

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22 / SFA-5.22
T 18 8 Mn M M12 1	TS Z307-M M12 1 (mod.)	EC307 (mod.)

Characteristics and typical fields of application

Austenitic metal-cored wire of T 18 8 Mn / EC307 type for numerous applications. The corrosion resistance is on par with T 19 9 L R / E308LT0. 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. This is for instance utilized for robotic welding of exhaust systems in the automotive industry. Good resistance to embrittlement when operating at service temperatures from -60°C up to 650°C . The weld metal is resistant to scaling up to 850°C , but at temperatures above 500°C there is not sufficient resistance to sulfurous combustion gases. Ferrite measured with Fischer Feritescope MP30: 2 – 7 FN.

Base materials

Dissimilar joints, tough buffer and intermediate layers prior to hardfacing, 14Mn steels, 13 – 17% Cr and heat resistant Cr and austenitic steels up to 850°C , armor plates, high carbon and quenched and tempered steels, surfacing of gears, valves, turbine blades, etc. For joint welding of unalloyed / low alloyed or Cr steels with high-alloyed Cr and CrNi steels. Welding of austenitic high manganese steels and with other steels.

Typical analysis

	C	Si	Mn	Cr	Ni	FN
wt.-%	0.10	0.6	6.3	18.8	9.2	2 – 7

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	-60°C
u	408 (≥ 350)	608 (≥ 590)	40 (≥ 30)	55	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
			1.6

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. Preheating and interpass temperature as required by the base metal.

Approvals

TÜV (10871), DB (43.014.27), CE