

**POTVRDA O TIPNOM ODOBRENJU**
TYPE APPROVAL CERTIFICATE

Br /No 03-001656/031376

Potvrđuje se da je ovaj proizvod, u skladu s Pravilima za klasifikaciju brodova, Dio 1. - Opći propisi, Odjeljak 3. - Tipno odobrenje proizvoda, odobren za ugradnju na brodove i postrojenja pod nadzorom Hrvatskog registra brodova.

This is to certify that this product, on the basis of the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products, is approved for use on board ships and installations under supervision of the Croatian Register of Shipping.

TIP I OPIS PROIZVODA:

TYPE AND DESCRIPTION OF PRODUCT:

BRODSKI ENERGETSKI KABELI
SHIPBOARD POWER CABLES

| Type | Voltage class (kV) | Temp. class (°C) |
|---|--------------------|------------------|
| <i>MarineLine & MarineLine+ & MarineFlex YOZp</i> | <i>0,6/1</i> | <i>90</i> |
| <i>MarineLine YOZp EMC & MarineLine+ YOZp EMC</i> | <i>0,6/1</i> | <i>90</i> |
| <i>MarineFlex YOZp EMC</i> | <i>0,6/1</i> | <i>90</i> |
| <i>MarineLine YOZp & MarineFlex YOZp</i> | <i>1,8/3</i> | <i>90</i> |
| <i>MarineFlex YOZp EMC</i> | <i>1,8/3</i> | <i>90</i> |

PROIZVOĐAČ:

MANUFACTURER:

B.V. Twentsche Kabelfabriek
*Haaksbergen, Netherlands***PROIZVOD UDOVOLJAVA SLIJEDEĆIM PRAVILIMA/PROPISIMA:**

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

HRB PRAVILA ZA KLASIFIKACIJU BRODOVA: DIO 12 - ELEKTRIČNA OPREMA
CRS RULES FOR THE CLASSIFICATION OF SHIPS: PART 12 - ELECTRICAL EQUIPMENT

IEC 60092-350; IEC 60092-353; IEC 60092-360; IEC 60332-1-2; IEC 60332-3-22; IEC 60754-1/2; IEC 61034-1/2

DETALJI O PROIZVODU I UVJETIMA CERTIFIKACIJE DANI SU NA POLEĐINI.

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

ODOBRENJE VRIJEDI DO: 2022-10-25

APPROVAL IS VALID UNTIL:

Mjesto i datum: Split, 2018-10-25

Place and date:

M.P.

(Seal)

Marinko Popović, dipl.ing.

NAPOMENA: Ova potvrda nije valjana ako se proizvod ili način njegove proizvodnje promijenio u odnosu na tipno ispitani proizvod. Proizvođač treba obavijestiti Hrvatski registar brodova o bilo kojoj izmjeni na proizvodu kako bi ishodio valjanu potvrdu.

NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.

PODROBNIJI OPIS PROIZVODA:**DETAILED PRODUCT DESCRIPTION:**

Low voltage power cables for power and lighting applications in all ship areas and Low voltage power cable with enhanced EMC properties for use in sensitive EMC areas (EMC). High abrasion resistant sheath.

Halogen free and low smoke, flame retardant in fire conditions. Different sheath colours.

Maximum conductor temperature: 90°C

Specifications:

| | |
|--------------------|---------------------------------------|
| Rated voltage: | 0,6/1kV or 1,8/3kV |
| Temperature class: | 90°C |
| Flame retardant: | IEC 60332-1 and IEC 60332-3-22 Cat. A |
| Halogen Free: | IEC 60754-1/2 |
| Low Smoke: | IEC 61034-1/2 |

Construction:

| | |
|------------------|---|
| Conductor: | Plain or tinned stranded copper Class 2, round or sector shaped or Class 5 (MarineFlex) |
| Core insulation: | XLPE |
| Inner covering: | Non hygroscopic tape or Halogen free filler (MarineLine+ and MarineFlex) |
| Metal covering: | Tinned or plain copper wire braid |
| | For EMC cables: Cu/Pet tape under braid |
| Outer Sheath: | SHF1 |

Product Range:

MarineLine YOZp 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 37 | 1,5 2,5 |
| 1 – 5 | 4 – 300 |

MarineLine + YOZp 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 5 | 1 – 300 |

MarineFlex YOZp 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 37 | 1,5 2,5 |
| 1 – 5 | 4 – 300 |

MarineLine YOZp 1,8/3 kV & MarineFlex YOZp 1,8/3 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 | 10 – 300 |
| 3 | 10 – 300 |

MarineLine YOZp EMC 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 37 | 1,5 2,5 |
| 1 – 5 | 4 – 300 |
| 3+3E | 10 – 300 / 4 – 50 |

MarineLine+ YOZp EMC 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 5 | 4 – 300 |
| 3+3E | 10 – 300 / 4 – 50 |

MarineFlex YOZp EMC 0,6/1 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1 – 5 | 16 – 300 |
| 3+3E | 16 – 300 / 6 – 50 |

MarineFlex YOZp EMC 1,8/3 kV

| Number of cores | Cross sectional area (mm ²) |
|-----------------|---|
| 1, 3 | 16 – 300 |
| 3+3E | 16 – 300 / 6 – 50 |

PODRUČJE PRIMJENE / POSEBNI GRANIČNI UVJETI:

APPLICATION / LIMITATIONS:

Fiksna ugradnja na pomorskim brodovima i odobalnim objektima.*Fixed installation in marine and offshore.***DOKUMENTACIJA ZA TIPNO ODOBRENJE:**

TYPE APPROVAL DOCUMENTATION:

TKF_Catalogue Marine cables_version 01-2018

Izveštaj o ispitivanju/ test report:

Raport no. 301 dated 2004

Certification of YOZp 1.8/3kV dated 2011-06-27

Report no. P109452-1001 Issue: 3; BRE Global Ltd dated 2018-05-01

Report no. RD000693-1; J. Petrocchi/Laboratory dated 2017-09-06

OZNAČAVANJE PROIZVODA:

MARKING OF PRODUCT:

TKF – Size – 0,6/1kV – MarineLine YOZp – HALOGEN FREE {Batch No}

TKF – Size – 0,6/1kV – MarineLine+ YOZp – HALOGEN FREE {Batch No}

TKF – Size – 0,6/1kV – MarineFlex YOZp – HALOGEN FREE {Batch No}

TKF – Size – 1,8/3kV – MarineLine YOZp – HALOGEN FREE {Batch No}

TKF – Size – 1,8/3kV – MarineFlex YOZp – HALOGEN FREE {Batch No}

TKF – Size – 0,6/1kV – MarineLine YOZp – EMC – HALOGEN FREE {Batch No}

TKF – Size – 0,6/1kV – MarineLine+ YOZp – EMC – HALOGEN FREE {Batch No}

TKF – Size – 0,6/1kV – MarineFlex YOZp – EMC – HALOGEN FREE {Batch No}

TKF – Size – 1,8/3kV – MarineFlex YOZp – EMC – HALOGEN FREE {Batch No}

UVJETI ZA CERTIFIKACIJU:

CONDITIONS FOR CERTIFICATION:

Registar zadržava pravo zahtijevati da se provedu potvrdni testovi na kabelima u bilo kojem trenutku.*The Society reserves the right to require check tests to be carried out on the cables at any time.*