



中國驗船中心  
CR Classification Society

Certificate No. 872-18-004

Date November 22, 2018

軍用產品工廠認可證書  
CERTIFICATE OF WORKS APPROVAL  
for  
PRODUCTS FOR NAVAL APPLICATION

*This is to certify that the works of*

**廣泰金屬工業股份有限公司路竹廠**

**Kuang Tai Metal Industrial Co., Ltd. Lujhu Plant**

has been approved by CR Classification Society in accordance with the requirements given in *CR Guidelines for Approval of CRHS-56/70 High Strength Low Alloy Steel for Critical Application 2017, Chapter 3* as a recognized manufacturer of the products of

***Welding Material for  
High Strength Low Alloy Steel Plates***

for use in ships classed or intended to be classed with the Society.

*This approval is valid until November 21, 2021*

CHIH-WEN CHENG

中國驗船中心 總驗船師

Chief Surveyor

CR Classification Society

*(See next page for further details regarding the approval.)*

This certificate evidences that the works of the Manufacturer has been assessed to be in compliance with the specified CR Rules or Guidelines and to be capable of providing the listed products. This Certificate may be cancelled by CR Classification Society if the applicant makes any changes or modifications relevant to the approval, which have not been notified to, and agreed in writing with the Society. Any person not a party to the contract pursuant to which this document is delivered may not assert a claim against CR Classification Society for any liability arising out of errors or omissions which may contained in said documents, or for errors of judgment, fault or negligence committed by personnel of the Society.

Please refer to the CR website for the latest status of this approval: [www.crclass.org/aw0/aw0.htm](http://www.crclass.org/aw0/aw0.htm)

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**Name and Address of Manufacturer:**

工廠登記名稱:

廣泰金屬工業股份有限公司路竹廠

Kuang Tai Metal Industrial Co., Ltd. Lujhu Plant

營利事業登記名稱:

廣泰金屬工業股份有限公司高科分公司

Kuang Tai Metal Industrial Co., Ltd. Kaohsiung Branch

高雄市路竹區路科三路8號

No. 8, Luke 3rd. Road., Kaohsiung Science Park, Lujhu,

Kaohsiung, Taiwan, R.O.C.

**Name and Address of Subcontractor:**

中國鐸條機械股份有限公司安康廠

China Electrode and Machinery Co., Ltd. Ankang Plant

新北市新店區安康路三段527號

No.527, Section 3, Ankang Road, Sindian Dist.,

New Taipei City, Taiwan, R.O.C.

**Product Specification:**

Brand name/type : KL-108M/Shielded Metal Arc Welding(SMAW)

Grade : CR-E6918-M1(MIL-10018-M1)

Size : 3.2 mm, 4.0 mm

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**Related Documents & Remarks:**

1. The manufacturing process of KL-108M (SMAW/CR-E6918-M1(MIL-10018-M1) / 3.2 & 4.0 mm):

Manufacturer	Scope
廣泰金屬工業股份有限公司路竹廠 Kuang Tai Metal Industrial Co., Ltd. Lujhu Plant	<ul style="list-style-type: none"> <li>● Manufacturing process: mixing of dry mixture.</li> <li>● Quality approval of electrode products.</li> <li>● Storage of the finished products.</li> </ul>
Subcontractor	Scope
中國鐸條機械股份有限公司安康廠 China Electrode and Machinery Co., Ltd. Ankang Plant	<ul style="list-style-type: none"> <li>● Manufacturing process: production of core rods by drawing and cutting, preparing of wet mixture, extrusion of the electrode, drying/ baking and packing.</li> </ul>
The detailed manufacturing process refer to the following documents:	
<ul style="list-style-type: none"> <li>● RND-T009-01 from Kuang Tai Metal Industrial Co., Ltd.</li> <li>● QMS043 from China Electrode and Machinery Co., Ltd.</li> </ul>	

2. Approval Tests of KL-108M (SMAW/CR-E6918-M1(MIL-10018-M1) / 3.2 & 4.0 mm):

- (1) Cast
- (2) Helix
- (3) Chemical analysis
- (4) Alloy identity
- (5) Diffusible hydrogen
- (6) Moisture testing
- (7) Welded test assembly
- (8) Nondestructive testing
- (9) Visual and dimensional examination
- (10) Tension
- (11) Transverse side bend
- (12) Impact test(CVN)
- (13) Explosion test series

The results of tests were found satisfactory in accordance with the requirements of the Society, refer to test reports:

- Report of Initial Approval Test for Welding Consumable/Approval Test Report – Schedule A, reviewed by CR on September 21, 2018.
- Report of Initial Approval Test for Welding Consumable/Approval Test Report – Schedule B, reviewed by CR on October 08, 2018.
- Report of Crack Starter Test Report, Report No.:NCSIST-6612-10710-01, reviewed by CR on October 29, 2018.

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3. Notes:

- (1) In the following cases, the approval of welding materials by the Society is to be revoked, after notice is given to the manufacturer:
  - (i) Where the Society has recognized that the quality of welding materials is remarkably worse than that when the approval test was carried out.
  - (ii) For the major changes to approval products, the manufacturer is not to inform the Society and receive the Society assessment thereof.
- (2) Renewal of the Product Works Approval Certificate is necessary at its expiry. Renewal audit is to be carried out in compliance with section 2.7 of "Guidelines for Survey of Products for Marine Use" of the Society.
- (3) Each lot of welding electrodes, rods and fluxes shall be inspected in accordance with requirements of CR Guidelines for Approval of CRHS-56/70 High Strength Low Alloy Steel for Critical Application 2017, Chapter 3/ 3.4, as applicable.

*- The End -*