

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Contactor**

with type designation(s)

MC Type Contactor

Issued to

LSIS Co., Ltd.**Cheongju-si Chungcheongbuk-do, Korea, Republic of Korea**

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards**Application :****For installation inside switchboard/enclosures onboard ships and offshore units.**

Rated Voltage (V)	Up to 690
Rated Current (A)	9 to 800
Frequency (Hz)	50/60

This Certificate is valid until **2018-12-31**.Issued at **Busan** on **2015-04-15**DNV GL local station: **Seoul**Approval Engineer: **Byoung So Lee**for **DNV GL**

Baeg Soon Choi
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.

Certificate No: **E-13894**
File No: **823.20**
Job Id: **262.1-009656-3**

Product description

3-pole electromagnetic contactor that controls the switches of electric circuit, the thermal overload relay that protects the overload of motor according to utilization category as listed below.

A. Utilization category AC-2 and AC-3:

TYPE	ELECTRICAL RATINGS			
	200 - 240 V (A)	380 - 440V (A)	500 - 550V (A)	690V (A)
MC - 6a	9	7	6	4
MC - 9a	11	9	7	5
MC - 12a	13	12	12	9
MC - 18a	18	18	13	9
MC - 9b	11	9	7	6
MC - 12b	13	12	12	9
MC - 18b	18	18	13	9
MC - 22b	22	22	18	15
MC - 32a	32	32	28	20
MC - 40a	40	40	32	-
MC - 50a	55	50	43	28
MC - 65a	65	65	60	-
MC - 75a	75	75	64	42
MC - 85a	85	85	75	45
MC - 100a	105	105	85	-
MC - 130a	130	130	90	60
MC - 150a	150	150	100	60
MC - 185a	185	185	180	120
MC - 225a	225	225	200	150
MC - 265a	265	265	225	185
MC - 330a	330	330	250	220
MC - 400a	400	400	350	300
MC - 500a	500	500	400	380
MC - 630a	630	630	500	420
MC - 800a	800	800	720	630

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B. Utilization category AC- 4:

TYPE	ELECTRICAL RATINGS(A)	
	200 - 240 V (A)	380 - 440V (A)
MC - 6a	7	5
MC - 9a	8	6
MC - 12a	11	9
MC - 18a	16	11
MC - 9b	8	6
MC - 12b	11	9
MC - 18b	16	11
MC - 22b	18	13
MC - 32a	20	17
MC - 40a	25	24
MC - 50a	35	32
MC - 65a	50	47
MC - 75a	55	52
MC - 85a	65	62
MC - 100a	80	75
MC - 130a	93	90
MC - 150a	120	110
MC -185a	150	150
MC - 225a	180	180
MC - 265a	200	200
MC - 330a	220	220
MC - 400a	300	300
MC - 500a	350	350
MC - 630a	400	400
MC -800a	530	630

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C. Utilization category AC-1

Type	Electrical Ratings
	380 - 440 V (A)
MC - 6a	25
MC - 9a	25
MC - 12a	25
MC - 18a	32
MC - 9b	25
MC - 12b	25
MC - 18b	40
MC - 22b	40
MC - 32a	50
MC - 40a	60
MC - 50a	70
MC - 65a	100
MC - 75a	110
MC - 85a	135
MC - 100a	160
MC - 130a	160
MC - 150a	210
MC - 185a	230
MC - 225a	275
MC - 265a	300
MC - 330a	350
MC - 400a	450
MC - 500a	580
MC - 630a	660
MC - 800a	900

Application/Limitation

For installation inside switchboards/ enclosures onboard ships and mobile offshore unit.

Type Approval documentation

Specification for magnetic contactor, MS-623-694 dated 2010-07-15

Test reports: R410-1282 MC-6a, 9a, 12a, 18a dated 2010-08-27
R410-1283 MC-9b, 12b, 18b, 22b dated 2010-08-27
R410-1284 MC-32a, 40a dated 2010-08-27
R410-1285 MC-50a, 65a dated 2010-08-27
R410-1286 MC-75a, 85a, 100a dated 2010-08-27
R410-1287 MC-130a, 150a dated 2010-08-27
R410-1289 MC-265a, 330a, 400a dated 2010-08-27
R410-1290 MC-500a, 630a, 800a dated 2010-08-27

Type assessment report for retention dated 2014-11-27

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Tests carried out

Type tests according to IEC 60947-4-1. Environmental tests including dry heat, damp heat, vibration, high voltage, cold, inclination and insulation resistance test.

Marking of product

LSIS – Type designation - Rating

Periodical assessment

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the survey are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE