

ABSTRACT OF THE DISCLOSURE

FLUX-CORED WIRE FOR GAS-SHIELDED ARC WELDING OF HIGH TENSILE STRENGTH STEEL

A flux-cored wire for gas-shielded arc welding which contains in its total weight C: 0.02 to 0.14 wt%, Si: 0.4 to 1.1 wt%, Mn: 0.8 to 3.0 wt%, Ni: 0.2 to 3.1 wt%, Ti: no more than 0.2 wt%, either or both of Cr and Mo: 0.1 to 4.0 wt% in total, TiO₂ and MgO: 5.0 to 7.2 wt% in total, N: no more than 0.0150 wt%, optionally any or all of alkali metal fluoride and oxide, alkaline earth metal fluoride and oxide, B, Al, and Mg: no more than 2.0 wt% in total, with the remainder being inevitable impurities and Fe, wherein the content of MgO and the content of TiO₂ satisfy the equation: $0.05 \leq x \leq 0.22$ (where x denotes the ratio of MgO/TiO₂). The flux-cored wire has good welding usability and gives weld metal superior in low-temperature toughness (at about -60°C) and cold crack resistance when applied to high-tensile strength steel having a proof strength greater than 620 MPa.

Figure 1