

REV.
C

AS90708™

FEDERAL SUPPLY CLASS
5325

RATIONALE

INCORPORATE REVISIONS REQUESTED BY U.S. ARMY. ADD HEX-CHROME FREE ZINC-NICKEL PLATING AND NEW PART NUMBERS, REVISE PASSIVATION DETAILS, AND UPDATE REFERENCES.

NOTICE

THE INITIAL SAE PUBLICATION OF THIS DOCUMENT WAS TAKEN DIRECTLY FROM U.S. MILITARY STANDARD MS90708C. THIS SAE STANDARD MAY RETAIN THE SAME PART NUMBERS ESTABLISHED BY THE ORIGINAL MILITARY DOCUMENT.

ANY REQUIREMENTS ASSOCIATED WITH QUALIFIED PRODUCTS LISTS (QPL'S) MAY CONTINUE TO BE MANDATORY FOR DoD CONTRACTS. REQUIREMENTS RELATING TO QPL'S HAVE NOT BEEN ADOPTED BY THE SAE FOR THIS STANDARD AND ARE NOT PART OF THIS SAE DOCUMENT.

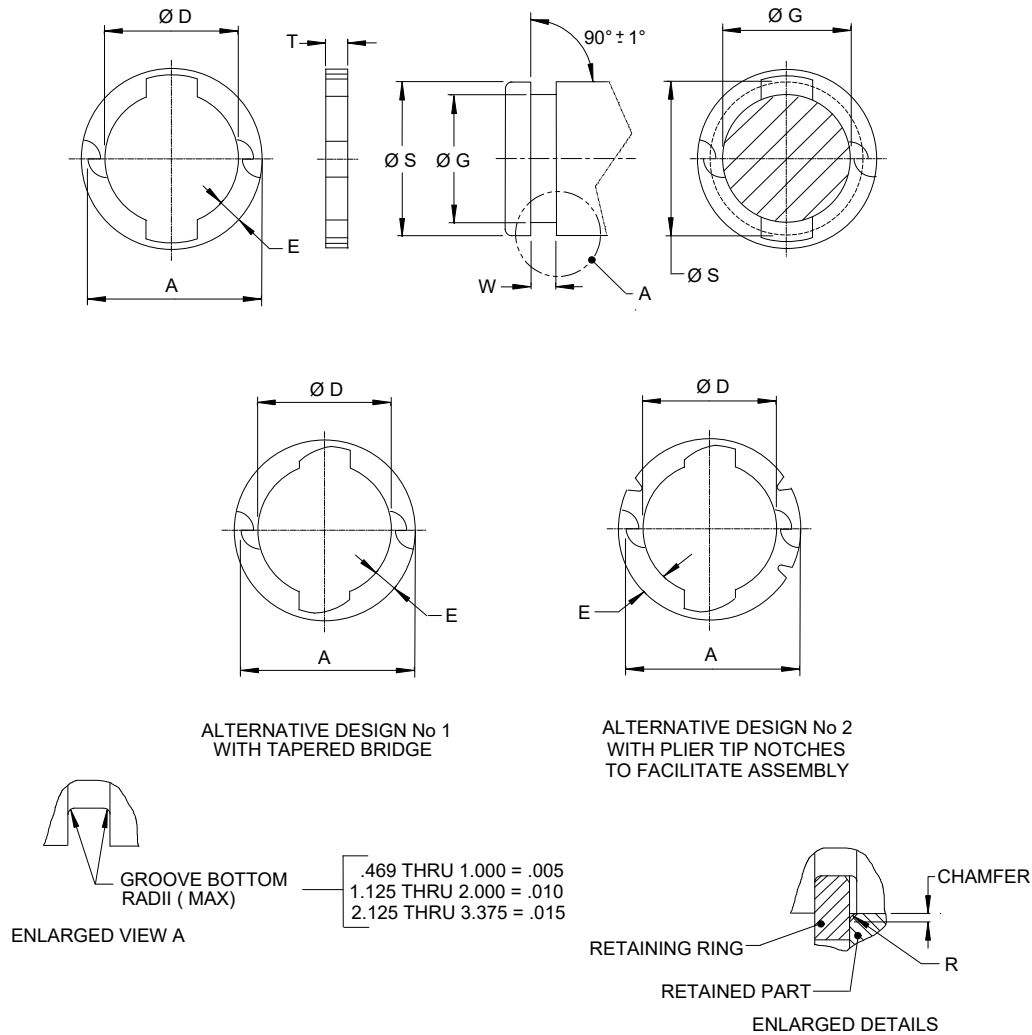
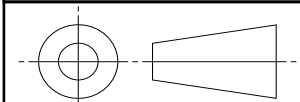


FIGURE 1

For more information on this standard, visit
<https://www.sae.org/standards/content/AS90708C/>

THIRD ANGLE PROJECTION



CUSTODIAN: E-25

PROCUREMENT SPECIFICATION: MIL-DTL-21248



AEROSPACE STANDARD

RING, RETAINING,
EXTERNAL, INTERLOCKING

AS90708™
SHEET 1 OF 7

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THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF MIL-DTL-21248.

TABLE 1 - DIMENSIONS

ØS SHAFT (REF)	ØD FREE (REF) 1/	A WIDTH ACROSS LUGS		E		T THICKNESS 2/		ØG		W WIDTH		R 4/	CHAMFER 4/
								RECOMMENDED GROOVE (REF)		OF RETAINED PART (REF)			
		BASIC	TOL	BASIC	TOL	BASIC	TOL	BASIC	TOL	BASIC	TOL	MAX	MAX
.469	.414	.585	±.003	.105	±.005	.035	±.002	.419	±.0015	.040	+.003 -.000	.052	.040
.500	.459	.625	±.004	.105		.035		.464	.004	.040		.052	.040
.594	.538	.710		.105		.035		.544	FIM 3/	.040		.052	.040
.625	.569	.740		.105		.035		.575	±.002 .004 FIM 3/	.040		.052	.040
.669	.593	.815	±.005	.135	±.006	.042		.599		.047	+.004 -.000	.065	.050
.750	.673	.894		.135		.042		.680		.047		.065	.050
.781	.703	.925		.135		.042		.711	FIM 3/	.047		.065	.050
.875	.796	1.017		.135		.042		.805	±.003 .004 FIM 3/	.047		.065	.050
.984	.863	1.172	±.006	.188	±.007	.050		.872		.056	+.004 -.000	.086	.066
1.000	.863	1.172		.188		.050		.872		.056		.081	.062
1.125	1.002	1.311		.188		.050		1.013	±.003 .005 FIM 3/	.056		.086	.066
1.188	1.064	1.373		.188		.050		1.075		.056		.086	.066
1.250	1.126	1.435	±.007	.188		.050		1.138		.056		.086	.066
1.375	1.250	1.559		.188		.050		1.263		.056		.086	.066
1.500	1.374	1.683		.188		.050		1.388		.056		.086	.066
1.562	1.412	1.778	±.008	.222	±.007	.062	±.003	1.427	±.005 .005 FIM 3/	.068	+.005 -.000	.100	.077
1.625	1.474	1.840		.222		.062		1.489		.068		.100	.077
1.750	1.597	1.963		.222		.062		1.614		.068		.100	.077
1.772	1.597	1.963		.222		.062		1.614		.068		.094	.072
1.875	1.721	2.090	±.010	.222	±.008	.062		1.739	±.006 .006 FIM 3/	.068	+.005 -.000	.100	.077
1.969	1.779	2.209		.262		.078		1.797		.086		.114	.088
2.000	1.809	2.242		.262		.078		1.828		.086		.114	.088
2.125	1.933	2.364		.262		.078		1.953	±.005 .006 FIM 3/	.086		.114	.088
2.156	1.933	2.364	±.012	.262	±.008	.078		1.953		.086		.104	.080
2.250	2.057	2.488		.262		.078		2.078		.086		.114	.088
2.375	2.180	2.610		.262		.078		2.203		.086		.114	.088
2.500	2.304	2.734		.262		.078		2.328	±.006 .006 FIM 3/	.086		.114	.088
2.625	2.428	2.858	±.015	.262		.078		2.453		.086		.114	.088
2.750	2.518	3.049		.323		.093		2.544		.103		.143	.110
2.875	2.642	3.172		.323		.093		2.669		.103		.143	.110
3.000	2.754	3.294	±.015	.329	±.008	.093		2.794	±.006 .006 FIM 3/	.103		.143	.110
3.250	3.013	3.542		.325		.093		3.044		.103		.144	.111
3.375	3.114	3.761		.395		.109		3.145		.120		.182	.140

1/ ØD = DIMENSION D SHOULD NOT BE USED AS PART OF AN INSPECTION PROCEDURE, USE DIMENSION A.

2/ T = THICKNESS T APPLIES TO UNPLATED RINGS. FOR CORROSION RESISTANT STEEL AND PLATED RINGS ±.002 SHOULD BE ADDED TO THE MAXIMUM TOLERANCE, I.E., ±.002 SHOULD BE +.004/-.002.

3/ FIM = FULL INDICATOR MOVEMENT; IS THE MAXIMUM ALLOWABLE DEVIATION OF CONCENTRICITY BETWEEN THE GROOVE AND THE SHAFT.

4/ R AND CHAMFER = RADIUS AND CHAMFER ALLOWABLE ON PARTS TO BE RETAINED BY THE RING. THRUST LOADS FOR RINGS, RETAINING PARTS WITH CORNER RADII OR CHAMFERS ARE TABULATED IN TABLE 6.

	AEROSPACE STANDARD		AS90708™ SHEET 2 OF 7	REV. C
	RING, RETAINING, EXTERNAL, INTERLOCKING			

REQUIREMENTS:

NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

- 1. CLASSIFICATION: RETAINING RINGS FURNISHED UNDER THIS STANDARD SHALL BE TYPE I, CLASS 8 OF THE PROCUREMENT SPECIFICATION MIL-DTL-21248.
- 2. MATERIAL:
 - a. CARBON SPRING STEEL, GRADE 1060 THROUGH 1095 (UNS G10600 THROUGH G10950) IN ACCORDANCE WITH ASTM A568/A568M OR ASTM A684/A684M.
 - b. CORROSION RESISTANT STEEL IN ACCORDANCE WITH AMS5520 (UNS S15700).
 - c. BERYLLIUM COPPER ALLOY NUMBER 170 (UNS C17000) OR ALLOY NUMBER 172 (UNS C17200) IN ACCORDANCE WITH ASTM B194.
- 3. HARDNESS:

TABLE 2 - HARDNESS

Ø SHAFT (REF)	CARBON STEEL	CORROSION RESISTANT STEEL	BERYLLIUM COPPER
.469 TO .625, INCL	66.5 TO 71.5 HR30N	44.0 TO 51.0 HRC	56.5 TO 62.0 HR30N
.669 TO 1.500, INCL	52.5 TO 59.0 HR45N	44.0 TO 51.0 HRC	--
1.562 TO 3.375, INCL	48.0 TO 53.0 HRC	44.0 TO 51.0 HRC	--
.669 TO 1.875, INCL	--	--	37.0 TO 43.0 HRC

- 4. PROTECTIVE FINISH OR SURFACE TREATMENT:
 - a. CARBON STEEL: SHALL BE AS SPECIFIED (SEE TABLE 3 OR 4):
 - 1. CADMIUM PLATE IN ACCORDANCE WITH AMS-QQ-P-416, TYPE II, CLASS 3 OR ASTM B696, TYPE II, CLASS 5.
 - 2. ZINC COAT IN ACCORDANCE WITH ASTM B633, TYPE II, CLASS FE/ZN5, OR ASTM B695, TYPE II, CLASS 5.
 - 3. PHOSPHATE COAT IN ACCORDANCE WITH MIL-DTL-16232, TYPE Z, CLASS 2.
 - 4. HEX-CHROME FREE ZINC-NICKEL PLATE IN ACCORDANCE WITH AMS2461, TYPE II, GRADE A OR GRADE B.
 - b. CORROSION RESISTANT STEEL – SHALL BE CLEANED, DESCALED AND PASSIVATED IN ACCORDANCE WITH AMS2700, METHOD 1, TYPE 8, OR METHOD 2. POST CLEANING TREATMENT IS PROHIBITED.
- 5. PART NUMBER: THE BASIC MS PART NUMBER IS FOLLOWED BY A DASH NUMBER TAKEN FROM TABLE 3 OR 4.

EXAMPLE: MS90708-1200 IS THE PART NUMBER FOR A CARBON STEEL CADMIUM PLATE, EXTERNAL INTERLOCKING RETAINING RING FOR USE ON A 2.000 DIAMETER SHAFT.
- 6. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
- 7. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS DOCUMENT AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS DOCUMENT SHALL TAKE PRECEDENCE.
- 8. UNLESS OTHERWISE SPECIFIED, ISSUES OF REFERENCED DOCUMENTS ARE THOSE IN EFFECT AT THE TIME OF SOLICITATION.
- 9. UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.