



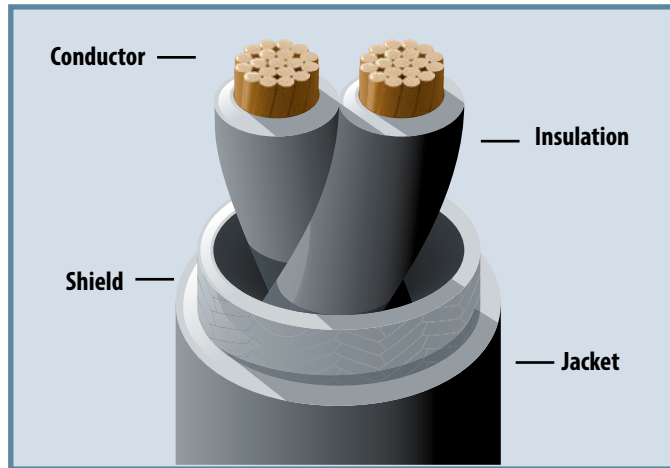
Surprenant AD300®

High Temperature Cable - 600V, -65° - 300°C

APPLICATION

The AD300®-CABLE specification is used to describe both shielded and unshielded cable constructions for avionics, military vehicle, shipboard, missile, and other electronic applications. The specification allows the user a variety of construction choices. Conductor size, number of conductor, shielded or unshielded and jacketed or unjacketed, may all be specified using this document. Besides offering high temperature use, these cables have excellent resistance to common chemicals.

Shielded and Unshielded Military Cable



COMPONENT WIRE

Per AD300®

CONDUCTOR

Nickel Coated Copper and Alloy

INSULATION

Fluoropolymer

CABLE

1-15 Conductors

SHIELD

Various materials (shielded and unshielded)

JACKET

Fluoropolymer

TYPICAL PROPERTIES

Blocking: 300°C

Cold Bend: -65°C

Accelerated Aging: Oven Temperature, 310°C for 24 Hours

Dielectric Withstand: 1500 Vrms

Flammability: 30 Second (max) 3" (max); No flaming of tissue paper

Jacket Tensile Strength: 2500 psi min

Jacket Elongation: 150% min

Spark Test (Jacket): 1500 Vrms

Jacket Wall:

Cable OD .150" or smaller-(.005' Min-.0125' Max.)

Cable OD .250" -(.0075' Min-.0125' Max.)

Part Number Designation

AD300	-	24	NC	3	N	30	- X/X/X	- X
Spec	ID Method	AWG	Wire Type	Number Conductors	Shield Type	Jacket Type	Component Colors	Jacket Color

Identification Methods

Designation	Color Code
-	White & White with stripes per Table 3-1 (WC27500)
U	Alternate Color designation spelled out in part (MIL-STD-681)

Shield Descriptions

Single Shield	Double Shield	Shield Material	Temp Rating
U	-	Not Shielded	300°C
N	Y	Nickel Plated Copper, Round	300°C

Jacket Types

Single Jacket	Double Jacket	Jacket Material	Temp Rating
00	00	No Jacket	300°C
30	90	Extruded White Fluoropolymer	300°C





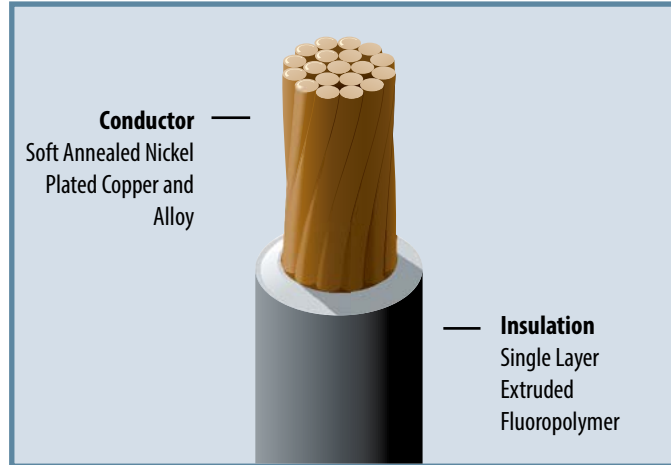
Surprenant AD300®

High Temperature Wire -65° - 300°C

SCOPE

This specification covers single conductor wire with nickel coated copper conductors, and a fluoro-polymer insulation. The wire has similar properties to other extruded fluoro-polymers such as FEP and PFA and is specially produced during reaction to enhance the thermal performance. The material can withstand intermittent temperatures as high as 305°C and continue operating where other materials such as PFA, PTFE and Polyimide quickly degrade. It has similar chemical and electrical properties as FEP and PFA. The insulation has a continuous use of 300°C.

Normal Wall Fluoropolymer Wire



CONSTRUCTION

2.1 Conductors:

Conductors shall be soft annealed nickel coated copper wire or nickel coated copper alloy and shall comply with ASTM B 355. The conductor and stranding shall be in accordance with Table I.

2.2 Insulation:

The insulation shall be a white fluoro-polymer, which shall fit tightly but be readily removable from the conductor. The minimum average thickness shall be in accordance with Table I. The electrical and physical characteristics shall be in accordance with section 8.0

TABLE I (Physical Characteristics)

Part Number	Conductor					Insulation		Weight (lbs/ft)
	Size	Stranding	Material	Diameter (Nom.) (Inches)	Resistance at 20C	Min. Avg. Wall	Diameter	
AD300-30-X	30AWG	7/38	NC	.012	110.7	.005	.025	1.2
AD300-30A-X	30AWG	7/38	NA	.012	127.0	.005	.025	1.2
AD300-28-X	28AWG	7/36	NC	.015	67.9	.005	.028	1.4
AD300-28A-X	28AWG	7/36	NA	.015	77.5	.005	.028	1.4
AD300-26-X	26AWG	19/38	NC	.019	42.2	.005	.033	1.8
AD300-26A-X	26AWG	19/38	NA	.019	49.4	.005	.033	1.8
AD300-24-X	24AWG	19/36	NC	.024	25.9	.005	.037	2.4
AD300-24A-X	24AWG	19/36	NA	.024	30.1	.005	.037	2.4
AD300-22-X	22AWG	19/34	NC	.030	16.0	.005	.042	3.3
AD300-22A-X	22AWG	19/34	NA	.030	18.6	.005	.042	3.3
AD300-20-X	20AWG	19/32	NC	.038	9.77	.005	.050	4.8
AD300-20A-X	20AWG	19/32	NA	.038	11.4	.005	.050	4.8
AD300-18-X	18AWG	19/30	NC	.047	6.1	.006	.060	7.4
AD300-16-X	16AWG	19/29	NC	.053	4.76	.006	.070	9.2
AD300-14-X	14AWG	19/27	NC	.066	3.00	.006	.084	14.0
AD300-12-X	12AWG	37/28	NC	.085	1.98	.007	.105	21.0
AD300-10-X	10AWG	37/26	NC	.107	1.24	.007	.127	33.0
AD300-8-X	8AWG	133/29	NC	.160	.694	.010	.190	65.0
AD300-6-X	6AWG	133/27	NC	.200	.436	.012	.245	95.0
AD300-4-X	4AWG	133/25	NC	.255	.275	.015	.320	155.0





Surprenant AD300®

High Temperature Wire -65°- 300°C

Normal Wall Fluoropolymer Wire

MARKING

The wire shall be marked in green ink at 12 inch maximum intervals with the following information:

Company Name, Wire Part, AWG, Temp Rating

example: "RSCC AEROSPACE & DEFENSE AD300-24 24AWG 300C"

IN-PROCESS TESTING

All finished wire shall be subjected to an AC spark test voltage of 5000 Volts rms.

LOT TESTING

All finished wire shall include basic electrical, as defined in Table I, and be subjected to the group A tests, and certified test data provided with each shipment.

MATERIAL PERFORMANCE

All finished wire shall in addition to meeting the requirements of group A, shall also be able to pass the tests specified in group B.

SHIPPING

Shipping requirements will be determined at time of PO placement.

REQUIREMENTS

The requirements for this product described herein shall consist of this specification sheet and AS22759.

GROUP A

Basic Physical characteristics:

Conductor- Copper conductor, Nickel (see Table I for diameter, and stranding)

Insulation- Fluoropolymer insulation (see Table I for wall thickness, and diameter)

BASIC ELECTRICAL

Conductor Resistance- ohms/1000 feet at 20°C

Spark Test- Conductor to ground, Vrms

Insulation Resistance

Visual and dimensional

Accelerated Aging 7 days at 310°C

Cold Bending- -65°C (12X Mandrel)

Insulation Tensile- psi minimum

Insulation Elongation- % minimum

Shrinkage- 4 hours at 310°C

Permanence of printing- cycles, minimum

Flame Propagation-

Per Table I

5,500 Vrms

5,500 Meg-Ohms Min.

No Failure

75% Retention Min.

No Cracking

3500

250%

.125" Max. change

75

Per AS22759

GROUP B

Immersion

Life Cycle (60 days at 300°C) (1500V Dielectric)

Dielectric Constant

Per AS22759

No Failure

2.15

