



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-11958

This is to certify that the  
**Electric Power Cable**

with type designation(s)  
**MC-210Q, MC-210C, MC-210T 0,6/1 kV**

Manufactured by  
**Wilson Cables Private Limited**  
**SINGAPORE, Singapore**

is found to comply with  
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards  
IEC 60092-353 (2011-08)  
IEC 60332-3-22 (2009-02)

Application  
**General power, lighting and control**  
**Large scale flame retardant Cat. A.**

**Voltage class (kV) 0,6/1**  
**Temp. class (°C) 90**

Høvik, 2012-10-09  
for Det Norske Veritas AS



This Certificate is valid until  
**2016-12-31**

*Marit Laumann*  
**Marit Laumann**  
**Head of Section**

DNV local office:  
**Singapore**

*Ivar Bull*  
**Ivar Bull**  
**Surveyor**

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.



Certificate No.: E-11958  
File No.: 827.10  
Job Id.: 262.1-013571-1

## Product description

Type: MC-210Q & MC-210C & MC-210T 0,6/1kV  
Brand name: WILSON CABLES

Construction:

Conductors: Stranded copper  
Core insulation: XLPE  
Inner covering: Extruded (ST2) or Lapped (PVC tape)  
Metal covering: Galv. steel wire braid (Q) for multicore cables,  
Plain copper wire braid (C), Tinned copper wire braid (T)  
Outer sheath: ST2 (Flame retardant PVC)

| Number of<br>cores x<br>conductor<br>cross-<br>section | Approx. overall<br>diameter |                               |
|--------------------------------------------------------|-----------------------------|-------------------------------|
|                                                        | Lapped<br>inner<br>covering | Extruded<br>inner<br>covering |
| mm <sup>2</sup>                                        | mm                          |                               |
| 1 x 1.0                                                | 7,0                         | 8,5                           |
| 1 x 1.5                                                | 7,3                         | 8,7                           |
| 1 x 2.5                                                | 7,6                         | 9,1                           |
| 1 x 4                                                  | 8,5                         | 10,0                          |
| 1 x 6                                                  | 9,0                         | 10,5                          |
| 1 x 10                                                 | 10,0                        | 11,5                          |
| 1 x 16                                                 | 11,2                        | 12,7                          |
| 1 x 25                                                 | 12,5                        | 14,5                          |
| 1 x 35                                                 | 14,2                        | 15,8                          |
| 1 x 50                                                 | 15,7                        | 17,2                          |
| 1 x 70                                                 | 17,7                        | 19,1                          |
| 1 x 95                                                 | 19,8                        | 20,3                          |
| 1 x 120                                                | 21,4                        | 22,8                          |
| 1 x 150                                                | 23,4                        | 24,8                          |
| 1 x 185                                                | 25,7                        | 27,2                          |
| 1 x 240                                                | 30,2                        | 31,6                          |
| 1 x 300                                                | 32,9                        | 34,7                          |
|                                                        |                             |                               |
| 2 x 1.0                                                | 9,8                         | 11,3                          |
| 2 x 1.5                                                | 10,4                        | 11,9                          |
| 2 x 2.5                                                | 11,5                        | 13,0                          |
| 2 x 4                                                  | 12,6                        | 14,2                          |
| 2 x 6                                                  | 14,0                        | 16,0                          |
| 2 x 10                                                 | 16,4                        | 18,0                          |
| 2 x 16                                                 | 18,6                        | 20,2                          |
| 2 x 25                                                 | 22,7                        | 24,5                          |
| 2 x 25 *                                               | 18,2                        | 20,2                          |
| 2 x 35                                                 | 25,4                        | 26,8                          |
| 2 x 35 *                                               | 20,8                        | 22,3                          |
| 2 x 50                                                 | 28,8                        | 29,8                          |
| 2 x 50 *                                               | 23,5                        | 24,8                          |
| 2 x 70                                                 | 33,1                        | 34,2                          |
| 2 x 70 *                                               | 26,7                        | 28,2                          |
| 2 x 95 *                                               | 29,4                        | 30,4                          |
| 2 x 120 *                                              | 33,2                        | 34,0                          |

| Number of<br>cores x<br>conductor<br>cross-<br>section | Approx. overall<br>diameter |                               |
|--------------------------------------------------------|-----------------------------|-------------------------------|
|                                                        | Lapped<br>inner<br>covering | Extruded<br>inner<br>covering |
| mm <sup>2</sup>                                        | mm                          |                               |
|                                                        |                             |                               |
| 3 x 1.0                                                | 9,6                         | 11,8                          |
| 3 x 1.5                                                | 10,5                        | 12,7                          |
| 3 x 2.5                                                | 11,3                        | 13,6                          |
| 3 x 4                                                  | 12,6                        | 14,8                          |
| 3 x 6                                                  | 14,5                        | 16,8                          |
| 3 x 10                                                 | 16,8                        | 19,2                          |
| 3 x 16                                                 | 19,1                        | 21,4                          |
| 3 x 25                                                 | 22,0                        | 25,4                          |
| 3 x 25 *                                               | 20,5                        | 23,9                          |
| 3 x 35                                                 | 25,3                        | 27,6                          |
| 3 x 35 *                                               | 22,8                        | 25,1                          |
| 3 x 50                                                 | 28,3                        | 30,7                          |
| 3 x 50 *                                               | 25,5                        | 27,9                          |
| 3 x 70 *                                               | 29,3                        | 32,1                          |
| 3 x 95 *                                               | 32,8                        | 36,0                          |
| 3 x 120 *                                              | 37,3                        | 40,3                          |
| 3 x 150 *                                              | 42,4                        | 44,4                          |
|                                                        |                             |                               |
| 4 x 1.0                                                | 10,6                        | 12,7                          |
| 4 x 1.5                                                | 11,3                        | 13,6                          |
| 4 x 2.5                                                | 12,3                        | 14,5                          |
| 4 x 4                                                  | 14,0                        | 16,6                          |
| 4 x 6                                                  | 15,8                        | 18,6                          |
| 4 x 10                                                 | 18,3                        | 20,6                          |
| 4 x 16                                                 | 20,5                        | 23,2                          |
| 4 x 25                                                 | 25,1                        | 26,6                          |
| 4 x 25 *                                               | 23,3                        | 25,4                          |
| 4 x 35                                                 | 28,2                        | 30,3                          |
| 4 x 35 *                                               | 25,9                        | 28,0                          |
| 4 x 50                                                 | 32,6                        | 34,5                          |
| 4 x 50 *                                               | 29,1                        | 31,0                          |
|                                                        |                             |                               |
| 5 x 1.0                                                | 12,2                        | 13,6                          |
| 6 x 1.0                                                | 13,0                        | 14,5                          |

| Number of<br>cores x<br>conductor<br>cross-<br>section | Approx. overall<br>diameter |                               |
|--------------------------------------------------------|-----------------------------|-------------------------------|
|                                                        | Lapped<br>inner<br>covering | Extruded<br>inner<br>covering |
| mm <sup>2</sup>                                        | mm                          |                               |
| 7 x 1.0                                                | 13,0                        | 14,5                          |
| 8 x 1.0                                                | 14,3                        | 15,8                          |
| 10 x 1.0                                               | 15,3                        | 16,8                          |
| 12 x 1.0                                               | 16,4                        | 18,0                          |
| 16 x 1.0                                               | 18,1                        | 19,8                          |
| 19 x 1.0                                               | 19,4                        | 21,0                          |
| 24 x 1.0                                               | 21,5                        | 23,0                          |
| 27 x 1.0                                               | 22,6                        | 24,0                          |
| 37 x 1.0                                               | 25,2                        | 27,0                          |
|                                                        |                             |                               |
| 5 x 1.5                                                | 12,9                        | 14,5                          |
| 6 x 1.5                                                | 14,0                        | 16,0                          |
| 7 x 1.5                                                | 14,0                        | 16,0                          |
| 8 x 1.5                                                | 15,2                        | 16,8                          |
| 10 x 1.5                                               | 16,6                        | 18,2                          |
| 12 x 1.5                                               | 17,6                        | 19,2                          |
| 16 x 1.5                                               | 19,8                        | 21,3                          |
| 19 x 1.5                                               | 21,0                        | 22,6                          |
| 24 x 1.5                                               | 23,0                        | 25,0                          |
| 27 x 1.5                                               | 24,2                        | 26,0                          |
| 37 x 1.5                                               | 27,5                        | 29,2                          |
|                                                        |                             |                               |
| 5 x 2.5                                                | 14,4                        | 16,1                          |
| 6 x 2.5                                                | 15,6                        | 17,3                          |
| 7 x 2.5                                                | 15,6                        | 17,3                          |
| 8 x 2.5                                                | 16,7                        | 18,3                          |
| 10 x 2.5                                               | 18,2                        | 19,9                          |
| 12 x 2.5                                               | 19,4                        | 21,2                          |
| 16 x 2.5                                               | 21,6                        | 23,2                          |
| 19 x 2.5                                               | 23,1                        | 25,0                          |
| 24 x 2.5                                               | 25,6                        | 27,4                          |
| 27 x 2.5                                               | 26,8                        | 28,3                          |
| 37 x 2.5                                               | 30,5                        | 32,2                          |

\* sector shaped



Certificate No.: E-11958  
File No.: 827.10  
Job Id.: 262.1-013571-1

### Application/Limitation

The requirements of SOLAS Amendments 1981 Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bundles of Cables or Wires) are fulfilled without any additional measures.

### Type Approval documentation

Data sheets: Company standard 2:2004 table 2 dated 2005-01-25

Test reports: SISIR I1-18428/A/FHS/OBS dated 94-08-23 + amendment dated 96-02-14  
SISIR I1-18428/B/FHS/OBS dated 94-08-23 + amendment dated 96-02-14  
SISIR I1-18428/C/FHS/OBS dated 94-08-23 + amendment dated 96-02-14  
SISIR I1-18907/FHS/CSG dated 94-10-21 + amendment dated 96-02-14  
SISIR G169779/JC dated 95-12-08  
EWCS-DNV-1 dated 96-03-20, EWCS-DNV-2 dated 96-03-22 and EWCS-DNV-3 dated 96-04-03.  
PSB 1-23292/FHS/WHC dated 1997-12-01.  
EWCS-03-98 dated 98-09-23, EWCS-04-98 dated 98-09-29 and EWCS-01-99 dated 99-01-29

### Tests carried out

Type tests according to IEC 60092-350, IEC 60332-3 cat. A/F and IEC 60332-3 cat. C.  
Cold bending test and cold impact test at -20 °C.

### Marking of product

WILSON CABLES – MC-210Q or MC-210C or MC-210T- Size – 0,6/1 kV – IEC 60332-3-22 – Lot 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)
- 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.

Survey to be performed at least every second year.

END OF CERTIFICATE