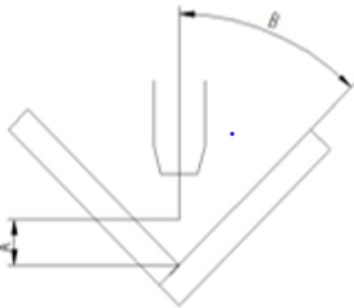


The test weld, that is closest to the selected simulation, is this *Single pass (fillet weld) in an inside corner joint in 13 mm plate thickness*

Base material	Thickness mm	Joint	Joint preparation	Welding process	Filler metal	Shielding gas	Backing gas
SDX 2507 EN1.4410	13	L	None	GMAW (MAG)	25 9 4 NL Solid wire Ø1.2 mm	MISON 2 He*	Nitrogen

*MISON 2 He (Ar+30%He+2%CO₂+0.03%NO)

Joint preparation

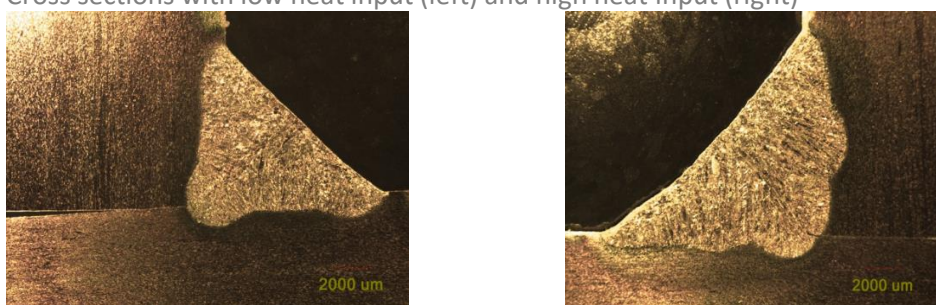


The stick-out length for the low heat input weld was 13-15 mm and for the high heat input weld 15-17 mm. B was 45°

The test welds were performed as a fillet welds in an inside corner and was intended to correspond to complete single pass welds.
The welds were performed with pulsed arc. Welding position PA.

Welding current A	Voltage V	Heat input kJ/mm	Wire feed speed m/min	Welding speed cm/min	Number of passes
197	24.5	0.9	8	30	1
209	28	1.7	8.6	18	1

Cross sections with low heat input (left) and high heat input (right)



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 4%.

Heat input kJ/mm	Weld	Top of the weld	Middle of the weld	Bottom of the weld
0.9	55%	58%	55%	52%
1.7	52%	52%	51%	52%

The ferrite content was a few percent higher close to the fusion boundary (within about 1 mm).

For the high heat input weld, no nitrides were found. Possibly, traces of sigma phase were seen.