

**1. CONDUCTOR**

Material: Tin Plated Copper  
 Construction: See Table 1  
 Diameter: See Table 1

**2. INSULATION**

Material  
 Layer 1: Irradiation Crosslinked Polyolefin  
 Layer 2: Irradiation Crosslinked PVDF  
 Wall thickness  
 Layer 1: See Table 1  
 Layer 2: 0.003" nom  
 Diameter: See Table 1  
 Color: Customer Specified  
 Marking: JUDD WIRE FLEXRAD 44 1/C #XX  
 AWG ZZ/ZZ 150°C 600V (YYYY)

XX – Denotes AWG Size  
 ZZ/ZZ – Denotes Conductor Standing  
 YYYY – Denotes Year of Manufacture

**3. PHYSICAL CHARACTERISTICS**

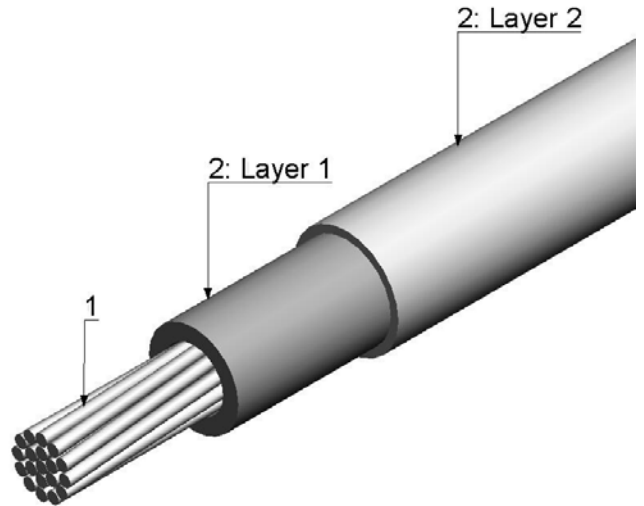
Temperature rating: 150°C  
 Voltage rating: 600V  
 Weight: See Table 1

**4. PERFORMANCE PROPERTIES – AS81044/12**

**Mechanical**  
 Elongation 150%, min  
 Tensile Strength 2500 psi, min  
 Concentricity 70%, min  
 Wicking 2.25", max  
 Bend Test  
 See Table 2 for Mandrel Requirements  
 Print Durability 125 Cycles, 500g  
 Mandrel Wrap Test  
 See Table 2 for Mandrel Requirements  
 No Cracks, Pass Wet Dielectric Test

**Electrical**  
 Impulse Dielectric Test 6.0/8.0 kV<sub>ac</sub>  
 Wet Dielectric Test (5 hrs @ 25°C)  
 5% NaCl Solution, 2500 V, 5 min  
 Insulation Resistance 5000 MΩ/kft, min  
 Direct Current Resistance @ 20°C See Table 1  
 Surface Resistance 500 MΩ·in, Initial and Final Readings, min  
 Spark Test 1500 V

**Thermal**  
 Shrinkage (6 hrs @ 300°C) 0.125 in, max  
 Life Cycle (168 hrs @ 200°C)  
 No Cracks, No Conductor Pitting



**PERFORMANCE PROPERTIES (Con't)**

Accelerated Aging I (6 hrs @ 300°C)  
 No Cracks, No Conductor Pitting  
 Pass Wet Dielectric Test  
 Accelerated Aging II (6 hrs @ 225°C)  
 Print shall Remain Legible  
 Cold Bend (4 hrs @ -65°C)  
 See Table 2 for Mandrel Requirements  
 No Cracks, Pass Wet Dielectric Test  
 Thermal Shock Resistance  
 High Temperature 30 min @ 150°C  
 Low Temperature 30 min @ -55°C  
 Number of Cycles 4  
 Change in Measurement 0.060", max  
 Humidity Resistance 5000 MΩ/kft, min  
 Blocking (24 hrs @ 225°C)  
 Adjacent Wire Shall not Stick  
 Flammability 60° Angle  
 Maximum Burn Time 30 sec  
 Maximum Char Length 3.0"  
 Tissue Paper No Flame  
 Smoke Test (15 min @ 200°C)  
 No Indication of Visible Smoke

**Chemical**  
 Immersion Tests (20 hrs @ 50°C)  
 No Cracks, Pass Wet Dielectric  
 OD Increase, Max  
 Lubricating Oil 5%  
 Hydraulic Fluid 5%  
 Isopropyl Alcohol 5%  
 Turbine Fuel 5%

**5. REFERENCE SPECIFICATION**

SAE AS81044  
 SAE AS81044/12



**JUDD WIRE INC.**  
 124 Turnpike Road  
 Turners Falls, MA 01376  
 (413) 863-4357

Date	Rev	By	Appr'd	ECN
06/20/13	--	EM	GT	---
Customer Approval:				

Description: <b>HOOKUP, TPC, DUAL WALL FLEXRAD 44 150°C, 600V</b>	
Specification Number: <b>JW1501-13</b>	Page: 1 of 2

Table 1 - Construction Details

Size (AWG)	Conductor				Insulation					Ampacity
	Stranding	Diameter		DCR (Ω/kft), max	Layer 1 Wall Thickness (in), nom	Diameter			Weight (lbs/kft)	
		#/AWG	Min			Max	Min	Nom	Max	Nom
24	19/36	0.023	0.026	26.2	0.006	0.038	0.04	0.042	2	6
22	19/34	0.025	0.033	10.2	0.006	0.045	0.047	0.049	2.5	10
20	19/32	0.037	0.041	9.88	0.006	0.053	0.055	0.057	4.4	11
18	19/30	0.046	0.051	6.23	0.006	0.063	0.065	0.067	6.8	15
16	19/29	0.052	0.058	4.81	0.006	0.069	0.072	0.075	8.5	18
16	37/32*	0.053	0.059	4.49	0.006	0.071	0.074	0.077	8.5	18
14	19/27	0.065	0.073	3.06	0.006	0.085	0.089	0.093	13.4	26
12	37/28	0.084	0.09	2.02	0.007	0.104	0.108	0.112	20.7	35
12	65/30*	0.086	0.095	1.81	0.007	0.108	0.112	0.116	21.9	35

\* - Stranding not listed in 81044 specification

\*\* - Calculations Based on: Single Conductor Installed in free 40°C air, 110°C Temperature Rating

Table 2: Test Requirements

Size (AWG)	Bend Test Requirements				
	Mandrel Diameter (in)			Test Load (lbs)	
	Life Cycle and Acc. Aging Test	Cold Bend Testing	Wrap Test	Life Cycle and Acc. Aging Test	Cold Bend Test
24	0.50	0.50	0.250	0.38	0.50
22	0.75	0.75	0.250	0.36	1.00
20	0.75	1.00	0.250	0.36	1.00
18	1.00	1.50	0.375	0.50	1.00
16	1.00	1.50	0.375	0.50	1.00
14	1.50	2.00	0.500	1.00	3.00
12	2.00	2.00	0.500	1.00	3.00



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Page:

2 of 2