



Rugged Ethernet

100 Ω, 125°C & 150°C, 60V ROHS Compliant

Champlain Cable has been producing 100ohm Ethernet Cables for over 30 years and 150°C Battery Cables for over 20 years. Our Rugged Ethernet cables combine the best of both technologies. We employ state-of-the-art, in-line processing and measurement systems to ensure consistent quality. Champlain Cable also participates in SAE and OPEN committees to help define the future of these Vehicle Ethernet standards.

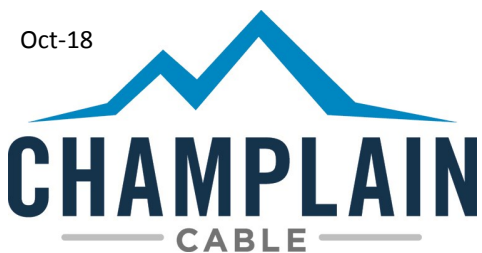
- EXRAD® Irradiation Cross-linked Materials Provide Robust, Long-Term Performance
- TWISTIR™ Technology Helps Maintain Pair Balance Which is a Key Factor in Electrical Performance
- 125°C & 150°C Options
- Additional Shielded Designs Available, Contact Factory for Details
- DATARAD® Automotive Ethernet Products Meet Electrical requirements after ISO-6722-1 Heat-Aging. This Ensures Performance Over Time!
- Meets ISO-6722-1 Flame Requirements
- 1000 Base T1 Designs are In-Test. Contact Factory for Details
- Higher Voltage Options Available



Product Number	Conductor Size & Strand	Construction	Dielectric	Shield	Jacket	Nominal OD	ISO-6722-1 Temp Rating	Electrical Performance
E-E-0.75-2-J-U	0.75mm ² 19/.23mm BC	2TP	150UT	No	Y	8.80mm	125°C	Cat 5E
E-E-0.50-2-J-U	0.50mm ² 19/.18mm BC	2TP	150UT	No	Y	7.60mm	125°C	Cat 5E *
E-E-0.75-2-J-U 150	0.75mm ² 19/.23mm BC	2TP	150UT	No	Y	8.80mm	150°C	Cat 5E
E-E-0.50-2-J-U 150	0.50mm ² 19/.18mm BC	2TP	150UT	No	Y	7.60mm	150°C	Cat 5E *
E-E-0.50-1-J-U	0.50mm ² 19/.18mm BC	1TP	150UT	No	Y	4.72mm	125°C	100 Base T
E-E-0.35-1-J-U	0.35mm ² 7/.25mm BC	1 TP	150UT	No	Y	3.61mm	125°C	100 Base T
E-E-0.75-2-J-S	0.75mm ² 19/.22mm BC	2TP	150UT	Yes	Y	14.41mm	125°C	Cat 5E *
E-E-20-1-J-S	20AWG (19/32) BC	1TP	150UT	Yes	Y	7.04 mm	125°C	100 Base T

* Max length 75meters

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Category 5E Test	Category 5E Requirement		Typical performance (0.75mm ²)
Characteristic Impedance	100+/- 10% Ohms		103 Ohms
Insertion loss	Frequency	Loss (dB)	Loss (dB)
	1	< 2.0	1.4
	10	< 6.5	5.3
	31.25	< 11.7	10.1
	100	< 22.0	19.4
Return Loss	Frequency	Loss (dB)	
	1	> 20.0	44
	10	> 25.0	35
	20	> 25.0	34
	31.25	> 23.6	34
	100	> 20.1	28
PSELFNEXT	Frequency	Loss (dB)	
	1	> 65.3	83
	10	> 50.3	60
	20	> 45.8	58
	31.25	> 42.9	54
	62.5	> 38.4	54
	100	> 35.3	45

Open Alliance 100 BaseT Test	Open Alliance 100 BaseT Requirement		Typical performance (0.35mm ²)
Characteristic Impedance	100+/- 10% Ohms		98 Ohms
Insertion loss	Frequency	Loss (dB)	Loss (dB)
	1	< 0.9	0.3
	10	< 2.4	1.0
	33	< 4.65	2.00
	66	< 6.75	3.22
Return Loss	Frequency	Loss (dB)	
	1	> 20.0	35.9
	10	> 20.0	32.9
	20	> 20.0	36.0
	33	> 14.8	36.8
	66	> 14.58	30.0
Mode Conversion	Frequency	Loss (dB)	
	1	> 46.0	55
	10	> 46.0	55
	20	> 46.0	55
	33	> 46.0	55
	66	> 42.0	55
	100	> 38.0	50
	200	> 34.0	50
Propagation Delay	780 ns/100 Meters Max.		547 ns

ISO 6722-1 Class D Thin Wall			EXRAD 150 UT	
Section	Description	Requirement	Typical Results (0.75mm ² Sample)	
5.7	Insulation Volume Resistivity	10 ⁹ Ω /mm min.	6.43 10 ¹⁸ Ω /mm	Pass
5.8	Pressure at High Temperature	0.8N @150°C no dielectric breakdown	no breakdown	Pass
5.9	Strip Force / Adhesion	Per customer agreement	35N	Pass
5.10	Low Temperature Winding	3 turns 2.5kg - 40°C no dielectric breakdown	no dielectric breakdown	Pass
5.11	Impact	100gm @-40°C no breakdown	no breakdown	Pass
5.12.4.1	Sandpaper Abrasion	.2kg 350mm min	730mm	Pass
5.12.4.2	Scrape Abrasion	Per customer agreement	2430	Pass
5.13	Long-Term Heat Aging	150°C 3000 hours	no breakdown	Pass
5.15	Thermal Overload	200°C 6 hours	no breakdown	Pass
5.16	Shrinkage by heat	2mm max. 150°C	no shrinkage,	Pass
5.17	Fluid Compatibility	All fluids	>5% swell	Pass
5.19	Ozone Resistance	45°C 85% Relative Humidity 70 hours, Ozone 50 +/- 5 pphm 1kV 1 min. (no breakdown)	no breakdown	Pass
5.20	Resistance to hot water	not less than 10 ⁻⁵ ohm-mm	5.35 X10 ¹⁴ ohm-mm	Pass
5.21	Temperature and Humidity Cycling	40 - 8 hours cycles -40°C and 125°C 80 -100% relative humidity	no dielectric breakdown	Pass
5.22	Resistance to Flame Propagation	70 sec. max. 50mm unburned	8 sec. after burn	Pass

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