

FAMILIARC™ DW-50

(AWS A5.20 E71T-1C/1M, -9C/9M)

Offers Superior Impact Toughness for Flux Cored Arc Welding

FAMILIARC™ DW-50 is a rutile-based flux-cored wire for out-of-position welding with CO₂ or Ar-CO₂ mixture shielding. It has a great reputation in many applications including steel structures, storage tanks, and piping. By taking customer needs seriously, Kobe Steel has improved the impact toughness of this wire in developing FAMILIARC™ DW-50. Which meets the requirements for AWS A5.20 E71T-9/-9M in addition to E71T-1/-1M.

FAMILIARC™ DW-50 offers superior impact toughness plus the following outstanding characteristics:

- Fast-freezing slag makes for easier performance in vertical upward welding as well as in flat position welding, resulting in excellent bead appearance and shape.
- The capability of using high welding currents (e.g. up to 260A with a 1.2-mmØ wire) assures high efficiency with high deposition rates even in the vertical upward and overhead positions.
- Self-peeling slag results in glossy bead appearance in out-of-position welding.
- Sophisticated flux and sheath design provides low amounts of fume and spatter.
- Non-baked, shiny wire surface coated with special lubricant ensures consistent wire feedability and an extended life of the conduit liner.

FAMILIARC™ DW-50 is suitable for single- and multiple- pass welding of mild and low-alloy steel. Table 1 shows typical chemical and mechanical properties of the multiple-pass weld metal tested in accordance with AWS A5.20.

Table 1: Typical chemical and mechanical properties of FAMILIARC™ DW-50 (1.2 mmØ) weld metal tested per AWS A5.20.

Shielding gas	C	Si	Mn	P	S
CO ₂	0.05	0.70	1.34	0.008	0.009
75Ar-25CO ₂	0.05	0.83	1.53	0.008	0.009
Shielding gas	0.2%OS (MPa)	TS (MPa)	El. (%)	-29°C vE Ave.(J)	-18°C vE Ave.(J)
CO ₂	540	607	30	68	76
75Ar-25CO ₂	567	626	29	89	121



Figure 1 shows the impact toughness of FAMILIARC™ DW-50 (1.2 mmØ) multiple-pass weld metal. The test results illustrate some variability because different welding positions, shielding gases, and specimen removal locations are included in the data; however, they also show impact toughness highly consistent with the AWS requirements (27J at -18°C for E71T-1/-1M; 27J at -29°C for E71T-9/-9M).

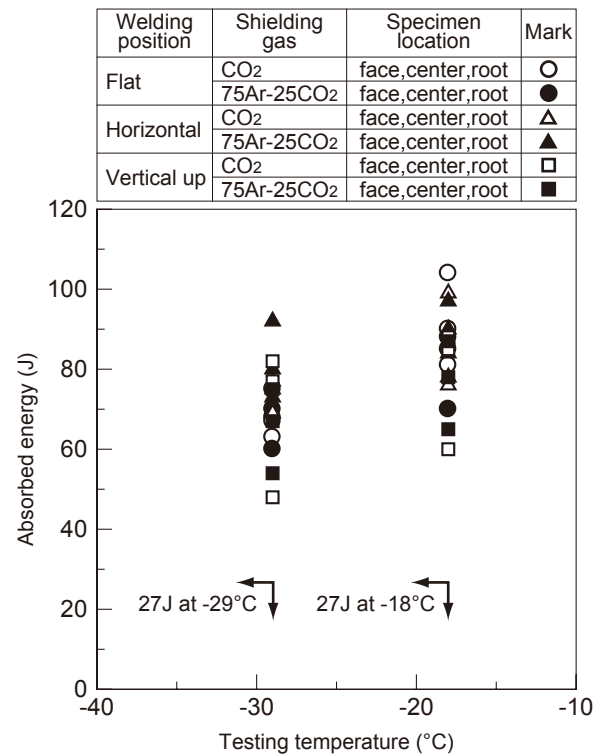


Figure 1: Impact test results of FAMILIARC™ DW-50 (1.2 mmØ) multiplepass weld metal. (Base metal: 25-mm thick SM490A, 490MPa HT steel; Welding current: 200-280A; Test specimen removal locations: face: 2 millimeters below the surface of the base metal; center: thickness-wise center; root: 2 millimeters above the backside surface of the base metal)

FAMILIARC™ DW-50 is approved as Grade 3 by the ship classes such as ABS, LR, DNV, GL, and NK. This means that FAMILIARC™ DW-50 satisfies the impact toughness requirements of 34J and 41J at minus 20°C specified respectively according to the type of steel and the type of joint to be welded.