

## Exaton 24.13.LNb

Exaton 24.13.LNb is a niobium-stabilized overalloyed filler metal suitable for overlay welding of carbon and low alloy steels, where a type 347 of overlay is required in one layer. Typical applications is cladding of shells and inlets of hydrocrackers, which has a service temperature of 600-650°C. It is used for MIG/MAG welding as well as for plasma welding and overlay welding using hot wire TIG and mechanized TIG.

### Specifications

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| <b>Classifications</b> | EN ISO 14343-A : G/W/P 23 12 Nb<br>SFA/AWS A5.9 : ER309L (mod) |
| <b>Approvals</b>       | CE : EN 13479<br>UKCA : EN 13479                               |

Approvals are based on factory location. Please contact ESAB for more information.

|                      |                                                                       |
|----------------------|-----------------------------------------------------------------------|
| <b>Alloy Type</b>    | Austenitic (with approx. 15 % ferrite) 24 % Cr - 13 % Ni - Low C - Nb |
| <b>Shielding Gas</b> | M12, M13 (EN ISO 14175)                                               |

### Typical Tensile Properties

| Condition | Yield Strength | Tensile Strength | Elongation |
|-----------|----------------|------------------|------------|
| As Welded | 500 MPa        | 670 MPa          | 29 %       |

### Typical Charpy V-Notch Properties

| Condition | Testing Temperature | Impact Value |
|-----------|---------------------|--------------|
| As Welded | 20 °C               | 130 J        |
| As Welded | -60 °C              | 100 J        |
| As Welded | -196 °C             | 15 J         |

### Typical Wire Composition %

| C    | Mn  | Si  | S     | P     | Ni   | Cr | Mo   | Cu   | N    |
|------|-----|-----|-------|-------|------|----|------|------|------|
| 0.01 | 2.1 | 0.3 | 0.001 | 0.013 | 12.5 | 24 | 0.02 | 0.01 | 0.05 |

### Typical Wire Composition %

| Nb  | Ti    | Co   |
|-----|-------|------|
| 0.8 | 0.005 | 0.02 |

### Typical Weld Metal Analysis %

| C    | Mn  | Si  | S     | P     | Ni   | Cr   | Mo   | Cu   | N    |
|------|-----|-----|-------|-------|------|------|------|------|------|
| 0.02 | 2.2 | 0.2 | 0.001 | 0.012 | 12.5 | 23.2 | 0.01 | 0.01 | 0.07 |

### Typical Weld Metal Analysis %

| Nb  | Co   | FN deLong |
|-----|------|-----------|
| 0.8 | 0.02 | 13        |

### Recommended Welding Parameters

| Current   | Wire Diameter | Voltage | Wire Feed Speed |
|-----------|---------------|---------|-----------------|
| 60-220 A  | 1.0 mm        | 15-28 V | 4.0-12.0 mm/min |
| 150-260 A | 1.2 mm        | 24-29 V | 3.0-10.0 mm/min |