

1. SCOPE
 - 1.1 This standard practice defines the criteria and requirements in millimeters for gaging the head protrusion values for:
 - (a) 100° flush head metric fasteners (based upon the NA0038 Metric Part Standard).
 - (b) 100° reduced crown head fasteners (based upon the NA0123 Metric Part Standard).
 - 1.2 This standard practice includes specifications for gage blocks, gage diameters, gage balls, and stylus configurations to be used in the measurement of the head protrusion values for various 100° flush head and reduced crown head metric fastener diameter sizes and the method for verifying the wear factor of the gage diameters in the gage blocks.
 - 1.3 Recommendations for improvement and/or corrections to this standard practice document should be directed to a representative of the National Aerospace Standards Committee (NASC) or to the National Aerospace Standards Committee at the address in the margin of the document.
 - 1.4 This standard practice takes precedence over documents referenced herein.
 - 1.5 Referenced specifications herein, of issue in effect on the date of price inquiry, are a part of this standard practice to the extent indicated. In the case of conflict, requirements herein shall take precedence.
 - 1.6 This standard practice defines a "C=0" plan for sample inspection lots, from each manufacturing lot, to be used in the head protrusion measurement of 100° flush head and reduced crown head metric fasteners.
 - 1.7 The fastener head angle shall be verified using a comparator and the actual head diameter shall be measured using a comparator or a micrometer. The theoretical sharp head diameter, the head height and the head land, if tabulated, are for engineering reference data only and not subject to inspection unless otherwise specified in the part standard.

2. REFERENCED DOCUMENTS

2.1 ASME

ASME B46.1 – Surface Texture (surface roughness, waviness and lay).
ASME Y14.5-2009 – Dimensioning and Tolerancing.
ASME Y14.36M-1996 – Surface Texture Symbols.

Copies can be obtained from ASME, Three Park Ave., New York, NY 10016-5990. www.asme.org

2.2 ASTM International

ASTM E 140 - Standard Hardness Conversion Table for Metals.

Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. www.astm.org

2.3 Aerospace Industries Association

NA0038 – Screw, 100 Degree Flush Head, 660 MPa Metric.
NA0123 - SCREW, 100 Degree Reduced Crown Flush Head, 660 MPa Metric.

Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

3. DEFINITIONS

None.

③ COMPLETELY REVISED

THIRD ANGLE PROJECTION	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 3
PROCUREMENT SPECIFICATION NONE	TITLE HEAD PROTRUSION GAGING, METRIC 100° FLUSH HEAD FASTENERS GAGE BLOCK, GAGE DIAMETERS AND STYLUS	CLASSIFICATION STANDARD PRACTICE NA0048



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4. GENERAL REQUIREMENTS

4.1 Head Protrusion.

4.2 The fastener head protrusion "H" values for 100° flush head and reduced crown head metric fasteners shall be measured in accordance with Figure 1 and shall comply with the requirements as tabulated in Table I. The fastener head protrusion values in Table I may be corrected to allow for acceptable gage block wear of diameter "A" in accordance with Section 5 herein.

4.3 The fastener head protrusion height "H" shall be measured with an indicating gage (Figure 1), calibrated to 0,012mm, fitted with a stylus (Figure 3) and mounted to, or configured on, a fixture base to assure proper alignment so as to maintain the perpendicularity requirement between the stylus axis (Figure 2, Datum A) and the fixture base.

4.4 100° flush head fastener protrusion values defined in a part standard or applicable procurement specification, shall take precedence over the protrusion values listed herein when gaged in accordance with the specified gage block diameter "A" as specified in the part standard or procurement specification.

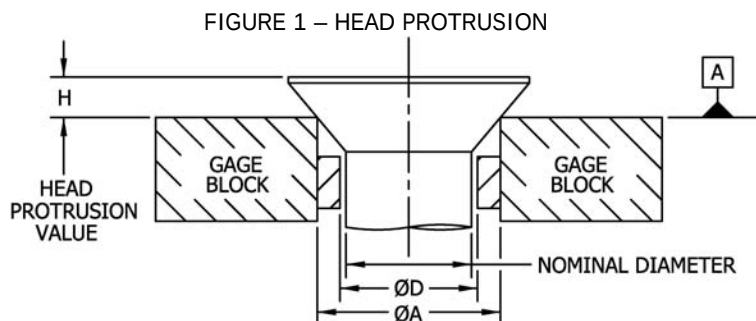


TABLE I – HEAD PROTRUSION VALUES

FULL FLUSH HEAD				REDUCED CROWN HEAD			
NOMINAL DIAMETER	H		STYLUS TYPE (a)	NOMINAL DIAMETER	H		STYLUS TYPE (a)
	MAX	MIN			MAX	MIN	
016	2,505	2,500	S1 or S01				
020	3,205	3,200	S2 or S02				
025	4,005	4,000	S2 or S02				
030	4,005	4,000	S3 or S03				
040	6,505	6,000	S3 or S03				
050	8,305	8,300	S4 or S04	050	1,05	1,01	S3 or S03
060	10,105	10,100	S4 or S04	060	0,91	0,87	S3 or S03
080	13,805	13,800	S4 or S04	080	1,15	1,11	S4 or S04
100	17,505	17,500	S5 or S05	100	1,40	1,36	S4 or S04
120	21,005	21,000	S5 or S05	120	1,65	1,61	S4 or S04
140	24,505	24,500	S6 or S06				
160	28,005	28,000	S7 or S07				
180	31,505	31,500	S7 or S07				
200	35,005	35,000	S7 or S07				

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