FEDERAL SUPPLY CLASS
6145

RATIONALE

AS81044/6A HAS BEEN REAFFIRMED TO COMPLY WITH THE SAE FIVE-YEAR REVIEW POLICY.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE WIRE DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE ISSUE IN EFFECT OF SPECIFICATION AS81044.

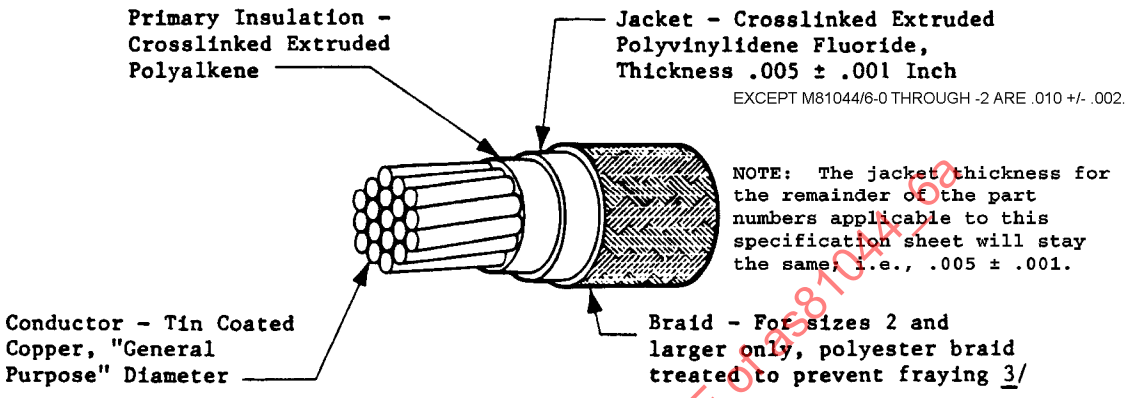
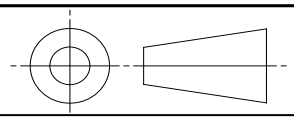


FIGURE 1 – AS81044/6 CONSTRUCTION

SAENORM.COM : Click to view the full PDF of as81044_6a

ISSUED 1998-08 REVISED 2011-10 REAFFIRMED 2022-07

THIRD ANGLE PROJECTION



For more information on this standard, visit
https://www.sae.org/standards/content/AS81044/6A/

CUSTODIAN: AE-8D

PROCUREMENT SPECIFICATION: AS81044

SAE INTERNATIONAL

AEROSPACE STANDARD

WIRE, ELECTRIC,
CROSSLINKED POLYALKENE INSULATED,
TIN-COATED COPPER, NORMAL WEIGHT,
600 VOLT, 150 °C

SAE Executive Standards Committee Rules provide that: " This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2022 SAE International
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)** **Tel: +1 724-776-4970 (outside USA)**
Fax: 724-776-0790 **Email: CustomerService@sae.org** **SAE WEB ADDRESS: http://www.sae.org**

TABLE 1 – CONSTRUCTION DETAILS

PART NO. 1/	WIRE SIZE	STRANDING (NUMBER OF STRANDS X AWG GAGE OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (INCHES)		FINISHED WIRE			
			(MIN)	(MAX)	RESISTANCE AT 20 °C (68 °F) (OHMS/1000 FT). (MAX)	DIAMETER (INCHES)	WEIGHT (LBS/1000 FT)	
							(NOM) 2/	(MAX)
M81044/6-24-*	24	19 X 36	.023	.026	26.2	.057 ± .002	2.8	3.0
M81044/6-22-*	22	19 X 34	.029	.033	16.2	.069 ± .003	4.1	4.3
M81044/6-20-*	20	19 X 32	.037	.041	9.88	.078 ± .003	5.8	6.1
M81044/6-18*	18	19 X 30	.046	.051	6.23	.088 ± .003	8.3	8.7
M81044/6-16*	16	19 X 29	.052	.058	4.81	.097 ± .004	10.3	10.9
M81044/6-14-*	14	19 X 27	.065	.073	3.06	.115 ± .004	15.5	16.2
M81044/6-12-*	12	37 X 28	.084	.090	2.02	.131 ± .004	23.0	24.2
M81044/6-10-*	10	37 X 26	.106	.114	1.26	.161 ± .005	35.3	36.5
M81044/6-8-*	8	133 X 29	.158	.173	.701	.219 ± .006	64.8	68.3
M81044/6-6-*	6	133 X 27	.198	.217	.445	.269 ± .007	99.2	108.0
M81044/6-4-*	4	133 X 25	.250	.274	.280	.325 ± .008	158.0	166.0
M81044/6-2-*	2	665 X 30	.320	.340	.183	.418 ± .013	244.0	265.0
M81044/6-1-*	1	817 X 30	.360	.380	.149	.460 ± .015	295.0	320.0
M81044/6-0-*	0	1045 X 30	.405	.425	.116	.508 ± .017	370.0	399.0

1/ PART NO.: THE ASTERISKS IN THE PART NUMBER COLUMN, TABLES 1 AND 2, SHALL BE REPLACED BY COLOR CODE DESIGNATORS IN ACCORDANCE WITH MIL-STD-681. EXAMPLES: SIZE 20, WHITE – M81044/6-20-9; WHITE WITH ORANGE STRIPE – M81044/6-20-93

2/ NOMINAL VALUES ARE FOR INFORMATION ONLY. NOMINAL VALUES ARE NOT REQUIREMENTS.

3/ BRAID (SIZES 2 AND LARGER): BRIGHT POLYETHYLENE TEREPHTHALATE POLYESTER YARN, 220 DENIER, 34 FILAMENTS MINIMUM, BRAIDED 4 ENDS PER CARRIER; BRAID TO BE TIGHTLY FORMED, UNIFORM IN APPEARANCE, AND TREATED WITH A CLEAR FINISH COATING. THE FINISHER COATING SHALL BE COMPATIBLE WITH THE TEMPERATURE RATING AND PERFORMANCE REQUIREMENTS OF THE INSULATED WIRE. BRAID COLORS SHALL BE LIMITED TO SOLID BROWN, SOLID RED AND SOLID WHITE.

SAENORM.COM : Click to view the full PDF of as81044_6a

TABLE 2 – PERFORMANCE DETAILS

PART NO.	BEND TESTING				
	MANDREL DIAMETER (IN.) (±3%)			TEST LOAD (LBS) (±3%)	
	LIFE CYCLE, ACCELERATED AGING AND IMMERSION	COLD BEND	WRAP	LIFE CYCLE, ACCELERATED AGING AND IMMERSION	COLD BEND
M81044/6-24-*	.50	1.0	.250	1.0	3.0
M81044/6-22-*	.75	1.0	.250	3.0	3.0
M81044/6-20-*	.75	1.0	.250	4.0	4.0
M81044/6-18-*	1.00	1.5	.375	4.0	4.0
M81044/6-16-*	1.00	1.5	.375	5.0	5.0
M81044/6-14-*	1.50	2.0	.500	5.0	5.0
M81044/6-12-*	2.0	2.0	.500	5.0	5.0
M81044/6-10-*	3.0	3.0	.750	5.0	5.0
M81044/6-8-*	3.0	4.0	.750	6.0	6.0
M81044/6-6-*	4.0	5.0	1.00	6.0	10.0
M81044/6-4-*	5.0	6.0	1.25	6.0	10.0
M81044/6-2-*	6.0	8.0	3.00	6.0	15.0
M81044/6-1-*	8.0	10.0	4.00	7.0	15.0
M81044/6-0-*	8.0	10.0	4.00	7.0	15.0

WIRE RATINGS AND ADDITIONAL REQUIREMENTS

TEMPERATURE RATING: 150 °C (302 °F) MAX CONDUCTOR TEMPERATURE

VOLTAGE RATING: 600 VOLTS (RMS) AT SEA LEVEL

THIS INSULATION SYSTEM HAS BEEN USED IN AEROSPACE APPLICATIONS USING 115 VOLTS (PHASE TO NEUTRAL), 400 HERTZ AC AND 28 VOLTS DC. VERIFICATION OF THE SUITABILITY OF THIS PRODUCT FOR USE IN OTHER ELECTRICAL SYSTEM CONFIGURATIONS IS THE RESPONSIBILITY OF THE USER.

ACCELERATED AGING: OVEN TEMPERATURE, 300° ± 2 °C (572° ± 3.6 °F) FOR 6 HOURS (SIZES 2 AND LARGER, TEST PRIOR TO APPLICATION OF BRAID.) FOR IDENTIFICATION LEGIBILITY, 225° ± 2 °C (437° ± 3.6 °F) FOR 6 HOURS, TEST NOT REQUIRED FOR SIZES 2 AND LARGER

BLOCKING: 150° ± 2 °C (302° ± 4 °F)

COLOR: SIZES 24 THROUGH 4: IN ACCORDANCE WITH MIL-STD-104, CLASS 1; WHITE PREFERRED

SIZES 2 THROUGH 0: BRAID COLOR SHALL BE IN ACCORDANCE WITH MIL-STD-104, CLASS 2, EXCEPT

THAT BROWN SHALL BE WITHIN MUNSELL COLOR LIMITS OF 5YR 5/4 AND 5R 3/6; NOMINAL, 2.5YR 3/6.

JACKET COLOR UNDER BRAID SHALL BE WHITE, MIL-STD-104, CLASS 1.

FLAMMABILITY: 30 SECONDS (MAX); 3.0 INCHES (MAX); NO FLAMING OF TISSUE PAPER

HUMIDITY RESISTANCE: 5000 MEGOHMS FOR 1000 FT, MIN INSULATION RESISTANCE AFTER HUMIDITY EXPOSURE

IDENTIFICATION, STRIPING, OR BANDING DURABILITY (NOT REQUIRED FOR SIZES 2 AND LARGER): 125 CYCLES (250 STROKES) (MIN), 500 GRAMS WEIGHT

IMPULSE DIELECTRIC TEST: PRIMARY INSULATION (WHEN TEST IS USED IN LIEU OF SPARK TEST): 6.0

KILOVOLTS (PEAK), 100% TEST

FINISHED WIRE: 8.0 KILOVOLTS (PEAK), 100% TEST

INSULATION RESISTANCE: 5000 MEGOHMS FOR 1000 FT (MIN)

SAENORM.COM : Click to view the full PDF of as81044_6a