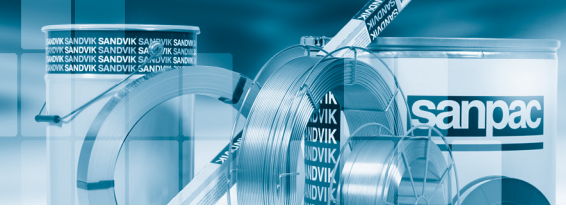

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Sandvik 25.10.4.L

(Welding wire)

Sandvik 25.10.4.L welding wire has been specially developed for welding Sandvik SAF 2507 and other super-duplex steels. The grade is characterized by excellent resistance to stress corrosion in chloride-bearing environments and excellent resistance to pitting and crevice corrosion.

Sandvik 25.10.4.L can also be used for welding Sandvik SAF 2205 and corresponding duplex steels when the highest possible corrosion resistance is required.

STANDARDS

- AWS ER2594
- EN number 25 9 4 N L

Product standards
- EN ISO 14343
- ASME/AWS SFA5.9

Approvals
CE, DNV, TÜV

CHEMICAL COMPOSITION - FILLER METAL

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	N
0.020	0.3	0.4	0.020	0.015	25	9.5	4	0.24

CHEMICAL COMPOSITION - ALL-WELD METAL

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

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	N
0.020	0.3	0.4	0.020	0.015	25	9.5	4	0.21

The following data is typical for non heat treated weld metal made by SAW and flux 15W.

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	N
0.020	0.6	0.3	0.020	0.015	24.5	9.6	4	0.21

MICROSTRUCTURE - ALL-WELD METAL

Austenitic-ferritic (duplex) microstructure with approximately 40 FN calculated from the WRC-92 diagram.

MECHANICAL PROPERTIES - ALL-WELD METAL)

TIG

Temperature	°C	20	-40
Yield strength, $R_{p0.2}$	MPa	650	-
Tensile strength, R_m	MPa	850	-
Elongation, A	%	25	-
Impact strength, Charpy V	J	135	110

SAW

Temperature	°C	20	-40
Yield strength, $R_{p0.2}$	MPa	690	-
Tensile strength, R_m	MPa	880	-
Elongation, A	%	25	-
Impact strength, Charpy V	J	90	60

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 25.10.4.L has a high resistance to intergranular corrosion and pitting. Nominal CPT in the ASTM G48 test is 40°C (105 °F). The filler also has good resistance to stress corrosion cracking, especially in environments containing H_2S or chlorides.

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	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[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.

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

Wire diameter	Current	Voltage
mm	A	V
2.0	200-300	28-32
2.4	250-450	28-32
3.2	300-500	29-34

Recommended 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.