

Supershield 6

SELF-SHIELD FLUX CORED ARC WELDING CONSUMABLE
FOR MILD & 490MPa CLASS HIGH TENSILE STEEL

2022.02

HYUNDAI WELDING CO., LTD.



Supershield 6

❖ Specification

AWS A5.20

E70T-6

AWS D1.8

| |
|------------------|
| Wire Dia. mm(in) |
| 2.4(3/32) |

* AWS D1.8 is available upon request

❖ Applications

Flat & Horizontal welding of general and structural fabrication. bridge construction, heavy equipment repair.

❖ Characteristics on Usage

Supershield 6 is self-shielded flux cored wire for high deposition rates in flat and horizontal welding where low temperature impact properties are required.

❖ Note on Usage

Do not use shielding gas

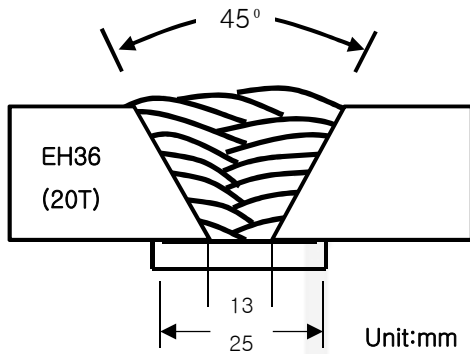
DC (+) Polarity



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

| | |
|-------------------------|----------------------|
| Welding Position | : 1G(PA) |
| Diameter | : 2.0mm(5/64in) |
| Shielding Gas | : None |
| Polarity | : DC+ |
| Amp./ Volt. | : 300 / 22 |
| Stick-Out | : 35~40mm(1.4~1.6in) |
| Pre-Heat | : R.T . |
| Interpass Temp. | : 150±15℃ (302±59°F) |

❖ Mechanical Properties of all weld metal

| Consumable | Tensile Test | | | CVN Impact Test (Joule (ft · lbs)) |
|------------------|--|--------------------|---------|--|
| | Tensile specimen artificially aged at 105℃ for 48hr, as permitted by AWS A5.20 | | | |
| Supershield 6 | YS (MPa / ksi) | TS (MPa / ksi) | EL(%) | -30℃ (-22°F) |
| | | 452(65) | 564(81) | 25.4 |
| AWS A5.20 E70T-6 | ≥ 390 (56) | 490~670 (70~97) | ≥22 | ≥27J at -30℃ (≥20ft · lbs at -22°F) |

❖ Chemical Analysis of all weld metal(wt%)

| Consumable | C | Si | Mn | P | S | Al |
|------------------|--------|--------|--------|---------|---------|-------|
| Supershield 6 | 0.118 | 0.18 | 1.39 | 0.010 | 0.003 | 0.65 |
| AWS A5.20 E70T-6 | ≤ 0.30 | ≤ 0.60 | ≤ 1.75 | ≤ 0.030 | ≤ 0.030 | ≤ 1.8 |

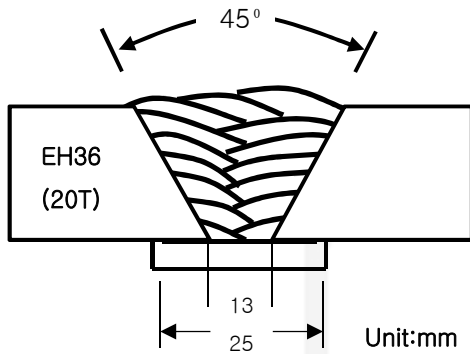
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

| | |
|-------------------------|----------------------|
| Welding Position | : 1G(PA) |
| Diameter | : 2.4mm(3/32in) |
| Shielding Gas | : None |
| Polarity | : DC+ |
| Amp./ Volt. | : 350 / 23 |
| Stick-Out | : 40~45mm(1.6~1.8in) |
| Pre-Heat | : R.T. |
| Interpass Temp. | : 150±15℃ (302±59°F) |

❖ Mechanical Properties of all weld metal

| Consumable | Tensile Test | | | CVN Impact Test (Joule (ft · lbs)) |
|------------------|--|--------------------|---------|--|
| | Tensile specimen artificially aged at 105℃ for 48hr, as permitted by AWS A5.20 | | | |
| Supershield 6 | YS (MPa / ksi) | TS (MPa / ksi) | EL(%) | -30℃ (-22°F) |
| | | 469(68) | 585(84) | 24.9 |
| AWS A5.20 E70T-6 | ≥ 390 (56) | 490~670 (70~97) | ≥22 | ≥27J at -30℃ (≥20ft · lbs at -22°F) |

❖ Chemical Analysis of all weld metal(wt%)

| Consumable | C | Si | Mn | P | S | Al |
|------------------|--------|--------|--------|---------|---------|-------|
| Supershield 6 | 0.120 | 0.21 | 1.45 | 0.011 | 0.003 | 0.68 |
| AWS A5.20 E70T-6 | ≤ 0.30 | ≤ 0.60 | ≤ 1.75 | ≤ 0.030 | ≤ 0.030 | ≤ 1.8 |

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Diffusible Hydrogen Content

❖ Welding Conditions

| | | | |
|------------------------------------|------------------|---------------------------|----------------------------|
| Diameter | : 2.0mm (5/64in) | Amp.(A) / Volt.(V) | : 300 / 22 |
| Shielding Gas | : None | Stick-Out | : 35mm (1.4in) |
| Current Type & Polarity | : DC(+) | Welding Speed | : 30 cm/min (12 in/min) |
| Welding Position | : 1G (PA) | | |

❖ Hydrogen Analysis Using Gas Chromatography Method

| | |
|--------------------------------|-----------------|
| Hydrogen Evolution Time | : 72 hrs |
| Evolution Temp. | : 45 °C (113°F) |
| Barometric Pressure | : 780 mm-Hg |

❖ Result($ml/100g$ Weld Metal)

| X1 | X2 | X3 | X4 |
|-----|-----|-----|-----|
| 7.4 | 7.9 | 7.6 | 7.5 |

Average Hydrogen Content $7.6 ml / 100g$ Weld Metal



Welding Efficiency

❖ Deposition Rate & Efficiency

| Wire Size | Welding Conditions | | Deposition Efficiency(%) | Deposition Rate kg/hr(lb/hr) |
|-------------------|--------------------|----------|---|---|
| | Amp.(A) | Volt.(V) | | |
| 2.0mm (5/64in) | 280 | 21 | 82~83 | 3.5(7.7) |
| | 320 | 22 | 82~83 | 4.6(10.1) |
| | 360 | 23 | 83~84 | 5.6(12.3) |
| | 400 | 25 | 83~84 | 6.7(14.7) |
| 2.4mm (3/32in) | 300 | 23 | 81~82 | 4.0(8.8) |
| | 350 | 23 | 81~82 | 5.2(11.5) |
| | 400 | 25 | 82~83 | 6.5(14.3) |
| | 450 | 26 | 82~84 | 7.9(17.4) |
| Remark | | | Deposition efficiency =(Deposited metal weight/ Wire weight used)×100 | Deposition rate =(Deposited metal weight/ Welding time,min.)×60 |

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Proper Welding Condition

❖ Proper Current Range

| Consumable | Welding position (Polarity) | Wire Diameter | Welding Conditions | |
|---------------|--------------------------------|-------------------|--------------------|-------|
| | | | Amp. | Volt. |
| Supershield 6 | F & HF (DC +) | 2.0mm (5/64in) | 250 | 21~22 |
| | | | 300 | 22~23 |
| | | | 350 | 23~24 |
| | | | 400 | 24~26 |
| | | 2.4mm (3/32in) | 300 | 22~23 |
| | | | 350 | 23~24 |
| | | | 400 | 24~26 |
| | | | 450 | 26~28 |

CTWD : 35~50mm(1.4~1.9in)

❖ F No & A No

| F No | A No |
|------|------|
| 6 | - |