This is an interactive PDF. Page numbers are linked to the appropriate page.

Quality:

For over 35 years Rubadue Wire has been committed to delivering quality products to our customers. 'Rubadue' the name you can Trust.

Value:

We remain on the cutting edge from concept, engineering design, production and testing. 'Rubadue' the name that stands for Value.

Service:

Professional sales staff, knowledgeable customer service team, experienced technical support specialists and on-time delivery. 'Rubadue' the name you can Rely on.

RUBADUEWIRE

Rubadue Wire Company, Inc.
Greeley, CO 80631 USA

RUBADUEWIRE

A message from our president:

Rubadue Wire Company was founded in 1977 on a firm foundation of Honesty, Integrity, Safety, Operational Excellence and Customer Satisfaction. In the past decade, the electronics industry has experienced rapid worldwide growth that has fundamentally changed the way companies do business. Nevertheless these core values remain our foundation and allow us to meet the continually evolving needs of the world markets.

Rubadue Wire offers an industry-leading range of high-quality electronic wire. In addition to the products featured in this catalog, we manufacture custom insulated products to meet your requirements, always striving to exceed customer expectations. At Rubadue Wire you will find everything you need to make your project a success, from research/development to production, with responsive service and excellent technical support. Because we share your commitment to the environment, safety and sustainability, our customers rest assured that the organization's impact will be a positive one.

We at Rubadue Wire Company realize that you have your choice of vendors and thank you for your trust. We look forward to serving you.

Sincerely,

Sue Welsh

Sue Welsh,
President
Rubadue Wire Company, Inc.

RUBADUEWIRE

PART NUMBER BUILDER

Letters Signifying Layers of Insulation	**AWG Size**	**Conductor Material**	**Strands in Conductor**	**Insulation Type**	**Color Code (Visible Color)**	**Insulation Thickness per Layer Mils (Thousandths of an Inch)**
S – Single (1) Basic D – Double (2) Supplemental T – Triple (3) Reinforced	Gauge Number Standard Sizes 4 AWG to 40 AWG LITZ = XX	A –TPC B –SPC C –BC D –SPA 135 E –Enamel H –Heavy Enamel L –Litz Wire* N –NPC Q –QPN S –Stainless Steel Litz & Alloys * *Contact Customer Service *Others Available*	01 – Solid 07 – 7 Strands 19 – 19 Strands 37 – 37 Strands 65 – 65 Strands Litz=#Strands/AWG *Others Available*	F –FEP H –Hytrel® P –PFA PE –Polyethylene PF –Foam PE T –ETFE U –Polyurethane V –PVC Z –Special ETFE 200°C EC - 300°C *Others Available*	0 – Black 1 – Brown 2 – Red 3 – Orange 4 – Yellow 5 – Green 6 – Blue 7 – Violet 8 – Gray 9 – White C – Clear	-1 = .001”/layer -1.5 = .0015”/layer -2 = .002”/layer -3 = .003”/layer -5 = .005”/layer *Available from* *.001” to 0.250”*

Example

T	24	A	01	P	0XX	-2
Triple Insulated (3)	*24 AWG*	*Tin Plated Copper*	*Solid Conductor*	*PFA*	*Black*	*.002”/layer (.006” overall)*

Example LITZ

D	XX	L	360/44	F	6X	-3
Double Insulated (2)	*Always Defined **XX***	*LITZ*	*Strands/AWG*	*FEP*	*Blue*	*.003”/layer (.006” overall)*

Example COILBOND™

T	24	A	01	T	5XX	-1.5	-SB	-1.5	
Triple Insulated (3)	*24 AWG*	*Tin Plated Copper*	*Solid Conductor*	*ETFE*	*Green*	*.0015”/layer(.0045”overall)*	*Self-Bonding*	*.0015”/layer*	

Triple Insulated Wires

Rubadue Wire was the first company to design and manufacture triple insulated wires. Triple insulated wires can be used to meet several design requirements:

- Wind directly on top of magnet wire
- Wind bobbin wall to wall
- Use as primary or secondary winding
- Meet creepage and clearance requirements
- High voltage
- Applications requiring reinforced isolation
- Ground insulation in UL 1446 systems
- Leakage or loss reduction
- Transformer leadout between circuits
- Reduced space, volume, weight
- Increased safety
- High speed winding capable

Triple insulated wires can be manufactured in a variety of types, sizes, insulations, ratings, and colors.

Insulation	Size Range	Avg. Wall / Layer	Ins. Layers	Temp. Rating	Voltage Rating	Page
Tefzel® ETFE	20-40 AWG	.001”	3	155°C	1000 V	7
Tefzel® ETFE	18-40 AWG	.0015”	3	155°C	1500 V	8
Tefzel® ETFE	10-40 AWG	.002”	3	155°C	1500 V	9
Tefzel® ETFE	10-32 AWG	.003”	3	155°C	1500 V	10
TCA	18-40 AWG	.0015”	3	155°C	1500 V	11
FEP	10-40 AWG	.002”	3	155°C	1000 V	12
FEP	10-40 AWG	.003”	3	155°C	1000 V	13
FEP	10-28 AWG	.005”	3	155°C	1000 V	14
PFA	10-40 AWG	.0015”	3	180°C	1000 V	15
PFA	10-40 AWG	.002”	3	180°C	1000 V	16
PFA	10-40 AWG	.003”	3	180°C	1000 V	17

DuPont™ Tefzel® ETFE - Fluoropolymer compound with excellent electrical properties, heat resistance, chemical resistance, and abrasion resistance.

TCA - Modified ETFE - designed for more economical/efficient manufacturing. Comes standard in one color, most sizes readily available.

DuPont™ Teflon® FEP - Fluoropolymer compound with exceptional dielectric properties, heat resistance, chemical resistance, and flexibility.

DuPont™ Teflon® PFA - Fluoropolymer compound with superior heat resistance, exceptional dielectric properties, and chemical resistance.

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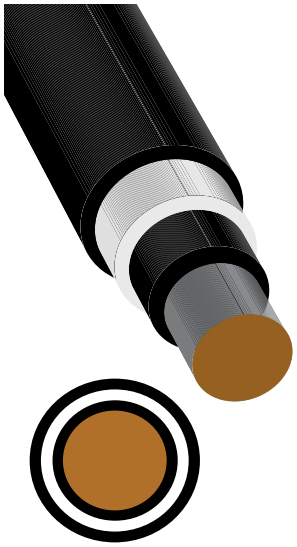
See the Technical Information section for additional information on insulation types and comparative properties.

Triple Insulated DuPont™ Tefzel® ETFE .001” / Layer



Product Construction:

Size Range:
20 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155° C
Voltage: 1000 V

Applications:
Thinnest TIW on the market
Size/Safety critical reinforced isolation
Pulse and signal transformers

Compliances:
UL OBJT2 File No. E206198
UL 60950-1, Annex U
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T20A01TXXX-1	20	0.0320	0.813	0.0380	0.965	3.33
T21A01TXXX-1	21	0.0285	0.724	0.0345	0.876	2.68
T22A01TXXX-1	22	0.0253	0.643	0.0313	0.795	2.14
T23A01TXXX-1	23	0.0226	0.574	0.0286	0.726	1.73
T24A01TXXX-1	24	0.0201	0.511	0.0261	0.663	1.38
T25A01TXXX-1	25	0.0179	0.455	0.0239	0.607	1.12
T26A01TXXX-1	26	0.0159	0.404	0.0219	0.556	0.90
T27A01TXXX-1	27	0.0142	0.361	0.0202	0.513	0.73
T28A01TXXX-1	28	0.0126	0.320	0.0186	0.472	0.59
T29A01TXXX-1	29	0.0113	0.287	0.0173	0.439	0.49
T30A01TXXX-1	30	0.0100	0.254	0.0160	0.406	0.39
T31A01TXXX-1	31	0.0089	0.226	0.0149	0.378	0.32
T32A01TXXX-1	32	0.0080	0.203	0.0140	0.356	0.27
T33A01TXXX-1	33	0.0071	0.180	0.0131	0.333	0.22
T34A01TXXX-1	34	0.0063	0.160	0.0123	0.312	0.18
T35A01TXXX-1	35	0.0056	0.142	0.0116	0.295	0.15
T36A01TXXX-1	36	0.0050	0.127	0.0110	0.279	0.13
T37A01TXXX-1	37	0.0045	0.114	0.0105	0.267	0.11
T38A01TXXX-1	38	0.0040	0.102	0.0100	0.254	0.10
T39A01TXXX-1	39	0.0035	0.089	0.0095	0.241	0.08
T40A01TXXX-1	40	0.0031	0.079	0.0091	0.231	0.07

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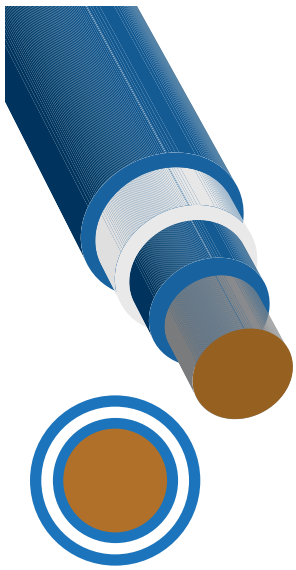
Triple Insulated DuPont™ Tefzel® ETFE .0015” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ ASTM B-286B are copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
High power flyback converter for LED
PDA’s/Lighting
Medical/Dental/Electronic

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3)
IEC 61558-2-16, 60601-1(Ed. 3), 61010-1(Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant
Tensile Strength: 6500 psi
Breakdown: Approx. 7000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T18A01TXXX-1.5	18	0.0403	1.024	0.0493	1.252	5.39
T20A01TXXX-1.5	20	0.0320	0.813	0.0410	1.041	3.47
T21A01TXXX-1.5	21	0.0285	0.724	0.0375	0.953	2.80
T22A01TXXX-1.5	22	0.0253	0.643	0.0343	0.871	2.25
T23A01TXXX-1.5	23	0.0226	0.574	0.0316	0.803	1.83
T24A01TXXX-1.5	24	0.0201	0.511	0.0291	0.739	1.48
T25A01TXXX-1.5	25	0.0179	0.455	0.0269	0.683	1.20
T26A01TXXX-1.5	26	0.0159	0.404	0.0249	0.632	0.98
T27A01TXXX-1.5	27	0.0142	0.361	0.0232	0.589	0.80
T28A01TXXX-1.5	28	0.0126	0.320	0.0216	0.549	0.66
T29A01TXXX-1.5	29	0.0113	0.287	0.0203	0.516	0.55
T30A01TXXX-1.5	30	0.0100	0.254	0.0190	0.483	0.45
T31A01TXXX-1.5	31	0.0089	0.226	0.0179	0.455	0.38
T32A01TXXX-1.5	32	0.0080	0.203	0.0170	0.432	0.32
T33A01TXXX-1.5	33	0.0071	0.180	0.0161	0.409	0.27
T34A01TXXX-1.5	34	0.0063	0.160	0.0153	0.389	0.23
T35A01TXXX-1.5	35	0.0056	0.142	0.0146	0.371	0.20
T36A01TXXX-1.5	36	0.0050	0.127	0.0140	0.356	0.17
T37A01TXXX-1.5	37	0.0045	0.114	0.0135	0.343	0.16
T38A01TXXX-1.5	38	0.0040	0.102	0.0130	0.330	0.14
T39A01TXXX-1.5	39	0.0035	0.089	0.0125	0.318	0.12
T40A01TXXX-1.5	40	0.0031	0.079	0.0121	0.307	0.11

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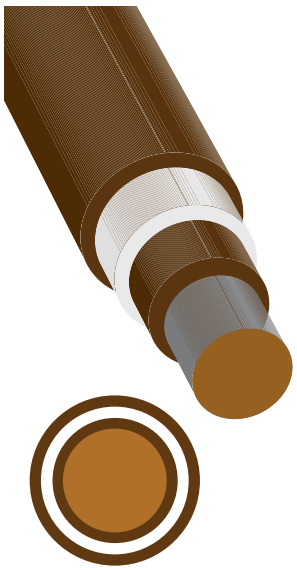
Triple Insulated DuPont™ Tefzel® ETFE .002” / Layer



Product Construction:
Size Range:
UL: 10 AWG - 40 AWG
VDE:14 AWG - 40 AWG
Not all sizes listed in chart
Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available
Insulation:
DuPont™ Tefzel® ETFE
Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
Patient connected devices
Renewable energy applications
High frequency
Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
IEC 61558-2-16, 60601-1 (Ed. 3),
61010-1 (Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant
Tensile Strength: 6500 psi
Breakdown: Approx. 9000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T16A01TXXX-2	16	0.0508	1.290	0.0628	1.595	8.60
T17A01TXXX-2	17	0.0453	1.151	0.0573	1.455	6.92
T18A01TXXX-2	18	0.0403	1.024	0.0523	1.328	5.56
T19A01TXXX-2	19	0.0359	0.912	0.0479	1.217	4.48
T20A01TXXX-2	20	0.0320	0.813	0.0440	1.118	3.62
T21A01TXXX-2	21	0.0285	0.724	0.0405	1.029	2.94
T22A01TXXX-2	22	0.0253	0.643	0.0373	0.947	2.37
T23A01TXXX-2	23	0.0226	0.574	0.0346	0.879	1.95
T24A01TXXX-2	24	0.0201	0.511	0.0321	0.815	1.58
T25A01TXXX-2	25	0.0179	0.455	0.0299	0.759	1.30
T26A01TXXX-2	26	0.0159	0.404	0.0279	0.709	1.07
T27A01TXXX-2	27	0.0142	0.361	0.0262	0.665	0.89
T28A01TXXX-2	28	0.0126	0.320	0.0246	0.625	0.74
T29A01TXXX-2	29	0.0113	0.287	0.0233	0.592	0.63
T30A01TXXX-2	30	0.0100	0.254	0.0220	0.559	0.53
T31A01TXXX-2	31	0.0089	0.226	0.0209	0.531	0.45
T32A01TXXX-2	32	0.0080	0.203	0.0200	0.508	0.39
T33A01TXXX-2	33	0.0071	0.180	0.0191	0.485	0.33
T34A01TXXX-2	34	0.0063	0.160	0.0183	0.465	0.29
T35A01TXXX-2	35	0.0056	0.142	0.0176	0.447	0.26
T36A01TXXX-2	36	0.0050	0.127	0.0170	0.432	0.23
T37A01TXXX-2	37	0.0045	0.114	0.0165	0.419	0.21
T38A01TXXX-2	38	0.0040	0.102	0.0160	0.406	0.19
T39A01TXXX-2	39	0.0035	0.089	0.0155	0.394	0.17
T40A01TXXX-2	40	0.0031	0.079	0.0151	0.384	0.16

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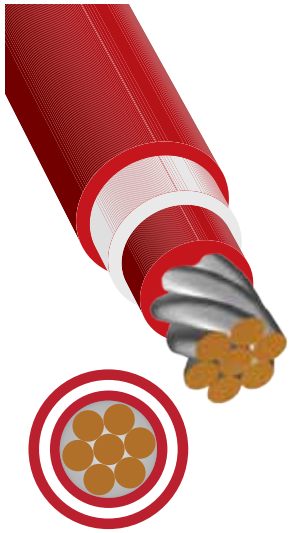
Triple Insulated DuPont™ Tefzel® ETFE .003” / Layer



Product Construction:
Size Range:
UL: 10 AWG - 32 AWG
VDE: 14 AWG - 32 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
Xenon arc lamps
Lighting (CCFL)
Medical/Power supply

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
IEC 61558-2-16, UL/IEC 60601-1 (Ed. 3), 61010-1(Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 13000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/ KFT
		INCHES	MM	INCHES	MM	
T10A01TXXX-3	10	0.1019	2.588	0.1199	3.045	33.74
T10A37TXXX-3	10(37/26)	0.1070	2.718	0.1250	3.175	31.30
T12A01TXXX-3	12	0.0808	2.052	0.0988	2.510	21.67
T12A19TXXX-3	12(19/25)	0.0862	2.189	0.1042	2.647	20.78
T14A01TXXX-3	14	0.0641	1.628	0.0821	2.085	13.92
T14A19TXXX-3	14(19/27)	0.0679	1.725	0.0859	2.182	13.40
T16A01TXXX-3	16	0.0508	1.290	0.0688	1.748	9.06
T16A19TXXX-3	16(19/29)	0.0539	1.369	0.0719	1.826	8.77
T18A01TXXX-3	18	0.0403	1.024	0.0583	1.481	5.95
T18A19TXXX-3	18(19/30)	0.0476	1.209	0.0656	1.666	7.05
T20A01TXXX-3	20	0.0320	0.813	0.0500	1.270	3.94
T20A19TXXX-3	20(19/32)	0.0385	0.978	0.0565	1.435	4.74
T22A01TXXX-3	22	0.0253	0.643	0.0433	1.100	2.65
T22A19TXXX-3	22(19/34)	0.0295	0.749	0.0475	1.207	3.13
T24A01TXXX-3	24	0.0201	0.511	0.0381	0.968	1.83
T24A19TXXX-3	24(19/36)	0.0242	0.615	0.0422	1.072	2.16
T26A01TXXX-3	26	0.0159	0.404	0.0339	0.861	1.28
T28A01TXXX-3	28	0.0126	0.320	0.0306	0.777	0.93
T30A01TXXX-3	30	0.0100	0.254	0.0280	0.711	0.70
T32A01TXXX-3	32	0.0080	0.203	0.0260	0.660	0.55

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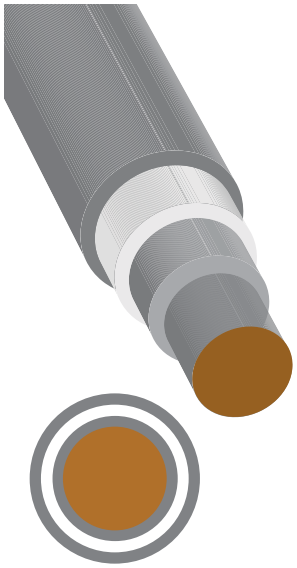
Triple Insulated TCA3



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
Modified ETFE

Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
Various SMPS products
Electronic/Medical/Dental

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
IEC 61558-2-16, 60601-1 (Ed. 3), 61010-1(Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 7000 V
TCA3 products come standard in Gray

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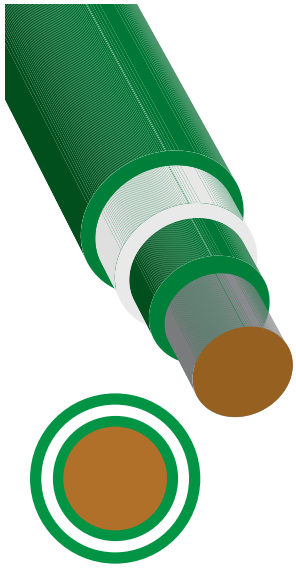
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA3 18 AWG	18	0.0403	1.024	0.0493	1.252	5.39
TCA3 19 AWG	19	0.0359	0.912	0.0449	1.140	4.32
TCA3 20 AWG	20	0.0320	0.813	0.0410	1.041	3.47
TCA3 21 AWG	21	0.0285	0.724	0.0375	0.953	2.80
TCA3 22 AWG	22	0.0253	0.643	0.0343	0.871	2.25
TCA3 23 AWG	23	0.0226	0.574	0.0316	0.803	1.83
TCA3 24 AWG	24	0.0201	0.510	0.0291	0.739	1.48
TCA3 25 AWG	25	0.0179	0.455	0.0269	0.683	1.20
TCA3 26 AWG	26	0.0159	0.404	0.0249	0.632	0.98
TCA3 27 AWG	27	0.0142	0.361	0.0232	0.589	0.80
TCA3 28 AWG	28	0.0126	0.320	0.0216	0.549	0.66
TCA3 29 AWG	29	0.0113	0.287	0.0203	0.516	0.55
TCA3 30 AWG	30	0.0100	0.254	0.0190	0.483	0.45
TCA3 31 AWG	31	0.0089	0.226	0.0179	0.455	0.38
TCA3 32 AWG	32	0.0080	0.203	0.0170	0.432	0.32
TCA3 33 AWG	33	0.0071	0.180	0.0161	0.409	0.27
TCA3 34 AWG	34	0.0063	0.160	0.0153	0.389	0.23
TCA3 35 AWG	35	0.0056	0.142	0.0146	0.371	0.20
TCA3 36 AWG	36	0.0050	0.127	0.0140	0.356	0.17
TCA3 37 AWG	37	0.0045	0.114	0.0135	0.343	0.16
TCA3 38 AWG	38	0.0040	0.102	0.0130	0.330	0.14
TCA3 39 AWG	39	0.0035	0.089	0.0125	0.318	0.12
TCA3 40 AWG	40	0.0031	0.079	0.0121	0.307	0.11

Triple Insulated FEP .002” / Layer



Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155° C
Voltage: 1000 V

Applications:
AC/DC adaptors
Electronic/Medical/Dental

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61010-1 (Ed. 3)
VDE License Nr. 6715: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 9000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T18A01FXXX-2	18	0.0403	1.024	0.0523	1.328	5.75
T18A19FXXX-2	18(19/30)	0.0476	1.209	0.0596	1.514	6.83
T20A01FXXX-2	20	0.0320	0.813	0.0440	1.118	3.77
T20A19FXXX-2	20(19/32)	0.0385	0.978	0.0505	1.283	4.55
T22A01FXXX-2	22	0.0253	0.643	0.0373	0.947	2.50
T22A19FXXX-2	22(19/34)	0.0295	0.749	0.0415	1.054	2.97
T24A01FXXX-2	24	0.0201	0.511	0.0321	0.815	1.69
T24A19FXXX-2	24(19/36)	0.0242	0.615	0.0362	0.919	2.01
T25A01FXXX-2	25	0.0179	0.455	0.0299	0.759	1.40
T26A01FXXX-2	26	0.0159	0.404	0.0279	0.709	1.16
T27A01FXXX-2	27	0.0142	0.361	0.0262	0.665	0.97
T28A01FXXX-2	28	0.0126	0.320	0.0246	0.625	0.82
T29A01FXXX-2	29	0.0113	0.287	0.0233	0.592	0.70
T30A01FXXX-2	30	0.0100	0.254	0.0220	0.559	0.59
T31A01FXXX-2	31	0.0089	0.226	0.0209	0.531	0.51
T32A01FXXX-2	32	0.0080	0.203	0.0200	0.508	0.45
T33A01FXXX-2	33	0.0071	0.180	0.0191	0.485	0.39
T34A01FXXX-2	34	0.0063	0.160	0.0183	0.465	0.34
T35A01FXXX-2	35	0.0056	0.142	0.0176	0.447	0.30
T36A01FXXX-2	36	0.0050	0.127	0.0170	0.432	0.27
T37A01FXXX-2	37	0.0045	0.114	0.0165	0.419	0.25
T38A01FXXX-2	38	0.0040	0.102	0.0160	0.406	0.23
T39A01FXXX-2	39	0.0035	0.089	0.0155	0.394	0.21
T40A01FXXX-2	40	0.0031	0.079	0.0151	0.384	0.19

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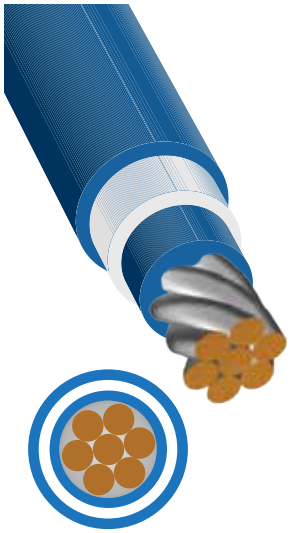
Triple Insulated FEP .003” / Layer



Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155° C
Voltage: 1000 V

Applications:
Power Supply/Transformer

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61010-1 (Ed. 3)
VDE License Nr. 6715: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 12000 V

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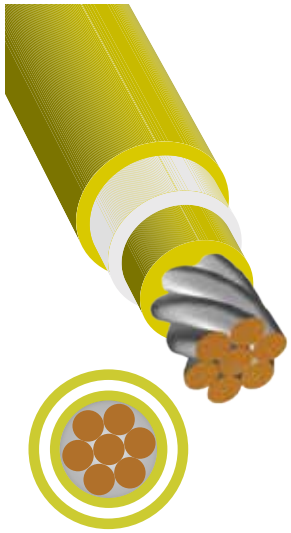
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T10A37FXXX-3	10(37/26)	0.1070	2.718	0.1250	3.175	32.01
T12A19FXXX-3	12(19/25)	0.0862	2.189	0.1042	2.647	21.37
T14A19FXXX-3	14(19/27)	0.0679	1.725	0.0859	2.182	13.88
T16A01FXXX-3	16	0.0508	1.290	0.0688	1.748	9.42
T16A19FXXX-3	16(19/29)	0.0539	1.369	0.0719	1.826	9.19
T18A01FXXX-3	18	0.0403	1.024	0.0583	1.481	6.25
T18A19FXXX-3	18(19/30)	0.0476	1.209	0.0656	1.666	7.40
T20A01FXXX-3	20	0.0320	0.813	0.0500	1.270	4.20
T20A19FXXX-3	20(19/32)	0.0385	0.978	0.0565	1.435	5.03
T22A01FXXX-3	22	0.0253	0.643	0.0433	1.100	2.87
T22A19FXXX-3	22(19/34)	0.0295	0.749	0.0475	1.207	3.37
T24A01FXXX-3	24	0.0201	0.511	0.0381	0.968	2.01
T24A19FXXX-3	24(19/36)	0.0242	0.615	0.0422	1.072	2.37
T26A01FXXX-3	26	0.0159	0.404	0.0339	0.861	1.44
T26A19FXXX-3	26(19/38)	0.0190	0.483	0.0370	0.940	1.65
T28A01FXXX-3	28	0.0126	0.320	0.0306	0.777	1.06
T28A19FXXX-3	28(19/40)	0.0152	0.386	0.0332	0.843	1.22
T30A01FXXX-3	30	0.0100	0.254	0.0280	0.711	0.82
T32A01FXXX-3	32	0.0080	0.203	0.0260	0.660	0.65

Triple Insulated FEP .005” / Layer



Product Construction:

Size Range:
10 AWG - 28 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155° C
Voltage: 1000 V

Applications:
Battery charger
Power supply lead outs

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61010-1 (Ed. 3)
VDE License Nr. 6715: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 15000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T10A37FXXX-5	10(37/26)	0.1070	2.718	0.1370	3.480	34.37
T12A19FXXX-5	12(19/25)	0.0862	2.189	0.1162	2.951	23.35
T14A19FXXX-5	14(19/27)	0.0679	1.725	0.0979	2.487	15.53
T16A01FXXX-5	16	0.0508	1.290	0.0808	2.052	10.77
T16A19FXXX-5	16(19/29)	0.0539	1.369	0.0839	2.131	10.59
T18A01FXXX-5	18	0.0403	1.024	0.0703	1.786	7.41
T18A19FXXX-5	18(19/30)	0.0476	1.209	0.0776	1.971	8.69
T20A01FXXX-5	20	0.0320	0.813	0.0620	1.575	5.21
T20A19FXXX-5	20(19/32)	0.0385	0.978	0.0685	1.740	6.16
T22A01FXXX-5	22	0.0253	0.643	0.0553	1.405	3.75
T22A19FXXX-5	22(19/34)	0.0295	0.749	0.0595	1.511	4.33
T24A01FXXX-5	24	0.0201	0.511	0.0501	1.273	2.80
T24A19FXXX-5	24(19/36)	0.0242	0.615	0.0542	1.377	3.23
T26A01FXXX-5	26	0.0159	0.404	0.0459	1.166	2.16
T26A19FXXX-5	26(19/38)	0.0190	0.483	0.0490	1.245	2.42
T28A01FXXX-5	28	0.0126	0.320	0.0426	1.082	1.72
T28A19FXXX-5	28(19/40)	0.0152	0.386	0.0452	1.148	1.93

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Triple Insulated PFA .0015” / Layer

Product Construction:

Size Range:
10 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 1000 V

Applications:
High temp power supplies
Medical equipment
Transformers

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1, Annex U
VDE License Nr. 6716: Class H
IEC 61010-1 (Ed. 3), 61558-2-16, 60601-1 (Ed. 3)

RoHS Compliant

Tensile Strength: 3600 psi
Breakdown: Approx. 8000 V
Insulation Temperature Capacity: 260° C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T16A01PXXX-1.5	16	0.0508	1.290	0.0598	1.519	8.56
T17A01PXXX-1.5	17	0.0453	1.151	0.0543	1.379	6.88
T18A01PXXX-1.5	18	0.0403	1.024	0.0493	1.252	5.52
T19A01PXXX-1.5	19	0.0359	0.912	0.0449	1.140	4.45
T20A01PXXX-1.5	20	0.0320	0.813	0.0410	1.041	3.58
T21A01PXXX-1.5	21	0.0285	0.724	0.0375	0.953	2.91
T22A01PXXX-1.5	22	0.0253	0.643	0.0343	0.871	2.34
T23A01PXXX-1.5	23	0.0226	0.574	0.0316	0.803	1.92
T24A01PXXX-1.5	24	0.0201	0.511	0.0291	0.739	1.55
T25A01PXXX-1.5	25	0.0179	0.455	0.0269	0.683	1.27
T26A01PXXX-1.5	26	0.0159	0.404	0.0249	0.632	1.04
T27A01PXXX-1.5	27	0.0142	0.361	0.0232	0.589	0.86
T28A01PXXX-1.5	28	0.0126	0.320	0.0216	0.549	0.71
T29A01PXXX-1.5	29	0.0113	0.287	0.0203	0.516	0.60
T30A01PXXX-1.5	30	0.0100	0.254	0.0190	0.483	0.50
T31A01PXXX-1.5	31	0.0089	0.226	0.0179	0.455	0.42
T32A01PXXX-1.5	32	0.0080	0.203	0.0170	0.432	0.36
T33A01PXXX-1.5	33	0.0071	0.180	0.0161	0.409	0.31
T34A01PXXX-1.5	34	0.0063	0.160	0.0153	0.389	0.27
T35A01PXXX-1.5	35	0.0056	0.142	0.0146	0.371	0.23
T36A01PXXX-1.5	36	0.0050	0.127	0.0140	0.356	0.20
T37A01PXXX-1.5	37	0.0045	0.114	0.0135	0.343	0.18
T38A01PXXX-1.5	38	0.0040	0.102	0.0130	0.330	0.16
T39A01PXXX-1.5	39	0.0035	0.089	0.0125	0.318	0.15
T40A01PXXX-1.5	40	0.0031	0.079	0.0121	0.307	0.13

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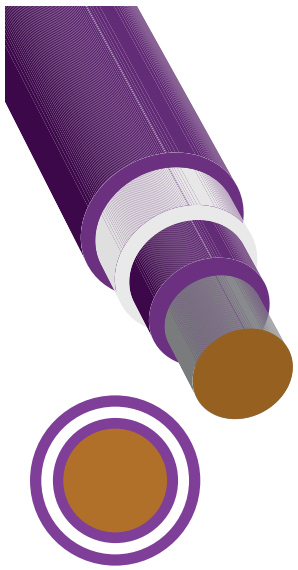
Triple Insulated PFA .002” / Layer



Product Construction:

Size Range:
10 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded
(ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 1000 V

Applications:
Lower partial discharge
High temp power supplies
Medical equipment

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61558-2-16, 60601-1 (Ed.3)
61010-1 (Ed. 3)
VDE License Nr. 6716: Class H
RoHS Compliant

Tensile Strength: 3600 psi
Breakdown: Approx. 10000 V
Insulation Temperature Capacity: 260° C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T18A01PXXX-2	18	0.0403	1.024	0.0523	1.328	5.75
T19A01PXXX-2	19	0.0359	0.912	0.0479	1.217	4.65
T20A01PXXX-2	20	0.0320	0.813	0.0440	1.118	3.77
T21A01PXXX-2	21	0.0285	0.724	0.0405	1.029	3.08
T22A01PXXX-2	22	0.0253	0.643	0.0373	0.947	2.50
T23A01PXXX-2	23	0.0226	0.574	0.0346	0.879	2.06
T24A01PXXX-2	24	0.0201	0.511	0.0321	0.815	1.69
T25A01PXXX-2	25	0.0179	0.455	0.0299	0.759	1.40
T26A01PXXX-2	26	0.0159	0.404	0.0279	0.709	1.16
T27A01PXXX-2	27	0.0142	0.361	0.0262	0.665	0.97
T28A01PXXX-2	28	0.0126	0.320	0.0246	0.625	0.82
T29A01PXXX-2	29	0.0113	0.287	0.0233	0.592	0.70
T30A01PXXX-2	30	0.0100	0.254	0.0220	0.559	0.59
T31A01PXXX-2	31	0.0089	0.226	0.0209	0.531	0.51
T32A01PXXX-2	32	0.0080	0.203	0.0200	0.508	0.45
T33A01PXXX-2	33	0.0071	0.180	0.0191	0.485	0.39
T34A01PXXX-2	34	0.0063	0.160	0.0183	0.465	0.34
T35A01PXXX-2	35	0.0056	0.142	0.0176	0.447	0.30
T36A01PXXX-2	36	0.0050	0.127	0.0170	0.432	0.27
T37A01PXXX-2	37	0.0045	0.114	0.0165	0.419	0.25
T38A01PXXX-2	38	0.0040	0.102	0.0160	0.406	0.23
T39A01PXXX-2	39	0.0035	0.089	0.0155	0.394	0.21
T40A01PXXX-2	40	0.0031	0.079	0.0151	0.384	0.19

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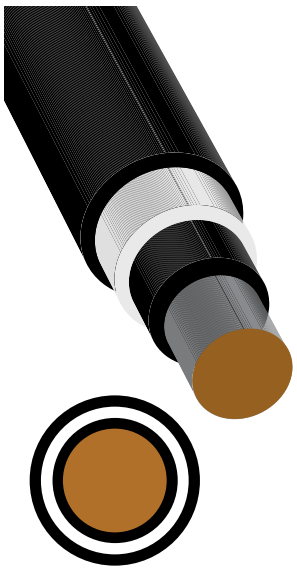
Triple Insulated PFA .003” / Layer



Product Construction:

Size Range:
UL: 10 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 1000 V

Applications:
Microwaves
Other high temp/high dielectric applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61558-2-16, 60601-1 (Ed.3)
61010-1 (Ed. 3)
VDE License Nr. 6716: Class H
RoHS Compliant
System approvals: UL 1446
Information provided upon request

Tensile Strength: 3600 psi
Breakdown: Approx. 13000 V
Insulation Temperature Capacity: 260° C

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PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T10A01PXXX-3	10	0.1019	2.588	0.1199	3.045	34.42
T11A01PXXX-3	11	0.0907	2.304	0.1087	2.761	27.59
T12A01PXXX-3	12	0.0808	2.052	0.0988	2.510	22.22
T13A01PXXX-3	13	0.0720	1.829	0.0900	2.286	17.89
T14A01PXXX-3	14	0.0641	1.628	0.0821	2.085	14.37
T15A01PXXX-3	15	0.0571	1.450	0.0751	1.908	11.65
T16A01PXXX-3	16	0.0508	1.290	0.0688	1.748	9.42
T17A01PXXX-3	17	0.0453	1.151	0.0633	1.608	7.68
T18A01PXXX-3	18	0.0403	1.024	0.0583	1.481	6.25
T19A01PXXX-3	19	0.0359	0.912	0.0539	1.369	5.11
T20A01PXXX-3	20	0.0320	0.813	0.0500	1.270	4.20
T21A01PXXX-3	21	0.0285	0.724	0.0465	1.181	3.47
T22A01PXXX-3	22	0.0253	0.643	0.0433	1.100	2.87
T23A01PXXX-3	23	0.0226	0.574	0.0406	1.031	2.40
T24A01PXXX-3	24	0.0201	0.511	0.0381	0.968	2.01
T25A01PXXX-3	25	0.0179	0.455	0.0359	0.912	1.70
T26A01PXXX-3	26	0.0159	0.404	0.0339	0.861	1.44
T27A01PXXX-3	27	0.0142	0.361	0.0322	0.818	1.24
T28A01PXXX-3	28	0.0126	0.320	0.0306	0.777	1.06
T29A01PXXX-3	29	0.0113	0.287	0.0293	0.744	0.94
T30A01PXXX-3	30	0.0100	0.254	0.0280	0.711	0.82
T31A01PXXX-3	31	0.0089	0.226	0.0269	0.683	0.72
T32A01PXXX-3	32	0.0080	0.203	0.0260	0.660	0.65

Double Insulated Wires

Rubadue Wire manufactures several double insulated wires to be used in supplementary isolation applications. Double insulated wires can be used to meet several design requirements:

- Wind bobbin wall to wall
- Meet creepage and clearance requirements
- High voltage
- Applications requiring supplementary isolation
- Leakage or loss reduction
- Reduced space, volume, weight
- Increased safety
- High speed winding capable

Double insulated wires can be manufactured in a variety of types, sizes, insulations, ratings, and colors.

Insulation	Size Range	Avg. Wall / Layer	Ins. Layers	Temp. Rating	Voltage Rating	Page
Tefzel® ETFE	30 - 40 AWG	.001”	2	155°C	600 V	19
Tefzel® ETFE	18 - 40 AWG	.0015”	2	155°C	600 V	20
Tefzel® ETFE	18 - 40 AWG	.002”	2	155°C	600 V	21
Tefzel® ETFE	10 - 40 AWG	.003”	2	155°C	600 V	22
TCA	18 - 40 AWG	.0015”	2	155°C	600 V	23
FEP	10 - 40 AWG	.002”	2	155°C	600 V	24
FEP	10 - 40 AWG	.003”	2	155°C	600 V	25
PFA	18 - 40 AWG	.0015”	2	180°C	600 V	26
PFA	18 - 40 AWG	.002”	2	180°C	600 V	27
PFA	18 - 40 AWG	.003”	2	180°C	600 V	28

DuPont™ Tefzel® ETFE - Fluoropolymer compound with excellent electrical properties, heat resistance, chemical resistance, and abrasion resistance.

TCA - Modified ETFE - designed for more economical/efficient manufacturing. Comes standard in one color, most sizes readily available.

DuPont™ Teflon® FEP - Fluoropolymer compound with exceptional dielectric properties, heat resistance, chemical resistance, and flexibility.

DuPont™ Teflon® PFA - Fluoropolymer compound with superior heat resistance, exceptional dielectric properties, and chemical resistance.

See the Technical Information section for additional information on insulation types and comparative properties.

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Double Insulated DuPont™ Tefzel® ETFE .001” / Layer

Product Construction:

Size Range:
30 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Thinnest DIW on the market
Size/Safety critical supplementary isolation
Telecom

Compliances:
UL OBJT2 File No. E206198
UL 60950-1, Annex U
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 3000 V

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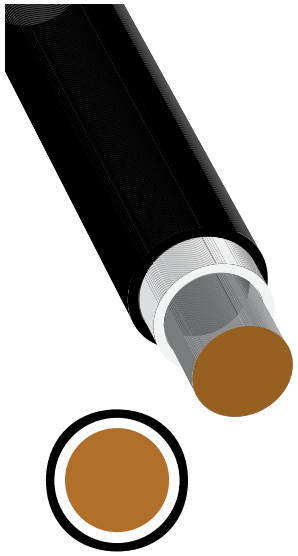
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D30A01TXX-1	30	0.0100	0.254	0.0140	0.356	0.36
D31A01TXX-1	31	0.0089	0.226	0.0129	0.328	0.29
D32A01TXX-1	32	0.0080	0.203	0.0120	0.305	0.24
D33A01TXX-1	33	0.0071	0.180	0.0111	0.282	0.20
D34A01TXX-1	34	0.0063	0.160	0.0103	0.262	0.16
D35A01TXX-1	35	0.0056	0.142	0.0096	0.244	0.13
D36A01TXX-1	36	0.0050	0.127	0.0090	0.229	0.11
D37A01TXX-1	37	0.0045	0.114	0.0085	0.216	0.09
D38A01TXX-1	38	0.0040	0.102	0.0080	0.203	0.08
D39A01TXX-1	39	0.0035	0.089	0.0075	0.191	0.06
D40A01TXX-1	40	0.0031	0.079	0.0071	0.180	0.05

Double Insulated DuPont™ Tefzel® ETFE .0015” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
Medical/Dental 30-40 AWG only

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (30-40AWG) IEC 61558-2-16
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01TXX-1.5	18	0.0403	1.024	0.0463	1.176	5.22
D19A01TXX-1.5	19	0.0359	0.912	0.0419	1.064	4.17
D20A01TXX-1.5	20	0.0320	0.813	0.0380	0.965	3.33
D21A01TXX-1.5	21	0.0285	0.724	0.0345	0.876	2.68
D22A01TXX-1.5	22	0.0253	0.643	0.0313	0.795	2.14
D23A01TXX-1.5	23	0.0226	0.574	0.0286	0.726	1.73
D24A01TXX-1.5	24	0.0201	0.511	0.0261	0.663	1.38
D25A01TXX-1.5	25	0.0179	0.455	0.0239	0.607	1.12
D26A01TXX-1.5	26	0.0159	0.404	0.0219	0.556	0.90
D27A01TXX-1.5	27	0.0142	0.361	0.0202	0.513	0.73
D28A01TXX-1.5	28	0.0126	0.320	0.0186	0.472	0.59
D29A01TXX-1.5	29	0.0113	0.287	0.0173	0.439	0.49
D30A01TXX-1.5	30	0.0100	0.254	0.0160	0.406	0.39
D31A01TXX-1.5	31	0.0089	0.226	0.0149	0.378	0.32
D32A01TXX-1.5	32	0.0080	0.203	0.0140	0.356	0.27
D33A01TXX-1.5	33	0.0071	0.180	0.0131	0.333	0.22
D34A01TXX-1.5	34	0.0063	0.160	0.0123	0.312	0.18
D35A01TXX-1.5	35	0.0056	0.142	0.0116	0.295	0.15
D36A01TXX-1.5	36	0.0050	0.127	0.0110	0.279	0.13
D37A01TXX-1.5	37	0.0045	0.114	0.0105	0.267	0.11
D38A01TXX-1.5	38	0.0040	0.102	0.0100	0.254	0.10
D39A01TXX-1.5	39	0.0035	0.089	0.0095	0.241	0.08
D40A01TXX-1.5	40	0.0031	0.079	0.0091	0.231	0.07

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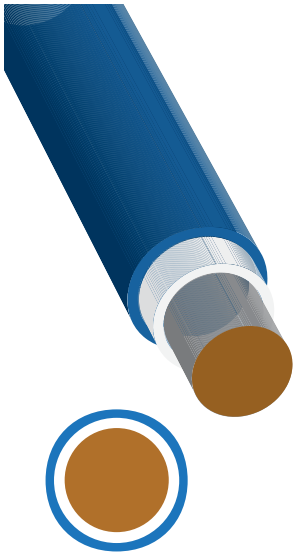
Double Insulated DuPont™ Tefzel® ETFE .002” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE:14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
Medical/Dental 30-40 AWG only

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3), IEC 61558-2-16
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 6000 V

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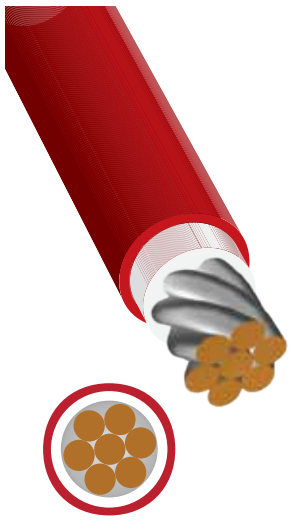
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01TXX-2	18	0.0403	1.024	0.0483	1.227	5.33
D19A01TXX-2	19	0.0359	0.912	0.0439	1.115	4.27
D20A01TXX-2	20	0.0320	0.813	0.0400	1.016	3.42
D21A01TXX-2	21	0.0285	0.724	0.0365	0.927	2.76
D22A01TXX-2	22	0.0253	0.643	0.0333	0.846	2.21
D23A01TXX-2	23	0.0226	0.574	0.0306	0.777	1.80
D24A01TXX-2	24	0.0201	0.511	0.0281	0.714	1.44
D25A01TXX-2	25	0.0179	0.455	0.0259	0.658	1.17
D26A01TXX-2	26	0.0159	0.404	0.0239	0.607	0.95
D27A01TXX-2	27	0.0142	0.361	0.0222	0.564	0.78
D28A01TXX-2	28	0.0126	0.320	0.0206	0.523	0.63
D29A01TXX-2	29	0.0113	0.287	0.0193	0.490	0.53
D30A01TXX-2	30	0.0100	0.254	0.0180	0.457	0.43
D31A01TXX-2	31	0.0089	0.226	0.0169	0.429	0.36
D32A01TXX-2	32	0.0080	0.203	0.0160	0.406	0.31
D33A01TXX-2	33	0.0071	0.180	0.0151	0.384	0.26
D34A01TXX-2	34	0.0063	0.160	0.0143	0.363	0.22
D35A01TXX-2	35	0.0056	0.142	0.0136	0.345	0.18
D36A01TXX-2	36	0.0050	0.127	0.0130	0.330	0.16
D37A01TXX-2	37	0.0045	0.114	0.0125	0.318	0.14
D38A01TXX-2	38	0.0040	0.102	0.0120	0.305	0.12
D39A01TXX-2	39	0.0035	0.089	0.0115	0.292	0.11
D40A01TXX-2	40	0.0031	0.079	0.0111	0.282	0.09

Double Insulated DuPont™ Tefzel® ETFE .003” / Layer



Product Construction:

Size Range:
UL: 10 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Electronic
Supplementary isolation applications
Medical/Dental 30-40 AWG only

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1(Ed. 3), IEC 61558-2-16
VDE License Nr. 40000223: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 9000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D10A37TXX-3	10(37/26)	0.1070	2.718	0.1190	3.023	30.45
D12A01TXX-3	12	0.0808	2.052	0.0928	2.357	21.01
D12A19TXX-3	12(19/25)	0.0862	2.189	0.0982	2.494	20.08
D14A01TXX-3	14	0.0641	1.628	0.0761	1.933	13.37
D14A19TXX-3	14(19/27)	0.0679	1.725	0.0799	2.029	12.83
D16A01TXX-3	16	0.0508	1.290	0.0628	1.595	8.60
D18A01TXX-3	18	0.0403	1.024	0.0523	1.328	5.56
D20A01TXX-3	20	0.0320	0.813	0.0440	1.118	3.62
D21A01TXX-3	21	0.0285	0.724	0.0405	1.029	2.94
D22A01TXX-3	22	0.0253	0.643	0.0373	0.947	2.37
D23A01TXX-3	23	0.0226	0.574	0.0346	0.879	1.95
D24A01TXX-3	24	0.0201	0.511	0.0321	0.815	1.58
D25A01TXX-3	25	0.0179	0.455	0.0299	0.759	1.30
D26A01TXX-3	26	0.0159	0.404	0.0279	0.709	1.07
D27A01TXX-3	27	0.0142	0.361	0.0262	0.665	0.89
D28A01TXX-3	28	0.0126	0.320	0.0246	0.625	0.74
D29A01TXX-3	29	0.0113	0.287	0.0233	0.592	0.63
D30A01TXX-3	30	0.0100	0.254	0.0220	0.559	0.53
D31A01TXX-3	31	0.0089	0.226	0.0209	0.531	0.45
D32A01TXX-3	32	0.0080	0.203	0.0200	0.508	0.39

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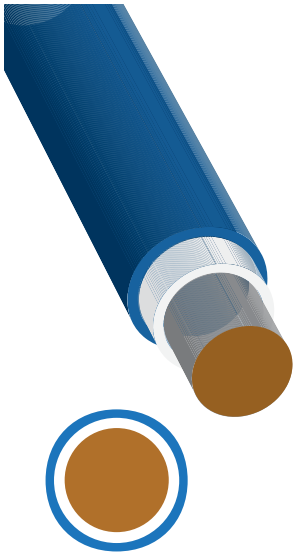
Double Insulated TCA2



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
Modified ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
Medical/Dental

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1(Ed. 3), IEC 61558-2-16
VDE License Nr. 40000223: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V
TCA2 products come standard in Blue

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA2 18 AWG	18	0.0403	1.024	0.0463	1.176	5.22
TCA2 19 AWG	19	0.0359	0.912	0.0419	1.064	4.17
TCA2 20 AWG	20	0.032	0.813	0.0380	0.965	3.33
TCA2 21 AWG	21	0.0285	0.724	0.0345	0.876	2.68
TCA2 22 AWG	22	0.0253	0.643	0.0313	0.795	2.14
TCA2 23 AWG	23	0.0226	0.574	0.0286	0.726	1.73
TCA2 24 AWG	24	0.0201	0.511	0.0261	0.663	1.38
TCA2 25 AWG	25	0.0179	0.455	0.0239	0.607	1.12
TCA2 26 AWG	26	0.0159	0.404	0.0219	0.556	0.90
TCA2 27 AWG	27	0.0142	0.361	0.0202	0.513	0.73
TCA2 28 AWG	28	0.0126	0.320	0.0186	0.472	0.59
TCA2 29 AWG	29	0.0113	0.287	0.0173	0.439	0.49
TCA2 30 AWG	30	0.0100	0.254	0.0160	0.406	0.39
TCA2 31 AWG	31	0.0089	0.226	0.0149	0.378	0.32
TCA2 32 AWG	32	0.0080	0.203	0.0140	0.356	0.27
TCA2 33 AWG	33	0.0071	0.180	0.0121	0.307	0.23
TCA2 34 AWG	34	0.0063	0.160	0.0113	0.287	0.19
TCA2 35 AWG	35	0.0056	0.142	0.0106	0.269	0.16
TCA2 36 AWG	36	0.0050	0.127	0.0100	0.254	0.13
TCA2 37 AWG	37	0.0045	0.114	0.0095	0.241	0.11
TCA2 38 AWG	38	0.0040	0.102	0.0090	0.229	0.10
TCA2 39 AWG	39	0.0035	0.089	0.0085	0.216	0.08
TCA2 40 AWG	40	0.0031	0.079	0.0081	0.206	0.07

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Double Insulated FEP .002” / Layer

Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Supplementary isolation applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (ed. 2), Annex U
VDE License Nr. 6715: Class F
System approvals: UL 1446
- RXT-2 Class F
- TCA Class F
- Other systems available upon request

RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 6000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01FXX-2	18	0.0403	1.024	0.0483	1.227	5.45
D18A19FXX-2	18(19/30)	0.0476	1.209	0.0556	1.412	6.49
D20A01FXX-2	20	0.0320	0.813	0.0400	1.016	3.52
D20A19FXX-2	20(19/32)	0.0385	0.978	0.0465	1.181	4.26
D22A01FXX-2	22	0.0253	0.643	0.0333	0.846	2.29
D22A19FXX-2	22(19/34)	0.0295	0.749	0.0375	0.953	2.73
D24A01FXX-2	24	0.0201	0.511	0.0281	0.714	1.51
D24A19FXX-2	24(19/36)	0.0242	0.615	0.0322	0.818	1.81
D25A01FXX-2	25	0.0179	0.455	0.0259	0.658	1.23
D26A01FXX-2	26	0.0159	0.403	0.0239	0.607	1.04
D27A01FXX-2	27	0.0142	0.361	0.0222	0.564	0.83
D28A01FXX-2	28	0.0126	0.320	0.0206	0.523	0.68
D29A01FXX-2	29	0.0113	0.287	0.0193	0.490	0.57
D30A01FXX-2	30	0.0100	0.254	0.0180	0.457	0.47
D31A01FXX-2	31	0.0089	0.226	0.0169	0.429	0.39
D32A01FXX-2	32	0.0080	0.203	0.0160	0.406	0.34
D33A01FXX-2	33	0.0071	0.180	0.0151	0.384	0.29
D34A01FXX-2	34	0.0063	0.160	0.0143	0.363	0.24
D35A01FXX-2	35	0.0056	0.142	0.0136	0.345	0.21
D36A01FXX-2	36	0.0050	0.127	0.0130	0.330	0.18
D37A01FXX-2	37	0.0045	0.114	0.0125	0.318	0.16
D38A01FXX-2	38	0.0040	0.102	0.0120	0.305	0.14
D39A01FXX-2	39	0.0035	0.089	0.0115	0.292	0.13
D40A01FXX-2	40	0.0031	0.079	0.0111	0.282	0.11

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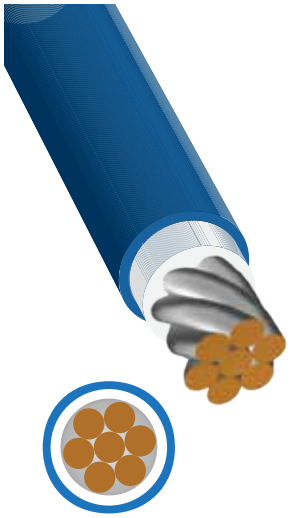
Double Insulated FEP .003” / Layer



Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/ Electronic
Supplementary isolation applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (ed. 2), Annex U
VDE License Nr. 6715: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 9000 V

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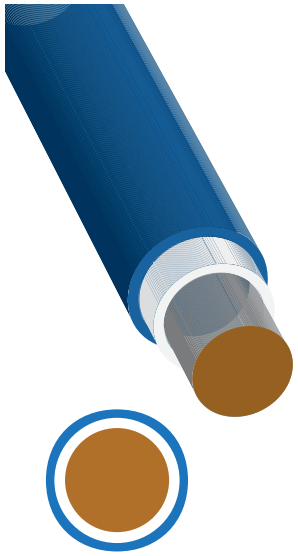
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D10A37FXX-3	10(37/26)	0.1070	2.718	0.1190	3.023	30.91
D12A01FXX-3	12	0.0808	2.052	0.0928	2.357	21.36
D12A19FXX-3	12(19/25)	0.0862	2.189	0.0982	2.494	20.46
D14A01FXX-3	14	0.0641	1.628	0.0761	1.933	13.66
D14A19FXX-3	14(19/27)	0.0679	1.725	0.0799	2.029	13.13
D16A01FXX-3	16	0.0508	1.290	0.0628	1.595	8.83
D16A19FXX-3	16(19/29)	0.0539	1.369	0.0659	1.674	8.57
D18A01FXX-3	18	0.0403	1.024	0.0523	1.328	5.75
D18A19FXX-3	18(19/30)	0.0476	1.209	0.0596	1.514	6.83
D20A01FXX-3	20	0.0320	0.813	0.0440	1.118	3.77
D20A19FXX-3	20(19/32)	0.0385	0.978	0.0505	1.283	4.55
D22A01FXX-3	22	0.0253	0.643	0.0373	0.947	2.50
D22A19FXX-3	22(19/34)	0.0295	0.749	0.0415	1.054	2.97
D24A01FXX-3	24	0.0201	0.511	0.0321	0.815	1.69
D24A19FXX-3	24(19/36)	0.0242	0.615	0.0362	0.919	2.01
D26A01FXX-3	26	0.0159	0.404	0.0279	0.709	1.16
D26A19FXX-3	26(19/38)	0.0190	0.483	0.0310	0.787	1.34
D28A01FXX-3	28	0.0126	0.320	0.0246	0.625	0.82
D28A19FXX-3	28(19/40)	0.0152	0.386	0.0272	0.691	0.95
D30A01FXX-3	30	0.0100	0.254	0.0220	0.559	0.59
D32A01FXX-3	32	0.0080	0.203	0.0200	0.508	0.45

Double Insulated PFA .0015” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
High temperature capacity (260°C)

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61558-2-16
VDE License Nr. 6716: Class H
RoHS Compliant
System approvals: UL 1446
Information provided upon request
Tensile Strength: 3500 psi
Breakdown: Approx. 6000 V
Insulation Temperature Capacity: 260°C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01PXX-1.5	18	0.0403	1.024	0.0463	1.176	5.31
D19A01PXX-1.5	19	0.0359	0.912	0.0419	1.064	4.25
D20A01PXX-1.5	20	0.0320	0.813	0.0380	0.965	3.41
D21A01PXX-1.5	21	0.0285	0.724	0.0345	0.876	2.74
D22A01PXX-1.5	22	0.0253	0.643	0.0313	0.795	2.19
D23A01PXX-1.5	23	0.0226	0.574	0.0286	0.726	1.78
D24A01PXX-1.5	24	0.0201	0.511	0.0261	0.663	1.43
D25A01PXX-1.5	25	0.0179	0.455	0.0239	0.607	1.16
D26A01PXX-1.5	26	0.0159	0.404	0.0219	0.556	0.94
D27A01PXX-1.5	27	0.0142	0.361	0.0202	0.513	0.76
D28A01PXX-1.5	28	0.0126	0.320	0.0186	0.472	0.62
D29A01PXX-1.5	29	0.0113	0.287	0.0173	0.439	0.52
D30A01PXX-1.5	30	0.0100	0.254	0.0160	0.406	0.42
D31A01PXX-1.5	31	0.0089	0.226	0.0149	0.378	0.35
D32A01PXX-1.5	32	0.0080	0.203	0.0140	0.356	0.29
D33A01PXX-1.5	33	0.0071	0.180	0.0131	0.333	0.24
D34A01PXX-1.5	34	0.0063	0.160	0.0123	0.312	0.20
D35A01PXX-1.5	35	0.0056	0.142	0.0116	0.295	0.17
D36A01PXX-1.5	36	0.0050	0.127	0.0110	0.279	0.15
D37A01PXX-1.5	37	0.0045	0.114	0.0105	0.267	0.13
D38A01PXX-1.5	38	0.0040	0.102	0.0100	0.254	0.11
D39A01PXX-1.5	39	0.0035	0.089	0.0095	0.241	0.09
D40A01PXX-1.5	40	0.0031	0.079	0.0091	0.231	0.08

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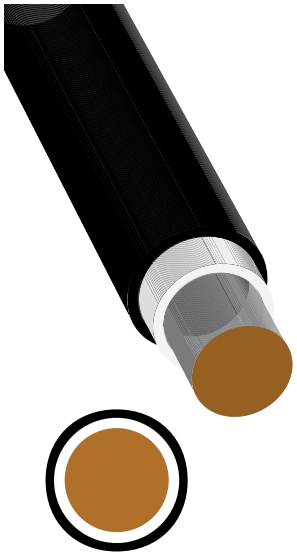
Double Insulated PFA .002” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
High temperature capacity (260°C)

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61558-2-16
VDE License Nr. 6716: Class H
RoHS Compliant
System approvals: UL 1446
Information provided upon request

Tensile Strength: 3500 psi
Breakdown: Approx. 8000 V
Insulation Temperature Capacity: 260°C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01PXX-2	18	0.0403	1.024	0.0483	1.227	5.45
D19A01PXX-2	19	0.0359	0.912	0.0439	1.115	4.38
D20A01PXX-2	20	0.0320	0.813	0.0400	1.016	3.52
D21A01PXX-2	21	0.0285	0.724	0.0365	0.927	2.85
D22A01PXX-2	22	0.0253	0.643	0.0333	0.846	2.29
D23A01PXX-2	23	0.0226	0.574	0.0306	0.777	1.87
D24A01PXX-2	24	0.0201	0.511	0.0281	0.714	1.51
D25A01PXX-2	25	0.0179	0.455	0.0259	0.658	1.23
D26A01PXX-2	26	0.0159	0.404	0.0239	0.607	1.00
D27A01PXX-2	27	0.0142	0.361	0.0222	0.564	0.83
D28A01PXX-2	28	0.0126	0.320	0.0206	0.523	0.68
D29A01PXX-2	29	0.0113	0.287	0.0193	0.490	0.57
D30A01PXX-2	30	0.0100	0.254	0.0180	0.457	0.47
D31A01PXX-2	31	0.0089	0.226	0.0169	0.429	0.39
D32A01PXX-2	32	0.0080	0.203	0.0160	0.406	0.34
D33A01PXX-2	33	0.0071	0.180	0.0151	0.384	0.29
D34A01PXX-2	34	0.0063	0.160	0.0143	0.363	0.24
D35A01PXX-2	35	0.0056	0.142	0.0136	0.345	0.21
D36A01PXX-2	36	0.0050	0.127	0.0130	0.330	0.18
D37A01PXX-2	37	0.0045	0.114	0.0125	0.318	0.16
D38A01PXX-2	38	0.0040	0.102	0.0120	0.305	0.14
D39A01PXX-2	39	0.0035	0.089	0.0115	0.292	0.13
D40A01PXX-2	40	0.0031	0.079	0.0111	0.282	0.11

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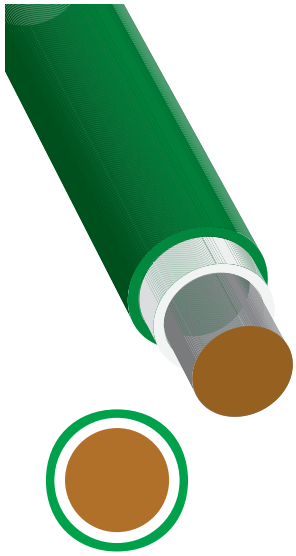
Double Insulated PFA .003” / Layer



Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage: 600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
High temperature capacity (260°C)

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61558-2-16
VDE License Nr. 6716: Class H
RoHS Compliant
System approvals: UL 1446
Information provided upon request

Tensile Strength: 3500 psi
Breakdown: Approx. 10000 V
Insulation on Temperature Capacity: 260°C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01PXX-3	18	0.0403	1.024	0.0523	1.328	5.75
D19A01PXX-3	19	0.0359	0.912	0.0479	1.217	4.65
D20A01PXX-3	20	0.032	0.813	0.0440	1.118	3.77
D21A01PXX-3	21	0.0285	0.724	0.0405	1.029	3.08
D22A01PXX-3	22	0.0253	0.643	0.0373	0.947	2.50
D23A01PXX-3	23	0.0226	0.574	0.0346	0.879	2.06
D24A01PXX-3	24	0.0201	0.511	0.0321	0.815	1.69
D25A01PXX-3	25	0.0179	0.455	0.0299	0.759	1.40
D26A01PXX-3	26	0.0159	0.404	0.0279	0.709	1.16
D27A01PXX-3	27	0.0142	0.361	0.0262	0.665	0.97
D28A01PXX-3	28	0.0126	0.320	0.0246	0.625	0.82
D29A01PXX-3	29	0.0113	0.287	0.0233	0.592	0.70
D30A01PXX-3	30	0.0100	0.254	0.0220	0.559	0.59
D31A01PXX-3	31	0.0089	0.226	0.0209	0.531	0.51
D32A01PXX-3	32	0.0080	0.203	0.0200	0.508	0.45
D33A01PXX-3	33	0.0071	0.180	0.0191	0.485	0.39
D34A01PXX-3	34	0.0063	0.160	0.0183	0.465	0.34
D35A01PXX-3	35	0.0056	0.142	0.0176	0.447	0.30
D36A01PXX-3	36	0.0050	0.127	0.0170	0.432	0.27
D37A01PXX-3	37	0.0045	0.114	0.0165	0.419	0.25
D38A01PXX-3	38	0.0040	0.102	0.0160	0.406	0.23
D39A01PXX-3	39	0.0035	0.089	0.0155	0.394	0.21
D40A01PXX-3	40	0.0031	0.079	0.0151	0.384	0.19

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Notes

Single Insulated Wires

Rubadue Wire manufactures several wires with a single layer of insulation.
Single insulated wires can be used to meet several design requirements:

- Hook-up or lead wires
- High voltage
- Applications requiring basic isolation
- Leakage or loss reduction
- Increased safety
- High speed winding capable

Single insulated wires can be manufactured in a variety of types, sizes, insulations, ratings, and colors.

Insulation	Size Range	Avg. Wall/ Layer	Ins. Layers	Temp. Raging	Voltage Rating	Page
Tefzel® ETFE	22 - 40 AWG	.0015”	1	155°C	600 V	31
Tefzel® ETFE	18 - 40 AWG	.002”	1	155°C	600 V	32
Tefzel®ETFE	10 - 40AWG	.003”	1	155°C	600 V	33
TCA	22 - 40AWG	.001”	1	155°C	600 V	34
FEP	18 - 40AWG	.002”	1	155°C	600 V	35
FEP	10 - 40AWG	.003”	1	155°C	600 V	36
PFA	28 - 40AWG	.0015”	1	180°C	600 V	37
PFA	28 - 40AWG	.002”	1	180°C	600 V	38
PFA	28 - 40AWG	.003”	1	180°C	600 V	39

DuPont™ Tefzel® ETFE - Fluoropolymer compound with excellent electrical properties, heat resistance, chemical resistance, and abrasion resistance.

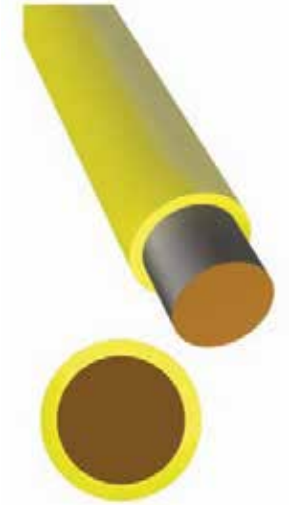
TCA - Modified ETFE - designed for more economical/efficient manufacturing. Comes standard in one color, most sizes readily available.

DuPont™ Teflon® FEP - Fluoropolymer compound with exceptional dielectric properties, heat resistance, chemical resistance, and flexibility.

DuPont™ Teflon® PFA - Fluoropolymer compound with superior heat resistance, exceptional dielectric properties, and chemical resistance.

See the Technical Information section for additional information on insulation types and comparative properties.

Single Insulated DuPont™ Tefzel® ETFE .0015”



Product Construction:

Size Range:
UL: 22 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
IEC 61558-12-16
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 2000 V

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PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S22A01TX-1.5	22	0.0253	0.643	0.0283	0.719	2.03
S23A01TX-1.5	23	0.0226	0.574	0.0256	0.650	1.63
S24A01TX-1.5	24	0.0201	0.511	0.0231	0.587	1.30
S25A01TX-1.5	25	0.0179	0.455	0.0209	0.531	1.04
S26A01TX-1.5	26	0.0159	0.404	0.0189	0.480	0.83
S27A01TX-1.5	27	0.0142	0.361	0.0172	0.437	0.66
S28A01TX-1.5	28	0.0126	0.320	0.0156	0.396	0.53
S29A01TX-1.5	29	0.0113	0.287	0.0143	0.363	0.43
S30A01TX-1.5	30	0.0100	0.254	0.0130	0.330	0.34
S31A01TX-1.5	31	0.0089	0.226	0.0119	0.302	0.28
S32A01TX-1.5	32	0.0080	0.203	0.0110	0.279	0.23
S33A01TX-1.5	33	0.0071	0.180	0.0101	0.257	0.18
S34A01TX-1.5	34	0.0063	0.160	0.0093	0.236	0.15
S35A01TX-1.5	35	0.0056	0.142	0.0086	0.218	0.12
S36A01TX-1.5	36	0.0050	0.127	0.0080	0.203	0.10
S37A01TX-1.5	37	0.0045	0.114	0.0075	0.191	0.08
S38A01TX-1.5	38	0.0040	0.101	0.0070	0.178	0.07
S39A01TX-1.5	39	0.0035	0.089	0.0065	0.165	0.05
S40A01TX-1.5	40	0.0031	0.079	0.0061	0.155	0.05

Single Insulated DuPont™ Tefzel® ETFE .002”

Product Construction:

Size Range:
UL: 18 AWG - 40 AWG
VDE:14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155° C
Voltage:
600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed.2) , Annex U .
IEC 61558-2-16
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 3000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O. D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S18A01TX-2	18	0.0403	1.024	0.0443	1.125	5.12
S19A01TX-2	19	0.0359	0.912	0.0399	1.013	4.08
S20A01TX-2	20	0.0320	0.813	0.0360	0.914	3.25
S21A01TX-2	21	0.0285	0.724	0.0325	0.826	2.60
S22A01TX-2	22	0.0253	0.643	0.0293	0.744	2.07
S23A01TX-2	23	0.0226	0.574	0.0266	0.676	1.66
S24A01TX-2	24	0.0201	0.511	0.0241	0.612	1.32
S25A01TX-2	25	0.0179	0.455	0.0219	0.556	1.06
S26A01TX-2	26	0.0159	0.404	0.0199	0.505	0.85
S27A01TX-2	27	0.0142	0.361	0.0182	0.462	0.69
S28A01TX-2	28	0.0126	0.320	0.0166	0.422	0.55
S29A01TX-2	29	0.0113	0.287	0.0153	0.389	0.45
S30A01TX-2	30	0.0100	0.254	0.0140	0.356	0.36
S31A01TX-2	31	0.0089	0.226	0.0129	0.328	0.29
S32A01TX-2	32	0.0080	0.203	0.0120	0.305	0.24
S33A01TX-2	33	0.0071	0.180	0.0111	0.282	0.20
S34A01TX-2	34	0.0063	0.160	0.0103	0.262	0.16
S35A01TX-2	35	0.0056	0.142	0.0096	0.244	0.13
S36A01TX-2	36	0.0050	0.127	0.0090	0.229	0.11
S37A01TX-2	37	0.0045	0.114	0.0085	0.216	0.09
S38A01TX-2	38	0.0040	0.102	0.0080	0.203	0.08
S39A01TX-2	39	0.0035	0.089	0.0075	0.191	0.06
S40A01TX-2	40	0.0031	0.079	0.0071	0.180	0.05

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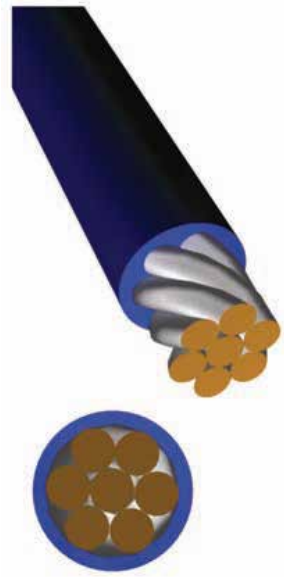
Single Insulated DuPont™ Tefzel® ETFE .003”



Product Construction:

Size Range:
UL: 10 AWG - 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage:
600 V

Applications:
Electronic
Basic isolation applications
Medical / Dental

Compliances:
UL OBJT2 File No. E206198
UL / IEC 60950-1 (Ed.2), Annex U.
UL 60601-1 (Ed.3), IEC 61558-2-16
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Break down: Approx. 4500 V

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PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37TX-3	10(37/26)	0.1070	2.718	0.1130	2.870	29.64
S12A19TX-3	12(19/25)	0.0862	2.189	0.0922	2.342	19.42
S14A01TX-3	14	0.0641	1.628	0.0701	1.781	12.87
S14A19TX-3	14(19/27)	0.0679	1.725	0.0739	1.877	12.29
S16A01TX-3	16	0.0508	1.290	0.0568	1.443	8.18
S18A01TX-3	18	0.0403	1.024	0.0463	1.176	5.22
S20A01TX-3	20	0.0320	0.813	0.0380	0.965	3.33
S21A01TX-3	21	0.0285	0.724	0.0345	0.876	2.68
S22A01TX-3	22	0.0253	0.643	0.0313	0.795	2.14
S23A01TX-3	23	0.0226	0.574	0.0286	0.726	1.73
S24A01TX-3	24	0.0201	0.511	0.0261	0.663	1.38
S25A01TX-3	25	0.0179	0.455	0.0239	0.607	1.12
S26A01TX-3	26	0.0159	0.404	0.0219	0.556	0.90
S27A01TX-3	27	0.0142	0.361	0.0202	0.513	0.73
S28A01TX-3	28	0.0126	0.320	0.0186	0.472	0.59
S29A01TX-3	29	0.0113	0.287	0.0173	0.439	0.49
S30A01TX-3	30	0.0100	0.254	0.0160	0.406	0.39
S31A01TX-3	31	0.0089	0.226	0.0149	0.378	0.32

Single Insulated TCA1

Product Construction:

Size Range:
UL: 22 AWG- 40 AWG
VDE: 14 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (Astm B-33/ASTM B-286
Bare copper and other conductors available

Insulation:
Modified ETFE

Rating:
Temperature: 155°C
Voltage:
600V

Applications:
Telecom/ Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed.2), Annex U.
UL 60601-1 (Ed. 3), IEC 61558-2-16
VDE License Nr. 40000223: Class F
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request

RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 2000 V

TCA1 products come standard in Orange

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA1 22 AWG	22	0.0253	0.644	0.0283	0.719	2.03
TCA1 23 AWG	23	0.0226	0.574	0.0256	0.650	1.63
TCA1 24 AWG	24	0.0201	0.511	0.0231	0.686	1.52
TCA1 25 AWG	25	0.0179	0.455	0.0209	0.531	1.04
TCA1 26 AWG	26	0.0159	0.404	0.0189	0.480	0.83
TCA1 27 AWG	27	0.0142	0.361	0.0172	0.437	0.66
TCA1 28 AWG	28	0.0126	0.320	0.0156	0.396	0.53
TCA1 29 AWG	29	0.0113	0.287	0.0143	0.363	0.43
TCA1 30 AWG	30	0.0100	0.254	0.0130	0.330	0.34
TCA1 31 AWG	31	0.0089	0.226	0.0119	0.302	0.28
TCA1 32 AWG	32	0.0080	0.203	0.0110	0.279	0.23
TCA1 33 AWG	33	0.0071	0.180	0.0101	0.257	0.18
TCA1 34 AWG	34	0.0063	0.160	0.0093	0.236	0.15
TCA1 35 AWG	35	0.0056	0.142	0.0086	0.218	0.12
TCA1 36 AWG	36	0.0050	0.127	0.0080	0.203	0.10
TCA1 37 AWG	37	0.0045	0.114	0.0075	0.191	0.08
TCA1 38 AWG	38	0.0040	0.102	0.0070	0.178	0.07
TCA1 39 AWG	39	0.0035	0.089	0.0065	0.165	0.05
TCA1 40 AWG	40	0.0031	0.079	0.0061	0.155	0.05

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Single Insulated FEP .002”

Product Construction:

Size Range:
18 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 3000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S18A01FX-2	18	0.0403	1.024	0.0443	1.125	5.17
S18A19FX-2	18(19/30)	0.0476	1.209	0.0516	1.311	6.17
S20A01FX-2	20	0.0320	0.813	0.0360	0.914	3.29
S20A19FX-2	20(19/32)	0.0385	0.978	0.0425	1.080	3.99
S22A01FX-2	22	0.0253	0.643	0.0293	0.744	2.10
S22A19FX-2	22(19/32)	0.0295	0.749	0.0335	0.851	2.52
S24A01FX-2	24	0.0201	0.511	0.0241	0.612	1.35
S24A19FX-2	24(19/36)	0.0242	0.615	0.0282	0.716	1.63
S25A01FX-2	25	0.0179	0.455	0.0219	0.556	1.18
S26A01FX-2	26	0.0159	0.404	0.0199	0.505	0.89
S27A01FX-2	27	0.0142	0.361	0.0182	0.462	0.71
S28A01FX-2	28	0.0126	0.320	0.0166	0.422	0.57
S29A01FX-2	29	0.0113	0.287	0.0153	0.389	0.47
S30A01FX-2	30	0.0100	0.254	0.0140	0.356	0.38
S31A01FX-2	31	0.0089	0.226	0.0129	0.328	0.31
S32A01FX-2	32	0.0080	0.203	0.012	0.305	0.25
S33A01FX-2	33	0.0071	0.180	0.0111	0.282	0.21
S34A01FX-2	34	0.0063	0.160	0.0103	0.262	0.17
S35A01FX-2	35	0.0056	0.142	0.0096	0.244	0.14
S36A01FX-2	36	0.0050	0.127	0.0090	0.229	0.12
S37A01FX-2	37	0.0045	0.114	0.0085	0.216	0.10
S38A01FX-2	38	0.0040	0.102	0.0080	0.203	0.08
S39A01FX-2	39	0.0035	0.089	0.0075	0.191	0.07
S40A01FX-2	40	0.0031	0.079	0.0071	0.180	0.06

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Single Insulated FEP .003”

Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U
System approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01FX-3	16	0.0508	1.290	0.0568	1.443	8.29
S16A19FX-3	16(19/29)	0.0539	1.369	0.0599	1.521	8.00
S18A01FX-3	18	0.0403	1.024	0.0463	1.176	5.31
S18A19FX-3	18(19/30)	0.0476	1.209	0.0536	1.361	6.33
S20A01FX-3	20	0.0320	0.813	0.0380	0.965	3.41
S20A19FX-3	20(19/32)	0.0385	0.978	0.0445	1.130	4.12
S22A01FX-3	22	0.0253	0.643	0.0313	0.795	2.19
S22A19FX-3	22(19/32)	0.0295	0.749	0.0355	0.902	2.62
S24A01FX-3	24	0.0201	0.511	0.0261	0.663	1.43
S24A19FX-3	24(19/36)	0.0242	0.615	0.0302	0.767	1.71
S25A01FX-3	25	0.0179	0.455	0.0239	0.607	1.25
S26A01FX-3	26	0.0190	0.483	0.0250	0.635	0.96
S27A01FX-3	27	0.0142	0.361	0.0202	0.513	0.76
S28A01FX-3	28	0.0126	0.320	0.0186	0.472	0.62
S29A01FX-3	29	0.0113	0.287	0.0173	0.439	0.52
S30A01FX-3	30	0.0100	0.254	0.0160	0.406	0.42
S31A01FX-3	31	0.0089	0.226	0.0149	0.378	0.35
S32A01FX-3	32	0.0080	0.203	0.0140	0.356	0.29
S33A01FX-3	33	0.0071	0.180	0.0131	0.333	0.24
S34A01FX-3	34	0.0063	0.160	0.0123	0.312	0.20
S35A01FX-3	35	0.0056	0.142	0.0116	0.295	0.17
S36A01FX-3	36	0.0050	0.127	0.0110	0.279	0.15
S37A01FX-3	37	0.0045	0.114	0.0105	0.267	0.13
S38A01FX-3	38	0.0040	0.102	0.0100	0.254	0.11
S39A01FX-3	39	0.0035	0.089	0.0095	0.241	0.10
S40A01FX-3	40	0.0031	0.079	0.0091	0.231	0.08

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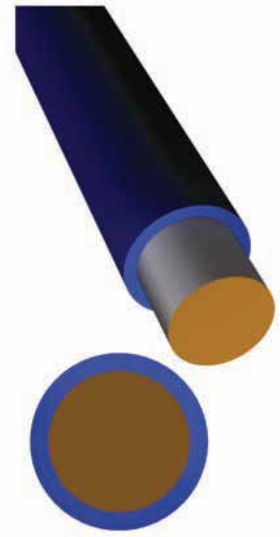
Single Insulated PFA .0015”



Product Construction:

Size Range:
28 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage:
600 V for electronic equipment
UL: 425 V for medical equipment

Applications:
Telecom/Electronic
Basic isolation applications
Medical/Dental equipment
High temperature resistance:
Lead free reflow

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3),
VDE License Nr. 6716: Class H
IEC 61558-2-16

RoHS Compliant
Tensile Strength: 3500 psi
Breakdown: Approx. 3000 V
Insulation Temperature Capacity: 260°C

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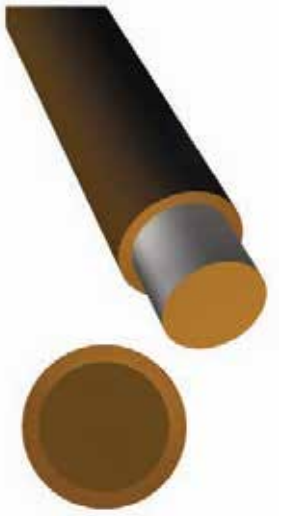
PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S28A01PX-1.5	28	0.0126	0.320	0.0156	0.396	0.54
S29A01PX-1.5	29	0.0113	0.287	0.0143	0.363	0.44
S30A01PX-1.5	30	0.0100	0.254	0.0130	0.330	0.35
S31A01PX-1.5	31	0.0089	0.226	0.0119	0.302	0.29
S32A01PX-1.5	32	0.0080	0.203	0.0110	0.279	0.24
S33A01PX-1.5	33	0.0071	0.180	0.0101	0.257	0.19
S34A01PX-1.5	34	0.0063	0.160	0.0093	0.236	0.16
S35A01PX-1.5	35	0.0056	0.142	0.0086	0.218	0.13
S36A01PX-1.5	36	0.0050	0.127	0.0080	0.203	0.10
S37A01PX-1.5	37	0.0045	0.114	0.0075	0.191	0.09
S38A01PX-1.5	38	0.0040	0.102	0.0070	0.178	0.07
S39A01PX-1.5	39	0.0035	0.089	0.0065	0.165	0.06
S40A01PX-1.5	40	0.0031	0.079	0.0061	0.155	0.05

Single Insulated PFA .002”



Product Construction:

Size Range:
UL: 28 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage:
600 V for electronic equipment
UL: 425 V for medical equipment

Applications:
Telecom/Electronic
Basic isolation applications
Medical/Dental equipment
High temperature resistance:
Lead free reflow

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3), IEC 61558-2-16
VDE License Nr. 6716: Class H

RoHS Compliant

Tensile Strength: 3500 psi
Breakdown: Approx. 4000 V
Insulation Temperature Capacity: 260°C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S28A01PX-2	28	0.0126	0.320	0.0166	0.422	0.57
S29A01PX-2	29	0.0113	0.287	0.0153	0.389	0.47
S30A01PX-2	30	0.0100	0.254	0.0140	0.356	0.38
S31A01PX-2	31	0.0089	0.226	0.0129	0.328	0.31
S32A01PX-2	32	0.0080	0.203	0.0120	0.305	0.25
S33A01PX-2	33	0.0071	0.180	0.0111	0.282	0.21
S34A01PX-2	34	0.0063	0.160	0.0103	0.262	0.17
S35A01PX-2	35	0.0056	0.142	0.0096	0.244	0.14
S36A01PX-2	36	0.0050	0.127	0.0090	0.229	0.12
S37A01PX-2	37	0.0045	0.114	0.0085	0.216	0.10
S38A01PX-2	38	0.0040	0.102	0.0080	0.203	0.08
S39A01PX-2	39	0.0035	0.089	0.0075	0.191	0.07
S40A01PX-2	40	0.0031	0.079	0.0071	0.180	0.06

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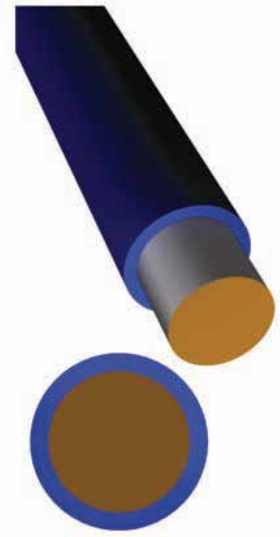
Single Insulated PFA .003”



Product Construction:

Size Range:
UL: 28 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PFA

Rating:
Temperature: 180°C
Voltage:
600 V for electronic equipment
UL: 425 V for medical equipment

Applications:
Telecom/Electronic
Basic isolation applications
Medical/Dental equipment
High temperature resistance:
Lead free reflow

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3), IEC 61558-2-16
VDE License Nr. 6716: Class H

RoHS Compliant
Tensile Strength: 3500 psi
Breakdown: Approx. 6000 V
Insulation Temperature Capacity: 260°C

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PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S28A01PX-3	28	0.0126	0.320	0.0186	0.472	0.62
S29A01PX-3	29	0.0113	0.287	0.0173	0.439	0.52
S30A01PX-3	30	0.0100	0.254	0.0160	0.406	0.42
S31A01PX-3	31	0.0089	0.226	0.0149	0.378	0.35
S32A01PX-3	32	0.0080	0.203	0.0140	0.356	0.29
S33A01PX-3	33	0.0071	0.180	0.0131	0.333	0.24
S34A01PX-3	34	0.0063	0.160	0.0123	0.312	0.20
S35A01PX-3	35	0.0056	0.142	0.0116	0.295	0.17
S36A01PX-3	36	0.0050	0.127	0.0110	0.279	0.15
S37A01PX-3	37	0.0045	0.114	0.0105	0.267	0.13
S38A01PX-3	38	0.0040	0.102	0.0100	0.254	0.11
S39A01PX-3	39	0.0035	0.089	0.0095	0.241	0.10
S40A01PX-3	40	0.0031	0.079	0.0091	0.231	0.08

Notes

Litz Wires

The Product: Litz wire is made of several strands of enamelled magnet wire that are bunched or stranded together. It is used where losses caused by the skin-and proximity effect on a single wire are too high due to the operating frequency. At the same time the operating temperature is reduced by its use. Litz wire has much greater mechanical flexibility than a single wire with the same cross-section.

Applications:

- Solar
- Deflection yokes
- Flurocescent lamp ballast
- Hearing aids
- Identification systems
- Inductive heating elements
- Magnetic loading
- Power supply units
- Proximity switches
- Repeating coils
- Transformers and choking coils
- Ultrasonic generators
- Renewable energy
- Automotive

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PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)

Litz constructions listed in this catalog or a small sample of the products offered. Contact the Sales Department for additional constructions.

Note: The type of NEMA Magnet wire used in the litz construction will be listed in parentheses at the end of the part number. Example TXXL550/44FXXX-2 (MWXX)

Triple Insulated Litz Wire FEP Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulations:
FEP

Rating:
Temperature: 155°C
Voltage: 1000 V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U
IEC 61010-1 (Ed. 3)
VDE License Nr. 6715: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D. (in)	SUGGESTED OPERATING FREQUENCY
TXXL350/38FXXX-2(MWXX)	12	0.0950	5600	350	38	0.1070	400-850 khz
TXXL350/38FXXX-3(MWXX)	12	0.0950	5600	350	38	0.1130	400-850 khz
TXXL825/44FXXX-2(MWXX)	11	0.0844	3300	825	44	0.0964	400-850 khz
TXXL825/44FXXX-3(MWXX)	11	0.0844	3300	825	44	0.1024	400-850 khz
TXXL120/38FXXX-2(MWXX)	15	0.0567	1920	120	38	0.0687	50-100 khz
TXXL120/38FXXX-3(MWXX)	15	0.0567	1920	120	38	0.0747	50-100 khz
TXXL550/44FXXX-2(MWXX)	13	0.0689	2200	550	44	0.0809	440-850 khz
TXXL550/44FXXX-3(MWXX)	13	0.0689	2200	550	44	0.0869	440-850 khz
TXXL66/38FXXX-2(MWXX)	18	0.0420	1056	66	38	0.0540	50-100 khz
TXXL66/38FXXX-3(MWXX)	18	0.0420	1056	66	38	0.0600	50-100 khz
TXXL108/40FXXX-2(MWXX)	18.5	0.0460	1038	108	40	0.0580	100-200 khz
TXXL108/40FXXX-3(MWXX)	18.5	0.0460	1038	108	40	0.0640	100-200 khz
TXXL360/44FXXX-2(MWXX)	15	0.0557	1440	360	44	0.0677	400-850 khz
TXXL360/44FXXX-3(MWXX)	15	0.0557	1440	360	44	0.0737	400-850 khz
TXXL07/28FXXX-2(MWXX)	18	0.0413	1110	7	28	0.0533	60hz-1 khz
TXXL07/28FXXX-3(MWXX)	18	0.0413	1110	7	28	0.0593	60hz-1 khz
TXXL19/36FXXX-2(MWXX)	21.5	0.0281	475	19	36	0.0401	20-50 khz
TXXL19/36FXXX-3(MWXX)	21.5	0.0281	475	19	36	0.0461	20-50 khz
TXXL230/44FXXX-2(MWXX)	17	0.0445	920	230	44	0.0565	400-850 khz
TXXL230/44FXXX-3(MWXX)	17	0.0445	920	230	44	0.0625	400-850 khz
TXXL19/34FXXX-2(MWXX)	19.5	0.0351	755	19	34	0.0471	20 khz
TXXL19/34FXXX-3(MWXX)	19.5	0.0351	755	19	34	0.0531	20 khz
TXXL40/40FXXX-2(MWXX)	22	0.0254	385	40	40	0.0374	100-200 khz
TXXL07/32FXXX-2(MWXX)	24	0.0267	448	7	32	0.0387	10 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

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Triple Insulated Litz Wire ETFE Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature 155°C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
High frequency applications
See litz wire introductions page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3)
IEC 61558-2-16, 60601-1 (Ed.3), 61010-1 (Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F

Other systems available upon request
RoHS Compliant
Tensile Strength: 6500 psi

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D.(in)	SUGGESTED OPERATING FREQUENCY
TXXL180/38TXXX-2(MWXX)	13.5	0.0694	2880	180	38	0.0814	50 - 100 khz
TXXL180/38TXXX-3(MWXX)	13.5	0.0694	2880	180	38	0.0874	50 - 100 khz
TXXL15/30TXXX-1.5(MWXX)	16.5	0.0485	1500	15	30	0.0575	1 - 10 khz
TXXL15/30TXXX-2(MWXX)	16.5	0.0485	1500	15	30	0.0605	1 - 10 khz
TXXL15/30TXXX-3(MWXX)	16.5	0.0485	1500	15	30	0.0665	1 - 10 khz
TXXL360/44TXXX-2(MWXX)	15	0.0557	1440	360	44	0.0677	400 - 850 khz
TXXL360/44TXXX-3(MWXX)	15	0.0557	1440	360	44	0.0737	400 - 850 khz
TXXL19/36TXXX-2(MWXX)	21.5	0.0281	475	19	36	0.0401	20 - 50 khz
TXXL19/36TXXX-3(MWXX)	21.5	0.0281	475	19	36	0.0461	20 - 50 khz
TXXL35/38TXXX-2(MWXX)	21	0.0306	560	35	38	0.0426	50 - 100 khz
TXXL35/38TXXX-3(MWXX)	21	0.0306	560	35	38	0.0486	50 - 100 khz
TXXL07/30TXXX-1.5(MWXX)	20	0.0331	700	7	30	0.0421	1 - 10 khz
TXXL07/30TXXX-2(MWXX)	20	0.0331	700	7	30	0.0451	1 - 10 khz
TXXL230/44TXXX-2(MWXX)	17	0.0445	920	230	44	0.0565	400 - 850 khz
TXXL230/44TXXX-3(MWXX)	17	0.0445	920	230	44	0.0625	400 - 850 khz
TXXL40/40TXXX-1.5(MWXX)	22	0.0254	385	40	40	0.0344	100 - 200 khz
TXXL40/40TXXX-2(MWXX)	22	0.0254	385	40	40	0.0374	100 - 200 khz
TXXL07/32TXXX-1.5(MWXX)	21.5	0.0267	448	7	32	0.0357	10 khz
TXXL07/32TXXX-2(MWXX)	21.5	0.0267	448	7	32	0.0387	10 khz
TXXL19/40TXXX-1.5(MWXX)	25.5	0.0175	183	19	40	0.0265	100 - 200 khz
TXXL19/40TXXX-2(MWXX)	25.5	0.0175	183	19	40	0.0295	100 - 200 khz
TXXL05/32TXXX-1.5(MWXX)	23	0.0226	320	5	32	0.0316	10 khz
TXXL05/32TXXX-2(MWXX)	23	0.0226	320	5	32	0.0346	10 khz
TXXL16/44TXXX-1.5(MWXX)	30	0.0101	64	16	44	0.0191	400 - 850 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

Triple Insulated TCA3 Litz Wire

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Departement for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
Modified ETFE

Rating:
Temperature 155°C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment
VDE: 1000 V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3)
IEC 61558-1, 60601-1 (Ed. 3), 61010-1 (Ed. 3)
VDE License Nr. 136743: Class F
System approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant
Tensile Strength: 6500 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D. (in)	SUGGESTED OPERATING FREQUENCY
TCA3 7/30 LITZ (MWXX)	21.5	0.0331	700	7	30	0.0421	1 - 10 khz
TCA3 40/40 LITZ (MWXX)	22	0.0254	385	40	40	0.0344	100 - 200 khz
TCA3 7/32 LITZ (MWXX)	21.5	0.0267	448	7	32	0.0357	10 khz
TCA3 19/40 LITZ (MWXX)	21.5	0.0179	183	19	40	0.0269	100 - 200 khz
TCA3 5/32 LITZ (MWXX)	23	0.0226	320	5	32	0.0316	10 khz
TCA3 16/44 LITZ (MWXX)	30	0.0101	64	16	44	0.0191	400 - 850 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)

Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

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Double Insulated Litz Wire FEP Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U

VDE License Nr. 6715: Class F
System Approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant
Tensile Strength: 3000 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D.(in)	SUGGESTED OPERATING FREQUENCY
DXXL825/44FXX-3(MWXX)	11	0.0844	3300	825	44	0.0964	400 - 850 khz
DXXL120/38FXX-2(MWXX)	15	0.0567	1920	120	38	0.0647	50 - 100 khz
DXXL120/38FXX-3(MWXX)	15	0.0567	1920	120	38	0.0687	50 - 100 khz
DXXL550/44FXX-2(MWXX)	13	0.0689	2200	550	44	0.0769	400 - 850 khz
DXXL550/44FXX-3(MWXX)	13	0.0689	2200	550	44	0.0810	400 - 850 khz
DXXL100/38FXX-2(MWXX)	16	0.0518	1600	100	38	0.0598	50 - 100 khz
DXXL100/38FXX-3(MWXX)	16	0.0518	1600	100	38	0.0638	50 - 100 khz
DXXL07/28FXX-2(MWXX)	18	0.0413	1110	7	28	0.0493	60 hz - 1 khz
DXXL07/28FXX-3(MWXX)	18	0.0413	1110	7	28	0.0533	60 hz - 1 khz
DXXL66/38FXX-2(MWXX)	18	0.0420	1056	66	38	0.0500	50 - 100 khz
DXXL66/38FXX-3(MWXX)	18	0.0420	1056	66	38	0.0540	50 - 100 khz
DXXL360/44FXX-2(MWXX)	15	0.0557	1440	360	44	0.0637	400 - 850 khz
DXXL360/44FXX-3(MWXX)	15	0.0557	1440	360	44	0.0677	400 - 850 khz
DXXL20/34FXX-2(MWXX)	19	0.0360	794	20	34	0.0440	20 khz
DXXL20/34FXX-3(MWXX)	19	0.0360	794	20	34	0.0480	20 khz
DXXL07/30FXX-2(MWXX)	20	0.0331	700	7	30	0.0411	1 - 10 khz
DXXL07/30FXX-3(MWXX)	20	0.0331	700	7	30	0.0451	1 - 10 khz
DXXL19/36FXX-2(MWXX)	21.5	0.0281	475	19	36	0.0361	20 - 50 khz
DXXL19/36FXX-3(MWXX)	21.5	0.0281	475	19	36	0.0401	20 - 50 khz
DXXL07/32FXX-2(MWXX)	21.5	0.0267	448	7	32	0.0347	10 khz
DXXL07/32FXX-3(MWXX)	21.5	0.0267	448	7	32	0.0387	10 khz
DXXL40/40FXX-2(MWXX)	22	0.0254	385	40	40	0.0334	100 - 200 khz
DXXL230/44FXX-2(MWXX)	17	0.0445	920	230	44	0.0525	400 - 850K khz
DXXL05/32FXX-2(MWXX)	23	0.0226	320	5	32	0.0306	10 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

Double Insulated Litz Wire ETFE Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage: UL: 600 V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3), IEC 61558-2-16
VDE License Nr. 136743: Class F
System Approvals: UL 1446
RXT-2 Class F
TCA Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D.(in)	SUGGESTED OPERATING FREQUENCY
DXXL825/44TXX-3(MWXX)	11	0.0844	3300	825	44	0.0964	400 - 850 khz
DXXL120/38TXX-2(MWXX)	15	0.0567	1920	120	38	0.0647	50 - 100 khz
DXXL120/38TXX-3(MWXX)	15	0.0567	1920	120	38	0.0687	50 - 100 khz
DXXL550/44TXX-2(MWXX)	13	0.0689	2200	550	44	0.0769	400 - 850 khz
DXXL550/44TXX-3(MWXX)	13	0.0689	2200	550	44	0.0809	400 - 850 khz
DXXL100/38TXX-2(MWXX)	16	0.0518	1600	100	38	0.0598	50 - 100 khz
DXXL100/38TXX-3(MWXX)	16	0.0518	1600	100	38	0.0638	50 - 100 khz
DXXL07/28TXX-2(MWXX)	18	0.0413	1110	7	28	0.0493	60 hz - 1 khz
DXXL07/28TXX-3(MWXX)	18	0.0413	1110	7	28	0.0533	60 hz - 1 khz
DXXL66/38TXX-2(MWXX)	18	0.0420	1056	66	38	0.0500	50 - 100 khz
DXXL66/38TXX-3(MWXX)	18	0.0420	1056	66	38	0.0540	50 - 100 khz
DXXL360/44TXX-2(MWXX)	15	0.0557	1440	360	44	0.0637	400 - 850 khz
DXXL360/44TXX-3(MWXX)	15	0.0557	1440	360	44	0.0677	400 - 850 khz
DXXL20/34TXX-2(MWXX)	19	0.0360	794	20	34	0.0440	20 khz
DXXL20/34TXX-3(MWXX)	19	0.0360	794	20	34	0.0480	20 khz
DXXL07/30TXX-2(MWXX)	20	0.0331	700	7	30	0.0411	1 - 10 khz
DXXL07/30TXX-3(MWXX)	20	0.0331	700	7	30	0.0451	1 - 10 khz
DXXL19/36TXX-2(MWXX)	21.5	0.0281	475	19	36	0.0361	20 - 50 khz
DXXL19/36TXX-3(MWXX)	21.5	0.0281	475	19	36	0.0401	20 - 50 khz
DXXL07/32TXX-2(MWXX)	21.5	0.0267	448	7	32	0.0347	10 khz
DXXL07/32TXX-3(MWXX)	21.5	0.0267	448	7	32	0.0387	10 khz
DXXL40/40TXX-2(MWXX)	22	0.0254	385	40	40	0.0334	100 - 200 khz
DXXL230/44TXX-2(MWXX)	17	0.0445	920	230	44	0.0525	400 - 850K khz
DXXL05/32TXX-2(MWXX)	23	0.0226	320	5	32	0.0306	400 - 850K khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

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Single Insulated Litz Wire FEP Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
FEP

Rating:
Temperature: 155°C
Voltage: 600V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E260198
UL 60950-1 (ed. 2), Annex U
System approvales: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 3000 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D. (in)	SUGGESTED OPERATING FREQUENCY
SXXL825/44FX-3(MWXX)	11	0.0844	3300	825	44	0.0904	400-850 khz
SXXL120/38FX-2(MWXX)	15	0.0567	1920	120	38	0.0607	50-100 khz
SXXL120/38FX-3(MWXX)	15	0.0567	1920	120	38	0.0627	50-100 khz
SXXL550/44FX-2(MWXX)	13	0.0689	2200	550	44	0.0729	400-850 khz
SXXL550/44FX-3(MWXX)	13	0.0689	2200	550	44	0.0749	400-850 khz
SXXL100/38FX-2(MWXX)	16	0.0518	1600	100	38	0.0558	50-100 khz
SXXL100/38FX-3(MWXX)	16	0.0518	1600	100	38	0.0578	50-100 khz
SXXL07/28FX-2(MWXX)	18	0.0413	1110	7	28	0.0453	60hz-1 khz
SXXL07/28FX-3(MWXX)	18	0.0413	1110	7	28	0.0473	60hz-1 khz
SXXL66/38FX-2(MWXX)	18	0.0420	1056	66	38	0.0460	50-100 khz
SXXL66/38FX-3(MWXX)	18	0.0420	1056	66	38	0.0480	50-100 khz
SXXL360/44FX-2(MWXX)	15	0.0557	1440	360	44	0.0597	400-850 khz
SXXL360/44FX-3(MWXX)	15	0.0557	1440	360	44	0.0617	400-850 khz
SXXL20/34FX-2(MWXX)	19	0.0360	794	2	34	0.0400	20 khz
SXXL20/34FX-3(MWXX)	19	0.0360	794	2	34	0.0420	20 khz
SXXL07/30FX-2(MWXX)	20	0.0331	700	7	30	0.0371	1-10 khz
SXXL07/30FX-3(MWXX)	20	0.0331	700	7	30	0.0391	1-10 khz
SXXL19/36FX-2(MWXX)	21.5	0.0281	475	19	36	0.0321	20-50 khz
SXXL19/36FX-3(MWXX)	21.5	0.0281	475	1	36	0.0341	20-50 khz
SXXL07/32FX-2(MWXX)	21.5	0.0267	448	7	32	0.0307	10 khz
SXXL07/32FX-3(MWXX)	21.5	0.0267	448	7	32	0.0327	10 khz
SXXL40/40FX-2(MWXX)	22	0.0254	385	40	40	0.0294	100-200 khz
SXXL230/44FX-2(MWXX)	17	0.0445	920	230	44	0.0485	400-850 khz
SXXL230/44FX-3(MWXX)	17	0.0445	920	230	44	0.0505	400-850 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

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Single Insulated Litz Wire ETFE Insulation

Product Construction:

Size Range:
Sizes listed are a small sample of the litz products offered. Contact the Sales Department for additional constructions.

Conductor:
Nema MW 79C
Nema MW 80C

Insulation:
DuPont™ Tefzel® ETFE

Rating:
Temperature: 155°C
Voltage: UL: 600 V

Applications:
High frequency applications
See litz wire introduction page

Compliances:
UL OBJT2 File No. E206198
UL/IEC 60950-1 (ed. 2), Annex U
IEC 61558-2-16
VDE License Nr. 136743: Class F
System Approvals: UL 1446
RXT-2 Class F
Other systems available upon request
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Please request specification sheet

PART NUMBER	EQUIV. AWG	CORE O.D. (in)	CIR. MILS	NO. STRANDS	AWG OF STRANDS	NOMINAL O.D. (in)	SUGGESTED OPERATING FREQUENCY
SXXL825/44TX-3(MWXX)	11	0.0844	3300	825	44	0.0904	400-850 khz
SXXL120/38TX-2(MWXX)	15	0.0567	1920	120	38	0.0607	50-100 khz
SXXL120/38TX-3(MWXX)	15	0.0567	1920	120	38	0.0627	50-100 khz
SXXL550/44TX-2(MWXX)	13	0.0689	2200	550	44	0.0729	400-850 khz
SXXL550/44TX-3(MWXX)	13	0.0689	2200	550	44	0.0749	400-850 khz
SXXL100/38TX-2(MWXX)	16	0.0518	1600	100	38	0.0558	50-100 khz
SXXL100/38TX-3(MWXX)	16	0.0518	1600	100	38	0.0578	50-100 khz
SXXL07/28TX-2(MWXX)	18	0.0413	1110	7	28	0.0453	60hz-1 khz
SXXL07/28TX-3(MWXX)	18	0.0413	1110	7	28	0.0473	60hz-1 khz
SXXL66/38TX-2(MWXX)	18	0.0420	1056	66	38	0.0460	50-100 khz
SXXL66/38TX-3(MWXX)	18	0.0420	1056	66	38	0.0480	50-100 khz
SXXL360/44TX-2(MWXX)	15	0.0557	1440	360	44	0.0597	400-850 khz
SXXL360/44TX-3(MWXX)	15	0.0557	1440	360	44	0.0617	400-850 khz
SXXL20/34TX-2(MWXX)	19	0.0360	794	20	34	0.0400	20 khz
SXXL20/34TX-3(MWXX)	19	0.0360	794	20	34	0.0420	20 khz
SXXL07/30TX-2(MWXX)	20	0.0331	700	7	30	0.0371	1-10 khz
SXXL07/30TX-3(MWXX)	20	0.0331	700	7	30	0.0391	1-10 khz
SXXL19/36TX-2(MWXX)	21.5	0.0281	475	19	36	0.0321	20-50 khz
SXXL19/36TX-3(MWXX)	21.5	0.0281	475	19	36	0.0341	20-50 khz
SXXL07/32TX-2(MWXX)	21.5	0.0267	448	7	32	0.0307	10 khz
SXXL07/32TX-3(MWXX)	21.5	0.0267	448	7	32	0.0327	10 khz
SXXL40/40TX-2(MWXX)	22	0.0254	385	40	40	0.0294	100-200 khz
SXXL230/44TX-2(MWXX)	17	0.0445	920	230	44	0.0485	400-850 khz
SXXL230/44TX-3(MWXX)	17	0.0445	920	230	44	0.0505	400-850 khz

PLEASE NOTE: LITZ CONDUCTOR DIAMETERS CAN VARY BY SUPPLIER, PLEASE REQUEST A SPECIFICATION SHEET TO ENSURE THE DIAMETER WILL MEET YOUR APPLICATION REQUIREMENT(S)
Due to fluctuations inherent in litz wire construction, all sizes are approximate.
Please advise our Sales Department of any special requirements or tolerances.

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Notes

Single Insulated DuPont™ ECCtreme® ECA 3000

Designed to operate under continuous high temperatures, Rubadue Wire is excited to introduce its newest product that is UL approved at 300˚C and 600 V.

This new insulated wire has excellent electrical properties at high temperatures and those properties improve when heated to 300˚C. This new perfluoropolymer insulation also offers excellent chemical resistance, increased stress crack resistance, low flammability and longer life at higher temperatures than comparable polymers making it an exceptional product for the oil and gas industry and other high temperature wire applications.

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Insulation	Size Range	Conductor	Ins. Layers	Temp. Rating	Voltage Rating	Page
ECA 3000	8-30 AWG	27% NPC	1	300°C	600 V	51
ECA 3000	8-30 AWG	2% NPC	1	250°C	600 V	52
ECA 3000	8-30 AWG	SPC	1	200°C	600 V	52

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Rubadue Wire is the first manufacturer to establish a UL 300°C AWM Style (UL AWM 11540) ranging from a 30 AWG – 8 AWG.

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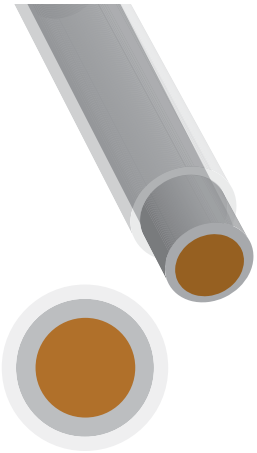
Single Insulated DuPont™ ECCtreme® ECA 3000



Product Construction:

Size Range:
8 AWG - 30 AWG

Conductor:
27% Nickel plated copper, Solid or Stranded (ASTM B355)

Insulation:
DuPont™ ECCtreme® ECA 3000

Rating:
Temperature: 300° C

Voltage:
600 V

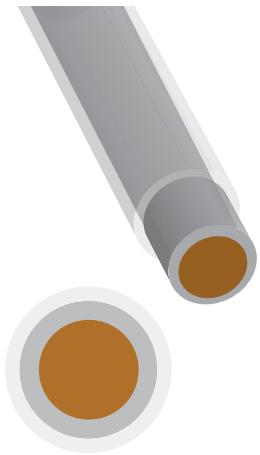
Applications:
Commonly used in applications that require a higher operating temperature.

Compliances:
UL AWM 11540,
RoHS Compliant

Tensile Strength: 2280 psi

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S8NC133ECC-10	8 (133/29)	0.1674	4.252	0.1874	4.760	57.32
S12NC19ECC-7	12 (19/25)	0.0855	2.172	0.0995	2.527	21.64
S14NC19ECC-7	14 (19/27)	0.0700	1.778	0.0840	2.134	13.12
S16NC19ECC-5	16 (19/29)	0.0546	1.387	0.0646	1.641	8.24
S25NC01ECC-5	25	0.0182	0.462	0.0282	0.716	1.33
S26NC01ECC-5	26	0.0160	0.406	0.0260	0.660	1.09
S30NC01ECC-4	30	0.0102	0.259	0.0202	0.513	0.54

Single Insulated DuPont™ ECCtreme® ECA 3000



Product Construction:

Size Range:
8 AWG - 30 AWG

Conductor:
2% Nickel plated copper, Solid or Stranded (ASTM B355)

Insulation:
DuPont™ ECCtreme® ECA 3000

Rating:
Temperature: 250° C

Voltage:
600 V

Applications:
Commonly used in applications that require a higher operating temperature.

Compliances:
UL AWM 11541, 11542 (200° C)**
RoHS Compliant

Tensile Strength: 2280 psi

300°C

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S8N133ECC-10	8(133/29)	0.1650	4.191	0.1850	4.699	58.71
S10N37ECC-10	10(37/26)	0.1070	2.718	0.1270	3.226	34.28
S12N19ECC-7	12(19/25)	0.0862	2.189	0.1002	2.545	20.76
S14N19ECC-7	14(19/27)	0.0679	1.725	0.0819	2.080	13.37
S16N19ECC-5	16(19/29)	0.0539	1.369	0.0639	1.623	8.37
S16N01ECC-5	16	0.0508	1.290	0.0608	1.544	8.65
S18N19ECC-5	18(19/30)	0.0476	1.209	0.0576	1.463	6.66
S18N01ECC-5	18	0.0403	1.024	0.0503	1.278	5.60
S20N19ECC-5	20(19/32)	0.0385	0.978	0.0485	1.232	4.40
S20N01ECC-5	20	0.0320	0.813	0.0420	1.067	3.65
S22N19ECC-5	22(19/34)	0.0295	0.749	0.0395	1.003	2.85
S22N01ECC-5	22	0.0253	0.643	0.0353	0.897	2.39
S24N19ECC-5	24(19/36)	0.0242	0.615	0.0342	0.869	1.91
S24N01ECC-5	24	0.0201	0.511	0.0301	0.765	1.60
S25N01ECC-5	25	0.0179	0.454	0.0279	0.709	1.31
S26N19ECC-5	26(19/38)	0.0190	0.483	0.0290	0.737	1.25
S26N01ECC-5	26	0.0159	0.404	0.0259	0.658	1.08
S28N01ECC-4	28	0.0126	0.320	0.0206	0.523	0.68
S30N01ECC-4	30	0.0100	0.254	0.0180	0.457	0.47

**For UL 11542 which is rated 200° C the part number will be SXXBXXECC-X which is a Silver Plated Copper conductor

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Coilbond™ Self-Bonding Overcoat

Rubadue Wire is proud to introduce its newest product CoilBond™. Designed with a proprietary self-bonding overcoat, CoilBond™ offers a heat activated permanent bond for self-supporting coils, unusual shaped and difficult coils. It also eliminates the need for bobbins, taping and/or varnishing steps which can reduce processing times and cost.

CoilBond™ is coated over Rubadue Wire existing basic, supplemental and reinforced ETFE Tefzel® and TCA insulated wire.
It is also available with alternative conductors along with litz constructions.
Potential applications are not limited to: voice coils, buzzer coils, tag coils, RFID cards, wireless charging, bobbinless coils and medical devices

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Coilbond™

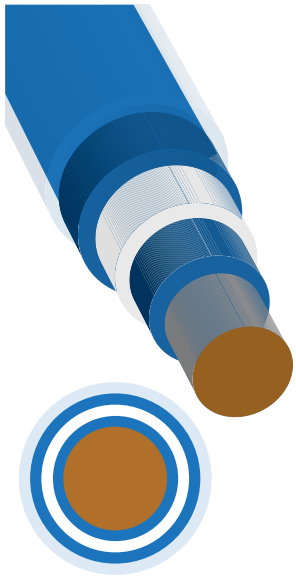
Insulation	Size Range	Avg. Wall / Layer	Ins. Layers	Temp. Rating	Voltage Rating	Page
Tefzel® ETFE	20-40 AWG	.001”+.0015”SB	3 + SB	155°C	1000 V	54
Tefzel® ETFE	18-40 AWG	.0015”+.0015”SB	3 + SB	155°C	1500 V	55
TCA 3	18-40 AWG	.0015”+.0015”SB	3 + SB	155°C	1500 V	56
Tefzel® ETFE	10-40 AWG	.001”+.0015”SB	2 + SB	155°C	600 V	57
Tefzel® ETFE	18-40 AWG	.0015”+.0015”SB	2 + SB	155°C	600 V	58
TCA 2	18-40 AWG	.0015”+.0015”SB	2 + SB	155°C	600 V	59
Tefzel® ETFE	22-40 AWG	.0015”+.0015”SB	1 + SB	155°C	600 V	60
TCA 1	22-28 AWG	.0015”+.0015”SB	1 + SB	155°C	600 V	61

DuPont™ Tefzel® ETFE - Fluoropolymer compound with excellent electrical properties, heat resistance, chemical resistance, and abrasion resistance.

TCA - Modified ETFE - designed for more economical/efficient manufacturing. Comes standard in one color, most sizes readily available.

Coilbond™ - offers a heat activated permanent bond for self-supporting coils, unusual shaped, and difficult coils.

Triple Insulated ETFE .001” / Layer with .0015” Self-Bonding Overcoat



COILBOND™

Product Construction:

Size Range:
20 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155° C
Voltage: 1000 V

Applications:
Thinnest TIW on the market
Size/Safety critical reinforced isolation
Pulse and signal transformers

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T20A01TXXX-1-SB-1.5	20	0.0320	0.813	0.0410	1.041	3.43
T21A01TXXX-1-SB-1.5	21	0.0285	0.724	0.0375	0.953	2.77
T22A01TXXX-1-SB-1.5	22	0.0253	0.643	0.0343	0.871	2.23
T23A01TXXX-1-SB-1.5	23	0.0226	0.574	0.0316	0.803	1.81
T24A01TXXX-1-SB-1.5	24	0.0201	0.511	0.0291	0.739	1.45
T25A01TXXX-1-SB-1.5	25	0.0179	0.455	0.0269	0.683	1.19
T26A01TXXX-1-SB-1.5	26	0.0159	0.404	0.0249	0.632	0.96
T27A01TXXX-1-SB-1.5	27	0.0142	0.361	0.0232	0.589	0.79
T28A01TXXX-1-SB-1.5	28	0.0126	0.320	0.0216	0.549	0.65
T29A01TXXX-1-SB-1.5	29	0.0113	0.287	0.0203	0.516	0.54
T30A01TXXX-1-SB-1.5	30	0.0100	0.254	0.0190	0.483	0.44
T31A01TXXX-1-SB-1.5	31	0.0089	0.226	0.0179	0.455	0.37
T32A01TXXX-1-SB-1.5	32	0.0080	0.203	0.0170	0.432	0.31
T33A01TXXX-1-SB-1.5	33	0.0071	0.180	0.0161	0.409	0.26
T34A01TXXX-1-SB-1.5	34	0.0063	0.160	0.0153	0.389	0.22
T35A01TXXX-1-SB-1.5	35	0.0056	0.142	0.0146	0.371	0.19
T36A01TXXX-1-SB-1.5	36	0.0050	0.127	0.0140	0.356	0.17
T37A01TXXX-1-SB-1.5	37	0.0045	0.114	0.0135	0.343	0.15
T38A01TXXX-1-SB-1.5	38	0.0040	0.102	0.0130	0.330	0.13
T39A01TXXX-1-SB-1.5	39	0.0035	0.089	0.0125	0.318	0.11
T40A01TXXX-1-SB-1.5	40	0.0031	0.079	0.0121	0.307	0.10

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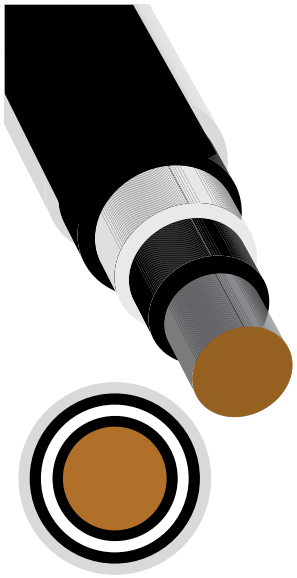
Triple Insulated ETFE .0015” / Layer with .0015” Self-Bonding Overcoat



Product Construction:

Size Range:
18 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment

Applications:
High power flyback converter for LED PDA’s / Lighting
Medical / Dental / Electronic

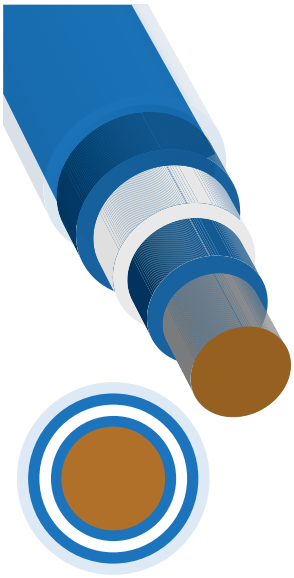
Compliances:
UL OBJT2 File No. E206198
UL 60950-1, Annex U.
UL 60601-1 (Ed. 3)
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 7000 V

COILBOND™

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
T18A01TXXX-1.5-SB-1.5	18	0.0403	1.024	0.0523	1.328	5.52
T19A01TXXX-1.5-SB-1.5	19	0.0359	0.912	0.0479	1.217	4.44
T20A01TXXX-1.5-SB-1.5	20	0.0320	0.813	0.0440	1.118	3.57
T21A01TXXX-1.5-SB-1.5	21	0.0285	0.724	0.0405	1.029	2.90
T22A01TXXX-1.5-SB-1.5	22	0.0253	0.643	0.0373	0.947	2.34
T23A01TXXX-1.5-SB-1.5	23	0.0226	0.574	0.0346	0.879	1.92
T24A01TXXX-1.5-SB-1.5	24	0.0201	0.511	0.0321	0.815	1.56
T25A01TXXX-1.5-SB-1.5	25	0.0179	0.455	0.0299	0.759	1.28
T26A01TXXX-1.5-SB-1.5	26	0.0159	0.404	0.0279	0.709	1.05
T27A01TXXX-1.5-SB-1.5	27	0.0142	0.361	0.0262	0.665	0.87
T28A01TXXX-1.5-SB-1.5	28	0.0126	0.320	0.0246	0.625	0.72
T29A01TXXX-1.5-SB-1.5	29	0.0113	0.287	0.0233	0.592	0.61
T30A01TXXX-1.5-SB-1.5	30	0.0100	0.254	0.0220	0.559	0.51
T31A01TXXX-1.5-SB-1.5	31	0.0089	0.226	0.0209	0.531	0.43
T32A01TXXX-1.5-SB-1.5	32	0.0080	0.203	0.0200	0.508	0.37
T33A01TXXX-1.5-SB-1.5	33	0.0071	0.180	0.0191	0.485	0.32
T34A01TXXX-1.5-SB-1.5	34	0.0063	0.160	0.0183	0.465	0.28
T35A01TXXX-1.5-SB-1.5	35	0.0056	0.142	0.0176	0.447	0.25
T36A01TXXX-1.5-SB-1.5	36	0.0050	0.127	0.0170	0.432	0.21
T37A01TXXX-1.5-SB-1.5	37	0.0045	0.114	0.0165	0.419	0.20
T38A01TXXX-1.5-SB-1.5	38	0.0040	0.102	0.0160	0.406	0.18
T39A01TXXX-1.5-SB-1.5	39	0.0035	0.089	0.0155	0.39	0.16
T40A01TXXX-1.5-SB-1.5	40	0.0031	0.079	0.0151	0.38	0.15

Triple Insulated TCA3 Layer with .0015” Self-Bonding Overcoat



Product Construction:

Size Range:
18 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155° C
Voltage:
UL: 1500 V for electronic equipment
UL: 707 V for medical equipment

Applications:
Various SMPS products
Electronic / Medical / Dental

Compliances:
UL OBJT2 File No. E206198
UL 60950-1, (Ed. 2)Annex U.
UL 60601-1 (Ed. 3)
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 7000 V

COILBOND™

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA3 18AWG-SB-1.5	18	0.0403	1.024	0.0523	1.328	5.52
TCA3 19AWG-SB-1.5	19	0.0359	0.912	0.0479	1.217	4.44
TCA3 20AWG-SB-1.5	20	0.0320	0.813	0.0440	1.118	3.57
TCA3 21AWG-SB-1.5	21	0.0285	0.724	0.0405	1.029	2.90
TCA3 22AWG-SB-1.5	22	0.0253	0.643	0.0373	0.947	2.34
TCA3 23AWG-SB-1.5	23	0.0226	0.574	0.0346	0.879	1.92
TCA3 24AWG-SB-1.5	24	0.0201	0.511	0.0321	0.815	1.56
TCA3 25AWG-SB-1.5	25	0.0179	0.455	0.0299	0.759	1.28
TCA3 26AWG-SB-1.5	26	0.0159	0.404	0.0279	0.709	1.05
TCA3 27AWG-SB-1.5	27	0.0142	0.361	0.0262	0.665	0.87
TCA3 28AWG-SB-1.5	28	0.0126	0.320	0.0246	0.625	0.72
TCA3 29AWG-SB-1.5	29	0.0113	0.287	0.0233	0.592	0.61
TCA3 30AWG-SB-1.5	30	0.0100	0.254	0.0220	0.559	0.51
TCA3 31AWG-SB-1.5	31	0.0089	0.226	0.0209	0.531	0.43
TCA3 32AWG-SB-1.5	32	0.0080	0.203	0.0200	0.508	0.37
TCA3 33AWG-SB-1.5	33	0.0071	0.180	0.0191	0.485	0.32
TCA3 34AWG-SB-1.5	34	0.0063	0.160	0.0183	0.465	0.28
TCA3 35AWG-SB-1.5	35	0.0056	0.142	0.0176	0.447	0.25
TCA3 36AWG-SB-1.5	36	0.0050	0.127	0.0170	0.432	0.21
TCA3 37AWG-SB-1.5	37	0.0045	0.114	0.0165	0.419	0.20
TCA3 38AWG-SB-1.5	38	0.0040	0.102	0.0160	0.406	0.18
TCA3 39AWG-SB-1.5	39	0.0035	0.089	0.0155	0.394	0.16
TCA3 40AWG-SB-1.5	40	0.0031	0.079	0.0151	0.384	0.15

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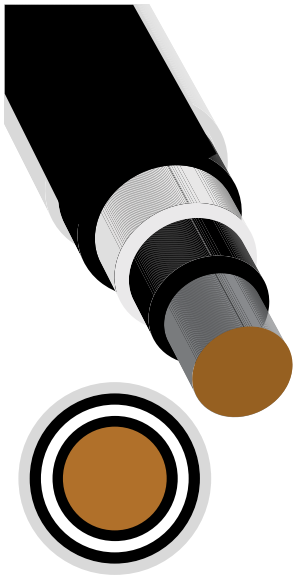
Double Insulated ETFE .001” / Layer with .0015” Self-Bonding Overcoat



Product Construction:

Size Range:
30 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Thinnest DIW on the market
Size/Safety critical supplementary isolation
Telecom

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed.2), Annex U
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 3000 V

COILBOND™

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D30A01TXX-1-SB-1.5	30	0.0100	0.254	0.0170	0.432	0.40
D31A01TXX-1-SB-1.5	31	0.0089	0.226	0.0159	0.404	0.33
D32A01TXX-1-SB-1.5	32	0.0080	0.203	0.0150	0.381	0.28
D33A01TXX-1-SB-1.5	33	0.0071	0.180	0.0141	0.358	0.24
D34A01TXX-1-SB-1.5	34	0.0063	0.160	0.0133	0.338	0.20
D35A01TXX-1-SB-1.5	35	0.0056	0.142	0.0126	0.320	0.16
D36A01TXX-1-SB-1.5	36	0.0050	0.127	0.0120	0.305	0.14
D37A01TXX-1-SB-1.5	37	0.0045	0.114	0.0115	0.292	0.12
D38A01TXX-1-SB-1.5	38	0.0040	0.102	0.0110	0.279	0.11
D39A01TXX-1-SB-1.5	39	0.0035	0.089	0.0105	0.267	0.09
D40A01TXX-1-SB-1.5	40	0.0031	0.079	0.0101	0.257	0.08

Double Insulated ETFE .0015” / Layer with .0015” Self-Bonding Overcoat

Product Construction:

Size Range:
18 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Supplementary isolation applications
Medical/Dental 30/40 AWG only

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U.
UL 60601-1 (Ed. 3)
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
D18A01TXX-1.5-SB-1.5	18	0.0403	1.024	0.0493	1.252	5.34
D19A01TXX-1.5-SB-1.5	19	0.0359	0.912	0.0449	1.140	4.28
D20A01TXX-1.5-SB-1.5	20	0.0320	0.813	0.0410	1.041	3.43
D21A01TXX-1.5-SB-1.5	21	0.0285	0.724	0.0375	0.953	2.77
D22A01TXX-1.5-SB-1.5	22	0.0253	0.643	0.0343	0.871	2.23
D23A01TXX-1.5-SB-1.5	23	0.0226	0.574	0.0316	0.803	1.81
D24A01TXX-1.5-SB-1.5	24	0.0201	0.511	0.0291	0.739	1.45
D25A01TXX-1.5-SB-1.5	25	0.0179	0.455	0.0269	0.683	1.19
D26A01TXX-1.5-SB-1.5	26	0.0159	0.404	0.0249	0.632	0.96
D27A01TXX-1.5-SB-1.5	27	0.0142	0.361	0.0232	0.589	0.75
D28A01TXX-1.5-SB-1.5	28	0.0126	0.320	0.0216	0.549	0.64
D29A01TXX-1.5-SB-1.5	29	0.0113	0.287	0.0203	0.516	0.54
D30A01TXX-1.5-SB-1.5	30	0.0100	0.254	0.0190	0.483	0.44
D31A01TXX-1.5-SB-1.5	31	0.0089	0.226	0.0179	0.455	0.37
D32A01TXX-1.5-SB-1.5	32	0.0080	0.203	0.0170	0.432	0.31
D33A01TXX-1.5-SB-1.5	33	0.0071	0.180	0.0161	0.409	0.26
D34A01TXX-1.5-SB-1.5	34	0.0063	0.160	0.0153	0.389	0.22
D35A01TXX-1.5-SB-1.5	35	0.0056	0.142	0.0146	0.371	0.19
D36A01TXX-1.5-SB-1.5	36	0.0050	0.127	0.0140	0.356	0.17
D37A01TXX-1.5-SB-1.5	37	0.0045	0.114	0.0135	0.343	0.15
D38A01TXX-1.5-SB-1.5	38	0.0040	0.102	0.0130	0.330	0.13
D39A01TXX-1.5-SB-1.5	39	0.0035	0.089	0.0125	0.318	0.11
D40A01TXX-1.5-SB-1.5	40	0.0031	0.079	0.0121	0.307	0.10

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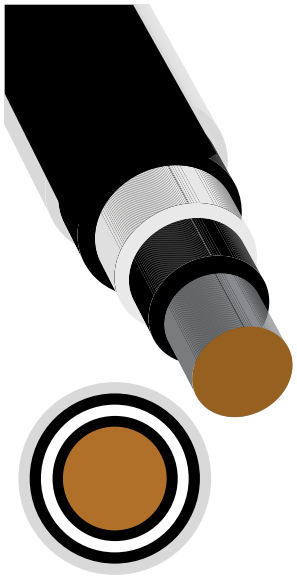
Double Insulated TCA2 Layer with .0015” Self-Bonding Overcoat



COILBOND™

Product Construction:

Size Range:
18 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155°C
Voltage: 600 V

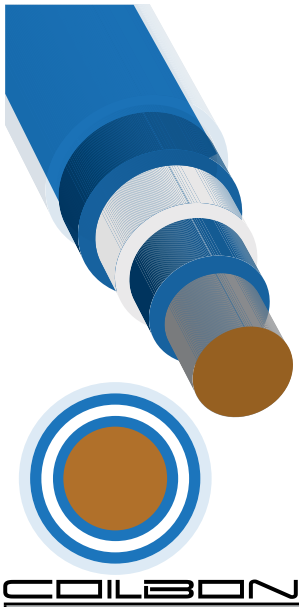
Applications:
Telecom/Electronic
Supplementary isolation applications
Medical/Dental

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2) Annex U.
UL 60601-1 (Ed. 3)
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 4500 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA2 18AWG-SB-1.5	18	0.0403	1.024	0.0493	1.252	5.34
TCA2 19AWG-SB-1.5	19	0.0359	0.912	0.0449	1.140	4.28
TCA2 20AWG-SB-1.5	20	0.0320	0.813	0.0410	1.041	3.43
TCA2 21AWG-SB-1.5	21	0.0285	0.724	0.0375	0.953	2.77
TCA2 22AWG-SB-1.5	22	0.0253	0.643	0.0343	0.871	2.23
TCA2 23AWG-SB-1.5	23	0.0226	0.574	0.0316	0.803	1.81
TCA2 24AWG-SB-1.5	24	0.0201	0.511	0.0291	0.739	1.45
TCA2 25AWG-SB-1.5	25	0.0179	0.455	0.0269	0.683	1.19
TCA2 26AWG-SB-1.5	26	0.0159	0.404	0.0249	0.632	0.96
TCA2 27AWG-SB-1.5	27	0.0142	0.361	0.0232	0.589	0.75
TCA2 28AWG-SB-1.5	28	0.0126	0.320	0.0216	0.549	0.64
TCA2 29AWG-SB-1.5	29	0.0113	0.287	0.0203	0.516	0.54
TCA2 30AWG-SB-1.5	30	0.0100	0.254	0.0190	0.483	0.44
TCA2 31AWG-SB-1.5	31	0.0089	0.226	0.0179	0.455	0.37
TCA2 32AWG-SB-1.5	32	0.0080	0.203	0.0170	0.432	0.31
TCA2 33AWG-SB-1.5	33	0.0071	0.180	0.0151	0.384	0.27
TCA2 34AWG-SB-1.5	34	0.0063	0.160	0.0143	0.363	0.23
TCA2 35AWG-SB-1.5	35	0.0056	0.142	0.0136	0.345	0.20
TCA2 36AWG-SB-1.5	36	0.0050	0.127	0.0130	0.330	0.16
TCA2 37AWG-SB-1.5	37	0.0045	0.114	0.0125	0.318	0.14
TCA2 38AWG-SB-1.5	38	0.0040	0.102	0.0120	0.305	0.13
TCA2 39AWG-SB-1.5	39	0.0035	0.089	0.0115	0.292	0.11
TCA2 40AWG-SB-1.5	40	0.0031	0.079	0.0111	0.282	0.10

Single Insulated ETFE .0015” / Layer with .0015” Self-Bonding Overcoat



COILBOND™

Product Construction:

Size Range:
22 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U.
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 2000 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S22A01TX-1.5-SB-1.5	22	0.0253	0.643	0.0313	0.795	2.11
S23A01TX-1.5-SB-1.5	23	0.0226	0.574	0.0286	0.726	1.70
S24A01TX-1.5-SB-1.5	24	0.0201	0.511	0.0261	0.663	1.37
S25A01TX-1.5-SB-1.5	25	0.0179	0.455	0.0239	0.607	1.10
S26A01TX-1.5-SB-1.5	26	0.0159	0.404	0.0219	0.556	0.87
S27A01TX-1.5-SB-1.5	27	0.0142	0.361	0.0202	0.513	0.71
S28A01TX-1.5-SB-1.5	28	0.0126	0.320	0.0186	0.472	0.58
S29A01TX-1.5-SB-1.5	29	0.0113	0.287	0.0173	0.439	0.45
S30A01TX-1.5-SB-1.5	30	0.0100	0.254	0.0160	0.406	0.38
S31A01TX-1.5-SB-1.5	31	0.0089	0.226	0.0149	0.378	0.32
S32A01TX-1.5-SB-1.5	32	0.0080	0.203	0.0140	0.356	0.27
S33A01TX-1.5-SB-1.5	33	0.0071	0.180	0.0131	0.333	0.22
S34A01TX-1.5-SB-1.5	34	0.0063	0.160	0.0123	0.312	0.18
S35A01TX-1.5-SB-1.5	35	0.0056	0.142	0.0116	0.295	0.15
S36A01TX-1.5-SB-1.5	36	0.0050	0.127	0.0110	0.279	0.13
S37A01TX-1.5-SB-1.5	37	0.0045	0.114	0.0105	0.267	0.11
S38A01TX-1.5-SB-1.5	38	0.0040	0.102	0.0100	0.254	0.10
S39A01TX-1.5-SB-1.5	39	0.0035	0.089	0.0095	0.241	0.08
S40A01TX-1.5-SB-1.5	40	0.0031	0.079	0.0091	0.231	0.07

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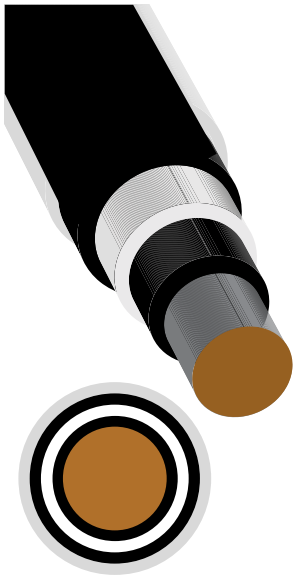
Double Insulated TCA1 Layer with .0015” Self-Bonding Overcoat



Product Construction:

Size Range:
22 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
DuPont™ Tefzel® ETFE w/ Proprietary Self-Bonding Overcoat

Rating:
Temperature: 155°C
Voltage: 600 V

Applications:
Telecom/Electronic
Basic isolation applications

Compliances:
UL OBJT2 File No. E206198
UL 60950-1 (Ed. 2), Annex U.
RoHS Compliant

Tensile Strength: 6500 psi
Breakdown: Approx. 2000 V

COILBOND™

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
TCA1 22AWG-SB-1.5	22	0.0253	0.643	0.0313	0.795	2.11
TCA1 23AWG-SB-1.5	23	0.0226	0.574	0.0286	0.726	1.70
TCA1 24AWG-SB-1.5	24	0.0201	0.511	0.0261	0.663	1.37
TCA1 25AWG-SB-1.5	25	0.0179	0.455	0.0239	0.607	1.10
TCA1 26AWG-SB-1.5	26	0.0159	0.404	0.0219	0.556	0.87
TCA1 27AWG-SB-1.5	27	0.0142	0.361	0.0202	0.513	0.71
TCA1 28AWG-SB-1.5	28	0.0126	0.320	0.0186	0.472	0.58
TCA1 29AWG-SB-1.5	29	0.0113	0.287	0.0173	0.439	0.45
TCA1 30AWG-SB-1.5	30	0.0100	0.254	0.0160	0.406	0.38
TCA1 31AWG-SB-1.5	31	0.0089	0.226	0.0149	0.378	0.32
TCA1 32AWG-SB-1.5	32	0.0080	0.203	0.0140	0.356	0.27
TCA1 33AWG-SB-1.5	33	0.0071	0.180	0.0131	0.333	0.22
TCA1 34AWG-SB-1.5	34	0.0063	0.160	0.0123	0.312	0.18
TCA1 35AWG-SB-1.5	35	0.0056	0.142	0.0116	0.295	0.15
TCA1 36AWG-SB-1.5	36	0.0050	0.127	0.0110	0.279	0.13
TCA1 37AWG-SB-1.5	37	0.0045	0.114	0.0105	0.267	0.11
TCA1 38AWG-SB-1.5	38	0.0040	0.102	0.0100	0.254	0.10
TCA1 39AWG-SB-1.5	39	0.0035	0.089	0.0095	0.241	0.08
TCA1 40AWG-SB-1.5	40	0.0031	0.079	0.0091	0.231	0.07

UL AWM Styles

Rubadue Wire is approved to manufacture according to several UL AWM (Appliance Wiring Material) specifications. Many different constructions of wires and cables make up the AWM category, including single and multi-conductor constructions of a wide range types, sizes, insulations, ratings, and uses.

AWM No.	Insulation	Size Range	Min. Avg. Wall	Temp. Rating	Voltage Rating	Page
1007	PVC	16 – 30 AWG	.015”	80°C	300 V	63
1015	PVC	10 – 26 AWG	.030”	105°C	600 V	64
1226	FEP	14 – 32 AWG	.008”	80°C	NSV	65
1227	FEP	10 – 32 AWG	.008”	105°C	NSV	65
1330	FEP	10 – 30 AWG	.020”	200°C	600 V	66
1331	FEP	10 – 30 AWG	.020”	150°C	600 V	67
1332	FEP	10 – 30 AWG	.013”	200°C	300 V	68
1333	FEP	10 – 30 AWG	.013”	150°C	300 V	69
1371	FEP	6 – 36 AWG	.0055”	105°C	NSV	70
1508	ETFE	20 – 32 AWG	.0055”	105°C	30 V	71
1513	ETFE	20 – 36 AWG	.005”	105°C	NSV	71
1516	ETFE	10 – 30 AWG	.004”	105°C	NSV	72
1517	ETFE	20 – 32 AWG	.006”	105°C	NSV	71
1523	ETFE	20 – 32 AWG	.005”	105°C	NSV	71
1538	FEP	6 – 36 AWG	.0055”	105°C	125 V	73
1558	ETFE	16 – 34 AWG	.004”	125°C	NSV	72
1571	PVC	16 – 40 AWG	.002”	80°C	30 V	74
1586	ETFE	6 – 36 AWG	.0055”	105°C	NSV	75
1609	ETFE	6 – 36 AWG	.0055”	105°C	125 V	75
1643	ETFE	10 – 30 AWG	.013”	150°C	300 V	76
1644	ETFE	10 – 30 AWG	.020”	150°C	600 V	76
1671	ETFE	10 – 32 AWG	.010”	150°C	300 V	77
1679	PVC	16 – 30 AWG	.010”	90°C	300 V	78
1692	PVC	10 – 40 AWG	.004”	105°C	30 V	79
1716	FEP	16 – 40 AWG	.0055”	150°C	150 V	80
1729	PVC	16 – 30 AWG	.009”	80°C	300 V	81
1730	PVC	16 – 30 AWG	.009”	90°C	300 V	81
1731	PVC	16 – 30 AWG	.009”	105°C	300 V	81
1809	PVC	18 – 36 AWG	.006”	80°C	150 V	82
1821	PVC	16 – 30 AWG	.009”	90°C	300 V	81
1829	ETFE	10 – 28 AWG	.020”	150°C	600 V	83
1863	ETFE	10 – 28 AWG	.013”	125°C	300 V	84
1864	ETFE	10 – 28 AWG	.020”	125°C	600 V	85
1873	PVC	18 – 36 AWG	.006”	105°C	300 V	82
1886	FEP	10 – 30 AWG	.010”	150°C	300 V	86
1887	FEP	10 – 30 AWG	.014”	150°C	600 V	87
1894	FEP	>40 AWG	.003”	200°C	30 V	88
1990	ETFE	10 – 24 AWG	.020”	105°C	600 V	89
10045	FEP	14 – 36 AWG	.008”	150°C	NSV	90
10086	ETFE	10 – 36 AWG	.010”	200°C	600 V	91
10109	ETFE	10 – 36 AWG	.006”	200°C	300 V	92
10125	ETFE	10 – 36 AWG	.006”	150°C	300 V	93
10126	ETFE	10 – 36 AWG	.010”	150°C	600 V	94
10316	ETFE	6 – 40 AWG	.0055”	125°C	600 V	95
11540	ECA 3000	8 – 30 AWG	.004”	300°C	600 V	51
11541	ECA 3000	8 – 30 AWG	.004”	250°C	600 V	52
11542	ECA 3000	8 – 30 AWG	.004”	200°C	600 V	52

NSV is the abbreviation for “not specified” by UL

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UL AWM Style 1007

Product Construction:

Size Range:
16 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

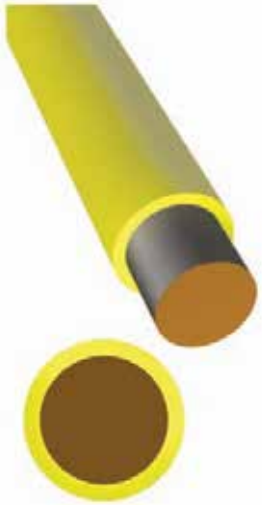
Rating:
Temperature: 80° C
Voltage: 300 V / 600 V Peak

Applications:
Internal wiring of appliances

Compliances:
UL AWM Style 1007
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01VX-16	16	0.0508	1.290	0.0828	2.103	9.84
S16A19VX-16	16(19/29)	0.0539	1.369	0.0859	2.182	9.61
S18A01VX-16	18	0.0403	1.024	0.0723	1.836	6.63
S18A19VX-16	18(19/30)	0.0476	1.209	0.0796	2.022	7.80
S20A01VX-16	20	0.0320	0.813	0.0640	1.626	4.55
S20A07VX-16	20(7/28)	0.0390	0.991	0.0710	1.803	4.99
S20A19VX-16	20(19/32)	0.0385	0.978	0.0705	1.791	5.41
S22A01VX-16	22	0.0253	0.643	0.0573	1.455	3.20
S22A07VX-16	22(7/30)	0.0300	0.762	0.0620	1.575	3.58
S22A19VX-16	22(19/32)	0.0295	0.749	0.0615	1.562	3.71
S24A01VX-16	24	0.0201	0.511	0.0521	1.323	2.32
S24A07VX-16	24(7/32)	0.0240	0.610	0.0560	1.423	2.65
S24A19VX-16	24(19/36)	0.0242	0.615	0.0562	1.427	2.69
S26A01VX-16	26	0.0159	0.404	0.0479	1.217	1.73
S26A07VX-16	26(7/34)	0.0190	0.483	0.0510	1.295	1.84
S26A19VX-16	26(19/38)	0.0190	0.483	0.0510	1.295	1.95
S28A01VX-16	28	0.0126	0.320	0.0446	1.133	1.35
S28A07VX-16	28(7/36)	0.0150	0.381	0.0470	1.194	1.43
S30A01VX-16	30	0.0100	0.254	0.0420	1.067	1.09
S30A07VX-16	30(7/38)	0.0120	0.305	0.0440	1.118	1.17

UL AWM Style 1015



Product Construction:

Size Range:
10 AWG - 26 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
Temperature: 80° C, 90° C, 105° C
Voltage: 600 V / 750 DC / 2500 V Peak

Applications:
Internal wiring of appliances

Compliance:
UL AWM Style 1015
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01VX-32	10	0.1019	2.588	0.1659	4.214	39.57
S10A37VX-32	10(37/26)	0.1070	2.718	0.1710	4.343	37.33
S12A01VX-32	12	0.0808	2.052	0.1448	3.678	26.66
S12A19VX-32	12(19/25)	0.0862	2.189	0.1502	3.815	25.99
S14A01VX-32	14	0.0641	1.628	0.1281	3.254	18.24
S14A19VX-32	14(19/27)	0.0679	1.725	0.1319	3.350	17.87
S16A01VX-32	16	0.0508	1.290	0.1148	2.916	12.84
S16A19VX-32	16(19/29)	0.0539	1.369	0.1179	2.995	12.71
S18A01VX-32	18	0.0403	1.024	0.1043	2.649	9.32
S18A19VX-32	18(19/30)	0.0476	1.209	0.1116	2.835	10.71
S20A01VX-32	20	0.0320	0.813	0.0960	2.438	6.98
S20A07VX-32	20(7/28)	0.0390	0.991	0.1030	2.616	7.64
S20A19VX-32	20(19/32)	0.0385	0.978	0.1025	2.604	8.04
S22A01VX-32	22	0.0253	0.643	0.0893	2.268	5.42
S22A07VX-32	22(7/30)	0.0300	0.762	0.0940	2.388	5.95
S22A19VX-32	22(19/34)	0.0295	0.749	0.0935	2.375	6.07
S24A01VX-32	24	0.0201	0.511	0.0841	2.136	4.39
S24A07VX-32	24(7/32)	0.0240	0.610	0.0880	2.235	4.83
S24A19VX-32	24(19/36)	0.0242	0.615	0.0882	2.240	4.89
S26A01VX-32	26	0.0159	0.404	0.0799	2.029	3.68
S26A07VX-32	26(7/34)	0.0190	0.483	0.0830	2.108	3.87
S26A19VX-32	26(19/38)	0.0190	0.483	0.0830	2.108	3.99

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UL AWM Style 1226, 1227

Product Construction:

Size Range:
UL 1226: 14 AWG - 32 AWG
UL 1227: 10 AWG - 32 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

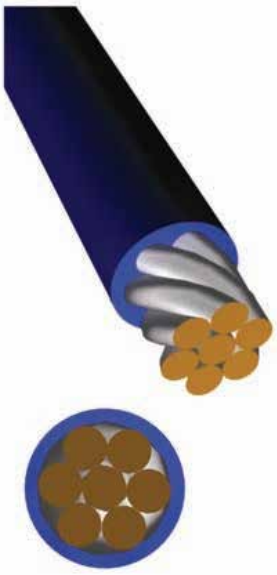
Rating:
UL 1226: Temperature: 80° C
UL 1227: Temperature: 105° C
Voltage: NSV

Applications:
Office appliances

Compliance:
UL AWM Style 1226, 1227
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01FX-14	10	0.1019	2.588	0.1299	3.299	36.30
S10A37FX-14	10(37/26)	0.1070	2.718	0.1350	3.429	33.96
S12A01FX-14	12	0.0808	2.052	0.1088	2.764	22.17
S12A19FX-14	12(19/25)	0.0862	2.189	0.1142	2.901	23.01
S14A01FX-14	14	0.0641	1.628	0.0921	2.339	15.68
S14A19FX-14	14(19/27)	0.0679	1.725	0.0959	2.436	15.24
S16A01FX-14	16	0.0508	1.290	0.0788	2.002	10.53
S16A19FX-14	16(19/29)	0.0539	1.369	0.0819	2.080	10.34
S18A01FX-14	18	0.0403	1.024	0.0683	1.735	7.20
S18A19FX-14	18(19/30)	0.0476	1.209	0.0756	1.920	8.46
S20A01FX-9	20	0.0320	0.813	0.0500	1.270	4.21
S20A19FX-9	20(19/32)	0.0385	0.978	0.0565	1.435	5.03
S22A01FX-9	22	0.0253	0.643	0.0433	1.100	2.87
S22A19FX-9	22(19/34)	0.0295	0.749	0.0475	1.207	3.37
S24A01FX-9	24	0.0201	0.511	0.0381	0.968	2.01
S24A19FX-9	24(19/36)	0.0242	0.615	0.0422	1.072	2.37
S26A01FX-9	26	0.0159	0.404	0.0339	0.861	1.44
S26A19FX-9	26(19/38)	0.0190	0.483	0.0370	0.940	1.67
S28A01FX-9	28	0.0126	0.320	0.0306	0.777	1.06
S28A07FX-9	28(7/36)	0.0150	0.381	0.0330	0.838	1.14
S28A19FX-9	28(19/40)	0.0152	0.386	0.0332	0.843	1.22
S30A01FX-9	30	0.0100	0.254	0.0280	0.711	0.82
S30A07FX-9	30(7/38)	0.0120	0.305	0.0300	0.762	0.88
S30A19FX-9	30(19/42)	0.0120	0.305	0.0300	0.762	0.94
S32A01FX-9	32	0.0080	0.203	0.0260	0.660	0.65

UL AWM Style 1330



Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
"A" in part number
Solid or stranded (ASTM B-33/ASTM B-286)
Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 200° C
Voltage: 600 V

Applications:
Internal wiring of appliances
Suitable for immersion in gasoline

Compliances:
UL AWM Style 1330
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-21	10(37/26)	0.1070	2.718	0.1490	3.785	36.94
S12A19FX-21	12(19/25)	0.0862	2.189	0.1282	3.256	25.55
S14B19FX-21	14(19/27)	0.0679	1.725	0.1099	2.791	17.40
S16A01FX-21	16	0.0508	1.290	0.0928	2.357	12.33
S16B19FX-21	16(19/29)	0.0539	1.369	0.0959	2.436	12.21
S18A01FX-21	18	0.0403	1.024	0.0823	2.090	8.78
S18B19FX-21	18(19/30)	0.0476	1.209	0.0896	2.276	10.19
S20A01FX-21	20	0.0320	0.813	0.0740	1.880	6.44
S20B19FX-21	20(19/32)	0.0385	0.978	0.0805	2.045	7.50
S22A01FX-21	22	0.0253	0.643	0.0673	1.709	4.86
S22B19FX-21	22(19/34)	0.0295	0.749	0.0715	1.816	5.51
S24A01FX-21	24	0.0201	0.511	0.0621	1.577	3.81
S24B07FX-21	24(7/32)	0.0240	0.610	0.0660	1.676	4.27
S24B19FX-21	24(19/36)	0.0242	0.615	0.0662	1.681	4.32
S26A01FX-21	26	0.0159	0.404	0.0579	1.471	3.09
S26B07FX-21	26(7/34)	0.0190	0.483	0.0610	1.549	3.29
S26B19FX-21	26(19/38)	0.0190	0.483	0.0610	1.549	3.41
S28B01FX-21	28	0.0126	0.320	0.0546	1.387	2.60
S28B07FX-21	28(7/36)	0.0150	0.381	0.0570	1.448	2.76
S28B19FX-21	28(19/40)	0.0152	0.386	0.0572	1.453	2.85
S30B01FX-21	30	0.0100	0.254	0.0520	1.321	2.26
S30B07FX-21	30(7/38)	0.0120	0.305	0.0540	1.372	2.39
S30B19FX-21	30(19/42)	0.0120	0.305	0.0540	1.372	2.45

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UL AWM Style 1331

Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 150° C
Voltage: 600 V

Applications:
Internal wiring of appliances
Suitable for immersion in gasoline

Compliances:
UL AWM Style 1331
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

**Items marked can also be listed as 200° C UL AWM 1330

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-21**	10(37/26)	0.1070	2.718	0.1490	3.785	36.94
S12A19FX-21**	12(19/25)	0.0862	2.189	0.1282	3.256	25.55
S14A19FX-21	14(19/27)	0.0679	1.725	0.1099	2.791	17.40
S16A01FX-21**	16	0.0508	1.290	0.0928	2.357	12.33
S16A19FX-21	16(19/29)	0.0539	1.369	0.0959	2.436	12.21
S18A01FX-21**	18	0.0403	1.024	0.0823	2.090	8.78
S18A19FX-21	18(19/30)	0.0476	1.209	0.0896	2.276	10.19
S20A01FX-21**	20	0.0320	0.813	0.0740	1.880	6.44
S20A19FX-21	20(19/32)	0.0385	0.978	0.0805	2.045	7.50
S22A01FX-21**	22	0.0253	0.643	0.0673	1.709	4.86
S22A19FX-21	22(19/34)	0.0295	0.749	0.0715	1.816	5.51
S24A01FX-21**	24	0.0201	0.511	0.0621	1.577	3.81
S24A07FX-21	24(7/32)	0.0240	0.610	0.0660	1.676	4.27
S24A19FX-21	24(19/36)	0.0242	0.615	0.0662	1.681	4.32
S26A01FX-21**	26	0.0159	0.404	0.0579	1.471	3.09
S26A07FX-21	26(7/34)	0.0190	0.483	0.0610	1.549	3.29
S26A19FX-21	26(19/38)	0.0190	0.483	0.0610	1.549	3.41
S28A01FX-21	28	0.0126	0.320	0.0546	1.387	2.60
S28A07FX-21	28(7/36)	0.0150	0.381	0.0570	1.448	2.76
S28A19FX-21	28(19/40)	0.0152	0.386	0.0572	1.453	2.85
S30A01FX-21	30	0.0100	0.254	0.0520	1.321	2.26
S30A07FX-21	30(7/38)	0.0120	0.305	0.0540	1.372	2.39
S30A19FX-21	30(19/42)	0.0120	0.305	0.0540	1.372	2.45

UL AWM Style 1332

Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
"A" in Part Number
Solid or stranded (ASTM B-33/ASTM B-286)
Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 200° C
Voltage: 300 V / 600 V Peak

Applications:
Internal wiring of appliances
Suitable for immersion in gasoline

Compliances:
UL AWM Style 1332
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-15	10(37/26)	0.1070	2.718	0.1370	3.480	34.37
S12A19FX-15	12(19/25)	0.0862	2.189	0.1162	2.951	23.35
S14B19FX-14	14(19/27)	0.0679	1.725	0.0959	2.436	15.24
S16A01FX-14	16	0.0508	1.290	0.0788	2.002	10.53
S16B19FX-14	16(19/29)	0.0539	1.369	0.0819	2.080	10.34
S18A01FX-14	18	0.0403	1.024	0.0683	1.735	7.20
S18B19FX-14	18(19/30)	0.0476	1.209	0.0756	1.920	8.46
S20A01FX-14	20	0.0320	0.813	0.0600	1.524	5.03
S20B19FX-14	20(19/32)	0.0385	0.978	0.0665	1.689	5.96
S22A01FX-14	22	0.0253	0.643	0.0533	1.354	3.59
S22B19FX-14	22(19/34)	0.0295	0.749	0.0575	1.461	4.16
S24A01FX-14	24	0.0201	0.511	0.0481	1.222	2.65
S24B07FX-14	24(7/32)	0.0240	0.610	0.0520	1.321	3.03
S24B19FX-14	24(19/36)	0.0242	0.615	0.0522	1.326	3.07
S26A01FX-14	26	0.0159	0.404	0.0439	1.115	2.02
S26B07FX-14	26(7/34)	0.0190	0.483	0.0470	1.194	2.16
S26B19FX-14	26(19/38)	0.0190	0.483	0.0470	1.194	2.28
S28B01FX-14	28	0.0126	0.320	0.0406	1.031	1.60
S28B07FX-14	28(7/36)	0.0150	0.381	0.0430	1.092	1.71
S28B19FX-14	28(19/40)	0.0152	0.386	0.0432	1.097	1.80
S30B01FX-14	30	0.0100	0.254	0.0380	0.965	1.31
S30B07FX-14	30(7/38)	0.0120	0.305	0.0400	1.016	1.41
S30B19FX-14	30(19/42)	0.0120	0.305	0.0400	1.016	1.47

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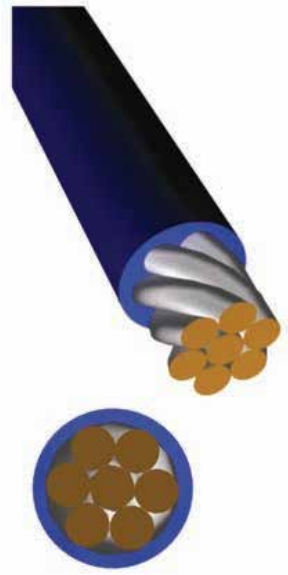
UL AWM Style 1333



Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 150° C
Voltage: 300 V / 600 V Peak

Applications:
Internal wiring of appliances
Suitable for immersion in gasoline

Compliances:
UL AWM Style 1333
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

**Items marked can also be listed as 200° C UL AWM 1332

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-15**	10(37/26)	0.1070	2.718	0.1370	3.480	34.37
S12A19FX-15**	12(19/25)	0.0862	2.189	0.1162	2.951	23.35
S14A19FX-14	14(19/27)	0.0679	1.725	0.0959	2.436	15.24
S16A01FX-14**	16	0.0508	1.290	0.0788	2.002	10.53
S16A19FX-14	16(19/29)	0.0539	1.369	0.0819	2.080	10.34
S18A01FX-14**	18	0.0403	1.024	0.0683	1.735	7.20
S18A19FX-14	18(19/30)	0.0476	1.209	0.0756	1.920	8.46
S20A01FX-14**	20	0.0320	0.813	0.0600	1.524	5.03
S20A19FX-14	20(19/32)	0.0385	0.978	0.0665	1.689	5.96
S22A01FX-14**	22	0.0253	0.643	0.0533	1.354	3.59
S22A19FX-14	22(19/34)	0.0295	0.749	0.0575	1.461	4.16
S24A01FX-14**	24	0.0201	0.511	0.0481	1.222	2.65
S24A07FX-14	24(7/32)	0.0240	0.610	0.0520	1.321	3.03
S24A19FX-14	24(19/36)	0.0242	0.615	0.0522	1.326	3.07
S26A01FX-14**	26	0.0159	0.404	0.0439	1.115	2.02
S26A07FX-14	26(7/34)	0.0190	0.483	0.0470	1.194	2.16
S26A19FX-14	26(19/38)	0.0190	0.483	0.0470	1.194	2.28
S28A01FX-14	28	0.0126	0.320	0.0406	1.031	1.60
S28A07FX-14	28(7/36)	0.0150	0.381	0.0430	1.092	1.71
S28A19FX-14	28(19/40)	0.0152	0.386	0.0432	1.097	1.80
S30A01FX-14	30	0.0100	0.254	0.0380	0.965	1.31
S30A07FX-14	30(7/38)	0.0120	0.305	0.0400	1.016	1.41
S30A19FX-14	30(19/42)	0.0120	0.305	0.0400	1.016	1.47

UL AWM Style 1371

Product Construction:

Size Range:
6 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 105° C
Voltage: NSV

Applications:
Internal wiring
Suitable for immersion in gasoline

Compliances:
UL AWM Style 1371
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per UL 60950-1
RoHS Compliant

Certain sizes may also be listed as:
Type K / MIL-W-16878/11
Type KT / MIL-W-16878/13
See Hook-Up Wire or MIL SPEC sections for additional information

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01FX-6	16	0.0508	1.290	0.0628	1.595	8.83
S18A01FX-6	18	0.0403	1.024	0.0523	1.328	5.75
S20A01FX-6	20	0.0320	0.813	0.0440	1.118	3.77
S22A01FX-6	22	0.0253	0.643	0.0373	0.947	2.50
S24A01FX-6	24	0.0201	0.511	0.0321	0.815	1.69
S26A01FX-6	26	0.0159	0.404	0.0279	0.709	1.16
S28A01FX-6	28	0.0126	0.320	0.0246	0.625	0.82
S30A01FX-6	30	0.0100	0.254	0.0220	0.559	0.59
S32A01FX-6	32	0.0080	0.203	0.0200	0.508	0.45
S34A01FX-6	34	0.0063	0.160	0.0183	0.465	0.34
S36A01FX-6	36	0.0050	0.127	0.0170	0.432	0.27
S16A01FX-10	16	0.0508	1.290	0.0708	1.80	9.63
S18A01FX-10	18	0.0403	1.024	0.0603	1.53	6.43
S20A01FX-10	20	0.0320	0.813	0.0520	1.32	4.35
S22A01FX-10	22	0.0253	0.643	0.0453	1.15	3.00
S24A01FX-10	24	0.0201	0.511	0.0401	1.02	2.12
S26A01FX-10	26	0.0159	0.404	0.0359	0.912	1.54
S28A01FX-10	28	0.0126	0.320	0.0326	0.828	1.16

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UL AWM Styles 1508, 1513, 1517, 1523

Product Construction:

Size Range:
20 AWG - 32 AWG
UL 1513 extends to 36 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 105° C
UL 1513, 1523, 1517: Voltage: NSV
UL 1508: Voltage: 30 V

Applications:
Back panel areas of electronic
Computers and business machines

Compliances:
UL AWM Style 1508, 1513, 1517, 1523
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliantq

UL 1508, 1513, 1523

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S20A01TX-6	20	0.0320	0.813	0.0440	1.118	3.63
S22A01TX-6	22	0.0253	0.643	0.0373	0.947	2.37
S24A01TX-6	24	0.0201	0.511	0.0321	0.815	1.58
S26A01TX-6	26	0.0159	0.404	0.0279	0.709	1.07
S28A01TX-6	28	0.0126	0.320	0.0246	0.625	0.74
S30A01TX-6	30	0.0100	0.254	0.0220	0.559	0.53
S32A01TX-6	32	0.0080	0.203	0.0200	0.508	0.39
S34A01TX-6	34	0.0063	0.160	0.0183	0.465	0.29
S36A01TX-6	36	0.0050	0.127	0.0170	0.432	0.23

UL 1517

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S20A01TX-6.5	20	0.0320	0.813	0.0450	1.143	3.68
S22A01TX-6.5	22	0.0253	0.643	0.0383	0.973	2.42
S24A01TX-6.5	24	0.0201	0.511	0.0331	0.841	1.62
S26A01TX-6.5	26	0.0159	0.404	0.0289	0.734	1.10
S28A01TX-6.5	28	0.0126	0.320	0.0256	0.650	0.77
S30A01TX-6.5	30	0.0100	0.254	0.0230	0.584	0.55
S32A01TX-6.5	32	0.0080	0.203	0.0210	0.533	0.41

UL AWM Style 1516, 1558

Product Construction:

Size Range:
UL 1516: 10 AWG - 30 AWG
UL 1558: 16 AWG - 34 AWG
Not all sizes listed in chart

Conductor:
UL 1558: Tin plated copper
"A" in part number
Solid or stranded (ASTM B-33/ASTM B-286)
UL 1516: Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
UL 1516: Temperature: 105° C
UL 1558: Temperature 125° C
Voltage: NSV

Applications:
Internal wiring of electronic computers and business machines

Compliances:
UL AWM Style 1516, 1558
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

*CSA approvals 20 AWG - 34 AWG
125° C / 300 V

**30 AWG can be tri-rated UL 1516, CSA, And MIL-W-81822/13

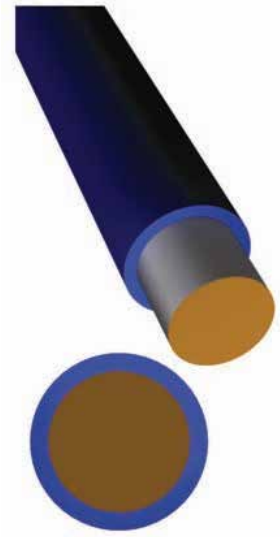
UL 1516

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S20B01TX-4.5	20	0.0320	0.813	0.0410	1.041	3.58
S22B01TX-4.5	22	0.0253	0.643	0.0343	0.871	2.34
S24B01TX-4.5	24	0.0201	0.511	0.0291	0.739	1.55
S26B01TX-4.5	26	0.0159	0.404	0.0249	0.632	1.04
S28B01TX-4.5	28	0.0126	0.320	0.0216	0.549	0.71
S30B01TX-4.5**	30	0.0100	0.254	0.0190	0.483	0.50

UL 1558

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01TX-5	16	0.0508	1.290	0.0608	1.544	8.65
S18A01TX-5	18	0.0403	1.024	0.0503	1.278	5.60
S20A01TX-4.5	20	0.0320	0.813	0.0410	1.041	3.58
S22A01TX-4.5	22	0.0253	0.643	0.0343	0.871	2.34
S24A01TX-4.5	24	0.0201	0.511	0.0291	0.739	1.55
S26A01TX-4.5	26	0.0159	0.404	0.0249	0.632	1.04
S28A01TX-4.5	28	0.0126	0.320	0.0216	0.549	0.71
S30A01TX-4.5	30	0.0100	0.254	0.0190	0.483	0.50
S32A01TX-4.5	32	0.0080	0.203	0.0170	0.432	0.36
S34A01TX-4.5	34	0.0063	0.160	0.0153	0.389	0.27

UL AWM Style 1538



Product Construction:

Size Range:
6 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP (Also available in PFA)

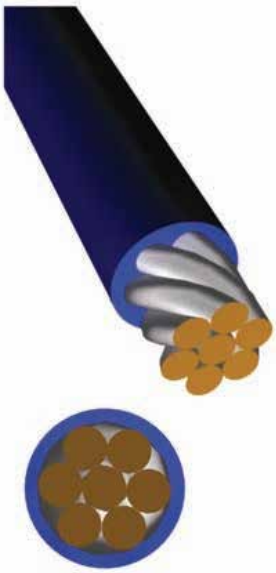
Rating:
Temperature: 105° C
Voltage: 125 V / 300 V Peak

Applications:
Back panel areas of electronic equipment, such as electronic computers and business machines

Compliances:
UL AWM Style 1538
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01FX-14	10	0.1019	2.588	0.1299	3.299	36.30
S12A01FX-14	12	0.0808	2.052	0.1088	2.764	22.17
S14A01FX-14	14	0.0641	1.628	0.0921	2.339	15.68
S16A01FX-9	16	0.0508	1.290	0.0688	1.748	9.42
S18A01FX-9	18	0.0403	1.024	0.0583	1.481	6.25
S20A01FX-6.5	20	0.0320	0.813	0.0450	1.143	3.84
S22A01FX-6.5	22	0.0253	0.643	0.0383	0.973	2.56
S24A01FX-6.5	24	0.0201	0.511	0.0331	0.841	1.74
S26A01FX-6.5	26	0.0159	0.404	0.0289	0.734	1.20
S28A01FX-6.5	28	0.0126	0.320	0.0256	0.650	0.85
S30A01FX-6.5	30	0.0100	0.254	0.0230	0.584	0.62
S32A01FX-6.5	32	0.0080	0.203	0.0210	0.533	0.48
S34A01FX-6.5	34	0.0063	0.160	0.0193	0.490	0.37
S36A01FX-6.5	36	0.0050	0.127	0.0180	0.457	0.30

UL AWM Style 1571



Product Construction:

Size Range:
16 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
Temperature: 80° C
Voltage: 30 V

Applications:
Internal wiring of class 2 circuits in electronic equipment

Compliances:
UL AWM Style 1571
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01VX-6	16	0.0508	1.290	0.0628	1.595	8.46
S18A01VX-6	18	0.0403	1.024	0.0523	1.328	5.45
S20A01VX-6	20	0.0320	0.813	0.0440	1.118	3.52
S20A07VX-6	20(7/28)	0.0390	0.991	0.0510	1.295	3.83
S20A19VX-6	20(19/32)	0.0385	0.978	0.0505	1.283	4.26
S22A01VX-6	22	0.0253	0.643	0.0373	0.947	2.30
S22A07VX-6	22(7/30)	0.0300	0.762	0.0420	1.067	2.59
S22A19VX-6	22(19/34)	0.0295	0.749	0.0415	1.054	2.73
S24A01VX-4	24	0.0201	0.511	0.0281	0.714	1.40
S24A07VX-4	24(7/32)	0.0240	0.610	0.0320	0.813	1.64
S24A19VX-4	24(19/36)	0.0242	0.615	0.0322	0.818	1.68
S26A01VX-4	26	0.0159	0.404	0.0239	0.607	0.92
S26A07VX-4	26(07/34)	0.0190	0.483	0.0270	0.686	0.95
S26A19VX-4	26(19/38)	0.0190	0.483	0.0270	0.686	1.06
S28A01VX-4	28	0.0126	0.320	0.0206	0.523	0.61
S28A07VX-4	28(7/36)	0.0150	0.381	0.0230	0.584	0.64
S28A19VX-4	28(19/40)	0.0152	0.386	0.0232	0.589	0.20
S30A01VX-4	30	0.0100	0.254	0.0180	0.457	0.41
S30A07VX-4	30(7/38)	0.0120	0.305	0.0200	0.508	0.44
S32A01VX-4	32	0.0080	0.203	0.0160	0.406	0.29
S34A01VX-4	34	0.0063	0.160	0.0143	0.363	0.20
S36A01VX-4	36	0.0050	0.127	0.0130	0.330	0.14
S38A01VX-4	38	0.0040	0.102	0.0120	0.305	0.11
S40A01VX-4	40	0.0031	0.079	0.0111	0.282	0.08

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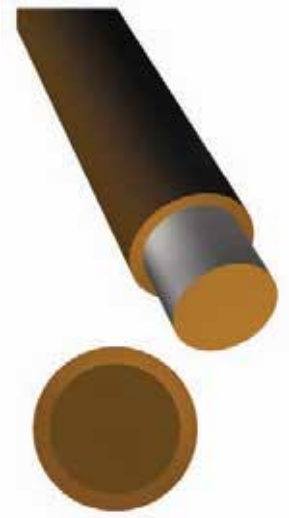
UL AWM Style 1586, 1609



Product Construction:

Size Range:
6 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 105° C
UL 1586: Voltage: NSV
UL 1609: Voltage: 125 V / 300 V Peak

Applications:
Back panel areas of electronic equipment, such as computers and business machines

Compliances:
UL AWM Style 1586, 1609
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S18A01TX-6	18	0.0403	1.024	0.0523	1.328	5.56
S20A01TX-6	20	0.0320	0.813	0.0440	1.118	3.62
S22A01TX-6	22	0.0253	0.643	0.0373	0.947	2.37
S24A01TX-6	24	0.0201	0.511	0.0321	0.815	1.58
S26A01TX-6	26	0.0159	0.404	0.0279	0.709	1.07
S28A01TX-6	28	0.0126	0.320	0.0246	0.625	0.74
S30A01TX-6	30	0.0100	0.254	0.0220	0.559	0.53
S32A01TX-6	32	0.0080	0.203	0.0200	0.508	0.39
S34A01TX-6	34	0.0063	0.160	0.0183	0.465	0.29
S36A01TX-6	36	0.0050	0.127	0.0170	0.432	0.23

UL AWM Style 1643, 1644

Product Construction:

Size Range:
10 AWG - 30 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 150° C
UL 1643: Voltage: 300 V / 600 V Peak
UL 1644: Voltage: 600 V / 2500 V Peak

Applications:
Internal wiring of appliances and electronic equipment

Compliances:
UL AWM Style 1643, 1644
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

UL 1643

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S14A01TX-14	14	0.0641	1.628	0.0921	2.339	14.93
S16A01TX-14	16	0.0508	1.290	0.0788	2.002	9.91
S18A01TX-14	18	0.0403	1.024	0.0683	1.735	6.68
S20A01TX-14	20	0.0320	0.813	0.0600	1.524	4.58
S22A01TX-14	22	0.0253	0.643	0.0533	1.354	3.21
S24A01TX-14	24	0.0201	0.511	0.0481	1.222	2.33
S26A01TX-14	26	0.0159	0.404	0.0439	1.115	1.73
S28A01TX-14	28	0.0126	0.320	0.0406	1.031	1.34
S30A01TX-14	30	0.0100	0.254	0.0380	0.965	1.08

UL 1644

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S14A01TX-21	14	0.0641	1.628	0.1061	2.695	16.54
S16A01TX-21	16	0.0508	1.290	0.0928	2.357	11.30
S18A01TX-21	18	0.0403	1.024	0.0823	2.090	7.90
S20A01TX-21	20	0.0320	0.813	0.0740	1.880	5.67
S22A01TX-21	22	0.0253	0.643	0.0673	1.709	4.19
S24A01TX-21	24	0.0201	0.511	0.0621	1.577	3.22
S26A01TX-21	26	0.0159	0.404	0.0579	1.471	2.56
S28A01TX-21	28	0.0126	0.320	0.0546	1.387	2.11
S30A01TX-21	30	0.0100	0.254	0.0520	1.321	1.81

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UL AWM Style 1671

Product Construction:

Size Range:
10 AWG - 32 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 150° C
Voltage: 300 V

Applications:
Internal wiring of electronic equipment

Compliances:
UL AWM Style 1671
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

*CSA approval 16 AWG - 32 AWG
150° C / 600 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01TX-11	10	0.1019	2.588	0.1239	3.147	34.30
S10A37TX-11	10(37/26)	0.1070	2.718	0.1290	3.277	31.88
S12A01TX-11	12	0.0808	2.052	0.1028	2.611	22.14
S12A19TX-11	12(19/25)	0.0862	2.189	0.1082	2.748	21.28
S14A01TX-11	14	0.0641	1.628	0.0861	2.187	14.31
S14A19TX-11	14(19/27)	0.0679	1.725	0.0899	2.283	13.81
S16A01TX-11	16	0.0508	1.290	0.0728	1.849	9.38
S16A19TX-11	16(19/29)	0.0539	1.369	0.0759	1.928	9.14
S18A01TX-11	18	0.0403	1.024	0.0623	1.582	6.23
S18A19TX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.36
S20A01TX-11	20	0.0320	0.813	0.0540	1.372	4.18
S20A07TX-11	20(7/28)	0.0390	0.991	0.0610	1.549	4.59
S20A19TX-11	20(19/32)	0.0385	0.978	0.0605	1.537	5.01
S22A01TX-11	22	0.0253	0.643	0.0473	1.201	2.86
S22A07TX-11	22(7/30)	0.0300	0.762	0.0520	1.321	3.22
S22A19TX-11	22(19/34)	0.0295	0.749	0.0515	1.308	3.36
S24A01TX-11	24	0.0201	0.511	0.0421	1.069	2.01
S24A07TX-11	24(7/32)	0.0240	0.610	0.0460	1.168	2.32
S24A19TX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.37
S26A01TX-11	26	0.0159	0.404	0.0379	0.963	1.45
S26A07TX-11	26(7/34)	0.0190	0.483	0.0410	1.041	1.54
S26A19TX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.65
S28A01TX-11	28	0.0126	0.320	0.0346	0.879	1.08
S30A01TX-11	30	0.0100	0.254	0.0320	0.813	0.84
S32A01TX-11	32	0.0080	0.203	0.0300	0.762	0.68

UL AWM Style 1679

Product Construction:

Size Range:
16 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
Temperature: 80° C, 90° C
Voltage: 300 V

Applications:
Further processing in round or flat ribbon type cable for internal wiring of electronic equipment

Compliances:
UL AWM Style 1679
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01VX-11	16	0.0508	1.290	0.0728	1.849	9.85
S16A19VX-11	16(19/29)	0.0539	1.369	0.0759	1.928	9.63
S18A01VX-11	18	0.0403	1.024	0.0623	1.582	6.61
S18A19VX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.80
S20A01VX-11	20	0.0320	0.813	0.0540	1.372	4.51
S20A07VX-11	20(7/28)	0.0390	0.991	0.0610	1.549	4.97
S20A19VX-11	20(19/32)	0.0385	0.978	0.0605	1.537	5.38
S22A01VX-11	22	0.0253	0.643	0.0473	1.201	3.14
S22A07VX-11	22(7/30)	0.0300	0.762	0.0520	1.321	3.53
S22A19VX-11	22(19/32)	0.0295	0.749	0.0515	1.308	3.67
S24A01VX-11	24	0.0201	0.511	0.0421	1.069	2.25
S24A07VX-11	24(7/32)	0.0240	0.610	0.0460	1.168	2.59
S24A19VX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.63
S26A01VX-11	26	0.0159	0.404	0.0379	0.963	1.65
S26A07VX-11	26(7/34)	0.0190	0.483	0.0410	1.041	1.40
S26A19VX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.88
S28A01VX-11	28	0.0126	0.320	0.0346	0.879	1.26
S28A07VX-11	28(7/36)	0.0150	0.381	0.0370	0.940	1.35
S30A01VX-11	30	0.0152	0.386	0.0372	0.945	1.17
S30A07VX-11	30(7/38)	0.0100	0.254	0.0320	0.813	1.01

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UL AWM Style 1692

Product Construction:

Size Range:
10 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
Temperature: 80° C, 90° C, 105° C
Voltage: 30 V

Applications:
Internal wiring of electronic equipment in class 2 wiring systems

Compliances:
UL AWM Style 1692
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S14A01VX-10	14	0.0641	1.628	0.0841	2.136	13.81
S14A19VX-10	14 (19/27)	0.0679	1.724	0.0879	2.232	13.28
S16A01VX-10	16	0.0508	1.290	0.0708	1.798	8.97
S16A19VX-10	16 (19/29)	0.0539	1.369	0.0739	1.877	9.07
S18A01VX-10	18	0.0403	1.024	0.0603	1.531	5.88
S18A19VX-10	18 (19/30)	0.0476	1.209	0.0676	1.717	6.96
S20A01VX-10	20	0.0320	0.813	0.0520	1.321	3.89
S20A19VX-10	20 (19/32)	0.0385	0.978	0.0585	1.486	4.67
S22A01VX-10	22	0.0253	0.643	0.0453	1.151	2.61
S22A19VX-10	22 (19/34)	0.0295	0.749	0.0495	1.257	3.08
S24A01VX-10	24	0.0201	0.511	0.0401	1.019	1.79
S24A19VX-10	24 (19/36)	0.0242	0.615	0.0442	1.123	2.12
S26A01VX-10	26	0.0159	0.404	0.0359	0.912	1.26
S26A19VX-10	26 (19/38)	0.0190	0.483	0.0390	0.991	1.44
S28A01VX-10	28	0.0126	0.320	0.0326	0.828	0.91
S28A07VX-10	28 (7/36)	0.0150	0.381	0.0350	0.889	0.97
S30A01VX-10	30	0.0100	0.386	0.0300	0.762	0.68
S30A07VX-10	30 (7/38)	0.0120	0.254	0.0320	0.813	0.73
S32A01VX-10	32	0.0080	0.203	0.0280	0.711	0.54

UL AWM Style 1716

Product Construction:

Size Range:
16 AWG - 40 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 150° C
Voltage: 150 V / 300 V Peak

Applications:
Internal wiring of electronic equipment, such as electronic computers and business machines

Compliances:
UL AWM Style 1716
File No. E78621
CSA AWM C22.2 No.210.2-M90
LicenseNo. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S16A01FX-9	16	0.0508	1.290	0.0688	1.748	9.42
S16A19FX-9	16(19/29)	0.0539	1.369	0.0719	1.826	9.19
S18A01FX-9	18	0.0403	1.024	0.0583	1.481	6.25
S18A19FX-9	18(19/30)	0.0476	1.209	0.0656	1.666	7.40
S20A01FX-6	20	0.0320	0.813	0.0440	1.118	3.77
S20A07FX-6	20(7/28)	0.0390	0.991	0.0510	1.295	4.13
S20A19FX-6	20(19/32)	0.0385	0.978	0.0505	1.286	4.55
S22A01FX-6	22	0.0253	0.643	0.0373	0.947	2.50
S22A07FX-6	22(7/30)	0.0300	0.762	0.0420	1.067	2.83
S22A19FX-6	22(19/34)	0.0295	0.749	0.0415	1.054	2.97
S24A01FX-6	24	0.0201	0.511	0.0321	0.815	1.69
S24A07FX-6	24(7/32)	0.0240	0.610	0.0360	0.914	1.97
S24A19FX-6	24(19/36)	0.0242	0.615	0.0362	0.919	2.01
S26A01FX-6	26	0.0159	0.404	0.0279	0.709	1.16
S26A07FX-6	26(7/34)	0.0190	0.483	0.0310	0.787	1.22
S26A19FX-6	26(19/38)	0.0190	0.483	0.0310	0.787	1.34
S28A01FX-6	28	0.0126	0.320	0.0246	0.625	0.82
S28A07FX-6	28(7/36)	0.0150	0.381	0.0270	0.686	0.87
S28A19FX-6	28(19/40)	0.0152	0.386	0.0272	0.691	0.44
S30A01FX-6	30	0.0100	0.254	0.0220	0.559	0.59
S30A07FX-6	30(7/38)	0.0120	0.305	0.0240	0.610	0.64
S30A19FX-6	30(19/42)	0.0120	0.305	0.0240	0.610	0.70
S32A01FX-6	32	0.0080	0.203	0.0200	0.508	0.45
S34A01FX-6	34	0.0063	0.160	0.0183	0.465	0.34
S36A01FX-6	36	0.0050	0.127	0.0170	0.432	0.27
S38A01FX-6	38	0.0040	0.102	0.0160	0.406	0.23
S40A01FX-6	40	0.0031	0.079	0.0151	0.384	0.19

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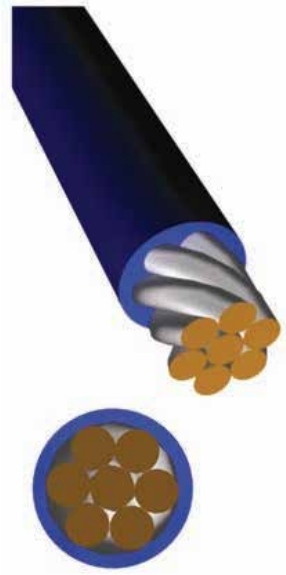
UL AWM Style 1729, 1730, 1731, 1821



Product Construction:

Size Range:
16 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
UL 1729: Temperature: 80° C
UL 1730: Temperature: 90° C
UL 1731: Temperature: 105° C
UL 1821: Temperature: 80° C, 90° C
Voltage: 300 V

Applications:
Further processing in cables for electronic equipment or appliances

Compliances:
UL AWM Style 1729, 1730, 1731, 1821
File No. E78621
RoHS Compliant

PARTNUMBER	AWG	CONDUCTOR		NOMINALO.D.		WEIGHTLB/KFT
		INCHES	MM	INCHES	MM	
S16A01VX-11	16	0.0508	1.290	0.0728	1.849	9.10
S16A19VX-11	16(19/29)	0.0539	1.369	0.0759	1.928	8.85
S18A01VX-11	18	0.0403	1.024	0.0623	1.582	5.99
S18A19VX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.09
S20A01VX-11	20	0.0320	0.813	0.0540	1.372	3.99
S20A07VX-11	20(7/28)	0.0390	0.991	0.0610	1.549	4.37
S20A19VX-11	20(19/32)	0.0385	0.978	0.0605	1.537	4.78
S22A01VX-11	22	0.0253	0.643	0.0473	1.201	2.70
S22A07VX-11	22(7/30)	0.0300	0.762	0.0520	1.321	3.04
S22A19VX-11	22(19/34)	0.0295	0.749	0.0515	1.308	3.18
S24A01VX-11	24	0.0201	0.511	0.0421	1.069	1.87
S24A07VX-11	24(7/32)	0.0240	0.610	0.0460	1.168	2.16
S24A19VX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.21
S26A01VX-11	26	0.0159	0.404	0.0379	0.963	1.33
S26A07VX-11	26(7/34)	0.0190	0.483	0.0410	1.041	1.40
S26A19VX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.52
S28A01VX-11	28	0.0126	0.320	0.0346	0.879	0.97
S28A07VX-11	28(7/36)	0.0150	0.381	0.0370	0.940	1.03
S28A19VX-11	28(19/40)	0.0152	0.386	0.0372	0.945	0.60
S30A01VX-11	30	0.0100	0.254	0.0320	0.813	0.74
S30A07VX-11	30(7/38)	0.0120	0.305	0.0340	0.864	0.79
S30A19VX-11	30(19/42)	0.0120	0.305	0.0340	0.864	0.85

UL AWM Style 1809, 1873

Product Construction:

Size Range:
18 AWG - 36 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
PVC

Rating:
UL 1809:
Temperature: 80° C
Voltate: 150 V

Applications:
Further process in flat ribbon or multiconductor cables

Compliances:
UL AWM Style 1809, 1873
File No. E78621
RoHS Compliant

Rating:
UL 1873:
Temperature: 105° C
Voltage: 300 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S18A01VX-6	18	0.0403	1.024	0.0523	1.328	5.45
S18A19VX-6	18(19/30)	0.0476	1.209	0.0596	1.514	6.48
S20A01VX-6	20	0.0320	0.813	0.0440	1.118	3.52
S20A07VX-6	20(7/28)	0.0390	0.991	0.0510	1.295	3.83
S20A19VX-6	20(19/32)	0.0385	0.978	0.0505	1.283	4.26
S22A01VX-6	22	0.0253	0.643	0.0373	0.947	2.30
S22A07VX-6	22(7/30)	0.0300	0.762	0.0420	1.067	2.59
S22A19VX-6	22(19/34)	0.0295	0.749	0.0415	1.054	2.73
S24A01VX-6	24	0.0201	0.511	0.0321	0.815	1.52
S24A07VX-6	24(7/32)	0.0240	0.610	0.0360	0.914	1.77
S24A19VX-6	24(19/36)	0.0242	0.615	0.0362	0.919	1.81
S26A01VX-6	26	0.0159	0.404	0.0279	0.709	1.01
S26A07VX-6	26(7/34)	0.0190	0.483	0.0310	0.787	1.06
S26A19VX-6	26(19/38)	0.0190	0.483	0.0310	0.787	1.18
S28A01VX-6	28	0.0126	0.320	0.0246	0.625	0.69
S28A07VX-6	28(7/36)	0.0150	0.381	0.0270	0.686	0.73
S28A19VX-6	28(19/40)	0.0152	0.386	0.0272	0.691	0.30
S30A01VX-6	30	0.0100	0.254	0.0220	0.559	0.49
S30A07VX-6	30(7/38)	0.0120	0.305	0.0240	0.610	0.52
S30A19VX-6	30(19/42)	0.0120	0.305	0.0240	0.610	0.58

UL AWM Style 1829

Product Construction:

Size Range:
10 AWG - 28 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 150° C
Voltage: 600 V

Applications:
Internal wiring of electronic equipment

Compliances:
UL AWM Style 1829
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01TX-21	10	0.1019	2.588	0.1439	3.655	37.40
S10A37TX-21	10(37/26)	0.1070	2.718	0.1490	3.785	35.10
S12A01TX-21	12	0.0808	2.052	0.1228	3.119	24.75
S12A19TX-21	12(19/25)	0.0862	2.189	0.1282	3.256	24.01
S14A01TX-21	14	0.0641	1.628	0.1061	2.695	16.54
S14A19TX-21	14(19/27)	0.0679	1.725	0.1099	2.791	16.12
S16A01TX-21	16	0.0508	1.290	0.0928	2.357	11.30
S16A19TX-21	16(19/29)	0.0539	1.369	0.0959	2.436	11.13
S18A01TX-21	18	0.0403	1.024	0.0823	2.090	7.90
S18A19TX-21	18(19/30)	0.0476	1.209	0.0896	2.276	9.20
S20A01TX-21	20	0.0320	0.813	0.0740	1.880	5.67
S20A07TX-21	20(7/28)	0.0390	0.991	0.0810	2.057	6.24
S20A19TX-21	20(19/32)	0.0385	0.978	0.0805	2.045	6.64
S22A01TX-21	22	0.0253	0.643	0.0673	1.709	4.19
S22A07TX-21	22(7/30)	0.0300	0.762	0.0720	1.829	4.66
S22A19TX-21	22(19/34)	0.0295	0.749	0.0715	1.816	4.79
S24A01TX-21	24	0.0201	0.511	0.0621	1.577	3.22
S24A07TX-21	24(7/32)	0.0240	0.610	0.0660	1.676	3.62
S24A19TX-21	24(19/36)	0.0242	0.615	0.0662	1.681	3.67
S26A01TX-21	26	0.0159	0.404	0.0579	1.471	2.56
S26A07TX-21	26(7/34)	0.0190	0.483	0.0610	1.549	2.72
S26A19TX-21	26(19/38)	0.0190	0.483	0.0610	1.549	2.83
S28A01TX-21	28	0.0126	0.320	0.0546	1.387	2.11
S28A07TX-21	28(7/36)	0.0150	0.381	0.0570	1.448	2.24
S28A19TX-21	28(19/40)	0.0152	0.386	0.0572	1.453	1.82

UL AWM Style 1863

Product Construction:

Size Range:
10 AWG - 28 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 125° C
Voltage: 300 V

Applications:
Internal wiring of appliances and electronic equipment

Compliances:
UL AWM Style 1863
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37TX-14	10(37/26)	0.1070	2.718	0.1350	3.429	32.80
S12A19TX-14	12(19/25)	0.0862	2.189	0.1142	2.901	22.05
S14A19TX-14	14(19/27)	0.0679	1.725	0.0959	2.436	14.45
S16A01TX-14	16	0.0508	1.290	0.0788	2.002	9.91
S16A19TX-14	16(19/29)	0.0539	1.369	0.0819	2.080	9.69
S18A01TX-14	18	0.0403	1.024	0.0683	1.735	6.68
S18A19TX-14	18(19/30)	0.0476	1.209	0.0756	1.920	7.87
S20A01TX-14	20	0.0320	0.813	0.0600	1.524	4.58
S20A19TX-14	20(19/32)	0.0385	0.978	0.0665	1.689	5.45
S22A01TX-14	22	0.0253	0.643	0.0533	1.354	2.21
S22A19TX-14	22(19/34)	0.0295	0.749	0.0575	1.461	3.74
S24A01TX-14	24	0.0201	0.511	0.0481	1.222	2.33
S24A19TX-14	24(19/36)	0.0242	0.615	0.0522	1.326	2.71
S26A01TX-14	26	0.0159	0.404	0.0439	1.115	1.73
S26A19TX-14	26(19/38)	0.0190	0.483	0.0470	1.194	1.96
S28A01TX-14	28	0.0126	0.320	0.0406	1.031	1.34
S28A07TX-14	28(7/36)	0.0150	0.381	0.0430	1.092	1.43
S28A19TX-14	28(19/40)	0.0152	0.386	0.0432	1.097	1.52

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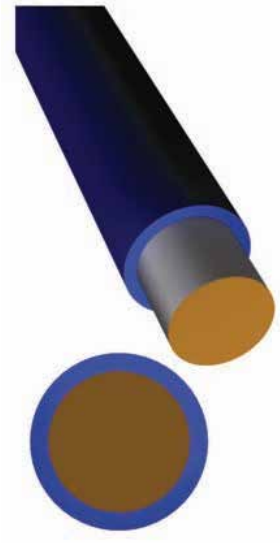
UL AWM Style 1864



Product Construction:

Size Range:
10 AWG - 28 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 125° C
Voltage: 600 V

Applications:
Internal wiring of appliances and electronic equipment

Compliances:
UL AWM Style 1864
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37TX-21	10(37/26)	0.1070	2.718	0.1490	3.785	35.10
S12A19TX-21	12(19/25)	0.0862	2.189	0.1282	3.256	24.01
S14A19TX-21	14(19/27)	0.0679	1.725	0.1099	2.791	16.12
S16A01TX-21	16	0.0508	1.290	0.0928	2.357	11.30
S16A19TX-21	16(19/29)	0.0539	1.369	0.0959	2.436	11.13
S18A01TX-21	18	0.0403	1.024	0.0823	2.090	7.90
S18A19TX-21	18(19/30)	0.0476	1.209	0.0896	2.276	9.20
S20A01TX-21	20	0.0320	0.813	0.0740	1.880	5.67
S20A19TX-21	20(19/32)	0.0385	0.978	0.0805	2.045	6.64
S22A01TX-21	22	0.0253	0.643	0.0673	1.709	3.19
S22A19TX-21	22(19/34)	0.0295	0.749	0.0715	1.816	4.79
S24A01TX-21	24	0.0201	0.511	0.0621	1.577	3.22
S24A19TX-21	24(19/36)	0.0242	0.615	0.0662	1.681	3.67
S26A01TX-21	26	0.0159	0.404	0.0579	1.471	2.56
S26A19TX-21	26(19/38)	0.0190	0.483	0.0610	1.549	2.83
S28A01TX-21	28	0.0126	0.320	0.0546	1.387	2.11
S28A07TX-21	28(7/36)	0.0150	0.381	0.0570	1.448	2.24
S28A19TX-21	28(19/40)	0.0152	0.386	0.0572	1.453	2.33

UL AWM Style 1886

Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 150° C
Voltage: 300 V

Applications:
Further processing in cables for electronic equipment

Compliances:
UL AWM Style 1886
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

*CSA approval 16 AWG - 30 AWG
150° C / 600 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-11	10(37/26)	0.1070	2.718	0.1290	3.277	32.77
S12A01FX-11	12	0.0808	2.052	0.1028	2.611	22.83
S12A19FX-11	12(19/25)	0.0862	2.189	0.1082	2.748	22.01
S14A01FX-11	14	0.0641	1.628	0.0861	2.187	14.88
S14A19FX-11	14(19/27)	0.0679	1.725	0.0899	2.283	14.40
S16A01FX-11	16	0.0508	1.290	0.0728	1.849	9.85
S16A19FX-11	16(19/29)	0.0539	1.369	0.0759	1.928	9.63
S18A01FX-11	18	0.0403	1.024	0.0623	1.582	6.61
S18A19FX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.80
S20A01FX-11	20	0.0320	0.813	0.0540	1.372	4.51
S20A07FX-11	20(7/28)	0.0390	0.991	0.0610	1.549	4.97
S20A19FX-11	20(19/32)	0.0385	0.978	0.0605	1.537	5.38
S22A01FX-11	22	0.0253	0.643	0.0473	1.201	3.14
S22A07FX-11	22(7/30)	0.0300	0.762	0.0520	1.321	3.53
S22A19FX-11	22(19/34)	0.0295	0.749	0.0515	1.308	3.67
S24A01FX-11	24	0.0201	0.511	0.0421	1.069	2.25
S24A07FX-11	24(7/32)	0.0240	0.610	0.0460	1.168	2.59
S24A19FX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.63
S26A01FX-11	26	0.0159	0.404	0.0379	0.96	1.65
S26A07FX-11	26(7/34)	0.0190	0.483	0.0410	1.041	1.76
S26A19FX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.88
S28A01FX-11	28	0.0126	0.320	0.0346	0.879	1.26
S28A07FX-11	28(7/36)	0.0150	0.381	0.0370	0.940	1.35
S28A19FX-11	28(19/40)	0.0152	0.386	0.0372	0.945	0.92
S30A01FX-11	30	0.0100	0.254	0.0320	0.813	1.00
S30A07FX-11	30(7/38)	0.0120	0.305	0.0340	0.864	1.07
S30A19FX-11	30(19/42)	0.0120	0.305	0.0340	0.864	1.13

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UL AWM Style 1887

Product Construction:

Size Range:
10 AWG - 30 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

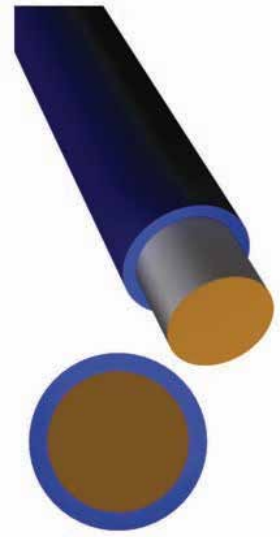
Rating:
Temperature: 150° C
Voltage: 600 V

Applications:
Further processing in cables for electronic equipment

Compliances:
UL AWM Style 1887
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37FX-15	10(37/26)	0.1070	2.718	0.1370	3.480	34.37
S12A01FX-15	12	0.0808	2.052	0.1108	2.814	24.11
S12A19FX-15	12(19/25)	0.0862	2.189	0.1162	2.951	23.35
S14A01FX-15	14	0.0641	1.628	0.0941	2.390	15.96
S14A19FX-15	14(19/27)	0.0679	1.725	0.0979	2.487	15.53
S16A01FX-15	16	0.0508	1.290	0.0808	2.052	10.77
S16A19FX-15	16(19/29)	0.0539	1.369	0.0839	2.131	10.59
S18A01FX-15	18	0.0403	1.024	0.0703	1.786	7.41
S18A19FX-15	18(19/30)	0.0476	1.209	0.0776	1.971	8.69
S20A01FX-15	20	0.0320	0.813	0.0620	1.575	5.21
S20A07FX-15	20(7/28)	0.0390	0.991	0.0690	1.753	5.75
S20A19FX-15	20(19/32)	0.0385	0.978	0.0685	1.740	6.16
S22A01FX-15	22	0.0253	0.643	0.0553	1.405	3.75
S22A07FX-15	22(7/30)	0.0300	0.762	0.0600	1.524	4.21
S22A19FX-15	22(19/34)	0.0295	0.749	0.0595	1.511	4.33
S24A01FX-15	24	0.0201	0.511	0.0501	1.273	2.80
S24A07FX-15	24(7/32)	0.0240	0.610	0.0540	1.372	3.19
S24A19FX-15	24(19/36)	0.0242	0.615	0.0542	1.377	3.23
S26A01FX-15	26	0.0159	0.404	0.0459	1.166	2.16
S26A07FX-15	26(7/34)	0.0190	0.483	0.0490	1.245	2.30
S26A19FX-15	26(19/38)	0.0190	0.483	0.0490	1.245	2.42
S28A01FX-15	28	0.0126	0.320	0.0426	1.082	1.72
S28A07FX-15	28(7/36)	0.0150	0.381	0.0450	1.143	1.84
S28A19FX-15	28(19/40)	0.0152	0.386	0.0452	1.148	1.42
S30A01FX-15	30	0.0100	0.254	0.0400	1.016	1.42
S30A07FX-15	30(7/38)	0.0120	0.305	0.0420	1.067	1.53
S30A19FX-15	30(19/42)	0.0120	0.305	0.0420	1.067	1.59

UL AWM Style 1894



Product Construction:

Size Range:
40 AWG minimum
Not all sizes listed in chart

Conductor:
Tin plated copper
"A" in part number
Solid or stranded (ASTM B-33/ASTM B-286)
Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)

Insulation:
FEP (.004 min) PFA also available

Rating:
Temperature: 200° C
Voltage: 30 V

Applications:
Internal wiring of class 2 circuits in electronic equipment

Compliances:
UL AWM Style 1894
File No. E78621
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S18A01FX-6	18	0.0403	1.024	0.0523	1.328	5.75
S20A01FX-6	20	0.0320	0.813	0.0440	1.118	3.77
S22A01FX-6	22	0.0253	0.643	0.0373	0.947	2.50
S24A01FX-4	24	0.0201	0.511	0.0281	0.714	1.51
S26A01FX-4	26	0.0159	0.404	0.0239	0.607	1.00
S28B01FX-4	28	0.0126	0.320	0.0206	0.523	0.68
S30B01FX-4	30	0.0100	0.254	0.0180	0.457	0.47
S32B01FX-4	32	0.0080	0.203	0.0160	0.406	0.34
S34B01FX-4	34	0.0063	0.160	0.0143	0.363	0.24
S36B01FX-4	36	0.0050	0.127	0.0130	0.330	0.18
S38B01FX-4	38	0.0040	0.102	0.0120	0.305	0.14
S40B01FX-4	40	0.0031	0.079	0.0111	0.282	0.11

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UL AWM Style 1990

Product Construction:

Size Range:
10 AWG - 24 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

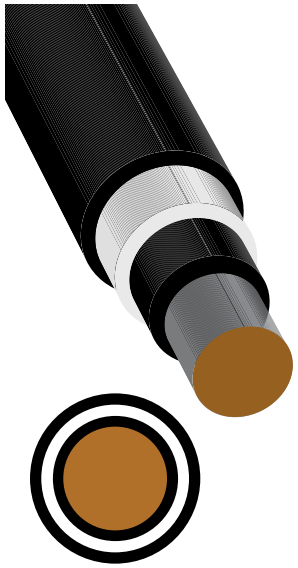
Rating:
Temperature: 105° C
Voltage: 600 V / 2500 V Peak

Applications:
Internal wiring of appliances and electronic equipment

Compliances:
UL AWM Style 1990
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
Basic insulation per
UL 60950-1
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A01TX-22	10	0.1019	2.588	0.1459	3.706	37.74
S10A37TX-22	10(37/26)	0.1070	2.718	0.1510	3.835	35.45
S12A01TX-22	12	0.0808	2.052	0.1248	3.170	25.04
S12A19TX-22	12(19/25)	0.0862	2.189	0.1302	3.307	24.31
S14A01TX-22	14	0.0641	1.628	0.1081	2.746	16.79
S14A19TX-22	14(19/27)	0.0679	1.725	0.1119	2.842	16.38
S16A01TX-22	16	0.0508	1.290	0.0948	2.408	11.52
S16A19TX-22	16(19/29)	0.0539	1.369	0.0979	2.487	11.36
S18A01TX-22	18	0.0403	1.024	0.0843	2.142	8.09
S18A19TX-22	18(19/30)	0.0476	1.209	0.0916	2.327	9.41
S20A01TX-22	20	0.0320	0.813	0.0760	1.930	5.84
S20A07TX-22	20(7/28)	0.0390	0.991	0.0830	2.108	6.43
S20A19TX-22	20(19/32)	0.0385	0.978	0.0825	2.096	6.83
S22A01TX-22	22	0.0253	0.643	0.0693	1.760	4.35
S22A07TX-22	22(7/30)	0.0300	0.762	0.0740	1.880	4.83
S22A19TX-22	22(19/34)	0.0295	0.749	0.0735	1.867	4.95
S24A01TX-22	24	0.0201	0.511	0.0641	1.628	3.36
S24A07TX-22	24(7/32)	0.0240	0.610	0.0680	1.727	3.77
S24A19TX-22	24(19/36)	0.0242	0.615	0.0682	1.732	3.82

UL AWM Style 10045



Product Construction:

Size Range:
14 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
FEP

Rating:
Temperature: 150° C
Voltage: NSV

Applications:
Internal wiring of electronic equipment or appliances

Compliances:
UL AWM Style 10045
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
UL 60950-1
RoHS Compliant

Two and three layer products also available
One layer "S" in part number
Three layers "T" in part number

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/ KFT
		INCHES	MM	INCHES	MM	
S16A01FX-9	16	0.0508	1.290	0.0688	1.748	9.42
S18A01FX-9	18	0.0403	1.024	0.0583	1.481	6.25
S20A01FX-9	20	0.0320	0.813	0.0500	1.270	4.20
S22A01FX-9	22	0.0253	0.643	0.0433	1.100	2.87
S24A01FX-9	24	0.0201	0.511	0.0381	0.968	2.01
S26A01FX-9	26	0.0159	0.404	0.0339	0.861	1.44
S28A01FX-9	28	0.0126	0.320	0.0306	0.777	1.06
S30A01FX-9	30	0.0100	0.254	0.0280	0.711	0.82
S32A01FX-9	32	0.0080	0.203	0.0260	0.660	0.65
T16A01FXXX-3	16	0.0508	1.290	0.0688	1.748	9.42
T18A01FXXX-3	18	0.0403	1.024	0.0583	1.481	6.25
T20A01FXXX-3	20	0.0320	0.813	0.0500	1.270	4.20
T22A01FXXX-3	22	0.0253	0.643	0.0433	1.100	2.87
T24A01FXXX-3	24	0.0201	0.511	0.0381	0.968	2.01
T26A01FXXX-3	26	0.0159	0.404	0.0339	0.861	1.44
T28A01FXXX-3	28	0.0126	0.320	0.0306	0.777	1.06
T30A01FXXX-3	30	0.0100	0.254	0.0280	0.711	0.82
T32A01FXXX-3	32	0.0080	0.203	0.0260	0.660	0.65

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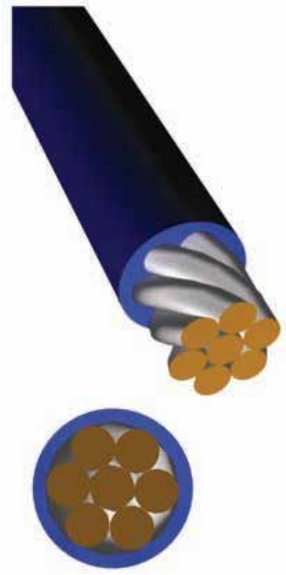
UL AWM Style 10086



Product Construction:

Size Range:
10 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
"A" in part number
Solid or stranded (ASTM B-33/ASTM B-286)
Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)

Insulation:
ETFE

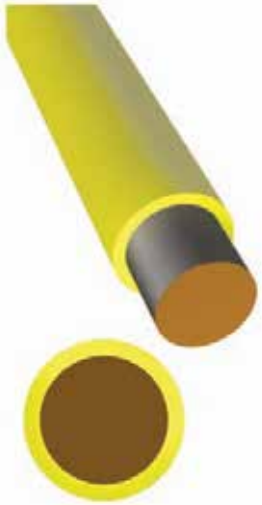
Rating:
Temperature: 200° C
Voltage: 600 V

Applications:
Internal wiring of appliances

Compliances:
UL AWM Style 10086
File No. E78621
CSA AWM C22.2 No.210.2-M90
License No. LL84686-1
150° C / 600 V
RoHS Compliant

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37ZX-16	10(37/26)	0.1070	2.718	0.1390	3.531	34.78
S12A19ZX-16	12(19/25)	0.0862	2.189	0.1182	3.002	23.71
S14B19ZX-11	14(19/27)	0.0679	1.725	0.0899	2.283	14.40
S16A01ZX-11	16	0.0508	1.290	0.0728	1.849	9.85
S16B19ZX-11	16(19/29)	0.0539	1.369	0.0759	1.928	9.63
S18A01ZX-11	18	0.0403	1.024	0.0623	1.582	6.61
S18B19ZX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.80
S20A01ZX-11	20	0.0320	0.813	0.0540	1.372	4.51
S20B19ZX-11	20(19/32)	0.0385	0.978	0.0605	1.537	5.38
S22A01ZX-11	22	0.0253	0.643	0.0473	1.201	3.14
S22B19ZX-11	22(19/34)	0.0295	0.749	0.0515	1.308	3.67
S24A01ZX-11	24	0.0201	0.511	0.0421	1.069	2.25
S24B19ZX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.63
S26A01ZX-11	26	0.0159	0.404	0.0379	0.963	1.65
S26B19ZX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.88
S28B07ZX-11	28(7/36)	0.0150	0.381	0.0370	0.940	1.35
S28B19ZX-11	28(19/40)	0.0152	0.386	0.0372	0.945	1.43
S30B07ZX-11	30(7/38)	0.0120	0.305	0.0340	0.864	1.07
S30B19ZX-11	30(19/42)	0.0120	0.305	0.0340	0.864	1.13

UL AWM Style 10109



Product Construction:

Size Range:
10 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
"A" in part number
Solid or stranded (ASTM B-33/ASTM B-286)
Silver plated copper
"B" in part number
Solid or stranded (ASTM B-298)

Insulation:
ETFE

Rating:
Temperature: 200° C
Voltage: 300 V

Applications:
Internal wiring of appliances

Compliances:
UL AWM Style 10109
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
RoHS Compliant

*CSA approval 16 AWG, 20 AWG - 36 AWG 150° C / 600 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37ZX-11	10(37/26)	0.1070	2.718	0.1290	3.277	31.88
S12A19ZX-11	12(19/25)	0.0862	2.189	0.1082	2.748	21.28
S14B19ZX-9	14(19/27)	0.0679	1.725	0.0859	2.182	13.40
S16A01ZX-9	16	0.0508	1.290	0.0688	1.748	9.06
S16B19ZX-9	16(19/29)	0.0539	1.369	0.0719	1.826	8.80
S18A01ZX-7	18	0.0403	1.024	0.0543	1.379	5.69
S18B19ZX-7	18(19/30)	0.0476	1.209	0.0616	1.565	6.75
S20A01ZX-7	20	0.0320	0.813	0.0460	1.168	3.72
S20B19ZX-7	20(19/32)	0.0385	0.978	0.0525	1.334	4.49
S22A01ZX-7	22	0.0253	0.643	0.0393	0.998	2.46
S22B19ZX-7	22(19/34)	0.0295	0.749	0.0435	1.105	2.92
S24A01ZX-7	24	0.0201	0.511	0.0341	0.866	1.66
S24B19ZX-7	24(19/36)	0.0242	0.615	0.0382	0.970	1.98
S26A01ZX-7	26	0.0159	0.404	0.0299	0.759	1.14
S26B19ZX-7	26(19/38)	0.0190	0.483	0.0330	0.838	1.31
S28B01ZX-7	28	0.0126	0.320	0.0266	0.676	0.80
S28B07ZX-7	28(7/36)	0.0150	0.381	0.0290	0.737	0.85
S28B19ZX-7	28(19/40)	0.0152	0.386	0.0292	0.742	0.93
S30B01ZX-7	30	0.0100	0.254	0.0240	0.610	0.58
S30B07ZX-7	30(7/38)	0.0120	0.305	0.0260	0.660	0.62
S30B19ZX-7	30(19/42)	0.0120	0.305	0.0260	0.660	0.68

UL AWM Style 10125

Product Construction:

Size Range:
10 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 150° C
Voltage: 300 V

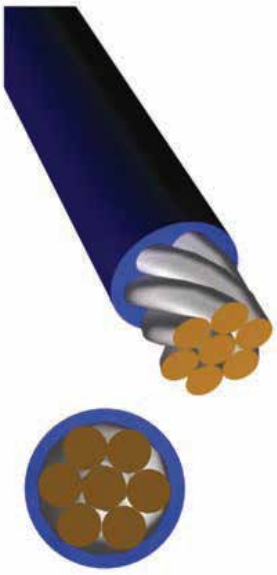
Applications:
Internal wiring of appliances

Compliances:
UL AWM Style 10125
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

*CSA approval 16 AWG, 20 AWG - 36 AWG 150° C / 600 V

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37TX-11	10(37/26)	0.1070	2.718	0.1290	3.277	31.88
S12A19TX-11	12(19/25)	0.0862	2.189	0.1082	2.748	21.28
S14A19TX-9	14(19/27)	0.0679	1.725	0.0859	2.182	13.40
S16A01TX-9	16	0.0508	1.290	0.0688	1.748	9.06
S16A19TX-9	16(19/29)	0.0539	1.369	0.0719	1.826	8.80
S18A01TX-7	18	0.0403	1.024	0.0543	1.379	5.69
S18A19TX-7	18(19/30)	0.0476	1.209	0.0616	1.565	6.75
S20A01TX-7	20	0.0320	0.813	0.0460	1.168	3.72
S20A19TX-7	20(19/32)	0.0385	0.978	0.0525	1.334	4.49
S22A01TX-7	22	0.0253	0.643	0.0393	0.998	2.46
S22A19TX-7	22(19/34)	0.0295	0.749	0.0435	1.105	2.92
S24A01TX-7	24	0.0201	0.511	0.0341	0.866	1.66
S24A19TX-7	24(19/36)	0.0242	0.615	0.0382	0.970	1.98
S26A01TX-7	26	0.0159	0.404	0.0299	0.759	1.14
S26A19TX-7	26(19/38)	0.0190	0.483	0.0330	0.838	1.31
S28A01TX-7	28	0.0126	0.320	0.0266	0.676	0.80
S28A07TX-7	28(7/36)	0.0150	0.381	0.0290	0.736	0.85
S28A19TX-7	28(19/40)	0.0152	0.386	0.0292	0.742	0.93
S30A01TX-7	30	0.0100	0.254	0.0240	0.610	0.58
S30A07TX-7	30(7/38)	0.0120	0.305	0.0260	0.660	0.62
S30A19TX-7	30(19/42)	0.0120	0.305	0.0260	0.660	0.68

UL AWM Style 10126



Product Construction:

Size Range:
10 AWG - 36 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 150° C
Voltage: 600 V

Applications:
Internal wiring of appliances

Compliances:
UL AWM Style 10126
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
Basic insulation per
UL 60950-1
RoHS Compliant

*CSA approval 16 AWG - 36 AWG

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S10A37TX-16	10(37/26)	0.1070	2.718	0.1390	3.531	34.78
S12A19TX-16	12(19/25)	0.0862	2.189	0.1182	3.002	23.71
S14A19TX-11	14(19/27)	0.0679	1.725	0.0899	2.283	14.40
S16A01TX-11	16	0.0508	1.290	0.0728	1.849	9.85
S16A19TX-11	16(19/29)	0.0539	1.369	0.0759	1.928	9.63
S18A01TX-11	18	0.0403	1.024	0.0623	1.582	6.61
S18A19TX-11	18(19/30)	0.0476	1.209	0.0696	1.768	7.80
S20A01TX-11	20	0.0320	0.813	0.0540	1.372	4.51
S20A19TX-11	20(19/32)	0.0385	0.978	0.0605	1.537	5.38
S22A01TX-11	22	0.0253	0.643	0.0473	1.201	3.14
S22A19TX-11	22(19/34)	0.0295	0.749	0.0515	1.308	3.67
S24A01TX-11	24	0.0201	0.511	0.0421	1.069	2.25
S24A19TX-11	24(19/36)	0.0242	0.615	0.0462	1.173	2.63
S26A01TX-11	26	0.0159	0.404	0.0379	0.963	1.65
S26A19TX-11	26(19/38)	0.0190	0.483	0.0410	1.041	1.88
S28A01TX-11	28	0.0126	0.320	0.0346	0.879	1.26
S28A07TX-11	28(7/36)	0.0150	0.381	0.0370	0.940	1.35
S28A19TX-11	28(19/40)	0.0152	0.386	0.0372	0.945	1.43
S30A01TX-11	30	0.0100	0.254	0.0320	0.813	1.00
S30A07TX-11	30(7/38)	0.0120	0.305	0.0340	0.864	1.07
S30A19TX-11	30(19/42)	0.0120	0.305	0.0340	0.864	1.13

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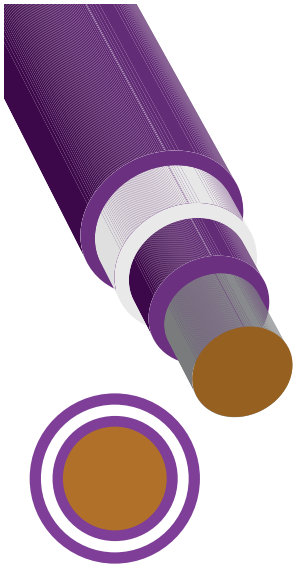
UL AWM Style 10316



Product Construction:

Size Range:
6 AWG - 40 AWG
Not all sizes listed in chart

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)
Bare copper and other conductors available

Insulation:
ETFE

Rating:
Temperature: 125° C
Voltage: 600 V / 2500 V Peak

Applications:
Internal wiring of electronic equipment, such as computers and business machines

Compliances:
UL AWM Style 10316
File No. E78621
CSA AWM C22.2 No.210.2-M90*
License No. LL84686-1
UL 60950-1
RoHS Compliant

*CSA approval 20 AWG - 40 AWG
150° C / 600 V

Two and three layer products also available
One layer "S" in part number
Three layers "T" in part number

PART NUMBER	AWG	CONDUCTOR		NOMINAL O.D.		WEIGHT LB/KFT
		INCHES	MM	INCHES	MM	
S26A01TX-6	26	0.0159	0.404	0.0279	0.709	1.07
S28A01TX-6	28	0.0126	0.320	0.0246	0.625	0.74
S30A01TX-6	30	0.0100	0.254	0.0220	0.559	0.53
S32A01TX-6	32	0.0080	0.203	0.0200	0.508	0.39
S34A01TX-6	34	0.0063	0.160	0.0183	0.465	0.29
S36A01TX-6	36	0.0050	0.127	0.0170	0.432	0.23
S38A01TX-6	38	0.0040	0.101	0.0160	0.406	0.19
S40A01TX-6	40	0.0031	0.078	0.0151	0.384	0.16
T26A01TXXX-2	26	0.0159	0.404	0.0279	0.709	1.07
T28A01TXXX-2	28	0.0126	0.320	0.0246	0.625	0.74
T30A01TXXX-2	30	0.0100	0.254	0.0220	0.559	0.53
T32A01TXXX-2	32	0.0080	0.203	0.0200	0.508	0.39
T34A01TXXX-2	34	0.0063	0.160	0.0183	0.465	0.29
T36A01TXXX-2	36	0.0050	0.127	0.0170	0.432	0.23
T38A01TXXX-2	38	0.0040	0.102	0.0160	0.406	0.19
T40A01TXXX-2	40	0.0031	0.079	0.0151	0.384	0.16

Mil Spec

Rubadue Wire offers a variety of wires made in accordance with Mil specifications. Mil specifications (Mil Spec) are used to achieve standardization objectives. The Mil Spec wires are suitable for many applications, and are specifically designed for reliability and performance in harsh environments.

Hook Up Wire	Insulation	Size Range	Avg. Wall*	Temp. Rating	Voltage Rating	Page
Mil W 16878/1	PVC	14 - 32 AWG	.010”	105°C	600 V	97
Mil W 16878/2	PVC	12 - 26 AWG	.017”	105°C	1000 V	98
Mil W 16878/3	PVC	12 - 24 AWG	.029”	105°C	3000 V	99
Mil W 16878/10	PE	4 - 24 AWG	.019”	75°C	600 V	100
Mil W 16878/11	FEP	8 - 32 AWG	.010”	200°C	600 V	101
Mil W 16878/12	FEP	8 - 32 AWG	.015”	200°C	1000 V	102
Mil W 16878/13	FEP	20 - 32 AWG	.006”	200°C	250 V	103

Frame Wire	Insulation	Size Range	Avg. Wall*	Temp. Rating	Voltage Rating	Page
Mil W 22759/16	ETFE	10 - 24 AWG	.011”	150°C	600 V	104
Mil W 22759/17	ETFE	20 - 26 AWG	.010”	150°C	600 V	104
Mil W 22759/18	ETFE	10 - 26 AWG	.0065”	150°C	600 V	105
Mil W 22759/19	ETFE	20 - 26 AWG	.006”	150°C	600 V	105

Wire Wrap	Insulation	Size Range	Avg. Wall*	Temp. Rating	Voltage Rating	Page
Mil W 81822/13	ETFE	18 - 30 AWG	.007”	150°C	600 V	106

*Wall thickness is determined by specific AWG sizes

Cage Code: IEPN7

These products are not GSA listed.

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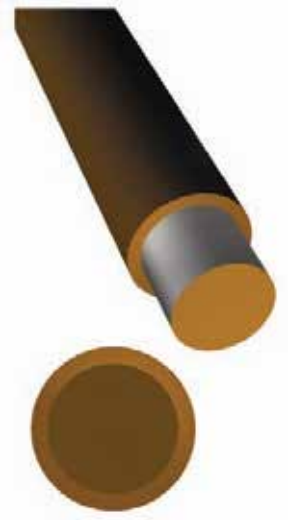
Mil W 16878/1



Product Construction:

Size Range:
14 AWG - 32 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)

Insulation:
PVC

Rating:
Temperature: 105°C
Voltage: 600 V

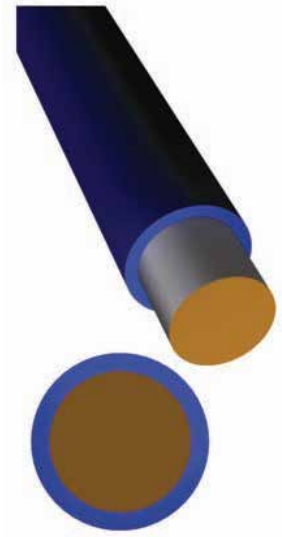
Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1571, 1809, 1873

Type B

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S14A01VX-10	14	0.0641	0.0800	0.0880	13.81
S14A19VX-10	14 (19/27)	0.0679	0.0880	0.0960	13.28
S16A01VX-10	16	0.0508	0.0670	0.0750	8.97
S16A19VX-12.5	16 (19/29)	0.0539	0.0750	0.0830	9.07
S18A01VX-10	18	0.0403	0.0560	0.0630	5.88
S18A19VX-10	18 (19/30)	0.0476	0.0650	0.0720	6.96
S20A01VX-10	20	0.0320	0.0480	0.0550	3.89
S20A19VX-10	20 (19/32)	0.0385	0.0540	0.0610	4.67
S22A01VX-10	22	0.0253	0.0410	0.0480	2.61
S22A19VX-10	22 (19/34)	0.0295	0.0460	0.0530	3.08
S24A01VX-10	24	0.0201	0.0360	0.0430	1.79
S24A19VX-10	24 (19/36)	0.0242	0.0400	0.0470	2.12
S26A01VX-10	26	0.0159	0.0320	0.0380	1.26
S26A19VX-10	26 (19/38)	0.0190	0.0350	0.0410	1.44
S28A01VX-10	28	0.0126	0.0290	0.0350	0.91
S28A07VX-10	28 (7/36)	0.0150	0.0310	0.0370	0.97
S30A01VX-10	30	0.0100	0.0260	0.0320	0.68
S30A07VX-10	30 (7/38)	0.0120	0.0280	0.0340	0.73
S32A01VX-10	32	0.0080	0.0240	0.0300	0.54

Mil W 16878/2



Product Construction:

Size Range:
12 AWG - 26 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)

Insulation:
PVC

Rating:
Temperature: 105°C
Voltage: 1000 V

Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes) 1007, 1571, 1679, 1692, 1729, 1730, 1731, 1809, 1821, 1873

Type C

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S12A01VX-17	12	0.0808	0.1100	0.1190	22.96
S12A19VX-19	12 (19/25)	0.0862	0.1210	0.1290	22.60
S14A01VX-17	14	0.0641	0.0940	0.1020	15.02
S14A19VX-19	14 (19/27)	0.0679	0.1020	0.1100	14.94
S16A01VX-17	16	0.0508	0.0800	0.0890	10.00
S16A19VX-19	16 (19/29)	0.0539	0.0890	0.0970	10.12
S18A01VX-17	18	0.0403	0.0700	0.0790	6.77
S18A19VX-17	18 (19/30)	0.0476	0.0790	0.0870	7.96
S20A01VX-17	20	0.0320	0.0620	0.0700	4.67
S20A19VX-17	20 (19/32)	0.0385	0.0680	0.0760	5.54
S22A01VX-17	22	0.0253	0.0550	0.0640	3.31
S22A19VX-17	22 (19/34)	0.0295	0.0600	0.0680	3.83
S24A01VX-17	24	0.0201	0.0500	0.0580	2.42
S24A19VX-17	24 (19/36)	0.0242	0.0540	0.0620	2.80
S26A01VX-17	26	0.0159	0.0460	0.0540	1.83
S26A19VX-17	26 (19/38)	0.0190	0.0490	0.0570	2.05

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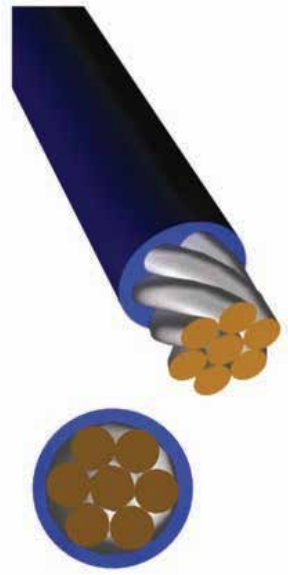
Mil W 16878/3



Product Construction:

Size Range:
12 AWG - 24 AWG

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)

Insulation:
PVC

Rating:
Temperature: 105°C
Voltage: 3000 V

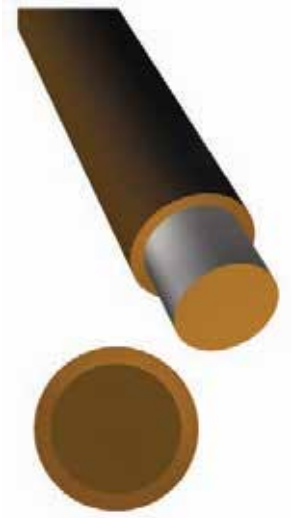
Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes) 1007, 1571, 1679, 1692, 1729, 1730, 1731, 1809, 1821

Type D

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S12A01VX-35.5	12	0.0808	0.1450	0.1590	27.64
S12A19VX-35.5	12 (19/25)	0.0862	0.1560	0.1710	27.01
S14A01VX-29	14	0.0641	0.1150	0.1300	17.53
S14A19VX-29	14 (19/27)	0.0679	0.1230	0.1380	17.14
S16A01VX-29	16	0.0508	0.1020	0.1170	12.21
S16A19VX-29	16 (19/29)	0.0539	0.1100	0.1250	12.06
S18A01VX-29	18	0.0403	0.0910	0.1060	8.74
S18A19VX-28	18 (19/30)	0.0476	0.1000	0.1150	9.89
S20A01VX-29	20	0.0320	0.0830	0.0980	6.45
S20A19VX-28	20 (19/32)	0.0385	0.0890	0.1040	7.29
S22A01VX-29	22	0.0253	0.0760	0.0910	4.93
S22A19VX-28	22 (19/34)	0.0295	0.0810	0.0960	5.39
S24A01VX-29	24	0.0201	0.0710	0.0860	3.93
S24A19VX-28	24 (19/36)	0.0242	0.0750	0.0900	4.25

Mil W 16878/10



Product Construction:

Size Range:
4 AWG - 24 AWG

Applications:
Hook Up Wire

Conductor:
Tin plated copper
Solid or stranded (ASTM B-33/ASTM B-286)

Compliances:
Cage Code: IEPN7

Insulation:
Polyethylene

Need a similar UL AWM Style?
Please contact us for possibilities

Rating:
Temperature: 75°C
Voltage: 600 V

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S4A133PEX-42.5	4 (133/25)	0.2570	0.3350	0.3490	147.47
S6A133PEX-36	6(133/27)	0.2040	0.2700	0.2820	93.66
S8A133PEX-29	8(133/29)	0.1630	0.2160	0.2260	59.54
S10A37PEX-22	10(37/26)	0.1070	0.1460	0.1560	33.00
S10A105PEX-24	10(105/30)	0.1125	0.1550	0.1650	36.80
S12A19PEX-19	12(19/25)	0.0862	0.1210	0.1290	21.70
S12A65PEX-19	12(65/30)	0.0895	0.1230	0.1310	23.19
S14A01PEX-17	14	0.0641	0.0940	0.1020	14.40
S14A19PEX-19	14(19/27)	0.0679	0.1020	0.1100	14.19
S16A01PEX-15	16	0.0508	0.0770	0.0850	9.24
S16A19PEX-16	16(19/29)	0.0539	0.0830	0.0910	9.11
S18A01PEX-14	18	0.0403	0.0640	0.0720	6.02
S18A19PEX-14	18(19/30)	0.0476	0.0720	0.0800	7.12
S20A01PEX-14	20	0.0320	0.0560	0.0640	4.02
S20A19PEX-14	20(19/32)	0.0385	0.0620	0.0700	4.82
S22A01PEX-13	22	0.0253	0.0470	0.0550	2.66
S22A19PEX-13	22(19/34)	0.0295	0.0520	0.0600	3.13
S24A01PEX-12.5	24	0.0201	0.0410	0.0490	1.81
S24A19PEX-12.5	24(19/36)	0.0242	0.0450	0.0530	2.14

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Mil W 16878/11

Product Construction:

Size Range:
8 AWG - 32 AWG

Conductor:
Silver plated Copper
Solid or stranded (ASTM B-298)
Tin plated copper available if not certifying

Insulation:
FEP

Rating:
Temperature: 200°C
Voltage: 600 V

Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1226, 1227, 1371, 1538, 1716, 10045

Type K

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S8B133FX-13.5	8(133/29)	0.1650	0.1850	0.1990	60.69
S10B37FX-10	10(37/26)	0.1070	0.1230	0.1310	32.39
S12B19FX-10	12(19/25)	0.0862	0.1022	0.1102	21.69
S14B01FX-10	14	0.0641	0.0801	0.0881	14.62
S14B19FX-10	14(19/27)	0.0679	0.0839	0.0919	14.14
S16B01FX-10	16	0.0508	0.0668	0.0748	9.63
S16B19FX-10	16(19/29)	0.0539	0.0699	0.0779	9.41
S18B01FX-10	18	0.0403	0.0563	0.0643	6.43
S18B19FX-10	18(19/30)	0.0476	0.0636	0.0716	7.60
S20B01FX-10	20	0.0320	0.0480	0.0560	4.35
S20B07FX-10	20(7/28)	0.0390	0.0550	0.0630	4.79
S20B19FX-10	20(19/32)	0.0385	0.0545	0.0625	5.21
S22B01FX-10	22	0.0253	0.0413	0.0493	3.00
S22B07FX-10	22(7/30)	0.0300	0.0460	0.0540	3.38
S22B19FX-10	22(19/34)	0.0295	0.0455	0.0535	3.52
S24B01FX-10	24	0.0201	0.0361	0.0441	2.12
S24B07FX-10	24(7/32)	0.0240	0.0400	0.0480	2.45
S24B19FX-10	24(19/36)	0.0242	0.0402	0.0482	2.50
S26B01FX-10	26	0.0159	0.0319	0.0399	1.54
S26B07FX-10	26(7/34)	0.0190	0.0350	0.0430	1.64
S26B19FX-10	26(19/38)	0.0190	0.0350	0.0430	1.76
S28B01FX-10	28	0.0126	0.0286	0.0366	1.16
S28B07FX-10	28(7/36)	0.0150	0.0310	0.0390	1.24
S30B01FX-10	30	0.0100	0.0260	0.0340	0.90
S30B07FX-10	30(7/38)	0.0120	0.0280	0.0360	0.97
S32B01FX-10	32	0.0080	0.0240	0.0320	0.73
S32B07FX-10	32(7/40)	0.0093	0.0253	0.0333	0.79

Mil W 16878/12

Product Construction:

Size Range:
8 AWG - 32 AWG

Conductor:
Silver Plated Copper
Solid or stranded (ASTM B-298)
Tin plated copper available if not certifying

Insulation:
FEP

Rating:
Temperature: 200°C
Voltage: 1000 V

Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1226, 1227, 1332, 1333, 1371, 1538, 1716, 1886, 1887, 10045

Type KK

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S8B133FX-22	8(133/29)	0.1650	0.1990	0.2190	65.80
S10B37FX-19	10(37/26)	0.1070	0.1390	0.1470	36.06
S12B19FX-17	12(19/25)	0.0862	0.1162	0.1242	24.06
S14B01FX-17	14	0.0641	0.0941	0.1021	16.54
S14B19FX-17	14(19/27)	0.0679	0.0979	0.1059	16.13
S16B01FX-16	16	0.0508	0.0788	0.0868	11.02
S16B19FX-16	16(19/29)	0.0539	0.0819	0.0899	10.85
S18B01FX-15	18	0.0403	0.0663	0.0743	7.41
S18B19FX-15	18(19/30)	0.0476	0.0736	0.0816	8.69
S20B01FX-15	20	0.0320	0.0580	0.0660	5.21
S20B07FX-15	20(7/28)	0.0390	0.0650	0.0730	5.75
S20B19FX-15	20(19/32)	0.0385	0.0645	0.0725	6.16
S22B01FX-15	22	0.0253	0.0513	0.0593	3.75
S22B07FX-15	22(7/30)	0.0300	0.0560	0.0640	4.21
S22B19FX-15	22(19/34)	0.0295	0.0555	0.0635	4.33
S24B01FX-15	24	0.0201	0.0461	0.0541	2.80
S24B07FX-15	24(7/32)	0.0240	0.0500	0.0580	3.19
S24B19FX-15	24(19/36)	0.0242	0.0502	0.0582	3.23
S26B01FX-15	26	0.0159	0.0419	0.0499	2.16
S26B07FX-15	26(7/34)	0.0190	0.0450	0.0530	2.30
S26B19FX-15	26(19/38)	0.0190	0.0450	0.0530	2.42
S28B01FX-15	28	0.0126	0.0386	0.0466	1.72
S28B07FX-15	28(7/36)	0.0150	0.0410	0.0490	1.84
S30B01FX-15	30	0.0100	0.0360	0.0440	1.43
S30B07FX-15	30(7/38)	0.0120	0.0380	0.0460	1.53
S32B01FX-15	32	0.0080	0.0340	0.0420	1.23
S32B07FX-15	32(7/40)	0.0093	0.0353	0.0433	1.30

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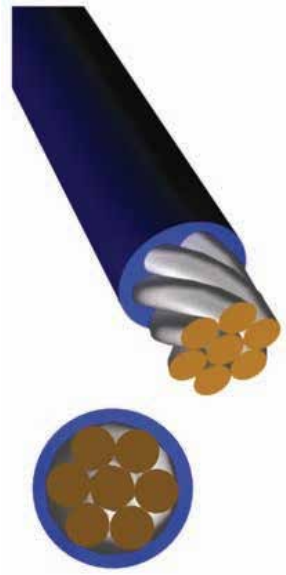
Mil W 16878/13



Product Construction:

Size Range:
20 AWG - 32 AWG

Conductor:
Silver Plated Copper
Solid or stranded (ASTM B-298)
Tin plated copper available if not certifying

Insulation:
FEP

Rating:
Temperature: 200°C
Voltage: 250 V

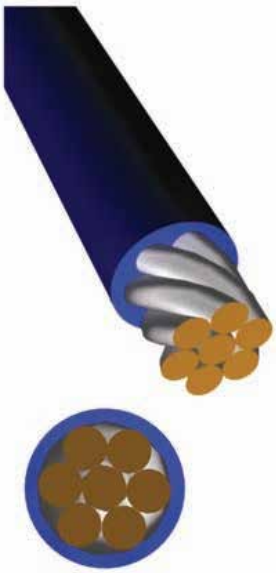
Applications:
Hook Up Wire

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1371, 1716

Type KT

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S20B01FX-6	20	0.0320	0.0420	0.0460	3.77
S20B07FX-6	20(7/28)	0.0390	0.0490	0.0530	4.13
S20B19FX-6	20(19/32)	0.0385	0.0485	0.0525	4.55
S22B01FX-6	22	0.0253	0.0353	0.0393	2.50
S22B07FX-6	22(7/30)	0.0300	0.0400	0.0440	2.83
S22B19FX-6	22(19/34)	0.0295	0.0395	0.0435	2.97
S24B01FX-6	24	0.0201	0.0301	0.0341	1.69
S24B07FX-6	24(7/32)	0.0240	0.0340	0.0380	1.97
S24B19FX-6	24(19/36)	0.0242	0.0342	0.0382	2.01
S26B01FX-6	26	0.0159	0.0259	0.0299	1.16
S26B07FX-6	26(7/34)	0.0190	0.0290	0.0330	1.22
S26B19FX-6	26(19/38)	0.0190	0.0290	0.0330	1.34
S28B01FX-6	28	0.0126	0.0226	0.0266	0.82
S28B07FX-6	28(7/36)	0.0150	0.0250	0.0290	0.87
S30B01FX-6	30	0.0100	0.0200	0.0240	0.59
S30B07FX-6	30(7/38)	0.0120	0.0220	0.0260	0.64
S32B01FX-6	32	0.0080	0.0180	0.0220	0.45
S32B07FX-6	32(7/40)	0.0093	0.0193	0.0233	0.48

Mil W 22759/16, Mil W 22759/17



Product Construction:

Size Range:
Mil W 22759/16: 10 AWG - 24 AWG
Mil W 22759/17: 20 AWG - 26 AWG

Conductor:
Mil W 22759/16: Tin plated copper
Mil W 22759/17: Silver plated alloy
Stranded

Insulation:
ETFE

Rating:
Temperature: 150°C
Voltage: 600 V

Applications:
Frame wires

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1508, 1513, 1517, 1523, 1586, 1609, 1671, 10316

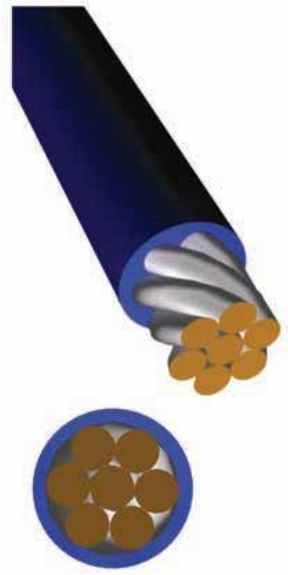
Mil W 22759/16

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S10A37TX-16	10(37/26)	0.1070	0.1360	0.1420	33.44
S12A37TX-14.5	12(37/28)	0.0845	0.1100	0.1170	22.12
S14A19TX-12.5	14(19/27)	0.0679	0.0910	0.0950	14.13
S16A19TX-12.5	16(19/29)	0.0539	0.0770	0.0810	9.41
S18A19TX-11.5	18(19/30)	0.0476	0.0690	0.0730	7.44
S20A19TX-11	20(19/32)	0.0385	0.0580	0.0620	5.01
S22A19TX-11	22(19/34)	0.0295	0.0500	0.0540	3.36
S24A19TX-10	24(19/36)	0.0242	0.0430	0.0470	2.26

Mil W 22759/17

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S20D19TX-11	20(19/32)	0.0385	0.0580	0.0620	5.01
S22D19TX-11	22(19/34)	0.0295	0.0500	0.0540	3.36
S24D19TX-10	24(19/36)	0.0242	0.0430	0.0470	2.26
S26D19TX-10	26(19/38)	0.0190	0.0380	0.0420	1.56

Mil W 22759/18, Mil W 22759/19



Product Construction:

Size Range:
Mil W 22759/18: 10 AWG - 26 AWG
Mil W 22759/19: 20 AWG - 26 AWG

Conductor:
Mil W 22759/18: Tin plated copper
Mil W 22759/19: Silver plated alloy
Stranded

Insulation:
ETFE

Rating:
Temperature: 150°C
Voltage: 600 V

Applications:
Frame wires

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1508, 1513, 1517, 1523, 1586, 10316

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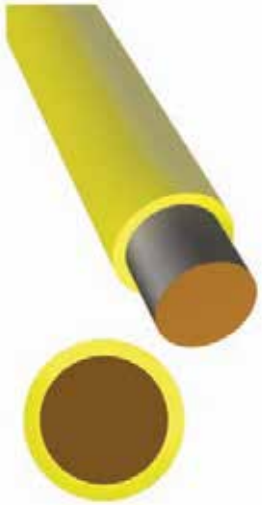
Mil W 22759/18

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S10A37TX-13.5	10(37/26)	0.1070	0.1310	0.1370	32.65
S12A37TX-11	12(37/28)	0.0845	0.1040	0.1100	21.23
S14A19TX-8.5	14(19/27)	0.0679	0.0830	0.0870	13.3
S16A19TX-8	16(19/29)	0.0539	0.0680	0.0720	8.64
S18A19TX-6.5	18(19/30)	0.0476	0.0590	0.0630	6.68
S20A19TX-6	20(19/32)	0.0385	0.0490	0.0530	4.37
S22A19TX-6.5	22(19/34)	0.0295	0.0410	0.0450	2.87
S24A19TX-6	24(19/36)	0.0242	0.0340	0.0380	1.89
S26A19TX-6.5	26(19/38)	0.0190	0.0300	0.0340	1.27

Mil W 22759/19

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S20D19TX-6	20(19/32)	0.0385	0.0490	0.0530	4.37
S22D19TX-6.5	22(19/34)	0.0295	0.0410	0.0450	2.87
S24D19TX-6	24(19/36)	0.0242	0.0340	0.0380	1.89
S26D19TX-6.5	26(19/38)	0.0190	0.0300	0.0340	1.27

Mil W 81822/13



Product Construction:

Size Range:
18 AWG - 30 AWG

Conductor:
Silver plated copper OFHC
Solid (ASTM B-298)
Also available in SPA

Insulation:
ETFE

Rating:
Temperature: 150°C
Voltage: 300 V

Insulation Pull-Off (lbs)
18 AWG - 22 AWG: 1 to 6
24 AWG - 26 AWG: 1 to 4

Applications:
Backpanel wire wrap

Compliances:
Cage Code: IEPN7
Meets UL AWM Styles: (certain sizes)
1508, 1513, 1517, 1523, 1586, 10316
**30 AWG can be tri-rated UL 1516, CSA, And MIL-W-81822/13

Mil Spec terms for alternative conductors:
81822/13A - SPC
81822/13B - SPC OFHC
81822/13C - SP high strength alloy
Rubadue standard product meets 13A & 13B

Insulation Pull-Off (lbs)
28 AWG: 0.5 to 2.5
30 AWG: 0.4 to 2.5

PART NUMBER	AWG	CONDUCTOR INCHES	NOMINAL O.D.		WEIGHT LB/KFT
			MIN (IN)	MAX (IN)	
S18B01TX-7	18	0.0403	0.0510	0.0570	5.69
S20B01TX-7	20	0.0320	0.0440	0.0480	3.72
S22B01TX-7	22	0.0253	0.0370	0.0410	2.46
S24B01TX-7	24	0.0201	0.0325	0.0355	1.66
S26B01TX-7	26	0.0159	0.0280	0.0310	1.14
S28B01TX-7	28	0.0126	0.0250	0.0280	0.80
S30B01TX-4.75**	30	0.0100	0.0185	0.0205	0.47

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Specialty Products

Rubadue Wire manufactures a variety of specialty and custom products. The products listed in this catalog are not all inclusive of the products offered by Rubadue Wire. Please contact the Sales Department if you are in need of a custom designed product.

- Cable jacketing
- Fiber optic coating
- Twisted pairs
- Twisted triads
- Multi-conductor
- Custom cables
- Fillers
- Multi-stranded
- High temperature products
- High voltage products
- Medical wires
- Underwater products
- Specialty conductors
- Specialty insulations
- Customer Furnished Material
- Insulation on a toll basis

Rubadue Wire offers a wide variety of conductors and insulations for specialty and custom designs.

Conductors

Capacity for wire sizes from 4 AWG to 40 AWG
Capacity for cable jackets up to 0.50”
Custom, specialty, and standard materials
Solid and stranded constructions

Insulating Materials

Insulation thickness from .001” to .250”

- ETFE
- FEP
- PFA
- DuPont™ Surlyn®
- DuPont™ ECCtreme™ ECA 3000
- Polyethylene
- Foam Polyethylene
- TPR/TPE
- Polyurethane
- Polypropylene
- PVC
- DuPont™ Hytrel®
- Coilbond™

Rubadue Wire manufactures a variety of specialty and custom products.
The products listed in this catalog are not all inclusive of the products offered by Rubadue Wire.
Please contact the Sales Department if you are in need of a custom designed product.

Electrical Insulation Systems

What is UL 1446?

Underwriters Laboratories Inc. (UL) has been developing and enforcing safety standards for over one hundred years. UL 1446, Standard of Safety for Systems of Insulating Materials - General, outlines the test procedures required for the thermal evaluation of electrical insulation systems (EIS). The procedures also cover the evaluation of insulation components for the addition or substitution into an established EIS. UL 1446 also specifies the test procedures required to qualify some of the individual components such as varnishes, magnet wires, and magnet wire coatings.

An established EIS is one that has known service life at operating temperatures and conditions or has been previously evaluated by a long-term thermal aging procedure recognized under UL 1446 requirements. Thermal aging is an accelerated aging program that allows the results to be extrapolated to yield a relative thermal index (RTI) for a proposed EIS that is then compared to the Thermal Index (TI) of a known EIS. This allows the proposed EIS to be assigned a thermal class, e.g., Class 155(F) for Class 180(H).

UL 1446 deals mostly with EIS intended for use in electrical equipment connected to a low-voltage distribution network, defined as not more than 600 V nominal in the US, not more than 750 V in Canada, and 1000 V ac or less in overvoltage category IV installations according to International Electrotechnical Commission (IEC) 60364. These EIS may be used in equipment with higher output voltage, such as control transformers or HID ballasts, but secondary voltage limits should be addressed in end-product standards and test procedures. Usually, this requires that the ground and interwinding thichnesses be increased proportionately so that the V/mm stress does not exceed that of the material as originally tested.

NOTE: UL 1446 is not inteded to cover EIS exposed to radiation or operating in liquids such as oils or refrigerants, or other media that may degrade insulating materials. Nor does it intend to evaluate the effect of the manufacturing process or design factors on the life of the EIS.

What is an Insulation System?

An electrical insulation system (EIS) is defined by the IEC as an “insulating structure containing one or more electrical insulating materials (EIM) together with associated conducting parts employed in an electrotechnical device.” This is a rather simple definition for what can be a very complex combination of materials. An EIS is composed of two sets of components - **major** ground insulation components and **minor** components.

Major ground insulation components are EIM. That is, these materials are the electrically stressed components used to separate conducting parts at different electrical potentials. Typical examples of major components include magnet wires, specialized winding wires, varnishes, and flexible sheet materials used for core insulations, as high-low barrier insulation, or slot liners in motors. Rubadue Wire always tests our systems dry (without varnish), and then varnishes can be added after with other minor components. **Minor** components are those materials used in combination with the major ground insulation for mechanical, heat transfer, decoration, or other non-electrically stressed applications. Typical examples of minor components include pressure-sensitive tapes, sleeving and tubing, lead wires, phase insulation, and potting compounds. These components are added after the long term aging with significantly less testing.

Electrical Insulation Systems

A more complete listing of components and their definitions can be found in Table 4.2 in UL 1446. Some of the finer points covered in the table include:

- A Varnish may be a major or a minor component depending upon whether the original EIS was evaluated with a varnish or not.
- Layer insulation is defined as a minor component that serves as a mechanical barrier between successive layers of insulated conductor in the same winding, and does not serve as an electrical insulation.
- Interwinding insulation is defined as a major component that serves as electrical insulation between windings, for example, the sheet insulation between successive layers of foil in a strip-wound coil.

Why is a system important?

There are many benefits to be gained by using a UL Recognized EIS, the main one being that the combination of materials have been proven to be compatible when exposed to long-term thermal aging. Generally, thermal stress is the primary factor affecting the service life of the insulating materials in electrical equipment.

In electrical equipment, the EIS is considered one of the components. In order for the end-product equipment to be listed by UL, a UL Recognized Insulation System must be used. Manufacturers of electrical insulating materials will typically offer UL Recognized EIS as a service to the equipment manufacturers, saving them the time and expense required to develop an EIS for their application.

UL Recognition give equipment manufacturers confidence that the EIS has been properly evaluated and qualified for use, which leads to safer and better products.

How to obtain a UL Recognized System:

You can develop your own EIS by submitting a proposed combination of materials (a candidate EIS) to a long-term thermal aging program as outlined in UL 1446. This process will typically take 9-18 months to complete, and cost approximately $25,000 in test lab charges and UL fees.

An easier and less expensive way to obtain a UL Recognized Insulation System - adopt one. Most suppliers of electrical insulating materials have developed UL Recognized EIS that are listed under UL Recognized Component Category OBJS2 and are available for manufacturers of electrical equipment to adopt. Rubadue Wire Company, Inc. has Class F and future Class H systems available for adoption at no charge from us. UL will require a fee to add it to your file and to set up any follow up required. Rubadue Wire products are also found in other suppliers systems. Ask us about which ones. These EIS are listed on the UL Electrical Insulation System Database that can be found on the UL website. http://data.ul.com/systems/.

Electrical Insulation Systems

All EIS that are listed on the UL database may be adopted by submitting a project request to UL along with a small fee. You do not need approval from the owner of the UL Recognized EIS to adopt it unless you need to modify the EIS.

You may also request an "electronic" adoption of an EIS listed on the database. This can be accomplished by accessing the EIS database and submitting the appropriate forms electronically. This process can help reduce the time required and costs involved. It is most commonly used when adopting an EIS that does not require modifications or additions. A major benefit to this process is that any revisions to the base EIS will be automatically added to the adopted EIS at no cost.

Remember when you look at the EIS Systems listed on UL's database that each time a system is changed by the owner it creates a new table. RXT-2 Currently has 4 tables. The oldest table is the one that comes up first.

What is a Sealed Tube Chemical Compatibility Test?

The Sealed Tube Chemical Compatibility Test (CCT) is a short-time test procedure to determine if the new materials to be added to the established EIS will cause detrimental degradation of the EIS.

More simply, all of the materials in the established EIS (the items that went through the long term aging), are sealed in a glass tube designated as the Control EIS. In a second tube are sealed all of the materials in the established EIS along with the desired additional components for evaluation as the Candidate EIS. Many components can be added to each tube. A separate tube is required for each varnish being added to the system.

The Control and Candidate tubes are then aged for two weeks at the established EIS temperature rating plus 25°C; for example, a Class 180(H) EIS will be thermally aged at 205°C. The tubes are allowed to cool and then the varnish-coated MW samples are subjected to dielectric strength testing to determine if the addition of the new components in the candidate tube have caused degradation greater than 50% over those in the control tube. If not, the Candidate EIS is now acceptable as a UL Recognized EIS.

Note: All Rubadue Wire Company Systems are tested dry and the varnishes added through the Chemical Compatibility Test (CCT).

Electrical Insulation Systems

Rubadue Wire Insulated Systems: UL 1446 UL File #E188330

RXT - 1 Class B

Includes DuPont™ Tefzel® and FEP products

RXT - 2 Class F

This includes DuPont™ Tefzel®, FEP, and TCA insulated products.

DuPont™ Tefzel® down to .0015”

TCA down to .0015”

FEP down to .002”

This System has been revised several times and so there are 4 different tables. The most recent are the items in Table IV. There are times UL changes the standard and will grandfather in existing systems.

For this reason sometimes our customers reference a previous table rather than the newest one to enable usage of certain combinations of components such as enamel wires and varnishes.

The most recent revisions allow for more components available globally including Asia.

TCA - Class F

This includes DuPont™ Tefzel®, FEP, and TCA insulated products.

DuPont™ Tefzel® down to .0036”

TCA3

FEP down to .0041”

This system has many components available in Asia.

Coming Spring 2015

New Class F and New Class H systems

Several other suppliers have Rubadue Wire products in their systems. Including DuPont™ which has RWC FEP and PFA products in Class H and other systems. Please ask customer service if there are components you require that are not currently shown in a system. In some cases we may be able to update a system to meet your requirements, or advise of another system.

Technical Information

The technical section is a brief overview. Please contact the Sales Department for detailed technical information and product specifications.

Conductor Materials

Rubadue Wire offers a wide variety of conductors and core wires.

- Tin Plated Copper (TPC)
- Silver Plated Copper (SPC)
- Bare Copper (BC)
- Nickel Plated Copper (NPC)
- Pure / Oxygen Free
- Copper Weld (CW)
- Silver Plated Alloy
- Nickel Copper Alloy
- Enamel Single Build
- Enamel Heavy Build
- Litz Wire (Multi Strand Enamel)
- QPN (Quad Poly Nylon)
- Stainless Steel
- Copper Clad Steel
- Customer Furnished Materials (CFM)
- Custom

Conductors and core wires sizes can range from 4 AWG to 40 AWG

Solid and stranded constructions are available

Special and customized conductors are available upon request.

Rubadue Wire also offers custom cables to meet your requirements.

- Multi-conductor
- Twisted Pairs
- Twisted Pair Multi-Conductor
- Customer Specified

TPC Resistance

Permissable Resistance and Diameter Values for Tin-Plated Copper

AWG	Diameter			DC Resistance Per 10' @ 20°C		
	Min. Dia.	Nom. Dia.	Max. Dia.	Min. Res.*	Nom. Res.	Max. Res.
10	0.1009	0.1019	0.1050	0.0096	0.0104	0.0109
11	0.0898	0.0907	0.0934	0.0112	0.0131	0.0138
12	0.0800	0.0808	0.0832	0.0153	0.0165	0.0174
13	0.0713	0.0720	0.0742	0.0193	0.0208	0.0219
14	0.0635	0.0641	0.0660	0.0224	0.0262	0.0276
15	0.0565	0.0571	0.0588	0.0307	0.0331	0.0349
16	0.0503	0.0508	0.0523	0.0388	0.0418	0.0440
17	0.0448	0.0453	0.0467	0.0487	0.0526	0.0555
18	0.0399	0.0403	0.0415	0.0617	0.0664	0.0699
19	0.0355	0.0359	0.0370	0.0776	0.0837	0.0883
20	0.0317	0.0320	0.0330	0.0975	0.1053	0.1108
21	0.0282	0.0285	0.0294	0.1229	0.1328	0.1400
22	0.0250	0.0253	0.0261	0.1559	0.1685	0.1781
23	0.0224	0.0226	0.0233	0.1956	0.2112	0.2219
24	0.0199	0.0201	0.0207	0.2478	0.2669	0.2811
25	0.0177	0.0179	0.0184	0.3137	0.3366	0.3554
26	0.0157	0.0159	0.0164	0.3948	0.4266	0.4517
27	0.0141	0.0142	0.0146	0.4982	0.5349	0.5600
28	0.0125	0.0126	0.0130	0.6283	0.6793	0.7125
29	0.0112	0.0113	0.0116	0.7892	0.8446	0.8875
30	0.0099	0.0100	0.0103	1.0009	1.0785	1.1359
31	0.0088	0.0089	0.0092	1.2546	1.3616	1.4376
32	0.0079	0.0080	0.0083	1.5414	1.6852	1.7838
33	0.0070	0.0071	0.0074	1.9392	2.1395	2.2720
34	0.0062	0.0063	0.0066	2.4378	2.7173	2.8962
35	0.0055	0.0056	0.0059	3.0506	3.4391	3.6803
36	0.0049	0.0050	0.0053	3.7803	4.3140	4.6368
37	0.0044	0.0045	0.0048	4.6089	5.3259	5.7505
38	0.0039	0.0040	0.0043	5.7431	6.7406	7.3195
39	0.0034	0.0035	0.0038	7.3539	8.8041	9.6306
40	0.0030	0.0031	0.0034	9.1860	11.2227	12.3700
41	0.0027	0.0028	0.0031	11.0499	13.7564	15.2716
42	0.0024	0.0025	0.0028	13.5446	17.2560	19.3281
43	0.0021	0.0022	0.0025	16.9904	22.2831	25.2449
44	0.0019	0.0020	0.0023	20.0737	26.9625	30.8393

* ASTM B33 sets no standard for minimum resistance. This is only an indicator to investigate other aspects such as tin-thickness and tin coverage.

BC/SPC Resistance

Permissable Resistance and Diameter Values for Bare Copper and Silver- Plated Copper

AWG	Diameter			DC Resistance Per 10' @ 20°C Max. Res.
	Min. Dia.	Nom. Dia.	Max. Dia.	
10	0.1009	0.1019	0.1029	0.0102
11	0.0898	0.0907	0.0916	0.0129
12	0.0800	0.0808	0.0816	0.0162
13	0.0713	0.0720	0.0727	0.0204
14	0.0635	0.0641	0.0647	0.0257
15	0.0565	0.0571	0.0577	0.0325
16	0.0503	0.0508	0.0513	0.0410
17	0.0448	0.0453	0.0458	0.0517
18	0.0399	0.0403	0.0407	0.0651
19	0.0355	0.0359	0.0363	0.0823
20	0.0317	0.0320	0.0323	0.1032
21	0.0282	0.0285	0.0288	0.1304
22	0.0250	0.0253	0.0256	0.1659
23	0.0224	0.0226	0.0228	0.2067
24	0.0199	0.0201	0.0203	0.2619
25	0.0177	0.0179	0.0181	0.3310
26	0.0157	0.0159	0.0161	0.4207
27	0.0141	0.0142	0.0143	0.5217
28	0.0125	0.0126	0.0127	0.6637
29	0.0112	0.0113	0.0114	0.8268
30	0.0099	0.0100	0.0101	1.0582
31	0.0088	0.0089	0.0090	1.3392
32	0.0079	0.0080	0.0081	1.6618
33	0.0070	0.0071	0.0072	2.1165
34	0.0062	0.0063	0.0064	2.6980
35	0.0055	0.0056	0.0057	3.4284
36	0.0049	0.0050	0.0051	4.3195
37	0.0044	0.0045	0.0046	5.3569
38	0.0039	0.0040	0.0041	6.8185
39	0.0034	0.0035	0.0036	8.9715
40	0.0030	0.0031	0.0032	11.5233
41	0.0027	0.0028	0.0029	14.2263
42	0.0024	0.0025	0.0026	18.0052
43	0.0021	0.0022	0.0023	23.5170
44	0.0019	0.0020	0.0021	28.7285

Stranded Conductors

Basic Stranding Information

SIZE AWG	STRAND/ AWG OR "	DIA (INCHES)	DIA (MILS)	POUNDS PER KFT	SIZE AWG	STRAND/ AWG OR "	DIA (INCHES)	DIA (MILS)	POUNDS PER KFT
44	1	0.0020	1.97	0. 01175	18	7/.0152"	0.0456	45.6	5.00
43	1	0.0022	2.22	0. 01492	18	7/26	0.0490	49	5.31
42	1	0.0025	2.49	0. 01877	18	19/.0092"	0.0437	43.7	5.00
41	1	0.0028	2.8	0. 02373	18	19/30	0.0476	47.6	5.87
40	1	0.0031	3.1	0. 02910	18	16/30	0.0450	45	4.94
39	1	0.0035	3.5	0. 03710	18	41/34	0.0468	46.8	5.00
38	1	0.0040	4	0. 04840	18	65/36	0.0460	46	5.00
37	1	0.0045	4.5	0. 06130	17	1	0.0453	45.3	6.21
36	1	0.0050	5	0. 07570	17	7/.0167"	0.0501	50.1	6.03
35	1	0.0056	5.6	0. 09490	16	1	0.0508	50.8	7.81
34	1	0.0063	6.3	0.120	16	7/.0192"	0.0576	57.6	7.97
33	1	0.0071	7.1	0.153	16	7/24	0.0600	60	8.90
32	1	0.0080	8	0.194	16	19/29	0.0539	53.9	7.49
32	7/40	0.0093	9.3	0.208	16	19/.0117"	0.0560	56	7.97
31	1	0.0089	8.9	0.240	16	26/30	0.0560	56	8.02
30	1	0.0100	10	0.303	16	37/.0089"	0.0605	60.5	9.05
30	7/38	0.0120	12	0.314	16	65/34	0.0600	60	7.97
30	19/42	0.0120	12	0.374	15	1	0.0571	57.1	9.87
29	1	0.0113	11.3	0.387	15	7/.0214"	0.0642	64.2	9.90
28	1	0.0126	12.6	0.481	15	37/30	0.0667	66.7	11.40
28	7/36	0.0150	15	0.491	14	1	0.0641	64.1	12.40
28	19/40	0.0152	15.2	0.570	14	7/.0242"	0.0726	72.6	12.70
27	1	0.0142	14.2	0.610	14	19/27	0.0679	67.9	11.80
27	7/ .0055"	0.0165	16.5	0.655	14	19/.0147"	0.0700	70	12.70
26	1	0.0159	15.9	0.765	14	37/29	0.0750	75	14.60
26	7/34	0.0190	19	0.773	14	41/30	0.0700	70	12.70
26	19/. 0039"	0.0190	19	0.890	14	105/34	0.0760	76	12.90
26	10/36	0.0190	19	0.769	13	1	0.0720	72	15.70
26	66/44	0.0190	19	0.769	13	7/.0265"	0.0795	79.5	15.20
25	1	0.0179	17.9	0.970	12	1	0.0808	80.8	19.80
25	7/ .007"	0.0210	21	1.06	12	7/.0305"	0.0915	91.5	20.20
24	1	0.0201	20.1	1.22	12	7/21	0.0850	85	17.30
24	7/32	0.0240	24	1.43	12	19/25	0.0862	86.2	18.80
24	19/36	0.0242	24.2	1.47	12	19/.0185"	0.0890	89	20.20
24	16/36	0.0242	24.2	1.47	12	37/28	0.0845	84.5	18.10
23	1	0.0226	22.6	1.55	12	65/30	0.0895	89.5	20.20
23	7/ .0085"	0.0255	25.5	1.56	11	1	0.0907	90.7	24.90
22	1	0.0253	25.3	1.94	11	37/27	0.0950	95	23.10
22	7/30	0.0300	30	2.18	10	1	0.1019	101.9	31.43
22	19/34	0.0295	29.5	2.33	10	7/.0385"	0.1155	115.5	32.05
22	26/36	0.0320	32	2.04	10	19/.0234"	0.1137	113.7	32.05
21	1	0.0285	28.5	2.46	10	37/26	0.1070	107	28.88
21	7/ .0106"	0.0316	31.6	2.43	10	65/28	0.1110	111	32.05
20	1	0.0320	32	3.09	10	105/30	0.1125	112.5	32.05
20	7/ .0121"	0.0363	36.3	3.15	9	1	0.1144	114.4	39.62
20	7/28	0.0390	39	3.32	9	7/.0432"	0.1296	129.6	40.42
20	19/32	0.0385	38.5	3.75	9	19/.0262"	0.1270	127	40.42
20	10/30	0.0360	36	3.09	8	1	0.1285	128.5	49.98
20	26/34	0.0370	37	3.19	8	7/.0486"	0.1458	145.8	50.98
20	41/36	0.0370	37	3.19	8	19/.0295"	0.1430	143	50.98
19	1	0.0359	35.9	3.90	8	19/7/29	0.1650	165	53.46
19	7/ .0136"	0.0408	40.8	4.00	8	65/26	0.1475	147.5	51.00
18	1	0.0403	40.3	4.92	8	665/36	0.1540	154	50.32

AWG to Metric Conversion Chart

This table gives solid copper conductor size cross references between American Wire Gauge (AWG) and the closest metric equivalents. As a general rule, stranded copper conductors of the same gauge size will be slightly larger than solid conductors.

American Wire Gauge AWG	Diameter Inches	Milimeters mm	Milimeters² (MM²)
4	0.2043	5.1894	21.1506
6	0.1620	4.1153	13.3017
8	0.1285	3.2636	8.3655
10	0.1019	2.5882	5.2611
12	0.0808	2.0525	3.3087
14	0.0641	1.6277	2.0809
16	0.0508	1.2908	1.3087
18	0.0403	1.0237	0.8230
19	0.0359	0.9116	0.6527
20	0.0320	0.8118	0.5176
21	0.0285	0.7229	0.4105
22	0.0253	0.6438	0.3255
23	0.0226	0.5733	0.2581
24	0.0201	0.5105	0.2047
25	0.0179	0.4546	0.1623
26	0.0159	0.4049	0.1287
27	0.0142	0.3605	0.1021
28	0.0126	0.3211	0.0809
29	0.0113	0.2859	0.0642
30	0.0100	0.2546	0.0509
31	0.0089	0.2261	0.0404
32	0.0080	0.2019	0.0320
33	0.0071	0.1798	0.0254
34	0.0063	0.1601	0.0201
35	0.0056	0.1426	0.0159
36	0.0050	0.1270	0.0126
37	0.0045	0.1131	0.0100
38	0.0040	0.1007	0.0079
39	0.0035	0.0897	0.0063
40	0.0031	0.0798	0.0050

Rubadue Wire Company, Inc. believes this information to be reliable, but the accuracy or completeness is not guaranteed.

Current Capacities

AWG GAUGE	CURRENT RATING AT VARIOUS AMPS PER SQUARE CM				MAXIMUM FREQUENCY
	200	400	600	800	
0	104.80	209.60	314.40	419.20	250
1	83.20	166.40	249.60	332.80	325
2	65.20	130.40	195.60	260.80	410
3	52.40	104.80	157.20	209.60	500
4	41.60	83.20	124.80	166.40	650
5	32.60	65.20	97.80	130.40	810
6	26.20	52.40	78.60	104.80	1,100
7	20.80	41.60	62.40	83.20	1,300
8	16.30	32.60	48.90	65.20	1,650
9	13.10	26.20	39.30	52.40	2,050
10	10.40	20.80	31.20	41.60	2,625
11	8.23	16.46	24.69	32.92	3,200
12	6.53	13.06	19.59	26.12	4,150
13	5.18	10.36	15.54	20.72	5,300
14	4.11	8.22	12.33	16.44	6,700
15	3.26	6.52	9.78	13.04	8,250
16	2.56	5.12	7.68	10.24	11,000
17	2.05	4.10	6.15	8.20	13,000
18	1.62	3.24	4.86	6.48	17,000
19	1.29	2.58	3.87	5.16	21,000
20	1.02	2.04	3.06	4.08	27,000
21	0.812	1.624	2.436	3.248	33,000
22	0.640	1.280	1.920	2.560	42,000
23	0.511	1.022	1.533	2.044	53,000
24	0.404	0.808	1.212	1.616	68,000
25	0.320	0.640	0.960	1.280	85,000
26	0.293	0.586	0.879	1.172	107,000
27	0.202	0.404	0.606	0.808	130,000
28	0.159	0.318	0.477	0.636	170,000
29	0.128	0.256	0.384	0.5120	210,000
30	0.100	0.200	0.300	0.4000	270,000
31	0.0792	0.1584	0.2376	0.3168	340,000
32	0.0640	0.1280	0.1920	0.2560	430,000
33	0.0504	0.1008	0.1512	0.2016	540,000
34	0.0397	0.0794	0.1191	0.1588	690,000
35	0.0314	0.0628	0.0942	0.1256	870,000
36	0.0250	0.0500	0.0750	0.1000	1,100,000
37	0.0203	0.0406	0.0609	0.0812	1,350,000
38	0.0160	0.0320	0.0480	0.0640	1,750,000
39	0.0123	0.0246	0.0369	0.0492	2,250,000
40	0.00961	0.01922	0.02883	0.03844	2,900,000

Insulation and Jacketing Materials

Rubadue Wire offers a wide variety of insulating and jacketing materials.

- DuPont™ Tefzel® ETFE
- DuPont™ Hytrel®
- Polypropylene
- Polyethylene
- PVC
- DuPont™ Teflon® FEP
- TPR / TPE
- DuPont™ Surlyn®
- Foam Polyethylene
- Medical PVC
- DuPont™ Teflon® PFA
- DuPont™ECCtreme®ECA 3000

Insulation thickness can range from 0.001" to 0.250" depending on the material.

Special and customized compound variations are available upon request.

Brief Description of Popular Insulating and Jacketing Materials

DuPont™ Tefzel® ETFE - Fluoropolymer compound with excellent electrical properties, heat resistance, chemical resistance, and abrasion resistance. Commonly used in winding wires, UL AWM wires, and medical applications.	**PVC -** Polyvinyl Chloride, thermoplastic polymer with a wide variety of characteristics. Varying grades can be found with high or low temperature, rigid or flexible, and electrical properties. Commonly used in UL AWM wires, hook up wires, and cables.	**Polyurethane -** Polymer with good dielectric, excellent oxidization, and abrasion resistant properties. A hard material with memory properties. Commonly used in cord and cable applications.
DuPont™ Teflon® FEP - Fluoropolymer compound with exceptional dielectric properties, heat resistance, chemical resistance, and flexibility. Commonly used in winding wires, UL AWM wires, and cable jacketing.	**Polyethylene -** Low density, high density, solid and foamed, thermoplastic with good electrical properties. Low dielectric constant with stable performance and excellent moisture resistance. Commonly used in UL AWM wires, hook up wires, and cables.	**DuPont™ Hytrel® -** Thermoplastic polyester elastomer that offers flexibility and strength. Halogen free insulation with good heat resistance. Commonly used in applications that require additional physical properties that an elastomer does not meet alone.
DuPont™ Teflon® PFA - Fluoropolymer compound with superior heat resistance, exceptional dielectric properties, and chemical resistance. Commonly used in Teflon® applications requiring a higher operating temperature.	**Polypropylene -** Thermoplastic with similar properties to Polyethylene. Typically a harder insulation, suitable for thin wall requirements.	**DuPont™ECCtreme®ECA3000 -** Perfluoropolymer insulation has excellent electrical properties at high temperatures and those properties improve when heated to 300˚C. Excellent chemical resistance, increased stress crack resistance, and low flammability.

Tefzel®, Teflon®, Hytrel®, and Surlyn® are DuPont™ Trademarks

Insulation Comparative Properties

Properties	ETFE (Tefzel®)	FEP	PFA	PVC	Polyethylene (HDPE)	Polyproylene	Polyurethane	Kapton
Thermal								
Continuous Operating Temperature (°C)	150-200	200	260	105	110	80	70	200
Non-Flammability	Excellent	Excellent	Excellent	VeryGood				Excellent
UL Flammability Rating	V-0	V-0	V-0	HB-V-0	HB	HB-V-0	HB	V-0
Solder Resistance	Excellent	Excellent	VeryGood	Good				Excellent
Smoke	Slight	None	None	Varies		Varies		None
Electrical								
Dielectric Strength	Excellent	Excellent	Excellent	Fair	Excellent	Excellent	Good	Excellent
Dielectric Constant	2.6	2.03	2.03	5.70	2.3	2.3	3.5	3
Mechanical								
Tensile Strength(psi)	6500	3000+	3600	4000	3800	4000	4500	17000
Elongation(%)	150-300	300	300	175-250	500	100	500	70
Abrasion Resistance	Excellent	Good	Good	Good	Good	Good	Excellent	Excellent
Bondability	Good	Poor	Poor	Good	Poor			Excellent
HardnessD	63	55	55	Varies		90		
Flex Moduluspsi	30,000-150,000	75,000	71,000-85,000	Varies	150,000	150,000		
Density(gm/cc)	1.7	2.12-2.17	2.15	1.36	.95-.96	.9-.98	1.12	1.42
Environmental								
UVResistance	Excellent	Excellent	Excellent	Good	Poor	Excellent	Good	
Chemical Resistance	Excellent	Excellent	Excellent	Fair-Good	Good	Good	Fair	Excellent
Water Resistance	Excellent	Excellent	Excellent	Fair-Good	Excellent	Excellent	Fair	Excellent
UndergroundResistance	Excellent	Excellent	Excellent	Fair-Good	Excellent		Good	
LongTermStability	Excellent	Excellent	Excellent	Good	Good	Good	Good	Excellent

** Properties may vary due to grade designation and intended application (for example flexible PVC vs semi-rigid PVC)

Substituting FEP for TFE Insulations

Rubadue Wire manufactures FEP and PFA, which are commonly substituted for TFE insulation.

There are a few differences between FEP / PFA and TFE

- FEP / PFA insulations are manufactured using a heat extrusion process, while ram extrusion manufacturing is utilized for TFE insulation
- FEP / PFA insulated wires are available in longer lengths
- PFA / TFE insulations are used in applications with operating temperatures up to 260°C
- FEP / PFA and TFE offer excellent dielectric strength

Cross Reference for Commonly Substituted Wire Certifications / Specifications

TFE	FEP	RATINGS
MIL SPEC		
Mil-W-16878/4 – Type E	Mil-W-16878/11 – Type K	200°C, 600V
Mil-W-16878/5 – Type EE	Mil-W-16878/12 – Type KK	200°C, 1000V
Mil-W-16878/6 – Type ET	Mil-W-16878/13 – Type KT	200°C, 250V
UL AWM		
1212	1226	80°C, NSV*
1213	1227	105°C, NSV*
1164	1333	150°C, 300V
1180	1332	200°C, 300V
1198	1331	150°C, 600V
1199	1330	200°C, 600V
1371	1371	150°C, NSV*

*NSV is the abbreviation for “not specified” from UL.
CSA Ratings for all of the above products are 150°C, 600V

Environmental Compliance

Environmental Compliance

Rubadue Wire Co., Inc. and its employees are committed to the use of environmentally friendly products and processes. As a result of this commitment to help protect our global environment, virtually all Rubadue Wire products manufactured and shipped since 2005 have met and continue to meet the requirements of the Restriction on Hazardous Substances (RoHS) Directive and Reach SVHC. Rubadue Wire is also proud to claim our continuing compliance and certification to ISO 14001 environmental standards.

RoHS Compliance - European Directive 2011/65/EC Restrictions on the Use of Certain Hazardous Substances

Rubadue Wire does not use Polybrominated Biphenyl (PBB) and Polybrominated Diphenyl Ether (PBDE) flame retardants as intentional ingredients in the manufacturing of any parts or components. To the best of our knowledge, none of our raw material suppliers use these substances in the manufacturing of their products.

European Directive 2011/65/EC also prohibits the use of certain amounts of lead, cadmium, mercury, and hexavalent chromium. Rubadue Wire products do not exceed the maximum allowable contents of these "heavy metals" in the manufacturing process. To the best of our knowledge, none or our raw material suppliers use unacceptable amounts of these substances in the manufacturing of their products.

This information is true for Rubadue Wire products shipped from our facility with a manufacture date on or after January 1, 2005, for our fluoropolymer products and March 1, 2006 for our PVC products. We conduct random analysis testing of our products to ensure RoHS compliance, but we do not routinely analyze our products for substances not purposely added.

REACH - Registration, Evaluation, and Authorization of Chemicals

Registration, Evaluation, and Authorization of Chemicals (Reach) entered into force in June 2007 for the intent of protection to human health and the protection of the environment. REACH included adding seven new substances of very high concern on December 16, 2013. However, Rubadue Wire Co., Inc. is a producer of "articles" and therefore must rely on suppliers for pre-registration.

REACH also addresses the continued use of 151 substances defined as "Substances with Very High Concern" (SVHC). Rubadue Wire Co., Inc. does not intentionally use or add any of the 151 (SVHC) above 0.1% weight and we have also confirmed with our raw material suppliers that these substances are not intentionally used or added above 0.1% weight.

Conflict Materials Statement

In the past year momentum has been building throughout the supply chain to verify that materials such as; Tantalum, Tungsten, Tin, and Gold are not sourced from the Congo and its adjoining countries. This has been due to recent finding from the United States Congress that the mining and sales of these materials are being used to fund violence.

Rubadue Wire Co., Inc. has taken due diligence with its suppliers to verify that the Tin used to produce its insulated wire is not sourced from the Congo or its adjoining countries. Rubadue Wire Co., Inc. has also received proper certification from its suppliers on the name and location of the company that the Tin is being sourced from.

ISO Certifications

Rubadue Wire is a certified ISO 9001:2008 and ISO 14001:2004 company.

Notes

Glossary

A

Abrasion – Damage caused by scraping or rubbing against a rough, hard surface.

Abrasion Resistance – A measure of the ability of a wire, wire covering or material to resist surface wear or damage by mechanical means.

A.C. or A-C – Abbreviation for alternating current.

Accelerated Life Test – A test in which certain conditions such as voltage, temperature, etc. to which a wire, cable or material is subjected are increased in magnitude above normal operating values to obtain observable deterioration in a reasonable period of time. Thereby providing a relative measure of the probable material life under operating voltage, temperature, etc.

Active Wire – The wire in an armature winding which produces useful voltage. That portion of the winding in which induction takes place.

Admittance – The measure of ease with which an alternation current flows in a circuit. The reciprocal of impedance.

Aging – The change in properties of a material with time under specific conditions.

Alloy – A metal formed by combining two or more other metals.

Alternating Current – Electric current that periodically and regularly reverses its direction. The frequency of the change in flow is expressed in cycles per second (Hertz or Hz).

Ambient Temperature – The temperature of a medium, such as gas or liquid, surrounding an object.

American Wire Gage (AWG) – The standard system used for measuring wire diameter.

Ampere (Amp) – The unit expressing the rate of flow of an electrical current. One ampere is the current flowing through an 'ohm' of resistance at one volt potential.

Anneal – To heat and then gradually cool in order to relieve mechanical stresses. Annealing copper makes it softer and less brittle.

ANSI – American National Standards Institute. Formally American Standards Association.

Arc Resistance – Time required for an arc to establish a conductive path in a material.

ASTM – American Society for Testing and Materials.

AWG – American Wire Gage.

AWM – Appliance Wiring Material; UL AWM standardized specifications with a range of temperatures and voltage ratings, conductor sizes and materials, insulation materials and thicknesses, shields or coverings.

B

Bare Conductor – A conductor not covered with insulating material.

Basic Isolation (Basic Insulation) – One layer of insulation over a conductor.

BC – Bare Copper.

Breakdown – (puncture) a disruptive discharge through insulation.

Breakdown Voltage – The voltage at which an insulation will breakdown, become electrically conductive, and fail.

Bunched Stranding – Term applied to a group of strands twisted together in a random manner in the same direction in one operation without regard to geometric arrangement of specific strands.

Buss Wire – Uninsulated wire.

C

Cable – Either a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).

Cable Assembly – A cable with plugs or connectors on each end.

Cable Core – The portion of an insulated wire or cable lying under the protective or insulated covering or coverings.

CFM – Customer furnished material.

Circuit – A complete path over which electrons can flow from the negative terminals of a voltage source through parts and wires to the positive terminals of the same voltage source.

Cladding – Method of applying a layer of metal over another metal whereby the junction of the two metals is continuously welded.

Class B – Thermal Class B rated for 130°C temperatures.

Class F – Thermal Class F rated for 155°C temperatures.

Class H – Thermal Class H rated for 180°C temperatures.

Color Code – A color system for wire or circuit identification by use of colors. (See color code chart).

Glossary

Compact Conductor – Stranded conductor which is rolled to deform the round wires to fill the normal interstices between the wires in a strand.

Composite (Clad) Wire – Wire having a core of one metal to which is fused an outer shell of one or more different metals.

Compound – An insulating jacketing material made by mixing two or more ingredients, thereby resulting in one material.

Concentric – A central core surrounded by one or more layers of helically wound strands in a fixed round geometric arrangement.

Concentric-Lay Conductor – A conductor composed of a central core surrounded by one or more layers of helically laid wires.

Concentric Strand – A strand that consists of a central wire or core surrounded by one or more layers of spiral laid wires. Each layer after the first has six or more strands than the preceding layer and is applied in a direction opposite to that of the layer under it.

Concentricity – In a wire or cable, the measurement of the location of the center of the conductor with respect to the geometric center of circular insulation.

Conductance – The reciprocal of resistance. It is the ratio of current passing through a material to the potential difference at its ends.

Conductivity – Reciprocal of volume resistivity. Conductance of a unit cube of any material.

Conductor – A wire or combination of wires not insulated from one another, suitable for carrying electric current.

Continuity Check – A test performed on a length of finished wire or cable to determine if the electrical current flows continuously throughout the length.

Contra Helical – The direction of a layer with respect to the previous layer. Meaning a layer spiraling in an opposite direction the preceding layer within a wire or cable.

Copolymer – A compound resulting from the chemical reaction of two chemically different monomers with each other.

Copper – Copper in wire forms has the best conductivity of the common (non-precious) metals. Copper and copper alloys offer excellent corrosion resistance, high thermal conductivity, and ease of fabricating.

Core – In wire and cables, a term used to express a component or assembly of components over which other materials are applied, such as additional insulating materials.

Corona – A luminous discharge due to ionization of the gas surrounding a conductor around which exists a voltage gradient exceeding a certain critical value.

Corona Resistance – The time that insulation will withstand a specified level field-intensified ionization that does not result in the immediate complete breakdown of the insulation.

Corrosion – Chemical action which causes deteriorations of the surface of a metal by oxidation or chemical combination.

Coulomb – Unit quantity of electricity i.e. the quantity transferred by 1 ampere in one second.

Cross-Sectional Area of a Conductor – The sum of the cross-sectional areas of its component wires, that of each wire being measured perpendicular to its individual axis.

CSA – Canadian Standards Association; global provider of product testing and certification services.

Current – The rate of transfer of electricity. Practical unit is the ampere which represents the transfer of one coulomb per second.

Current Carrying Capacity – The maximum current a conductor can carry without heating beyond a safe limit.

D

D.C. or D-C – Abbreviation for direct current.

De-rating Factor – A factor used to reduce a current carrying capacity of a wire when used in other environments from that for which the value was established.

Dielectric – Insulator.

Dielectric Absorption – That property of an imperfect dielectric whereby there is an accumulation of electric charges within the body of the material when it is placed in an electric field.

Dielectric Constant – (Permittivity or Specific Inductive Capacity). That property of a dielectric which determines the electrostatic energy stored per unit volume for unit potential gradient. Lower dielectric constant numbers are generally preferred.

Dielectric Loss – The time rate at which electric energy is transformed into heat in a dielectric when it is subjected to a changing electric field.

Dielectric Strength – The voltage which an insulation material can withstand before breakdown occurs.

Dielectric Test – Tests which consists of the application of a voltage higher than the rated voltage for a specified time for the purpose of determining the adequacy against breakdown of insulating materials and spacing under normal conditions.

Direct Current – An electric current which flows in only one direction.

Disturbed Conductor – A conductor that receives energy generated by the field of another conductor or an external source such as a transformer.

DIW – Double (layer) insulated wire.

Drawing – In the manufacture of wire, pulling the metal through a die or series of dies for reduction of diameter to a specified
size.

Glossary

E

Eccentricity – A measure of the center of a conductor's location with respect to the circular cross section of the insulation. Expressed as a percentage of center displacement of one circle within the other.

EIA – Abbreviation for Electronic Industries Association.

Electromotive Fore (E.M.F.) Pressure or voltage. The force which causes current to flow in a circuit.

Electronic Hook-Up Wire – Wires used to make internal connections between various electrical parts of electronic assemblies.

Electronic Interconnecting Wire – Wires or cables used to make external connections between various units of electronic equipment.

Electro-Tinned – Electrolytic process of tinning wire using pure tin.

Elongation – A fractional increase in the length of a material when a given amount of stress is applied.

EMF – Abbreviation, Electromotive Force or voltage.

End to End Check. Tests conducted on a completed wire and / or cable run to assure electrical continuity.

ETFE – Ethylene tetrafluoroethylene; type of insulation.

Extrusion – A method of forcing plastic, rubber or elastomer materials through an orifice in a continuous fashion to apply insulation or jacketing to a conductor or cable.

F

Farad – Unit of capacitance.

Fatigue Resistance – Resistance to metal crystallization which leads to conductors or wire breaking from flexing.

FEP – Fluorinated Ethylene Propylene; type of insulation.

Film – Sheeting having a nominal thickness not greater than 0.010 inch.

Flat Conductor – A conductor with a width-to-thickness ratio of arbitrarily 5 to 1 or greater.

Flex Life – The time of heat aging that an insulation material can withstand before failure when bent around a specific radius, (used to evaluate thermal endurance). Also, ability of conductor, wire, cable to withstand repeated bending.

Frequency – The number of times an alternation current repeats its cycle in one second.

G

Gage or Gauge – A term used to denote the physical size of a wire.

GRD – Abbreviation for Ground.

Ground Insulation – The major insulation used to achieve ground potential.

Ground Wire – A conductor leading from equipment to an electrical connection with the ground.

H

Hard Drawn Copper Wire – Copper wire that has not been annealed after drawing.

Heat Endurance – The time of heat aging that a material can withstand before failing a specific physical test.

Heat Shock – Test to determine stability of material by sudden exposure to a high temperature for a short period of time.

Helical – Spiral

Helix – Spiral winding

Henry – Unit of inductance when the induced electromotive force of one volt is produced by the inducing current changing at the rate of one ampere per second.

Hertz – A term replacing cycles-per-second as an indication of frequency.

Hi-Pot – A test designed to determine the highest potential that can be applied to a conductor without breaking through the insulation.

High Voltage – Typically refers to a wire or cable with an operating voltage over 600 volts.

Hook-Up Wire – Insulated wire used for low current, low voltage (under 1000 volt) applications internally within enclosed electronic equipment.

Hot Tin Dip – A process of passing bare wire through a bath of molten tin to provide a coating.

I

IEC – International Electrotechnical Commission; international standards organization dealing with electrical, electronic, and related technologies.

Impedance – The total opposition that a circuit offers to the flow of alternating current or any other varying current at a particular frequency.

Inductance – The property of a circuit or circuit element that opposes a change in current flow. Inductance thus causes current changes to lag behind voltage changes. Inductance is measured in henrys.

Insulated Wire – A conductor of electricity covered with a non-conducting material.

Insulation - Material having a high resistance to the flow of electric current, to prevent leakage of current from a conductor.

Insulation System – All of the insulation materials used to insulate a particular electrical or electronic product.

Insulation Thickness – Size of insulation applied to conductor, typically measured in mils or thousandths of an inch.

Insulator – A material of such low electrical conductivity that the flow of current through it can usually be neglected.

Interconnecting Wire – The physical wiring between components (outside a module), between modules, between units or between larger portions of a system or systems.

Glossary

J

Jacket – A synthetic or rubber covering over the insulation, core or sheath of a cable.

K

Kilowatt – A unit of power equal to one thousands watts.

Kilovolt Ampere – 1000 volts X amperes.

Kilovolts – 1000 volts.

L

Lay – The twist in a stranded conductor or twisted wires; distance between each twist.

Litz Wire – (Litzendraht Wire) Wire made from a number of fine, separately-insulated enamel strands specially braided or woven together for reduced skin effect and hence, lower resistance to high frequency currents for lower RF losses.

M

Magnet Wire – Enamel insulated wire intended for use in windings on motors, transformer and other coils for electromagnetic devices.

Melt Index – Extrusion rate of a thermoplastic material through an orifice of specified diameter and length under specified conditions of time, temperature and pressure.

Melt Range – The difference in degrees F or C between the melt point of material and its flow point.

Melt Point - The point at which a material melts.

MHD – Medium Hard Drawn copper wire.

Mil – 0.001" (1/1000 inch) One thousandth of an inch. A unit used in measuring the diameter of wire or thickness of insulation over a conductor.

Milli – Prefix denoting one thousandth.

MTW – Designation for thermoplastic insulated machine tool wire. 90 to 105 degree C, 600 V.

N

NEC – National Electrical Code covers the use of wire and cable in many applications.

NEMA – National Electrical Manufacturers Association.

Nickel – Nickel offers a combination of corrosion resistance, formability, and tough physical properties. Nickel is used for alloying purposes and in nickel-clad copper wire.

Non-Conductor – An insulating material.

NPC – Nickel Plated Copper.

Nylon – The generic name for synthetic fiber-forming polyamides.

O

OD – Outside Diameter.

OHM – Unit of electrical resistance. Resistance of a circuit in which a potential difference of one volt produces a current of one ampere.

OHM's Law – Current in terms of electromotive force E and resistance R: given by equation: I = E/R.

Over potential / Overvoltage – A voltage above the normal operating voltage of a device or circuit.

P

Percent Conductivity – Conductivity of a material expressed as a percentage of that of copper.

PFA – Perfluoroalkoxy; type of insulation.

Plain Conductor – A conductor consisting of one metal only.

Plastic – High polymeric substances, including both natural and synthetic products,(excluding rubbers), that are capable of flowing under heat and pressure.

Plating – One method of applying a coating on one metal over another.

Polarity – a) An electrical condition determining the direction in which current tends to flow. b) The quality of having two opposite charges.

Polyethylene (PE) – Thermoplastic polymer insulation.

Polypropylene – Thermoplastic insulation similar to polyethylene but stiffer and having a higher temperature capability.

Polyurethane – Broad class of polymer insulations.

Potting – Sealing of a wire or cable termination or other parts with a liquid composition that hardens into an elastomer or solid plastic material.

Primary Insulation – A non-conductive material, the first layer over a current carrying conductor. The prime function being an electrical barrier for the applied potential.

PVC – Polyvinyl chloride; general purpose thermoplastic insulation.

R

Reinforced Isolation (Reinforced Insulation) – Three layers of insulation over a conductor.

Resistance – Property of a conductor that determines the current produced by a given difference of potential. The ohm is the practical unit of resistance.

Resistive Conductor – A conductor used primarily because it possesses the property of high electric resistance.

Re-Spool – To rerun material from one package spool to another for varying reasons. Such as: Testing, inspection for defects, verify lengths, etc.

RMS – Root Mean-Square – The alternating current value that corresponds to the direct current value that will produce the same heating effect.

Glossary

Rupture – The point at-which a material physically comes apart as opposed to yield strength or elongation, etc.

S

SAE – Society of Automotive Engineers.

Secondary Insulation – A non-conductive material whose prime functions are to add a second electrical barrier and provide additional abrasion protection.

Shelf Life – Length of time under specified conditions that a material retains its usability.

Shunt Wire – A conductor joining two parts of an electric circuit to divert part of a current.

Silver – Silver is similar to gold in corrosion resistance. Costs less, provides very good conductivity and solderability. Widely used as a plating or coating over copper.

SIW – Single (layer) insulated wire.

Solder – A metallic alloy for uniting metals.

Solid Conductor – A conductor consisting of a single wire.

SPC – Silver Plated Copper.

Spark Test – A test performed on wire and cable to determine the amount of detrimental porosity (pin holes) of defects in the insulation.

Strand – One of the wires, groups of wires, of any stranded conductor.

Stranded Conductor – A conductor composed of a group of wires (Wires in a Stranded Conductor are usually twisted).

Strip – To remove insulation from a wire or cable.

Supplementary Isolation (Supplementary Insulation) – Two layers of insulation over a conductor.

T

Tank Test – A term used to describe a voltage dielectric test where the specimen to be tested is submerged in a liquid (usually water) and a voltage potential applied between the conductor and the liquid as ground.

TPC – Tin Plated Copper.

Teflon® – DuPont™ trade name (Teflon® FEP & Teflon® PFA).

Tefzel® – DuPont™ trade name for Tefzel® ETFE.

Tensile Strength – The pulling stress required to break a given wire.

Temperature Rating – The maximum temperature at which the insulating material may be used in continuous operation without loss of its basic properties.

TFE – Polytetrafluoroethylene.

Thermal Conductivity – Ability of a material to conduct heat.

Thermal Endurance – The time at a selected temperature for an insulating material or system of materials to deteriorate to some predetermined level of electrical, mechanical, or chemical performance under prescribed conditions.

Tin Plated Copper – Copper wire that has been coated with a layer of tin. One benefit is to simplify soldering.

TIW – Three (layer) insulated wire.

Tolerance – A specified allowance for error from a standard or given dimension, weight, or property.

U

UL – Underwriters Laboratories Inc.; independent product safety testing and certification organization.

Unidirectional Concentric Stranding – Stranding where each successive layer has a different lay length, thereby retaining a circular form without migration of strands from one layer to another.

Unidirectional Stranding – A term denoting that in a stranded conductor all layers have the same direction of lay.

Unilay Strand – A conductor constructed with a central core surrounded by more than one layer of helically-laid wires, with all layers having a common length and direction of lay.

V

VDE – Verband der Elektrotechnik; German Association for electrical, electronic, and information technologies. Certification organization.

Volt – Basic unit of electrical potential.

Voltage – Electrical potential of force expressed in volts.

Voltage Drop – Amount of voltage loss from original input in a conductor of given size and length.

Voltage Rating – The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

W

Wall Thickness – A term used that expresses the thickness of an insulation or jacket.

Watt – Unit of power or work done at the rate of one joule per second or rate of work represented by current of one ampere under a pressure of one volt (voltampere).

Winding Wires – Basic, Supplementary, or Reinfoced Isolation / Insulation.

Withstand Voltage – Voltage that the conductor will safely handle in a given application without failure.

Wire – A conductor of round, square, or rectangular section. Either bare or insulated.

Wire Gage – A system of numerical designations of wire sizes. See American Wire Gauge (AWM).

GENERAL TERMS AND CONDITIONS OF SALE

1. SCOPE
The General Terms and Conditions of Sale herein provide for the sale by Rubadue Wire Co.,Inc. ("Seller") to Buyer of: (a) bare or insulated wire or cable provided by the Seller ("Products"), and (b) any services to be performed by the Seller ("Services").

2. CONTRACT
All quotations are subject to change or withdrawal without notice. Orders shall not be considered accepted until acknowledged in writing on seller's order acknowledgement form. Acceptance of any order and the resulting contract between Buyer and Seller is expressly limited to the terms and conditions stated herein ("the Terms and Conditions"). The General Terms and Conditions herein shall govern any contract or purchase order except as otherwise provided in (i) an existing valid supply agreement between Buyer and Seller, or (ii) a valid, specific, written quotation from Seller for a specific Purchase Order (a "Quotation").
By delivery to seller of an order and/or the acceptance of goods, the Buyer acknowledges receipt of these Terms and Conditions. Any contract of sale between Buyer and Seller shall incorporate these Terms and Conditions and such contract shall not be amended or modified by the provisions of any purchase order or other communication from the Buyer.

3. PRICE AND PAYMENT
Unless otherwise provided in a Quotation, product and service prices ("Purchase Price") are valid for thirty (30) days and shall not include, and Buyer shall reimburse Seller for: (a) all applicable shipping, delivery, demurrage, and insurance charges from Seller's designated dock to the Buyer's designated destination, (b) special print or labeling, (c) packing requirements exceeding Seller's commercial standards, and (d) any and all taxes assessed against or payable by Seller in connection with the sale, except for taxes imposed upon Seller's net income. If Buyer claims to be exempt from any sales, use, or other taxes, then Buyer shall promptly deliver to Seller the appropriate exemption certification. If early discount is stipulated, it is subject to the Buyer's entire account being current. Any cash discount for prompt payment shown on any Seller's invoice shall not apply to freight charges, containers, taxes or other charges.

Seller may make and invoice for partial shipments.

Buyer may not set-off, whether for possible damages for breach or otherwise, against any payments due Seller, provided, however, payments by Buyer are without prejudice to Buyer's rights

4. CREDIT
If Buyer fails to fulfill the terms of payment of any invoice or if the financial condition of Buyer shall become impaired or unsatisfactory to Seller, or if necessitated by any acts or requirements of any governmental authority, Seller reserves the right to change the terms of payment and/or defer or discontinue further shipments, without prejudice to any other lawful remedy available to Seller, until past due payments are made and satisfactory assurances of Buyer's credit standing or ability to meet its obligations under the applicable Contract are received by Seller, or until compliance with such acts or requirements of such governmental authority. Seller also reserves the right in the case of any of the foregoing events to cancel all Contracts with Buyer, in which event, Buyer shall compensate the Seller for any commitments, obligations, expenditures, expenses and costs the Seller may have incurred through the date of cancellation in connection with such Contracts.

All purchase orders are subject to credit approval prior to acceptance. With respect to any invoice, Buyer shall pay the total amount due to Seller (the "Invoice Total") in full, exclusively in United States dollars, within thirty (30) days after the date of the related invoice. Interest shall accrue on any past due amount at the lesser of (a) 18% per annum, or (b) the maximum rate permitted by applicable law. Seller retains a continuing security interest in all Products until the related Invoice Total is paid in full. If Seller determines at any time that, in the opinion of Seller, Buyer is unable to comply with the payment terms, then Seller may suspend credit terms, require progress payments, demand payment in full for outstanding balance, withhold shipments, and repossess all Products previously delivered, which shall become the absolute property of Seller subject to credit therefore.

5. CHANGES / CANCELLATIONS / RETURNS
Purchase orders accepted by Seller are not subject to change, cancellation, delay, or return without Seller's prior written consent and appropriate compensation for all costs or losses incurred by Seller. Any such cancellation or return may be subject to a minimum fee of twenty percent (20%) of the price of the goods. Refer to Seller's Cancellation & Return Policy. Only unused cables in the original packaging are eligible for return.

6. DELIVERY, TITLE AND RISK OF LOSS
Title to goods being sold pursuant to a Contract and risk of loss shall pass to Buyer upon Seller's placing materials with the designated carrier.

Risk of loss or damage shall pass to Buyer (a) upon delivery to the destination listed in the related Purchase Order if freight arranged by Seller, or (b) upon delivery to the carrier, if shipped "EXWorks, Collect, 3rd Party Logistics, or otherwise". Except as otherwise agreed in a Quotation, Seller reserves the right to: (a) make partial shipments and submit invoices for partial shipments,
and (b) ship overages or underages of weight, length, size and/or quantity in accordance with Seller's commercial standards.

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6. DELIVERY, TITLE AND RISK OF LOSS (Continued)
Delivery dates are approximate only and based on conditions at the time Seller accepts Buyer's purchase order. Seller shall not be liable for any loss or damage arising directly or indirectly as a result of a shipment delay. Seller shall pack each Product for shipment in accordance with Seller's commercial standards, except as otherwise mutually agreed.

7. STORAGE
Upon manufacture of the subject goods to be sold under a contract, Seller shall issue its bill of lading and invoice to Buyer. Upon receipt of a written request of an officer of the Buyer prior to shipment that such shipment be placed in a "hold" status, Seller will store such goods at Buyer's sole risk for no more than fifteen(15) days without charge to Buyer. Such agreement to store shall not relieve or in any manner delay or impact Buyer's obligation to pay the charges and/or costs billed to it by Seller. After the initial fifteen day period, Seller may agree to continue to store Buyer's goods, at Buyer's sole risk, for such period as may be mutually agreed at Seller's normal and customary storage charges. The foregoing provision shall not impact the time at which risk of loss shall pass to Buyer, which shall be the date upon which the goods were ready for shipment as invoiced, nor will it affect the time when payment of invoices shall be due from Buyer.

8. RETURN OF REELS
All returnable reels shall be returned to Seller within 90 days after shipment. The return freight charges for returnable steel reels from Buyer's location to Seller shall be the responsibility of Buyer. All reels shall be returned empty of excess cable. Refurbishment costs for reels requiring significant repair shall be charged to Buyer. Buyer shall be charged for any returnable steel reels not returned within the 90 day period after shipment, based on Seller's original or replacement cost of the reel (as determined by Seller in its sole discretion). If Seller charges Buyer for unreturned reels and the reels are returned in acceptable condition within 180 days, Seller shall credit Buyer for eighty percent of these reel charges previously imposed.

9. WARRANTY
SELLER WARRANTS PRODUCTS SHALL, UNDER NORMAL USE AND SERVICE, MEET SELLER'S PUBLISHED SPECIFICATIONS AND BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SHIPMENT. TO MAKE A CLAIM UNDER THIS WARRANTY BUYER MUST NOTIFY SELLER IMMEDIATELY AFTER THE BUYER DISCOVERS THE DEFECT AND RECEIVE AUTHORIZATION TO RETURN THE MATERIAL TO SELLER. SELLER'S SOLE AND EXCLUSIVE LIABILITY SHALL BE, AT ITS OWN DISCRETION, TO REPAIR OR REPLACE DEFECTIVE MATERIAL, EITHER ONSITE OR AT THE MANUFACTURING LOCATION AND SHIP IT BACK TO THE BUYER, F.O.B. CUSTOMER LOCATION. THIS WARRANTY DOES NOT INCLUDE REMOVAL AND REINSTALLATION COSTS AND DOES NOT APPLY TO DEFECTS NOT CAUSED BY SELLER, SUCH AS ABUSE, NEGLECT, ACTS OF NATURE, IMPROPER USE, INSTALLATION OR ALTERATION, OR NORMAL WEAR AND TEAR. SELLER'S WARRANTY DOES NOT APPLY TO ITEMS OBTAINED VIA UNAPPROVED OR SECONDARY SOURCES NOT SERVING AS AN AUTHORIZED SELLER AGENT.

EXCEPT AS OTHERWISE PROVIDED IN THIS ARTICLE, SELLER MAKES NO WARRANTY OF ANY KIND WITH RESPECT TO ANY PRODUCT, DOCUMENTATION OR SERVICES, AND SELLER DISCLAIMS ANY AND ALL IMPLIED WARRANTIES RELATING THERETO, INCLUDING, BUT NOT LIMITED TO, ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY INTENDED OR PARTICULAR PURPOSE.

10. FORCE MAJEURE
If Seller suffers a delay in performance due to any cause beyond Seller's reasonable control, the time for Seller's performance shall be extended a period of time equal to the period of delay. Seller will give the Buyer written notice within a reasonable time after Seller becomes aware of such delay.

11. CHANGE IN GOODS
Seller reserves the right to change the part number, design, dimensions, weight, or specifications of the goods at any time. However, Seller shall not make any changes to the goods ordered by Buyer without the Buyer's consent if the change impairs the performance or function of the goods.

12. INTELLECTUAL PROPERTY
No title, license, or interest in any of Seller's intellectual property (including proprietary documents and data) is transferred hereunder. Seller will defend and indemnify Buyer against claims that Products sold hereunder infringe any third party, United States, or Canadian patent, copyright, or trademark, provided Buyer promptly notifies Seller in writing of the claim and grants to Seller the sole authority to assume the defense thereof, and the sole right to settle the claim. At Seller's option and expense, it shall either procure for Buyer the right to use any infringing good, or replace or modify the same so that it becomes non-infringing. The foregoing is inapplicable to Product supplied to Buyer's specification or to infringement claims relating to use in combination with products not furnished by Seller. The foregoing states Seller's sole obligations regarding intellectual property right infringement.

13. LIMITATION OF LIABILITY
NOTWITHSTANDING ANY PROVISION OF THIS AGREEMENT TO THE CONTRARY, (A) NEITHER SELLER NOR ANY OF SELLER'S SUPPLIERS OR LICENSORS SHALL HAVE ANY LIABILITY TO BUYER FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL OR SPECIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, ANY LOST REVENUES OR PROFITS), ARISING OUT OF THIS AGREEMENT, AND (B) SELLER'S LIABILITY FOR ANY CLAIM ARISING OUT OF THIS AGREEMENT (OTHER THAN LIABILITY FOR PERSONAL INJURY CLAIMS) SHALL NOT EXCEED THE PURCHASE PRICE OF THE PRODUCT OR SERVICES WHICH ARE THE SUBJECT OF SUCH CLAIM.

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13. LIMITATION OF LIABILITY (Continued)
Seller shall not be liable for any loss or damage resulting from causes beyond its reasonable control. With respect to hardware and components manufactured by a third party vendor, recourse shall be made against such vendors only, and Buyer's only obligations are: (a) to the extent any warranty extended by the vendor is transferable, Seller shall transfer such warranty to Buyer, and (b) to use commercially reasonable efforts (excluding the initiation of litigation) to require the vendor to fulfill the obligations of their warranty.

14. EXPORT
If any Product, documentation, or technology delivered or disclosed to Buyer under this Agreement is subject to the Export Administration Regulations administered by the United States Department of Commerce ("EAR") or any other United States export law, then Buyer shall not export or reexport such Product, Documentation, or technology except in compliance with the EAR or such other law.

Seller shall disclose information to be disclosed to Buyer and deliver materials to be delivered to Buyer only in compliance with the export control laws and regulations of the United States of America in effect from time to time. Buyer agrees to abide by any limitation of disclosure placed on information revealed to it, and by any limitation of material deliveries which may be placed thereon as a result of such regulations. Buyer shall provide Seller with all documentation and data necessary or desirable for compliance with all such laws and regulations. In particular, before Buyer purchases Goods that Buyer intends to export, Buyer will so notify Seller and will identify the country(ies) of intended destination. Buyer agrees to hold Seller harmless from any liability arising from the failure of Buyer to comply with such laws and regulations, or with the provisions of this paragraph.

The product price is payable in US Dollars. Seller does not accept liability for variations in exchange rates between the date of this Agreement and the date of payment. Unless otherwise agreed by Seller, payment shall be made by an irrevocable, divisible letter of credit in US Dollars confirmed by a US banking institution acceptable to the Seller. The said letter of credit must allow payment against a sight draft which shall be supported by "on board" bills of lading. Seller shall not be obligated to commence performance of this order until it has received the said letter of credit from the confirming US bank.

Customs: It shall be the responsibility of the Buyer to clear the product through the customs department of the country to which the product is shipped, and to satisfy all other rules and regulations of the said country relative thereto. Buyer shall fully satisfy all import license requirements and other similar rules and regulations prior to instructing Seller to commence performance of this order.

Duties, Taxes, Etc: Buyer will either pay directly, or reimburse Seller for all duties, taxes, license or registration fees, assessments of levies of any nature whatsoever now or hereafter imposed by or under the authority of any law, rule or regulation with respect to ownership, manufacture importation, transportation, installation, purchase, sale or use of the product, except income taxes on Seller imposed by the Government of the United States.

15. CHOICE OF LAW, VENUE, JURISDICTION
These Terms and Conditions and any Contract to which they apply shall be governed by and subject to interpretation under the applicable laws of the State of Colorado, Colorado Uniform Commercial Code (the "State"), without reference to its conflicts of laws principles and rules. The United Nations Convention on Contracts for the International Sale of Goods shall not apply in any manner to any such agreement. Seller and Buyer consent to and submit themselves to the jurisdiction and venue of any dispute arising hereunder or of any action to enforce these Terms and Conditions and any Contract to which they apply by arbitrators or the State and Federal courts located in Weld County, Colorado.

16. ARBITRATION
Seller or Buyer may require that any controversy, claim, dispute or other matter arising out of or related to these Terms and Conditions and any Contract to which they apply be settled by binding arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association (the "AAA"). Any such arbitration shall be conducted in Weld County, Colorado or such other location as the parties may agree before a panel of three arbitrators, one of whom shall be selected by Seller; one of whom shall be selected by Buyer; and one of whom shall be selected by the mutual agreement of the parties. The arbitrators shall be appointed within thirty days of the date that a party submits a claim to arbitration, provided, however, if the parties are unable to mutually agree on the third arbitrator within such period, then the third arbitrator shall be appointed by the AAA in accordance with the process prescribed by its Rules. If any party institutes any judicial proceeding relating to a claim, that action shall not be a waiver of the right of any party to require submission of such claims to arbitration.

17. OTHER
a) Notices to Buyer shall be sent to the attention of the person accepting on Buyer's behalf. Notices to Seller shall be sent to the Marketing Manager. Notices shall be deemed given when received.

b) Typographic and clerical errors, including errors in pricing, are subject to correction. Each party agrees to notify the other when it becomes aware of the same.

c) Unless otherwise stated, product sold hereunder shall be subject to Seller's standard tolerances and variations, and shipments will be in Seller's standard reels, coils, spools, or packages.

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