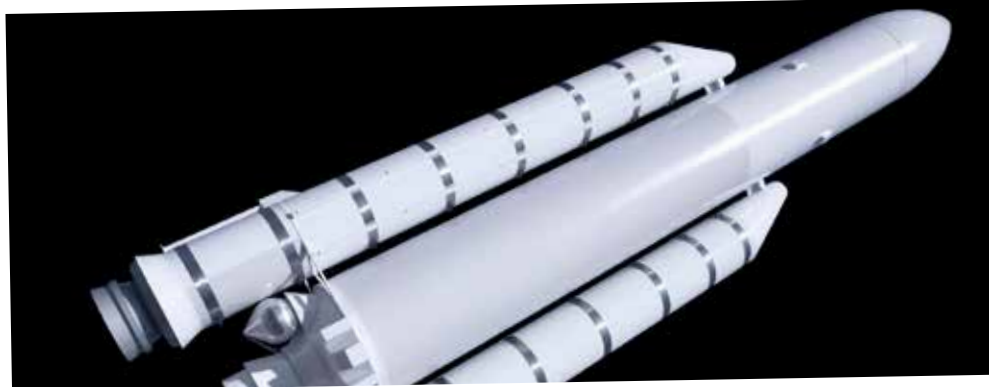


## Wires & Cables for Space Applications





Draka Fileca S.A.S. is part of the Prysmian Group, the world leader in the cable systems industry, listed on the Milan Stock Exchange. With a global presence and a long-term industrial experience, the Group is strongly positioned in high-tech markets and offers the widest possible range of products, services, technologies and know-how

Guided by a spirit of conquest and innovation, Draka Fileca supports major aeronautic players worldwide in their most ambitious projects. For over 50 years, the company is continuously developing and manufacturing wiring solutions through technological excellence.

Draka Fileca offers a wide portfolio of products and the core competencies of its highly skilled and experienced specialists focus on improving all aspects of the cable performance, such as high temperature resistance, reducing weight and enhancing the communication data rates.

#### DID YOU KNOW ?

Draka Fileca's "Wires and Cables for Aerospace Applications" catalog is now available as well.



Directly download the brochure at :



To ensure the highest quality levels, the whole organization is certified under ISO 9001, EN 9100, ISO 14001, OHSAS 18001. Moreover, our space products are ESA certified.

Draka Fileca is proud member of the following organizations:

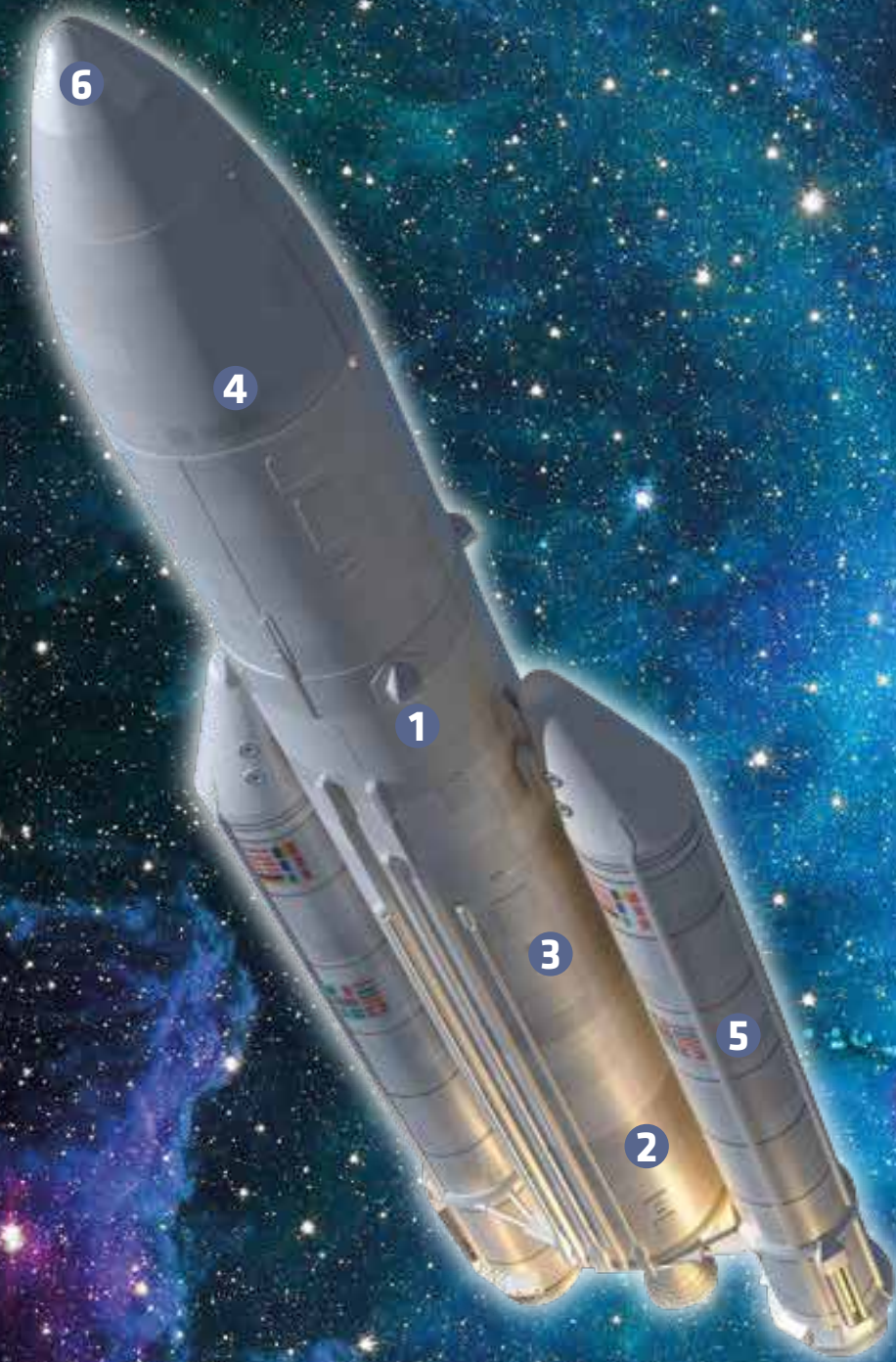


For more information please visit:  
<http://aerospace.prysmiangroup.com>





# SPACE APPLICATIONS OVERVIEW



## SCC 3901-001 SERIES (Normal Weight)

### 1 Application examples:

- Launch Vehicles
- Satellites

### Construction examples:

Single Core, Multi-Core Jacketed, Single Core Shielded & Jacketed, Multi-Core Shielded & Jacketed



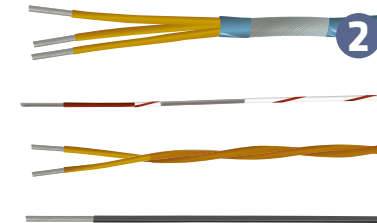
## SCC 3901-002 SERIES (Light Weight)

### 2 Application examples:

- Launch Vehicles
- Satellites

### Construction examples:

Single Core, Multi-Core Jacketed, Single Core Shielded & Jacketed, Multi-Core Shielded & Jacketed



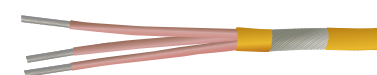
## F A 3901-002-P

### 3 Application examples:

- Satellites
- Miscellaneous Space Applications

### Construction examples:

Single Core Shielded & Jacketed, Multi-Core Shielded & Jacketed



## A3903 SERIES (WP & WY)

### 4 Application examples:

- Wires for terminations requiring solder-free wrapped connections.

### Cable families:

WY = Insulation: Kynar  
WP = Insulation: PFA



## E-ESP SERIES

### 5 Application examples:

- Space Applications
- Printed Circuits Board Power Supply
- Test Benches

### Construction examples:

Single Core



## OPTICAL FIBER

### 6 Cable families:

RadHard Single Mode and Multi-Mode Cables





# ESCC 3901-001 SERIES

## CHARACTERISTICS:

### Environmental:

- Operating Temperatures: -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 layer of silver-plating on the conductor and the shield provide the best protection against the Red Plague phenomenon.

### Mechanical :

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

### Electrical:

- Maximum Operating Voltage : 600 Vac.
- Insulation Resistance of Core: > 750 MΩ km at 20°C (after 500V-1 min.)

## APPLICATIONS:

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

## STANDARDS/SPECIFICATIONS:

- ESA/SCC N° 3901 and ESA/SCC N° 3901/001.
- ESA Certificate of Qualification since 1979.

## PACKAGING

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

For detailed technical information refer to the product data sheet. Also accessible online with the QR-Code.



## CONSTRUCTION:

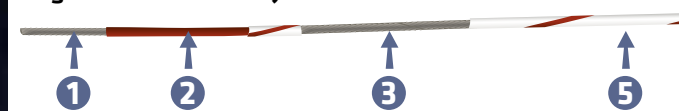
### Single Core:



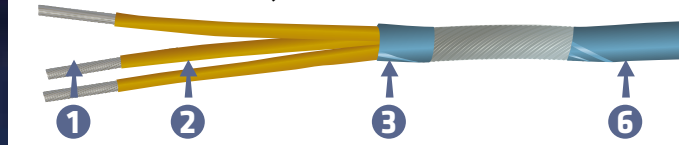
### Multi-Cores Jacketed:



### Single Core Shielded & Jacketed:



### Multi-Core Shielded & Jacketed:



① Conductor(s): Silver-plated Copper or Silver-plated Copper Alloy

② Polyimide Top Coat

③ Spiral Shield – Silver-plated Copper

④ Polyimide Tape

⑤ Polyimide Tape + Top Coat

⑥ Polyimide Tape + PTFE Tape

Color Coding: Refer to Page 13

## OPTION/INSPECTION LEVEL:

The ESA Generic Specification prescribes 3 levels of lot acceptance which, in order of decreasing testing 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 A3901-1-20-B2

## ORDERING CODE:

**F A3901-X-X-XX-XX-XX**

Control Level:  
B1 - Optional  
B2 - Optional  
B3 - By Default

G: Jacketed  
HG: Shielded & Jacketed

AWG

Number of Conductors

Space Family

Example: F A3901-1-3-16G-B2

# NORMAL WEIGHT WIRES & CABLES

### Table I - Wires

Draka Part Number	AWG*	ESA/ESCC	Conductor Silver-plated Copper		Outer Diameter		Current Rating (Amp.)	Max. Weight (g/m)
			Stranding (n x mm)	Nom. Cross Section (mm²)	Min. (mm)	Max. (mm)		
F A3901-1-1-28	28	3901/001-47	19x0.08 (1)	0.1	0.6	0.73	1.50	1.37
F A3901-1-1-26	26	3901/001-24	19x0.10 (1)	0.15	0.71	0.84	2.50	2.05
F A3901-1-1-24	24	3901/001-25	19x0.12 (1)	0.21	0.81	0.95	3.50	2.75
F A3901-1-1-22	22	3901/001-26	19x0.16	0.38	1.01	1.15	5.00	4.40
F A3901-1-1-20	20	3901/001-27	19x0.20	0.6	1.20	1.35	7.50	6.65
F A3901-1-1-18	18	3901/001-28	19x0.25	0.93	1.45	1.60	10.00	9.98
F A3901-1-1-16	16	3901/001-29	19x0.30	1.30	1.70	1.85	13.00	14.00

### Table II - Unshielded & Jacketed Cables

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Max. Outer Diameter (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)			
F A3901-1-2-16G	16	2	3901/001-32	19x0.30	1.30	1.79	3.80	30.70
F A3901-1-3-16G	16	3	3901/001-35	19x0.30	1.30	1.79	4.08	46.10

### Table III - Shielded and Jacketed Cables

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Shield Strand Diameter (mm)	Max. Outer Diameter (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)				
F A3901-1-1-16HG	16	1	3901/001-38	19x0.30	1.30	1.79	0.10	2.23	18.80
F A3901-1-2-16HG	16	2	3901/001-41	19x0.30	0.38	1.79	0.15	4.26	41.80
F A3901-1-3-16HG	16	3	3901/001-44	19x0.30	1.30	1.79	0.15	4.54	58.20

(1) Silver-plated Copper Alloy \* Closest American Wire Gauge

# ESCC 3901-002 SERIES

## CHARACTERISTICS:

### Environmental:

- Operating Temperatures: -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 layer of silver-plating on the conductor and the shield provide the best protection against the Red Plague phenomenon.

### Mechanical :

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

### Electrical:

- Maximum Operating Voltage : 600 Vac.
- Insulation Resistance of Core:> 750 MΩ km at 20°C (after 500V-1 min.)

## APPLICATIONS:

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

## STANDARDS/SPECIFICATIONS:

- ESA/SCC N° 3901 and ESA/SCC N° 3901/001.
- ESA Certificate of Qualification since 1979.

## PACKAGING

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

For detailed technical information refer to the product data sheet. Also accessible online with the QR-Code.



## CONSTRUCTION:

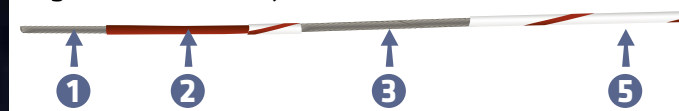
### Single Core:



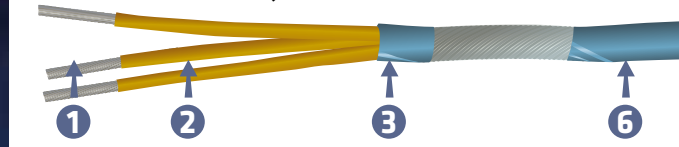
### Multi-Cores Jacketed:



### Single Core Shielded & Jacketed:



### Multi- Core Shielded & Jacketed:



- 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

Color Coding: Refer to Page 13

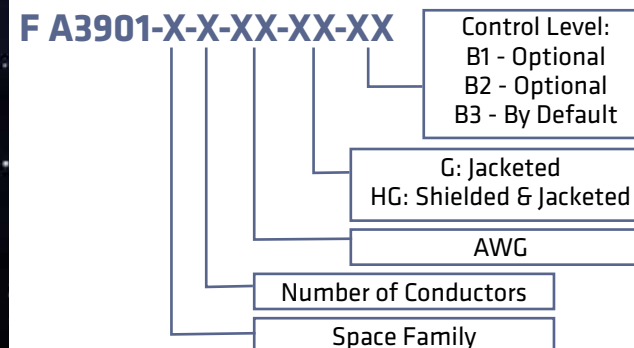
## OPTION/INSPECTION LEVEL:

The ESA Generic Specification prescribes 3 levels of lot acceptance which, in order of decreasing testing 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

## ORDERING CODE:



Example: F A3901-2-2-28G-B2

# LIGHT WEIGHT WIRES & CABLES

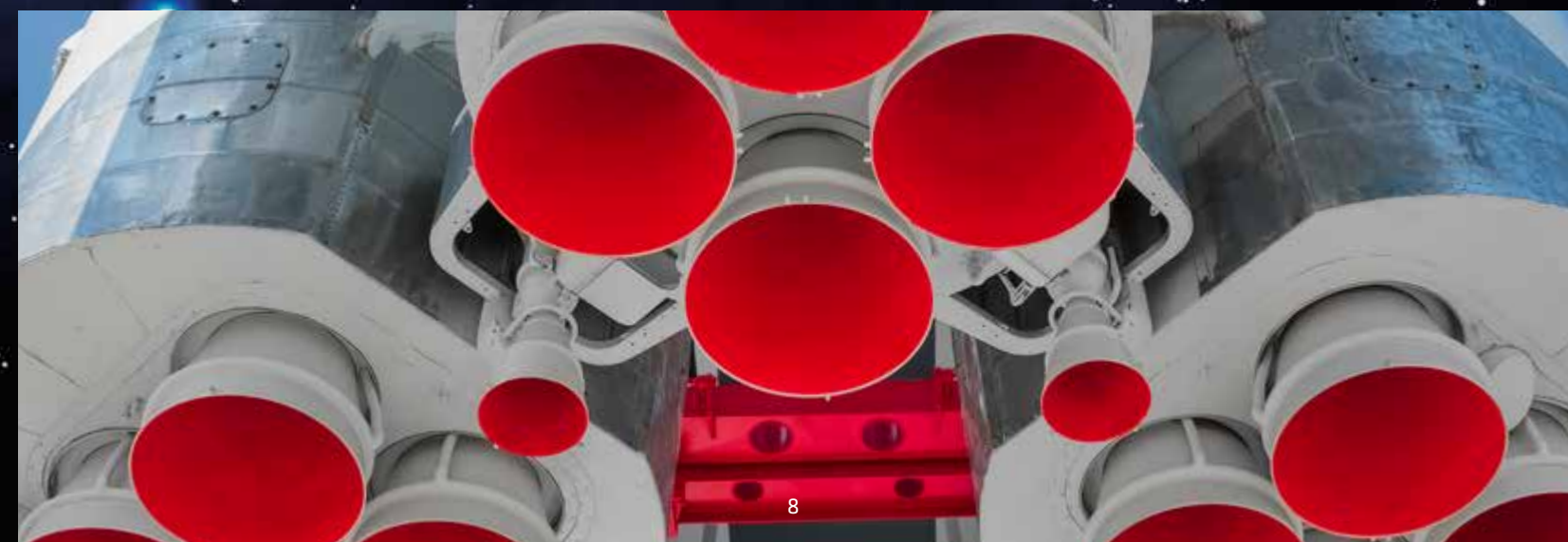
Table I - Wires

Draka Part Number	AWG*	ESA/ESCC	Conductor Silver-plated Copper		Outer Diameter		Current Rating (Amp.)	Max. Weight (g/m)
			Stranding (n x mm)	Nom. Cross Section (mm²)	Min. (mm)	Max. (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

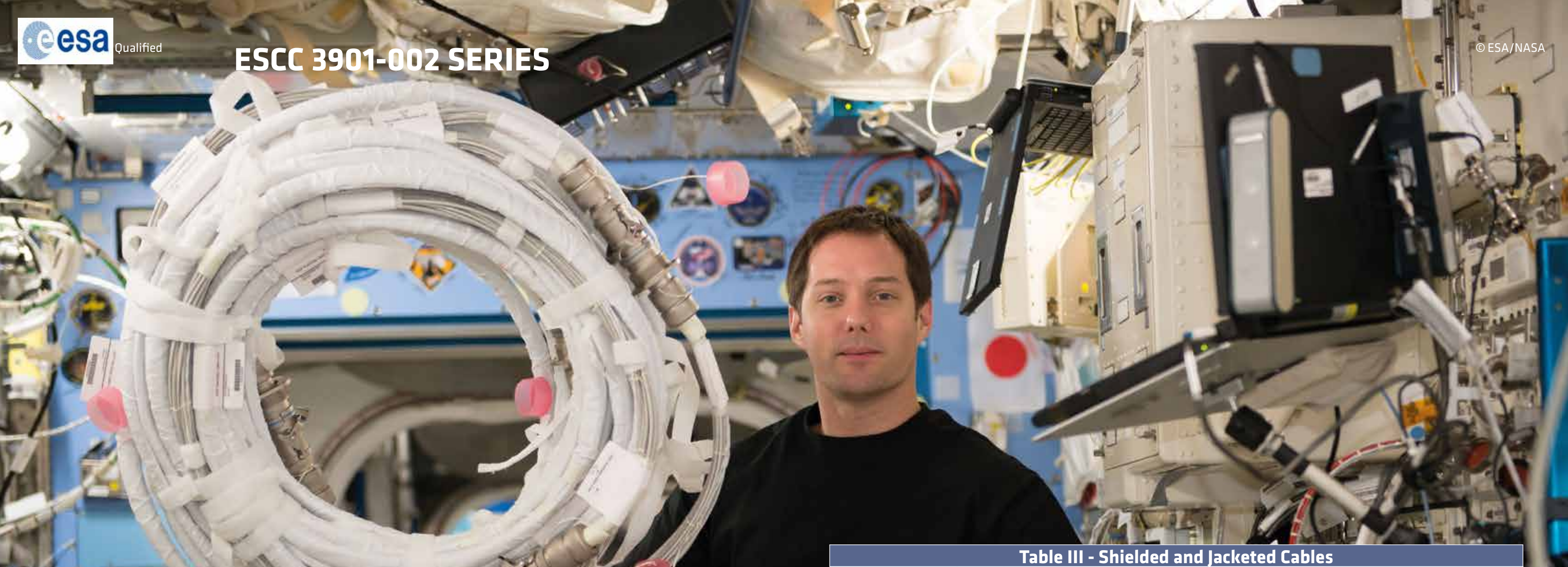
Table II - Unshielded & Jacketed Cables

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Max. Outer Diameter (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)			
F A3901-2-2-28G	28	2	3901/002-62	19x0.08 (1)	0.10	0.63	1.43	2.70
F A3901-2-2-26G	26	2	3901/002-31	19x0.10 (1)	0.15	0.73	1.64	4.42
F A3901-2-2-24G	24	2	3901/002-32	19x0.12 (1)	0.21	0.83	1.84	5.91
F A3901-2-2-22G	22	2	3901/002-33	19x0.16	0.38	1.03	2.24	9.41
F A3901-2-2-20G	20	2	3901/002-34	19x0.20	0.60	1.23	2.64	14.20
F A3901-2-2-18G	18	2	3901/002-35	19x0.25	0.93	1.48	3.15	21.30
F A3901-2-3-28G	28	3	3901/002-63	19x0.08 (1)	0.10	0.63	1.53	3.95
F A3901-2-3-26G	26	3	3901/002-36	19x0.10 (1)	0.15	0.73	1.76	6.45
F A3901-2-3-24G	24	3	3901/002-37	19x0.12 (1)	0.21	0.83	1.97	8.81
F A3901-2-3-22G	22	3	3901/002-38	19x0.16	0.38	1.03	2.40	14.30
F A3901-2-3-20G	20	3	3901/002-39	19x0.20	0.60	1.23	2.84	21.10
F A3901-2-3-18G	18	3	3901/002-40	19x0.25	0.93	1.48	3.40	31.6

(1) Silver-plated Copper Alloy \* Closest American Wire Gauge







**Table III - Shielded and Jacketed Cables**

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Shield Strand Diameter (mm)	Max. Outer Diameter (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)				
F A3901-2-1-26HG	26	1	3901/002-41	19x0.10 (1)	0.15	0.73	0.08	1.13	3.85
F A3901-2-1-24HG	24	1	3901/002-42	19x0.12 (1)	0.21	0.83	0.08	1.23	4.75
F A3901-2-1-22HG	22	1	3901/002-43	19x0.16	0.38	1.03	0.08	1.43	6.86
F A3901-2-1-20HG	20	1	3901/002-44	19x0.20	0.60	1.23	0.08	1.63	9.43
F A3901-2-1-18HG	18	1	3901/002-45	19x0.25	0.93	1.48	0.10	1.92	13.80
F A3901-2-2-28HG	28	2	3901/002-65	19x0.08 (1)	0.10	0.63	0.08	1.80	5.70
F A3901-2-2-26HG	26	2	3901/002-46	19x0.10 (1)	0.15	0.73	0.08	2.01	8.00
F A3901-2-2-24HG	24	2	3901/002-47	19x0.12 (1)	0.21	0.83	0.10	2.24	10.50
F A3901-2-2-22HG	22	2	3901/002-48	19x0.16	0.38	1.03	0.10	2.65	14.80
F A3901-2-2-20HG	20	2	3901/002-49	19x0.20	0.60	1.23	0.10	3.03	20.20
F A3901-2-2-18HG	18	2	3901/002-50	19x0.25	0.93	1.48	0.12	3.58	29.60

(1) Silver-plated Copper Alloy \* Closest American Wire Gauge

**Table III - Shielded and Jacketed Cables**

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Shield Strand Diameter (mm)	Max. Outer Diameter (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)				
F A3901-2-3-26HG	26	3	3901/002-51	19x0.10 (1)	0.15	0.73	0.10	2.15	11.20
F A3901-2-3-24HG	24	3	3901/002-52	19x0.12 (1)	0.21	0.73	0.10	2.36	14.00
F A3901-2-3-22HG	22	3	3901/002-53	19x0.16	0.38	1.03	0.10	2.82	20.20
F A3901-2-3-20HG	20	3	3901/002-54	19x0.20	0.60	1.23	0.12	3.26	29.40
F A3901-2-3-18HG	18	3	3901/002-55	19x0.25	0.93	1.48	0.15	3.86	44.10
F A3901-2-4-28HG	28	4	3901/002-67	19x0.08 (1)	0.10	0.63	0.10	2.15	10.15
F 3901-2-4-26HG	26	4	3901/002-68	19x0.10 (1)	0.15	0.73	0.10	2.40	13.30
F A3901-2-4-24HG	24	4	3901/002-69	19x0.12 (1)	0.21	0.83	0.10	2.65	16.50
F A3901-2-4-22HG	22	4	3901/002-70	19x0.16	0.38	1.03	0.12	3.17	26.40
F A3901-2-4-20HG	20	4	3901/002-71	19x0.20	0.60	1.23	0.15	3.70	38.80
F A3901-2-5-28HG	28	5	3901/002-72	19x0.08 (1)	0.10	0.63	0.10	2.27	12.10
F A3901-2-5-26HG	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



# ESCC 3901-002-P SERIES

## CHARACTERISTICS:

### Environmental:

- Operating Temperatures: -100°C to +200°C (Ambient Temperature + Current Heating).
- Non-flammable.
- Very good solderability.
- High resistance to chemical agents, fluids and space radiations.
- The 2 µm thick layer of silver-plating on the conductor and the shield provide the best protection against the Red Plague phenomenon.

### Mechanical :

- The wrapped construction technology allows very thin wall insulation, yielding weight and space savings as well as higher performances.
- Superior mechanical resistance eliminating handling and installation damage.
- Good strippability.
- The polyimide jacket insures a good mechanical and electrical protection of the helical screen.
- Bending radius: 10 times outer diameter.

### Electrical:

- Maximum Operating Voltage : 600 Vac.
- Insulation Resistance of Core: > 750 MΩ km at 20°C (after 500V-1 min.)

## APPLICATIONS:

- Wires and cables for use in satellites and other space applications.

## STANDARDS/SPECIFICATIONS:

- ESA/SCC N° 3901 and ESA/ESCC N° 3901/002.
- ESA Certificate of Qualification since 1979.

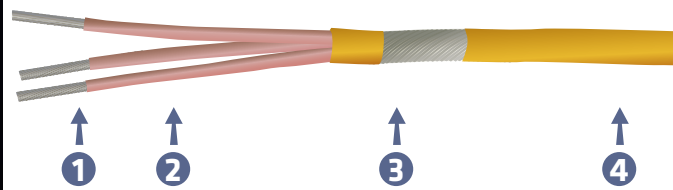
## PACKAGING

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

For detailed technical information refer to the product data sheet. Also accessible online with the QR-Code.



## 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

Color Coding: Refer to Page 13

## OPTION/INSPECTION LEVEL:

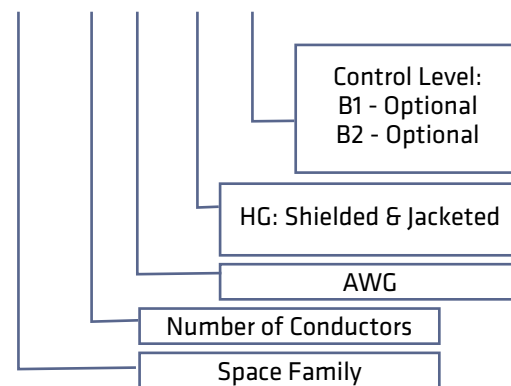
The ESA Generic Specification prescribes 3 levels of lot acceptance which, in order of decreasing testing requirements, are designated «B1», «B2», «B3».

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

Example : F A3901-2-P-2-28HG-B2

## ORDERING CODE:

**F A3901-X-P-X-XX-XX-XX**



Example: F A3901-2-P-1-26HG

# LIGHT WEIGHT, RADIATION RESISTANT, SHIELDED CABLES

Draka Part Number	AWG*	Number of Cores	ESA/ESCC	Conductor Silver-plated Copper		Nom. Core Diameter (mm)	Shield Strand Diameter (mm)	Max. Linear Resistance at 20°C (Ω/Km)	Max. O. D. (mm)	Max. Weight (g/m)
				Stranding (n x mm)	Nom. Cross Section (mm²)					
F A3901-2-P-1-28HG	28	1	3901/002-74-B3	19x0.0.8 (1)	0.10	0.63	0.08	242	1.02	2.95
F A3901-2-P-1-26HG	26	1	3901/002-75-B3	19x0.10 (1)	0.15	0.73	0.08	148	1.09	3.75
F A3901-2-P-1-24HG	24	1	3901/002-76-B3	19x0.12 (1)	0.21	0.83	0.08	105	1.19	4.65
F A3901-2-P-1-22HG	22	1	3901/002-77-B3	19x0.16	0.38	1.03	0.08	50.9	1.39	6.75
F A3901-2-P-1-20HG	20	1	3901/002-78-B3	19x0.20	0.60	1.23	0.08	32.2	1.59	9.3
F A3901-2-P-1-18HG	18	1	3901/002-79-B3	19x0.25	0.93	1.48	0.10	20.6	1.87	13.65
F A3901-2-P-2-28HG	28	2	3901/002-80-B3	19x0.08(1)	0.10	0.63	0.08	254	1.67	5.5
F A3901-2-P-2-26HG	26	2	3901/002-81-B3	19x0.10(1)	0.15	0.73	0.08	155	1.87	7.4
F A3901-2-P-2-24HG	24	2	3901/002-82-B3	19x0.12(1)	0.21	0.83	0.10	110	2.10	9.8
F A3901-2-P-2-22HG	22	2	3901/002-83-B3	19x0.16	0.38	1.03	0.10	53.5	2.5	14.0
F A3901-2-P-2-20HG	20	2	3901/002-84-B3	19x0.20	0.60	1.23	0.10	33.8	2.90	19.4
F A3901-2-P-2-18HG	18	2	3901/002-85-B3	19x0.25	0.93	1.48	0.12	21.6	3.40	28.2
F A3901-2-P-3-28HG	28	3	3901/002-86-B3	19x0.08(1)	0.10	0.63	0.10	254	1.81	7.9
F A3901-2-P-3-26HG	26	3	3901/002-87-B3	19x0.10(1)	0.15	0.73	0.10	155	2.02	10.6
F A3901-2-P-3-24HG	24	3	3901/002-88-B3	19x0.12(1)	0.21	0.83	0.10	110	2.24	13.3
F A3901-2-P-3-22HG	22	3	3901/002-89-B3	19x0.16	0.38	1.03	0.10	53.5	2.67	19.2
F A3901-2-P-3-20HG	20	3	3901/002-90-B3	19x0.20	0.60	1.23	0.12	33.8	3.14	28.4
F A3901-2-P-3-18HG	18	3	3901/002-91-B3	19x0.25	0.93	1.48	0.15	21.6	3.67	42.0

(1) Silver-plated Copper Alloy \* Closest American Wire Gauge



# COLOR CODING A3901

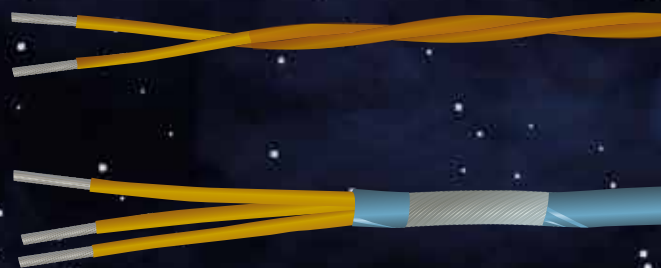
Color Coding according to ESCC specification:

Wire Size (AWG)	Core* Color	Jacket Assemblies	Color Shielded	Stripe Color on Jacket
28 & 16	Brown	Amber	White	Brown
26	Black	Amber	White	Black
24	Khaki-Beige	Amber	Light blue	White
22	Red	Amber	White	Red
20	Green	Amber	White	Green
18	Yellow	Amber	White	Yellow

\* Other core colours are available on request.

Identification of a cable for a given wire size is achieved by combining the color of the jacket with the color of the stripes. The number of stripes determines the number of cores.

For Example:



Corresponds to:

- 2 Cores, Gauge AWG 24, Jacketed.
- 3 Cores, Gauge AWG 24, Shielded and Jacketed.

# ESCC 3903 SERIES: INSULATED WIRES FOR WRAPPED CONNECTIONS

## CHARACTERISTICS:

### Environmental:

These wires are designed for 2 temperatures classes:

- Operating temperatures :
- 100°C to + 200°C Ref F A3903WP
  - 60°C to + 100°C Ref F A3903WY

### References and applicable documents

- Technical specifications approved by the CNES on January 20, 1987

Draka Part Number	AWG*	Conductor		Insulation
		Area (mm <sup>2</sup> )	Diameter (mm)	Diameter (mm)
F A3903WY-1-30 F A3903WP-1-30	30	0.05	0.254	0.53 ± 0.03
F A3903WY-1-28 F A3903WP-1-28	28	0.08	0.32	0.62 ± 0.03
F A3903WY-1-26 F A3903WP-1-26	26	0.13	0.4	0.74 ± 0.03

## APPLICATIONS:

- Wires for use on terminations requiring solder less wrapped connections.

## STANDARDS/SPECIFICATIONS:

- Tested according to technical specifications approved by the CNES on January 20, 1987.

## OPTIONS:

- Twisted pairs available on request.

For detailed technical information refer to the product data sheet. Also accessible online with the QR-Code.



## CONSTRUCTION:



Solid conductor:

- AWG 30 and 28: silver plated copper alloy
- AWG 26: Silver plated copper

Insulation:

- Kynar F A3903WY
- PFA F A3903WP

## IDENTIFICATION:

Colour code:

AWG 30 Red

AWG 28 Blue

AWG 26 Yellow

## ORDERING CODE:

**F A3903-XX-1-XX**

Wire Gauge: 30, 28, 26

Number of Conductors

Insulation: WP or WY



# E-ESP SERIES

## CHARACTERISTICS:

### Environmental:

- Operating Temperature: - 100°C to + 200°C (ambient temperature + current heating).
- High resistance to chemical agents.
- High resistance to radiation in a vacuum environment.
- Non-flammable.
- Very good solderability.
- Excellent behavior in out-gassing.
- The 2 µm thick layer of silver plating on the conductor provides the best protection against the Red Plague phenomenon.

### Mechanical :

- High flexibility
- Reinforced mechanical resistance.

### Electrical:

- Maximum operating voltage : 600Vac

## APPLICATIONS:

- Space applications
- Printed circuits board power supply.
- Test benches.

## STANDARDS/SPECIFICATIONS:

- Conductors in accordance with ESCC 3901
- Dimensional: ANSI/NEMA HP3 (formerly MIL-W-16878).
- Inspection level references: ESCC 3901
- According to customer specifications: STAND-ST-DAD024924-V-ASTR.

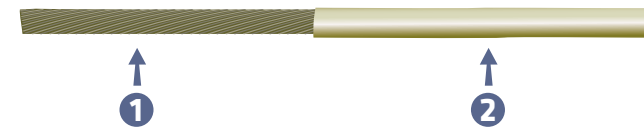
## IDENTIFICATION:

- Standard version: white.
- Others colors available on request.

For detailed technical information refer to the product data sheet. Also accessible online with the QR-Code.



## CONSTRUCTION:



- 1 Conductor:  
Silver-plated Copper or Silver-plated Copper Alloy.
- 2 PTFE tape.

## INSPECTION LEVEL:

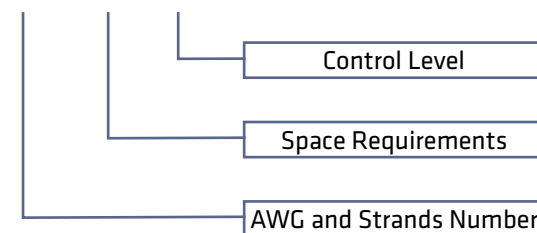
The ESA Generic Specification prescribes 3 levels of lot acceptance which, in order of decreasing testing requirements, are designated «B1», «B2», «B3».

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

Example : F E20-19-ESP-B2

## ORDERING CODE:

**F E20-19-ESP-B1**



# FLEXIBLE PTFE WIRES

Draka Part Number	Conductors according to ESCC 3901 Standard			Max. Linear Resistance at 20°C (Ω/km)	Outer Diameter according to ANSI/NEMA HP3		Max. Weight (g/m)
	AWG*	Stranding (n x mm)	Nom. Cross Section (mm²)		Min. (mm)	Max. (mm)	
F E32-07-ESP	32	7x0.08 (1)	0.035	653	0.66	0.86	1.20
F E30-07-ESP	30	7X0.10 (1)	0.055	388	0.71	0.91	1.50
F E28-07-ESP	28	7x0.127 (1)	0.09	242	0.79	0.99	2.2
F E28-19-ESP	28	19x0.08 (1)	0.10	242	0.79	0.99	2.2
F E26-19-ESP	26	19x0.10 (1)	0.15	148	0.89	1.12	2.8
F E24-19-ESP	24	19x0.12 (1)	0.21	105	1.02	1.24	3.8
F E22-19-ESP	22	19x0.16	0.38	50.9	1.17	1.42	5.8
F E20-19-ESP	20	19x0.2	0.6	32.2	1.37	1.57	8.8
F E18-19-ESP	18	19x0.25	0.93	20.6	1.63	1.88	13.0
F E16-19-ESP	16	19x0.3	1.3	14.3	1.85	2.25	18.4
F E14-27-ESP	14	27x0.3	1.9	10.1	2.15	2.55	25.4
F E12-45-ESP	12	45x0.3	3.2	6.03	2.68	3.08	39.5

(1) Silver-plated Copper Alloy \* Closest American Wire Gauge



# OPTICAL FIBER

High-speed fiber networks are increasingly required in numerous aerospace applications, such as Avionics and Inflight-Entertainment, to transmit high volumes of data while gaining weight-savings.

Responding to that demand, the Prysmian Group is producing its own optical fibers to ensure the best performance levels in these harsh and challenging environments. We provide:

- Interference-free solutions.
- Space-savings due to smaller size and bend radius.
- Easy plugging and installation.

## THE PORTFOLIO OF FIBERS WITHIN THE PRYSMIAN GROUP CURRENTLY COMPRISES:

### MULTI-MODE FIBERS

- OM-1
- OM-2
- OM-3
- OM-4  
(WideCap and MaxCap-BB)

### SINGLE-MODE FIBERS

- G.652 Series
- G.654 Series
- G.655-G.656 Series
- G.657 Series

### SPECIALTY FIBERS DrakaElite

- BendBright
- High-Temperature Resistant  
(Acrylate, Silicone)
- RadHard (MIL-PRF-49291)

For further  
information  
visit:



If you have any questions please contact us.





# CROSS-REFERENCE TABLE

Table of corresponding ESA/ESCC and Draka References:					
LIGHT WEIGHT CONSTRUCTION				MEDIUM WEIGHT CONSTRUCTION	
ESA/ESCC	Draka Fileca	ESA/ESCC	Draka Fileca	ESA/ESCC	Draka Fileca
3901/002-31-B3	F A3901-2-2-26G	3901/002-62-B3	F A3901-2-2-28G	3901/001-24-B3	F A3901-1-1-26
3901/002-32-B3	F A3901-2-2-24G	3901/002-63-B3	F A3901-2-3-28G	3901/001-25-B3	F A3901-1-1-24
3901/002-33-B3	F A3901-2-2-22G	3901/002-64-B3	F A3901-2-1-28HG	3901/001-26-B3	F A3901-1-1-22
3901/002-34-B3	F A3901-2-2-20G	3901/002-65-B3	F A3901-2-2-28HG	3901/001-27-B3	F A3901-1-1-20
3901/002-35-B3	F A3901-2-2-18G	3901/002-66-B3	F A3901-2-3-28HG	3901/001-28-B3	F A3901-1-1-18
3901/002-36-B3	F A3901-2-3-26G	3901/002-67-B3	F A3901-2-4-28HG	3901/001-29-B3	F A3901-1-1-16
3901/002-37-B3	F A3901-2-3-24G	3901/002-68-B3	F A3901-2-4-26HG	3901/001-32-B3	F A3901-1-2-16G
3901/002-38-B3	F A3901-2-3-22G	3901/002-69-B3	F A3901-2-4-24HG	3901/001-35-B3	F A3901-1-3-16G
3901/002-39-B3	F A3901-2-3-20G	3901/002-70-B3	F A3901-2-4-22HG	3901/001-38-B3	F A3901-1-1-16HG
3901/002-40-B3	F A3901-2-3-18G	3901/002-71-B3	F A3901-2-4-20HG	3901/001-41-B3	F A3901-1-2-16HG
3901/002-41-B3	F A3901-2-1-26HG	3901/002-72-B3	F A3901-2-5-28HG	3901/001-44-B3	F A3901-1-3-16HG
3901/002-42-B3	F A3901-2-1-24HG	3901/002-73-B3	F A3901-2-5-26HG	3901/001-47-B3	F A3901-1-28
3901/002-43-B3	F A3901-2-1-22HG	3901/002-74-B3	F A3901-2-P-1-28HG		
3901/002-44-B3	F A3901-2-1-20HG	3901/002-75-B3	F A3901-2-P-1-26HG		
3901/002-45-B3	F A3901-2-1-18HG	3901/002-76-B3	F A3901-2-P-1-24HG		
3901/002-46-B3	F A3901-2-2-26HG	3901/002-77-B3	F A3901-2-P-1-22HG		
3901/002-47-B3	F A3901-2-2-24HG	3901/002-78-B3	F 3901-2-P-1-20HG		
3901/002-48-B3	F A3901-2-2-22HG	3901/002-79-B3	F 3901-2-P-1-18HG		
3901/002-49-B3	F A3901-2-2-20HG	3901/002-80-B3	F 3901-2-P-2-28HG		
3901/002-50-B3	F A3901-2-2-18HG	3901/002-81-B3	F A3901-2-P-2-26HG		
3901/002-51-B3	F A3901-2-3-26HG	3901/002-82-B3	F A3901-2-P-2-24HG		
3901/002-52-B3	F A3901-2-3-24HG	3901/002-83-B3	F A3901-2-P-2-22HG		
3901/002-53-B3	F A3901-2-3-22HG	3901/002-84-B3	F A3901-2-P-2-20HG		
3901/002-54-B3	F A3901-2-3-20HG	3901/002-85-B3	F A3901-2-P-2-18HG		
3901/002-55-B3	F A3901-2-3-18HG	3901/002-86-B3	F A3901-2-P-3-28HG		
3901/002-56-B3	F A3901-2-1-26	3901/002-87-B3	F A3901-2-P-3-26HG		
3901/002-57-B3	F A3901-2-1-24	3901/002-88-B3	F A3901-2-P-3-24HG		
3901/002-58-B3	F A3901-2-1-22	3901/002-89-B3	F A3901-2-P-3-22HG		
3901/002-59-B3	F A3901-2-1-20	3901/002-90-B3	F A3901-2-P-3-20HG		
3901/002-60-B3	F A3901-2-1-18	3901/002-91-B3	F A3901-2-P-3-18HG		
3901/002-61-B3	F A3901-2-1-28				

# SUSTAINABILITY

## SUSTAINABILITY

We develop important initiatives in collaboration with stakeholders, in order to improve our **economic, environmental and social performance**.

## QUALITY

The quality of our optical fibers and innovative cabling solutions enables us to tackle your **most difficult** and **ambitious challenges**.

## INNOVATION

We seek to generate innovation, quality and know-how, with a view to developing **innovative products** with a lower environmental impact and **higher value-added** for our customers.

## SUPPLY CHAIN MANAGEMENT

In order to assess the environmental and social impact of our activities, Prysmian has taken steps towards the **sustainable management of the entire supply chain**.

Refer to the following Link for the Prysmian Group Sustainability Report:





# LOT ACCEPTANCE LEVELS

Depending on the customer required lot acceptance levels increased controls can be performed on request.

The ESA/SCC generic specification N°3901 defines the level of testing severity designated by the letter B and 3 levels of lot acceptance testing.

Lot acceptance levels are designated as follows:		
ESA/ESCC		Draka Designation
Designation	Description of tests	
Level 3 (LA3)	None	B3
Level 2 (LA2)	Electrical and environmental subgroup	B2
Level 1 (LA1)	Endurance subgroup + electrical and environmental subgroup.	B1

Unless mentioned otherwise space cables according to ESA/SCC 3901 will be supplied under B3 testing and lot acceptance levels.

# PACKAGING

Cables for space applications are typically packaged following the guidelines outlined below:

- ➔ All finished wires are packaged on plastic spools as defined in enclosed table.
- ➔ Each spool will only carry wire or cable from a unique production lot.
- ➔ Each spool will have a maximum of 3 lengths of wire with each length not being inferior to 30 meters.
- ➔ A spool shall not contain more than 400 meters of finished wire or cable.
- ➔ Wire or cable ends will be sealed against possible ingress of moisture under the insulation.
- ➔ Wire spools are sealed in heat sealed polyethylene bags containing humidity indicators and a desiccant.

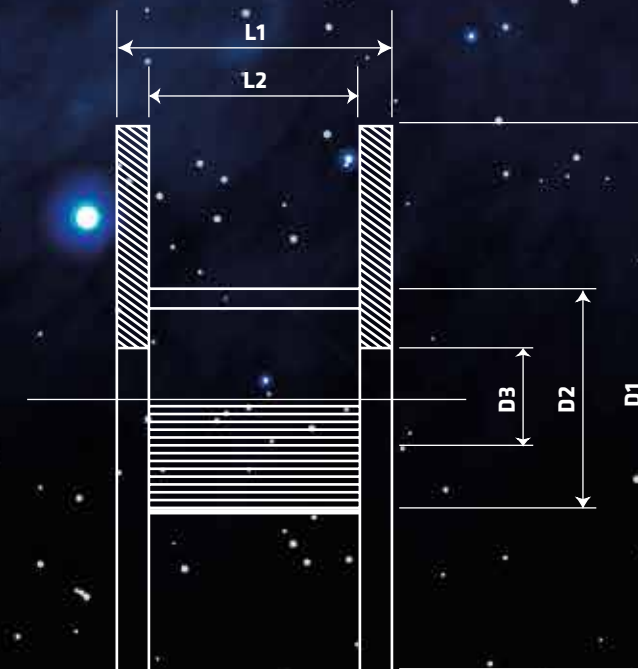
## TYPES AND DIMENSIONS OF SPOOLS AND REELS

### Spools (plastic)

TYPE OF SPOOL	DIMENSIONS (in millimeters)					DRAKA FILECA REFERENCE
	L1	L2	D1	D2	D3	
B2	105 (+2, -0)	90 (+2, -2)	276 (+2, -2)	160 (+2, -2)	26 (+1, -1)	LP 280
B3	185 (+5, -5)	165 (+2, -4)	290 (+10, -15)	155 (+5, -5)	26 (+1, -1)	LPD 280

### Reels (plastic (LP400) - Wood (LB600 LB750))

TYPE OF SPOOL	DIMENSIONS (in millimeters)					DRAKA FILECA REFERENCE
	L1	L2	D1	D2	D3	
T1	220 (+20, -20)	200 (+20, -40)	380 (+20, -30)	225 (+25, -25)	35 (+5, -3)	LP 400
T2	320 (+30, -30)	280 (+20, -20)	600 (+20, -20)	330 (+20, -30)	40 (+5, -0)	LB 600
T3	380 (+30, -30)	350 (+20, -20)	750 (+20, -20)	350 (+20, -30)	80 (+5, -0)	LB 750





# Linking the Future

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