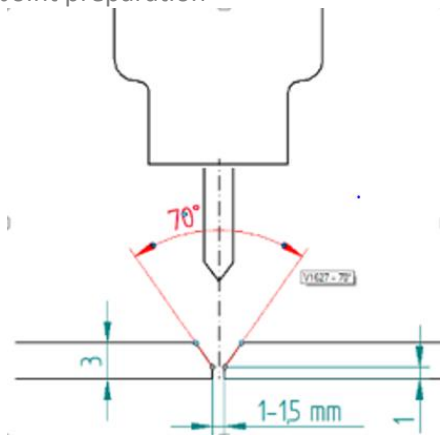
The test weld, that is closest to the selected simulation, is this *Single pass V joint in 3 mm sheet thickness*

Base material	Thickness mm	Joint	Joint preparation	Welding process	Filler metal	Shielding gas	Backing gas
SDX 2507 EN1.4410	3	V	Joint angle 70° Face 1 mm Gap 1-1.5 mm	GTAW (TIG)	25 9 4 NL Ø1.2mm	MISON N2*	Nitrogen

MISON N2* (Ar+30%He+1.8%N_2+0.03%NO)

Joint preparation

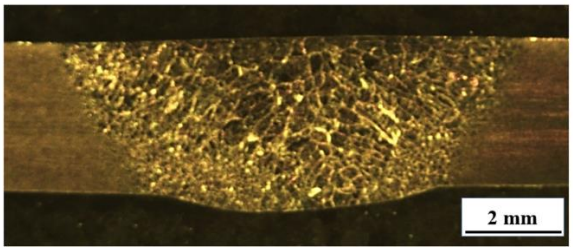


The joint angle was 70° (bevel angles 35°) and the root face was 1 mm. The root gap was 1-1.5 mm.

The test weld was intended as a complete single pass weld.
Welding position PA.

Welding current A	Voltage V	Heat input kJ/mm	Wire feed speed m/min	Welding speed cm/min	Number of passes
138	11	0.46	0.8	12	1

Cross section of the 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
0.46	63%	63%	64%	62%

Measured ferrite fraction in the HAZ	
Very close to the fusion line	61%
About 0.4 mm from the fusion line	56%

Nitrides precipitated in the middle of ferrite grains in weld metal and in the HAZ very close to the fusion line. Possibly traces of chi and sigma phase in some regions of the weld zone.