POLYRAD®

Polyrad® LSZH Low-Smoke, Zero-Halogen Flame-Retardant EN Cables

EN 50264 EN 50306

General Cable | One Company
Connecting the World

Join the Wire Wizard for a quick, informative tour showing the interactive features of our catalogs

General Cable Wire Wizard SM

WELCOME

On-Line Catalog Features

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- Click the "General Cable" logo on the left side of the menu bar to go to General Cable's Web site.
- The "Table of Contents" button in the center of the menu bar takes you to a fully interactive page. Click on any product category or listing to take you to the appropriate page. (All other page references throughout the catalog are also fully interactive.)
- The entire catalog's contents can be searched using the Search button located in the upper right of the menu bar.
- Turn catalog pages by clicking your mouse on the top or bottom corner of the page or by using the forward or back arrows on the side of the page or on the bottom bar.
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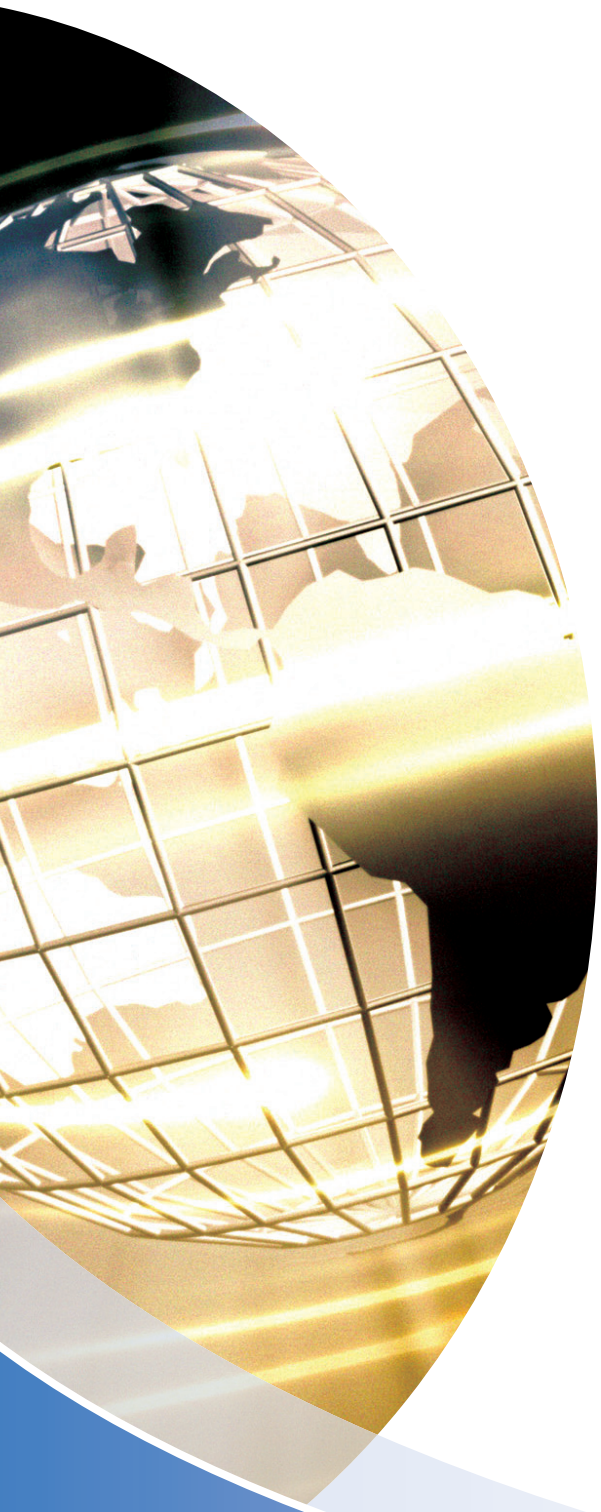
General Cable Website

Contact Us



One Company
Connecting The World

POWERFUL PRESENCE • PRODUCTS
PERFORMANCE • PEOPLE

With 13,000 associates on six continents, General Cable is a global leader in the development, design, manufacture, marketing and distribution of copper, aluminum and fiber optic wire and cable products for the energy, industrial, specialty and communications markets.

We are one of the largest wire and cable manufacturers in the world and hold increasing share in both established and growing markets.

General Cable serves its customers through a global network of manufacturing facilities with worldwide sales representation and distribution. With a portfolio of more than 100,000 products to meet thousands of diverse applications requirements, we continue to invest in research and development in order to maintain and extend our technology leadership, developing new materials, designing new products, and creating new solutions to meet tomorrow's market challenges.

In every sector and everywhere, we are strongly positioned to help our partners achieve their objectives.

We offer our customers all the strengths and value of a large company, but our people give us the agility and responsiveness of a small one. We can service you globally or locally.

General Cable | One Company Connecting the World

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Corporate Social Responsibility

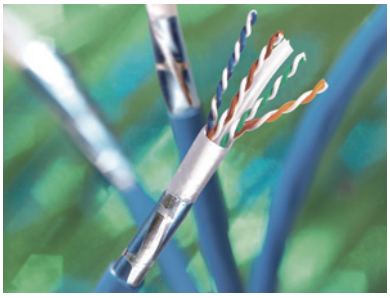
CREATING SHARED VALUE

We believe corporate social responsibility (CSR) is about creating a shared value. That means keeping a dual focus in our business decisions: what is good for us as a company and what contributes to the greater good of the communities in which we live and work.

SAFETY

Working safer by working together

Safety is at the very core of our manufacturing excellence, and it is an integral part of our industry leadership and performance. At General Cable, we know a safe and healthy environment for associates around the world is critical. The best way to provide it? By working together to eliminate or manage all conditions and behaviors that could lead to personal injury or occupational illness.



INNOVATION

Technologies that power and connect the world

General Cable provides power and communications products and solutions to people around the world. With the help of distributors, original equipment manufacturers (OEMs), retail and public utility partners, we offer our customers product breadth and leadership coupled with geographic reach, ensuring access to our high-quality cable solutions anywhere and everywhere they need them.

SUSTAINABILITY

Responsible practices in daily operations

To reduce or minimize General Cable's impact on the environment, we incorporate responsible practices into our daily business operations around the world. For many years, the company has been committed to meeting or exceeding environmental regulations worldwide. We continually strive to reduce our environmental impact and to respect and protect the environments where we live and work, from our neighborhoods to our planet.

CITIZENSHIP

A commitment to being good citizens

Being responsible citizens in our communities is of the utmost importance to us. This includes a commitment to ethical business practices, the fair treatment of our customers, associates, neighbors and competitors, and working as a company and as individuals to improve the communities in which we live and work. Our company leaders and associates strive to make a difference through a host of volunteer activities and financial support.

Visit www.generalcablecsr.com to learn more about our journey, commitment and progress in the areas of health and safety, innovation, sustainability and citizenship.

GREEN INITIATIVE

A commitment to achieving industry-leading standards and responding proactively to environmental global issues.

General Cable

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POLYRAD®

General Cable Your Transit Partner

General Cable's Willimantic, Connecticut plant is one of the most diverse manufacturing facilities of its kind. More than 600,000 square feet of modern manufacturing space is dedicated to design, development, engineering and manufacturing, as well as a wide range of in-house testing and technical support. General Cable's Industrial & Specialty facility has the expertise to design and develop an extensive variety of materials into thousands of cable constructions for sustained and continuous operations in challenging environments. Focused on providing outstanding quality, service and technical support on behalf of our customers, General Cable is the best partner for current and next-generation transit cabling systems.

For rapid transit, locomotive applications and rolling stock, General Cable provides the toughest cables to meet the most demanding requirements for long-term performance and reliability.

As an industry leader in a challenging marketplace, General Cable has the expertise, facilities and structure to deliver results:

- Leadership in Material Development
- Dedicated Engineering Expertise
- ISO 9001 Quality Assurance Program
- IRIS Certified
- Advanced Customer eBusiness Tools

A Wide Range of Products

- Car/Locomotive Wiring
- Power Cables
- Control Cables
- Instrumentation Cables
- Coupler Cables
- Electronically Controlled Pneumatic Brake (ECP) Cables
- Data Communications Cables
- Diesel-Electric Locomotive (DLO) Cables
- 2 HR Fire-Rated Circuit Integrity Cables
- Head-End Power Cables
- Off-Road Equipment Cables

Major End-Users Supplied

- Original Equipment Manufacturers (OEM)
  - Car Builders & Rebuilders
  - Locomotive Builders & Rebuilders
- Transit Agencies
- Distributors
- Subcontractors to Original Equipment Manufacturers (OEM)
- System Integrators

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IRIS Certification

POLYRAD®

Quality Is Number One

"Quality is not something that is achieved and then forgotten but something that we work to improve every day by continuously focusing on design, technology, and control. Improved product designs and investment in people and equipment are all part of our quality commitment to you."

Greg Lampert
President and CEO
General Cable
North America

General Cable is always committed to exceeding our customers' expectations for quality and performance. We strive to ensure quality through extensive in-house and third-party testing with strict adherence to specifications and industry standards, as demonstrated by the following certifications and compliances.

IRIS Certification

General Cable's transit wire and cable facility is now IRIS (International Railway Industry Standard) Certified. UNIFE, the Association of the European Rail Industry, was created in 1991 in anticipation of the creation of the European Union. In 2005, UNIFE established IRIS with the goal of securing higher quality in the railway industry. This recognized industry certification enables railway component suppliers to meet globally recognized levels of quality for its railway components. General Cable is the first wire and cable manufacturer in the Americas to achieve IRIS Certification*. Combined with IRIS Certification in our Barcelona, Spain facility, General Cable meets the transit sector's needs throughout the Americas and Europe. General Cable's IRIS Certification ensures improved product quality and efficient procedures throughout the whole supply chain.

ISO 9001/2008 Compliance

ISO 9001 is the world's most established quality framework to demonstrate the ability to consistently provide product that meets applicable requirements and enhances customer satisfaction through processes that ensure quality. General Cable is the only wire and cable company in North America to be both ISO 9001:2008 and IRIS Certified.

UL and CSA Approved Laboratories

General Cable's Willimantic, CT facility has a laboratory quality system based on ISO/IEC 17025:2005, encompassing proper test equipment, test environment, personnel qualifications, test standards and procedures, and data recording and reporting procedures. Accordingly, the Willimantic lab is approved by Underwriters Laboratories (UL) as a testing facility. In fact, the facility is audited and approved by UL for their Client Test Data Program (CTDP), demonstrating a level of performance that does not require UL to witness on-site testing. UL assesses the lab's quality systems and testing methods on an annual basis.

The Willimantic lab is also approved by CSA International (CSA). The CSA Category Program Certification (CPC) is based on ISO/IEC 17025:2005, which provides more repeatable and reliable test results to bring innovative products to market more quickly. The General Cable Willimantic facility is certified by CSA to conduct our own testing in a product category. CSA Certification requires General Cable to have thorough knowledge of the applicable product standards, access to suitable test facilities and a demonstrated ability to design, manufacture and test products that consistently comply with the standards.

* IRIS Certifications are for Product Category 12, Cabling and Cabinets (design, development and production of electric special cables [power and instrumentation] for the railway industry).

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POLYRAD®

Customer Service and Satisfaction

General Cable's Transit Team is strategically positioned to provide the mass transit market with the best service and products available. Our resources are focused on providing outstanding quality, exceptional technical support and customer service, and competitive pricing while driving value on behalf of our key customers. **Polyrad®** cables are the industry standard and the preferred choice for the rapid transit and locomotive markets.

General Cable is dedicated to customer service and satisfaction.
Call our team of professionally trained sales associates with any questions to meet your application needs.

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IRIS Certification

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Table of Contents

SERVING THE GLOBAL RAPID TRANSIT & LOCOMOTIVE MARKETS

DATE OF ISSUE 09/12

Icon Key


HALOGEN FREE


LOW-SMOKE EMISSIONS


FLAME-RETARDANT


CRUSH & IMPACT RESISTANT


FLEXIBLE


OIL-RESISTANT


UV/SUNLIGHT-RESISTANT

IRIS Certification

RoHS Compliant Directive 2002/95/EC

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POLYRAD®

EN Introduction

In an industry that moves people as well as goods, safety is paramount. Developed to limit risk in case of fire, EN standards are European-adopted transit industry specifications for wire and cable that demand special low-smoke and halogen-free cable designs. Through our wealth of experience in providing effective cabling solutions for challenging and hazardous environments, General Cable responds by offering European standard specifications to meet major multinational OEM requirements. Product expansion to support EN specification emphasizes General Cable's continued commitment to the global transit industry.

General Cable's EN 50264 and 50306 series of Polyrad® LSZH cables has been engineered, manufactured and qualified for railway rolling stock applications where fixed or limited flexing in operation is encountered and space is at a premium. Uniquely qualified to provide superior engineering and products, General Cable's EN cables are manufactured in our Willimantic, Connecticut facility, the only North American wire and cable facility that is IRIS Certified and ISO 9001:2008 Compliant.

Through the successful commercialization of new technologies such as this and partnerships with leading industry OEMs, we will continue delivering results and value by responding to an ever-changing set of customer expectations and market conditions.

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EN Cable Selection Table

SPECIFICATION	DESCRIPTION	RATED VOLTAGE U_0 / U	CONSTRUCTION	IMAGE	PAGE
THIN WALL INSTRUMENTATION AND CONTROL CABLES					
EN 50306-2	Single Core Unsheathed	300 V/500 V	0.5 mm² - 2.5 mm²		2
EN 50306-3	Single Core and Multi-Core, Screened and Sheathed	300 V/500 V	0.5 mm² - 2.5 mm² (1-4 Cores)		4
EN 50306-4	Multi-Core Unscreened and Sheathed, Class E (Exposed) and Class P (Protected)	300 V/500 V	0.5 mm² - 2.5 mm² (4-48 Cores)		6
EN 50306-4	Multi-Core Screened and Sheathed, Class E (Exposed) and Class P (Protected)	300 V/500 V	0.5 mm² - 2.5 mm² (2-8 Cores)		8
EN 50306-4	Multi-Pair Screened and Sheathed, Class E (Exposed) and Class P (Protected)	300 V/500 V	0.5 mm² - 1.5 mm² (2-7 Pairs)		8
MEDIUM WALL POWER AND CONTROL CABLES					
EN 50264-3-1	Single Core Unsheathed	0,6/1 kV	1 mm² - 400 mm²		10
EN 50264-3-1	Single Core Unsheathed	1,8/3 kV	1.5 mm² - 400 mm²		10
EN 50264-3-1	Single Core Sheathed	1,8/3 kV	2.5 mm² - 400 mm²		12
EN 50264-3-2	Multi-Core Unscreened and Sheathed	300 V/500 V	1 mm² to 2.5 mm² (2-40 Cores)		14
EN 50264-3-2	Multi-Core Unscreened and Sheathed	0,6/1 kV	1.5 mm² - 50 mm² (2-4 Cores)		14
EN 50264-3-2	Multi-Core Screened and Sheathed	300 V/500 V	1 mm² to 2.5 mm² (2-40 Cores)		16
EN 50264-3-2	Multi-Core Screened and Sheathed	0,6/1 kV	1 mm² to 2.5 mm² (2 -4 Cores)		16

IRIS Certification

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EN Standards Compliance

Smoke Density

Test Standard: IEC 61034-2

This test procedure provides a protocol for measuring the smoke density of cables burning under defined conditions.

The test samples consist of straight 1 m in length. The test pieces are bound together at the ends and at 300 mm from each end then clamped to the support. The test flame is generated by burning 1 liter of alcohol in a tray. The tray is positioned 100 mm ± 10 mm from the floor to permit circulation of air. The test sample is positioned horizontally and centered above the tray of alcohol at a distance between the underneath of the test samples and the bottom of the tray of 150 mm ± 5 mm.

Light transmittance is measured throughout the test. The test is considered as ended when there is no decrease in light transmittance for a period of 6 minutes after the fuel source has extinguished or when the test duration has reached 40 minutes.

Performance Requirements:

The test sample is considered to pass when the following minimum light transmittance is reached:

Level of Danger	Requirement
HL 1	None
HL 2	60%
HL 3	60%
HL 4	70%

Toxicity

Determination of Amount of Halogens

Test Standard: EN 50267-2-1

This test procedure determines the amount of halogen acid gas during the combustion of 500-1000 mg of testing material.

The material under test is heated in a stream of dry air and the gases absorbed in 200 ml 0.1 M sodium hydroxide solution contained in wash bottles. The amount of halogen acid is then determined by acidifying the solution with nitric acid, adding a measured volume of 0.1 M silver nitrate solution and back titrating the excess with 0.1 M ammonium thiocyanate using ferric ammonium sulfate as the indicator.

Performance Requirements:

The material is considered to be halogen-free when no iodide, bromide, chloride and fluoride are detected.

Determination of Degree of Acidity of Gases for Materials

Test Standard: EN 50267-2-2

This procedure specifies the test method and procedure for the determination of the degree of acidity of gas evolved during the combustion of materials taken from cables measuring the pH and conductivity.

The test piece consists of 1000 mg of insulation material and is burned in a combustion furnace at 935°C for 30 minutes. By using two gas washing containers held in the airflow, the pH value and conductivity are measured.

Performance Requirements:

The materials are considered to pass when:

pH value is > 4.3
Conductivity < 10 µS/mm

Flame Tests

Fire Performance for Single Core Cable

Test Standard: IEC 60332-1-2

This test procedure describes the minimum requirements for flame-retardant single core cables tested in a vertical position.

A cable is ignited with a propane burner (1 kW flame).
Sample length: 600 mm long
Test duration:
Overall diameter of test piece:

0 ≤ 25 mm = 60 ± 2 seconds
25 mm – 50 mm = 120 ± 2 seconds
50 mm – 75 mm = 240 ± 2 seconds
> 75 mm = 480 ± 2 seconds

Performance Requirements:

1) After flaming has ceased, the surface of the sample shall be wiped clean, and the distance from the lower edge of the top clamp to the onset of charring shall be greater than 50 mm.
2) Distance from the lower edge of the top clamp to the lower onset of charring shall not exceed 540 mm.

Fire Performance for Cable Bundles

Test Standard: IEC 60332-3-25

This test procedure describes the minimum requirements for flame-retardant bunched cable cores mounted in a vertical tray.

Depending on the volume of the combustible materials per meter, there are five categories as follows:

Category	Liter (dm^3)	Flame (minutes)
A F/R	7.0	40
A	7.0	40
B	3.5	40
C	1.5	20
D	0.5	20

Sample length: minimum of 3.5 m

Performance Requirements:

Where the cable surface changes from a resilient surface to a brittle or crumbing surface, the limit of charring has been determined. Distortion of the outer surface of the cable, such as blistering or melting immediately above the char, is included in the damage measurement. Failure is determined when the maximum extent of the charred portion exceeds the height of 2.5 m.

Minimum Bend Radii

Training is the positioning of cable when it is not under tension. Bending is the positioning of cable when it is under tension. When installing cable, the object is to limit the mechanical forces so that the cable's physical and electrical characteristics are maintained for the expected service life.

MINIMUM BEND RADII AS PER EN 50355		
Type of cable	**Cable diameter (mm)** ≤ **12**	> **12**
Unscreened cables Fixed installation	4D	5D
Careful bending (only once at termination)	3D	4D
Screened cables All installations	10D	10D
D represents overall diameter.		

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Section 1

SERVING THE GLOBAL RAPID TRANSIT & LOCOMOTIVE MARKETS

DATE OF ISSUE 09/12

Icon Key


HALOGEN FREE


LOW-SMOKE EMISSIONS


FLAME-RETARDANT


CRUSH & IMPACT RESISTANT


FLEXIBLE


OIL-RESISTANT


UV/SUNLIGHT-RESISTANT

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Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Single Core Unsheathed

Light Weight, Reduced Dimensions

300 V/500 V

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT

Product Construction

1. Conductor:

- Tinned copper wires per EN 50306-2

2. Insulation:

- 90°C/105°C Low-Smoke, Zero-Halogen irradiated compound
- White – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Identifier for the Particular Hazard Level per EN 45545-1

Applications:

- Equipment control and monitoring circuits
- Internal wiring of equipment

Tested in Accordance with:

- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:

- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

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Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Single Core Unsheathed

Light Weight, Reduced Dimensions

300 V/500 V

CATALOG NUMBER	CROSS-SECTIONAL AREA	CONDUCTOR	DIAMETER		MEAN THICKNESS OF INSULATION	CABLE DIAMETER		CONDUCTOR RESISTANCE	WEIGHT	
	mm²	CONSTRUCTION n x mm	MIN. mm	MAX. mm	mm	MIN. mm	MAX. mm	MAX. Ω/km	COPPER kg/km	CABLE kg/km
THIN WALL, SINGLE CORE UNSHEATHED – 300 V/500 V										
414150	0.50	19 x 0.18	0.80	0.95	0.18	1.15	1.45	40.1	4.5	7
414160	0.75	37 x 0.16*	1.00	1.15	0.18	1.35	1.65	26.7	6.9	8
414170	1.0	37 x 0.18*	1.10	1.30	0.18	1.45	1.80	20.0	8.8	10
414180	1.5	37 x 0.23*	1.45	1.65	0.22	1.95	2.30	13.7	1.3	20
414190	2.5	37 x 0.30*	1.85	2.15	0.28	2.50	2.85	8.21	2.2	25

* These cables may be supplied in 19 strand conductor providing all product performance requirements in the specification are met.

Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Single Core and Multi-Core Screened and Sheathed

Light Weight, Reduced Dimensions

300 V/500 V

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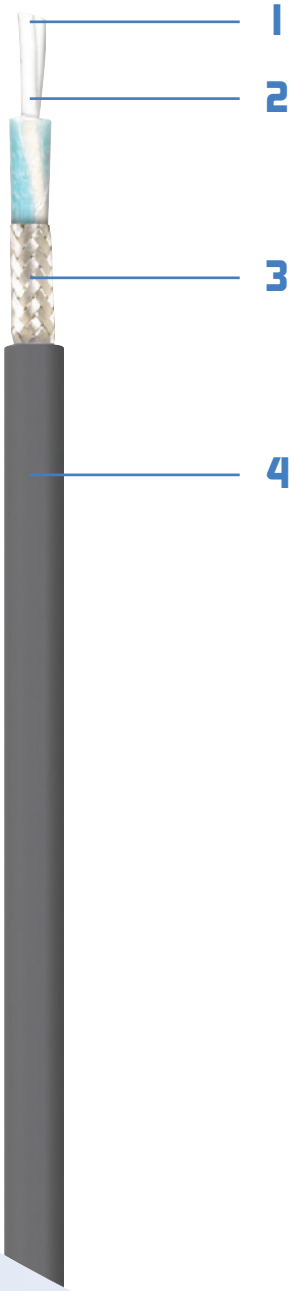

Product Construction

1. Conductor:
- Tinned copper wires per EN 50306-2

2. Insulation:
- 90°C/105°C Low-Smoke, Zero-Halogen irradiated compound
- White with printed numbers – unless otherwise specified

3. Overall Screen:
- Tinned copper wires

4. Sheath:
- Low-Smoke, Zero-Halogen irradiated compound (S1 and S2)
- Black – unless otherwise specified

Cable Markings:
- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Identifier for the Particular Hazard Level per EN 45545-1
- S – Cable with a Metallic Screen
- Temperature Rating

Applications:
- Control and monitoring circuits
- Interlocking circuits
- Indicating circuits
- Internal wiring of equipment

Tested in Accordance with:
- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:
- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

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Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Single Core and Multi-Core Screened and Sheathed

Light Weight, Reduced Dimensions

300 V/500 V

CATALOG NUMBER	CROSS-SECTIONAL AREA n x mm²	MIN. THICKNESS OF SHEATH mm	CABLE DIAMETER MIN. mm	CABLE DIAMETER MAX. mm	WEIGHT CABLE kg/km
THIN WALL, SINGLE CORE AND MULTI-CORE SCREENED AND SHEATHED – 300 V/500 V					
414220	1 x 0.5	0.20	2.3	2.8	13
414240	2 x 0.5	0.20	3.5	4.3	27
414250	3 x 0.5	0.20	3.7	4.5	34
414260	4 x 0.5	0.20	4.0	5.0	41
414280	1 x 0.75	0.20	2.5	3.0	17
414290	2 x 0.75	0.20	3.9	4.7	34
414310	3 x 0.75	0.20	4.0	5.0	42
414320	4 x 0.75	0.20	4.5	5.5	56
414330	1 x 1.0	0.20	2.7	3.2	20
414340	2 x 1.0	0.20	4.2	5.2	40
414350	3 x 1.0	0.20	4.5	5.5	55
414360	4 x 1.0	0.20	5.0	6.0	67
414370	1 x 1.5	0.20	3.1	3.6	28
414380	2 x 1.5	0.20	5.1	6.1	62
414390	3 x 1.5	0.20	5.4	6.4	79
414400	4 x 1.5	0.20	6.0	7.0	97
414410	1 x 2.5	0.20	3.6	4.4	41
414420	2 x 2.5	0.20	6.4	7.4	87
414430	3 x 2.5	0.20	6.8	7.8	115
414440	4 x 2.5	0.20	7.5	8.5	144

RoHS Compliant Directive 2002/95/EC

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Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Multi-Core Unscreened and Sheathed

Light Weight, Reduced Dimensions, Class E (Exposed) and Class P (Protected)

300 V/500 V

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT

Product Construction

1. Conductor:

- Tinned copper wires per EN 50306-2

2. Insulation:

- 90°C/105°C Low-Smoke, Zero-Halogen irradiated compound
- White with printed numbers – unless otherwise specified

3. Sheath:

- Low-Smoke, Zero-Halogen irradiated compound (S2, EM 101 to EM 104)
- Black – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Table Number
- Cable Class (P or E)
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Identifier for the Particular Hazard Level per EN 45545-1
- Temperature Rating

Applications:

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Light Weight, Reduced Dimensions, Class E (Exposed) and Class P (Protected)

300 V/500 V

CATALOG NUMBER	CROSS-SECTIONAL AREA	CABLES CLASS E (EXPOSED)			WEIGHT	CATALOG NUMBER	CABLES CLASS P (PROTECTED)			WEIGHT
		MIN. THICKNESS OF SHEATH	OVERALL DIAMETER				MIN. THICKNESS OF SHEATH	OVERALL DIAMETER		
	n x mm²	mm	MIN. mm	MAX. mm	CABLE kg/km		mm	MIN. mm	MAX. mm	CABLE kg/km
THIN WALL, MULTI-CORE UNSCREENED AND SHEATHED – 300 V/500 V										
414460	4 x 0.5	1.0	5.5	6.5	45	**415350**	0.42	4.1	5.1	32
414470	7 x 0.5	1.0	6.3	7.3	69	**415360**	0.42	4.9	5.9	51
414540	13 x 0.5	1.0	8.3	9.3	116	**415370**	0.56	7.3	8.3	98
414550	19 x 0.5	1.0	9.0	10.2	151	**415380**	0.56	8.1	9.1	135
414560	37 x 0.5	1.0	12.3	13.5	288	**415390**	0.56	10.8	12.0	246
414600	4 x 0.75	1.0	6.0	7.0	58	**415400**	0.42	4.6	5.6	42
414610	7 x 0.75	1.0	6.9	7.9	88	**415410**	0.42	5.5	6.5	68
414630	13 x 0.75	1.0	9.1	10.3	148	**415420**	0.56	8.2	9.2	130
414660	19 x 0.75	1.0	10.0	11.2	201	**415430**	0.56	9.0	10.2	184
414670	37 x 0.75	1.0	13.2	14.4	364	**415440**	0.56	12.2	13.4	338
414690	48 x 0.75	1.0	14.8	16.4	463	**415460**	0.56	13.9	15.5	440
414700	4 x 1.0	1.0	6.3	7.3	68	**415470**	0.42	4.9	5.9	53
414720	7 x 1.0	1.0	7.3	8.3	106	**415480**	0.42	6.0	7.0	88
414730	13 x 1.0	1.0	9.7	10.9	182	**415490**	0.56	8.7	9.9	163
414740	19 x 1.0	1.0	10.7	11.9	247	**415500**	0.56	9.8	11.0	229
414750	37 x 1.0	1.0	14.0	15.6	451	**415510**	0.56	13.3	14.5	430
414760	4 x 1.5	1.0	7.4	8.4	99	**415520**	0.42	6.0	7.0	79
414790	7 x 1.5	1.0	8.6	9.8	153	**415530**	0.56	7.7	8.7	136
414810	13 x 1.5	1.0	11.7	12.9	271	**415540**	0.56	10.7	11.9	248
414820	19 x 1.5	1.0	13.0	14.2	373	**415550**	0.56	12.0	13.2	347
414830	37 x 1.5	1.0	17.2	18.8	688	**415560**	0.56	16.2	17.8	651
414840	2 x 2.5	1.0	7.7	8.7	87	**415570**	0.56	6.7	7.7	74
414850	3 x 2.5	1.0	8.1	9.1	118	**415580**	0.56	7.7	8.1	111
414870	4 x 2.5	1.0	8.8	10.0	147	**415590**	0.56	7.9	8.9	139

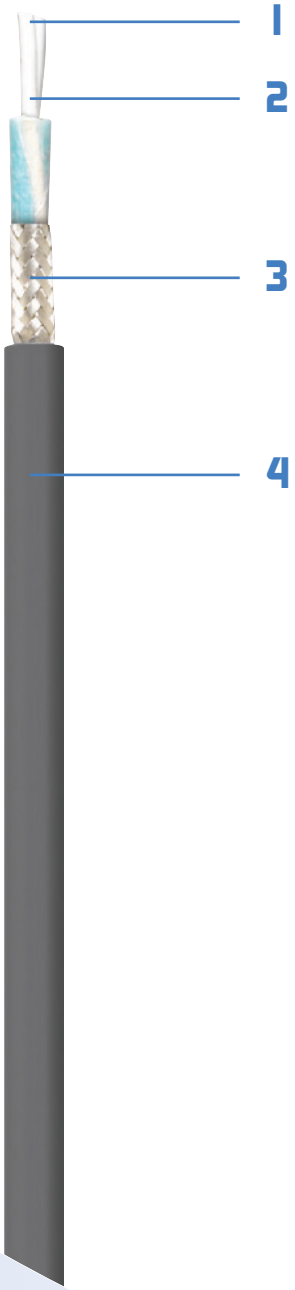
Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Multi-Core and Pairs Screened and Sheathed

Light Weight, Reduced Dimensions, Class E (Exposed) and Class P (Protected)

300 V/500 V

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT



Product Construction

1. Conductor:
- Tinned copper wires per EN 50306-2

2. Insulation:
- 90°C/105°C Low-Smoke, Zero-Halogen irradiated compound
- White with printed numbers – unless otherwise specified

3. Overall Screen:
- Tinned copper wires

4. Sheath:
- Low-Smoke, Zero-Halogen irradiated compound (S2, EM 101 to EM 104)
- Black – unless otherwise specified

Cable Markings:
- Manufacturer's Name
- EN Reference
- Table Number
- Cable Class (P or E)
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Identifier for the Particular Hazard Level per EN 45545-1
- S – Cable with a metallic screen
- Temperature Rating

Applications:
- Control and monitoring circuits
- Interlocking circuits
- Indicating circuits
- Internal wiring of equipment

Tested in Accordance with:
- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:
- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

General Cable
Phone: 1.866.248.7060
International: +1.859.572.8000
info@generalcable.com

IRIS Certification

Polyrad® LSZH Low-Smoke, Zero-Halogen

Thin Wall, Multi-Core and Pairs Screened and Sheathed

Light Weight, Reduced Dimensions, Class E (Exposed) and Class P (Protected)

300 V/500 V

POLYRAD®

CATALOG NUMBER	CROSS-SECTIONAL AREA	CABLES CLASS E (EXPOSED)			WEIGHT	CATALOG NUMBER	CABLES CLASS P (PROTECTED)			WEIGHT
		MIN. THICKNESS OF SHEATH	OVERALL DIAMETER				MIN. THICKNESS OF SHEATH	OVERALL DIAMETER		
	n x mm²	mm	MIN. mm	MAX. mm	CABLE kg/km		mm	MIN. mm	MAX. mm	CABLE kg/km
THIN WALL, MULTI-CORE SCREENED AND SHEATHED – 300 V/500 V										
414880	2 x 0.5	1.0	5.5	6.5	46	**415600**	0.42	4.1	5.1	33
414890	3 x 0.5	1.0	5.7	6.7	54	**415610**	0.42	4.3	5.3	39
414900	4 x 0.5	1.0	6.1	7.1	64	**415620**	0.56	4.7	5.7	48
414910	6 x 0.5	1.0	6.9	7.9	87	**415630**	0.56	5.5	6.5	70
414920	8 x 0.5	1.0	7.5	8.5	107	**415640**	0.56	6.0	7.0	88
414930	2 x 0.75	1.0	5.9	6.9	56	**415650**	0.42	4.5	5.5	39
414940	3 x 0.75	1.0	6.2	7.2	65	**415680**	0.42	4.7	5.7	49
414960	4 x 0.75	1.0	6.5	7.5	79	**415690**	0.56	5.2	6.2	63
414970	6 x 0.75	1.0	7.5	8.5	106	**415700**	0.56	6.1	7.1	87
414980	8 x 0.75	1.0	8.2	9.2	133	**415710**	0.56	6.6	7.6	113
414990	2 x 1.0	1.0	6.2	7.2	62	**415720**	0.42	4.7	5.7	47
415000	3 x 1.0	1.0	6.5	7.5	79	**415730**	0.42	5.1	6.0	62
415010	4 x 1.0	1.0	6.9	7.9	93	**415740**	0.56	5.5	6.5	76
415020	6 x 1.0	1.0	8.0	9.0	128	**415750**	0.56	6.6	7.6	105
415030	8 x 1.0	1.0	8.6	9.8	157	**415760**	0.56	7.7	8.7	140
415040	2 x 1.5	1.0	7.1	8.1	85	**415770**	0.42	5.7	6.7	67
415050	3 x 1.5	1.0	7.4	8.4	103	**415780**	0.56	6.0	7.0	85
415060	4 x 1.5	1.0	8.0	9.0	127	**415790**	0.56	6.6	7.6	104
415090	6 x 1.5	1.0	9.2	10.4	174	**415800**	0.56	8.3	9.3	155
415100	8 x 1.5	1.0	10.2	11.4	218	**415810**	0.56	8.9	10.1	198
415110	2 x 2.5	1.0	8.3	9.3	117	**415820**	0.56	7.3	8.3	100
415120	3 x 2.5	1.0	8.6	9.8	145	**415830**	0.56	7.7	8.7	127
415130	4 x 2.5	1.0	9.4	10.6	180	**415840**	0.56	8.4	9.6	158
THIN WALL, MULTI-PAIR INDIVIDUALLY SCREENED AND SHEATHED – 300 V/500 V										
415140	2 x 2 x 0.5	1.0	10.1	11.3	100	**415850**	0.56	9.0	10.2	85
415160	3 x 2 x 0.5	1.0	10.8	12.0	148	**415860**	0.56	9.6	10.8	118
415170	4 x 2 x 0.5	1.0	11.8	13.0	180	**415870**	0.56	10.7	11.9	158
415180	7 x 2 x 0.5	1.0	13.9	15.5	270	**415880**	0.56	13.0	14.2	244
415190	2 x 2 x 0.75	1.0	10.9	12.1	119	**415890**	0.56	9.8	11.0	93
415200	3 x 2 x 0.75	1.0	11.6	12.8	174	**415900**	0.56	10.5	11.7	147
415210	4 x 2 x 0.75	1.0	12.8	14.0	218	**415910**	0.56	11.6	12.8	183
415220	7 x 2 x 0.75	1.0	15.1	16.7	328	**415940**	0.56	14.0	15.6	293
415230	2 x 2 x 1.0	1.0	11.3	12.5	129	**415980**	0.56	10.2	11.6	107
415240	3 x 2 x 1.0	1.0	12.0	13.2	191	**415990**	0.56	10.9	12.1	163
415250	4 x 2 x 1.0	1.0	13.2	14.4	235	**416020**	0.56	12.1	13.3	204
415260	7 x 2 x 1.0	1.0	15.7	17.3	369	**416030**	0.56	14.6	16.2	332
415270	2 x 2 x 1.5	1.0	13.3	14.5	181	**416040**	0.56	12.2	13.4	153
415310	3 x 2 x 1.5	1.0	14.0	15.6	264	**416050**	0.56	13.1	14.3	232
415320	4 x 2 x 1.5	1.0	15.5	17.1	337	**416060**	0.56	14.3	15.9	293
415340	7 x 2 x 1.5	1.0	18.7	20.3	542	**416070**	0.56	17.6	19.2	493

RoHS Compliant
Directive 2002/95/EC

General Cable

Phone: 1.866.248.7060
International: +1.859.572.8000
info@generalcable.com

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Single Core Unsheathed

Reduced Dimensions

0,6/1 kV or 1,8/3 kV

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT

Product Construction

1. Conductor:

- Flexible Class 5 stranded tinned copper per IEC 60228

2. Insulation:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EI 106 to EI 109)
- Black – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Conductor Size
- Insulation Code Designation per Annex A of EN 50264-3-1

Applications:

- Lighting circuits powered by accumulators
- Equipment control and monitoring circuits
- Auxiliary and electric heating circuits

Tested in Accordance with:

- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:

- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Single Core Unsheathed

Reduced Dimensions

0,6/1 kV or 1,8/3 kV

POLYRAD®

CATALOG NUMBER	CROSS-SECTIONAL AREA	CONDUCTOR		MEAN THICKNESS OF INSULATION	CABLE DIAMETER		CONDUCTOR RESISTANCE	WEIGHT	
	mm²	CONSTRUCTION n x mm	DIAMETER mm	mm	MIN. mm	MAX. mm	MAX. Ω/km	COPPER kg/km	CABLE kg/km
MEDIUM WALL, SINGLE CORE UNSHEATHED – 0,6/1 kV									
412300	1	32 x 0.20	1.30	0.6	2.4	2.8	20.0	9	14
412310	1.5	28 x 0.25	1.52	0.7	2.8	3.3	13.7	13	20
412320	2.5	46 x 0.25	1.93	0.7	3.2	3.8	8.21	20	31
412330	4	56 x 0.30	2.50	0.7	3.8	4.4	5.09	35	45
412340	6	82 x 0.30	3.07	0.7	4.2	5.0	3.39	53	63
412370	10	80 x 0.40	4.09	0.7	5.1	5.9	1.95	89	110
412380	16	126 x 0.40	5.33	0.7	6.1	7.2	1.24	142	156
412390	25	182 x 0.40	6.80	0.9	7.8	9.1	0.795	205	238
412400	35	259 x 0.40	8.12	0.9	9.0	10.6	0.565	292	330
412410	50	371 x 0.40	9.72	1.0	10.6	12.4	0.393	418	462
412420	70	329 x 0.50	11.60	1.1	12.5	14.6	0.277	596	658
412430	95	437 x 0.50	13.52	1.1	13.9	16.3	0.210	795	860
412440	120	551 x 0.50	15.18	1.2	15.7	18.4	0.164	1003	1080
412450	150	684 x 0.50	16.92	1.4	17.6	20.6	0.132	1245	1367
412460	185	851 x 0.50	18.93	1.6	19.6	22.9	0.108	1556	1690
412470	240	1110 x 0.50	21.62	1.7	22.2	26.0	0.0817	2030	2234
412480	300	1406 x 0.50	24.33	1.8	24.6	28.8	0.0654	2571	2780
412490	400	1850 x 0.50	27.91	2.0	28.1	32.9	0.0495	3382	3735
MEDIUM WALL, SINGLE CORE UNSHEATHED – 1,8/3 kV									
412500	1.5	28 x 0.25	1.52	2.0	5.3	6.2	13.7	13	51
412510	2.5	46 x 0.25	1.93	2.0	5.7	6.7	8.21	20	64
412520	4	56 x 0.30	2.50	2.0	6.2	7.3	5.09	35	83
412530	6	82 x 0.30	3.07	2.0	6.7	7.8	3.39	53	104
412540	10	80 x 0.40	4.09	2.0	7.5	8.8	1.95	89	150
412550	16	126 x 0.40	5.33	2.0	8.6	10.0	1.24	142	215
412570	25	182 x 0.40	6.80	2.0	9.9	11.6	0.795	205	293
412580	35	259 x 0.40	8.12	2.0	11.1	13.0	0.565	292	390
412590	50	371 x 0.40	9.72	2.0	12.5	14.6	0.393	418	525
412610	70	329 x 0.50	11.60	2.0	14.2	16.6	0.277	596	720
412620	95	437 x 0.50	13.52	2.2	16.0	18.7	0.210	795	935
412630	120	551 x 0.50	15.18	2.2	17.6	20.6	0.164	1003	1155
412640	150	684 x 0.50	16.92	2.2	19.1	22.3	0.132	1245	1443
412650	185	851 x 0.50	18.93	2.4	20.9	24.4	0.108	1556	1760
412670	240	1110 x 0.50	21.62	2.4	23.7	27.5	0.0817	2030	2350
412680	300	1406 x 0.50	24.33	2.4	25.6	30.1	0.0654	2571	2823
412690	400	1850 x 0.50	27.91	2.6	29.2	34.2	0.0495	3382	3734

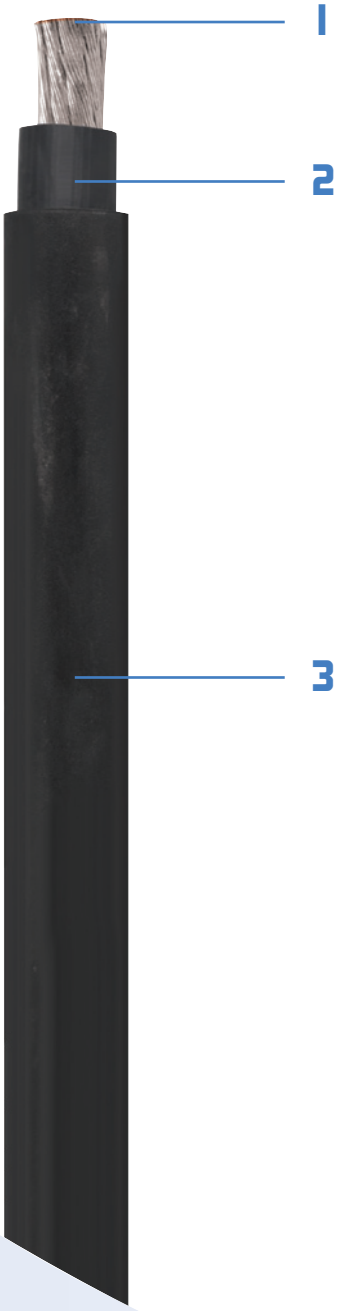
Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Single Core Sheathed

Reduced Dimensions

1,8/3 kV

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT



Product Construction

1. Conductor:

- Flexible Class 5 stranded tinned copper per IEC 60228

2. Insulation:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EI 106 to EI 109)
- Black – unless otherwise specified

3. Sheath:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EM 101 to EM 104)
- Black – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Conductor Size
- Insulation/Sheath Code Designation per Annex A of EN 50264-3-1

Applications:

- Auxiliary circuits at line voltage
- Traction circuits
- Electric heating fed at line voltage run in trays - exposed

Tested in Accordance with:

- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:

- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

General Cable

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IRIS Certification

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Single Core Sheathed

Reduced Dimensions

1,8/3 kV

CATALOG NUMBER	CROSS-SECTIONAL AREA	CONDUCTOR		MEAN THICKNESS OF INSULATION	MEAN THICKNESS OF SHEATH	CABLE DIAMETER		CONDUCTOR RESISTANCE	WEIGHT	
	mm²	CONSTRUCTION n x mm	DIAMETER mm	mm	mm	MIN. mm	MAX. mm	MAX. Ω/km	COPPER kg/km	CABLE kg/km
MEDIUM WALL, SINGLE CORE SHEATHED – 1,8/3 kV										
412720	2.5	46 x 0.25	1.93	1.3	0.8	6.0	7.0	8.21	20	70
412730	4	56 x 0.30	2.50	1.3	0.8	6.5	7.6	5.09	35	90
412750	6	82 x 0.30	3.07	1.3	0.8	7.0	8.1	3.39	53	110
412760	10	80 x 0.40	4.09	1.5	0.8	8.2	9.6	1.95	89	170
412770	16	126 x 0.40	5.33	1.5	0.8	9.2	10.8	1.24	142	240
412780	25	182 x 0.40	6.80	1.8	1.0	11.5	13.4	0.795	205	350
412790	35	259 x 0.40	8.12	1.8	1.0	12.7	14.9	0.565	292	450
412800	50	371 x 0.40	9.72	1.8	1.0	14.1	16.5	0.393	418	590
412810	70	329 x 0.50	11.60	1.8	1.0	15.8	18.5	0.277	596	790
412820	95	437 x 0.50	13.52	2.2	1.0	18.0	21.0	0.210	795	1050
412830	120	551 x 0.50	15.18	2.2	1.0	19.6	22.9	0.164	1003	1270
412840	150	684 x 0.50	16.92	2.2	1.2	21.4	25.1	0.132	1245	1590
412850	185	851 x 0.50	18.93	2.4	1.2	23.4	27.4	0.108	1556	1900
412860	240	1110 x 0.50	21.62	2.4	1.2	25.9	30.3	0.0817	2030	2490
412870	300	1406 x 0.50	24.33	2.4	1.2	28.1	32.9	0.0654	2571	3010
412890	400	1850 x 0.50	27.91	2.6	1.4	32.0	37.4	0.0495	3382	3980

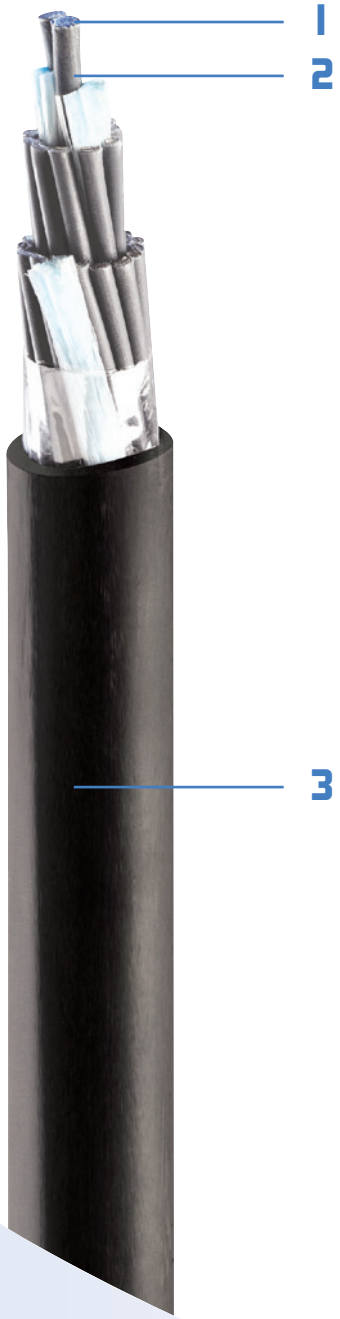
Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Multi-Core Unscreened and Sheathed

Reduced Dimensions

300 V/500 V or 0,6/1 kV

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT



Product Construction

1. Conductor:

- Flexible Class 5 stranded tinned copper per IEC 60228

2. Insulation:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EM 101 to EI 104)
- Black with printed numbers – unless otherwise specified

3. Sheath:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EM 101 to EM 104)
- Black – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Insulation/Sheath Code Designation per Annex A of EN 50264-3-2

Applications:

300 V/500 V

- Internal safe circuits
- Control and monitoring circuits

0,6/1 kV

- Lighting circuits
- Auxiliary and electric heating circuits
- Control and monitoring circuits

Tested in Accordance with:

- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:

- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

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International: +1.859.572.8000
info@generalcable.com

IRIS Certification

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Multi-Core Unscreened and Sheathed

Reduced Dimensions

300 V/500 V or 0,6/1 kV

POLYRAD®

CATALOG NUMBER	CROSS-SECTIONAL AREA	CONDUCTOR DIAMETER	MEAN THICKNESS OF INSULATION	CORE DIAMETER		MEAN THICKNESS OF SHEATH	CABLE DIAMETER		WEIGHT
	n x mm²	mm	mm	MIN. mm	MAX. mm	mm	MIN. mm	MAX. mm	CABLE kg/km
MEDIUM WALL, MULTI-CORE UNSCREENED AND SHEATHED – 300 V/500 V									
412910	2 x 1	1.3	0.4	2.0	2.4	0.6	5.3	6.2	44
412920	4 x 1	1.3	0.4	2.0	2.4	0.6	6.1	7.2	72
412930	7 x 1	1.3	0.4	2.0	2.4	0.7	7.5	8.7	118
412940	9 x 1	1.3	0.4	2.0	2.4	0.7	9.1	10.6	159
412950	12 x 1	1.3	0.4	2.0	2.4	0.7	9.8	11.5	189
412960	19 x 1	1.3	0.4	2.0	2.4	0.8	11.7	13.7	288
412970	24 x 1	1.3	0.4	2.0	2.4	1.0	14.1	16.5	393
412990	32 x 1	1.3	0.4	2.0	2.4	1.0	15.5	18.2	492
413000	37 x 1	1.3	0.4	2.0	2.4	1.0	16.1	18.9	554
413010	40 x 1	1.3	0.4	2.0	2.4	1.0	16.7	19.6	598
413020	4 x 1.5	1.52	0.5	2.4	2.9	0.6	7.3	8.6	106
413030	7 x 1.5	1.52	0.5	2.4	2.9	0.7	8.7	10.2	167
413040	9 x 1.5	1.52	0.5	2.4	2.9	0.7	10.9	12.7	232
413050	12 x 1.5	1.52	0.5	2.4	2.9	0.7	11.8	13.8	278
413070	19 x 1.5	1.52	0.5	2.4	2.9	0.8	14.2	16.6	435
413080	24 x 1.5	1.52	0.5	2.4	2.9	1.0	16.6	19.5	560
413110	32 x 1.5	1.52	0.5	2.4	2.9	1.0	18.7	21.9	723
413120	37 x 1.5	1.52	0.5	2.4	2.9	1.0	19.5	22.8	820
413130	4 x 2.5	1.93	0.5	2.9	3.4	0.6	8.3	9.8	152
413150	7 x 2.5	1.93	0.5	2.9	3.4	0.7	10.2	11.9	244
413200	9 x 2.5	1.93	0.5	2.9	3.4	0.7	12.9	15.1	347
413210	12 x 2.5	1.93	0.5	2.9	3.4	0.7	13.9	16.3	424
413220	19 x 2.5	1.93	0.5	2.9	3.4	0.8	16.3	19.1	635
413230	24 x 2.5	1.93	0.5	2.9	3.4	1.0	19.6	22.9	840
MEDIUM WALL, TWO CORE UNSCREENED AND SHEATHED – 0,6/1 kV									
413480	2 x 1.5	1.52	0.7	2.8	3.3	0.7	7.2	9.0	71
413490	2 x 2.5	1.93	0.7	3.2	3.8	0.7	8.0	10.0	95
413500	2 x 4	2.50	0.7	3.8	4.4	0.7	9.1	11.3	128
413510	2 x 6	3.07	0.7	4.2	5.0	0.8	10.1	12.4	174
413520	2 x 10	4.09	0.7	5.1	5.9	1.0	12.5	15.4	290
413530	2 x 16	5.33	0.7	6.1	7.2	1.0	14.9	18.4	391
413550	2 x 25	6.80	0.9	7.8	9.1	1.2	18.7	23.0	593
413560	2 x 35	8.12	0.9	9.0	10.6	1.2	21.2	25.9	786
413580	2 x 50	9.72	1.0	10.6	12.4	1.4	25.1	30.7	1139
MEDIUM WALL, THREE CORE UNSCREENED AND SHEATHED – 0,6/1 kV									
413710	3 x 1.5	1.52	0.7	2.8	3.3	0.7	7.7	9.5	97
413720	3 x 2.5	1.93	0.7	3.2	3.8	0.7	8.5	10.5	131
413730	3 x 4	2.50	0.7	3.8	4.4	0.7	9.7	12.0	180
413740	3 x 6	3.07	0.7	4.2	5.0	0.8	10.7	13.2	246
413750	3 x 10	4.09	0.7	5.1	5.9	1.0	13.3	16.5	413
413760	3 x 16	5.33	0.7	6.1	7.2	1.0	16.0	19.6	570
413770	3 x 25	6.80	0.9	7.8	9.1	1.2	20.0	24.7	853
413780	3 x 35	8.12	0.9	9.0	10.6	1.2	23.0	28.2	1160
413790	3 x 50	9.72	1.0	10.6	12.4	1.4	26.3	32.2	1680
MEDIUM WALL, FOUR CORE UNSCREENED AND SHEATHED – 0,6/1 kV									
413890	4 x 1.5	1.52	0.7	2.8	3.3	0.7	8.5	10.5	122
413900	4 x 2.5	1.93	0.7	3.2	3.8	0.7	9.4	11.6	168
413910	4 x 4	2.50	0.7	3.8	4.4	0.8	10.9	13.4	237
413920	4 x 6	3.07	0.7	4.2	5.0	1.0	12.2	14.9	331
413930	4 x 10	4.09	0.7	5.1	5.9	1.0	14.7	18.2	544
413940	4 x 16	5.33	0.7	6.1	7.2	1.2	18.0	22.1	751
413950	4 x 25	6.80	0.9	7.8	9.1	1.4	22.6	27.6	1136
414020	3 x 35 + 25	8.12/6.8	0.9/0.9	9.0/7.8	10.6/9.1	1.4	25.7	31.2	1486
414040	3 x 50 + 25	9.72/6.8	1.0/0.9	10.6/7.8	12.4/9.1	1.6	30.0	36.5	2106

RoHS Compliant
Directive 2002/95/EC

General Cable

Phone: 1.866.248.7060
International: +1.859.572.8000
info@generalcable.com

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Multi-Core Screened and Sheathed

Reduced Dimensions

300 V/500 V or 0,6/1 kV

HALOGEN FREE | LOW-SMOKE EMISSIONS | FLAME-RETARDANT | CRUSH & IMPACT RESISTANT | FLEXIBLE | OIL-RESISTANT | UV/SUNLIGHT-RESISTANT

Product Construction

1. Conductor:

- Flexible Class 5 stranded tinned copper per IEC 60228

2. Insulation:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EM 101 to EI 104)
- Black with printed numbers – unless otherwise specified

3. Overall Screen:

- Tinned copper wires

4. Sheath:

- 90°C Low-Smoke, Zero-Halogen irradiated Cross-linked Polyolefin (EM 101 to EM 104)
- Black – unless otherwise specified

Cable Markings:

- Manufacturer's Name
- EN Reference
- Voltage Rating (U_0)
- Number of Cores and Conductor Size
- Insulation/Sheath Code Designation per Annex A of EN 50264-3-2
- S – Cable with a Metallic Screen

Applications:

300 V/500 V

- Internal safe circuits
- Control and monitoring circuits

0,6/1 kV

- Lighting circuits
- Auxiliary and electric heating circuits
- Control and monitoring circuits

Tested in Accordance with:

- EN 60684-2: No Fluorine
- EN 50305/EN 60811-2-2: Resistant to Oil and Fuel
- EN 50305: Ozone-Resistant

Other Design Adherence:

- BS EN 60332-1-2 and BS EN 60332-3-24: Flame-Retardant
- BS EN 50267-2-1 or BS EN 50267-2-2: Zero-Halogen
- BS EN 61034-2: Low-Smoke
- No SVHC Listed Chemicals under REACH
- RoHS Compliant

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IRIS Certification

Polyrad® LSZH Low-Smoke, Zero-Halogen

Medium Wall, Multi-Core Screened and Sheathed

Reduced Dimensions

300 V/500 V or 0.6/1 kV

CATALOG NUMBER	CROSS-SECTIONAL AREA	CONDUCTOR DIAMETER	MEAN THICKNESS OF INSULATION	CORE DIAMETER		WIRE DIAMETER OF SCREEN	MEAN THICKNESS OF SHEATH	CABLE DIAMETER		WEIGHT
	n x mm²	mm	mm	MIN. mm	MAX. mm	MAX. mm	mm	MIN. mm	MAX. mm	CABLE kg/km
MEDIUM WALL, MULTI-CORE SCREENED AND SHEATHED – 300 V/500 V										
413240	2 x 1	1.3	0.4	2.0	2.4	0.16	0.6	6.0	7.1	68
413250	4 x 1	1.3	0.4	2.0	2.4	0.16	0.6	7.0	8.2	106
413260	7 x 1	1.3	0.4	2.0	2.4	0.16	0.7	8.2	9.6	153
413270	9 x 1	1.3	0.4	2.0	2.4	0.21	0.7	10.2	11.9	222
413280	12 x 1	1.3	0.4	2.0	2.4	0.21	0.7	10.9	12.7	260
413290	19 x 1	1.3	0.4	2.0	2.4	0.26	0.8	13.2	15.4	396
413300	24 x 1	1.3	0.4	2.0	2.4	0.26	1.0	15.2	17.8	498
413310	32 x 1	1.3	0.4	2.0	2.4	0.26	1.0	16.6	19.4	609
413320	37 x 1	1.3	0.4	2.0	2.4	0.26	1.0	17.2	20.1	671
413330	40 x 1	1.3	0.4	2.0	2.4	0.26	1.0	18.2	21.3	741
413340	4 x 1.5	1.52	0.5	2.4	2.9	0.16	0.6	8.0	9.4	138
413350	7 x 1.5	1.52	0.5	2.4	2.9	0.21	0.7	9.6	11.3	221
413360	9 x 1.5	1.52	0.5	2.4	2.9	0.21	0.7	12.1	14.2	292
413370	12 x 1.5	1.52	0.5	2.4	2.9	0.21	0.7	13.0	15.2	364
413380	19 x 1.5	1.52	0.5	2.4	2.9	0.26	0.8	15.3	17.9	535
413390	24 x 1.5	1.52	0.5	2.4	2.9	0.26	1.0	18.1	21.2	697
413400	32 x 1.5	1.52	0.5	2.4	2.9	0.26	1.0	19.8	23.2	858
413410	37 x 1.5	1.52	0.5	2.4	2.9	0.26	1.0	20.5	24.0	955
413420	4 x 2.5	1.93	0.5	2.9	3.4	0.21	0.6	9.2	10.8	202
413430	7 x 2.5	1.93	0.5	2.9	3.4	0.21	0.7	11.1	13.0	308
413440	9 x 2.5	1.93	0.5	2.9	3.4	0.26	0.7	13.9	16.3	435
413450	12 x 2.5	1.93	0.5	2.9	3.4	0.26	0.7	15.0	17.5	520
413460	19 x 2.5	1.93	0.5	2.9	3.4	0.26	0.8	17.8	20.8	767
413470	24 x 2.5	1.93	0.5	2.9	3.4	0.26	1.0	20.6	24.1	973
MEDIUM WALL, TWO CORE SCREENED AND SHEATHED – 0,6/1 kV										
413600	2 x 1.5	1.52	0.7	2.8	3.3	0.16	0.7	7.9	9.9	90
413610	2 x 1.5	1.93	0.7	3.2	3.8	0.16	0.7	8.7	10.7	115
413620	2 x 4	2.50	0.7	3.8	4.4	0.21	0.8	10.2	12.7	170
413640	2 x 6	3.07	0.7	4.2	5.0	0.21	0.8	10.9	13.6	210
413650	2 x 10	4.09	0.7	5.1	5.9	0.21	1.0	13.4	16.6	320
413660	2 x 16	5.33	0.7	6.1	7.2	0.26	1.0	16.0	19.8	465
413670	2 x 25	6.80	0.9	7.8	9.1	0.26	1.2	19.8	24.6	690
413680	2 x 35	8.12	0.9	9.0	10.6	0.31	1.4	22.8	27.9	935
413690	2 x 50	9.72	1.0	10.6	12.4	0.31	1.4	26.4	32.3	1260
MEDIUM WALL, THREE CORE SCREENED AND SHEATHED – 0,6/1 kV										
413800	3 x 1.5	1.52	0.7	2.8	3.3	0.16	0.7	8.4	10.4	120
413810	3 x 2.5	1.93	0.7	3.2	3.8	0.16	0.7	9.2	11.4	160
413820	3 x 4	2.50	0.7	3.8	4.4	0.21	0.8	10.8	13.3	230
413830	3 x 6	3.07	0.7	4.2	5.0	0.21	0.8	11.6	14.3	295
413840	3 x 10	4.09	0.7	5.1	5.9	0.21	1.0	14.4	18.0	498
413850	3 x 16	5.33	0.7	6.1	7.2	0.26	1.2	17.4	21.3	675
413860	3 x 25	6.80	0.9	7.8	9.1	0.26	1.2	21.3	26.1	971
413870	3 x 35	8.12	0.9	9.0	10.6	0.31	1.4	24.5	29.8	1323
413880	3 x 50	9.72	1.0	10.6	12.4	0.31	1.6	28.3	34.6	1823
MEDIUM WALL, FOUR CORE SCREENED AND SHEATHED – 0,6/1 kV										
414050	4 x 1.5	1.52	0.7	2.8	3.3	0.16	0.7	9.1	11.3	149
414060	4 x 2.5	1.93	0.7	3.2	3.8	0.21	0.7	10.4	12.9	216
414070	4 x 4	2.50	0.7	3.8	4.4	0.21	0.8	11.8	14.5	292
414080	4 x 6	3.07	0.7	4.2	5.0	0.21	1.0	13.1	16.1	396
414090	4 x 10	4.09	0.7	5.1	5.9	0.26	1.0	15.9	19.5	640
414100	4 x 16	5.33	0.7	6.1	7.2	0.26	1.2	19.3	23.6	860
414110	4 x 25	6.80	0.9	7.8	9.1	0.31	1.4	24.0	29.3	1290
414120	3 x 35 + 25	8.12/6.8	0.9/0.9	9.0/7.8	10.6/9.1	0.31	1.4	26.9	32.9	1908
414130	3 x 50 + 25	9.72/6.8	1.0/0.9	10.6/7.8	12.4/9.1	0.31	1.6	31.5	38.2	2560

RoHS Compliant Directive 2002/95/EC

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Notes

Section 2

SERVING THE GLOBAL RAPID TRANSIT & LOCOMOTIVE MARKETS

DATE OF ISSUE 09/12

Temperature Conversion Table

Known temperature is in boldface type-**Temp (°F or °C)**. Corresponding temperature in degrees Fahrenheit will be found in the column to the right. Corresponding temperature in degrees Centigrade will be found in the column to the left.

-5 TO -100			0 TO 100						100 TO 500		
°C	Temp (°F or °C)	°F	°C	Temp (°F or °C)	°F	°C	Temp (°F or °C)	°F	°C	Temp (°F or °C)	°F
-73.3	**-100**	-148	-17.8	**0**	32.0	10.0	**50**	122.0	38	**100**	212
-70.5	**-95**	-139	-17.2	**1**	33.8	10.6	**51**	123.8	43	**110**	230
-67.8	**-90**	-130	-16.7	**2**	35.6	11.1	**52**	125.6	49	**120**	248
-65.0	**-85**	-121	-16.1	**3**	37.4	11.7	**53**	127.4	54	**130**	266
-62.2	**-80**	-112	-15.6	**4**	39.2	12.2	**54**	129.2	60	**140**	284
-59.5	**-75**	-103	-15.0	**5**	41.0	12.8	**55**	131.0	66	**150**	302
-56.7	**-70**	-94	-14.4	**6**	42.8	13.3	**56**	132.8	71	**160**	320
-53.9	**-65**	-85	-13.9	**7**	44.6	13.9	**57**	134.6	77	**170**	338
-51.1	**-60**	-76	-13.3	**8**	46.4	14.4	**58**	136.4	82	**180**	356
-48.3	**-55**	-67	-12.8	**9**	48.2	15.0	**59**	138.2	88	**190**	374
-45.6	**-50**	-58	-12.2	**10**	50.0	15.6	**60**	140.0	93	**200**	392
-42.8	**-45**	-49	-11.7	**11**	51.8	16.1	**61**	141.8	99	**210**	410
-40.0	**-40**	-40	-11.1	**12**	53.6	16.7	**62**	143.6	100	**212**	413
-37.2	**-35**	-31	-10.6	**13**	55.4	17.2	**63**	145.4	104	**220**	428
-34.4	**-30**	-22	-10.0	**14**	57.2	17.8	**64**	147.2	110	**230**	446
-31.6	**-25**	-13	-9.44	**15**	59.0	18.3	**65**	149.0	116	**240**	464
-28.9	**-20**	-4	-8.89	**16**	60.8	18.9	**66**	150.8	121	**250**	482
-26.1	**-15**	5	-8.33	**17**	62.6	19.4	**67**	152.6	127	**260**	500
-23.3	**-10**	14	-7.78	**18**	64.4	20.0	**68**	154.4	132	**270**	518
-20.5	**-5**	23	-7.22	**19**	66.2	20.6	**69**	156.2	138	**280**	536
			-6.67	**20**	68.0	21.1	**70**	158.0	143	**290**	554
			-6.11	**21**	69.8	21.7	**71**	159.8	149	**300**	572
			-5.56	**22**	71.6	22.2	**72**	161.6	154	**310**	590
			-5.00	**23**	73.4	22.8	**73**	163.4	160	**320**	608
			-4.44	**24**	75.2	23.3	**74**	165.2	166	**330**	626
			-3.89	**25**	77.0	23.9	**75**	167.0	171	**340**	644
			-3.33	**26**	78.8	24.4	**76**	168.8	177	**350**	662
			-2.78	**27**	80.6	25.0	**77**	170.6	182	**360**	680
			-2.22	**28**	82.4	25.6	**78**	172.4	188	**370**	698
			-1.67	**29**	84.2	26.1	**79**	174.2	193	**380**	716
			-1.11	**30**	86.0	26.7	**80**	176.0	199	**390**	734
			-0.56	**31**	87.7	27.2	**81**	177.8	204	**400**	752
			0	**32**	89.6	27.8	**82**	179.6	210	**410**	770
			0.56	**33**	91.4	28.3	**83**	181.4	216	**420**	788
			1.11	**34**	93.2	28.9	**84**	183.2	221	**430**	806
			1.67	**35**	95.0	29.4	**85**	185.0	227	**440**	824
			2.22	**36**	96.8	30.0	**86**	186.8	232	**450**	842
			2.78	**37**	98.6	30.6	**87**	188.6	238	**460**	860
			3.33	**38**	100.4	31.1	**88**	190.4	243	**470**	878
			3.89	**39**	102.2	31.7	**89**	192.2	249	**480**	896
			4.44	**40**	104.0	32.2	**90**	194.0	254	**490**	914
			5.00	**41**	105.8	32.8	**91**	195.8	260	**500**	932
			5.56	**42**	107.6	33.3	**92**	197.6			
			6.11	**43**	109.4	33.9	**93**	199.4			
			6.67	**44**	111.2	34.4	**94**	201.2			
			7.22	**45**	113.0	35.0	**95**	203.0			
			7.78	**46**	114.8	35.6	**96**	204.8			
			8.33	**47**	116.6	36.1	**97**	206.6			
			8.89	**48**	118.4	36.7	**98**	208.4			
			9.44	**49**	120.2	37.2	**99**	210.2			
						37.8	**100**	212.0			

Interpolation Factors

°C	Temp (°F or °C)	°F	°C	Temp (°F or °C)	°F	°C	Temp (°F or °C)	°F
0.56	**1**	1.8	2.22	**4**	7.2	3.89	**7**	12.6
1.11	**2**	3.6	2.78	**5**	9.0	4.44	**8**	14.4
1.67	**3**	5.4	3.33	**6**	10.8	5.00	**9**	16.2

Metric Conversion Factors

	To Convert From	To	Multiply By
Length	Inches	Millimeters	25.4
	Millimeters	Inches	0.03937
	Inches	Centimeters	2.54
	Centimeters	Inches	0.3937
	Feet	Meters	0.3048
	Meters	Feet	3.2808
	Kilofeet (1000 feet)	Kilometers	0.3048
	Kilometers	Kilofeet (1000 feet)	3.2808
Area	Square Inches	Square Millimeters	645.16
	Square Millimeters	Square Inches	0.00155
	Square Inches	Square Centimeters	6.4516
	Square Centimeters	Square Inches	0.155
	Square Inches	Circular Mils	1,273,240
	Circular Mils	Square Inches	7.854×10^{-7}
	Circular Mils	Square Millimeters	5.066×10^{4}
	Square Millimeters	Circular Mils	1973.51
	Square Feet	Square Meters	0.0929
	Square Meters	Square Feet	10.764
Weight	Pounds	Kilograms	0.4536
	Kilograms	Pounds	2.2046
	Pound/Kilofeet	Kilograms/Kilometer	1.4882
	Kilograms/Kilometer	Pounds/Kilofeet	0.6720
Electrical	Ohms/Kilofeet	Ohms/Kilometer	3.2808
	Ohms/Kilometer	Ohms/Kilofeet	0.3048
	Microfarads/Kilofeet	Microfarads/Kilometer	3.2808
	Microfarads/Kilometer	Microfarads/Kilofeet	0.3048
	Insulation Resistance:		
	Megohms—Kilofeet	Megohms—Kilometer	0.3048
	Megohms—Kilometer	Megohms—Kilofeet	3.2808
Mechanical	Pounds/Square Inch	Kilo Pascal*	6.895
	Kilo Pascal*	Pounds/Square Inch	0.1432
	Pounds (force)	Newtons	4.448

* 1 Pascal = 1 Newton/square meters

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AWG (American Wire Gauge) to mm² (Millimeters Squared) Conversion

AWG/KCMIL	Circ. Mils[1]	Cross-Sectional Area (mm²)
929	929,200	471
	789,410	400
777	777,700	394
750	750,000	380
646	646,400	327
600	600,000	304
	592,058	300
535	535,300	271
500	500,000	253
	473,646	240
444	444,400	225
400	400,000	203
373	373,700	187
	365,102	185
350	350,000	177
313	313,100	159
300	300,000	152
	296,029	150
262	262,600	133
250	250,000	127
	236,823	120
4/0	216,900	110
	187,485	95
3/0	174,800	89
	138,147	70

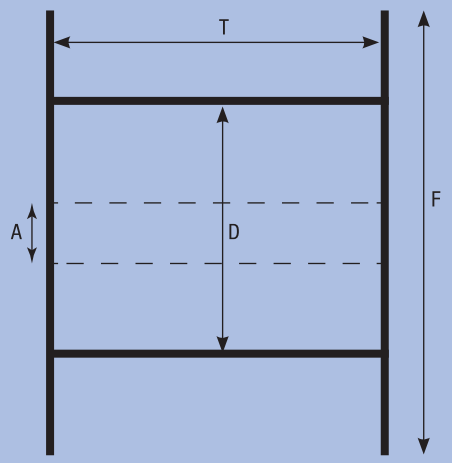
AWG/KCMIL	Circ. Mils[1]	Cross-Sectional Area (mm²)
2/0	134,200	68
1/0	108,350	55
	98,676	50
1	87,295	44
	69,073	35
2	63,480	32
	49,338	25
4	42,080	21
	31,576	16
6	25,440	12.9
	19,735	10.0
8	15,730	8.0
	11,841	6.0
10	10,645	5.4
	7,894	4.0
12	6,309	3.2
	4,934	2.50
14	3,970	2.04
	2,960	1.50
16	2,503	1.31
	1,974	1.00
18	1,760	0.82
	1,480	0.75
20	1,118	0.52
	987	0.50

[1] Circular Mil Area values are approximate and are provided as a reference guide.

Reel Capacity Chart

WOOD REELS

Reel (FxTxD)	30x18x12	36x24x17	40x24x17	45x28x21	50x32x24	58x32x28	72x36x36	84x36x48	90x36x48
RM Code	61-1215	61-1659	61-1808	61-2056	61-2253	61-2764	61-3655	61-4265	61-4366
Arbor Hole	2.75	3.06	3.06	3.06	3.06	3.06	3.06	3.5	3.5
Drive Hole	1	1	1	1.5	1.5	1.5	1.5	1.5	1.5
Drive Hole Radius	4.5	6	6	8.5	10	10	10	10	10
Clearance	1.5	2	2	2	2	2	2	2	3
Factor	509.3	1155.4	1582.8	2274.2	3227.7	4468.6	7847.4	9658.4	11205.2
Max Weight	750	1500	2000	3000	4800	6500	8000	9000	10,000
Net Weight	47	91	110	142	208	271	513	744	821
Cable OD									
.241 - .250	11040								
.251 - .260	10200								
.261 - .270	9460								
.271 - .280	8800								
.281 - .290	8200								
.291 - .300	7660								
.301 - .310	7180								
.311 - .320	6740	10790							
.321 - .330	6330	10110							
.331 - .340	5970	9610							
.341 - .350	5630	9030							
.351 - .360	6320	8490							
.361 - .370	5040	8100							
.371 - .380	4780	7620	10520						
.381 - .390	4530	7300	9940						
.391 - .400	4310	6880	9540						
.401 - .410	4100	6600	9030						
.411 - .420	3910	6230	8550	12580					
.421 - .430	3730	6000	8220	11940					
.431 - .440	3560	5660	7790	11330					
.441 - .450	3410	5450	7510	10910					
.451 - .460	3260	5250	7120	10370	15010				
.461 - .470	3120	4970	6880	10000	14290				
.471 - .480	2990	4700	6530	9510	13790				
.481 - .490	2870	4630	6310	9180	13150				
.491 - .500	2760	4390	6110	8880	12700				
.501 - .525	2500	4040	5530	8050	11540				
.526 - .550	2280	3650	5030	7330	10510				
.551 - .575	2090	3310	4580	6680	9610				
.576 - .600	1920	3080	4180	6110	8800				
.601 - .625	1770	2810	3910	5590	8050				
.626 - .650	1630	2630	3580	5240	7430	10420			
.651 - .675	1510	2400	3280	4820	6970	9630			
.676 - .700	1410	2260	3090	4530	6430	8900			
.701 - .725	1310	2070	2840	4180	5940	8260			
.726 - .750	1230	1950	2690	3950	5610	7800			
.751 - .775	1150	1840	2480	3650	5190	7250			
.776 - .800	1080	1690	2350	3460	4920	6870			
.801 - .825	1010	1610	2230	3200	4670	6400	11530		
.826 - .850	950	1530	2060	3040	4340	6090	10860		
.851 - .875	900	1450	1970	2900	4130	5680	10250		
.876 - .900	850	1340	1880	2690	3850	5420	9690		
.901 - .925	810	1280	1735	2570	3670	5060	9170	11290	
.926 - .950	760	1220	1660	2460	3510	4840	8700	10700	
.951 - .975	730	1170	1590	2280	3270	4630	8250	10160	
.976 - 1.000	690	1075	1525	2190	3130	4340	7850	9660	11210
1.001 - 1.050	630	990	1360	2010	2880	3990	7120	8760	10160
1.051 - 1.100	570	910	1260	1800	2590	3600	6490	7980	9260
1.101 - 1.150	520	810	1120	1670	2400	3250	5930	7300	8470
1.151 - 1.200	480	750	1040	1500	2160	3030	5450	6710	7780
1.201 - 1.250	440	700	980	1400	2020	2740	5020	6180	7170
1.251 - 1.300	410	650	870	1310	1820	2570	4640	5720	6630
1.301 - 1.350	380	580	820	1180	1710	2410	4320	5300	6150
1.351 - 1.400	350	550	770	1110	1610	2190	4000	4930	5720
1.401 - 1.450	330	520	690	1040	1460	2070	3730	4590	5330
1.451 - 1.500	310	490	650	990	1370	1950	3490	4290	4980
1.501 - 1.600	270	410	590	840	1230	1690	3070	3770	4380
1.601 - 1.700	240	370	500	760	1060	1520	2720	3340	3880
1.701 - 1.800		330	450	650	960	1325	2420	2980	3460
1.801 - 1.900			420	600	880	1210	2170	2680	3100
1.091 - 2.000				540	760	1060	1960	2410	2800
2.001 - 2.100				500	700	970	1740	2190	2540
2.101 - 2.200					650	900	1620	2000	2320
2.201 - 2.300					600	790	1480	1830	2120
2.301 - 2.400					520	740	1360	1680	1950
2.401 - 2.500					490	690	1260	1550	1790
2.501 - 2.600					460	640	1160	1430	1660
2.601 - 2.700					430	600	1080	1320	1540
2.701 - 2.800						530	1000	1230	1430
2.801 - 2.900						500	930	1150	1330
2.901 - 3.000						470	870	1070	1250
3.001 - 3.100						440	820	1010	1170
3.101 - 3.200						420	770	940	1090
3.201 - 3.300						400	720	890	1030
3.301 - 3.400						380	680	840	970
3.401 - 3.500							640	790	910



F = Flange Diameter
T = Traverse Width
D = Drum Diameter
A = Arbor Hole

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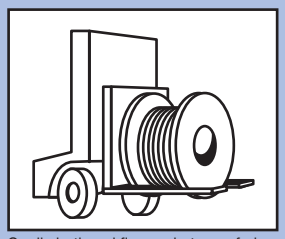
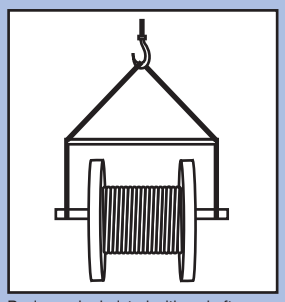
Recommended Reel Handling Practices

How to Handle Cable Reels

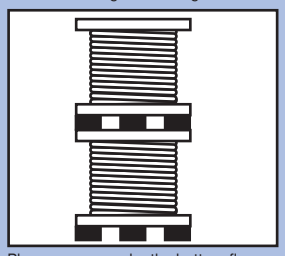
YES



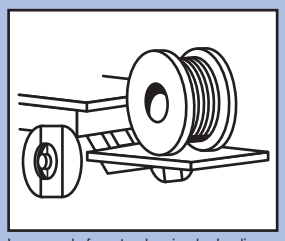
Cradle both reel flanges between forks.



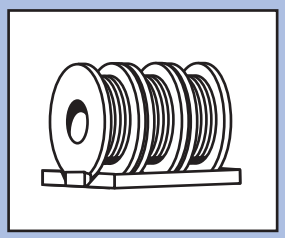
Reels can be hoisted with a shaft extended through both flanges.



Place spacers under the bottom flange and between reels to create a space to insert the forks. (36" reels max.)

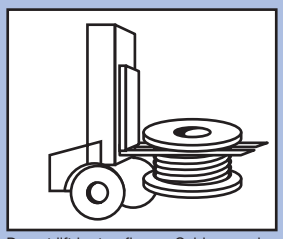


Lower reels from truck using hydraulic gate, hoist or fork lift. LOWER CAREFULLY.

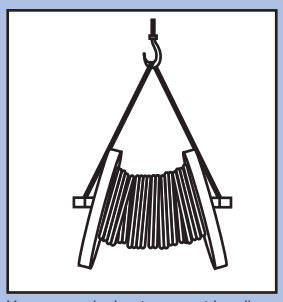


Always load with flanges on edge and chock and block securely.

NO

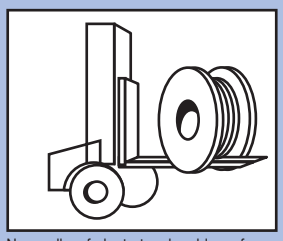


Do not lift by top flange. Cable or reel will be damaged

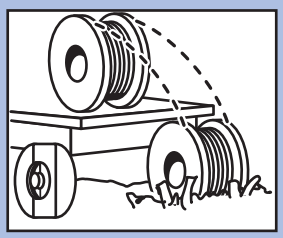


Use a spreader bar to prevent bending the reel flanges and mashing the cable.

Upended heavy reels will often arrive damaged. Refuse or receive subject to inspection for hidden damage.



Never allow forks to touch cable surface or reel wrap.



Never drop reels.

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Recommended Cable Handling Practices

Unloading and Moving of Reels:

Cable reels are never shipped upended (flat side down). Cable reels that arrive in this manner should be rejected or received only after a thorough inspection for damage.

See “Recommended Reel Handling Practices” page.

Upon receipt, a cable’s protective covering and/or lagging should be inspected for evidence of damage during shipment. If evidence of damage is found, a report should immediately be made to the carrier.

Under no circumstances should reels be dropped from the delivering vehicle to the ground.

Unloading and reel handling should be accomplished so that the equipment used does not contact the cable surface, and in the case of protective wrap, that the equipment does not contact the protective wrap.

If unloading and reel handling is accomplished by crane, either a cradle supporting the reel flanges or a shaft through the arbor hole should be used. If a fork lift is utilized, the forks must lift the reel at 90˚ to the flanges and the forks must be long enough to make complete lifting contact with both flanges. Under no circumstances should the forks come into contact with the cable surface or the protective wraps.

When a reel of cable is rolled from one point to another, care must be taken to see that there are no objects on the surface area which could contact or damage the cable surface or protective wrap.

If an inclined ramp is used for unloading, the ramp must be wide enough to contact both flanges completely. The stopping of the reels at the bottom shall be accomplished by using the reel flanges and not the surface of the cable.

Minimum Drum Diameters for Packaging Cables	
Type of Cable	**Minimum Drum Diameter as a Multiple of Outside Diameter of Cable**
1. Single and multiple conductor cable – unshielded 0 - 0,6/1 kV	10
2. Single and multiple conductor cable - unshielded 1,8/3 kV	10
3. Single conductor cable – 3,6/6 kV	12
4. Single and multiple conductor cable – shielded 0,6/1 kV	12

Recommended Cable Storage Practices

Storage and Storage Maintenance:

Finished cables have no established shelf-life. Moisture and atmospheric conditions can cause exposed conductors to oxidize and discolor. Uncovered/unsheltered cable will degrade due to exposure to direct sunlight and/or the elements. If the cables are protected, there should be no degradation of the insulation.

In general, any cable for use indoors should be stored indoors. Any cable suitable for installation outdoors is suitable for storage outdoors. Cables stored outdoors should have the ends sealed to prevent moisture ingress into the cable and should be used within two years or less.

Cables should be stored in a sheltered area.

Cables with a cold temperature marking, e.g. –10˚C, –25˚C, or –40˚C, may be stored outdoors. Cables without a cold temperature marking must be stored indoors.

Cable reels must remain in the upright position. Cable reels must not be stored on their sides. Reels must not be stacked.

Cable reels should be stored with the protective covering or lagging in place. If a length of cable has been cut from the reel, the cable end should be immediately resealed to prevent the entrance of moisture. If a part length is returned to storage, the reel's protective covering should be restored.

Wooden reels should be stored off the ground to prevent rotting. Reels should be stored on a flat, hard surface so that flanges do not sink into the earth. The weight of the reel and cable must be carried at all times by the reel flanges.

Cable reels and lagging must not be stored for an extended time period sitting in direct contact with water or dampness. Timbers or metal supports must be placed under the reel flanges to provide elevated storage of the reels away from the direct contact with water or damp soil.

Reels should be stored in an area where construction equipment, falling or flying objects or other materials will not contact the cable.

Cable should be stored in an area where chemicals or petroleum products will not be spilled or sprayed on the cable.

Cable should be stored in an area away from open fires or sources of high heat.

If the reels are relocated, they should be handled as suggested in the "Recommended Reel Handling Practices" section, and inspection made on each reel during the relocation.

If the cables are stored in a secure area and not exposed to the effects of the weather, an annual inspection should be satisfactory.

Where the reels are exposed to the weather, a bimonthly inspection should be performed to observe any sign of deterioration.

If the reels are exposed in a non-secure area, policing of the area at frequent intervals may be required depending on circumstances.

Records of delivery date, manufacturer, installation date, any extenuating circumstances, along with all test reports, should be kept on file.

Catalog Number Index

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General Cable's Broad Range of Transit Products Available to Meet Global Customers' Needs

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Category 5 Shielded Cable for high-speed data transmission

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- 75 Ohm RG 59 Type Coaxial Cable Plus One Power Pair 18 AWG

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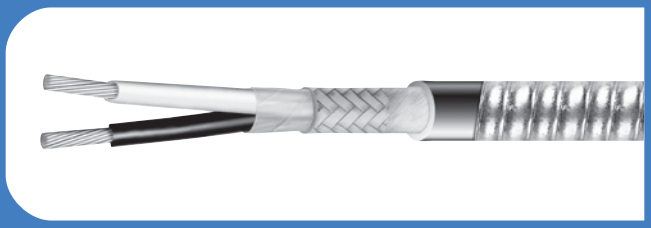
- Special Make Constructions used in Off Highway Vehicles (OHV)

POWERING YOUR MASS TRANSIT

CABLING CONNECTIONS



As developments in the transit industry continue to increase the demand for safety, instantaneous response to commands and the significant reduction of braking distances at higher speeds, General Cable continues to respond with the latest engineered designs.

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- Arctic-grade, heavy-duty reinforced Neoprene jacket that provides excellent low-temperature performance and tough mechanical properties
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General Cable

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