

1. Conductor

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

2. Insulation

Material: Irradiation Crosslinked Polyolefin
 Wall Thickness: See Table 1
 Diameter: See Table 1
 Color: Per Customer Request
 Marking: JUDD WIRE FLEXRAD® 585 1/C #XX
 AWG ZZ/ZZ 2000V 125°C YYYY

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

3. Physical Characteristics

Temperature Rating: 125°C
 Voltage Rating: 2000V
 Weight: See Table 1

4. Performance Properties – AAR RP-585

Mechanical

Tensile Strength
 Unaged – ICEA S-66-524 1400 psi, min
 Aged (168 hrs @ 173°C) – ICEA S-19-81
 90% Retention, min

Elongation
 Unaged – ICEA S-66-524 200%, min
 Aged (168 hrs @ 173°C) – ICEA S-19-81
 50% Retention, min

Crush Resistance – UL 44 6000 lbs, min
Abrasion Resistance I

See Table 2, 1000 Cycles, min

Abrasion Resistance II – UL 719

See Table 2, 1000 Cycles, min

Penetration Test

1 hr @ 175°C ± 2°C
 See Table 2, 10 minutes, min

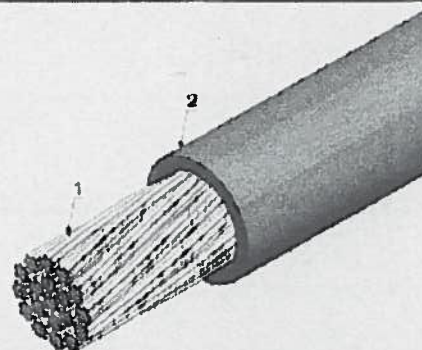
Thermal

Cold Bend – ICEA S-61-402
 1 hr @ 65°C ± 2°C
 No Cracks, Pass Voltage Withstand

Cold Shock
 1 hr @ -40°C ± 2°C
 No Cracks, Pass Voltage Withstand

Thermal Test I: Heat Resistance
 96 hrs @ 190°C ± 2°C
 1/32" Shrinkage, max
 Pass Voltage Withstand

Thermal Test II: Insulation Resistance
 168 hrs @ 173°C ± 5°C



Pass Voltage Withstand
 No Appreciable Color Change
 See Table 2 for IR in H₂O

Thermal Test III: Cold Shock
 168 hrs @ 173°C ± 2°C Pass Cold Shock

Performance Properties (Cont)

Vertical Flame Test – ICEA S-66-524
 10 seconds Flame, max

NFPA 130

Cable Tray Test (UL 1581) 6.5 ft, max
Smoke Generation Test (ASTM E662)
Flaming D_s @ 4 minutes 200, max
Non Flaming D_s @ 4 minutes 75, max

Electrical

Voltage Withstand
 6 hrs @ 20°C ± 5°C See Table 2
Dielectric Test Impulse 18.0 kV
Insulation Resistance in H₂O – ICEA S-19-81
 24 hrs @ 25°C ± 3 See Table 2
Insulation Resistance in at 140°C
 24 hrs @ 140°C ± 2°C 2 MΩ/kft, min
Long Term Insulation Resistance – UL 44
 26 wks @ 90°C ± 2°C 10 MΩ/kft, min
Ampacity @ 25°C See Table 2
Conductor DCR See Table 2
Single Overload

3 minutes @ Amperage in Table 2
 No Short for 3 minutes, min

Bundle Overload

7 minutes @ Amperage in Table 2
 No Visible Smoke or Splits
 No Charring or Blocking

Chemical

Oil Resistance Test I – UL 44
Oil Immersion Temp I (18 hrs @ 136°C)
Tensile Strength 50% Retention, min
Elongation 50% Retention, min
Oil Immersion Temp II (168 hrs @ 70°C)
Tensile Strength 70% Retention, min
Elongation 70% Retention, min



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

Date	Rev	By	Appr'd	ECN	Description	Page
03/28/11	B	ARJP	EJK	10-869	1/C FLEXRAD 585 2000V 125°C STANDARD STRANDING	1 of 3
08/28/13	C	EM	GT	13-1419		
12/15/14	D	MCC	GT	14-1566		
Customer Approval:					JW1328-10	

Table 2: Performance Requirements

AWG	Abrasion Resistance I Weight (g)	Abrasion Resistance II (lbs)	Penetration Test weight (g)	Voltage Withstand (Kv)	Min Insulation Resistance in H ₂ O (MQ/kt)	Single and Bundle Overload Amperage (amp)	Conductor DCR (Ohms/kt)	Ampacity, max
22	NR	NR	NR	6.0	5740	NR	15.9	14
20	NR	NR	NR	6.0	4840	NR	9.76	19
18	1000	NR	NR	6.0	4239	NR	7.18	23
16	1000	NR	NR	6.0	3660	NR	4.91	28
14	1500	NR	1500	6.0	3208	100	3.18	37
12	1500	NR	1500	6.0	2724	135	2.01	49
10	NR	3	NR	6.0	2191	NR	1.10	72
8	NR	3	NR	7.5	2201	NR	0.793	91
6	NR	3	NR	7.5	1343	NR	0.473	126
5	NR	4	NR	7.5	1542	NR	0.353	161
4	NR	4	NR	7.5	1442	NR	0.279	185
3	NR	4	NR	7.5	1306	NR	0.239	205
2	NR	8	NR	7.5	1009	NR	0.184	239
1	NR	8	NR	8.0	1053	NR	0.140	294
1/0	NR	8	NR	8.0	961	NR	0.111	345
2/0	NR	8	NR	8.0	1004	1000	0.090	393
3/0	NR	8	NR	8.0	817	NR	0.070	445
4/0	NR	8	NR	8.0	727	NR	0.055	516
262MCM	NR	NR	NR	9.5	846	NR	0.047	574
313MCM	NR	NR	NR	9.5	801	NR	0.039	647
373MCM	NR	NR	NR	9.5	662	NR	0.033	724
444MCM	NR	NR	NR	9.5	656	NR	0.028	806
535MCM	NR	NR	NR	11.5	663	NR	0.022	937
646MCM	NR	NR	NR	11.5	556	NR	0.019	1029
777MCM	NR	NR	NR	11.5	591	NR	0.015	1186

NR - Not Required

Customer NAME BOMBARDIER
 Approval Title PROJECT ENGINEER
 Signature Signature [Signature]
 DATE: 02/03/2015



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Oil Resistance Test II
 100 hrs @ 150°C 60% swell, max
 No Cracks, Pass Voltage Withstand

5. Reference Specifications

AAR RP 685
 UL 44
 UL 719
 ICEA S-66-524
 ICEA S-61-402
 ICEA S-19-81
 NFPA 130
 UL 1581
 ASTM E662
 BSS 7239

Performance Properties (Cont)

Toxicity (BSS 7239)
 Carbon Dioxide 90000 ppm, max
 Carbon Monoxide 3600 ppm, max
 Hydrogen Fluoride 200 ppm, max
 Hydrogen Bromide 90 ppm, max
 Hydrochloric Acid 500 ppm, max
 Nitrous Fumes (NO & NO₂) 100 ppm, max
 Sulfur Dioxide 100 ppm, max
 Hydrocyanic Acid 150 ppm, max

Table 1: Standard Stranding

AWG	Conductor		Insulation						Weight (lbs/kft)
	Construction (#/Size)	Diameter (in)		Wall Thickness (in)			Diameter (in)		
		Nom	Max	Min	Min Avg	Nom	Nom	Max	
22	19/34	0.030	0.032	0.036	0.041	0.045	0.120	0.123	9.21
20	19/32	0.038	0.042	0.036	0.041	0.045	0.128	0.132	11.1
18	19/30	0.048	0.052	0.036	0.041	0.045	0.138	0.141	14.0
16	19/29	0.054	0.062	0.036	0.041	0.045	0.144	0.158	16.0
14	19/27	0.067	0.075	0.036	0.041	0.045	0.157	0.175	20.7
12	19/25	0.086	0.094	0.036	0.041	0.045	0.176	0.192	30.6
10	27/24	0.117	0.125	0.036	0.041	0.045	0.207	0.228	46.9
8	37/24	0.134	0.147	0.044	0.050	0.055	0.244	0.267	65.3
6	61/24	0.172	0.207	0.044	0.050	0.055	0.282	0.326	98.7
5	91/24	0.238	0.244	0.044	0.050	0.055	0.348	0.364	142
4	105/24	0.258	0.264	0.044	0.050	0.055	0.368	0.384	164
3	125/24	0.279	0.288	0.044	0.050	0.055	0.389	0.408	188
2	150/24	0.300	0.325	0.044	0.050	0.055	0.410	0.447	215
1	225/24	0.367	0.390	0.052	0.059	0.065	0.497	0.535	326
1/0	275/24	0.419	0.440	0.052	0.059	0.065	0.549	0.585	395
2/0	325/24	0.452	0.468	0.052	0.059	0.065	0.586	0.627	460
3/0	450/24	0.548	0.565	0.052	0.059	0.065	0.682	0.709	627
4/0	550/24	0.593	0.620	0.052	0.059	0.070	0.733	0.765	753
262MCM	850/24	0.648	0.660	0.060	0.068	0.075	0.802	0.838	903
313MCM	775/24	0.708	0.725	0.060	0.068	0.080	0.872	0.905	1080
373MCM	925/24	0.776	0.795	0.060	0.068	0.080	0.926	0.936	1274
444MCM	1100/24	0.846	0.870	0.060	0.068	0.080	1.012	1.052	1500
535MCM	1325/24	0.900	0.970	0.072	0.081	0.095	1.120	1.167	1837
646MCM	1600/24	1.010	1.060	0.072	0.081	0.095	1.205	1.259	2150
777MCM	1925/24	1.100	1.130	0.072	0.081	0.095	1.295	1.351	2574



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