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## High flexible wires

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Cabling machine

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# General information



Axon' Cable is a world leader in specialist interconnect systems. The company excels in the design and manufacture of wires, cables, terminated harnesses, connectors and integrated systems for high technology applications including aeronautics, military, space, oil and gas exploration, medical electronics, research centres, automotive and consumer electronics. Flexible Wires (FW) are designed for applications with restricted space and challenging routing. With their optimized construction, Long Flexible Wires (LFW) are particularly suitable for dynamic applications including surveillance system, radar detection, gimbals and moving optronic systems (see pages 10 to 12).

## Expert in cabling engineering

Axon' Cable is able to design the whole cabling network. Axon' engineers assist customers with the most appropriate tools including simulation software (INVENTOR, CATIA, SEE ELECTRICAL HARNESS) and co-design in all the development stages : idea, concept, prototypes, industrialisation, volume ramp-up and mass production. Axon' will bring you cost-effective solutions based on Lean Engineering and Lean Manufacturing principles.

## Technical solutions for assemblies

When designing ruggedised systems for harsh or demanding environments, commonly with severe or extreme operating conditions, the available space is often very limited. This in turn makes for challenging routing for the system interconnect, making very small bend radii a pre-requisite for the wires or cables. Where this is the case, **highly flexible wires and cables** can greatly ease mechanical installation and resulting interconnect life. To meet these requirements AXON' can build complete interconnect systems using a proprietary range of highly flexible multi-conductor wires and cables called **Flexible Wires (FW)**. AXON's in-house conductor design and manufacture makes it possible to produce, as standard, FW conductors with up to 120 strands of either 25 µm (1 thou) or 50 µm (2 thou) diameter, in comparison to typical 7 or 19 strand conductors. Silver plated copper or high strength copper alloy conductors ensure that the AXON' FW cables are able to consistently meet high performance standards in applications where flexibility and flexlife are critical. FW cables are available in various configurations including singles, twisted pairs and shielded composite versions, all of them made with high quality conductors and insulating materials in compliance with RoHS requirements.

The AXON' FW cables can also be integrated inside larger bundles of different wires and cables including signal, power, RF and optical fibres. **Long flexlife versions** have been designed for improved flexlife thanks to a thicker FEP insulation.

## Colour code

PRIMARY WIRES ARE CODED ACCORDING TO THE TABLE BELOW											
Code	NATURAL	BLACK	BROWN	RED	ORANGE	YELLOW	GREEN	BLUE	VIOLET	GREY	WHITE
	A	B	C	D	E	F	G	H	J	K	L

**FURTHER INFORMATION:** as the cable insulation is thin, the jacket colour is quite transparent. In that case, the colours may be close to each other (ex: red, orange).

# High flexible multistranded single wires

## TYPE FW xx/xx

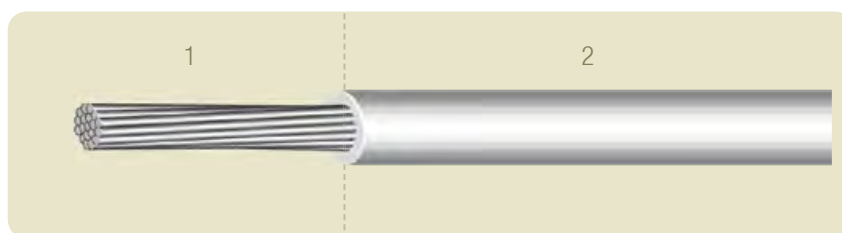
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



## Construction

### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON <sup>®</sup> REFERENCE	CONDUCTOR						INSULATED WIRE	
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)
FW 22/41	SPC	22	72	0.07	0.277	6.25	0.85	2.90
FW 24/44	SPC	24	105	0.05	0.206	9	0.73	2.10
FW 26/44	SPC	26	63	0.05	0.124	14.5	0.62	1.30
FW 28/48	SHT	28	119	0.031	0.090	26.2	0.52	0.90
FW 30/50	SHT	30	105	0.025	0.052	42.7	0.42	0.60
FW 32/50	SHT	32	70	0.025	0.034	64	0.38	0.40
FW 34/50	SHT	34	42	0.025	0.021	106.8	0.32	0.30

## Identification code

FW

Flexible wire

xx

Conductor size (AWG)

/

xx

Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN

# High flexible twisted pairs

## TYPE 2 FW xx/xx

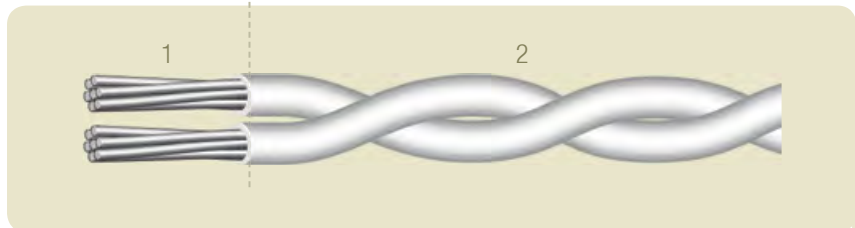
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON' REFERENCE	CONDUCTOR						INSULATED WIRE	TWISTED PAIRS		
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)	APPROX. LAY LENGTH (mm)
2 FW 22/41	SPC	22	72	0.07	0.277	6.25	0.85	1.70	5.9	20
2 FW 24/44	SPC	24	105	0.05	0.206	9	0.73	1.46	4.2	18
2 FW 26/44	SPC	26	63	0.05	0.124	14.5	0.62	1.24	2.7	15
2 FW 28/48	SHT	28	119	0.031	0.090	26.2	0.52	1.03	2.0	12
2 FW 30/50	SHT	30	105	0.025	0.052	42.7	0.42	0.84	1.2	10
2 FW 32/50	SHT	32	70	0.025	0.034	64	0.38	0.76	0.85	9
2 FW 34/50	SHT	34	42	0.025	0.021	106.8	0.32	0.64	0.5	8

## Identification code

2

FW

xx

/

xx

Number of wires

Flexible wire

Conductor size (AWG)

Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN

# High flexible twisted triples

## TYPE 3 FW xx/xx

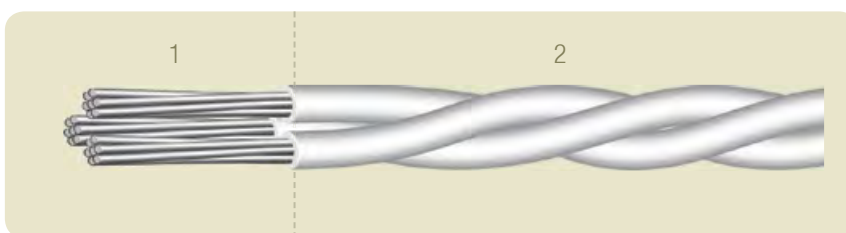
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON <sup>®</sup> REFERENCE	CONDUCTOR						INSULATED WIRE	TWISTED TRIPLES		
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)	APPROX. LAY LENGTH (mm)
3 FW 22/41	SPC	22	72	0.07	0.277	6.25	0.85	1.83	8.9	22
3 FW 24/44	SPC	24	105	0.05	0.206	9	0.73	1.57	6.4	19
3 FW 26/44	SPC	26	63	0.05	0.124	14.5	0.62	1.33	4.0	16
3 FW 28/48	SHT	28	119	0.031	0.090	26.2	0.515	1.11	3.0	13
3 FW 30/50	SHT	30	105	0.025	0.052	42.7	0.42	0.90	1.8	11
3 FW 32/50	SHT	32	70	0.025	0.034	64	0.38	0.82	1.3	10
3 FW 34/50	SHT	34	42	0.025	0.021	106.8	0.32	0.69	0.8	8

## Identification code

3

Number of wires

FW

Flexible wire

xx

Conductor size (AWG)

/

xx

Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN

# High flexible twisted quads

## TYPE 4 FW xx/xx

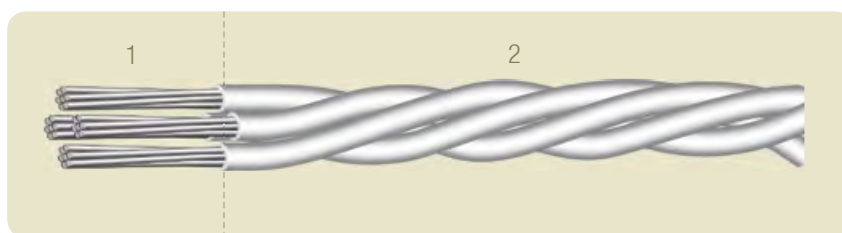
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON' REFERENCE	CONDUCTOR						INSULATED WIRE	TWISTED QUADS		
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)	APPROX. LAY LENGTH (mm)
4 FW 22/41	SPC	22	72	0.07	0.277	6.25	0.85	2.05	11.9	25
4 FW 24/44	SPC	24	105	0.05	0.206	9	0.73	1.76	8.5	21
4 FW 26/44	SPC	26	63	0.05	0.124	14.5	0.62	1.49	5.4	18
4 FW 28/48	SHT	28	119	0.031	0.090	26.2	0.515	1.24	4.0	15
4 FW 30/50	SHT	30	105	0.025	0.052	42.7	0.42	1.01	2.4	12
4 FW 32/50	SHT	32	70	0.025	0.034	64	0.38	0.92	1.7	11
4 FW 34/50	SHT	34	42	0.025	0.021	106.8	0.32	0.77	1.1	9

## Identification code

4	FW	xx	/	xx
Number of wires	Flexible wire	Conductor size (AWG)		Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN



# High flexible shielded and jacketed single core cables

## TYPE FW xx/xx STK1

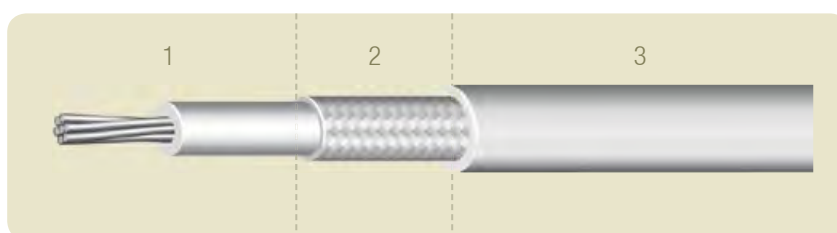
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50, black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

- 1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)
- Insulation: thin wall extruded FEP

#### SHIELDING

- 2 - Material: silver plated copper (SPC) or silver plated copper alloy (SHT)

#### OUTER JACKET

- 3 - Thin wall extruded FEP

## Physical characteristics

AXON <sup>®</sup> REFERENCE	PRIMARY WIRE		BRAIDED SHIELD		JACKET	
	REFERENCE	NOMINAL Ø (mm)	CONSTRUCTION	MIN. COVERAGE (%)	NOMINAL OUTER Ø (mm)	APPROX. WEIGHT (g/m)
FW 22/41 STK1	FW 22/41	0.85	16 x 4 x 0.05	80	1.17	4.60
FW 24/44 STK1	FW 24/44	0.73	16 x 4 x 0.05	80	1.05	3.75
FW 26/44 STK1	FW 26/44	0.62	16 x 3 x 0.05	80	0.94	2.60
FW 28/48 STK1	FW 28/48	0.52	16 x 3 x 0.05	80	0.84	2.25
FW 30/50 STK1	FW 30/50	0.42	16 x 3 x 0.05	80	0.74	1.84
FW 32/50 STK1	FW 32/50	0.38	16 x 2 x 0.05	80	0.70	1.30
FW 34/50 STK1	FW 34/50	0.32	16 x 2 x 0.05	80	0.64	1.15

## Identification code

FW	xx	/	xx	ST	K	1
Flexible wire	Conductor size (AWG)		Strand size (AWG)	Standard braid	FEP	Number of wire

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN



# High flexible shielded and jacketed twisted pairs with drain

## TYPE FW xx/xx STK2 + DW

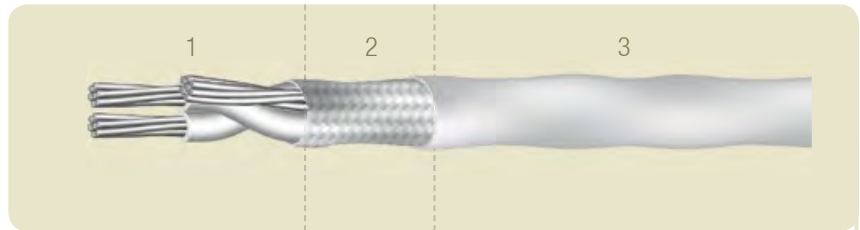
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

- 1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)
- Insulation: thin wall extruded FEP
- Drain wire: silver plated copper (SPC) or silver plated copper alloy (SHT)

#### SHIELDING

- 2 - Material: silver plated copper (SPC) or silver plated copper alloy (SHT)

#### OUTER JACKET

- 3 - Thin wall extruded FEP

## Physical characteristics

AXON' REFERENCE	PRIMARY WIRE		DRAIN WIRE		BRAIDED SHIELD		JACKET	
	REFERENCE	NOMINAL Ø (mm)	MATERIAL	AWG	CONSTRUCTION	MIN. COVERAGE (%)	NOMINAL OUTER Ø (mm)	APPROX. WEIGHT (g/m)
FW 22/41 STK2 + DW	FW 22/41	0.85	SPC	22	16 x 8 x 0.05	80	2.02	12
FW 24/44 STK2 + DW	FW 24/44	0.73	SPC	24	16 x 7 x 0.05	80	1.78	9.2
FW 26/44 STK2 + DW	FW 26/44	0.62	SPC	26	16 x 6 x 0.05	80	1.59	6.4
FW 28/48 STK2 + DW	FW 28/48	0.52	SHT	28	16 x 5 x 0.05	80	1.36	4.96
FW 30/50 STK2 + DW	FW 30/50	0.42	SHT	30	16 x 5 x 0.05	80	1.22	3.8
FW 32/50 STK2 + DW	FW 32/50	0.38	SHT	32	16 x 4 x 0.05	80	1.08	2.9
FW 34/50 STK2 + DW	FW 34/50	0.32	SHT	34	16 x 4 x 0.05	80	1.02	2.43

## Identification code

FW	xx	/	xx	ST	K	2	+ DW
Flexible wire	Conductor size (AWG)		Strand size (AWG)	Standard braid	FEP	Number of wires	Drain wire

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN

# Long flexlife single wires

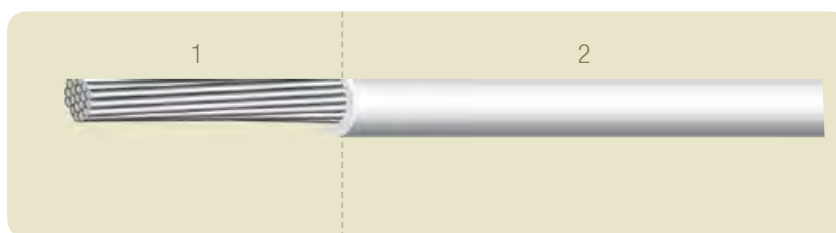
## TYPE LFW xx/xx

Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours: see colour code page 3.



### Construction

#### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON® REFERENCE	CONDUCTOR						INSULATED WIRE	
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)
LFW 22/41	SPC	22	72	0.07	0.277	6.25	0.91	3.05
LFW 24/44	SPC	24	105	0.05	0.206	9	0.78	2.30
LFW 26/44	SPC	26	63	0.05	0.124	14.5	0.66	1.39
LFW 28/48	SHT	28	119	0.031	0.090	26.2	0.56	1.04
LFW 30/50	SHT	30	105	0.025	0.052	42.7	0.46	0.65
LFW 32/50	SHT	32	70	0.025	0.034	64	0.41	0.47
LFW 34/50	SHT	34	42	0.025	0.021	106.8	0.36	0.32

## Identification code

LFW

Long Flexlife Wire

xx

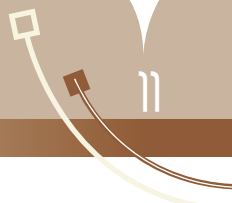
Conductor size (AWG)

/

xx

Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN



# Long flexlife twisted pairs

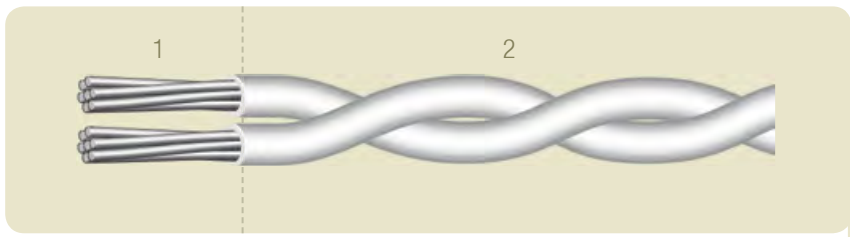
## TYPE 2 LFW xx/xx

Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours: see colour code page 3.



### Construction

#### PRIMARY WIRE

- 1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)
- 2 - Insulation: thin wall extruded FEP

## Physical characteristics

AXON' REFERENCE	CONDUCTOR						INSULATED WIRE	TWISTED PAIRS		
	MATERIAL	AWG	STRAND NUMBER	STRAND Ø (mm)	NOMINAL AREA (mm²)	NOMINAL RESISTANCE (Ω/100 m)	NOMINAL Ø (mm)	NOMINAL Ø (mm)	APPROX. WEIGHT (g/m)	APPROX. LAY LENGTH (mm)
2 LFW 22/41	SPC	22	72	0.07	0.277	6.25	0.91	1.82	6.41	20
2 LFW 24/44	SPC	24	105	0.05	0.206	9	0.78	1.56	4.83	18
2 LFW 26/44	SPC	26	63	0.05	0.124	14.5	0.66	1.32	2.92	16
2 LFW 28/48	SHT	28	119	0.031	0.090	26.2	0.56	1.12	2.18	12
2 LFW 30/50	SHT	30	105	0.025	0.052	42.7	0.46	0.92	1.37	10
2 LFW 32/50	SHT	32	70	0.025	0.034	64	0.41	0.82	0.99	9
2 LFW 34/50	SHT	34	42	0.025	0.021	106.8	0.36	0.72	0.67	8

## Identification code

2

LFW

xx

/

xx

Number of wires

Long Flexlife Wire

Conductor size (AWG)

Strand size (AWG)

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN

# Long flexlife shielded and jacketed pairs

## TYPE LFW xx/xx STK2

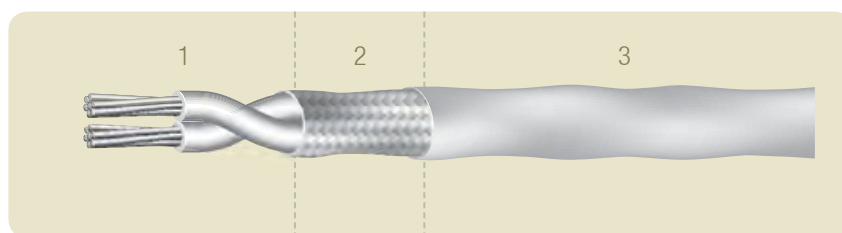
Insulation: FEP

Operating temperature: -60°C to +150°C

Voltage rating: 200 Vac

Standard colours (Stock) : white for FW 22/41 to FW 34/50,  
black or white for FW 26/44.

Other colours on request, see colour code page 3.



### Construction

#### PRIMARY WIRE

1 - Conductor: silver plated copper (SPC) or silver plated copper alloy (SHT)

- Insulation: thin wall extruded FEP

#### SHIELDING

2 - Material: silver plated copper & copper alloy

#### OUTER JACKET

3 - Thin wall extruded FEP

## Physical characteristics

AXON <sup>®</sup> REFERENCE	PRIMARY WIRE		BRAIDED SHIELD		JACKET	
	REFERENCE	NOMINAL Ø (mm)	CONSTRUCTION	MIN. COVERAGE (%)	NOMINAL OUTER Ø (mm)	APPROX. WEIGHT (g/m)
LFW 22/41 STK2	LFW 22/41	0.91	16 x 8 x 0.05	80	2.20	10.30
LFW 24/44 STK2	LFW 24/44	0.78	16 x 7 x 0.05	80	1.94	8.24
LFW 26/44 STK2	LFW 26/44	0.66	16 x 6 x 0.05	80	1.68	5.74
LFW 28/48 STK2	LFW 28/48	0.56	16 x 5 x 0.05	80	1.48	4.57
LFW 30/50 STK2	LFW 30/50	0.46	16 x 4 x 0.05	80	1.28	3.31
LFW 32/50 STK2	LFW 32/50	0.41	16 x 4 x 0.05	80	1.18	2.89
LFW 34/50 STK2	LFW 34/50	0.36	16 x 3 x 0.05	80	1.08	2.18

## Identification code

LFW	xx	/	xx	ST	K	2
Long Flexlife Wire	Conductor size (AWG)		Strand size (AWG)	Standard braid	FEP	Number of wires

SPC: SILVER PLATED COPPER - SHT: SILVER HARD TIN