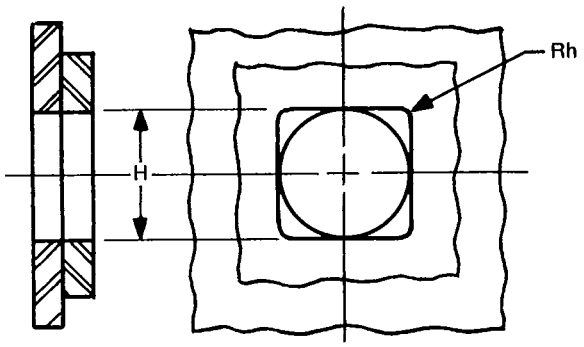


TABLE II-1 CLEARANCE HOLE SIZES

Nominal Bolt Dia. and Thread Pitch	H Clearance Hole Diameter or Width (Square or Slotted)			Rh Corner Radius
	Min.			
	Close Clearance	Normal Clearance (Preferred)	Loose Clearance	Max.
M5 x 0.8	5.5	...	5.8	0.2
M6 x 1	6.6	...	7.0	0.3
M8 x 1.25	...	9.0	10.0	0.4
M10 x 1.5	...	11.0	12.0	0.4
M12 x 1.75	13.0	13.5	14.5	0.6
M14 x 2	15.0	15.5	16.5	0.6
M16 x 2	17.0	17.5	18.5	0.6
M20 x 2.5	21.0	22.0	24.0	0.8
M24 x 3	25.0	26.0	28.0	1.0

GENERAL NOTES:

Close Clearance. Close clearance hole sizes should be specified only for square holes in very thin and/or soft material, for slots, or where conditions such as critical alignment of assembled parts, wall thickness, or other limitations necessitate use of a minimal hole.

Allowable swell or fins on the bolt body and/or fins on the corners of the square neck may interfere with close clearance round and/or square holes.

Normal Clearance. Normal clearance hole sizes are preferred for general purpose applications, and should be specified unless special design considerations dictate the need for either a close or loose clearance hole.

Loose Clearance. Loose clearance hole sizes should be specified only for applications where maximum adjustment capability between components being assembled is necessary. Loose clearance square holes or slots may not prevent bolt turning during wrenching.

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APPENDIX III

GOVERNMENT STANDARD ITEMS AND PART NUMBERING SYSTEM

NOTE: The Government encourages the general use of this Appendix to achieve maximum parts standardization.

This Appendix establishes the standard items for Government application selected from the possible variations of items within the scope of the Standard and provides a part numbering system for identification and application in engineering documents.

The following variations are standard:

(*a*) Diameter/Thread Pitch and Length Combinations – as specified in Table III-1.

(*b*) Material – Steel, Property Class 9.8 for sizes up to and including M16 and Property Class 8.8 for sizes M20 and M24.

(*c*) Finish – Cadmium plating or zinc plating as coded in Part Numbering System.

(*d*) Special Features – drilled shank as specified.

The part number shall consist of the following element codes in the order shown:

(*a*) Document Identifier – ANSI Standard Number less decimal point.

(*b*) Material and Finish

(*c*) Nominal Diameter

(*d*) Nominal Length

(*e*) Special Features

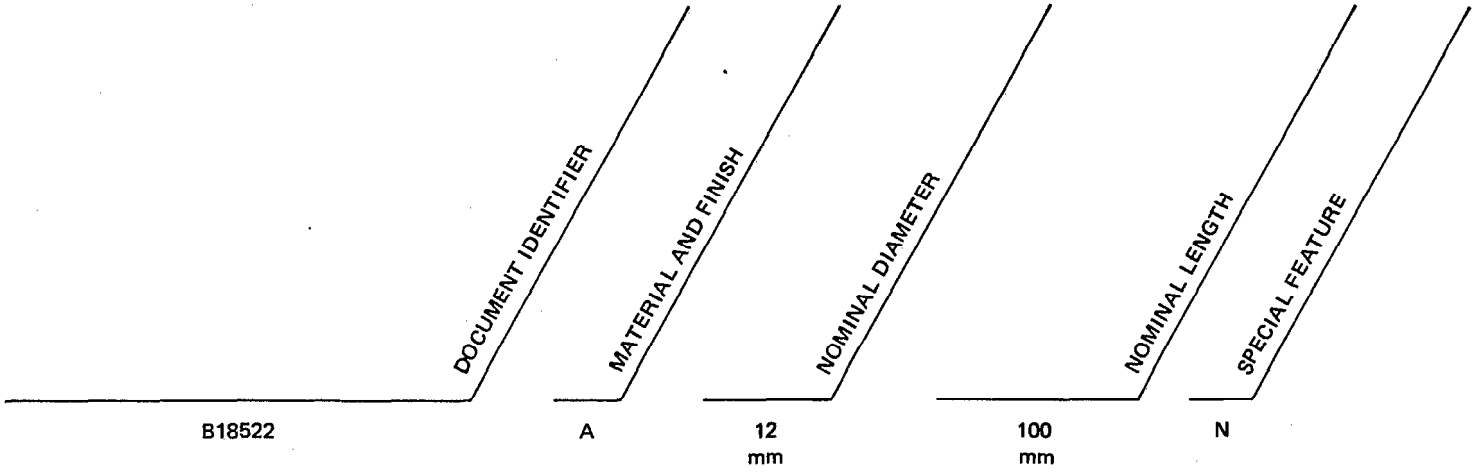
Quality Assurance Provisions. Quality assurance provisions shall be in accordance with FF-B-584, Bolts, Finned Neck, Key Head, Machine, Ribbed Neck, Square Neck: Tee Head.

Packaging. Packaging shall be in accordance with PPP-H-1581, Hardware (Fasteners and Related Items) Packaging of.

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PART NUMBERING SYSTEM COVERING STANDARD ITEMS FOR GOVERNMENT USE

NOTE: THE GOVERNMENT ENCOURAGES THE GENERAL USE OF THIS SYSTEM TO ACHIEVE MAXIMUM PARTS STANDARDIZATION.



MATERIAL AND FINISH CODE

A — Steel w/cadmium plating per QQ-P-416, Type II, Class 3 (5.1μm Plating Thickness), Property Class 8.8 or 9.8 as applicable.

B — Steel w/zinc plating per QQ-Z-325, Type II, Class 3 (5.1μm Thickness), Property Class 8.8 or 9.8 as applicable.

SPECIAL FEATURE CODE

N — None

D — Drilled Shank

EXAMPLE: B18522A12100N indicates a Bolt, Round Head, Square Neck-Metric made of cadmium plated steel, property class 9.8, with M12 x 1.75 thread, 100 mm in length, with no special feature.

ASME B18.5.2.2M 82 ■ 2595512 0015154 4 ■

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TABLE III-1 METRIC ROUND HEAD SQUARE NECK BOLTS — STANDARD SIZES FOR GOVERNMENT USE

Nominal Length	Nominal Diameter and Thread Pitch								
	M5 x 0.8	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M14 x 2	M16 x 2	M20 x 2.5	M24 x 3
10	05010								
12		06012							
16			08016						
20				10020					
25					12025				
30						14030	16030		
35	STANDARD								
40								20040	
45		DIAMETER AND							24045
50	05050								
60		06060				LENGTH			
70									
80			08080			COMBINATION			
90									
100				10100					
110									
120					12120				
130									
140						14140			
150									
160							16160		
180									
200								20200	
220									
240									24240

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AMERICAN NATIONAL STANDARDS FOR BOLTS, NUTS, RIVETS, SCREWS, WASHERS, AND SIMILAR FASTENERS

Small Solid Rivets B18.1.1–1972 (R1977)
Large Rivets B18.1.2–1972 (R1977)
Square And Hex Bolts And Screws B18.2.1–1981
Square And Hex Nuts. B18.2.2–1972
Metric Hex Cap Screws. B18.2.3.1M–1979
Metric Formed Hex Screws B18.2.3.2M–1979
Metric Heavy Hex Screws B18.2.3.3M–1979
Metric Hex Flange Screws B18.2.3.4M–1979
Metric Hex Bolts B18.2.3.5M–1979
Metric Heavy Hex Bolts B18.2.3.6M–1979
Metric Heavy Hex Structural Bolts B18.2.3.7M–1979
Metric Hex Lag Screws B18.2.3.8M–1981
Metric Hex Nuts, Style 1. . . . . B18.2.4.1M–1979
Metric Hex Nuts, Style 2. . . . . B18.2.4.2M–1979
Metric Slotted Hex Nuts B18.2.4.3M–1979
Metric Hex Flange Nuts B18.2.4.4M–1982
Metric Hex Jam Nuts B18.2.4.5M–1979
Metric Heavy Hex Nuts. B18.2.4.6M–1979
Socket Cap, Shoulder And Set Screws-Inch Series B18.3–1982
Socket Head Cap Screws (Metric Series). B18.3.1M–1982
Metric Series Hexagon Keys And Bits B18.3.2M–1979
Hexagon Socket Head Shoulder Screws: Metric Series B18.3.3M–1979
Hexagon Socket Button Head Cap Screws: Metric Series. B18.3.4M–1979
Metric Series Hexagon Socket Set Screws. B18.3.6M–1979
Round Head Bolts (Inch Series) B18.5–1978
Metric Round Head Short Square Neck Bolts B18.5.2.1M–1981
Wood Screws B18.6.1–1981
Slotted Head Cap Screws, Square Head Set Screws And
Slotted Headless Set Screws B18.6.2–1972 (R1977)
Machine Screws And Machine Screw Nuts (M-4) B18.6.3–1972 (R1977)
Thread Forming And Thread Cutting Tapping Screws And
Metallic Drive Screws (Inch Series) B18.6.4–1981
General Purpose Semi-Tubular Rivets, Full Tubular Rivets,
Split Rivets And Rivet Caps B18.7–1972 (R1980)
Clevis Pins And Cotter Pins B18.8.1–1972 (R1977)
Taper Pins, Dowel Pins, Straight Pins, Grooved Pins And
Spring Pins (Inch Series) B18.8.2–1978
Plow Bolts B18.9–1958 (R1977)
Track Bolts And Nuts. B18.10–1963 (R1975)
Miniature Screws. B18.11–1961 (R1975)
Glossary Of Terms For Mechanical Fasteners B18.12–1962 (R1981)
Screw And Washer Assemblies – Sems. B18.13–1965 (R1975)
Forged Eyebolts B18.15–1969
Mechanical And Performance Requirements For Prevailing-Torque Type
Steel Metric Hex Nuts And Hex Flange Nuts B18.16.1M–1979
Torque-Tension Test Requirements For Prevailing-Torque Type
Steel Metric Hex Nuts And Hex Flange Nuts B18.16.2M–1979
Dimensional Requirements For Prevailing-Torque Type Steel Metric Hex Nuts
And Hex Flange Nuts B18.16.3M–1982
Wing Nuts, Thumb Screws And Wing Screws. B18.17–1968 (R1975)
Lock Washers B18.21.1–1972
Plain Washers B18.22.1–1965 (R1981)
Metric Plain Washers B18.22M–1981
Beveled Washers B18.23.1–1967 (R1975)

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