Certificate no.:
TAE00004UX

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Flexible cable

with type designation(s)
Spiral cable 2,3 or 4 conductors 0,75mm2 or 1,5mm2.

issued to
ZTC Technology (Suzhou) Co., Ltd.
Zhangjiagang, Jiangsu, **China**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Flexible spiral cable for moving applications. Control and instrumentation. 300/500V
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2024-01-22**
This Certificate is valid until **2029-01-21**.
DNV local unit: **Jiangyin NB & CMC**

for **DNV**

Approval Engineer: **Ivar Bull**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Spiral cable for control and instrumentation 300/500V. 2,3 or 4 conductors 0,75mm2 or 1,5mm^2

Construction :

Conductors:	Extra fine stranded copper Class 6
Core insulation:	TPEE
Fillers:	Cotton yarn
Inner covering:	Aluminum foil or fleece tape
Armour (optional):	Tinned copper braid >50%
Sheath:	Black robust special polymer

Dynamic properties:

Maximum speed tested	0,33 [m/s]
Number of cycles @Temperature +20°C. Travel length 5 x spiral length	6000 cycles
Acceptance criteria dynamic tests: Increased resistance of conductor	Maximum 3% increase referred to start of test.
Suitable for torsion (Yes/No)	No
Suitable for gas dangerous areas zone 1 and 2	Armoured version only. Surface resistivity < 1 GΩ as per IEC 60079-0 items 26.13 and 7.4.2.

Application/Limitation

Not to be installed on open deck. Dynamic tests performed at +20°C

Manufacturers installation instructions to be followed.
Cable to be installed to prevent cable damage due to movement or external impact.
All conductor ends shall be provided with suitable pressured sockets or ferrules, or cable lugs.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV-CP-0417	2021-08	DNV Class Programme. Flexible electric cables	Dynamic tests performed @ +20°C Not to be used on open deck or cold or hot places.
EN 60079-0	2017-12	Explosive atmospheres – Part 0: Equipment – General requirements	Surface resistivity ≤ 1 GOhm as per IEC 60079-0 items 26.13 and 7.4.2.

Marking of product

Examples
ZTC - MARINE Cable – Flexible Spiral Cable 300/500V 2 x 1.5mm^2 - IEC 60332-1-2 – meter marking
ZTC - MARINE Cable – Flexible Spiral Cable 300/500V 4 x 0,75mm^2 - IEC 60332-1-2 – meter marking

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE