

SANDVIK 25.20.L WELDING WIRE

DATASHEET

Sandvik 25.20.L is a filler wire for joining Sandvik 2RE10 (UNS S31002) and similar grades used in heavily oxidizing media such as pipes in preheaters, coolers and condensers in the chemical industry. Sandvik 25.20.L can be used for gas-shielded arc and gas-tungsten arc welding.

STANDARDS

- AWS Similar to ER 310 low carbon
- EN Number Z 25 20 L

CHEMICAL COMPOSITION - FILLER METAL

Chemical composition, wt%

C	Si	Mn	P	S	Cr	Ni	Mo	Co	Cu
≤0.020	0.2	1.8	≤0.020	≤0.015	24	20	≤0.30	≤0.20	≤0.10

CHEMICAL COMPOSITION - ALL-WELD METAL

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

Chemical composition, wt%

C	Si	Mn	P	S	Cr	Ni
≤0.020	0.2	1.6	≤0.020	≤0.015	24	20

MICROSTRUCTURE - ALL-WELD METAL

Fully austenitic matrix.

MECHANICAL PROPERTIES - ALL-WELD METAL

Temperature	°C	20	-196
Yield strength, R _{p0.2}	MPa	380	-
Tensile strength, R _m	MPa	590	-
Elongation, A	%	37	-
Reduction in area, Z	%	57	-
Impact strength, Charpy V	J	-	150
Hardness, Vickers	HV	170	-

PHYSICAL PROPERTIES - ALL-WELD METAL

Temperature, °C	20	100	300	400
Thermal conductivity, W/m	14	15	17	19

Temperature, °C	20	100	300	400
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Thermal expansion per °C, from 20°C (68°F) to 400°C (750°F) 16.7×10^{-6}

Density, g/cm³, at 20°C (68°F) 8.0

CORROSION RESISTANCE - ALL-WELD METAL

Sandvik 25.20.L has very good resistance to intergranular corrosion, pitting and stress corrosion cracking due to its high chromium and nickel contents. As an example, the mean value corrosion rate in a Huey test for MIG weld metal (5 x 48 hours in boiling 65% HNO₃) after 1 h sensitization at 675°C (1245 °F), is 0.35 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	V Gas, l/min
Short-arc welding				
0.8	4-9	70-140	16-25	15
1.0	4-9	80-160	13-25	15
Spray-arc welding				
1.0	6-12	150-230	24-31	22
1.2	5-9	170-280	25-32	22
1.6	3-5	250-370	29-33	22
Pulsed-arc welding¹⁾				
1.2	3-10	150-250	23-31	18

¹⁾ 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.

Submerged-arc welding

Because of the fully austenitic structure Sandvik 25.20.L is not recommended for SAW welding. Instead [Sandvik 25.22.2.LMn](#) is recommended which is more resistance to hot cracking, due to its higher content of Manganese.

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.

