

Classifications

EN ISO 3581-A	EN ISO 3581-B	AWS A5.4
E 23 12 2 L R 3 2	ES2209-15	E2209-15

Characteristics and typical fields of application

Basic electrode, core wire alloyed, for welding of ferritic-austenitic duplex materials, e.g. 1.4462, UNS S31803. Besides the high tensile strength, the special advantage of the weld metal of this electrode is its very good toughness behaviour down to -60 °C . Furthermore the high crack resistance of the weld metal and the particularly good resistance to stress corrosion cracking and pitting behaviour are significant features. FOX CN 22/9 N-B is specially designed for the joining of thick-walled sections (e.g. $> 20\text{ mm}$) and rigid constructions as well as for applications where extra low service temperature requirements exist. The Pitting Resistance Equivalent (PRE_N) shows values of ≥ 35 in accordance with the formula ($\%Cr + 3.3\ \% Mo + 16\ \% N$). The pitting resistance according to ASTM G48 / method A shows good results. The electrode provides user friendly operating characteristics in all positions except vertical down with good slag removability and weld bead appearance. Additionally the filler metals offer high safety against the formation of porosity.

Base materials

Same-alloyed duplex steels, as well as similar-alloyed, ferritic-austenitic steels with higher tensile strength 1.4462 X2CrNiMoN22-5-3, 1.4362 X2CrNiN23-4, 1.4462 X2CrNiMoN22-5-3 together with 1.4583 X10CrNiMoNb18-12, 1.4462 X2CrNiMoN22-5-3 with P235GH/ P265GH, S255N, P295GH, S355N, 16Mo3
UNS S31803, S32205

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

	C	Si	Mn	Cr	Ni	Mo	N		PRE_N
wt-%	≤ 0.03	0.3	1.1	22.6	8.8	3.1	0.16		≥ 35

Mechanical properties of all-weld metal

Condition	Yield strength $R_{p0,2}$	Tensile strength R_m	Elongation A ($L_0=5d_0$)	Impact work ISO-V KV J			
	MPa	MPa	%	+20 °C	-20 °C	-40 °C	-60 °C
u	630 (≥ 450)	830 (≥ 690)	27 (≥ 20)	110	90	75	40 (≥ 32)

u untreated, as welded

Operating data

	Polarity:	Redrying if necessary:	Electrode identification:	\varnothing (mm)	L mm	Amps A
	DC (+)	250 – 300 °C, min. 2 h	FOX CN 22/9 N-B	2.5	350	50 – 75
			2209-15 E 22 9 3 N L B	3.2	350	80 – 110
				4.0	350	100 – 145
				5.0	450	140 – 180

For welding of root runs either GTAW with CN 22/9 N-IG or SMAW with FOX CN 22/9 N is applicable. Preheating and interpass temperature max. $+150\text{ °C}$. In case of solution annealing e.g. cast iron, an interpass temperature of 250 °C is acceptable. Heat input according to wall thickness.

Approvals

TÜV (7084.), CE