



# Sandvik 27.31.4.LCu

## (Welding wire)

Sandvik 27.31.4.LCu is a filler material for welding of high-alloy austenitic stainless steels of UNS S08028 (e.g. Sanicro 28) type. It is also suitable for joining Alloy 825 (e.g. Sanicro 41) and other similar materials. Sandvik 27.31.4.LCu is available as wire and rods.

### STANDARDS

- AWS ER383
- EN number 27 31 4 Cu L

### Product standards

- EN ISO 14343
- ASME/AWS SFA5.9

### Approvals

CE, TÜV.

### CHEMICAL COMPOSITION - FILLER METAL

#### CHEMICAL COMPOSITION, WT%

C	Si	Mn	P	S	Cr	Ni	Mo	Cu
≤0.020	≤0.2	1.7	≤0.015	≤0.010	27.0	31.0	3.5	1.0

### CHEMICAL COMPOSITION - ALL-WELD METAL

The following data is typical for non heat treated all-weld metal made by MIG, TIG or plasma-arc welding with argon shielding gas.

#### CHEMICAL COMPOSITION, WT%

C	Si	Mn	P	S	Cr	Ni	Mo	Cu
≤0.020	0.15	1.7	≤0.015	≤0.010	27	31	3.5	1.0

### MICROSTRUCTURE - ALL-WELD METAL

Fully austenitic

### MECHANICAL PROPERTIES - ALL-WELD METAL

Temperature	°C	20
Yield strength, R <sub>p0.2</sub>	MPa	360
Tensile strength, R <sub>m</sub>	MPa	540
Elongation, A	%	35
Reduction in area, Z	%	65
Hardness, Vickers	HV	160

### PHYSICAL PROPERTIES - ALL-WELD METAL

Temperature, °C	20	100	300	500
Thermal conductivity, W/m	11	13	16	17
Thermal expansion per °C, from 20°C to 400°C	17×10 <sup>-6</sup>			
Density, g/cm <sup>3</sup> , at 20°C	7.9			

### CORROSION RESISTANCE - ALL-WELD METAL

Sandvik 27.31.4.LCu is a development of the Ni/Fe/Cr/Mo alloys with superior resistance to corrosion, due to the addition of molybdenum and copper. It has high resistance to general corrosion, particularly in contaminated technical phosphoric acid. It has also very good resistance to intergranular corrosion and stress corrosion cracking. For example in 50% sulphuric acid at 80 °C for 1+3+3 days, the corrosion rate is about 0.23 mm/year.

## 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, mm	Wire feed, m/min	Current, A	Voltage, V	Gas, l/min
<b>Short-arc welding</b>				
0.8	5-9	50-140	16-25	15
1.0	5-9	70-160	16-25	15
<b>Spray-arc welding</b>				
1.0	6-12	150-230	26-31	22
1.2	5-9	170-280	27-32	22
<b>Pulsed-arc welding<sup>1)</sup></b>				
1.2	3-10	150-250	23-31	18

<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 for thin 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 or helium should be used to prevent oxidation of the weld metal.

### Submerged-arc welding

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

Wire diameter, mm	Current, A	Voltage, V
2.0	200-300	28-32
2.4	250-400	28-32
3.2	300-450	29-34

Recommended welding flux is [Sandvik 15W](#).

#### DISCLAIMER:

Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.