



## Type Approval Certificate

*This is to certify* that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

<b>PRODUCER</b>	B.V. Twentsche Kabelfabriek Spinnerstraat 15 7480 AA HAAKSBERGEN The Netherlands
<b>PLACE OF PRODUCTION</b>	Spinnerstraat 15 7480 AA HAAKSBERGEN The Netherlands
<b>DESCRIPTION</b>	- CU conductor, XLPE insulated and SHF 1 sheathed - CU conductor, XLPE insulated, copper wire braid and SHF 1 outer sheathed.
<b>TYPE</b>	- CS90 mbzh MarineLine HALOGEN FREE 0,6/1kV, type YZp - CS90 mbzh MarineLine HALOGEN FREE 0,6/1kV, type YOZp - CS90 mbzh MarineLine HALOGEN FREE 0,6/1kV, type YOZp EMC  - CS90 mbzh MarineLine+ HALOGEN FREE 0,6/1kV, type YZp - CS90 mbzh MarineLine+ HALOGEN FREE 0,6/1kV, type YOZp - CS90 mbzh MarineLine+ HALOGEN FREE 0,6/1kV, type YOZp EMC  - CS90 mbzh MarineFlex HALOGEN FREE 0,6/1kV, type YZp - CS90 mbzh MarineFlex HALOGEN FREE 0,6/1kV, type YOZp - CS90 mbzh MarineFlex HALOGEN FREE 0,6/1kV, type YOZp EMC
<b>APPLICATION</b>	Fixed power, lighting wiring for Marine and Offshore installation.

Certificate No. 17/30011

Issue Date 03 May 2017

Expiry Date 01 January 2022

Sheet 1 of 2

H.L. Reekers  
Lloyd's Register EMEA  
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RATINGS	<u>No. of Cores</u>	<u>Cross Section Area (mm<sup>2</sup>)</u>
	1, 2, 3, 4, 5	1, 1.5, 2.5, 4, 6, 10, 16, 25, 35, 50, 70 95, 120, 150, 185, 240, 300.
	6 to 37	1, 1.5, 2.5
	Note: for MarineLine+ till 7	As above
	Note: for MarineFlex till 7	As above
	Voltage rating	: 0,6/1kV
	Maximum rated conductor temp.	: 90 °C
STANDARDS	<u>Construction</u>	: according IEC 60092-350 and 60092-353
	<u>Conductor</u>	: stranded copper to IEC 60228 < 35 mm <sup>2</sup> class 2 round, > 35 mm <sup>2</sup> class 2 Sector shaped. For MarineLine+ class 2 round. For MarineFlex class 5 round.
	<u>Insulation</u>	: XLPE to IEC 60092-351
	<u>Inner sheath</u>	: - <6 cores foil, > 6 cores foil. For MarineLine+ HFFR filler. For MarineFlex HFFR filler
	<u>Braiding</u>	: copper wire braiding. For EMC types copper wire braid + CU/PET Tape
	<u>Outer Sheath</u>	: SHF 1 to IEC 60092-359
	<u>Flame Retardant</u>	: to IEC 60332-3 Cat. A IEC 60332-1
<u>Halogen-acid content</u>	: to IEC 60754-1	
<u>Smoke Density</u>	: to IEC 61034	

*"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."*

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