



# NIPPON KAIJI KYOKAI

## Certificate

OF

TYPE APPROVAL

Approval No. NKY-2198-A  
Certificate No. TA211253E

Article: Welding Consumables for High Tensile Steels for Hull  
 Brand: DW-Z100  
 Applicant: Kobe Steel, Ltd., Ibaraki Plant  
 2-19, Higashiunobe-cho, Ibaraki, Osaka, Japan  
 Manufacturer: Kobe Steel, Ltd., Ibaraki Plant  
 2-19, Higashiunobe-cho, Ibaraki, Osaka, Japan  
 Grade: KSW52Y40G(C)  
 KSW52G(C)H10  
 Welding Process: Semi-Automatic Welding (MAG Welding)  
 Welding Positions and Max. Diameter of Wire: See Table 1  
 Current: DCEP  
 Shielding Gas: CO<sub>2</sub>  
 Remarks: For annual inspection, mechanical properties are to comply with the requirements specified in Table 2.

Table 1 Welding Positions and Max. Diameter of Wire for Both Grades

Butt Weld		Fillet Weld	
Flat:	1.6mm	Flat:	1.6mm
Horizontal:	1.6mm	Horizontal Vertical:	1.6mm
Overhead:	1.6mm	Horizontal:	1.6mm
Vertical Upward:	1.6mm	Horizontal Overhead:	1.6mm
Vertical Downward:	1.6mm	Overhead:	1.6mm
		Vertical Upward:	1.6mm
		Vertical Downward:	1.6mm

THIS IS TO CERTIFY that the above mentioned welding consumable has been approved by the NIPPON KAIJI KYOKAI in accordance with the requirements of the Society's Rules.

This Certificate will remain in force until 25 June 2022.

Issued at Tokyo on 18 November 2021.



*[Signature]*

Y. Takao

General Manager

Material and Equipment Department

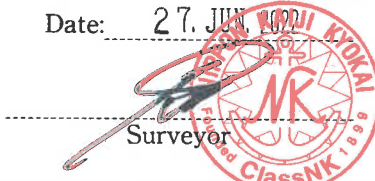

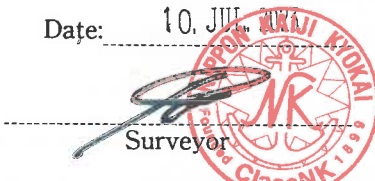

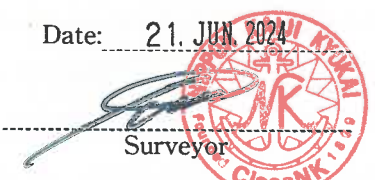

Note :

- (1) The validity of this certificate may be renewed by endorsement on the attached sheet upon completion of the annual inspections.
- (2) This certificate was rewritten because of addition of grade of welding consumable.

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Table 2 Mechanical Properties

Deposited Metal Test				
Tensile Test			Impact Test	
Tensile strength (N/mm <sup>2</sup> )	Yield point (N/mm <sup>2</sup> )	Elongation (%)	Testing temperature (°C)	Minimum mean absorbed energy (J)
510~660	400 min.	22 min.	0	47

<p>The validity of this certificate has been renewed until <u>25. JUN. 2023</u> .</p> <p>Date: <u>27. JUN. 2023</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>
<p>The validity of this certificate has been renewed until <u>25. JUN. 2024</u> .</p> <p>Date: <u>10. JUL. 2024</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>
<p>The validity of this certificate has been renewed until <u>25. JUN. 2025</u> .</p> <p>Date: <u>21. JUN. 2024</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>
<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>
<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>