

MEGAFIL® 821 R



AWS A5.29: E81T1-Ni1M-J H4

AWS A5.36: E81T1-M21A8-Ni1-H4

EN ISO 17632-A: T 50 6 1 Ni P M21 1 H5

WELDING POSITIONS:



| FEATURES | BENEFITS | APPLICATIONS |
|--|--|---|
| <ul style="list-style-type: none">Extremely low diffusible hydrogen weld depositLow fumes and spatterEasy slag removalAble to bridge poor fit-up without burn-throughGood impact toughnessSmooth arc characteristic | <ul style="list-style-type: none">Minimized risk of hydrogen-induced crackingNo re-dryingExcellent all position weldingResists cracking in severe applicationsReduces clean-up time, minimizes risk of inclusionsIncreases productivity, reduces part rework/rejectionCTOD tested -20 °CRoot welding on ceramic backingAutomatic root welding on ceramic backing | <ul style="list-style-type: none">Automatic and mechanized weldingSteel structuresOffshore structuresPipelinesNon-alloy and fine grain steelsVesselsGeneral fabricationHeavy equipmentSingle and multi-pass welding |

| | |
|------------------------------|---|
| WIRE TYPE | Gas shielded rutile flux-cored wire with rapidly solidifying slag |
| SHIELDING GAS | 75-85% Argon (Ar) / Balance Carbon Dioxide (CO ₂); Gas Flow 12-18 l/min (25-38 cfm) |
| TYPE OF CURRENT | Direct Current Electrode Positive (DCEP) |
| STANDARD DIAMETERS | Ø 1.0 - 1.6 mm (0.039 - 1/16") |
| TYPICAL DIFFUSIBLE HYDROGEN* | < 3.0 ml / 100 g; Guaranteed for the total processing time < 4.0 ml / 100 g maximum (AWS Spec) |
| RE-DRYING | Not required due to seamless wire design. |
| STORAGE | The same conditions as for solid wire. Product should be stored in a dry, enclosed environment, in its original undamaged packaging |

*Measurement technique is the carrier gas method according to AWS and ISO

MATERIALS TO BE WELDED*

| Material | Strength | Weldability |
|---|---------------|---|
| Shipbuilding steels | | A, B, D, AH 32 - EH 46 |
| Unalloyed structural steels | Rel ≤ 500 MPa | S185 - S355, A106 Gr. B, A333 Gr. 6 |
| Boiler steels | Rel 500 MPa | P235GH – P485GH up to A516; A537; A455 |
| Pipe steels | Rel 500 MPa | P235T1/T2 - P485NL2; L210 - L485MB up to A572 |
| Fine grain structural steels | Rel 500 MPa | S235 – S500(NL1,2) up to A572 |
| Steels to API-standard | Rel 500 MPa | X42 – X70 |
| *) The specified base materials are not complete and should only be seen as examples. The selection of the appropriate combination of steel and welding consumable should follow the specific mechanical strength and toughness requirements. | | |

ALL WELD METAL CHEMISTRY (%) (typical values for mixed gas 82% Ar / 18% CO₂)

| Element | Content (%) | Element | Content (%) |
|----------------|-------------|-----------------|-------------|
| Carbon (C) | 0.05 | Nickel (Ni) | 0.9 |
| Manganese (Mn) | 1.3 | Molybdenum (Mo) | - |
| Silicon (Si) | 0.5 | Chromium (Cr) | - |
| Sulphur (S) | 0.015 | | |
| Phosphorus (P) | 0.015 | | |

ALL WELD METAL MECHANICAL PROPERTIES (for mixed gas 82% Ar / 18% CO₂)

| Mechanical tests | Typical values MPa (ksi) | ISO Specification MPa (ksi) |
|----------------------|--------------------------|-----------------------------|
| Tensile Strength Rm | 620 (90) | 550 - 690 (80 - 100) |
| Yield strength Rp0.2 | 550 (80) | > 500 (73) |
| Expansion A5 | 26% | 22% |

CHARPY V-NOTCH IMPACT VALUES (for mixed gas 82% Ar / 18% CO₂)

| Mechanical Tests | Typical values [J] (ft.lbf) | ISO Specification [J] (ft.lbf) |
|--|-----------------------------|--------------------------------|
| -40 °C | 110 (81) | > 47 (35) |
| -60 °C | 80 (59) | > 47 (35) |
| The specified values apply to the as-welded and stress-relieved condition (580 °C/120 min) | | |

APPROVALS: TÜV, DB, BV, LR, ABS, CWB, DNV-GL

Please contact the manufacturer to learn the present scope of approvals