

CABLE SOLUTIONS FOR AEROSPACE AND DEFENCE INDUSTRIES



**CABLES FOR GLOBAL
PERFORMANCE**

**CGP WORKS IN CLOSE LIAISON
WITH THE MANUFACTURERS
OF EQUIPMENTS FOR AEROSPACE
AND DEFENCE INDUSTRIES**



omerin

CGP SAS, Cables for Global Performance belongs to the OMERIN group



www.omerin.com



A full range of products and solutions answering to the high requirements of cutting-edge sectors as aerospace and defence industries:

- Lighter, smaller, more flexible and more reliable wires and cables
- High temperature, Fire, Abrasion, Arc tracking, Fluids resistant cables
- Products compliant with the most of international standards (EN, MIL, NEMA, SAE, NF ...)
- Customized solutions and support for complex and advanced designs

CGP can today offer you an extensive range of over 600 product references under the major **ELECTROAIR®**, **CERAFIL®**, **OMBILIFLEX®**, **SPIRFLEX®**, **TWINLINK®**, **COAXTHERM®**, **MINOROC®**, **SILIGAIN®**, **SILITUBE®**, **SILIFLAM®**, **METALTRESSE®** and **COUPLIX®** brands and names.



**AT CGP WE USE OUR KNOW-HOW
AND TECHNOLOGY TO DEVELOP
INCREASINGLY HIGH-PERFORMANCE
PRODUCTS**





www.cables-cgp.com



Technical expertise

Since 1947, CGP has acquired a full control of electrical cable manufacturing processes.

Our R&D Department is made up of experienced engineers specialising in metallurgy, plastics, electromagnetic compatibility, micromechanics, data transmission, etc.

Our laboratory is equipped to test and validate the physical, mechanical, chemical and electrical behaviours and fire resistance of the cables we produce.

Men and Women at your service

The technical expertise of our teams is at your disposal, providing responses and solutions to all your requirements.

Our Methods, Quality and Research & Development Departments work permanently together with the aim of constantly improving our products and processes.

All our staff subscribe to this approach with their involvement and constant self-checking at all stages of production.



*CGP has been producing
high performance cables
for harsh environments
since 1947*

ALL THE TRADEMARKS LISTED BELOW ARE REGISTERED TRADEMARKS OF CGP

TRADEMARKS

CERAFIL®

Miniature ceramic insulated wires for very high temperatures

COAXTHERM®

High temperature coaxial cables

COUPLIX®

Miniature & high temperature thermocouple and extension cables

ELECTROAIR®

Aerospace & Defence wires and cables

ELECTROFEU®

Fire resistant cables for fire safety circuits

MINOROC®

Very high tensile strength synthetic cables

METALTRESSE®

High performance metallic braids

OMBILIFLEX®

High performance special multi-function cables

PLASTHERM®

Special thermoplastic insulated wires and cables

POWER CONNECT®

High performance power cords

TWINLINK®

High temperature controlled impedance twisted pair cables

SILIFLAM®

Very high safety cables for extreme temperatures

SILIGAIN®

High temperature sleeves

SILITUBE® X

High performance fireproof sleeves

SPIRFLEX®

High performance spiral cables



Bureau Veritas Certification, confirms as an EN 9100 approved certification body, that the management system of CGP, has been assessed and found to be in accordance with the EN 9100:2016 / AS 9100:D - JISQ 9100:2016, for the activity of Design, Manufacturing, and Sales of special and standard wires, cables, cords for aviation, defence and space industries.

CONTENTS

PAGES

OUR MARKETS AND APPLICATIONS	6 > 7
PRODUCT LIST & PRODUCT INFORMATION	8 > 11
HOOK-UP & AIRFRAME EN WIRES & CABLES	12 > 19
FIGHTER AIRCRAFT WIRES & CABLES	20 > 25
HOOK-UP & AIRFRAME NEMA WIRES & CABLES	26 > 37
HOOK-UP & AIRFRAME NF WIRES & CABLES	38 > 62
FLIGHT TEST CABLES	63 > 67
FIRE RESISTANT AND HIGH TEMPERATURE AREA CABLES	68 > 71
ARMOURED PERSONNEL CARRIER CABLES (SEFT 027)	72 > 77
HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES	78 > 84
HIGH TEMPERATURE COAXIAL CABLES	85 > 117
MINIATURE CERAMIC INSULATED WIRES FOR VERY HIGH TEMPERATURES	118 > 121
MINIATURE & HIGH TEMPERATURE THERMOCOUPLE & EXTENSION CABLES	122 > 125
HIGH PERFORMANCE METALLIC BRAIDS	126 > 129
HIGH TEMPERATURE & FIREPROOF SLEEVES	130 > 133
VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES	134 > 139
SPECIAL PRODUCTS ON REQUEST	140 > 145
APPENDICES	146 > 155

OUR MARKETS & APPLICATIONS

1

HOOK-UP & AIRFRAME WIRES & CABLES

APPLICATIONS: Equipment Interconnect / Avionics / Lights / Actuators / Missile systems
ELECTROAIR® DM, CF, AGZ, NEMA HP4 K...



2

DATA TRANSMISSION CABLES

APPLICATIONS: Communication systems / Sensors / Avionics
TWINLINK® FP, FA / COAXTHERM® RG, KX



3

FLIGHT TEST CABLES

APPLICATIONS: Flight test systems
ELECTROAIR® AH 7080, 7083



4

FIRE RESISTANT CABLES

APPLICATIONS: Aircraft engines / High temperature area
ELECTROAIR® FR



5

ARMoured PERSONNEL CARRIER CABLES

APPLICATIONS: Communication systems
ELECTROAIR® KQ



6

MINIATURE CERAMIC INSULATED WIRES

APPLICATIONS: Special winding for motors or sensors / Temperature measurement
CERAFIL® CN8



Civil & VIP / Aircrafts



Space thrusters



Helicopters



Bridge system for armoured vehicles



Fighter aircrafts



Missile systems



Defence tethered balloons

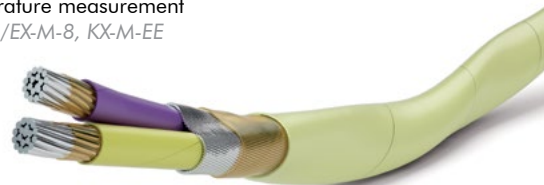


Armoured personnel carriers



7 THERMOCOUPLE & EXTENSION CABLES

APPLICATIONS: Temperature measurement
COUPLIX® K/KX-M-8, E/EX-M-8, KX-M-EE



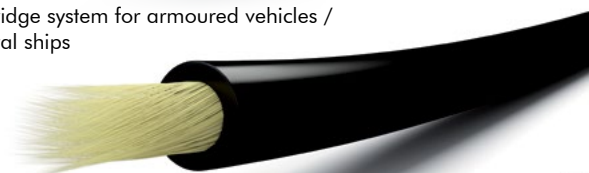
8 METALLIC BRAIDS & FIREPROOF SLEEVES

APPLICATIONS: Protection for cable harnesses against high temperature, fire, electromagnetic interferences
METALTRESSE® / SILITUBE® X / SILIGAIN® 33NHO



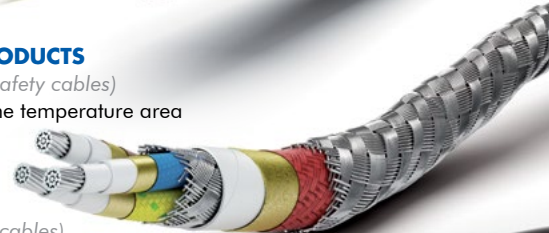
9 HIGH TENSILE STRENGTH SYNTHETIC CABLES

APPLICATIONS: Bridge system for armoured vehicles /
Guard rail for naval ships
MINOROC® P, K



10 SPECIAL PRODUCTS

SILIFLAM® THS (High safety cables)
APPLICATIONS: Extreme temperature area



OMBILIFLEX® (Hybrid cables)
APPLICATIONS: Tethered balloons platforms,
Machine tools (aircraft assembly)...



SPIRIFLEX® (Spiral cables)
APPLICATIONS: Pilot helmet, command seat,
Army communication systems...



POWER CONNECT®
(Power cables with lugs)
APPLICATIONS: High current
or voltage area



PRODUCT LIST

HOOK-UP & AIRFRAME EN WIRES & CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® EN 2266-003 CF Line	16
ELECTROAIR® EN 2713-007 CF Line	17
ELECTROAIR® EN 2267-007 DM Line	18
ELECTROAIR® EN 2714-011 DM Line	19

FIGHTER AIRCRAFT WIRES & CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® DA6007	24
ELECTROAIR® DA6010	25

HOOK-UP & AIRFRAME NEMA WIRES & CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® NEMA HP3 ET	30
ELECTROAIR® NEMA HP3 E	31
ELECTROAIR® NEMA HP3 EE	32
ELECTROAIR® NEMA HP4 KT	33
ELECTROAIR® NEMA HP4 K	34
ELECTROAIR® NEMA HP4 KK	35
ELECTROAIR® M6BA-A6	36
ELECTROAIR® MEEBA-AEE	37

HOOK-UP & AIRFRAME NF WIRES & CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® KU 01, 03, 04	42
ELECTROAIR® KU 02, 05, 06	43
ELECTROAIR® M7-KU 01	44
ELECTROAIR® M7BE-KU 01	45
PLASTHERM® E40-FR, M-E40-FR	46
PLASTHERM® E40BE40-FR, M40BE-E40-FR	47
ELECTROAIR® AGZ 04	48
ELECTROAIR® AGZ 05	49
ELECTROAIR® AGZ 06	50
ELECTROAIR® M-AGZ 04	51
ELECTROAIR® M-AGZ 05	52
ELECTROAIR® M-AGZ 06	53
ELECTROAIR® AGZ 55, 67, 79	54
ELECTROAIR® AGZ 57, 69, 81, 93	55
ELECTROAIR® AGZ 59, 71, 83	56
ELECTROAIR® AGF 05	57
ELECTROAIR® M-AGF 05	58
ELECTROAIR® AGF 57, 69, 81, 93	59
ELECTROAIR® KZ 04, 07	60
ELECTROAIR® KZ 05, 08	61
ELECTROAIR® KZ 06, 09	62

FLIGHT TEST CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® AH7080, AH7083	67

FIRE RESISTANT AND HIGH TEMPERATURE AREA CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® FR	71

ARMoured PERSONNEL CARRIER CABLES

PRODUCT REFERENCE	PAGE
ELECTROAIR® KQ	77

HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES

PRODUCT REFERENCE	PAGE
TWINLINK® FP	82
TWINLINK® FA	83
ELECTROAIR® MIL-STD-1553 W WJC	84

HIGH TEMPERATURE COAXIAL CABLES

PRODUCT REFERENCE	PAGE
COAXTHERM® W5BA5 - 50	90
COAXTHERM® RG 178 BU	91
COAXTHERM® RG 178 BU / PFA	92
COAXTHERM® KX 21A	93
COAXTHERM® KX 22A	94
COAXTHERM® RG 316 U	95
COAXTHERM® RG 316 U / PFA	96
COAXTHERM® RG 303 U	97
COAXTHERM® RG 142 BU	98
COAXTHERM® RG 400 U	99
COAXTHERM® KX 23	100
COAXTHERM® RG 304 U	101
COAXTHERM® RG 115 U	102
COAXTHERM® RG 165 U	103
COAXTHERM® RG 393 U	104
COAXTHERM® RG 225 U	105
COAXTHERM® KX 24A	106
COAXTHERM® WABA5 - 75	107
COAXTHERM® RG 179 BU	108
COAXTHERM® RG 179 BU / PFA	109
COAXTHERM® RG 59 MINI HT 200C	110
COAXTHERM® KX 25	111
COAXTHERM® KX 6A HT 180C	112
COAXTHERM® RG 302 U	113
COAXTHERM® RG 144 U	114
COAXTHERM® KX 8 HT 180C	115
COAXTHERM® RG 180 BU	116
COAXTHERM® RG 180 BU / PFA	117

MINIATURE INSULATED CERAMIC WIRES FOR VERY HIGH TEMPERATURES

PRODUCT REFERENCE	PAGE
CERAFIL® CN8	121

HIGH TEMPERATURE & MINIATURE THERMOCOUPLE & EXTENSION CABLES

PRODUCT REFERENCE	PAGE
COUPLIX® K/KX-M-8, E/EX-M-8	124
COUPLIX® KX-M-EE	125

HIGH PERFORMANCE METALLIC BRAIDS

PRODUCT REFERENCE	PAGE
METALTRESSE® GTCA 150, GTCA 200, GTCN 127	129

HIGH TEMPERATURE & FIREPROOF SLEEVES

PRODUCT REFERENCE	PAGE
SILIGAIN® 33NHO	132
SILITUBE® X	133

VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES

PRODUCT REFERENCE	PAGE
MINOROC® P	138
MINOROC® K	139

SPECIAL PRODUCTS ON REQUEST

HIGH PERFORMANCE SPECIAL MULTI-FUNCTION CABLES

PRODUCT REFERENCE	PAGE
OMBILIFLEX®	142

VERY HIGH SAFETY CABLES FOR EXTREME TEMPERATURES

PRODUCT REFERENCE	PAGE
SILIFLAM® THS	143

HIGH PERFORMANCE SPIRAL CABLES

PRODUCT REFERENCE	PAGE
SPIRFLEX®	144

HIGH PERFORMANCE POWER CORDS

PRODUCT REFERENCE	PAGE
POWER CONNECT®	145

PRODUCT INFORMATION

PRODUCT REFERENCE

	STANDARD OR SPECIFICATION	AWG		NUMBER OF CORES	SHIELDED		JACKETED	PAGE
		Min	Max		Spiral	Braid		
ELECTROAIR® EN 2266-003 CF Line	EN 2266	12	26	1 / 2 / 3 / 4				16
ELECTROAIR® EN 2713-007 CF Line	EN 2713	12	26	1 / 2 / 3 / 4	✓		✓	17
ELECTROAIR® EN 2267-007 DM Line	EN 2267	12	26	1 / 2 / 3 / 4				18
ELECTROAIR® EN 2714-011 DM Line	EN 2714	12	26	1 / 2 / 3 / 4	✓		✓	19
ELECTROAIR® DA6007	DASSAULT	10	26	1 / 2 / 3				24
ELECTROAIR® DA6010	DASSAULT	14	26	1 / 2 / 3	✓		✓	25
ELECTROAIR® NEMA HP3 ET	NEMA HP3	20	28	1				30
ELECTROAIR® NEMA HP3 E	NEMA HP3	10	28	1				31
ELECTROAIR® NEMA HP3 EE	NEMA HP3	14	28	1				32
ELECTROAIR® NEMA HP4 KT	NEMA HP4	20	32	1				33
ELECTROAIR® NEMA HP4 K	NEMA HP4	8	32	1				34
ELECTROAIR® NEMA HP4 KK	NEMA HP4	8	32	1				35
ELECTROAIR® M6BA-A6	NEMA HP4 elements	12	28	2 / 3 / 4		✓	✓	36
ELECTROAIR® MEEBA-AEE	NEMA HP3 elements	20	28	2 / 3 / 4		✓	✓	37
ELECTROAIR® KU 01, 03, 04	NF C 93-524	12	30	1 / 2 / 3				42
ELECTROAIR® KU 02, 05, 06	NF C 93-524	12	30	1 / 2 / 3		✓	✓	43
ELECTROAIR® M7-KU 01	NF C 93-524 elements	12	30	4 / 5 / 7			✓	44
ELECTROAIR® M7BE-KU 01	NF C 93-524 elements	12	30	4 / 5 / 7		✓	✓	45
PLASTHERM® E40-FR, M-E40-FR	NF C 93-524	12	30	1 / 2 / 3				46
PLASTHERM® E40BE40-FR, M40BE-E40-FR	NF C 93-524	12	30	1 / 2 / 3		✓	✓	47
ELECTROAIR® AGZ 04	NF C 93-523 Alternative	20	32	1				48
ELECTROAIR® AGZ 05	NF C 93-523 Alternative	12	32	1				49
ELECTROAIR® AGZ 06	NF C 93-523 Alternative	8	32	1				50
ELECTROAIR® M-AGZ 04	NF C 93-523 Alternative	20	28	2 / 3 / 4				51
ELECTROAIR® M-AGZ 05	NF C 93-523 Alternative	12	28	2 / 3 / 4				52
ELECTROAIR® M-AGZ 06	NF C 93-523 Alternative	14	26	2 / 3 / 4				53
ELECTROAIR® AGZ 55, 67, 79	NF C 93-523 Alternative	20	32	1 / 2 / 3		✓	✓	54
ELECTROAIR® AGZ 57, 69, 81, 93	NF C 93-523 Alternative	12	32	1 / 2 / 3 / 4		✓	✓	55
ELECTROAIR® AGZ 59, 71, 83	NF C 93-523 Alternative	12	32	1 / 2 / 3		✓	✓	56
ELECTROAIR® AGF 05	NF C 93-523 Alternative	8	32	1				57
ELECTROAIR® M-AGF 05	NF C 93-523 Alternative	12	28	2 / 3 / 4				58
ELECTROAIR® AGF 57, 69, 81, 93	NF C 93-523 Alternative	12	28	1 / 2 / 3 / 4		✓	✓	59
ELECTROAIR® KZ 04, 07	NF C 93-523	12	32	1				60
ELECTROAIR® KZ 05, 08	NF C 93-523	12	32	1				61
ELECTROAIR® KZ 06, 09	NF C 93-523	12	32	1				62

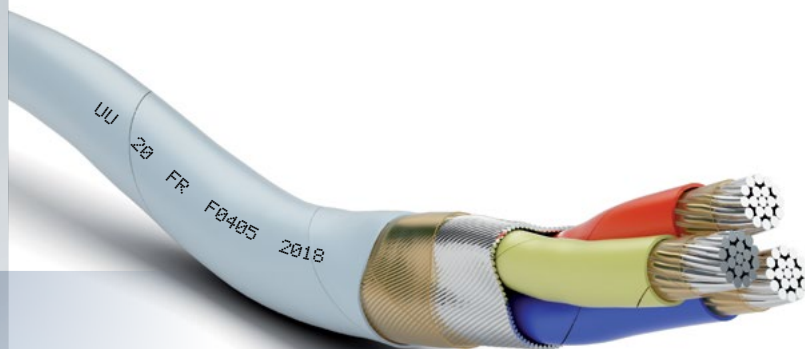
PRODUCT REFERENCE

	STANDARD OR SPECIFICATION	AWG		NUMBER OF CORES	SHIELDED		JACKETED	PAGE
		Min	Max		Spiral	Braid		
ELECTROAIR® AH7080	AIRBUS HELICOPTERS	10	26	1 / 2 / 3 / 4				67
ELECTROAIR® AH7083	AIRBUS HELICOPTERS	16	24	1 / 2 / 3 / 4	✓		✓	67
ELECTROAIR® FR	BMS 1367	Only on request				✓	✓	71
ELECTROAIR® KQ	DGA - SEFT 027	10	26	3 to 54		✓	✓	77
TWINLINK® FP	CGP INNOVATION	22	26	2		✓	✓	82
TWINLINK® FA	CGP INNOVATION	22	26	2		✓	✓	83
ELECTROAIR® MIL-STD-1553 W VJC	MIL-STD-1553	24		2		✓	✓	84
COAXTHERM® W5BA5 - 50	CGP INNOVATION	43		1		✓	✓	90
COAXTHERM® RG 178 BU	MIL-DTL-17/93	30		1		✓	✓	91
COAXTHERM® RG 178 BU / PFA	MIL-DTL-17/93	30		1		✓	✓	92
COAXTHERM® KX 21A	NF C 93-550	30		1		✓	✓	93
COAXTHERM® KX 22A	NF C 93-550	26		1		✓	✓	94
COAXTHERM® RG 316 U	MIL-DTL-17/113	26		1		✓	✓	95
COAXTHERM® RG 316 U / PFA	MIL-DTL-17/138	26		1		✓	✓	96
COAXTHERM® RG 303 U	MIL-DTL-17/111	19		1		✓	✓	97
COAXTHERM® RG 142 BU	MIL-DTL-17/60	19		1		✓	✓	98
COAXTHERM® RG 400 U	MIL-DTL-17/128	20		1		✓	✓	99
COAXTHERM® KX 23	NF C 93-550	20		1		✓	✓	100
COAXTHERM® RG 304 U	MIL-DTL-17/112	16		1		✓	✓	101
COAXTHERM® RG 115 U	MIL-DTL-17/92	12		1		✓	✓	102
COAXTHERM® RG 165 U	MIL-DTL-17/65	12		1		✓	✓	103
COAXTHERM® RG 393 U	MIL-DTL-17/127	12		1		✓	✓	104
COAXTHERM® RG 225 U	MIL-DTL-17/86	12		1		✓	✓	105
COAXTHERM® KX 24A	NF C 93-550	12		1		✓	✓	106
COAXTHERM® WABA5 - 75	NF C 93-550	38		1		✓	✓	107
COAXTHERM® RG 179 BU	MIL-DTL-17/94	30		1		✓	✓	108
COAXTHERM® RG 179 BU / PFA	MIL-DTL-17/139	30		1		✓	✓	109
COAXTHERM® RG 59 MINI HT 200C	CGP INNOVATION	30		1		✓	✓	110
COAXTHERM® KX 25	NF C 93-550	22		1		✓	✓	111
COAXTHERM® KX 6A HT 180C	NF C 93-550	24		1		✓	✓	112
COAXTHERM® RG 302 U	MIL-DTL-17/302	22		1		✓	✓	113
COAXTHERM® RG 144 U	MIL-DTL-17/62	18		1		✓	✓	114
COAXTHERM® KX 8 HT 180C	CGP INNOVATION	18		1		✓	✓	115
COAXTHERM® RG 180 BU	MIL-DTL-17/95	30		1		✓	✓	116
COAXTHERM® RG 180 BU / PFA	MIL-DTL-17/137	30		1		✓	✓	117
CERAFIL® CN8	CGP INNOVATION	18	41	1				121
COUPLIX® K/KX-M-8, E/EX-M-8	CGP INNOVATION	24	32	2				124
COUPLIX® KX-M-EE	Inspired of EN 2714	20		2	✓		✓	125

PRODUCT REFERENCE

	STANDARD OR SPECIFICATION	DIAMETER		NUMBER OF CORES	BRAIDED	JACKETED	PAGE
		mm	mm				
METALTRESSE® GTCA150 & GTCA200	CGP INNOVATION	2 mm	20 mm	NA	✓		129
SILIGAIN® 33NHO	CGP INNOVATION	1 mm	20 mm	NA	✓		132
SILITUBE® X	CGP INNOVATION	8 mm	127 mm	NA	✓		133
MINOROC® P	CGP INNOVATION	3 mm	13,5 mm	NA		✓	138
MINOROC® K	CGP INNOVATION	5 mm	11 mm	NA		✓	139





HOOK-UP & AIRFRAME EN WIRES & CABLES

Civil & VIP aircrafts

PRODUCT REFERENCE	PAGE
HOOK-UP & AIRFRAME EN WIRES & CABLES	15
ELECTROAIR®	
EN 2266-003 CF Line	16
EN 2713-007 CF Line	17
EN 2267-007 DM Line	18
EN 2714-011 DM Line	19



HOOK-UP & AIRFRAME EN WIRES & CABLES

CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Cutthrough resistance	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® EN 2266-003 CF-CF	1	CuNi	Polyimide			-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2266-003 CF-PF	2	CuNi	Polyimide			-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2266-003 CF-QF	3	CuNi	Polyimide			-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2266-003 CF-RF	4	CuNi	Polyimide			-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2713-007 CF-SJU	1	CuNi	Polyimide	CuNi	Polyimide	-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2713-007 CF-TKU	2	CuNi	Polyimide	CuNi	Polyimide	-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2713-007 CF-UDU	3	CuNi	Polyimide	CuNi	Polyimide	-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2713-007 CF-VLU	4	CuNi	Polyimide	CuNi	Polyimide	-55	+200	600	✓	✓	✓	✓	
ELECTROAIR® EN 2267-007 DM-DMA	1	CuNi	Polyimide + PTFE			-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2267-007 DM-PN	2	CuNi	Polyimide + PTFE			-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2267-007 DM-QL	3	CuNi	Polyimide + PTFE			-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2267-007 DM-RK	4	CuNi	Polyimide + PTFE			-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2714-011 DM-GJ	1	CuNi	Polyimide + PTFE	CuNi	Polyimide + PTFE	-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2714-011 DM-MH	2	CuNi	Polyimide + PTFE	CuNi	Polyimide + PTFE	-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2714-011 DM-UU	3	CuNi	Polyimide + PTFE	CuNi	Polyimide + PTFE	-55	+260	600	✓	✓	✓	✓	✓
ELECTROAIR® EN 2714-011 DM-VV	4	CuNi	Polyimide + PTFE	CuNi	Polyimide + PTFE	-55	+260	600	✓	✓	✓	✓	✓

ELECTROAIR®

EN 2266-003 CF Line Unshielded (CF, PF, QF, RF)



- 1 • Nickel plated copper or nickel plated copper alloy core
 - 2 • Polyimide tape
 - 3 • Fluoropolymer top coat
- Available twisted conductors: by pair, triple or quad

Standards and approvals

- Construction:**
- EN 2266-003
 - EN 2266-002
 - EN 2083
- Performances:**
- EN 3475
 - FAR 25

Marking (ink-jet printable)

1. On customer specification
 2. Inspired of EN 2084:
- "TR6058 code Gauge Country
CGP NATO Code Manufacturing Year"

Colour code

- Single core – CF: Red, Blue, Yellow, Green, White, Black, Orange
- Two cores – PF: Blue / Red
- Three cores – QF: Blue / Red / Yellow
- Four cores – RF: Blue / Red / Yellow / Green

For any other request: please contact us

Options

Other cross-sections or constructions on request

Applications

General-purpose airframe wires and cables used throughout the aircraft (retro-fit): on the flight deck, in the passenger area, in the wings and surfaces

CGP Reference

- EN 2266-003 CF Line:
- EN 2266-003A (single core) = CF CF
 - EN 2266-003B (two cores) = CF PF
 - EN 2266-003C (three cores) = CF QF
 - EN 2266-003D (four cores) = CF RF

Characteristics

- **Thermal**
Continuous operating temperature: **-55°C to +200°C**
- **Electrical**
Operating voltage: 600 V RMS
- **Mechanical**
Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
EN 3475

- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475
- **Fire-smoke**
Flame retardant
Low smoke density
EN 3475 / FAR 25

CF CF 1X

AWG	Stranding (n x mm)	Code EN of nominal section	Cross section (mm²)	Cable outer diameter (mm)		Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
				Mini	Maxi		
26	19 x 0.10	001	0.15	0.75	0.84	2.00	160.0
24	19 x 0.12	002	0.25	0.85	0.94	2.65	114.0
22	19 x 0.15	004	0.40	0.96	1.09	3.90	60.0
20	19 x 0.20	006	0.60	1.20	1.34	6.55	33.2
18	19 x 0.25	010	1.00	1.44	1.59	9.90	21.1
16	19 x 0.30	012	1.20	1.65	1.84	13.90	14.5
14	37 x 0.25	020	2.00	1.90	2.10	18.50	10.9
12	37 x 0.32	030	3.00	2.38	2.60	29.70	6.8

CF PF 2X

AWG	Cable outer diameter (mm)		Maximum linear weight (kg / km)		Cable outer diameter (mm)	Maximum linear weight (kg / km)		Maximum linear resistance at 20°C (Ω / km)
	Maxi				Maxi			
26	1.68		4.12		1.81	6.18		165.0
24	1.88		5.46		2.02	8.19		117.4
22	2.18		8.03		2.34	12.05		61.7
20	2.68		13.49		2.88	20.24		34.1
18	3.18		20.39		3.42	30.59		21.7
16	3.68		28.63		3.96	42.95		14.9
14	4.20		38.11		4.52	57.17		11.2
12	5.20		61.18		5.59	91.77		7.0

CF QF 3X

CF RF 4X

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62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

EN 2713-007 CF Line Shielded & Jacketed (SJU, TKU, UDU, VLU)



- 1 • One to four wires according to EN 2266-003A
- 2 • Nickel plated copper spiral shield
- 3 • Polyimide tape
- 4 • Fluoropolymer top coat

Standards and approvals

Construction:

- EN 2713-007
- EN 2713-002
- EN 2083

Performances:

- EN 3475
- FAR 25

Marking (UV laser printable)

1. On customer specification
2. Inspired of EN 2084:
"TR6058 code Gauge Country
CGP NATO Code Manufacturing Year"

Colour code

Jacket: White colour except for
AWG 24 / 20 / 16 in Light Blue

- Single core – SJU: White except for AWG 22 in Light Green & AWG 26 in Light Yellow
- Two cores – TKU: Red / Blue
- Three cores – UDU: Red / Blue / Yellow
- Four cores – VLU: Red / Blue / Yellow / Green

For any other request: please contact us

Options

Other cross-sections or constructions
on request

Applications

General-purpose airframe wires and cables
used throughout the aircraft (retro-fit):
on the flight deck, in the passenger area,
in the wings and surfaces

CGP Reference

EN 2713-007 CF Line:

- EN 2713-007A (single core) = CF SJU
- EN 2713-007B (two cores) = CF TKU
- EN 2713-007C (three cores) = CF UDU
- EN 2713-007D (four cores) = CF VLU

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475

• Fire-smoke

Flame retardant
Low smoke density
EN 3475 / FAR 25

CF SJU 1X

AWG	Stranding (n x mm)	Code EN of nominal section	Cross section (mm²)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
26	19 x 0.10	001	0.15	1.31	4.60	160.0
24	19 x 0.12	002	0.25	1.40	5.60	114.0
22	19 x 0.15	004	0.40	1.56	7.20	60.0
20	19 x 0.20	006	0.60	1.82	10.50	33.2
18	19 x 0.25	010	1.00	2.07	14.40	21.1
16	19 x 0.30	012	1.20	2.38	20.00	14.5
14	37 x 0.25	020	2.00	2.62	25.40	10.9
12	37 x 0.32	030	3.00	3.17	38.50	6.8

CF TKU 2X

AWG	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)
26	2.15	8.00
24	2.34	10.00
22	2.65	13.10
20	3.20	20.60
18	3.73	28.50
16	4.25	39.50
14	4.83	50.50
12	5.88	79.40

CF UDU 3X

Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)
2.28	10.80
2.52	14.20
2.88	19.00
3.48	29.50
4.04	41.80
4.59	56.10
5.15	75.10
6.35	119.80

CF VLU 4X

Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
2.53	14.20	165.0
2.76	17.70	117.4
3.13	24.00	61.7
3.78	38.10	34.1
4.48	53.40	21.7
5.13	75.00	14.9
5.84	102.00	11.2
-	-	7.0

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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ELECTROAIR®

EN 2267-007 DM Line Unshielded (DMA, PN, QL, RK)



- 1 • Nickel plated copper or nickel plated copper alloy core
 - 2 • Polyimide tape
 - 3 • PTFE tape
- Available twisted conductors:
by pair, triple or quad

Standards and approvals

- Construction:**
- EN 2267-007
 - EN 2267-002
 - EN 4434
- Performances:**
- EN 3475
 - FAR 25

Marking (ink-jet printable)

1. On customer specification
2. Inspired of EN 2084:
"TR6058 code Gauge Country
CGP NATO Code Manufacturing Year"

Colour code

- Single core – DMA: Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
 - Two cores – PN: Blue / Red
 - Three cores – QL: Blue / Red / Yellow
 - Four cores – RK: Blue / Red / Yellow / Green
- For any other request: please contact us

Options

Other cross-sections or constructions on request

Applications

General-purpose airframe wires and cables used throughout the aircraft (retro-fit):
on the flight deck, in the passenger area,
in the wings and surfaces

CGP Reference

- EN 2267-007 DM Line:
EN 2267-007A (single core) = DM DMA
EN 2267-007B (two cores) = DM PN
EN 2267-007C (three cores) = DM QL
EN 2267-007D (four cores) = DM RK

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42400 Saint-Chamond
FRANCE
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Characteristics

- **Thermal**
Continuous operating temperature: **-55°C to +260°C**
- **Electrical**
Operating voltage: 600 V RMS
- **Mechanical**
Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
EN 3475
- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475
- **Fire-smoke**
Flame retardant
Low smoke density
EN 3475 / FAR 25
- **Arc tracking resistance**
EN 3475

DM DMA 1X

AWG	Stranding (n x mm)	Code EN of nominal section	Cross section (mm²)	Cable outer diameter (mm)		Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
				Mini	Maxi		
26	19 x 0.10	001	0.15	0.85	0.97	2.45	160.0
24	19 x 0.12	002	0.25	0.90	1.04	3.10	114.0
22	19 x 0.15	004	0.40	1.05	1.19	4.43	60.0
20	19 x 0.20	006	0.60	1.38	1.53	7.73	33.2
18	19 x 0.25	010	1.00	1.65	1.82	11.74	21.1
16	19 x 0.30	012	1.20	2.02	2.22	16.95	14.5
14	37 x 0.25	020	2.00	2.29	2.49	22.65	10.9
12	37 x 0.32	030	3.00	2.73	2.97	33.70	6.8

DM PN 2X

DM QL 3X

DM RK 4X

AWG	DM PN 2X		DM QL 3X		DM RK 4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	
26	1.94	5.05	2.09	7.57	2.33	10.09	165.0
24	2.08	6.39	2.24	9.58	2.50	12.77	117.4
22	2.38	9.13	2.56	13.69	2.86	18.25	61.7
20	3.06	15.92	3.29	23.89	3.67	31.85	34.1
18	3.64	24.18	3.91	36.28	4.37	48.37	21.7
16	4.44	34.92	4.77	52.38	5.33	69.83	14.9
14	4.98	46.66	5.35	69.99	5.98	93.32	11.2
12	5.94	69.42	6.39	104.13	7.13	138.84	7.0

ELECTROAIR®

EN 2714-011 DM Line Shielded & Jacketed (GJ, MH, UU, VV)



- 1 • One to four wires according to EN 2267-007A
- 2 • Nickel plated copper spiral shield
- 3 • Polyimide tape
- 4 • PTFE tape

Standards and approvals

Construction:

- EN 2714-011
- EN 2714-002
- EN 4434

Performances:

- EN 3475
- FAR 25

Marking (UV laser printable)

1. On customer specification
 2. Inspired of EN 2084:
- "TR6058 code Gauge Country
CGP NATO Code Manufacturing Year"

Colour code

- Jacket: White colour except for
AWG 24 / 20 / 16 in light blue
- Single core – GJ: White except for
AWG 22 in Light Green
& AWG 26 in Light Yellow
 - Two cores – MH: Red / Blue
 - Three cores – UU: Red / Blue / Yellow
 - Four cores – VV: Red / Blue / Yellow
/ Green
- For any other request: please contact us

Options

Other cross-sections or constructions
on request

Applications

General-purpose airframe wires and cables
used throughout the aircraft (retro-fit):
on the flight deck, in the passenger area,
in the wings and surfaces

CGP Reference

EN 2714-011 DM Line:

- EN 2714-011A (single core) = DM GJ
- EN 2714-011B (two cores) = DM MH
- EN 2714-011C (three cores) = DM UU
- EN 2714-011D (four cores) = DM VV

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +260°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★★
Resistance to humidity: ★★★★★★
Resistance to aircraft fluids: ★★★★★★
EN 3475

• Fire-smoke

Flame retardant
Low smoke density
EN 3475 / FAR 25

• Arc tracking resistance
EN 3475

DM GJ 1X

AWG	Stranding (n x mm)	Code EN of nominal section	Cross section (mm²)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
26	19 x 0.10	001	0.15	1.47	5.63	160.0
24	19 x 0.12	002	0.25	1.53	6.44	114.0
22	19 x 0.15	004	0.40	1.69	8.19	60.0
20	19 x 0.20	006	0.60	2.05	12.42	33.2
18	19 x 0.25	010	1.00	2.33	17.28	21.1
16	19 x 0.30	012	1.20	2.77	24.57	14.5
14	37 x 0.25	020	2.00	3.03	31.16	10.9
12	37 x 0.32	030	3.00	3.49	43.63	6.8

DM MH 2X

AWG	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)
26	2.43	9.78
24	2.55	11.35
22	2.87	14.75
20	3.62	24.10
18	4.19	33.67
16	5.02	47.76
14	5.61	63.64

DM UU 3X

Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)
2.57	13.07
2.75	16.36
3.09	21.33
3.90	34.73
4.51	49.00
5.43	70.38
5.99	89.85

DM VV 4X

Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
2.86	17.45	165.0
3.02	20.46	117.4
3.39	26.98	61.7
4.30	44.37	34.1
4.99	62.90	21.7
6.00	90.48	14.9
-	-	11.2

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62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
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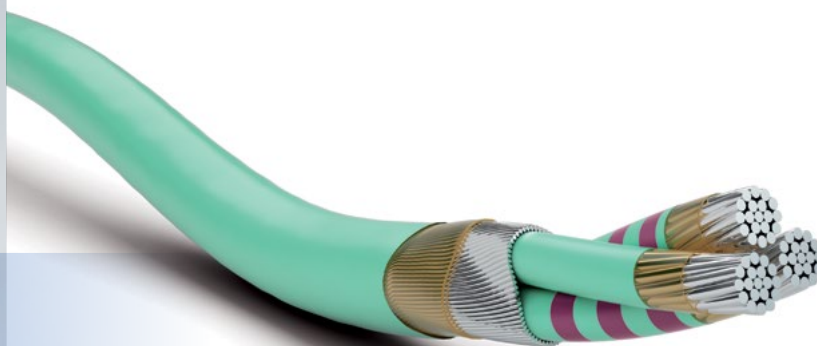
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FIGHTER AIRCRAFT WIRES & CABLES

Fighter aircrafts

PRODUCT REFERENCE

PAGE

FIGHTER AIRCRAFT WIRES & CABLES

23

ELECTROAIR®

DA6007

24

DA6010

25



FIGHTER AIRCRAFT WIRES & CABLES

CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Cutthrough resistance	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® DA6007	1	CuAg	Polyimide + PTFE			-55	+200	600		✓	✓	✓	
ELECTROAIR® DA6007	2	CuAg	Polyimide + PTFE			-55	+200	600		✓	✓	✓	
ELECTROAIR® DA6007	3	CuAg	Polyimide + PTFE			-55	+200	600		✓	✓	✓	
ELECTROAIR® DA6010	1	CuAg	Polyimide + PTFE	CuSn	Polyimide	-55	+150	600		✓	✓	✓	
ELECTROAIR® DA6010	2	CuAg	Polyimide + PTFE	CuSn	Polyimide	-55	+150	600		✓	✓	✓	
ELECTROAIR® DA6010	3	CuAg	Polyimide + PTFE	CuSn	Polyimide	-55	+150	600		✓	✓	✓	

ELECTROAIR®

DA6007 Unshielded

- 1 • Silver plated copper
 - 2 • Polyimide tape
 - 3 • PTFE top coat
- Available twisted conductors:
two or three twisted cores

Standards and approvals

Construction & performances:

- Standard AIR 4524/E BNAE File AIR N°6 418 600
 - EN 2083
- Certified STPA File N°1797
(Letter N°42284/STPA/CIN.6
of 29/08/1986)

Marking

"CGP 6007.K.N.D Manufacturing Year"
(N = number of cores)
For twisted conductors, only the first wire
is marked

Colour code

- DA6007 1X (Single core):
Light Green, Pink or White
- DA6007 2X or 3X (Multicore):
 - A. First core: Light Green, Pink or White
 - B. Second core: same colour as first core
and two coloured rings (Pink)
 - C. Third core: same colour as first core
and three coloured rings (Pink)

Applications

Electrical lightweight cables for use
in the on-board electrical systems
of fighter aircraft



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
AIR 4524/E

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
AIR 4524/E

• Fire-smoke

Flame retardant
Oxygen index > 90%
FAR 25

DA6007 1X

AWG	Stranding (n x mm)	Cable outer diameter (mm)		Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
		Mini	Maxi		
26	19 x 0.10	0.74	0.80	1.85	149.0
24	19 x 0.12	0.82	0.90	2.52	106.0
22	19 x 0.15	0.96	1.06	3.74	55.3
20	19 x 0.20	1.21	1.32	6.33	31.0
18	19 x 0.25	1.44	1.57	9.50	19.6
16	19 x 0.30	1.71	1.84	13.40	13.6
14	37 x 0.25	1.97	2.11	18.10	10.2
12	37 x 0.32	2.50	2.65	29.00	6.4
10	61 x 0.32	3.12	3.30	47.52	3.9

DA6007 2X

AWG	Cable outer diameter (mm)		Maximum linear weight (kg / km)
	Mini	Maxi	
26	1.48	1.60	3.70
24	1.64	1.80	5.04
22	1.92	2.12	7.48
20	2.42	2.64	12.66
18	2.88	3.14	19.00
16	3.42	3.68	26.80
14	3.94	4.22	36.20
12	5.00	5.30	58.00
10	6.24	6.60	95.04

DA6007 3X

Cable outer diameter (mm)		Maximum linear weight (kg / km)
Mini	Maxi	
2.22	2.40	5.55
2.46	2.70	7.56
2.88	3.18	11.22
3.63	3.96	18.99
4.32	4.71	28.50
5.13	5.52	40.20
5.91	6.33	54.30
7.50	7.95	87.00
9.36	9.90	142.56

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

DA6010 Shielded & Jacketed

- 1 • One to three wires DA6007
- 2 • Tinned copper spiral shield
- 3 • Polyimide tape
- 4 • Fluoropolymer top coat (colour of the outer sheath, see the table below)

Standards and approvals

Construction & performances:

- Standard AIR 4524/E – BNAE File AIR N°6 418 600
 - EN 2083
- Certified STPA File N°1797 (Letter N°42284/STPA/CIN.6 of 29/08/1986)

Marking

No marking on the sheath
Wires are marked (see ref.DA6007 for more information)

Colour code

- DA6010 1X (Single core):
Light Green, Pink or White
- DA6010 2X or 3X (Multicore):
A. First core: Light Green, Pink or White
B. Second core: same colour as first core and two coloured rings (Pink)
C. Third core: same colour as first core and three coloured rings (Pink)

Options

Operating temperature until +200°C for 6010 with a silver plated copper spiral shield

Applications

Electrical lightweight cables for use in the on-board electrical systems of fighter aircraft



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**
Available +200°C (see Options)

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Cutthrough resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
AIR 4524/E

• Chemical

Resistance to chemical environments: ★★★★★★
Resistance to humidity: ★★★★★★
Resistance to aircraft fluids: ★★★★★★
AIR 4524/E

• Fire-smoke

Flame retardant
Oxygen index > 90%
FAR 25

WIRE (DA6007)

AWG	Stranding (n x mm)	Cable outer diameter (mm)		Maximum linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
		Mini	Maxi		
26	19 x 0.10	0.74	0.80	1.85	149.0
24	19 x 0.12	0.82	0.90	2.52	106.0
22	19 x 0.15	0.96	1.06	3.74	55.3
20	19 x 0.20	1.21	1.32	6.33	31.0
18	19 x 0.25	1.44	1.57	9.50	19.6
16	19 x 0.30	1.71	1.84	13.40	13.6
14	37 x 0.25	1.97	2.11	18.10	10.2

DA6010

Number of cores & AWG	Cable outer diameter (mm)		Maximum linear weight (kg / km)	Sheath colour
	Mini	Maxi		
1 x AWG 22	1.31	1.41	6.10	Light Green
1 x AWG 20	1.53	1.76	10.10	Pink
1 x AWG 18	1.84	2.03	14.20	White
1 x AWG 16	2.12	2.25	18.40	Light Green
1 x AWG 14	2.36	2.59	24.90	Pink
2 x AWG 26	1.80	2.10	6.80	Pink
2 x AWG 24	1.98	2.28	9.60	White
2 x AWG 22	2.28	2.58	12.20	Light Green
2 x AWG 20	2.76	3.06	19.90	Pink
2 x AWG 18	3.26	3.56	26.00	White
2 x AWG 16	3.86	4.16	38.50	Light Green
2 x AWG 14	4.30	4.70	51.10	Pink
3 x AWG 26	1.85	2.15	9.70	Pink
3 x AWG 24	2.11	2.41	14.00	White
3 x AWG 22	2.43	2.73	18.70	Light Green

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FRANCE

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HOOK-UP & AIRFRAME NEMA WIRES & CABLES

*Missile Systems
Civil & VIP aircrafts*

PRODUCT REFERENCE

PAGE

HOOK-UP & AIRFRAME NEMA WIRES & CABLES

29

ELECTROAIR®

NEMA HP3 ET

30

NEMA HP3 E

31

NEMA HP3 EE

32

NEMA HP4 KT

33

NEMA HP4 K

34

NEMA HP4 KK

35

M6BA-A6

36

MEEBA-AEE

37



HOOK-UP & AIRFRAME NEMA WIRES & CABLES

CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Cutthrough resistance	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® NEMA HP3 ET	1	CuAg	PTFE			-90	+200	250		✓	✓	✓	
ELECTROAIR® NEMA HP3 E	1	CuAg	PTFE			-90	+200	600		✓	✓	✓	
ELECTROAIR® NEMA HP3 EE	1	CuAg	PTFE			-90	+200	1,000		✓	✓	✓	
ELECTROAIR® NEMA HP4 KT	1	CuAg	FEP			-55	+200	250		✓	✓	✓	✓
ELECTROAIR® NEMA HP4 K	1	CuAg	FEP			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® NEMA HP4 KK	1	CuAg	FEP			-55	+200	1,000		✓	✓	✓	✓
ELECTROAIR® M6BA-A6	2 to 4	CuAg	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® MEEBA-AEE	2 to 4	CuAg	PTFE	CuAg	PTFE	-90	+200	600		✓	✓	✓	

ELECTROAIR®

NEMA HP3 ET

Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated PTFE tape

Standards and approvals

Construction:

- NEMA HP3
- ex MIL-W-16878/20

Performances:

- IEC 60332-1
- C2 NF C 32-070
- EN 3475
- FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange

For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP3
2. Type: ET
3. Type of insulation: V (wrapped)
4. Type of material:
B (silver plated copper)
5. Conductor size AWG (C = 28, D =
26, E = 24, F = 22, G = 20)
6. Conductor stranding (B = 7x, E = 19x)



Characteristics

• Thermal

Continuous operating temperature: **-90°C to +200°C**

• Electrical

Operating voltage: 250 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

NEMA HP3 ET

AWG	Stranding (n x mm)	Code NEMA HP3	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
28	7 x 0.13	HP3 - ET - WBCB	0.63	0.73	1.3	208.7
28	19 x 0.08	HP3 - ET - WBCE	0.63	0.73	1.4	207.0
26	7 x 0.16	HP3 - ET - WBDB	0.74	0.84	2.0	130.2
26	19 x 0.10	HP3 - ET - WBDE	0.74	0.84	2.2	122.4
24	7 x 0.20	HP3 - ET - WBEB	0.86	0.96	3.0	80.4
24	19 x 0.13	HP3 - ET - WBEE	0.86	0.99	3.2	77.4
22	7 x 0.25	HP3 - ET - WBFB	1.02	1.12	4.4	51.2
22	19 x 0.16	HP3 - ET - WBFE	1.02	1.16	4.6	48.6
20	7 x 0.32	HP3 - ET - WBGB	1.22	1.32	6.3	32.2
20	19 x 0.20	HP3 - ET - WBGE	1.22	1.32	7.0	29.9

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

NEMA HP3 E Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated PTFE tape

Standards and approvals

Construction:

- NEMA HP3
- ex MIL-W-16878/21

Performances:

- IEC 60332-1
- C2 NF C 32-070
- EN 3475
- FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange

For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP3
2. Type: E
3. Type of insulation: V (wrapped)
4. Type of material:
B (silver plated copper)
5. Conductor size AWG (C = 28,
D = 26, E = 24, F = 22, G = 20,
H = 18, J = 16, K = 14, L = 12,
M = 10)
6. Conductor stranding
(B = 7x, E = 19x, G = 37x)

Characteristics

• **Thermal**

Continuous operating temperature: **-90°C to +200°C**

• **Electrical**

Operating voltage: 600 V RMS

• **Mechanical**

Resistance to abrasion: ★★★★★
EN 3475

• **Chemical**

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• **Fire-smoke**

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

NEMA HP3 E

AWG	Stranding (n x mm)	Code NEMA HP3	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
28	7 x 0.13	HP3 - E - WBCB	0.79	0.99	2.0	208.7
28	19 x 0.08	HP3 - E - WBCE	0.79	0.99	2.2	207.0
26	7 x 0.16	HP3 - E - WBDDB	0.89	1.09	2.8	130.2
26	19 x 0.10	HP3 - E - WBDE	0.89	1.11	2.9	122.4
24	7 x 0.20	HP3 - E - WBEB	1.02	1.22	4.0	80.4
24	19 x 0.13	HP3 - E - WBEE	1.02	1.24	4.2	77.4
22	7 x 0.25	HP3 - E - WBFB	1.17	1.37	5.2	51.2
22	19 x 0.16	HP3 - E - WBFE	1.17	1.42	5.5	48.6
20	7 x 0.32	HP3 - E - WBGB	1.37	1.57	7.5	32.2
20	19 x 0.20	HP3 - E - WBGE	1.37	1.57	8.0	29.9
18	7 x 0.40	HP3 - E - WBHB	1.63	1.82	11.1	20.2
18	19 x 0.25	HP3 - E - WBHE	1.63	1.82	11.8	19.0
16	19 x 0.30	HP3 - E - WBJE	1.86	2.20	12.9	14.9
14	19 x 0.36	HP3 - E - WBKE	2.24	2.59	20.1	9.4
12	19 x 0.45	HP3 - E - WBLE	2.72	3.07	32.1	5.9
12	37 x 0.32	HP3 - E - WBLG	2.67	3.02	34.0	6.2
10	37 x 0.40	HP3 - E - WBMG	3.23	3.58	47.2	3.9

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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ELECTROAIR®

NEMA HP3 EE Unshielded



- 1 • Silver plated copper core
- 2 • Fluorinated PTFE tape

Standards and approvals

Construction:

- NEMA HP3
- ex MIL-W-16878/22

Performances:

- IEC 60332-1
- C2 NF C 32-070
- EN 3475
- FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange

For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP3
2. Type: EE
3. Type of insulation: VV (wrapped)
4. Type of material:
B (silver plated copper)
5. Conductor size AWG
(C = 28, D = 26, E = 24, F = 22,
G = 20, H = 18, J = 16, K = 14,
L = 12, M = 10)
6. Conductor stranding
(B = 7x, E = 19x, G = 37x)

Characteristics

• Thermal

Continuous operating temperature: **-90°C to +200°C**

• Electrical

Operating voltage: 1,000 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

NEMA HP3 EE

AWG	Stranding (n x mm)	Code NEMA HP3	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
28	7 x 0.13	HP3 - EE - WBCB	1.05	1.24	2.7	208.7
28	19 x 0.08	HP3 - EE - WBCB	1.05	1.24	2.8	207.0
26	7 x 0.16	HP3 - EE - WBDB	1.15	1.34	3.5	130.2
26	19 x 0.10	HP3 - EE - WBDE	1.15	1.37	3.8	122.4
24	7 x 0.20	HP3 - EE - WBEB	1.27	1.47	4.0	80.4
24	19 x 0.13	HP3 - EE - WBEE	1.27	1.49	4.2	77.4
22	7 x 0.25	HP3 - EE - WBFB	1.42	1.62	6.3	51.2
22	19 x 0.16	HP3 - EE - WBFE	1.42	1.67	6.6	48.6
20	7 x 0.32	HP3 - EE - WBGB	1.63	1.82	8.8	32.2
20	19 x 0.20	HP3 - EE - WBGE	1.63	1.82	9.3	29.9
18	7 x 0.40	HP3 - EE - WBHB	1.88	2.13	12.6	20.2
18	19 x 0.25	HP3 - EE - WBHE	1.88	2.13	13.0	19.0
16	19 x 0.30	HP3 - EE - WBJE	2.11	2.41	14.5	14.9
14	19 x 0.36	HP3 - EE - WBKE	2.49	2.89	22.5	9.4
12	37 x 0.32	HP3 - EE - WBLG	2.92	3.32	34.5	6.2
10	37 x 0.40	HP3 - EE - WBMG	3.48	3.88	45.3	3.9

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62 route du Coin
42400 Saint-Chamond
FRANCE

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ELECTROAIR®

NEMA HP4 KT Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- NEMA HP4
- ex MIL-W-16878/13

Performances:

- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

Red, Blue, Yellow, Green, White, Black,
Brown, Orange, Purple, Grey
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP4
2. Type: KT
3. Type of material:
B (silver plated copper)
4. Conductor size AWG
(A = 32, B = 30, C = 28,
D = 26, E = 24, F = 22, G = 20)
5. Conductor stranding (B = 7x, E = 19x)

Characteristics

• **Thermal**

Continuous operating temperature: **-55°C to +200°C**

• **Electrical**

Operating voltage: 250 V RMS

• **Mechanical**

Resistance to abrasion: ★★★★★
EN 3475

• **Chemical**

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475

• **Fire-smoke**

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• **Arc tracking resistance**

EN 3475
(tested on wire NEMA HP4 K)

NEMA HP4 KT

AWG	Stranding (n x mm)	Code NEMA HP4	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
32	7 x 0.08	HP4 - KT - BAB	0.51	0.60	0.8	557.7
32	19 x 0.05	HP4 - KT - BAE	0.51	0.60	0.9	515.1
30	7 x 0.10	HP4 - KT - BBB	0.56	0.66	1.1	328.1
30	19 x 0.06	HP4 - KT - BBE	0.56	0.66	1.2	323.5
28	7 x 0.13	HP4 - KT - BCB	0.64	0.73	1.5	208.7
28	19 x 0.08	HP4 - KT - BCE	0.64	0.73	1.7	207.0
26	7 x 0.16	HP4 - KT - BDB	0.74	0.83	2.1	130.2
26	19 x 0.10	HP4 - KT - BDE	0.74	0.83	2.2	122.4
24	7 x 0.20	HP4 - KT - BEB	0.87	0.96	3.0	80.4
24	19 x 0.12	HP4 - KT - BEE	0.87	0.96	3.2	77.4
22	7 x 0.25	HP4 - KT - BFB	1.02	1.12	4.4	51.2
22	19 x 0.16	HP4 - KT - BFE	1.02	1.12	4.6	48.6
20	7 x 0.32	HP4 - KT - BGB	1.22	1.32	6.3	32.2
20	19 x 0.20	HP4 - KT - BGE	1.22	1.32	7.0	29.9

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FRANCE

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ELECTROAIR®

NEMA HP4 K Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- NEMA HP4
- ex MIL-W-16878/11

Performances:

- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

Red, Blue, Yellow, Green, White, Black,
Brown, Orange, Purple, Grey
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP4
2. Type: K
3. Type of material:
B (silver plated copper)
4. Conductor size AWG
(A = 32, B = 30, C = 28, D = 26,
E = 24, F = 22,
G = 20, H = 18, J = 16, K = 14,
L = 12, M = 10, N = 8)
5. Conductor stranding (B = 7x, E = 19x,
G = 37x, L = 133x)

Characteristics

• **Thermal**

Continuous operating temperature: **-55°C to +200°C**

• **Electrical**

Operating voltage: 600 V RMS

• **Mechanical**

Resistance to abrasion: ★★★★★
EN 3475

• **Chemical**

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475

• **Fire-smoke**

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• **Arc tracking resistance**

EN 3475

NEMA HP4 K

AWG	Stranding (n x mm)	Code NEMA HP4	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
32	7 x 0.08	HP4 - K - BAB	0.66	0.86	1.4	557.7
32	19 x 0.05	HP4 - K - BAE	0.66	0.86	1.6	515.1
30	7 x 0.10	HP4 - K - BBB	0.72	0.91	1.7	328.1
30	19 x 0.06	HP4 - K - BBE	0.72	0.91	1.8	323.5
28	7 x 0.13	HP4 - K - BCB	0.79	0.99	2.0	208.7
28	19 x 0.08	HP4 - K - BCE	0.79	0.99	2.2	207.0
26	7 x 0.16	HP4 - K - BDB	0.89	1.09	2.7	130.2
26	19 x 0.10	HP4 - K - BDE	0.89	1.09	2.7	122.4
24	7 x 0.20	HP4 - K - BEB	1.02	1.21	3.7	80.4
24	19 x 0.13	HP4 - K - BEE	1.02	1.21	3.7	77.4
22	7 x 0.25	HP4 - K - BFB	1.17	1.37	5.1	51.2
22	19 x 0.16	HP4 - K - BFE	1.17	1.37	5.1	48.6
20	7 x 0.32	HP4 - K - BGB	1.38	1.57	7.8	32.2
20	19 x 0.20	HP4 - K - BGE	1.38	1.57	7.8	29.9
18	7 x 0.40	HP4 - K - BHB	1.63	1.87	12.0	20.2
18	19 x 0.25	HP4 - K - BHE	1.63	1.87	11.9	19.0
16	19 x 0.30	HP4 - K - BJE	1.86	2.20	16.8	14.9
14	19 x 0.36	HP4 - K - BKE	2.24	2.59	21.3	9.4
12	19 x 0.45	HP4 - K - BLE	2.72	3.07	36.0	5.9
12	37 x 0.32	HP4 - K - BLG	2.67	3.02	35.9	6.2
10	37 x 0.40	HP4 - K - BMG	3.23	3.58	50.3	3.9
8	133 x 0.29	HP4 - K - BNL	4.70	5.05	96.5	2.2

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62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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ELECTROAIR®

NEMA HP4 KK Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- NEMA HP4
- ex MIL-W-16878/12

Performances:

- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
- ABD0031
- EN 3475

Colour code

Red, Blue, Yellow, Green, White, Black,
Brown, Orange, Purple, Grey
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

CGP Reference

1. Standard: HP4
2. Type: KK
3. Type of material: B
(silver plated copper)
4. Conductor size AWG
(A = 32, B = 30, C = 28, D = 26,
E = 24, F = 22, G = 20, H = 18,
J = 16, K = 14, L = 12, M = 10,
N = 8)
5. Conductor stranding
(B = 7x, E = 19x, G = 37x, L = 133x)

Characteristics

• **Thermal**

Continuous operating temperature: **-55°C to +200°C**

• **Electrical**

Operating voltage: 1,000 V RMS

• **Mechanical**

Resistance to abrasion: ★★★★★
EN 3475

• **Chemical**

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475

• **Fire-smoke**

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• **Arc tracking resistance**

EN 3475
(tested on wire NEMA HP4 K)

NEMA HP4 KK

AWG	Stranding (n x mm)	Code NEMA HP4	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
32	7 x 0.08	HP4 - KK - BAB	0.89	1.09	2.1	557.7
32	19 x 0.05	HP4 - KK - BAE	0.89	1.09	2.1	515.1
30	7 x 0.10	HP4 - KK - BBB	0.97	1.17	2.3	328.1
30	19 x 0.06	HP4 - KK - BBE	0.97	1.17	2.4	323.5
28	7 x 0.13	HP4 - KK - BCB	1.05	1.24	2.7	208.7
28	19 x 0.08	HP4 - KK - BCE	1.05	1.24	2.8	207.0
26	7 x 0.16	HP4 - KK - BDB	1.15	1.34	3.6	130.2
26	19 x 0.10	HP4 - KK - BDE	1.15	1.34	3.7	122.4
24	7 x 0.20	HP4 - KK - BEB	1.27	1.47	4.6	80.4
24	19 x 0.13	HP4 - KK - BEE	1.27	1.47	4.8	77.4
22	7 x 0.25	HP4 - KK - BFB	1.43	1.62	6.2	51.2
22	19 x 0.16	HP4 - KK - BFE	1.43	1.62	6.5	48.6
20	7 x 0.32	HP4 - KK - BGB	1.63	1.82	8.8	32.2
20	19 x 0.20	HP4 - KK - BGE	1.63	1.82	9.3	29.9
18	7 x 0.40	HP4 - KK - BHB	1.88	2.13	12.8	20.2
18	19 x 0.25	HP4 - KK - BHE	1.88	2.13	13.1	19.0
16	19 x 0.30	HP4 - KK - BJE	2.11	2.41	17.4	14.9
14	19 x 0.36	HP4 - KK - BKE	2.49	2.89	24.6	9.4
12	19 x 0.45	HP4 - KK - BLE	2.97	3.37	36.8	5.9
12	37 x 0.32	HP4 - KK - BLG	2.93	3.32	36.0	6.2
10	37 x 0.40	HP4 - KK - BMG	4.70	3.88	53.3	3.9
8	133 x 0.29	HP4 - KK - BNL	5.06	5.56	99.0	2.2

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

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- 1 • Two to four wires NEMA HP4 K
- 2 • Silver plated copper braid
- 3 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Insulated cores according to NEMA HP4

Performances:

- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- M6BA-A6 2X:

- White jacket and Blue / White cores
 - M6BA-A6 3X: White jacket and Blue / White / Orange cores
 - M6BA-A6 4X: White jacket and Blue / White / Orange / Black cores
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

ELECTROAIR®

M6BA-A6 Shielded & Jacketed



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
EN 3475

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire NEMA HP4 K)

WIRE (NEMA HP4 K)

AWG	Stranding (n x mm)	Code NEMA HP4	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
28	7 x 0.13	HP4 - K - BCB	0.79	0.99	2.0	208.7
26	7 x 0.16	HP4 - K - BDB	0.89	1.09	2.7	130.2
24	7 x 0.20	HP4 - K - BEB	1.02	1.21	3.7	80.4
22	7 x 0.25	HP4 - K - BFB	1.17	1.37	5.1	51.2
20	7 x 0.32	HP4 - K - BGB	1.38	1.57	7.8	32.2
18	7 x 0.40	HP4 - K - BHB	1.63	1.87	12.0	20.2
16	19 x 0.30	HP4 - K - BJE	1.86	2.20	16.8	14.9
14	19 x 0.36	HP4 - K - BKE	2.24	2.59	21.3	9.4
12	19 x 0.45	HP4 - K - BLE	2.72	3.07	36.0	5.9

M6BA-A6

AWG	2X		3X		4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	
28	3.03	13.7	3.32	19.9	3.50	22.9	214.9
26	3.38	18.1	3.53	23.4	3.70	25.0	134.2
24	3.64	21.5	3.81	28.2	4.10	29.5	82.8
22	3.92	26.2	4.11	34.8	4.25	40.0	52.7
20	4.42	35.1	4.65	47.6	4.80	52.5	33.2
18	5.08	46.9	5.53	67.5	5.70	76.0	20.8
16	5.86	64.4	6.18	89.1	6.30	95.0	15.3
14	6.62	82.4	7.00	115.0	7.20	131.0	9.7
12	7.78	120.0	8.24	169.0	8.40	188.0	6.1

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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- 1 • Two to four wires NEMA HP3
- 2 • Silver plated copper braid
- 3 • Fluorinated PTFE tape

ELECTROAIR®

MEEBA-AEE Shielded & Jacketed



Standards and approvals

Construction:

- Insulated cores according to NEMA HP3

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- MEEBA-AEE 2X: White jacket and Blue / White cores
 - MEEBA-AEE 3X: White jacket and Blue / White / Red cores
 - MEEBA-AEE 4X: White jacket and Blue / White / Red / Yellow cores
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Characteristics

• Thermal

Continuous operating temperature: **-90°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

WIRE (NEMA HP3 E)

AWG	Stranding (n x mm)	Code NEMA HP3	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
28	7 x 0.13	HP3 - E - WBCB	0.79	0.99	2.0	208.7
26	7 x 0.16	HP3 - E - WBDB	0.89	1.09	2.8	130.2
26	19 x 0.10	HP3 - E - WBDE	0.89	1.11	2.9	122.4
24	7 x 0.20	HP3 - E - WBEB	1.02	1.22	4.0	80.4
24	19 x 0.13	HP3 - E - WBEE	1.02	1.24	4.2	77.4
22	7 x 0.25	HP3 - E - WBFB	1.17	1.37	5.2	51.2
22	19 x 0.16	HP3 - E - WBFE	1.17	1.42	5.5	48.6
20	7 x 0.32	HP3 - E - WBGB	1.37	1.57	7.5	32.2
20	19 x 0.20	HP3 - E - WBGE	1.37	1.57	8.0	29.9

MEEBA-AEE

AWG	2X		3X		4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	Cable outer diameter (mm) Maxi	Maximum linear weight (kg / km)	
28	2.80	13.4	3.19	19.5	3.40	22.4	214.9
26	3.10	17.7	3.31	22.9	3.60	24.5	134.2
26	3.10	17.7	3.33	22.9	3.60	24.5	126.0
24	3.30	21.0	3.57	27.6	3.80	28.9	82.8
24	3.30	21.0	3.61	27.6	3.80	28.9	79.8
22	3.62	25.7	3.91	34.1	4.30	39.2	52.7
22	3.70	25.7	4.00	34.1	4.30	39.2	50.0
20	4.02	34.4	4.34	46.6	4.70	51.5	33.2
20	4.02	34.4	4.34	46.6	4.70	51.5	30.8

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62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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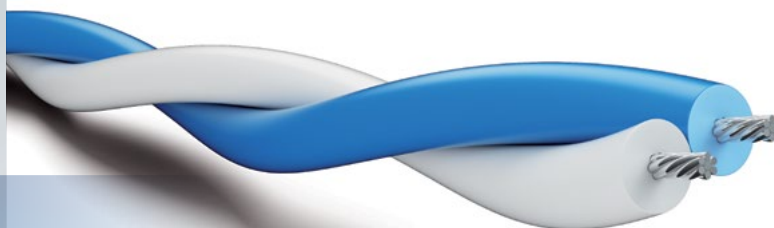
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HOOK-UP & AIRFRAME NF WIRES & CABLES

*Missile Systems
Civil & VIP aircrafts*

PRODUCT REFERENCE	PAGE
HOOK-UP & AIRFRAME NF WIRES & CABLES	40
ELECTROAIR®	
KU 01, 03, 04	42
KU 02, 05, 06	43
M7-KU 01	44
M7BE-KU 01	45
PLASTHERM®	
E40-FR, M-E40-FR	46
E40BE40-FR, M40BE-E40-FR	47
ELECTROAIR®	
AGZ 04	48
AGZ 05	49
AGZ 06	50
M-AGZ 04	51
M-AGZ 05	52
M-AGZ 06	53
AGZ 55, 67, 79	54
AGZ 57, 69, 81, 93	55
AGZ 59, 71, 83	56
AGF 05	57
M-AGF 05	58
AGF 57, 69, 81, 93	59
KZ 04, 07	60
KZ 05, 08	61
KZ 06, 09	62

HOOK-UP & AIRFRAME NF WIRES & CABLES

NF C 93-524 / -55°C to +150°C

CGP Reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Halogen free	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® KU 01	1	CuSn	ETFE			-55	+150	600		✓	✓	✓	
ELECTROAIR® KU 03	2	CuSn	ETFE			-55	+150	600		✓	✓	✓	
ELECTROAIR® KU 04	3	CuSn	ETFE			-55	+150	600		✓	✓	✓	
ELECTROAIR® KU 02	1	CuSn	ETFE	CuSn	ETFE	-55	+150	600		✓	✓	✓	
ELECTROAIR® KU 05	2	CuSn	ETFE	CuSn	ETFE	-55	+150	600		✓	✓	✓	
ELECTROAIR® KU 06	3	CuSn	ETFE	CuSn	ETFE	-55	+150	600		✓	✓	✓	
ELECTROAIR® M7-KU 01	2 to 7	CuSn	ETFE		ETFE	-55	+150	600		✓	✓	✓	
ELECTROAIR® M7BE-KU 01	4 to 7	CuSn	ETFE	CuSn	ETFE	-55	+150	600		✓	✓	✓	
PLASTHERM® E40-FR	1	CuSn	Special Thermoplastic			-40	+150	600	✓	✓			
PLASTHERM® M-E40-FR	2 and 3	CuSn	Special Thermoplastic			-40	+150	600	✓	✓			
PLASTHERM® E40BE40-FR	1	CuSn	Special Thermoplastic	CuSn	Special Thermoplastic	-40	+150	600	✓	✓			
PLASTHERM® M40BE-E40-FR	2 and 3	CuSn	Special Thermoplastic	CuSn	Special Thermoplastic	-40	+150	600	✓	✓			

Inspired of NF C 93-523 / -55°C to +200°C

ELECTROAIR® AGZ 04	1	CuAg	FEP			-55	+200	250		✓	✓	✓	✓
ELECTROAIR® AGZ 05	1	CuAg	FEP			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGZ 06	2 to 4	CuAg	FEP			-55	+200	1 000		✓	✓	✓	✓
ELECTROAIR® M-AGZ 04	2 to 4	CuAg	FEP			-55	+200	250		✓	✓	✓	✓
ELECTROAIR® M-AGZ 05	2 to 4	CuAg	FEP			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® M-AGZ 06		CuAg	FEP			-55	+200	1 000		✓	✓	✓	✓

CGP Reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Halogen free	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® AGZ 55	1	CuAg	FEP	CuAg	FEP	-55	+200	250		✓	✓	✓	✓
ELECTROAIR® AGZ 67	2	CuAg	FEP	CuAg	FEP	-55	+200	250		✓	✓	✓	✓
ELECTROAIR® AGZ 79	3	CuAg	FEP	CuAg	FEP	-55	+200	250		✓	✓	✓	✓
ELECTROAIR® AGZ 57	1	CuAg	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGZ 69	2	CuAg	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGZ 81	3	CuAg	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGZ 93	4	CuAg	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGZ 59	1	CuAg	FEP	CuAg	FEP	-55	+200	1 000		✓	✓	✓	✓
ELECTROAIR® AGZ 71	2	CuAg	FEP	CuAg	FEP	-55	+200	1 000		✓	✓	✓	✓
ELECTROAIR® AGZ 83	3	CuAg	FEP	CuAg	FEP	-55	+200	1 000		✓	✓	✓	✓
ELECTROAIR® AGF 05	1	CuAg (extra flexible)	FEP			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® M-AGF 05	2 à 4	CuAg (extra flexible)	FEP			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGF 57	1	CuAg (extra flexible)	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGF 69	2	CuAg (extra flexible)	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGF 81	3	CuAg (extra flexible)	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® AGF 93	4	CuAg (extra flexible)	FEP	CuAg	FEP	-55	+200	600		✓	✓	✓	✓
ELECTROAIR® KZ 04	1	CuAg	PTFE			-55	+200	250		✓	✓	✓	✓
ELECTROAIR® KZ 05	1	CuAg	PTFE			-55	+200	600		✓	✓	✓	✓
ELECTROAIR® KZ 06	1	CuAg	PTFE			-55	+200	1 000		✓	✓	✓	✓
ELECTROAIR® KZ 07	1	CuNi	PTFE			-55	+260	250		✓	✓	✓	✓
ELECTROAIR® KZ 08	1	CuNi	PTFE			-55	+260	600		✓	✓	✓	✓
ELECTROAIR® KZ 09	1	CuNi	PTFE			-55	+260	1 000		✓	✓	✓	✓

ELECTROAIR®

KU 01, 03, 04
Unshielded

- 1 • Tinned copper core
2 • Fluorinated polymer ETFE
Assembling version by pair
(KU 03) / triple (KU 04)

Standards and approvals

Construction:

- NF C 93-524

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- KU 01 = Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
- KU 03 = White / Blue
- KU 04 = White / Blue / Orange

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Radiation proof

Excellent resistance

KU 01

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	0.58	0.68	0.9	365.4
28	0.09	7 x 0.13	0.64	0.74	1.5	208.0
26	0.14	19 x 0.10	0.76	0.86	2.0	128.7
24	0.22	19 x 0.13	0.86	0.96	3.6	76.6
22	0.34	19 x 0.16	1.05	1.15	4.6	50.3
20	0.60	19 x 0.20	1.47	1.57	7.6	32.1
18	0.93	19 x 0.25	1.75	1.85	11.3	20.6
16	1.34	19 x 0.30	1.93	2.07	15.5	14.3
14	1.91	37 x 0.25	2.26	2.46	21.4	10.6
12	3.09	37 x 0.32	2.79	2.99	33.8	6.5

KU 03

AWG	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	1.16	1.36	2.0
28	1.28	1.48	3.1
26	1.52	1.72	4.1
24	1.72	1.92	7.4
22	2.10	2.30	9.5
20	2.94	3.14	16.0
18	3.50	3.70	23.8
16	3.86	4.14	32.6
14	4.52	4.92	44.9
12	5.58	5.98	71.0

KU 04

	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
	1.25	1.46	3.0
	1.38	1.58	4.7
	1.63	1.85	6.1
	1.85	2.06	11.4
	2.26	2.47	14.1
	3.16	3.38	24.1
	3.76	3.98	35.8
	4.15	4.45	48.8
	4.86	5.29	67.4
	6.00	6.43	106.5

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62 route du Coin
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ELECTROAIR®

KU 02, 05, 06
Shielded & Jacketed



- 1 • Tinned copper core
- 2 • Fluorinated polymer ETFE
- Assembling version by pair (KU 05)
triple (KU 06)
- 3 • Tinned copper braid
- 4 • Fluorinated polymer ETFE

Standards and approvals

Construction:

- NF C 93-524

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- KU 02 = White jacket and White core
- KU 05 = White jacket and Blue / White cores
- KU 06 = White jacket and White / Blue / Orange cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Radiation proof

Excellent resistance

KU 02

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	1.23	1.43	4.0	365.4
28	0.09	7 x 0.13	1.29	1.49	5.3	208.0
26	0.14	19 x 0.10	1.41	1.61	5.5	128.7
24	0.22	19 x 0.13	1.61	1.81	8.8	76.6
22	0.34	19 x 0.16	1.86	2.06	10.0	50.3
20	0.60	19 x 0.20	2.28	2.48	14.8	32.1
18	0.93	19 x 0.25	2.61	2.91	21.4	20.6
16	1.34	19 x 0.30	2.81	3.11	29.7	14.3
14	1.91	37 x 0.25	3.17	3.47	34.5	10.6
12	3.09	37 x 0.32	3.70	4.00	48.8	6.5

KU 05

AWG	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	1.98	2.22	8.5
28	2.10	2.34	11.7
26	2.32	2.62	12.1
24	2.62	2.91	18.8
22	2.99	3.30	21.1
20	3.81	4.13	29.2
18	4.36	4.72	39.3
16	4.76	5.12	49.5
14	5.52	5.92	65.7
12	6.53	7.03	96.7

KU 06

Cable outer diameter (mm)	Approx. linear weight (kg / km)	
	Mini	Maxi
2.19	2.43	11.4
2.31	2.55	14.6
2.54	2.82	15.7
2.74	3.05	23.8
3.15	3.46	26.4
4.06	4.38	39.8
4.66	4.98	53.7
5.09	5.40	68.7
5.87	6.31	92.8
7.01	7.47	137.4

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42400 Saint-Chamond
FRANCE

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- 1 • One to seven wires KU 01
- 2 • Fluorinated polymer ETFE

Standards and approvals

Construction:

- Insulated core according to NF C 93-524

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- M7-KU 01 (2 cores) = White jacket and Blue / White cores
 - M7-KU 01 (3 cores) = White jacket and White / Blue / Orange cores
 - M7-KU 01 (4 cores) = White jacket and White / Blue / Orange / Black cores
 - M7-KU 01 (5 cores) = White jacket and White / Blue / Orange / Black / Green cores
 - M7-KU 01 (7 cores) = White jacket and White / Blue / Orange / Black / Green / Yellow / Red cores
- For any other request (> 7 cores):
please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

ELECTROAIR®

M7-KU 01 Jacketed



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Radiation proof

Excellent resistance

WIRE (KU 01)

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	0.58	0.68	0.9	365.4
28	0.09	7 x 0.13	0.64	0.74	1.5	208.0
26	0.14	19 x 0.10	0.76	0.86	2.0	128.7
24	0.22	19 x 0.13	0.86	0.96	3.6	76.6
22	0.34	19 x 0.16	1.05	1.15	4.6	50.3
20	0.60	19 x 0.20	1.47	1.57	7.6	32.1
18	0.93	19 x 0.25	1.75	1.85	11.3	20.6
16	1.34	19 x 0.30	1.93	2.07	15.5	14.3
14	1.91	37 x 0.25	2.26	2.46	21.4	10.6
12	3.09	37 x 0.32	2.79	2.99	33.8	6.5

M7-KU 01

AWG	2X		3X		4X		5X		7X	
	Cable outer diameter (mm)		Cable outer diameter (mm)		Cable outer diameter (mm)		Cable outer diameter (mm)		Cable outer diameter (mm)	
	Mini	Maxi	Mini	Maxi	Mini	Maxi	Mini	Maxi	Mini	Maxi
30	1.40	1.80	1.50	1.90	1.60	2.00	1.60	2.00	2.20	2.60
28	1.60	2.00	1.70	2.10	1.90	2.30	2.10	2.50	2.30	2.70
26	1.80	2.20	1.90	2.30	2.10	2.50	2.30	2.70	2.60	3.00
24	2.00	2.40	2.10	2.50	2.30	2.70	2.60	3.00	2.90	3.30
22	2.40	2.80	2.50	2.90	2.80	3.20	3.10	3.50	3.50	3.90
20	3.20	3.60	3.40	3.80	3.80	4.20	4.20	4.60	4.70	5.10
18	3.80	4.20	4.10	4.50	4.50	4.90	5.10	5.50	5.60	6.00
16	4.20	4.60	4.50	4.90	5.00	5.40	5.60	6.00	6.20	6.60
14	4.90	5.30	5.30	5.70	5.90	6.30	6.60	7.00	7.30	7.70
12	6.00	6.40	6.40	6.80	7.20	7.60	8.00	8.40	-	-

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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ELECTROAIR®

M7BE-KU 01 Shielded & Jacketed

- 1 • Four to seven wires KU 01
- 2 • Tinned copper braid
- 3 • Fluorinated polymer ETFE

Standards and approvals

Construction:

- Insulated core according to NF C 93-524

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- M7BE-KU 01 (4 cores) = White jacket and White / Blue / Orange / Black cores
 - M7BE-KU 01 (5 cores) = White jacket and White / Blue / Orange / Black / Green cores
 - M7BE-KU 01 (7 cores) = White jacket and White / Blue / Orange / Black / Green / Yellow / Red cores
- For any other request (> 7 cores):
please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Radiation proof

Excellent resistance

WIRE (KU 01)

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	0.58	0.68	0.9	365.4
28	0.09	7 x 0.13	0.64	0.74	1.5	208.0
26	0.14	19 x 0.10	0.76	0.86	2.0	128.7
24	0.22	19 x 0.13	0.86	0.96	3.6	76.6
22	0.34	19 x 0.16	1.05	1.15	4.6	50.3
20	0.60	19 x 0.20	1.47	1.57	7.6	32.1
18	0.93	19 x 0.25	1.75	1.85	11.3	20.6
16	1.34	19 x 0.30	1.93	2.07	15.5	14.3
14	1.91	37 x 0.25	2.26	2.46	21.4	10.6
12	3.09	37 x 0.32	2.79	2.99	33.8	6.5

M7BE-KU 01

AWG	4X		5X		7X	
	Cable outer diameter (mm)		Cable outer diameter (mm)		Cable outer diameter (mm)	
	Mini	Maxi	Mini	Maxi	Mini	Maxi
30	2.25	2.50	2.45	2.75	2.55	2.90
28	2.50	2.75	2.55	2.85	2.85	3.20
26	2.80	3.05	2.85	3.25	3.20	3.55
24	3.00	3.25	3.15	3.45	3.50	3.85
22	3.40	3.65	3.75	4.05	4.10	4.40
20	4.35	4.65	4.95	5.25	5.40	5.75
18	5.15	5.45	5.80	6.20	6.25	6.70
16	5.60	6.00	6.30	6.70	6.80	7.25
14	6.40	6.80	7.10	7.50	-	-
12	7.80	8.20	8.70	9.10	-	-

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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- 1 • Tinned copper core
2 • Special thermoplastic

PLASTHERM®

E40-FR & M-E40-FR Unshielded



Standards and approvals

Construction:

- NF C 93-524

Performances:

- FAR 25
- ISO 6722
- UL94-V2
- NF F 16-101
- IEC 60754-1

Colour code

- E40-FR = Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
 - M-E40-FR (2x) = White / Blue
 - M-E40-FR (3x) = White / Blue / Orange
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Characteristics

• Thermal

Continuous operating temperature: **-40°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

• Fire-smoke

Self-extinguishing

FAR 25 / ISO 6722 / UL94-V2 (material)

Low smoke toxicity

ITC = 10 according to NF C 16-101

• Halogen free

Yes

E40-FR

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	0.58	0.68	0.9	365.4
28	0.09	7 x 0.13	0.64	0.74	1.5	208.0
26	0.14	19 x 0.10	0.76	0.86	2.0	128.7
24	0.22	19 x 0.13	0.86	0.96	3.6	76.6
22	0.34	19 x 0.16	1.05	1.15	4.6	50.3
20	0.60	19 x 0.20	1.47	1.57	7.6	32.1
18	0.93	19 x 0.25	1.75	1.85	11.3	20.6
16	1.34	19 x 0.30	1.93	2.07	15.5	14.3
14	1.91	37 x 0.25	2.26	2.46	21.4	10.6
12	3.09	37 x 0.32	2.79	2.99	33.8	6.5

M-E40-FR (2x)

AWG	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	1.16	1.36	2.0
28	1.28	1.48	3.1
26	1.52	1.72	4.1
24	1.72	1.92	7.4
22	2.10	2.30	9.5
20	2.94	3.14	16.0
18	3.50	3.70	23.8
16	3.86	4.14	32.6
14	4.52	4.92	44.9
12	5.58	5.98	71.0

M-E40-FR (3x)

	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	1.25	1.46	3.0
28	1.38	1.58	4.7
26	1.63	1.85	6.1
24	1.85	2.06	11.4
22	2.26	2.47	14.1
20	3.16	3.38	24.1
18	3.76	3.98	35.8
16	4.15	4.45	48.8
14	4.86	5.29	67.4
12	6.00	6.43	106.5

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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PLASTHERM®

E40BE40-FR & M40BE-E40-FR Shielded & Jacketed

- 1 • Tinned copper core
- 2 • Special thermoplastic
- 3 • Tinned copper braid
- 4 • Special thermoplastic

Standards and approvals

Construction:

- NF C 93-524

Performances:

- FAR 25
- ISO 6722
- UL94-V2
- NF F 16-101
- IEC 60754-1

Colour code

- (1x) = White jacket and White core
- (2x) = White jacket and Blue / White cores
- (3x) = White jacket and White / Blue / Orange cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches



Characteristics

• Thermal

Continuous operating temperature: **-40°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★☆☆

• Fire-smoke

Self-extinguishing

FAR 25 / ISO 6722 / UL94-V2 (material)

Low smoke toxicity

ITC = 10 according to NF C 16-101

• Halogen free

Yes

E40BE40-FR (1x)

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
30	0.06	7 x 0.10	1.23	1.43	4.0	365.4
28	0.09	7 x 0.13	1.29	1.49	5.3	208.0
26	0.14	19 x 0.10	1.41	1.61	5.5	128.7
24	0.22	19 x 0.13	1.61	1.81	8.8	76.6
22	0.34	19 x 0.16	1.86	2.06	10.0	50.3
20	0.60	19 x 0.20	2.28	2.48	14.8	32.1
18	0.93	19 x 0.25	2.61	2.91	21.4	20.6
16	1.34	19 x 0.30	2.81	3.11	29.7	14.3
14	1.91	37 x 0.25	3.17	3.47	34.5	10.6
12	3.09	37 x 0.32	3.70	4.00	48.8	6.5

M40BE-E40-FR (2x)

AWG	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	1.98	2.22	8.5
28	2.10	2.34	11.7
26	2.32	2.62	12.1
24	2.62	2.91	18.8
22	2.99	3.30	21.1
20	3.81	4.13	29.2
18	4.36	4.72	39.3
16	4.76	5.12	49.5
14	5.52	5.92	65.7
12	6.53	7.03	96.7

M40BE-E40-FR (3x)

	Cable outer diameter (mm)		Approx. linear weight (kg / km)
	Mini	Maxi	
30	2.19	2.43	11.4
28	2.31	2.55	14.6
26	2.54	2.82	15.7
24	2.74	3.05	23.8
22	3.15	3.46	26.4
20	4.06	4.38	39.8
18	4.66	4.98	53.7
16	5.09	5.40	68.7
14	5.87	6.31	92.8
12	7.01	7.47	137.4

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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ELECTROAIR®

AGZ 04 Unshielded

- 1 • Silver plated copper core
2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

Characteristics

• **Thermal**

Continuous operating temperature: **-55°C to +200°C**

• **Electrical**

Operating voltage: 250 V RMS

• **Mechanical**

Resistance to abrasion: ★★★★★
EN 3475

• **Chemical**

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• **Fire-smoke**

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• **Arc tracking resistance**

EN 3475
(tested on wire AGZ05)

AGZ 04

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter Maxi (mm)	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	0.58	0.9	546.0
30	0.06	7 x 0.10	0.66	1.3	349.0
28	0.09	7 x 0.13	0.73	1.8	201.0
26	0.14	7 x 0.16	0.84	2.4	132.0
24	0.22	7 x 0.20	0.96	3.4	86.0
22	0.34	7 x 0.25	1.11	5.0	54.4
20	0.60	7 x 0.32	1.40	8.3	31.3

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ELECTROAIR®

AGZ 05 Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ
is an alternative to KZ NF C 93-523
(similar performances
with a FEP insulation instead of PTFE)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475

AGZ 05

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter Maxi (mm)	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	0.84	1.7	546.0
30	0.06	7 x 0.10	0.91	2.1	349.0
28	0.09	7 x 0.13	1.00	2.6	201.0
26	0.14	7 x 0.16	1.10	3.4	132.0
24	0.22	7 x 0.20	1.22	4.5	86.0
22	0.34	7 x 0.25	1.37	6.2	54.4
20	0.60	7 x 0.32	1.62	9.5	31.3
18	0.93	7 x 0.40	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	3.09	19 x 0.45	3.24	42.5	6.0

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

AGZ 06 Unshielded

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Red, Blue, Yellow, Green, White, Black, Brown, Orange, Purple, Grey
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ
is an alternative to KZ NF C 93-523
(similar performances
with a FEP insulation instead of PTFE)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 1,000 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

NF C 93-523

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

Low smoke density

ABD0031

• Arc tracking resistance

EN 3475

(tested on wire AGZ05)

AGZ 06

AWG	Cross Section (mm²)	Stranding (n x mm)	Cable outer diameter Maxi (mm)	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	1.09	2.6	546.0
30	0.06	7 x 0.10	1.16	3.0	349.0
28	0.09	7 x 0.13	1.24	3.7	201.0
26	0.14	7 x 0.16	1.34	4.6	132.0
24	0.22	7 x 0.20	1.47	5.8	86.0
22	0.34	7 x 0.25	1.63	7.7	54.4
20	0.60	7 x 0.32	1.86	11.0	31.3
18	0.93	7 x 0.40	2.17	16.0	20.5
16	1.34	19 x 0.30	2.41	21.1	13.9
14	1.91	19 x 0.36	2.92	30.0	10.0
12	3.09	19 x 0.45	3.55	47.5	6.0
10	4.77	37 x 0.40	3.88	53.3	3.9
8	8.60	133 x 0.29	5.56	99.0	2.2

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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Two to four assembling wires AGZ 04

ELECTROAIR®

M-AGZ 04

Unshielded & Assembling (2x to 4x)



Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Two cores: Blue / White cores
- Three cores: White / Blue / Orange cores
- Four cores: White / Blue / Orange / Black cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 250 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

WIRE (AGZ 04)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
28	0.09	7 x 0.13	0.73	1.8	201.0
26	0.14	7 x 0.16	0.84	2.4	132.0
24	0.22	7 x 0.20	0.96	3.4	86.0
22	0.34	7 x 0.25	1.11	5.0	54.4
20	0.60	7 x 0.32	1.40	8.3	31.3

M-AGZ 04

AWG	2X		3X		4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	
28	1.46	2.6	1.57	5.4	1.75	7.2	211.0
26	1.68	4.8	1.81	7.2	2.02	9.6	138.0
24	1.92	6.8	2.06	10.2	2.31	13.6	90.0
22	2.22	10.0	2.39	15.0	2.67	20.0	57.0
20	2.80	16.6	3.01	24.9	3.37	33.2	33.0

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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Two to four assembling wires AGZ 05

ELECTROAIR®

M-AGZ 05

Unshielded & Assembling (2x to 4x)



Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
- ABD0031
- EN 3475

Colour code

- Two cores: Blue / White cores
- Three cores: White / Blue / Orange cores
- Four cores: White / Blue / Orange / Black cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

NF C 93-523

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

Low smoke density

ABD0031

• Arc tracking resistance

EN 3475

(tested on wire AGZ05)

WIRE (AGZ 05)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
28	0.09	7 x 0.13	1.00	2.6	201.0
26	0.14	7 x 0.16	1.10	3.4	132.0
24	0.22	7 x 0.20	1.22	4.5	86.0
22	0.34	7 x 0.25	1.37	6.2	54.4
20	0.60	7 x 0.32	1.62	9.5	31.3
18	0.93	7 x 0.40	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	3.09	19 x 0.45	3.24	42.5	6.0

M-AGZ 05

AWG	2X		3X		4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	
28	2.00	5.2	2.15	7.8	2.41	10.4	211.0
26	2.20	6.8	2.36	10.2	2.65	13.6	138.0
24	2.44	9.0	2.62	13.5	2.94	18.0	90.0
22	2.74	12.4	2.94	18.6	3.30	24.8	57.0
20	3.24	19.0	3.48	28.5	3.90	38.0	33.0
18	3.84	28.2	4.12	42.3	4.62	56.4	21.5
16	4.54	40.0	4.88	60.0	5.47	80.0	14.6
14	5.32	54.0	5.71	81.0	6.41	108.0	10.5
12	6.48	85.0	6.96	127.5	7.81	170.0	6.3

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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Two to four assembling wires AGZ 06

ELECTROAIR®

M-AGZ 06

Unshielded & Assembling (2x to 4x)



Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Two cores: Blue / White cores
- Three cores: White / Blue / Orange cores
- Four cores: White / Blue / Orange / Black cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 1,000 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

WIRE (AGZ 06)

AWG	Cross Section (mm ²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
26	0.14	7 x 0.16	1.34	4.6	132.0
24	0.22	7 x 0.20	1.47	5.8	86.0
22	0.34	7 x 0.25	1.63	7.7	54.4
20	0.60	7 x 0.32	1.86	11.0	31.3
18	0.93	7 x 0.40	2.17	16.0	20.5
16	1.34	19 x 0.30	2.41	21.1	13.9
14	1.91	19 x 0.36	2.92	30.0	10.0

M-AGZ 06

AWG	2X		3X		4X		Maximum linear resistance at 20°C (Ω / km)
	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	
26	2.68	9.2	2.88	13.8	3.23	18.4	138.0
24	2.94	11.6	3.16	17.4	3.54	23.2	90.0
22	3.26	15.4	3.50	23.1	3.92	30.8	57.0
20	3.72	22.0	4.00	33.0	4.48	44.0	33.0
18	4.34	32.0	4.66	48.0	5.23	64.0	21.5
16	4.82	42.2	5.18	63.3	5.81	84.4	14.6
14	5.84	20.0	6.27	30.0	7.03	40.0	10.5

CGP SAS
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FRANCE
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- 1 • One to three wires AGZ 04
- 2 • Silver plated copper braid
- 3 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- AGZ 55: White jacket and White core
 - AGZ 67: White jacket and Blue / White cores
 - AGZ 79: White jacket and Blue / White / Orange cores
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

ELECTROAIR®

AGZ 55, 67, 79 Shielded & Jacketed



AGZ 55 (single core)

AGZ 67 (two cores)

AGZ 79 (three cores)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 250 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

• Electromagnetic protection

Very good covering (shielding) > 85%

WIRE (AGZ 04)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	0.58	0.9	546.0
30	0.06	7 x 0.10	0.66	1.3	349.0
28	0.09	7 x 0.13	0.73	1.8	201.0
26	0.14	7 x 0.16	0.84	2.4	132.0
24	0.22	7 x 0.20	0.96	3.4	86.0
22	0.34	7 x 0.25	1.11	5.0	54.4
20	0.60	7 x 0.32	1.40	8.3	31.3

AGZ 55

1X

AWG	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
32	-	-
30	-	-
28	-	-
26	2.05	8.1
24	2.17	9.7
22	2.32	11.9
20	2.60	16.5

AGZ 67

2X

Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
2.36	8.0
2.52	9.3
2.62	10.8
2.88	13.0
3.27	17.9
3.57	22.5
4.15	31.7

AGZ 79

3X

Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
2.44	9.8
2.61	11.7
2.76	13.7
3.15	18.7
3.40	23.1
3.73	29.6
4.35	42.7

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- 1 • One to four wires AGZ 05
- 2 • Silver plated copper braid
- 3 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- AGZ 57: White jacket and White core
 - AGZ 69: White jacket and Blue / White cores
 - AGZ 81: White jacket and Blue / White / Orange cores
 - AGZ 93: White jacket and Blue / White / Orange / Black cores
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)

ELECTROAIR®

AGZ 57, 69, 81, 93 Shielded & Jacketed



AGZ 57 (single core)

AGZ 69 (two cores)

AGZ 81 (three cores)

AGZ 93 (four cores)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

• Electromagnetic protection

Very good covering (shielding) > 85%

WIRE (AGZ 05)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	0.84	1.7	546.0
30	0.06	7 x 0.10	0.91	2.1	349.0
28	0.09	7 x 0.13	1.00	2.6	201.0
26	0.14	7 x 0.16	1.10	3.4	132.0
24	0.22	7 x 0.20	1.22	4.5	86.0
22	0.34	7 x 0.25	1.37	6.2	54.4
20	0.60	7 x 0.32	1.62	9.5	31.3
18	0.93	7 x 0.40	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	3.09	19 x 0.45	3.24	42.5	6.0

AWG	AGZ 57		AGZ 69		AGZ 81		AGZ 93	
	1X		2X		3X		4X	
	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
32	1.97	6.7	2.71	10.6	2.82	13.4	2.90	15.5
30	2.04	7.5	2.85	12.0	3.12	17.4	3.20	16.7
28	2.13	8.4	3.03	13.7	3.32	19.9	3.50	22.9
26	2.23	9.6	3.38	18.1	3.53	23.4	3.70	25.0
24	2.36	11.3	3.64	21.5	3.81	28.2	4.10	29.5
22	2.50	13.6	3.92	26.2	4.11	34.8	4.25	40.0
20	2.90	20.0	4.42	35.1	4.65	47.6	4.80	52.5
18	3.18	26.1	5.08	46.9	5.53	67.5	5.70	76.0
16	3.53	33.5	5.86	64.4	6.18	89.1	6.30	95.0
14	3.91	42.6	6.62	82.4	7.00	115.0	7.20	131.0
12	4.49	61.1	7.78	120.0	8.24	169.0	8.40	188.0

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

AGZ 59, 71, 83 Shielded & Jacketed

- 1 • One to three wires AGZ 06
- 2 • Silver plated copper braid
- 3 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- AGZ 59: White jacket and White core
- AGZ 71: White jacket and Blue / White cores
- AGZ 83: White jacket and Blue / White / Orange cores

For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGZ is an alternative to KZ NF C 93-523 (similar performances with a FEP insulation instead of PTFE)



AGZ 59 (single core)

AGZ 71 (two cores)

AGZ 83 (three cores)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 1,000 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

• Electromagnetic protection

Very good covering (shielding) > 85%

WIRE (AGZ 06)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	7 x 0.08	1.09	2.6	546.0
30	0.06	7 x 0.10	1.16	3.0	349.0
28	0.09	7 x 0.13	1.24	3.7	201.0
26	0.14	7 x 0.16	1.34	4.6	132.0
24	0.22	7 x 0.20	1.47	5.8	86.0
22	0.34	7 x 0.25	1.63	7.7	54.4
20	0.60	7 x 0.32	1.86	11.0	31.3
18	0.93	7 x 0.40	2.17	16.0	20.5
16	1.34	19 x 0.30	2.41	21.1	13.9
14	1.91	19 x 0.36	2.92	30.0	10.0
12	3.09	19 x 0.45	3.55	47.5	6.0

AGZ 59

1X

AWG	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
32	2.22	8.8
30	2.28	9.4
28	2.37	10.6
26	2.47	11.9
24	2.60	13.6
22	2.90	18.2
20	3.14	22.7
18	3.43	29.2
16	3.68	35.4
14	4.19	46.8
12	5.00	70.4

AGZ 71

2X

Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
3.36	16.4
3.48	17.7
3.66	19.9
3.86	22.6
4.12	26.1
4.42	31.4
4.90	40.2
5.64	55.6
6.16	68.1
7.08	90.7
8.34	133.0

AGZ 83

3X

Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
3.51	20.9
3.64	22.7
3.83	25.8
4.05	29.6
4.33	34.5
4.65	42.1
5.34	57.6
6.15	76.2
6.60	94.8
7.59	127.0
8.94	188.0

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com

ELECTROAIR®

AGF 05

Unshielded & Extra flexible core

- 1 • Silver plated copper core (extra flexible)
2 • Fluorinated polymer FEP
Assembling version by pair / triple / quad

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
- ABD0031
- EN 3475

Colour code

Red, Blue, Yellow, Green, White, Black,
Brown, Orange, Purple, Grey
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

Our range AGF is an alternative
to KZ NF C 93-523 in
an "extra flexible core" version
(similar performances with a FEP insula-
tion instead of PTFE and more flexible)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

AGF 05

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
32	0.03	19 x 0.05	0.84	1.7	515.0
30	0.06	19 x 0.06	0.91	2.1	323.5
28	0.09	19 x 0.08	1.00	2.6	196.3
26	0.14	19 x 0.10	1.10	3.4	122.4
24	0.24	19 x 0.13	1.22	4.5	77.4
22	0.38	19 x 0.16	1.37	6.2	48.6
20	0.60	19 x 0.20	1.62	9.5	31.3
18	0.93	19 x 0.25	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	2.98	37 x 0.32	3.24	42.5	6.0
10	4.77	37 x 0.40	3.60	50.3	3.9
8	8.60	133 x 0.29	5.50	96.5	2.2

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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- 1 • Silver plated copper core (extra flexible)
- 2 • Fluorinated polymer FEP
- Assembling 2 cores to 4 cores

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- Two cores: Blue / White cores
- Three cores: White / Blue / Orange cores
- Four cores: White / Blue / Orange / Black cores

For any other request: please contact us

Applications

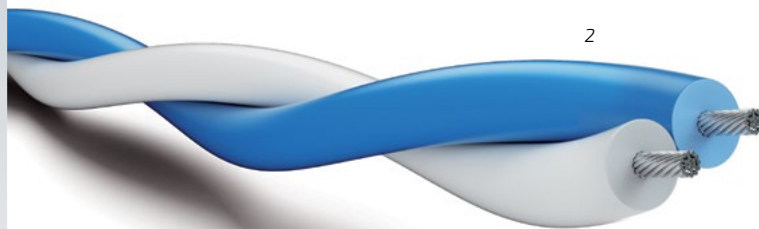
Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGF is an alternative to KZ NF C 93-523 in an "extra flexible core" version (similar performances with a FEP insulation instead of PTFE)

ELECTROAIR®

M-AGF 05

Unshielded & Assembling (2x to 4x)
Extra flexible core



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

WIRE (AGF 05)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
28	0.09	19 x 0.08	1.00	2.6	196.3
26	0.14	19 x 0.10	1.10	3.4	122.4
24	0.24	19 x 0.13	1.22	4.5	77.4
22	0.38	19 x 0.16	1.37	6.2	48.6
20	0.60	19 x 0.20	1.62	9.5	31.3
18	0.93	19 x 0.25	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	2.98	37 x 0.32	3.24	42.5	6.0

M-AGF 05

2X			3X		4X	
AWG	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)
28	2.00	5.2	2.15	7.8	2.41	10.4
26	2.20	6.8	2.36	10.2	2.65	13.6
24	2.44	9.0	2.62	13.5	2.94	18.0
22	2.74	12.4	2.94	18.6	3.30	24.8
20	3.24	19.0	3.48	28.5	3.90	38.0
18	3.84	28.2	4.12	42.3	4.62	56.4
16	4.54	40.0	4.88	60.0	5.47	80.0
14	5.32	54.0	5.71	81.0	6.41	108.0
12	6.48	85.0	6.96	127.5	7.81	170.0

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FRANCE
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- 1 • One to four wires AGF 05
- 2 • Silver plated copper braid
- 3 • Fluorinated polymer FEP

Standards and approvals

Construction:

- Inspired of NF C 93-523

Performances:

- NF C 93-523
- IEC 60332-1
- C2 NF C 32-070
 - FAR 25
 - ABD0031
 - EN 3475

Colour code

- AGF 57: White jacket and White core
 - AGF 69: White jacket and Blue / White cores
 - AGF 81: White jacket and Blue / White / Orange cores
 - AGF 93: White jacket and Blue / White / Orange / Black cores
- For any other request: please contact us

Applications

Electrical lightweight cables used in electronic equipments for aircraft, missile systems or aeronautical test benches

Our range AGF is an alternative to KZ NF C 93-523 in an "extra flexible core" version (similar performances with a FEP insulation instead of PTFE and more flexible)

ELECTROAIR®

AGF 57, 69, 81, 93 Shielded & Jacketed Extra flexible core



AGF 57 (single core)

AGF 69 (two cores)

AGF 81 (three cores)

AGF 93 (four cores)

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance

EN 3475
(tested on wire AGZ05)

• Electromagnetic protection

Very good covering (shielding) > 85%

WIRE (AGF 05)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
28	0.09	19 x 0.08	1.00	2.6	196.3
26	0.14	19 x 0.10	1.10	3.4	122.4
24	0.24	19 x 0.13	1.22	4.5	77.4
22	0.38	19 x 0.16	1.37	6.2	48.6
20	0.60	19 x 0.20	1.62	9.5	31.3
18	0.93	19 x 0.25	1.92	14.1	20.5
16	1.34	19 x 0.30	2.27	20.0	13.9
14	1.91	19 x 0.36	2.66	27.0	10.0
12	2.98	37 x 0.32	3.24	42.5	6.0

AGF 57			AGF 69			AGF 81			AGF 93		
1X			2X			3X			4X		
AWG	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)		Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)		Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	
28	2.13	8.4	3.03	13.7		3.32	19.9		3.50	22.9	
26	2.23	9.6	3.38	18.1		3.53	23.4		3.70	25.0	
24	2.36	11.3	3.64	21.5		3.81	28.2		4.10	29.5	
22	2.50	13.6	3.92	26.2		4.11	34.8		4.25	40.0	
20	2.90	20.0	4.42	35.1		4.65	47.6		4.80	52.5	
18	3.18	26.1	5.08	46.9		5.53	67.5		5.70	76.0	
16	3.53	33.5	5.86	64.4		6.18	89.1		6.30	95.0	
14	3.91	42.6	6.62	82.4		7.00	115.0		7.20	131.0	
12	4.49	61.1	7.78	120.0		8.24	169.0		8.40	188.0	

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FRANCE
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ELECTROAIR®

KZ 04, 07
Unshielded



- 1 • Silver plated copper core (KZ 04)
or Nickel-plated copper core (KZ 07)
- 2 • Fluorinated PTFE tape

Standards and approvals

Construction:

- NF C 93-523

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange

For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

Characteristics

• Thermal

Continuous operating temperature: **-90°C to +200°C (KZ 04)**
-90°C to +260°C (KZ 07)

• Electrical

Operating voltage: 250 V RMS

• Mechanical

Resistance to abrasion: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

KZ 04, 07

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)	
					CuAg	CuNi
28	0.09	7 x 0.13	0.73	1.8	201.0	225.0
26	0.14	7 x 0.16	0.84	2.4	132.0	148.0
24	0.22	7 x 0.20	0.96	3.4	86.0	96.5
22	0.34	7 x 0.25	1.11	5.0	54.4	60.8
20	0.60	19 x 0.20	1.40	8.3	31.3	35.0

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FRANCE

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ELECTROAIR®

KZ 05, 08
Unshielded

- 1 • Silver plated copper core (KZ 05)
or Nickel-plated copper core (KZ 08)
2 • Fluorinated PTFE tape

Standards and approvals

- Construction:**
- NF C 93-523

- Performances:**
- IEC 60332-1
 - C2 NF C 32-070
 - FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches



Characteristics

- **Thermal**
Continuous operating temperature: **-90°C to +200°C (KZ 05)**
-90°C to +260°C (KZ 08)
- **Electrical**
Operating voltage: 600 V RMS
- **Mechanical**
Resistance to abrasion: ★★★★★
- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
- **Fire-smoke**
Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25

KZ 05, 08

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)	
					CuAg	CuNi
28	0.09	7 x 0.13	1.00	2.6	201.0	225.0
26	0.14	7 x 0.16	1.10	3.4	132.0	148.0
24	0.22	7 x 0.20	1.22	4.5	86.0	96.5
22	0.34	7 x 0.25	1.37	6.2	54.4	60.8
20	0.60	19 x 0.20	1.62	9.5	31.3	35.0
18	0.93	19 x 0.25	1.92	14.1	20.5	23.0
16	1.34	19 x 0.30	2.27	20.0	13.9	15.6
14	1.91	27 x 0.30*	2.66	27.0	10.0	11.2
12	3.09	45 x 0.30*	3.24	42.5	6.0	6.7

* Non-concentric cores

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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- 1 • Silver plated copper core (KZ 06)
or Nickel-plated copper core (KZ 09)
2 • Fluorinated PTFE tape

Standards and approvals

- Construction:**
- NF C 93-523

- Performances:**
- IEC 60332-1
 - C2 NF C 32-070
 - FAR 25

Colour code

Red, Blue, Yellow, Green, White, Black,
Orange
For any other request: please contact us

Applications

Electrical lightweight cables used
in electronic equipments for aircraft,
missile systems or aeronautical test
benches

ELECTROAIR®

KZ 06, 09
Unshielded



Characteristics

- **Thermal**
Continuous operating temperature: **-90°C to +200°C (KZ 06)**
-90°C to +260°C (KZ 09)
- **Electrical**
Operating voltage: 1,000 V RMS
- **Mechanical**
Resistance to abrasion: ★★★★★
- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
Resistance to aircraft fluids: ★★★★★
- **Fire-smoke**
Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25

KZ 06, 09

AWG	Cross Section (mm ²)	Stranding (n x mm)	Cable outer diameter (mm) Maxi	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)	
					CuAg	CuNi
28	0.09	7 x 0.13	1.24	3.7	201.0	225.0
26	0.14	7 x 0.16	1.34	4.6	132.0	148.0
24	0.22	7 x 0.20	1.47	5.8	86.0	96.5
22	0.34	7 x 0.25	1.63	7.7	54.4	60.8
20	0.60	19 x 0.20	1.86	11.0	31.3	35.0
18	0.93	19 x 0.25	2.17	16.0	20.5	23.0
16	1.34	19 x 0.30	2.41	21.1	13.9	15.6
14	1.91	27 x 0.30*	2.92	30.0	10.0	11.2
12	3.09	45 x 0.30*	3.55	47.5	6.0	6.7

* Non-concentric cores

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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FLIGHT TEST CABLES

Helicopters

PRODUCT REFERENCE		PAGE
FLIGHT TEST CABLES		66
ELECTROAIR®	AH7080	67
	AH7083	67

FLIGHT TEST CABLES

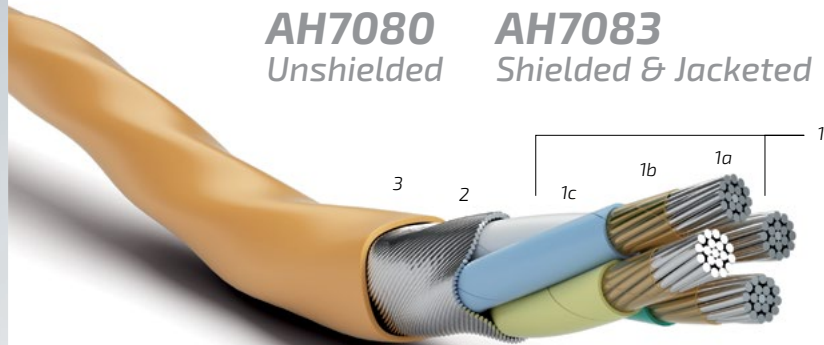
CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Cutthrough resistance	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® AH7080	1 to 4	CuSn	Polyimide + PTFE			-55	+150	600	✓	✓	✓	✓	✓
ELECTROAIR® AH7083	1 to 4	CuSn	Polyimide + PTFE	CuSn	Fluoropolymer	-55	+150	600	✓	✓	✓	✓	✓



ELECTROAIR®

AH7080
Unshielded

AH7083
Shielded & Jacketed



- 1 • Conductors AH7080
 - 1a. Tinned copper
 - 1b. Polyimide tape
 - 1c. PTFE tape
- 2 • Helical by covering with tinned copper braid
- 3 • Fluoropolymer top coat (standard colour: orange)

Standards and approvals

Construction:
dimensional according to

- EN 2267-007
- EN 4434

Performances:

- EN 3475
- FAR 25
- IEC 60332-1
- C2 NF C 32-070
- ABD0031

Colour code

- AH7080: White or Orange core
- AH7083: Orange jacket
 - 1x: White core
 - 2x: White / Blue cores
 - 3x: White / Blue / Yellow cores
 - 4x: White / Blue / Yellow / Green cores

For any other request: please contact us

Options

Operating temperature until +200°C with
a silver plated copper core and braid
Operating temperature until +250°C with
a nickel plated copper core and braid

Applications

Flight test cables for helicopters

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +150°C**

• Electrical

Operating voltage: 600 V RMS

• Mechanical

Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★★
Resistance to humidity: ★★★★★★
Resistance to aircraft fluids: ★★★★★★
NF C 93-523

• Fire-smoke

Flame retardant
IEC 60332-1 / C2 NF C 32-070 / FAR 25
Low smoke density
ABD0031

• Arc tracking resistance
EN 3475

WIRE (AH7080)

AWG	Cross Section (mm²)	Stranding (n x mm)	Wire outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
			Mini	Maxi		
26	0.15	19 x 0.10	0.85	0.97	2.45	160.0
24	0.25	19 x 0.12	0.90	1.04	3.10	114.0
22	0.40	19 x 0.15	1.05	1.19	4.43	60.0
20	0.60	19 x 0.20	1.38	1.53	7.73	33.2
18	1.00	19 x 0.25	1.65	1.82	11.74	21.1
16	1.20	19 x 0.30	2.02	2.22	16.95	14.5
14	2.00	37 x 0.25	2.29	2.49	22.65	10.9
12	3.00	37 x 0.32	2.73	2.97	33.70	6.8
10	5.00	37 x 0.40	3.33	3.61	53.10	4.2

Assembling of AH7080 by pair / triple / quad available

AH7083

Cross Section (mm²)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
	Mini	Maxi		
1 x AWG 24	1.42	1.58	6.50	114.0
1 x AWG 22	1.60	1.76	8.80	60.0
1 x AWG 20	1.87	2.03	12.10	33.2
1 x AWG 18	2.17	2.33	18.00	21.1
1 x AWG 16	2.52	2.68	23.20	14.5
2 x AWG 24	2.60	2.80	13.40	117.4
2 x AWG 22	2.90	3.10	16.80	61.7
2 x AWG 20	3.20	3.40	24.40	34.1
2 x AWG 18	3.70	3.90	34.30	21.7
2 x AWG 16	4.40	4.60	44.30	14.9
3 x AWG 26	2.40	2.60	16.00	165.0
3 x AWG 24	2.50	2.70	16.70	117.4
3 x AWG 22	2.90	3.10	22.30	61.7
4 x AWG 24	3.00	3.20	21.00	117.0
4 x AWG 22	3.40	3.60	28.80	61.7
4 x AWG 20	3.70	3.90	43.60	34.1

CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

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FIRE RESISTANT & HIGH TEMPERATURE AREA CABLES

*Aircraft engines
High temperature area*

PRODUCT REFERENCE

PAGE

ELECTROAIR®

FR

71



ELECTROAIR®

FR

- 1 • Nickel-plated copper core
- 2 • Braid in Mineral fibre
- 3 • PTFE tape
- 4 • Braid in Mineral fibre
- 5 • Nickel-plated copper braid
- 6 • PTFE tape
- 7 • Braid in Mineral fibre



Applications

Fire zone and high temperature
area cables

Characteristics

- **Thermal**

Continuous operating temperature: **-65°C to +310°C**

- **Electrical**

Operating voltage: 600 V RMS

- **Chemical**

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

- **Fire resistant**

BMS 13-67

For more technical information, please contact us

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ARMoured PERSONNEL CARRIER CABLES

Armoured personnel carrier

PRODUCT REFERENCE	PAGE
ARMoured PERSONNEL CARRIER CABLES	75
ELECTROAIR® KQ	77



ARMoured PERSONNEL CARRIER CABLES

CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Operating Voltage (V RMS)	Cutthrough resistance	Abrasion resistance	Chemical resistance	Flame retardant	UV resistance
						Mini	Maxi						
ELECTROAIR® KQ 9A	4	CuSn	Thermoplastic	CuSn	PU	-40	+85	600	✓	✓	✓	✓	
ELECTROAIR® KQ 28A	5	CuSn	Thermoplastic	CuSn	PU	-40	+85	250	✓	✓	✓	✓	
ELECTROAIR® KQ 29A	19	CuSn	Thermoplastic	CuSn	PU	-40	+85	600	✓	✓	✓	✓	
ELECTROAIR® KQ 30A	12	CuSn	Thermoplastic	CuSn	PU	-40	+85	250	✓	✓	✓	✓	
ELECTROAIR® KQ 31A	7	CuSn	Thermoplastic	CuSn	PU	-40	+85	600	✓	✓	✓	✓	
ELECTROAIR® KQ 38A	41	CuSn	Thermoplastic	CuSn	PU	-40	+85	600	✓	✓	✓	✓	
ELECTROAIR® KQ 47A	3	CuSn	Fluoropolymer	CuSn	PU	-40	+85	250	✓	✓	✓	✓	
ELECTROAIR® KQ 48A	6	CuSn	Fluoropolymer	CuSn	PU	-40	+85	250	✓	✓	✓	✓	
ELECTROAIR® KQ 49A	8	CuSn	Fluoropolymer	CuSn	PU	-40	+85	250	✓	✓	✓	✓	✓
ELECTROAIR® KQ 50A	19	CuSn	Fluoropolymer	CuSn	PU	-40	+85	350	✓	✓	✓	✓	✓
ELECTROAIR® KQ 51A	6	CuSn	Fluoropolymer	CuSn	PU	-40	+85	250	✓	✓	✓	✓	✓
ELECTROAIR® KQ 52A	22	CuSn	Fluoropolymer	CuSn	PU	-40	+85	350	✓	✓	✓	✓	✓
ELECTROAIR® KQ 53A	54	CuSn	Fluoropolymer	CuSn	PU	-40	+85	350	✓	✓	✓	✓	✓
ELECTROAIR® KQ 55A	3	CuSn	Fluoropolymer	CuSn	PU	-40	+85	250	✓	✓	✓	✓	✓
ELECTROAIR® KQ 60A	6	CuSn	Fluoropolymer	CuSn	PU	-40	+85	600	✓	✓	✓	✓	✓
ELECTROAIR® KQ 61A	6	CuSn	Fluoropolymer	CuSn	PU	-40	+85	350	✓	✓	✓	✓	✓
ELECTROAIR® KQ 62A	6	CuAl	Fluoropolymer	CuSn	PU	-40	+85	100	✓	✓	✓	✓	✓
ELECTROAIR® KQ 63A	4	CuSn	Fluoropolymer	CuSn	PU	-40	+85	100	✓	✓	✓	✓	✓
ELECTROAIR® KQ 65A	16	CuSn	Fluoropolymer	CuSn	PU	-40	+85	600	✓	✓	✓	✓	✓
ELECTROAIR® KQ 66A	6	CuSn	Fluoropolymer	CuSn	PU	-40	+85	100	✓	✓	✓	✓	✓



ELECTROAIR®

KQ Hybrid cables



- 1 • Tinned or plain copper core (Table n°1)
- 2 • Securing cords in polyester (Table n°1)
- 3 • Insulation in thermoplastic or fluoropolymer (Table n°1)
- 4 • Tinned copper braid (general / individual or both - Table n°1)
- 5 • Polyester tape
- 6 • Polyurethane sheath

Standards and approvals

- Construction:**
- DGA specifications
- Performances:**
- SEFT 027

Marking

"N° KQ CGP SAINT-CHAMOND FRANCE
Manufacturing Year"

Applications

Audio
Data transmission
Remote control cables for armoured personnel carrier

Options

Other models on request

Characteristics

- Thermal

Continuous operating temperature:
-40°C to +85°C

- Electrical

Operating voltage: Depending on model
(see Table n°2)

- Mechanical

Cutthrough resistance: ★★★★★

Resistance to abrasion: ★★★★★

Alternate bending resistance: ★★★★★
SEFT 027

- Chemical

Immersion: Permanent AD8

Resistance to sea water: ★★★★★

Oil resistance: ★★★★★

Hydrocarbons resistance: ★★★★★

Biological agents resistance: ★★★★★
SEFT 027

- Fire-smoke

Flame retardant
SEFT 027

- Outdoor use

UV resistance: ★★★★★

CONSTRUCTION INFORMATION

N° KQ	Cable composition	Number of cores	Copper Core	Insulation	Sheath
KQ 9A	[4 x 20 AWG] BI	4	Tinned	Thermoplastic	PU
KQ 28A	[5 x 20 AWG] BG	5	Tinned	Thermoplastic	PU
KQ 29A	[14 x 22 AWG + (5 x 22 AWG) BI] BG	19	Tinned	Thermoplastic	PU
KQ 30A	[8 x 22 AWG + (4 x 22 AWG) BI] BG	12	Tinned	Thermoplastic	PU
KQ 31A	[7 x 16 AWG] BG	7	Tinned	Thermoplastic	PU
KQ 38A	[(3 P 24 AWG) BI + (2 x 22 AWG) BI + 33 x 22 AWG] BG	41	Tinned	Thermoplastic	PU
KQ 47A	[3 x 16 AWG] BG	3	Tinned	Fluoropolymer	PU
KQ 48A	[6 x 20 AWG] BG	6	Tinned	Fluoropolymer	PU
KQ 49A	[8 x 16 AWG] BG	8	Tinned	Fluoropolymer	PU
KQ 50A	[19 x 12 AWG] BG	19	Tinned	Fluoropolymer	PU
KQ 51A	[3 P 22 AWG] BG	6	Tinned	Fluoropolymer	PU
KQ 52A	[11 P 24 AWG] BG	22	Tinned	Fluoropolymer	PU
KQ 53A	[27 P 24 AWG] BG	54	Tinned	Fluoropolymer	PU
KQ 55A	[3 x 20 AWG + SC] BG	3	Tinned	Fluoropolymer	PU
KQ 60A	[5 x 12 AWG + 20 AWG] BG	6	Tinned	Fluoropolymer	PU
KQ 61A	[5 x 10 AWG + 20 AWG] BG	6	Tinned	Fluoropolymer	PU
KQ 62A	[(2 x 26 AWG) BI + 4 P 26 AWG] BG	6	Plain	Fluoropolymer	PU
KQ 63A	[4 x 20 AWG] BG	4	Tinned	Fluoropolymer	PU
KQ 65A	[16 x 16 AWG] BG	16	Tinned	Fluoropolymer	PU
KQ 66A	[4 x 24 AWG + (2 x 24 AWG) BI + SC] BG	6	Tinned	Fluoropolymer	PU

BI = INDIVIDUAL SHIELDING OF EACH CONDUCTORS / BG = GENERAL SHIELDING / P = ASSEMBLING BY PAIR / SC = SECURING CORD

TECHNICAL INFORMATION

CGP Reference N° KQ	Operating Voltage (V RMS)	Cable outer diameter (mm)		Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
		Mini	Maxi		
KQ 9A	600	7.10	7.50	80.0	35.0
KQ 28A	250	7.30	7.90	110.0	34.0
KQ 29A	600	13.20	13.80	280.0	59.0
KQ 30A	250	12.80	13.80	330.0	60.0
KQ 31A	600	14.20	15.00	345.0	15.0
KQ 38A	600	18.10	18.90	241.0	96.0 (3P) / 59.0 (2x) / 54.0 (33x)
KQ 47A	250	6.40	7.00	90.0	17.0
KQ 48A	250	6.70	7.30	100.0	35.0
KQ 49A	250	10.20	10.80	300.0	17.0
KQ 50A	350	19.20	19.80	1,000.0	6.5.0
KQ 51A	250	8.10	8.70	200.0	55.0
KQ 52A	350	10.00	11.00	185.0	105.0
KQ 53A	350	15.40	17.00	440.0	105.0
KQ 55A	250	5.50	5.90	60.0	35.0
KQ 60A	600	12.80	13.80	330.0	34.0 (20 AWG) / 6.7 (12 AWG)
KQ 61A	350	14.50	16.50	523.0	34.0 (20 AWG) / 4.0 (10 AWG)
KQ 62A	100	6.70	7.30	70.0	210.0
KQ 63A	100	7.00	7.30	70.0	50.0
KQ 65A	600	12.70	13.70	380.0	15.0
KQ 66A	100	7.00	7.30	70.0	92.0





HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES

*Defence and aerospace
communication systems*

PRODUCT REFERENCE		PAGE
HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES		81
TWINLINK®	<i>FP</i>	82
	<i>FA</i>	83
ELECTROAIR®	<i>MIL-STD-1553 W WJC</i>	84



HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES

CGP reference	Number of cores	Core	Insulation	Shield	Outer sheath	Operating temperature (°C)		Impedance (Ohms)	Cutthrough resistance	Abrasion resistance	Aircraft fluids resistance	Flame retardant	Arc tracking resistance
						Mini	Maxi						
ELECTROAIR® FP 50	2	CuAg	FEP	CuAg	FEP	-55	+200	50		✓	✓	✓	
ELECTROAIR® FP 75	2	CuAg	FEP	CuAg	FEP	-55	+200	75		✓	✓	✓	
ELECTROAIR® FP 100	2	CuAg	FEP	CuAg	FEP	-55	+200	100		✓	✓	✓	
ELECTROAIR® FP 120	2	CuAg	FEP	CuAg	FEP	-55	+200	120		✓	✓	✓	
ELECTROAIR® FA 50	2	CuAg	PFA	CuAg	PFA	-90	+260	50		✓	✓	✓	
ELECTROAIR® FA 75	2	CuAg	PFA	CuAg	PFA	-90	+260	75		✓	✓	✓	
ELECTROAIR® FA 100	2	CuAg	PFA	CuAg	PFA	-90	+260	100		✓	✓	✓	
ELECTROAIR® FA 120	2	CuAg	PFA	CuAg	PFA	-90	+260	120		✓	✓	✓	
ELECTROAIR® MIL-STD-1553 W WJC	2	CuAg	Fluoropolymer	CuAg	Fluoropolymer	-55	+200	77		✓	✓	✓	

TWINLINK®

FP

- 1 • Silver plated copper core
- 2 • Fluorinated polymer FEP
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

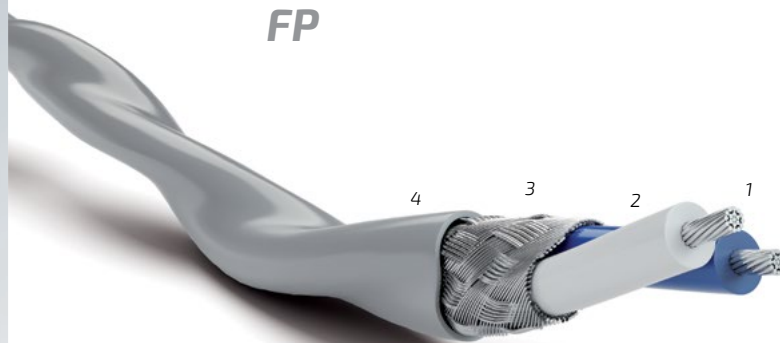
- Grey jacket and Blue / White cores
- For any other request: please contact us

Options

Miniature version in PTFE taped insulation

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Electrical

Operating voltage: < 600 V RMS

Impedance: 50 Ω / 75 Ω / 100 Ω / 120 Ω

• Mechanical

Resistance to abrasion: ★★★★★

EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Electromagnetic protection

Excellent covering (shielding) > 91%

DATA TRANSMISSION CHARACTERISTICS

Characteristics	Version FP 50	Version FP 75	Version FP 100	Version FP 120
Impedance	50 Ω	75 Ω	100 Ω	120 Ω
Tolerance	+/- 5 Ω	+/- 8 Ω	+/- 10 Ω	+/- 12 Ω
Transfer impedance at 1 MHz	5 to 25 Ω / m	5 to 25 Ω / m	5 to 25 Ω / m	5 to 25 Ω / m
Min. insulation resistance	> 1,500 MΩ.km	> 1,500 MΩ.km	> 1,500 MΩ.km	> 1,500 MΩ.km
Capacitance	40 to 90 pF / m	40 to 90 pF / m	40 to 90 pF / m	40 to 90 pF / m
Typical attenuation at 20 MHz	30 dB / 100 m	15 dB / 100 m	5 dB / 100 m	4 dB / 100 m
Velocity of propagation	66 to 90%	66 to 90%	66 to 90%	66 to 90%
Operating voltage	< 600 V	< 600 V	< 600 V	< 600 V

CONSTRUCTION

AWG	Stranding (n x mm)	FP 50		FP 75		FP 100		FP 120	
		Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)
AWG 22	19 x 0.16	3.20	22.0	4.10	30.3	5.30	51.2	6.50	70.3
AWG 24	19 x 0.12	2.70	16.1	3.40	21.5	4.40	30.9	5.30	51.2
AWG 26	19 x 0.10	2.30	13.0	2.80	15.4	3.70	23.3	4.40	30.9

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
www.omerin.com



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For an optimum use of the cables produced by our company, we recommend testing in real conditions. Our sales department is available for a possible provision of samples, and/or for the conditions of a complete study in our laboratories.

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TWINLINK®

FA

- 1 • Silver plated copper core
- 2 • Fluorinated polymer PFA
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA

Standards and approvals

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

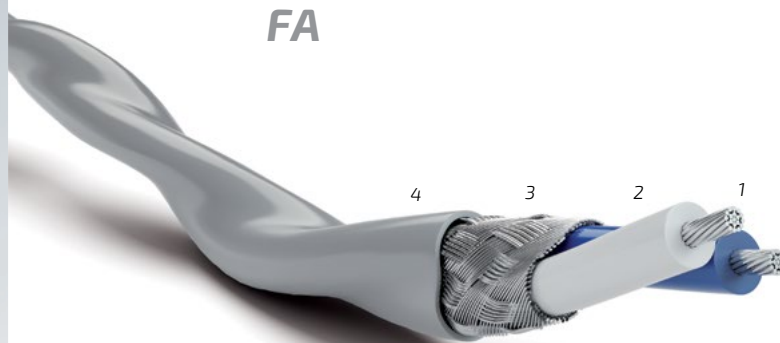
- Grey jacket and Blue / White cores
- For any other request: please contact us

Options

Miniature version in PTFE taped insulation

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-90°C to +260°C**

• Electrical

Operating voltage: < 600 V RMS

Impedance: 50 Ω / 75 Ω / 100 Ω / 120 Ω

• Mechanical

Resistance to abrasion: ★★★★★

EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Electromagnetic protection

Excellent covering (shielding) > 91%

DATA TRANSMISSION CHARACTERISTICS

Characteristics	Version FA 50	Version FA 75	Version FA 100	Version FA 120
Impedance	50 Ω	75 Ω	100 Ω	120 Ω
Tolerance	+/- 5 Ω	+/- 8 Ω	+/- 10 Ω	+/- 12 Ω
Transfer impedance at 1 MHz	5 to 25 Ω / m	5 to 25 Ω / m	5 to 25 Ω / m	5 to 25 Ω / m
Min. insulation resistance	> 1,500 MΩ.km	> 1,500 MΩ.km	> 1,500 MΩ.km	> 1,500 MΩ.km
Capacitance	40 to 90 pF / m	40 to 90 pF / m	40 to 90 pF / m	40 to 90 pF / m
Typical attenuation at 20 MHz	30 dB / 100 m	15 dB / 100 m	5 dB / 100 m	4 dB / 100 m
Velocity of propagation	66 to 90%	66 to 90%	66 to 90%	66 to 90%
Operating voltage	< 600 V	< 600 V	< 600 V	< 600 V

CONSTRUCTION

AWG	Stranding (n x mm)	FA 50		FA 75		FA 100		FA 120	
		Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)
AWG 22	19 x 0.16	3.20	22.0	4.10	30.3	5.30	51.2	6.50	70.3
AWG 24	19 x 0.12	2.70	16.1	3.40	21.5	4.40	30.9	5.30	51.2
AWG 26	19 x 0.10	2.30	13.0	2.80	15.4	3.70	23.3	4.40	30.9

CGP SAS
62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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ELECTROAIR®

MIL-STD-1553 W WJC

- 1 • Silver plated copper alloy core
- 2 • Fluorinated polymer
- 3 • Two fillers
- 4 • Polyimide tape
- 5 • Silver plated copper double braid
- 6 • Fluorinated polymer

Standards and approvals

Performances:

- IEC 60332-1
- C2 NF C 32-070
- FAR 25

Colour code

- Grey jacket and Blue / White cores
- For any other request: please contact us

Marking

- "CGP Ref. 11246 Manufacturing Year"
- Red ink: cables for main network (Model EN 3375-004 A 01)
 - Blue ink: cables for secondary networks (Model EN 3375-004 A 02)

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-65°C to +200°C**

• Electrical

Operating voltage: < 250 V RMS

Impedance: 77 Ω

• Mechanical

Resistance to abrasion: ★★★★★
EN 3475

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

Resistance to aircraft fluids: ★★★★★

EN 3475

• Fire-smoke

Flame retardant

IEC 60332-1 / C2 NF C 32-070 / FAR 25

• Electromagnetic protection

Excellent covering (shielding) ≥ 92%

DATA TRANSMISSION CHARACTERISTICS

Impedance		Maximum transfer impedance	
77 Ω			
Tolerance		Direct current	15 Ω / km
+/- 7 Ω		at 1 MHz	5 Ω / km
Min. insulation resistance	> 1,500 MΩ.km	at 10 MHz	5 Ω / km
Capacitance	65 pF / m	at 30 MHz	10 Ω / km
Typical attenuation at 1 MHz	2.70 dB / 100m		
Velocity of propagation	66 to 90%		
Operating voltage	< 250 V		

CONSTRUCTION

AWG	Stranding (n x mm)	Cable outer diameter (mm) Nominal	Approx. linear weight (kg / km)
AWG 24	19 x 0.12	3.65	37.0

CGP SAS
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HIGH TEMPERATURE COAXIAL CABLES

Defence communication systems

COAXTHERM®

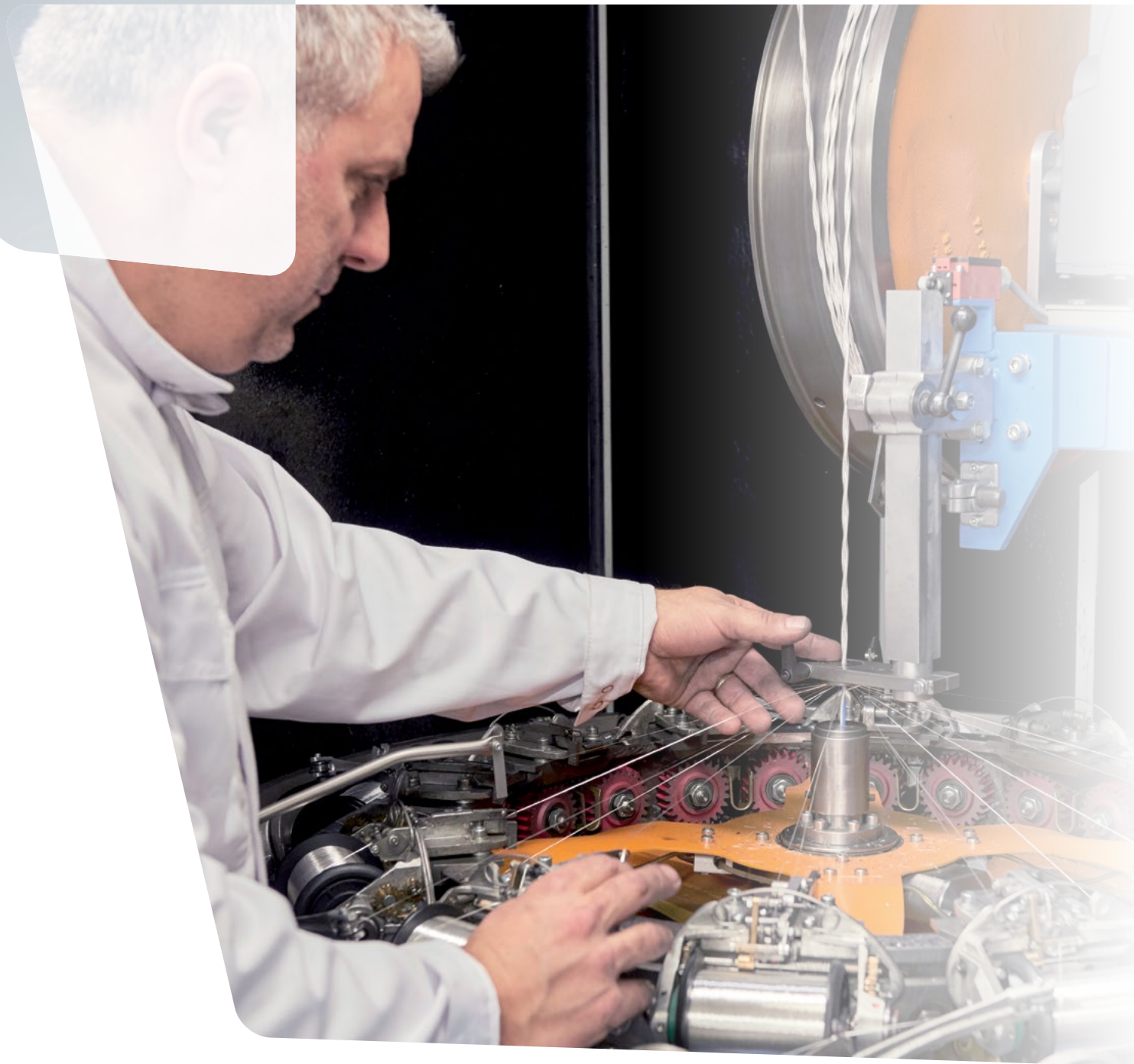
PRODUCT REFERENCE

PAGE

HIGH TEMPERATURE COAXIAL CABLES

89

W5BA5 – 50	90	RG 393 U	104
RG 178 BU	91	RG 225 U	105
RG 178 BU / PFA	92	KX 24A	106
KX 21A	93	WABA5 – 75	107
KX 22A	94	RG 179 BU	108
RG 316 U	95	RG 179 BU / PFA	109
RG 316 U / PFA	96	RG 59 MINI HT 200C	110
RG 303 U	97	KX 25	111
RG 142 BU	98	KX 6A HT 180C	112
RG 400 U	99	RG 302 U	113
KX 23	100	RG 144 U	114
RG 304 U	101	KX 8 HT 180C	115
RG 115 U	102	RG 180 BU	116
RG 165 U	103	RG 180 BU / PFA	117



HIGH TEMPERATURE COAXIAL CABLES

	Impedance (Ω)	Min. Temperature (°C)	Max. Temperature (°C)	MIL-DTL-17 Standard	NF C 93-550 Standard	Inner conductor	Core nominal diameter (mm)	Dielectric nominal diameter (mm)	Outer conductor	Outer sheath	Cable nominal diameter (mm)
REFERENCE											
W5BA5 - 50	50	-90	+260	-	-	CCSAg	0.17	0.52	CuAg	PFA	1.30
RG 178 BU	50	-55	+200	M17/93-RG178	-	CCSAg	0.30	0.84	CuAg	FEP	1.80
RG 178 BU / PFA	50	-55	+230	M17/93-00001	-	CCSAg	0.30	0.84	CuAg	PFA	1.80
KX 21A	50	-55	+200	-	KX21A	CCSAg	0.30	0.87	CuAg	FEP	1.80
KX 22A	50	-55	+200	-	KX22A	CCSAg	0.51	1.50	CuAg	FEP	2.50
RG 316 U	50	-55	+200	M17/113-RG316	-	CCSAg	0.51	1.52	CuAg	FEP	2.49
RG 316 U / PFA	50	-55	+200	M17/138-00001	-	CCSAg	0.51	1.52	CuAg	PFA	2.49
RG 303 U	50	-55	+200	M17/111-RG303	-	CCSAg	0.94	2.95	CuAg	FEP	4.32
RG 142 BU	50	-55	+200	M17/60-RG142	-	CCSAg	0.94	2.95	CuAg	FEP	4.95
RG 400 U	50	-55	+200	M17/128-RG400	-	CuAg	0.98	2.95	CuAg	FEP	4.95
KX 23	50	-55	+200	-	KX23	CuAg	1.02	2.95	CuAg	PTFE + FV	5.10
RG 304 U	50	-55	+200	M17/112-RG304	-	CCSAg	1.50	4.70	CuAg	FEP	7.10
RG 115 U	50	-55	+200	M17/92-RG115	-	CuAg	2.13	6.48	CuAg	PTFE + FV	10.50
RG 165 U	50	-55	+250	M17/065-RG165	-	CuAg	2.39	7.24	CuAg	PTFE + FV	10.40
RG 393 U	50	-55	+200	M17/127-RG393	-	CuAg	2.39	7.24	CuAg	FEP	9.90
RG 225 U	50	-55	+200	M17/86-00001	-	CuAg	2.39	7.24	CuAg	PTFE + FV	10.90
KX 24	50	-55	+200	-	KX24	CuAg	2.39	7.25	CuAg	PTFE + FV	10.80
W5BA5 - 75	75	-90	+260	-	-	CCSAg	0.10	0.57	CuAg	PFA	1.40
RG 179 BU	75	-55	+200	M17/94-RG179	-	CCSAg	0.30	1.60	CuAg	FEP	2.54
RG 179 BU / PFA	75	-55	+230	M17/136-00001	-	CCSAg	0.30	1.60	CuAg	PFA	2.54
RG 59 MINI HT 200C	75	-90	+200	-	-	CuA1	0.30	1.70	CuAg	PFA	2.70
KX 25	75	-55	+200	-	KX25	CCSAg	0.71	3.70	CuAg	PTFE + FV	5.90
KX 6A HT 180C	75	-60	+180	-	-	CuA1	0.60	3.70	CuA1	Silicone	6.10
RG 302 U	75	-55	+200	M17/110-RG302	-	CCSAg	0.64	3.71	CuAg	FEP	5.13
RG 144 U	75	-55	+200	M17/62-RG144	-	CCSAg	1.33	7.24	CuAg	PTFE + FV	10.40
KX 8 HT 180C	75	-60	+180	-	-	CuA1	1.20	7.25	CuA1	Silicone	10.30
RG 180 BU	95	-55	+200	M17/95-RG180	-	CCSAg	0.30	2.59	CuAg	FEP	3.58
RG 180 BU / PFA	95	-55	+230	M17/137-00001	-	CCSAg	0.30	2.59	CuAg	PFA	3.58

CCSAg: Silver-plated copper clad-steel

CuAg: Silver-plated copper

CuA1: Red copper

CuSn: Tinned copper

FV: Fibreglass

COAXTHERM®

W5BA5 - 50
50 Ohms

- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA



Characteristics

• Thermal

Continuous operating temperature: **-90°C to +260°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

Colour code

- White jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 0.17	0.17	0.52	0.92	1.30	4.3

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	250 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
10	19
100	60
400	120
1,000	200
2,000	280
3,000	340

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COAXTHERM®

RG 178 BU
50 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/93

Marking

"COAXTHERM RG 178 BU – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Option

Max operating temperature until +230°C
Reference: COAXTHERM® RG 178 BU
/ PFA

Applications

Data transmission in high temperature
environment for aerospace and defence
industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	0.90	1.37	1.80	9.3

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	750 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	38.1
100	52.5
400	108.3
1,000	170.6
3,000	308.4

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COAXTHERM®

RG 178 BU / PFA
50 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/93

Marking

"COAXTHERM RG 178 BU / PFA –
50 Ohms – < batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +230°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	0.90	1.37	1.80	9.3

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	750 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	38.1
100	52.5
400	108.3
1,000	170.6
3,000	308.4

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COAXTHERM®

KX 21A
50 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- UTE C 93-550
- NF C 93-550

Marking

"COAXTHERM KX 21A – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	0.90	1.37	1.80	8.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	600 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	80

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COAXTHERM®

KX 22A
50 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- UTE C 93-550
- NF C 93-550

Marking

"COAXTHERM KX 22A – 50 Ohms – <
batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.17	0.51	1.50	2.05	2.50	15.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	1,300 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	50

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COAXTHERM®

RG 316 U
50 Ohms



- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/113

Marking

"COAXTHERM RG 316 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Options

Max operating temperature until +230°C

Reference: COAXTHERM® RRG 316 U
/ PFA

Applications

Data transmission in high temperature
environment for aerospace and defence
industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.17	0.51	1.52	2.06	2.49	18.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	900 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	24.6
100	36.1
400	68.9
1,000	124.7
3,000	190.3

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COAXTHERM®

RG 316 U / PFA
50 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/138

Marking

"COAXTHERM RG 316 U / PFA – 50
Ohms – < batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +230°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.17	0.51	1.52	2.06	2.49	18.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	900 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	24.6
100	36.1
400	68.9
1,000	124.7
3,000	190.3

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COAXTHERM®

RG 303 U
50 Ohms

- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/111

Marking

"COAXTHERM RG 303 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 0.94	0.94	2.95	3.71	4.32	46.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	1,400 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	8.9
400	28.2
1,000	49.2
3,000	91.9

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COAXTHERM®

RG 142 BU
50 Ohms



- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/60

Marking

"COAXTHERM RG 142 BU – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 0.94	0.94	2.95	4.34	4.95	64.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	12.4 GHz
Velocity of propagation	69.5%
Operating voltage	1,400 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	9.8
100	14.4
400	30.5
1,000	50.2
3,000	96.1

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COAXTHERM®

RG 400 U
50 Ohms



- 1 • Silver-plated copper flexible core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/128

Marking

"COAXTHERM RG 400 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
19 x 0.20	0.98	2.95	4.34	4.95	74.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	12.4 GHz
Velocity of propagation	69.5%
Operating voltage	1,400 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	10.5
100	14.8
400	34.4
1,000	55.8
3,000	124.7

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COAXTHERM®

KX 23
50 Ohms



- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- UTE C 93-550
- NF C 93-550

Marking

"COAXTHERM KX 23 – 50 Ohms –
< batch number >"

Colour code

- Natural jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★☆☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.34	1.02	2.95	4.34	5.10	63.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	2,500 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	23

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COAXTHERM®

RG 304 U
50 Ohms



- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/112

Marking

"COAXTHERM RG 304 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 1.50	1.50	4.70	6.35	7.11	140.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	12.4 GHz
Velocity of propagation	69.5%
Operating voltage	2,200 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	5.9
100	8.9
400	21.0
1,000	36.4
3,000	72.2

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42400 Saint-Chamond
FRANCE
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COAXTHERM®

RG 115 U
50 Ohms



- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Dielectric in PTFE tapes
- 3 • Silver plated copper double braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass triple braid

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/92

Marking

"COAXTHERM RG 115 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★☆☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.71	2.13	6.48	8.25	10.50	275.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	12.4 GHz
Velocity of propagation	69.5%
Operating voltage	3,700 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	5.2
100	8.2
1,000	32.2
3,000	75.5

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COAXTHERM®

RG 165 U
50 Ohms

- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/65

Marking

"COAXTHERM RG 165 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +250°C**

• Chemical

Resistance to chemical environments: ★★☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.80	2.40	7.24	8.64	10.40	211.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	3,700 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	16.4

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COAXTHERM®

RG 393 U
50 Ohms

- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/127

Marking

"COAXTHERM RG 393 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.80	2.39	7.24	9.14	9.90	260.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	11 GHz
Velocity of propagation	69.5%
Operating voltage	1,875 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
50	5.6
400	16.4
3,000	59.1

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COAXTHERM®

RG 225 U
50 Ohms

- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/86

Marking

"COAXTHERM RG 225 U – 50 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

- Thermal

Continuous operating temperature: **-55°C to +200°C**

- Chemical

Resistance to chemical environments: ★★☆☆

- Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.80	2.40	7.24	9.14	10.90	290.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Velocity of propagation	69.5%
Operating voltage	3,700 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	16.4

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COAXTHERM®

KX 24
50 Ohms



- 1 • Silver-plated copper stranded core (CuAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper double braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- UTE C 93-550
- NF C 93-550

Marking

"COAXTHERM KX 24 – 50 Ohms –
< batch number >"

Colour code

- Natural jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.80	2.40	7.25	9.14	10.80	280.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	50 Ω
Capacitance max	105 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	4,000 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	11

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COAXTHERM®

W5BA5 - 75
75 Ohms

- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA



Characteristics

- **Thermal**
Continuous operating temperature: **-90°C to +260°C**
- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
- **Fire-smoke**
Flame retardant

Colour code

- White jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 0.10	0.10	0.57	0.97	1.40	4.8

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	72.2 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	250 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
10	19
100	60
400	120
1,000	190
2,000	270
3,000	330

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COAXTHERM®

RG 179 BU
75 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/94

Marking

"COAXTHERM RG 179 BU – 75 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Options

Max operating temperature until +230°C

Reference: COAXTHERM® RG 179 BU
/ PFA

Applications

Data transmission in high temperature
environment for aerospace and defence
industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	1.60	2.13	2.54	16.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	75.5 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	900 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	68.9

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COAXTHERM®

RG 179 BU / PFA
75 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/136

Marking

"COAXTHERM RG 179 BU / PFA –
75 Ohms – < batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +230°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	1.60	2.13	2.54	18.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	72.2 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	900 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	68.9

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COAXTHERM®

RG 59 MINI HT 200C
75 Ohms

- 1 • Plain copper stranded core (CuA1)
- 2 • Fluoropolymer dielectric
- 3 • Tinned copper braid
- 4 • Fluorinated polymer PFA



Characteristics

- **Thermal**
Continuous operating temperature: **-90°C to +200°C**
- **Chemical**
Resistance to chemical environments: ★★★★★
Resistance to humidity: ★★★★★
- **Fire-smoke**
Flame retardant

Marking

"COAXTHERM RG 59 MINI HT 200C –
75 Ohms – < batch number >"

Colour code

- Black jacket

For any other request: please contact us

Applications

Data transmission in high temperature
environment for aerospace and defence
industries

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	1.70	2.10	2.70	16.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	72.2 pF / m
Use frequency max	1 GHz
Velocity of propagation	69.5%

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	31

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COAXTHERM®

KX 25
75 Ohms



- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- UTE C 93-550 / NF C 93-550

Marking

"COAXTHERM KX 25 – 75 Ohms –
< batch number >"

Colour code

- Natural jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.235	0.71	3.70	4.47	5.90	71.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	68.5 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	3,000 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	20

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COAXTHERM®

KX 6A HT 180C
75 Ohms

- 1 • Plain copper stranded core (CuA1)
- 2 • Fluoropolymer dielectric
- 3 • Plain copper braid
- 4 • Silicone rubber



Characteristics

• Thermal

Continuous operating temperature: **-60°C to +180°C**

• Chemical

Resistance to chemical environments: ★★☆☆

Resistance to humidity: ★★☆☆

• Fire-smoke

Flame retardant

Marking

"COAXTHERM KX 6A HT 180 C –
75 Ohms – < batch number >"

Colour code

- Green jacket

For any other request: please contact us

Applications

Data transmission in high temperature
environment for aerospace and defence
industries

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.20	0.60	3.70	4.85	6.10	67.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	70 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	20

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COAXTHERM®

RG 302 U
75 Ohms



- 1 • Silver-plated copper clad-steel rigid core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/110

Marking

"COAXTHERM RG 302 U – 75 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
1 x 0.64	0.64	3.71	4.47	5.13	60.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	72.2 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	1,700 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	26.2
3,000	85.3

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COAXTHERM®

RG 144 U
75 Ohms



- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • PTFE double tape
- 5 • Silicone-coated fibreglass double braid

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/62

Marking

"COAXTHERM RG 144 U – 75 Ohms –
< batch number >"

Colour code

- Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries

Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★☆☆☆

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.44	1.33	7.24	8.38	10.40	208.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	72.2 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	3,700 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	14.8
3,000	59.1

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62 route du Coin
42400 Saint-Chamond
FRANCE
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COAXTHERM®

KX 8 HT 180C
75 Ohms

- 1 • Plain copper stranded core (CuA1)
- 2 • Fluoropolymer dielectric
- 3 • Plain copper braid
- 4 • Silicone rubber



Characteristics

• Thermal

Continuous operating temperature: **-60°C to +180°C**

• Chemical

Resistance to chemical environments: ★★☆☆

Resistance to humidity: ★★☆☆

• Fire-smoke

Flame retardant

Marking

"COAXTHERM KX 8 HT 180C –
75 Ohms – < batch number >"

Colour code

- Green jacket

For any other request: please contact us

Applications

Data transmission in high temperature
environment for aerospace and defence
industries

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.40	1.20	7.25	8.64	10.30	185.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	75 Ω
Capacitance max	70 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
200	12

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COAXTHERM®

RG 180 BU
95 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer FEP

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/95

Marking

"COAXTHERM RG 180 BU – 95 Ohms –
< batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Options

Max operating temperature until +230°C

Reference: COAXTHERM® RG 180 BU
/ PFA

Applications

Data transmission in high temperature
environment for aerospace and defence
industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +200°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	2.59	3.15	3.58	30.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	95 Ω
Capacitance max	57.1 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	1,100 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	55.8

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COAXTHERM®

RG 180 BU / PFA
95 Ohms

- 1 • Silver-plated copper clad-steel stranded core (CCSAg)
- 2 • Fluoropolymer dielectric
- 3 • Silver plated copper braid
- 4 • Fluorinated polymer PFA

Standards and approvals

Construction:

- MIL-DTL-17: MIL-C-17/95

Marking

"COAXTHERM RG 180 BU / PFA –
95 Ohms – < batch number >"

Colour code

- Light Brown jacket

For any other request: please contact us

Applications

Data transmission in high temperature environment for aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +230°C**

• Chemical

Resistance to chemical environments: ★★★★★

Resistance to humidity: ★★★★★

• Fire-smoke

Flame retardant

CONSTRUCTION

INNER CONDUCTOR (1)		DIELECTRIC (2)	OUTER CONDUCTOR (3)	OUTER SHEATH (4)	Approx. linear weight (kg / km)
Stranding (n x mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	Nominal diameter (mm)	
7 x 0.10	0.30	2.59	3.15	3.58	30.0

DATA TRANSMISSION CHARACTERISTICS

Impedance	95 Ω
Capacitance max	57.1 pF / m
Use frequency max	3 GHz
Velocity of propagation	69.5%
Operating voltage	1,100 V

SIGNAL ATTENUATION

Frequency (MHz)	Nominal attenuation (dB / 100 m)
400	55.8

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MINIATURE CERAMIC INSULATED WIRES FOR VERY HIGH TEMPERATURES

*Space thrusters
High temperature area*

PRODUCT REFERENCE

PAGE

CERAFIL®

CN8

121

CABLE SOLUTIONS
FOR HIGH VALUE-ADDED
APPLICATIONS IN AGGRESSIVE
ENVIRONMENTS



CERAFIL® CN8

- 1 • Copper / Nickel support
- 2 • Ceramic insulation

Standards and approvals

CGP INNOVATION

CERAFIL®, a ceramic-insulated wire for very high temperatures is the result of several years of research in our laboratory. Our team of engineers has developed ground-breaking technology that deposits ceramic on a lead wire of very small diameter (from 0.07 mm).

These outstanding advantages - **miniature size, weighing far less and resistance to extreme temperatures** - mean that **CERAFIL®** is nowadays used in many highly technical applications and research projects in areas like the aerospace and nuclear industries.

Characteristics

• Thermal

Continuous operating temperature: **-90°C to +500°C**
+800°C during 240 h minimum

Peak temperature +1,000°C

*At temperature > 315°C after extended use, **CERAFIL®** can experience migration of the nickel that may cause its max. resistivity to increase*

• Chemical

Resistance to chemical environments: ★★★★★

(Inert to usual and organic solvents)

Resistance to humidity: ★☆☆☆☆

(Product sensitive to moisture - hydrophilic)

• Electrical

Test voltage (1 min): 150 AC / 212 V DC

• Radiation Resistance ★★★★★

Withstands prolonged exposure to neutrons and gamma rays without altering the mechanical resistance of the insulation

• Fire resistance

Totally non-combustible at temperatures over 1,000°C, **CERAFIL®** may melt but cannot catch fire

CONSTRUCTION AND MAIN PROPERTIES

Core diameter (mm)	AWG	Nominal outer diameter (mm)	Tolerance (mm)	Linear weight (g / km)	Length (m / kg)	Maximum tensile strength (N)	Minimum bending radius (mm)	Maximum linear resistance at 20°C (Ω / m)
07/100	41	0.088	+/- 0.002	34	29,800	0.23	0.45	7.795
10/100	38	0.115	+/- 0.005	71	14,000	0.47	0.6	3.818
12/100	36	0.138	+/- 0.002	101	9,901	0.67	0.7	2.652
15/100	34	0.168	+/- 0.002	161	6,210	1.06	0.85	1.697
17/100	34	0.188	+/- 0.002	202	4,950	1.36	0.93	1.322
20/100	32	0.218	+/- 0.002	286	3,500	1.88	1.1	0.954
25/100	30	0.268	+/- 0.002	446	2,240	2.95	1.35	0.611
30/100	28	0.318	+/- 0.002	637	1,570	4.24	1.6	0.424
35/100	27	0.368	+/- 0.002	862	1,160	5.77	1.85	0.312
40/100	26	0.418	+/- 0.002	1,136	880	7.54	2.1	0.239
45/100	25	0.468	+/- 0.002	1,433	698	9.55	2.35	0.189
50/100	24	0.518	+/- 0.002	1,754	570	11.78	2.6	0.153
55/100	23	0.568	+/- 0.002	2,105	475	14.25	2.85	0.126
60/100	22	0.618	+/- 0.002	2,500	400	16.96	3.1	0.106
65/100	22	0.668	+/- 0.002	2,899	345	19.91	3.35	0.090
70/100	21	0.718	+/- 0.002	3,356	298	23.09	3.6	0.078
80/100	20	0.818	+/- 0.002	4,348	230	30.16	4.1	0.059
90/100	19	0.918	+/- 0.002	5,814	172	38.17	4.6	0.047
100/100	18	1.018	+/- 0.002	7,194	139	47.12	5.1	0.038

Colour code

Grey

Applications

This very high temperature miniature wire has been designed to constitute extremely reliable windings capable of withstanding anythermal overloads (mechanical heating, short-circuit, location with thermal risk, etc.)

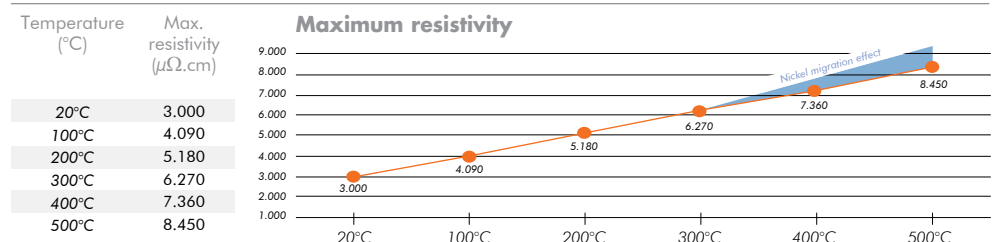
We can also produce on request thermocouple cables with **CERAFIL®** type ceramic insulation to measure the temperature in contained environments subject to extreme heat (range: **COUPLIX®**)

A FEW PRECAUTIONS WHEN USING

Ceramic is very different from traditional insulations. It is a rigid, hydrophilic material that requires special care when using.

CERAFIL® must be stored in a dry environment and handled with care, without mechanical mistreatment (folding, traction, etc.). It must be stripped using fine grain sandpaper. Do not hesitate to contact us for further information.

CHANGES IN THE ELECTRICAL PROPERTIES OF CERAFIL® BASED ON THE TEMPERATURE



CGP SAS

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**

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MINIATURE & HIGH TEMPERATURE THERMOCOUPLE & EXTENSION CABLES

High temperature area

PRODUCT REFERENCE	PAGE
COUPLIX®	
<i>K/KX-M-8 & E/EX-M-8 (other couples on request)</i>	124
<i>KX-M-EE</i>	125

COUPLIX®

**K/KX-M-8
E/EX-M-8**
(other couple on request)



- 1 • Couple K: Nickel – chrome / Nickel – alloy
Couple E: Nickel – chrome / Copper Nickel E
(other on request)
2 • Ceramic insulation (Grey)

Standards and approvals

CGP INNOVATION
COUPLIX® made with two
ceramic-insulated wires **CERAFIL®**
for very high temperatures.

These outstanding advantages - **miniature
size, weighing far less and resistance
to extreme temperatures** - mean that
CERAFIL® is nowadays used in many
highly technical applications and research
projects in areas like the aerospace,
space and nuclear industries.

Colour code
Grey

Applications

Thermocouple cables with **CERAFIL®**
insulation to measure the temperature
in contained environments subject
to extreme heat

A FEW PRECAUTIONS WHEN USING

Ceramic is very different from traditional
insulations. It is a rigid, hydrophilic material that
requires special care when using.
CERAFIL® must be stored in a dry environment
and handled with care, without mechanical
mistreatment (folding, traction, etc.). It must be
stripped using fine grain sandpaper.
Do not hesitate to contact us for further
information.

Characteristics

- **Thermal**
Continuous operating temperature: **-90°C to +500°C**
+800°C during 240 h minimum
Peak temperature +1,000°C
At temperature > 315°C after extended use, **CERAFIL®**
can experience migration of the nickel that may cause
its max. resistivity to increase
- **Chemical**
Resistance to chemical environments: ★★★★★
(Inert to usual and organic solvents)
Resistance to humidity: ★☆☆☆☆
(Product sensitive to moisture - hydrophilic)

- **Electrical**
Test voltage (1 min): 150 AC / 212 V DC
- **Radiation Resistance ★★★★★**
Withstands prolonged exposure to neutrons
and gamma rays without altering the mechanical
resistance of the insulation
- **Fire resistance**
Totally non-combustible at temperatures over 1,000°C,
CERAFIL® may melt but cannot catch fire

CONSTRUCTION

Couple	Core diameter (mm)	AWG	Nominal diameter (mm)	Linear weigh in (g / km)	Length in (m / kg)
K	2 x 20/100	2 x AWG 32	0.44	286	3,500
K	2 x 30/100	2 x AWG 28	0.68	637	1,570
K	2 x 50/100	2 x AWG 24	1.04	1,754	570
E	2 x 20/100	2 x AWG 32	0.44	286	3,500
E	2 x 30/100	2 x AWG 28	0.68	637	1,570

F.E.M – Couple K

Temperature	F.E.M	Tolerance	
		Class 1 (KX1)	Class 2 (KX2)
0°C	0 µV	± 60 µV	± 100 µV
100°C	4,095 µV	± 60 µV	± 100 µV
200°C	8,137 µV	± 60 µV	± 100 µV
400°C	16,395 µV	± 60 µV	± 100 µV

F.E.M – Couple E

Temperature	F.E.M	Tolerance	
		Class 1 (EX1)	Class 2 (EX2)
0°C	0 µV	± 120 µV	± 200 µV
100°C	6,319 µV	± 120 µV	± 200 µV
200°C	13,421 µV	± 120 µV	± 200 µV
400°C	28,946 µV	± 120 µV	± 200 µV

- Please contact us for other couple

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62 route du Coin
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FRANCE
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COUPLIX®

KX-M-EE

- 1 • Couple KX: Nickel-chromium / Nickel-aluminium
- 2 • Polyimide tape
- 3 • PTFE tape
- 4 • Nickel plated copper spiral shield
- 5 • Polyimide tape
- 6 • PTFE tape (Light Yellow)

Standards and approvals

- Construction:**
- Inspired of EN 2714
- Performances:**
- EN 3475 / FAR 25
- Thermocouple:**
- EN 60584-3 / ISO 8056-1

Marking (UV laser printable)

- 1 • On customer specification
- 2 • Inspired of EN 2084: "Product Reference Gauge Country CGP NATO Code Manufacturing Year"

Cores identification

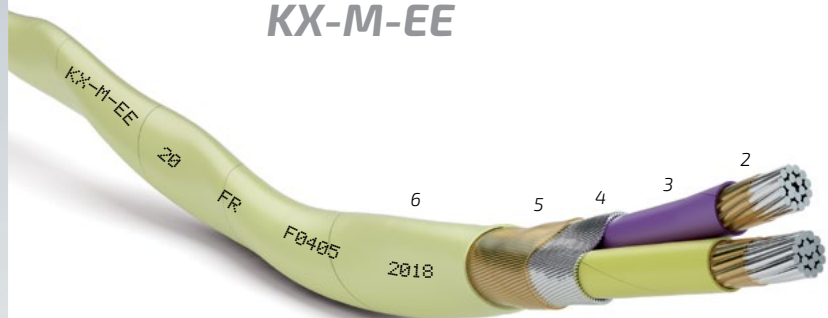
Two cores: Yellow – Purple
For any other request: please contact us

Option

Other cross-sections or constructions
on request

Applications

Measure of temperature
by thermoelectric effect
Extension cables serve to connect the open
ends of the two wires of a thermocouple at
the reference junction in equipment where
the thermocouple is not directly connected
to the reference junction



Characteristics

- Thermal**
Continuous operating temperature: **-55°C to +260°C**
- FEM - Thermocouple**
4.10 mV ± 0.06 mV at 100°C
EN 60584-3
- FEM – Nickel-chromium/Platine wire**
2.813 mV ± 0.06 mV at 100°C
- FEM – Nickel-aluminium/Platine wire**
-1.282 mV ± 0.06 mV at 100°C
ISO 8056-1
- Electrical**
Test voltage (1 min): 600 V RMS

- Mechanical**
Cut-through resistance: ★★★★★☆
Resistance to abrasion: ★★★★★☆ □□□□
EN 3475
- Chemical**
Resistance to chemical environments: ★★★★★★
Resistance to humidity: ★★★★★★
Resistance to aircraft fluids: ★★★★★★
EN 3475
- Fire-smoke**
Flame retardant & Low smoke
EN 3475 / FAR 25
- Arc tracking resistance**
EN 3475

CONSTRUCTION

AWG	Stranding (n / mm)	Cross section (mm²)	Cable outer diameter maxi (mm)	Maximum linear weight (kg / km)
2 x AWG 20	19 x 0.20	0.60	3.62	24.1

Maximum linear resistance at 20°C
(Ω / km)

Yellow core ≤ 1,276

Purple core ≤ 550

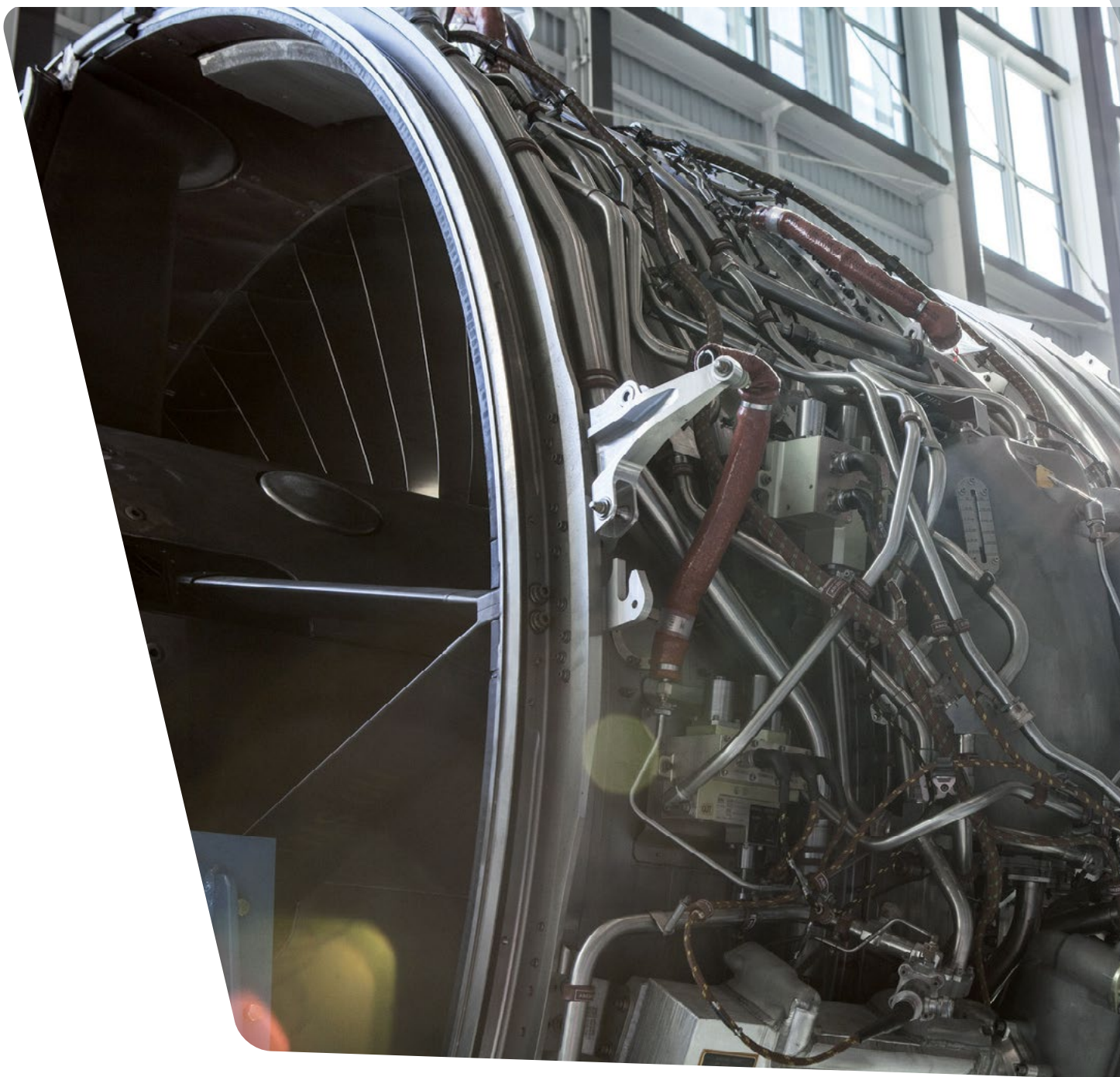
Shield ≤ 100

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62 route du Coin
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HIGH PERFORMANCE METALLIC BRAIDS

*Harness protection
High temperature area*

PRODUCT REFERENCE

PAGE

METALTRESSE® | GTCA150, GTCA200, GTCN127 129

CABLE SOLUTIONS
FOR HIGH VALUE-ADDED
APPLICATIONS IN AGGRESSIVE
ENVIRONMENTS

HIGH PERFORMANCE METALLIC BRAIDS



METALTRESSE®

**GTCA150
GTCA200
GTCN127**



Supplied on an internal former to aid installation and maintain the shape and form of braid in transit and prior to installation

Characteristics

• Thermal

Continuous operating temperature:

GTCA: -60°C to +200°C

GTCN: -60°C to +250°C

• Electrical

Protection from electromagnetic interference (EMI):

★★★★★

Minimum of 96% Optical Coverage

Applications

High value applications in aerospace and defence industries. **METALTRESSE®** ensures excellent electrical and thermal protection of the cable harnesses for optimal signal transmission.

This product is recommended for wiring systems requiring **very high levels of protection from EMI**

VERSIONS

Model	Type of strand	Minimum optical coverage	Minimum guaranteed thickness (μm)
GTCA150	Silver-plated copper	96%	1.50
GTCA200	Silver-plated copper	96%	2.00
GTCN127	Nickel-plated copper	96%	1.27

GTCA** - CONSTRUCTION

Internal diameter (mm)	Number of wires (minimum)	Strand Size (mm)	Approx. linear weight* (kg / km)	Maximum linear resistance at 20°C (Ω / km)
2	80	13 / 100	11.0	19.0
4	128	15 / 100	23.0	9.3
6	168	15 / 100	34.0	7.9
8	168	20 / 100	60.0	4.3
10	216	20 / 100	73.0	3.2
12	256	20 / 100	88.0	2.7
14	256	20 / 100	102.0	3.2
15	336	20 / 100	109.0	2.0
16	336	20 / 100	116.0	2.1
18	336	20 / 100	130.0	1.8
20	448	20 / 100	145.0	1.6

GTCN** - CONSTRUCTION

Internal diameter (mm)	Number of wires (minimum)	Strand Size (mm)	Approx. linear weight (kg / km)	Maximum linear resistance at 20°C (Ω / km)
2	80	13 / 100	11.0	26.0
4	128	15 / 100	23.0	19.0
6	168	15 / 100	34.0	12.0
8	168	20 / 100	60.0	10.0
10	216	20 / 100	73.0	7.6
12	256	20 / 100	88.0	6.5
14	256	20 / 100	102.0	5.6
15	336	20 / 100	109.0	4.6
16	336	20 / 100	116.0	4.0
18	336	20 / 100	130.0	3.5
20	448	20 / 100	145.0	2.4

*Approximate linear weight excluding internal thermoplastic former

**GTCA200 diameter 2mm : wire diameter is 15/100 mm and linear weight is 13.5 kg/km

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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HIGH TEMPERATURE & FIREPROOF SLEEVES

*Harness protection
High temperature area*

PRODUCT REFERENCE

PAGE

SILIGAINÉ®
SILITUBE®

33NH0
X

132

133

SILIGAINÉ®

33NH0

- 1 • Meta-aramid fibre braided yarns
- 2 • Water and oil repellent treatment

Standards and approvals

- Construction:**
- EN 6049-003

Colour code

- Ivory White (natural)

Other characteristics

- Expandable sleeving for easy threading and wide use range
- Frays slightly when cut

Applications

The flexible, expandable and non-flammable properties ensure excellent performance in the most diverse and aggressive environments (abrasion, fire, high temperatures, miscellaneous projections, etc.). This products should be considered for protection of wiring harnesses especially in aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-55°C to +240°C**
Excellent resistance to thermal shock

• Chemical

Hydrocarbons resistance: ★★★★★☆
Oil resistance: ★★★★★☆
Chemical agents: ★★★★★☆
Biological agents: ★★★★★☆

• Mechanical

Flexibility: ★★★★★☆
Mechanical strength: ★★★★★☆
Resistance to abrasion: ★★★★★☆

• Fire-smoke

Unmeltable under high temperature
Self-extinguishing

• Radiation Resistance

Gamma rays & X-rays resistance: ★★★★★

INTERNAL DIAMETER**

Nominal value	Internal diameter mini (mm)	Internal diameter maxi (mm)	Approx. linear weight (kg / km)
2	1	2	2.7
4	2	4	4.0
6	4	8	6.0
8	6	12	10.0
10	8	16	11.0
15	10	20	17.0
20	12	24	22.0
25	15	30	32.5
30	20	40	38.0

** These sleeves are expandable, the indicated internal diameters correspond to a recommended range of use.

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62 route du Coin
42400 Saint-Chamond
FRANCE
Phone: **+33 (0)4 77 31 02 54**
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SILITUBE®

X

- 1 • Mineral fibre braided yarns
- 2 • Silicone rubber coating

Standards and approvals

Construction:

- Inspired by American aeronautic standards SAE AS1072 (allows appropriate hose assemblies by qualified manufactures to meet SAE Aerospace standard AS1055)

Performances:

- IEC 60695-2-10
- IEC 60695-2-11
- R22-R23 HL1, HL2 and HL3 as per EN 45545-2.

Colour code

Terracotta Red

Other characteristics

Excellent flexibility at low temperature:
GES X does not harden, does not chip off,
does not soften
Slight swelling when hydrocarbons
are present

Applications

Protection and insulation of electric wiring
harnesses, water, gas, compressed air
or hydraulic fluid pipes, against aggression
(presence of flames, projections of melting
metals or glass, very high episodic
temperatures, steam projections, etc.)
in such industries as
aerospace and defence industries



Characteristics

• Thermal

Continuous operating temperature: **-60°C to +180°C**
Peak temperature: **30 min to +800°C**
15 min to +1,100°C
1 min to +1,500°C

• Mechanical

Flexibility: ★★★★★

• Chemical

Asbestos free
Watertight

• Fire-smoke

Fireproofed
Low smoke density and toxicity

• Halogen-free

Yes

CONSTRUCTION

Reference	Internal diameter (mm)	Nominal wall thickness (mm)	Approx. linear weight (kg / km)
SILITUBE X 8	8	4	120
SILITUBE X 10	10	4	140
SILITUBE X 13	13	4	200
SILITUBE X 16	16	4	220
SILITUBE X 19	19	4	240
SILITUBE X 22	22	4	260
SILITUBE X 25	25	4	290
SILITUBE X 32	32	4	380
SILITUBE X 38	38	4	440
SILITUBE X 45	45	4	490
SILITUBE X 51	51	4	540
SILITUBE X 57	57	4	600
SILITUBE X 64	64	4	680
SILITUBE X 76	76	4	880
SILITUBE X 89	89	4	960
SILITUBE X 102	102	4	1,170
SILITUBE X 114	114	4	1,260
SILITUBE X 127	127	4	1,380

The flexibility and extra wall thickness of the SILITUBE® X negates the need to indicate tolerances on the internal diameter.

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VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES

*Bridge system of armoured vehicles
Guard rails for naval ships*

PRODUCT REFERENCE

PAGE

VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES	137
MINOROC®	
P	138
K	139

**CABLE SOLUTIONS
FOR HIGH VALUE-ADDED
APPLICATIONS IN AGGRESSIVE
ENVIRONMENTS**

VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES



VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES

CGP reference	Available diameters (mm)	Core	Outer sheath	Operating temperature (°C)		Breaking Load (daN)	Extension at break (%)	Tensile resistance	Abrasion resistance	Alternate bending resistance	Flame retardant	UV resistance
				Min	Max							
MINOROC® P	3 / 5 / 7 9 / 11 / 13.5	Polyester	Special Thermoplastic	-40	+80	150 to 3,500	9.5% to 12%	✓	✓		✓	✓
MINOROC® K	5 / 7 9 / 11	Aramid	Special Thermoplastic	-40	+80	1060 to 6,000	3.0%	✓	✓	✓	✓	✓

FURTHER INFORMATION ABOUT MECHANICAL BEHAVIOUR COMPARISON BETWEEN MINOROC® P & K

MINOROC® reference	P	K
High tensile resistance	★★★★☆	★★★★★
Low extension	★★★★☆	★★★★★
Abrasion resistance	★★★★★	★★★★★
Alternate bending resistance	★★★★☆	-
Flexibility	★★★★★	★★★★★

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MINOROC®

P

- 1 • Synthetic polyester fibres
- 2 • Special thermoplastic sheath

Standards and approvals

Construction:

- CGP Innovation

Colour code

Black

Applications

Military applications:

Bridge system for special armoured vehicle,
guard rails for naval ships

Other applications:

Guying system for boat masts,
tram electrification, antennas
and anti-helicopter rope system for prisons



Characteristics

• Thermal

Continuous operating temperature: **-40°C to +80°C**

• Electrical

Lightening resistance: 20 kV

• Mechanical

Tensile resistance ★★★★★

Low extension: ★★★★★

Resistance to abrasion: ★★★★★

Alternate bending resistance: ★★★★★

Flexibility: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

• Outdoor Use

UV resistance: ★★★★★

Bad weather resistance: ★★★★★

MINOROC P

Characteristics	Ø 3 mm	Ø 5 mm	Ø 7 mm	Ø 9 mm	Ø 11 mm	Ø 13.5 mm
Breaking load (daN)	150	500	1,000	1,500	2,000	3,500
Extension at break (%)	9.5	9.5	10.0	10.0	12.0	12.0
Approx. linear weight (kg / km)	8	22	42	67	83	108

TERMINATION SYSTEM (Optional)

Bi-cone termination In aluminium

The aluminium bi-cone termination has been designed to make installation on site easier. The system is attached to the **MINOROC®** cables without difficulty, whilst ensuring an extremely solid fit.

We suggest that you download the assembly instructions at www.cables-cgp.com

Our R&D Department can also study and develop special terminations for aggressive environments or particular uses

> Please contact us for further information

(optional system, delivered separately from the cable)



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MINOROC®

K

- 1 • Synthetic aramide fibres
- 2 • Special thermoplastic sheath

Standards and approvals

Construction:

- CGP Innovation

Colour code

Black

Applications

Military applications:

Bridge system for special armoured vehicle,
guard rails for naval ships

Other applications:

Guying system for boat masts,
tram electrification, antennas
and anti-helicopter rope system for prisons



Characteristics

• Thermal

Continuous operating temperature: **-40°C to +80°C**

• Electrical

Lightening resistance: 20 kV

• Mechanical

Tensile resistance ★★★★★

Low extension: ★★★★★

Resistance to abrasion: ★★★★★

Alternate bending resistance: ☆☆☆☆☆

Flexibility: ★★★★★

• Chemical

Resistance to chemical environments: ★★★★★

• Outdoor Use

UV resistance: ★★★★★

Bad weather resistance: ★★★★★

MINOROC K

Characteristics	Ø 5 mm	Ø 7 mm	Ø 9 mm	Ø 11 mm
Breaking load (daN)	1,060	1,500	4,500	6,000
Extension at break (%)	3.0	3.0	3.0	3.0
Approx. linear weight (kg / km)	24	44	71	86

TERMINATION SYSTEM (Optional)

Bi-cone termination In stainless steel

The stainless steel bi-cone termination has been designed to make installation on site easier. The system is attached to the **MINOROC®** cables without difficulty, whilst ensuring an extremely solid fit.

We suggest that you download the assembly instructions at www.cables-cgp.com

Our R&D Department can also study and develop special terminations for aggressive environments or particular uses

> Please contact us for further information

(optional system, delivered separately from the cable)



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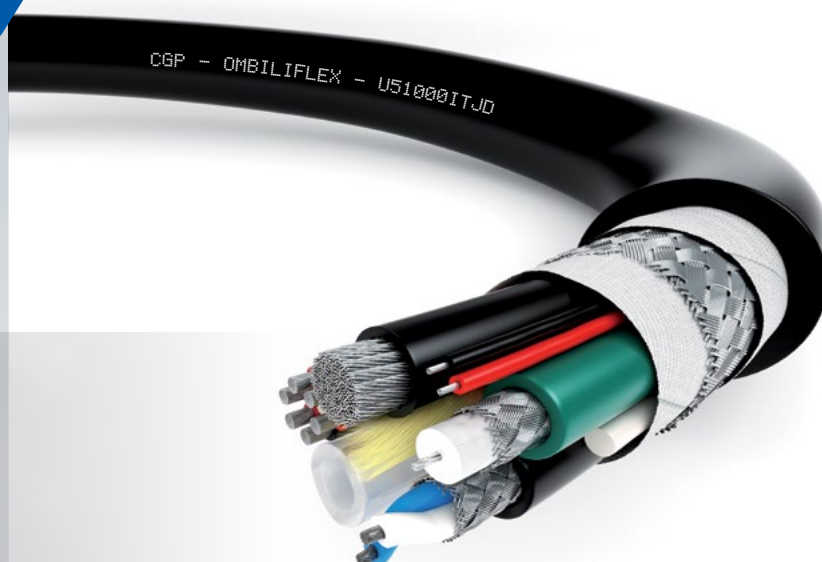
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SPECIAL PRODUCTS ON REQUEST

*Civil & VIP aircrafts
Defence tethered balloons
Defence aircrafts*

PRODUCT REFERENCE	PAGE
OMBILIFLEX®	HIGH PERFORMANCE SPECIAL MULTI-FUNCTION CABLES 142
SILIFLAM®	VERY HIGH SAFETY CABLES FOR EXTREME TEMPERATURES 143
SPIRFLEX®	HIGH PERFORMANCE SPIRAL CABLES 144
POWER CONNECT®	HIGH PERFORMANCE POWER CORDS 145

OMBILIFLEX®

SIGNAL

**Data bus, Coaxial
Fibre optic, Thermocouple**
Impedance 50 Ω to 150 Ω
Single-mode/multi-mode fibres
Thermocouple Couple T, J, E, K, N

ELECTROMAGNETIC SCREEN

Low and high frequencies

TRACTION

By cord or braid
Tensile strength 10 daN to 6,000 daN

ENERGY

Power, Control, Command
Very Low Voltage to 1,000 V

FLUID

Pneumatic or Hydraulic
Low and high pressure tube, non-toxic tube,
high temperatures, excellent chemical resistance, etc.

BENDING

Use in movements
Power chain, alternate bending,
bending and torsional stresses

High performance characteristics

OMBILIFLEX® cables undergo numerous tests at every production stage to ensure a high level of quality and to meet your requirements

Our laboratory has the means to test and validate the **physical, mechanical, chemical, electrical and fire behaviours** of the cables we produce

Applications

This range of multifunction hybrid cables is intended for cutting-edge sectors like aerospace, military applications, robotics, medical applications, oil exploration, industry, etc.

Customized products CGP INNOVATION

Thanks to our expertise and total mastery of our electrical cable manufacturing processes, the engineers of our R & D department have developed the **OMBILIFLEX®** range. Umbilical cables that can combine up to 6 different functions in one single product: **Energy, Signal, Fluid, Traction, Flexion and Electromagnetic protection**. This range of hybrid and multi-functional cables is designed for high-tech sectors such as aeronautics, military, robotics, medical, oil exploration, industry, etc.

Our Design Office is made up of experienced engineers who are specialists in **metallurgy, plastics manufacture, electromagnetic compatibility, micromechanics, data transmission, etc.** It will provide you with a fast, precise response by developing an **OMBILIFLEX®** formed of power cables, twisted pairs, coaxial cables, tubes, fibre optics, shielding, braid or traction cord, etc. in line with the miscellaneous and complex constraints of your applications.

SAMPLE PRODUCTIONS



OMBILIFLEX® U5-1000ITJD

Aerospace/Machine tools sector

Umbilical cable for industrial drill used to assemble the metal structure of on aircraft. This **OMBILIFLEX®** cable transfers the fluid (pressurised oil), information (running the tooling) and power (supplying the tooling) and ensures good tensile strength and resistance to alternating movements.



OMBILIFLEX® U3-1000OB

Defence/Military sector

Umbilical cable for airborne video surveillance systems. This **OMBILIFLEX®** cable transfers power (camera supply) and information via fibre optics (high speed video/audio) and maintains very high tensile strength (> 4 000 daN).

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SILIFLAM®

THS

- 1 • Nickel plated copper or Nickel cores (see table below for more details)
- 2 • (Optional) PTFE or Polyimide tapes
- 3 • Composite insulation and sheathing: Mica and coated Borosilicoaluminate fibre
- 4 • (Optional) Nickel-plated copper electrical screen braid
- 5 • (Optional) AISI 304 Stainless steel outer shielding

Standards and approvals

Performances:

- IEC 60331-11
- IEC 60331-21
- IEC 60332-1-1
- IEC 60332-1-2
- IEC 60332-3
- ANSI/IEEE 383
- NF C 32-070
- VDE 0472-81
- MIL W 25038
- NBN C 30-004

Colour code

Cores:

- SILIFLAM® THS 1000 and 1200 Series: according to IEC 60445
- SILIFLAM® THS 1400 and 1500 Series: Natural White or according to IEC 60445

Outer sheath:

- SILIFLAM® THS 1000 and 1200 series: Brick Red or Grey
- SILIFLAM® THS 1400 and 1500 series: Natural White

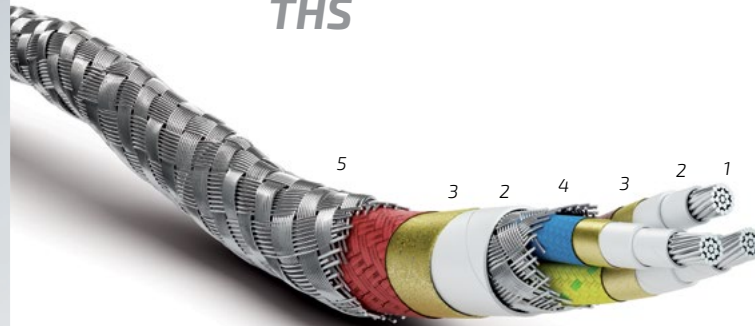
Note: The colour of the conductors is used for the purposes of identification during assembly.

In view of the extreme temperatures liable to be encountered by SILIFLAM® THS, some colours may partially disappear or be modified in the course of normal cable use, as most of the pigments used are not capable of withstanding the temperatures liable to be applied to these products.

Applications

SILIFLAM® THS products can withstand conditions and temperatures that no other standard cable on the market would ever be able to withstand. They are particularly designed to power industrial installations and keep them running under the most severe operating conditions.

They can also be used in zones where the ambient conditions are liable to vary under exceptional or accidental circumstances and attain abnormal levels. In this case, **SILIFLAM® THS** retain their electrical integrity for a period of time, in order to take the necessary measures to shut down the installation or evacuate personnel or appliances.



Characteristics

• Thermal

The values given below are therefore indicative
 SILIFLAM® THS 1000 Series: **+400°C to +800°C**
 SILIFLAM® THS 1200 Series: **+500°C to +1,000°C**
 SILIFLAM® THS 1400 Series: **+700°C to +1,200°C**
 SILIFLAM® THS 1500 Series: **+900°C to +1,400°C**

Due to their specificity, and the nature of the installations powered, it is difficult to state specific and perfectly defined operating temperature ranges for **SILIFLAM® THS**. However, it is possible to state recommended operating limits, essentially representing the temperature range withstood by the insulation without sustaining rapid noteworthy degradation of its dielectric properties, potentially leading to short circuits that can be harmful for the installation.

• Electrical

Operating voltage
 Low voltage (until 600 / 1,000 V)

• Chemical

Asbestos free

They are available as standard versions or variants specially designed by our engineers and technicians for high-risk industrial applications and any installation continually or occasionally subject to very high temperatures.

FURTHER TECHNICAL INFORMATION

Conducting cores	2%, 27% Nickel-plated copper or pure Nickel
Available range – Single core cable	0.22 mm ² to 400 mm ²
Available range – Multi core cable	≥ 0.22 mm ² to 2.5 mm ² : 2 to 37 conductors ≥ 4 to 6 mm ² : 2 to 19 conductors ≥ 10 to 95 mm ² : 2 to 5 conductors
Option: Dielectric reinforced protection	PTFE (THS 1030 and 1230 series) or Polyimide tapes (THS 1050, 1250, 1450 and 1550 series)
Option: Electromagnetic interferences protection	Electrical screen in Nickel plated copper (THS reference – BCN series)
Option: Mechanical protection	Stainless steel armour (THS references – BI series)

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 FRANCE

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SPIRFLEX®



Customized products CGP INNOVATION

The high-performance **SPIRFLEX®** spiral cable range springs from the know-how and technical expertise of our engineers. We design and fabricated **specific cords meeting our customers' specifications and thus offer a fully-customised solution** (dimensions, length, connectors, etc.).

Our Design Office is made up of experienced engineers who are specialists in **metallurgy, plastics manufacture, electromagnetic compatibility, micromechanics, data transmission, etc.** It will provide you with a fast, precise response by developing a **SPIRFLEX®** cord in line with the miscellaneous and complex constraints of your applications.

High performance characteristics

Fire-smoke

Flame and fire retardant version

Mechanical

- High flexibility
- High or low shape memory
- High or low extension coefficient
- Improved mechanical behaviour: according to military standard SEFT 027

Physical

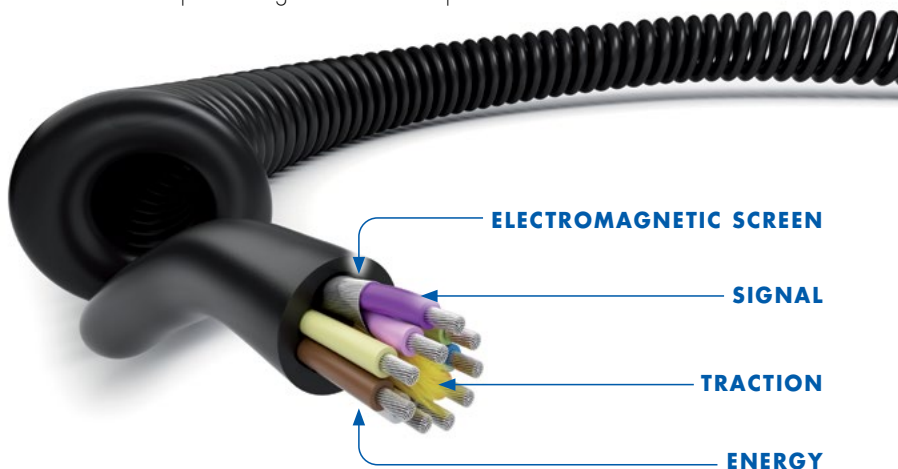
- Miniature spiral cable
- Hybrid elements: Data / Traction / Fluid
- Excellent electromagnetic protection
- Resistance to harsh constraints: heat, chemicals, solvents

Applications

This range of high performance spiral cables is intended for cutting-edge sectors like aerospace, military applications, robotics, medical applications, industry, etc.

SPIRFLEX® HYBRID SOLUTION

CGP develops specific, hybrid and innovative solutions combining several functions in one and the same **SPIRFLEX®** spiral cable: Energy / Signal / Traction / Fluid / Electromagnetic screen. **SPIRFLEX®** Hybrids can thus save considerable time and space during installation and operation.



SPIRFLEX® CONNECTED SOLUTION



CGP designs cords fitted with standard or specific connectors according to your needs and applications. **SPIRFLEX®** spiral cables are assembled with the connectors within our workshops, thereby guaranteeing top quality.

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POWER CONNECT®



Customized products CGP INNOVATION

The **POWER CONNECT®** range springs from the know-how and technical expertise of our engineers. Based on the **SILICOU®**, **VARPREN®** and **PLASTHERM®** power cables, our technical teams make up leads fitted with crimped lugs and delivered at the length specified by our customers.

High performance characteristics

(depends of cable's range used
see the table for further information)

Thermal

Continuous operating temperature:

Until -60°C to +180°C

Good resistance to thermal shock

Electrical

Operating voltage:

Low and Medium voltage

Fire-smoke

Flame and fire retardant version

Mechanical

Resistance to abrasion

Cut-through resistance

UV Resistance

Halogen Free

Applications

High performance solution for high current
or voltage area in aggressive
environments (temperature, mechanical,
chemical)

High performance

Cables are crimped and cut in our workshops to ensure optimum mechanical and electrical resistance in line with our customers' specifications. We thus offer a full, tested (voltage drop, tensile strength, etc.), ready-to-use solution.

Appropriate connectors

Our engineers select the most appropriate power lugs for your application and the use environment of your product.

Shape: Tubular, elbowed, angled, other designs possible

Material: Metallic (tinned electrolytic copper, aluminium, etc.)

Crimping: Manual or hydraulic press

	VARPREN® 155	SILICOU®	PLASTHERM®
High Temperature	✓	✓	
Halogen free	✓	✓	✓
Fire	✓	✓	✓
Outdoor use	✓		✓
Mechanical	✓		✓

CHARACTERISTICS	PLASTHERM® CONNECT	SILICOU® CONNECT	VARPREN® 155 CONNECT
Operating temperature	-20°C to +80°C	-60°C to +180°C Good thermal shock resistance	-50°C to +155°C
Operating voltage	Low and medium voltage (contact us)	1,1 kV to 13,8 kV	1,000 V
Mechanical behaviour	Excellent abrasion resistance	Good mechanical strength	Excellent tearing strength
Outside use	Optional	Good UV resistance	-
Halogen-free	Optional	Yes	Yes
Fire performance	Optional: Flame retardant Fire retardant	Flame retardant	Flame retardant Fire retardant Low smoke emission

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APPENDICES

	PAGE
COLOUR CODE	148
LIST OF STANDARDS	151
CONDUCTORS	152
INSULATION MATERIALS	153
INTERNATIONAL SYSTEM OF UNITS	154
GLOSSARY	155

COLOUR CODE

EQUIVALENCE COLOURS & SYMBOLS USED IN NF C 93-521 / NF C 93-524

ELECTROAIR® KU AGZ AGF M7-KU 01 M7BE-KU 01 M6BA-A6 MEEBA-AEE NEMA HP3 ET, E, EE NEMA HP4 KT, K, KK	COLOUR	SYMBOL	SYMBOL
		NF C 93-521	NF C 93-524
	○ Natural	A	A
	● Black	B	0
	● Brown	C	1
	● Red	D	2
	● Orange	E	3
	● Yellow	F	4
	● Green	G	5
	● Blue	H	6
	● Purple	J	7
	● Grey	K	8
	○ White	L	9



HOOK-UP & AIRFRAME EN CABLES

ELECTROAIR®
CF Line
DM Line

Sheath colours:



- 1 core:
- 2 cores:
- 3 cores:
- 4 cores:



HOOK-UP & AIRFRAME NF CABLES

ELECTROAIR®
KU
AGZ
AGF
KZ
M7-KU 01
M7BE-KU 01
M6BA-A6
MEEBA-AEE*
NEMA HP3 E.T.E.EE
NEMA HP4 KT.K.KK

PLASTHERM®
M40BE-E40

Sheath colours:



- 1 core:
- 2 cores:
- 3 cores:
- 4 cores:
- 5 cores:
- 7 cores:



HIGH TEMPERATURE & FIREPROOF SLEEVES

SILITUBE®
X

SILIGAIN®
33NHO

- Sleeve:



HIGH TEMPERATURE COAXIAL CABLES

COAXTHERM®
RG / KX

- RG 178 BU, RG 178 BU / PFA, KX 21A, KX 22A, RG 316 U, RG 316 U / PFA, RG 303 U, RG 142 BU, RG 400 U, RG 304 U, RG 115 U, RG 165 U, RG 393 U, RG 225 U, RG 179 BU, RG 179 BU / PFA, RG 302 U, RG 144 U, RG 180 BU, RG 180 BU / PFA

- W5BA5 KX 23, KX 24, KX 25

- KX 6A HT 180C, RG 59 MINI HT 200C
 KX 8 HT 180C



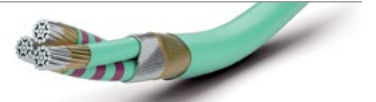
FIGHTER AIRCRAFT CABLES

ELECTROAIR®
DA6007
DA6010

Sheath colours:



- 1 core:
- 2 cores:
- 3 cores:



FLIGHT TEST CABLES

ELECTROAIR®
AH7080
AH7083

Sheath colour:



- 1 core:
- 2 cores:
- 3 cores:
- 4 cores:



HIGH TEMPERATURE CONTROLLED IMPEDANCE TWISTED PAIR CABLES

TWINLINK®
FP / FA

Sheath colour:



- 1 core:



VERY HIGH TENSILE STRENGTH SYNTHETIC CABLES

MINOROC®
P, K

Sheath colour:



MINIATURE CERAMIC INSULATED WIRES FOR VERY HIGH TEMPERATURES

CERAFIL®
CN8

- 1 core:



- | | | | |
|-------------|----------------|-------------|-----------------------|
| Azure Blue | Blue | Black | Orange |
| Light Brown | White | Green | Text (cf. data sheet) |
| Natural | Red | Grey | Light green |
| | Purple | Yellow | Pink |
| | Terracotta Red | Ivory White | |
- White wire with two or three Dark Green rings

*Concerning reference MEEBA-AEE for 3 cores: Blue / White / Red and 4 cores Blue / White / Red / Green
For any other special request concerning our products, please contact us.

ARMoured PERSONNEL CARRIER CABLES – Wires colour

Sheath colours:



-  Blue
  Black
  Orange
 White
  Green
  White, Black numerated
 Red
  Grey
 Purple
  Yellow

LIST OF STANDARDS

ABOUT CABLE'S CONSTRUCTION

EN 2083	Aerospace series Copper or copper alloy conductors for electrical cables Product standard ELECTROAIR® CF Line – CF, PF, QF, RF
EN 2266-002	Aerospace series Cables, electrical, for general purpose Operating temperatures between -55°C and 200°C Part 002: general ELECTROAIR® CF Line – CF, PF, QF, RF
EN 2266-003	Aerospace series Cables, electrical, for general purpose Operating temperatures between -55°C and 200°C Part 003: ink jet printable - Product standard ELECTROAIR® CF Line – CF, PF, QF, RF
EN 2713-002	Aerospace series Cables, electrical, single and multicore for general purpose Operating temperatures between -55°C and 200°C Part 002: screened and jacketed - General ELECTROAIR® CF Line – SJU, TKU, UDU, VLU
EN 2713-007	Aerospace series Cables, electrical, single and multicore for general purpose Operating temperatures between -55°C and 200°C Part 007: screened (spiral) and jacketed, UV laser printable - Product standard ELECTROAIR® CF Line – SJU, TKU, UDU, VLU
EN 4434	Aerospace series Aerospace series - Copper or copper alloy lightweight conductors for electrical cables - Product standard (Normal and tight tolerances) ELECTROAIR® DM Line – GJ, MH, UU, VV
EN 2267-002	Aerospace series Cables, electrical, for general purpose Operating temperatures between -55°C and 260°C Part 003: ink jet printable - Product standard ELECTROAIR® DM Line – DMA, PN, QL, RK
EN 2267-007	Aerospace series Cables, electrical, for general purpose Operating temperatures between -55°C and 260°C Part 007: DMA Line, single ink-jet printable and multicore assembly - Product standard ELECTROAIR® DM Line – DMA, PN, QL, RK
EN 2714-002	Aerospace series Cables, electrical, single and multicore for general purpose Operating temperatures between -55°C and 260°C Part 002: screened and jacketed – General ELECTROAIR® DM Line – GJ, MH, UU, VV
EN 2714-011	Aerospace series Cables, electrical, single and multicore for general purpose Operating temperatures between -55°C and 260°C Part 011: DM Line, screened (spiral) and jacketed, UV laser printable - Product standard ELECTROAIR® DM Line – GJ, MH, UU, VV
AIR 4524/E	Standard of Defense's French Republic Department Certification condition and electrical cables specification for general purpose ELECTROAIR® DA6007, DA6010
NEMA HP4	ANSI/NEMA HP 4-2012 Electrical and Electronic FEP (Fluorinated Ethylene Propylene) insulated high temperature Hook-Up Wire, Types KT (250 Volt), K (600 Volt), and KK (1,000 Volt) ELECTROAIR® NEMA HP4 KT, K, KK
NEMA HP3	ANSI/NEMA HP 3-2012 Electrical and Electronic PTFE (Polytetrafluoroethylene) insulated high temperature Hook-Up Wire, Types ET (250 Volt), E (600 Volt), and EE (1,000 Volt) ELECTROAIR® NEMA HP3 ET, E, EE
NF C 93-524	Electronic components Insulated wires for high temperatures up to ISO grade C General requirements ELECTROAIR® KU
NF C 93-523	Electronic components Insulated wires for high temperature ELECTROAIR® AGZ, AGF
NF C 93-550	Electronic components RF coaxial cables, with metallic braid. General requirements COAXTHERM® XX
MIL-STD-17	Coaxial Cable Specifications COAXTHERM® RG

ABOUT CABLE'S PERFORMANCES

(Fire, Chemical, Mechanical...)

EN 3475-100	Aerospace series Cables, electrical, aircraft use Test methods - Part 100: General <i>The majority of ELECTROAIR® product references</i>
EN 3475-501	Aerospace series Cables, electrical, aircraft use Test methods - Part 501: dynamic cut-through <i>The majority of ELECTROAIR® product references</i>
EN 3475-503 EN 3475-511	Aerospace series Cables, electrical, aircraft use Test methods - Part 503: Scrape abrasion Test methods - Part 511: Cable to cable abrasion <i>The majority of ELECTROAIR® product references</i>
EN 3475-601	Aerospace series Cables, electrical, aircraft use Test methods - Part 601: Smoke density <i>The majority of ELECTROAIR® product references</i>
EN 3475-604	Aerospace series Cables, electrical, aircraft use Test methods - Part 604 Resistance to dry arc propagation <i>The majority of ELECTROAIR® product references</i>
FAR 25 §25.869	FAR/JAR part 25 sec 25.869 (a)(4) Appendix F part 1 (3) Fire protection: systems Self extinguishing - Test specifications <i>All fluorinated cables are concerned</i>
IEC 60332-1	Tests for vertical flame propagation for a single insulated wire or cable <i>All fluorinated cables are concerned</i>
C2 NF C 32-070	Tests for classification of conductors and cables with respect to their fire behaviour <i>All fluorinated cables are concerned</i>
ABD0031	Airbus specification: this ABD shall help to establish a level of fire safety for passenger and crew members of Airbus commercial aircraft beyond the minimum airworthiness authorities' requirements ELECTROAIR® AGZ, AGF
BMS 13-67	Boeing specifications: it is an insulated fire resistant aircraft cable, meant for high temperature Aerospace applications. This aircraft cable has a maximum temperature of 310°C ELECTROAIR® FR
SEFT 027	Standard of Defense's French Republic Department cable Mechanical tests for flexible cables (abrasion and cut-through resistance) - Military appliances ELECTROAIR® KQ, OMBILIFLEX®, SPRIFLEX®

ABOUT SLEEVE'S CONSTRUCTION & PERFORMANCES

SAE.AS1055	This SAE Aerospace Standard (AS) establishes uniform requirements and procedures for the fire testing of flexible hose assemblies and rigid tube assemblies (including coiled tubes) to be used in aircraft or aerospace vehicle fluid systems SILITUBE® X
SAE.AS1072	This standard defines the requirements for bulk protective sleeve to provide fire resistance for aircraft hose assemblies, which will enable these assemblies to meet the requirements of AS 1055 SILITUBE® X
EN 6049-003	Aerospace series Electrical cables, installation - Protection sleeve in Meta-aramid fibres Part 003: braided, tubular, expandable - Product standard SILIGAIN® 33NHO

www.cables-cgp.com

The information provided in this technical data sheet is indicative and may be modified without prior notice, laying, wiring and electrical conditions and the environment of the cable can not be fully considered in our studies. In no way the company CGP SAS shall be held responsible for any incidents in the case of inappropriate uses, particularly in the case of wiring conditions that do not respect the good practice and the standards in force. For an optimum use of the cables produced by our company, we recommend testing in real conditions. Our sales department is available for a possible provision of samples, and/or for the conditions of a complete study in our laboratories. © Registered trademark of the CGP SAS. Drawings and photos are not contractual. Reproduction is prohibited without the prior agreement of CGP SAS.

CONDUCTORS

MAIN PROPERTIES OF METALS COMMONLY USED BY CGP

Type of metal	Name	Continuous operating temperature °C	Peak temperature °C	Melt temperature °C	Density at 20 °C g.cm ⁻³	Volume electrical resistivity at 20 °C. µΩ.cm	Resistance variation coefficient (α) at 20 °C 10 ⁻³ .K ⁻¹	Thermal conductivity at 20 °C W.m ⁻¹ .K ⁻¹	Specific heat capacity J.kg ⁻¹ .K ⁻¹	Linear dilation coefficient from +20 °C to +100 °C 10 ⁻⁶ .K ⁻¹	Tensile strength Rm MPa
Bare copper	CuAl	180	400	1,083	8.89	1.7241	3.93	389	385	16.8	230
Deoxidised bare copper	CuCl	180	400	1,083	8.89	1.7241	3.93	389	385	16.8	230
Tin-plated copper	CuSn	180	300	1,083	8.89	1.7654 to 1.8508	3.66 to 3.84	386	385	16.8	230
Silver-plated copper	CuAg	200	450	1,083	8.91 to 9.05	1.7241	3.93 to 3.95	389	385	16.8	230
Nickel-plated copper	CuNi	300	500	1,083	8.89	1.7960	3.95	386	387	16.7	240
27% nickel-plated copper	CuNi27%	450	700	1,083	8.89	2.4284	4.22	359	404	15.8	240
Nickel	Ni	600	900	1,455	8.9	9.1	5.37	70	456	13	400

MAXIMUM LINEAR RESISTANCE (Ω/ km) AT 20°C OF CORES COMMONLY USED BY CGP

CGP Product:		CF, DM, AH7080	DA6007	HP3, HP4	KU, E40	AGZ, KZ	CF, DM, AH7083	DA6010	M6BA-A6, MEEBA-AEE	KU, M40BE-E40	AGZ
Type of cores		CuNi	CuAg	CuAg	CuSn	CuAg	CuNi	CuAg	CuAg	CuSn	CuAg
Standards		EN 2083 EN 4434	EN 2083 EN 4434	NEMA HP3 /HP4	NF C 93-524	NF C 93-523	EN 2083 EN 4434	EN 2083 EN 4434	NEMA HP3 /HP4	NF C 93-524	NF C 93-523
Type of composition		Single Core					Multicore				
AWG	Stranding (n x mm)										
32	7 x 0.08			557.7		546.0			574.4		573.0
32	19 x 0.05			515.1					530.6		
30	7 x 0.10			328.1	365.4	349.0			337.9	382.6	366.0
30	19 x 0.06			323.5					333.2		
28	7 x 0.13			208.7	208	201.0			214.9	218.4	211.0
28	19 x 0.08			207.0					213.2		
26	7 x 0.16			130.2		132.0			134.2		138.0
26	19 x 0.10	160.0	149.0	122.4	128.7		165.0	153.5	126.0	135.1	
24	7 x 0.20			80.4		86.0			82.8		90.0
24	19 x 0.13			77.4	76.6				79.8	80.4	
24	19 x 0.12	114.0	106.0				117.4	109.2			
22	7 x 0.25			51.2		54.4			52.7		57.0
22	19 x 0.16			48.6	50.3				50.0	52.8	
22	19 x 0.15	60.0	55.3				61.7	57.0			
20	7 x 0.32			32.2					33.2		
20	19 x 0.20	33.2	31.0	29.9	32.1	31.3	34.1	3.9	30.8	33.7	33.0
18	7 x 0.40			20.2					20.8		
18	19 x 0.25	21.1	19.6	19.0	20.6	20.5	21.7	20.2	19.6	21.6	21.5
16	19 x 0.30	14.5	13.6	14.9	14.3	13.9	14.9	14.0	15.3	15.0	14.6
14	19 x 0.36			9.4					9.7		
14	27 x 0.30					10.0					10.5
14	37 x 0.25	10.9	10.2		10.6		11.2	10.5		11.1	
12	19 x 0.45			5.9					6.1		
12	37 x 0.32	6.8	6.4	6.2	6.5		7.0	6.6	6.4	6.8	
12	45 x 0.30					6.0					6.3
10	37 x 0.40	4.2	4	3.9			4.3	4.1	4.0		
8	133 x 0.29			2.2					2.3		

INSULATION MATERIALS

MAIN PROPERTIES OF INSULATION MATERIALS COMMONLY USED BY CGP

Properties	Polyvinyl chloride	Low density	Polyethylene high density	Chemically cross-linked	Halogen-free polyolefine	Polyurethane	Ethylene tetrafluoro-ethylene	Fluorethylene propylene	Perfluoro-alkoxy alkane	Polytetrafluoro-ethylene	Polyimide
	PVC	LDPE	HDPE	XLPE	HFFR	PUR	ETFE	FEP	PFA	PTFE	PI
Physical											
Operating temperature:											
- at low temperature (°C)	-30	-50	-50	-50	-30	-50	-90	-90	-90	-90	-90
- in continuous operating service (°C)	+105	+70	+80	+90	+105	+120	+150	+205	+260	+260	+260
- in short circuit state (°C)	+160	+150	+180	+250	+160	+180	+200	+250	+300	+300	+350
Density (g/cm ³)	1.23 to 1.50	0.91	0.93	0.91	1.5	1.11 to 1.18	1.75	2.15	2.15	2.15	1.67
Electrical											
Dielectric strength (kV/mm)	30	20	20	25	20	20	36	24	25	25	28
Electrical resistance (Ω.cm)	1,016	1,017	1,017	1,017	1,015	1,015	1,016	1,018	1,018	1,018	1,015
Relative permittivity at industrial frequency	8	2.3	2.3	2.5	3.6	6	2.6	2.1	2.05	2	2.7
tan δ at industrial frequency (x 10 ⁻⁴)	1,000	10	10	40	20	300	2	3	2	2	13
Chemical											
Resistance to weak acids	Very good	Very good	Very good	Very good	Fair	Very good	Very good	Very good	Very good	Very good	Very good
Resistance to weak alkalis	Very good	Very good	Very good	Very good	Fair	Very good	Very good	Very good	Very good	Very good	Good
Mechanical											
Flexibility	Good	Medium	Poor	Medium	Poor	Good	Medium	Medium	Good	Poor	Medium
Resistance to abrasion	Good	Medium	Good	Good	Good	Excellent	Excellent	Medium	Good	Good	Excellent
Tensile strength (MPa)	15	10	20	22	12	50	45	20	27.5	40	18
Elongation at break (%)	250	400	500	300	180	350	200	250	300	350	70
Other											
Flame resistance	Medium	Poor	Poor	Poor	Excellent	Medium	Excellent	Excellent	Excellent	Excellent	Excellent
Halogen-free	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Thermal resistivity (K.m/W)	5	3.5	3.5	3.5	5	5	4.4	5	4.4	4.5	5
Steam resistance	Poor	Poor	Poor	Fair	Poor	Poor	Good	Excellent	Excellent	Excellent	Fair

MAIN PROPERTIES OF INSULATION MATERIALS COMMONLY USED BY CGP

	FEP and PTFE	PFA	ETFE
Hydrocarbons (oils, petrol, greases, etc.)	Excellent	Excellent	Excellent
Weak acids	Excellent	Excellent	Excellent
Strong acids	Excellent	Excellent	Very good (except for highly oxidant acids when boiling)
Weak alkalis	Excellent	Excellent	Excellent
Strong alkalis	Very good (except hot alkaline metals)	Excellent	Very good (except very strong alkalis at high temperatures)
Organic solvents	Very good except some halogenated solvents that may cause softening at high temperature and pressure.	Excellent	Excellent

Fluorinated insulation materials are known to be highly resistant to chemical products such as solvents or hydrocarbons, but they are also capable of resisting all other types of aggressive or corrosive environments. The table below indicates the degrees of resistance of fluorinated insulation materials to chemical products with varying corrosive properties. For further information about fluorinated insulation materials, contact our technical department.

www.omerin.com

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INTERNATIONAL SYSTEM OF UNITS

In this paragraph, we provide examples of usual physical quantities with the corresponding units and symbols, along with the expression of derived units in base units and supplementary units.

Physical quantities and base units of the International system of units

PHYSICAL QUANTITY	UNIT	SYMBOL
length	metre	m
mass	kilogram	kg
time	second	s
electrical current strength	ampere	A
thermodynamic temperature	Kelvin	K
quantity of material	mole	mol
light intensity	candela	cd

Note: The temperature in Celsius t is associated to the thermodynamic temperature T via the relationship $t = T - 273.15$

A temperature interval may be expressed either in Kelvins or in degrees Celsius.

In this case, $1\text{ }^{\circ}\text{C} = 1\text{ K}$

Supplementary physical quantities and units of the international system (which may be used as quantities and base units)

PHYSICAL QUANTITY	UNIT	SYMBOL
plane angle	radian	rad
solid angle	steradian	sr

Table presenting the main multiples and sub-multiples of units of measurement

MULTIPLES		
Factor	Prefix	Symbol
10^{18}	exa	E
10^{15}	peta	P
10^{12}	tera	T
10^9	giga	G
10^6	mega	M
10^3	kilo	k
10^2	hecto	h
10^1	deca	da
SUB - MULTIPLES		
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atto	a

Some quantities and derived units of the International system of units

	PHYSICAL QUANTITY	UNIT		IN BASE UNITS
		NAME	SYMBOL	
SPACE TIME	surface area	square metre	m ²	m ²
	volume	cubic metre	m ³	m ³
	angular speed	radian per second	rad/s	rad.s ⁻¹
	speed	metre per second	m/s	m.s ⁻¹
	acceleration	metre per squared second	m/s ²	m.s ⁻²
	frequency	hertz	Hz	s ⁻¹
MECHANICAL	frequency of rotation	second to the power minus 1	s ⁻¹	s ⁻¹
	density	kilogram per cubic metre	kg/m ³	kg.m ⁻³
	mass flow	kilogram per second	kg/s	kg.s ⁻¹
	volume flow	cubic metre per second	m ³ /s	m ³ .s ⁻¹
	quantity of movement	kilogram-metre per second	kg.m/s	kg.m.s ⁻¹
	kinetic moment	kilogram-metre squared per second	kg.m ² /s	kg.m ² .s ⁻¹
	moment of inertia	kilogram-metre squared	kg.m ²	kg.m ²
	force	Newton	N	kg.m.s ⁻²
	moment of force	Newton-metre	N.m	kg.m ² .s ⁻²
	pressure, stress	Pascal	Pa	kg.m ⁻¹ .s ⁻²
	dynamic viscosity	Pascal-second	Pa.s	kg.m ⁻¹ .s ⁻¹
	kinematic viscosity	square metre per second	m ² /s	m ² .s ⁻¹
	surface tension	Newton per metre	N/m	kg.s ⁻²
	energy, work, heat	joule	J	kg.m ² .s ⁻²
	power, energy flow	watt	W	kg.m ² .s ⁻³
THERMO - DYNAMIC	linear dilation coefficient	Kelvin to the power minus 1	K ⁻¹	K ⁻¹
	Thermal conductivity	watt per metre-Kelvin	W/(m.K)	kg.m.K ⁻¹ .s ⁻³
	Specific heat capacity	joule per kilogram-Kelvin	J/(kg.K)	m ² .K ⁻¹ .s ⁻²
	entropy	joule per Kelvin	J/K	kg.m ² .K ⁻¹ .s ⁻²
	internal energy, enthalpy	joule	J	kg.m ² .s ⁻²
	free energy, free enthalpy	joule	J	kg.m ² .s ⁻²
	light flow	lumen	lm	cd.sr
	luminous luminescence	candela per cubic metre	cd/m ²	cd.m ⁻²
	luminous exitance	lumen per cubic metre	lm/m ²	cd.sr.m ⁻²
	illumination	lux	lx	cd.sr.m ⁻²
OPTICAL	luminous exposure	lux-second	lx.s	cd.sr.s.m ⁻²
	luminous efficiency	lumen per watt	lm/W	cd.sr.s ³ .kg ⁻¹ .m ⁻²
	electrical charge, quantity of electricity	coulomb	C	A.s
	electrical field	volt per metre	V/m	m.kg.A ⁻¹ .s ⁻³
	potential difference, voltage, electromotive force	volt	V	kg.m ² .A ⁻¹ .s ⁻³
	capacitance	farad	F	A ² .s ⁴ .kg ⁻¹ .m ⁻²
	magnetic field	ampere per metre	A/m	A.m ⁻¹
	magnetic induction	Tesla	T	kg.A ⁻¹ .s ⁻²
	magnetic induction flow	Weber	Wb	kg.m ² .A ⁻¹ .s ⁻²
	inductance, permeance	Henry	H	kg.m ² .A ⁻² .s ⁻²
ELECTRICITY - MAGNETISM	reluctance	Henry to the power minus 1	H ⁻¹	A ² .s ² .kg ⁻¹ .m ⁻²
	resistance, impedance, reactance	ohm	Ω	kg.m ² .A ⁻² .s ⁻³
	conductance, admittance, susceptance	siemens	S	A ² .s ³ .kg ⁻¹ .m ⁻²
	resistivity	ohm-metre	Ω .m	kg.m ³ .A ⁻² .s ⁻³
	conductivity	siemens per metre	S/m	A ² .s ³ .kg ⁻¹ .m ⁻³
	molar mass	kilogram per mole	kg/mol	kg.mol ⁻¹
	molar volume	cubic metre per mole	m ³ /mol	m ³ .mol ⁻¹
	concentration	kilogram per cubic metre	kg/m ³	kg.m ⁻³
	molar concentration	mole per cubic metre	mol/m ³	mol.m ⁻³
	molarity	mole per kilogram	mol/kg	mol.kg ⁻¹
CHEMISTRY PHYSICS				

GLOSSARY

A

ALLOY: metal made of the fusion of two or more metals.

ARMoured: overall metallic braid or helically applied metallic tapes primarily for the purpose of mechanical protection.

ATTENUATION: the loss of power or signal in a circuit expressed in decibels (dB).

AWG: (American Wire Gauge) system commonly used for describing the size of copper wire. It is based on the circular mil system, 1 mil equals 0.0254 mm.

B

BNAE: BNAE is the association governed by the law of 1901 responsible for preparing the international, European and national standards for the sectors of Aeronautics and Space.

C

CABLE: usually two or more insulated wires covered with an outer sheath overall.

CAPACITANCE: property of a system of conductors and dielectrics which permits the storage of electricity where potential difference exists between two conductors. It is expressed in farads and their submultiples.

CELSIUS TEMPERATURE SCALE: (or centigrade temperature scale). Temperature scale based upon the water freezing point defined as zero degree and the boiling point defined as 100 degrees.

COAXIAL CABLE: coaxial cable is a two conductors cable in which one conductor completely surrounds the other. Both conductors have a common axis and are separated by a continuous uniform insulation or dielectric thickness.

COPPER: basic metal for electrical conductors used either bare or silver, tin or Nickel plated.

CORE/CONDUCTOR: it is the inner part of an insulated wire transmitting electrical current. A core/conductor usually consists of Copper, Nickel, Silver or other materials.

D

DIELECTRIC: name given to any insulating material that is not a conductor of electricity.

E

E: hook-up wires insulated with Polytetrafluoroethylene (PTFE) with an operating voltage equal to 600 V AC according to NEMA HP3.

EE: hook-up wires insulated with Polytetrafluoroethylene (PTFE) with an operating voltage equal to 1,000 V AC according to NEMA HP3.

ET: hook-up wires insulated with Polytetrafluoroethylene (PTFE) with an operating voltage equal to 250 V AC according to NEMA HP3.

ETFE: (Ethylene Tetrafluoroethylene) thermoplastic resin used to insulate wires and cables with an operating temperature rating from -90°C to +155°C.

EXTENSION CABLE: a pair of wires used to connect a thermocouple cable to a temperature meter.

EXTRUSION: a processing method whereby heated or unheated materials are forced through a shaping outlet or die under pressure to become a continuous formed shape. For wire and cable the insulation is applied around the core and the jacket material around the cable core in continuous, by one of two, extrusion methods.

F

FAHRENHEIT TEMPERATURE SCALE: a temperature scale based upon the water freezing point defined as 32°F (0°C) and the boiling point defined as 212°F (100°C). Formulae - °F = °C x 9/5 + 32

FEP: (Fluoroethylene Propylene) thermoplastic resin used to insulate wires and cables with an operating temperature rating -90°C to +200°C.

H

HOOK-UP WIRES: insulated wires with a section generally less than 3 mm² used in electronic wiring.

I

IEC: International Electrotechnical Committee.

IMPEDANCE: the total opposition (i.e. resistance and reactance) a circuit offers to the flow of alternating current. Volts per ampere : ohms.

INCH: English unit of measure (1 inch = 25.4 mm).

INSULATION RESISTANCE: the resistance of an insulation material to the flow of current resulting from an impressed D.C. voltage.

ISO: International Organization for Standardization.

J

JACKET (or sheath): overall cable cover normally providing mechanical and environmental protection.

K

K: hook-up wires insulated with Fluoroethylene Propylene (FEP) with an operating voltage equal to 600 V AC according to NEMA HP4.

KK: hook-up wires insulated with Fluoroethylene Propylene (FEP) with an operating voltage equal to 1,000 V AC according to NEMA HP4.

KT: hook-up wires insulated with Fluoroethylene Propylene (FEP) with an operating voltage equal to 250 V AC according to NEMA HP4.

KU: symbol designating hook-up wires insulated with ethylene Tetrafluoroethylene (ETFE) according to the French specification NF-C-93524.

KX: symbol designating coaxial cables according to the French specification NF-C-93550.

KZ: symbol designating hook-up wires insulated with Polytetrafluoroethylene (PTFE) according to the French specification NF-C-93523.

M

MICA: inorganic tape included in the composition of cables offering resistance to very high temperatures, flame and fire.

MIL SPECIFICATION: American military specification for various materials.

N

NEMA: (National Electrical Manufacturers Association) American organization well known for electrical motors and gear reducers standardization and for electrical wire and cable specifications.

NF SPECIFICATION: French specification for various materials established by ASSOCIATION FRANCAISE DE NORMALISATION.

NOMEX®: DUPONT DE NEMOURS registered trademark for an Aramid fibre with an excellent mechanical resistance, good resistance to high temperature radiation and chemicals.

R

RESISTIVITY: the longitudinal electrical resistance of a uniform rod of unit length and unit cross sectional area (expressed in $\Omega \cdot m$).

RG: (Radio Frequency Government) symbol designating coaxial cables, following MIL-C-17 American standard (example: M17/60 - RG142).

RMS: (Root Mean Square) a means of expressing AC voltage or AC current in terms of D.C. (approximately 80% of alternative current peak voltage).

S

SHIELDING: the process of applying a metallic braid composed of tinned or bare copper over the insulated conductors. The shielding effectiveness is in proportion to the amount of coverage, usually expressed in percentage.

SILICONE IMPREGNATION: impregnation of a textile braid with Silicone varnish.

STRAND: individual wire of any stranded conductor.

STRANDED CORE: (twist) a core made with a specified number of strands.

T

TAPING: a method or process to insulate electrical wires and cables. Insulation of helically wound tapes applied over a conductor. This operation can possibly be followed with a sintering according to the tape-type used.

TEFLON®: DUPONT DE NEMOURS registered trademark for a line of powders or resins such as PTFE - FEP - PFA.

TEFZEL®: DUPONT DE NEMOURS registered trademark for a thermoplastic resin named Ethylene Tetrafluoroethylene (ETFE).

THERMOCOUPLE: union of dissimilar metals submitted to various temperatures in order to create an electromotive force (E.M.F.). The voltage is usually in micro or millivolts.

THERMOPLASTICS: range of resins being easily softened under heat.

V

VELOCITY OF PROPAGATION: velocity of propagation, commonly called velocity, is the ratio of the speed of the flow of an electric current in an insulated cable to the speed of light. All insulated cables have this ratio and it is expressed in percentage.

SIGNS USED FOR CHARACTERISTICS

☆☆☆☆☆ : Very bad resistance

★☆☆☆☆ : Bad resistance

★★☆☆☆ : Medium resistance

★★★☆☆ : Good resistance

★★★★☆ : Very good resistance

★★★★★ : Excellent resistance

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PERFORMANCE**

62 route du Coin
42400 Saint-Chamond
FRANCE

Phone: **+33 (0)4 77 31 02 54**
www.omerin.com

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