

Classifications
AWS A5.28 / SFA-5.28

ER90S-B3

Characteristics and typical fields of application

GTAW rod for 2.25 % Cr 1 % Mo alloyed boiler, plate and tube steels as well as in oil refineries. Preferably used for base metal 10CrMo9-10 (ASTM A335 P22). Approved in long-term condition up to +600 °C service temperature. Also for similarly alloyed quenched and tempered steels as well as case hardening steels. The weld metal meets all prerequisites for reliable long term creep properties without embrittlement due to very low content of trace elements.

Base materials

High temperature steels and similar alloyed cast steels, similar alloyed case hardening steels

ASTMA 182 Gr. F22 Cl. 1+3 – K21590

ASTMA 213 Gr. T22 – K21590

ASTMA 234 Gr. WP22 Cl. 1+3 – K90941

ASTMA 335 Gr. P22 – K21590 – 1.7380 – 10CrMo9-10

ASTMA 217 Gr. WC9 – J21890 – 1.7379 – G17CrMo9-10

ASTMA 387 Gr. 22 – K21590

Typical analysis

	C	Si	Mn	Cr	Mo
wt.-%	0.09	0.55	0.60	2.55	1.05

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
s	540 (≥ 400)	620 (≥ 550)	20 (≥ 18)	80 (≥ 47)

a - annealed, 690 °C/1 h / 1275 °F /1 h - shielding gas Ar

Operating data

	Polarity	DC-	Dimension mm
	Shielding gas (EN ISO 14175)	I1 - I3	2.0 × 1000
	Rod marking	ER90S-B3	2.4 × 1000
			3.2 × 1000

Preheating and interpass temperature 200 – 350°C.

Tempering at 700 – 750°C at least 1 h followed by cooling down to 300°C and still air.

Approvals

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