

Crown ER 100S-1

Gas Metal Arc Welding
(GMAW) MIG Wire

Gas Tungsten Arc Welding
(GTAW) TIG Alloy

High Strength Alloy Steel



"The Royal Line"

CROWN ALLOYS COMPANY

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Copper Coated Low-Alloy High Strength Steel for MIG and TIG

Typical Applications

Crown ER 100S-1 will deposit high-strength, very tough weld metal for critical applications. Originally developed for MIG (GMAW) and TIG (GTAW) welding HY-80 steel for military applications (ships, tanks and submarines), **Crown ER 100S-1** is also used for a variety of structural applications where tensile strength requirements exceed 100,000 psi (690 Mpa), and excellent toughness is required to temperatures as low as -60°F (-50°C). **Crown ER 100S-1** is also excellent for welding on ASTM A514, A543, A724 and A782 quenched and tempered plate.

Specifications

AWS A 5.28
ER 100S-1

- Tensile Strength (minimum) 100,000 psi (690 MPa)
- Tensile Strength (typical) 105,000 psi (725 MPa)
- Yield Strength (minimum) 88,000 psi (610 MPa)
- Yield Strength (typical) 95,000 psi (655 MPa)
- Elongation in 2" 16%(minimum) 20%(typical)
- Charpy V-Notch (minimum) 50 ft.lbs. @ - 60°F
- Charpy V-Notch (typical) 65 ft.lbs. @ - 60°F

Procedure

Clean joint area thoroughly. Remove all fatigued metal. Bevel heavy sections. See **chart below** for specific MIG and TIG parameters.

(GMAW) MIG Welding Parameters

Short Circuit Transfer Welding

Use DC reverse polarity (DCEP)

Diameter	Shielding Gas	Welding Current (amps)	Arc Voltage (volts)	Travel Speed (ipm)	Wire Feed Speed (ipm)	Gas Flow (cfh)
.035	100% CO ₂	100 - 140	22 - 25	10 - 22	320 - 510	35 - 50
.045	75%Ar / 25%CO ₂	120 - 150	23 - 28	11 - 21	170 - 550	35 - 50

Spray Transfer Welding

Use DC reverse polarity (DCEP)

Diameter	Shielding Gas	Welding Current (amps)	Arc Voltage (volts)	Travel Speed (ipm)	Wire Feed Speed (ipm)	Gas Flow (cfh)
.035	98%Ar / 2%O ₂	160 - 250	28 - 32	10 - 22	320 - 510	35 - 50
.045	75%Ar / 25%CO ₂	170 - 250	29 - 34	11 - 21	170 - 550	35 - 50

(GTAW) TIG Welding Parameters

Use DC straight polarity (DCEN)

Diameter	Shielding Gas	Welding Current (amps)	Arc Voltage (volts)	Gas Flow (cfh)
3/32 x 36"	100% Argon	120 - 200	10 - 18	30 - 40
1/8 x 36"	100% Argon	150 - 230	12 - 20	30 - 40

All suggested settings are approximate. Inverter-based welders generally require less heat input (lower amps). Welds should be tested to comply to your specifications.

Sizes and Part Numbers

TIG Diameter	Part Numbers	
	1# Package	5# Package
3/32 x 36"	MTCR100/TN-BP	MTCR100/TN
1/8 x 36"	MTCR100/TO-BP	MTCR100/TO

MIG Diameter	Part Numbers		
	2 lb (4") Spools	8" Spools	33 lb Spools
.035	MS100/1F	MS100/2F	MS100/3F
.045	MS100/1G	MS100/2G	MS100/3G



!!!! WARNING !!!!



WELDING FUMES AND GASES CAN BE DANGEROUS TO YOUR HEALTH.

BEFORE USING THIS PRODUCT THE WELDER (END-USER) MUST READ AND UNDERSTAND THE COMPLETE PRODUCT WARNING LABEL AND THE NEW 16 SECTION SAFETY DATA SHEET (SDS).

THE SAFETY DATA SHEET (SDS) WHICH OUTLINES THE POTENTIAL HEALTH HAZARDS AND SAFETY INFORMATION RELATED TO THIS PRODUCT CAN BE DOWNLOADED FROM THE SDS PORTION OF THIS WEBSITE. IT IS ALSO AVAILABLE FROM YOUR EMPLOYER AND WELDING SUPPLY DISTRIBUTOR.

DO NOT PROCEED WITH USE OF THIS PRODUCT UNTIL YOU READ AND UNDERSTAND THE SAFETY DATA SHEET (SDS) AND PRODUCT WARNING STATEMENT.

BE SURE TO CONSULT THE LATEST VERSION OF THE SDS.

SEE THE PRODUCT WARNING LABEL AND SDS FOR COMPLETE WARNING INFORMATION.

