# K-71TLF

FLUX CORED ARC WELDING CONSUMABLE FOR WELDING OF MILD 490MPa GRADE HIGH TENSILE STEEL

KISWEL

Rev.0

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## Description & Application

- **It is designed for welding of 490MPa high tensile steel with outstanding mechanical properties**
- **Typical applications include machineries, shipbuilding, offshore structures, bridges and general fabrications**
- **Wire is a titania type of flux cored wire for all-positions welding general fabrications**
- **It provides low fume generation and has good impact strength at low temperatures**
- **It also provides excellent usability with stable arc, less spatter levels, smooth bead shape**

## Classification

- **AWS A5.20 : E71T-1C/-1M**
- **AWS A5.36 : E71T1-C1A0-CS1-H4**
  **: E71T1-M21A0-CS1-H8**
- **KS D 7104 : YFW-C(A)50DR**
- **JIS Z 3313 : T49J 2 T1-1 C/MA-U H10**
- **EN ISO 17632 A : T42 2 P C1 1 H5**
  **: T46 2 P M21 1 H10**
- **EN ISO 17632 B : T49 2 T1-1CA-U H5**
  **: T49 2 T1-1M21A-U H10**

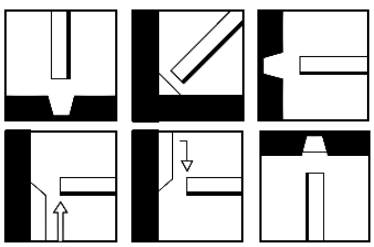
## Typical Chemical Composition of Weld Metal(%)

| Item | C | Si | Mn | P | S |
|---|---|---|---|---|---|
| AWS A5.20<br>E71T-1C /-1M | ≤0.12 | ≤0.90 | ≤1.75 | ≤0.03 | ≤0.03 |
| **K-71TLF (100% $CO_2$)** | **0.03** | **0.31** | **1.18** | **0.011** | **0.007** |
| **K-71TLF (Ar+20% $CO_2$)** | **0.03** | **0.51** | **1.42** | **0.011** | **0.012** |

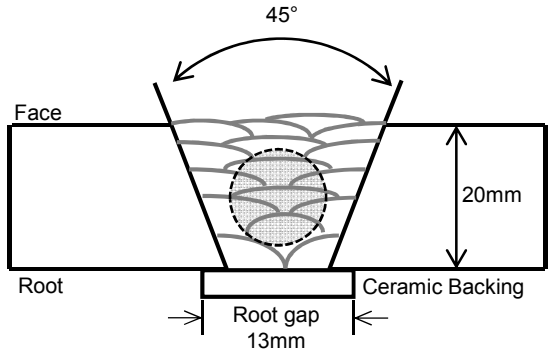
## Shielding Gas

- **100% $CO_2$ (15~25ℓ/min)**
- **Ar+20% $CO_2$ (15~25ℓ/min)**

## Welding position



## All Weld Metal Test Specimen




| | | |
|---|---|---|
| **Base metal** | DH-36 | |
| **Diameter** | 1.2 mm | |
| **Welding position** | 1G ($100\%CO_2$) | 1G ($Ar+20\%CO_2$) |
| **Welding current(A)** | 240 | 240 |
| **Arc voltage(V)** | 30 | 29 |
| **Heat input** | 15 kJ/cm | |

## Typical Mechanical Properties of Weld Metal

| | Y.S (MPa) | T.S (MPa) | El. (%) | IV (J) (Joule @ Temp) | Shielding Gas | PWHT |
|---|---|---|---|---|---|---|
| AWS E71T-1C/-1M | <390 | 490-670 | <22 | ≥ 27 @ -20℃ | 100%CO2 | AW |
| **K-71TLF** | **588** | **632** | **26** | **78-98 @-20℃** | **$100\%CO_2$** | **AW** |
| **K-71TLF** | **569** | **613** | **28** | **86-107 @-20℃** | **$Ar+20\%CO_2$** | **AW** |

## Typical Operating Procedures

| Dia (mm) | Welding Conditions | | Feed speed (m/min) | Deposition Efficiency(%) | Melt-off Rate (Kg/Hr) |
|---|---|---|---|---|---|
| | Current (amps) | Voltage (volts) | | | |
| 1.2 | 200 | 26 | 10.2 | 84-87 | 3.4 |
| | 250 | 28 | 11.5 | 85-88 | 4.5 |
| | 300 | 33 | 15.3 | 86-88 | 5.2 |
| 1.4 | 250 | 28 | 7.6 | 85-87 | 3.9 |
| | 300 | 32 | 10.2 | 85-88 | 4.2 |
| | 330 | 36 | 12.8 | 86-89 | 8.5 |
| 1.6 | 280 | 31 | 6.4 | 85-88 | 4.2 |
| | 330 | 33 | 7.6 | 86-88 | 4.8 |
| | 350 | 34 | 8.1 | 87-89 | 5.3 |
| | 400 | 38 | 9.2 | 87-90 | 5.7 |

## ■ Diffusible Hydrogen Content (Gas chromatography method)

| Class. | Diffusible Hydrogen Content (㎖) / 100g Weld Metal | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | Av. |
| 100% $CO_2$ | 4.3 | 4.4 | 4.1 | 4.6 | 4.35 |
| Ar+20%$CO_2$ | 6.3 | 5.6 | 5.8 | 6.2 | 5.98 |

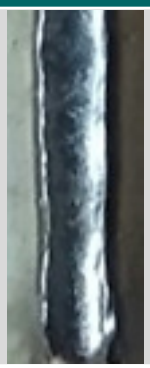
**⋆ Test Information**
- ▶ **Test Method : Reference to EN ISO 3690**
- ▶ **Test Equipment : G.C (Gas Chromatograph)**

## ■ Fume Quantity of Weld Metal (㎖/100gr. Deposited Metal)

| Class. | Diffusible Hydrogen Content (㎖) / 100g Weld Metal | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | Av. |
| Result | 0.710 | 0.722 | 0.723 | 0.718 |

**cf) Welding Conditions : 240-260A * 30-31V * 30CPM**
**Welding Time : 30sec**
**Fume accumulating time : 300sec**
**Welding position : Flat**
**As followed : AWS F1.2 1999**

## ■ Bead appearance

| Class. | Vertical-up (3F) | | | | |
|---|---|---|---|---|---|
| | 180A*26V | 200A*27V | 220A*28V | 240A*29V | 260A*30V |
| K-71TLF |  |  |  |  |  |

## ■ Packaging







## ■ Size and Weight

| Dia. (mm) | 1.2,1.4,1.6 |
|---|---|
| Weight (kg) | 5, 12.5, 15, 20 |
| Pail pack(kg) | 100~300 |

## ■ Approval

| ABS | BV | DNV*GL | LR | KR | NK |
|---|---|---|---|---|---|
| 3YSA H10 | 3S,3YS H10 | III YMS (H10) | 3YS H10 | 3YSG(C)H10 | KSW53G (C) H10 |

※ RINA, RS, CCS, CWB

## ■ Handling and Storage

- **Once Flux cored wire picked up moisture, it cannot be dried at high temperature, unlike covered electrode.**
- **If a wire was left in a wire feeder in a high-temperature high- humidity atmosphere in summer season, a wet environment in rainy season or a dew fall environment at night in winter was unpacked, the wire should be kept in an area of low humidity.**

  **※ Temp. below 30℃ relative humidity below 60%**

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The Management System of KISWEL LTD, 704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam 51544, Republic of Korea, 70, Saebyeok-ro 63beon-gil, Sasang-gu, Busan 47018, Republic of Korea has been approved by Lloyd's Register Quality Assurance to : IATF 16949:2016, ISO 14001:2015, applicable to : Manufacture of solid welding wires & rods, flux cored wires, submerged arc welding wires & fluxes, stainless steel welding wires & rods and covered electrodes.
More information : www.kiswel.com

