

CARBON STEEL ELECTRODE CLASSIFICATION

FOR SMAW (AWS A/SFA 5.1)

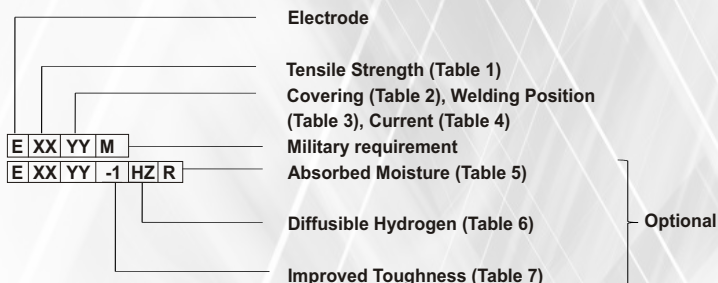


Table 1: Tensile Strength of undiluted weld metal

Code Digit	Tensile Strength min, psi (MPa)
60	60,000 (430)
70	70,000 (490)

Table 2: Electrode Covering Type

Code Digit	Covering Type
10	High cellulose sodium
11	High cellulose potassium
12	High titania sodium
13	High titania potassium
14	Iron powder titania
15	Low-hydrogen sodium
16	Low-hydrogen potassium
18	Low-hydrogen potassium, Iron powder
18M	Low-hydrogen Iron powder
19	Iron oxide titania potassium
20, 22	High iron oxide
24	Iron powder, titania
27	High iron oxide, iron powder
28, 48	Low-hydrogen potassium, Iron powder

Table 3: Welding Position

Code Digit	Welding Position
10 to 19	F, V, OH, H
20 to 28	F, H-fillet
48	F, OH, H, V-down

Table 4: Type of Current

Code Digit	Current
10, 15, 18M	DCEP
11, 16, 18, 28, 48	AC / DCEP
12, 20 (H-Fill), 22, 27 (H-Fill)	AC / DCEN
13, 14, 19, 20(F), 24, 27(F)	AC, DCEP / DCEN

Table 5: Absorbed Moisture in electrode coating

Code Digit	Limit of Moisture Content, % by W_t , max	
	As-Received or Conditioned	As-Exposed
R	0.3	0.4
For M	0.1	0.4

Table 6: Diffusible Hydrogen

Code Digit	Diffusible Hydrogen Content, average (ml/100g Deposited Metal) max
H4	4
H8	8
H16	16
For M	4

Table 7: Improved Toughness of Weld Metal

Code Digit	Charpy V-Notch Impact Requirement	
	Temperature (°C)	Average CVN Value (J) min
16 -1, 18 -1	-45	27
24 - 1	-20	27



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