HIGH TEMPERATURE www.blf.it - blf@blf.it

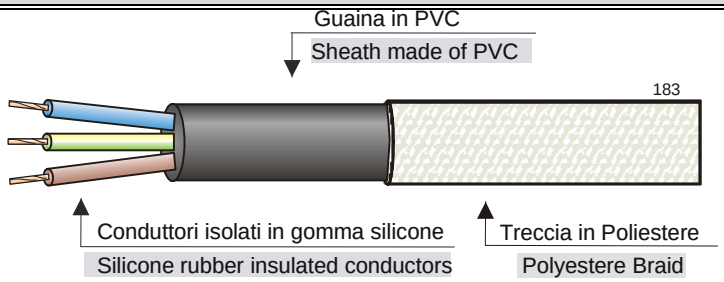
Specifica Tecnica Cavi Speciali
Special Cables Technical Sheet

C5NH

SIGLA DEL COSTRUTTORE / PRODUCER ACRONYM

FG4ORT-PE D.6,00 - 2x0,75 mm2 RR

CAVO MULTIPOLARE CON CONDUTTORI FLESSIBILI, ISOLANTE IN GOMMA SILICONE E GUAINA ESTERNA IN PVC TM2 CON TRECCIA IN POLIESTERE
MULTICORE CABLE WITH FLEXIBLE CONDUCTORS, INSULATION MADE OF SILICONE RUBBER AND EXTERNAL SHEATH MADE OF PVC TM2 WITH POLYESTER BRAID



DATI TECNICI			TECHNICAL DATA		
- Tensione Nominale - Working Voltage	: :	**300/300V**	- Temperatura di Esercizio - Temperature Range	: :	**70°C**
- Tensione di Prova in H_20 - Test Voltage in H_20	: :	**2000V**	- Tipo Isolante Anime - Cores Insulation Type	: Gomma silicone **T180°C** : Silicone Rubber **T180°C**	

REALIZZAZIONE		CONSTRUCTION
- Conduttore - proprietà e costruzione	:	Fili elementari in Rame Rosso trefolati, classe 5 Proprietà vedi **T009** - Costruzione secondo **EN**(IEC-VDE)**60228**
- Conductor - property and construction	:	Twisted strands of flexible Bare Copper wires, class 5 Property see **T009** - Construction in conformity to **EN**(IEC-VDE)**60228**
- Colori della guaina in PVC - PVC sheath Colour	: :	Bianco White
- Colori Isolamento Anime - Cores Insulation Colours	: :	Blu - Marrone Blue - Brown
- Colori della treccia esterna - External braid colours	: :	Su richiesta On request
- Confezionamento - Packing	: :	Vedi tabelle **T002-T003** See tables **T002-T003**
- Tolleranza sul ∅ esterno - External ∅ tolerance	: :	± 0,20 mm

Caratteristiche Dimensionali / Dimensional Characteristics						Caratteristiche Elettriche conduttori in rame rosso. Vedi tabella T009 Electrical Characteristics bare copper conductor. See table T009		
CONDUTTORE / CONDUCTOR			ISOLANTE / INSULATION					
Sezione Section	Formazione Composition	Diametro Diameter	Spess. Isolante Insulation Thickn.	Spess. Guaina Sheath Thickn.	∅ Esterno External ∅	Resistenza max@20° C Resistance max@20° C	(I) MAX 20°C ΔT +50° C	Peso Weight
(mm^2)	[n° x ∅(mm)]	(mm)	(mm)	(mm)	(mm)	(ohm/km)	(ampere)	(kg/km)
2 x 0,75	24 x 0,20	1,20	0,45	0,70	6,00 **	26,00	15,00	48,00

Ø Cavo prima del rivestimento mm. 5,60 / Ø Cable before braiding mm. 5,60

CARATTERISTICHE E VALORI SONO INDICATIVI E POSSONO VARIARE SENZA PREAVVISO
CHARACTERISTICS AND VALUES ARE INDICATIVE AND THEY CAN BE MODIFIED WITHOUT NOTICE

RACCOMANDAZIONI PER L'USO SUL RETRO
RECOMMENDATIONS FOR USE BEHIND

DATA EMISSIONE	19/10/2011	INDICE DI MODIFICA	1	DATA MODIFICA	05/06/2012
Redatto da **SETP** (firma) Issued by **SETP** (signature)	Luca Mercalli	Verificato da **SEP** (firma) Verified by **SEP** (signature)		Approvato da **DIG** (firma) Approved by **DIG** (signature)	

B L F S.r.l. - 21040 SUMIRAGO fraz. MENZAGO (VA) ITALY - Via della Concordia, 38-40 - TEL.: +39-0331-760111 - FAX : +39-0331-760216

PARTICULARITIES-PERFORMANCES AND PRECAUTIONS-RECCOMENDATIONS FOR USE-CE MARKING-GUARANTEES- EXAMINATONS AND INSPECTIONS

101 - PARTICULARITIES

The product on this technical sheet, except for different instructions determined during contractual decisions, is insulated with standard filled silicone rubber compound having the following requirements:

Density	g/cm³	1,60 ± 0,02	Dielectric Strength	kV/mm 15	Tear strength min. N/mm. 10
Elongation	min. Original condition	150%	After Ageing	10 days 200°C	80%
Tensile strength N/mm²	min. Original condition	5	After Ageing	10 days 200°C N/mm²	4

Tests and inspections are made with reference to the Norms CEI-EN

004 - GENERALITIES

PERFORMANCES (Silicon rubber insulation)

The silicone rubber insulated cables, further to giving high performances in environments with high temperatures, have got also other good qualities : halogen free, excellent UV, Ozone, Oxygen, Artificial Light, Atmospheric Agents etc. resistance, as well as excellent behaviour at low temperatures; Until -50°C the silicone rubber maintains its characteristics of elasticity (ASTM 2137A). If this temperature is overcame rubber looses gradually its elastic characteristics. The breaking temperature is -73°C. (ASTM D2137A).
The performances of this cable, the norms applied during designing and construction, the construction characteristics are those indicated on the front side of this document.
On it are also indicated possible Certifications (Quality Marks) and the references of the Certificate, that can be found also on the website: www.blf.it.

PRECAUTIONS AND RECCOMENDATIONS FOR USE

In order to grant obtaining performances it is necessary to use all precautions against risks of mechanical damages of the insulator during handling, wiring and installation (avoid torsions, abrasions, rubbings, contacts with sharp surfaces). These precautions must be applied in every case and in particular during unsheathing and wiring of the silicone rubber cores. It is a good norm to respect the minimum bend radii and not to submit the cable to traction stresses that can damage the product. Values not to be exceeded are:
Minimum bend radius (CEI 20-40) : cable with diameter until 12 mm. - 4 times the cable diameter if in static installation - 5 times the cable diameter if in non static installation
Traction stress (CEI 20-40) : 15N for each sq. mm. of section
The cable must not be installed directly buried outdoors and beneath plaster coats, as also cables made for static installation must not be used on moving equipments.
This may cause breaking of the conductors and following outgoing of the same from the insulator with the risk of short circuit.
In case of use on moving equipments it is necessary to choose products right for the purpose and made in dynamic version (VD). In this version the construction of the cable allows passing the alternate flexibility test, made in compliance with the norm CEI 20-20/2.

HARMFUL SUBSTANCES FOR THE ELECTRIC INSULATOR

The contact between the electric insulator and substances that can deteriorate its properties must be avoided. In particular, for silicone rubber the following substances are indicated as harmful from the producers of rubber: hydrochloric, hydrofluoric, formic, nitric, sulphuric, stearic acids; petrol, oil, diesel oil, butanol, perchlorethylene.

EMISSIONS - CLASSIFICATION OF THE PRODUCT

Tests, that are carried out in qualified and certified laboratories, allow us to state, exclusively for silicone insulated conductors, the following classifications:

- ABSENCE OF HALOGENS (LSOH) Test according to the Norm CEI-EN 50267-2-1 (CEI 20-37/2-1)
- LOW DEGREE OF ACIDITY Test according to the Norm CEI-EN 50267-2-2 (CEI 20-37/2-2)
- LOW EMISSION OF TOXIC SMOKES AND GASES Test according to the Norm CEI-EN 61034-1 CEI-EN 61034-2

The above mentioned classifications can not be declared for the complete cable, as the external sheath is made of PVC.

HARMFUL SUBSTANCES ABSENT IN THE CABLE and DECLARATION according to Directives 2000/53/EC - 2011/65/UE

BLF cables do not contain any toxic or harmful substances introduced on purpose. The following substances are absent, in the limits of sensitivity of the traditional analytical technique: Naphthylamine and its Salts (CAS91.59.9); Aminodiphenyl and its Salts (CAS92.67.1); Benzidine and its Salts (CAS92.87.5); Nitrodiphenyl (CAS92.93.3); * PBB (Polybrominated Biphenyls); * PBDE (Polybrominated Diphenyl Ethers); * Deca BDE; * Lead; * Mercury; * Chrome VI; ** Cadmium; PFOS and other substances dangerous for health.
(* Maximum percentage allowed by weight for homogeneous material 0,1% =1000 ppm - ** Maximum percentage allowed by weight for homogeneous material 0,01% = 100 ppm)
In the light of our current knowledge and on the basis of our documentation we can state that our products basically comply with the requirements of the following norms:
67/548/EEC - Regarding packaging and labelling of dangerous substances 76/769/EEC - Regarding Restrictions on introductions and use of dangerous substances.
2000/53/EC - ELV Regarding End of life vehicles 1907/2006-REACH - Registration, Evaluation and Authorisation of Chemicals
2011/65/UE - RoHS Regarding Restrictions of the use of certain hazardous substances in electrical and electronic equipment
2002/96/EC - WEEE Handling of Waste of Electrical and Electronic Equipment
BLF's position towards the REACH Regulation is: *DOWNSTREAM USER*. In this position BLF must not effect the Registration of Substances or Preparations.
BLF assures that the products supplied do not contain Dangerous Substances defined "SVHC" in the "Candidate List" or in the "Authorisation List" of the REACH Regulation, and assures also recurrent monitoring of possible changes to the norm 1907/2006 REACH and to the "candidate list".
For the electric cables no Security Sheet is made. The regulations in force do not provide for it. (Decree 7th September 2002 in implementation of the Directive 2001/58/EC regarding the information modalities about hazardous substances and preparations put on the market)..

DECLARATION OF CONFORMITY AND CE MARKING

Every supply is given with "Declaration of Conformity" to this Technical Sheet. If the current laws in Italy provide for it, on the identification labels of the products the logo "CE" appears.
In case of homologated products also the logo of the homologation authority and the number of the certificate are indicated.
CE marking is not to be applied for cables with Working Voltage lower than 50V and higher than 1000V AC or lower than 75V and higher than 1500V DC.
CE marking is omitted on special cables made on demand, where the dimensioning of the product is defined by the Customer and without information about electric performances.
In these cases the customer is responsible for the employment of the product in safety conditions.
In case the product is exported out of the European Community, CE marking is not to be considered applicable in the area of destination of the goods (L. Dec. 626/96 art.1 par. 1 - Directive n. 2006/95/CE).

GUARANTEES - EXAMINATIONS AND INSPECTIONS

During designing, the National or International Norms quoted on the front side of this document are applied. If believed as appropriate, the products are homologated by External Authorities for Product Certification (IMQ - IMQ HAR- VDE- UL – CSA etc.) which grant the compliance with the requirements in the long term through inspection visits and laboratory tests.
In case of products made without specific norms, the designing is however made respecting the general current regulations, and homologation tests are made in BLF's laboratory.
All the products made, undergo examinations and tests in order to grant correspondence with the established requirements. Every final reel is seriated and a specimen is kept, by BLF for at least two years. The outgoing products are checked dimensionally on 100% of the final reels.
All electric cables are tested electrically 100% (spark tester) both on the extrusion line and during conclusive packaging. Possible imperfections are eliminated.
Interruptions are indicated with an appropriate label in the final packaging.
Furthermore, methodically, laboratory tests as planned in the Quality Handbook and relevant Procedures are made, in order to check the behaviour of the product and of the components used. The laboratory tests are made in accordance with the norms of reference. As example we list the most common tests on cables and relevant norms:

TYPE OF TEST (ON THE INSULATOR)	CONDITION	TEST METHOD
Elongation and Tensile Strength	Original condition and after ageing	CEI-EN 60811
Ohm resistance test	Original condition	CEI-EN 50395
Dielectric strength test	Original condition	CEI-EN 50395
TYPE OF TEST (ON THE EXTERNAL SHEAT)		
Elongation and textile strength	Original condition and after ageing	CEI-EN 60811
Loss of mass		CEI-EN 60811
At high temperature		CEI-EN 60811
Heat shocking		CEI-EN 60811
Thermal stability		CEI-EN 60811
Bending at low temperatures		CEI-EN 60811
TYPE OF TEST (ON COMPLETE CABLE)		
Alternate flexibility test 30.000 runs	For -VD- versions	CEI-EN 50396

Other tests are made when provided from the norms of construction or the terms of the contract.