



MARINE DIVISION

Certificate number: 14479/B0 BV

File number: ACE 01/751/01

Product code: 25051

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

YOUNG CHANG SILICONE CO., LTD.
SEOUL - KOREA (REPUBLIC OF)

for the type of product

INSTRUMENTATION AND COMMUNICATION CABLES

300/500 V
Type FFCS & FFCS(S)

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

IEC 60092-350/351, IEC 60228, IEC 60811, IEC 60332-1, IEC 60332-3-22 Cat.A.

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 26 May 2015

For BUREAU VERITAS,

At BV PUSAN, on 26 May 2010,

Keum-Ho Lee



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

FEP based Instrumentation cables, type FFCS and FFCS(S)

1.1 - Main Characteristics:

Rated voltage: 300/500 V

Nominal temperature - Maximum continuous service: 95°C

Flame Retardant: IEC 60332-1 & 60332-3-22 (Cat. A)

1.2 - Construction:

Conductor: Tinned, annealed copper wire - Class 5 according to IEC 60228

Insulation: Fluorinated Ethylene Propylene - FEP100

Inner covering: Thermoplastic - PVC or Silicone Rubber - S95 ((S) Type)

Screen: Tinned annealed copper wire braid with drain

Sheath: Ethylene TetraFluoroEthylene - ETFE521

1.3 - Product Range:

Cable Type	Cross-Sect. Area [mm ²]	Number of cores
FFCS	0.75	2, 3, 5, 7, 12, 16, 20
	1.0 & 1.5	2, 3, 5, 7
	2.0 & 2.5	2, 3
FFCS(S)	0.75 to 1.5	2 to 25
	2.0 & 2.5	2 to 20

2. DOCUMENTS AND DRAWINGS :

YOUNG CHANG SILICONE:

Specification for Instrumentation and Communication Cables Type FFCS, ref. YCS 04-M28, Rev. 0 dated 2004.07.28

Specification for Thermoplastic Insulated and Sheathed Connection Cable with Screen (Type: FFCS(S)), ref. YCS 04-M28, Ver 0.2 dated 2008.11.03.

3. TEST REPORTS :

YOUNG CHANG SILICONE:

Plan of Young Chang Silicone Type Test, ref. YCS 04-M28-4, Rev. 0.4, dated 2004.10.23, stamped by BV Surveyor

Summary of Results, ref. YCS 04-M28-3, Rev. 0.2, dated 2004.12.09

List of Test Reports of FFCS Cable, ref. YCS 04-M28-2, Rev.0, dated 2004.12.09, stamped by BV Surveyor

Test Reports ref. YCS081105-1/2/3 all dated Nov. 04 2008.004.12.09

Test Reports, as listed in the above document ref. YCS 04-M28-2.

KOREA TESTING LABORATORY Test Reports, ref.:

PIS04290-1, dated Dec. 28, 2004

PIS04290-2, dated Dec. 28, 2004

PIS04290-3, dated Dec. 28, 2004

FIRE INSURERS LABORATORIES OF KOREA Test Reports, ref.:

R2-2004-07-01, dated Dec. 6, 2004

R2-2004-07-02, dated Dec. 6, 2004

R2-2004-07-03, dated Dec. 6, 2004

4. APPLICATION / LIMITATION :

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships and IEC 60092-x Series.

4.2 - To be used for fixed wiring of diesel engines, and other equipment with high temperature.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The FFCS and FFCS(S) cables are to be manufactured, examined and tested by **YOUNG CHANG SILICONE CO., LTD.** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.



6. MARKING OF PRODUCT :

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:

- 1) - Voltage grade
- 2) - Cable symbol and temperature class
- 3) - Number of conductors and conductor size
- 4) - Applicable standard(s) to flame retardant
- 5) - Manufacturer's name or trade mark
- 6) - Year of manufacture.

7. OTHERS :

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that:

YOUNG CHANG SILICONE CO., LTD.
481-7, Gasan-Dong, Kumchun-Gu
Seoul 153-803
KOREA (REPUBLIC of)

will accept full responsibility for informing shipbuilders, shipowners and/or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 14479/A0 BV issued on 24/03/2005 by the Society.

*** END OF CERTIFICATE ***

