

## Space Applications Light Weight Wires and cables

# SCC 3901-002

### CHARACTERISTICS:

#### Environmental:

- Operating Temperature: -100°C to +200°C (ambient temperature + current heating).
- Non-flammable
- Very good solderability.
- Current rating: the currents shown in the tables for single wires generate a temperature in a vacuum environment. According to ESA/SCC specifications, those current values may be considered up to an ambient temperature of 150°C.
- Derating factors must be applied for cables and wires in bundles.
- High resistance to chemical agents, fluids and space radiations.
- The 2 µm thick of silver plating on the conductor and the shield give the best protection against the red plague phenomenon.

#### Mechanical :

- The wrapped construction technology allows very thin wall insulation, yielding weight and space savings and higher performances.
- Superior mechanical resistance eliminating handling and installation damage.
- Good strippability.

#### Electrical:

- Maximum operating voltage : 600Vac.
- Insulation resistance of core:  
> 750 MΩ.km at 20°C (500V– 1min.).

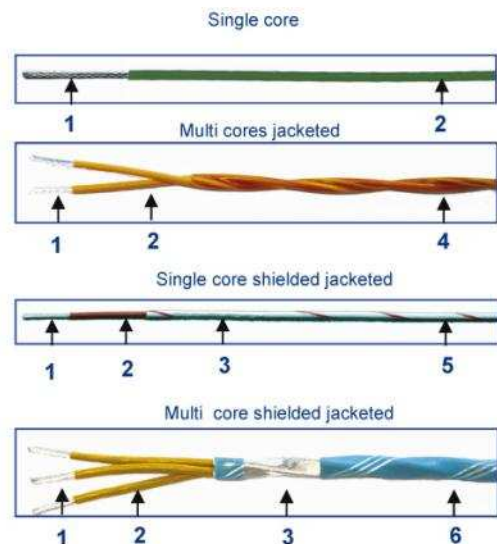
### APPLICATIONS:

- Light weight hook-up wires for use in launch vehicles, satellites and general space applications.

### STANDARDS/SPECIFICATONS:

- Meets ESA/SCC N° 3901 and ESA/SCC N° 3901/002.
- The certificate of qualification n° 7 N of February 15-2010 has been renewed to Draka Fileca by ESA.

### CONSTRUCTION:



- 1– Conductor (s): Silver plated copper or silver plated copper alloy.
- 2– Polyimide tape + Polyimide top coat.
- 3– Spiral shield: Silver plated Copper
- 4– Polyimide tape
- 5– Polyimide tape + top coat
- 6– Polyimide tape + PTFE tape

### INSPECTION LEVEL:

The ESA Generic Specification prescribes 3 levels of lot acceptance which, in order of decreasing test requirements, are designated « B1 », « B2 », « B3 ».

Should the lowest "standard" level be considered insufficient, then add « B2 » or « B1 » to Draka Fileca references.

Example : F A3901-2-1-20-B2

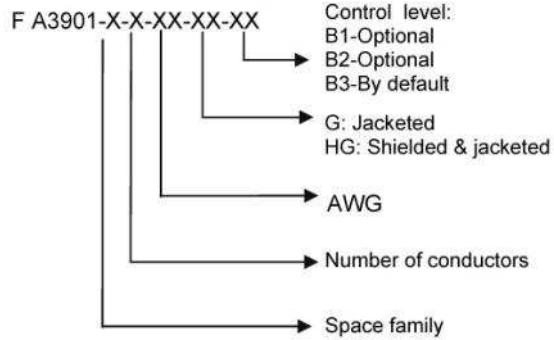
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## PACKAGING:

- On plastic spools (flange diameter : 180 or 280 mm).  
Spools are heat sealed into polyethylene bags

## ORDERING CODE :



Example: F A3901-2-2-28-G-B3

Table I : Wires

Draka part number	AWG *	ESA/SCC	Conductor silver plated copper		Outer diameter		Current Rating (Amp.)	Maximum weight (g/m)
			Stranding (n x mm)	Nominal cross section (mm <sup>2</sup> )	Mini (mm)	Maxi (mm)		
F A3901-2-1-28	28	3901/002-61	19x0.08 (1)	0.1	0.56	0.68	1.50	1.23
F A3901-2-1-26	26	3901/002-56	19x0.10 (1)	0.15	0.66	0.78	2.50	1.93
F A3901-2-1-24	24	3901/002-57	19x0.12 (1)	0.21	0.76	0.88	3.50	2.64
F A3901-2-1-22	22	3901/002-58	19x0.16	0.38	0.96	1.08	5.00	4.25
F A3901-2-1-20	20	3901/002-59	19x0.20	0.6	1.14	1.28	7.50	6.49
F A3901-2-1-18	18	3901/002-60	19x0.25	0.93	1.39	1.53	10.00	9.79

(1) Silver plated copper alloy

\* Closest American wire gauge

The product descriptions in our publications are correct to the best of our knowledge. They reflect the present state of the technology and our capabilities. The details are a general description of the characteristics of our products, which do not necessarily apply to every purpose or under all conditions. The descriptions do not release the user from the responsibility of testing of the products for suitability the specific purpose. In cases of doubt, please contact our Service Department.

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Table II : Unshielded Jacketed cables

Draka part number	AWG*	Number of cores	ESA/SCC	Conductor silver plated copper		Nominal core diameter (mm)	Maximum outer diameter (mm)	Maximum weight (g/m)
				Stranding (n x mm)	Nominal cross section (mm <sup>2</sup> )			
F A3901-2-2-28-G	28	2	3901/002-62	19x0.0.8 (1)	0.10	0.63	1.43	2.70
F A3901-2-2-26-G	26	2	3901/002-31	19x0.10 (1)	0.15	0.73	1.64	4.42
F A3901-2-2-24-G	24	2	3901/002-32	19x0.12 (1)	0.21	0.83	1.84	5.91
F A3901-2-2-22-G	22	2	3901/002-33	19x0.16	0.38	1.03	2.24	9.41
F A3901-2-2-20-G	20	2	3901/002-34	19x0.20	0.60	1.23	2.64	14.20
F A3901-2-2-18-G	18	2	3901/002-35	19x0.25	0.93	1.48	3.15	21.30
F A3901-2-3-28-G	28	3	3901/002-63	19x0.08 (1)	0.10	0.63	1.53	3.95
F A3901-2-3-26-G	26	3	3901/002-36	19x0.10 (1)	0.15	0.73	1.76	6.45
F A3901-2-3-24-G	24	3	3901/002-37	19x0.12 (1)	0.21	0.83	1.97	8.81
F A3901-2-3-22-G	22	3	3901/002-38	19x0.16	0.38	1.03	2.40	14.30
F A3901-2-3-20-G	20	3	3901/002-39	19x0.20	0.60	1.23	2.84	21.10
F A3901-2-3-18-G	18	3	3901/002-40	19x0.25	0.93	1.48	3.40	31.6

(1) Silver plated copper alloy

\* Closest American wire gauge

### Identification:

Core colour :  
 AWG 28: Brown  
 AWG 26: Black  
 AWG 24 : Khaki beige  
 AWG 22: Red  
 AWG 20 : Green  
 AWG 18: Yellow

Jacket: Amber + stripes (see color coding table)

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Table III : Shielded and jacketed cables

Draka part Number	AWG*	Number of cores	ESA/SCC	Conductor silver plated copper		Nominal Core diameter (mm)	Shield strand Ø (mm)	Maximum outer diameter (mm)	Maximum weight (g/m)
				Stranding (n x mm)	Nominal cross section (mm <sup>2</sup> )				
F A3901-2-1-28-HG	28	1	3901/002-64	19x0.08 (1)	0.10	0.63	0.08	1.07	3.05
F A3901-2-1-26-HG	26	1	3901/002-41	19x0.10 (1)	0.15	0.73	0.08	1.13	3.85
F A3901-2-1-24-HG	24	1	3901/002-42	19x0.12 (1)	0.21	0.83	0.08	1.23	4.75
F A3901-2-1-22-HG	22	1	3901/002-43	19x0.16	0.38	1.03	0.08	1.43	6.86
F A3901-2-1-20-HG	20	1	3901/002-44	19x0.20	0.60	1.23	0.08	1.63	9.43
F A3901-2-1-18-HG	18	1	3901/002-45	19x0.25	0.93	1.48	0.10	1.92	13.80
F A3901-2-2-28-HG	28	2	3901/002-65	19x0.08 (1)	0.10	0.63	0.08	1.80	5.70
F A3901-2-2-26-HG	26	2	3901/002-46	19x0.10 (1)	0.15	0.73	0.08	2.01	8.00
F A3901-2-2-24-HG	24	2	3901/002-47	19x0.12 (1)	0.21	0.83	0.10	2.24	10.50
F A3901-2-2-22-HG	22	2	3901/002-48	19x0.16	0.38	1.03	0.10	2.65	14.80
F A3901-2-2-20-HG	20	2	3901/002-49	19x0.20	0.60	1.23	0.10	3.03	20.20
F A3901-2-2-18-HG	18	2	3901/002-50	19x0.25	0.93	1.48	0.12	3.58	29.60
F A3901-2-3-28-HG	28	3	3901/005-66	19x0.08 (1)	0.10	0.63	0.10	1.92	8.10
F A3901-2-3-26-HG	26	3	3901/002-51	19x0.10 (1)	0.15	0.73	0.10	2.15	11.20
F A3901-2-3-24-HG	24	3	3901/002-52	19x0.12 (1)	0.21	0.73	0.10	2.36	14.00
F A3901-2-3-22-HG	22	3	3901/002-53	19x0.16	0.38	1.03	0.10	2.82	20.20
F A3901-2-3-20-HG	20	3	3901/002-54	19x0.20	0.60	1.23	0.12	3.26	29.40
F A3901-2-3-18-HG	18	3	3901/002-55	19x0.25	0.93	1.48	0.15	3.86	44.10
F A3901-2-4-28-HG	28	4	3901/002-67	19x0.08 (1)	0.10	0.63	0.10	2.15	10.15
F 3901-2-4-26-HG	26	4	3901/002-68	19x0.10 (1)	0.15	0.73	0.10	2.40	13.30
F A3901-2-4-24-HG	24	4	3901/002-69	19x0.12 (1)	0.21	0.83	0.10	2.65	16.50
F A3901-2-4-22-HG	22	4	3901/002-70	19x0.16	0.38	1.03	0.12	3.17	26.40
F A3901-2-4-20-HG	20	4	3901/002-71	19x0.20	0.60	1.23	0.15	3.70	38.80
F A3901-2-5-28-HG	28	5	3901/002-72	19x0.08 (1)	0.10	0.63	0.10	2.27	12.10
F A3901-2-5-26-HG	26	5	3901/002-73	19x0.10 (1)	0.15	0.73	0.10	2.56	15.80

(1) Silver plated copper alloy  
\* Closest American wire gauge