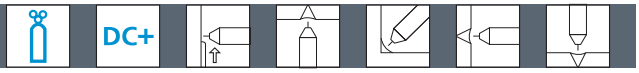
# VERTI-COR 81 Ni1




- Higher Strength Low Alloy, Rutile Type Flux Cored Wire.
- Formulated for Use with Argon + 18-25% $CO_2$ or equivalent.
- Versatile, All Positional Capabilities.
- Excellent Operator Appeal.
- Improved vertical performance.

## Classifications:

| | |
|---|---|
| AS 2203.1: (old) | ETP-GMp-W554A. Ni1 H10 |
| AS/NZS: 17632 (new) | B T 55 4 T1 1 M A N2 U H10 |
| AWS/ASME-SFA A5.29: | E81T1-Ni1MH8 |

## Description and Applications:

Verti-Cor 81 Ni1 is a microalloyed, rutile type flux cored wire suitable for the all positional welding ( flat, horizontal-vertical, vertical-up and overhead etc) of medium to high strength steels. Formulated for use with Argon + 18-25% CO2 shielding gas, Verti-Cor 81 Ni1 produces a low alloy ( nominally 1.0% Nickel ) steel weld deposit of the 550 MPa tensile class. Verti-Cor 81 Ni1 is easy-to-use in all positions and produces smooth arc transfer characteristics, low spatter levels, mitre fillet welds and a full covering easy releasing slag, similar to Verti-Cor 3XP. Verti-Cor 81 Ni1 is suitable for the fillet and butt welding of a broad range of higher strength steels in all welding positions, except vertical-down. Typical applications include the under matching strength fillet welding of Bisalloy 60, 70 and 80 Quenched and Tempered steels.

### Typical Weld Metal Mechanical Properties:

Actual weld metal mechanical properties achieved with Verti-Cor 81 Ni1 are influenced by many factors including, base metal analysis, welding parameters / heat input used, shielding gas selection, number of weld passes and run placement etc. Please contact CIGWELD for welding procedure recommendations.

## TYPICAL ALL WELD METAL ANALYSIS*:

| | | |
|---|---|---|
| C: 0.06% | Mn: 1.35% | Si: 0.35% |
| Ni: 0.90% | Ti: 0.035% | B: 0.007%. |

*Using Argon + 18-25% $CO_2$ shielding gas

## TYPICAL DIFFUSIBLE HYDROGEN LEVELS TO AS3752:

5.0–6.0 mls of hydrogen / 100gms of deposited weld metal*.
*for "as manufactured" product using Argon + 18-25% $CO_2$ shielding gas.

## TYPICAL ALL WELD METAL MECHANICAL PROPERTIES:

| | Using Argon + 18-25% $CO_2$: |
|---|---|
| Yield Stress | 520 MPa |
| Tensile Strength | 600 MPa |
| Elongation | 26% |
| CVN Impact Values | 65J av @ -40°C |

## RECOMMENDED* SHIELDING GAS:

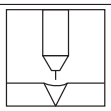
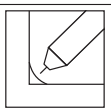
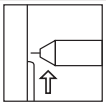
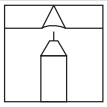
| AS 4882: | ISO 14175 / AWS A5.32: |
|---|---|
| SG-AC-18, or SG-AC-20 | M21*- Cert supplied |
| Ar+$CO_2$ (18-25%) | |

## Packaging Data:

| Wire Diameter (mm) | Type | Pack Weight | Pack Part No. |
|---|---|---|---|
| 1.2 | Spool | 15 kg | 720390 |
| 1.6 | Spool | 15 kg | 720391 |

## Operating Data:

All welding conditions recommended below are for use with semi-automatic operation, DC electrode positive using Argon + 18-25% $CO_2$ shielding gas with a flow rate of 15–20 litres/min

| Wire Diameter mm | Current Range (amps) | Voltage Range (volts) | CTWD | Welding Position | |
|---|---|---|---|---|---|
| 1.2 | 250-300 | 27-31 | 20-25 |  | Flat |
| 1.6 | 350-400 | 27-31 | 25-30 | | |
| 1.2 | 230-280 | 26-30 | 20-25 |  | HV Fillet |
| 1.6 | 310-360 | 26-30 | 25–30 | | |
| 1.2 | 170-220 | 24-28 | 15-20 |  | Vertical up |
| 1.6 | 200-250 | 24-28 | 15-20 | | |
| 1.2 | 160-210 | 24-28 | 15-20 |  | Overhead |
| 1.6 | 190-240 | 24-28 | 15-20 | | |

These machine settings are a guide only. Actual voltage, welding current and CTWD used will depend on machine characteristics, plate thickness, run size, shielding gas and operator technique etc.