

ER 70S-6

ER 70S-6 Carbon Steel

OVERVIEW ON THE MATERIAL

ER 70S-6 is a high-quality carbon steel commonly used in Wire & Arc Additive Manufacturing (WAAM) for applications requiring strong, durable, and ductile materials. The designation "ER" refers to Electrode or Rod, while "70" denotes a tensile strength of 70,000 psi. The "-6" indicates the presence of specific deoxidizers, including high levels of manganese and silicon, which improve weld quality by enhancing the deoxidation of the melt pool and increasing the fluidity of the deposition.

ER 70S-6 is valued for its versatility and reliable performance in general fabrication, construction, and repair work, as well as in industries demanding durable materials with good low-temperature toughness. Its balanced properties make it a dependable choice for a wide range of structural applications.



TECHNICAL DATA

Chemical composition

Element	C	Mn	Si	Fe
% (m/m)	0.10	1.70	1.00	Bal.

Physical properties

Measure	As built	Unit
Metallographic density	99.9	%
Melting Point	1482	°C

Mechanical properties - ASTM E8

Ultimate Tensile Strength	Z	580	MPa
Yield Strength 0.2	Z	480	MPa
Elongation at Break	Z	24	%

Hardness

Measure	As built	Unit
Hardness	180	HV10

Charpy Impact Energy - ASTM 23

Measure	-20 °C	-40 °C	Unit
Impact energy	60	47	KV ₈ (J)

Tests were performed on VIPRA XP

Issue 03/07/2024

Rev. 00

The information in the present document is correct to the best of our knowledge. Anyways, Caracol s.r.l. does not provide any explicit or implicit warranty about the accuracy of the results obtained by using this information.

The information and values included in these datasheets, although based on CARACOL's knowledge and testing campaign and thus presented in good faith and believed to be accurate, is provided for your guidance only. This information does not release a third party from conducting his own procedures and tests to determine suitability. We cannot forecast every condition where our information and our product will be used, our society doesn't guarantee applicability and fitness for a specificity use. All guarantees with respect to the information contained herein are explicitly denied. Material drying is recommended.