

ER70S-6 Bare

AWS A5.18 ER70S-6 | ASME SFA 5.18 ER70S-6



Description and Application

This 70S-6 Bare is a non-copper coated carbon steel that contains high-levels of manganese and silicon for stronger deoxidizing power while having excellent welding results at optimal control at high welding speeds and amperage found in robotic or automation. Found in structural carbon steel Pipeline/fitting, Automotive, Pressure vessel, and general fabrication of mild steels where poor fit-up, rust and oils may be present. 70S-6B yields excellent low fume, low spatter, reduced copper fumes and less heat built up in excess long liners

Typical Weld Chemistry (%)

	AWS Spec	Weld Wire
Carbon	0.06-0.15	0.06
Manganese	1.40-1.85	1.46
Silicon	0.80-1.15	0.86
Molybdenum	0.15 max	0.01
Nickel	0.15 max	0.01
Chromium	0.15 max	0.03
Copper	0.50 max	0.02
Phosphorus	0.025 max	0.011
Sulfur	0.035 max	0.005
Vanadium	0.03 max	0.002

Typical Weld Metal Properties

	AWS Spec	Weld Metal
Tensile Strength (psi)	70,000	82,935
Yield Strength (psi)	58,000	71,420
Elongation in 2"	22% min	28.1%
Charpy V-notch at -20°F	20 ft·lbs min.	116
Reduction of area	n/a	59%
Average Brinell Hardness	n/a	164



Available sizes:

MIG: .023, .035, .045

(other sizes may be available -please inquire)

TIG: 045

Typical GMAW Welding Procedures; DCEP(FLAT) short circuit

Wire diameter	Wire speed (ipm)	Amps	Volts	Travel speed (ipm)	Co ₂ (cfh)
0.023	70-350	30-85	14-19	10-15	20-25
0.030	80-350	40-135	15-20	12-24	20-25
0.035	100-520	65-245	16-25	11-41	25-35
0.045	70-285	90-260	18-23	12-22	25-35

Spray Transfer 85-90 Ar/10-15 CO₂

0.035	320-625	160-305	23-26	11-22	25-35
0.045	180-555	165-385	23-29	12-21	25-35
0.052	170-485	225-460	24-30	12-20	25-35

Spray Transfer 98-95 Ar/2-5 O₂

0.035	360-600	180-280	23-30	11-22	25-35
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Typical GTAW Welding Procedures; DCEN with EWTh-2 truncated conical tip

Filler wire	Tungsten	Amps	Volts	Gas cup size	Argon (cfh)	Base Thickness
1/16"	1/16"	100-175	10-12	3/8"	20	1/16-1/8"
3/32"	3/32"	120-255	10-12	3/8"	25	1/8-3/16"
1/8"	1/8"	200-425	10-12	1/2"	25	1/4-1/2"

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