

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9
G 18 8 Mn	ER307(mod.)

Characteristics and typical fields of application

Solid wire of G 18 8 Mn / ER307 (mod.) type for joining and surfacing applications with heat resistant Cr-steels and heat resistant austenitic steels. Well-suited for fabricating dissimilar austenitic-ferritic joints for a max. application temperature of 300°C. For joining unalloyed / low-alloyed or Cr-steels to austenitic steels. Low heat input required in order to avoid brittle martensitic transition zones. Max. service temperature 850°C.

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
wt.-%	0.08	0.8	7.0	19	9.0

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	%	-60°C	-110°C
u	430 (≥370)	640 (≥600)	42 (≥35)	60 (≥ 47)	(≥32)

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

Operating data

	Polarity	DC+	Dimension mm
	Shielding gas (EN ISO 14175)	M1	0.8
		M2	0.9
		M31	1.0
			1.2
			1.6

Preheat, interpass temperature and post-weld heat treatment as required by the base metal. Thicker heat resistant Cr-steels can be preheated to 150 – 300°C. In case of post weld heat treatment of dissimilar joints, attention must be paid to resistance to intercrystalline corrosion and to susceptibility of the austenitic metal side to embrittlement. For dissimilar joining with unalloyed or low-alloy steels, no post weld heat treatment should be performed above 300°C due to the risk of carbide precipitation in the weld fusion zone causing loss of toughness.

Shielding gas: Ar + 2 – 3% CO₂ or Ar + 1 - 2% O₂

Approvals

TÜV (05651), DB (43.132.01), DNV, VG 95132-1, CE