


<https://ABSeCert.Eagle.org>

WELDING CONSUMABLE CERTIFICATE

Report No.: 6997833

Port of: CN Shanghai Port (MLO)

Date: 22 September 2025

THIS IS TO CERTIFY

THAT THE UNDERSIGNED SURVEYOR TO THIS BUREAU DID, AT THE REQUEST OF
 TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.
 ATTEND THEIR , PLANT AT KUNSHAN, JIANGSU, P. R. CHINA , ON 07 May 2025 ,
 AND ON SUBSEQUENT DATES, IN ORDER TO CARRY OUT A PLANT SURVEY OF FACILITIES AND ASSOCIATED QUALITY
 ASSURANCE AND QUALITY CONTROL PROCEDURES AND TO WITNESS AND REPORT ON THE ANNUAL APPROVAL
 TESTING OF WELDING CONSUMABLES; AND,

THAT THE FACILITY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT, AND THAT EACH
 WELDING CONSUMABLE LISTED BELOW WAS FOUND IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE
 TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE
 SHIELDED METAL ARC WELDING SECTION:

TRADE NAME	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
TS-308L	AWS A5.4	E308L-16	--	ALL	AC/DCEP	2.6~4.0mm
TS-308L	AWS A5.4	E308L-16	--	F	AC/DCEP	5.0mm
TS-309L	AWS A5.4	E309L-16	--	ALL	AC/DCEP	2.6~4.0mm
TS-309L	AWS A5.4	E309L-16	--	F	AC/DCEP	5.0mm
TS-316L	AWS A5.4	E316L-16	--	ALL	AC/DCEP	2.6~4.0mm
TS-316L	AWS A5.4	E316L-16	--	F	AC/DCEP	5.0mm
TL-508	ABS	3Y	--	ALL	AC/DCEP	2.6~5.0mm
TS-308LT*	AWS A5.4	E308L-16	--	ALL	AC/DCEP	3.2, 4.0mm
TS-2209	AWS A5.4M	E2209-16	--	ALL	AC/DCEP	3.2~4.0mm
TNM-9**	AWS A5.11	ENiCrMo-6	--	ALL	AC/DCEP	2.6~4.0mm

TN-58***	ABS	4YQ460H5	--	ALL	AC/DCEP	3.2~4.0mm
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* The manufacturer's guaranteed properties: Min. CVN: 29J @ -196 deg.C

** The manufacturer's guaranteed properties: Min. Y.S.: 430Mpa, T.S.: 690Mpa, CVN: 47J @ -196 deg.C

***The manufacturer's guaranteed properties: Min. CVN: 47J @ -50deg.C



Electronically Signed By
 Yang, Hong-Lin, CN Shanghai Port (MLO)
 Yang, Honglin, Surveyor

Note: This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.


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 TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.
 ATTEND THEIR , PLANT AT KUNSHAN, JIANGSU, P. R. CHINA , ON 07 May 2025 ,
 AND ON SUBSEQUENT DATES, IN ORDER TO CARRY OUT A PLANT SURVEY OF FACILITIES AND ASSOCIATED QUALITY
 ASSURANCE AND QUALITY CONTROL PROCEDURES AND TO WITNESS AND REPORT ON THE ANNUAL APPROVAL
 TESTING OF WELDING CONSUMABLES; AND,

THAT THE FACILITY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT, AND THAT EACH
 WELDING CONSUMABLE LISTED BELOW WAS FOUND IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE
 TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE
 GAS METAL ARC WELDING INCLUDING MIG/TIG WELDING SECTION:

TRADE NAME	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
TGS-2209	AWS A5.9	ER2209	100% Ar	ALL	DCEN	1.6~2.4mm
TM-56	ABS	3YSA	100% CO2	ALL	DCEP	0.8~1.6mm
TGS-308L	AWS A5.9	ER308L	100% Ar	ALL	DCEN	1.2~3.2mm
TGS-309L	AWS A5.9	ER309L	100% Ar	ALL	DCEN	1.2~3.2mm
TGS-316L*	AWS A5.9	ER316L	100% Ar	ALL	DCEN	1.6~3.2mm
TGS-308L**	AWS A5.9	ER308L	100% Ar	ALL	DCEN	1.6~2.4mm
TIG-80Ni1***	ABS	4YQ460SA	100% Ar	ALL	DCEN	2.0, 2.4mm

* The manufacturer's guaranteed properties: Min. CVN: 60J @ -196 deg.C

**The manufacturer's guaranteed properties: Min. CVN: 31J @ -196 deg.C

***The manufacturer's guaranteed properties: Min. CVN: 47J @ -50 deg.C



Electronically Signed By
Yang, Hong-Lin, CN Shanghai Port (MLO)
Yang, Honglin, Surveyor

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Report No.: 6997833

Port of: CN Shanghai Port (MLO)

Date: 22 September 2025

THIS IS TO CERTIFY

THAT THE UNDERSIGNED SURVEYOR TO THIS BUREAU DID, AT THE REQUEST OF
TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.

ATTEND THEIR , PLANT AT KUNSHAN, JIANGSU, P. R. CHINA ,

ON 07 May 2025 ,

AND ON SUBSEQUENT DATES, IN ORDER TO CARRY OUT A PLANT SURVEY OF FACILITIES AND ASSOCIATED QUALITY
ASSURANCE AND QUALITY CONTROL PROCEDURES AND TO WITNESS AND REPORT ON THE ANNUAL APPROVAL
TESTING OF WELDING CONSUMABLES; AND,

THAT THE FACILITY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT, AND THAT EACH
WELDING CONSUMABLE LISTED BELOW WAS FOUND IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE
TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE
FLUX CORED ARC WELDING SECTION:

TRADE NAME	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
TM-70C(x2)*	ABS	3YAH5	100% CO2	F	DCEP	1.4mm
TM-70C	ABS	3YAH10	100% CO2	F,H	DCEP	1.2~1.6mm
TM-70C	ABS	3YSAH10	100% CO2	F,H	DCEP	1.2~1.6mm
TWE-110K3	ABS	4YQ690SAH5	100% CO2	ALL	DCEP	1.1, 1.2mm
TWE-712	ABS	3YSAH10	100% CO2	ALL, V-DOWN	DCEP	1.2~1.6mm
TFW-308L	AWS A5.22	E308LT1-1	100% CO2	ALL	DCEP	1.2, 1.6mm
TFW-308L**	AWS A5.22	E308LT1-1	100% CO2	ALL	DCEP	1.2mm
TFW-309L	AWS A5.22	E309LT1-1	100% CO2	ALL	DCEP	1.2, 1.6mm
TFW-316L	AWS A5.22	E316LT1-1	100% CO2	ALL	DCEP	1.2, 1.6mm
TWE-81K2	ABS	5YQ460SAH5	100% CO2	ALL	DCEP	1.2, 1.4mm

TWE-81K2C	ABS	5Y400SAH5	100% CO2	ALL	DCEP	1.2, 1.4mm
TFW-2209***	AWS A5.22	E2209T1-1	100% CO2	ALL	DCEP	1.2mm
FabCO 308L-T1	AWS A5.22	E308LT1-1	75-80%Ar+CO2	ALL	DCEP	1.2mm
FabCO 309L-T1	AWS A5.22	E309LT1-1	75-80%Ar+CO2	ALL	DCEP	1.2mm
FabCO 316L-T1	AWS A5.22	E316LT1-1	75-80%Ar+CO2	ALL	DCEP	1.2mm
FabCO 308L-T1	AWS A5.22	E308LT1-1	100%CO2	ALL	DCEP	1.2, 1.6mm
FabCO 309L-T1	AWS A5.22	E309LT1-1	100%CO2	ALL	DCEP	1.2, 1.6mm
FabCO 316L-T1	AWS A5.22	E316LT1-1	100%CO2	ALL	DCEP	1.2, 1.6mm
TWE-711	ABS	3YSAH5	100%CO2	ALL, V-DOWN	DCEP	1.2~1.6mm
TWE-711PRO	ABS	4Y400SAH5	100%CO2	ALL	DCEP	1.2~1.4mm

*x2: Twin-wire Tandem Welding)

** The manufacturer's guaranteed properties: CVN: 31J @ -196 deg.C

***The manufacturer's guaranteed properties: CVN: 40J @ -20 deg.C

Note: FabCO 308L-T1 is identical to TFW-308L

FabCO 309L-T1 is identical to TFW-309L

FabCO 316L-T1 is identical to TFW-316L



Electronically Signed By

Yang, Hong-Lin, CN Shanghai Port (MLO)

Yang, Honglin

, Surveyor

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WELDING CONSUMABLE CERTIFICATE

Report No.: 6997833

Port of: CN Shanghai Port (MLO)

Date: 22 September 2025

THIS IS TO CERTIFY

THAT THE UNDERSIGNED SURVEYOR TO THIS BUREAU DID, AT THE REQUEST OF
TIEN TAI ELECTRODE (KUN SHAN) CO., LTD.

ATTEND THEIR , PLANT AT KUNSHAN, JIANGSU, P. R. CHINA ,

ON 07 May 2025 ,

AND ON SUBSEQUENT DATES, IN ORDER TO CARRY OUT A PLANT SURVEY OF FACILITIES AND ASSOCIATED QUALITY
ASSURANCE AND QUALITY CONTROL PROCEDURES AND TO WITNESS AND REPORT ON THE ANNUAL APPROVAL
TESTING OF WELDING CONSUMABLES; AND,

THAT THE FACILITY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT, AND THAT EACH
WELDING CONSUMABLE LISTED BELOW WAS FOUND IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE
TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE
SUBMERGED ARC WELDING SECTION:

TRADE NAME	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
TSW-14H/TF-560	ABS	4Y400TMH5	--	F	AC/DCEP	2.4~5.0mm
TSW-14H*2/TF-560	ABS	4Y400TMH5	--	F	AC/DCEP	2.4~5.0mm
TW-309L/TFS-300NB	AWS A5.9M	ER309L	--	F	DCEP	3.2, 4.0mm
TSW-12KHG/TF-210	ABS	5Y400TMH5	--	F	DCEP	2.4~5.0mm
TSW-12KHG*2/TF-210*	ABS	5Y400TMH5	--	F	DCEP	2.4~5.0mm
TSW-E31/TF-250	ABS	5YQ460MH5	--	F	DCEP	2.4~5.0mm
TSW-E31*2/TF-250	ABS	5YQ460MH5	--	F	AC, DCEP	2.4~5.0mm
TW-17/TFS-340**	AWS A5.39M	F690A20-ERNiCrMo-4/ NiCrMo-4	--	F, H	DCEP / AC	1.6~2.4mm
TSW-14H/TF-660***	ABS	4YQ420MH5	--	F	DCEP	2.4~5.0mm
TSW-14H*2/TF-660***	ABS	4YQ420MH5	--	F	DCEP, AC	2.4~5.0mm

TSW-14HE/TF650	ABS	4Y400TMH5	--	F	DCEP	2.4~5.0mm
TSW-14HE*2/TF650	ABS	4Y400TMH5	--	F	DCEP, AC	2.4~5.0mm
TSW-E5G/TF-210	ABS	4YQ690MH5	--	F	DCEP	2.4~5.0mm

***Manufacturer's guaranteed properties:**

Chemical Composition (%): C: 0.06~1.0; Si: Max. 0.10; Mn: 1.6~1.9; P: Max: 0.02; S: Max: 0.01; Cu: Max: 0.1

Mechanical Properties: Y.S.: Min. 400 N/mm²; T.S.: 510~690 N/mm²; EL: Min: 22%; CVN: 47J@-60 deg.C

****Manufacturer's guaranteed properties:**

Mechanical Properties: Y.S.: Min. 450Mpa; T.S.: Min 690Mpa; EL: Min: 35%; CVN: Min 70J@-196 deg.C

Intended for Welding of 5% and 9% Ni Steel for Low temperature applications.

*****Manufacturer's guaranteed properties: Min: CVN: 47J @ -50 deg.C**

Note: 1. *2: Twin-wire Tandem Welding

2. Wire and Flux were manufactured by Tien Tai Electrode (Kunshan) Co., Ltd.



Electronically Signed By

Yang, Hong-Lin, CN Shanghai Port (MLO)

Yang, Honglin

, Surveyor

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<https://ABSeCert.Eagle.org>

WELDING CONSUMABLE MARKETING CERTIFICATE

Certificate No.: 650920-6997833-016

Port of: CN Shanghai Port (ML)

Date: 22 September 2025

THIS IS TO CERTIFY

THAT THE UNDERSIGNED SURVEYOR TO THIS BUREAU DID, AT THE REQUEST OF MARKETING COMPANY TIEN TAI ELECTRODE (KUN SHAN) CO., LTD. ATTEND THEIR FACILITY AT KUNSHAN, P. R. CHINA , ON 07 May 2025 , AND SUBSEQUENT DATES , IN ORDER TO CARRY OUT A SURVEY OF FACILITIES AND ASSOCIATED HANDLING/STORAGE CONTROL PEOCEDURES IN ACCORDANCE WITH ABS PROCESS FOR APPROVAL OF FIRMS MARKETING WLDING CONSUMABLES AND,

THAT THE FACILITY OF THE ELECTRODE MANUFACTURER SUPPLYING THE MARKETING COMPANY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT BASED ON CERTIFICATION TESTS WITNESSED BY ABS CONFIRMED AT THIS TIME, AND THAT EACH WELDING CONSUMABLE LISTED BELOW IS CONSIDERED IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE SECTION: SUBMERGED ARC WELDING

BRAND NAME (OEM)	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
TW-308L / TFS-300NB	AWS A5.9M*	ER308L**	--	F	DCEP	2.4 ~ 4.0mm
Manufacturer's guraranteed	minimum properties:	Y.S.320Mpa	CVN: 34J @ -196 deg.C	T.S.520Mpa, EL.35%		
**Intended for welding of	stainless steel for	corrosion	resistance applications			



Electronically Signed By
Yang, Hong-Lin, CN Shanghai Port (MLO)

Yang, Honglin , SURVEYOR

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