

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
2205	1.4462	S32205	2377	318S13	Z3 CND 22-05 Az

* Obsolete national standards, replaced by EN 10088.

CHARACTERISTICS

AVESTA FCW E2209T1-1(PW) is designed for the welding of ferritic-austenitic (duplex) stainless steels such as Outokumpu 2205 (ASTM S31803/S32205) and similar. It can also be used when welding type SAF 2304™.

AVESTA FCW E2209T1-1(PW) provides a ferritic-austenitic weldment that combines many of the good properties of both ferritic and austenitic stainless steels. Due to the high content of both Cr and Mo a very good resistance to general and pitting corrosion is obtained. The duplex microstructure gives a high tensile strength and hereby also excellent resistance to stress corrosion cracking.

AVESTA FCW E2209T1-1(PW) is "over alloyed" with respect to nickel to ensure the right ferrite balance in the weld metal.

WELDING DIRECTIONS

AVESTA FCW E2209T1-1(PW) is primarily designed for welding in the vertical and overhead positions. Welding should be performed using direct current positive polarity (DC+). Compared to the MIG method, the range of welding current and voltage is considerably wider.

WELDING DATA

Ø inch	Horizontal		Vertical up		Overhead	
	A	V	A	V	A	V
0.045	150-240	24-32	130-160	23-28	150-200	24-29

For further recommendations, please contact Avesta Welding.

Shielding gas recommendations

Welding is preferably done using an Ar-based shielding gas with addition of 15-25%CO₂, which will give the best result with respect to arc stability, melt pool control and with a minimum of spatter. However, 100%CO₂ can also be used. In that case the welding voltage should be increased by 2-3 V to ensure the right arc length.

Gas flow rate is typically 20-25 l/min.

Standard designations

EN 12073 T 22 9 3 N L P M 2
AWS A5.22 E2209T1-1/4

Chemical composition - Typical values, %

C	0.03	Cr	23.0
Si	0.6	Ni	9.5
Mn	0.8	Mo	3.5
N	0.16		
Ferrite	45 FN WRC-92		

Mechanical properties – Typical values, IIW

	Typ. values	
Yield strength, Rp0,2	610 N/mm ²	88 ksi
Tensile strength, Rm	840 N/mm ²	122 ksi
Elongation, A5	28 %	28 %
Impact strength, KV +20°C	60 J	44 ft·lb
Hardness	240 Brinell	

Interpass temperature: Max. 300°F (150°C)

Heat input: 12.7-63.5kJ/in (0.5-2.5 kJ/mm)

Heat treatment: Generally none. In special cases quench annealing at 2012-2102°F (1100-1150°C).

Structure: Austenite with 45-55 % ferrite.

Scaling temperature: Approx. 1562°F (850°C) (air).

Corrosion resistance: Very good resistance to pitting and stress corrosion cracking in chlorine-containing environments.

Approvals: –