

Classifications

EN ISO 3581-A	AWS A5.4 / SFA-5.4
E 23 12 Nb B 2 2	E309Nb-15

Characteristics and typical fields of application

Basic coated electrode of E 23 12 Nb B / E309Nb-15 type with controlled alloying elements to meet the metallurgical requirements of buffer layers. Increased niobium content to compensate dilution with carbon steel. Excellent welding properties, stable arc, well detaching slag without residuals. Normally used in combination with different corrosion resistant surfacing, depending on the base material also with an additional post-weld heat treatment. For service temperatures up to 400°C.

Base materials

For buffer layers on weldable unalloyed, high tensile, high temperature or alloyed base metals up to the fine-grained steel 1.8905 (P460N).

Also for creep resistant steels such as 1.5415 (16Mo3), 1.7335 (13CrMo4-5) and 1.7380 (10CrMo9-10), and creep resistant fine-grained steels such as 1.6751 (22NiMoCr3-7), 1.6310 (20MnMoNi5-5) and 1.6310 (GS-18NiMoCr3-7).

Typical analysis


	C	Si	Mn	Cr	Ni	Nb
wt.-%	0.03	0.4	1.0	24.2	12.5	0.85

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	-20°C
u	510 (≥ 350)	690 (≥ 550)	33 (≥ 25)	95	79

u untreated, as-welded

Operating data

	Polarity	DC+ FOX CN 24/13 Nb 309 Nb-15 E 23/12 Nb B	Dimension mm	Current A
	Electrode identification		3.2 × 350	95 – 115
			4.0 × 350	120 – 145

Stringer bead technique is recommended.

Preheating, interpass temperature and post-weld heat treatment determined by the base materials.

Approvals

TÜV (00141), CE