



NIPPON KAIJI KYOKAI

Certificate

Approval No. NKY-3263
Certificate No. TA16262E

OF TYPE APPROVAL FOR WELDING CONSUMABLE

Brand: US-80B / PF-H78AC
[Wire / Flux]

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

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

Grade: Manufacturer's Specification

Hydrogen Mark: H5 specified in Table M.6.63, Chapter 6, Part M of the NK Rules

Welding Process: Submerged Arc Welding

Joint Design: Double-Side

Technique: Multi-Pass

Backing: Not Applicable

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

Current: AC

Shielding Gas: Not Applicable

Max. Applicable Thickness of Parent Material: Not Applicable

Mechanical Properties: See Table 2 on the reverse side.

Applicable Parent Material: Quenched and Tempered High Tensile Steels for Structures
Specific Grade: KA620, KD620, KA690⁽¹⁾, KD690⁽¹⁾


Note (1): This welding consumable is applicable to KA690 and KD690 steels where the allowable design stress of the structures is based on Tensile Strength not exceeding 770N/mm² or Yield Point not exceeding 650N/mm² subject to the approval of the Society.

Remarks: For annual inspection, test requirements and mechanical properties are to comply with Table 2 and Table 3 (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 16 December 2016.
Issued at Tokyo on 17 December 2015.




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.

Table 1 Welding Positions and Max. Diameter of Wire

Butt Weld		Fillet Weld	
Flat:	4.8mm	Flat:	Not Applicable
Horizontal:	Not Applicable	Horizontal Vertical:	Not Applicable
Vertical Upward:	Not Applicable	Horizontal:	Not Applicable
Vertical Downward:	Not Applicable	Horizontal Overhead:	Not Applicable
Overhead:	Not Applicable	Vertical Upward:	Not Applicable
		Vertical Downward:	Not Applicable
		Overhead:	Not Applicable

Table 2 Test Requirements of Mechanical Properties






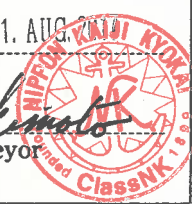
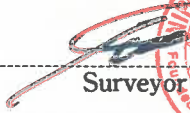











Deposited Metal Test					Butt Weld Test
Tensile Test			Impact Test		Tensile test
Tensile strength (N/mm ²)	Yield point (N/mm ²)	Elongation (%)	Testing temperature (°C)	Minimum mean absorbed energy (J)	Tensile strength (N/mm ²)
770~940	650 min.	17 min.	-20	69	770 min.

Table 3 Test Requirements for Annual Inspection

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

Notes:

- 1) KA420~KA690 or KD420~KD690 steel grades are applicable for test assembly. Also, mild steels or other high tensile strength may be applied to the test assembly subject to the appropriate buttering.
- 2) Shape and dimension of the test assembly are to be in accordance with Fig. M6.7, Chapter 6, Part M of the NK Rules.
- 3) Test assembly is to be welded in accordance with 6.3.5, Chapter 6, Part M of the NK Rules.
- 4) Diameter of wire is to be within the range specified by Kobe Steel, Ltd., Fukuchiyama Plant but not exceeding the maximum diameter approved.
- 5) Kind of tensile test specimen is to be U1A specified in Table M3.1, Chapter 3, Part M of the NK Rules.
- 6) Kind of impact test specimen is to be U4 specified in 2.2.4, Chapter 2, Part K of the NK Rules.
- 7) Mechanical properties are to comply with the requirements specified in Table 2.

<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2017</u></p> <p>Date: <u>31. AUG. 2017</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2022</u></p> <p>Date: <u>6. DEC. 2021</u></p> <p> Surveyor</p> 
<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2018</u></p> <p>Date: <u>31. AUG. 2018</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2023</u></p> <p>Date: <u>29. AUG. 2022</u></p> <p> Surveyor</p> 
<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2019</u></p> <p>Date: <u>31. AUG. 2018</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2024</u></p> <p>Date: <u>28. AUG. 2023</u></p> <p> Surveyor</p> 
<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2020</u></p> <p>Date: <u>30. AUG. 2019</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2025</u></p> <p>Date: <u>30. AUG. 2024</u></p> <p> Surveyor</p> 
<p>The validity of this certificate has been renewed</p> <p>until <u>16. DEC. 2021</u></p> <p>Date: <u>31. AUG. 2021</u></p> <p> Surveyor</p> 	<p>The validity of this certificate has been renewed</p> <p>until _____</p> <p>Date: _____</p> <p>Surveyor</p>