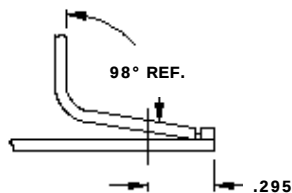
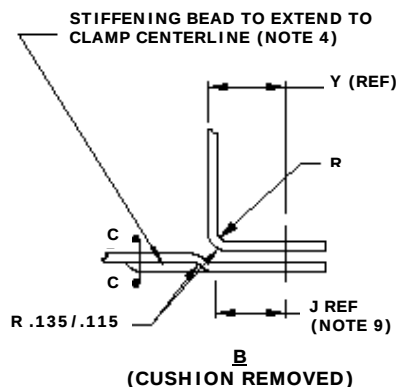
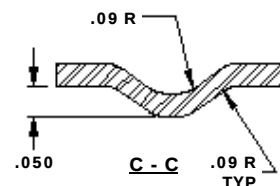
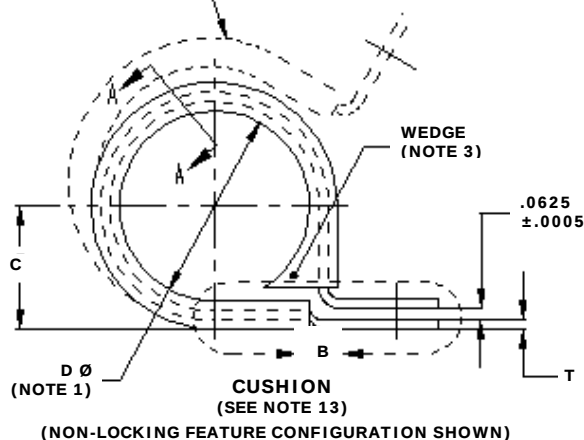
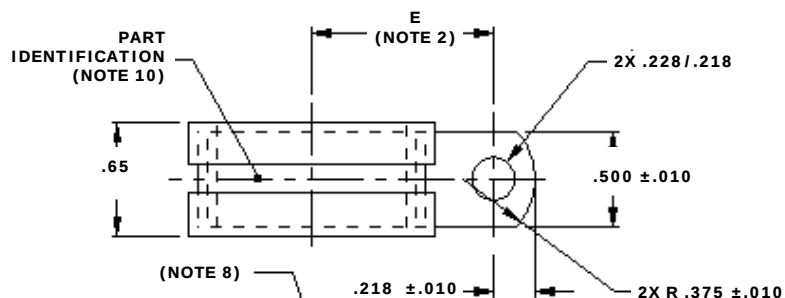
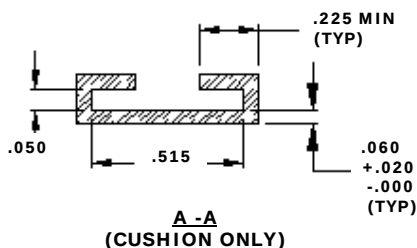


RATIONALE

THE LOOP CLAMPS DEFINED HEREIN ARE DESIGNED FOR NEW APPLICATIONS AND TO BE A DROP IN REPLACEMENT OPTION FOR THE EQUIVALENT SIZE (DASH NUMBER) M85052/1 LOOP CLAMPS. THE FLUOROSILICONE CUSHION MATERIAL DEFINED HEREIN PROVIDES A MORE ROBUST ABILITY TO RESIST CRACKS IN THE CUSHION MATERIAL CAUSED BY THE EFFECTS OF OZONE/UV COMPARED TO THE PERFORMANCE OF M85052/1



LOCKING FEATURE FOR CODE "L" ONLY.
(SEE NOTE 18)



A - A
(CUSHION ONLY)

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CLAMP, LOOP TYPE, CUSHIONED SUPPORT

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TABLE 1

BASIC NO. AS5874 SIZE CODE	C	OD (NOTE 1)	E ±.032 (NOTE 2)	J	R RADIUS ±.010	T TOLERANCE PER AMS 2242	Y
ASXXXXF2 ()	0.192	0.125	0.468	-	0.090	0.020	0.325
ASXXXXF3 ()	0.224	0.188	0.499	-			
ASXXXXF4 ()	0.255	0.250	0.530	0.235			
ASXXXXF5 ()	0.286	0.312	0.561				
ASXXXXF6 ()	0.318	0.375	0.592				
ASXXXXF7 ()	0.349	0.438	0.624				
ASXXXXF8 ()	0.380	0.500	0.655	0.256			
ASXXXXF9 ()	0.423	0.563	0.741				
ASXXXXF10 ()	0.454	0.625	0.772				
ASXXXXF11 ()	0.486	0.688	0.804				
ASXXXXF12 ()	0.517	0.750	0.835				
ASXXXXF13 ()	0.548	0.813	0.866				
ASXXXXF14 ()	0.580	0.875	0.898		0.125	0.032	0.368
ASXXXXF15 ()	0.611	0.938	0.929				
ASXXXXF16 ()	0.642	1.000	0.960				
ASXXXXF17 ()	0.681	1.063	1.001				
ASXXXXF18 ()	0.712	1.125	1.032				
ASXXXXF19 ()	0.744	1.188	1.064				
ASXXXXF20 ()	0.775	1.250	1.095	0.262		0.040	0.370
ASXXXXF21 ()	0.806	1.313	1.126				
ASXXXXF22 ()	0.838	1.375	1.158				
ASXXXXF23 ()	0.869	1.438	1.189				
ASXXXXF24 ()	0.900	1.500	1.220				
ASXXXXF32 ()	1.150	2.000	1.470				

MATERIAL

BAND:

PH = 17-7 PH. CORROSION RESISTANT STEEL PER MIL-S-25043 OR AMS 5528. STRESS RELIEVE AND HEAT TREAT TO TH1100 CONDITION PER MIL-H-6875, AFTER FORMING.

CUSHION (NOTE 13)

MOLDED, FABRIC REINFORCED, (NOTE 15), FLUOROSILICONE RUBBER PER AMS-R-25988, TYPE II, CLASS 1, GRADE 60, COLOR: ROYAL BLUE.

FINISH

BAND: CRES, TYPE 17-7; PASSIVATE PER AMS-QQ-P-35 TYPE II.
CUSHION: NONE

CUSHION MATERIAL CODE: F = FLUOROSILICONE

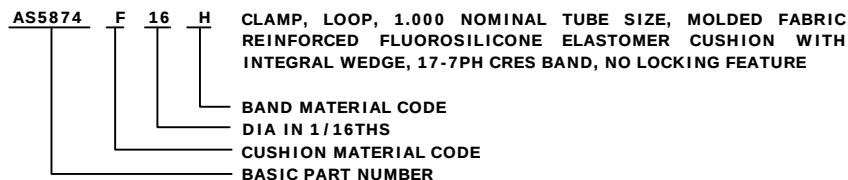
BAND MATERIAL AND LOCKING FEATURE CODE:

H = TYPE 17-17 PH CRES WITHOUT LOCKING FEATURE
L = TYPE 17-17 PH CRES WITH LOCKING FEATURE (NOTE 18)

PROCUREMENT:

THE LOOP CLAMPS DEFINED HEREIN SHALL MEET THE REQUIREMENTS DEFINED IN NOTES 12 AND 17.

EXAMPLE OF APPROVED NUMBER CALLOUT:



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TABLE 2 - PHYSICAL PROPERTIES

UNLESS OTHERWISE SPECIFIED, RESULTS ARE AN AVERAGE OF 5 SPECIMENS.
TOLERANCE ON TEMPERATURE IS $\pm 5^{\circ}\text{F}$.

FLUID COMPATABILITY		ALLOWABLE CHANGE FROM ACTUAL ORIGINAL PROPERTIES AFTER:			
TEST	TEST METHOD	REQUIRED ORIGINAL	FUEL IMMERSION MIL-DTL-5624 JP-4 168 HOURS AT 100°F (SEE NOTE 11) 65 TO 75	HYDRAULIC IMMERSION MIL-H-5606 70 HOURS AT 156°F (SEE NOTE 11) 60 TO 75	DIP TEST (1)
HARDNESS, DUROMETER "A"	ASTM D 2240	55 TO 65 (4)			65 TO 80
TENSILE STRENGTH-PSI	ASTM D 412 (2)	720 MIN	640 MIN	610 MIN	680 MIN
ELONGATION - %	ASTM D 412 (2)	155 MIN	155 MIN	170 MIN	120 MIN
TEAR STRENGTH-PP1	ASTM D 624, DIE B	240 MIN	250 MIN	235 MIN	230 MIN
SPECIFIC GRAVITY	ASTM D 471	AS MEASURED (3)	-	-	-
VOLUME CHANGE- %	ASTM D 471				
1. AFTER CONDITIONING		-	+15 % MAX	+10 % MAX	± 5 % MAX
2. AFTER 24 HOURS AIR DRY		-	+5 % MAX	+5 % MAX	+5 % MAX

- (1) DIP TEST: SAMPLES SHALL BE DIPPED IN P-D-680 SOLVENT AND ALLOWED TO DRY AT ROOM TEMPERATURE FOR 24 HOURS. THIS PROCEDURE SHALL BE REPEATED 10 TIMES.
- (2) TESTS SHALL BE IN CONDUCTED ACCORDANCE WITH ASTM D412 ON THE FABRIC REINFORCED CUSHION TEST SPECIMEN (1/2 INCH, WIDE STRIPS CUT FROM ACTUAL CUSHIONS FROM FABRIC WEAVE AT 45 INCHES TO THE DIRECTION OF PULL). THE TENSILE STRENGTH AND PERCENT ELONGATION SHALL BE MEASURED WHEN THE FABRIC REINFORCING MATERIAL BEGINS TO SEPARATE FROM THE ELASTOMER. TENSILE STRENGTH WILL BE BASED ON OVERALL THICKNESS OF RUBBER AND FABRIC REINFORCING MATERIAL. SPECIMEN FAILURES DUE TO FABRIC SEPARATION AT THE TEST FIXTURE JAWS SHALL BE DISREGARDED AND ANOTHER SAMPLE TESTED.
- (3) THE PERMISSIBLE VARIATION IN SPECIFIC GRAVITY DURING ACTUAL PRODUCTION FOR THAT VALUE ESTABLISHED IN FIRST ARTICLE TESTS SHALL BE $\pm .03$.
- (4) TABULATED HARDNESS RANGE APPLICABLE TO THE AS RECEIVED, NON-SUPPORTED CONDITION. THE REQUIRED HARDNESS, RANGE FOR THE AS MOLDED CONDITION IS 65 TO 80.

NOTES: UNLESS OTHER WISE SPECIFIED

1. DIAMETER "D" IS THE NOMINAL DIAMETER FOR WHICH A CLAMP SIZE IS INTENDED FOR USE. DIAMETER "D" SHALL BE VERIFIED BY THE "DIAMETRAL RETENTION" TEST PER MIL-C-85052.
2. DIMENSION "E" SHALL BE MEASURE WITH THE CLAMP INSTALLED ON A MANDREL OF "D" DIAMETER $\pm .001$ AND A .0625 $\pm .005$ SPACER BETWEEN THE UPPER AND LOWER FEET.
3. WEDGE SHALL BE REQUIRED ON -6 AND LARGER CLAMP CUSHIONS. THE WEDGE SHALL BE MOLDED AS AN INTEGRAL PART OF THE CUSHION AND CONTOURED TO FIT "D" DIAMETER. WEDGE SHALL TOUCH LOWER/BASE PORTION OF CUSHION WHEN CLAMP IS INSTALLED ON A MANDREL DEFINED IN PROCUREMENT SPECIFICATION AND WHEN THERE IS NO GAP BETWEEN BOTH FEET.
4. STIFFENING BEAD SHALL BE REQUIRED ON SIZE -4 AND LARGER CLAMPS. SIZE -2 AND -3 CLAMPS USE A PLAIN JOGGLE ONLY. ALL RADII ON THE STIFFENING BEAD SHALL BE SMOOTH AND BLENDED.
5. SEE SAE AS5874 DRAWING.
6. METAL BAND SHALL HAVE ALL BURRS, SHARP EDGES, AND SCALE REMOVED.
7. DIMENSIONAL TOLERANCES AND SYMBOLS PER ANSI Y14.5M-1982.
8. FIGURE IN PHANTOM SHOWS THE APPROXIMATE FREE STATE, I.E. THE "AS RECEIVED" POSITION/CONDITION OF THE CLAMP.
9. REFERENCE DIMENSIONS "J" AND "Y" APPLY TO FEATURES INTENDED TO PROVIDE MAXIMUM SUPPORT FOR THE LOWER FOOT BY CLOSELY FITTING THE UPPER FOOT BEND RADIUS TO THE STIFFENING BEAD RADIUS WHEN CLOSED AGAINST EACH OTHER.
10. EXCEPT FOR CLAMP BAND SIZES -2, -3 AND -4 SHALL BE THE COMPLETE VENDOR'S DESIGNATION AND MANUFACTURER'S NAME ("UMP" IS ACCEPTABLE OPTION FOR UMPCO) OR TRADEMARK OR CAGE CODE. IDENTIFICATION SHALL BE IMPRESSION STAMPED ON THE BAND IN AN AREA NOT COVERED BY THE CUSHION. ALL IDENTIFICATION SHALL BE LOCATED ABOVE THE TUBE/PAYLOAD THEORETICAL CENTERLINE.
11. PROPERTY MEASUREMENTS SHALL BE PERFORMED IMMEDIATELY AFTER REMOVAL FROM THE IMMERSION BATH.
12. IN ADDITION TO ADHERING TO THE APPLICABLE MATERIAL SPECIFICATIONS DEFINED HEREIN FOR THE CLAMP CUSHIONS AND CLAMP BANDS, THE CLAMP ASSEMBLIES (BAND AND INSTALLED CUSHION) ARE QUALIFIED BY PERFORMANCE AND SHALL HAVE SUCCESSFULLY COMPLETED THE PERFORMANCE TESTING REQUIREMENTS LISTED BELOW. THE MOLDED CUSHION MATERIAL SHALL SUCCESSFULLY COMPLETE THE FLUID COMPATIBILITY TESTING DEFINED WITHIN TABLE 2, PHYSICAL PROPERTIES.

DIAMETRAL RETENTION PER MIL-C-85052.

COMPRESSION SET PER MIL-C-85052, AIR AGE AT 212°F, NOT TO EXCEED FOR AVERAGE OF 3 SPECIMENS.

VIBRATION AND TRANSMISSIBILITY PER MIL-C-85052.

HORIZONTAL BURN TEST PER FAR 25.853 (b-3)

SPECIMEN/SLAB: APPROXIMATELY 3.00 (W) X 5.00 (L)

MAXIMUM BURN RATE: 2.5 INCHES PER MINUTE.

RETENTION OF QUALIFICATION REQUIRES THAT EACH APPROVED VENDOR IN CONJUNCTION WITH THE CUSHION MOLDER PERFORM THE ABOVE DEFINED VIBRATION TESTING AND THE FLUID COMPATIBILITY TESTING DEFINED IN TABLE 2 NO LESS THAN ONCE EVERY (6) YEARS FROM THE COMPLETION DATE OF THE INITIAL TESTING.

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NOTES(CONTINUED)

13. CUSHION GEOMETRY SHALL BE EQUIVALENT TO THAT DEFINED BY MIL-C-85052/3. THE FABRIC REINFORCING MATERIAL SHALL BE MOLDED WITH THE CUSHION SUCH THAT IT IS ON THE BAND SIDE OF THE CLAMP CUSHION. THE LAY OF THE FABRIC WEAVE SHALL BE ORIENTED AT A 45° ANGLE AS SHOWN BELOW.



14. WHEN MIL-C-85052/4 CLAMP SUPPORTS ARE USED, MAXIMUM TUBE OVERHANG SHALL BE ½ TUBE OD. NOTE: THE SUPPORT CAN BE DETRIMENTAL IF THE CLAMP IS NOT FULLY SUPPORTED.
15. THE FABRIC SUPPORT MATERIAL SHALL BE EQUIVALENT TO THAT USED IN THE FABRICATION OF QUALIFIED M85052/3 CLAMP CUSHIONS.
16. ALL ASPECTS OF PRODUCTION CLAMP ASSEMBLY FABRICATION SHALL BE IN STRICT ACCORDANCE WITH THE MATERIALS, PROCESSES, AND SOURCES USED TO MANUFACTURE THE QUALIFIED CLAMP ASSEMBLIES.

CUSHIONS SHALL BE MOLDED FROM A COMBINATION OF: RAW MATERIAL SUPPLIER, FABRIC MANUFACTURER, WASH-COAT PROVIDER, AND CALENDARING OPERATION PROVIDER WHICH WAS USED TO PRODUCE CUSHIONS THAT, AS AN ASSEMBLY, SUCCESSFULLY COMPLETED THE PERFORMANCE TESTING AND PHYSICAL PROPERTIES REQUIREMENTS DEFINED HEREIN.
17. EACH LOT OF FLUOROSILICONE CUSHION RAW MATERIAL SHALL BE CERTIFIED TO THE HARDNESS, TENSILE STRENGTH, ELONGATION, TEAR STRENGTH, AND SPECIFIC GRAVITY REQUIREMENTS DEFINED IN TABLE 2.
18. LOCKING FEATURE SHALL BE ACCOMPLISHED BY A TONGUE-IN-BRIDGE METHOD LOCATED AT THE END OF THE FEET.

DESIGN INFORMATION

1. THE LOOP CLAMPS DEFINED HEREIN ARE DESIGNED FOR NEW APPLICATION AND TO BE A DROP-IN REPLACEMENT OPTION FOR THE EQUIVALENT SIZE (DASH NUMBER) M85052/1 LOOP CLAMPS. THE FLUOROSILICONE CUSHION MATERIAL DEFINED HEREIN PROVIDES A MORE ROBUST ABILITY TO RESIST CRACKS IN THE CUSHION MATERIAL CAUSED BY THE EFFECTS OF THE OZONE/UV AS COMPARED TO THE PERFORMANCE OF M85052/1. THE LOOP CLAMPS HEREIN ARE INTENDED TO BE USED WITHIN THE FOLLOWING SYSTEMS:

ALL AROMATIC FUEL SYSTEM APPLICATIONS REQUIRING A HIGH DEGREE OF CUSHION EXPOSURE TO SYSTEM FLUID. ALL FLUID AND ELECTRICAL SYSTEMS ON AIRCRAFT AND AEROSPACE VEHICLES USING PETROLEUM BASED HYDRAULIC SYSTEMS

NOTE: THE FLUOROSILICONE MATERIAL CUSHIONS USED ON THESE CLAMPS ARE NOT RESISTANT TO PHOSPHATE ESTER BASED FLUIDS (E.G., SKYDROL).
2. IT IS RECOMMENDED THAT THE LOOP CLAMPS DEFINED HEREIN BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDED MOUNTING METHODS AND CORRESPONDING VIBRATION RATINGS PER ARP1897.
3. OPERATING TEMPERATURE RANGE: -65° TO +275°F.

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