

Royal 11-10 & 11-30

Gas Tungsten Arc Welding
(GTAW) TIG Alloy

Gas Metal Arc Welding
(GMAW) MIG Wire

Nickel Alloy



"The Royal Line"

CROWN ALLOYS COMPANY

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Superior High Nickel TIG & MIG Alloy

Typical Applications

Royal 11-10 (TIG) and **Royal 11-30** (MIG) are used to weld wrought and cast forms of commercially pure nickel such as Nickel 200 and Nickel 201 to themselves or each other. The weld metal has excellent corrosion resistance, particularly in alkalis. Dissimilar welding applications for **Royal 11-10** and **Royal 11-30** include joining Nickel 200 and 201 to stainless steels, carbon steels, Inconel® alloys, copper-nickel alloys, and Monel® alloys. They are also used for joining Monel® alloys and copper-nickel alloys to carbon steels, and for joining copper-nickel alloys to Inconel® alloys. **Royal 11-10** and **Royal 11-30** is a versatile alloy that can also be used to overlay carbon steel and to repair cast iron castings. Be sure to preheat the cast iron to 350°F to avoid hard spots.

Specifications

AWS A5.14/A5.14M
ER Ni-1

Tensile Strength (typical) 65,000 psi
Yield Strength (typical) 37,000 psi
Elongation in 2" (typical) 27.0%

Procedure

Base metal must be clean. Nickel alloys become brittle if any sulfur or lead is absorbed into the weld deposit. These impurities are often found in lubricants, dirt, grease, oil, paint, and other processing residues. Use about 25% more opening than conventional joint openings to allow for the low penetrating and sluggish nature of the molten nickel. Prevent agitation and excessive heat from the weld puddle so as to avoid burning out the deoxidizing elements.

GTAW (TIG) Welding Parameters

DC straight polarity (DCEN) – Use a 2% thoriated tungsten (Th-2) Red Band – Maintain a short arc length - Use Argon Shielding Gas

Joint Thickness (inches)	Tungsten Diameter	Filler Rod Diameter	Arc Voltage (volts)	Welding Current (amperage)	Gas Flow (cfh)
.030 to 1/16	1/16	1/16	10 – 16	40 – 110	10-15
1/16 to 1/8	1/16 to 3/32	1/16 to 3/32	11 – 17	50 – 140	15
1/8 to ¼	3/32 to 1/8	3/32 to 1/8	12 – 19	70 – 170	15
¼ and up	3/32 to 1/8	3/32 to 1/8	12 – 19	100 – 210	20

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

GMAW (MIG) Welding Parameters

Short Circuit Transfer Welding

DC reverse polarity (DCEP) - Maintain a medium arc length - Use [90% Helium - 7½% Argon - 2½% CO₂] or [75% Ar – 25% Helium] shielding gas.

Joint Thickness (inches)	Wire Diameter (inches)	Welding Current (amperage)	Arc Voltage (volts)	Wire Feed Speed (ipm)	Gas Flow (cfh)
.050 – 3/16	.035	70 – 90	17 – 20	140 – 210	20-25
1/8 – 3/4	.045	80 – 160	19 – 22	170 – 230	20-25

Spray Transfer Welding

DC reverse polarity (DCEP) – Maintain a medium arc length - Use 100% Argon shielding gas.

1/8 – 5/8	.035	150 – 250	26 – 32	400 – 520	30 – 35
3/8 and UP	.045	190 – 290	28 – 33	250 – 350	30 – 35

Sizes and Part Numbers

TIG Diameter	Part Numbers	
	1# Package	5# Package
1/16 x 36"	RT1110/TL-BP	RT1110/TL
3/32 x 36"	RT1110/TN-BP	RT1110/TN
1/8 x 36"	RT1110/TO-BP	RT1110/TO

MIG Diameter	Part Numbers		
	2 lb (4") Spools	8" Spools	33 lb Spools
.035	RS1130/1F	RS1130/2F	RS1130/3F
.045	RS1130/1G	RS1130/2G	RS1130/3G



!!!! 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.

