

OPTIONAL

TABLE I

NOMINAL SIZE		.061		.089		.123		.146		.188	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
BODY DIAMETER	ØA	.058	.061	.085	.089	.118	.123	.141	.146	.182	.188
HEAD DIAMETER	ØB	.104	.114	.142	.152	.213	.223	.229	.239	.306	.318
HEAD THICKNESS	H	.015	.019	.020	.026	.030	.038	.035	.045	.055	.065
STRAIGHT HOLE	D	.039	.044	.062	.068	.084	.090	.100	.107	.134	.141
TAPER AT BOTTOM OF HOLE	ØE ₁	.032		.050		.079		.085		.110	
TAPER AT END OF RIVET	ØE ₂	.042	.046	.064	.068	.091	.095	.106	.112	.139	.145
FILLET	F		.008		.012		.016		.020		.025
HOLE DEPTH (TAPER)	C	.042		.057		.082		.104		.135	
HOLE DEPTH (STRAIGHT)	NOM C		.046		.064		.094		.126		.155
APPROX RADIUS	R		.160		.220		.310		.270		.250
CLINCH ALLOWANCE 1/			.037		.064		.074		.089		.120

1/ FOR REFERENCE ONLY. OPTIMUM VALUES VARY WITH CHARACTERISTICS OF MATERIALS TO BE RIVETED, AND SHOULD BE DETERMINED BY ACTUAL TEST IF POSSIBLE.

REQUIREMENTS:

- MATERIAL:** STEEL, CARBON, COMPOSITION 1005 THRU 1022 (UNS G10050 THRU UNS G10200), IN ACCORDANCE WITH ASTM A29/A29M. BRASS 1/8 TO 1/4 HARD, COMPOSITION 260 OR 270, (UNS C26000 OR UNS C27000), IN ACCORDANCE WITH QQ-W-321. ALUMINUM ALLOY, COMPOSITION 2117-T4 OR 5056-H32, (UNS A92117 OR UNS A95056), IN ACCORDANCE WITH QQ-A-430. NICKEL-COPPER ALLOY (MONEL), CLASS A, NO. 0 TEMPER, (UNS N04400), IN ACCORDANCE WITH QQ-N-281. COPPER, TYPE S, (UNS C10200), IN ACCORDANCE WITH QQ-W-343. CORROSION RESISTANT STEEL, CLASS 302, 304, OR 305 (UNS S30200, UNS S30400, OR UNS S30500) IN ACCORDANCE WITH QQ-S-763.
- PROTECTIVE COATING:** STEEL, CARBON, CADMIUM PLATED, TYPE II, CLASS 2, IN ACCORDANCE WITH QQ-P-416. BRASS, BLACK (OXIDE) FINISH, IN ACCORDANCE WITH MIL-F-495, OR NICKEL PLATING, CLASS 1, FULLY BRIGHT, 0.0002 THICK, IN ACCORDANCE WITH QQ-N-290. ALUMINUM ALLOY, COMPOSITIONS 2117-T4 AND 5056-H32 ANODIZED IN ACCORDANCE WITH MIL-A-8625 OR GIVEN A CHEMICAL FILM AS SPECIFIED IN MIL-C-5541. CORROSION RESISTANT STEEL, PASSIVATED IN ACCORDANCE WITH QQ-P-35.
- DOUBLE SHEAR STRENGTH:**

CARBON STEEL RIVETS	32,000 PSI MIN
BRASS RIVETS	35,000 PSI MIN
ALUMINUM RIVETS (2117)	26,000 PSI MIN
ALUMINUM RIVETS (5056)	24,000 PSI MIN
NICKEL ALLOY (MONEL) RIVETS	49,000 PSI MIN
COPPER RIVETS	24,000 PSI MIN
CORROSION RESISTANT STEEL RIVETS	65,000 PSI MIN
- TOLERANCES:** TOLERANCES ARE ±.005 FOR DECIMAL DIMENSIONS, UNLESS OTHERWISE SPECIFIED. LENGTH TOLERANCES SHALL BE IN ACCORDANCE WITH ANSI B18.7.

Ⓝ DENOTES CHANGE

INCH-POUND

PREPARING ACTIVITY: ARMY-AR CUSTODIANS: ARMY-AR NAVY-OS AIR FORCE-99 DLA- REVIEW: ARMY-EA, GL MI AIR FORCE-82 DLA-S NSA-NS USER: ARMY-ER, ME NAVY-MC PROJECT NUMBER: 5320-0778	MILITARY SPECIFICATION SHEET TITLE RIVET - TUBULAR, OVAL HEAD	SPECIFICATION SHEET NUMBER MS16535J 26 MAY 92 SUPERSEDING MS16535H 21 NOV 89 ANSC- N/A FSC- 5320
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.		Page 1 of 3

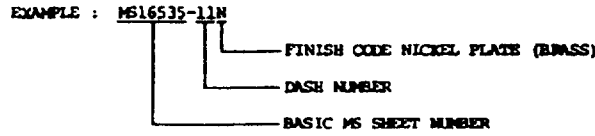
THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE BOOKS SPECIFIED IN THE SOLICITATION: FF-R-556

THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

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THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

5. PART NUMBER. THE PART NUMBER SHALL CONSIST OF THE BASIC MS SHEET NUMBER, FOLLOWED BY A DASH NUMBER TAKEN FROM TABLE II. ADD "N" AS A SUFFIX TO DASH NUMBER FOR NICKEL PLATING TO BRASS MATERIAL. ADD "A" IN LIEU OF DASH FOR ALUMINUM ALLOY, COMPOSITION 5056-H32, (UNS A95056).



- EXAMPLE:
- MS16535-1 RIVET, CARBON STEEL, CADMIUM PLATED.
 - MS16535-11 RIVET, BRASS, BLACK (OXIDE) FINISH.
 - MS16535-11N RIVET, BRASS, NICKEL PLATE FINISH.
 - MS16535-21 RIVET, ALUMINUM ALLOY, COMPOSITION NO. 2117-T4, (UNS A92117).
 - MS16535A21 RIVET, ALUMINUM ALLOY, COMPOSITION NO. 5056-H32, (UNS A95056).
 - MS16535-424 RIVET, CORROSION RESISTANT STEEL PASSIVATED

- NOTES:
1. DIMENSIONS. ALL DIMENSIONS ARE IN INCHES.
 2. 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.
 3. 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.
 4. ADDITIONAL SUPERSESSION DATA - SUPERSEDES: MS20450 IN PART.

PREPARING ACTMITY: ARMY-AR CUSTODIANS: ARMY-AR NAVY-OS AIR FORCE-99 DLA- REVIEW: ARMY-EA, GL, MI, AIR FORCE-82 DLA-IS NSA-NS USER: ARMY-ER, ME, NAVY-MC PROJECT NUMBER: 5320-0779	MILITARY SPECIFICATION SHEET TITLE RIVET-TUBULAR, OVAL HEAD	SPECIFICATION SHEET NUMBER MS16535J 26 MAY 92
		SUPERSEDING MS16535H 21 NOV 89
		AMSC- N/A FSC- 5320
DISTRIBUTION STATEMENT <input checked="" type="checkbox"/> Approved for public release; distribution is unlimited.		Page <u>2</u> of <u>3</u>

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TABLE 1. OVAL RIVETS AND DIMENSIONS.

LENGTH	CARBON STEEL				BRASS				NICKEL ALLOY				NICKEL COPPER				ZINC PLATE				OVAL J				
	NOMINAL DIMENSIONS				NOMINAL DIMENSIONS				NOMINAL DIMENSIONS				NOMINAL DIMENSIONS				NOMINAL DIMENSIONS								
	.061	.089	.123	.146	.108	.146	.188	.230	.061	.089	.123	.146	.188	.230	.061	.089	.123	.146	.188	.230		.061	.089	.123	.146
.078	51	111	131	146	402	63	111	131	151	21	35	51	67	83	99	111	123	131	146	162	188	210	230	250	270
.109	52	112	132	147	403	64	112	132	152	22	36	52	68	84	100	112	124	132	147	163	189	211	231	251	271
.141	53	113	133	148	404	65	113	133	153	23	37	53	69	85	101	113	125	133	148	164	190	212	232	252	272
.172	54	114	134	149	405	66	114	134	154	24	38	54	70	86	102	114	126	134	149	165	191	213	233	253	273
.203	55	115	135	150	406	67	115	135	155	25	39	55	71	87	103	115	127	135	150	166	192	214	234	254	274
.234	56	116	136	151	407	68	116	136	156	26	40	56	72	88	104	116	128	136	151	167	193	215	235	255	275
.265	57	117	137	152	408	69	117	137	157	27	41	57	73	89	105	117	129	137	152	168	194	216	236	256	276
.296	58	118	138	153	409	70	118	138	158	28	42	58	74	90	106	118	130	138	153	169	195	217	237	257	277
.327	59	119	139	154	410	71	119	139	159	29	43	59	75	91	107	119	131	139	154	170	196	218	238	258	278
.358	60	120	140	155	411	72	120	140	160	30	44	60	76	92	108	120	132	140	155	171	197	219	239	259	279
.389	61	121	141	156	412	73	121	141	161	31	45	61	77	93	109	121	133	141	156	172	198	220	240	260	280
.420	62	122	142	157	413	74	122	142	162	32	46	62	78	94	110	122	134	142	157	173	199	221	241	261	281
.451	63	123	143	158	414	75	123	143	163	33	47	63	79	95	111	123	135	143	158	174	200	222	242	262	282
.482	64	124	144	159	415	76	124	144	164	34	48	64	80	96	112	124	136	144	159	175	201	223	243	263	283
.513	65	125	145	160	416	77	125	145	165	35	49	65	81	97	113	125	137	145	160	176	202	224	244	264	284
.544	66	126	146	161	417	78	126	146	166	36	50	66	82	98	114	126	138	146	161	177	203	225	245	265	285
.575	67	127	147	162	418	79	127	147	167	37	51	67	83	99	115	127	139	147	162	178	204	226	246	266	286
.606	68	128	148	163	419	80	128	148	168	38	52	68	84	100	116	128	140	148	163	179	205	227	247	267	287
.637	69	129	149	164	420	81	129	149	169	39	53	69	85	101	117	129	141	149	164	180	206	228	248	268	288
.668	70	130	150	165	421	82	130	150	170	40	54	70	86	102	118	130	142	150	165	181	207	229	249	269	289
.699	71	131	151	166	422	83	131	151	171	41	55	71	87	103	119	131	143	151	166	182	208	230	250	270	290
.730	72	132	152	167	423	84	132	152	172	42	56	72	88	104	120	132	144	152	167	183	209	231	251	271	291
.761	73	133	153	168	424	85	133	153	173	43	57	73	89	105	121	133	145	153	168	184	210	232	252	272	292
.792	74	134	154	169	425	86	134	154	174	44	58	74	90	106	122	134	146	154	169	185	211	233	253	273	293
.823	75	135	155	170	426	87	135	155	175	45	59	75	91	107	123	135	147	155	170	186	212	234	254	274	294
.854	76	136	156	171	427	88	136	156	176	46	60	76	92	108	124	136	148	156	171	187	213	235	255	275	295
.885	77	137	157	172	428	89	137	157	177	47	61	77	93	109	125	137	149	157	172	188	214	236	256	276	296
.916	78	138	158	173	429	90	138	158	178	48	62	78	94	110	126	138	150	158	173	189	215	237	257	277	297
.947	79	139	159	174	430	91	139	159	179	49	63	79	95	111	127	139	151	159	174	190	216	238	258	278	298
.978	80	140	160	175	431	92	140	160	180	50	64	80	96	112	128	140	152	160	175	191	217	239	259	279	299
1.009	81	141	161	176	432	93	141	161	181	51	65	81	97	113	129	141	153	161	176	192	218	240	260	280	300

PREPARING ACTIVITY: ARMY-AR
 CUSTODIANS: ARMY-AR NAVY-OS
 REVIEW: AIR FORCE-99 DLA-
 ARMY-EA, GL, MI AIR FORCE-82
 DLA-IS, NSA-NS
 USER: ARMY-ER, ME NAVY-MC
 PROJECT NUMBER: 5320-0779

MILITARY SPECIFICATION SHEET
 TITLE
 RIVET-TUBULAR, OVAL HEAD

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 MS16535J 26 MAY 92
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