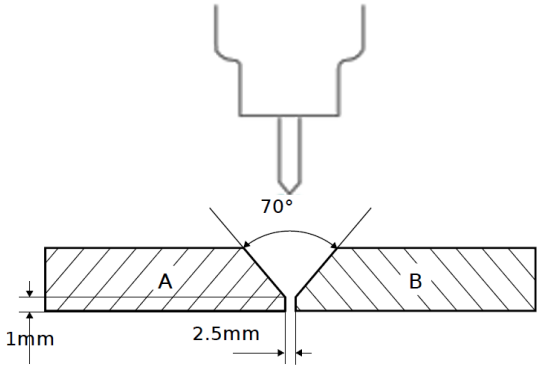
# The test weld, that is closest to the selected simulation, is this *Root weld in a multi pass V joint in 15 mm plate thickness*

| Base material | Thickness mm | Joint | Joint preparation | Welding process | Filler metal | Shielding gas | Backing gas |
|---|---|---|---|---|---|---|---|
| SDX 2507 EN 1.4410 | 15 | V | Joint angle 70° Face 1 mm Gap 2.5 mm | GTAW (TIG) | 25 9 4 NL Ø1,2 mm (root) | Ar+2%$N_2$ | Nitrogen |

Joint preparation

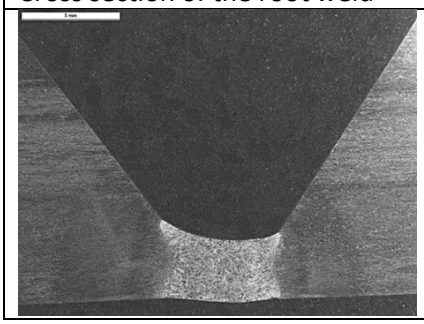



The joint angle was 70° (bevel angles 35°) and the root face was 1 mm. The root gap was 2.5 mm. Electrode diameter was 2.4 mm

The test weld was the root weld performed in 4 passes. Welding position PA. To fill the weld Submerged arc welding was used (5 passes).

| | Welding current A | Voltage V | Heat input kJ/mm | Wire feed speed m/min | Welding speed cm/min | Pass number |
|---|---|---|---|---|---|---|
| Root | 90 | 9.5 | 0.67 | | 4.6 | 1 |
| Root | 180 | 9.8 | 0.46 | | 13.8 | 2-4 |

Cross section of the root weld



## Measured ferrite fraction in the weld (the rest is assumed to be austenite), and the ferrite fraction more in detail in different regions of the weld, are shown in the table below. The fraction is measured using image analysis.

The ferrite fraction is an average value based on several measurements using image analysis in each location and the standard deviation in average values were around 5%.

| Heat input kJ/mm | Weld | Top of the weld | Middle of the weld | Bottom of the weld |
|---|---|---|---|---|
| 0.5-0.7 | 40% | 42% | 37% | 35% |

Note, the fraction ferrite is measured after reheating the root by subsequent SAW filling passes

The content of nitrides and secondary austenite was very low, and no sigma phase was present in the root weld.