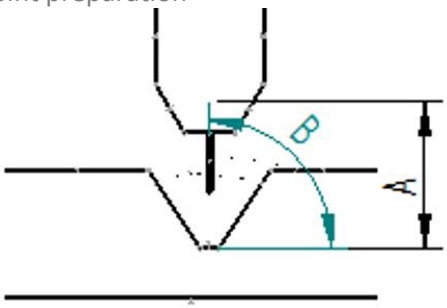
The test weld, that is closest to the selected simulation, is this *Fill pass in a V joint in 15 mm plate thickness*

Base material	Thickness mm	Joint	Joint preparation	Welding process	Filler metal	Shielding gas	Backing gas
LDX 2101 EN1.4162	15	V	Milled V-groove.	GMAW (MAG)	25 9 4 NL Solid wire Ø1.2 mm	MISON 2He*	-

*MISON 2He (Ar+30&He+2%CO_2+0.03%NO)

Joint preparation

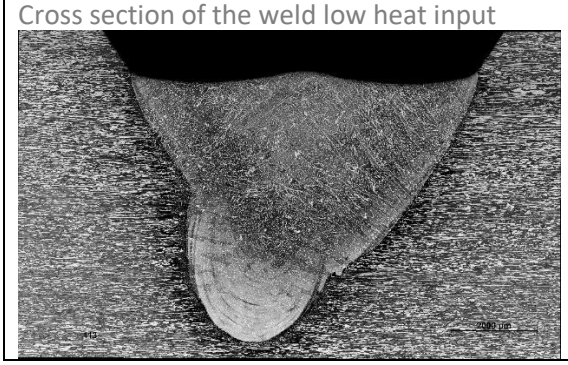


The joint angle was 70° (bevel angles 35°), depth of the groove 8 mm and the width of the bottom of the groove was 2 mm wide. B was 90°.

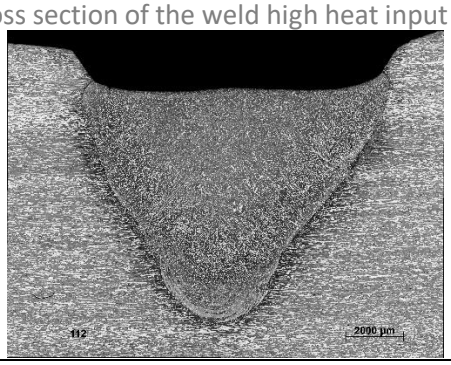
The test weld, performed as bead-on-plate weld in a milled V-groove, was intended correspond to the first fill pass in a multi pass weld.
Welding position PA.

Welding current A	Voltage V	Heat input kJ/mm	Wire feed speed m/min	Welding speed cm/min	Number of passes
188	23.2	0.64	6	33	1
222	26.1	1.03	7	27	1

Cross section of the weld low heat input



Cross section of the weld high heat input



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 1-7%.

Heat input kJ/mm	Weld	Top of the weld	Middle of the weld	Bottom of the weld
0.64	65%	64%	67%	67%
1.03	62%	60%	64%	62%

Measured ferrite fraction in the HAZ	
Very close to the fusion line	71-72%
About 0.4 mm from the fusion line	57-65%

No analysis of nitrides or sigma phase was done in this weld.