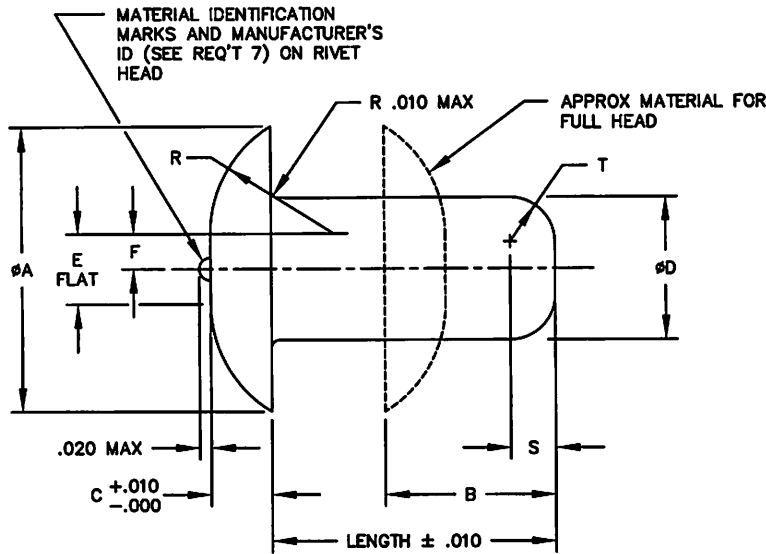




FED SUP CLASS
5320



MATERIAL IDENTIFICATION MARKS

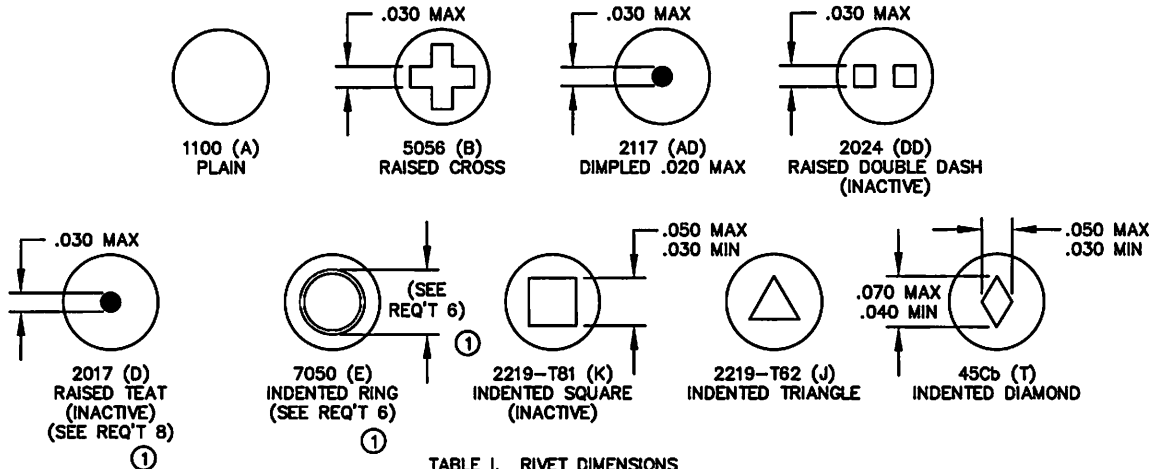


TABLE I. RIVET DIMENSIONS

NOM DIA	ØD	ØA	B	C	E	F	R	S	T RAD
1/16	.062	.125 ± .006	.094	.027	.031	.015	.054	.016	.019
3/32	.094	.187 ± .009	.141	.040	.046	.023	.082	.023	.029
1/8	.125	.250 ± .012	.188	.054	.062	.031	.108	.031	.039
5/32	.156	.312 ± .016	.234	.067	.078	.039	.135	.039	.049
3/16	.187	.375 ± .019	.281	.080	.093	.046	.164	.047	.059
7/32	.219	.437 ± .022	.328	.093	.109	.054	.193	.054	.069
1/4	.250	.500 ± .025	.375	.107	.125	.062	.217	.062	.078
5/16	.312	.625 ± .031	.469	.133	.156	.078	.272	.078	.098
3/8	.375	.750 ± .037	.562	.161	.187	.093	.328	.094	.117

1/ TOLERANCE CHANGE APPLIES TO RIVETS MANUFACTURED AFTER 2 JULY 1990.

NO.	REV
1	1
2	NEW
3	NEW
4	NEW
5	NEW

THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MS20470, REVISION H, PART NUMBERS REMAIN MS20470

CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE



PROCUREMENT SPECIFICATION
MIL-R-5674

TITLE
RIVET, SOLID, UNIVERSAL HEAD,
ALUMINUM ALLOY AND TITANIUM
COLUMBIUM ALLOY

CLASSIFICATION
PART STANDARD

NASM20470
SHEET 1 OF 5

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1250 EYE STREET, N.W.
WASHINGTON, D.C. 20005

DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME PRODUCT,
AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST DATE OF
APPROVAL SHOWN HEREON.

REVISION ① AUGUST 2008
APPROVAL DATE AUGUST 1998



REQUIREMENTS:

1. RIVETS MAY BE FURNISHED WITH PLAIN ENDS, OR ENDS CHAMFERED UP TO 20° TO THE "S" DIMENSION, OR MAY HAVE A RADIUS TO THE "T" DIMENSION.
2. MATERIAL: ALUMINUM 1100-F (A91100) AND ALUMINUM ALLOYS 2017-T4 (A92017), 2024-T4 (A92024), 2117-T4 (A92117), 2219-T81 (A92119), 2219-T82 (A92119), 5056-H32 (A95056), 7050-T73 (A97050) PER QQ-a-430 AND TITANIUM COLUMBIUM ALLOY 45Cb (R58450) PER AMS 4982.
3. FOR PART NUMBERS OF RIVET LENGTH NOT LISTED SHOW 1/16 INCREMENT REQUIRED.
4. ADDITIONAL 1/32 LENGTH INCREMENTS MAY BE OBTAINED BY ADDING -5 AFTER THE LAST DIGIT OR LETTER IN PART NUMBER.
5. EXAMPLE OF PART NUMBER:

MS20470 AD 4 - 12 A -5 = ALUMINUM ALLOY 2117-T4 RIVET, 1/8 DIA. (3/4 + 1/32) LONG, ANODIZE CLEAR.

- 5 INDICATES ADDITIONAL 1/32 INCH INCREMENT IN LENGTH.
- NO CODE INDICATES CHEMICAL SURFACE TREATMENT PER MIL-C-5541, CLASS 1A, GOLD/YELLOW.
- "A" INDICATES ANODIZE PER MIL-A-8625, TYPE II, CLASS 1, CLEAR.
- "D" INDICATES ANODIZE PER MIL-A-8625, TYPE II, CLASS 1, DICHROMATE SEAL
- "F" INDICATES OPTION OF ANY FINISH EXCEPT AS NOTED BELOW.
- "S" INDICATES CHEMICAL SURFACE TREATMENT PER MIL-C-5541, CLASS 1A, CLEAR.
- "N" INDICATES ANODIZE PER MIL-A-8625, TYPE II, CLASS 2.

NOTE: FOR 1100 AL. CHEMICAL SURFACE TREATMENT PER MIL-C-5541, CLASS 1A, GOLD/YELLOW (NO CODE).

FOR 2024 AL. ANODIZE PER MIL-A-8625, TYPE II, CLASS 1, DICHROMATE SEAL OR CLEAR OR CLASS 2 WITH SPECIFIED COLOR (A, D, OR N CODE). FOR 2017, 2117, 2219, 5056 AND 7050 AL. CHEMICAL FINISH SURFACE TREATMENT PER MIL-C-5541, CLASS 1A, CLEAR OR GOLD/YELLOW (CLEAR FILM SHALL BE USED ONLY WHEN AUTHORIZED) OR ANODIZE PER MIL-A-8625, TYPE II, CLASS 1 (CLEAR OR DICHROMATE SEAL) OR CLASS 2.

FOR TITANIUM COLUMBIUM, NO FINISH REQUIRED.

- INDICATES LENGTH IN 1/16 OF AN INCH.
- INDICATES DIAMETER IN 1/32 OF AN INCH.

- "A" INDICATES 1100-F ALUMINUM
 - "AD" INDICATES 2117-T4 AL. ALLOY
 - "B" INDICATES 5056-H32 AL. ALLOY
 - "D" INDICATES 2017-T4 AL. ALLOY
 - "DD" INDICATES 2024-T4 AL. ALLOY
 - "K" INDICATES 2219-T81 AL. ALLOY
 - "E" INDICATES 7050-T73 AL. ALLOY
 - "T" INDICATES TITANIUM COLUMBIUM ALLOY 45Cb
 - "J" INDICATES 2219-T82 AL. ALLOY
- } INACTIVE FOR NEW DESIGN

BASIC MS NUMBER

6. OUTER DIAMETER OF INDENTED RING (7050 RIVETS) SHALL BE A MAXIMUM OF 75% OF RIVET SHANK DIAMETER. THE MAXIMUM DEPTH OF THE RING SHALL BE .010 INCH. INDENTED RING IS REQUIRED ON 7050 RIVETS MANUFACTURED AFTER 2 JULY 1990.
7. MANUFACTURER'S IDENTIFICATION IS REQUIRED TO BE DEPRESSED ON RIVET HEADS WITH A SHANK DIAMETER .125 INCH AND LARGER MANUFACTURED AFTER 2 JULY 1990.
8. ALUMINUM ALLOY 2017-T4 RIVETS WITH 33KSI MIN. UNDRIVEN SHEAR STRENGTHS ARE ACCEPTABLE UNTIL 2 JULY 1990.

NOTES:

1. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS +/- .010.
2. INTERCHANGEABILITY RELATION WITH AN470 RIVETS: MS20470 RIVETS OF LIKE DASH NUMBERS ARE UNIVERSALLY, FUNCTIONALLY, AND DIMENSIONABLY INTERCHANGEABLE.
3. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.
4. REFERENCED GOVERNMENT (OR NON-GOVERNMENT) DOCUMENTS OF THE ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DoDISS) SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

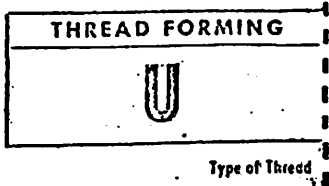
AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC. 1250 EYE STREET, N.W. WASHINGTON, D.C. 20005

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST DATE OF APPROVAL SHOWN HEREON.

REVISION

APPROX DATE AUGUST 1998

NASM20470 SHEET 2



TAPPING SCREWS

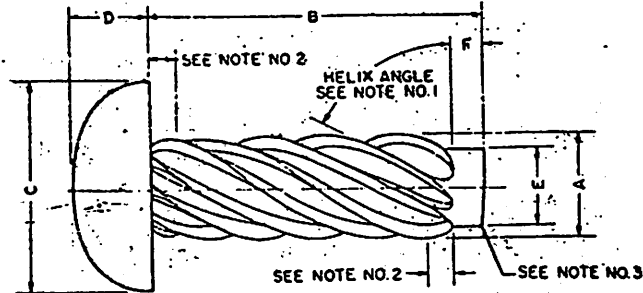


Table 76 Dimensions of Metallic Drive Screws Type U

Screw Size	A		E		C		D		Number of Threads Starts	Use Drill Size	
	Outside Diameter		Pilot Diameter		Head Diameter		Head Height			No. Size	Dec. Equiv.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
00	0.060	0.057	0.049	0.046	0.099	0.090	0.034	0.026	6	55	0.052
0	0.075	0.072	0.063	0.060	0.127	0.118	0.049	0.041	6	51	0.067
2	0.100	0.097	0.083	0.080	0.162	0.146	0.069	0.059	8	44	0.086
4	0.115	0.117	0.096	0.092	0.211	0.193	0.086	0.075	7	37	0.104
6	0.140	0.136	0.116	0.112	0.260	0.240	0.103	0.091	7	31	0.120
7	0.154	0.150	0.126	0.122	0.285	0.264	0.111	0.099	8	29	0.136
8	0.167	0.162	0.136	0.132	0.309	0.287	0.120	0.107	8	27	0.144
10	0.182	0.177	0.150	0.146	0.359	0.334	0.137	0.123	8	20	0.161
12	0.212	0.206	0.177	0.173	0.408	0.382	0.153	0.139	8	11	0.191
14	0.242	0.236	0.202	0.198	0.457	0.429	0.170	0.155	9	2	0.221
3/16	0.315	0.309	0.272	0.267	0.590	0.557	0.216	0.198	11	M	0.295
3/8	0.378	0.371	0.334	0.329	0.708	0.670	0.256	0.237	12	T	0.358

All dimensions are given in inches.

B	Screw Length	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1" and over
F	Pilot Length	3/64	3/64	3/64	3/64	1/16	1/16	5/64	5/64	1/8

NOTE 1. The helix angle of the type "U" Metallic Drive Screw shall be 45 degrees to 65 degrees.

NOTE 2. The thread at the starting end of the screw and under the head may be unfinished for a length of one half of the maximum diameter of the screw, due to the natural flow of the material in the process of the thread rolling operation.

NOTE 3. The blunt end of the pilot, as illustrated above, may have a slight angle, due to the natural flow of material in the cut-off process.

For General Data see Pages 3 and 4.