

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 23 12 L M M12 2	TS 309L-M M12 1	EC309L

Characteristics and typical fields of application

Austenitic metal-cored wire of T 23 12 L / EC309L type for welding dissimilar joints between high-alloyed Cr and corrosion resistant austenitic CrNi(Mo) steels and mild or low-alloyed steels. The easy handling and high deposition rate result in high productivity with excellent welding performance and very low spatter formation. The wire shows good wetting behavior and results in a smooth surface. The wide arc ensures even penetration and side-wall fusion to prevent lack of fusion. This makes the metal-cored wire less sensitive to edge misalignment and variation in gap width as compared to solid wires. Suitable for service temperatures from -120°C to 300°C .

Base materials

Primarily used for surfacing (buffer layer) unalloyed or low-alloyed steels and when joining non-molybdenum-alloyed stainless steels to carbon steels. Joints and mixed joints between austenitic steels, austenitic and ferritic heat resistant steels with ferritic steels, pressure boiler steels, fine grained structural steels and ship building steels, etc.

Typical analysis

	C	Si	Mn	Cr	Ni	FN
wt.-%	0.025	0.6	1.4	23.0	12.5	12 – 23

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact energy ISO-V KV J	
	MPa	MPa	%	20°C	-120°C
u	380 (≥ 320)	540 (≥ 520)	33 (≥ 30)	75	51 (≥ 32)

u untreated, as-welded – shielding gas M21 (Ar + 2.5% CO₂)

Operating data

	Polarity	DC +	Dimension mm
	Shielding gas (EN ISO 14175)	M21, (C1)	

Welding with conventional or pulsed power sources using DC+ polarity, but pulsed arc may be advantageous and especially when welding out of position. Forehand (pushing) technique preferred with a work angle of approximately 80° . Ar + 2 – 3% CO₂ as shielding gas offers the best weldability. The gas flow should be 15 – 20 l/min and the wire stick-out 15 – 20 mm. When welding out of position, the metal-cored wires are similar to solid wires and pulsed arc welding is recommended.

Approvals

CWB, CE