TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE000018F
Revision No:
3

This is to certify:

that the Category cables

with type designation(s)
BizLink SeaLine Cat 6 / Cat 6A, BizLink SeaLine Cat 7

issued to
BizLink Special Cables Germany GmbH
Friesoythe, Niedersachsen, **Germany**

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

Application:

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

Issued at **Hamburg** on **2024-11-04**
This Certificate is valid until **2029-11-03**.
DNV local unit: **Hamburg – CMC North/East**

for **DNV**

Approval Engineer: **Carsten Hunsalz**

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.

Product description

BizLink SeaLine BizLink part number (for example L45467-J417-C6) Cat. 6 / Cat 6A and Cat. 7 cables

Conductor	Solid or stranded bare copper wire
Insulation	PE foam with skin
Cabling	Twisted pairs with aluminum foil and central strain relief (except BU and 02YS(ST).. types)
Metallic covering	Tinned copper wire braid (> 65 % coverage)
Inner-sheath (optional)	SHF1 (optional (if SWB or SWA))
Metallic covering (optional)	SWB - Steel wire braid (optional) SWA - Steel wire armouring (optional)
Sheath	SHF1 or SHF2 or SHF2 MUD

List refers to specification Version 2018-12-13 / F45052-F6500:

CAT 6 / CAT 6A / CAT 7 cables:

BizLink Type Designation	AWG	Conductor cross section mm²	overall diameter in mm	optional metal covering *)	sheath material
02YSCH 4X2X0.76/1.8-100 LI PIMF	22	0.34	10	-	SHF1
02YSCHX 4X2X0.76/1.8-100 LI PIMF	22	0.34	10	-	SHF2
02YSCH 4X2X0.76/1.8-100 LI PIMF	22	0.34	10	-	MUD-RES
02YSCH(Z)H 4X2X0.76/1.8-100 LI PIMF	22	0.34	12.6	SWB	SHF1
02YSCH(Z)HX 4X2X0.76/1.8-100 LI PIMF	22	0.34	12,6	SWB	SHF2
02YSCH(Z)H 4X2X0.76/1.8-100 LI PIMF	22	0.34	12,6	SWB	MUD-RES
02YSCHBH 4X2X0.76/1.8-100 LI PIMF	22	0.34	13.6	SWA	SHF1
02YSCHBHX 4X2X0.76/1.8-100 LI PIMF	22	0.34	13,6	SWA	SHF2
02YSCHBH 4X2X0.76/1.8-100 LI PIMF	22	0.34	13,6	SWA	MUD-RES
02YSCH 4X2X0.65/1.6-100 PIMF	22	0.34	8.6	-	SHF1
02YSCHX 4X2X0.65/1.6-100 PIMF	22	0.34	8,6	-	SHF2
02YSCH 4X2X0.65/1.6-100 PIMF	22	0.34	8,6	-	MUD-RES
02YSCH(Z)H 4X2X0.65/1.6-100 PIMF	22	0.34	11.1	SWB	SHF1
02YSCH(Z)HX 4X2X0.65/1.6-100 PIMF	22	0.34	11,1	SWB	SHF2
02YSCH(Z)H 4X2X0.65/1.6-100 PIMF	22	0.34	11,1	SWB	MUD-RES
02YSCHBH 4X2X0.65/1.6-100 PIMF	22	0.34	12.1	SWA	SHF1
02YSCHBHX 4X2X0.65/1.6-100 PIMF	22	0.34	12,1	SWA	SHF2
02YSCHBH 4X2X0.65/1.6-100 PIMF	22	0.34	12,1	SWA	MUD-RES
02YSCH 4X2X0.70/1.58-100 LI PIMF	23	0.29	8.6	-	SHF1
02YSCHX 4X2X0.70/1.58-100 LI PIMF	23	0.29	8,6	-	SHF2
02YSCH 4X2X0.70/1.58-100 LI PIMF	23	0.29	8,6	-	MUD-RES
02YSCH(Z)H 4X2X0.70/1.58-100 LI PIMF	23	0.29	11.1	SWB	SHF1
02YSCH(Z)HX 4X2X0.70/1.58-100 LI PIMF	23	0.29	11,1	SWB	SHF2
02YSCH(Z)H 4X2X0.70/1.58-100 LI PIMF	23	0.29	11,1	SWB	MUD-RES
02YSCHBH 4X2X0.70/1.58-100 LI PIMF	23	0.29	12.1	SWA	SHF1
02YSCHBHX 4X2X0.70/1.58-100 LI PIMF	23	0.29	12,1	SWA	SHF2
02YSCHBH 4X2X0.70/1.58-100 LI PIMF	23	0.29	12,1	SWA	MUD-RES
02YSCH 4X2X0.70/1.58-100 LI PIMF BU	23	0.29	8.6	-	SHF1
02YS(ST)CH 4X2X0.72/1.58-100 LI PIMF GY	23	0.29	8.6	-	SHF1
02YSCH 4X2X0.60/1.43-100 PIMF	23	0.29	8.7	-	SHF1

02YSCHX 4X2X0.60/1.43-100 PIMF	23	0.29	8,7	-	SHF2
02YSCH 4X2X0.60/1.43-100 PIMF	23	0.29	8,7	-	MUD-RES
02YSCH(Z)H 4X2X0.60/1.43-100 PIMF	23	0.29	11.2	SWB	SHF1
02YSCH(Z)HX 4X2X0.60/1.43-100 PIMF	23	0.29	11,2	SWB	SHF2
02YSCH(Z)H 4X2X0.60/1.43-100 PIMF	23	0.29	11,2	SWB	MUD-RES
02YSCHBH 4X2X0.60/1.43-100 PIMF	23	0.29	12.2	SWA	SHF1
02YSCHBHX 4X2X0.60/1.43-100 PIMF	23	0.29	12,2	SWA	SHF2
02YSCHBH 4X2X0.60/1.43-100 PIMF	23	0.29	12,2	SWA	MUD-RES

Duplex cable

BizLink Type Designation	AWG	Conductor cross section mm²	overall diameter in mm	optional metal covering *)	sheath material
02YSC H 2X4X2X0.76/1.8-100 LI PIMF	22	0.34	see data sheet	-	SHF1
02YSC H 2X4X2X0.65/1.6-100 PIMF	22	0.34	see data sheet	-	SHF1
02YSC H 2X4X2X0.70/1.58-100 LI PIMF	23	0.29	see data sheet	-	SHF1
02YSC H 2X4X2X0.60/1.43-100 PIMF	23	0.29	see data sheet	-	SHF1

*) SWB - Steel wire braid
SWA - Steel wire armouring

Application/Limitation

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.

Due to the low cross section of these cables, extra precautions shall be made during installation. In order to achieve a transmission link compliant with Category 7, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

Horizontal cables Cat. 6 / 6A and 7 (can also be used for work area wiring)
Flame retardant in bunch; cat A. Low smoke
Outer sheath SHF1 or SHF2 or SHF MUD according to NEK TS 606

Type Approval documentation

Datasheets : L45467-J417-C276-EN/C6-EN/C196/C166-EN/C226-EN/C256-EN/C286-EN/
C476-EN/C786-EN/C36-EN/C86-EN/C106-EN/C136-EN/C166-EN/B3-EN/B4-EN,
L45467-J816-C106-EN
L45467-J416-C96-EN/C106-EN/C186-EN/C236-EN/C246-EN/C266-EN/C276-EN/
C306-EN/C446-EN/
L45467-J417-C16-EN/C26-EN/C46-EN/C56-EN/C66-EN/C116-EN/C126-EN/
C156-EN/
L45467-J816-C106-EN
Doc. No.: L45467-j417-C16 dated 09.07.2010, updated 25.03.2013
Doc no.: L45467-j417-C26 dated 09.07.2010, updated 25.03.2013
Spezifikation Version 2018-12-13 / F45052-F6500

Test reports: J415-C256 MPA dresden test report no 2012-b-3477/02
J415-C256 MPA dresden test report no 2012-b-5325/01
J415-C246 MPA dresden test report no 2012-b-3477/03
J415-C246 MPA dresden test report no 2012-b-5326/01
DNV type test _29052013 _ 22AWG cat7 SHF2 Mud-res.pdf (3971-13)
DNV type test 29052013 26 AWG Cat7 SHF1
MPA Dresden test report no 2012-b-5249
MPA Dresden test report no 2012-b-3477/01
Type test ECCOH 5806 Mud-res.pdf Test specification F45052-F5600
MPA Dresden test report no 20180868/01
Leoni dated 05.06. / 14.06. / 29.11.2018

Tests carried out

Standard	Release	General description	Limitation
DNV-CP-0403	2021-09	DNV Type approval program for Data communication cables – category cables	Ref. IEC 61156-5 standard Category 6/6A and 7.
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 wiring – Sectional specification	Reference to requirement for category cable: 6 (250/MHz), 6A (500MHz), 7 (600MHz),
IEC 61156-6	2020-04	Multicore and symmetrical pair/quad cables for digital communications – Part 6: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Work area wiring – Sectional specification	Reference to requirement for category cable: 6 (250MHz), 6A (500MHz), 7 (600MHz),
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	Bunch test Category A
IEC 60332-3-24	2018-07	Tests on electric cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables	Bunch test Category C
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 – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%
NEK 606 Ed. 4	2022	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	Mud resistance test for cable types with SHF2 MUD sheath: IRM 902 / 903 100°C 7d. Calcium Bromide 70°C 56d. EDC 95-11 base oil 70°C 56d.

Marking of product

"sequential length in meter * BizLink SeaLine SCG * BizLink part number * nomenclature (type designation) CAT6 or CAT6A or CAT7 IEC 60332-3-22 SHF2 or MUD RES * "internal lot number"

Example:
00020m * BizLink SeaLine SCG * L45467-J416-C16 * 02YSCH 4X2X0.60/1.4-100 LI PIMF CAT7 IEC 60332-3-22 SHF2 * 130180

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) checked (if not available tests according to 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.

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