



TYPE APPROVAL CERTIFICATE

Certificate No:
TAE000020S
Revision No:
1

This is to certify:

That the Data transmission cables and systems

with type designation(s)

Unarmoured or Armoured coaxial cables MG RG58, MG RG59, MG RG213, MG RG214, MG RG11, MG RG6

Issued to

TELDOR Cables & Systems Ltd.

Israel, Israel

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-12-05**

for **DNV**

This Certificate is valid until **2027-06-11**.

DNV local unit: **Haifa**

Approval Engineer: **Ivar Bull**

Frederik Tore Elter
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.

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

Coaxial cables, unarmoured:

Construction / Characteristics	RG58	RG59	RG213	RG214	RG6	RG11
Impedance (nominal)	50 Ohm	75 Ohm	50 Ohm	50 Ohm	75 Ohm	75 Ohm
Inner Conductor type	Annealed tinned / Bare Copper	Annealed tinned / Bare Copper	Annealed tinned / Bare Copper	Silver plated Copper	Copper Clad	Annealed tinned / Bare Copper
Conductor construction	19x0.18mm / solid 0.9mm	Stranded or Solid 0.57mm	7x0.75mm	7x0.75mm	0.72+0.025 mm Solid	7x0.4mm
Insulation material	PE	PE	PE	PE	PE	PE
Insulation diameter (nominal)	2.95mm	3.71mm	7.24mm	7.24mm	4.57mm	7.24mm
Shield	Braided annealed tinned / bare copper	Braided annealed tinned / bare copper	Braided annealed tinned / bare copper	Silver plated Copper / Braided annealed tinned / bare copper	Aluminum Braid + Al/PE/Al tape	Braided annealed tinned / bare copper
Shield/Braid conductor	0.127mm	0.160mm	0.18mm	0.16mm	--	0.16mm
Jacket / sheath material	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD
Jacket/sheath diameter (nominal)	4.95mm	6.15mm	10.3mm	10.8mm	7.0mm	10.3mm

Coaxial cables, armoured:

Construction / Characteristics	RG58	RG59	RG213	RG214	RG6	RG11
Impedance (nominal)	50 Ohm	75 Ohm	50 Ohm	50 Ohm	75 Ohm	75 Ohm
Inner Conductor type	Annealed tinned / Bare Copper	Annealed tinned / Bare Copper	Annealed tinned / Bare Copper	Silver plated Copper	Copper Clad	Annealed tinned / Bare Copper
Conductor construction	19x0.18mm / solid 0.9mm	Stranded or Solid 0.57mm	7x0.75mm	7x0.75mm	0.72+0.025 mm Solid	7x0.4mm
Insulation material	PE	PE	PE	PE	PE	PE
Insulation diameter (nominal)	2.95mm	3.71mm	7.24mm	7.24mm	4.57mm	7.24mm
Shield	Braided annealed tinned / bare copper	Braided annealed tinned / bare copper	Braided annealed tinned / bare copper	Silver plated Copper / Braided annealed tinned / bare copper	Aluminum Braid + Al/PE/Al tape	Braided annealed tinned / bare copper
Shield/Braid conductor	0.127mm	0.160mm	0.18mm	0.16mm	--	0.16mm
Jacket / sheath material	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD
Jacket/sheath diameter (nominal)	4.95mm	6.15mm	10.3mm	10.8mm	7.0mm	10.3mm
Armor (See below)	Braiding / Wires / Tape	Braiding / Wires / Tape	Braiding / Wires / Tape			
Jacket/sheath material	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/SHF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD	SHF1/SHF2/S HF2-MUD
Outer Jacket diameter (nominal)	6.7mm	10.3mm	14mm	14.5mm	10.5mm	15.5mm

Armor options:

- B: braided galvanized steel wire
- R: corrugated steel tape
- W: served steel wire
- P: Bronze wire braid
- C: Copper wire braid
- T: Tinned copper wire braid

Outer sheath: SHF1, SHF2 or SHF2 MUD, single or double layer

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.

Temperature window:

Operation: -40°C to +85 °C

Installation: -15°C to +50°C

Type Approval documentation

Datasheets and Test reports See approval letter MCANO381/IVABU/262.1-025553-J-10.

Datasheets with test certificates:

RG6 armoured SHF2, dated 3.12.22

RG6 Unarmoured SHF1, dated 3.12.22

RG11 Armoured SHF1, dated 1.8.22

RG11 Unarmoured SHF1, dated 3.12.22

RG58 Armoured SHF2 dated 3.12.22

RG58 Unarmoured SHF1, dated 2.12.22

RG59 Armoured SHF2 MUD, dated 3.12.22

RG59 Unarmoured SHF1, dated 3.12.22

Tests carried out

Standard	Release	General description	Limitation
IEC 60096-0-1	2012	Radio frequency cables part 0-1: Guide to design of detail specifications – Coaxial cables	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
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 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically mounted bunched wires or cables - Category C	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:
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH 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
NEK TS606 Ed6	2022-03	Cables for offshore installations - halogen-free low smoke flame-retardant / fire-resistant (HFFR-LS). Technical specification.	Mud resistance test: IRM903 100°C 7d. Calcium Bromide 70°C 56d. EDC 95/11 70°C 56d

Marking of product

TELDOR MG RG type, Impedance, Type P/N, Armor (if any), Jacket type, meter mark – IEC 60332-22 OR IEC 60332-2-24 – LOT No.

Family	TYPE	Armor	Flame Rating	Options
MG	RG58 RG59 RG213 RG214 RG11 RG6	B =Galvanized Braided Steel Wire R=Corrugated Steel Tape W =Galvanized Served Steel Wire P =Bronze wire braid C =Copper wire braid T =Tin Copper wire braid	A=IEC60332-3-22 (Cat.A) C=IEC60332-3-24 (Cat.C)	XX Alpha numeric

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