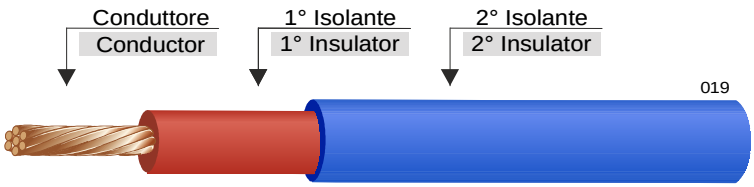
HIGH TEMPERATURE www.blf.it - blf@blf.it

Specifica Tecnica Cavi a Catalogo Approvati Technical Sheet Catalogue Cables Approved	C077

Regolamenti Direttive Particolarità Regulations Directives Particularities				
CE	RoHS compliant	REACH compliant	Halogen Free CEI-EN 50267 (LSOH)	Low Smoke CEI-EN 61034

SIGLA DEL COSTRUTTORE / PRODUCER ACRONYM	APPROVAZIONI / APPROVALS
SilHSil F	VDE - **Reg. Nr. 7610**

CAVO UNIPOLARE CON CONDUTTORE FLESSIBILE ISOLATO IN GOMMA SILICONE **CON DOPPIO STRATO ISOLANTE**
SINGLE CORE CABLE WITH FLEXIBLE CONDUCTOR SILICONE RUBBER INSULATED **WITH DOUBLE INSULATOR LAYERS**



Approvazioni e Norme
Approvals and Standards

Cavo costruito in conformità alla norma:
DIN VDE 0250 Teil 1
Prodotto con certificazione VDE N. 133020
REGISTRAZIONE N° **VDE Reg. 7610**

Cable constructed in compliance with the standard:
DIN VDE 0250 Teil 1
Product with VDE certification VDE N. 133020
N° RECORDING **VDE Reg. 7610**

TENSIONE NOMINALE WORKING VOLTAGE	TENSIONE DI PROVA In H_2O TEST VOLTAGE In H_2O	TENSIONE IMPULSIVA FINO A IMPULSIVE VOLTAGE Up To	TEMPERATURA DI ESERCIZIO TEMPERATURE RANGE
300/300V	**10000V**	**5kV-Imp.**	**180°C**

CONDUTTORE IN RAME STAGNATO FLESSIBILE **CLASSE 5** NORMA **EN 60228**
FLEXIBLE CONDUCTOR MADE OF TINNED COATED COPPER **CLASS 5** STANDARD **EN 60228**

TABELLE DI INFORMAZIONE GENERALE DISPONIBILI On-Line TABLES WITH GENERAL INFORMATION AVAILABLE On-Line		
CONDUTTORI CONDUCTORS	COLORI COLOURS	CONFEZIONE PACKING
T009	**T005**	**T002-T003**

STAMPIGLIATURA SU CAVO
MARKING ON CABLE

SILHSIL F 300/300V - B L F CLEMI - VDE - REG. NR.7610 - YYYY-WWW.BLF.IT-MADE IN ITALY
YYYY = Anno di produzione / Production Year

COLORE STANDARD PER PRIMO ISOLAMENTO : **ROSSO MATTONE**
STANDARD COLOUR FOR 1° INSULATOR : **RED BRICK**

I due strati isolanti debbono essere obbligatoriamente di colore diverso e, nella versione standard, **non sono separabili.**
Su richiesta è possibile allestire il prodotto con i due strati isolanti separabili.
The two insulation layers must compulsorily be differently coloured and, in the standard version, **are not divisible.**
On request it is possible to make the product with two divisible insulation layers.

VEDERE RACCOMANDAZIONI PER L'USO ED INFORMAZIONI AGGIUNTIVE SUL RETRO DI QUESTO DOCUMENTO
SEE RECOMMENDATIONS FOR USE AND ADDITIONAL INFORMATION ON THE BACK SIDE OF THIS DOCUMENT

Caratteristiche Dimensionali / Dimensional Characteristics					Caratteristiche Elettriche conduttori in rame stagnato. Vedi tabella T009 Electrical Characteristics conductor tin coated copper. See table T009		
CONDUTTORE / CONDUCTOR			ISOLANTE / INSULATION				
Sezione Section	Formazione Composition	Diametro Diameter	Spess. Isolante Insulat. Thickn.	Æ Esterno External Æ	Resistenza max@20°C Resistance max@20°C	(I) MAX 20°C ΔT +50°	Peso Weight
(mm^2)	[n° x Æ(mm)]	(mm)	(mm)	(mm)	(ohm/Km)	Ampere	(kg/km)
0,50	16x0,20	0,90	0,60 + 0,60	3,35	40,10	12,00	18,00
0,75	24x0,20	1,20	0,60 + 0,60	3,70	26,70	15,00	22,00
1,00	32x0,20	1,30	0,60 + 0,60	3,80	20,00	17,00	24,00
1,50	30x0,25	1,60	0,70 + 0,70	4,50	13,70	23,00	35,00
2,50	50x0,25	2,00	0,80 + 0,80	5,30	8,21	33,00	42,00

TOLLERANZA SUL Ø ESTERNO ±0,05mm sez. 0,50mm^2; ±0,10mm dalla sez. 0,75 alla sez. 2,50mm^2
EXTERNAL Ø TOLERANCE ±0,05mm sec. 0,50mm^2; ±0,10mm from sec.0,75 to sec. 2,50mm^2

Data Emissione 30/10/2000	Indice Modifica 12	Data Modifica 08/10/2015
Redatto **SETP**	Verificato **SEP**	Approvato **DIG**

T002

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

102 - PARTICULARITIES

The product on this technical sheet, except for different instructions determined during contractual decisions, is insulated with EI2 type filled silicone rubber compound having the following requirements:

Density	g/cm3	1,47 ± 0,02	Dielectric Strength	kV/mm	15	Tear strength min.	N/mm. 14
Elongation min.	Original condition	200%	After Ageing	10 days 200°C		120%	
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

000 - 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 good 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 USE

In order to grant obtaining performances it is necessary that the cable is dimensioned in the correct way taking care of checking that the charge applied complies with the section of the conductor, without ignoring the increase of resistivity of the conductor itself in case of a temperature that is higher than the temperature of the environment. A help for the correct dimensioning of the cable is given in Table T009 made by BLF and available on the website: www.blf.it
It is also 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 have to be applied in any case, but in particular if the insulator is made up of silicone rubber compound that, for its own nature is soft and so can be easily damaged. Choosing a silicone rubber insulated cable, protected with a textile impregnated braid, can be a valid help in preventing risks of damaging the insulator and so it can contribute to the security in the long term of the equipment in which the cable is used.
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 (EN-50565) : 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 (EN-50565) : 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, determining them in advance with our Technical Department.
Warning: It must be taken into consideration that high temperatures (higher than 180°C) can cause the oxidation of the conductors if in bare or tinned copper. In some case the silicone rubber insulator and the conductor may stick together without compromising the insulation characteristics of the cable. Using conductors in Nickel Coated copper, there will be no oxidation of the conductor and sticking to the insulator. Still at high temperatures in the version coated with textile impregnated braid the colour may change.

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 certified laboratories, allow us to state, for our silicone insulated cables, with or without fiberglass braid or polyester protection, the following classifications:

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

Even if in very small quantity (lower than 0,1% found in the test), some remains of vulcanization, namely of the catalyser "Dichlorine Benzoil Peroxide containing 2,4 Dichlorbenzoic Acid", that is used for the vulcanization process, remain present. They are released during the first heating of the cable or at room temperature in a longer lapse of time, releasing in some cases a white patina on the surface. Should the total absence of emissions be required, an appropriate post-vulcanization cycle must be considered.
Our Technical Department can give, on demand, detailed information.

HANDLING OF THE PRODUCT

The possible presence of remains of the vulcanization can be cause of cutaneous irritation if in contact with the product.
You are advised to handle with adequate protections, if necessary in that situation.

HARMFUL SUBSTANCES ABSENT IN THE CABLE and DECLARATION according to Directives 2011/65/UE - 1907/2006

BLF cables do not contain any toxic or harmful substances introduced on purpose. The following substances are absent, in the limits of what prescribed by the 2011/65/UE RoHS directive:
* PBB; * PBDE; * Deca BDE; * Lead; * Mercury; * Chrome VI, *DEHP, *BBP, *DBP, *DIBP; ** Cadmium; PFOS; and the substances prohibited by the REACH regulation.
(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, on the basis of our documentation and also on the basis of periodical analysis in order to test the conformity with RoHS and REACH, made in External Certified Laboratories, we can state that our products basically comply with the requirements of the following standards/directives/regulations:

- 2011/65/UE - RoHS - Regarding Restrictions of the use of certain hazardous substances in electrical and electronic equipment
- 1907/2006 - REACH - Registration, Evaluation and Authorisation of Chemicals
- 1272/2008 - Regarding packaging and labelling of dangerous substances
- 2000/53/EC - ELV - Regarding End of life vehicles
- 2012/19/UE - 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 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. (Regulation REACH 1907/2006-453/2010).

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 "CE" logo appears.
In case of approved products also the logo of the approver authority and the number of the certificate are indicated.
According to the Directive 2014/35/EU, the 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 area, CE marking is not to be considered applicable in the area of destination of the goods (Directive BT n.2014/35/UE).

GUARANTEES - EXAMINATIONS AND INSPECTIONS

During designing, the National or International Norms quoted on the front side of this document are applied, as far as possible. If believed as appropriate, the products are approved 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 regulations, 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	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
Flame test	Original condition	CEI-EN 60332-1-2
Flexibility test	Original condition	CEI-EN 50396

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