

Classifications

EN ISO 3581-A	AWS A5.4	Mat. No.
E 20 10 3 R 3 2	E308Mo-17 (mod.)	1.4431

Characteristics and typical fields of application

Stainless; resistant to intercrystalline corrosion and wet corrosion up to 300 °C (572 °F). For joining of stainless Cr and similar austenitic CrNiMo steels/cast steel grades. For joining of dissimilar materials. For tough joints on high manganese steel (steel castings), CrNiMn steels/cast steel grades and armour steels.

For surfacing and repair welding on wear parts: rotors, rails. Especially suited for austenitic ferritic joints at max. application temperature 300 °C (572 °F).

Particularly for tough joints between unalloyed / low alloy steels / cast steel grades or stainless / heat resistant Cr steels/cast steel grades to austenitic steels/cast steel grades.

Unsuited for buffer layers on weld claddings or clad plates.

Base materials

TÜV certified parent metals

Combinations of stainless and cryogenic austenitic steels, such as 1.4583 – X10CrNiMo18-10 and ferritic steels up to boiler plates grade P295GH [17Mn4]; high tensile, unalloyed and alloyed structural, quenched and tempered, and armour steels, matching parent metal or in combination; unalloyed and alloyed boiler or structural steels with high alloyed Cr and CrNi steels; austenitic high manganese with matching and other steels.

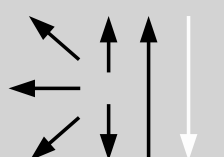
Typical analysis of all-weld metal (wt.-%)

	C	Si	Mn	Cr	Mo	Ni
wt-%	0.05	0.9	1.0	20.0	3.3	10.5

Structure: Austenite with increased amount of ferrite

Mechanical properties of all-weld metal

Heat-treatment	Yield strength R _{p0.2}	Yield strength R _{p1.0}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact work ISO-V KV J
	MPa	MPa	MPa	%	+20 °C
aw	400	450	650	25	50

Operating data				
	Polarity: DC (+) / AC	ø (mm)	L mm	Amps A
		2.5	300	50 – 80
		3.2	350	75 – 115
		4.0	350	110 – 160
		5.0	450	160 – 200
Welding instruction				
Materials		Preheating	Postweld heat treatment	
Stainless CrNi steels		None	None; if necessary solution annealing at 1050 °C (1922 °F)	
Stainless CrNi steels; unalloyed/low alloy structural steels of elevated strength (surfacing and repair welding)		According to parent metal mostly not necessary	No stress relieving (risk of carbide precipitation in weld fusion zone, loss of toughness, fracturing)	
Joining CrNi(MoN) austenitic to unalloyed / low alloy steels		According to parent metal mostly not necessary	Max. temperature 200 °C (392 °F) – carbide precipitation in weld fusion zone	
Joining CrNi(MoN) austenitic to stainless and heat resistant steels / cast steel grades		According to ferritic parent metal	According to parent metal. Attention must be paid to intercrystalline corrosion and susceptibility to embrittlement	
High manganese steel		None	As this steel becomes very brittle at 400 – 600 °C (752 – 1112 °F), weld as cold as possible. Cooling possibly with compressed air, or dip workpiece in water. No postweld heat treatment, quench if possible	
Approvals				
TÜV (01772), DB (30.132.10), LR, GL, CE				