



# NIPPON KAIJI KYOKAI

## *Certificate*

OF

**TYPE APPROVAL**

Approval No. NKY-3443  
Certificate No. TA181346E

Article : Welding Consumables  
Brand : TG-S2594  
Applicant : Kobe Steel Ltd., Fukuchiyama Plant  
: Fukuchiyama, Kyoto, Japan  
Manufacturer : West Japan Stainless Steel Wire Co., Ltd.  
: Kumage, Yamaguchi, Japan  
Grade : Manufacturer's Specification  
Welding Process : TIG Welding  
Welding Positions and Max. Diameter of Wire/Filler Rod : See Table 1 and Table 2  
Current : DCEN  
Shielding Gas : Ar  
Applicable Parent Material : Stainless Steels  
Specific Grade : "KSUS329J4L and KSUS329J3L", "S32750, S32760, S31803 and S32205 specified in ASTM A240" and Equivalent Duplex Stainless Steels  
Remarks: 1) Chemical composition and mechanical properties are to comply with the requirements specified in Table 3 and Table 4.  
2) Test requirements for annual inspection are to comply with Table 5.

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 15 November 2019.

Issued at Tokyo on 16 November 2018.

H. Kobayashi  
General Manager

Material and Equipment Department



Note : The validity of this certificate may be renewed by endorsement on the attached sheet upon completion of the annual inspections.

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Table 1 Welding Positions and Max. Diameter of Wire

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:	Not Applicable	Overhead:	1.6mm
		Vertical Upward:	1.6mm
		Vertical Downward:	Not Applicable

Table 2 Welding Positions and Max. Diameter of Filler Rod

Butt Weld		Fillet Weld	
Flat:	3.2mm	Flat:	3.2mm
Horizontal:	3.2mm	Horizontal Vertical:	3.2mm
Overhead:	3.2mm	Horizontal:	3.2mm
Vertical Upward:	3.2mm	Horizontal Overhead:	3.2mm
Vertical Downward:	Not Applicable	Overhead:	3.2mm
		Vertical Upward:	3.2mm
		Vertical Downward:	Not Applicable

Table 3 Chemical Composition of Wire / Filler Rod

C	Si	Mn	S	P	Ni	Cr	Mo	Cu	W	N
0.03 max.	1.0 max.	2.5 max.	0.02 max.	0.03 max.	8.0 ~ 10.5	24.0 ~ 27.0	2.5 ~ 4.5	1.5 max.	1.0 max.	0.20 ~ 0.30

Table 4 Requirements of Mechanical Properties




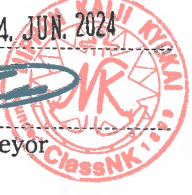

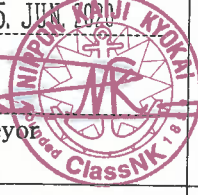

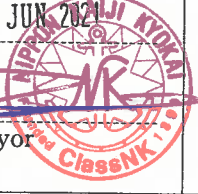

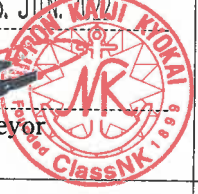
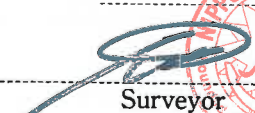

Deposited Metal Test				Butt Weld Test (Base Metal: S32750)			
Tensile Test		Impact Test		Tensile test		Impact Test	
0.2 % Proof stress (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Testing temperature (°C)	Minimum mean absorbed energy (J)	Tensile strength (N/mm <sup>2</sup> )	Testing temperature (°C)	Minimum mean absorbed energy (J)
550 min.	800 min.	15 min.	-20	40	795 min.	-20	40

Table 5 Test Requirements for Annual Inspection

Kind of test	Test assembly <sup>1), 2), 3), 4)</sup>			Kind and number of test specimens to be taken from test assembly
	Number	Plate thickness (mm)	Welding position	
Deposited metal test	1	20	Flat	Tensile test specimen <sup>5),7)</sup> : 1 Impact test specimen <sup>6),7)</sup> : 1 set

Notes:

- 1) The approved specific grades of applicable parent material are to be applied. Other parent material with appropriate buttering may be applied subject to the approval of the Society.
- 2) Shape and dimension of test assembly are to be in accordance with Fig. M6.1, Chapter 6, Part M of the NK Rules.
- 3) Test assembly is to be welded in accordance with 6.4.5 and 6.7.5 Chapter 6, Part M of the NK Rules.
- 4) The diameter of the wire / filler rod is to be within the range specified by Kobe Steel Ltd., Fukuchiyama Plant but not exceeding the maximum diameter approved.
- 5) Kind of test specimen is to be U1A specified in Table M3.1, Chapter 3, Part M of the NK Rules.
- 6) Kind of test specimen is to be U4 specified in 3.2.4-2., Chapter 3, Part M of the NK Rules.
- 7) Mechanical properties are to comply with the requirements specified in Table 4.

<p>The validity of this certificate has been renewed until <u>15. NOV. 2020</u> .</p> <p>Date: <u>28. JUN. 2019</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed until <u>15. NOV. 2025</u> .</p> <p>Date: <u>4. JUN. 2024</u></p> <p> Surveyor</p> 
<p>The validity of this certificate has been renewed until <u>15. NOV. 2021</u> .</p> <p>Date: <u>5. JUN. 2020</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>15. NOV. 2022</u> .</p> <p>Date: <u>4. JUN. 2021</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>15. NOV. 2023</u> .</p> <p>Date: <u>3. 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>15. NOV. 2024</u> .</p> <p>Date: <u>2. JUN. 2024</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>