



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **E-12791**

This is to certify that the
Termination and Joint for Cable

with type designation(s)
Se page 2 and 3 for detailed type designations.

Issued to
Tyco Electronics (Kunshan) Ltd. Yu Shan Branch
Kunshan Jiangsu, China

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Cold-shrink Termination for Polymeric Insulated Cable 6.35/11kV or 8.7/15kV
with Copper tape shield, three-core or single-core (without armour).
Separate variants for indoor (CSTI) and outdoor use (CSTO).

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-11-18**

DNV local station: **Shanghai**

Approval Engineer: **Ivar Bull**

for **Det Norske Veritas AS**

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Marit Laumann
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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Medium voltage cold shrink indoor & outdoor termination for cables - 1 or 3 cores with mechanical lugs:

6,35/11(12) kV three core termination

Kit description indoor	Kit description Outdoor	Application range [mm ²]
CSTI-3322	CSTO-3322	25 – 95
CSTI-3332	CSTO-3332	95 – 240
CSTI-3342	CSTO-3342	300 – 400

6.35/11(12) kV single core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-3122	CSTO-3122	25 – 95
CSTI-3132	CSTO-3132	95 – 240
CSTI-3142	CSTO-3142	300 – 400
CSTI-3152	CSTO-3152	500 – 630

8,7/15(17.5) kV three core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-4322	CSTO-4322	25 – 95
CSTI-4332	CSTO-4332	95 – 240
CSTI-4342	CSTO-4342	300 – 400

8,7/15(17.5) kV single core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-4322	CSTO-4322	25 – 95
CSTI-4332	CSTO-4332	95 – 240
CSTI-4342	CSTO-4342	300 – 400
CSTI-4352	CSTO-4352	500 - 630

Medium voltage cold shrink indoor & outdoor termination for cables - 1 or 3 cores with crimp compression lugs:

6,35/11(12) kV three core termination

Kit description indoor	Kit description Outdoor	Application range [mm ²]
CSTI-12-5012	CSTO-12-5012	50 - 120
CSTI-12-1518	CSTO-12-1518	150 - 185
CSTI-12-2440	CSTO-12-2440	240 - 400

6.35/11(12) kV single core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-12-5015-SC	CSTO-12-5015-SC	50 - 150
CSTI-12-1840-SC	CSTO-12-1840-SC	185 - 400

8,7/15(17.5) kV three core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-17.5-5012	CSTO-17.5-5012	50 - 120
CSTI-17.5-1524	CSTO-17.5-1524	150 - 240
CSTI-17.5-3040	CSTO-17.5-3040	300 - 400

8,7/15(17.5) kV single core termination

Kit description Indoor	Kit description Outdoor	Application range [mm ²]
CSTI-17.5-3512-SC	CSTO-17.5-3512-SC	35 - 120
CSTI-17.5-1530-SC	CSTO-17.5-1530-SC	150 - 300

Application/Limitation

Installation to be done in accordance with manufacturers installation instructions.

Type Approval documentation

Installation Instruction PII-0097-1. Cold-shrink Termination for Polymeric Insulated Cable 6.35/11(12) kV or 8.7/15(17.5)kV with Copper tape shield, three-core or single-core (without armour). Dated 13.05.2013

Tests carried out

Tested according to IEC 60502-4 (2010-12): Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) –

Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)

Product is also tested according to equivalent standard GB-12706.4 with minor deviations shown in table.

	Test Sequence	GB-12706.4	8.7/15 (10kV)	IEC-60502-4 2005	8.7/15 (17.5) kV
1	AC Withstand or DC withstand	4.5U ₀ , 5min. or 4U ₀ , 15min.	39	4.5U ₀ , 5min. or 4U ₀ , 15min.	39
2	AC withstand	4U ₀ , 1min, Rain	35	4U ₀ , 1min, Rain	35
3	Partial Discharge	1.73U ₀ <=10pC	15	1.73U ₀ <=10pC	15
4	Impulse (cond. temp 95degC)	+/- 10 times	95	+/- 10 times	95
5	Load cycling in air (cond. temp 95degC)	3 cycles at 2.5U ₀	23	---	---
6	Partial Discharge (cond. temp 95degC)	1.73U ₀ <=10pC	15	---	---
7	Load cycling in air (cond. temp 95degC)	60 cycles at 2.5U ₀	23	60 cycles at 2.5U ₀	23
8	Partial Discharge (cond. temp 95degC)	1.73U ₀ <=10pC	15	1.73U ₀ <=10pC	15
9	Short circuit (screen)	2 times	---	2 times	---
10	Short circuit (conductor)	2 times	---	2 times	---
11	Dynamic short circuit	1 time	---	1 time	---
12	Impulse	+/- 10 times	95	+/- 10 times	95
13	AC withstand	2.5U ₀ , 15min.	23	2.5U ₀ , 15min.	23
14	Moisture test for indoor termination	1.25U ₀ , 300hrs	11	1.25U ₀ , 300hrs	11
15	Salt fog test for outdoor termination	1.25U ₀ , 1000hrs	11	1.25U ₀ , 1000hrs	11

Marking of product

Raychem – Type designation – Voltage - Batch no.

Certificate retention survey

The scope of the retention/renewal survey 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 survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Check results from Production Sample Tests (PST) and Routine tests (RT). If test reports are not available, tests according to PST and RT 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.

Survey to be performed at least every second year.

END OF CERTIFICATE