

Royal 220-TIG

Gas Tungsten Arc Welding
(GTAW) TIG Wire

Alloy for MOST Steels



"The Royal Line"

CROWN ALLOYS COMPANY

30105 Stephenson Hwy, Madison Heights, MI 48071
(248) 588-3790 (800) 521-7878 www.crownalloys.com

Premium High Strength TIG Alloy for a Wide Variety of Steels

Typical Applications

Royal 220-TIG will produce the highest tensile and yield strength on over 50 different steels. These include dies, cast steels, tool steels, stainless steels, spring steels (including vanadium-moly spring steels), nickel clad steels, pressure vessels, dissimilar steels and many other difficult-to-weld steels. Weld deposits have superior crack-resistance even when welding jigs, molds, dies, leaf springs, earthmoving, mining, and construction equipment. **Royal 220-TIG** forms an extremely strong underlayment or pad prior to applying hard facing alloys. **Royal 220-TIG** weld deposits are machinable as welded and work harden during use.

Specifications

- Tensile Strength Up to 120,000 PSI (as welded)
Up to 180,000 PSI (after work hardening)
- Yield Strength Up to 90,000 PSI
- Elongation in 2" 25-32%
- Hardness 200 - 300 Brinell
(will not respond to heat treating)

Procedure

Clean weld area thoroughly. Bevel heavy sections. Use direct current electrode negative (DCEN). Argon is suggested for thickness up to approximately 1/2". For thicker sections, argon-helium mixtures or pure helium may be used for deeper penetration. Argon-hydrogen mixtures are occasionally used to improve bead shape and wetability. Preheat and inter-pass temperatures will depend on the grade of steel, if known. Unknown grades of steel should be nominally preheated within the 300°F to 500°F range as it will help eliminate cracking on high alloy steels and tool steels. Parts which have been preheated should be wrapped or covered to allow parts to cool as slowly as possible.

GTAW (TIG) Welding Parameters

Manual Welding – Direct Current Electrode Negative – Use a 2% thoriated tungsten (Th-2) Red Band – See above for recommended gas						
Metal Thickness	Joint Type	Tungsten Diameter	Filler Rod Diameter	Arc Voltage (volts)	Welding Current (amperage)	Gas Flow (cfh)
.035"	All	.020 to .040	.035	4 - 10	20 - 50	8-15
.045"	All	.040	.045	6 - 13	30 - 60	10-15
1/16"	Butt/Corner	1/16	1/16	9 - 16	50 - 70	15
1/16"	Lap/Fillet	1/16	1/16	10 - 16	60 - 80	15
1/8"	Butt/Corner	1/16 to 3/32	3/32	12 - 18	70 - 90	15
1/8"	Lap/Fillet	1/16 to 3/32	3/32	12 - 18	90 - 115	15
3/16"	Butt/Corner	3/32	1/8	14 - 20	105 - 130	20
3/16"	Lap/Fillet	3/32	1/8	14 - 20	130 - 160	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.

Sizes and Part Numbers

Size	Part Numbers	
	1# Package	5# Package
.035 x 36"	RT220/TF-BP	RT220/TF
.045 x 36"	RT220/TG-BP	RT220/TG
1/16 x 36"	RT220/TL-BP	RT220/TL
3/32 x 36"	RT220/TN-BP	RT220/TN
1/8 x 36"	RT220/TO-BP	RT220/TO



!!!! 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.

