DNV·GL

Certificate No:
**TAE00003M0**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Low Voltage Cable**

with type designation(s)
**HOCAB 2PA6A4X34DHF, HOCAB UW 3PA8A4x14HF**

Issued to
**Hoppe Marine GmbH**
**Hamburg, Germany**

is found to comply with
**IEC 60332-1**

## Application :

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

| Type | Rated voltage (V) | Temp. class (°C) |
|---|---|---|
| **HOCAB 2PA6A4X34DHF** | **60V** | **70** |
| **HOCAB UW 3PA8A4x14HF** | **not applicable** | **50** |

Issued at **Hamburg** on **2019-09-11**
This Certificate is valid until **2024-09-10**.
DNV GL local station: **Hamburg CMC**

Approval Engineer: **Hagen Markus**

for **DNV GL**

**Olaf Drews**
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.


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## Product description

HOCAB 2PA….- Halogen Free Hybrid Cable with two Polyamide (PA) tubes and one communication cable HOCAB UW – Plastic bundle tube with three PA tubes – non-halogen.

## Technical Data

### HOCAB 2PA…..- Hybrid Cable

| **Cable** | |
|---|---|
| Type | 1xLiH-H 4x0.34 mm² |
| Rated voltage | 60V |
| Conductor | Flexible stranded copper wire 0.34mm² |
| Insulation | Thermoplastic compound 70°C |
| Twisting | 4 cores, white-brown-red-blue |
| Shielding | Tinned copper winding, opt. coverage > 95% |
| Jacket | Thermoplastic compound 70°C |
| **PA Tubes** | |
| Type | 2xPA12 |
| Inner diameter | 6.0mm / 4.0mm |
| Outer diameter 12bar | 8.0mm /6.0mm |
| Maximum working pressure | 12bar |
| **Cover of Hybrid Cable** | |
| Material | Polyurethane TMPU, black |
| Outer diameter O.D. | 16mm |
| Min. bending radius | 5 x O.D. |
| External pressure resistance | 1bar |
| Design standards | DIN EN 50290-2-26(27):2008<br>DIN 73 378:1996<br>DIN EN 50265-2-1:1998<br>VDE 0207-24 HM4 |

### HOCAB UW – Bundle tube

| **PA Tubes** | |
|---|---|
| **Type** | 3xPolyamide 12-w |
| Inner diameter | 6.0mm / 4.0mm |
| Outer diameter | 8.0mm / 6.0mm |
| Twisting | 2 tubes + 1 element + filler |
| Maximum working pressure | 12bar |
| **Cover** | |
| Material | Polyurethane TMPU, halogen free, black |
| Outer diameter O.D. | 21mm |
| Min. bending radius | 5x O.D. |
| External pressure resistance | 1bar |
| Design standards | DIN EN 50265-2-1:21998<br>DIN 73 378:1996<br>VDE 0282 part 10:1994 |

## Application/Limitation

The Hybrid Cable HOCAB 2PA…and HOCAB UW bundle tube is type approved for remote control of valves with pneumatic actuators and other pneumatic components.
The HOCAB 2PA… includes cable for positioning control of valves (open/closed).

The HOCAB Hybrid Cable and HOCAB UW bundle tube is not approved for remote control of:

- quick closing valves on tanks containing flammable liquids
- bilge valves on passenger vessels
- bulkhead closures and fire doors

### Temperature range

| | | |
|---|---|---|
| HOCAB 2PA | - 50°C up to + 70°C | Fixed installation |
| | - 20°C up to + 50°C | Moved (flexible installation) |
| HOCAB UW | - 20°C up to + 50°C | -- |

### Installation

For installation of the HOCAB Hybrid Cable and HOCAB UW bundle tube the "MANUAL HOCAB Hybridkabel F-03301-00116-HB" is to be observed.

In addition, DNV GL Rules Pt.4, Ch.8 – Section 10, para. 3.4 Fire protection measures are to be observed.

## Type Approval documentation

## Tests carried out

Internal burst pressure tests, external pressure test, flame spread test, IP 68 test, sea water resistance test.

## Marking of product

| Scope | Scope Example |
|---|---|
| Manufacturer name | Hoppe Marine |
| HOCAB 2PA… | HOCAB 2PA6A4X34 DHF PN=12bar |
| HOCAB UW …. | HOCAB UW 3PA8A4X14HF PN=12bar |

## Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNVGL-CP-0338, Sec.4.
End of certificate