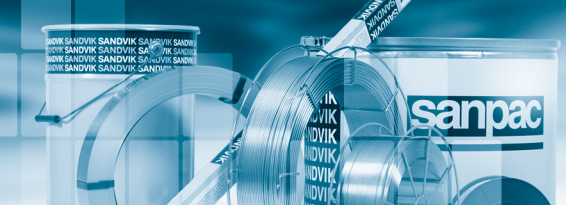

SANDVIK

Datasheet updated 2012-08-17 14:52:18 (supersedes all previous editions)

Sandvik 20.25.5.LCu

(Welding wire)

Sandvik 20.25.5.LCu welding wire is suitable for joining steels of the 20Cr/25Ni/4.5Mo/1.5Cu type - for example Sandvik 2RK65 used in many areas of the process industry, such as in the production of acetic acid, sulphuric acid, terephthalic or tartaric acid and vinyl chloride. It is also suitable for use in cooling operations involving sea water or heavily polluted river water.
This grade can be used for MIG, TIG, plasma-arc and submerged-arc welding.

STANDARDS

- AWS ER385
- EN number 20 25 5 Cu L

Products standards
- EN ISO 14343
- ASME/AWS A5.9

Approvals
CE, TÜV

CHEMICAL COMPOSITION - FILLER METAL

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	Cu
0.020	0.4	1.8	0.015	0.015	20	25	4.5	1.5

CHEMICAL COMPOSITION- ALL-WELD METAL

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

CHEMICAL COMPOSITION, WT%

C max	Si	Mn	P max	S max	Cr	Ni	Mo	Cu
0.020	0.4	1.5	0.015	0.015	19.5	25	4.5	1.5

MICROSTRUCTURE - ALL-WELD METAL

Fully austenitic matrix.

MECHANICAL PROPERTIES - ALL-WELD METAL

Temperature	°C	20	400	-196
Yield strength, $R_{P0.2}$	MPa	320	250	-
Tensile strength, R_m	MPa	540	410	-
Elongation, A	%	37	29	-
Reduction in area, Z	%	60	-	-
Impact strength, Charpy V	J	120	-	100
Hardness, Vickers	HV	160	-	-

PHYSICAL PROPERTIES - ALL-WELD METAL

Thermal conductivity, W/m°C, at 20°C	13
Thermal expansion per °C, from 20° to 400°C	$17x10^{-6}$
Density, g/cm^3, at 20°C	8.1

CORROSION RESISTANCE - ALL-WELD METAL

Sandvik 20.25.5.LCu shows very good resistance to stress corrosion cracking, intercrystalline corrosion and to attack in acidic, non-oxidizing environments, such as sulphuric, phosphoric and acetic acid.The resistance to pitting corrosion and crevice corrosion is significantly better than that of ordinary 18Cr/8Ni and 18Cr/8Ni/Mo steels.

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	5-9	50-140	16-25	15
1.0	5-9	70-160	16-25	15
Spray-arc welding				
1.0	6-12	150-230	26-31	22
1.2	5-9	170-280	27-32	22
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 for thin 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 mm	Current A	Voltage V
2.0	200-300	28-32
2.4	250-400	28-32
3.2	300-450	29-34

Recommended welding 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.