

**Classifications**

| EN ISO 17632-A         | EN ISO 17632-B          | AWS A5.28 / SFA-5.28 | AWS A5.36 / SFA-5.36 |
|------------------------|-------------------------|----------------------|----------------------|
| T 50 6 1 Ni M M21 1 H5 | T 57 6 T15-1M21A-N2-UH5 | E80C-Ni1 H4          | E81T15-M21A8-Ni1-H4  |

**Characteristics and typical fields of application**

Seamless all positional metalcored wire, Nickel alloyed, metal cored wire for single- or multilayer welding of carbon, carbon-manganese and high strength steels with Ar-CO<sub>2</sub> shielding gas. Features include: high yield, good weldability, excellent bead appearance, very low spatter losses and exceptional mechanical properties at low temperatures (-60°C) in as welded conditions as well after post weld heat treatment. This wire is especially suitable for root-pass welding in off-shore and pipeline applications. This product can be used in sour gas applications. (HIC tested acc. to NACE TM-0284). Test values for SSC are available upon request. This wire is CTOD tested at -40°C.

**Base materials**

S355JR, S355JO, S355J2, S450JO, S355N-S460N, S355NL-S460NL, S355M-S460M, S355ML- S460ML, S460Q, S500Q, S460QL, S500QL, S460QL1, S500QL1, P355GH, P355NH, P420NH, P460NH, P355N-P460N, P355NH-P460NH, P355NL1-P460NL1, P355NL2-P460NL2, L245NB- L415NB, L245MB-L485MB, L360QB-L485QB, aldur 500Q, aldur 500QL, aldur 500QL1  
 ASTM A 350 Gr. LF2; A 516 Gr. 65, 70; A 572 Gr. 42, 50, 60, 65; A 573 Gr. 70; A 588 Gr. B, C, K; A 633 Gr. A, C, D, E; A 662 Gr. B, C; A 678 Gr. B; A 707 Gr. L2, L3; A 841 Gr. A, B, C; API 5 L X42, X52, X60, X65, X70, X52Q, X60Q, X65Q, X70Q

**Typical analysis**

|       | Gas | C    | Si   | Mn  | Ni   |
|-------|-----|------|------|-----|------|
| wt.-% | M21 | 0.06 | 0.50 | 1.3 | 0.90 |

**Mechanical properties of all-weld metal - typical values (min. values)**

| Condition | Yield strength R <sub>p</sub> | Tensile strength R <sub>m</sub> | Elongation A (L <sub>0</sub> =5d <sub>0</sub> ) | Impact energy ISO-V KV J |
|-----------|-------------------------------|---------------------------------|---|--------------------------|
|           | MPa                           | MPa                             | %   | -60°C                    |
| u         | 530 (≥ 500)                   | 620 (570-590)                   | 27 (≥ 18)                                       | 90 (≥ 47)                |
| s         | 500                           | 560                             | 26  | 90                       |
| n         | 360                           | 520                             | 33  | 100                      |

u untreated, as welded – shielding gas M21  
 s stress relieved 580°C / 3h – shielding gas M21  
 n normalized 920°C / 30min – shielding gas M21

**Operating data**

|   |                                     |     |                     |
|---|-------------------------------------|-----|---------------------|
|  | <b>Polarity</b>                     | DC+ | <b>Dimension mm</b> |
|   | <b>Shielding gas (EN ISO 14175)</b> | M21 | 1.2                 |
|   |                                     |     | 1.6                 |

Welding with conventional or pulsed power sources using DC+

**Approvals**

TÜV (06205), DB (42.052.15), ABS, DNV, CWB, CE