TOKO®

TOKO SUBMERGE WELDING WIRE

EM12K DATA SHEET

TOKO ALLOYS EM12K
AWS CLASS EM12K
CODE AND SPECIFICATION DATA:
AWS A5.17 ASME SFA 5.17

DESCRIPTION:
TOKO Alloys EM12K is a copper coated solid wire for submerged arc welding with 1% Mn and 0.2% Si content to be used for the welding of carbon and C-Mn steels. Applications include beams, tanks, pressure vessel, and shipyards.

DIAMETERS: 5/64", 3/32", 1/8", 5/32", 3/16"

WELDING POSITIONS: Flat

TOKO ACLE ALLOYS EM12K WIRE CHEMICAL ANALYSIS (5/32" Diameter):

Carbon (C)	0.09
Manganese (Mn)	1.02
Phosphorous (P)	0.016
Silicon (Si)	0.20
Sulfur (S)	0.006

TYPICAL MECHANICAL PROPERTIES (EM12K + S-717 Flux)*:

	As Welded	PWHT 1 Hr. @ 1148°F (620°C)
Ultimate Tensile Strength (psi)	89,050 psi (614 MPa)	85,570 psi (590 MPa)
Yield Strength (psi)	80,550 psi (555 MPa)	71,500 psi (493 MPa)
Percent Elongation	29%	31.2%
CVN ($ft•lb_f$) @ -60°F (-51°C)	59 ft•lbs (80 Joules)	69 ft•lbs (94 Joules)

*Tested with TOKO SJ501 Flux

ALL WELD METAL CHEMICAL ANALYSIS (EM12K + S-717 Flux)*:

Carbon (C)	0.09
Manganese (Mn)	1.55
Phosphorous (P)	0.023
Silicon (Si)	0.40
Sulfur (S)	0.004

*Tested with TOKO SJ501 Flux

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DIFFUSIBLE HYDROGEN CONTENT:

WELDING CONDITIONS:

Wire	:	EM12K	Amps (A) / Volts (V)	:	625 / 30
Diameter	:	5/32”	Stick-Out	:	$1^{3}/_{16}$”
Flow Rate (ℓ/min)	:	-	Welding Speed	:	23.6 ipm
Welding Position	:	1G	Current Type & Polarity	:	DC (+)

RESULT (*mℓ* /100g Weld Metal):

X1	X2	X3	X4
6.40	6.35	6.05	6.24

Average Hydrogen Content : 6.26 *mℓ* /100g Weld Metal

NOTICE: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for the use in the field. The manufacturer disclaims any warranty of merchantability of fitness for any particular purpose with respect to its products.

CAUTION: Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standards A49.1, “Safety in Welding and Cutting,” published by the American Welding Society, 550 NW LeJune Road, Miami, FL 33126: OSHA Safety and Health Standards 29 CRF 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210.