

NEK TS 606:2025

Cables for offshore installations

- halogen-free low smoke flame-retardant / fire-resistant (HFFR-LS)

Technical Specification



NEK TS 606:2025

Engelsk utgave

Cables for offshore installations

Halogen-free low smoke flame-retardant / fire-resistant (HFFR-LS)

Norsk elektroteknisk standard



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CABLES FOR OFFSHORE INSTALLATIONS –

Halogen-free low smoke and flame-retardant / fire-resistant (HFFR-LS)

FOREWORD

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NEK principally supports the development of International Standards. NEK TS 606 has been developed due to the following circumstances:

- the required support cannot be obtained for an International Standard, despite repeated efforts; and
- there is the future but no immediate possibility of an agreement on an International Standard.

Technical specification was prepared and endorsed by NEK Technical Committee NK 18A: Electric cables for ships and mobile and fixed offshore units. NEK/NK 18A is the Norwegian mirror committee of IEC TC 18A.

This revision was subject to an enquiry circulated on 2024-06-21.

This 7th edition cancels and replaces the 6th edition published in 2022 and constitutes a technical revision.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This edition includes the following significant technical changes with respect to the previous edition:

- a) IEC 60331-21 and IEC 60331-25 are withdrawn from IEC and removed from this document
- b) IEC 60331-4 is introduced in this document.
- c) Colour codes updated.
- d) New clause 10 added – Cables for Battery circuits and primary DC distribution grids.
- e) Added high voltage cables up to and including 76/132 (145) kV.
- f) Added DC cable specifications.

INTRODUCTION

NEK TS 606 specifies several cable types, generally based on IEC 60092-350, -360 and -370, intended for use on offshore installations.

The purpose of this Technical Specification is to give the user a selection of cables, which meets the requirements for installation on mobile and fixed offshore units.

The predecessor of the Technical Specification was the publication “Recommended Practice for Specification of Cables”, issued by the Norwegian Oil Industry Association” (OLF). The background was the need of the industry to limit and standardize the number of cable types being used by the offshore industry in the late 1980s. The responsibility for the standard was taken over by the Norwegian Electrotechnical Committee (NEK), and the first edition was issued by NEK as “Norwegian electrotechnical standard” NEK 606 in 1993.

CABLES FOR OFFSHORE INSTALLATIONS –

Halogen-free low smoke and flame-retardant / fire-resistant (HFFR-LS)

1 Scope

This technical specification covers the basic requirements for halogen-free and/or mud resistant low and high voltage power, control, lighting, instrumentation, and telecommunication, optical fibre cables, Hydro-Carbon Fire resistant (HCF) cables and Jet Fire (JF) resistant cables.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60092-350, Electrical installations in ships – Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications.

IEC 60092-352, Electrical installations in ships – Part 352: Choice and installation of electric cables
IEC 60092-353 Electrical installations in ships – Part 353: Single and multicore cables with extruded solid insulation for rated voltages 1kV and 3 kV

IEC 60092-354, Electrical installations in ships – Part 354: Single and three-core power cables with extruded solid insulation for rated voltages 6 kV($U_m = 7,2\text{kV}$) up to 30 kV ($U_m=36\text{ kV}$).

IEC 60092-360, Electrical installation in ships – Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables

IEC 60092-376, Electrical installations in ships – Part 376: 150/250 V cables for Control and instrumentation Circuits

IEC 60228, Conductors of insulated cables

IEC 60331-1, Test for electrical cables under fire conditions – Circuit integrity – Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with overall diameter exceeding 20 mm

IEC 60331-2, Test for electrical cables under fire conditions – Circuit integrity – Part 2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with overall diameter not exceeding 20 mm

IEC 60331-4, Tests for electric cables under fire conditions –Circuit integrity –Part 4: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage higher than 1kV up to and including 30 kV

IEC 60332-1-2, Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame.

IEC 60332-2-2, Tests on electric and optical fibre cables under fire conditions – Part 2-2: Test for vertical flame propagation for a single small insulated wire or cable – Procedure for diffusion flame.

IEC 60332-3-10, Tests on electric and optical fibre cables under fire conditions – Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables - Apparatus.

IEC 60811-404, Electric and optical fibre cables - Test methods for non-metallic materials - Part 404: Miscellaneous tests - Mineral oil immersion tests for sheaths

EN 1363-2, Fire resistance tests - Part 2: Alternative and additional procedures

ISO 22899-1, Determination of the resistance to jet fires of passive fire protection materials --
Part 1: General requirements

BS 8491, Method for assessment of fire integrity of large diameter power cables for use as
components for smoke and heat control systems and certain other active fire safety systems

EN 50200, Method of test for resistance to fire of unprotected small cables for use in emergency
circuits