

Limarosta® 309S

EMR
SAHARA®

SMAW

CLASSIFICATION

| | | | | | |
|------------|-----------------|---------|---|--------|--------|
| AWS A5.4 | E309L-17 | A-Nr | 8 | Mat-Nr | 1.4332 |
| ISO 3581-A | E 23 12 L R 3 2 | F-Nr | 5 | | |
| | | 9606 FM | 5 | | |

TEMPERATURE RANGE

Pressurized parts : -20...+300°C
Oxidation resistance : n.a

GENERAL DESCRIPTION

A rutile-basic all position CrNi over-alloyed buffer electrode
Developed for welding stainless steel to mild steel and for clad steel
Self releasing slag
Excellent side wall wetting, no undercut, mirror like bead appearance
High resistance to porosity
Weldable on AC and DC+ polarity
Also available in vacuum sealed Sahara ReadyPack® (SRP)

WELDING POSITIONS (ISO/ASME)



CURRENT TYPE

AC/DC +

APPROVALS

| DNV | GL | LR | RMRS | TÜV |
|------|------|--------|--------|-----|
| 309L | 4432 | SS/CMn | SS/CMn | + |

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

| C | Mn | Si | Cr | Ni | FN (acc.WRC 1992) |
|------|-----|-----|------|------|-------------------|
| 0.02 | 0.8 | 1.0 | 23.0 | 12.5 | 10-20 |

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

| Condition | 0.2% Proof strength [N/mm ²] | Tensile strength [N/mm ²] | Elongation [%] | Impact ISO-V(J) | |
|--|--|---------------------------------------|--------------------------|------------------------------------|-------|
| | | | | +20°C | -20°C |
| Required: AWS A5.4 ISO 3581-A Typical values | not required min. 320 480 | min. 520 min. 510 560 | min. 30 min. 25 40 | not required not required 55 | |
| AW | | | | | 50 |

PACKAGING AND AVAILABLE SIZES

| | Diameter (mm) | 2.0 | 2.5 | 3.2 | 4.0 | 5.0 |
|------------------|----------------------|-----|-----|-----|-----|-----|
| | Length (mm) | 300 | 350 | 350 | 450 | 450 |
| Carton + PE foil | Pieces / unit | 200 | 125 | 135 | 85 | 55 |
| | Net weight/unit (kg) | 2.3 | 2.8 | 4.9 | 5.9 | 6.0 |
| SRP | Pieces / unit | - | 65 | 50 | 28 | - |
| | Net weight/unit (kg) | - | 1.5 | 1.8 | 2.0 | - |
| Linc Can™ | Pieces / unit | - | 197 | 127 | 79 | - |
| | Net weight/unit (kg) | - | 4.4 | 4.5 | 5.4 | - |

Identification Imprint: 309L-17 / LIMAROSTA 309 S Tip Color: sea green

Limarosta® 309S: rev. C-EN25-01/02/16

All information in this data sheet is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.eu for any updated information.
Fumes: Safety Data Sheets (SDS) are available on our website.

Limarosta[®] 309S

EXAMPLES OF MATERIALS TO BE WELDED

| Steel grades | EN 10088-1/-2 | Mat. Nr | ASTM/ACI A240/A312/A351 | UNS |
|---------------------------------------|---------------|---------|----------------------------|--------|
| Corrosion resistant cladsteels | | | | |
| | X2CrNi18-10 | 1.4311 | (TP)304LN | S30453 |
| | X2CrNi19-11 | 1.4306 | (TP)304L | S30403 |
| | | | CF-3 | J92500 |
| | X4CrNi18-10 | 1.4301 | (TP)304 | S30400 |

Dissimilar metals (mild and low alloy steel to CrNi or CrNiMo stainless steel)
Build-up welding on mild and low alloy steel
Bufferlayer CrNi-cladsteel

SMAW

CALCULATION DATA

| Sizes Diam. x length (mm) | Current range (A) | Current type | Arc time | Energy | Dep. rate | Weight/ 1000 pcs (kg) | Electrodes/ kg weldmetal B | kg electrodes/ kg weldmetal 1/N |
|---------------------------------|----------------------|-----------------|---|--------|-----------|-----------------------------|----------------------------------|---------------------------------------|
| | | | - per electrode at max. current - (S)* | E(kJ) | H(kg/h) | | | |
| 2.0 x 300 | 35-55 | DC+ | 38 | 49 | 0.66 | 11.3 | 142 | 1.59 |
| 2.5 x 350 | 45-80 | DC+ | 48 | 95 | 0.99 | 22.1 | 77 | 1.69 |
| 3.2 x 350 | 80-115 | DC+ | 56 | 160 | 1.4 | 35.1 | 46 | 1.59 |
| 4.0 x 350 | 100-155 | DC+ | 76 | 317 | 2.0 | 69.9 | 23 | 1.64 |
| 5.0 x 350 | 150-220 | DC+ | 84 | 575 | 2.9 | 108.0 | 15 | 1.59 |

*Stub end 35mm

WELDING PARAMETERS, OPTIMUM FILL PASSES

| Diameter (mm) | Welding positions | | | | | |
|------------------|-------------------|-------|-------|---------|-------|---------|
| | PA/1G | PB/2F | PC/2G | PF/3Gup | PE/4G | PH/5Gup |
| 2.0 | | 45A | 45A | 40A | 40A | 40A |
| 2.5 | 70A | 70A | 70A | 60A | 60A | 60A |
| 3.2 | 100A | 100A | 100A | 70A | 70A | 70A |
| 4.0 | 140A | 140A | 140A | | | |
| 5.0 | 180A | 180A | | | | |