

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 19 12 3 L M M12 2	TS 316L-M M12 1	EC316L

Characteristics and typical fields of application

Austenitic metal-cored wire of T 19 12 3 L / EC316L type for welding matching and similar, stabilized or unstabilized, corrosion resistant austenitic CrNiMo-steels. 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 400°C . The scaling temperature is approximately 850°C in air. Ferrite measured with FeritScope MP30: 4 – 12 FN.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMoN17-12-3 1.4432 X2CrNiMo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4571 X6CrNiMoTi17-12-2 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12
UNS S31600, S31603, S31635, S31640, S31653
AISI 316L, 316Ti, 316Cb

Typical analysis

	C	Si	Mn	Cr	Ni	Mo	FN
wt.-%	0.025	0.6	1.4	18.8	12.2	2.7	3 – 12

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	420 (≥ 320)	560 (≥ 520)	35 (≥ 30)	65	40 (≥ 32)

u untreated, as-welded – shielding gas M12 (Ar + 2.5% CO₂)

Operating data

Polarity	DC +	Dimension mm
Shielding gas (EN ISO 14175)	M12	1.2

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

TÜV (09988), CWB, CE