

**1. CONDUCTOR**

Material: Tin Plated Copper  
Construction: See Table 1

**2. INSULATION**

Material  
Layer 1: Irradiation Crosslinked Polyolefin  
Layer 2: Irradiation Crosslinked PVDF  
Wall thickness  
Layer 1: 0.006" nominal  
Layer 2: 0.003" nominal  
Diameter: See Table 1  
Color: See Table 3

**3. CABLE**

# Components: See Table 1  
Lay: 14 x Cabled Core OD  
Fillers: Optional

**4. BRAID SHIELD**

Material: 36 AWG Tinned Copper  
Coverage: 85% min  
Barrier Tape: Optional

**5. JACKET**

Material: Irradiation Crosslinked PVDF  
Thickness: 0.009" nominal  
Color: White  
Marking: JUDD WIRE FLEXRAD 44 M/C #XX  
AWG ZZ/ZZ 150°C 600V (YYYY)

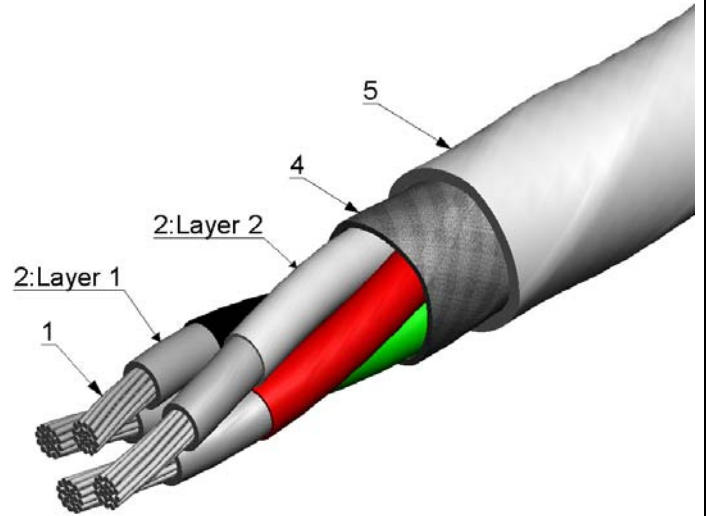
M – Denotes Number of components  
XX – Denotes AWG Size  
ZZ/ZZ – Denotes Conductor Standing  
YYYY – Denotes Year of Manufacture

**6. PHYSICAL CHARACTERISTICS**

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

**7. 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



**PERFORMANCE PROPERTIES (Con't)**

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  
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



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

| Date               | Rev | By | Appr'd | ECN     |
|--------------------|-----|----|--------|---------|
| 06/20/13           | --  | EM | GT     | ---     |
| 09/25/13           | A   | EM | GT     | 13-1431 |
| Customer Approval: |     |    |        |         |

|   |                 |
|---|-----------------|
| Description:<br><b>M/C, TPC, FLEXRAD 44, BSH<br/>XLPVDF 150°C, 600V</b> |                 |
| Specification Number:<br><b>JW1505-13</b>                               | Page:<br>1 of 2 |

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%

**8. REFERENCE SPECIFICATION**

SAE AS81044

SAE AS81044/12

Table 1 - Construction Details

| # C | Size | Stranding | DCR        | Insulated OD |       |       | Finished OD, in |       |       | Weight       |
|-----|------|-----------|------------|--------------|-------|-------|-----------------|-------|-------|--------------|
|     | AWG  | #S/AWG    | Ω/kft, max | min          | nom   | max   | min             | nom   | max   | lbs/kft, nom |
| 2   | 18   | 19/30     | 6.23       | 0.063        | 0.065 | 0.067 | 0.162           | 0.172 | 0.182 | 25.6         |
| 4   | 18   | 19/30     | 6.23       | 0.063        | 0.065 | 0.067 | 0.188           | 0.198 | 0.208 | 42.2         |
| 2   | 16   | 37/32     | 4.49       | 0.071        | 0.074 | 0.077 | 0.201           | 0.211 | 0.221 | 33.3         |
| 4   | 16   | 37/32     | 4.49       | 0.071        | 0.074 | 0.077 | 0.205           | 0.215 | 0.225 | 52.7         |

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           |

Table 3: Color Code

| Component # | Color |
|-------------|-------|
| 1           | Black |
| 2           | White |
| 3           | Red   |
| 4           | Green |



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**M/C, TPC, FLEXRAD 44, BSH,  
 XLPVDF 150°C, 600V**

Specification Number:

**JW1505-13**

Rev:  
**A**

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