



**Certificate of Conformance  
to Requirements for Welding Electrode  
EN 10204 3.1**

Customer :		
Product : HN-590	Customer P.O.# : 2000-007797/PO:ICO-01424445	Certificate No. : F042624-1
Lot No. : 240313	Mesh Size :	Date of Mfg. : 03/13/2024
Specification : --	Classification : --	Date of Issue : 04/26/2024

**CHEMICAL ANALYSIS OF FLUX FOR SUBMERGED ARC WELDING**

SiO <sub>2</sub>	11.7%
Al <sub>2</sub> O <sub>3</sub> + TiO <sub>2</sub>	33.2%
MnO + FeO	13.9%
CaO + MgO + CaF <sub>2</sub>	40.9%



*J. M. Wang*  
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Q.C Section J. M. WANG

**Manufacturing, Certification and Limited Warranty Agreement**

Data for the above supplied product are those obtained when welded and tested accordance with the above specification. All tests for the above classification were satisfied. Other tests and procedures may produce different results. The above supplied product are manufactured by Tien Tai Electrode an ITW Co. located at: No.6 Kaifa 4th Rd., Rende Dist., Tainan City 717, Taiwan R.O.C. Hobart Brothers produces welding consumables under continuing quality assurance programs audited and approved by Lloyd's Register Quality Assurance Limited(LRQA)



Certificate No. :B032224-3

**Certificate of Conformance  
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EN 10204 3.1**

Customer :		
Product : HOBART M12K/HN-590	Customer P.O.# : 2000-007797/PO:ICO-01424445	Part Number :
Diameter : 4.0mm	Lot No. : 240115061S40/240313	Lot Classification :
Classification : F7A4-EM12K	Date Tested : 03/20/2024	Level of Testing :
Specification : AWS A5.17-'19	Date of Issue : 04/26/2024	

**Test Settings**

Amps DCEP	Volts	WFS	Shielding Gas	Electrode Stickout	Temperature		Travel Speed
					Preheat	Interpass	
500	28	43 ipm	NONE	35 mm	85±25°F 30±15°C	300±25°F 150±15°C	16±1 ipm

6 Layers, 2 passes on each layer 1 through 6; 7th Layer, 3 passes on cap layer; Direction reversed on each layer.

**Mechanical Properties Lab Test #2DC20**

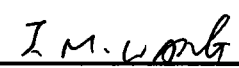
Item	Ult. Tensile Strength		Yield Strength		Elong % in 2 "	Impact Test Temp.	Charpy V-Notch Values ft.lbf		
Requirement	70000 ~ 95000 490 ~ 660	psi MPa	58000 Min. 400 Min.	psi MPa	22 Min.	-40 °F -40 °C	20 ft.lbf Min. 27 J Min.		
AS WELDED	81640 563	psi MPa	67844 468	psi MPa	33	-40 °F -40 °C	36 Average	40 (	45 55 J)

Radiographic		Fillet Weld Test						Moisture %	
Inspection:	Conforms	Horizontal:	N/A	Vertical:	N/A	Overhead:	N/A	N/A	
Bending Test									

**Chemical Composition of Wire and Rod (%)**

Elements	C	Mn	Si	S	P	Cu									
Requirement	0.05 0.15	0.80 1.25	0.10 0.35	Max. 0.030	Max. 0.030	Max. 0.35									
Filler Metal	0.08	1.08	0.23	0.006	0.014	0.001									

Remarks  
Production Date :03/13/2024

  
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