



# SANDVIK 19.9.NbSi WELDING WIRE

## DATASHEET

Sandvik 19.9.NbSi is a filler metal mainly suited for MIG welding of stainless steels of the 18Cr/8Ni/Nb and 18Cr/8Ni/Ti types.

### STANDARDS

- ISO 14343: 19 9 Nb Si
- AWS A5.9/ASME SFA-5.9: ER347Si
- W.Nr.: 1.4551

### Product Approvals

- CE
- DB
- TÜV

Certificates of approval, including Declaration of Performance, can be found in the Materials Center, Welding materials - approvals.

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
0.04	1.0	1.3	<0.025	<0.015	19.5	10	<0.3	<0.2	<0.2	<0.050

Nb>12xC<0.75

### PRODUCT APPROVALS

- CE
- DB
- TÜV

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### APPLICATIONS

Sandvik 19.9.NbSi is particularly suited for MIG welding. It can also be used for TIG and plasma arc welding. It is suitable for joining stainless steels of the 18Cr/8Ni/Nb and 18Cr/8Ni/Ti types. Due to the strengthening effect of niobium, this grade is recommended if the weld metal is exposed to temperatures above 400°C (750°F).

## FORMS OF SUPPLY

Sandvik 19.9.NbSi is supplied as wire and straight rods

## WELD METAL CHARACTERISTICS

Sandvik 19.9.NbSi gives an austenitic microstructure with approximately 8-9FN according to the WRC-92 diagram.

## MECHANICAL PROPERTIES

MIG TIG – typical for non heat treated weld metal

Temperature	°C (°F)	20 (68)	400 (752)	-196 (-321)
Yield strength, R <sub>P0.2</sub>	MPa (ksi)	400 (58)	320 (46)	-
Tensile strength, R <sub>M</sub>	MPa (ksi)	610 (88)	470 (68)	-
Elongation, A <sub>5</sub>	%	35	23	-
Reduction in area, Z	%	61	50	-
Impact strength, Charpy V	J (ft lbs)	110 (81)	-	60 (44)
Hardness, Vickers	HV	225	-	-

## CORROSION RESISTANCE

Sandvik 19.9.NbSi has good resistance to general corrosion and due to its niobium content, good resistance to intercrystalline corrosion.

## 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, mm	Wire feed, m/min	Current, A	Voltage, V	Gas, l/min
Short-arc welding				
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
Pulsed-arc welding <sup>1)</sup>				
1.2	3-10	150-250	23-31	18

Sandvik can provide recommendations for shielding gases.

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.