



CERTIFICATE OF WELDING CONSUMABLES

(43,Goedong-ro,Nam-gu,Pohang-si,Gyeongsangbuk-do,KOREA / TEL:054-289-8230 / FAX:054-285-8543)

CUSTOMER : CHOSUN VINA CO., LTD.

DATE : JUN. 29, 2023

P . O No. :

Certificate No. : **CS-2306-0571**

Brand Name	Classification	Diameter (mm)	Lot No.	Weight (kg)	Remark
TGC-90B3	AWS ER90S-B3/ AWS ER62S-B3	2.4	7C12231	400	-

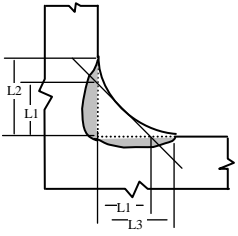
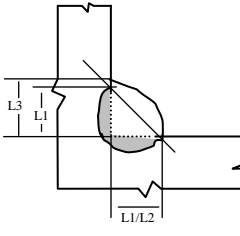
1. APPLIED CODE : AWS A5.28/A5.28M:2020 , EN 10204 3.1

2. MECHANICAL PROPERTIES OF WELD METAL						3. RADIOGRAPHIC TEST	4. HEAT TREATMENT
Item	Tension Test				Charpy Absorbed Energy (J) (at °C)	Fig. 4	690 °C × 1Hr
	Y . S (MPa)	T . S (MPa)	Elon. (%)	R . A (%)			
Spec. (min.)	540	620	17	-	Not required		
Result	580	689	28.3	-	Blank	Accept.	

5. CHEMICAL COMPOSITION (Weld Metal Filler Metal) (unit : %)

Elements	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	other elements
Spec. (max.)	0.07-0.12	0.40-0.70	0.40-0.70	0.025	0.025	0.35	0.20	2.30-2.70	0.90-1.20	0.50
Result	0.081	0.62	0.50	0.005	0.003	0.123	0.053	2.35	0.91	0.018

6. FILLET WELD TEST (unit : mm)

Welding Position	Item	Fillet Weld Size	Fillet Weld Leg		Difference Between Length of fillet legs	Convexity	Dimension of Fillet Weld	
		L1	L2	L3				
H	Spec.		Not required				 Concave fillet	 Convex fillet
	Result							
OH	Spec.		Not required					
	Result							
V	Spec.		Not required					
	Result							

7. THE OTHER TESTS

Item	Moisture Test		Hydrogen Test		Bend Test		Remark
	max.	(%)	max.	(ml/100g)	Crack : max.	mm	
Result	NR		NR		Result	NR	-

We hereby certify that the above materials are satisfactory in compliance with the requirement specified in the contract. Our quality system is certified in accordance with **ISO9001:2015** by DNV Business Assurance Korea Ltd.

W. T. Choi

Manager of Quality Assurance Department