HYUNDAI WELDING

Rev. 01

# SM-410

2020.06

HYUNDAI WELDING CO., LTD.

# SM-410

## ❖ Specification

| | |
|---|---|
| ***AWS A5.9*** | ER410 |
| ***JIS*** | Z3321 YS410 |
| ***EN*** | ISO 14343-A G 13 |

## ❖ Applications

MIG Welding of 13%Cr stainless steel (STS 403, STS 410)

## ❖ Characteristics on Usage

Structure of all-weld metal is martensite having magnetic properties thus providing high hardness, good anti-abrasive property. Bead appearance and weldability are good.
Due to high hardness of all-weld metal and excellent resistance to corrosion and abrasion, it can be used to hardfacing of carbon steels and 13%Cr stainless steels application.

## ❖ Note on Usage

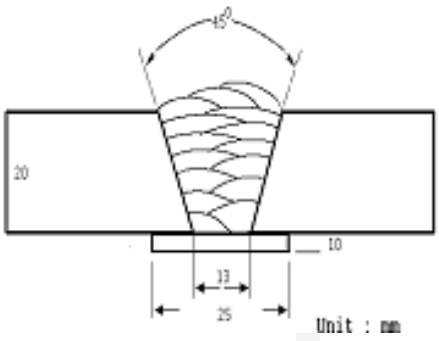
Use 100% Ar or Ar + 2%$O_2$ gas.

## ❖ Packing

| **Dia.** | 0.8mm (0.033in) | 0.9mm (0.035in) | 1.0mm (0.040in) | 1.2mm (0.045in) | 1.6mm (1/16in) |
|---|---|---|---|---|---|
| **Spool** | 12.5kg (28lbs) | | | | |

# Mechanical Properties & Chemical Composition of All Weld Metal

## ❖ Welding Conditions




[ Joint Preparation & Layer Details ]

| | | |
|---|---|---|
| **Diameter(mm)** | : | 1.2mm |
| **Shielding Gas** | : | 100%Ar |
| **Flow Rate(ℓ /min.)** | : | 15~20 |
| **Amp./ Volt.** | : | 230/27 |
| **Stick-Out(mm)** | : | 20 |
| **Pre-Heat(℃)** | : | R.T. |
| **Interpass Temp.(℃)** | : | 150 ± 15 |
| **Polarity** | : | DC(+) |
| **PWHT(℃)** | : | 745 ± 15 1hr, Furnace cooling(315), Air cooling(RT) |

## ❖ Mechanical Properties of All weld metal(wt%)

| Consumable | Tensile Test | | CVN Impact test Joule (ft·lbs) | |
|---|---|---|---|---|
| | T.S. MPa (ksi) | EL. (%) | +20℃ (68°F) | 0℃ (32°F) |
| **SM-410** | 723 (106) | 22.8 | 75(55) | 20(15) |

## ❖ Chemical Analysis of the wire

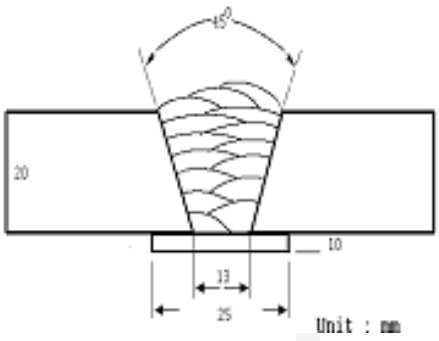
| Consumable | C | Si | Mn | Ni | Cr |
|---|---|---|---|---|---|
| **SM-410** | 0.10 | 0.38 | 0.34 | 0.17 | 12.0 |
| **AWS A5.9 ER410** | ≤0.12 | ≤0.5 | ≤0.6 | ≤0.6 | 11.5 ~13.5 |

## ❖ Chemical Analysis of the weld metal

| Consumable | C | Si | Mn | Ni | Cr |
|---|---|---|---|---|---|
| **SM-410** | 0.09 | 0.46 | 0.34 | 0.19 | 11.1 |

# Mechanical Properties & Chemical Composition of All Weld Metal

## ❖ Welding Conditions




[ Joint Preparation & Layer Details ]

| | | |
|---|---|---|
| **Diameter(mm)** | : | 1.2mm |
| **Shielding Gas** | : | Ar + 2%O2 |
| **Flow Rate(ℓ /min.)** | : | 15~20 |
| **Amp./ Volt.** | : | 230/27 |
| **Stick-Out(mm)** | : | 20 |
| **Pre-Heat(℃)** | : | R.T. |
| **Interpass Temp.(℃)** | : | 150 ± 15 |
| **Polarity** | : | DC(+) |
| **PWHT(℃)** | : | 745 ± 15 1hr, Furnace cooling(315), Air cooling(RT) |

## ❖ Mechanical Properties of All weld metal(wt%)

| Consumable | Tensile Test | | CVN Impact test Joule (ft·lbs) | |
|---|---|---|---|---|
| | T.S. MPa (ksi) | EL. (%) | +20℃ (68°F) | 0℃ (32°F) |
| **SM-410** | 710 (103) | 24.0 | 59 (44) | 29 (21) |

## ❖ Chemical Analysis of the wire

| Consumable | C | Si | Mn | Ni | Cr |
|---|---|---|---|---|---|
| **SM-410** | 0.10 | 0.38 | 0.34 | 0.17 | 12.0 |
| **AWS A5.9 ER410** | ≤0.12 | ≤0.5 | ≤0.6 | ≤0.6 | 11.5 ~13.5 |

## ❖ Chemical Analysis of the weld metal

| Consumable | C | Si | Mn | Ni | Cr |
|---|---|---|---|---|---|
| **SM-410** | 0.12 | 0.44 | 0.32 | 0.19 | 11.3 |