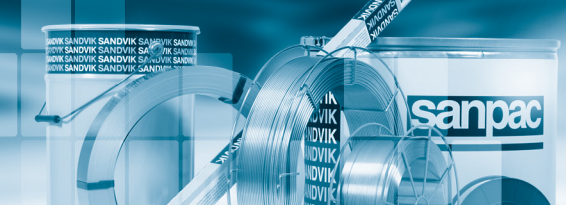

Datasheet updated 2012-08-02 19:33:32 (supersedes all previous editions)

Sandvik 19.12.3.Nb

(Welding wire)

Sandvik 19.12.3.Nb is a niobium stabilised filler metal suitable for joining stainless steels of the 18Cr/8Ni/Mo, 18Cr/8Ni/Mo/Ti and 18Cr/8Ni/Mo/Nb types. Due to the strengthening effect of niobium, this grade is recommended if the weld metal will be exposed to temperatures above 400°C (750°F).

STANDARDS

- AWS ER318
- EN number 19 12 3 Nb

STANDARDS

APPROVALS

Sandvik 19.12.3.Nb is, depending on welding process, approved by TÜV and UDT. Please contact your nearest sales office for full details.

CHEMICAL COMPOSITION (ALL-WELD METAL)

The following data are typical for non heat treated weld metal made by MIG welding with a shielding gas of Ar + 2%O2 and TIG or plasma arc welding with Argon as shielding gas.

CHEMICAL COMPOSITION, WT%

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	N
0.03	0.4	1.3	0.012	0.011	18	11	2.6	0.55	0.05

CHEMICAL COMPOSITION (NOMINAL) %

CHEMICAL COMPOSITION (AIM), WT%

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Co	Cu	N
0.04	0.4	1.5	<0.025	<0.015	18.5	11.5	2.6	>12xC <0.60	<0.20	<0.2	<0.060

Ferrite content
The ferrite number according to DeLong diagram based on aim composition = 10FN.

CORROSION PROPERTIES (ALL-WELD METAL)

saknas

FILLER METAL

CHEMICAL COMPOSITION (AIM), WT%

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Co	Cu	N
0.04	0.4	1.5	<0.025	<0.015	18.5	11.5	2.6	>12xC <0.60	<0.20	<0.2	<0.060

Ferrite content
The ferrite number according to DeLong diagram based on aim composition = 10FN.

MECHANICAL PROPERTIES (ALL-WELD METAL)

Temperature	°C	20	400	-196
Yield strength, $R_{P0.2}$	MPa	400	390	-
Tensile strength, R_m	MPa	610	540	-
Elongation, A_5	%	36	30	-
Reduction in area, Z	%	59	-	-
Impact strength, Charpy V	J	135	-	60
Hardness, Vickers	HV	220	-	-
Temperature	°C	600	700	
Creep strength 5×10^4 h	MPa		155	45

MICROSTRUCTURE (ALL-WELD METAL)

Austenitic matrix with a ferrite content of about 10FN according to DeLong.

PHYSICAL PROPERTIES (ALL-WELD METAL)

Temperature °C	20	100	300	500
Thermal conductivity, W/m	15	15	21	23

Thermal expansion per °C, from 20°C to 400°C 18×10^{-6}
Density, g/cm^3 8,0

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.