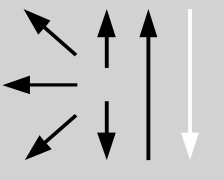


Classification						
EN ISO 17633-A		EN ISO 17633-B		AWS A5.22 / SFA-5.22		
T 23 12 L P M21 (C1) 1		TS 309L-F M21 (C1) 1		E309LT1-4(1)		
Characteristics and typical fields of application						
<p>Rutile flux-cored wire of T 23 12 L P / E309LT1 type for welding of dissimilar joints of Cr and CrNi(Mo)-steels and unalloyed or low-alloyed steels, as well as weld cladding of unalloyed or low-alloyed base metals. Ferrite measured with FeritScope FMP30 14 – 22 FN. The fast freezing slag offers excellent weldability and slag control in all positions. Easy handling and high deposition rate result in high productivity with excellent welding performance and very low spatter formation. Increased travel speeds as well as self-releasing slag with little demand for cleaning and pickling provide considerable savings in time and money. The wide arc ensures even penetration and sidewall fusion to prevent lack of fusion. Suitable for service temperatures from –60°C to 300°C. For flat and horizontal welding positions, BÖHLER CN 23/12-FD (FOXcore 309L-T0) or Avesta FCW-2D 309L (FOXcore 309L-T0 DG) may be preferred.</p>						
Base materials						
<p>Primarily used for surfacing (buffer layer) unalloyed or low-alloyed steels and when joining non-molybdenum-alloyed stainless steels to carbon steels, austenitic and heat resistant steels, etc.</p>						
Typical analysis of all-weld metal						Ferrite WRC 92
	C	Si	Mn	Cr	Ni	FN
wt.-%	0.03	0.7	1.4	23.0	12.5	12 – 23
Mechanical properties of all-weld metal – typical values (minimum values)						
Condition	Yield strength R _{p0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact work ISO-V KV J		
	MPa	MPa	%	20°C		–60°C
u	420 (≥ 320)	540 (≥ 520)	36 (≥ 30)	65		50 (≥ 32)
u untreated, as-welded – shielding gas Ar + 18% CO ₂						
Operating data						
	Ø mm	Wire feed m/min	Arc length mm	Current A	Voltage V	
	0.9	8.0 – 15.0	~ 3	100 – 160	22 – 27	
	1.2	6.0 – 13.0	~ 3	150 – 250	22 – 29	
	1.6	4.5 – 9.5	~ 3	200 – 360	23 – 28	
<p>Welding with standard GMAW power source with DC+ polarity. No pulsing needed. Backhand (drag) technique preferred with a work angle of approximately 80°. Ar + 15 – 25% CO₂ as shielding gas offers the best weldability. 100% CO₂ can be also used, but the voltage should be increased by 2 V. Suitable gas flow rate for welding outdoors is 18 – 25 l/min. The heat input should not exceed 2.0 kJ/mm, the interpass temperature be limited to max. 150°C and the wire stick-out 15 – 20 mm. For dissimilar welding, slight weaving is recommended for all welding positions. Post-weld heat treatment generally not needed, but depends on the base material being used. Preheat and interpass temperatures as required by the base material.</p>						
Approvals						
TÜV (09115), DB (43.014.22), DNV GL, LR, RINA (M21), BV (Ø 1.2 mm), ABS (M21), CE						