TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE00003VM
Revision No:
3

This is to certify:

that the Data transmission cables and systems

with type designation(s)
Cat 5e Cable, SF/UTP, LSZH, 4 Pair, AWG 24, Indoor 60332-3-25,
10GX Cat 6A+ Cable, U/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-22,
10GX Cat 6A+ Cable, F/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24,
10GX Cat 6A+ Cable, S/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24,
Cat 7 Cable, S/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24

issued to
Belden Wire & Cable B.V.
Venlo, Limburg, Netherlands

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

Application:

Data communication cables for indoor use. Cat Cable Installation / Horizontal cable.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2025-01-20**
This Certificate is valid until **2030-01-19**.
DNV local unit: **Netherlands CMC**

for **DNV**

Approval Engineer: **Ivar Bull**

Product description

Type(s): **Cat 5e Cable, SF/UTP, LSZH, 4 Pair, AWG 24, Indoor 60332-3-25,**
10GX Cat 6A+ Cable, U/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-22,
10GX Cat 6A+ Cable, F/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24,
10GX Cat 6A+ Cable, S/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24,
Cat 7 Cable, S/FTP, LSZH, 4 Pair, AWG 23, Indoor 60332-3-24

Conductors:	Solid Copper (Class 1)
Core insulation:	FPE foamed Polyethylene, PE for SF/UTP type
Individual screen (if any):	Al/PE tape, Aluminum facing outside (FTP)
Common Screen (if any):	Tinned copper braid min coverage 30% (S) or Al/PE tape with tinned copper drain wire (F)
Outer sheath:	SHF1

Electrical data at 20°C

Max DC Resistance:	95 Ohm/km
Max DCR unbalance between pairs:	4%
Max. DCR Unbalanced Within Pair:	2%
Max. Capacitance Unbalance :	1,600 pF/m
Max. Mutual Capacitance :	56 pF/m

Please refer to technical data sheet for detailed transmisson properties.

Application/Limitation

For indoor use only.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Temperature window

Operation:	- 40°C to +85°C
Installation:	- 15°C to +50°C

Place of manufacture :

DNV ID: 10652058

Type Approval documentation

Tests carried out

DNV CP-0403	2021-09	Data communication cables - category cables	
IEC 61156-5	2020-04	Multicore and symmetrical pair/quad cables for digital communications – Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – **Horizontal floor wiring** – Sectional specification	
ISO/IEC 11801-1	2017-11	Generic cabling for customer premises Part 1: General requirements	Category 8.2
EN 50173-1	2018-06	Information technology – Generic cabling systems – Part 1. General requirements.	
EN 50288-4-1	2013-06	Multi-element metallic cables used in analogue and digital communication and control - Part 4-1: Sectional specification for screened cables characterised up to 600MHz – Horizontal and building backbone cables	
IEC 60332-1-2(2004) AMD1(2015)	2015-07	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.	Flame retardant small scale. Distance between the lower edge of the top support and the onset of

			charring > 50 mm and charring not to extend downwards > 540 mm from the lower edge of the top support.
IEC 60332-3-22	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%

Marking of product

BELDEN 1633VHC – 4PR24 SHIELDED LSZH – SF/UTP CAT 5E IEC 60332-3-25 “manufacturing traceability” “meter marking” or

BELDEN 10GXV03 – 4PR23 SHIELDED LSZH – U/FTP CAT 6A IEC 60332-3-22 “manufacturing traceability” “meter marking” or

BELDEN 10GXV91 – 4PR23 SHIELDED LSZH – F/FTP CAT 6A IEC 60332-3-24 “manufacturing traceability” “meter marking” or

BELDEN 10GXV92 – 4PR23 SHIELDED LSZH – S/FTP CAT 6A IEC 60332-3-24 “manufacturing traceability” “meter marking” or

BELDEN 1885VNC – 4PR23 SHIELDED LSZH – S/FTP CAT 7 IEC 60332-3-24 “manufacturing traceability” “meter marking””

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are 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 Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE