catalog | **Copper Wires**

4SProducts
Copper Cable Assemblies

ASWire®

Technical Data Sheet

Aerial Service Wire | Self Supporting | Multi-pair

Pair Count 1 -18P

Outside Plant Copper Cable - Exchange Cable

Description

Multi-pair, self-supporting Aerial Service Wires (ASW) are used for subscriber lines in exchange plant; single-pair is often used for lateral runs from aerial plant. In both single and multi-pair types, the wire core is laid parallel to a solid steel support wire and jacketed in an integral extrusion to form a "figure-8" configuration utilizing a 0.109" solid, extra-high strength steel support member.

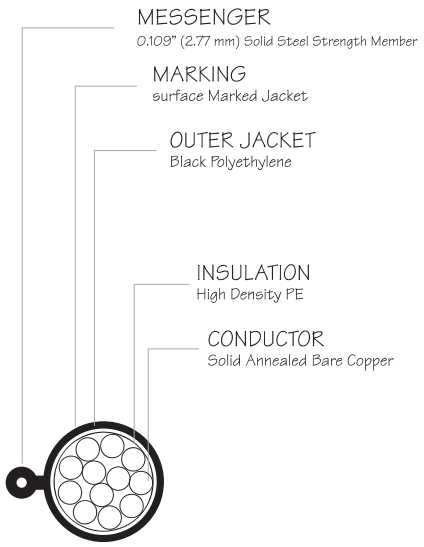
Conductors: Solid annealed copper in 19, 22 and 24 AWG.

Insulation: Each conductor is insulated with solid high-density color coded polyethylene resulting in excellent electrical and mechanical properties. Standard color codes are used for pair identification with color compounds chosen for electrical balance and permanency.

Assembly: Individual conductors are carefully twisted into pairs in a manner designed to minimize resistance unbalance. In multi-pair constructions, pair twist lays are varied to minimize crosstalk and meet capacitance unbalance requirements. Twisted pairs are formed into a firm, round core.

Outer Jacket: A black, high-molecular weight, polyethylene provides a tough, flexible protective covering that withstands exposure to sunlight, atmospheric temperatures and stresses encountered in standard installations. The steel support wire is jacketed in an integral extrusion with the core.

Cable cut-away



Applications

4SProducts multi-pair ASWire® cables are used for subscriber lines in exchange plant. The single-pair is often used for lateral runs from aerial plant.

Qualifications & Approvals

Manufactured to meet requirements for Hard Drawn Copper Wire ASTM B3.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz	nF/mile	nF/km
Maximum Individual	94	58
Wire Average	83 ± 7	52 ± 4

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Resistance Unbalance		Dielectric Strength DC Potential Volts	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Maximum		Minimum	
AWG	mm	gigohm/ mile	gigohm/ km	dB/kft	dB/km	ohms/mile	ohms/km	Avg %	Individual pair %	Cdr to Cdr	Cdr to Sprt. Wire
19	0.90	1.0	1.6	3.6	11.8	45.0	28.0	1.1	5.0	5,000	7,200
22	0.64	1.0	1.6	5.1	16.7	91.0	56.4	1.1	5.0	4,000	7,200
24	0.50	1.0	1.6	6.5	21.3	144.0	89.5	1.1	5.0	3,000	7,200

Crosstalk Loss	dB/kft	dB/km	Capacitance Unbalance @1000 Hz	pF/kft	pF/km
Min. FEXT @ 150 kHz	63	58	Max. Pair-to-Pair	80	145
Min. NEXT @ 722 Khz	44 (dB)		Max. Pair-to-Support Wire	800	2,625

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

BSWire®

Technical Data Sheet

Buried Service Wire | Multi-pair

Pair Count 1 - 6P

Outside Plant Copper Cable - Exchange Cable

Description

4SProducts BSWire® is filled, double-jacketed wire designed for direct burial applications and available in 2, 3, and 6 pair sizes. The primary application of a Buried Service Wire is service entrances and distribution circuits. It is filled with PIB base jelly compound, which is chemically and electrically compatible with all other materials in the wire. The compound completely coats each insulated conductor and fills the air space between conductors.

Conductors: Solid annealed copper in 19, 22 and 24 AWG.

Insulation: Each conductor is insulated with solid high-density polyethylene in distinctive colors.

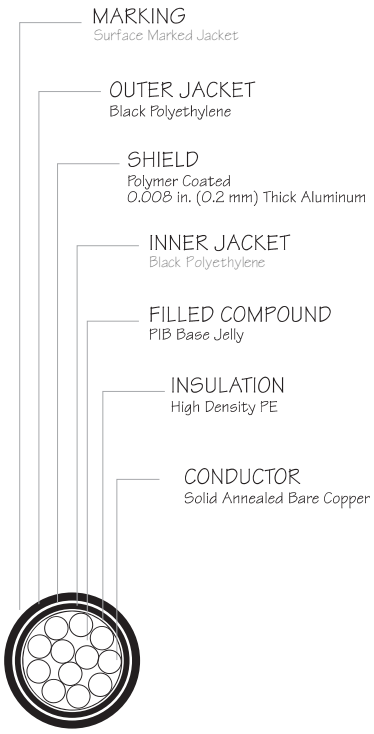
Core Assembly: Individual conductor dimensions are tightly controlled to limit resistance unbalance of twisted pairs. Pair twist lays are varied to minimize crosstalk and meet capacitance unbalance limits. The wire core is completely filled with PIB base jelly such as BP Naptel 867, filling the air spaces between insulated conductors.

Inner Jacket: A black, linear low-density polyethylene inner jacket provides additional mechanical and moisture protection.

Shield: A smooth, copolymer-coated, 8 mil aluminum tape is applied longitudinally over the inner jacket and is bonded to the outer jacket. The space under the tape is flooded to eliminate all air space.

Outer Jacket: A black, linear low-density polyethylene outer jacket provides a tough, flexible, protective covering that withstands exposure to sunlight, atmospheric temperatures, ground chemicals and stresses expected in standard installation.

Cable cut-away



Qualifications & Approvals

Manufactured to meet requirements of ANSI/ICEA S-86-634-1996.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz	nF/mile	nF/km
Maximum Individual	94	58
Wire Average	83 ± 7	52 ± 4

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Resistance Unbalance	Dielectric Strength DC Potential Volts	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Maximum	Minimum	
AWG	mm	gigohm/ mile	gigohm/ km	dB/kft	dB/km	ohms/mile	ohms/km	Individual pair %	Cdr to Cdr	Cdr to Sprt. Wire
19	0.90	1.0	1.6	3.2	10.0	45.0	28.0	5.0	7,000	20,000
22	0.64	1.0	1.6	4.6	15.1	91.0	56.4	5.0	5,000	20,000
24	0.50	1.0	1.6	5.8	19.0	144.0	89.5	5.0	4,000	20,000

Crosstalk Loss	dB/kft	dB/km	Capacitance Unbalance @1000 Hz	pF/kft	pF/km
Min. FEXT @ 150 kHz	63	58	Max. Pair-to-Pair	80	145
Min. NEXT @ 722 Khz	44 (dB)		Max. Pair-to-Ground	800	2,625

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

BSWire®-n

Technical Data Sheet

Buried Service Wire | Multi-pair - Non Armored

Pair Count 2 - 6P

Outside Plant Copper Cable - Exchange Cable

Description

4SProducts BSWire® is filled, double-jacketed wire designed for direct burial applications and available in 2, 3, and 6 pair sizes. The primary application of a Buried Service Wire is service entrances and distribution circuits. It is filled with PIB base jelly compound, which is chemically and electrically compatible with all other materials in the wire. The compound completely coats each insulated conductor and fills the air space between conductors.

Conductors: Solid annealed copper in 19, 22 and 24 AWG.

Insulation: Each conductor is insulated with solid high-density polyethylene in distinctive colors.

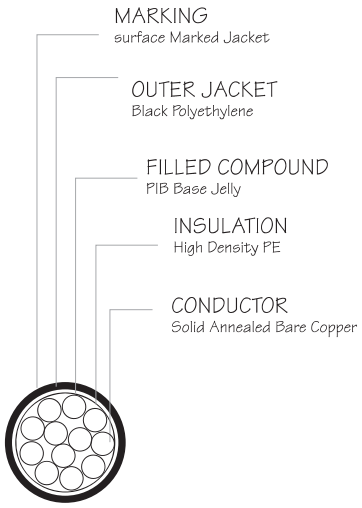
Core Assembly: Individual conductor dimensions are tightly controlled to limit resistance unbalance of twisted pairs. Pair twist lays are varied to minimize crosstalk and meet capacitance unbalance limits. The wire core is completely filled with PIB base jelly such as BP Naptel 867, filling the air spaces between insulated conductors.

Inner Jacket: A black, linear low-density polyethylene inner jacket provides additional mechanical and moisture protection.

Shield: A smooth, copolymer-coated, 8 mil aluminum tape is applied longitudinally over the inner jacket and is bonded to the outer jacket. The space under the tape is flooded to eliminate all air space.

Outer Jacket: A black, linear low-density polyethylene outer jacket provides a tough, flexible, protective covering that withstands exposure to sunlight, atmospheric temperatures, ground chemicals and stresses expected in standard installation.

Cable cut-away



Electrical Specifications

Minimum Mutual Capacitance @ 1000 Hz	nF/mile	nF/km
Maximum Individual	94	58
Wire Average	83 ± 7	52 ± 4

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Resistance Unbalance	Dielectric Strength DC Potential Volts
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Maximum	Minimum
AWG	mm	gigohm/ mile	gigohm/ km	dB/kft	dB/km	ohms/mile	ohms/km	Individual pair %	Cdr to Cdr
22	0.64	1.0	1.6	4.6	15.1	91.0	56.4	5.0	5,000
24	0.50	1.0	1.6	5.8	19.0	144.0	89.5	5.0	4,000

Crosstalk Loss	dB/kft	dB/km	Capacitance Unbalance @1000 Hz	pF/kft	pF/km
Min. FEXT @ 150 kHz	63	58	Max. Pair-to-Pair	80	145
Min. NEXT @ 722 Khz	44 (dB)		Max. Pair-to-Ground	800	2,625

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

DCWire®-10

Technical Data Sheet

Aerial Drop Wire | Copper Conductor | Single-pair

Pair Count 1P

Outside Plant Copper Cable - Exchange Cable

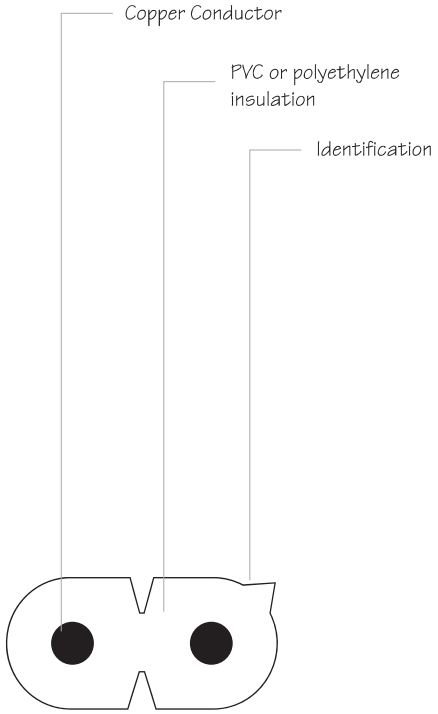
Description

Single-pair, vinyl-insulated aerial drop wire designed for use in extending telephone circuits to subscriber premises by means of an aerial drop from distribution wire or cable.

Conductors: Two round hard drawn wire copper conductors in diameter of 0.8, 0.9 and 1.0 mm ASTM B3.

Insulation: Conductors are laid in a parallel configuration and covered with flame and abrasion resistant, all-weather black polyethylene compound that serves as both insulation and jacket. One raised ridge tracer on one edge of the jacket provides conductor polarity identification.

Cable cut-away



Applications

4SProducts DCWire®-10 cables are used for extending an open wire line and/or distribution cable pair from a pole and/or cable terminal to a building.

Qualifications & Approvals

Manufactured to meet requirements for Hard Drawn Copper Wire ASTM B3.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz - tested in water			
Total No. of Pairs	nF/kft	nF/km	
1 Pair	40	130	

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance	Dielectric Strength
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)	3 minutes- no breakdown at
AWG	mm	megohm/ mile	megohm/ km	DB/kft	dB/km	ohms/km	Volts AC
18	1.0	100	30	4	13.1	23.39	4,000

Physical Data & Standard Packaging

Minor Dimension		Major Dimension		Conductor Spacing		Standard Packaging		Approximate Shipping Weight	
in	mm	in	mm	in	mm	ft	m	lbs/kft	kg/km
0.12	3.0	2.5	6.3	0.13	3.3	1,640	500	29.5	39.0

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

Technical
Data Sheet

DSWire®-10

Aerial Drop Wire | Copper Clad Steel Conductor | Single-pair

Pair Count 1P

Outside Plant Copper Cable - Exchange Cable

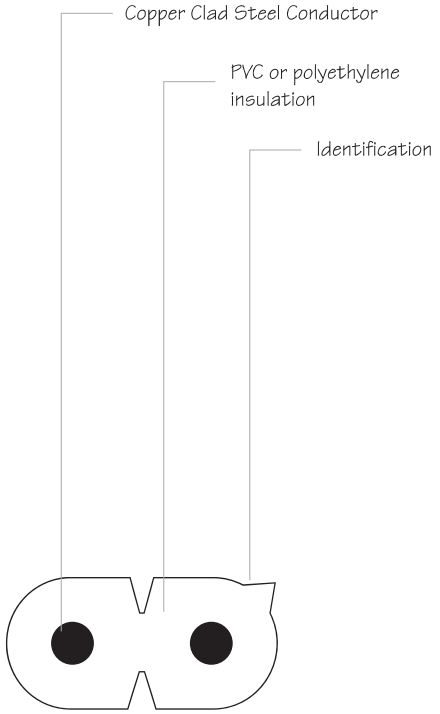
Description

Single-pair, vinyl-insulated aerial drop wire designed for use in extending telephone circuits to subscriber premises by means of an aerial drop from distribution wire or cable.

Conductors: Two round 18.0 AWG solid 30% conductivity extra high strength copper/steel wires serve dually as conductors and strength members. Optimized tensile breaking strength and elongation assure superior toughness against ice loading and impact from falling ice-coated tree limbs and other mechanical shocks.

Insulation: Conductors are laid in a parallel configuration and covered with flame and abrasion resistant, all-weather black polyvinyl chloride compound that serves as both insulation and jacket. One raised ridge tracer on one edge of the jacket provides conductor polarity identification.

Cable cut-away



Applications

4SProducts DSWire®-10 cables are designed for extending an open wire line or distribution cable pair from a pole and/or cable terminal to a building.

Qualifications & Approvals

Manufactured to meet requirements of ASTM B-227; BS-6004.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz - tested in water			
Total No. of Pairs	nF/kft	nF/km	
1 Pair	40	130	

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Dielectric Strength 3 seconds - no breakdown at	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Volts DC	
AWG	mm	megohm/ mile	megohm/ km	DB/kft	dB/km	ohms/kft	ohms/km	Dry	in Water
18	1.0	100	30	4	13.1	24.5	80.4	12,100	7,050

Physical Data & Standard Packaging

Minor Dimension		Major Dimension		Conductor Spacing		Standard Packaging		Approximate Shipping Weight	
in	mm	in	mm	in	mm	ft	m	lbs/kft	kg/km
0.12	3.0	0.25	6.3	0.13	3.3	1000	305	29	43.2

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

DSWire®-12

Technical Data Sheet

Aerial Drop Wire | Copper Clad Steel Conductor | Single-pair

Pair Count 1P

Outside Plant Copper Cable - Exchange Cable

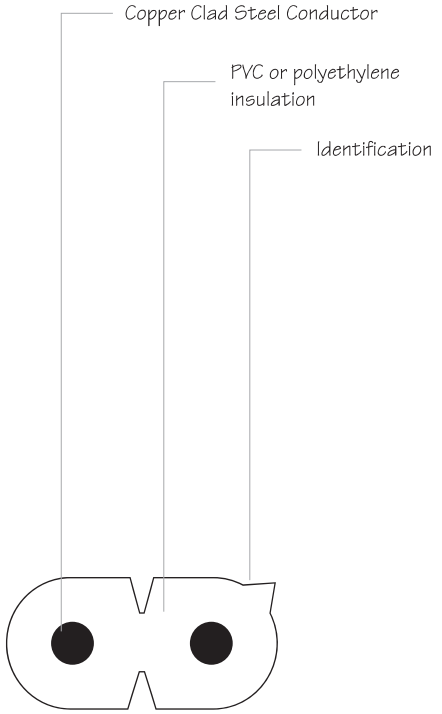
Description

Single-pair, vinyl-insulated aerial drop wire designed for use in extending telephone circuits to subscriber premises by means of an aerial drop from distribution wire or cable.

Conductors: Two round 18.0 AWG solid 30% conductivity extra high strength copper/steel wires serve dually as conductors and strength members. Optimized tensile breaking strength and elongation assure superior toughness against ice loading and impact from falling ice-coated tree limbs and other mechanical shocks.

Insulation: Conductors are laid in a parallel configuration and covered with flame and abrasion resistant, all-weather black polyvinyl chloride compound that serves as both insulation and jacket. One raised ridge tracer on one edge of the jacket provides conductor polarity identification.

Cable cut-away



Applications

4SProducts DSWire®-12 cables are designed for extending an open wire line or distribution cable pair from a pole and/or cable terminal to a building.

Qualifications & Approvals

Manufactured to meet requirements of REA PE-7; ASTM B-227; BS-6004.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz - tested in water			
Total No. of Pairs	nF/kft	nF/km	
1 Pair	40	130	

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Dielectric Strength 3 seconds - no breakdown at	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Volts DC	
AWG	mm	megohm/ mile	megohm/ km	DB/kft	dB/km	ohms/kft	ohms/km	Dry	in Water
18	1.0	100	30	4	13.1	24.5	80.4	12,100	7,050

Physical Data & Standard Packaging

Minor Dimension		Major Dimension		Conductor Spacing		Standard Packaging		Approximate Shipping Weight	
in	mm	in	mm	in	mm	ft	m	lbs/kft	kg/km
0.13	3.4	0.28	7.1	0.15	3.7	1000	305	29	43.2

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

Technical
Data Sheet

DSWire®-14

Aerial Drop Wire | Copper Clad Steel Conductor | Single-pair

Pair Count 1P

Outside Plant Copper Cable - Exchange Cable

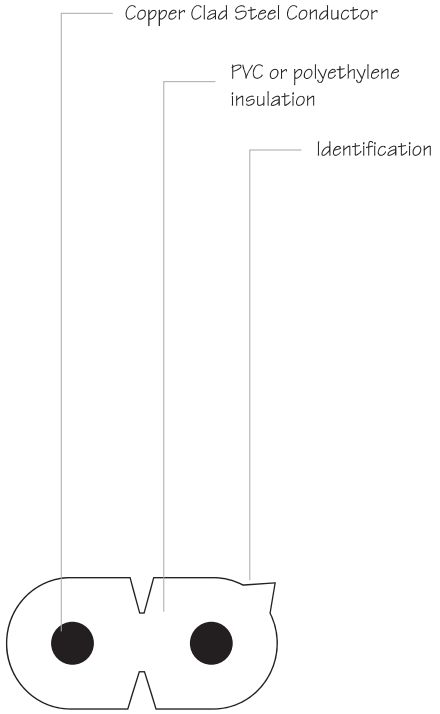
Description

Single-pair, vinyl-insulated aerial drop wire designed for use in extending telephone circuits to subscriber premises by means of an aerial drop from distribution wire or cable.

Conductors: Two round 18.0 AWG solid 30% conductivity extra high strength copper/steel wires serve dually as conductors and strength members. Optimized tensile breaking strength and elongation assure superior toughness against ice loading and impact from falling ice-coated tree limbs and other mechanical shocks.

Insulation: Conductors are laid in a parallel configuration and covered with flame and abrasion resistant, all-weather black polyvinyl chloride compound that serves as both insulation and jacket. One raised ridge tracer on one edge of the jacket provides conductor polarity identification.

Cable cut-away



Applications

4SProducts DSWire®-14 cables are designed for extending an open wire line or distribution cable pair from a pole and/or cable terminal to a building.

Qualifications & Approvals

Manufactured to meet requirements of REA PE-7; ASTM B-227; BS-6004.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz - tested in water			
Total No. of Pairs	nF/kft	nF/km	
1 Pair	40	130	

Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Dielectric Strength 3 seconds - no breakdown at	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Volts DC	
AWG	mm	megohm/ mile	megohm/ km	DB/kft	dB/km	ohms/kft	ohms/km	Dry	in Water
18	1.0	100	30	4	13.1	24.5	80.4	12,100	7,050

Physical Data & Standard Packaging

Minor Dimension		Major Dimension		Conductor Spacing		Standard Packaging		Approximate Shipping Weight	
in	mm	in	mm	in	mm	ft	m	lbs/kft	kg/km
0.15	3.8	0.31	7.8	0.16	4.0	1000	305	29.5	43.9

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.

4SProducts
Copper Cable Assemblies

DSWire®-15

Technical Data Sheet

Aerial Drop Wire | Copper Clad Steel Conductor | Single-pair

Pair Count 1P

Outside Plant Copper Cable - Exchange Cable

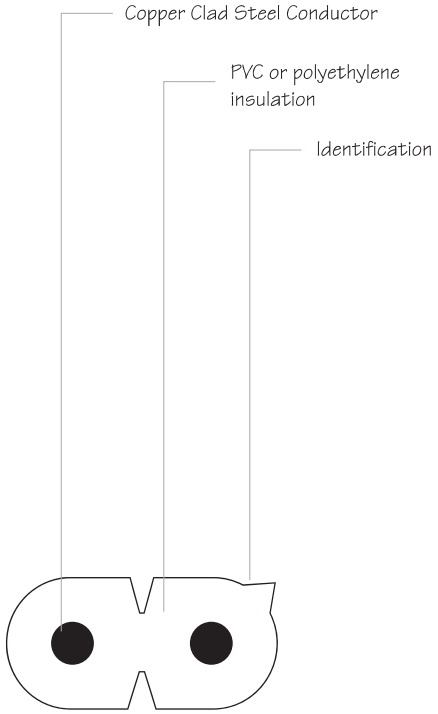
Description

Single-pair, vinyl-insulated aerial drop wire designed for use in extending telephone circuits to subscriber premises by means of an aerial drop from distribution wire or cable.

Conductors: Two round 18.0 AWG solid 30% conductivity extra high strength copper/steel wires serve dually as conductors and strength members. Optimized tensile breaking strength and elongation assure superior toughness against ice loading and impact from falling ice-coated tree limbs and other mechanical shocks.

Insulation: Conductors are laid in a parallel configuration and covered with flame and abrasion resistant, all-weather black polyvinyl chloride compound that serves as both insulation and jacket. One raised ridge tracer on one edge of the jacket provides conductor polarity identification.

Cable cut-away



Applications

4SProducts DSWire®-15 cables are designed for extending an open wire line or distribution cable pair from a pole and/or cable terminal to a building.

Qualifications & Approvals

Manufactured to meet requirements of REA PE-7; ASTM B-227; BS-6004 and ANSI/ICEA S-89-648-1993.

Electrical Specifications

Average Mutual Capacitance @ 1000 Hz - tested in water									
Total No. of Pairs		nF/kft		nF/km					
1 Pair		40		130					
Conductor Size		Minimum Insulation Resistance		Maximum Individual Attenuation		Maximum Individual Conductor DC Resistance		Dielectric Strength 3 seconds - no breakdown at	
		68 °F (20 °C)		68 °F (20 °C) 772 kHz		68 °F (20 °C)		Volts DC	
AWG	mm	megohm/ mile	megohm/ km	DB/kft	dB/km	ohms/kft	ohms/km	Dry	in Water
18	1.0	100	30	4	13.1	24.5	80.4	12,100	7,050

Physical Data & Standard Packaging

Minor Dimension		Major Dimension		Conductor Spacing		Standard Packaging		Approximate Shipping Weight	
in	mm	in	mm	in	mm	ft	m	lbs/kft	kg/km
0.15	3.9	0.31	7.8	0.16	4.0	1000	305	31.0	46.0

Specifications are subject to change without notice. The data given is subject to normal manufacturing tolerances. 4SProducts Copper Communication Cables are designed and tested in accordance with the requirements of ANSI/ICEA.