

# SANDVIK 25.10.4.L WELDING WIRE

## DATENBLATT

Sandvik 25.10.4.L welding wire has been specially developed for welding Sandvik SAF 2507 and other super-duplex steels.

### STANDARDS

- ISO 14343: 25 9 4 N L
- AWS A5.9/ASME SFA-5.9: ER2594
- W.Nr.: (1.4410)\*

### Product Approvals

- CE
- DNV
- TÜV

\* nearest equivalent

Please note that the Werkstoff Nr. corresponds to the base material of the grade.

### CHEMICAL COMPOSITION (NOMINAL) %

#### Chemical composition (nominal) %

C	Si	Mn	P	S	Cr	Ni	Mo	N
≤0.020	0.3	0.4	≤0.020	≤0.015	25	9.5	4	0.25

### APPLICATIONS

Sandvik 25.10.4.L is used for welding of Sandvik SAF 2507 and other super-duplex steels. The grade is characterized by excellent resistance to stress corrosion in chloride-bearing environments and excellent resistance to pitting and crevice corrosion.

Sandvik 25.10.4.L can also be used for welding Sandvik SAF 2205 and corresponding duplex steels when the highest possible corrosion resistance is required.

### FORMS OF SUPPLY

Sandvik 25.10.4.L is supplied as wire and straight rod.

### WELD METAL CHARACTERISTICS

Sandvik 25.10.4.L gives an austenitic-ferritic (duplex) microstructure with approximately 40 FN, calculated from the WRC-92 diagram

### Chemical composition - all-weld metal

The following data is typical for non heat treated weld metal made by SAW and flux 15W.

## Chemical composition, wt%

C	Si	Mn	P	S	Cr	Ni	Mo	N
≤0.020	0.6	0.3	≤0.020	≤0.015	24.5	9.6	4	0.21

## MECHANICAL PROPERTIES

### TIG – typical for non-heat treated weld metal

Temperature	°C (°F)	20 (68)	-40 (-40)	-46 (-51)	-50 (-58)
Yield strength, R <sub>P0.2</sub>	MPa (ksi)	650 (94)	-	-	-
Tensile strength, R <sub>m</sub>	MPa (ksi)	850 (123)	-	-	-
Elongation, A	%	25	-	-	-
Impact strength, Charpy V	J (ft lbs)	210 (155)	170 (125)	150 (111)	140 (103)

### SAW – typical for non-heat treated weld metal

Temperature	°C (°F)	20 (68)	-40 (-40)
Yield strength, R <sub>P0.2</sub>	MPa (ksi)	690 (100)	-
Tensile strength, R <sub>m</sub>	MPa (ksi)	880 (128)	-
Elongation, A	%	25	-
Impact strength, Charpy V	J (ft lbs)	90 (66)	60 (44)

## CORROSION RESISTANCE

Sandvik 25.10.4.L has a high resistance to intergranular corrosion and pitting. The grade passes the ASTM G48A test at 40°C (105°F). The filler also has good resistance to stress corrosion cracking, especially in environments containing H<sub>2</sub>S or chlorides.

## FABRICATION

### Recommended welding data

#### MIG welding

Electrode positive is used to give good penetration in all types of welded joint. The following table shows common conditions for MIG welding.

Wire diameter	Wire feed	Current	Voltage	Gas
mm (in.)	m/min	A	V	l/min (CFH)
Short-arc welding				
0.8 (0.031)	4-8 (157-315)	40-120	15-19	12 (25)
1.0 (0.039)	4-8 (157-315)	60-140	15-21	12 (25)
Spray-arc welding				
1.0 (0.039)	6-12 (236-472)	140-220	23-28	18 (38)
1.2 (0.047)	5-9 (197-354)	180-260	24-29	18 (38)
1.6 (0.063)	3-5 (118-197)	230-350	25-30	18 (38)
Pulsed-arc welding <sup>1)</sup>				
1.2 (0.047)	3-10 (118-394)	150-250	23-31	18 (38)

<sup>1)</sup>Pulse parameters: Peak current 300 - 400 A  
Background current 50 - 150 A  
Frequency 80 - 120 Hz

Sandvik can provide recommendations for shielding gases.

Short-arc welding is used with light gauge material of less than about 3 mm, in depositing root runs, and in welding out-of-flat positions.

The higher the inductance in short-arc welding, the higher the fluidity of the molten pool.

Spray-arc welding is normally used for heavier gauge material.

### TIG welding

The parameters for TIG welding depend largely upon the base metal thickness and the welding application.

Electrode negative and a shielding gas of argon + 2-3 % N<sub>2</sub> should be used.

### Submerged-arc welding

Electrode positive is suggested for joint welding to give good penetration.

Wire diameter	Current	Voltage
mm (in.)	A	V
2.0 (0.079)	200-300	28-32
2.4 (0.094)	250-450	28-32
3.2 (0.126)	300-500	29-34

Recommended flux is Sandvik 15W.

### Recommended thermal data

The interpass temperature should be kept below 150°C (302°F) and the heat input between 0.2 and 1.5 kJ/mm

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