Technical Catalog

Prysmian Group

The information you need, close and at hand

Technical sheets, glossary and recommendations for handling the product

phelps dodge

50 AÑOS connecting central america & the caribbean

Welcome to Prysmian World

Get to know us

We are Prysmian Group, a global leader in the telecommunications and power cable systems industry.
In Central America and the Caribbean we are pioneering leaders, with 50 years of accumulated experience. Through thousands of miles of manufactured cable, we have connected the development of the region with leading brands such as Prysmian, Draka, General Cable, Carol Brand, GenSpeed and Phelps Dodge, which have and will continue to make their mark. Our history is marked by innovation, technology, sustainability and efficiency. We are agents of change in a world in constant transformation. The history of our company traces the history of the cable industry itself, marked by many important milestones along the way, which cement our reputation. We are Prysmian Group Central America and the Caribbean and we connect the future today.

Prysmian Group

Linking the Future

Main Menu

Select the material of your interest

Technical Sheets

- Copper AWG Technical Sheets
- Copper AWG Technical Sheets for Efficient Installations
- Copper MM² Technical Sheets
- Aluminum Technical Sheets

Glossary of Abbreviations

- A
- B, C & D
- E, G, H, I, J & K
- L, M y N
- O, P y R
- S
- T
- U, V, W & X

Handling, Storage & Transportation

- Handling of Reels, Boxes and Rolls
- Cargo Conditioning
- Product Loading and Unloading
- Product Storage
- Extra Care & Proper Postures at Work

Technical Sheets

Technical information about our portfolio of Phelps Dodge cables and conductors

Copper AWG

Copper AWG For Efficient Installations

Copper Millimeter

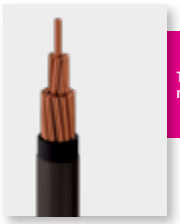
Aluminum AWG & kcmil

phelps dodge

Technical Sheets
Copper AWG

Select the material of your interest

EcoPlus
Copper
Conductor
THHN/THWN-2



THHN/THWN-2 market's best!

Scan to download

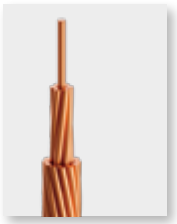
PDF download directly

ALT/SAE
Copper
Conductor

Scan to download

PDF download directly

Bare Conductor
Copper
Semi-hard



Scan to download

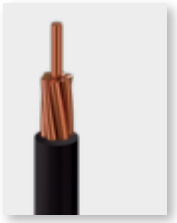
PDF download directly

Bare Conductor
Copper
Soft-annealed

Scan to download

PDF download directly

RHH/RHW-2/USE-2
Copper
Conductor



Scan to download

PDF download directly

TF/TFF/TFFN
Copper
Conductors

Scan to download

PDF download directly

XHH/XHHW-2
Copper
Conductor

Scan to download

PDF download directly

Welding Cable
Portable Arch Welder
Copper
Conductor

Scan to download

PDF download directly

phelps dodge

EcoPlus

Copper Conductor THHN/THWN-2

Prysmian Group

Description

EcoPlus THHN/THWN-2 is an electrical copper conductor solid or twisted Class B or C Cable; insulated with thermoplastic polyvinyl chloride (PVC) with a thermoplastic nylon outer jacket.

Standard Specifications

The EcoPlus THHN/THWN-2 conductors are built based on the following:

- Standards: **ASTM B3, B8 y B787.**
- Certificates: **UL 83 y CIDET.**

Features

- The EcoPlus THHN/THWN-2 conductor is manufactured from 14 AWG (2.08 mm2) to 10 AWG (5.26mm²) solid and from 14 AWG (2.08 mm²) to 1000 kcmil (507 mm²) in Class B or C Cable.
- Designed to operate at 90°C maximum temperature in dry, damp and wet locations at 600 V maximum voltage.
- The nylon jacket provides mechanical protection and resistance against petroleum derivatives, chemical agents and oils (GRII).
- Requires low pull tension and provides ease of installation due to the Nylon jacket low friction coefficient.
- Conductors from 14 AWG (2.08mm²) to 2 AWG (33,6 mm²). are manufactured in multiple colors: black, red, white, blue and green.
- Conductors 1/0 AWG (53.5 mm²) and larger are manufactured in black color only, the black insulation is ultraviolet rays resistant (SR) and certified to be installed in cable trays (CT)

- The EcoPlus THHN/THWN-2 conductor is VW-1 certified, (Vertical flame capable) it does not propagate flame due to the PVC insulation.
- The lead-free PVC insulation is ecologically friendly.
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The conductor can be marked with a series of legends, according to their features and options, they are identified as follows:

Marking	Interpretation
THHN	For dry and humid locations*
THWN-2	For dry, humid and wet locations*
MTW	Machine tools wiring approved
AWM	Household appliances wiring approved
GRI and GRII	Hydrocarbons and oils resistant
For CT USE	Capable to be installed in cable trays (pans or baskets)
SUN RES	Ultraviolet rays and Sunlight Resistant (SRII)
VW-1	Vertical Flame test compliant (does not propagate flames)
Certifications #	UL E66903 or E103886 / CIDET 02647
* 90°C maximum temperature in the conductor	

Applications

- Due to its smaller external diameter, high current capacity and its ease of installation, the EcoPlus THHN/THWN-2 conductor is ideal for fixed electrical installations in residential, commercial and industrial buildings: power, lighting, feeders and wiring of electrical connections and for the circuits' branches.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

EcoPlus

Copper Conductor THHN/THWN-2

Prysmian Group

- Due to the Nylon protective jacket it is capable to be installed in petrochemical plants, gas stations and where oil is present. Its high insulation operating temperature (90°C) is ideal for industrial applications connecting motors, control panels, as well as in the internal wiring of machine tools and household appliances.
- The 1/0 AWG (53.5 mm2) gauge and larger sizes are certified to be installed in cable trays (pans or baskets) covered or exposed to sunlight. Also, in the air, with supported messenger.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NEC NFPA 70 latest version

Gauge	Area	Wires	Insulation Thickness		Jacket Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG/kcmil	mm²	#	in	mm	in	mm	in	mm	kg/km	Ω/km
14	2,08	1	0,015	0,38	0,004	0,10	0,102	2,59	22,47	8,45
12	3,31	1	0,015	0,38	0,004	0,10	0,119	3,02	34,16	5,31
10	5,26	1	0,020	0,51	0,004	0,10	0,150	3,81	54,35	3,34
14	2,08	7	0,015	0,38	0,004	0,10	0,111	2,81	23,30	8,62
12	3,31	7	0,015	0,38	0,004	0,10	0,130	3,29	35,29	5,43
10	5,26	7	0,020	0,51	0,004	0,10	0,164	4,17	56,18	3,41
8	8,37	7	0,030	0,76	0,005	0,13	0,216	5,49	92,38	2,14
6	13,3	7	0,030	0,76	0,005	0,13	0,254	6,45	140,66	1,35
4	21,2	19	0,040	1,02	0,006	0,15	0,318	8,08	222,78	0,848
2	33,6	19	0,040	1,02	0,006	0,15	0,378	9,60	341,87	0,534
1/0	53,5	19	0,050	1,27	0,007	0,18	0,474	12,04	542,47	0,335
2/0	67,4	19	0,050	1,27	0,007	0,18	0,518	13,16	674,32	0,266
3/0	85,0	19	0,050	1,27	0,007	0,18	0,568	14,43	839,59	0,211
4/0	107	19	0,050	1,27	0,007	0,18	0,624	15,85	1049,13	0,167
250	127	37	0,060	1,52	0,008	0,20	0,694	17,63	1242,39	0,142
300	152	37	0,060	1,52	0,008	0,20	0,747	18,97	1478,03	0,118
350	177	37	0,060	1,52	0,008	0,20	0,797	20,24	1717,67	0,101
400	203	37	0,060	1,52	0,008	0,20	0,842	21,39	1960,16	0,0885
500	253	37	0,060	1,52	0,008	0,20	0,925	23,50	2421,49	0,0709
600	304	61	0,070	1,78	0,009	0,23	1,024	26,01	2920,09	0,0590
750	380	61	0,070	1,78	0,009	0,23	1,126	28,60	3606,90	0,0472
1000	507	61	0,070	1,78	0,009	0,23	1,275	32,39	4768,78	0,0354

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

ALT/SAE

Copper Conductor

Prysmian Group

Description

The ALT/SAE is an electrical copper conductor twisted Class C cable; insulated with thermoplastic polyvinyl chloride (PVC) with a thermoplastic nylon outer jacket.

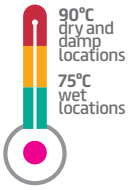
Standard Specifications

The ALT/SAE conductors are built based on the following:

- Standards: **ASTM B3, B174 and SAE J 1128.**

Features

- Designed to operate at 90°C maximum temperature in dry, damp and 75°C in wet locations



- The cable is rated to operate at operates at 60 V D.C. (25 V A.C.)maximum voltage.
- The ALT/SAE conductor is manufactured from 20 AWG (0,519 mm²) to 10 AWG (5.26mm²) gauges.
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The lead-free PVC insulation is ecologically friendly.

Applications

- Due to the high-performance PVC insulation is ideal to operate in low voltage automotive systems, lights, control and signaling in automotive applications.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 400.5(A)(1) NFPA 70 latest version

Gauge	Area		Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG	cmil	mm²	in	mm	in	mm	kg/km	Ω/km
20	1 020	0,519	0,015	0,381	0,069	1,749	6,730	35,5
18	1 620	0,824	0,015	0,381	0,077	1,945	9,763	22,4
16	2 580	1,31	0,015	0,381	0,089	2,261	14,495	14,1
14	4 110	2,08	0,015	0,381	0,104	2,638	21,782	8,88
12	6 530	3,31	0,018	0,457	0,128	3,261	34,336	5,58
10	10 380	5,26	0,018	0,457	0,151	3,847	52,826	3,51

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Bare Conductor

Copper Semi-hard

Prysmian Group

Description

The bare electrical copper conductor is formed with twisted semi-hard wires in Class B cabling.

Standard Specifications

The bare conductors are built based on the following:

- Standards: **ASTM B2 and B8.**
- Certificate: **CIDET # 01899.**

Features

- The conductors are solid twisted semi hard copper wires.

Applications

- Design to be installed in power transmission and distribution lines.
- Ideal to connect to earth protection equipment and machinery.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 310.15(B)(21) NFPA 70 latest version

Gauge	Area		Diameter		Weight	DC Max. @ 20°C Resistance
AWG	cmil	mm^2	in	mm	kg/km	Ω/km
6	26 240	13,30	0,160	4,07	115,84	1,327
4	41 740	21,2	0,234	5,940	189,792	0,868
2	66 360	33,6	0,295	7,495	301,739	0,546
1/0	105 600	53,5	0,372	9,449	480,163	0,328
2/0	133 100	67,4	0,418	10,611	605,205	0,261

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Bare Conductor

Copper Soft-annealed

Prysmian Group

Description

The bare electrical copper conductor is formed with twisted annealed wires in Class B and combination unilay cabling.

Standard Specifications

The bare conductors are built based on the following:

- Standards: **ASTM B3, B8 and B787.**
- Certificate: **CIDET # 01899.**

Features

- The conductors are solid twisted soft annealed copper wires Class B or unilay formation.

Applications

- Design to be installed in power transmission and distribution lines.
- Ideal to connect to earth protection equipment, machinery and building metal structures.
- Capable to be installed as external exposed or direct buried electrical connections.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 310.15(B)(21) NFPA 70 latest version

Gauge	Area		Construction	Wires	External Diameter		Weight	DC Max. @ 20°C Resistance
AWG/kcmil	cmil	mm²	Kind	#	in	mm	kg/km	Ω/km
14	4 110	2,08	solid	1	0,065	1,66	19	8,45
12	6 530	3,31	solid	1	0,082	2,09	29	5,31
10	10 380	5,26	solid	1	0,104	2,64	47	3,34
8	16 510	8,37	solid	1	0,131	3,33	74	2,10
14	4 110	2,08	cabling	7	0,074	1,88	19	8,62
12	6 530	3,31	cabling	7	0,093	2,37	30	5,43
10	10 380	5,26	cabling	7	0,118	2,99	48	3,41
8	16 510	8,37	cabling	7	0,149	3,77	76	2,14
6	26 240	13,30	cabling	7	0,187	4,76	121	1,35
4	41 740	21,15	cabling	19	0,231	5,86	192	0,848
2	66 360	33,63	cabling	19	0,292	7,41	305	0,534

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Bare Conductor

Copper Soft-annealed

Prysmian Group

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 310.15(B)(21) NFPA 70 latest version

Gauge	Area		Construction	Wires	External Diameter		Weight	DC Max. @ 20°C Resistance
AWG/kcmil	cmil	mm²	Kind	#	in	mm	kg/km	Ω/km
1/0	105 600	53,51	cabling	19	0,367	9,33	485	0,335
2/0	133 100	67,44	cabling	19	0,412	10,47	612	0,266
3/0	167 800	85,03	cabling	19	0,463	11,76	771	0,211
4/0	211 600	107,22	cabling	19	0,520	13,21	972	0,167
250	250 000	126,68	cabling	37	0,587	14,91	1149	0,142
300	300 000	152,01	cabling	37	0,643	16,33	1378	0,118
350	350 000	177,35	cabling	37	0,694	17,64	1608	0,101
400	400 000	202,68	cabling	37	0,742	18,86	1838	0,0885
500	500 000	253,36	cabling	37	0,830	21,08	2 297	0,0709
600	600 000	304,03	cabling	61	0,910	23,13	2 757	0,0590
750	750000	380,03	cabling	61	1,018	25,85	3 446	0,0472

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

RHH/RHW-2/USE-2

Copper Conductor

Prysmian Group

Description

The RHH/RHW-2/USE-2 is a single insulated stranded conductor Class B or C annealed copper; with thermoset insulation materials composed by black crosslinked polyethylene (XLPE).

Standard Specifications

The RHH/RHW-2/USE-2 conductors are built based on the following:

- Standards: **ASTM B3, B8, B787 and UL 44.**
- Certificates: **UL E179372, E176603 and CIDET # 02650.**

Features

- The RHHW-2/USE-2 cables are designed with a high resistance thermoset cross linked polyethylene insulation to be installed on dry, damped or wet locations at temperatures not exceeding 90°C and 1000V maximum operating voltage.

- Due to the cross-linked polyethylene insulation, the conductors provide a high performance for: mechanical stress, humidity, oils and chemical resistance.
- The carbon black insulation content provides UV resistance, allowing product installation directly exposed to sun light on tray cables, metal conduits and raceways.

Applications

- The RHHW-2/USE-2 conductors are designed primarily for service entrance (USE-2), feeders and branch circuits in commercial and residential applications.
- The XLPE crosslinked insulation provides high-performance during overload and short-circuit conditions.
- The high mechanical strength of the insulation and the oversized thickness allows for underground feeder systems installed as direct burial conductor.
- The RHHW-2/USE-2 cables can be installed in ducts either metallic or plastic in tray cables or directly buried (optional TC available).

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

RHH/RHW-2/USE-2

Copper Conductor

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version

Gauge	Area		Wires	Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG/kcmil	cmil	mm²	#	in	mm	in	mm	kg/km	Ω/km
10	10 380	5,26	7	0,045	1,143	0,206	5,232	61,63	3,41
8	16 510	8,37	7	0,045	1,143	0,236	5,994	92,19	2,14
6	26 240	13,3	7	0,060	1,524	0,304	7,722	148,70	1,35
4	41 740	21,2	19	0,060	1,524	0,346	8,788	224,91	0,848
3	52 620	26,7	19	0,060	1,524	0,374	9,500	277,44	0,673
2	66 360	33,6	19	0,060	1,524	0,406	10,312	343,21	0,534
1/0	105 600	53,5	19	0,080	2,032	0,520	13,208	551,74	0,335
2/0	133 100	67,4	19	0,080	2,032	0,564	14,326	682,94	0,266
3/0	167 800	85,0	19	0,080	2,032	0,614	15,596	847,97	0,211
4/0	211 600	107	19	0,080	2,032	0,670	17,018	1057,07	0,167
250	250 000	127	37	0,095	2,413	0,748	18,999	1255,96	0,142
300	300 000	152	37	0,095	2,413	0,801	20,345	1495,38	0,118
350	350 000	177	37	0,095	2,413	0,851	21,615	1733,23	0,101
400	400 000	203	37	0,095	2,413	0,896	22,758	1965,61	0,0885
500	500 000	253	37	0,095	2,413	0,979	24,867	2430,34	0,0709
600	600 000	304	61	0,110	2,794	1,086	27,584	2935,15	0,0590
750	750 000	380	61	0,110	2,794	1,188	30,175	3635,97	0,0472
1000	1 000 000	507	61	0,110	2,794	1,337	33,960	4799,11	0,0354

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

TF/TFF/TFFN

Copper Conductor

Prysmian Group

Description

The TF conductor is built with soft annealed copper wire, insulated with polyvinyl chloride (PVC) thermoplastic. The TFF conductor is built with a flexible cord of soft annealed copper wires twisted and insulated with PVC. The TFFN conductor is built with a flexible cord insulated with PVC and covered with an external clear nylon jacket.

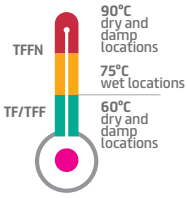
Standard Specifications

The TF/TFF/TFFN conductors are built based on the following:

- Standards: **ASTM B3, B174 and UL 66.**
- Certificate: **UL E101779 (TFFN).**

Features

- The TF/TFF/TFFN conductors are design to operate at 600 V max.
- The TF/TFF conductors are design to operate at 60°C maximum temperature in humid and dry locations. The TFFN conductors are designed to operate at 90°C maximum temperature in dry, damp locations, at 75°C maximum temperature in wet locations



- The conductors are manufactured in 18 AWG (0,824 mm²) and 16 AWG (1,31 mm²) gauges, in multiple colors.
- The finish conductors comply with the RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- The conductors are designed for appliances, internal wiring and lighting internal wiring as well as feed up circuit lines.
- As indicated in the NEC NFPA70, article 402, the TF/TFF/TFFN the conductors can be used in low power circuit systems, they shall not be used in household branch circuits.

Technical Information

Dimensions and Features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 402.5 NFPA 70 latest version

Gauge	Area		Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG	cmil	mm²	in	mm	in	mm	kg/km	Ω/km
TF Conductor								
18	1 620	0,82	0,030	0,76	0,100	2,54	12,99	21,40
16	2 580	1,31	0,030	0,76	0,111	2,82	18,16	13,40

Note: The values given may vary according to the manufacturing tolerances

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

TF/TFF/TFFN

Copper Conductor

Prysmian Group

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 402.5 NFPA 70 latest version

Gauge	Area		Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG	cmil	mm²	in	mm	in	mm	kg/km	Ω/km
TFF Conductor								
18	1 620	0,82	0,030	0,76	0,111	2,84	14,15	22,40
16	2 580	1,31	0,030	0,76	0,123	3,12	10,34	14,10

Note: The values given may vary according to the manufacturing tolerances

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 402.5 NFPA 70 latest version

Gauge	Area		Insulation Thickness		Jacket Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG	cmil	mm²	in	mm	in	mm	in	mm	kg/km	Ω/km
TFFN Conductor										
18	1 620	0,82	0,015	0,38	0,004	0,102	0,108	2,74	11,06	22,40
16	2 580	1,31	0,015	0,38	0,004	0,102	0,120	3,05	15,96	14,10

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

XHH/XHHW-2

Copper Conductor

Prysmian Group

Description

The XHH/XHHW-2 Is a single insulated stranded conductor Class B or C annealed copper, with thermoset insulation materials composed by black crosslinked polyethylene (XLPE).

Standard Specifications

The XHH/XHHW-2 conductors are built based on the following:

- Standards: **ASTM B3, B8, B787 y UL 44.**
- Certificate: **UL E179372.**

Features

- The XHHW-2 cables are designed with a high resistance thermoset cross-linked polyethylene insulation to be installed on dry, damped or wet locations at temperatures not exceeding 90°C at 1000 V maximum operating voltage.
- Due to the cross-linked polyethylene insulation, the conductors provide a high performance for: mechanical stress, humidity, oils and chemical resistance.

- The carbon black insulation content provides UV resistance, allowing product installation directly exposed on tray cables, metal conduits and raceways.

Applications

- The XHHW-2 conductors are designed for feeders and branch circuits in commercial and residential applications. The high mechanical strength of the insulation allows for underground feeder systems.
- They provide a high-performance during overload and short-circuit conditions.
- The XHHW-2 cables can be installed in ducts either metallic or plastic in tray cables (CT certified available, special order).

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

XHH/XHHW-2

Copper Conductor

Prysmian Group

Technical Information

Nominal dimensions and features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version.

Gauge	Area		Wires	Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG/kcmil	cmil	mm²	#	in	mm	in	mm	kg/km	Ω/km
6	26 240	13,30	7	0,045	1,14	0,274	6,96	140	1,35
4	41 740	21,15	19	0,045	1,14	0,316	8,03	214	0,848
2	66 360	33,63	19	0,045	1,14	0,376	9,55	331	0,534
1/0	105 600	53,51	19	0,055	1,40	0,470	11,94	525	0,335
2/0	133 100	67,44	19	0,055	1,40	0,514	13,06	654	0,266
3/0	167 800	85,03	19	0,055	1,40	0,564	14,33	817	0,211
4/0	211 600	107,22	19	0,055	1,40	0,620	15,75	1 023	0,167
250	250 000	126,68	37	0,065	1,65	0,688	17,48	1 210	0,142
300	300 000	152,01	37	0,065	1,65	0,741	18,82	1 443	0,118
350	350 000	177,35	37	0,065	1,65	0,791	20,09	1679	0,101
400	400 000	202,68	37	0,065	1,65	0,836	21,23	1 918	0,0885
500	500 000	253,36	37	0,065	1,65	0,919	23,34	2 374	0,0708
600	600 000	304,03	61	0,080	2,03	1,026	26,06	2 864	0,0590
750	750 000	380,03	61	0,080	2,03	1,128	28,65	3 541	0,0472
1 000	1 000 000	506,71	61	0,080	2,03	1,277	32,44	4 689	0,0354

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Welding Cable

Portable Arch Welder Copper Conductor

Prysmian Group

Description

The conductor is made of annealed twisted Class J cords insulated with NBR-PVC premium grade 90°C black polymer.

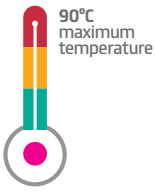
Standard Specifications

The Welding conductors are built based on the following:

- Standards: **ASTM B3, B172, B174. ICEA S-75-381 and Prysmian Group Internal Norms.**

Features

- The conductor is manufactures from 6 AWG up to 500 kcmil gauges.
- The NBR-PVC insulation is premium performance polymer that operates from -40 up to 90C.
- The cable is offered in standard lengths of 100 m, 500ft(152.4 m) and 1000ft(305 m). Other lengths are available under special order.
- Conductor is marked: *PRYSMIAN GROUP® PHELPS DODGE®. WELDING 90°C (GAUGE) AWG ((GAUGE) mm2) 600V ### (SEQUENTIAL) m (GAUGE) AWG ((GAUGE) mm2).*
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The lead-free PVC insulation is ecologically friendly.



Applications

- The welding cable is mainly design to operate in arch welder machines as the secondary voltage high current flexible conductor.
- Due to the conductor high flexibility it is installed in limited space industrial circuits (preventive maintenance is required).
- The flexible welding cables are also used in the temporary emergency generations connections with plug systems.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 400.5(A)(1) NFPA 70 latest version

Suggested Ampacities

Ampacities for phase wire, continuous duty (ambient temperature 30 °C)

AWG/kcmil	Amps	AWG/kcmil	Amps
6	75	3/0	265
4	100	4/0	310
2	140	250	402
1/0	190	350	495
2/0	223	500	613

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Welding Cable

Portable Arch Welder Copper Conductor

Prysmian Group

Portable Arch Welder Copper Conductor Amps

Cable sizes for applications as welding machine conductor

Amps	Total circuit length, in meters, for secondary voltages only						
	30	45	60	76	90	106	120
100	4	4	2	2	1	1/0	1/0
150	4	2	1	1/0	2/0	3/0	3/0
200	2	1	1/0	2/0	3/0	4/0	4/0
250	1	1/0	2/0	3/0	4/0		
300	1/0	2/0	3/0	4/0			
350	1/0	3/0	4/0				
400	2/0	3/0					
450	2/0	4/0					
500	3/0	4/0					
550	3/0	4/0					
600	4/0						

Note: The values given may vary according to the manufacturing tolerances

AWG/kcmil	Wires #	External Diameter		Weight (kg/km)
		in	mm	
6	159	0,37	9,40	175
4	266	0,44	11,18	265
2	399	0,53	13,34	401
1/0	627	0,62	15,62	610
2/0	779	0,62	15,75	705
3/0	969	0,69	17,53	880
4/0	1258	0,78	19,81	1125
250	1463	0,86	21,72	1330
350	2183	0,95	24,00	1800
500	3024	1,10	27,94	2580

Total circuit length includes both electrode lead and ground wires (based on 4 volt drop) 60% duty cycle. These current carrying capacity values are based on a copper temperature of 60 °C (140 ° F), an ambient temperature of 40 °C, and performance load factors of approximately 32% for 2 AWG, 23 wire. % for wire 3/0 AWG and larger for smaller runs. The gauges generally used are 2 AWG to 3/0 AWG. In actual service, the load factor can be much higher than stated without overheating the cable, as the ambient temperature will generally be substantially less than 40 °C.

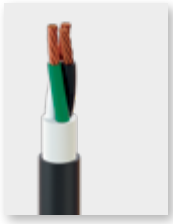
phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Technical Sheets
Copper AWG For Efficient Installations

Select the material of your interest

TGP/TC-ER
Copper
Multi-conductor



See application infographic for Efficient Installations TGP/TC-ER

Scan to download

PDF download directly

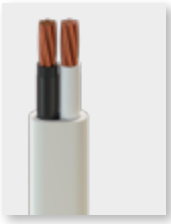
Heavy-Duty Submergible Pump
Copper
Multi-conductor

See application infographic for Efficient Installations Heavy-Duty Submergible Pump

Scan to download

PDF download directly

NM-B/NMC
Copper
Multi-conductor

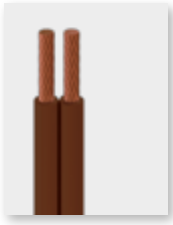


See application infographic for Efficient Installations NM-B/NMC

Scan to download

PDF download directly

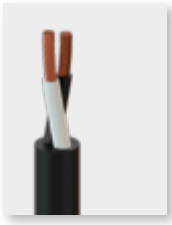
SPT-R
Flexible Parallel
Copper
Multi-conductor



Scan to download

PDF download directly

TSJ-N
Copper
Multi-conductor



See application infographic for Efficient Installations TSJ-N

Scan to download

PDF download directly

phelps dodge

Efficient Installations
Connections to the next level

TGP/TC-ER

Copper Multi-conductor

Prysmian Group

Description

The TPG/TC-ER is an electrical multi-conductor formed by soft copper EcoPlus THHN/THWN-2 helically assembled conductors. The assembly is then covered with a non-hygroscopic filler that protects the conductors from impact and water penetration. The group is then protected with a black color polyvinyl chloride (PVC) thermoplastic jacket capable to withstand heavy handling and direct sunlight exposure, also the outer jacket is weather resistant capable.

Standard Specifications

The TPG multi-conductors are built based on the following:

- Standards: **ASTM B3, B8, B787. UL 83, 1277 and RETIE 20.2.**
- Certificate (Submergible Pump Cable): **UL E70079.**
- Certificate (Tray Cable): **CIDET # 06061.**

Features

- TGP/TC-ER conductors are manufactured in multiple gauges and formations: duplex, triplex and quadruple, from 14 AWG (208 mm^2) up to 4 AWG (21.2 mm^2).
- Their individual cores or conductors are THHN/THWN-2 type, with the basic colors: black, white, green and blue.
- TGP/TC-ER is designed to operate at 600 V and 90°C max temperature in dry, humid and wet conditions.
- Due to its PVC insulation and nylon jacket system the TGP/TC-ER cables do not propagate flames; they are also tray cable approved.

- Its outer jacket is weather and sunlight resistant and tray cable certified. It allows the product to be used fully exposed outdoors and the full range can be used in cable trays directly.
- TGP/TC-ER has a dual layer heavy duty jackets that supports crushing and allows direct burial installation.
- The collapsible filling of non-hygroscopic material facilitates the outer cover removal and the core release during installation. It provides a round assembly finish.
- Complies with RoHS (Restriction of Hazardous Substances) regulation.
- TGP/TC-ER is ecologically friendly due to its lead-free PVC and other compounds used in the insulation and jackets.

Applications

- The cores' Nylon jacket provides gas, oil and other chemical agent's resistance, making the TGP an ideal option for motor connections and circuits in areas where oils and gasoline are present.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

TGP/TC-ER

Copper Multi-conductor

Prysmian Group

- TGP/TC_ER is certified for deep well pumps connections. It complies with TC-ER (Tray cable) type conductors use, according to Sec. 336.10 of the NFPA 70 latest version. It can be used in suspended ceilings, non-suspended or exposed, in downspouts to luminaries and between junction boxes on truss structures with fastenings every 140 or 30 cm (long or short sections).
- TGP/TC-ER can be used where THHN/THWN-2 conductors are approved by the NFPA 70.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version

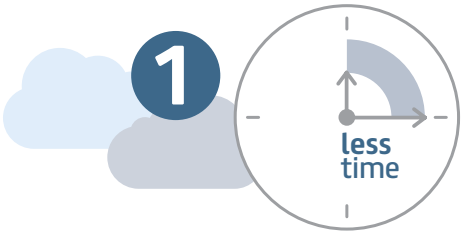
Gauge	Area	Wires	Insulation Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
AWG	mm²	#	in	mm	in	mm	kg/km	Ω/km
Duplex								
2 x 14	2,08	7	0,045	1,143	0,335	8,508	101,89	8,62
2 x 12	3,31	7	0,045	1,143	0,373	9,467	136,90	5,43
2 x 10	5,26	7	0,045	1,143	0,443	11,244	201,47	3,41
2 x 8	8,37	7	0,060	1,524	0,577	14,664	335,81	2,14
2 x 6	13,3	7	0,060	1,524	0,653	16,581	467,81	1,35
2 x 4	21,2	19	0,080	2,032	0,822	20,882	748,83	0,848
Triplex								
3 x 14	2,08	7	0,045	1,143	0,352	8,946	126,41	8,62
3 x 12	3,31	7	0,045	1,143	0,393	9,979	173,36	5,43
3 x 10	5,26	7	0,045	1,143	0,468	11,893	258,29	3,41
3 x 8	8,37	7	0,060	1,524	0,611	15,518	428,41	2,14
3 x 6	13,3	7	0,060	1,524	0,692	17,583	607,22	1,35
3 x 4	21,2	19	0,080	2,032	0,872	22,136	966,38	0,848
Quadruplex								
4 x 14	2,08	7	0,045	1,143	0,381	9,680	153,00	8,62
4 x 12	3,31	7	0,045	1,143	0,427	10,837	212,01	5,43
4 x 10	5,26	7	0,045	1,143	0,511	12,983	318,42	3,41
4 x 8	8,37	7	0,060	1,524	0,667	16,950	527,74	2,14
4 x 6	13,3	7	0,060	1,524	0,758	19,264	753,97	1,35
4 x 4	21,2	19	0,080	2,032	0,954	24,241	1204,62	0,848

Note: The values given may vary according to the manufacturing tolerances

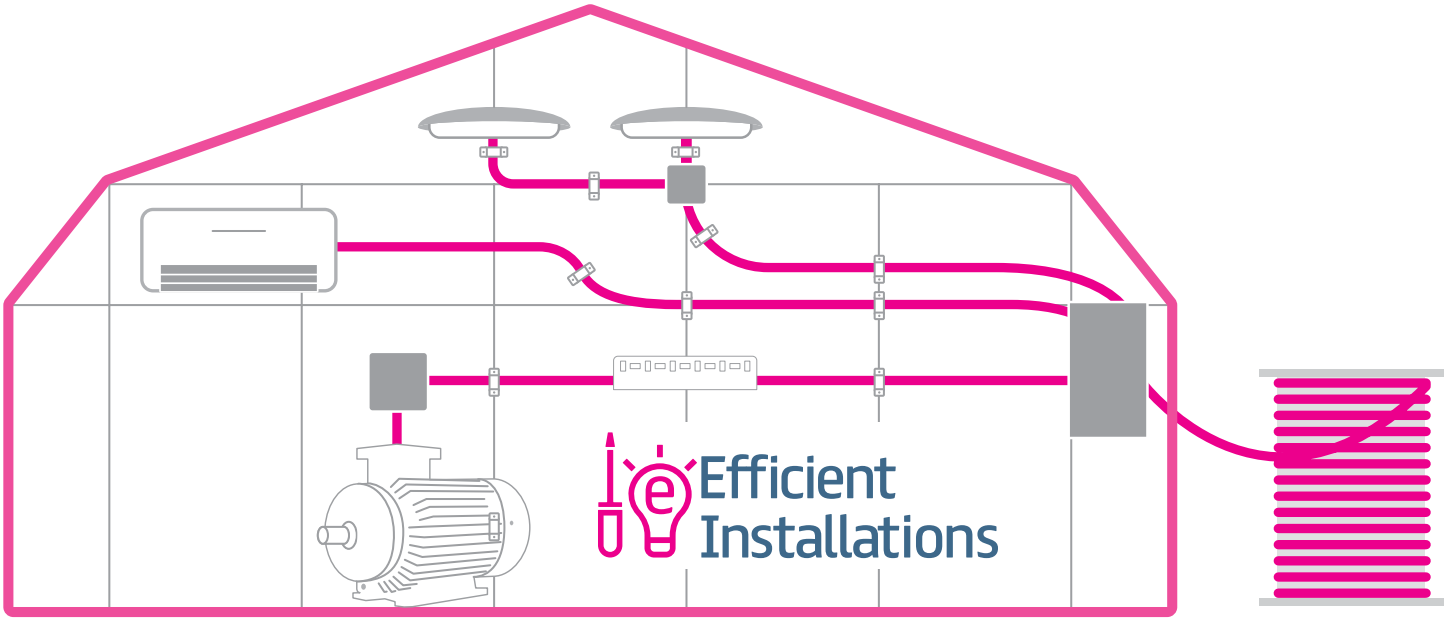
phelps dodge

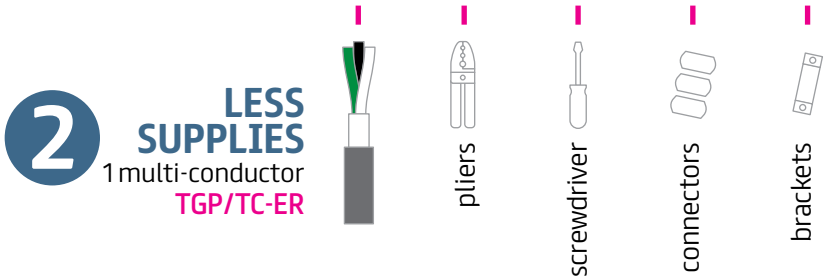
PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

This is how the installations are with our multi-conductors **TGP/TC-ER**



Efficient Installations
simple





2 **LESS SUPPLIES**
1 multi-conductor
TGP/TC-ER

Heavy-Duty Submergible Pump

Copper Multi-conductor

Prysmian Group

Description

The Heavy-Duty (HD) Submergible Pump cable is a flat parallel electrical multi-conductor assembled with annealed copper conductors THHN/THWN-2 EcoPlus with a polyvinyl chloride (PVC) outer black jacket.

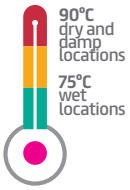
Standard Specifications

The Heavy-Duty Submergible Pump multi-conductors are built based on the following:

- Standards: **ASTM B3, B8, B787 and UL 83.**
- Certificate: **UL E70079.**

Features

- The HD Submergible Pump multi-conductor THHN/THWN-2 is designed to be installed on dry, damped or wet locations at temperatures not exceeding 90°C at 600 V maximum operating voltage.



- The cable is manufactured in triple and triple plus earth cables from gauge 14 AWG (2,08 mm²) up to 1/0 AWG (53,5 mm²).
- To allow ease identification the cores are manufactured with different colors (red, black, white and green). The outer multi-conductor legend indicates the count and gauges of the inner conductors.
- On triplex with ground formations from 8 AWG (8,37 mm²) or larger, the ground conductor will be reduced gauge as per manufacturing specs and NFPA 70.
- The conductor is RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- The HD Submergible Pump cable is designed to connect submersible deep well pumps where the cable would be underwater.
- The conductor could be used in any other lower duty power circuit in feeders and branch circuits in dry humid or wet areas either in conduit or exposed (same applications as NM-B/NMC and THWN cables).
- The outer jacket is SUN RES capable allowing the conductor to be directly exposed to the sun.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Heavy-Duty Submergible Pump

Copper Multi-conductor

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version

Gauge	Area (mm²)		Wires	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
AWG	Driver Cond.	Earth Cond.	#	in	mm	in	mm	in	mm	kg/km	Ω/km
Triplex											
3 X 14	2,08	-	7	0,030	0,762	0,395	10,043	0,173	4,384	99,24	8,62
3 X 12	3,31	-	7	0,030	0,762	0,452	11,480	0,192	4,864	140,89	5,43
3 X 10	5,26	-	7	0,030	0,762	0,557	14,145	0,226	5,750	214,78	3,41
3 X 8	8,37	-	7	0,045	1,143	0,744	18,887	0,309	7,851	366,01	2,14
3 X 6	13,3	-	7	0,045	1,143	0,857	21,762	0,347	8,808	529,84	1,35
3 X 4	21,2	-	19	0,045	1,143	1,054	26,764	0,413	10,477	811,80	0,848
3 X 2	33,6	-	19	0,045	1,143	1,231	31,264	0,472	11,976	1205,14	0,534
3 X 1/0	53,5	-	19	0,060	1,524	1,554	39,471	0,599	15,207	1923,42	0,335

Note: The values given may vary according to the manufacturing tolerances

El amperaje de operación de los conductores está definido por la condición de instalación y temperaturas de operación identificadas en el NEC. Ver TABLA 310.15(B)(16) NFPA 70 última versión

Gauge	Area (mm²)		Wires	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
AWG	Driver Cond.	Earth Cond.	#	in	mm	in	mm	in	mm	kg/km	Ω/km
Triplex + Earth											
4 X 14	2,08	2,08	7	0,030	0,762	0,507	12,870	0,173	4,384	131,09	8,62
4 X 12	3,31	3,31	7	0,030	0,762	0,582	14,787	0,192	4,864	186,72	5,43
4 X 10	5,26	5,26	7	0,030	0,762	0,722	18,343	0,226	5,750	285,54	3,41
3X8+1X10	8,37	5,26	7	0,045	1,143	0,909	23,084	0,309	7,851	455,82	2,14
3X6+1X8	13,3	8,37	7	0,045	1,143	1,074	27,282	0,347	8,808	662,49	1,35
3X4+1X8	21,2	8,37	19	0,045	1,143	1,271	32,285	0,413	10,477	969,97	0,848
3X2+1X6	33,6	13,3	19	0,045	1,143	1,486	37,741	0,472	11,976	1433,74	0,534
3X1/0+1X6	53,5	13,3	19	0,060	1,524	1,809	45,949	0,600	15,207	2213,39	0,335

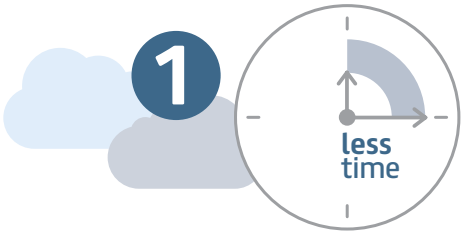
Note: The values given may vary according to the manufacturing tolerances

phelps dodge

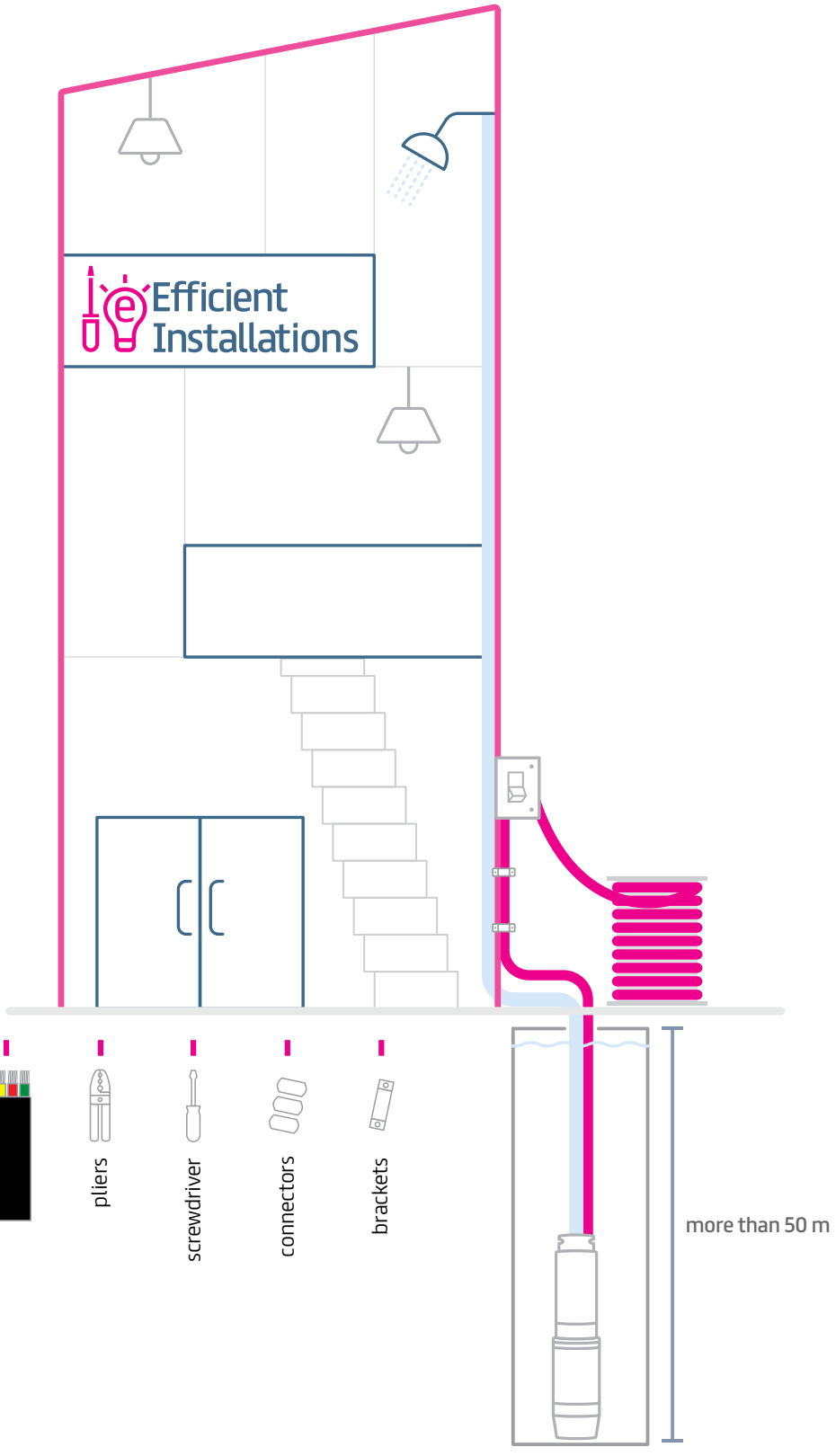
PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

This is how the installations are with our multi-conductors **HD Submergible Pump**

1



Efficient Installations simple



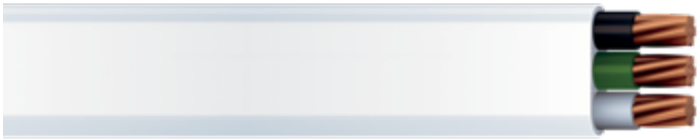
2

LESS SUPPLIES

1 multi-conductor
HEAVY-DUTY
SUBMERGIBLE PUMP

NM-B/NMC

Copper Multi-conductor



Description

The NMB-B/NMC is an electrical multi-conductor formed by soft copper EcoPlus THHN/THWN-2 assembled in 2 or 3 parallel conductors. The group is then protected with a white or grey color polyvinyl chloride (PVC) thermoplastic jacket.

Standard Specifications

The NMB-B/NMC multi-conductors are built based on the following:

- Standards: **ASTM B3, B8. UL 83 and 719.**
- **Certificate: CIDET # 0503.**

Features

- NMB-B/NMC conductors are manufactured in multiple gauges and formations: duplex and triplex from 14 AWG (2.08 mm2) up to 8 AWG (8,37 mm2).
- Their individual cores or conductors are THHN/THWN-2 type with the basic colors: black, white and green.
- NMB-B/NMC is designed to operate at 600 V and 90°C max temperature in dry, humid and wet conditions.

- Due to its PVC insulation and nylon jacket system the NMB-B/NMC cables do not flame propagate; they are also tray cable approved NEC Art. 334.
- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- NMB-B/NMC is ecologically friendly due to its lead-free PVC and other compounds used in the insulation and jackets.

Applications

- The NM-B/NMC multi-conductor applications are defined in NEC Art. 334. NFPA 70 NEC.
- The NM-B/NMC is mainly used on lighting outlets and residential electrical circuits.
- The NM-B/NMC is allowed to be installed in residential units in fixed circuits, also temporary derivation circuits exposed or covered with in hollow walls and wood studs.

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

NM-B/NMC

Copper Multi-conductor

Prysmian Group

- The NM-B/NMC can be used where THHN/THWN-2 conductors are approved by the NFPA 70. The jacketed conductor is cable tray approved.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NEC NFPA 70 latest version

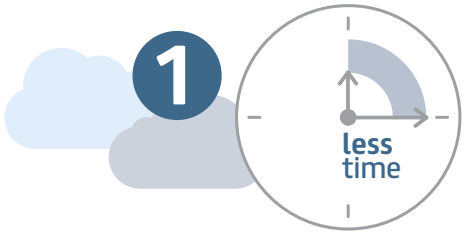
Formation & Gauge	Area	Wires	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
AWG	mm²	#	in	mm	in	mm	in	mm	kg/km	Ω/km
Duplex										
2 x 14	2,08	1	0,0300	0,762	0,2616	6,64	0,1608	4,08	62,28	8,45
2 x 12	3,31	1	0,0300	0,762	0,2944	7,48	0,1772	4,50	88,14	5,31
2 x 10	5,26	1	0,0300	0,762	0,3558	9,04	0,2079	5,28	133,47	3,34
2 x 14	2,08	7	0,0300	0,762	0,2784	7,07	0,1692	4,30	65,41	8,62
2 x 12	3,31	7	0,0300	0,762	0,3154	8,01	0,1877	4,77	92,28	5,43
2 x 10	5,26	7	0,0300	0,762	0,3840	9,75	0,2220	5,64	140,17	3,41
2 x 8	8,37	7	0,0300	0,762	0,4860	12,34	0,2730	6,93	221,68	2,14
Triplex										
3 x 14	2,08	1	0,0300	0,762	0,3624	9,20	0,1608	4,08	91,61	8,45
3 x 12	3,31	1	0,0300	0,762	0,4116	10,45	0,1772	4,50	130,49	5,31
3 x 10	5,26	1	0,0300	0,762	0,5037	12,79	0,2079	5,28	198,78	3,34
3 x 14	2,08	7	0,0300	0,762	0,3876	9,85	0,1692	4,30	96,34	8,62
3 x 12	3,31	7	0,0300	0,762	0,4431	11,25	0,1877	4,77	136,78	5,43
3 x 10	5,26	7	0,0300	0,762	0,5460	13,87	0,2220	5,64	209,03	3,41
3 x 8	8,37	7	0,0300	0,762	0,6990	17,75	0,2730	6,93	332,35	2,14

Note: The values given may vary according to the manufacturing tolerances

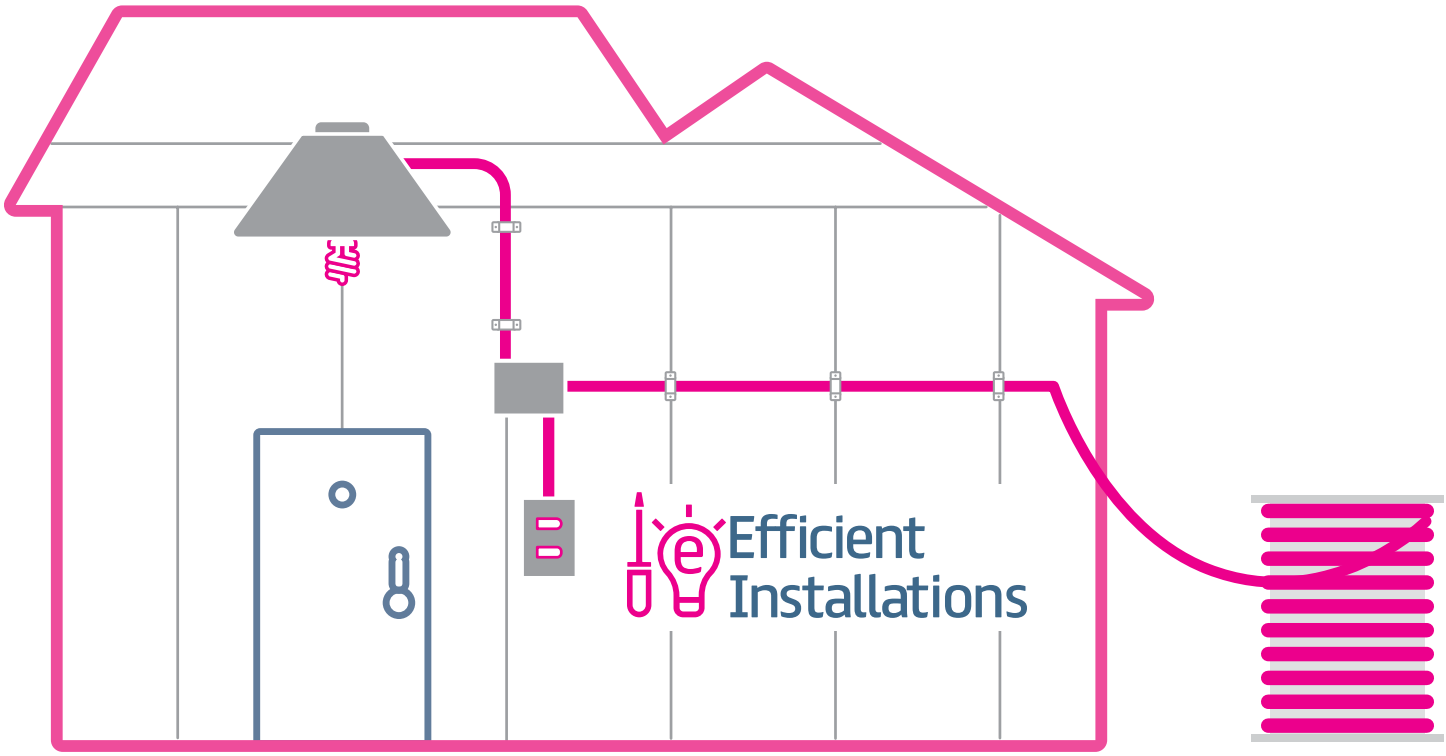
phelps dodge

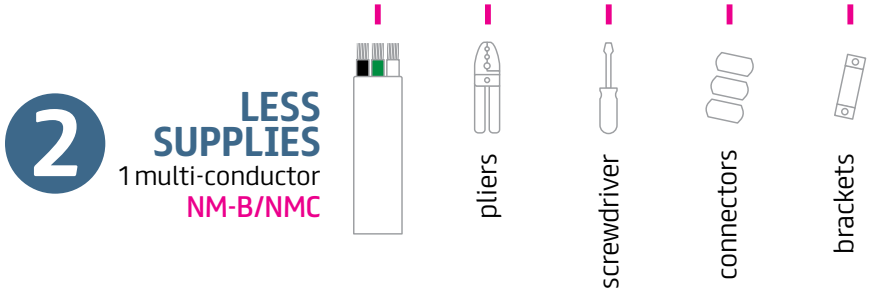
PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

This is how the installations are with our multi-conductors
NM-B/NMC



Efficient Installations simple





2 LESS SUPPLIES
1 multi-conductor
NM-B/NMC

SPT-R

Flexible Parallel Copper Multi-conductor

Prysmian Group

Description

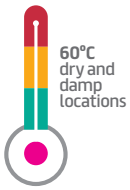
The SPT-R is a flexible duplex parallel copper flexible conductor. The cores are made of soft wires twisted and insulated with thermoplastic polyvinyl chloride (PVC) with a holding membrane allowing ease of separation.

Standard Specifications

The SPT-R conductors are built based on the following:

- Standards: **NTC 5521**.
- Certificate: **CIDET # 03996**.

Features



- The SPT-R is designed to operate at 60°C maximum temperature in dry and damp environments at 300 V maximum.
- The SPT-R conductor is manufactured from 18 AWG (0,519 mm^2) to 10 AWG (5.26mm^2) gauges in white, black grey and brown insulation.
- The conductor complies with RoHS regulation.
- The lead-free PVC insulation is ecologically friendly.

Applications

- The SPT-R is widely used in home portable lamp, hanging lights and appliances. Widely used as temporary extension connections.
- Recommended and non recommended applications:
  - Should not be used in substitution of fixed electrical circuits of switches or outlets among other house circuits.
  - Should not be left inside walls, floors or ceiling.
  - Should not be installed on wall, floors or ceiling perforations.
  - Should not be installed trough doors, windows or similar openings where the cable may be damaged by sharp or pointy edges.
  - Should not be stapled or nailed to the structures during installation.
  - Should not be installed in electrical conduits unless the NEC allows.
  - The live conductor identified by Surface vanes on the insulation should not be connected to exposed metal surfaces on light fixtures or appliances.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

SPT-R

Flexible Parallel Copper Multi-conductor

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in the NEC. See TABLE 400.5(A)(1) NFPA 70 latest version

Gauge		Insulation Thickness		Height		Width		Weight	DC Max. @ 20°C Resistance
AWG	mm²	in	mm	in	mm	in	mm	kg/km	Ω/km
18	0,824	0,025	0,635	0,100	2,541	0,195	4,955	26,686	22,4
16	1,31	0,025	0,635	0,114	2,895	0,223	5,663	36,994	14,1
14	2,08	0,025	0,635	0,129	3,293	0,259	6,587	53,346	8,88
12	3,31	0,025	0,635	0,147	3,734	0,294	7,467	77,212	5,58
10	5,26	0,030	0,762	0,179	4,542	0,383	9,718	131,536	3,51

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

TSJ-N

Copper Multi-conductor

Description

The TSJ-N is an electrical flexible multi-conductor formed by individual PVC insulated nylon jacketed soft copper flexible conductors helically assembled. The conductors are protected with a black weather resistant thermoplastic PVC outer jacket.

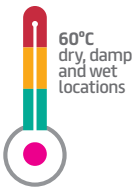
Standard Specifications

The TSJ-N multi-conductors are built based on the following:

- Standards: **ASTM B3, 174. UL 62 and NTC 5521.**
- Certificate: **CIDET # 03648.**

Features

- The TSJ-N are manufactured in the following constructions: duplex, triplex and quadruplex conductor's cores, ranging from 18 AWG (0.824 mm^2) up to 6 AWG (13.3 mm^2) gauges.
- The conductor's colors per configuration are:
  - **Duplex:** black and white.
  - **Triplex:** black, white and green.
  - **Quadruplex:** black, white, red and green.
- The TSJ-N multi-conductors are designed for a maximum operating voltage of 600 V.
- The maximum operating temperature is 60°C in dry, humid and wet environments.



- The PVC jacket provides capability to avoid flame propagation when exposed to fire.
- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- The TSJ-N conductors is widely used to connect appliances, hand tools, luminaries and low power mobile units. They are also used as portable electrical extension cords at home, commercial and construction sites.
- The TSJ-N flexible conductors have some limitations and not permitted applications as per Electrical Code NEC NFPA 70. Section 400.8 indicates:
  - As a substitute of the fixed wiring of circuits like power outlets or switches.
  - Where concealed by walls, floors, or ceilings or located above suspended or dropped ceilings.
  - Where it run through doorways, windows, or similar openings.
  - Where it run through holes in walls, structural ceilings, suspended ceilings, dropped ceilings, or floors.
  - Where attached to building surfaces..
  - Where installed in raceways, except as otherwise permitted in the Code.
  - Under any condition the conductor should support any mechanical load during installation or normal connected equipment use.

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

TSJ-N

Copper Multi-conductor

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version

Gauge	Area	Insulation Thickness		Diameter		Weight	DC Max. @ 20°C Resistance
AWG	mm²	in	mm	in	mm	kg/km	Ω/km
Duplex							
2 x 18	0,82	0,030	0,762	0,231	5,859	48,45	22,40
2 x 16	1,31	0,030	0,762	0,256	6,492	63,86	14,10
2 x 14	2,08	0,030	0,762	0,285	7,239	86,06	8,88
2 x 12	3,31	0,030	0,762	0,325	8,249	118,59	5,58
2 x 10	5,26	0,030	0,762	0,390	9,912	181,38	3,51
2 x 8	8,37	0,045	1,143	0,524	13,306	304,56	2,23
2 x 6	13,3	0,060	1,524	0,628	15,949	456,25	1,40
Triplex							
3 x 18	0,82	0,030	0,762	0,244	6,192	58,42	22,40
3 x 16	1,31	0,030	0,762	0,271	6,874	78,49	14,10
3 x 14	2,08	0,030	0,762	0,303	7,696	107,80	8,88
3 x 12	3,31	0,030	0,762	0,342	8,686	150,21	5,58
3 x 10	5,26	0,030	0,762	0,458	11,635	255,18	3,51
3 x 8	8,37	0,060	1,524	0,593	15,063	417,18	2,23
3 x 6	13,3	0,060	1,524	0,667	16,942	582,54	1,40
Quadruplex							
4 x 18	0,82	0,030	0,762	0,266	6,750	71,04	22,40
4 x 16	1,31	0,030	0,762	0,296	7,514	96,48	14,10
4 x 14	2,08	0,030	0,762	0,338	8,596	133,84	8,88
4 x 12	3,31	0,030	0,762	0,376	9,546	188,16	5,58
4 x 10	5,26	0,030	0,762	0,502	12,756	317,70	3,51
4 x 8	8,37	0,060	1,524	0,650	16,503	517,78	2,23
4 x 6	13,3	0,045	1,143	0,773	19,633	763,98	1,40

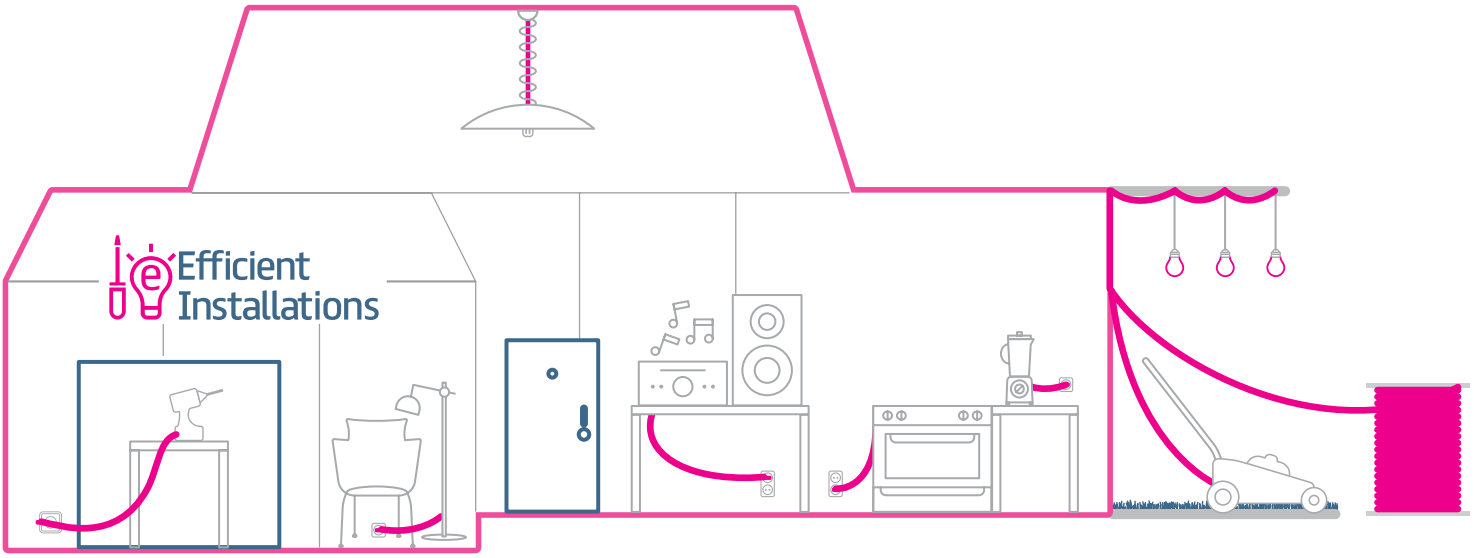
Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

This is how the installations are with our multi-conductors
TSJ-N

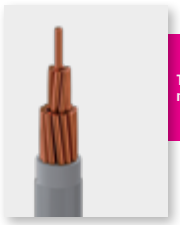
Efficient Installations multipurpose



Technical Sheets
Millimeter

Select the material of your interest

EcoPlus
Copper
Conductor
THHN/THWN-2



THHN/THWN-2 market's best!

Scan to download

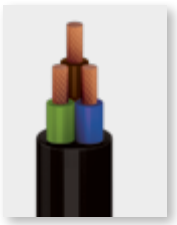
PDF download directly

Fleximax
Copper Conductor
Millimetric
THHN/THWN

Scan to download

PDF download directly

Flexible
Millimetric
Copper
Multi-conductor



Scan to download

PDF download directly

NM-B/NMC
Millimetric
Copper
Multi-conductor

Scan to download

PDF download directly

Flat
Multi-conductor
Millimetric
Copper

Scan to download

PDF download directly

SPT-R
Flexible Parallel
Copper
Millimetric

Scan to download

PDF download directly

Twin & Earth
Flat Millimetric
Multi-conductor

Scan to download

PDF download directly

Millimetric
Mono-conductor
Class 2

Scan to download

PDF download directly

phelps dodge

EcoPlus

THHN/THWN-2 Copper Conductor

Prysmian Group

Description

EcoPlus THHN/THWN-2 is an electrical copper conductor twisted Class 2 cable, insulated with thermoplastic polyvinyl chloride (PVC) with a thermoplastic nylon outer jacket.

Standard Specifications

The EcoPlus THHN/THWN-2 conductors are built based on the following:

- Standards: **UL 83 and IEC 60228.**
- Certificate: **CIDET # 06062.**

Features

- The EcoPlus THHN/THWN-2 conductor is manufactured from 1.5mm2 to 240mm² in Class 2 Cable.
- Designed to operate at 90°C maximum temperature in dry, damp and wet locations at 600 V maximum voltage.

- The nylon jacket provides mechanical protection and resistance against petroleum derivatives, chemical agents and oils (GRII).
- Requires low pull tension and provides ease of installation due to the nylon jacket low friction coefficient.
- Conductors from 1.5 mm² to 35 mm² are manufactured in multiple colors: black, red, white, blue and green.
- Conductors 50.0 mm² and larger are manufactured in black color only, the black insulation is ultraviolet rays resistant (SR) and certified to be installed in cable trays (CT).
- The EcoPlus THHN/THWN-2 conductor is VW-1 (Vertical flame capable) certified, it does not propagate flame.
- The lead-free PVC insulation is ecologically friendly.
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The conductor can be marked with a series of legends, according to their features and options, they are identified as follows:

Grabado	Interpretación
THHN	For dry and humid locations*
THWN-2	For dry, humid and wet locations*
MTW	Machine tools wiring approved
AWM	Household appliances wiring approved
GRI and GRII	Hydrocarbons and oils resistant
For CT USE	Capable to be installed in cable trays (pans or baskets)
SUN RES	Ultraviolet rays and Sunlight Resistant (SRII)
VW-1	Vertical Flame test compliant (does not propagate flames)
* 90°C maximum temperature in the conductor	

Aplicaciones

- Due to its smaller external diameter, high current capacity and its ease of installation, the EcoPlus THHN/THWN-2 conductor is ideal for fixed electrical installations in residential, commercial and industrial buildings: power and lighting feeders, wiring of electrical connections and for the circuits' branches.
- Due to the nylon protective jacket it is capable

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

phelps dodge

EcoPlus

THHN/THWN-2 Copper Conductor

Prysmian Group

to be installed in petrochemical plants, gas stations and where oil is present. Its high insulation operating temperature (90°C) are approved to for industrial applications connecting motors, control panels, as well as in the internal wiring of machine tools and household appliances.

- The 50.0 mm² gauge and larger sizes allows be installed in cable trays (pans or baskets) covered or exposed to sunlight. Also, in the air, with supported messenger.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.5 of IEC 60364-5-52 latest version

Gauge	Wires	Insulation Thickness		Jacket Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
mm²	#	in	mm	in	mm	in	mm	kg/km	Ω/km
1,5	7	0,015	0,38	0,004	0,10	0,100	2,54	17,36	12,100
2,5	7	0,015	0,38	0,004	0,10	0,117	2,98	26,70	7,410
4	7	0,015	0,38	0,004	0,10	0,138	3,50	41,07	4,610
6	7	0,020	0,51	0,004	0,10	0,170	4,33	61,86	3,080
10	7	0,030	0,76	0,005	0,13	0,230	5,83	107,33	1,830
16	7	0,030	0,76	0,005	0,13	0,270	6,87	163,74	1,150
25	19	0,040	1,02	0,006	0,15	0,345	8,76	257,10	0,727
35	19	0,040	1,02	0,006	0,15	0,390	9,90	348,50	0,524
50	19	0,050	1,27	0,007	0,18	0,452	11,48	474,72	0,387
70	19	0,050	1,27	0,007	0,18	0,520	13,21	673,55	0,268
95	19	0,050	1,27	0,007	0,18	0,592	15,03	914,52	0,193
120	37	0,060	1,52	0,008	0,20	0,694	17,62	1163,85	0,153
150	37	0,060	1,52	0,008	0,20	0,755	19,17	1421,18	0,124
240	37	0,060	1,52	0,008	0,20	0,929	23,60	2291,21	0,075

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Fleximax

Millimetric THHN/THWN Copper Conductor

Prysmian Group

Description

Fleximax THHN/THWN-2 millimetric is a copper core of twisted Class 5 conductor; insulated with thermoplastic polyvinyl chloride (PVC) with a thermoplastic nylon outer jacket.

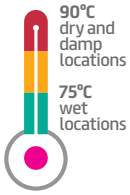
Standard Specifications

The Fleximax THHN/THWN-2 conductors are built based on the following:

- Standards: **ASTM B3, B172. IEC 60228 and UL 83.**
- Certificate: **CIDET #04947.**

Features

- The Fleximax THHN/THWN-2 conductor is manufactured from 1.5 mm^2 to 240 mm^2 in Class 5 conductors.
- Designed to operate at 90°C maximum temperature in dry, damp and wet locations at 600 V maximum voltage.



- The nylon jacket provides mechanical protection and resistance against petroleum derivatives, chemical agents and oils (GRI and GRII).
- Due to the nylon's jacket low friction coefficient, the conductors require low pull tension and provides ease of installation.
- The Fleximax THHN/THWN-2 conductor is VW-1 certified (Vertical flame capable) it does not propagate flame due to the PVC/nylon insulation system.
- The lead-free PVC insulation is ecologically friendly and has low smoke emissions per unit length.
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- Due to its smaller external diameter, high current capacity and its ease of installation, the Fleximax THHN/THWN-2 millimetric conductor is ideal for fixed electrical installations in residential, commercial and industrial buildings: power and lighting feeders, wiring of electrical connections and for the circuits' branches.
- Due to the nylon protective jacket it is capable to be installed in petrochemical plants, gas stations and where oil is present. Its high insulation operating temperature (90°C) makes it suitable for industrial applications connecting motors, control panels, as well as internal wiring of machine tools and household appliances.
- The 50 mm^2 gauge and larger sizes can be installed in cable trays (pans or baskets) covered or exposed to sunlight. Also, the conductors can be installed directly exposed on support messenger.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Fleximax

Millimetric THHN/THWN Copper Conductor

Prysmian Group

Technical Information

Nominal dimensions and features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.5 of IEC 60364-5-52 latest version

Gauge	Insulation Thickness		Jacket Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
mm^2	in	mm	in	mm	in	mm	kg	Ω/km
1,50	0,015	0,381	0,004	0,102	0,108	2,743	17,77	13,30
2,50	0,015	0,381	0,004	0,102	0,124	3,149	26,92	7,98
4	0,015	0,381	0,004	0,102	0,144	3,657	40,65	4,95
6	0,020	0,508	0,004	0,102	0,174	4,419	60,25	3,30
10	0,030	0,762	0,005	0,127	0,233	5,918	104,37	1,91
16	0,030	0,762	0,005	0,127	0,299	7,594	163,14	1,21
25	0,040	1,016	0,006	0,152	0,377	9,586	252,32	0,78
35	0,040	1,016	0,006	0,152	0,427	10,845	366,90	0,554
50	0,050	1,270	0,007	0,178	0,473	12,021	504,97	0,386
70	0,050	1,270	0,007	0,178	0,538	13,654	718,60	0,272
95	0,050	1,270	0,007	0,178	0,605	15,363	965,30	0,206
120	0,060	1,524	0,008	0,203	0,691	17,540	1222,46	0,161
150	0,060	1,524	0,008	0,203	0,753	19,120	1496,92	0,129
185	0,060	1,524	0,008	0,203	0,808	20,519	1756,34	0,105
240	0,060	1,524	0,008	0,203	0,919	23,343	2402,77	0,0801

Note: The values given may vary according to the manufacturing tolerances

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

phelps dodge

Flexible Millimetric

Copper Multi-conductor

(3182Y / 3183Y / 3184Y)

Prysmian Group

Description

The Flexible Millimetric is a copper multi-conductor formed with soft copper Class 5 flexible cords insulated with thermoplastic PVC. The cores are then helically cabled and protected with a black or gray weather resistant thermoplastic PVC outer jacket.

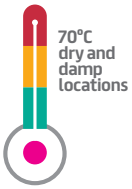
Standard Specifications

The Flexible Millimetric multi-conductors are built based on the following:

- Standards: **BS EN 60228, BS EN 6004, IEC 60227 and 60228.**
- Certificate: **CIDET # 05484.**

Features

- The Flexible Millimetric is designed to operate at 300/500 V at 70°C maximum operating temperature in dry, humid and wet environments.



- The Flexible Millimetric is manufactured in the following configurations: duplex, triplex and quadruple conductor's cores, ranging from 1.5 mm^2 up to 10.0 mm^2 gauges.
- The conductor colors per configuration are:
  - **Duplex:** blue and brown
  - **Triplex:** blue, brown and green
  - **Quadruplex:** black, blue, brown and green
- The PVC jacket provides capability to not propagate fire when exposed to flames.
- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.

Aplicaciones

- The Flexible Millimetric conductors is widely used to connect appliances, hand tools, luminaries and low power mobile units. They are also used as portable electrical extension cords at home, commercial and construction sites in dry humid or wet locations.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Flexible Millimetric

Copper Multi-conductor

(3182Y / 3183Y / 3184Y)

Prysmian Group

Technical Information

Dimensions and nominal feature

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.4 of IEC 60364-5-52 latest version

Gauge	Insulation Thickness		Jacket Thickness		External Diameter		Weight	DC Max. @ 20°C Resistance
mm^2	in	mm	in	mm	in	mm	kg	Ω/km
1,50	0,015	0,381	0,004	0,102	0,108	2,743	17,77	13,30
2,50	0,015	0,381	0,004	0,102	0,124	3,149	26,92	7,98
4	0,015	0,381	0,004	0,102	0,144	3,657	40,65	4,95
6	0,020	0,508	0,004	0,102	0,174	4,419	60,25	3,30
10	0,030	0,762	0,005	0,127	0,233	5,918	104,37	1,91
16	0,030	0,762	0,005	0,127	0,299	7,594	163,14	1,21
25	0,040	1,016	0,006	0,152	0,377	9,586	252,32	0,78
35	0,040	1,016	0,006	0,152	0,427	10,845	366,90	0,554
50	0,050	1,270	0,007	0,178	0,473	12,021	504,97	0,386
70	0,050	1,270	0,007	0,178	0,538	13,654	718,60	0,272
95	0,050	1,270	0,007	0,178	0,605	15,363	965,30	0,206
120	0,060	1,524	0,008	0,203	0,691	17,540	1222,46	0,161
150	0,060	1,524	0,008	0,203	0,753	19,120	1496,92	0,129
185	0,060	1,524	0,008	0,203	0,808	20,519	1756,34	0,105
240	0,060	1,524	0,008	0,203	0,919	23,343	2402,77	0,0801

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

NM-B/NMC

Millimetric Copper Multi-conductor

Prysmian Group

Description

The NMB-B/NMC is an electrical multi-conductor formed by soft copper EcoPlus THHN/THWN-2 assembled in 2 or 3 parallel Class 2 conductors. The core is then protected with a white or grey color polyvinyl chloride (PVC) thermoplastic jacket.

Standard Specifications

The NMB-B/NMC multi-conductors are built based on the following:n:

- Standards: **IEC 60228. UL 83 and 719.**

Features

- NMB-B/NMC is designed to operate at 600 V and 90°C max temperature in dry, humid and wet conditions.
- NMB-B/NMC conductors are manufactured in multiple gauges and formations: duplex and triplex from 1.5 mm^2 up to 6 mm^2.

- Their individual cores or conductors are: THHN/THWN-2 type. With the basic colors: black, white and green.
- Due to its PVC insulation and nylon jacket system the NMB-B/NMC cables do not propagate flames.
- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- NMB-B/NMC is ecologically friendly due to its lead-free PVC and other compounds used in the insulation and jackets.

Applications

- The NM-B/NMC is mainly used on lighting outlets and residential electrical circuits.
- The NM-B/NMC is allowed to be installed in residential units in fixed circuits, also temporary derivation circuits exposed or covered within hollow walls and wood studs.
- The NM-B/NMC can be used where THHN/THWN-2 single conductors are approved.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

NM-B/NMC

Millimetric Copper Multi-conductor

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.4 of IEC 60364-5-52 latest version

Formation & Gauge	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
mm²	in	mm	in	mm	in	mm	km/kg	Ω/km
Duplex								
2 x 1,5	0,0300	0,762	0,2611	6,63	0,1612	4,09	52,33	12,100
2 x 2,5	0,0300	0,762	0,2950	7,49	0,1781	4,52	73,68	7,410
2 x 4	0,0300	0,762	0,3370	8,56	0,1991	5,06	105,76	4,610
2 x 6	0,0300	0,762	0,4017	10,20	0,2314	5,88	152,95	3,080
Triplex								
3 x 1,5	0,0300	0,762	0,3611	9,17	0,1612	4,09	76,63	12,100
3 x 2,5	0,0300	0,762	0,4119	10,46	0,1781	4,52	108,74	7,410
3 x 4	0,0300	0,762	0,4749	12,06	0,1991	5,06	157,04	4,610
3 x 6	0,0300	0,762	0,5719	14,53	0,2314	5,88	228,27	3,080

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Flat Multi-conductor

Millimetric Copper

(6193Y / 6243Y)

Prysmian Group

Description

The Flat multi-conductor is an electrical conductor formed by soft copper PVC insulated Class 2 conductors assembled in parallel. The group is then protected with a grey color polyvinyl chloride (PVC) thermoplastic jacket.

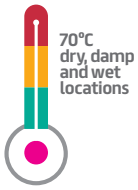
Standard Specifications

The Flat multi-conductors are built based on the following:

- Standards: **BS EN 60228, BS EN 6004. IEC 60227 and 60228.**
- Certificates: **CIDET # 05483.**

Features

- The Flat multi-conductors are manufactured in multiple gauges from 6 mm^2 up to 16mm^2.
- They are designed to operate at 70°C and 300/500 operating voltage.
- Their individual cores or conductors are PVC insulated with the standard colors: brown, blue and gray.
- Due to its PVC jacket the Flat multi-conductor cables do not propagate flames.



- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The conductor is ecologically friendly due to its lead-free PVC and other compounds used in the insulation and jackets.

Applications

- The Flat multi-conductor is mainly used on power feed circuits in residential. It can be installed in residential units in fixed circuits, also derivation circuits exposed or covered with in hollow Walls and wood studs.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.4 of IEC 60364-5-52 latest version

Formation & Gauge	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
mm^2	in	mm	in	mm	in	mm	kg/km	Ω/km
3 x 6	0,0430	1,0922	0,6450	16,38	0,2735	6,95	268,46	3,080
3 x 10	0,0470	1,1938	0,8105	20,59	0,3341	8,49	433,96	1,830
3 x 16	0,0510	1,2954	0,9426	23,94	0,3835	9,74	635,33	1,150

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

SPT-R

Flexible Parallel Copper Millimetric

Prysmian Group

Descripción

The SPT-R is a flexible duplex parallel copper conductor, the cores are made of soft wires twisted Class 5 insulated with thermoplastic polyvinyl chloride (PVC) with a holding membrane allowing ease of separation.

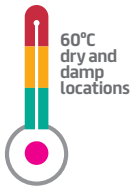
Standard Specifications

The SPT-R conductors are built based on the following:

- Standards: **IEC 60228 and NTC 5521.**

Features

- The SPT-R is designed to operate at 60°C maximum temperature in dry and damp environments at 300 V maximum.
- The SPT-R conductor is manufactured from 18 AWG (0,519 mm^2) to 10 AWG (5.26mm^2) gauges in white, black grey and brown insulation.
- The conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.
- The lead-free PVC insulation is ecologically friendly.



Applications

- The SPT-R is widely used in home portable lamps, hanging lights and appliances. Widely used as temporary extension connections.
- Recommended and non-recommended applications:
  - Should not be used in substitution of fixed electrical circuits of switches or outlets among other house circuits.
  - Should not be left inside walls, floors or ceiling.
  - Should not be installed on wall, floors or ceiling perforations.
  - Should not be installed trough doors, windows or similar openings where the cable may be damaged by sharp or pointy edges.
  - Should not be stapled or nailed to the structures during installation.
  - Should not be installed in electrical conduits unless allowed by the code.
  - The live conductor identified by surface ident markings on the insulation should not be connected to exposed metal surfaces on lamps or appliances.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

SPT-R

Flexible Parallel Copper Millimetric

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures

Gauge	Insulation Thickness		Height		Width		Weight	DC Max. @ 20°C Resistance
mm²	in	mm	in	mm	in	mm	km/kg	Ω/km
1	0,025	0,635	0,106	2,693	0,207	5,258	29,411	19,50
1,5	0,025	0,635	0,115	2,912	0,224	5,697	37,998	13,30
2,5	0,025	0,635	0,132	3,360	0,265	6,720	56,903	7,98
4	0,025	0,635	0,156	3,955	0,311	7,910	84,498	4,95
6	0,030	0,762	0,184	4,671	0,393	9,978	136,192	3,30

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Twin & Earth

Flat Millimetric Multi-conductor

(6192Y / 6242Y)

Prysmian Group

Description

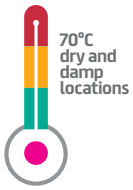
The flat Twin & Earth multi-conductor is formed by PVC insulated annealed copper Class 2 conductors, colored blue and brown or black and red, paralleled assembled with a bare solid central ground wire, all the conductors are covered with a thermoplastic polyvinyl chloride (PVC) gray or white outer jacket.

Standard Specifications

The Twin & Earth multi-conductors are built based on the following:

- Standards: **BS EN 50525-2-31. IEC 60228 and 60227.**
- Certificate: **CIDET # 05482.**

Characteristics



- The multi-conductor is designed to operate at 300/500 V and 70°C maximum temperature in dry and humid environments.
- They are built in gauges from 1.5 mm^2 up to 4 mm^2 parallel insulated conductors with a bare reduced solid wire ground conductor (insulation colors are blue/brown or black/red).
- The PVC insulation and jacket applied does not propagates fire.
- The assembled conductor complies with RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- Conductor designed to connect branch circuits, outlets, general power and lights. In residential, commercial and industrial applications, either exposed or enclosed in conduits, hollow walls or ceilings.

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.4 of IEC 60364-5-52 latest version

Formation & Gauge	Ground Gauge Solid Nude	Insulation Thickness		Width		Height		Weight	DC Max. @ 20°C Resistance
mm^2	mm^2	in	mm	in	mm	in	mm	kg/km	Ω/km
2 x 1,5	1,0	0,0354	0,9	0,3509	8,91	0,1896	4,81	79,94	12,10
2 x 2,5	1,5	0,0394	1,0	0,4191	10,65	0,2228	5,66	117,92	7,41
2 x 4	1,5	0,0394	1,0	0,4610	11,71	0,2437	6,19	153,80	4,61

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Millimetric Mono-conductor

Class 2

H05V-R / H07V-R / 6491X

Prysmian Group

Description

The Millimetric Mono-conductor is a soft annealed Class 2 cable insulated with polyvinyl chloride (PVC).

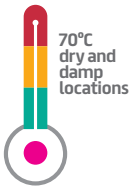
Standard Specifications

The Millimetric Mono-conductors are built based on the following:

- Standards: **BS EN 50525-2-31. IEC 60228 and 60227.**
- Certificate: **CIDET # 05481.**

Features

- The Millimetric Mono-conductor is designed to operate at 450/750 V at 70°C max temperature in dry and humid environments.
- The PVC jacket is fire retardant capable not to propagate fire when exposed to flames.



- The conductor is manufactured from 1.5mm² up to 240 mm². The 50mm² and larger conductors are built with black UV insulation resistant (SUN RES).
- The metal core is manufactures in Class 2 cable allowing medium mobility and strong terminal holding to ensure low contact resistance.
- Complies with RoHS *(Restriction of Hazardous Substances)* regulation.

Applications

- The Millimetric Mono-conductor is widely used to connect residential, commercial and industrial circuits for illumination, power outlets and general supplies operating at 70°C max in humid or wet locations.
- The 50 mm² or larger gauge conductors can be used outdoors thanks to their black ultraviolet (UV) resistant insulation.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Millimetric Mono-conductor

Class 2

H05V-R / H07V-R / 6491X

Prysmian Group

Technical Information

Nominal dimensions y characteristics

The conductor operating amperage is defined by the installation conditions and operating temperatures identified in TABLE B.52.4 of IEC 60364-5-52 latest version

Gauge	Wires	Insulation Thickness		External Diameter		Metal Weight	Weight	DC Max. @ 20°C Resistance
mm²	#	in.	mm.	in.	mm.	Kg / Km	Kg / Km	Ω/km
1,50	7	0,0275	0,6985	0,1174	2,9820	12,95	20,12	12,1
2,50	7	0,0315	0,8001	0,1424	3,6168	21,11	31,34	7,41
4	7	0,0315	0,8001	0,1634	4,1505	33,86	46,26	4,61
6	7	0,0315	0,8001	0,1855	4,7127	50,80	65,38	4,61
10	7	0,0393	0,9982	0,2379	6,0417	86,29	109,87	1,83
16	7	0,0393	0,9982	0,2791	7,0884	137,29	166,38	1,15
25	19	0,0472	1,1989	0,3717	9,4409	217,20	263,03	0,727
35	19	0,0472	1,1989	0,4206	10,6845	301,34	354,67	0,524
50	19	0,0551	1,3995	0,4898	12,4410	408,01	482,40	0,387
70	19	0,0551	1,3995	0,5659	14,3738	589,18	677,86	0,268
95	19	0,0630	1,6002	0,6630	16,8402	818,14	937,53	0,193
120	37	0,0630	1,6002	0,6659	16,9127	1035,27	1156,11	0,153
240	37	0,0866	2,1996	0,9422	23,9312	2100,86	2337,47	0,0754

Note: The values given may vary according to the manufacturing tolerances

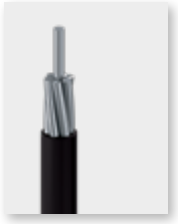
PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

phelps dodge

Technical Sheets
Aluminum AWG & kcmil

Select the material of your interest

XHHW-2
Aluminum Alloy
Cable
Series AA8000



Scan to download

PDF download directly

Fixture Wire
Bare
Aluminum
Conductor

Scan to download

PDF download directly

AAC Cable
Aluminum
Conductor
Series 1350

Scan to download

PDF download directly

AAAC Cable
Aluminum
Conductor
Series 6201

Scan to download

PDF download directly

ACSR Cable
Aluminum Conductor
Series 1350 +
Galvanized Steel

Scan to download

PDF download directly

ACAR Cable
Aluminum Cable
Reinforced with
Aluminum Alloy

Scan to download

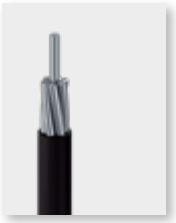
PDF download directly

Neutracen
Aluminum
Multiplex
Cable

Scan to download

PDF download directly

WP
Polacen
Aluminum
Cable



Scan to download

PDF download directly

phelps dodge

XHHW-2

Aluminum Alloy Cable Series AA8000

Prysmian Group

Description

The XHHW-2 is an aluminum alloy series AA8000 Class B or C conductor; with thermoset insulation materials composed by black cross-linked polyethylene (XLPE).

Standard Specifications

The XHHW-2 conductors are built based on the following:

- Standards: **ASTM B786, B800, B801 y UL44**.
- Certificates: **UL E176603 y CIDET # 03542.**

Features

- The XHHW-2 cables are designed with a high resistance thermoset cross-linked polyethylene insulation to be installed on dry, damped or wet locations at temperatures not exceeding 90°C, and 1000V maximum operating voltage.

- Due to the cross-linked polyethylene insulation, the conductors provide a high performance for: mechanical stress, humidity, oils and chemical resistance.
- The XHHW-2 complies with UL options:
  - SR - Sunlight Resistant
  - -40°C - Temp
  - PR I o PRII - Oil Resistance
  - GR I o GRII - Oil and Gasoline Resistance
  - CT - Cable Tray (1/0 AWG a 500 kcmil*)

  * Ask your sales representative
- The carbon black insulation provides UV resistance, allowing product installation directly exposed to sun light on tray cables, metal conduits and raceways.

Applications

- The XHHW-2 conductors are designed primarily for service entrance, feeders and branch circuits in commercial and residential applications.
- The XLPE cross-linked insulation provides high-performance during overload and short-circuit conditions.
- The high mechanical insulation strength and the wall thickness allows for underground feeder systems installed in ducts.
- The XHHW-2 cables can be installed in ducts either metallic or plastic in tray cables (certification required).

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

XHHW-2

Aluminum Alloy Cable Series AA8000

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified in the NEC. See TABLE 310.15(B)(16) NFPA 70 latest version

Gauge		Wire Count	Diameter		Insulation Thickness		External Diameter	Weight	Conductor Resistance
AWG/kcmil	mm	#	mm	in	mm	in	mm	kg/km	Ω/km
6	13,3	7	4,52	0,178	1,14	0,045	6,81	56,85	2,210
4	21,2	7	5,72	0,225	1,14	0,045	8,00	83,30	1,390
2	33,6	7	7,19	0,283	1,14	0,045	9,47	121,78	0,875
1/0	53,5	19	9,19	0,362	1,40	0,055	11,99	192,53	0,550
2/0	67,40	19	10,29	0,405	1,40	0,055	13,08	235,50	0,436
3/0	85,00	19	11,58	0,456	1,40	0,055	14,38	289,34	0,346
4/0	107,00	19	13,00	0,512	1,40	0,055	15,80	356,02	0,274
250	127,00	37	14,17	0,558	1,65	0,065	17,48	425,24	0,232
300	152,00	37	15,52	0,611	1,65	0,065	18,82	498,80	0,194
350	177,00	37	16,79	0,661	1,65	0,065	20,09	581,64	0,166
400	203,00	37	17,93	0,706	1,65	0,065	21,23	657,17	0,145
500	253,00	37	20,04	0,789	1,65	0,065	23,34	807,05	0,116
600	304,00	61	22,00	0,866	2,03	0,080	26,06	989,18	0,097
750	380,00	61	24,59	0,968	2,03	0,080	28,65	1203,64	0,077
1000	507,00	61	28,37	1,117	2,03	0,080	32,44	1577,33	0,058

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Fixture Wire

Bare Aluminum Conductor

Prysmian Group

Description

Solid bare pure aluminum soft conductor 1350 series for general purposes.

Standard Specifications

The bare conductors are built based on the following:

- Standards: **ASTM B609**.

Features

- The pure aluminum conductors are solid gauged diameter to be used in electrical distribution or transmission installations as electrical jumper or cable fixture.

Applications

- Design to be installed in power transmission and distribution lines as cable fixture wires to the insulators.
- The wire is also applied in mechanical fixture applications of power distribution components.
- The aluminum wire can be used to connect low amperage electrical circuits and low mechanical tension
- The wire can be used in industrial secondary circuits to fix cables to an Arial messenger wire in long distance distribution circuits.
- The aluminum wire Can NOT be used to connect grown systems exposed directly to soil or submerged in water.

Technical Information

Dimensions and nominal features

Gauge	Diameter	Traction Endurance	Weight
AWG	mm	kg	kg/km
10	2,59	63	14,3
6	4,11	101	36
4	5,18	145	57

Note: the values provided may vary according to manufacturing tolerances. Contact us if you require information on other gauges not included in this table

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

AAC Cable

Aluminum Conductor Series 1350

Prysmian Group

Description

The AAC aluminum cables are build with series 1350 pure aluminum wires at H19 hardness twisted helically from 7 and more wires in concentric layers.

Standard Specifications

The AAC aluminum cables series 1350 are built based on the following:

- Standards: **ASTM B230 y B231.**
- Certificates: **CIDET # 03537.**

Features

- The AAC cables, of pure aluminum series 1350 are built with H19 hard wires helically twisted. The pure aluminum has: limited mechanical tension capacity, high thermal expansion coefficient and the highest conductivity among aluminum cables (62% IACS).
- The cables built with aluminum series 1350 are classified as follows:
  - **Clase AA:** Bare cables utilized in power distribution networks with limited flexibility. (more rigid)
  - **Clase A:** Cables built to be insulated with environment capable polymers to be used in Arial Service entrance cables where higher flexibility than class AA cables is required.

Applications

- The pure aluminum cables are designed to be installed in residential or industrial power distribution exposed systems and feed up networks. Also used on high voltage transmission lines in shorter lengths with low mechanical tension.
- Due to the aluminum high oxide reactivity the cables form a surface protective shield from environmental conditions allowing a good performance in aerial circuits.
- Due to aluminum low density the cables provide a high current capacity per metal weight, compared to copper, allowing high power transfer with less metal.
- The pure aluminum is a good conductor but is mechanically limited with high thermal expansion causing conductor reduce spam lengths requiring additional care on cable sag due to high conductor temperatures.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

AAC Cable

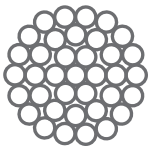
Aluminum Conductor Series 1350

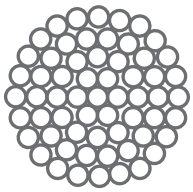
Prysmian Group

AAC Cable Configurations

7 Wires 

19 Wires 

37 Wires 

61 Wires 

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 1 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

Code	Gauge		Wires	Diameter	Weight	Breakage Load	DC Max. @ 20°C Resistance
	AWG / kcmil	mm²	#	mm	kg/km	kg	Ω/km
Peachbell	6	13,30	7	4,66	36,6	255	2,212
Rose	4	21,15	7	5,88	58,3	400	1,391
Iris	2	33,62	7	7,42	92,7	612	0,874
Poppy	1/0	53,51	7	9,36	147,5	903	0,549
Aster	2/0	67,44	7	10,51	186	1139	0,436
Phlox	3/0	85,02	7	11,80	235	1379	0,345
Oxlip	4/0	107	7	13,25	296	1737	0,274
Daisy	266,8	135	7	14,88	374	2191	0,218
Laurel	266,8	135	19	15,05	375	2254	0,218
Tulip	336,4	171	19	16,90	472	2 790	0,173
Canna	397,5	201	19	18,37	558	3 225	0,146
Cosmos	477	242	19	20,12	670	3 792	0,122
Syringa	477	242	37	20,19	671	3 942	0,122
Dahlia	556,5	282	19	21,74	781	4 423	0,104
Mistletoe	556,5	282	37	21,81	783	4 509	0,104
Hyacinth	500	253	37	20,67	704	4 132	0,115
Petunia	750	380	37	25,31	1055	5 942	0,077

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

AAAC Cable

Aluminum Conductor Series 6201

Prysmian Group

Description

The AAAC aluminum alloys cables are build with series 6201-T81 wires twisted helically from 7 and more strands in concentric layers.

Standard Specifications

The AAAC aluminum alloy cables series 6201 are built based on the following:

- Standards: **ASTM B398 y B399**.
- Certificate: **CIDET # 03538**.

Features

- The cables AAAC are composed of aluminum alloy wires with high magnesium content allowing high mechanical resistance and low thermal expansion coefficient. The 6201 alloy delivers equivalent stress to steel's wires allowing longer spams compared to AAC cables.
- The aluminum alloy has a lower conductivity (52% IACS) requiring increased diameter to obtain equivalent gauge resistance of AAC conductors.

Applications

- The AAAC cables are designed to be installed in power distribution exposed systems. In low voltage distribution residential or industrial feed-up networks. Also used on high voltage transmission aerial lines with long spams requiring high tensile capacity.
- The aluminum alloy cables are very useful in areas were general environment conditions are demanding like high humidity, salinity, acidity and contamination where steel conductors have corrosion issues.
- The properties of "spam/tensile" makes the AAAC conductor ideal in power distribution/transmission exposed systems. Applications on urban, costal networks are widely utilized. The main advantages are:
  - The lower density allows to use lighter network supporting structures.
  - The conductors have a much higher tensile than AAC .
  - Has lower thermal expansion allowing a better overload behavior.
  - The AAAC cable weight is about 50% lower than the equivalent capacity copper conductor and 20% lower than the equivalent ACSR.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

AAAC Cable

Aluminum Conductor Series 6201

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 3 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

Code	Gauge		Wires	Diameter	Weight	Break Tension	DC Max. @ 20°C Resistance
	cmil	mm²	#	mm	kg/km	kg	Ω/km
Akron	30 580	15,5	7	5,04	42,58	503	2,202
Alton	48 690	24,7	7	6,36	67,8	798	1,383
Ames	77 470	39,2	7	8,02	107,5	1 271	0,872
Azusa	12 330	62,4	7	10,11	171,3	1 935	0,547
Anaheim	155 400	78,6	7	11,35	215,6	2 445	0,435
Amherst	195 700	99,3	7	12,74	272,5	3 080	0,344
Alliance	246 900	125	7	14,31	343,2	3 883	0,273
Butte	312 800	159	19	16,3	435,1	4 763	0,215
Canton	394 500	200	19	18,3	548,5	6 033	0,171
Cairo	465 400	236	19	19,88	648,6	7 076	0,145
Darien	559 500	284	19	21,79	778,3	8 528	0,120
Elgin	652 400	331	19	23,53	908,3	9 934	0,103
Flint	740 800	375	37	25,16	1 028	11 068	0,091
Greeley	927 200	470	37	28,15	1 289	13 835	0,073

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

ACSR Cable

Aluminum Conductor Series 1350 + Galvanized Steel

Prysmian Group

Description

The ACSR cables are build with series 1350 pure aluminum wires at H19 hardness twisted helically from 7 and more wires in concentric layers over a wire or cabled galvanized steel core.

Standard Specifications

The ACSR aluminum + steel cables are built based on the following:

- Standards: **ASTM B230, B502 y B549.**
- Certificate: **CIDET # 03540.**

Features

- The ACSR steel core cables are built to deliver aluminum conductors with high tensile capacity allowing long cable spams with minor sag due to high conductor temperatures compared to AAC conductors.
- The overall ACSR conductor diameter is larger since the steel core is not consider in the electrical resistance calculation and only the aluminum will carry the current.
- The cable design will very depending on the application, it is identified by the code word and the steel core could be solid or stranded, the aluminum wires could have different diameters and counts in the same gauge.

Applications

- The ACSR cables are designed to deliver high tensile capacity to allow long spams. The conductors are ideal on distribution and transmission power system.
- The high tensile steel cores allow ACSR cables to withstand heavy forces in normal use. The cable is ideal to be installed on high impact risk areas, falling tree branches, heavy rain, ice, snow and severe winds. Also, in areas where the height of the spam is critical.
- The ACSR cables are capable to operate at higher temperatures showing less thermal stretch compared to AAC cables.
- The ACSR steel core can be affected by severe environmental conditions, the aluminum wires build alumina for protection; the steel requires the galvanized shield that is limited when exposed to salty, acid and hi humidity conditions reducing the life of the conductor.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

ACSR Cable

Aluminum Conductor Series 1350 + Galvanized Steel

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 4 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

Code	Gauge	Wires		Diameter		Weight	Break Tension	DC Max. @ 20°C Resistance
	AWG/kcmil	Aluminio	Acero	in	mm	kg/km	kg	Ω/km
Swan	4	6	1	0,25	6,36	86	844	1,323
Sparrow	2	6	1	0,32	8,01	137	1 293	0,832
Raven	1/0	6	1	0,40	10,11	218	1 987	0,523
Quail	2/0	6	1	0,45	11,35	275	2 404	0,415
Pigeon	3/0	6	1	0,50	12,74	347	3 003	0,329
Penguin	4/0	6	1	0,56	14,31	437	3 788	0,261
Waxwing	266,8	18	1	0,61	15,45	435	3 130	0,215
Merlin	336,4	18	1	0,68	17,36	548	3 946	0,171
Chickadee	397,5	18	1	0,74	18,87	648	4 491	0,145
Pelican	477	18	1	0,81	20,67	777	5 352	0,120
Osprey	556,5	18	1	0,88	22,33	907	6 214	0,103
Brant	397,5	24	7	0,77	19,61	784	6 622	0,194
Flicker	477	24	7	0,85	21,49	941	7 802	0,120
Parakeet	556,5	24	7	0,91	23,21	1 097	8 981	0,139
Peacock	605	24	7	0,95	24,20	1 193	9 798	0,128
Cuckoo	795	24	7	1,09	27,74	1 568	12 655	0,097
Partridge	266,8	26	7	0,64	16,29	562	5 126	0,313
Linnet	336,4	26	7	0,72	18,30	709	6 396	0,249
Ibis	397,5	26	7	0,78	19,89	838	7 394	0,210
Hawk	477	26	7	0,86	21,79	1005	8 845	0,175
Dove	556,5	26	7	0,92	23,53	1 072	10 251	0,150

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

ACAR Cable

Aluminum Cable Series 1350 + Reinforced with Aluminum Alloy 6201

Prysmian Group

Description

The ACAR cables are build with series 1350-H19 hard pure aluminum wires twisted helically with aluminum alloy 6201-T81 wires in concentric layers and multiple combinations.

Standard Specifications

The ACAR aluminum + steel cables are built based on the following:

- Standards: **ASTM B230, B398 y B524.**
- Certificate: **CIDET # 03539.**

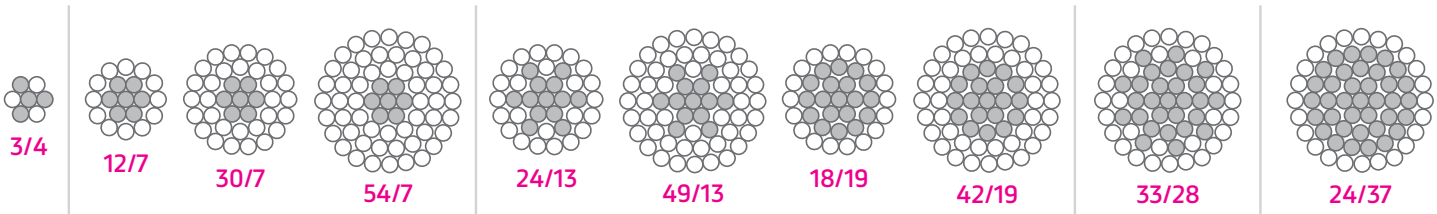
Features

- The ACAR cables are built combining aluminum 1350 wires with alloy 6201 wires in multiple different formations to vary the current carrying capacity with the tensile capability allowing long spams. The 6201 wires deliver high tensile with limited current capacity and the 1350 wires deliver lower tensile with high current capacity.
- All cable wires are aluminum providing environmental protection with the alumina shield, the cable is high resistant humidity, salts, acids and contaminants capable.
- The ACAR cables provide higher currents than equivalent heavier ACSR cables maintaining long spams with limited thermal expansion at high operating temperatures.

Applications

- The ACAR cables are designed to deliver high current capacity with equivalent tensile to ACSR to allow long spams. The conductors are ideal on distribution and transmission power system in severe environmental conditions.
- The implementation of aluminum and alloy wires deliver higher current capacity at lower weight than ACSR cables with high resistance to humidity, salts, acids and pollution.

Cable Configurations



phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

ACAR Cable

Aluminum Cable Series 1350 + Reinforced with Aluminum Alloy 6201

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 1 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

Gauge		Wires Aluminum		Diameter		Weight	Breakage Load	DC Max. @ 20°C Resistance	Ampacity*
AWG/kcmil	mm	1350	6201	in	mm	kg/km	kg	Ω/km	A
4	21,2	4	3	0,23	5,88	58	508	1,452	135
2	33,6	4	3	0,30	7,42	92	794	0,910	180
1/0	53,5	4	3	0,38	9,63	147	1 220	0,573	241
2/0	67,4	4	3	0,43	10,81	185	1 501	0,454	278
3/0	85,0	4	3	0,48	12,14	234	1 864	0,360	322
4/0	107	4	3	0,54	13,63	294	2 350	0,285	373
250	127	15	4	0,65	16,40	348	2 490	0,235	417
300	152	15	4	0,71	17,96	418	2 948	0,196	467
350	177	15	4	0,76	19,40	487	3 388	0,171	515
400	203	15	4	0,82	20,74	557	3 824	0,150	560
500	253	18	19	0,81	20,67	695	5 987	0,120	644
600	304	18	19	0,89	22,64	833	7 167	0,097	723
853,7	433	18	19	1,06	27,01	1 184	9 707	0,068	909
1000	507	54	7	1,15	29,27	1 393	8 981	0,058	1002

Note: The values given may vary according to the manufacturing tolerances

*Current capacity calculated considering sun and wind. Bare conductors outdoors, based on 25 ° C ambient temperature, conductor temperature 75 ° C, wind speed 0.6 m / s, conductor emissivity 0.5, solar radiation 1000 W/m² at sea level

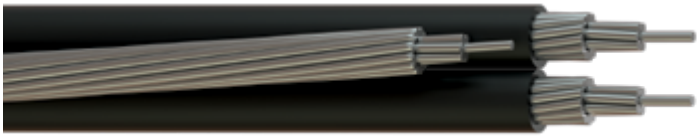
phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Neutracen

Aluminum Multiplex Cable

Prysmian Group



Description

The Neutracen Multiplex are aluminum AAC, ACSR and AAAC type conductors; with insulation either thermoplastic PE or thermoset black crosslinked polyethylene (XLPE). The AAC, ACSR or AAAC are helically twisted in different counts over a messenger core either bare or insulated to from a duplex, triplex or tetraplex conductors.

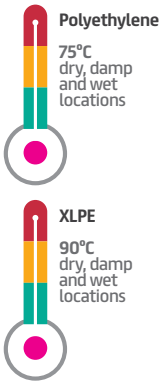
Standard Specifications

The Neutracen Multiplex conductors are built based on the following:

- Standards: **ASTM B230, B231, B232, B398, B399 y B498. ANSI / ICEA S-76-474 and S-95-658.**
- Certificate: **CIDET # 03533.**

Features

- The cables with thermoplastic UV Polyethylene (PE) are designed for 75°C max.
- The Multiplex Neutracen cables are designed with UV resistance thermoset cross-linked polyethylene (XLPE) insulation capable to operate at 90°C max temperature.



- The Neutracen is design for aerial circuits where the load is mainly carried by the messenger core cable, the core tensile capability depends on the type of conductor: AAC lower tensile and ACSR/AAAC higher tensile for longer spams.
- The ACSR cores are limited by the severe environmental corrosion conditions of high salinity, acidity and humidity. The AAAC is the recommended core option for severe conditions.
- The Neutracen multiplex have several permutations among cables types, insulation, cores and cables flexibility. They are identified with the cable code name.

Applications

- The Neutracen multiplex conductors are designed to connect aerial power distribution networks to final users, from the secondary network to the single user service meter.
- To connect secondary aerial power distribution circuits in long distance networks the supports distance will depend on the messenger core used.
- The AAAC or ACSR cables can be used to support additional circuit conductors.
- The Neutracen cables are design for external aerial applications, NOT allowed in breaker boxes. Aerial to duct transition join must be installed with correct fixtures.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Neutracen

Aluminum Multiplex Cable

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 9 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

AAC Duplex

Code	1350 Al Conductor						1350 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Insulation Thickness	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Collie	6	7	0,183	4,66	0,045	1,143	6	7	0,183	4,66	13,40	98
Spaniel	4	7	0,231	5,88	0,045	1,143	4	7	0,231	5,88	15,74	148
Doberman	2	7	0,292	7,42	0,045	1,143	2	7	0,292	7,42	18,68	255
Basset	1/0	7	0,369	9,36	0,060	1,524	1/0	7	0,369	9,36	23,89	362

Note: The values given may vary according to the manufacturing tolerances

AAAC Duplex

Code	1350 Al Conductor						6201 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Insulation Thickness	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Vizla	6	7	0,183	4,66	0,045	1,143	30,58	7	0,198	5,04	13,40	104
Whippet	4	7	0,231	5,88	0,045	1,143	48,69	7	0,250	6,36	15,74	157
Schnauzer	2	7	0,292	7,42	0,045	1,143	77,47	7	0,316	8,02	18,68	241
Afghan	1/0	7	0,369	9,36	0,060	1,524	123,3	7	0,398	10,11	23,89	386

Note: The values given may vary according to the manufacturing tolerances

ACSR Duplex

Code	Conductor Al 1350						ACSR Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Shepherd	6	7	0,183	4,66	0,045	1,143	6	6/1	0,198	5,03	12,1	115
Terrier	4	7	0,231	5,88	0,045	1,143	4	6/1	0,250	6,35	14,63	175
Chow	2	7	0,292	7,42	0,045	1,143	2	6/1	0,316	8,01	17,85	268
Bloodhound	1/0	7	0,369	9,36	0,060	1,524	1/0	6/1	0,398	10,11	22,67	430

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Neutracen

Aluminum Multiplex Cable

Prysmian Group

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 9 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

AAC Triplex

Code	1350 Al Conductor						1350 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Patella	6	7	0,183	4,66	0,045	1,143	6	7	0,183	4,66	15,27	159
Oyster	4	7	0,231	5,88	0,045	1,143	4	7	0,231	5,88	17,88	237
Clam	2	7	0,292	7,42	0,045	1,143	2	7	0,292	7,42	21,21	358
Murex	1/0	7	0,369	9,36	0,060	1,524	1/0	7	0,369	9,36	27,11	576
Nassa	2/0	7	0,414	10,51	0,060	1,524	2/0	7	0,414	10,51	29,64	710
Quahog	3/0	7	0,465	11,80	0,080	2,032	3/0	7	0,465	11,80	33,67	906
Coquina	4/0	7	0,522	13,25	0,060	1,524	4/0	7	0,522	13,25	35,55	1089
Purpura	1/0	19	0,372	9,46	0,060	1,524	1/0	7	0,369	9,36	27,37	570
Trophon	2/0	19	0,419	10,63	0,060	1,524	2/0	7	0,414	10,51	29,89	702
Ione	3/0	19	0,470	11,94	0,080	1,524	3/0	7	0,465	11,80	31,97	896
Apus	4/0	19	0,528	13,40	0,080	1,524	4/0	7	0,522	13,25	35,14	1105
Chiton	266,8	19	0,593	15,05	0,080	2,032	266,8	19	0,593	15,05	40,74	1364
Nannynose	336,4	19	0,665	16,90	0,080	2,032	336,4	19	0,665	16,90	44,76	1694

Note: The values given may vary according to the manufacturing tolerances

AAAC Triplex

Code	1350 Al Conductor						6201 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Wires		Wires	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Hippa	6	7	0,183	4,66	0,045	1,143	30,58	7	0,198	5,04	15,27	162
Barnacles	4	7	0,231	5,88	0,045	1,143	48,69	7	0,250	6,36	17,88	247
Solaster	2	7	0,292	7,42	0,045	1,143	48,69	7	0,250	6,36	21,21	333
Lobster	2	7	0,292	7,42	0,060	1,524	77,47	7	0,316	8,02	22,94	398
Gammarus	1/0	7	0,369	9,36	0,060	1,524	123,3	7	0,398	10,11	27,11	601
Dungenese	2/0	7	0,414	10,51	0,060	1,524	155,4	7	0,447	11,35	29,64	741
Leda	1/0	19	0,372	9,46	0,060	1,524	123,3	7	0,398	10,11	27,37	592
Cyclops	2/0	19	0,419	10,63	0,060	1,524	155,4	7	0,447	11,35	29,89	733
Fulgur	3/0	19	0,470	11,94	0,060	1,524	123,3	7	0,398	10,11	32,70	810
Lepas	4/0	19	0,528	13,40	0,060	1,524	246,9	7	0,563	14,31	35,88	1150

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Neutracen

Aluminum Multiplex Cable

Prysmian Group

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 9 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

ACSR Triplex

Code	1350 Al Conductor						ACSR Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Voluta	6	7	0,183	4,66	0,045	1,143	6	6/1	0,198	5,03	15,27	170
Periwinkle	4	7	0,231	5,88	0,045	1,143	4	6/1	0,250	6,35	17,88	264
Cockle	2	7	0,292	7,42	0,045	1,143	4	6/1	0,250	6,35	21,21	351
Conch	2	7	0,292	7,42	0,045	1,143	2	6/1	0,316	8,01	21,21	401
Janthina	1/0	7	0,369	9,36	0,060	1,524	2	6/1	0,316	8,01	27,11	564
Neritina	1/0	7	0,369	9,36	0,060	1,524	1/0	6/1	0,398	10,11	27,11	644
Cenia	1/0	19	0,372	9,46	0,060	1,524	1/0	6/1	0,398	10,11	27,37	638
Clio	2/0	19	0,419	10,63	0,060	1,524	1	6/1	0,354	9,00	29,89	688
Mursia	3/0	19	0,470	11,94	0,060	1,524	1/0	6/1	0,398	10,11	32,70	978
Cerapus	4/0	19	0,528	13,40	0,060	1,524	2/0	6/1	0,447	11,35	35,88	1 082

Note: The values given may vary according to the manufacturing tolerances

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 11 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

AAC Quadruplex

Code	1350 Al Conductor						1350 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Pinto	4	7	0,231	5,88	0,045	1,143	4	7	0,231	5,88	19,95	326
Mustang	2	7	0,292	7,42	0,045	1,143	2	7	0,292	7,42	23,67	491
Libyan	1/0	7	0,369	9,36	0,060	1,524	1/0	7	0,369	9,36	30,25	790
Orloff	2/0	7	0,414	10,51	0,060	1,524	2/0	7	0,414	10,51	33,07	973
Mongolian	3/0	7	0,465	11,80	0,060	1,524	3/0	7	0,465	11,80	36,13	1 201
Singlefoot	4/0	7	0,522	13,25	0,080	1,524	4/0	7	0,522	13,25	39,67	1 485

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

Neutracen

Aluminum Multiplex Cable

Prysmian Group

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 11 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

AAAC Quadruplex

Code	1350 Al Conductor						6201 Al Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
French-Coach	6	7	0,183	4,66	0,045	1,143	30,58	7	0,198	5,04	17,04	226
Arabian	4	7	0,231	5,88	0,045	1,143	48,69	7	0,250	6,36	19,95	336
Belgian	2	7	0,292	7,42	0,045	1,143	77,47	7	0,316	8,02	23,67	506
Shetland	1/0	19	0,372	9,46	0,060	1,524	123,3	7	0,398	10,11	30,53	806
Thoroughbred	2/0	19	0,419	10,63	0,060	1,524	155,4	7	0,447	11,35	33,35	992
Trotter	4/0	19	0,470	11,94	0,060	1,524	195,7	7	0,502	12,74	36,49	1224
Walking	4/0	19	0,528	13,40	0,060	1,524	246,9	7	0,563	14,31	40,03	1514

Note: The values given may vary according to the manufacturing tolerances

ACSR Quadruplex

Code	1350 Al Conductor						ACSR Messenger or Neutral				Full Conductor	
	Gauge	Wires	Diameter		Insulation Thickness		Gauge	Wires	Diameter		Diameter	Weight
	AWG/kcmil	#	in	mm	in	mm	AWG/kcmil	#	in	mm	mm	kg/km
Chola	6	7	0,183	4,66	0,045	1,143	6	6/1	0,198	5,03	17,04	237
Hackney	4	7	0,231	5,88	0,045	1,143	4	6/1	0,250	6,35	19,95	353
Palomino	2	7	0,292	7,42	0,045	1,143	2	6/1	0,316	8,01	23,67	534
Costena	1/0	19	0,372	9,46	0,060	1,524	1/0	6/1	0,398	10,11	30,53	849
Grullo	2/0	19	0,419	10,63	0,060	1,524	2/0	6/1	0,447	11,35	33,35	1047
Suffolk	3/0	19	0,470	11,94	0,060	1,524	3/0	6/1	0,502	12,75	36,49	1295
Appaloosa	4/0	19	0,528	13,40	0,060	1,524	4/0	6/1	0,563	14,30	40,03	1602

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

WP

Polacen Aluminum Cable

Prysmian Group

Description

The WP Polacen is an aluminum AAC, ACSR and AAAC conductor; with insulation either thermoplastic (PE) or thermoset black crosslinked polyethylene (XLPE).

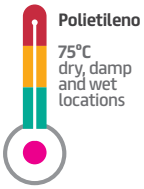
Standard Specifications

The WP Polacen conductors are built based on the following:

- Standards: **ASTM B230, B231, B398, B399 and ANSI/ICEA S-95-658.**
- Certificate: **CIDET # 03543.**

Features

- The WP cables are designed with a high resistance thermoset cross-linked polyethylene insulation (XLPE) to be installed on dry, damped or wet locations at temperatures not exceeding 90°C, and 1000 V or with thermoplastic Polyethylene designed to operate at 75°C and 600 V maximum operating voltage.



- The WP tensile capability depends on the core conductor: AAC lower tensile and ACSR / AAAC higher tensile.
- The carbon black insulation content provides UV resistance, allowing product installation directly exposed to sun light.

Applications

- The WP conductors are designed mainly for secondary aerial power distribution in highly contaminated urban areas.
- The XLPE crosslinked insulation provides high-performance during overload and short-circuit conditions.

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

WP

Polacen Aluminum Cable

Prysmian Group

Technical Information

Dimensions and nominal features

The conductor operating amperage is defined by the installation condition and operating temperatures identified. See Table 6 on Ampacities for Aluminum & ACSR Overhead Electrical Conductors issued by the Aluminum Association.

WP Polacen Aluminum Cable with AAC Conductors						
Code	**Gauge**	**Wires**	**Diameter**	**Insulation Thickness**	**Diameter**	**Weight**
	AWG/kcmil	#	mm	mm	mm	kg/km
Apple	6	Sólido	4,11	1,14	6,39	54
Plum	6	7	4,66	1,14	6,94	60
Pear	4	Sólido	5,19	1,14	7,47	79
Apricot	4	7	5,88	1,14	8,16	88
Peach	2	7	7,42	1,14	9,70	130
Quince	1/0	7	9,36	1,52	12,40	210
Haw	1/0	19	9,46	1,52	12,50	207
Orange	2/0	7	10,51	1,52	13,55	257
Ironwood	2/0	19	10,63	1,52	13,67	250
Fig	3/0	7	11,80	1,52	14,84	316
Lemon	3/0	19	11,94	1,52	14,98	307
Olive	4/0	7	13,25	1,52	16,29	389
Pomegranate	4/0	19	13,40	1,52	16,44	380
Sassafras	250	19	14,57	2,03	18,63	364
Mulberry	266,8	19	15,05	2,03	19,11	480
Basswood	300	19	15,96	2,03	20,02	535

Note: The values given may vary according to the manufacturing tolerances

phelps dodge

PRYSMIAN GROUP
Central America & Caribbean
Kilometer 11 General Cañas Highway. Heredia, Costa Rica
Customer Service Hub: + (506) 2298-4800
info.centroamerica@prysmiangroup.com
www.generalcable.com

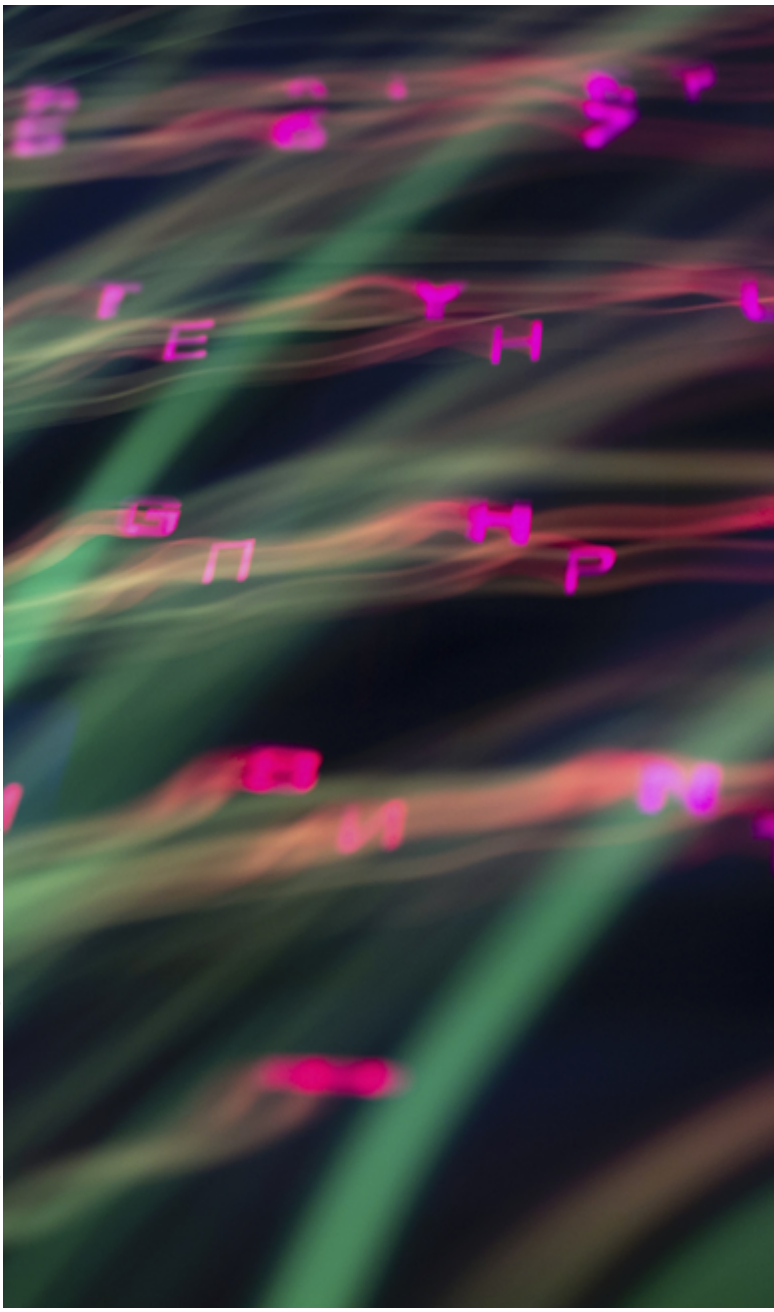
Glossary of Abbreviations

Terms, institutions & organizations related to electrical cables and conductors

phelps dodge

Glossary of Abbreviations

Select the starting letter of the abbreviation of your interest



Glossary of Abbreviations

A

A: Unit used to denote the intensity of electric current.

AAC: AII Aluminum Conductor: conductor or cable of aluminum wires.

AACS: Aluminum Alloy Standed Conductor: aluminum alloy wire.

AAR: Association of American Railroads.

ABS: American Bureau of Shipping.

AC: Armored Cable: cables provided with a flexible metallic armor.

ACSR: Aluminum Conductor Steel Reinforced: aluminum conductor with galvanized steel center.

ACSR-AW: ACSR with aluminum coated steel center (Alumo-Weld). Also know as ACSR-AS.

ACSS: Aluminum Conductor Steel Supported: high temperature aluminum cables.

ACSS-AW: Aluminum Conductor Steel Supported (Alumo-Weld): high temperature aluminum cables, with aluminum coated steel core.

ACSS-TW: Aluminum Conductor Steel Supported (Trapezoidal Wire): high temperature aluminum cables, formed with trapezoidal wires.

AEC: Atomic Energy Commission: Atomic Energy Commission.

AEIC: Association of Edison IlIuminating Companies.

AENOR: Spanish Association for Standardization and Certification.

Al: Symbol of aluminum.

ANCE: National Association for Standardization and Certification of the Electricity Sector.

ANSI: American National Standards Institute.

ASTM: American Society for Testing and Materials: Organization dedicated to the publication of standards, test methods and recommendations on materials.

AW: Alumo Weld: steel rod with aluminum coating.

AWG: American Wire Gauge: American wire and cable gauge scale, also known as b & s (Brown and Sharpe) Wire Gauge.

AWM: Appliance Wiring Material: conductors intended for internal wiring of household electrical appliances.

Glossary of Abbreviations

B, C & D

BIL (NBIA): Basic Impulse Insulation Level.

BSI: British Standards Institution.

CCNNIE: National Consultative Council for the Standardization of Electrical Installations.

CEI: Comitato Elettrotecnico Italiano: Italian Electrotechnical Commission.

CEI (IEC): Commission Electrotechnique Internationale: french name for the International Electrotechnical Commission.

CFE: Federal Electricity Commission (Mexico).

CIDET: Center for Research and Technological Development of the Electricity Sector, whose objective is to promote and develop activities of standardization and certification of product conformity.

CM: Circular Mil: area of a wire with a diameter of 0.001 inch.

CP: Horsepower: also known as HP.

CPE: Chlorinated PolyEthylene.

CSA: Canadian Standard Association: Canadian institution for the certification of electrical and electronic equipment in accordance with the standards that it publishes.

CT: Engraving of cables for use in trays.

CT-SR: Engraving of cables for use in trays and exposed to the rays of the sun.

Cu: Symbol of copper.

CUSn: Symbol denoting tinned copper.

CV: Continuous Vulcanization: vulcanization process in line with extrusion.

CW: CopperWeld: copper-clad steel rod 128.

DGN: General Directorate of Standards of the Secretariat of Commerce and Industrial Development of Mexico.

DIN: German Standards Institute.

DLO: Diesel Locomotive cable. Cable for diesel locomotives.

DRS: Cables for Residential Underground Distribution (URD type).

DS: Cables for Underground Distribution (UD type).

Glossary of Abbreviations

E, G, H, I, J & K

ECA: Costa Rican Accreditation Body.

EIA: Electronic Industries Association: american group of the electronics industry.

EMA: Mexican Accreditation Entity.

EP(R): Ethylene Propylene (Rubber): ethylene-propylene-based insulation.

G: Ground: flexible mining cable with conductors for ground connection.

G-GC: Ground-Ground Check: flexible cable for mines, with conductors for ground connection and an insulated conductor to verify the continuity of the earth conductors.

HDPE (PEAD): High Density Polyethylene (PEAD): high density polyethylene.

HMWP: High Molecular Weight Polyethylene: high molecular weight polyethylene.

HP: Horse Power: horse power.

Hz: Hertz: unit for frequency naming.

IACS: International Annealed Copper Standard: international standard for the conductivity of copper (equal to 100% for annealed electrolytic copper).

ICEA: Insulated Cable Engineers Association: current name of the IPCEA (Power), North American association for the standardization of electrical conductors.

IEC: International Electrotechnical Commission: international organization in charge of the standardization of electrical producers.

IEEE: Institute of Electrical and Electronic Engineers: the world's leading association of electrical, electronic and related engineers.

INTECO: Institute of Technical Standards of Costa Rica, its main activities include certification, auditing and development of standards.

ISO: International Standards Organization: International Organization for Standardization.

JIS: Japanese Industrial Standard: Japanese Industrial Standards.

---

kcmil: kiloCircularMil: unit of area of the North American system of electrical conductor gauges, equal to 1,000 circular mils (CM). Formerly known as MCM.

kV: kiloVolt: unit of measurement of electrical voltage equal to 1,000 volts.

Glossary of Abbreviations

L, M & N

LDPE: Low Density Polyethylene (PEBD).

LS: Low Smoke. Engraving of cables that comply with the non-propagation of fire, reduced smoke emission and reduced emission of halogenated acid gas.

m.s.n.m: Meters above sea level.

MC: Metal Clad: cable armored with a metal sheath of the interlock type or corrugated tube.

MESA: Mine Enforcement Safety Act: Safety and Hygiene Council for the Mining Industry.

MIL: North American Military Standards.

MP-GC: MP-Ground Check: MP with an insulated conductor to check the continuity of the ground conductors.

MP: Mine Power Feeder Cable: mine feeder cable with three phase conductors and three conductors for ground connection.

MSHA: Mine Safety and Health Administration.

MT: Medium Voltage: cables with solid insulation for voltages from 2,001 to 35,000 volts.

MTW: Machine Tool Wire: conductor with thermoplastic insulation for wiring of machine tools.

MV: Medium Voltage Cable: solid insulated cables for voltages from 2,001 to 35,000 volts.

Neopreno: Polychloroprene, synthetic rubber used as insulation and covering of flexible cables.

NBS: National Bureau of Standars: Standards division of the United States Department of Commerce.

NEC: National Electrical Code: general standard on electrical products and installations published by NFPA under OSHA guidelines.

NEMA: National Electrical Manufacturers Association: Association of electrical equipment manufacturers in support of standardization and manufacturing technologies.

NESC: National Electrical Safety Code: Código Nacional de Seguridad Eléctrica.

NFPA: National Fire Protection Association: American fire protection association, responsible for the publication of the NEC.

NM: Non-Metallic Sheathed Cable: insulated conductors and non-metallic sheath, flame retardant, for use in dry locations at 75°C.

NM-B: Non-Metallic Sheathed Cable: insulated conductors and non-metallic sheath, flame retardant, for use in dry locations at 90°C.

NMC-B: Non-Metallic Sheathed Cable: lame retardant, non-metallic sheathed and insulated conductors for use in dry, humid, humid and corrosive locations at 90°C.

NMX: Mexican Standards for the industry.

NOM: Official Mexican Standard: documents published by the DGN for standardization and specification of products.

Glossary of Abbreviations

O, P & R

OSHA: Occupational Safety and Health Administration: North American office of the Department of Labor in charge of the regulation of the safety factors required in the workplace.

PCG: Portable Cable Control and Ground Conductors: 2,000 volt, flexible mine cable with control and ground conductors.

PE: Polyethylene, it can be of the HDPE or PEBD type.

PEAD: High Density Polyethylene.

PEBD: Low Density Polyethylene.

PG: Portable Cable Ground Conductor: flexible cable for mines with phase conductors and for ground connection, 2,000 volts.

psi: Pounds per square inch: pounds per square inch.

PVC: PolyVinyl Chloride: polyvinyl chloride, compound widely used as insulation and covering.

REA: Rural Electrification Administration: North American office of the Department of Agriculture in charge of standardization of equipment offered by independent telephone companies.

RH/RW: Rubber Heat, Rubber Moisture (Water): cables with insulation and synthetic rubber sheath for 75°C in dry environment and 60°C in wet, 600 volts.

RHH: Rubber High Heat: cables with insulation and synthetic rubber sheath, for 90°C, 600 volts.

RHW: Rubber Heat Moisture (Water): cables with insulation and synthetic rubber sheath for 75 ° C in dry and humid environment.

RHW-2: Same as RHW but with 90°C insulation in dry and humid environment.

Glossary of Abbreviations

S

SAE: Society of Automotive Engineers: Association of Automotive Engineers.

SE: Service Entrance: one or more conductors with or without an outer jacket used to supply services.

SEDE: Secretary of Energy.

SH: Shielded Mining Cable Single Conductor: flexible monopolar mining cable with heavy duty shield and sheath.

SHD: Shielded Mining Cable with Ground Conductors: flexible three-phase cable for mines with shield and conductors for grounding.

SHD-GC: SHD-Ground Check: SHD with one insulated conductor for the ground continuity check circuit and two ground conductors.

SIC: Specific Inductive Capacity: specific capacitive inductance, dielectric constant of a material that is the relationship that exists between a capacitor with the material as dielectric and the same capacitor with air as dielectric.

SIS: Synthetic Insulated Switch Board Cable: board cable with synthetic elastomeric insulation, 90°C, 600 volts.

SJ: Hard Service Cord Junior: Heavy duty, light duty cord with elastomeric insulation, 300 volts.

SJO: SJ Oil Resistant: SJ with oil resistant insulation.

SJT: SJ Thermoplastic: SJ with insulation and thermoplastic cover, 60°C, 300 volts (90°C and 105°C with PVC insulation).

SMT: Construction equal to SPT but with class M conductors.

SO: Service Cord Oil Resistant: heavy duty cord for heavy duty; elastomeric insulation and cover; the cover is oil resistant, up to 90°C, 600 volts.

SPT: Service Parallel Thermoplastic: Light duty PVC insulated parallel cord, 60°C, 300 volts (90°C and 105°C with PVC insulation).

SR: Etching for cables that are weather resistant.

ST: Hard Service Cord Thermoplastic: Heavy-duty, insulated, thermoplastic cable or cord, 60°C to 105°C, 600 volts.

Glossary of Abbreviations

T

TC: Power and Control Tray Cable: two or more insulated conductors with or without a ground conductor and with an outer jacket of non-metallic material and approved for use in tray installations.

TC-ER: Tray Cable-Exposed Run: Engraving of exposed cables that pass the impact and crush test.

TF: Thermoplastic Fixture: 7-wire wire or cable for wiring electrical appliances, PVC insulation, 60°C. 600 volts.

TFF: TF Flexible: TF but with flexible conductor.

TFFN: Thermoplastic Fixture Flexible Nylon: TFN con conductor flexible.

TFN: TF Nylon: TF with PVC insulation and nylon cover, 90°C, 600 volts.

TGP: General Purpose Thermoplastic: cables for wiring in general.

THHN: Thermoplastic High Heat Nylon: wire or cable with PVC insulation and nylon sheath, 90°C in dry environment, 600 volts.

THHW: Thermoplastic High Heat Moisture (Water) Resistant: PVC insulated cable for 90°C in dry environments and 75°C in wet, 600 volts.

THW: Thermoplastic Heat and Moisture (Water) Resistant: PVC insulated wire or cable for 75°C in dry or humid environments. 600 volts.

THW-2: THW for 90°C in dry and humid environments.

THWN: THW with nylon cover, resistant to humidity, oils and hydrocarbons, 75°C in humid environments, 600 volts.

THWN-2: THWN for 90°C in dry and humid environments.

TSJ-N: Heavy duty, light duty cord with thermoplastic insulation, 60°C, 90°C and 105°C with PVC insulation, 600 volts.

TW: Thermoplastic Building Wire Moisture (Water) Resistant: moisture resistant PVC insulated wire or cable. 60°C. 600 volts.

Glossary of Abbreviations

U, V, W & X

UD: Underground Distribution: cables for underground distribution, also known as DS cables.

UF: Underground Feeder: cable with one or more conductors with insulation and thermoplastic covering for low voltage underground connections.

UL: Underwritters Laboratories, Inc.: private institution dedicated to the recognition and approval of electrical and electronic products, according to its own standards.

URD: Underground Residential Distribution: underground residential distribution cables, also known as DRS.

USE: Underground Service Entrance: cable for low voltage underground connections, insulation and elastomeric covers.

V: Volt: unit used to denote electrical voltage.

VA: Volt Ampere: unit of apparent power for transformers.

VW-1: Vertical Wire Flame Test: Flame resistance test by placing the specimen in a vertical position.

VDE: Verband Deutscher Elektrotechniker: German Association of Electrical Engineers.

W: Flexible mining cables: one or more insulated conductors and elastomeric sheath for extra heavy duty.

XHHW: Cross (X)-Linked Polyethylene High Heat and Moisture (Water) Resistant: cross-chain polyethylene insulated cable, 90°C dry environment and 75°C wet environment, 600 volts.

XHHW-2: XHHW for 90°C in dry and humid environments.

XLP: Cross (X)-Linked Polyethylene: cross-chain polyethylene, also known as vulcanized polyethylene or XLPE.

XT: Xmas Tree Cord: PVC insulated two conductor parallel cord for Christmas tree strings.

Handling, Storage & Transportation

Recommendations and care when working

phelps dodge

Handling, Storage & Transportation

Reel Handling

- Always keep the coils aligned and chocked. This prevents the load from shifting during transport.
- Do not roll the reel for long distances, as the reel may deform, compromising the quality of the product.
- Do not pull the spool against the flange. Except in special cases, such as onboard in the container, the correct position of the coil is supported by the two flanges.
- Use cranes, muncks, and forklifts to move the coils.

Handling of Boxes and Rolls

- Secure boxes properly. As you move them, place your fingers under them.
- Do not carry many boxes at the same time. Avoid excess weight and/or height.
- Do not throw or throw the boxes as this will damage the product and can also cause accidents.
- Do not drag or shift the product when using rollers.
- Do not play when handling the product.

Handling, Storage & Transportation

Cargo Conditioning

- Stack the load centrally. The row of boxes and/or rolls cannot be to one side, but in the center of the pallet. This ensures better use of space.
- Respect the maximum stacking limit. Follow the information on the box.
- Wrap all boxes and rolls with plastic film. Start from the bottom up. The tension of the stretched plastic does not allow the boxes or rolls to loosen.
- Keep pallets lined up and lined.
- Lay a tarp on the floor of the truck. In this way, you will prevent water or any other product from damaging the load.
- Protect cargo from inclement weather by covering it with a tarp.

Handling, Storage & Transportation

Loading and Unloading with Forklifts

- Check the load capacity of the forklift. If you exceed the load capacity, the forklift may break down and cause accidents.
- Please download carefully. Unload the reels carefully and carefully, trying not to damage the product.
- Properly transport the reels. The reel must go with the flange facing the operator, leaning against the forklift tower.
- During the movement keep the forklift claws at least 20 cm off the ground. In this way, it prevents the forklift from colliding with an obstacle.

Loading and Unloading with Crane or Keys

- Check the weight of the spool with the label attached to the flange.
- Check the lifting capacity of the crane or type. The reel can never exceed the load capacity of the equipment.
- Use a support bar. Attach the support bar using the center hole of the spool. Otherwise, the current can push the frame and cause spool damage.

Handling, Storage & Transportation

Product Storage

- Keep the reels 10 cm from the ground. If the coils are stored for a long period of time, make sure they are at least 10 cm above the ground.
- Avoid accumulation of water on the reels. Prolonged water contact with the spool damages the wood.
- Keep the spools 15 cm apart. If the floor is covered, the coils can be on it.
- Avoid dropping the reel violently to the ground. Unload the spool carefully. Do not pull the spool off the top of the body and do not let it fall to the ground as this can damage the spool, cable and floor.
- Remove any obstacles in the way. Stones, debris or objects in the landing path can damage the reel.
- Move one reel at a time. Moving more than one reel at a time increases the risk of accidents.

Handling, Storage & Transportation

Extra Care

- Do not stand or put any weight on the load, as this can damage the box and compromise the quality of the product.
- When taking the load, do not have the forklift claws raised as it can pierce the boxes and damage the product.
- Do not make sudden stops. Abrupt stops can throw the load, causing product damage.

Remember to stretch whenever you can!

Proper Postures While Working

- Pushing is better than pulling. Use your arms and legs to start the movement. Stay behind the load.
- Do not carry weights with one hand.
- Avoid working for a long time in one position. To relieve muscle tension, change positions.
- Do not work with an arched spine. Instead, kneeling, crouching, or sitting is appropriate. This way the back muscles will have less pressure.
- Avoid any type of play when lifting weights as this can cause wear and tear on the spine.
- Lift the weight slowly without making any sudden movements.
- Do not lift and / or carry weight with your spine back.