



# NIPPON KAIJI KYOKAI

Approval No. NKY-3312  
Certificate No. TA16709E

## Certificate

### OF TYPE APPROVAL FOR WELDING CONSUMABLE

Brand: MG-T1CM

Applicant: Kobe Steel, Ltd., Fukuchiyama Plant  
Fukuchiyama, Kyoto, Japan

Manufacturer: Kobe Steel, Ltd., Fukuchiyama Plant  
Fukuchiyama, Kyoto, Japan

Grade: Manufacturer's Specification

Welding Process: Semi-Automatic Welding (MAG Welding)

Welding Positions and Diameter of Wire: See Table 1 on the reverse side

Current: DCEP

Shielding Gas: Ar+CO<sub>2</sub>  
Mixing ratio of shielding gas: "M2" specified in Table M6.14,  
Chapter 6, Part M of the NK Rules

Chemical Composition: See Table 2 on the reverse side

Mechanical Properties: See Table 3 on the reverse side

Applicable Parent Material: 1.00~1.25%Cr-0.5%Mo steels intended for Boilers  
Specific Grade: Class 1 and Class 2 of Grade 11 specified in ASTM A387  
and Equivalent Steels

Remarks: For annual inspection, test requirements and mechanical properties are to  
comply with Table 3 and Table 4 (see the reverse side).

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 February 2017.  
Issued at Tokyo on 16 February 2016.



T. Imamura

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 Diameter of Wire

Butt Weld		Fillet Weld	
Flat:	1.2mm	Flat:	1.2mm
Horizontal:	1.2mm	Horizontal Vertical:	1.2mm
Overhead:	1.2mm	Horizontal:	1.2mm
Vertical Upward:	1.2mm	Horizontal Overhead:	1.2mm
Vertical Downward:	Not Applicable	Overhead:	1.2mm
		Vertical Upward:	1.2mm
		Vertical Downward:	Not Applicable

Table 2 Chemical Composition of Wire

C	Si	Mn	P	S	Cu	Ni	Cr	Mo
0.12	0.30	0.60	0.025	0.025	0.35	0.20	1.10	0.40
max.	~ 0.90	~ 1.40	max.	max.	max.	max.	~ 1.60	~ 0.65

Table 3 Requirements of Mechanical Properties  
after Stress Relief Annealing (1hour at 690°C ± 15°C)




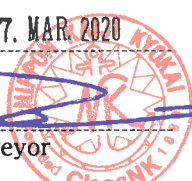
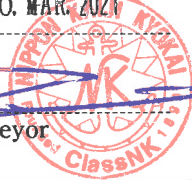
Deposited Metal Tensile Test			Butt Weld Tensile Test
Tensile strength (N/mm <sup>2</sup> )	Yield point (N/mm <sup>2</sup> )	Elongation (%)	Tensile strength (N/mm <sup>2</sup> )
560 min.	460 min.	19 min.	515 min.

Table 4 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	Tensile test specimen <sup>5), 6)</sup> : 1
Deposited metal test	1	20	Flat	

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, Chapter 6, Part M of the NK Rules.
- 4) Stress relief annealing is to be conducted under the condition of 1hour at 690°C ± 15°C.
- 5) Kind of test specimen is to be U1A specified in Table M3.1, Chapter 3, Part M of the NK Rules.
- 6) Mechanical properties are to comply with the requirements specified in Table 3.

<p>The validity of this certificate has been renewed until <u>15. FEB. 2018</u> .</p> <p>Date: <u>31. AUG. 2017</u></p> <p><i>K. Shimoto</i> 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. FEB. 2019</u> .</p> <p>Date: <u>30. MAR. 2019</u></p> <p><i>K. Shimoto</i> 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. FEB. 2020</u> .</p> <p>Date: <u>29. MAR. 2019</u></p> <p><i>[Signature]</i> 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. FEB. 2021</u> .</p> <p>Date: <u>27. MAR. 2020</u></p> <p><i>[Signature]</i> 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. FEB. 2022</u> .</p> <p>Date: <u>30. MAR. 2021</u></p> <p><i>[Signature]</i> Surveyor</p> 	<p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p>