

# SANDVIK 19.13.4.L WELDING WIRE

## DATASHEET

Sandvik 19.13.4.L is suitable for joining stainless CrNiMo steels e.g. 317L or similar.

### STANDARDS

- ISO 14343A: 19 13 4 L
- AWS A5.9/ASME SFA-5.9: ER317L
- W.Nr.: (1.4438)\*

\* 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	Co	Cu	N
<0.020	0.4	1.8	<0.015	<0.015	19	13.5	3.6	<0.20	<0.10	<0.060

### APPLICATIONS

Sandvik 19.13.4.L is suitable for joining stainless CrNiMo steels e.g. 317L or similar. It is used for MIG/MAG-, TIG-, plasma-arc and submerged-arc welding.

### FORMS OF SUPPLY

Sandvik 19.13.4.L is supplied as wire and straight rods.

### WELD METAL CHARACTERISTICS

Sandvik 19.13.4.L gives a microstructure with austenitic matrix and a ferrite content of about 9-10FN according to the DeLong diagram.

### MECHANICAL PROPERTIES

MIG TIG – typical for non-heat treated weld metal

Temperature	°C (°F)	20 (68)	400 (752)
Yield strength, R <sub>P0.2</sub>	MPa (ksi)	380 (55)	290 (42)
Tensile strength, R <sub>m</sub>	MPa (ksi)	600 (87)	460 (67)
Elongation, A <sub>5</sub>	%	42	28
Reduction in area, Z	%	70	-
Impact strength, Charpy V	J (ft lbs)	140 (103)	-
Hardness, Vickers	HV	160	-

## CORROSION RESISTANCE

Sandvik 19.13.4L has, due to the high molybdenum content, good resistance to corrosion in most inorganic and organic acids. The weld metal has good resistance to pitting corrosion in chloride containing solutions. The resistance to intergranular corrosion is also good due to the low carbon content.

## FABRICATION

### 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
Short-arc welding				
0.8	4-8	40-120	15-19	12
1.0	4-8	60-140	15-21	12
Spray-arc welding				
1.0	6-12	140-220	23-28	18
1.2	5-9	180-260	24-29	18
1.6	3-5	230-350	25-30	18
Pulsed-arc welding <sup>1)</sup>				
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 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 or helium should be used to prevent oxidation of the weld metal.

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.