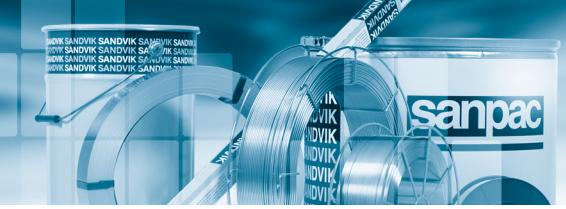

SANDVIK

Datasheet updated 2012-08-02 19:21:49 (supersedes all previous editions)

Sandvik 22.8.3.LSi

(Welding wire)

Sandvik 22.8.3.LSi is a duplex stainless filler metal designed for gas shielded arc welding and particularily MIG welding of duplex stainless steels, such as Sandvik SAF 2205 and Sandvik SAF 2304. Its corrosion resistance is equal to 904L in most applications. It combines high strength with excellent ductility. Sandvik 22.8.3.LSi can also be used for joining Sandvik SAF 2205 or Sandvik SAF 2304 to carbon steel or low-alloy steels.

STANDARDS

- AWS ER2209
- EN number 22 9 3 N L Si

Product standards

- EN ISO 14343
- ASME/AWS SFA5.9

Approvals

CE, TÜV

CHEMICAL COMPOSITION - FILLER METAL

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	N
0.020	0.8	1.6	0.025	0.015	23	9	3.2	0.16

CHEMICAL COMPOSITION - ALL-WELD METAL

The data above are typical for non heat treated all-weld metal made by MIG welding with a shielding gas of Ar + 2%O_2.

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	N
0.020	0.8	1.2	0.025	0.015	22.5	9	3	0.13

MICROSTRUCTURE - ALL-WELD METAL

Austenitic-ferritic (duplex) microstructure with approximately 50FN, calculated from the WRC 92 diagram.

MECHANICAL PROPERTIES - ALL-WELD METAL

MIG AND TIG

Temperature	° C	20	-40
Yield strength, $R_{P0.2}$	MPa	600	-
Tensile strength, R_m	MPa	750	-
Elongation, A	%	25	-
Impact strength, Charpy V	J	130	110
Hardness, Vickers	HV	240	-

PHYSICAL PROPERTIES - ALL-WELD METAL

Thermal conductivity, W/m°C, at 20°C	16
Thermal expansion per °C, from 20° to 400°C	14.5×10^{-6}
Density, g/cm^3, at 20°C	7.9

CORROSION RESISTANCE - ALL-WELD METAL

Sandvik 22.8.3.LSi is resistant to intergranular and pitting corrosion. It also has good resistance to stress corrosion cracking, especially in environments containing H_2S.

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				
0.8	4-8	40-120	16-20	12
1.0	4-8	60-140	16-22	12
Spray-arc welding				
1.0	6-12	140-220	24-29	18
1.2	5-9	180-260	25-30	18
1.6	3-5	230-350	25-30	18
Pulsed-arc welding[1)]				
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.

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.