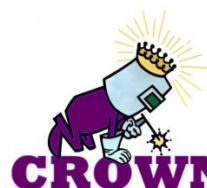


Royal 220-MIG

Gas Metal Arc Welding
(GMAW) MIG Wire

Alloy for MOST Steels

DCEP
All Position



"The Royal Line"

CROWN ALLOYS COMPANY

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Premium High Strength MIG Wire for a Wide Variety of Steels

Typical Applications

Royal 220-MIG 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, 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-MIG** forms an extremely strong underlayment or pad prior to applying hard facing alloys. **Royal 220-MIG** is also used for rebuilding shafts and blades used in the chemical, construction and mining industries. **Royal 220-MIG** weld deposits are machinable as welded and work harden during use.

There are at least two characteristics of **Royal 220-MIG** that make it the ultimate maintenance and repair wire:

1. It will weld many types of steels even if their composition is unknown!
2. It is capable of joining many difficult-to-weld steels to themselves AND to each other!

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. Preheat and interpass 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. Use stringer beads to minimize overheating and stress on the more difficult to weld metals. Peening will also help to relieve stress. Parts which have been preheated should be wrapped or covered to allow metal to cool slowly. More detailed welding procedures should be developed for specific base metals to confirm strength and corrosion requirements and weld mechanical properties. **See the below MIG (GMAW) welding parameters.**

- **Spray Transfer - (for metals over 3/32" thick)**

A 99% argon/1% oxygen gas mixture is predominantly used. This mixture improves arc stability and produces a more fluid and controllable weld puddle with good bead contour. Undercutting is minimized on heavier sections.

A 98% argon/2% oxygen mix provides better arc stability and welding speed than the 1% oxygen mixture for thinner steels.

Wire Diameter (inches)	Use DC reverse polarity (DCEP) electrode positive Settings based on 99% argon + 1% oxygen mix			Gas Flow (cfh)
	Welding Current (amperage)	Arc Voltage (volts)	Wire Feed Speed (ipm)	
.035	180 – 300	24 – 29	430 – 500	24 – 36
.045	200 – 450	24 – 30	220 – 400	24 – 36

- **Short Circuit Transfer - (for metals up to 3/32" thick)**

A 90% helium + 7.5% argon + 2.5% CO₂ (helium tri-mix) provides a small heat-affected zone with no under-cutting and minimum distortion. Another acceptable shielding gas mix for single-pass welds is 98% argon/2% CO₂, however, this mix produces a colder weld than the helium tri-mix and therefore the weld puddle does not wet out as well. Do NOT use more than 5% CO₂ in the gas mix. Too much CO₂ and/or multipass welds (with Ar/CO₂ blends) can result in oxidation.

Wire Diameter (inches)	Use DC reverse polarity (DCEP) electrode positive Settings based on 90% helium + 7.5% argon + 2.5% CO ₂ mix			Gas Flow (cfh)
	Welding Current (amperage)	Arc Voltage (volts)	Wire Feed Speed (ipm)	
.035	50 – 160	17 – 22	105 – 330	21 – 27
.045	80 – 180	17 – 22	90 – 190	21 – 27

Sizes and Part Numbers

Diameter	Part Numbers		
	2 lb (4") Spools	8" Spools	25 lb Spools
.035	RS220/1F	RS220/2F	RS220/3F
.045	RS220/1G	RS220/2G	RS220/3G



!!!! 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.

