

Welding wire

Sandvik

Sanweld® AXT



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General description

Sanweld® AXT is a modified version of AWS ER307. The all weld metal is in most cases fully austenitic. Fully austenitic alloys can be susceptible to hot cracking. The occurrence of fissuring/cracking is greatly reduced by increasing the manganese level and in recognition of this, the manganese is extended beyond AWS ER307. Applications for this alloy are joining of work hardenable steels, armor plate, austenitic stainless manganese steels. Also can be used for stainless Cr Steels with max 18% Cr, such as in the automotive and transportation industry, overlay welding of carbon and low -alloyed steels.

Standards

Sandvik Sanweld® AXT
EN: 18 8 Mn

AWS: Non Spec Modification of AWS ER307 (higher manganese)
Product Standards
EN ISO 14343 EN 18 8 Mn

Filler metal

Chemical composition (aim), wt%

C	Si	Mn	P	S	Cr	Ni	Mo	Co	Cu	N
0.08	0.9	7.0	<0.025	<0.015	18	8	<0.3	<0.5	<0.10	<0.060

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.

Chemical composition, wt%

C	Si	Mn	P	S	Cr	Ni	N
0.07	0.8	6	0.010	0.009	18	8	0.05

Microstructure - all-weld metal

Fully austenitic matrix.

Mechanical properties - weld metal

Temperature	Deg C	20
Yield strength, $R_{p0.2}$	ksi	67
Tensile strength, R_M	ksi	94
Elongation, A_5	%	41
Reduction in area, Z	%	61
Impact strength, Charpy V	ft• lbf	103
Hardness, Vickers	HV	200

Physical properties - weld metal

Temperature, Deg C	20	100	300	500
Thermal conductivity, W/m deg C	15	16	18	20

Corrosion properties - weld metal

Sandvik 18.8.Mn has corrosion resistance similar to that of the of the corresponding parent metal. For joints between non alloyed or low alloyed steels and stainless steels resistance to corrosion is of secondary importance.

Approvals

CE, DB, TÜV
CWB

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, in/min	Current, A	Voltage, V	Gas, CFH
Short-arc welding				
0.035	150-300	40-120	14-18	25
0.039	150-300	60-140	15-21	25
Spray-arc welding				
0.039	225-450	140-220	23-28	35
0.045	200-350	180-260	23-28	35
0.063	115-200	230-350	24-29	35
Pulsed-arc welding ¹⁾				
0.045	115-400	150-250	23-31	35

¹⁾ Pulse Parameters:
 Peak Current 300-400 A
 Background Current 50-150 A
 Frequency 80-120 Hz

Recommended shielding gases: Ar+O₂, Ar+2%CO₂, Ar+He+CO₂

Short-arc welding is used light gauge material of less than about 1/8 inch, 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 welding with TIG are largely dependant upon the base metal thickness and welding application.

Electrode negative and an inert shielding gas of argon or helium should be used to prevent oxidation of the weld metal and destruction of the tungsten electrode.

Submerged-arc welding

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

Wire diameter, mm	Current, A	Voltage, V
0.078	200-300	28-32
0.093	250-400	28-32
0.125	300-450	29-34
0.156	350-500	30-35

Fluxes, Sandvik 34WF or 35WF.

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 data sheet is only valid for Sandvik material. Other material, covering the same international specifications, does not necessarily comply with the mechanical and corrosion properties presented in this datasheet.

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