



NIPPON KAIJI KYOKAI

Certificate

OF

TYPE APPROVAL

Approval No. NKY-3422
Certificate No. TA1965E

Article : Welding Consumables
Brand : DW-55LM
Applicant : Kobe Steel Ltd., Ibaraki Plant
: Ibaraki, Osaka, Japan
Manufacturer : Kobe Steel Ltd., Ibaraki Plant
: Ibaraki, Osaka, Japan
Grade : KSWL3G(C)H5
: KSWL3G(C)H5-TS540M
: Manufacturer's Specification
Hydrogen Mark : "H5" specified in 6.2.11, Chapter 6, Part M of the NK Rules
Welding Process : Semi-Automatic Welding (MAG Welding)
Welding Positions and Max. Diameter of Wire: See Table 1
Current : DCEP
Shielding Gas : CO₂
Applicable Parent Material : Steels for Low Temperature Service
Remarks : 1) Mechanical properties are to comply with the requirements specified in Table 2.
2) Test requirements for annual inspection are to comply with Table 3.

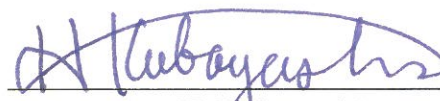
Table 1 Welding Positions and Max. Diameter of Wire for All Grades

| Butt Weld | | Fillet Weld | |
|--------------------|-------|----------------------|-------|
| Flat: | 1.4mm | Flat: | 1.4mm |
| Horizontal: | 1.4mm | Horizontal Vertical: | 1.4mm |
| Overhead: | 1.4mm | Horizontal: | 1.4mm |
| Vertical Upward: | 1.4mm | Horizontal Overhead: | 1.4mm |
| Vertical Downward: | 1.4mm | Overhead: | 1.4mm |
| | | Vertical Upward: | 1.4mm |
| | | Vertical Downward: | 1.4mm |

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 27 September 2019.

Issued at Tokyo on 25 January 2019.


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 2 Mechanical Properties

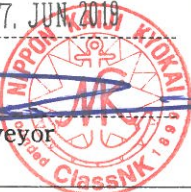
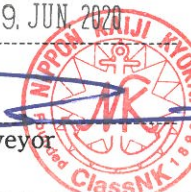

| Deposited Metal Test | | | | Butt Weld Test | | | |
|---------------------------------------|----------------------------------|----------------|--------------------------|----------------------------------|---------------------------------------|--------------------------|----------------------------------|
| Tensile Test | | | Impact Test | | Tensile Test | | Impact 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) | Testing temperature (°C) | Minimum mean absorbed energy (J) |
| 540~660 | 375 min. | 21 min. | -65 | 34 | 540 min. | -65 | 34 |

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 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) The approved specific grade of applicable parent material is 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) The diameter of the wire is to be within the range specified by Kobe Steel Ltd., Ibaraki 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 2.

| | |
|---|---|
| <p>The validity of this certificate has been renewed until <u>27. SEP. 2020</u> .</p> <p>Date: <u>27. JUN. 2019</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>27. SEP. 2021</u> .</p> <p>Date: <u>29. 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>27. SEP. 2022</u> .</p> <p>Date: <u>28. 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 _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p> | <p>The validity of this certificate has been renewed until _____ .</p> <p>Date: _____</p> <p>_____ Surveyor</p> |
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