

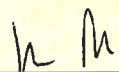


TYPE APPROVAL CERTIFICATE
No. **ELE366517XG**

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	ELECTRIC CABLES
<i>Type</i>	Marine Communication and Signal Cables
<i>Applicant</i>	TKF (BV Twentsche Kabelfabriek) P.O. BOX 6 7480 AA HAAKSBERGEN NETHERLANDS
<i>Manufacturer</i>	TKF (BV Twentsche Kabelfabriek)
<i>Place of manufacture</i>	P.O. BOX 6 7480 AA HAAKSBERGEN NETHERLANDS
<i>Reference standards</i>	IEC 60092-350; IEC 60092-351; IEC 60092-359; IEC 60092-360; IEC 60092-376; IEC 60332-3-22; IEC 60754-2; IEC 61034-1/2; RINA Rules for the Classification of Ships; RINA Rules for Testing and Certification of Marine Materials an Equipment.

Issued in **HAMBURG** on **March 2, 2018**. This Certificate is valid until **March 1, 2023**



RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure



TYPE APPROVAL CERTIFICATE

No. ELE366517XG

Enclosure - Page 1 of 2

Marine Communication and Signal Cables

Product description:

Cables for communication and signal applications in all ship areas. High abrasion resistant sheath. Halogen-free and low-smoke, flame-retardant in fire conditions. Different sheath colors.
Maximum conductor temperature: 90°C.

Technical Data/Materials/Components:

Nomenclature of cable designation:

Marine(2)Com:	Braided or screened Communication cables
MarineCom+:	Braided or screened Communication cables
MarineSignal:	Unbraided, Braided or screened Signal cables
MarineSignal+:	Unbraided, Braided or screened Signal cables
Y:	Crosslinked insulation
O:	Armouring
Z:	Halogen free sheath
af:	Aluminium foil screen
c:	Communication cable
s:	Signal cable
2:	Individually screened pairs/triples
X-FR:	Fire resistant according to IEC 60331-1/2

This Certificate is Valid for the Following Types:

- MarineCom YZafc 250 V
- MarineCom YZafc X-FR 250 V
- MarineCom YOZc 250 V
- MarineCom YOZc X-FR 250 V
- MarineCom+ YOZc 250 V
- MarineCom+ YOZc X-FR 250 V
- Marine2Com YZ2afc 250 V
- Marine2Com YZ2afc X-FR 250 V
- Marine2Com YOZ2c 250 V
- Marine2Com YOZ2c X-FR 250 V
- MarineSignal YZs 250 V
- MarineSignal YZs X-FR 250 V
- MarineSignal YOZs 250 V
- MarineSignal YOZs X-FR 250 V
- MarineSignal YZafs X-FR 250 V
- MarineSignal+ YOZs 250 V
- MarineSignal+ YZs 250 V

Marking of Product:

- TKF-Size-250V-CS 90 mbzh-MarineSignal YZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-MarineSignal+ YZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-MarineSignal YOZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-MarineSignal+ YOZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-MarineCom-YOZc HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-MarineCom+ YOZc HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90 mbzh-Marine(2)Com-YOZ(2)c HALOGEN FREE-{Batch No}
- TKF-Size-250V-MarineCom-YOZc X-FR HALOGEN FREE-IEC60331-IEC60332-3-22-{Batch No}
- TKF-Size-250V-MarineCom+YOZc X-FR HALOGEN FREE-FIRE RESISTANT-{Batch No}
- TKF-Size-MarineCom-YOZc 250V HALOGEN FREE-IEC60332-3-22-{Batch No}
- TKF-Size-Marine(2)Com-YOZ(2)c 250V HALOGEN FREE-IEC60332-3-22-{Batch No}



TYPE APPROVAL CERTIFICATE

No. ELE366517XG

Enclosure - Page 2 of 2

Marine Communication and Signal Cables

Marking of Product: (continued)

- TKF-Size-250V-CS 90-MarineSignal YZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-CS 90-MarineSignal+ YZs HALOGEN FREE-{Batch No}
- TKF-Size-250V-MarineSignal YOZs-{Batch No}
- TKF-Size-250V-MarineSignal+ YOZs-{Batch No}
- TKF-Size-250V-MarineCom YOZc-{Batch No}
- TKF-Size-250V-Marine(2)Com YOZ(2)c-{Batch No}

Test standards:

- IEC 60092-350
- IEC 60092-351
- IEC 60092-359
- IEC 60092-360
- IEC 60092-376
- IEC 60332-3-22
- IEC 60754-2
- IEC 61034-1/2

Documents:

- Data sheets: 17387, 17388, 17403, 17415
- TKF_Catalogus_EN_20160616.pdf
- ISO 9001:2008 / 14001/2004 Certificate: See Report 445.pdf

Test reports:

- BV Twentsche Kabelfabriek: -Report 445.pdf, Report 301.pdf,
- Test report - TKF MarineCom YZafc certification.pdf

BRE Global Ltd.: - P108485-1000 Rev. 1 dated 24 Oct. 2017; P108509-1000a Rev. 1 dated 8. Nov. 2017

Remarks:

- This certificate cancels and replace the certificate no.: ELE187316XG/002.

HAMBURG March 02, 2018



A handwritten signature in black ink, appearing to be 'J. M.', is written to the right of the RINA logo.