



Marine &amp; Offshore

Certificate number: SMS.W.II./28798/02/C.0

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## RECOGNITION FOR BV MODE II SCHEME

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

**Summary of the range of the recognition which is detailed in the subsequent page(s):**  
WELDING CONSUMABLES - G1014

*This certificate is issued to attest that Bureau Veritas Marine & Offshore has performed, at the above company's request and in compliance with the requirements of NR320, a satisfactory assessment of the manufacturing facilities and associated quality procedures related to the range of the recognition.*

**This certificate will expire on: 11 May 2022**

For BUREAU VERITAS,  
At BV SHANGHAI, on 17 May 2018,  
George Qiao



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarpm.com/veristarnb/jsp/viewPublicPdfRecognition.jsp?id=pkps4pdott>

BV Mod. Ad.E 697 June 2017

This certificate consists of 2 page(s)

## THE SCHEDULE OF RECOGNITION

### 1. RANGE OF THE RECOGNITION

The welding consumables listed in the table below are not required to be certified individually or per batch by Bureau Veritas Marine & Offshore. Their compliance with the approved type is solely certified by the manufacturer using its own format of document and marking to allow traceability to the approved type (HBV products as defined in NR320).

Generic product	Description
WELDING CONSUMABLES	Covered Electrode Type: Total 4 item, TL-508, TS-308L, etc.
WELDING CONSUMABLES	Flux-Cored wire Type (Automatic welding): 1 item, TM-70C;
WELDING CONSUMABLES	Flux-Cored Wire Type (Semi-Automatic): Total 7 item, TWE-711, TWE-711, TWE-712, etc.
WELDING CONSUMABLES	Tungsten Inert Gas Type: Total 5 item, TIG-50, MIG-309L, etc.

### 2. LIMITATIONS

The certificates listed in the range of recognition are to be valid, as applicable.

Bureau Veritas Marine & Offshore is to be informed immediately of any modification to manufacturing facilities and associated quality procedures in order to agree on appropriate actions.

TIEN TAI ELECTRODE (KUN SHAN) CO., LTD. has to apply for the periodical audits as agreed with Bureau Veritas Marine & Offshore.

### 3. PERIMETER OF CERTIFICATION

Quality system of following site(s) has been assessed:

TIEN TAI ELECTRODE (KUN SHAN) CO., LTD. - Kunshan City (Jiangsu Province) - CHINA

### 4. REMARKS

Address: No. 189 HUAYUAN ROAD, ZHANGPU TOWN, Kunshan City, Jiangsu Province, P.R. CHINA  
Annual Audit should be performed before May. 11.per year

\*\*\* END OF CERTIFICATE \*\*\*

**Bureau Veritas Marine & Offshore**67/71 Boulevard du Château  
92200 Neuilly-sur-Seine - FranceTel. 33 1 55 24 70 00  
Fax. 33 1 55 24 70 45  
www.veristar.com

Certificate number : WM 28798/32/A.0

File number : 28798 N 2018

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

**Designation** : TFW-308L  
**Grade** : 308L  
**Description** : Gas Shield CO2 100%  
**Diameter** : 1.2 mm  
**Welding current** : DCEP  
**Welding position** : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)  
**Remark** : NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 22 Nov 2019**

At Neuilly, on 22 Nov 2018

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 22 Nov 2018

Surveyor: B. Zhang

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The Electronic Version is available at: <http://www.veristarm.com/veristamb/jsp/viewPublicPdfWelding.jsp?id=xzw2yplyd0>

BV Mod. Ad.E 537 June 2017

This certificate consists of 1 page(s)

**Bureau Veritas Marine & Offshore**

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92200 Neuilly-sur-Seine - France

Tel. 33 1 55 24 70 00.  
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Certificate number : WM 28798/27/C.0

File number : 28798 N 2016

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

### Solid Wire / Gas Combination for Semi-Automatic or Automatic Welding

<b>Designation</b>	: MIG-309L
<b>Grade</b>	: 309L
<b>Description</b>	: Gas Shield 98% Argon + 2% CO2
<b>Diameter</b>	: 1.0, 1.2, 1.6 mm
<b>Welding current</b>	: DCEP
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: Welding of austenitic stainless steels with C and C-Mn steels (Dissimilar joint). When used for units classed with Bureau Veritas, qualification tests of welding procedures are to be conducted on samples made with this consumable.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 29 Jan 2020**

At Neuilly, on 29 Jan 2019

**For Bureau Veritas Marine & Offshore,**

By order of the Secretary

Local office: BV SHANGHAI

Issued on 29 Jan 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/29/C.0

File number : 28798 N 2016

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Solid Wire / Gas Combination for Semi-Automatic or Automatic Welding**

<b>Designation</b>	: MIG-316L
<b>Grade</b>	: 316L
<b>Description</b>	: Gas Shield 98% Argon + 2% CO2
<b>Diameter</b>	: 1.0, 1.2, 1.6 mm
<b>Welding current</b>	: DCEP
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 29 Jan 2020**

At Neuilly, on 29 Jan 2019

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 29 Jan 2019

Surveyor: B. Zhang

**L. COURREGELONGUE**

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Certificate number : WM 28798/26/C.0

File number : 28798 N 2016

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to*

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

*for the product***Solid Wire / Gas Combination for TIG Welding**

**Designation** : TGS-316L  
**Grade** : 316L BT  
**Description** : Gas Shield Argon  
**Diameter** : 1.6, 2.4, 3.2 mm  
**Welding current** : DCEN  
**Welding position** : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)  
**Remark** : NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 29 Jan 2020**

At Neuilly, on 29 Jan 2019

**For Bureau Veritas Marine & Offshore,**  
*By order of the Secretary*

Local office: BV SHANGHAI

Issued on 29 Jan 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/25/C.0

File number : 28798 N 2016

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

### TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.

Kunshan City (Jiangsu Province) - CHINA

for the product

### Solid Wire / Gas Combination for TIG Welding

<b>Designation</b>	: TGS-309L
<b>Grade</b>	: 309L
<b>Description</b>	: Gas Shield Argon
<b>Diameter</b>	: 1.6, 2.4, 3.2 mm
<b>Welding current</b>	: DCEN
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: Welding of austenitic stainless steels with C and C-Mn steels (Dissimilar joint). Deposited metal and Butt weld tested with Charpy Vmin average KV 27 J at -60°C. When used for units classed with Bureau Veritas, qualification tests of welding procedures are to be conducted on samples made with this consumable.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 29 Jan 2020**

At Neuilly, on 29 Jan 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 29 Jan 2019

Surveyor: B. Zhang

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Certificate number : WM 28798/36/A.0

File number : 28798 N 2019

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Wire / Flux Combination for Submerged Arc Welding**

**Designation** : TW-308L+TFS-300  
**Grade** : 308L BT, M  
**Description** : Solid Wire / Flux  
**Diameter** : 2.4mm, 3.2mm, 4.0mm  
**Welding current** : DCEP  
**Welding position** : Flat butt weld (PA bw)  
**Remark** : NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 02 Apr 2020**

At Neuilly, on 02 Apr 2019

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 07 Apr 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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The Electronic Version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfWelding.jsp?id=otyfprzkcm>

BV Mod. Ad.E 537 June 2017

This certificate consists of 1 page(s)



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92200 Neuilly-sur-Seine - France

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Certificate number : WM 28798/30/A.0

File number : 28798 N 2018

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

### Wire / Flux Combination for Submerged Arc Welding

**Designation** : TSW-E31+TF-250(Single wire)  
**Grade** : 5Y46MDH5  
**Description** : Solid Wire / Flux  
**Diameter** : 3.2, 4.0, 5.0mm  
**Welding current** : DCEP  
**Welding position** : Flat butt weld (PA bw)  
**Remark** : Only with PWHT 620°C, 1 hour

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Apr 2020**

At Neuilly, on 04 Apr 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 07 Apr 2019

Surveyor: B. Zhang

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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Fax. 33 1 55 24 70 45  
www.veristar.com

Certificate number : WM 28798/31/A.0

File number : 28798 N 2018

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Wire / Flux Combination for Submerged Arc Welding**

<b>Designation</b>	: TSW-E31+TF-250(Two wire)
<b>Grade</b>	: 5Y46MDH5
<b>Description</b>	: Solid Wire / Flux
<b>Diameter</b>	: 3.2, 4.0, 5.0 mm
<b>Welding current</b>	: AC/DCEP
<b>Welding position</b>	: Flat butt weld (PA bw)
<b>Remark</b>	: Welding with two wires. Only with PWHT 620°C, 1 hour

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Apr 2020**

At Neuilly, on 04 Apr 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 07 Apr 2019

Surveyor: B. Zhang

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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www.veristar.com

Certificate number : WM 28798/34/A.0

File number : 28798 N 2019

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Covered Electrode for Manual Metal Arc Welding**

<b>Designation</b>	: TN-28
<b>Grade</b>	: 5Y46H5
<b>Description</b>	: Basic covering
<b>Diameter</b>	: 3.2mm; 4.0mm
<b>Welding current</b>	: DCEP/AC
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Apr 2020**

At Neuilly, on 04 Apr 2019

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 07 Apr 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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The Electronic Version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfWelding.jsp?id=57cahafcgt>

BV Mod. Ad.E 537 June 2017

This certificate consists of 1 page(s)

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92200 Neuilly-sur-Seine - France

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Certificate number : WD 28798/12/Q.0

File number : 28798 T 2003

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TWE-712 / CO2
<b>Grade</b>	: SA3YM
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.0, 1.2, 1.4, 1.6 mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: 1.0mm : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB). 1.2&1.4mm: All positions for butt welding including vertical downwards (PA, PF, PG, PC, PE); All positions for fillet welding except vertical downwards (PA, PB, PD, PF). 1.6mm: Flat butt weld (PA bw), Horizontal vertical butt weld (PC bw), Flat fillet weld (PA fw), Horizontal vertical fillet weld (PB fw).
<b>Remark</b>	: Under the license of Tien Tai Electrode Co.,Ltd. - Taiwanluding

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which has been declared to Bureau Veritas Marine & Offshore as identical to a product already approved in compliance with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

**L.COURREGELONGUE**

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Certificate number : WM 28798/03/S.0

File number : 28798 N 2001

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

**Covered Electrode for Manual Metal Arc Welding**

<b>Designation</b>	: TL-508
<b>Grade</b>	: 3YHH
<b>Description</b>	: Basic covering
<b>Diameter</b>	: 3.2~5.0 mm
<b>Welding current</b>	: AC/DC(+)
<b>Welding position</b>	: All positions for butt welding except vertical downwards (PA,PF,PC,PE), Flat fillet weld (PA fw), Horizontal vertical fillet weld (PB fw)
<b>Remark</b>	: Under the license of Tien Tai Electrode Co.,Ltd. - Taiwan

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.



**Bureau Veritas Marine & Offshore**

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Certificate number : WM 28798/06/T.0

File number : 28798 N 2001

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine &amp; Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

**Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TWE-711
<b>Grade</b>	: SA3YM
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.0, 1.2, 1.4, 1.6 mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: 1.0mm : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB). 1.2&1.4mm: All positions for butt welding including vertical downwards (PA, PF, PG, PC, PE); All positions for fillet welding except vertical downwards (PA, PB, PD, PF). 1.6mm: Flat butt weld (PA bw), Horizontal vertical butt weld (PC bw), Flat fillet weld (PA fw), Horizontal vertical fillet weld (PB fw).
<b>Remark</b>	: Under the license of Tien Tai Electrode Co.,Ltd. - Taiwanluding

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**

By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang



L. COURREGELONGUE




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Certificate number : WM 28798/07/R.0

File number : 28798 N 2002

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TWE-711Ni
<b>Grade</b>	: SA4YM H10
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2 - 1.4 - 1.6 mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: 1.2 - 1.4 mm: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB), 1.6mm: Flat butt weld (PA bw), Horizontal vertical butt weld (PC bw), Horizontal overhead fillet weld (PD fw), Horizontal vertical fillet weld (PB fw)
<b>Remark</b>	: N/A.

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,***By order of the Secretary*

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

**L.COURREGELONGUE**

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Certificate number : WM 28798/08/Q.0

File number : 28798 N 2003

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

### Covered Electrode for Manual Metal Arc Welding

**Designation** : TS-309L  
**Grade** : 309L  
**Description** : Rutile covering  
**Diameter** : 2.6 - 3.2 - 4.0 - 5.0 mm  
**Welding current** : AC/DC(+)  
**Welding position** : Flat butt weld (PA bw), Vertical upwards butt weld (PF bw), Overhead butt weld (PE bw), Horizontal vertical fillet weld (PB fw), Vertical upwards fillet weld (PF fw)  
**Remark** : Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/09/Q.0

File number : 28798 N 2003

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA*for the product***Covered Electrode for Manual Metal Arc Welding**

<b>Designation</b>	: TS-308L
<b>Grade</b>	: 308L
<b>Description</b>	: Rutile covering
<b>Diameter</b>	: 2.6 - 3.2 - 4.0 - 5.0 mm
<b>Welding current</b>	: AC/DC(+)
<b>Welding position</b>	: Flat butt weld (PA bw), Vertical upwards butt weld (PF bw), Overhead butt weld (PE bw), Horizontal vertical fillet weld (PB fw), Vertical upwards fillet weld (PF fw)
<b>Remark</b>	: Nil.

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
*By order of the Secretary*

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

**L.COURREGELONGUE**

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Certificate number : WM 28798/10/Q.0

File number : 28798 N 2003

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

**Covered Electrode for Manual Metal Arc Welding**

**Designation** : TS-316L  
**Grade** : 316L  
**Description** : Rutile covering  
**Diameter** : 2.6 - 3.2 - 4.0 - 5.0 mm  
**Welding current** : AC/DC(+)  
**Welding position** : Flat butt weld (PA bw), Vertical upwards butt weld (PF bw), Overhead butt weld (PE bw), Horizontal vertical fillet weld (PB fw), Vertical upwards fillet weld (PF fw)  
**Remark** : Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/18/J.0

File number : 28798 N 2010

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

**Solid Wire / Gas Combination for TIG Welding**

<b>Designation</b>	: TIG-50 / Ar
<b>Grade</b>	: SA3YM
<b>Description</b>	: Gas Shield Argon
<b>Diameter</b>	: 1.6 - 3.2mm
<b>Welding current</b>	: DC(-)
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L. COURREGELONGUE



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Certificate number : WM 28798/19/K.0

File number : 28798 N 2010

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

**Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TFW-309L / CO2
<b>Grade</b>	: 309L
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2, 1.6mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/21/1.0

File number : 28798 N 2010

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

### TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.

Kunshan City (Jiangsu Province) - CHINA

for the product

### Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas

<b>Designation</b>	: TFW-2209 / CO2
<b>Grade</b>	: 2205
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2 mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**

By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L. COURREGELONGUE



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The Electronic Version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfWelding.jsp?id=pjvbb1oglw>

BV Mod. Ad.E 537 June 2017

This certificate consists of 1 page(s)

**Bureau Veritas Marine & Offshore**

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Certificate number : WM 28798/22/H.0

File number : 28798 N 2012

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine &amp; Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

**Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TWE-81K2
<b>Grade</b>	: SA5Y46MH5
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2 - 1.4 mm
<b>Welding current</b>	: DC(+)
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: NIL

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/23/G.0

File number : 28798 N 2013

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

### TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.

Kunshan City (Jiangsu Province) - CHINA

for the product

### Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas

<b>Designation</b>	: TM-70C
<b>Grade</b>	: A3YMH10
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2mm, 1.4mm, 1.6mm
<b>Welding current</b>	: DCEP
<b>Welding position</b>	: Flat butt weld (PA bw), Horizontal vertical butt weld (PC bw)
<b>Remark</b>	: Nil.

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**

By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L. COURREGELONGUE



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Certificate number : WM 28798/24/E.0

File number : 28798 N 2015

**TYPE APPROVAL CERTIFICATE***as per Bureau Veritas Marine & Offshore Classification Rules**This certificate is issued to***TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

*for the product***Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas**

<b>Designation</b>	: TWE-81K2C
<b>Grade</b>	: SA5Y40MH5
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2, 1.4 mm
<b>Welding current</b>	: DCEP
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: NIL

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.*

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

**Bureau Veritas Marine & Offshore**

67/71 Boulevard du Château  
92200 Neuilly-sur-Seine - France

Tel. 33 1 55 24 70 00  
Fax. 33 1 55 24 70 45  
www.veristar.com



Certificate number : WM 28798/35/C.0

File number : 28798 N 2019

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**  
Kunshan City (Jiangsu Province) - CHINA

for the product

**Solid Wire / Gas Combination for TIG Welding**

**Designation** : TGS-308L  
**Grade** : 308L BT  
**Description** : Gas Shield Argon 100%  
**Diameter** : 1.6mm, 2.0mm, 2.4mm  
**Welding current** : DCEN  
**Welding position** : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)  
**Remark** : NIL

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 04 Sep 2020**

At Neuilly, on 04 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019

Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/37/A.0

File number : 28798 N 2019

**TYPE APPROVAL CERTIFICATE**

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

**Solid Wire / Gas Combination for TIG Welding**

**Designation** : TGS-2209  
**Grade** : 2205  
**Description** : Gas Shield Argon  
**Diameter** : 2.0, 2.4, 3.2mm  
**Welding current** : DCEN  
**Welding position** : All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)  
**Remark** : NIL

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 03 Sep 2020**

At Neuilly, on 03 Sep 2019

**For Bureau Veritas Marine & Offshore,**  
By order of the Secretary

Local office: BV SHANGHAI

Issued on 04 Sep 2019  
Surveyor: B. Zhang

L.COURREGELONGUE



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Certificate number : WM 28798/33/D.0

File number : 28798 N 2019

## TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to

**TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.**

Kunshan City (Jiangsu Province) - CHINA

for the product

### Flux-Cored Wire for Semi-Automatic or Automatic Welding with Shielding Gas

<b>Designation</b>	: TFW-316L
<b>Grade</b>	: 316L BT
<b>Description</b>	: Gas Shield CO2 100%
<b>Diameter</b>	: 1.2 mm
<b>Welding current</b>	: DCEP
<b>Welding position</b>	: All positions for butt and fillet welding except vertical downwards (PA, PF, PC, PE, PD, PB)
<b>Remark</b>	: NIL

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.

**This certificate will expire on: 03 Oct 2020**

**For Bureau Veritas Marine & Offshore,**

Local office: BV SHANGHAI

Issued on 07 Oct 2019

Surveyor: B. Zhang



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The Electronic Version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfWelding.jsp?id=etek9okdd2>

BV Mod. Ad.E 537 June 2017

This certificate consists of 1 page(s)