COAXIAL CABLES

aerospace industry Video systems Telecommunications Radio/television Various types of measuring equipment Medical devices computer systems Military equipment and weapon systems

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RoHS COMPLIANT

In order to meet the 2002/95/CEE European Directive, AXON' CABLE has replaced their high strength silver plated copper alloy conductors (SPTF) with a silver plated copper alloy conductor (SCA) with equivalent performance but heavy metal free. The AXON' SCA conductors do not contain Cadmium. They are RoHS compliant.

SPECIAL VERSIONS

PICO-COAX®

FLEXIBLE MINIATURE COAXIAL CABLES

- Flexible miniature coaxial cables offering a good compromise between a small diameter (e.g. < 0.2 mm) and a capacitance of 50 to 100 pF/m.

- Laying up of more than 500 PICO-COAX® into MULTIPICO-COAX® cables.

- Manufacture of harnesses : MULTIPICO-COAX® cables can be terminated by different types of connectors.

- Application : e.g. transducer probe cables (medical imaging,...).

For more detailed information, please ask for our "PICO-COAX®" brochure.

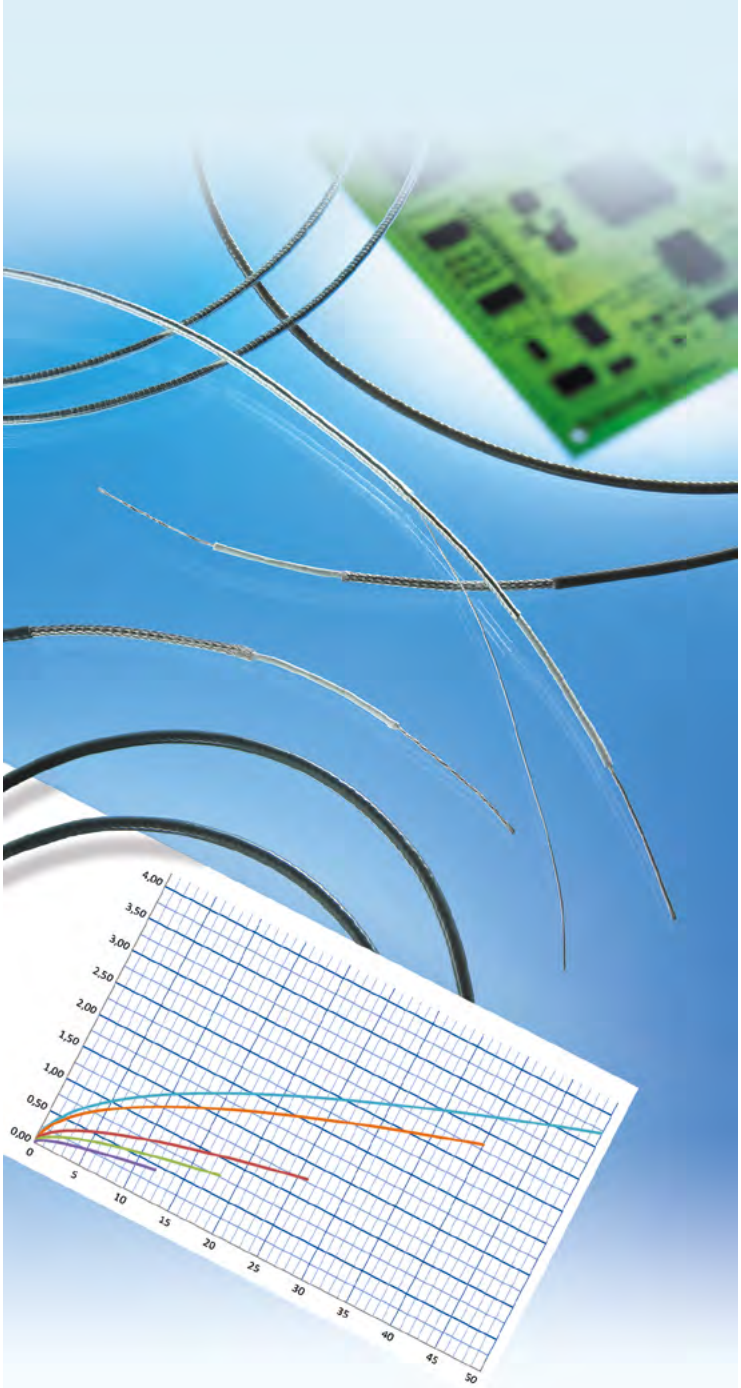
AXOWAVE

FLEXIBLE LOW LOSS MICRO ASSEMBLIES

- The use of CELLOFLON® dielectrics makes it possible to manufacture very low loss microwave assemblies (e.g. AXOWAVE 8N : ø 8.0 mm, $\alpha \leq 0.80$ dB at 18 GHz) which can be used at high frequencies (up to 50 GHz).

- These assemblies are terminated with SMA, N, TNC type or metric connectors depending on the type of cable.

AXOWAVE datasheets show the detailed characteristics of the whole standard product range.
Any special request can be studied.



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SUMMARY OF AXON' STANDARD COAXIAL CABLES

			CONDUCTOR			DIELECTRIC		SCREEN			OUTER SHEATH		Z_c
CABLE REFERENCE	MIL - DTL-17	NFC 93-550	Material	Construc-tion	nom Ø	Material	nom Ø	1	Triax. sheath	2	Material	Ø max.	
SM50			SCA	1 x 0.16	0.16	PTFE	0.52	SPC		-	FEP	1.05	50
SML50			SCA	1 x 0.16	0.16	GRAPHITE PTFE	0.52	SPC		-	TAPED PTFE	1.10	50
SMX50			SCA	1 x 0.16	0.16	PTFE	0.52	SPC	FEP	SPC	FEP	1.70	50
SM75			SCA	1 x 0.102	0.10	PTFE	0.55	SPC		-	FEP	1.10	75
SM95			SCA	1 x 0.102	0.10	PTFE	0.86	SPC		-	FEP	1.50	95
SM50 SCA - P538394			SCA	7 x 0.063	0.19	FEP	0.5	SPC		-	FEP	1.05	50
SM75 SPCI - P538432			SPCI	7 x 0.04	0.12	FEP	0.55	SPC		-	FEP	1.10	75
M17/93-RG178	M17/93-RG178	KX21	SCWS	7 x 0.10	0.30	PTFE	0.85	SPC		-	FEP	1.90	50
M17/169-00001	M17/169-00001		SCWS	7 x 0.10	0.30	PTFE	0.85	SPC		-	WHITE FEP	1.90	50
RG196/U			SCWH	7 x 0.10	0.30	PTFE	0.85	SPC		-	TAPED PTFE	2.03	50
RG196 A/U			SCWS	7 x 0.10	0.30	PTFE	0.85	SPC		-	TAPED PTFE	2.03	50
RGL196			SCWS	7 x 0.10	0.30	GRAPHITE PTFE	0.85	SPC		-	TAPED PTFE	2.03	50
M17/132-RG404	M17/132-RG404		SCWS	7 x 0.10	0.30	GRAPHITE PTFE	0.85	SPC		-	FEP	1.95	50
M17/93-00001	M17/93-00001		SCWS	7 x 0.10	0.30	PTFE	0.85	SPC		-	PFA	1.90	50
RG178DT-P500955		KX21DT	SCWS	7 x 0.10	0.30	PTFE	0.85	SPC		SPC	FEP	2.30	50
M17/131-RG403	M17/131-RG403		SCWS	7 x 0.10	0.30	PTFE	0.85	SPC	FEP	SPC	FEP	3.25	50
M17/94-RG179	M17/94-RG179		SCWS	7 x 0.10	0.30	PTFE	1.60	SPC		-	FEP	2.66	75
M17/136-00001	M17/136-00001		SCWS	7 x 0.10	0.30	PTFE	1.60	SPC		-	PFA	2.66	75
RG187 A/U			SCWS	7 x 0.10	0.30	PTFE	1.60	SPC		-	TAPED PTFE	2.79	75
RGL187			SCWS	7 x 0.10	0.30	GRAPHITE PTFE	1.60	SPC		-	TAPED PTFE	2.79	75
RGX179			SCWS	7 x 0.10	0.30	PTFE	1.60	SPC	FEP	SPC	FEP	3.80	75
P803859			SCWS	7 x 0.10	0.30	CELLOFLON®	1.30	SPC		SPC	FEP	2.40	75
P804298			SCA	7 x 0.102	0.30	CELLOFLON®	1.35	SPC		SPC	FEP	2.50	75
M17/95-RG180	M17/95-RG180		SCWS	7 x 0.10	0.30	PTFE	2.60	SPC		-	FEP	3.68	95
M17/137-00001	M17/137-00001		SCWS	7 x 0.10	0.30	PTFE	2.60	SPC		-	PFA	3.68	95
RG195/U			SCWH	7 x 0.10	0.30	PTFE	2.60	SPC		-	TAPED PTFE	3.93	95
RG195 A/U			SCWS	7 x 0.10	0.30	PTFE	2.60	SPC		-	TAPED PTFE	3.93	95
RGL195			SCWS	7 x 0.10	0.30	GRAPHITE PTFE	2.60	SPC		-	TAPED PTFE	3.93	95
RGX180	M17/177-00001		SCWS	7 x 0.10	0.30	PTFE	2.60	SPC	FEP	SPC	FEP	4.80	95
M17/113-RG316	M17/113-RG316	KX22	SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		-	FEP	2.59	50
M17/172-00001	M17/172-00001		SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		-	WHITE FEP	2.59	50
M17/138-00001	M17/138-00001		SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		-	PFA	2.59	50
RG188/U			SCWH	7 x 0.17	0.51	PTFE	1.52	SPC		-	TAPED PTFE	2.79	50
RG188 A/U			SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		-	TAPED PTFE	2.79	50
RGL188			SCWS	7 x 0.17	0.51	GRAPHITE PTFE	1.52	SPC		-	TAPED PTFE	2.79	50
RGX316			SCWS	7 x 0.17	0.51	PTFE	1.52	SPC	FEP	SPC	FEP	3.70	50
RG316DT-P530912		KX22DT	SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		SPC	FEP	2.70	50
M17/152-00001	M17/152-00001	KX22DT	SCWS	7 x 0.17	0.51	PTFE	1.52	SPC		SPC	FEP	2.99	50
P812817			SPC	19 x 0.102	0.51	CELLOFLON®	1.35	SPC		SPC	FEP	2.40	50
M17/110-RG302/U	M17/110-RG302/U		SCWH	1 x 0.64	0.64	PTFE	3.70	SPC		-	FEP	5.25	75
P804151			SPC	19 x 0.102	0.51	CELLOFLON®	2.30	SPC		SPC	FEP	3.70	75
M17/111-RG303	M17/111-RG303		SCWH	1 x 0.94	0.94	PTFE	2.95	SPC		-	FEP	4.44	50
M17/170-00001	M17/170-00001		SCWH	1 x 0.94	0.94	PTFE	2.95	SPC		-	FEP	4.44	50
M17/60-RG142	M17/60-RG142		SCWH	1 x 0.94	0.94	PTFE	2.95	SPC		SPC	FEP	5.08	50
M17/158-00001	M17/158-00001		SCWH	1 x 0.94	0.94	PTFE	2.95	SPC		SPC	FEP	5.08	50
P805311			SPC	19 x 0.16	0.80	CELLOFLON®	2.10	SPC		SPC	FEP	3.05	50
M17/128-RG400DT	M17/128-RG400DT		SPC	19 x 0.20	0.97	PTFE	2.95	SPC		SPC	FEP	5.08	50
M17/175-00001	M17/175-00001		SPC	19 x 0.20	0.97	PTFE	2.95	SPC		SPC	FEP	5.08	50
RG400ST			SPC	19 x 0.20	0.97	PTFE	2.95	SPC		-	FEP	4.20	50
RGX400			SPC	19 x 0.20	0.97	PTFE	2.95	SPC	FEP	SPC	FEP	5.40	50
P533000	M17/127-RG393		SPC	7 x 0.79	2.37	PTFE	7.24	SPC		SPC	FEP	9.90	50

PTFE GRAPH. = GRAPHITE PTFE / PTFE RUB. = TAPED PTFE

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TECHNICAL GLOSSARY

CHARACTERISTIC IMPEDANCE

Term representing the relationship between the voltage and current in a cable of supposedly infinite length. There are three main classes of characteristic impedance for coaxial cables : 50 Ω, 75 Ω and 95 Ω. The formula defining characteristic impedance may be written as follows :

$$Z_c = \frac{138{,}2}{\sqrt{\in}} \bullet Log_{10}\frac{D}{d} \text{ in } \Omega$$

Theoretical formula in the case of a perfect line.

CAPACITANCE

Property of a coaxial cable to store electric charge when a difference in potential energy exists between the two conductors. This will depend on the geometry of the cable and on the nature of the insulation and may be defined as follows :

$$C = \frac{24{,}12 \bullet \in}{Log_{10}\frac{D}{d}} \text{ or } \frac{3326 \bullet \sqrt{\in}}{Z_c} \text{ in pF/m}$$

VELOCITY OF PROPAGATION

This is the speed that the electrical signal travels through in the dielectric.

$$v_p = \frac{1}{\sqrt{\in}} x100 \text{ as a \% of the speed of the light}$$

Ex.: solid polyethylene v_p = 66 %
solid PTFE v_p = 69 %

As the dielectric constant of an insulation is a direct function of the nature of this insulation, in order to increase the velocity of propagation we must decrease the dielectric constant and bring it as close as possible to the dielectric constant of air (∈ = 1).

Ex.: dielectric constant ETFE = 2.6
PTFE = 2.1
Celloflon® = 1.3 to 2.1

ATTENUATION

Attenuation is the sum of losses in the conductor and in the dielectric which determines the exponential loss occuring to a
signal during a transmission in a cable. Attenuation may be expressed as follows :

$$A = \frac{1{,}43\,R}{z_c} + 9{,}15 \bullet \sqrt{\in} \bullet f \bullet F$$

in dB/100 m at frequency range
where

$$R = 25{,}4\left(\frac{1}{d} + \frac{1}{D}\right) \bullet \sqrt{f}$$

D = diameter of dielectric in mm
d = diameter of central conductor in mm
∈ = dielectric constant
z_c = characteristic impedance of the dielectric in Ω
c = capacitance per unit length in pF/m
vp = velocity of propagation as a % of the speed of light
A = attenuation in dB/100 m at frequency range
R = conductor resistance at a frequency f
F = loss factor tg ∂
f = frequency in MHz

axon' cables & connectors

COAXIAL CABLES

The use of coaxial cables extends to every application in which a signal must have a minimum distortion and attenuation or where elimination of external interference plays a leading part.

The use of a coaxial cable helps to prevent many of the problems created by bifilary wires : the twin conductor construction of coaxials (central conductor and shield) separated by a dielectric prevents the reception of outside interference, and at the same time, the loss of the electromagnetic wave.
Different types of coaxials are determined by the materials employed (conductors and dielectrics), the outer diameter, the characteristic impedance, the capacitance, the attenuation and the frequency range.
The most widely used coaxial cables are those according to the American norm MIL-DTL-17, the RG (Radio Frequency Government) references and the French norm NF-C 93550, KX references.

THE DESIGN

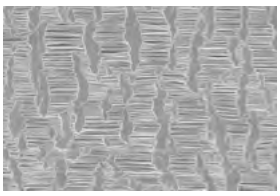
AXON' coaxial cables can be composed of the following materials :

CONDUCTOR
- Copper clad steel
- SPC
- SCA

DIELECTRIC
- Solid PTFE
- CELLOFLON®

SCREEN
- SPC

SHEATH
- PTFE
- FEP
- PFA



CELLOFLON®

For small, flexible, high performance coaxial cables AXON' has taken out a patent on CELLOFLON® (porous PTFE). This material presents an 80% porosity, a density of 0.42 and a dielectric constant of 1.18 (solid PTFE : density = 2.2 - dielectric constant = 2.1).
The use of CELLOFLON® helps to manufacture lighter, smaller, more flexible cables with better electrical characteristics. As the dielectric constant will be lower, there will be fewer losses, and the cut-off frequency and the velocity of propagation will be higher.

LEGENDS

PTFE = Polytetrafluorethylene
ETFE = Ethylenetetrafluorethylene
FEP = Fluorethylenepropylene
PFA = Perfluoralkoxy
CELLOFLON® = porous PTFE
SPC = Silver plated copper
SCA = Silver plated copper alloy
SCWS = Silver plated copper clad soft steel
SPTF = Non magnetic silver plated copper alloy
SCWH = Silver plated copper clad hard steel
SPCI = Silver plated copper alloy
SPCA = Silver plated copper clad aluminium

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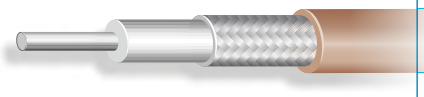
SINGLE SCREEN

FEP SHEATH



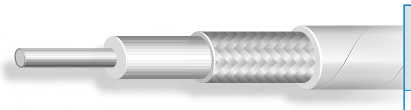
CONSTRUCTION

- Conductor :
  - silver plated copper clad soft steel,
  - silver plated copper clad hard steel,
  - silver plated copper.
- Dielectric : extruded PTFE.
- Velocity of propagation : 69 %.
- Screen :
  - silver plated copper.
- Sheath :
  - light brown or white extruded FEP.

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREEN	OUTER SHEATHMAX.		WEIGHT (g/m)	MAX. Z_c (Ω)	MAX CAPACITANCE (pF/m)	ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	MAX. Ø (mm)					
M17/93-RG 178(*) or KX 21 A (**)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	FEP	1.90	9.30	50	105	1.08	BNC-N-SM-SMA-SMB-SMC
M17/94-RG 179(*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	1.60	SPC	FEP	2.66	16.07	75	75.5	0.69	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
M17/95-RG 180(*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	FEP	3.68	29.46	95	57	0.55	BNC-C-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
M17/110(*) RG 302/U	SCWH	1 x 0.64	0.64	EXTRUDED PTFE	3.70	SPC	FEP	5.25	59.52	75	72	0.26	BN-BNC-C-HN-MHV-N-QDS-SC-SM-SMA-TNC-TPS-UHF
M17/111-RG 303(*) M17/170-00001	SCWH	1 x 0.94	0.94	EXTRUDED PTFE	2.95	SPC	FEP	4.44	58.03	50	105	0.28	BN-BNC-C-HN-MHV-N-SC-SM-SMA-TNC-TPS-UHF
M17/113-RG 316(*) or KX 22 A (**)	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	FEP	2.59	18.15	50	105	0.69	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
M17/169-00001(*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	WHITE FEP	1.90	9.30	50	105	1.08	BNC-N-SM-SMA SMB-SMC
M17/172-00001(*)	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	WHITE FEP	2.59	17.11	50	105	0.68	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
RG 400 ST	SPC	19 x 0.20	0.97	EXTRUDED PTFE	2.95	SPC	FEP	4.20	Nom. 42.00	50	NOM. 96	0.40	BMA-BN-BNC-C-HN-MHV-N-SM-SMA-TNC-TPS-UHF

Equivalent to : (*) MIL-DTL-17, (**) NF-C-93550

PTFE SHEATH



CONSTRUCTION

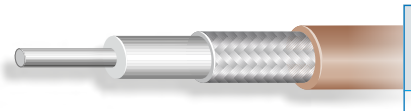
- Conductor :
  - silver plated copper clad soft steel,
  - silver plated copper clad hard steel,
- Dielectric : extruded PTFE.
- Velocity of propagation : 69 %.
- Screen :
  - silver plated copper.
- Sheath :
  - white taped PTFE.

CHARACTERISTICS

Excellent resistance of the dielectric or the outer jacket of the cable to the soldering iron.

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREEN	OUTER SHEATH		WEIGHT (g/m)	NOM. Z_c (Ω)	MAX. CAPACITANCE (pF/m)	MAX. ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	MAX. Ø (mm)					
RG 187 A/U	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	1.60	SPC	TAPED PTFE	2.79	16.20	75	72.5	0.69	BMA-BNC-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
RG 188/U	SCWH	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	TAPED PTFE	2.79	16.20	50	105	0.69	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
RG 188 A/U	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	TAPED PTFE	2.79	16.20	50	105	0.69	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
RG 195/U	SCWH	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	TAPED PTFE	3.93	28.70	95	51	0.55	BNC-C-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
RG 195 A/U	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	TAPED PTFE	3.93	28.70	95	51	0.55	BNC-C-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
RG 196/U	SCWH	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	TAPED PTFE	2.03	9.00	50	105	0.95	BNC-N-SM-SMA-SMB-SMC-SMD-TNC
RG 196 A/U	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	TAPED PTFE	2.03	9.00	50	105	0.95	BNC-N-SM-SMA-SMB-SMC-SMD-TNC

PFA SHEATH



CONSTRUCTION

- Conductor :
  - silver plated copper clad soft steel.
- Dielectric : extruded PTFE.
- Velocity of propagation : 69 %.
- Screen :
  - silver plated copper.
- Sheath :
  - light brown extruded PFA.

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREEN	OUTER SHEATH		MAX. WEIGHT. (g/m)	Z_c (Ω)	MAX. CAPACITANCE (pF/m)	MAX.. ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	NOM. Ø (mm)					
M17/93-00001 (*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	EXTRUDED PFA	1.90	9.30	50	105	1.08	BNC-N-SM-SMA-SMB-SMC
M17/136-00001 (*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	1.60	SPC	EXTRUDED PFA	2.66	17.85	75	72	0.69	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
M17/137-00001 (*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	EXTRUDED PFA	3.68	29.76	95	51	0.56	BNC-C-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
M17/138-00001 (*)	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	EXTRUDED PFA	2.59	18.15	50	105	0.68	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS

Equivalent to : (*) MIL-DTL-17

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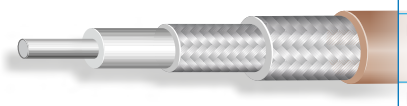
DOUBLE SCREEN



CONSTRUCTION

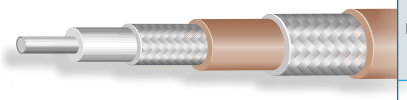
- Conductor :
  - silver plated copper clad soft steel,
  - silver plated copper clad hard steel,
  - silver plated copper.
- Dielectric : extruded PTFE.
- Velocity of propagation : 69 %.
- Screens :
  - silver plated copper.
- Sheath :
  - light brown extruded FEP.

FEP SHEATH

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREENS		OUTER SHEATH		MAX. WEIGHT (g/m)	Z_c (Ω)	MAX. CAPA-CITANCE (pF/m	MAX. ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	1	2	MATERIAL	MAX. Ø (mm)					
P500955	SCWS	7x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	SPC	EXTRUDED FEP	2.30	13.70	50	105	1.08	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS-UHF
P530912	SCWS	7x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	SPC	EXTRUDED FEP	2.70	16.80	50	105	0.69	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS-UHF
M17/152 00001(*))	SCWS	7x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	SPC	EXTRUDED FEP	2.99	27.53	50	105	0.78	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS
M17/60 RG142(*) M17/158 00001(*)	SCWH	1x 0.94	0.94	EXTRUDED PTFE	2.95	SPC	SPC	EXTRUDED FEP	5.08	83.33	50	105	0.38	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS-UHF
M17/128 RG400 DT(*) M17/175 00001(*)	SPC	19x 0.20	0.97	EXTRUDED PTFE	2.95	SPC	SPC	EXTRUDED FEP	5.08	74.40	50	105	0.34	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS-UHF
M17/127 RG393	SPC	7x 0.79	2.37	EXTRUDED PTFE	7.24	SPC	SPC	EXTRUDED FEP	10.16	260.00	50	105	0.16	BMA-BN-BNC-C HN-MHV-N-SC-SM SMA-TNC-TPS-UHF

Equivalent to : (*) MIL-DTL-17

TRIAXIALS



CONSTRUCTION

- Conductor :
  - non magnetic silver plated copper alloy,
  - silver plated copper,
  - silver plated copper clad soft steel.
- Dielectric : extruded PTFE,
- Propagation velocity : 69%
- Screen : silver plated copper
- Internal sheath : extruded FEP
- Outer sheath : extruded FEP.

CHARACTERISTICS

- Better mechanical protection in a flexible cable.
- The "screen-sheath-shield" construction assures a much better electrical shielding than two sheathed screens.

APPLICATIONS

- All equipment where outside interference must be minimized.
- Propagation of two different signals,
  E.g. : Probe leads,
  Transducer leads.

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		FIRST SCREEN	INTERNAL SCREEN	SECOND SCREEN	OUTER SHEATH		NOM. WEIGHT (g/m)	Z_c (Ω)	NOM. CAPACITANCE (pF/m)		MAX. ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	MATERIAL	MATERIAL	Ø MAX. (mm)			COND./ SCREEN	SCREEN/ SCREEN		
SM X 50	SCA	1 x 0.16	0.16	EXTRUDED PTFE	0.52	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	1.70	6.80	50	96	480	-	TRIAXIAL CONNECTORS
RG X 179	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	1.60	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	3.80	31.60	75	66	530	0.69	TRIAXIAL CONNECTORS
RG X 180 M17/177-00001 (*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	4.80	50.80	95	MAX. 57	980	0.56	TRIAXIAL CONNECTORS
RG X 316	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	3.70	32.20	50	96	490	0.69	TRIAXIAL CONNECTORS
RG X 400	SPC	19 x 0.20	0.97	EXTRUDED PTFE	2.95	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	5.40	67.20	50	96	798	0.28	TRIAXIAL CONNECTORS
M17/131 RG 403 (*)	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	EXTRUDED FEP	SPC	EXTRUDED FEP	3.25	22.30	50	96	MAX. 525	0.95	TRIAXIAL CONNECTORS

Equivalent to : (*) MIL-DTL-17

CELLOFLON® DIELECTRIC

CABLE REFERENCE	CONDUCTOR			CELLOFLON® DIELECTRIC	DOUBLE SCREEN	OUTER SHEATHNOM. (g/m)		Z_c WEIGHT (g/m)	MAX. (Ω)	MAX. CAPA-CITANCE (pF/m)	ATTEN.		CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM.Ø	Ø (mm)	MATERIAL	MATERIAL	Ø MAX. (mm)				dB/m	FREQUENCY	
P812817	SPC	19 x 0.102	0.51	1.35	SPC	FEP	2.40	13	50	100	0.50	200 MHz	SMA size 16 coaxial contacts for connectors according to MIL-C-38999
P805311	SPC	19 x 0.160	0.80	2.10	SPC	FEP	3.05	20	50	85	0.77 1.14 1.40 1.60 2.60	1 GHz 2 GHz 3 GHz 5 GHz 8 GHz	SMA size 16 coaxial contacts for connectors according to MIL-C-38999
P803859	SCWS	7 x 0.102	0.30	1.30	SPC	FEP	2.40	12	75	60	0.30 0.65	200 MHz 400 MHz	SMA size 16 coaxial contacts for connectors according to MIL-C-38999
P804298	SCA	7 x 0.102	0.30	1.35	SPC	FEP	2.50	15	75	60	0.50	200 MHz	SMA size 16 coaxial contacts for connectors according to MIL-C-38999
P804151	SPC	19 x 0.102	0.51	2.30	SPC	FEP	3.70	35	75	60	0.30	400 MHz	SMA size 8 coaxial contacts for connectors according to MIL-C-38999

Equivalent to : (*) MIL-DTL-17

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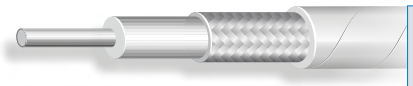
LOW NOISE VERSIONS



CONSTRUCTION

- Conductor :
  - non magnetic silver plated copper alloy,
  - silver plated copper clad soft steel.
- Dielectric : extruded PTFE / graphite.
- Velocity of propagation : 69 %.
- Low noise coating
- Screen : silver plated copper.
- Sheath : white PTFE tape

(except SM L 50 : blue PTFE tape), extruded light brown FEP.

CHARACTERISTICS

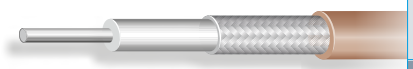
- The application of a semiconducting layer of graphite between the core and the screen enables a decrease in audio noise due to oscillations, vibrations, etc., in some cases by as much as 2000 times.
- This semiconducting layer does not change the dielectric properties of the cable.
- The cable also has excellent soldering properties (except M 17/132 - RG 404).

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREEN	OUTER SHEATH		Nom. WEIGHT (g/m)	z_c (Ω)	MAX. CAPACITANCE (pF/m)	Nom. ATTEN. AT 400 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS. TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	MAX. Ø (mm)					
SM L 50	SCA	1 x 0.16	0.16	EXTRUDED PTFE	0.52	SPC	TAPED PTFE	1.10	3.00	50	97 NOM.	1.10 NOM. (AT 200 MHz)	SUBMINIATURE CONNECTORS
RG L 187	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	1.60	SPC	TAPED PTFE	2.79	16.20	75	72.5	0.90	BMA-BNC-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
RG L 188	SCWS	7 x 0.17	0.51	EXTRUDED PTFE	1.52	SPC	TAPED PTFE	2.79	16.20	50	105	0.90	BMA-BNC-MHV-N-SMA-SMB-SMC-SMD-TNC-TPS
RG L 195	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	2.60	SPC	TAPED PTFE	3.93	28.70	95	51	0.65	BNC-C-MHV-N-SM-SMA-SMB-SMC-SMD-TNC-TPS
RG L 196	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	TAPED PTFE	2.03	9.00	50	105	1.10	BNC-N-SM-SMA-SMB-SMC-SMD-TNC
M 17/132 RG 404	SCWS	7 x 0.10	0.30	EXTRUDED PTFE	0.85	SPC	EXTRUDED FEP	1.95	8.30	50	105	1.10	TNC

APPLICATIONS

- high gain audio amplifiers,
- piezoelectric components,
- accelerometers,
- magnetic recording heads,
- oscilloscope probes.

SUBMINIATURE VERSIONS



CONSTRUCTION

- Conductor :
  - silver plated copper clad soft steel, single strand
  - silver plated copper clad soft steel
- Dielectric :
  - extruded PTFE (or FEP) for static applications
  - FEP for dynamic applications
- Velocity of propagation : 69%
- Screen or outer conductor :
  - silver plated copper
  - silver plated copper clad aluminium
- Outer sheath : light brown FEP

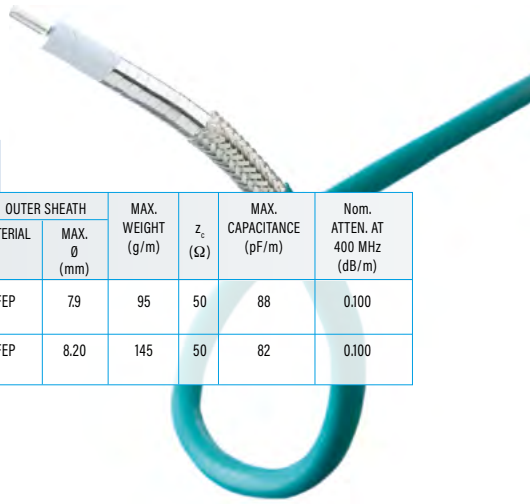
CHARACTERISTICS

- extremely small diameter,
- excellent flexibility,
- perfect primary wire for multiconductor coaxial cables.

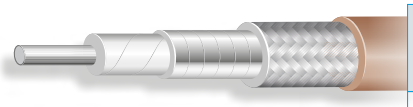
CABLE REFERENCE	CONDUCTOR			DIELECTRIC		SCREEN	OUTER SHEATH		Nom. WEIGHT (g/m)	z_c (Ω)	MAX. CAPACITANCE (pF/m)	Nom. ATTEN. AT 200 MHz (dB/m)	CONNECTOR SERIES USED
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)	MATERIAL	MATERIAL	MAX. Ø (mm)					
STATIC APPLICATIONS													
SM 50	SCA	1 x 0.160	0.16	PTFE (or FEP)	0.52	SPC	FEP	1.05	2.90	50	97	1.15	SUBMINIATURES CONNECTORS
SM 75	SCA	1 x 0.102	0.10	PTFE (or FEP)	0.55	SPC	FEP	1.10	2.90	75	67	0.95	SUBMINIATURES CONNECTORS
SM 95	SCA	1 x 0.102	0.10	PTFE (or FEP)	0.86	SPC	FEP	1.50	4.80	95	51	0.75	SUBMINIATURES CONNECTORS
DYNAMIC APPLICATIONS													
SM 50 SCA P538394	SCA	7 x 0.063	0.19	FEP	0.52	SPC	FEP	1.05	2.80	50	97	1.69	SUBMINIATURES CONNECTORS
SM75 SPCI P538432	SPCI	7 x 0.04	0.12	FEP	0.55	SPC	FEP	1.10	2.90	75	67	1.69	SUBMINIATURES CONNECTORS

APPLICATIONS

- Medical electronics,
- Audio equipment,
- Satellites,
- Miniaturised electronics.



LIGHTWEIGHT VERSIONS



CONSTRUCTION

- Conductor
  - silver plated copper clad aluminium
  - silver plated copper
- Dielectric : CELLOFLON®
- Velocity of propagation : 81%
- Screen or outer conductors :
  - silver plated copper
  - silver plated copper clad aluminium
- Outer sheath : extruded FEP

CABLE REFERENCE	CONDUCTOR			DIELECTRIC		TAPE & SCREEN MATERIAL	OUTER SHEATH		MAX. WEIGHT (g/m)	z_c (Ω)	MAX. CAPACITANCE (pF/m)	Nom. ATTEN. AT 400 MHz (dB/m)
	MATERIAL	CONS-TRUCTION	NOM. Ø (mm)	MATERIAL	NOM. Ø (mm)		MATERIAL	MAX. Ø (mm)				
EN4604-009 KW P842357	SPCCA	1 x 2.30	2.30	TAPED CELLOFLON®	6.20	SPC SPCCA	FEP	7.9	95	50	88	0.100
EN4604-007 WN P877000	SPC	1 x 2.30	2.30	TAPED CELLOFLON®	6.20	SPC	FEP	8.20	145	50	82	0.100

APPLICATIONS

- aircrafts
- helicopters

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axon' cables & connectors

AXON' COAXIAL CABLES

ADVANTAGES

- low dielectric constant,
- low losses,
- weight and space saving,
- high temperature resistance,
- excellent mechanical resistance,
- remarkable chemical inertness,
- good ageing characteristics,
- flexibility.

APPLICATIONS

- aerospace industry,
- telecommunications,
- radio / television,
- video systems,
- various types of measuring equipment,
- computer systems,
- medical devices : scanners, imaging equipment,
- military equipment and weapon systems.

QUALITY CONTROL

dimensional, characteristic impedance, capacitance and attenuation tests.

TECHNICAL BACK-UP

- Terminated coaxial cables : easier installation and significant time saved for the user.
- Harnesses delivered with a Certificate of Test and/or conformity.
- Design of special constructions per customer request.

CUSTOMER BUYING GUIDE

The items listed below are absolutely essential for us to be able to provide you with the answer to your requirements :

- operating temperature,
- degree of non flammability,
- impedance,
- capacitance,
- maximum permitted attenuation at a given frequency,
- type of connector used,
- application.

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