# THY-51A (E71T-1C-J)

## GAS-SHIELDED CARBON STEEL FLUX-CORED WIRE

AWS A5.20 E71T-1C-J
ISO 17632-A-T 42 4 P C1 2 H10
GB/T 10045 T494T1-1C1A

## APPLICATION

Welding of carbon and low-alloy steel structures requiring low-temperature toughness in ships, bridges, buildings, vehicles, offshore platforms, and machinery.

## CHARACTERISTICS

THY-51A is a 500 MPa class rutile flux-cored wire for C1 shielding gas. It is suitable for all-position welding and offers good welding operability and low-temperature toughness.

## PRECAUTIONS

Use DCEP (electrode positive). Use $CO_2$ shielding gas with at least 99.9% purity at 20-25 L/min. For multipass welding, maintain an interpass temperature of approximately 150-200 °C. Follow the general operating instructions for gas-shielded flux-cored wires.

## WELDING POSITIONS




## MECHANICAL PROPERTIES

| Items | Tensile strength (MPa) | Yield strength (MPa) | Elongation (%) | Impact energy at -40 °C (J) |
|---|---|---|---|---|
| **Requirements** | 490-670 | ≥390 | ≥18.0 | ≥27 |
| **Typical results** | 573 | 490 | 27 | 121 |

Test shielding gas: $CO_2$
Diffusible hydrogen: ≤10 mL/100 g of deposited weld metal (mercury method)

## DEPOSITED WELD METAL CHEMICAL COMPOSITION (%) CO2

| Items | C | Mn | Si | S | P | Ni |
|---|---|---|---|---|---|---|
| **Requirements** | ≤0.18 | ≤2.00 | ≤0.90 | ≤0.030 | ≤0.030 | ≤0.50 |
| **Typical results** | 0.05 | 1.38 | 0.45 | 0.010 | 0.019 | 0.46 |

## TYPICAL OPERATING PROCEDURES DCEP

| Diameter (mm) | 1.2 | 1.4 | 1.6 | 1.2 | 1.4 | 1.6 |
|---|---|---|---|---|---|---|
| **Position** | PA / PB | PA / PB | PA / PB | PF / PE | PF / PE | PF / PE |
| **Current (A)** | 180-260 | 200-280 | 240-300 | 120-260 | 180-280 | 180-280 |

## CERTIFICATION

ABS 4YSAH10 · BV SA4YHH · CCS 4YSMH10 · DNV IV YMS(H10) · LR 4YSH5 · NK KSW54G(C)H10 · KR 4YSG(C)H10

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